Belfast Metropolitan Plan 2015

Habitats Regulations Assessment:

In accordance with The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (SR 1995 No. 380) (as amended)

Undertaken by:

The Department of the Environment
Northern Ireland
Summary

The Belfast Metropolitan Plan 2015 (BMAP) constitutes a land use plan as defined in The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995. This Regulation states that where a land use plan is likely to have a significant effect on a European site in Northern Ireland or a European offshore marine site, either alone or in combination with other plans or projects, the plan-making authority for that plan shall, before the plan is given effect, make an appropriate assessment of the implications for the site in view of that site’s conservation objectives. In light of the conclusions of the assessment the plan-making authority shall give effect to the land use plan only after having ascertained that it will not adversely affect the integrity of the European site. If there would be adverse effects the plan can only be given effect if there are no alternative solutions and there are exempting reasons of over-riding public interest.

BMAP was initially screened to assess which European or Ramsar Sites had the potential to be significantly impacted by the implementation of the Plan and which required further appropriate assessment (Test of Likely Significance).

Of the Northern Ireland sites identified as requiring appropriate assessment the process undertaken concluded that the evidence gathered and assessment undertaken enables us to conclude reasonably and objectively that the implementation of BMAP will not adversely affect key species and key habitats or the integrity (structure and function and conservation objectives) of:

Aughnadarragh Lough SAC;  
Ballykilbeg SAC;  
Eastern Mournes SAC;  
Hollymount SAC;  
Lecale Fens SAC;  
Murlough SAC;  
Rea’s Wood and Farr’s Bay SAC;  
The Maidens cSAC; and  
Turmennan SAC and Ramsar.

During the HRA process potential risks were identified in so far as they may be reasonably foreseeable, in light of such information as can reasonably be obtained. The appropriate assessment process identified that a number of mitigation measures were required to ensure that BMAP will not have any adverse effect on the integrity of the following European Sites: Antrim Hills SPA; Belfast Lough SPA; Belfast Lough Open Water SPA; Belfast Lough Ramsar; Copeland Islands SPA; Larnet Lough SPA / Ramsar; Lough Neagh and Lough Beg SPA / Ramsar; Montiaghs Moss SAC; Outer Ards SPA / Ramsar; and Strangford Lough SAC / SPA / Ramsar.

This included mitigation measures relating to: Aerial pollution; Cumulative impact of increased boating activity; Increased disturbance levels; Loss of suitable foraging / feeding / roosting habitat; Water quality; and Settlement Limits. Associated mitigation measures were incorporated into the framework of BMAP with the aim of preventing the identified risks from materialising. This included the addition of mitigation text within the Natural Environment section of the BMAP Plan Strategy and Framework and the
identification of consultation zones associated with a Hen Harrier foraging area and a Swan Field.

Taking the incorporated mitigation measures into account the evidence gathered and assessment undertaken enables us to conclude reasonably and objectively that the implementation of BMAP will not adversely affect key species and key habitats or the integrity (structure and function and conservation objectives) of:

Antrim Hills SPA;
Belfast Lough SPA; Belfast Lough Open Water SPA; Belfast Lough Ramsar;
Copeland Islands SPA;
Larne Lough SPA / Ramsar;
Lough Neagh and Lough Beg SPA / Ramsar;
Montiaghs Moss SAC;
Outer Ards SPA / Ramsar; and
Strangford Lough SAC / SPA / Ramsar

It has been ascertained that the BMAP plan would not adversely affect the key species and key habitats or the integrity (structure and function and conservation objectives) of any European site.
Introduction

Background and purpose

The Belfast Metropolitan Plan 2015 (BMAP) is a development plan as provided for in the Planning (NI) Order 1991. The plan constitutes a land use plan as defined in The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (SR 1995 No. 380) (as amended) (the Habitats Regulations).

The Habitats Directive (Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora) requires Special Areas of Conservation (SACs) to be designated for species other than birds, and for habitats. The Birds Directive (Council Directive 2009/147/EC on the conservation of wild birds) requires the establishment of Special Protection Areas (SPAs) for birds. Together, these SPAs and SACs make up the European network of protected areas. European Sites are on occasion also referred to as Natura 2000 sites.

BMAP is not directly connected with or necessary to the management of these European Sites. When such a land use plan is likely to have a significant effect on a European Site (either alone or in combination with other plans or projects) the Habitats Regulations require that the plan making authority shall, before the plan is adopted, make an appropriate assessment of the implications for European Sites in view of the sites conservation objectives. In light of the conclusions of the appropriate assessment the plan making authority shall adopt the plan only having ascertained that it will not adversely affect the integrity of European Sites.

Thus there was a requirement to screen BMAP to determine whether there were ‘likely significant effects’ on any European Site (Test of Likely Significance). If any likely significant effects were identified an Appropriate Assessment would be required. If during an Appropriate Assessment it is noted that the implementation of the Plan would adversely affect the integrity of a European Site, steps would need to be taken to identify appropriate mitigation measures to avoid the identified adverse effects. If the adverse effects cannot be avoided the plan could only be adopted if there are no alternative solutions and there are exempting reasons of over-riding public interest. These processes form the basis of a ‘Habitats Regulations Assessment’.

Paragraph 2.6 of Planning Policy Statement 2- Natural Heritage states that ‘As a matter of policy, the UK Government has chosen to apply the procedures under the Habitats Regulations in respect of Ramsar sites. This position is the stated policy within this PPS’.

Ramsar sites are wetlands of international importance, designated under the Convention of Wetlands of International Importance, especially as Waterfowl
Habitats (the Ramsar Convention 1971). The Convention’s mission is the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world.

This document presents the findings of the Habitat Regulations Assessment of BMAP.

The document contains the following sections:

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Aughnadarragh Lough SAC; Ballykilbeg SAC; Hollymount SAC; Lecale Fens SAC; and Turmennan SAC / Ramsar site. 35
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Description of the Belfast Metropolitan Area Plan 2015

The Belfast Metropolitan Area Plan 2015 is a development plan prepared under the provisions of Part III of the Planning (Northern Ireland) Order 1991 by the Department of the Environment (DOE). The Plan relates to the administrative Council Areas of Belfast City, Lisburn City, Carrickfergus Borough, Castlereagh Borough, Newtownabbey Borough and North Down Borough.

The plan area is approximately 960 square kilometers, with a population of 671,559 (Northern Ireland Census 2011), which represents approximately 37% of the total population of Northern Ireland. The area contains 86 settlements, including 6 small towns, 23 villages and 52 small settlements together with the open countryside.

The Plan will provide the broad land use planning framework for the Plan Area. It applies regional policies at the local level and is prepared in the context of the Regional Development Strategy.

The purpose of the Plan is to inform the general public, statutory authorities, developers and other interested bodies of the policy framework and land use proposals that will be used to guide the development decisions within the Plan Area over the Plan period.

The aim of the Plan is to provide a planning framework that is in conformity with the Regional Development Strategy in facilitating sustainable growth and a high quality of development in the Belfast Metropolitan Area throughout the Plan period, whilst protecting and, where appropriate, enhancing the natural and man-made environment of the Plan Area.

Within the Plan there are Designations, Policies, Allocations and Zonings covering the Belfast Metropolitan Plan Area. There are 13 broad Policy Groupings that make up the Strategic Plan Framework and there are individual District proposals (designations and zonings) for each of the six Districts.

<table>
<thead>
<tr>
<th>Policy Groupings</th>
<th>District Proposals</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Housing</td>
<td>15. Lisburn</td>
</tr>
<tr>
<td>4. Transportation</td>
<td>17. Castlereagh</td>
</tr>
<tr>
<td>5. Retailing</td>
<td>18. Newtownabbey</td>
</tr>
<tr>
<td>7. Urban Environment</td>
<td></td>
</tr>
<tr>
<td>8. Natural Environment</td>
<td></td>
</tr>
<tr>
<td>9. Countryside and Coast</td>
<td></td>
</tr>
<tr>
<td>10. Open Space, Sport and Outdoor</td>
<td></td>
</tr>
</tbody>
</table>
Physical changes that will take place during the implementation of the plan and associated resource requirements and waste arising

The physical changes that will flow from the Plan will include built development, for example:

- A total of approximately 1,951 hectares of land is allocated to be zoned and designated for housing.
- A total of approximately 103 hectares of land is allocated to be specifically zoned and designated for social housing.
- A total of 2,317 hectares of land is allocated to be zoned for employment.

The detailed location of these zonings can be viewed in the Plan.

Resources required to construct and operate the built developments arising from the implementation of the Plan will include; water abstraction, waste water treatment capacity, stone / aggregates, waste disposal, energy, machinery and manpower (not an exhaustive list).

Emissions and waste will include building materials, spoil (earth, stone etc) and potentially chemical emissions during the operational phase and domestic and industrial emissions during the lifetime of the Plan and beyond. Construction / operation / decommissioning will occur over the lifetime of the Plan and on a variety of sites.

Additional services required to implement the plan could include infrastructure requirements such as pipelines, overhead or underground electricity lines, waste water treatment works and water treatment works, waste disposal facilities, road or access arrangements. Many of these additional services would already be present for the plan area but in some instances upgrading or provision of new services may be required.

The precise quantities of resources required, timescales of activities, waste arising and additional services required will be dependent on the nature of specific project proposals arising during the lifetime of the plan.
Screening

Screening methodology
This section sets out the screening methodology utilized to:

- assess which European or Ramsar Sites had the potential to be significantly impacted by the implementation of BMAP and which required further appropriate assessment.
- assess which elements of BMAP had the potential to have a significant effect on European or Ramsar sites and which required further consideration during the appropriate assessment.

The screening methodology utilized the following stages:
1. Potential environmental effects resulting from activities arising from the implementation of BMAP were identified.
2. Potential in-combination / cumulative effects arising from other plans and their associated projects were identified.
3. European and Ramsar Sites which could potentially be impacted by the implementation of BMAP were identified.
4. Assessment for likely significant effects was undertaken on the identified European and Ramsar Sites in relation to potential effects resulting from activities arising from the implementation of BMAP and associated in-combination / cumulative impacts.
5. Assessment for likely significant effects was undertaken on the contents of BMAP to identify the elements of the plan that have the potential to have a significant effect on any of the identified European or Ramsar sites.

Stage 1: Potential environmental effects resulting from activities arising from the implementation of BMAP
This section of the report defines the potential environmental changes or impacts that various elements of the plan may have on European and Ramsar Sites including:

- Habitat or species loss / fragmentation / damage
- Disturbance (Physical, Noise, Lighting)
- Biological Disturbance (invasive species, human disturbance)
- Emissions by water and changes to hydrology
- Emissions by air
- Contamination of land
Table 1. Potential effects resulting from activities arising from the implementation of BMAP

<table>
<thead>
<tr>
<th>Potential Impacts</th>
<th>Activities arising from the implementation of BMAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss, fragmentation, damage of habitats and / or species:</td>
<td>Construction activities associated with BMAP could lead to the loss, fragmentation (or obstruction of movement) or damage of habitats and / or species through:</td>
</tr>
<tr>
<td></td>
<td>• direct land take and / or land clearance and the use of machinery/materials</td>
</tr>
<tr>
<td></td>
<td>• direct and indirect impacts resulting from the construction and operation of built development and required infrastructure</td>
</tr>
<tr>
<td></td>
<td>• impacts caused during repair and maintenance activities for built development and required infrastructure</td>
</tr>
<tr>
<td></td>
<td>• direct impacts associated with mineral development in the plan area.</td>
</tr>
<tr>
<td>Disturbance: physical, noise, lighting</td>
<td>• Removal, fragmentation or physical changes to important connectivity features could create barrier effects to species, alter habitat availability or ecological functioning or result in changes in breeding, roosting, commuting and foraging behaviour.</td>
</tr>
<tr>
<td></td>
<td>• Noise or activity during construction and operational activities could have adverse impacts on sensitive species (fish, birds, invertebrates etc).</td>
</tr>
<tr>
<td></td>
<td>• Increased lighting from construction or additional built development could: create barrier effects to species; result in changes in species breeding, roosting, commuting and foraging behaviour; or increase predation.</td>
</tr>
<tr>
<td>Biological Disturbance: invasive species, human disturbance</td>
<td>• Sensitive habitats and species may experience adverse impacts from the introduction of invasive species, non-native, competitive or predatory species through construction activities and associated machinery, movement of soils and waste or from garden escapes.</td>
</tr>
<tr>
<td></td>
<td>• Increased human activity (including recreation; increase in pet ownership; increased incidence in fires) close to sensitive habitats and species may cause disturbance that could impact negatively on these features and lead to displacement of sensitive species from certain locations.</td>
</tr>
</tbody>
</table>
### Emissions by water and changes to hydrology

- There is potential for an increased transport of chemical contaminants reaching the aquatic environment during the construction and operation of development associated with the BMAP. This could range from transportation fuels to cleaning or waste water treatment materials and associated drainage and discharges into watercourses. Changes to water quality can have harmful effects on fish, invertebrates, and vegetation, e.g. as a result of lowered oxygen levels.
- Surface run of and sediment release from construction works and operational activities associated with BMAP can increase sediment deposition and turbidity within aquatic systems. This can adversely impact on associated wildlife by causing shading effects that can inhibit plant and algal growth and smother organisms thereby limiting productivity and survival.
- Water abstraction from streams or lakes required for construction and operation of developments associated with BMAP could have physical impacts on water levels, fish species at intakes, affect populations of migratory fish or alter the configuration or availability of breeding gravels.
- Construction and operation of development associated with BMAP could alter the hydrology of sensitive habitats and species by either increasing or decreasing runoff or water percolation into aquifers.
- Increased demands on waste water treatment works or for septic tanks could lead to increased nutrient enrichment of waterbodies which could change water quality and increase eutrophication. This in turn could have a harmful effect on the ecological functioning of these systems.

### Emissions by air

- The construction and operation of developments associated with BMAP (in particular industrial developments) have the potential to generate chemical and dust emissions and could make a contribution to acid rain or nutrient deposition resulting in significant adverse impacts to animals and sensitive habitats for example they could cause localised smothering of vegetation or potential health issues in animals e.g. birds.
- Increased traffic generation could lead to increased air pollution and greenhouse gas emissions which
could have localized impacts on sensitive habitats or species.

<table>
<thead>
<tr>
<th>Contamination of land</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Waste arising from the operation of developments associated with BMAP could cause contamination of land which could have a direct detrimental impact on sensitive habitats or species or indirect impacts if subsequent emissions to water occur.</td>
</tr>
</tbody>
</table>

**Stage 2: Potential In-Combination / Cumulative effects arising from other plans and associated projects**

This section of the report identifies plans and associated projects that may result in cumulative effects with the implementation of BMAP and the potential environmental changes or impacts that the cumulative effects relate to:

**Table 2. Potential In-Combination Cumulative effects arising from other plans and associated projects.**

<table>
<thead>
<tr>
<th>Plans and associated Projects</th>
<th>Potential Effects / Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Development Plans and associated Projects:</strong></td>
<td>Potential In-Combination effects associated with:</td>
</tr>
<tr>
<td>Regional Development Strategy</td>
<td>• Additional Built Development;</td>
</tr>
<tr>
<td>Development Plans</td>
<td>• Additional Infrastructural Requirements</td>
</tr>
<tr>
<td>Antrim Area Plan 1984-2001;</td>
<td>Potential Impacts to European Sites</td>
</tr>
<tr>
<td>Ards and Down Area Plan 2015;</td>
<td>• Habitat loss / fragmentation</td>
</tr>
<tr>
<td>Armagh Area Plan 2004</td>
<td>• Disturbance (Physical, Noise, Lighting)</td>
</tr>
<tr>
<td>Ballymena Area Plan 1986-2002;</td>
<td>• Biological Disturbance (invasive species etc, human disturbance)</td>
</tr>
<tr>
<td>Ballymena Town Center Local Plan 1991-2002;</td>
<td>• Emissions by water and changes to hydrology</td>
</tr>
<tr>
<td>Banbridge Newry and Mourne Area Plan 2015;</td>
<td>• Emissions by air</td>
</tr>
<tr>
<td>Belfast Houses in Multiple Occupation (HMOs) Subject Plan for Belfast City Council Area 2015;</td>
<td>• Contamination of land</td>
</tr>
<tr>
<td>Craigavon Area Plan 2010;</td>
<td></td>
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<tr>
<td>Craigavon Town Centre Boundaries and Retail Designation Plan 2010;</td>
<td></td>
</tr>
<tr>
<td>Cookstown Area Plan 2010;</td>
<td></td>
</tr>
<tr>
<td>Dungannon and South Tyrone Area Plan 2010;</td>
<td></td>
</tr>
<tr>
<td>Larne Area Plan 2010;</td>
<td></td>
</tr>
<tr>
<td>Magherafelt Area Plan 2015;</td>
<td></td>
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<tr>
<td>Northern Area Plan 2016 (draft)</td>
<td></td>
</tr>
</tbody>
</table>
## A Planning Strategy for Rural Northern Ireland

### Planning Policy Statements
Current and draft PPS suite

### Infrastructure Plans

**Water Resource strategies, plans and schemes (including water abstraction Plans WWTW and WTW Plans):**


**Waste Management Plans:**

**Transport Plans:**
Regional Transport Strategy 2002-2012 Department of Regional Development; Draft Revised Regional Transport Strategy 2011, Department of Regional Development; Regional Strategic Transport Network Transport Plan 2015 (and associated initiatives), Department of Regional Development; Belfast Metropolitan Transport Plan 2002-2012, Department of Regional Development;

### Potential In-Combination effects associated with:
- Additional Built Development;
- Additional Resource Requirements
- Additional Infrastructural Requirements

### Potential Impacts to European Sites
- Habitat loss / fragmentation
- Disturbance (Physical, Noise, Lighting)
- Biological Disturbance (invasive species etc.)
- Emissions by water and changes to hydrology
- Emissions by air
- Contamination of land
**Energy Plans:**
Onshore Renewable Electricity Action Plan 2013-2020 (Department of Enterprise Trade and Investment);
Offshore Renewable Energy Action Plan 2012-2020 (Department of Enterprise Trade and Investment);

**Stage 3: European and Ramsar Sites which could potentially be impacted by the implementation of BMAP**

It was considered appropriate to undertake a ‘pre-screening’ exercise to identify a set of European and Ramsar sites that would undergo detailed HRA Screening as it was apparent that BMAP will not be likely to have a significant effect on the majority of sites throughout Europe due to its distance from these sites. The purpose of this pre-screening was therefore to identify sites that BMAP has a potential bearing upon. Consideration was given at the pre-screening stage to the potential for the implementation of the BMAP to have effects on European and Ramsar sites within other UK Regions and Ireland.

All European and Ramsar Sites that fell into at least one of the following categories were identified for detailed HRA screening in Table 3 below:

1. All or part of the European or Ramsar Site is within or directly adjacent to the BMAP plan area.
2. The European or Ramsar Site is ecologically connected* to the BMAP plan area.
3. The European or Ramsar Site is within 15km of the BMAP Plan area (potential for aerial pollution**).
4. The European or Ramsar Site is infrastructurally connected** with the BMAP Plan Area.

*Ecological connections included; linkages by ecological corridors such as river systems; hydrological links between land in the Plan area and peatland or wetland sites; known areas of land in the plan area which are regularly used by birds which also use a SPA; and sites that form part of the same coastal ecosystem or may be utilized by marine species that are mobile in the vicinity of the plan area.
**Infrastructural connectivity is related to the potential linkage of sites to the BMAP area by infrastructural services such as water abstraction or waste water discharges.

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1 Bealey et al. (2011) identified that in the UK, 10 and 15km are used as distances that require screening assessment of individual activities regulated under the Integrated Pollution Protection and Control Directive (2008/1/EC) due to the potential for aerial depositions.
Table 3. European and Ramsar Sites which could potentially be impacted by the implementation of BMAP.

<table>
<thead>
<tr>
<th>Site Name</th>
<th>Pre-screening categories*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Aughnadarragh Lough SAC</td>
<td>●</td>
</tr>
<tr>
<td>Antrim Hills SPA</td>
<td>●</td>
</tr>
<tr>
<td>Ballykilbeg SAC</td>
<td>●</td>
</tr>
<tr>
<td>Belfast Lough SPA</td>
<td>●</td>
</tr>
<tr>
<td>Belfast Lough Ramsar</td>
<td>●</td>
</tr>
<tr>
<td>Belfast Lough Open Water SPA</td>
<td>●</td>
</tr>
<tr>
<td>Copeland Islands SPA</td>
<td>●</td>
</tr>
<tr>
<td>Eastern Mournes SAC</td>
<td>●</td>
</tr>
<tr>
<td>Hollymount SAC</td>
<td>●</td>
</tr>
<tr>
<td>Larne Lough SPA and Ramsar2</td>
<td>●</td>
</tr>
<tr>
<td>Lecale Fens SAC</td>
<td>●</td>
</tr>
<tr>
<td>Lough Neagh and Lough Beg SPA</td>
<td>●</td>
</tr>
<tr>
<td>Lough Neagh and Lough Beg Ramsar</td>
<td>●</td>
</tr>
<tr>
<td>Montiaghls Moss SAC</td>
<td>●</td>
</tr>
<tr>
<td>Murlough SAC</td>
<td>●</td>
</tr>
<tr>
<td>Outer Ards SPA</td>
<td>●</td>
</tr>
<tr>
<td>Outer Ards Ramsar</td>
<td>●</td>
</tr>
<tr>
<td>Rea’s Wood and Farr’s Bay SAC</td>
<td>●</td>
</tr>
<tr>
<td>Strangford Lough SAC</td>
<td>●</td>
</tr>
<tr>
<td>Strangford Lough SPA</td>
<td>●</td>
</tr>
<tr>
<td>Strangford Lough Ramsar</td>
<td>●</td>
</tr>
<tr>
<td>The Maidens cSAC</td>
<td>●</td>
</tr>
<tr>
<td>Turmennan SAC</td>
<td>●</td>
</tr>
<tr>
<td>Turmennan Ramsar</td>
<td>●</td>
</tr>
</tbody>
</table>

* 1) Within or adjacent to BMAP; 2) Ecologically connected to BMAP; 3) Within 15km of BMAP; 4) Infrastructurally connected to BMAP.

On this basis, it is concluded that BMAP can be implemented without any Likely Significant Effects on European and Ramsar Sites that have not been identified in Table 3.

No European or Ramsar Site in other UK Regions or Ireland were identified as requiring detailed HRA screening due to the distance factor and their lack of connectivity to the BMAP area. Sites that were not identified in Table 3 have not been considered further in the BMAP HRA process.

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2 Larne Lough SPA includes the subsumed SPA of Swan Island which was subject to separate classification
Stage 4: Assessment of European or Ramsar Sites that are likely to be significantly affected.

The methodology to assess likely significant effects utilized the following steps:

- The interest features and conservation objectives of each European or Ramsar Site were identified.
- The potential for interest features to be significantly affected by the implementation of BMAP alone or in combination with other plans and projects was assessed.

The outcome of this process was a set of European Sites which had to be considered further under Appropriate Assessment.

Identifying interest features and conservation objectives of each European and Ramsar Site.

The following relevant information was collected for each European and Ramsar Site using the sources listed below:

<table>
<thead>
<tr>
<th>European site information</th>
<th>Information source</th>
</tr>
</thead>
</table>
| Site Description          | http://jncc.defra.gov.uk/default.aspx?page=4  
                            | http://www.doeni.gov.uk/niea/protected_areas_home |
| Interest Features         | http://jncc.defra.gov.uk/default.aspx?page=4 |
| Conservation Objectives   | Unpublished information from Northern Ireland Environment Agency:  
                            | Natural Heritage NIEA  
                            | Klondyke Building  
                            | Cromac Avenue  
                            | Malone Lower  
                            | Belfast  
                            | BT7 2JA |

The Joint Nature Conservation Committee (JNCC) acts on behalf of the statutory conservation agencies and associated government departments by collecting information on designated sites for nature conservation in the UK. They also co-ordinate with country agencies the submission of details on all potential European sites to the European Commission. The JNCC web-site contains the most recent officially submitted protected site boundaries for the UK. In addition GIS data relating to UK SACs, SPAs and Ramsar sites can be obtained from the JNCC website.
Much of this information can also be obtained from the Northern Ireland Environment Agency (NIEA) web-site. NIEA also holds the details of the Conservation Objectives of European Sites in Northern Ireland. The conservation objectives are not published documents but they can be obtained from NIEA on request. Ramsar Sites do not have conservation objectives. At the centre of the Ramsar philosophy is the “wise use” concept. The wise use of wetlands is defined as ‘the maintenance of their ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development’. For the purposes of this HRA we have used the maintenance of ecological character as a Conservation Objective for Ramsar Sites.

Republic of Ireland European Site boundaries and data can be obtained from DG Environment of the European Commission; and the National Parks and Wildlife Service: http://www.npws.ie/

Assessing the potential for likely significant impacts to European and Ramsar Sites due to the implementation of BMAP alone or in combination with other plans and their associated projects.

To identify the potential for likely significant effects a precautionary approach was utilized.

- If there was a potential for direct effects on habitats or species that are an interest feature of a European or Ramsar Site the potential for likely significant impacts was assumed and the site was automatically taken forward for Appropriate Assessment.
- If there was a pathway for indirect effects on habitats or species that are an interest feature of a European or Ramsar Site and it was assessed that there was a potential for likely significant impacts the site was taken forward for Appropriate Assessment.
- If there was a pathway for indirect effects on habitats or species that are an interest feature of a European or Ramsar Site and it was assessed that there was no potential for likely significant impacts a finding of no significant impacts statement was recorded.

The assessment of whether or not there was a potential for likely significant indirect impacts to European or Ramsar Sites resulting from the implementation of BMAP, alone or in combination with other plans and projects, was determined by factors such as:

- ecological connectivity and proximity of potential BMAP activity and impact pathways to habitat features or to the potential foraging or roosting/resting or breeding areas;
- infrastructural connectivity and the influence BMAP exerts on the infrastructural resource;
- the sensitivity of European interest features in relation to BMAP connectivity and activities; and
• the potential for in-combination / cumulative impacts arising from other plans or projects.

European or Ramsar Sites Screening Assessment Results

Sites where there was a potential for direct effects on habitats or species that are interest features of European or Ramsar Sites

Stage 3 of the screening assessment identified European and Ramsar Sites which could potentially be directly impacted by the implementation of BMAP based on whether or not part of the European or Ramsar Site is within or directly adjacent to the BMAP Plan area. This assessment identified the following European and Ramsar Sites as having the potential to be directly impacted by the implementation of BMAP.

• Belfast Lough SPA
• Belfast Lough Ramsar
• Belfast Lough Open Water SPA
• Larne Lough SPA
• Larne Lough Ramsar
• Lough Neagh and Lough Beg SPA
• Lough Neagh and Lough Beg Ramsar
• Outer Ards SPA
• Outer Ards Ramsar

Under the precautionary methodology utilized these sites were deemed to automatically require Appropriate Assessment due to the potential for direct impacts on these sites (note that during the Appropriate Assessment both direct and indirect impacts on these sites are considered).

Sites where there was a potential for indirect effects on habitats or species that are interest features of European or Ramsar Sites

Stage 3 of the screening assessment identified European and Ramsar Sites which could potentially be indirectly impacted by the implementation of BMAP, alone or in combination with other plans and projects.

The assessment for likely significant impacts (Stage 4) concluded that: The implementation of BMAP in combination with other plans had likely significant effects on the following European and Ramsar Sites which would require Appropriate Assessment:

• Antrim Hills SPA
• Aughnadarragh Lough SAC
• Ballykilbeg SAC
The Screening Assessment forms for these sites can be found in Appendix 2.

Sites where there was no potential for indirect effects on habitats or species that are interest features of European or Ramsar Sites.

Stage 3 of the Screening assessment identified European and Ramsar Sites which could potentially be indirectly impacted by the implementation of BMAP, alone or in combination with other plans and projects.

The assessment for likely significant impacts (Stage 4) did not identify any European and Ramsar Sites where there was no potential for indirect effects on habitats or species that are interest features as a result of the implementation of BMAP in combination with other plans. As a result ‘finding of no significant impacts statements’ were not required for any of the sites identified in stage 3 as all required further Appropriate Assessment.

Stage 5: Screening the Plan for its potential effects.
This purpose of this section of the report is to undertake a series of systematic steps to screen out elements of BMAP that are not likely to have a significant effect on a European or Ramsar site whilst ensuring that elements of the plan that are likely to have significant impacts are taken forward for consideration during the Appropriate Assessment. The methodology utilized has been predominantly based on the Scottish Natural Heritage (SNH) / Tyldesley and Associates (2012) Habitat Regulations Appraisal of Plans: Guidance for plan-making bodies in Scotland.

The methodology to assess likely significant effects utilized the following steps:  
Step 1. General policy statements were identified to be screened out.  
Step 2. Projects that are referred to in but are not proposed by the plan were identified to be screened out.  
Step 3. Aspects of the plan that could not have a likely significant effect were identified to be screened out
Step 4. Aspects of the plan to be screened out (identified in Steps 1 to 3) were reviewed to see if they were likely to have a significant effect in combination with other aspects of the same plan, or with other plans or projects. If likely significant in-combination effects were identified these aspects of the plan were taken forward for further consideration in the Appropriate Assessment.

Step 1. Identification of general policy statements.
It is considered that most general statements of policy or general political aspirations can be screened out of the appraisal because they are unlikely to have a significant effect on a site (SNH / Tyldesley and Associates 2012). The plan has 13 broad Policy Groupings that make up the Strategic Plan Framework. Each Policy Grouping contains a number of designations and planning policies. The purpose of this part of the screening process is to distinguish specific criteria based policies that require Appropriate Assessment from other aspects of the plan which do not need further appraisal and which can be screened out, such as general policy statements that set out a strategic aspiration and general criteria based policy that expresses the tests or expectations of the plan making body when it comes to particular proposals.

Step 2. Identification of projects that are referred to in the plan but are not proposed by it.
Development that is proposed by the plan itself should not be screened out at this stage. However, on occasion a Plan will identify specific potential projects or designations for information purposes only. Such projects are usually formally proposed by other plans or programmes and are likely to proceed under these other plans or programmes irrespective of whether BMAP is adopted. These projects are to be screened out unless there is a mechanism by which the principle of the project is to be established by BMAP.

It should be noted that the direct and indirect residual and in combination effects of the projects identified for information purposes and infrastructure projects which are an inevitable consequence of development provided for in BMAP have been considered throughout the methodology utilized in this Habitats Regulation Assessment.

Step 3. Screening out elements of the plan that could have no likely significant effects on a European or Ramsar site.
There are many reasons why a particular aspect of a plan would not be likely to have a significant effect on a European site. In line with the methodology described in SNH / Tyldesley and Associates (2012) this step identified and screened out aspects of the plan that:

- Step 3a: Are intended to protect the natural environment or to conserve or enhance the natural, built or historic environment, where enhancement measures will not be likely to have any negative effect on a European or Ramsar Site;
• Step 3b: Which will not themselves lead to development or other change;
• Step 3c: Which make provision for change but which could have no conceivable effect on a European site, because there is no link or pathway between them and the qualifying interests, or any effect would be a positive effect, or would not otherwise undermine the conservation objectives for the site;
• Step 3d: Which make provision for change but which could have no significant effect on a European site, because any potential effects would be trivial, or ‘de minimis’ or so restricted or remote from the site that they would not undermine the conservation objectives for the site;
• Step 3e: For which effects on any particular European site cannot be identified, because the proposal is too general, for example, it is not known where, when or how the proposal may be implemented, or where effects may occur, or which sites, if any, may be affected.

Step 4: In-combination effects
The potential for likely significant in-combination effects of policies and proposals in-combination with other aspects of the same plan or any other plans or programmes was considered.

Table 4. Aspects of BMAP which would not be likely to have a significant effect on a European or Ramsar site

<table>
<thead>
<tr>
<th>Step 1: General Policy Statements</th>
<th>Step 4: Likely Significant In-Combination effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Plan Strategies</td>
<td>No</td>
</tr>
<tr>
<td>BMA Settlement Strategy</td>
<td>No</td>
</tr>
<tr>
<td>Policy: Planning Strategy for Rural Northern Ireland</td>
<td>Yes</td>
</tr>
<tr>
<td>BMA Housing Strategy</td>
<td>Yes</td>
</tr>
<tr>
<td>Allocation Housing</td>
<td>Yes</td>
</tr>
<tr>
<td>Allocation Social Housing</td>
<td>Yes</td>
</tr>
<tr>
<td>BMA Employment Strategy</td>
<td>No</td>
</tr>
<tr>
<td>BMA Retail Strategy</td>
<td>No</td>
</tr>
<tr>
<td>Policy: Belfast City Centre</td>
<td>No</td>
</tr>
<tr>
<td>BMA Office Strategy</td>
<td>No</td>
</tr>
<tr>
<td>BMA Urban Environment Strategy</td>
<td>No</td>
</tr>
<tr>
<td>Policy: Security Grilles and Shutters</td>
<td>No</td>
</tr>
<tr>
<td>BMA Natural Environment Strategy</td>
<td>No</td>
</tr>
<tr>
<td>Policy: Protection of Biodiversity</td>
<td>No</td>
</tr>
<tr>
<td>BMA Countryside and Coast Strategy</td>
<td>No</td>
</tr>
<tr>
<td>Policy: Hydrocarbon Exploration</td>
<td>No</td>
</tr>
<tr>
<td>BMA Open Space, Sport and Outdoor Recreation Strategy</td>
<td>No</td>
</tr>
<tr>
<td>BMA Tourism Strategy</td>
<td>No</td>
</tr>
<tr>
<td>BMA Public Services and Utilities Strategy</td>
<td>No</td>
</tr>
</tbody>
</table>
### BMA Education, Health, Community and Cultural Facilities Strategy

### District Proposals
- Belfast City Strategy: No
- Belfast City Centre Strategy: No
- Belfast Harbour Area Strategy: Yes
- Belfast Arterial Routes Strategy: No
- Belfast Rural Area Strategy: No
- Lagan Valley Regional Park Strategy: No
- Summary of District Proposals: No

#### Step 2: Projects excluded from the appraisal because they are not proposals generated by this plan.
None identified

#### Step 3a: Designations / Policies which protect the natural environment, including biodiversity, or conserve or enhance the natural, built or historic environment.
- **BMA Urban Environment**
  - Policy: Urban Design: No
  - Policy: Urban Landscape Wedges: No
- **BMA Natural Environment**
  - Policy: Sites of Local Nature Conservation Importance: No
  - Policy: Local Landscape Policy Areas: No
- **BMA Countryside and Coast**
  - Policy: Rural Landscape Wedges: No
  - Policy: Coastal Area: No
  - Policy: Areas of High Scenic Value: No
  - Policy: Development proposals outside the Metropolitan Development Limit and Settlement Development Limits in the Lagan Valley Regional Park: No
  - Policy: Development proposals in the Lagan Valley Regional Park within the Metropolitan Development Limit and Settlement Development Limits: No
  - Designation: Coastal Area: No
  - Designation: Lagan Valley Regional Park: No
  - Designation: Areas of High Scenic Value: No

#### Step 4: Likely Significant In-Combination effects
<table>
<thead>
<tr>
<th>BMA Open Space, Sport and Outdoor Recreation</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy: Community Greenways</td>
<td></td>
</tr>
</tbody>
</table>

**District Proposals**

**Urban Environment**  
Designations: Areas of Townscape Character | No  
Designations: Areas of Village Character | No  
Designations: Urban Landscape Wedges | No  
Designations: Historic Park, Garden and Demesne | No  
Designations: Areas of Significant Archaeological Interest | No  
Policy: Carrickfergus Town Wall | No  
Policies: Urban Design Criteria | No  
Policies: Conservation Area Additional Design Criteria |  |

**BMA Natural Environment**  
Designations: Sites of Local Nature Conservation Importance | No  
Designations: Local Landscape Policy Areas |  |

**BMA Countryside and Coast**  
Designations: Rural Landscape Wedges | No  
Designations: Coastal Area | No  
Designations: Areas of High Scenic Value | No  
Designations: Lagan Valley Regional Park |  |

**BMA Open Space, Sport and Outdoor Recreation**  
Designations: Open Space (Existing) | No  
Designations: Community Greenways |  |

<table>
<thead>
<tr>
<th>Step 3b: Designations/Policies which will not lead to development or other change</th>
<th>Step 4: Likely Significant In-Combination effects</th>
</tr>
</thead>
</table>
| **BMA Housing**  
Policy: Protected Housing Areas in City and Town Centres | No  
**BMA Urban Environment**  
Policy: Car Parking and New Development in City and Town Centres | No  
**BMA Community Facilities**  
Policy: Protection of land for Education, Health, Community and Cultural Facilities. | No  
**District Proposals**  
**BMA Housing**  
Zonings: Committed Housing Sites (Built) | No  
Designations: Protected Town Centre Housing Areas. | No  
**BMA Employment**  
Zonations: Existing Employment / Industry | Yes  

<table>
<thead>
<tr>
<th>Designations: Strategic Land Reserve of Regional Importance, The Maze Lands</th>
<th>No</th>
</tr>
</thead>
</table>
| **BMA Countryside and Coast**  
Policy: Area of Salt Reserve North of Kilroot, Carrickfergus  
Policy: Area of Potential Subsidence Carrickfergus | Yes  
No |
| **Belfast City Airport**  
Policy: Airport Safety | No |

**Step 3c: Designations / policies which make provision for change but which could have no conceivable effect on a European site, because there is no link or pathway between them and the qualifying interests, or any effect would be a positive effect, or would not otherwise undermine the conservation objectives for the site**

| BMA Transportation  
Policy Parking Standards within Areas of Parking Restraint | No |
|---|---|
| **BMA Countryside and Coast**  
Policy Belfast Hills Access Points | No |

**District Proposals**

**Transportation**  
Proposals: Areas of Parking Constraint  
No

**Step 3d: Designations / policies which make provision for change but which could have no significant effect on a European site, because any potential effects would be trivial, or ‘de minimis’ or so restricted or remote from the site that they would not undermine the conservation objectives for the site**

None Identified

**Step 3e: Designations / policies for which effects on any particular European or Ramsar site cannot be identified, because the proposal is too general, for example, it is not known where, when or how the proposal may be implemented, or where effects may occur, or which sites, if any, may be affected.**

| **BMA Settlement**  
Policy: Arterial Routes | No |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BMA Housing</strong></td>
<td>No</td>
</tr>
</tbody>
</table>
Policy: City and Town Centre Living

BMA Transportation
Policy: Publicly owned Off Street Surface Car Parks within City and Town Centres

BMA Open Space, Sport and Outdoor Recreation
Policy: New Open Space Provision

<table>
<thead>
<tr>
<th>Description of Likely Significant In-Combination effects identified in Step 4.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Many of the strategies in the plan support promote or encourage additional built development in the BMAP area but make no proposals as to how or where the development is to be provided. This detailed element of the plan is implemented through topic specific policies and proposals. These more specific policies and proposals are the most appropriate element of the Plan to assess for their effects on European or Ramsar sites. However the Housing allocations in-combination with the specific plan proposals indicates the plans overall level of proposed change. It is necessary to check whether the total quantity and nature of change is not so great that no matter where it is located, it could not be delivered without affecting a European or Ramsar site. Associated with this the Housing Strategy itself needs to be considered further in-combination with the Regional Development Strategy and the envisaged total quantity and nature of change.</td>
</tr>
</tbody>
</table>

The Policy ‘Planning Strategy in Northern Ireland’ will result in in-combination effects with the Planning Strategy for Rural Northern Ireland which requires further consideration.

The Zonations: Existing Employment may have in-combination effects with newly proposed employment sites and should be considered further in the assessment.

Outcome of screening the Plan for its potential effects.
As an outcome of the screening methodology utilized the aspects of the plan which require further consideration during the appropriate assessment are identified in Table 5.

Table 5. Aspects of BMAP which require further consideration during the Appropriate Assessment as they have the potential to have a significant effect on a European or Ramsar site either alone or in combination with other plan proposals or other plans and programmes.

<table>
<thead>
<tr>
<th>BMA Settlement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designation of Settlements</td>
</tr>
<tr>
<td>Policy: Development within the Metropolitan Development Limit and</td>
</tr>
</tbody>
</table>
Settlement Development Limits
Policy: A Planning Strategy for Rural Northern Ireland

**BMA Housing Strategy**
Allocation: Housing
Allocation: Social Housing
Policy: City and Town Centre Living

**BMA Employment**
Allocation: Employment

**BMA Retail**
Policy: Retailing in City and Town Centres
Policy: Sprucefield Regional Shopping
Policy: Arterial Routes and Local Centres
Designations: Sprucefield Regional Shopping Centre

**BMA Office**
Policy: Belfast City Centre Main Office Area, Lisburn City Centre and other Town Centres
Policy: Office development of up to 400 sq m, Commercial Nodes, District Centres and Local Centres.
Policy Office: Development of up to 200 sq m – Shopping / Commercial Areas.
Policy: Office Development in Major Employment Locations (MELs)
Policy: Queens University Office Area
Policy Stormont Office Node

**BMA Countryside and Coast**
Policy: Urban Waterfronts
Policy: Lagan Valley Regional Park Nodes

**District Proposals**

**BMA Settlement**
Designations: Settlement Development Limits
Zonings: Development Opportunity Sites

**BMA Housing**
Zonings: Housing Zonings
Zonings: Housing Committed Housing Sites
Zonings: Social Housing Sites
Designations: Housing Land Use Policy Areas

**BMA Employment Strategy**
Zonings: Employment / Industrial Land
Zonings: Existing Employment / Industry
Zonings: Mixed use Employment Sites
Zonings: Major Employment Locations
Zonings: Key Employment Sites
Zonings: Key Local Employment Sites

**BMA Transportation**
Proposals: Strategic Road Schemes
Proposals: Non-Strategic Road Proposals
<table>
<thead>
<tr>
<th>Proposals: Rapid Transit Proposals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposals: Park and Ride Sites</td>
</tr>
<tr>
<td>Proposals: Relocation of Rail Stations</td>
</tr>
<tr>
<td>Proposals: Pedestrian/Cycle Bridge Crossings</td>
</tr>
<tr>
<td>Proposals: New Railway Stations</td>
</tr>
</tbody>
</table>

**BMA Retailing Strategy**
- Designations: District Centres
- Designations: Town Centre
- Designations: Local Centres
- Designations: Primary Retail Core

**BMA Education, Health and Community Facilities**
- Proposals: Health Use / Provision of Health Facilities
- Proposals: Education Use / Provision of Education Facilities
- Proposals: Community Facilities

**BMA Office**
- Designation: Main Office Area Belfast City Centre
- Designation: Queens University Office Area
- Designation: Stormont Office Node

**BMA Countryside and Coast Strategy**
- Designations: Urban Waterfront
- Designations Lagan Valley Regional Park Nodes
- Policy: Area of Salt Reserve North of Kilroot, Carrickfergus

**BMA Open Space, Sport and Outdoor Recreation**
- Proposals: Open Space

**BMA Public Utilities**
- Proposal: New Cemetery Provision

**BMA Belfast**
- Belfast Harbour Area Strategy
- Designation: Belfast City Centre Character Areas
- Designation: City Centre Boundary Belfast
- Zoning: Titanic Quarter
- Policy: Belfast City Airport
- Policy: Airport Related Land Uses
- Policy: Airport Related Employment Uses
- Policy: Port Operations and Port Related Land Uses
- Zoning: Housing for the Travelling Community
- Designation: Arterial Routes
- Designation: Commercial Nodes and Areas of Parking Constraint on Arterial Routes.
- Policy: Commercial Nodes Building Heights
- Designations: Shopping/Commercial Areas on Arterial Routes
On this basis of the methodology utilized, it is concluded that the elements of BMAP that have not been identified in Table 5 can be implemented without any Likely Significant Effects on European and Ramsar Sites.
Appropriate Assessments

The aim of this Appropriate Assessment was to identify any potential adverse effect on the integrity of a European or Ramsar Site resulting from the implementation of policies and/or proposals within BMAP. In the Appropriate Assessment the impact of BMAP (either alone or in combination with other plans or project) on the integrity of European or Ramsar sites is considered with respect to the conservation objectives of the sites and to their ecological structure and function. The coherence of the European or Ramsar sites ecological structure and function, across its whole area and associated supporting structures, enables it to sustain the habitats and/or the levels of populations of species for which it was classified.

An adverse effect would be something that either directly or indirectly: affects the features for which the site was designated and/or the ability of the site to meet its conservation objectives and/or causes alteration, disruption, harm or physical impacts to the ecological structure and functioning of the site or their supporting structures. Such effects can occur within or outside the boundaries of the designated site.

The next step in this process would be to consider the inclusion of mitigation measures for any aspects of the plan which may cause an adverse effect to ensure that all development flowing from, or controlled by, the plan would not have an adverse effect on the integrity of a European or Ramsar site.

An appropriate assessment was carried out for each European or Ramsar sites where a likely significant effect was identified during the screening stage. The appropriate assessment methodology for each European or Ramsar site utilized the following stages:

   It is essential that the appropriate assessment is based upon a robust evidence base and method. Much of the information used in the Appropriate Assessment had already been gathered for the screening stages of the process but in some instances additional detail or evidence was gathered. The detailed content of the Plan was utilized for the Appropriate Assessment and the characteristics of existing, proposed or approved projects or plans which may cause interactive or cumulative impacts was gathered. The reason for designation and the conservation objectives for each European or Ramsar site was available and additional detailed information was also gathered including the condition assessment of the site (if available); the sensitivities or vulnerability of the site; the influences of other activities acting upon it; and key structural and functional relationships that create and maintain the site’s integrity. Scientific literature was gathered where possible to identify the dynamics of habitats, species and their ecology.
2. **Identifying aspects of the plan that are likely to have significant effects; and identifying in-combination effects from other plans or projects that are likely to have significant effects.**

   Within this step elements of BMAP that are likely to give rise to significant effects on the site (either alone or in combination with other plans or projects) are identified. The relationship (e.g. key distances etc.) between policies or proposals in BMAP and the European and Ramsar site was considered in detail in this step.

   The types of impact were considered throughout the assessment such as: direct and indirect effects; short and long term effects; construction, operational and decommissioning effects; and isolated, interactive and cumulative effects.

3. **Assessing implications for each qualifying interest of the European or Ramsar site in light of its conservation objectives / adverse impacts on site integrity.**

   In carrying out the assessment the precautionary principle was applied and the assessment was focused on objectively demonstrating with supporting evidence, whether or not there would be an adverse impact on the integrity of the European or Ramsar site.

   This part of the assessment describes how BMAP will affect key species and habitats. It also describes how the integrity of the site (determined by structure and function and conservation objectives) is likely to be affected by the Plan (e.g. loss of habitat, disturbance, disruption, chemical changes, hydrological changes and geological changes, etc). To assist with this an ‘Integrity of site checklist’ (European Commission 2001) was considered for each site (Table 6).

4. **Concluding whether or not it can be ascertained that the aspects of the plan would not adversely affect the integrity of the European or Ramsar site.**

   This part of the assessment concludes whether or not the integrity of the European or Ramsar site will be affected by the implementation of BMAP. If it could not be objectively demonstrated that there would be no adverse impact on the integrity of the European or Ramsar site, or if the level of information or evidence is insufficient to make an objective decision, adverse effects were assumed. If adverse affects are identified the next part of the process will consider what mitigation measures are to be introduced to avoid or reduce the adverse effects on the integrity of the site.

<table>
<thead>
<tr>
<th>Integrity of site checklist</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Does the project or plan have the potential to:</strong></td>
<td>Yes/No</td>
</tr>
<tr>
<td>• cause delays in progress towards achieving the conservation objectives of the site?</td>
<td></td>
</tr>
<tr>
<td>• interrupt progress towards achieving the conservation objectives of the site?</td>
<td></td>
</tr>
<tr>
<td>• disrupt those factors that help to maintain the favourable conditions of the site?</td>
<td></td>
</tr>
<tr>
<td>• interfere with the balance, distribution and density of key species that are the</td>
<td></td>
</tr>
<tr>
<td>indicators of the favourable condition of the site?</td>
<td></td>
</tr>
<tr>
<td><strong>Other indicators: Does the project or plan have the potential to:</strong></td>
<td>Yes/No</td>
</tr>
<tr>
<td>• cause changes to the vital defining aspects (e.g. nutrient balance) that determine how</td>
<td></td>
</tr>
<tr>
<td>the site functions as a habitat or ecosystem?</td>
<td></td>
</tr>
<tr>
<td>• change the dynamics of the relationships (between, for example, soil and water or plants</td>
<td></td>
</tr>
<tr>
<td>and animals) that define the structure and/or function of the site?</td>
<td></td>
</tr>
<tr>
<td>• interfere with predicted or expected natural changes to the site (such as water</td>
<td></td>
</tr>
<tr>
<td>dynamics or chemical composition)?</td>
<td></td>
</tr>
<tr>
<td>• reduce the area of key habitats?</td>
<td></td>
</tr>
<tr>
<td>• reduce the population of key species?</td>
<td></td>
</tr>
<tr>
<td>• change the balance between key species?</td>
<td></td>
</tr>
<tr>
<td>• reduce diversity of the site?</td>
<td></td>
</tr>
<tr>
<td>• result in disturbance that could affect population size or density or the balance</td>
<td></td>
</tr>
<tr>
<td>between key species?</td>
<td></td>
</tr>
<tr>
<td>• result in fragmentation?</td>
<td></td>
</tr>
<tr>
<td>• result in loss or reduction of key features (e.g. tree cover, tidal exposure, annual</td>
<td></td>
</tr>
<tr>
<td>flooding, etc.)?</td>
<td></td>
</tr>
</tbody>
</table>

Note about the appropriate assessment of aerial emissions.

There is a considerable amount of scientific literature regarding impacts of air pollution on vegetation (APIS 2013; ROTAP 2012; Hicks et al. 2011). The Review of Transboundary Air Pollution (ROTAP 2012) has considered in detail the regional effects of acidification, eutrophication, ground level ozone and heavy metals on soils, freshwater and vegetation. Aerial pollution and associated atmospheric wet or dry deposition of nitrogen and sulphur compounds arising from the BMAP area have the potential to increase eutrophication and soil acidification which can have negative impacts on habitats and species. Acidification increases the acidity of soils and leads to depletion of base cations.
and mobilisation of toxic metals. Eutrophication increases the amount of available nitrogen thus changing the nutrient status of sites. There is strong evidence that nitrogen deposition has significantly impacted upon the diversity of a range of habitats of high conservation value in the UK (ROTAP 2012). Nitrogen availability can be the limiting factor on plant growth in some nutrient poor habitats. Certain plants are specially adapted to these nutrient poor conditions. Increased nitrogen availability enables these specialist species to be out-competed by other plants that are better adapted to grow in the conditions afforded by the increased amounts of available nitrogen.

The key sources of atmospheric pollutants in Northern Ireland are the energy industry, transport, and agriculture. Sulphur dioxide (SO2) is produced when a material or fuel containing sulphur (especially poor quality, high sulphur content brown coal or lignite) is burned. In the UK, the major source is power stations burning fossil fuels - principally coal and heavy oils. Natural gas, petrol and diesel fuels have a relatively low sulphur content. Other sources include the burning of fuels by other industry, commercial/domestic solid fuel combustion and transport, in particular shipping. (www.airqualityni.co.uk; National Atmospheric Emissions Inventory (NAIE)3; APIS 2013). Nitric oxides (NOX) are mainly derived from road transport emissions. Other sources are combustion processes associated with the electricity supply industry and from other industry or commercial/domestic use (www.airqualityni.co.uk; NAEI). Ammonias (NH3) primary source (98%) in Northern Ireland is from agriculture (such as live stock farming including pig and poultry farms), whilst transport accounts for 0.7% and commercial/domestic use 0.3% (www.airqualityni.co.uk; Murrells et al. 2010). Other pollutants that are released from these sources include fine particles, ozone and volatile organic compounds, toxic organic micro pollutants, benzene, 1,3 Butadiene, Carbon Monoxide, Lead and Heavy Metals.

To assess the implications on European and Ramsar sites it was deemed appropriate to consider if critical loads for nutrient-nitrogen or acidity deposition were met or exceeded in 2005 or have been modelled to be exceeded by 2020 within these sites using tools within the UK Air Pollution Information System (APIS 2013).

Critical Loads are defined as: ‘a quantitative estimate of exposure to one or more pollutants below which significant harmful effects on specified sensitive elements of the environment do not occur according to present knowledge’ (http://www.unece.org/env/lrtap/WorkingGroups/wge/definitions.htm)

Using this tool it was also possible to identify the contribution that the following sources made to critical loadings:

3 http://nai.defra.gov.uk/
TOTAL: All Sources

Northern Ireland Sources

- Road Transport (busses, cars HGVs, LGVs)
- Other Transport (aircraft take off and landing, shipping, railways)
- Commercial and residential combustion
- Livestock production (all sources inc IPPC installations)
- Ammonia emissions from fertilizer use
- Ammonia emissions from non-agricultural sources
- Energy production and transformation
- Kilroot power station
- Ballylumford power station
- Coolkeeragh power station
- Industrial Combustion (cement & lime production, iron and steel)
- Maydown industrial combustion
- Cookstown Cement non-decarbonising
- Quinn Glass Ltd Glass Production
- Incineration & Crematoria combined point sources

Other Sources

- Imported emissions
- Offshore / waste Treatment / Natural Sources – Combined source UK

UK / Northern Ireland Regional Impacts

The deposition of toxic substances has declined significantly over recent decades and acidified lakes and streams in the UK are showing signs of both chemical and biological recovery, although recovery so far is limited and stresses such as from atmospheric nitrogen deposition may prevent a full recovery (Kernan et al. 2010). In the UK large areas of the country exceed the critical load and level for reactive nitrogen pollutants, and are predicted to do so in 2020 despite reductions in emissions of reactive nitrogen gases (Emmett et al. 2011). In addition concentrations of toxic substances may remain high in soils. Soil erosion may cause toxic substances within soils to be released into surface waters as highly acidic run-off (Kernan et al. 2010). Soil erosion may increase in the future due to climate change and increased frequency of storm events.

Within the UK there have been reductions in the area of broad habitats exceeded for acidity (from 71% of ecosystems using 1996-98 acid deposition figures to 58% using deposition figures for 2004-2006, and this is predicted to reduce further to 40% in 2020 (ROTAP 2012)). Critical loads for effects of nitrogen deposition on sensitive habitats are exceeded over 60% of their area in the UK and nitrogen deposition is seen as a significant barrier to the UK achieving its targets within the Habitats Directive (ROTAP 2012). The Review of Transboundary Air Pollution (ROTAP 2012) indicated that the effects of dry-deposited gaseous ammonia (NH3) are greater than those of the equivalent wet deposition of nitrogen and suggest that ammonia sources should be a priority focus for emission control. As noted previously the primary source (98%) of Ammonia (NH3) in Northern Ireland is from agriculture.
Regional concentrations of SO$_2$, associated with coal and oil combustion have declined substantially over the past decades (RoTAP 2009) with a decline of over 80% in Northern Ireland between 1990-2006 (Murrells et al. 2010). Emissions of Nitrogen oxides in Northern Ireland have also declined substantially over the same period with declines of 47% being recorded by 2006 (Murrells et al. 2010) however there has been little indication of the downward trend continuing (DOE 2010).

**Local impacts**
Due to the regional declines in SO$_2$ and NOX the most likely impacts from aerial emissions associated with BMAP will be local in effect.

Most scientific research studying changes to species composition due to vehicle emissions have occurred close to major roads (Bell et al. 2011). Results from near-road monitoring studies suggest that air pollutant traffic-generated pollutants decrease exponentially with distance from the road, with most showing that background pollutant levels are reached within 200–500 m from the road (Baldauf et al. 2009). Rates of NOX deposition are slow and local impacts are likely to be less than for other pollutant gases however direct effects may occur in the immediate vicinity of major roads in the centre of cities (APIS 2013). Concentrations of soil persistent organic pollutants (PAHs and PCB) are usually found close to industrial urban centres where source intensity is highest (ROTAP 2012).

At the screening stage the distance of each site to the BMAP plan area was considered. To consider localized impacts on each European site it was considered appropriate to consider the distance between zonings and designations within BMAP and each European site in more detail to see if there were likely to be adverse local effects.
Appropriate Assessment Report for:
Aughnadarragh Lough SAC
Ballykilbeg SAC
Hollymount SAC
Lecale Fens SAC
Turmennan SAC and Ramsar

Elements of BMAP that are likely to give rise to significant effects;

Marsh fritillary butterfly, *Euphydryas aurinia*, is the principle reason for the selection of Aughnadarragh Lough and Ballykilbeg as SACs. Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion alvae*) is the principle reason for the selection of Hollymount as a SAC and Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles is also present as a qualifying feature. Alkaline Fen is the principle reason for the selection of Lecale Fens as a SAC. Transition mires and quaking bogs is the principle reason for the selection of Turmennan as a SAC whilst the site is a Ramsar due to its wetland habitats and communities.

These SACs are linked to BMAP by the potential for aerial depositions. As the key sources of atmospheric pollutants in Northern Ireland are from industry, transport and agricultural sources the allocations and zonings associated with the BMA Employment Strategy and BMA Transportation schemes are the most likely to give rise to aerial deposition impacts.

**In-combination effects from other plans or projects that are likely to have significant effects.**

The screening identified that there was a potential for in-combination aerial eutrophication and acidification effects arising from developments within certain other Development Plan areas.

<table>
<thead>
<tr>
<th>European Site</th>
<th>There is a potential for in-combination aerial eutrophication and acidification effects arising from:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turmennan SAC and Ramsar</td>
<td>BMAP: Developments within Lisburn City Council and Castlereagh Borough Council; Existing Employment / Industry Development activities in the Ards and Down Area Plan 2015 and the Banbridge Newry and Mourne Area Plan 2015.</td>
</tr>
</tbody>
</table>
Conservation Objectives and implications for each qualifying interest in light of its conservation objectives.

Aughnadarragh Lough SAC: Marsh fritillary butterfly, *Euphydryas aurinia*, is the principle reason for the selection of Aughnadarragh Lough as a SAC. Aughnadarragh Lough SAC has a conservation objective to maintain the extent and quality of suitable Marsh Fritillary breeding habitat, particularly suitable rosettes of the larval food plant *Succisa pratensis*.

Condition assessment reports in Northern Ireland note that although the biology and ecology of the Marsh Fritillary butterfly has been studied intensively in Britain, the reasons for its marked population fluctuations and continued overall decline remain uncertain. Populations of marsh fritillary vary greatly in size from year to year, and, at least in part, this is related to cycles of attack from parasitic wasps. Adults tend to be sedentary and remain in a series of linked metapopulations, forming numerous temporary sub-populations, which frequently die out and recolonise. Where unable to do this, populations do not seem to be able to persist in habitat fragments. It is therefore essential to conserve a cluster of sites in close proximity. The area of suitable Marsh fritillary habitat in Aughnadarragh SAC and the surrounding area is limited and the population appears to be distant from other known colonies (10 km from the nearest large colony at Turmennan, 24 km from Murlough, and around 35 km from Montiaghs Moss). Connectivity of suitable breeding habitat is essential for long-term survival (Joyce & Pullin 2003). This may impact on the total area of networks of suitable habitat needed to achieve population persistence in this SAC in the long-term.

In addition condition assessment reports have noted that sheep selectively graze *S. pratensis* and are therefore detrimental to marsh fritillary populations, except at very low stocking rates. Burning and mowing are also known to have caused the extinction of populations. In Northern Ireland the variability in *S. pratensis* plant size and growth between SAC sites are responsive to spatial and temporal variation in environmental conditions, most likely soil drainage and rainfall (Preston et al. 2008). For example there was a recorded decline in *S. pratensis* in Northern Ireland between 2005 and 2006 the likely cause of which was drought (Preston et al. 2008). In contrast to this there is anecdotal evidence that recent flooding events in Northern Ireland have negatively impacted on some marsh fritillary populations.

In the Conservation Objective report for Aughnadarragh the management considerations and main potential impacts on Aughnadarragh Lough have been recorded as: Grazing/scrub encroachment; drainage; application of fertilizer/manure/slurry; fly tipping and changes to the surrounding land use especially those that affect drainage. The Natura 2000 data form indicated that the main threats to the site are a trend towards rank growth and scrub encroachment as a result of lack of management.

*Succisa pratensis* is more vulnerable to eutrophication than to acidification (Verger et al. 2003). *Succisa pratensis* has an Ellenberg nitrogen value of 2 and an Ellenberg pH of 5 suggesting that the species generally prefers moderately acid soils with low soil fertility. *Succisa pratensis* has been shown in a laboratory experiment to have a reduced biomass at high ammonia concentration and low pH (van den Berg et al. 2005). Glasshouse experiments in the Netherlands have shown that individual plant performance was negatively affected by eutrophication and, to a smaller extent, by acidification but the degree of impact depended on population size, with plants from smaller populations performing less well (Verger et al. 2003). Nitrogen nutrient enrichment in the broad habitats associated with Marsh fritillary can increase graminoids, decrease bryophytes, cause a decline in typical species and decrease species richness and diversity whilst acidification and associated leaching will cause a decrease in soil base saturation and increase the availability of Al3+ ions. Mobilisation of Al3+ may cause toxicity to plants and mycorrhiza. There may also be direct effects on lower plants (bryophytes and lichens) (APIS 2013).

In 1999 48 Marsh Fritillary webs were counted; 18 webs in 2004; 696 webs in 2007; 227 webs in 2009 and 10 webs in 2010. The 2010 Condition Assessment indicated that the site was in favourable condition as there was at least 50 larval webs present in at least one year in six and the extent of suitable fen and wet grassland (stands of grasslands where *S. pratensis* is present and scrub covers no more than 10% of the
area) was maintained. Although in favourable condition it was noted that scrub and trees are encroaching onto the site and there has been an increase in Typha latifolia. The encroaching of trees and scrub was primarily attributed to poor management of the site but the increase in Typha was attributed to a local source of eutrophication into the fens water source. The highly improved surrounding fields together with a newly built house to the west of the lough were identified as possible factors contributing to the eutrophication of the fen.

To-date aerial pollution and associated atmospheric deposition has not been highlighted as having an affect on Aughnadarragh Lough SAC.

**Ballykilbeg SAC:** Marsh fritillary butterfly, Euphydryas aurinia, is the principle reason for the selection of Ballykilbeg as a SAC. Ballykilbeg SAC has a conservation objective to maintain the extent and quality of suitable Marsh Fritillary breeding habitat, particularly suitable rosettes of the larval food plant Succisa pratensis. The implications for Ballykilbegs SAC are similar to those for Aughnadarragh Lough SAC as described above.

In the Conservation Objective report for Ballykilbeg the management considerations and main potential impacts on Ballykilbeg have been recorded as: Grazing/scrub encroachment; drainage; application of fertilizer/manure/slurry; fly tipping and changes to the surrounding land. The Natura 2000 data form recognized that maintaining a suitable grazing regime is very important to the success of marsh fritillary colonies. Overgrazing will reduce the abundance of the larval food-plant S. pratensis; undergrazing will produce a trend towards rank growth and scrub encroachment. In the most recent Condition Assessment Report (2007) the condition of the Marsh fritillary was favourable. In the 2004 Condition Assessment it was noted that there was encroachment of trees and scrub into the fen habitats and a high frequency of Filipendula ulmaria whilst in the rush pasture habitats the vegetation was high and there was an elevated frequency of litter cover. A high percentage of Filipendula indicates either lack of management, or to a lesser extent, some degree of eutrophication. Most of these issues were attributed to a lack of site management. Due to this a management agreement was put in place in 2005. Larval webs were first recorded in 1996 and there have been records of adults and larvae each year since. In 1999, 168 webs were recorded, in 2004 227 larval webs were recorded whilst in 2007 646 webs were recorded. This has indicated that the management prescriptions set out in the MOSS agreement have helped to create a favourable habitat to support a very healthy population of the Marsh Fritillary butterfly. In the last recorded count (2010) 299 webs were recorded.

To-date aerial pollution and associated atmospheric deposition has not been highlighted as having an affect on Ballykilbeg SAC.

**Hollymount SAC:** Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion alvae) is the principle reason for the selection of Hollymount as a SAC. Old sessile oak woods with Ilex and Blechnum in the British Isles is also present as a qualifying feature. There are conservation objectives for Hollymount SAC to maintain the extent of the Alluvial forest and Old sessile oak woods and their structure and habitat and species diversity.

Air pollution has been suggested as a potential threat and pressure for Alluvial forests with Alnus glutinosa and Fraxinus excelsior however an assessment of relevant literature and critical loads indicated that Alluvial forests with Alnus glutinosa and Fraxinus excelsior are not considered sensitive to nutrient deposition or acidification (JNCC 2007; APIS 2013). The JNCC (2007) indicates that air pollution is a potential threat and pressure for Old sessile oak woods with Ilex and Blechnum. Nitrogen nutrient enrichment can cause a decrease in mycorrhiza, loss of epiphytic lichens and bryophytes, and changes in ground vegetation (APIS 2013). Increased acidification can: cause leaching which will cause a decrease in soil base saturation; increase the availability of Al3+ ions; cause mobilisation of Al3+ which may cause toxicity to plants and mycorrhiza; may cause a decline in tree vitality and changes in ground flora species composition; may have direct effect on lower plants (bryophytes and lichens); and may cause increased susceptibility to pathogens and pests (APIS 2013).
The main potential impacts on Hollymount SAC are considered to be woodland clearance, timber removal, invasive exotics, drainage and increase in nutrients from water pollution. The Natura 2000 dataform identified increased drainage as the biggest threat to these woods. In the last Condition Assessment (2011) the SAC was in unfavourable condition mainly due to the high proportion of non-natives and the level of grass cover. The abundance of epiphytes, bryophytes and lichens was unfavorable in the Alluvial forests but it was noted that these features were present in every quadrat recorded and it was considered that the abundance will improve as this area of woodland matures.

To-date aerial pollution and associated atmospheric deposition has not been highlighted as having an effect on Hollymount SAC.

**Lecale Fens SAC:** Alkaline Fen is the principle reason for the selection of Lecale Fens as a SAC. There are conservation objectives for Lecale Fens SAC to maintain the extent of the Alkaline Fens and their structure and habitat and species diversity. The vulnerability form recognizes that the alkaline fens of Lecale Fen SAC are restricted to small pockets that are characterized by and depend on low nutrient levels. The sites are surrounded by intensively managed farmland and the main threat to the site was identified as eutrophication from agricultural run-off. The JNCC (2007) did not identify air pollution as one of the main threats or pressures for alkaline fens. However there is some literature which suggests: that the sensitivity of fens to changes to in water chemistry makes them susceptible to acid rain and air pollution (Siegel 1988; Chapman et al. 2003; Cohen and Kost 2008); and that fen systems surrounded by cultivated lands that are close to industrial and urban areas face a threat from dust-fall and atmospheric deposition (Damman 1990; Cohen and Kost 2008). Aerial pollution and associated atmospheric deposition (such as nitrogen, sulphur, calcium and heavy metals; Chapman et al. 2003; Damman 1990; Cohen and Kost 2008) may therefore have the potential to lead to eutrophication and acidification of fen habitats. APIS (2013) indicates that alkaline fens are sensitive to increases in nitrogen nutrients which can cause an increase in tall graminoids and a decrease in bryophytes but suggests that alkaline fens are not sensitive to acidification.

In the Conservation Objective report for Lecale Fens the management considerations and main potential impacts have been recorded as: drainage; application of fertilizer/manure/slurry; grazing; fly tipping and changes to the surrounding land use. The Natura 2000 data form noted that these alkaline fen communities are characterised by, and depend upon, low nutrient levels and that all four sites are situated in inter-drumlin hollows and are surrounded by intensively managed farmland. This, together with the small size of each individual site, results in eutrophication from agricultural run-off posing the main threat to the fen interest. Changes in hydrology, land reclamation, illegal dumping and natural succession also posed potential threats to the site.

To-date aerial pollution and associated atmospheric deposition has not been highlighted as having an affect on Lecale Fens SAC.

**Turmennan SAC and Ramsar:** Transition mires and quaking bogs is the principle reason for the selection of Turmennan as a SAC whilst the site is a Ramsar due to its wetland habitats and communities. There are conservation objectives for Turmennan SAC to maintain the extent of transition mires and quaking bogs and their structure and habitat and species diversity. There are also conservation objectives to maintain the populations of rare plant species and the diversity of invertebrate communities. The integrity of the Ramsar would require similar objectives. The vulnerability section of the European data form identified eutrophication as one of the main potential threats to the site and nutrient enrichment as a major cause for concern. The JNCC (2007) identified air pollution as one of the main threats and pressures for transitional mires and quaking bogs. Nutrient enrichment increases sedges and vascular plants and has negative effects on bryophytes whilst acidification and associated leaching will cause a decrease in soil base saturation and increase the availability of Al\(^{3+}\) ions. Mobilisation of Al\(^{3+}\) may cause toxicity to plants and mycorrhiza. There may also be direct effects on lower plants (bryophytes and lichens) (APIS 2013).

In the Conservation Objective report for Turmennan the management considerations and main potential impacts have been recorded as: drainage; application of fertilizer/manure/slurry; grazing; fly tipping and changes to the surrounding land use especially those that affect drainage. In the Natura 2000 dataform
eutrophication and natural succession, especially reed encroachment, were identified as the main potential threats to the site.

**Plan implications**
To further assess the implications on these European sites it was deemed appropriate to consider if critical loads for nutrient-nitrogen or acidity deposition were met or exceeded in 2005 or have been modeled to be exceeded by 2020 within these sites using tools within the UK Air Pollution Information System (APIS).

**Table 7.** Table showing where critical loads for nutrient-nitrogen and acidity have been met* or exceeded** on selected European Sites or have been modeled to be met* or exceeded** by 2020 using tools within the UK Air Pollution Information System (APIS). The table also shows whether the contribution of any particular source met* or exceeds** the critical load. Features that are not considered sensitive to nutrient-nitrogen and acidity, or which have no recorded critical load are marked with the / symbol.

<table>
<thead>
<tr>
<th>European Site and selection feature</th>
<th>Total Critical Load meet or exceeded</th>
<th>Source Critical Load</th>
<th>Critical Load meet or exceeded</th>
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<tr>
<td></td>
<td>N  N  A  A</td>
<td>N  N  A  A</td>
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<td><strong>05  20  05  20</strong></td>
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<tr>
<td>Aughnadarragh Lough SAC</td>
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<tr>
<td>Marsh fritillary butterfly,</td>
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<tr>
<td><em>Euphydryas aurinia</em> (assessment</td>
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<tr>
<td>undertaken on associated habitats)</td>
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<tr>
<td>Ballykilbeg SAC</td>
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<tr>
<td>Marsh fritillary butterfly,</td>
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<tr>
<td><em>Euphydryas aurinia</em> (assessment</td>
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<tr>
<td>undertaken on associated habitats)</td>
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<tr>
<td>Hollymount SAC</td>
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<tr>
<td>Oak sessile oak woods, Alluvial</td>
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<tr>
<td>forests</td>
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<tr>
<td>Lecale Fens SAC</td>
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<tr>
<td>Alkaline Fen</td>
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<tr>
<td>Turmennan SAC</td>
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<tr>
<td>Transition Mires and quaking Bogs</td>
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</table>

At each of the SAC sites above the next major source of total N Deposition after livestock production was attributed to Imported Emissions (e.g. emissions from Europe, Ireland and other countries) whilst the main source of total sulphur deposition (keq) was attributed to Imported Emissions ((APIS 2013). NOX, for example, has a major role as a transboundary pollutant and its atmospheric conversion to nitric acid vapour and nitrate particles can be precipitated hundreds of km from sources (APIS 2013).

It is predicted that the total amount of nitrogen and sulphur deposition at each of the SAC sites in this assessment will decrease between 2005 and 2020 (APIS 2013).

**Local impacts**
At the screening stage the distance of each site to the BMAP plan area was considered. To consider localized impacts on each European site it was considered appropriate to consider the distance between zonings and designations within BMAP and each European site in more detail to see if there were likely to be adverse local effects.
European Site | BMAP settlements with development zonings within approx. 15km of SAC.
---|---
Aughnadarragh Lough SAC | Within 15 kms: Metropolitan Castlereagh; Metropolitan Belfast; Town: Carryduff; Village: Moneyreagh.
Ballykilbeg SAC | None
Hollymount SAC | None
Lecale Fens SAC | None
Turmennan SAC and Ramsar | None

Small settlements were considered but they did not contain any development zonations.

In relation to BMAP lands within 15km of Aughnadarragh:
The portion of the Metropolitan Belfast contains housing zonations;
The portion of the Metropolitan Castlereagh area contains some existing employment land. 2 zoned Employment sites, a number of housing zonations, a road proposal, District Centres, Local Centres, and land for Health Use. The Employment (MCH05 and MCH06) could potentially be used for light industrial uses, general industrial uses or distribution uses (B1, B2, B3, B4), whilst mix use MCH13 could potentially be used for light industrial uses, business uses (B1), residential accommodation for people in need of care and medical or health services;
The town of Carryduff contains some existing employment land; 2 zoned Employment sites; and a number of housing zonations. The Employment could potentially be used for light industrial uses, general industrial uses or distribution uses (B1, B2, B3, and B4).
The village of Moneyreagh contains a number of housing zonations.

BMAP indicates that applications for planning permission within the zoned employment sites will be determined in accordance with prevailing regional policy and Key Site Requirements in the Plan. The use classes suitable for each employment site are contained within the KSRs for each zonation. In addition the KSRs indicate that employment developments shall only be permitted in accordance with an overall comprehensive masterplan for the site to be agreed with the Department.

Under the Planning (Use Classes) Order (Northern Ireland) 1989, the Land Classes 6, 7, 8, 9 and 10 were related to Special Industrial Uses which were the uses most likely to result in aerial emissions. These classes were subsequently revoked by amending legislation in 1993 and 1996. The Planning (Use Classes) Order (Northern Ireland) 2004 indicates that no class specified in the schedule includes use for any work required to be registered under Article 20 of the Industrial Pollution Control (Northern Ireland) Order 1997 and regulation 30 of the Pollution Prevention and Control Regulations (Northern Ireland) 2003. These pieces of legislation have subsequently been superseded by the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013. Within the areas described above BMAP has not specifically zoned any land for specific uses that would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013.

**Appropriate Assessment consideration:**

Although it is widely acknowledged that aerial emissions have the potential to damage sensitive plant communities, to-date there has been no specific indication that atmospheric deposition from the BMAP area is a threat to any of these SACs. The main threats appear to be threats associated with a lack of management, poor grazing regimes, drainage or agricultural eutrophication. The main source of potentially damaging aerial deposition onto these SACs has been attributed to imported or agricultural sources.

BMAP has not identified any specific zonations or policies relating to rural agricultural / manure management proposals that are potential sources of ammonia, for example chicken or pig farms. Nor does it give any requirement for a certain number of these types of developments to be built in the BMAP area. Any such proposals would therefore be out-with any plan proposals and would have to be considered on a
case by case basis via development management and the application of prevailing regionally policy and, if appropriate, any relevant policies within BMAP.

Aerial deposition from sources in the BMAP area may have the potential to be a contributing factor to the overall deposition levels at these SACs. However the SACs in this assessment are not in the immediate vicinity of BMAP and are relatively remote from pressures associated with industrial or other built development in the BMAP area, including road proposals. The deposition of toxic substances has declined significantly over recent decades and the level of atmospheric deposition into the SAC sites is predicted to decrease by 2020. For example it is predicted that the deposition of sulphur onto each of the SACs attributed to housing or commercial sources will reduce between 2005 and 2020 (APIS 2013).

There are no specific proposals for any work that would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013 in the Plan that could result in significant aerial emissions to these SACs. However during the lifetime of the plan there may be future development applications within the BMAP area which could result in aerial deposition on the SACs in question. Any such proposals would be out-with any plan proposals and would have to be considered on a case by case basis via development management and the application of prevailing regionally policy (including PPS2) and, if appropriate, any relevant policies within BMAP. In addition any such future proposals must comply with legally enforceable obligations designed to avoid environmental effects. Integrated Pollution Protection and Control Guidelines are a Regulatory system that employs an integrated approach to control the environmental impacts of certain industrial activities. The system requires the identification of industrial proposals up to 10-15km from sensitive receptors such as European sites. Where an installation is within such distance of a European site, an assessment has to be made regarding potential impacts. This assessment may require the use of detailed air impact assessment (air dispersion modeling) or in other cases a screening tool can be used to demonstrate whether potential impacts are acceptable.

Proposals which may have a potential impact on designated habitats are likely to be considered by both the Industrial Pollution and Radiochemical Inspectorate (IPRI) and Natural Heritage in NIEA. The plan itself does not make any specific proposals for industry which generates significant aerial emissions, and any adverse impact by subsequent proposals should be avoided through implementation of the legally enforceable obligations and the application of regional planning policy.

<table>
<thead>
<tr>
<th>Integrity of site checklist</th>
<th>Yes/No</th>
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<tbody>
<tr>
<td><strong>Does the project or plan have the potential to:</strong></td>
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</tr>
<tr>
<td>• cause delays in progress towards achieving the conservation objectives of the site?</td>
<td>No</td>
</tr>
<tr>
<td>• interrupt progress towards achieving the conservation objectives of the site?</td>
<td>No</td>
</tr>
<tr>
<td>• disrupt those factors that help to maintain the favourable conditions of the site?</td>
<td>No</td>
</tr>
<tr>
<td>• interfere with the balance, distribution and density of key species that are the indicators of the favourable condition of the site?</td>
<td>No</td>
</tr>
<tr>
<td><strong>Other indicators: Does the project or plan have the potential to:</strong></td>
<td></td>
</tr>
<tr>
<td>• cause changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem?</td>
<td>No</td>
</tr>
<tr>
<td>• change the dynamics of the relationships (between, for example, soil and water or plants and animals) that define the structure and/or function of the site?</td>
<td>No</td>
</tr>
<tr>
<td>• interfere with predicted or expected natural changes to the site (such as water dynamics or chemical composition)?</td>
<td>No</td>
</tr>
</tbody>
</table>
- reduce the area of key habitats?  
- reduce the population of key species?  
- change the balance between key species?  
- reduce diversity of the site?  
- result in disturbance that could affect population size or density or the balance between key species?  
- result in fragmentation?  
- result in loss or reduction of key features (e.g. tree cover, tidal exposure, annual flooding, etc.)?  

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>No</th>
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**Appropriate Assessment Conclusion:**
The evidence gathered and assessment undertaken enables us to conclude reasonably and objectively that the implementation of BMAP will not adversely affect key species and key habitats or the integrity (structure and function and conservation objectives) of:
- Aughnadarragh Lough SAC
- Ballykilbeg SAC
- Hollymount SAC
- Lecale Fens SAC
- Turmennan SAC and Ramsar
Appropriate Assessment Report for:
Antrim Hills SPA

Elements of BMAP that are likely to give rise to significant effects;

Breeding populations of Hen Harrier *Circus cyaneus* and Merlin *Falco columbarius* are the principle reasons for the selection of Antrim Hills as a SPA. The Antrim Hills SPA comprises two sections. The south-west tip of the southern section is 150m from Newtownabbey Borough Council. This section is bounded by Capanagh, Ballyboley and Douglas Top and is a mosaic of commercial forestry, upland heath, blanket bog and largely unimproved grassland. The SPA is ecological connected to BMAP by the mobility of hen harrier and merlin and the potential use of areas in BMAP for foraging. Development proposals or associated policies within the BMAP area may have the potential to increase disturbance levels or could lead to the reduction of suitable foraging habitats for the species that utilize the SPA. For example additional development, or vehicular or recreational activities in close proximity of the SPA could increase disturbance events which alter feeding and nesting activities and could cause long term species displacement.

The Killylane Impounding Reservoir and WTW in the Antrim Hills SPA is infrastucturally linked to BMAP as it serves the BMAP area. Consideration has to be given as to whether additional abstractions as a result of increased pressure from the BMAP area would have adverse affects on feature species.

Antrim Hills SPA is linked to BMAP by the potential for aerial depositions. As the key sources of atmospheric pollutants in Northern Ireland are from industry, transport and agricultural sources allocations and zonings associated with the BMA Employment Strategy and BMA Transportation schemes and proposals are the most likely to give rise to aerial deposition impacts.

In-combination effects from other plans or projects that are likely to have significant effects.


- lead to cumulative aerial deposition eutrophication and acidification impacts;
- result in habitat fragmentation or a reduction in available habitat;
- lead to increased water abstraction from Killylane Reservoir.

Water Resource Plans and associated capital works would also have to be considered in relation to their impact on water abstractions from Killylane Reservoir.

Conservation Objectives and implications for each qualifying interest in light of its conservation objectives.

Breeding populations of Hen Harrier *Circus cyaneus* and Merlin *Falco columbarius* are the principle reasons for the selection of Antrim Hills as a SPA. The conservation objectives for the site are to maintain each feature in favorable condition. This includes measurements of fledgling success and population numbers and maintenance of the extent and quality of natural and semi-natural habitats that are used by the feature species.

The Natura 2000 data form for Antrim Hills SPA records that the site could potentially be damaged by peat-cutting, heavy grazing, excessive burning and inappropriate management of forestry plantations. The Northern Ireland Species Action Plan for Hen Harrier (NIEA 2005a) identified that the current factors affecting the population in Northern Ireland included agricultural reclamation; over grazing; disturbance; forestry management; persecution; and windfarm developments. Wind energy developments represent a potential threat through loss of foraging habitat, disturbance to nests and roosting sites, risk of collision and providing access to previously remote areas. BMAP does not include any proposals or policies that would
promote the development of wind turbine developments in the proximity of Antrim Hills SPA, however proposals for wind energy developments in the BMAP plan area may be submitted during the lifetime of the Plan. Planning Policy related to renewable energy developments can be found in PPS18: Renewable Energy.

Hen Harrier is primarily an upland breeding species that is associated with heather moorland, blanket bog, young forestry plantations (NIEA 2005a). The nest is usually in deep heather, rushes or gorse associated with forestry plantations or young conifers but it has also been recorded nesting in closed canopy of mature spruce plantations in Northern Ireland (Scott 2000, Pendlebury et al. 2011), which is the main choice of nest site in Northern Ireland. Hen Harrier requires large expanses of suitable open habitat for hunting primarily small birds or mammals (NIEA 2005a) and occasionally on grouse which may cause conflicts with game keeping management (SNH 2007; NIEA Conservation objectives). Hen harriers prefer to forage over young first rotation coniferous forests and selected heathland and grassland habitats (Madders 2000). During the winter the birds disperse to a wide variety of habitats both within and outside Ireland including upland areas, farmland, coastal lowlands and river valleys. Declines in the Hen Harrier populations were noted through the second half of the nineteenth century (Usher and Warren 1900), mainly as a result of persecution (which is still a significant problem in some areas; SNH 2007; Stroud et al. 2001). Since that time the population in Northern Ireland has increased (NIEA 2005a) possibly due to increases in commercial forestry, whose early stages provide nesting and feeding opportunities (O’Flynn 1983). The Antrim Plateau is a stronghold for the Hen Harrier population in Northern Ireland. Factors affecting the Northern Ireland populations include: Agricultural reclamation of upland habitats such as heather moorland and blanket bog; overgrazing of upland habitats altering habitat structure and reducing feeding opportunities and nesting cover; disturbance in particular from forest operations but also from activities occurring near forests such as recreation, shooting or car rallies, mechanical peat extraction and uncontrolled heather burning (Scott 2002). Persecution; windfarm developments; heather beetle damage; predation and alterations to the structure of forestry plantations have also been noted as threats to these species.

Merlin is primarily an upland breeding species. Breeding is strongly linked to heather moorland where Merlin can nest in deep heather on sloping ground, however on occasion nesting occurs on inland cliff or in conifer plantations (APIS 2013; O’Kill 2004; Stroud et al. 2001). The Merlin in Northern Ireland nest almost exclusively in conifers within old crows nests. Merlin feeds mainly on small birds (O’Kill 2004). During the winter the birds disperse widely within Britain and Ireland. The British breeding population is thought to have declined from the 1950’s until the early 1990’s due to pesticide contamination (organochlorine and mercury residues resulting in eggshell thinning) and habitat loss (Stroud et al. 2001). Declines in the Merlin populations have been noted in the Shetlands since the 1970’s possibly due to increased levels of pollutants in the food chain (impacts on eggs) and loss of breeding sites due to reseeding, heather burning, overgrazing and heather damage, ground predators and egg collection (O’Kill 2004). There is evidence that since the 1990’s numbers have increased or remained stable but pesticide residues and habitat loss are still threats (Stroud et al. 2001). In some areas the conversion of heather moorland to grass moorland has resulted in Merlins switching nesting to conifer plantations which has enabled the population in these areas to remain stable (Stroud et al. 2001).

Species disturbance; habitat destruction or alteration and reduction in foraging areas.
The south-west tip of Antrim Hills SPA is 150m from Newtownabbey Borough Council. BMAP has not zoned any land within or directly adjacent to Antrim Hills SPA for development. The nearest development zonation is approximately 2.5 km away at Ballynure. Due to this distance factor the plan does not include any policies or proposals that would influence increased human disturbance levels on Antrim Hills SPA. Forest Service is a major landowner within the SPA. Recreational activities are most likely to be affected by other influences such as Forestry management strategies or agricultural activities. For example forestry sites such as Ballyboley Forest within the SPA provide walking trails throughout the forests and include areas that have been used for clay-pigeon shooting. Forestry management strategies are also the key influence on planting and felling regimes within the SPA. Another factor will be outbreaks of Japanese Larch disease (Forest Service 2012). These are issues which the BMAP plan has no influence upon.
There is no evidence to suggest that increased water abstraction from Killylane reservoir would adversely impact on Hen Harrier or Merlin. Killylane Reservoir is within Ballyboley Forest. The reservoir was constructed in 1955 and can hold up to 292 million gallons of water (Forest Service 2003). Up to 3 million gallons a day can be used to supply Larne, Ballymena parts of Antrim and Ballyclare (Forest Service 2003). Only the Ballyclare area is within the BMAP plan area so it appears as if the majority of the water abstracted would be used to supply areas outside the Plan area. The reservoir is stocked annually with rainbow trout. NI Water is responsible for supplying the public with clean drinkable water and uses 90% of all water abstracted in Northern Ireland. As a result of the huge volumes of water involved, these activities are subject to abstraction licences in line with the Water Abstraction and Impoundment (Licensing) Regulations (Northern Ireland) 2006 No. 482. In addition the Water Framework Directive places controls over water abstractions and impoundments to make sure the Directive’s objectives for water bodies are met. The control measures required for the award of a licence will play an important factor in achieving, ‘Good’ ecological status for all water bodies in Northern Ireland. Existing Water Management Plans (NI Water 2010a,b) give no indication that there is any intention to abstract additional water from Killylane reservoir during the lifetime of the BMAP Plan. In general there are several recent or ongoing NI Water projects throughout Northern Ireland to improve the quality, reliability and flexibility of water supply across Northern Ireland while also reducing leakage. These projects will work in combination to improve the efficiency of the water supply system in Northern Ireland.

The foraging range for Hen Harriers from nest sites during the breeding season are: female core range of 1km, with majority of foraging within 2-3km, and maximum range of <10km; Male core range of 2km with maximum range of 10km (Pendlebury et al. 2011). Hen harriers prefer to forage over young first rotation coniferous forests and selected heathland and heterogeneous grassland habitats and tend to avoid afforested areas with lots of foliage over 5m tall and homogeneous grassland areas (Madders 2000). Merlins forage within 5km of nest sites during the breeding season (Pendlebury et al. 2011). Foraging during the breeding season is mainly in open country including moorland (Pendlebury et al. 2011). In winter both species disperse widely. Due to the proximity of the SPA to BMAP there is a potential for Hen Harrier and Merlin to forage within the BMAP area during the nesting period. Much of the nearby agricultural lowland habitats in the BMAP area are not the preferred foraging habitats during nesting periods however there is an area around Drumdarragh Hill that contains suitable foraging habitat. This area is in the north-western corner of Newtownabbey Borough Council and is approximately 4.5km from the SPA. There are no development BMAP zonations within this area but development activities in this area could result in the loss of foraging habitat. Wind energy development could also cause a collision risk throughout the area, which would have to be considered on a case by case basis utilizing any available information about flight paths.

Aerial Pollution
Aerial pollution and associated atmospheric deposition of nitrogen and sulphur compounds arising from the BMAP area have the potential to lead to eutrophication and soil acidification. Both Merlin and Hen Harrier have adapted to nesting in coniferous woodland rather than moorland which probably decreases their sensitivity to acidification or eutrophication caused by aerial depositions (APIS 2013). The dwarf shrub heath which is utilized by both Hen Harrier and Merlin is sensitive to eutrophication which can decrease heather dominance and result in a decline of old deep heather nesting sites (APIS 2013).

To-date aerial pollution and associated atmospheric deposition has not been highlighted as having an affect on Antrim Hills SPA.

Plan implications
To further assess the implications on Antrim Hills SPA it was deemed appropriate to consider if critical loads for nutrient-nitrogen or acidity deposition were met or exceeded in 2005 or have been modeled to be exceeded by 2020 using tools within the UK Air Pollution Information System (APIS).

Table 8. Table showing where critical loads for nutrient-nitrogen and acidity have been met* or exceeded** on Antrim Hills SPA selection features or have been modeled to be exceeded by 2020 using tools within the UK Air Pollution Information System (APIS). The table also shows whether the contribution of any particular source meet* or exceeds** the critical load. Features that are not considered sensitive to nutrient-nitrogen and acidity, or which have no recorded critical load are marked with the / symbol.

<table>
<thead>
<tr>
<th>Antrim Hills SPA selection feature</th>
<th>Total Critical Load meet or exceeded</th>
<th>Source Critical Load</th>
<th>Critical Load meet or exceeded</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>N</td>
<td>A</td>
</tr>
<tr>
<td>Hen Harrier, <em>Circus cyaneus</em>; Merlin <em>Falco columbarius</em> associated habitat Dwarf Shrub Heath</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

At the screening stage the distance of each site to the BMAP plan area was considered. To consider localized impacts on each European site it was considered appropriate to consider the distance between zonings and designations within BMAP and each European site in more detail to see if there were likely to be adverse local effects.

**Antrim Hills:**

**BMAP settlements with development zonings within 15km.**

- Metropolitan Carrickfergus and Metropolitan Newtownabbey
- Towns: Carrickfergus, Greenisland, Ballyclare
- Villages: Ballyeaston; Ballynure; Ballyrobert; Corgy/Kilbride; Doagh; Straid

Small settlements were considered but they did not contain any development zonations.

In relation to BMAP lands within approximately 15km of Antrim Hills SPA:

- Metropolitan Newtownabbey contains major areas of existing employment, areas of land zoned for employment (including a key employment location), road proposals, district and local centres and several housing zonations. The Employment (MNY05, MNY06 and MNY07) could potentially be used for light industrial uses, general industrial uses, storage/distribution uses, or business use. The road proposal is the MNY19 Hightown Road Link.
- The town of Carrickfergus includes major areas of existing employment (CS05 and CS06) and numerous housing zonations.
- A major power station ‘Kilroot’ is also within Carrickfergus Town but BMAP contains no policies or proposals relating to the power station.
- The town of Ballyclare contains major areas of existing employment, one area of land zoned for employment/industry, a road proposal (BE12 – Non Strategic road scheme Ballyclare Relief Road), land zoned for education and several housing zonations. The Employment Site BE05 could potentially be used for light industrial uses, general industrial uses or storage/distribution uses.
- The towns of Greenisland and the villages of Ballyeaston, Ballynure, Ballyrobert, Corgy/Kilbride, Doagh and Straid contain several housing zonations.

The nearest road proposal, the Ballyclare relief road, is over 4.5km from the SPA.

BMAP indicates that applications for planning permission within the zoned employment sites will be determined in accordance with prevailing regional policy and Key Site Requirements in the Plan. The use classes suitable for each employment zonation are contained within the KSRs for each site. In addition the KSRs indicate that employment developments shall only be permitted in accordance with an overall comprehensive masterplan for the site to be agreed with the Department.
Under the Planning (Use Classes) Order (Northern Ireland) 1989, the Land Classes 6, 7, 8, 9 and 10 were related to Special Industrial Uses which were the uses most likely to result in aerial emissions. These classes were subsequently revoked by amending legislation in 1993 and 1996. The Planning (Use Classes) Order (Northern Ireland) 2004 indicates that no class specified in the schedule includes use for any work required to be registered under Article 20 of the Industrial Pollution Control (Northern Ireland) Order 1997 and regulation 30 of the Pollution Prevention and Control Regulations (Northern Ireland) 2003. These pieces of legislation have subsequently been superseded by the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013. Within the areas described above BMAP has not specifically zoned any land for specific uses that would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013.

Appropriate Assessment consideration:

BMAP and associated zonations in the Ballyclare area have minimal influence over abstraction rates at Killylane Reservoir when considered in combination with other over-riding plans and projects which are utilised to control water abstractions. Plans and Projects to change these existing agreements are themselves subject to various policies, public consultations and legislative requirements, including the requirements of the Conservation (Natural Habitats, etc.) Regulations Northern Ireland. Furthermore there is no evidence to suggest that increased water abstraction from Killylane reservoir would adversely impact on Hen Harrier or Merlin.

Due to the distance that separates Antrim Hills SPA from any development zonations in the BMAP area the implementation of the plan will not result in the destruction of any habitat in the SPA. The distance between the SPA and development zonations will ensure that activities resulting from the implementation of the plan will not have any disturbance effects on nesting activities. BMAP has minimal influence over plans that may influence disturbance and habitat change within the SPA such as forestry management plans.

There is an area within the BMAP plan that would provide suitable foraging habitat for Hen Harrier and potentially Merlin during nesting periods. Development zonations in BMAP are primarily associated with existing settlements. There are no development zonations within this foraging area. During the lifetime of the plan however there may be development applications within this area such as single housing, wind energy development, mineral extraction or agricultural diversification which could result in loss of foraging habitat for Hen Harrier and potentially Merlin. The RDS (2012), for example, notes that a proportion of the estimated new dwellings required during the plan period will be built in the open countryside and will depend on the application of PPS21. Any such proposals would be out-with any plan proposals and would have to be considered on a case by case basis via development management and the application of prevailing regionally policy (including PPS2). PPS1 indicates that Development Plans are the primary means of evaluating and reconciling any potential conflict between the need for development and the need to protect the environment within particular areas. BMAP does not contain any policies or proposals which would help to reconcile this potential conflict in the plan area. The plan does not give any indication that impacts of development on this suitable foraging area may be an environmental constraint which could result in the need for a Habitat Regulation Assessment to be carried out on specific proposals to ensure that there would be no adverse impacts on Antrim Hills SPA.

Although it is widely acknowledged that aerial emissions have the potential to damage sensitive plant communities, to-date there has been no specific indication that atmospheric deposition from the BMAP area is a threat to Antrim SPA. The main source of potentially damaging aerial deposition onto these SPAs has been attributed to imported or agricultural sources (APIS 2013).

BMAP has not identified any specific zonations or policies relating to rural agricultural / manure management proposals that are potential sources of ammonia, for example chicken or pig farms. Nor does it give any requirement for a certain number of these types of developments to be built in the BMAP area. Any such proposals would therefore be out-with any plan proposals and would have to be considered on a case by case basis via development management and the application of prevailing regionally policy and, if appropriate, any relevant policies within BMAP.
Aerial deposition from sources in the BMAP area may have the potential to be a contributing factor to the overall deposition levels at Antrim Hills SPA. However Antrim Hills SPA is not in the immediate vicinity of the majority of BMAP and is relatively remote from most pressures associated with industrial or other built development in the BMAP area. The deposition of toxic substances has declined significantly over recent decades and the level of atmospheric deposition into the SPA site is predicted to decrease by 2020. For example it is predicted that the deposition of sulphur onto the SPA attributed to housing or commercial sources will reduce between 2005 and 2020 (APIS 2013).

The adopted plan however does not zone any employment lands for specific industrial uses that would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013. Such developments could result in adverse aerial emissions to the SPA. The dwarf shrub heath which is utilized by both Hen Harrier and Merlin is sensitive to eutrophication which can decrease heather dominance and result in a decline of old deep heather nesting sites (APIS 2013).

During the lifetime of the plan there may be other future development applications within the BMAP area which could result in aerial deposition on the SPAs in question. Any such proposals would be out-with any plan proposals and would have to be considered on a case by case basis via development management and the application of prevailing regionally policy (in Particular PPS2) and, if appropriate, any relevant policies within BMAP. In addition any such future proposals must comply with legally enforceable obligations designed to avoid environmental effects. Integrated Pollution Protection and Control Guidelines are a Regulatory system that employs an integrated approach to control the environmental impacts of certain industrial activities. The system requires the identification of industrial proposals up to 10-15km from sensitive receptors such as European sites. Where an installation is within such distance of a European site, an assessment has to be made regarding potential impacts. This assessment may require the use of detailed air impact assessment (air dispersion modeling) or in other cases a screening tool can be used to demonstrate whether potential impacts are acceptable. Proposals which may have a potential impact on designated habitats are likely to be considered by both the Industrial Pollution and Radiochemical Inspectorate (IPRI) and Natural Heritage in NIEA. Any adverse impact by subsequent proposals for industry which generates significant aerial emissions should be avoided through implementation of the legally enforceable obligations and the application of regional planning policy.

The BMA Employment Strategy provides a measure of certainty about which types of development will and will not be permitted. However there is uncertainty about where new industrial proposals which have the potential to promote uses which generate significant aerial emissions which would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013 are likely to be located. The draft BMAP plan suggested some of the sites within 15km of Antrim Hills SPA would be suitable for this type of special industrial use. Any new proposals for industry generating significant aerial emissions will be subject to legal obligations, regional planning policy and potentially the Key Site Requirements or the amplification text in the plan. The plan however does not give any indication that impacts of aerial emissions from any sites may be an environmental constraint which could result in the need for a Habitat Regulation Assessment to be carried on specific proposals to ensure that there would be no adverse impacts on European Sites, including Antrim Hills SPA.

<table>
<thead>
<tr>
<th><strong>Integrity of site checklist</strong></th>
<th><strong>Yes/No</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Does the project or plan have the potential to:</strong></td>
<td>**</td>
</tr>
<tr>
<td>• cause delays in progress towards achieving the conservation objectives of the site?</td>
<td>No</td>
</tr>
<tr>
<td>• interrupt progress towards achieving the conservation objectives of the site?</td>
<td>No</td>
</tr>
<tr>
<td>• disrupt those factors that help to maintain the favourable conditions of the site?</td>
<td>No</td>
</tr>
<tr>
<td>• interfere with the balance, distribution and density of key species that are the</td>
<td>No</td>
</tr>
</tbody>
</table>
indicators of the favourable condition of the site?

<table>
<thead>
<tr>
<th>Other indicators: Does the project or plan have the potential to:</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>cause changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem?</td>
<td>Yes</td>
</tr>
<tr>
<td>change the dynamics of the relationships (between, for example, soil and water or plants and animals) that define the structure and/or function of the site?</td>
<td>No</td>
</tr>
<tr>
<td>interfere with predicted or expected natural changes to the site (such as water dynamics or chemical composition)?</td>
<td>No</td>
</tr>
<tr>
<td>reduce the area of key habitats?</td>
<td>Yes</td>
</tr>
<tr>
<td>reduce the population of key species?</td>
<td>No</td>
</tr>
<tr>
<td>change the balance between key species?</td>
<td>No</td>
</tr>
<tr>
<td>reduce diversity of the site?</td>
<td>No</td>
</tr>
<tr>
<td>result in disturbance that could affect population size or density or the balance between key species?</td>
<td>No</td>
</tr>
<tr>
<td>result in fragmentation?</td>
<td>Yes</td>
</tr>
<tr>
<td>result in loss or reduction of key features (e.g. tree cover, tidal exposure, annual flooding, etc.)?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Appropriate Assessment Conclusion:
The evidence gathered and assessment undertaken does not enable us to conclude reasonably and objectively that the implementation of BMAP will not adversely affect key species and key habitats or the integrity (structure and function and conservation objectives) of:
Antrim Hills SPA

Mitigation measures are required to ensure that BMAP will not have any effect on the integrity of Antrim Hills SPA with regard to:
- Aerial Depositions.
- Loss of suitable foraging habitat.
Appropriate Assessment Report for:
Belfast Lough SPA
Belfast Lough Open Water SPA
Belfast Lough Ramsar

Elements of BMAP that are likely to give rise to significant effects;

Overwintering Redshank *Tringa totanus* is the principle reason for the selection of Belfast Lough as a SPA. Overwintering Great Crested Grebe *Podiceps cristatus* is the principle reason for the selection of Belfast Lough Open Water as a SPA. Redshank was also a qualifying feature of Belfast Lough Ramsar whilst it was noted that Black-tailed godwit *Limosa limosa islandica* was also a species that may merit consideration.

Belfast Lough is an intertidal sea lough at the mouth of the River Lagan. Belfast Lough SPA and Belfast Lough Open Water SPA both comprise of parts of Inner and Outer Belfast Lough. The inner part of the Lough comprises a series of mudflats and lagoons. The outer lough is restricted to mainly rocky shores with some small sandy bays. These habitats provide important feeding, roosting and loafing sites for wintering wildfowl and waders. Belfast Lough Open Water SPA comprises marine areas below mean low water mark.

The SPAs and Ramsar are within or are directly adjacent to North Down Borough Council, Belfast City Council, Carrickfergus Borough Council and Newtownabbey Borough Council resulting in a direct linkage to the BMAP plan area. Development proposals or associated policies within, adjacent to, or which are linked to watercourses associated with Belfast Lough could result in habitat destruction, increased disturbance levels or could lead to an alteration to habitats within the SPAs/ Ramsar. Any development within or directly adjacent to the SPAs/Ramsar could destroy habitats utilised by feature species. Development, vehicular and recreational activities in close proximity or within the SPAs/ Ramsar could increase disturbance events which could alter bird activities and could cause long term species displacement. Increased boating activity could also increase disturbance so BMAP policies or proposals promoting additional sea traffic may have an impact. Coastal developments in the BMAP area may also influence water quality in the surrounding areas in particular discharges from localized waste water treatment works and industry. Development in the BMAP area in the proximity of rivers that are linked to Belfast Lough could increase sedimentation, pollution or nutrients into Belfast Lough which could negatively alter habitats utilised by feature species.

Belfast Lough SPAs and Ramsar are also linked to BMAP by the potential for aerial depositions. As the key sources of atmospheric pollutants in Northern Ireland are from industry, transport and agricultural sources allocations and zonings associated with the BMA Employment Strategy and BMA Transportation schemes and proposals are the most likely to give rise to aerial deposition impacts.

In-combination effects from other plans or projects that are likely to have significant effects.

Waste and Water Management Plans and development activities in the BMAP area may lead to increased disturbance, damage, nutrient enrichment or dredging requirements in Belfast Lough which may impact upon the SPAs and Ramsar feature species.

Development activities in the Antrim Area Plan 1984-2001, the Ards and Down Area Plan 2015 and the Larne Area Plan 2010 could lead to cumulative aerial deposition eutrophication and acidification impacts.

Development activities associated with other Development Plans within the catchment of Belfast Lough and the River Lagan may contribute to water quality impacts within Belfast Lough.
Conservation Objectives and implications for each qualifying interest in light of its conservation objectives.

Overwintering Redshank is the principle reason for the selection of Belfast Lough as a SPA. Overwintering Great Crested Grebe is the principle reason for the selection of Belfast Lough Open Water as a SPA. Redshank was also a qualifying feature of Belfast Lough Ramsar whilst it was noted that Black-tailed godwit was also a species that may merit consideration. The conservation objectives for the sites are to maintain each feature in favorable condition. This includes measurements of population numbers and maintenance of the extent and quality of natural and semi-natural habitats and roost or loafing sites that are used by the feature species.

The Natura 2000 data form for Belfast Lough SPA records that the site is vulnerable to loss of wildlife habitat as a result of land claim for industry and port development and impacts resulting from adjacent landfill sites (now closed) and sewage disposal. The Natura 2000 data form for Belfast Lough Open Water SPA does not identify any actual or potential impacts to the site.

Great Crested Grebe breed on fresh or brackish waters with abundant emergent and submerged vegetation. Within the UK the distribution of non-breeding and breeding Great Crested Grebe show a broadly similar distribution. However there is a marked shift from inland waters to the sea in the winter with some birds moving to coastal areas immediately after breeding to moult (Stroud et al. 2001). In the winter Britain and Ireland can receive additional birds from continental western Europe. Coastal areas including shallow waters and estuaries on sheltered areas on the east coast provide suitable habitat but in severe winters birds move throughout Britain in search of milder climates (Stroud et al. 2001; Birdlife International 2013). The diet consists of large fish as well as insects, crustaceans and molluscs (Birdlife International 2013). Although the breeding population in the UK is increasing, severe winters can result in significant mortalities (Stroud et al. 2001). Other threats have been recorded as hunting, introduction of competitors and predators (mammals), drowning in fishing nets, coastal oil spills and avian influenza (Birdlife International 2013). In the last Condition Assessment Report (2005) for Belfast Lough Open Water SPA Great Crested Grebe were in favorable condition.

Redshank breed across most of the UK and throughout Europe on inland and coastal wet grasslands and coastal saltmarshes (Birdlife International 2013; Stroud et al. 2001). Many of the British and Irish breeding birds remain resident throughout the year. Other birds migrate to the UK in the winter and during passage periods from areas such as Iceland and the Faeroes (Stroud et al. 2001). Outside of the breeding season Redshank are a predominantly coastal species frequenting bare mud in estuaries, inlets and sheltered bays as well as rocky shores (NIEA 2005d). During the non-breeding season they feed on insects, spiders, annelid worms, molluscs, crustaceans and occasionally small fish (Birdlife International 2013). Surveys since the 1970’s have indicated that the breeding populations have declined (NIEA 2005d; Stroud et al. 2001). Declines have largely been attributed to a reduction in the area of wet grassland and coastal habitat potentially used by breeding redshank (NIEA 2005d; Stroud et al. 2001). Wetland losses have been due mainly to an intensification of agricultural land management but built developments have also had an influence (NIEA 2005d; Stroud et al. 2001). Predation of chicks has also been noted as a current factor that may be impacting on Redshank populations (NIEA 2005d). Internationally threats have been recorded as loss of habitat, encroachment of Spartina onto mudflats; improvement of marginal grasslands, predation, disturbance on inter-tidal mud-flats, nest predation avian influenza and nest predation (Birdlife International 2013). There are indications that the UK non-breeding numbers have increased and stabilised since the 1980’s (NIEA 2005d; Stroud et al. 2001). In the last Condition Assessment Report (2005) for Belfast Lough SPA Redshank were in favorable condition.

The Icelandic population of Black-tailed Godwit breed mainly in Iceland (and sporadically in Britain and Ireland) and winter mainly in Britain, Ireland, western France and Morocco (Birdlife International 2013; Stroud et al. 2001). They are found on muddy estuaries, feed mostly on worms when the tide is out and roost on damp pasture, often inland (Stroud et al. 2001). Seasonally flooded grassland is important for birds wintering in Ireland (Hayhow 2008; Birdlife International 2013). Numbers in the UK have increased since the mid-70s (Stroud et al. 2001). The species displays a degree of movement and site fidelity between winters (Stroud et al. 2001). International threats to the species include loss of nesting habitat, predation,
hunting, agricultural management and habitat fragmentation (Birdlife International 2013). Threats to migration include pollution, human disturbance, habitat reclamation and invasive plant species (Birdlife International 2013).

To assist with the management of the quality of Belfast Lough a Local Management Area Action Plan has been developed to implement the local River Basin Management Plan (NIEA 2012). The dominant land use in the Belfast Lough Local Management Area is improved grassland (33%), suburban and urban development (18%), arable farming (13%) and dwarf shrub heath (7%). The plan highlights actions that are to be taken throughout the Local Management Area including assessing pressures, abstraction licences, hydro power developments and nitrate and nutrient trends and promoting riparian zone management, effective farm nutrient and waste management and the control of invasive species. The Action Plan for the Belfast Lough Local Management Area also recommends other specific actions for specific sections of Belfast Lough or connecting waterways. The actions relating to Belfast Lough Inner and Belfast Lough Outer include carrying out further monitoring and assessments of trophic status, ammonia levels and sources of faecal contamination at Ballyholme and to provide advice about the various designations within the Lough including the SPAs (NIEA 2012). There are various connecting waterways that can also influence Belfast Lough. Within the Belfast Lough Local Management Area the main rivers entering Belfast Lough are Woodburn River, Kilroot River, Ballyholme River, Crawfordsburn River and the Three Mile Water, whilst numerous smaller streams exist throughout the area and enter the lough at various points. The River Lagan can also have an influence on the lough but its catchment lies within the Lagan Local Management Area which has a separate Local Management Action Plan (2010a). Part of the Lough is a designated shellfish area.

Species disturbance; habitat destruction or alteration.

There has been a historic loss of inter-tidal and open water habitat in Belfast Lough to development including harbour developments and expansion of port facilities. BMAP has not zoned any land within Belfast Lough SPAs / Ramsar for development. Parts of the Belfast Lough SPAs and Ramsar are within the BMAP Coastal Zone. The policy associated with this zone provides a degree of protection to the SPAs and Ramsar. To date known high tide roost locations in the BMAP area have not been published. There is no evidence that any important high tide roost sites will be directly impacted by BMAP proposals. As a result the plan does not include any policies or proposals that would directly result in the destruction of habitats within Belfast Lough SPAs / Ramsar.

In a number of locations the Belfast Lough SPA and Ramsar are within the Metropolitan Development Limit (Designation BT001, MNY01 and MND01) or Holywood Settlement Development Limit (HD01). The majority of lands are also zoned as Coastal Zone which provides a degree of protection from development but there are other areas that are ‘whiteland’ such as the D2 lagoons in the Belfast Harbour Estate (a non-statutory nature reserve managed by the RSPB which is owned by the DOE), a tidal pondage area south of Dargan Road and an area adjacent to Holywood Waste Water Treatment Works. Some of these lands are intertidal or waterbody areas. The policy for development within Development Limits is Policy SETT2. The policy does not give any recognition to the fact that there are areas of designated European Sites within the Metropolitan Development Limit or Settlement Development Limits. Nor does it indicate that these designations would be an environmental constraint to development and that any specific proposal that would have the potential to result in adverse effects to these European Sites would require a Habitat Regulation Assessment to ensure that there would be no adverse impacts on site integrity.

Developments associated with the plan area have the potential to impact upon the SPAs/Ramsar and surrounding sea areas that are utilized by feature species in relation to disturbance, pollution incidents or competition for food sources caused by the promotion of additional sea traffic. The main boating centres for recreational activity in the area are at Bangor, Carrickfergus, Whiteabbey, Holywood and Cultra. There are no policies or proposals for additional marinas in the BMAP area. Carrickfergus Urban Waterfront (CS24) is adjacent to, but not within Belfast Lough SPAs/Ramsar. The area is focused around the existing Carrickfergus Marina and aims to make the waterfront more attractive and vibrant. Another source of shipping within the Irish Sea is commercial boating activity which is mainly associated with Belfast Harbour which provides a long-established major shipping channel. Although the Conservation Objective
Report considers that there are no immediate issues evident it considers that actions should be taken to consider collective impact of shipping on the Belfast SPAs in relation to disturbance. Within the Belfast Harbour there are large areas of exiting employment land and the Titanic Quarter. BMAP does not contain any specific proposals relating to additional shipping activity. However Policy BHA03 ‘Port Operations and Port Related Land Uses’ enables the provision of additional port operations whilst Zoning BHA01 Mixed Use Titanic Quarter may enable leisure facilities. Neither the policy or zoning refers to potential collective impacts on European Site features as a result of additional shipping activities.

The Belfast City Airport is also in close proximity to the Belfast Lough SPAs and Ramsar and could cause potential disturbance or collision risks. The plan does not alter the provisions of the existing Article 40 Agreement between the Department of the Environment (NI), Belfast City Airport Limited and Shorts Brothers. The agreement currently controls the level of airport operations at Belfast City Airport. The plan indicates that applications for airport related used will be considered in the context of the existing agreement, regional planning policy and environmental considerations.

BHA01 and BHA04 (associated with the D3 site) are adjacent to Belfast Lough and may enable additional development which in the case of BHA01 may include the potential for infilling and subsequent release of sediments. Much of the Belfast Lough SPA/ Ramsar is adjacent to existing built development. Much of the north and inner shores are heavily engineered or in natural rock outcrop and no coastal erosion problems have been noted (Conservation Objections Report). Dredging activities in the 60’s and 70s helped create the Belfast Harbour D2 Reserve which is actively managed for conservation by the RSPB. Dredging of navigational channels in Belfast Lough is an ongoing requirement in order to maintain an adequate width and depth for boats. Such dredging activities are outside the remit of BMAP. The majority of the Harbour area is classed as a Heavily Modified Waterbody (waterbodies that have been changed to such a degree that they can no longer be restored to their original condition without compromising their current use). BHA04 includes a Key Site Requirement that habitat diversity in the adjacent internationally designated site should be appropriately protected. BHA01 does not specifically zone an area of land for infilling but provides policy detail in case it is filled in. BHA01 requires a Development Framework to be developed and agreed by the Department. The detailed framework is likely to require further habitat regulation consideration.

Historically Belfast Lough has been impacted by industrial and sewage effluent and the site is deemed to be vulnerable to pollution incidents. There was a history of heavy industrial use in the area but nowadays most industry is light and there are management agreements in place to maintain various areas in the vicinity of for nature conservation. A large proportion of the Belfast Harbour Area is identified as an existing employment site (BHA06). BHA01 enables additional light industrial uses. The harbor is home to large sewage treatment works that discharge into the inner lough as well as a fertilizer plant and other port facilities. Industrial sources are the main contributors of dissolved inorganic nitrogen to Belfast Lough with sewage treatment works contributing approximately 30% (AFBI 2012). The Belfast Sewers Project which rehabilitated and upgraded the Belfast sewer network to ensure compliance with European Union environmental standards was completed by NI Water in 2010. Prior to this the Victorian sewage network was suffering as a result of sustained underinvestment coupled with inadequate capacity to meet Belfast’s continued expansion. NI Water consider that all of the Wastewater Treatment Facilities associated with Belfast Lough are satisfactory and are capable of accommodating all development within their catchment that is proposed in the Plan through the Plan period.

Although the large mixing capacity of the Inner Lough allows effluent to be dispersed quickly within the lough (AFBI 2012), the inner lough is hyper-nutriﬁed and is subject to eutrophication (AFBI 2012). Belfast Lough is designated as Sensitive Area (Eutrophic) under the Urban Wastewater Treatment Directive. The Lough failed to meet good status under the Water Framework Directive in 2009 due to levels of inorganic nitrogen. Under Water Framework Directive classifications the Lough was classed in 2009 as having moderate ecological potential. The Action Plan for the Lagan Local Management Area recommended that there should be a targeting of pollution prevention advice to industrial premises; investigation of any unconsented industrial discharges; and measures to ensure Water Order consent is obtained where required within Belfast Harbour (NIEA 2010a).
Developments associated with the plan area have the potential to impact upon the SPAs/Ramsar in relation to disturbance, pollution incidents, enrichment or sedimentation resulting from built development and associated discharges adjacent to the lough. There are limited additional proposals for development directly adjacent to Belfast Lough. The main exceptions are the employment industry zonation associated with the old Dargan Road Landfill site (Mixed Use Site North Foreshore BHA05), the redevelopment of the Titanic Quarter (BHA01) although this proposal is not directly adjacent to the SPAs or Ramsar and the area is already heavily modified, and the Rapid Transit Scheme proposal which crosses parts of the Lough. There are a number of road proposals in close proximity to the Lough but these involve upgrades to existing roads rather than the development of new roads.

The Mixed Use Site at North Foreshore (BHA05) will increase activity in the area and could lead to increased disturbance levels in the proximity of the SPAs and Ramsar. The Key Site Requirements indicate that development proposals shall be required to provide appropriate protection of habitat biodiversity in the adjacent international and national designated natural heritage sites.

Eutrophication of river systems is mainly due to phosphorus. Eutrophication of coastal ecosystems is mainly due to nitrogen since N is the most limiting factor to production, however the level of phosphorus is also an important factor (Howarth and Marino 2006). The effects of eutrophication include increased production, lower oxygen levels, changes to sedimentation rates, algal blooms and loss of diatoms (Conley 2000; Howarth and Marino 2006). Eutrophication frequently leads to changes in ecological structure in benthic fauna and flora and in the phytoplankton composition (NRC2000 in Howarth and Marino 2006). It is important that N-control strategies for coastal waters go hand in hand with P control, as called for in the EU Water Framework Directive (Chave 2001). Managing water quality in the freshwater ecosystems upstream of coastal systems can be beneficial to water quality in coastal marine ecosystems (Howarth and Marino 2006).

The River Lagan Catchment covers an area of 606km2 and is some 70km long (EHS 2005). Parts of the Lagan are designated as salmonid river under the Freshwater Fish Directive. Both the tidal Lagan and the River Lagan are designated as Sensitive Areas (Eutrophic) under the Urban Wastewater Treatment Directive, with evidence suggesting that the whole length of the Lagan displays characteristics symptomatic of eutrophic conditions. Most of the rivers in the Lagan catchment fail to meet good status under the Water Framework Directive due to impacts on invertebrate communities and elevated phosphorus levels. Impacts of organic enrichment have also been noted and three river water bodies failed to achieve good status specifically due to ammonia levels. Under Water Framework Directive classifications the stretches of the River Lagan associated with urban areas in Belfast District were classed in 2009 as having bad or moderate ecological potential whilst the majority of the river of tributaries in Lisburn District had moderate or poor status (NIEA 2010a). The groundwater’s associated with the River Lagan area also classed as poor. The pressures on the river are deemed to be abstraction and flow regulation, diffuse and point source pollution, changes to morphology and invasive species.

To assist with the management of the quality of the River Lagan a Local Management Area has been developed to implement the local River Basin Management Plan (NIEA 2010a). Specific actions that need to be applied throughout the Local Management Area include riparian zone management, promote effective farm nutrient and waste management, promote control of invasive species and investigate sedimentation problems. The Action Plan for the Lagan Local Management Area recommended other specific actions for specific sections of the River Lagan including measures to investigate agricultural and forestry practices and dissolved oxygen suppression (NIEA 2010a). In addition there are measures to investigate downstream impacts of industrial premises where problems have been identified; to assess sources of organic pollution (including NI Water, WWTW and pumping station discharges); to target pollution prevention advice to industrial premises; to investigate any unconsented industrial discharges; and measures to ensure Water Order consent is obtained where required (NIEA 2010a). Other management measures are undertaken by the Lagan Valley Regional Park Committee, Laganside Corporation, NI Water and associated operational plans and strategies that aim to improve the environmental and water quality of the river.

Recent management measures have included works associated with the Lagan Weir and its associated tidal impoundment. At Stranmillis Weir the River Lagan enters the 4.5km long tidal impoundment, the
downstream end of which is the Lagan Weir. This marks the lower limit of the River Lagan and the start of the fully tidal Belfast Lough. Historically domestic pollution was entering stretches of the river system due to the outdated sewage system, there was poor intermixing between the freshwater and seawater resulting in low oxygenation and the river had heavy loads of nitrogen. This resulted in anoxic mud on the riversides which produced a smell that impacted on the quality of life of residents. To improve the environmental quality of this stretch of the river the weir was constructed, the river was dredged to remove as much silt and sediment as possible, an aeration system was put in place to mix and oxygenate the saline and river waters and a water quality programme was instigated by Laganside Corporation. Sedimentation is an issue that has been identified as requiring action (NIEA 2010). The River Lagan was subject to dredging in 2011 (for the first time since 1994). The work involves thousands of tones of silt being removed by diggers and disposed of at an approved location out at sea under licence.

In addition the Belfast Sewers Project recently rehabilitated and upgraded the Belfast sewer network. There are three main WWTW in the Lagan catchment, Newtownbreda, Dumnurry and New Holland, which collectively contribute approx 50% of the total loading of SRP and approximately 16% total loading of N to the River Lagan (Foy and Girvan 2004). Water NI considers that these WWTWs are satisfactory and capable of accommodating all development within its catchment that is proposed in the Plan through the Plan period. Similar consideration is given for other WWTWs in the catchment with the exception of those at Hillsborough, Maghaberry and Legacurry (although the pumping station at Hillsborough has recently been upgraded to prevent discharges of unscreened sewage and Legacurry does not contain any development zonations).

The Lagan Canal Trust have commissioned the Strategic Environmental Assessment and had held public information events relating to the Lagan Canal Re-Opening Plan. Any future plans or projects to re-open the Lagan Canal may influence sedimentation, water quality, dredging requirements and spread of invasive species. Several Lagan Valley Nodes are also adjacent to the River Lagan and these may help facilitate or encourage the re-opening the Lagan Canal.

The main land use in the Lagan Local Management Area is improved grassland (42%), arable farming (13%) and development (11%) (NIEA 2010). Developments associated with the Plan area have the potential to impact upon the SPAs/Ramsar in relation to pollution incidents, enrichment or sedimentation resulting from built development that is adjacent to the river and from discharges associated with built development in the plan area that enters into the connecting River Lagan and its Tributaries. The river and its tributaries flow through Lisburn City and Belfast City, whilst other significant towns in the catchment are Moira, Dromore, Hillsborough and Carryduff. Many stretches of the watercourses associated with Belfast City and Lisburn City are classed as heavily modified waterbodies. Within the BMAP plan large sections of land adjacent to the River Lagan have been identified as Open Space, Local Landscape Policy Areas, Sites of Local Nature Conservation Importance or as lands within Lagan Valley Regional Park. The policies associated with these zones provide a degree of protection from development. However there are a number of development zones in close proximity to the River Lagan or its tributaries including land zoned for mixed use (LC08), Land zoned for employment (such as LC05 and existing LC09), Sprucefield Regional Shopping Centre (LC16), and Belfast City Centre (most of which are previous developed land which are usually vacant, derelict or used for surface level car parking) and numerous housing zonations (mainly along tributaries). Zoning LC05 is a large site that is capable of accommodating industrial uses B1, B2, B3 and B4 and other non-industrial employment uses but the plan does not identify special industrial uses as an acceptable use. There is a Key Site Requirement to provide a linear riverside park beside the River Lagan. LC08 is capable of accommodating industrial uses B1, B2 and B4 and other non-industrial employment uses, including water based recreational facilities (the plan does not identify special industrial uses as an acceptable use). There are Key Site Requirements to undertake contamination and flood risk studies and amplification which highlight the potential limitations of the foul sewage systems which may affect the future development of the site. The plan does not give any indication that impacts of discharges from any of these sites may influence the water quality of the River Lagan and Belfast Lough and as a subsequence adversely impact on the Belfast Lough SPAs and Ramsar.
There are various other connecting waterways that enter into Belfast Lough SPAs / Ramsar such as Woodburn River and the Three Mile Water. These are within the Belfast Lough Local Management Area. Other nearby watercourses include the Kilroot River and Crawfordsburn River.

Woodburn River is within Carrickfergus Borough Council and flows through Carrickfergus. The river is a Freshwater Fish Directive River. It has been designated as a heavily modified river and is within a UWWTSD Sensitive Area. The Woodburn River had less than good status in 2009. The river is considered to have moderate ecological potential (NIEA 2012). Within the river invertebrate communities were impacted and there was organic enrichment. There was also evidence of nutrient enrichment impacting on phosphorus levels and macrophyte and diatom communities. It has also been impacted by abstraction and flow regulation. Within the Belfast Lough Local Management Area Action Plan there are actions to assess sources of organic pollution (including NIW intermittent Discharges, Sewage Pumping Stations at Staid, septic tanks and polluted areas upstream of Woodburn River and Courtaulds Factory monitoring station); review and assess catchment flows, abstraction levels and current abstraction licence associated with Woodburn Reservoirs and assess current forestry operations. Within the plan sections of land adjacent to the Woodburn River have been identified as Open Space, Local Landscape Policy Areas and Sites of Local Nature Conservation Importance. The policies associated with these zones provide a degree of protection from development. However there is one housing development zone adjacent to the river (CS04/04). The land may be contaminated and is partly in floodplain. The plan does not give any indication that impacts of discharges from this site may influence the water quality of the Woodburn River and Belfast Lough and as a subsequence adversely impact on the Belfast Lough SPAs and Ramsar.

The Three Mile Water is within Newtownabbey Borough Council and flows through Metropolitan Newtownabbey. The river is a Freshwater Fish Directive River and is within a UWWTSD Sensitive Area. Although the river has not been designated as a heavily modifies river it does show impacts from changes to morphology especially the historic engineering, culverting and impounding at Mossley Mill. The Three Mile Water had had poor status in 2009. Within the river invertebrate communities were impacted and there was organic enrichment. There was also evidence of nutrient enrichment impacting on phosphorus levels and macrophyte and diatom communities. Within the Belfast Lough Local Management Area Action Plan there are actions to assess sources of organic pollution (including NIW intermittent Discharges, Sewage Pumping Stations at Whiteabbey, septic tanks and identified polluted areas); and carry out compliance assessments by investigating downstream impacts of discharges from industrial premises where a problem has been identified. Within the plan sections of land adjacent to the Three Mile Water have been identified as Open Space, Local Landscape Policy Areas and Sites of Local Nature Conservation Importance. The policies associated with these zones provide a degree of protection from development. However there is one employment site (MNY05) that the river runs through, existing industry, a number of housing development zones close or adjacent to the river and a number of committed housing sites. Acceptable employment uses within MNY05 are (B1,B2,B3,B4) light industrial, general and storage or distribution including logistics, business use or (Special Industrial Use has not been identified as an acceptable use). There are KSRs requiring a flood risk assessment and a comprehensive landscaping. The plan does not give any indication that impacts of discharges from these site may influence the water quality of the Three Mile Water and Belfast Lough and as a subsequence adversely impact on the Belfast Lough SPAs and Ramsar.

The Kilroot Water is approximately 0.8km from Belfast Lough SPAs / Ramsar. The river is within Carrickfergus Borough Council and flows through Carrickfergus. The Kilroot River had poor status in 2009. The river is considered to have good ecological potential (NIEA 2012). The actions for this river are to maintain its good status. Within the plan sections of land adjacent to the Kilroot River have been identified as a Local Landscape Policy Area and a Site of Local Nature Conservation Importance. The policies associated with these zones provide a degree of protection from development. There is large existing employment zone adjacent to the river (CS06). There are KSRs requiring a comprehensive landscaping scheme. It is also noted in the amplification that a foul sewer extension may be required to serve this site and a foul sewage pumping station and upgrading of the existing foul sewerage system (if the existing sewer on the northern boundary is utilised) may be required to serve this site.
Crawfordsburn River is approximately 1km from Belfast Lough SPAs / Ramsar. The river is within North Down Borough Council. Crawfordsburn River had poor status in 2009. Within the river invertebrate communities were impacted and there was organic enrichment. There was also evidence of nutrient enrichment impacting on phosphorus levels and macrophyte and diatom communities. Although Crawfordsburn was not classed as heavily modified it showed impacts from abstraction and flow regulation (NIEA 2012). Within the Belfast Lough Local Management Area Action Plan there are actions to assess sources of organic pollution (including NIW intermittent Discharges, Sewage Pumping Stations, Ballysallagh WWTW, septic tanks and polluted areas downstream of Ballysallagh Upper Reservoir and Golf Club); review and assess catchment flows, abstraction levels and current abstraction licence associated with Ballysallagh Reservoirs; assess current forestry operations; and carry out compliance assessments by investigating downstream impacts of discharges from industrial premises where a problem has been identified. Within the plan sections of land adjacent to the Crawfordsburn River have been identified as Local Landscape Policy Area and as Sites of Local Nature Conservation Importance. There are no Plan development zonations in the proximity of Crawfordsburn River.

Wind energy developments represent a potential threat of collision as feature bird species fly across the BMAP area. BMAP does not include any proposals or policies that would promote the development of wind turbine developments in the BMAP area however proposals for wind energy developments in the BMAP plan area may be submitted during the lifetime of the Plan. Such proposals would have to be considered on a case by case basis utilizing any detailed information about flight paths that becomes available. Planning policy related to renewable energy developments can be found in PPS18: Renewable Energy. There are many other activities associated with Belfast Lough that could impact on the SPAs/Ramsar features that BMAP has no influence upon. These include aquaculture, bait-digging, wildfowling, research activities, shipping routes or disposal of ballast waters (potential spread of invasive species).

Adjoining amenity grassland habitat can be utilised by the feature bird species for additional feeding opportunities (Conservation Objectives Report). Existing amenity grassland areas adjacent to the lough have been retained as open space zonations. PPS8 encourages the retention these open space areas and provides a degree of protection from development. Many of these open space areas have provided long term public access.

Aerial Pollution

Aerial pollution and associated atmospheric deposition of nitrogen and sulphur compounds arising from the BMAP area have the potential to lead to eutrophication and soil acidification.

There is no field or research evidence that suggests that wintering Common Redshank are particularly sensitive to, or at risk from, acidification or eutrophication caused by aerial depositions. There is no expected negative impact on wintering Common Redshank species due to acidification or eutrophication caused by aerial depositions (APIS 2013).

Wintering Great Crested Grebe and Black-tailed Godwits are both sensitive to eutrophication caused by N deposition but they are not sensitive to acidification impacts from aerial pollution (APIS 2013). For Great Crested Grebe increased eutrophication can cause algal blooms that could decrease fish numbers whilst Black-tailed Godwit requires mud or short vegetation for feeding (although eutrophication may cause an increase in food availability for this species). Nitrogen nutrient enrichment in the littoral sediments associated with these wintering species can cause an increase in late successional species and can also result in increased dominance by graminoids (APIS 2013).

To-date aerial pollution and associated atmospheric deposition has not been highlighted as having an affect on Belfast Lough SPAs/Ramsar.

Plan implications

To further assess the implications on Belfast Lough SPAs / Ramsar it was deemed appropriate to consider if critical loads for nutrient-nitrogen or acidity deposition were met or exceeded in 2005 or have been modeled to be exceeded by 2020 using tools within the UK Air Pollution Information System (APIS).
Table 9. Table showing where critical loads for nutrient-nitrogen and acidity have been met* or exceeded** on Belfast Lough SPA/Ramsar selection features or have been modeled to be exceeded by 2020 using tools within the UK Air Pollution Information System (APIS). The table also shows whether the contribution of any particular source meet* or exceeds** the critical load. Features that are not considered sensitive to nutrient-nitrogen and acidity, or which have no recorded critical load are marked with the / symbol.

<table>
<thead>
<tr>
<th>Belfast Lough SPAs / Ramsar selection feature</th>
<th>Total Critical Load meet or exceeded</th>
<th>Source Critical Load</th>
<th>Critical Load meet or exceeded</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N  05</td>
<td>N 20</td>
<td>A 05</td>
</tr>
<tr>
<td>Great Crested Grebe <em>Podiceps cristatus</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black-tailed Godwit <em>Limosa limosa islandica</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>associated habitat littoral sediment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Redshank <em>Tringa tetanus</em>  associated habitat littoral sediment.</td>
<td>/</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

At the screening stage the distance of each site to the BMAP plan area was considered. To assess localized impacts on each European site it was deemed appropriate to consider the distance between zonings and designations within BMAP and each European site in more detail to see if there were likely to be adverse local effects.

**Belfast Lough SPAs / Ramsar:**

**BMAP settlements with development zonings within 15km.**

- All proposals and policies within the following Districts: Belfast; Carrickfergus and North Down
- A portion of Metropolitan Newtownabbey
- The majority of policies and proposals within Newtownabbey Borough Council
- All proposals within Metropolitan Lisburn, a portion of Lisburn City and villages in Lisburn District such as Drumbeg, Drumbo and Stoneyford
- Small settlements were considered but they did not contain any development zonations.

The whole suite of plan proposals relating to development can be found within 15km of Belfast Lough SPAs / Ramsar including proposals for education, employment, housing, retail and roads.

BMAP indicates that applications for planning permission within the zoned employment sites will be determined in accordance with prevailing regional policy and Key Site Requirements in the Plan. The use classes suitable for each employment zonation are contained within the KSRs for each site. In addition the KSRs indicate that employment developments shall only be permitted in accordance with an overall comprehensive masterplan for the site to be agreed with the Department.

Under the Planning (Use Classes) Order (Northern Ireland) 1989, the Land Classes 6, 7, 8, 9 and 10 were related to Special Industrial Uses which were the uses most likely to result in aerial emissions. These classes were subsequently revoked by amending legislation in 1993 and 1996. The Planning (Use Classes) Order (Northern Ireland) 2004 indicates that no class specified in the schedule includes use for any work required to be registered under Article 20 of the Industrial Pollution Control (Northern Ireland) Order 1997 and regulation 30 of the Pollution Prevention and Control Regulations (Northern Ireland) 2003. These pieces of legislation have subsequently been superseded by the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013. Within the areas described above BMAP has not
specifically zoned any land for specific uses that would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013.

**Appropriate Assessment consideration:**

**Aerial Pollution**

Although it is widely acknowledged that aerial emissions have the potential to damage sensitive species, to-date there has been no specific indication that atmospheric deposition from the BMAP area is a threat to Belfast Lough SPAs / Ramsar.

BMAP has not identified any specific zonations or policies relating to rural agricultural / manure management proposals that are potential sources of ammonia, for example chicken or pig farms. Nor does it give any requirement for a certain number of these types of developments to be built in the BMAP area. Any such proposals would therefore be out-with any plan proposals and would have to be considered on a case by case basis via development management and the application of prevailing regionally policy and, if appropriate, any relevant policies within BMAP.

Aerial deposition from sources in the BMAP area may have the potential to be a contributing factor to the overall deposition levels at Belfast Lough SPAs / Ramsar. However deposition levels at Belfast Lough are currently below critical levels. The deposition of toxic substances has declined significantly over recent decades and the level of atmospheric deposition into the SPA site is predicted to decrease by 2020. For example it is predicted that the deposition of sulphur onto the SPA attributed to housing or commercial sources will reduce between 2005 and 2020 (APIS 2013).

The adopted plan however does not zone any employment lands for specific industrial uses that would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013. Such developments could result in adverse aerial emissions to the SPA.

During the lifetime of the plan there may be other future development applications within the BMAP area which could result in aerial deposition on the SPAs in question. Any such proposals would be out-with any plan proposals and would have to be considered on a case by case basis via development management and the application of prevailing regionally policy (in Particular PPS2) and, if appropriate, any relevant policies within BMAP. In addition any such future proposals must comply with legally enforceable obligations designed to avoid environmental effects. Integrated Pollution Protection and Control Guidelines are a Regulatory system that employs an integrated approach to control the environmental impacts of certain industrial activities. The system requires the identification of industrial proposals up to 10-15km from sensitive receptors such as European sites. Where an installation is within such distance of a European site, an assessment has to be made regarding potential impacts. This assessment may require the use of detailed air impact assessment (air dispersion modeling) or in other cases a screening tool can be used to demonstrate whether potential impacts are acceptable. Proposals which may have a potential impact on designated habitats are likely to be considered by both the Industrial Pollution and Radiochemical Inspectorate (IPRI) and Natural Heritage in NIEA. Any adverse impact by subsequent proposals for industry which generates significant aerial emissions should be avoided through implementation of the legally enforceable obligations and the application of regional planning policy.

The BMA Employment Strategy provides a measure of certainty about which types of development will and will not be permitted. However there is uncertainty about where new industrial proposals which have the potential to promote uses which generate significant aerial emissions which would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013 are likely to be located. The draft BMAP plan suggested some of the sites within 15km of Belfast Lough SPAs / Ramsar would be suitable for this type of special industrial use. Any new proposals for industry generating significant aerial emissions will be subject to legal obligations, regional planning policy and potentially the Key Site Requirements or the amplification text in the plan. The plan however does not give any indication that impacts of aerial emissions from any sites may be an environmental constraint which could result in the need for a Habitat Regulation Assessment to be carried on specific proposals to ensure that there would be no adverse impacts on European Sites, including Belfast Lough SPAs / Ramsar.
There are no development proposals directly within Belfast Lough SPAs/Ramsar and as such there will be no direct destruction of habitat as a result of the implementation of BMAP. Wind turbines may be proposed within the BMAP area during the life time of the plan but these proposals would be outwith the plan and would have to be considered on a case by case basis having regard to regional planning policy and any detailed information about flight paths that becomes available. Dredging requirements associated with the River Lagan and Belfast Lough are outside the remit of BMAP. Other issues that are outside the remit of BMAP include aquaculture, bait-digging, wildfowling, research activities, shipping routes and the disposal of ballast waters.

The Conservation Objective Report for Belfast Lough SPAs considers that actions should be taken to consider collective impact of shipping. Although BMAP does not contain any specific proposals relating to additional shipping activity it contains one policy (BHA03) and one zoning (BHA01) within the Belfast Harbour Area that may promote additional boating activity in the Belfast Lough. As a consequence the plan may indirectly influence disturbance levels and increase the threat of shipping pollution incidents within Belfast Lough which could have adverse effects on the Great Crested Grebe, Redshank and Black-tailed Godwit that utilize the area. Policy BHA03 recognises the importance of nature conservation designations as does the natural environment amplification text associated with the Belfast Harbour. However the plan does not give any indication that impacts of increased shipping connected to plan proposals may be an environmental constraint which could result in the need for a Habitat Regulation Assessment to be carried on specific proposals to ensure that there would be no adverse impacts on European Sites, including Belfast Lough SPAs / Ramsar.

There are limited BMAP proposals or policies that could increase disturbance levels adjacent to Belfast Lough with the exception of the Policy SETT 2 and zonations BHA04 and BHA05. The policy gives no indication that disturbance impacts on SPA or Ramsar features need to be considered to ensure that adverse effects are avoided. Both zonations include KSRs that development proposals shall be required to provide appropriate protection of habitat biodiversity in the adjacent international and national designated natural heritage sites.

Due to the water quality of the Belfast Lough and Lagan Catchments and the associated requirements of the Water Framework Directive there are Local Management Area Action Plans which aims to improve the ecological status of Belfast Lough and the River Lagan catchments. Although water pollution and eutrophication pose threats to the ecological structure of benthic fauna and flora within Belfast Lough there is an existing regulatory regime in place that should control discharges associated with any proposals resulting from the implementation of BMAP. NIEA are responsible under the Water (NI) Order for preventing or minimizing the effects of pollution entering our waterways and to manage the risk of a polluting discharge from occurring. There are currently measures in place to ensure that proposals associated with the River Lagan meet legal requirements associated with: The Drinking Water Directives (80/778/EEC and 98/83/EC); the Major Accidents Directive (96/82/EC); the Environmental Impact Assessment Directive (85/337/EEC); the Sewage Sludge Directive (86/278/EEC); The Urban Waste Water Treatment Directive (91/271/EEC); the Plant protection products Directive (91/414/EEC) the Nitrates Directive (91/676/EEC) and the Integrated Pollution Prevention and Control Directive. In addition to this any discharge of trade, sewage effluent or any other potential pollution (including effluent from any commercial, industrial or domestic premises or site drainage) to any waterway or any water contained in underground strata requires consent from the Department of the Environment under the Water (Northern Ireland) Order 1999 (Consent for certain other discharges are also required under the Water and Sewage Service (NI) Order 1973 as amended). Such consents can include conditions outlining the quantity and quality of the discharges and are drawn up to ensure that the waste can be absorbed by the receiving waterway without affecting the quality of the aquatic environment, or breaching national or European Commission (EC) standards. Water NI considers that the majority of WWTWs associated with the Lagan are satisfactory and capable of accommodating all development within their catchments that are proposed in the Plan through the Plan period and that those which were not were programmed to be upgraded between 2011 and 2015. The regulated discharges from these WWTW will have been granted Water Order permissions.
There are a number of development zones either in close proximity to, or infrastructurally connected to the rivers within the Belfast Lough or River Lagan catchment that have the potential to interact with the River Lagan or Belfast Harbour in terms of contributing to waste discharges. The regulatory controls and management measures outlined above should be sufficient to ensure that any BMAP proposals will not have an adverse impact on Belfast Lough SPAs and Ramsar. Although the implementation of BMAP should not have any effect on key species and key habitats or on the integrity of Belfast Lough SPAs and Ramsar due to these existing regulatory and management regimes BMAP does not make any reference to the potential for new or unconsented waste discharges from zoned development sites into rivers associated with the Belfast Lough and River Lagan catchments to have adverse impacts on water quality and subsequently on the ecological structure of benthic fauna and flora within Belfast Lough and thus to have impacts on the Great Crested Grebe, Redshank and Black-tailed Godwit that utilize the area.

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| **Other indicators: Does the project or plan have the potential to:** | Yes/No |
| • cause changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem? | Yes |
| • change the dynamics of the relationships (between, for example, soil and water or plants and animals) that define the structure and/or function of the site? | Yes |
| • interfere with predicted or expected natural changes to the site (such as water dynamics or chemical composition)? | Yes |
| • reduce the area of key habitats? | Yes |
| • reduce the population of key species? | No |
| • change the balance between key species? | No |
| • reduce diversity of the site? | No |
| • result in disturbance that could affect population size or density or the balance between key species? | Yes |
| • result in fragmentation? | No |
| • result in loss or reduction of key features (e.g. tree cover, tidal exposure, annual flooding , etc.)? | No |
**Appropriate Assessment Conclusion:**
The evidence gathered and assessment undertaken does not enable us to conclude reasonably and objectively that the implementation of BMAP will not adversely affect key species and key habitats or the integrity (structure and function and conservation objectives) of:
Belfast Lough SPA
Belfast Lough Open Water SPA
Belfast Lough Ramsar

Mitigation measures are required to ensure that BMAP will not have any effect on the integrity of these SPAs / Ramsar with regard to:
- Collective impact of increased boating activity.
- Aerial pollution.
- Increased disturbance levels.
- Water quality.
- Settlement Development Limits.
Appropriate Assessment Report for:
Copeland Islands SPA

Elements of BMAP that are likely to give rise to significant effects;

Breeding colonies of Arctic Tern *Sterna paradisaea* and Manx Shearwater *Puffinus puffinus* are the principle reasons for the selection of the Copeland Islands as a SPA.

Copeland Islands SPA consists of three islands, Big Copeland, Light House Island and Mew Island. The SPA is linked to BMAP by the potential for aerial depositions and by the ecological connectivity of bird populations that may utilize the BMAP area, the Copeland Islands and adjacent sea areas, including competitive species such as gulls.

BMAP is not likely to impact on activities on the Copeland Islands such as habitat management, invasive species, recreational activities, game bird management, grazing regimes or field boundary management. The feature species of the SPA however also utilize surrounding sea areas for courtship, preening, loafing behaviors and for feeding. Increased boating activity could increase disturbance whilst fishing could represent competition for piscivorous birds. BMAP policies or proposals promoting additional sea traffic may have an impact. Coastal developments in the BMAP area may also influence water quality in the surrounding areas in particular influencing localized waste water treatment requirements.

Consideration had to be given whether or not activities associated with the implementation of BMAP have the potential to shift the balance of species utilising the Copeland Islands SPA, in particular gull populations. Gulls have been noted to breed on rooftops of buildings in Belfast City Centre and it is believed that the increase in gulls throughout the last century was due to increased feeding opportunities of mainly man made origin such as the establishment of large municipal landfill sites (Crème et al. 1997).

One of the main sites in Belfast where gulls congregated was the Dargan Road Landfill Site. When the draft BMAP was published a closure plan was already in place for the Dargan site and landfill operations ceased in 2007. The closure of this gull food source would have required the gull populations to forage elsewhere for food which could have indirectly impacted on the gull populations on the Copeland Islands. BMAP has zoned the Dargan site as a mixed use site (BHA05) however this zonation is related to the future use of the land and had no bearing on the actual closure of the landfill site. BMAP does not contain any policies or proposals for closure or opening of landfill sites.

It has been noted that human disturbance increases the likelihood of predation on Common Gull chicks on Copeland Island by other gull species (Wolsey 2012). BMAP plan does not include any policies proposals that would influence increased human disturbance levels on the Copeland Islands.

Copeland’s SPA is also linked to BMAP by the potential for aerial depositions. As the key sources of atmospheric pollutants in Northern Ireland are from industry, transport and agricultural sources allocations and zonings associated with the BMA Employment Strategy and BMA Transportation schemes and proposals are the most likely to give rise to aerial deposition impacts.

In-combination effects from other plans or projects that are likely to have significant effects.

The screening identified Waste Management Plans and development activities in the Larne Area Plan 2010 and the Ards and Down Area Plan 2015 that may lead to a shift in the balance of species utilizing the Copeland Islands or could lead to cumulative aerial deposition eutrophication and acidification impacts.

The 6 Councils in the Plan Area are part of a larger group of 11 Councils in the eastern part of Northern Ireland which have come together to form ARC21, the Sub-Regional waste planning body. The ARC21 Waste Management Plan, prepared under Article 23 of the Waste and Contaminated Land (NI) Order 1997 and adopted by the Councils in 2003, identifies the key elements in a sub regional network of facilities required to recycle, reuse and recover resources from our waste. The ARC21 Waste Management Plan sets
out the need for types of facility and areas of search for the provision of this needed capacity in terms of a sub regional network of waste facilities. The Waste Management Plan also identifies a need for regional waste disposal capacity to meet current needs before alternative options are fully developed. As recovery, reuse and recycling capacity grows, a decreasing amount of landfill will then be required to deal with residual material left by these processes. The Waste Management Plan also identifies ‘areas of search’ for the provision of necessary facilities and capacity. In the absence of identified sites that have planning permission or are otherwise confirmed as potential sites for facilities the Plan has taken account of the need for waste management facilities as identified in terms of “areas of search” by the competent authorities in the ARC21 Plan. Proposals for waste management facilities will be considered against the regional planning policies of PPS11 Planning and Waste Management and the areas of search identified in the ARC21 Waste Management Plan. PPS11 Planning and Waste Management, other regional planning policy and the ARC21 areas of search provide sufficient information to allow individual proposals to be considered through the development control process.

Conservation Objectives and implications for each qualifying interest in light of its conservation objectives.

Breeding colonies of Arctic Tern Sterna paradisaea and Manx Shearwater Puffinus puffinus are the principle reasons for the selection of the Copeland Islands as a SPA. The conservation objectives for the site are to maintain each feature in favorable condition. This includes measurements of fledgling success and population numbers and maintenance of the extent and quality of natural and semi-natural habitats that are used by the feature species.

Manx shearwater feed mainly on fish. They spend most of their time at sea, only coming ashore to breed (March – September). When on land they nest in burrows. Outside the breeding season they migrate to waters of the coasts of Brazil, Uruguay and Argentina. The Pembrokeshire Biodiversity Partnership (the Pembrokeshire Islands are though to hold almost half the world’s population of Manx shearwaters) have identified the following factors as affecting Manx Shearwater populations: Predation by ground predators or great black-backed gulls; limited availability of soft ground for burrowing; human disturbance boating activity or trampling; acute pollution e.g. oil spills; availability of prey species. The UK SPA Review (Stroud et al. 2001) noted that nesting Manx Shearwaters are susceptible to the effects of mammalian predation and that population declines and extinctions had been recorded on islands that had been invaded by rats. In the last Condition Assessment Report (2008) the Manx Shearwater in Copeland Islands SPA were in favourable condition.

Arctic terns feed mainly on fish. In the winter they migrate to the Antarctic and the return to the UK to breed in the summer (April - September). They nest in open ground with little or low vegetation (Hatch 2002). Terns breed in rocky, gravelly islands, barrier beaches, gravel bars and occasionally in marshes and bogs (Hatch 2002). In New Hampshire the decline and abandonment of Arctic Terns from the Isles of Shoals has been attributed to the decrease in human habitation of the islands and the subsequent increase in herring gulls (Larus argentatus) and great black-backed gulls (Larus marinus) which preyed on tern eggs and young. The UK SPA Review (Stroud et al. 2001) noted that threats to Arctic Tern populations included predation by mammals together with coastal development and disturbance such as recreational disturbance. The Report also noted that several declines have been attributed to breeding failures, with breeding success being low throughout most of the 1990s. The breeding failures may have been contributed to by a lack of sand eels the principle food, overfishing by man and bad weather. In the last Condition Assessment Report (2008) the Arctic Terns in Copeland Islands SPA were in favourable condition.

Species disturbance; habitat destruction or alteration.

The Conservation Objectives report highlighted that new sewage treatment works for the greater Bangor area at Donaghadee and associated infrastructure had the potential to impact upon the SPA. Such work could alter the water quality in surrounding coastal areas, The North Down/Ards WwTW project was part of the NI Waters Project Omega. The new treatment works and associated feeder pumping stations were needed to provide first time treatment for sewage from Bangor, Donaghadee and Millisle (Rees 2007). One of the aims was to meet EU Directives on water quality by improving the local marine environment and
creating cleaner bathing waters along the North Down/Ards coastline. NI Water secured planning permission for the WwWT and the work was completed in 2008. The works have a future population equivalent of 110,000 (Rees 2007) so additional facilities are unlikely to be required for this location during the lifetime of the plan.

Although BMAP is not likely to impact on activities on the Copeland Islands developments within the plan area have a potential to impact upon surrounding sea areas that are utilized by feature species in particular disturbance or pollution incidents or competition for food sources caused by the promotion of additional sea traffic. The main boating nearby centres for recreational / fishing boating activity are at Bangor and Donaghadee (which is within Ards Borough Council) and other local harbours. Bangor Urban Waterfront (BR32) is focused around the existing Bangor Marine and aims to make the waterfront more attractive and vibrant. However there are no policies or proposals for additional marinas in the Bangor area. Another source of shipping within the Irish Sea is commercial boating activity which is mainly associated with Belfast Harbour. Although the Conservation Objective Report considers that there are no immediate issues evident it considers that actions should be taken to consider collective impact of shipping on the Copeland Islands SPA. Within the Belfast Harbour there are large areas of existing employment land. BMAP does not contain any specific proposals relating to additional shipping activity. However Policy BHA03 ‘Port Operations and Port Related Land Uses’ enables the provision of additional port operations in Belfast Harbour. The policy does not refer to potential collective impacts on European Site features as a result of additional shipping activities.

**Balance of gull species utilizing Copeland Islands SPA**

Several gull species breed and nest on the Copeland Islands. The Arctic terns nest throughout the common gull colony (Larus canus) and both are subject to predation by other gull species (Wolsey 2012). Within the island the predation of Arctic Tern chicks by lesser black-headed (Larus fuscus) and great black-backed gulls and herring gulls has been observed (Leonard 2009; Wolsey 2012). It has been noted that human disturbance increases the likelihood of predation on Common Gull chicks on Copeland Island by other gull species (Wolsey 2012). This predation may reduce the survival rate of chicks in the Copeland Islands.

Between 1941 and 1956 the numbers of terns on the Copeland Islands fell from around 17,400 to 2,000 to 3,000 and it was speculated that this reduction of about ten percent per year was caused by a combination of circumstances including increases in the breeding populations of the large gulls and environmental pollution. After 1956 the numbers of terns continued to fall and it was reported that there was little doubt that the remarkable increase in gull populations led to this further decline. Since that time botulism has reduced the populations of Herring Gulls (fallen from over 7,000 pairs in 1982 to under 200 pairs in 1995 and only around 100 pairs in 2001) and Greater Black-backed Gulls. The Lesser Black-backed Gull population appears to be more steady, it has rarely varied outside 200 to 300 pairs in the past 20 years. In 2010 there were 1,624 gulls nesting on the island including 615 common gull nests; 7 great black-backed gull nests; 19 black-headed gulls nests; 462 herring gull nests and 521 lesser black-backed gull nests (Wolsey 2012). Wolsey (2012) considers that in order to comply with the EU Birds Directive active management on predator numbers on Copeland Islands may need to be perused. The Conservations Objectives Report for the site notes that the number of breeding large gulls has declined in recent years and that there has been licensed selective culling of fledglings/young of certain species.

As previously noted the BMAP plan does not include any policies proposals that would influence increased human disturbance levels on the Copeland Islands.

Gulls have been noted to breed on rooftops of buildings in Belfast City Centre and it is believed that the increase in gulls throughout the last century was due to increased feeding opportunities of mainly man made origin such as the establishment of large municipal landfill sites (Crème et al. 1997). BMAP does not contain any policies or proposals for closure or opening of landfill sites.

**Aerial Pollution**

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5 http://www.habitas.org.uk/cbo/terns.html
Aerial pollution and associated atmospheric deposition of nitrogen and sulphur compounds arising from the BMAP area have the potential to lead to eutrophication and soil acidification. There is no field or research evidence that suggests that Manx Shearwater are particularly sensitive to, or at risk from, acidification or eutrophication caused by aerial depositions from the BMAP area. Sublittoral rock, the broad habitat associated with Manx Shearwater, is not sensitive to eutrophication or acidification (APIS 2013).

There is no field or research evidence that suggests that Arctic Terns are particularly sensitive to, or at risk from, acidification or eutrophication caused by aerial depositions from the BMAP area however Terns are found in more than one broad habitat for feeding resting or roosting and nesting, which requires short vegetation or bare ground amongst longer vegetation which provides cover for chicks (APIS 2013). Nitrogen nutrient enrichment in the broad habitats associated with Arctic Terns can increase tall grasses and decrease prostrate plants. (APIS 2013). There is no expected negative impact on tern species due to acidity impacts (APIS 2013).

To-date aerial pollution and associated atmospheric deposition has not been highlighted as having an affect on Copeland Islands SAC.

Plan implications
Using the UK Air Pollution Information System (APIS) it is noted that the approximate broad habitat utilized by nesting Arctic Tern (shifting coastal dunes) has a critical load of 10-20kg N/ha/yr. The deposition at the Copeland Islands is 11.9kg N/ha/yr indicating that the critical level is being met.

At the screening stage the distance of each site to the BMAP plan area was considered. To consider localized impacts on each European site it was considered appropriate to consider the distance between zonings and designations within BMAP and each European site in more detail to see if there were likely to be adverse local effects.

### Copeland Islands SPA:
**BMAP settlements with development zonings within 15km.**
- **Towns:** Bangor; Whitehead; a portion of Carrickfergus
- **Villages:** Crawfordsburn; Groomsport; Helens Bay; Seahill;

Small settlements were considered but they did not contain any development zonations.

In relation to BMAP lands within approximately 15km of Copeland Islands SPA:
- The town of Bangor contains major areas of existing employment land, an additional zoned Employment site (BR05), a number of housing zonations, land zoned for educational use, district centres, an urban waterfront and a number of development opportunity sites. The Employment (BR05) could potentially be used for light industrial uses, general industrial uses or storage/distribution uses. The opportunity sites are mainly zoned for retail and the urban waterfront is focused on the existing Bangor Marina.
- The portion of Carrickfergus Town within 15km includes a major area of existing employment (CS06). A major power station ‘Kilroot’ is also within Carrickfergus Town but BMAP contains no policies or proposals relating to the power station.
- The town of Whitehead and the villages of Groomsport; Helen’s Bay and Seahill contain several housing zonations. Crawfordsburn does not contain any development zonations.

BMAP indicates that applications for planning permission within the zoned employment sites will be determined in accordance with prevailing regional policy and Key Site Requirements in the Plan. The use classes suitable for each employment zonation are contained within the KSRs for each site. In addition the KSRs indicate that employment developments shall only be permitted in accordance with an overall comprehensive masterplan for the site to be agreed with the Department.

Under the Planning (Use Classes) Order (Northern Ireland) 1989 the Land Classes 6, 7, 8, 9 and 10 were related to Special Industrial Uses which were the uses most likely to result in aerial emissions. These classes were subsequently revoked by amending legislation in 1993 and 1996. The Planning (Use Classes) Order (Northern Ireland) 2004 indicates that no class specified in the schedule includes use for any work required to be registered under Article 20 of the Industrial Pollution Control (Northern Ireland) Order 1997.
and regulation 30 of the Pollution Prevention and Control Regulations (Northern Ireland) 2003. These pieces of legislation have subsequently been superseded by the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013. Within the areas described above BMAP has not specifically zoned any land for specific uses that would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013.

**Appropriate Assessment consideration:**

Although it is widely acknowledged that aerial emissions have the potential to damage sensitive plant communities, to-date there has been no specific indication that atmospheric deposition from the BMAP area is a threat Copeland Islands SPAs.

BMAP has not identified any specific zonations or policies relating to rural agricultural / manure management proposals that are potential sources of ammonia, for example chicken or pig farms. Nor does it give any requirement for a certain number of these types of developments to be built in the BMAP area. Any such proposals would therefore be out-with any plan proposals and would have to be considered on a case by case basis via development management and the application of prevailing regionally policy and, if appropriate, any relevant policies within BMAP.

Aerial deposition from sources in the BMAP area may have the potential to be a contributing factor to the overall deposition levels at Copeland Islands SPA. The adopted plan however does not zone any employment lands for specific industrial uses that would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013. During the lifetime of the plan there may be other future development applications within the BMAP area which could result in aerial deposition on the SPAs in question. Any such proposals would be out-with any plan proposals and would have to be considered on a case by case basis via development management and the application of prevailing regionally policy (in Particular PPS2) and, if appropriate, any relevant policies within BMAP. In addition any such future proposals must comply with legally enforceable obligations designed to avoid environmental effects. Integrated Pollution Protection and Control Guidelines are a Regulatory system that employs an integrated approach to control the environmental impacts of certain industrial activities. The system requires the identification of industrial proposals up to 10-15km from sensitive receptors such as European sites. Where an installation is within such distance of a European site, an assessment has to be made regarding potential impacts. This assessment may require the use of detailed air impact assessment (air dispersion modeling) or in other cases a screening tool can be used to demonstrate whether potential impacts are acceptable. Proposals which may have a potential impact on designated habitats are likely to be considered by both the Industrial Pollution and Radiochemical Inspectorate (IPRI) and Natural Heritage in NIEA. Any adverse impact by subsequent proposals for industry which generates significant aerial emissions should be avoided through implementation of the legally enforceable obligations and the application of regional planning policy.

The main threats to the SPA appear to be associated with predation particularly by gulls. It has been noted that human disturbance increases the likelihood of predation on Common Gull chicks on Copeland Island by other gull species (Wolsey 2012). There is no evidence to suggest that gulls have been displaced to the Copeland Islands from the BMAP area as a result of development activities. The opening or closure of landfill sites may influence gull populations in the BMAP area but the BMAP plan does not contain any policies or proposals specific to this issue. Development activities as a result of the BMAP plan will result in additional material going to landfill but other plans and regimes, such as Waste Management Plans and PPS11 are responsible for deciding the best location for these sites and whether or not additional landfill sites are required. The BMAP plan does not include any policies or proposals that would increase human disturbance levels on the Copeland Islands. Research suggests that predation in the Copeland Islands would be best controlled by reducing the access of large gulls to tern colonies and by reducing human disturbance (Wolsey 2012).

The Conservation Objective Report for Copeland SPA considers that actions should be taken to consider collective impact of shipping on the Copeland Islands SPA as surrounding sea areas are utilised for courtship, preening, loafing behaviors and for feeding. Although BMAP does not contain any specific
proposals relating to additional shipping activity it contains one policy (BHA03) associated with the Belfast Harbour Area that may promote additional boating activity in the Irish Sea. Policy BHA03 recognizes the importance of nature conservation designations as does the natural environment amplification text associated with the Belfast Harbour. However the plan does not give any indication that potential collective impacts of increased shipping connected to plan proposals may be an environmental constraint which could result in the need for a Habitat Regulation Assessment to be carried on specific proposals to ensure that there would be no adverse impacts on European Sites. As a consequence the plan may indirectly influence disturbance levels and increase the threat of shipping pollution incidents within the Irish Sea which could have adverse effects on the Arctic Tern and Manx Shearwater that utilize the area.

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**Appropriate Assessment Conclusion:**
The evidence gathered and assessment undertaken does not enable us to conclude reasonably and objectively that the implementation of BMAP will not adversely affect key species and key habitats or the integrity (structure and function and conservation objectives) of:
Copeland Islands SPA
Mitigation measures are required to ensure that BMAP will not have any effect on the integrity of Copeland Islands SPA with regard to:

- Collective impact of increased boating activity.
Appropriate Assessment Report for:
Eastern Mournes SAC

Elements of BMAP that are likely to give rise to significant effects;

Northern Atlantic wet heaths with Erica tetralix and European Dry Heath are the primary reasons for the selection of the Eastern Mournes SAC. Other Annex I habitats that are present as a qualifying feature, but not a primary reason for selection of this site include: Alpine and boreal heaths; Blanket Bog; Siliceous alpine and boreal grasslands; Siliceous rocky slopes with chasmophytic vegetation; Siliceous scree of the montane to snow levels.

The Silent Valley and Ben Crom reservoirs (both within Eastern Mournes SAC) supply water for most of County Down and a large part of Belfast, providing approximately 400,000 people with up to 30 million gallons (130 million liters) of water a day. There is a potential for damage to habitats in the SAC if there is a requirement for additional pipe laying for water abstraction purposes within the Eastern Mournes SAC to accommodate the water demands of new proposals in the BMAP. Any BMAP development proposals that require use of water abstracted from the Silent Valley and Ben Crom reservoirs during construction or operation may have in-combination effects.

In-combination effects from other plans or projects that are likely to have significant effects.

The screening identified that there was a potential for in-combination effects arising from development activities in the Ards and Down Area Plan 2015 and the Banbridge Newry and Mourne Area Plan 2015 which may lead to cumulative pressure for increased water abstraction. Infrastructural Water Plans and associated Capital Works may result in additional construction work in Eastern Mournes SAC. The planned works highlighted in the business plans of Northern Ireland Water (NI Water) could therefore have in-combination effects.

The NI Water Silent Valley information leaflet describes that by the turn of the last century a growing population and the growth of the linen, ship-building and engineering industries led to an increased demand on Belfast’s water supply. The Belfast Water Commissioners bought 9,000 acres of the High Mournes to help accommodate this need. The first stage of work undertaken was to divert the water from the Kilkeel and Annalong Rivers and transport the water through pipes (the Mourne Conduit) to a new reservoir near Carryduff. This reservoir could store 100 million gallons of Mourne water. The second stage was to build a dam across the Kilkeel River which was finished in 1933. The Commissioners didn’t want to build a second reservoir in Annalong Valley because of the geological condition of the rock in the valley and instead dug a tunnel through Slieve Binnian to carry the water from Annalong into Silent Valley. The Slieve Binnian tunnel was finished in 1952 and measures 2.1 metres x 2.4 metres and is nearly 3.6 kilometres long. In the 1950s there was a demand for more water as Belfast and other towns in County Down grew. This meant further development of the Upper Kilkeel River and its tributaries in the High Mournes to develop an extra reservoir high in the mountains beneath Ben Crom. The building of this reservoir was finished in 1957.

Abstraction from the Mourne Reservoirs is now controlled by NI Water. In 2006 the Aquarius Mourne Water Project completed a new water treatment works at Drumaroad Co. Down to treat water from Silent Valley. A previous phase of the Aquarius Project (1999) replaced the Mourne Conduit, which included the laying of a new underground pipeline to carry water to Belfast.

Overall Approach’ specify the need for any additional capital works in the Eastern Mourne SAC. The Utility Regulator indicate that the PC13 will last until 2015 and that the future PC15 will be more strategic in nature to help meet the many challenges which the water industry has to face over the long term, including climate change, population growth and an uncertain economic environment. The NI Water document ‘draft Water Resources Management Plan 2010-2035’ does not specify the need for any additional capital works in the Eastern Mourne SAC but it does indicate that an option under consideration is to increase output from Fofanny WTW which is directly adjacent to the Eastern Mournes SAC. This would require increased water transfer from Lough Island Reavy and a new pipeline and treatment infrastructure. Recent upgrades to Fofanny WTW were partially buried to reduce visual impact. As Lough Island Reavy is to the north-east of Fofanny there would be various options to locate the new pipeline outside of the Eastern Mourne SAC. It is likely that the additional water would be supplied within the Newry Area.

There are several recent or ongoing NI Water projects throughout Northern Ireland to improve the quality, reliability and flexibility of water supply across Northern Ireland while also reducing leakage. http://www.NI Waterater.com/whatweredoing.asp
This includes:
- The Water Mains Rehabilitation project (to upgrade in excess of 1000 kilometres of water main infrastructure throughout Northern Ireland);
- The Alpha Project to upgrade, operate and maintain existing water treatment works (WTW) at four locations across Northern Ireland that can produce up to 50% of NI Water's bulk drinking water supply; and to deliver three major trunk watermains.
- The Dunore to Hydepark D2H project to lay a new pressurised watermain pipeline to transfer treated water between Dunore Water Treatment Works in Antrim and Hydepark Service Reservoir in Mallusk was completed in 2006. The pipeline has the capacity to deliver up to 180 million litres of water a day to over one quarter of Northern Ireland’s population. This important transmission system transfers between 130 and 150 million litres of water a day and represents one of two essential large diameter trunk mains in Northern Ireland – the other is the Mourne Conduit.

None of these projects involve capital works in the Eastern Mourne SAC. These projects will work in combination with the completed replacement of the Mourne Conduit to improve the efficiency of the water supply system in Northern Ireland.

However during the lifetime of BMAP there may be future development applications by NI Water within the Eastern Mournes SAC. NI Water has an Environmental Policy which identifies that they should ensure that environmental issues are taken into account at an early stage in the planning of new Capital projects and the delivery of maintenance programmes and that environmental impact assessments should be carried where requested by the Planning NI.

NI Water is responsible for supplying the public with clean drinkable water and uses 90% of all water abstracted in Northern Ireland. As a result of the huge volumes of water involved these activities are subject to abstraction licences in line with the Water Abstraction and Impoundment (Licensing) Regulations (Northern Ireland) 2006 No. 482. In addition the Water Framework Directive places controls over water abstractions and impoundments to make sure the directive’s objectives for water bodies are met. The control measures required for the award of a licence will play an important factor in achieving 'Good' ecological status for all water bodies in Northern Ireland.

Any unexpected proposals to undertake work in the Eastern Mournes SAC would be subject to legislative requirements and environmental assessment including the need to comply with the requirements of the Conservation (Natural Habitats, etc.) Regulations in Northern Ireland (as amended) and Regional Planning Policy.

**Conservation Objectives and implications for each qualifying interest in light of its conservation objectives.**
Northern Atlantic wet heaths with *Erica tetralix* and European Dry Heath are the primary reasons for the selection of the Eastern Mournes SAC. Other Annex I habitats that are present as a qualifying feature, but not a primary reason for selection of this site include: Alpine and boreal heaths; Blanket Bog; Siliceous alpine and boreal grasslands; Siliceous rocky slopes with chasmophytic vegetation; Siliceous scree of the montane to snow levels. There are conservation objectives for Eastern Mournes SAC to maintain the extent and quality of the selection features and their structure and habitat and species diversity. There is also a conservation objective to maintain the hydrology of the active blanket bog.

The current Conservation Objectives Report for the Eastern Mournes SAC identified that water abstraction is a factor that may be either affecting Eastern Mourne, or could affect it in the future. The current Conservation Objective report noted that: Within the Mourne Wall, the land is managed by Water Service for the purpose of water abstraction and supply. With growing water requirements within the Belfast area, there is constant pressure to increase supply. There may be a requirement to lay new water pipelines from the upper reservoirs (Silent Valley or Ben Crom) down to Spelga Dam or Fofany Dam. It was noted that if required, pipe laying should be carried out with the minimum disruption to the heathland communities. The work would require the use of machinery on the SAC and would involve digging up of habitat within the SAC to enable the pipes to be laid. This could cause direct habitat destruction.

The vulnerability section of the Eastern Mournes SAC European data form records that the site could potentially be damaged by grazing, burning and tourism / recreational use. The current Conservation Objectives Report for the Eastern Mournes SAC also identified the following additional most likely factors that may be either affecting Eastern Mournes, or could affect it in the future: scrub/bracken encroachment; land reclamations; fly tipping; quarrying and changes to surrounding land use.

The last condition assessment of Eastern Mournes SAC (2008/09) noted that most of the key habitats (i.e. heath and bog) were in unfavourable condition. The unfavourable status of the habitats was mainly attributed to high grazing levels, although other factors such as burning and recreational pressures were having a localised impact.

**Appropriate Assessment consideration:**

BMAP is not in the immediate vicinity of Eastern Mournes SAC but is linked to the area by the Mourne Conduit water pipeline and the demand for water to be abstracted from the High Mournes area. Although pipe laying in the Eastern Mournes SAC could have an adverse impact on the features of the SAC there has been no specific indication that such work will be undertaken during the lifetime of the BMAP plan or that such work is imminent due to increased demands for water abstraction. Due to the current Capital Works Programme and the recently completed Aquarius Mourne Water Project it is unlikely that there will be a requirement for new pipelines to be laid in the Eastern Mourne SAC within the lifetime of the BMAP plan.

There are several recent or ongoing NI Water projects throughout Northern Ireland to improve the quality, reliability and flexibility of water supply across Northern Ireland while also reducing leakage. It is considered that these projects will help reduce the pressure for additional capital works in the Eastern Mourne SAC.

The main source of damaging effects on the SAC has been attributed to poor grazing regimes, recreational activities or burning. BMAP will not have an influence on these activities.

Any NI Water proposals to develop in Eastern Mournes SAC would be out-with any plan proposals and would have to be considered on a case by case basis via development management and the application of prevailing regionally policy and would also have to comply with other legislative requirements. In such cases adverse impact should be avoided through implementation of the legally enforceable obligations and the application of regional planning policy.
### Integrity of site checklist

**Does the project or plan have the potential to:**

- cause delays in progress towards achieving the conservation objectives of the site?
- interrupt progress towards achieving the conservation objectives of the site?
- disrupt those factors that help to maintain the favourable conditions of the site?
- interfere with the balance, distribution and density of key species that are the indicators of the favourable condition of the site?

<table>
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<tr>
<th>Yes/No</th>
<th>No</th>
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### Other indicators: Does the project or plan have the potential to:

- cause changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem?
- change the dynamics of the relationships (between, for example, soil and water or plants and animals) that define the structure and/or function of the site?
- interfere with predicted or expected natural changes to the site (such as water dynamics or chemical composition)?
- reduce the area of key habitats?
- reduce the population of key species?
- change the balance between key species?
- reduce diversity of the site?
- result in disturbance that could affect population size or density or the balance between key species?
- result in fragmentation?
- result in loss or reduction of key features (e.g. tree cover, tidal exposure, annual flooding, etc.)?

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### Appropriate Assessment Conclusion:

The evidence gathered and assessment undertaken enables us to conclude reasonably and objectively that the implementation of BMAP will not adversely affect key species and key habitats or the integrity (structure and function and conservation objectives) of: Eastern Mournes SAC.
Appropriate Assessment Report for:
Larne Lough SPA and Ramsar

Elements of BMAP that are likely to give rise to significant effects;

Breeding colonies of Roseate Tern Sterna dougallii, Sandwich Tern Sterna sandvicensis and Common Tern Sterna hirundo and overwintering Light Bellied Brent Goose Branta bernicla hrota are the principle reasons for the selection of Larne Lough as a SPA and Ramsar.

Larne Lough includes extensive inter-tidal mudflats, together with more limited sand, gravel and boulder beaches. Adjoining habitat within the SPA includes saltmarsh and transitional habitats together with limited wet grassland. Swan Island (Natural) and Blue Circle Island (artificial) are important tern nesting sites. The northern part of the lough is utilized by terns whilst the southern inter-tidal section of the lough is utilized by geese.

The southern tip of Larne Lough SPA / Ramsar is within Carrickfergus District Council resulting in a direct linkage to the BMAP plan area. Development proposals or associated policies within, adjacent or which are linked to watercourses associated with Larne Lough could result in habitat destruction, increased disturbance levels or could lead to an alteration to habitats within the SPA/ Ramsar. The southern tip contains estuarine mudflat and saltmarsh habitat which could be utilized by brent geese for feeding activities. Any development within or directly adjacent to the SPA/Ramsar could destroy these habitats. In addition development, or vehicular or recreational activities in close proximity or within the SPA / Ramsar could increase disturbance events which could alter feeding and nesting activities and could cause long term species displacement. Development in the BMAP area that occur in the proximity of rivers that are linked to Larne Lough could increase sedimentation or pollution into Larne Lough which could negatively alter habitats in particular Brent geese feeding grounds.

The feature species of the SPA/Ramsar also utilize surrounding sea areas for feeding. Increased boating activity could increase disturbance whilst fishing could represent competition for piscivorous birds. BMAP policies or proposals promoting additional sea traffic may have an impact.

In addition to direct ecological connections between the SPA/Ramsar and the BMAP area the site is ecological connected by the mobility of competitive bird populations that may utilize both the BMAP and Larne Lough in particular gull species. Consideration had to be given whether or not activities associated with the implementation of BMAP have the potential to shift the balance of species utilising Larne Lough, in particular gull populations. Gulls have been noted to breed on rooftops of buildings in Belfast City Centre and it is believed that the increase in gulls throughout the last century was due to increased feeding opportunities of mainly man made origin such as the establishment of large municipal landfill sites (Crème et al. 1997). One of the main sites in Belfast where gulls congregated was the Dargan Road Landfill Site. When the draft BMAP was published a closure plan was already in place for the Dargan site and landfill operations ceased in 2007. The closure of this gull food source would have required the gull populations to forage elsewhere for food which could have indirectly impacted on the gull populations on Larne Lough. BMAP has zoned the Dargan site as mixed use (BHA05). This zonation is related to the future use of the land and had no bearing on the actual closure of the landfill site. BMAP does not contain any policies or proposals for closure or opening of landfill sites. It has also been noted that human disturbance increases the likelihood of predation on chicks on by other gull species (Wolsey 2012). Consideration needs to be given whether the BMAP plan includes any policies or proposals that would influence increased human disturbance levels on the terns nesting within Larne Lough.

Larne Lough SPA / Ramsar is linked to BMAP by the potential for aerial depositions. As the key sources of atmospheric pollutants in Northern Ireland are from industry, transport and agricultural sources allocations and zonings associated with the BMA Employment Strategy and BMA Transportation schemes and proposals are the most likely to give rise to aerial deposition impacts.
Waste Management Plans and development activities in the Larne Area Plan 2010 may lead to increased disturbance or damage to the SPA and Ramsar, may cause a shift in the balance of species utilizing Larne Lough or could lead to cumulative eutrophication and acidification impacts as a result of aerial deposition.

Waste Management Plans and development activities in other Development Plan areas, in particular those associated with Larne may lead to a shift in the balance of species utilizing the Larne Lough or could lead to cumulative aerial deposition eutrophication and acidification impacts.

The 6 Councils in the Plan Area are part of a larger group of 11 Councils in the eastern part of Northern Ireland which have come together to form ARC21, the Sub-Regional waste planning body. The ARC21 Waste Management Plan, prepared under Article 23 of the Waste and Contaminated Land (NI) Order 1997 and adopted by the Councils in 2003, identifies the key elements in a sub regional network of facilities required to recycle, reuse and recover resources from our waste. The ARC21 Waste Management Plan sets out the need for types of facility and areas of search for the provision of this needed capacity in terms of a sub regional network of waste facilities. The Waste Management Plan also identifies a need for regional waste disposal capacity to meet current needs before alternative options are fully developed. As recovery, reuse and recycling capacity grows, a decreasing amount of landfill will then be required to deal with residual material left by these processes. The Waste Management Plan also identifies ‘areas of search’ for the provision of necessary facilities and capacity. In the absence of identified sites that have planning permission or are otherwise confirmed as potential sites for facilities the Plan has taken account of the need for waste management facilities as identified in terms of “areas of search” by the competent authorities in the ARC21 Plan. Proposals for waste management facilities will be considered against the regional planning policies of PPS11 Planning and Waste Management and the areas of search identified in the ARC21 Waste Management Plan. PPS11 Planning and Waste Management, other regional planning policy and the ARC21 areas of search provide sufficient information to allow individual proposals to be considered through the development control process.

Conservation Objectives and implications for each qualifying interest in light of its conservation objectives.

Breeding colonies of Roseate Tern Sterna dougallii, Sandwich Tern Sterna sandvicensis and Common Tern Sterna hirundo and overwintering Light Bellied Brent Goose Branta bernicla hrota are the principle reasons for the selection of Larne Lough as a SPA and Ramsar. The conservation objectives for the site are to maintain each feature in favorable condition. This includes measurements of fledgling success and population numbers and maintenance of the extent and quality of natural and semi-natural habitats that are used by the feature species.

The Natura 2000 data form for Larne Lough SPA records that the site is vulnerable to disturbance, predation by gulls, and reduction in suitable breeding habitat due to competition or to changes in vegetation.

Common Terns are a migratory coastal seabird that feeds mainly on fish. Most feeding takes place within 3-10km of the colony but distances up to 37km have been recorded (Birdlife International 2013). In the winter they migrate to the southern hemisphere and the return to the UK to breed in the summer (April - June). Common Terns breed in a wide variety of habitats in coastal and inland areas (Birdlife International 2013). Coastal sites are mainly small rocky islets, shingle beaches, sand spits and dunes and among short vegetation (Stroud et al. 2001). In Larne Lough Common Terns nest within shingle on Swan Island which is managed as a nature reserve by the Royal Society for the Protection of Birds and the man made Blue Circle Island. Nesting sites are usually in a sheltered location in a shallow depression on open substrates with little vegetation. The UK SPA Review (Stroud et al. 2001) noted that threats to Common Tern populations in Britain and Ireland are mostly due to habitat change such as coastal developments (habitat loss) or increased vegetation cover or increased disturbance, in particular recreation. Predation has been noted as a problem in some areas. Internationally habitat change, disturbance, predation and competition (including by gulls) have also been noted as threats, as have flooding of nests by water fluctuations and
chemical pollution (Birdlife International 2013). In the last condition assessment for Larne Lough SPA (2005) Common Terns were in favorable condition.

Roseate terns are a migratory coastal seabird that feeds mainly on small pelagic fish by plunge diving. They forage in areas where prey availability is high and up to 30km of the colony (Birdlife International 2013). In the winter they migrate to the coast of western Africa and the return to the UK to breed in the summer. Roseate terns nest in coastal sites, mainly on small rocky islets, shingle beaches, sand spits and dunes and among short vegetation (Stroud et al. 2001). Nesting sites are usually bare scapes preferably with shelter or in rocky crevices (Birdlife International 2013). Larne Lough is the only site for the species in Northern Ireland and numbers fluctuate, with 8 nests present in 2004 (NIEA 2005b). Productivity at Larne Lough is poor, averaging less than 0.5 chicks per pair compared to 1.2 in the rest of the UK (NIEA 2005a). In Larne Lough Roseate Terns nest within shingle on Swan Island which is managed as a nature reserve by the Royal Society for the Protection of Birds and the man made Blue Circle Island. Numbers at Larne Lough As Roseate Terns are restricted to the one site in Northern Ireland the colony is vulnerable to adverse impact from inappropriate development within Larne Lough (NIEA 2005b). The UK SPA Review (Stroud et al. 2001) noted that the Roseate Tern populations in Britain and Ireland were almost eliminated at the beginning of the 19th century but protection, especially from the millinery trade brought about a recovery until the min-1960s. Since then the populations have been in decline. Although numbers in Northern Ireland and the UK have declined many of these birds have moved to the growing colony at Rockabill, Ireland, which contained 677 nests in 2004 (Mitchell et al. 2004). Within Northern Ireland nesting space and competition has been noted as an issue as competition between Roseate and Common terns and gulls. This is thought to have contributed to the loss of colonies in Strangford and Carlingford Loughs during the 1980s and early 1990s and has been noted on Swan Island in Larne Lough due to competition with black headed gulls. The biggest single colony decline in the UK was due to a storm event impacting on a nesting site but the more widespread decline is thought to be due to predation and disturbance at colonies, which are also threats throughout northern Europe (Birdlife International 2013; Stroud et al. 2001). Several breeding failures of Arctic Terns have been attributed to by a lack of sand eels their principle food, overfishing by man and bad weather (Stroud et al. 2001). Sand eels are also an important food source for Roseate Terns (Birdlife International 2013) and long term changes to food supply may be an issue (NIEA 2005b). Internationally the biggest threat is the killing, hunting and trapping of large numbers of Roseate Terns in their wintering grounds (West Africa and South America). Extreme weather events, pollution and disease have also been cited as threats (Birdlife International 2013). In the last condition assessment for Larne Lough SPA (2005) Roseate Terns were in favorable condition.

Sandwich Tern are a migratory coastal seabird that feeds mainly on surface dwelling fish (Birdlife International 2013). Most feeding takes place within inshore waters and within a few kilometers of the colonies but longer distances can be traveled (Stroud et al. 2001). In the winter they migrate to the southern hemisphere along western and southern coasts of Africa and the southern coasts of East Africa and the return to the UK to breed in the summer (spring - autumn). British colonies of Sandwich Terns are mostly confined to coastal shingle beaches, sand dunes and offshore islets (Stroud et al. 2001). In Larne Lough Sandwich Terns nest on Swan Island which is managed as a nature reserve by the Royal Society for the Protection of Birds and the man made Blue Circle Island. Breeding populations of up to 165 birds have been recorded in Larne Lough. It breeds in dense colonies with other terns or gulls and nesting sites are usually in raised, open, un-vegetated sand, gravel or mud (Birdlife International 2013). The UK SPA Review (Stroud et al. 2001) noted that like other tern species numbers can fluctuate possibly due to changes in numbers of adjacent colonies, but the threats to Sandwich Tern populations in Britain and Ireland are mostly due to habitat loss (e.g. when nesting sites are washed away) and predation. Internationally disturbance, coastal wind farms, degradation of habitat, bioaccumulated organochlorine pollutants, egg collection and hunting in Africa have also been noted as threats (Birdlife International 2013).

The Light-Bellied Brent Geese populations that migrate to and winter in Ireland (from September-March) breed in Canada. These coastal populations prefer to winter within large estuaries and areas of inter-tidal mudflats with fine sediments. They feed on a range of plants in particular eelgrasses Zostera whose availability influences population movements (Stroud et al. 2001). Population crashes in the 1930’s were attributed to hunting and a reduction in eelgrass due to disease but since then numbers have generally increased (NIEA 2005c; Stroud et al. 2001). There are reports that eelgrass has declined in Strangford
Lough, an important congregation area, which has resulted in birds taking to feeding on grasslands and cultivated crops inland. This could lead to conflicts with farmers. The main threats to the species are reported to be hunting, disturbance by vehicles, persecution by farmers and reductions in its wintering food supplies (Birdlife International 2013). Habitat loss, degradation or fragmentation as a result of human developments such as aquaculture or infrastructure developments could also affect populations (NIEA 2005c). Within Northern Ireland there are a number of threats to Zostera beds including: fungal disease; direct damage from activities that disturb sediments (such as impact of vehicular traffic, anchoring of pleasure craft; bait digging; developments that release sediments into estuaries), eutrophication, smothering by Enteromorpha spp. (although Enteromorpha is also a food source: Portig et al. 1994; Mathers et al. 1998); competition from invasive species, Spartina spp. or Sargassum muticum, chemical or organic pollution such as sewage, agricultural fertilizers and oil pollution, and storm events (Portig 2006; Goodwin 2008). During a survey of Zostera in Larne Lough in 2003 it was noted that Enteromorpha was abundant and the level of bait digging was high (Portig 2006). Portig (2006) suggests that the abundance of Zostera in Larne Lough has declined since the 1930’s. In the last condition assessment for Larne Lough SPA (2005) Brent Geese were in favorable condition.

Predation
Several gull species breed and nest at Larne Lough in particular the black headed gull Larus ridibundus (1478 nests noted in Larne Lough Ramsar citation). The predation of Arctic Tern chicks by lesser black-headed, great black-backed gulls and herring gulls has previously been observed in Northern Ireland (Leonard 2009; Wolsey 2012). It has been noted that human disturbance increases the likelihood of predation on Common Gull chicks by other gull species (Wolsey 2012). Such predation may reduce the survival rate of chicks and active management on predator numbers may need to be perused. Birdlife international (2012) also note that conservation measures for terns include predator control, such as culling, gull harassment or destroying eggs of nests of gull species attempting to nest on islands, to help increase breeding success. BMAP plan does not include any policies or proposals that would influence increased human disturbance levels of nesting terns on Larne Lough, nor does it contain any recreational proposals associated Larne Lough.

Gulls have been noted to breed on rooftops of buildings in Belfast City Centre and it is believed that the increase in gulls throughout the last century was due to increased feeding opportunities of mainly man made origin such as the establishment of large municipal landfill sites (Crème et al. 1997). BMAP does not contain any policies or proposals for closure or opening of landfill sites.

Disturbance and habitat destruction or alteration.
Part of Larne Lough SPA and Ramsar occurs within Carrickfergus District. BMAP has not zoned any land within or directly adjacent to Larne Lough for development. The nearest development zonation is approximately 1km away at Whitehead (WD02/04). The land between this zonation and the SPA / Ramsar is designated as a Local Landscape Policy Area due to its environmental quality, integrity and character. As a result the plan does not include any policies or proposals that would directly result in the destruction of habitats within Larne Lough SPA / Ramsar nor does it contain policies or proposals that would influence increased human disturbance levels on Larne Lough, in particular areas for nesting terns. There is however an ecological link between zonations in the plan and Larne Lough SPA / Ramsar. The Whitehead housing zonation WD 02/04 occurs over the Slaughterford Water which flows into Larne Lough. Development of the site could result in sediments or chemical and organic pollutants entering the Slaughterford Water and subsequently Larne Lough. Sedimentation can result in the smothering of Zostera beds, pollutants can result in the death of Zostera, whilst an increase in nutrients can increase the growth of enteromorpha which in turn can smother Zoster beds. WD 02/04 is however identified as a Committed Housing Site with 4 dwellings having been built on the site by the time the draft plan was published in 2004, indicating that planning approval had already been granted on this site. The site has since been developed for housing, including the culverting on the Slaughterford Water. The identification of the land as a Committed Housing Site will not have an adverse impact on Larne Lough SPA / Ramsar.

The plan does not have any influence on activities in Larne Lough such as aquaculture, bait digging or boating. To date known high tide roost locations have not been published. Wind energy developments represent a potential threat of collision as feature bird species fly across the BMAP area to reach feeding
grounds in the Irish Sea. BMAP does not include any proposals or policies that would promote the development of wind turbine developments in the BMAP area, however proposals for wind energy developments in the BMAP plan area may be submitted during the lifetime of the Plan. Such proposals would have to be considered on a case by case basis utilizing any detailed information about flight paths that becomes available. Planning Policy related to renewable energy developments can be found in PPS18: Renewable Energy.

The Conservation Objectives report highlights that sewage discharges have the potential to impact upon the SPA. The sites that cause most enrichment to the Larne Lough are at Ballysrudder and Bullycarry, neither of which are infrastructurally connected to the BMAP plan.

Developments within the BMAP area have a potential to impact upon surrounding sea areas that are utilized by feature species in particular disturbance or pollution incidents or competition for food sources caused by the promotion of additional sea traffic. The main boating centres for recreational / fishing boating activity within Larne Lough are not within the BMAP area. However another source of potential shipping impacts is from commercial boating activity within the Irish Sea which is mainly associated with Belfast Harbour. Although the Conservation Objective Report considers that there are no immediate issues evident in open water areas it considers that actions should be taken to consider collective impact of shipping. Within the Belfast Harbour there are large areas of exiting employment land. BMAP does not contain any specific proposals relating to additional shipping activity. However Policy BHA03 ‘Port Operations and Port Related Land Uses’ enables the provision of additional port operations. The policy does not refer to potential collective impacts on European Site features as a result of additional shipping activities.

Aerial Pollution
Aerial pollution and associated atmospheric deposition of nitrogen and sulphur compounds arising from the BMAP area have the potential to lead to eutrophication and soil acidification.

There is no field or research evidence that suggests that Terns are particularly sensitive to, or at risk from, acidification or eutrophication caused by aerial depositions from the BMAP area however Tern nesting sites requires short vegetation or bare ground amongst longer vegetation which provides cover for chicks (APIS 2013). Nitrogen nutrient enrichment in the broad habitats associated with Terns can increase tall grasses and decrease prostrate plants. (APIS 2013). There is no expected negative impact on Tern species due to acidity impacts (APIS 2013).

There is no field or research evidence that suggests that Brent Geese are particularly sensitive to, or at risk from, acidification or eutrophication caused by aerial depositions from the BMAP area however Brent Geese feed on vegetation within the littoral sediments which are sensitive (APIS 2013). Nitrogen nutrient enrichment in the broad habitats associated with Brent geese might decrease the surface of early successional vegetation of saltmarsh and thereby suitable foraging area. Increase in the sward height of grassland feeding areas might also occur, reducing food availability (APIS 2013). There is no expected negative impact on Brent Geese due to acidity impacts (APIS 2013).

To-date aerial pollution and associated atmospheric deposition has not been highlighted as having an affect on Larne Lough SPA/Ramsar.

Plan implications
To further assess the implications on Larne Lough SPA / Ramsar it was deemed appropriate to consider if critical loads for nutrient-nitrogen or acidity deposition were met or exceeded in 2005 or have been modeled to be exceeded by 2020 using tools within the UK Air Pollution Information System (APIS).

Table 10 Table showing where critical loads for nutrient-nitrogen and acidity have been met* or exceeded** on Larne Lough SPA/Ramsar selection features or have been modeled to be exceeded by 2020 using tools within the UK Air Pollution Information System (APIS). The table also shows whether the contribution of any particular source meet* or exceeds** the critical load. Features that are not considered
sensitive to nutrient-nitrogen and acidity, or which have no recorded critical load are marked with the / symbol.

<table>
<thead>
<tr>
<th>Larne Lough SPA selection feature</th>
<th>Total Critical Load meet or exceeded</th>
<th>Source Critical Load</th>
<th>Critical Load meet or exceeded</th>
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<tr>
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<td>N 05</td>
<td>N 20</td>
<td>A 05</td>
</tr>
<tr>
<td>Common Tern, <em>S. hirundo</em></td>
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<td>*</td>
<td>/</td>
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<tr>
<td>Sandwich Tern <em>S. sandvicensis</em></td>
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<tr>
<td>Roseate Tern, <em>S. dougallii</em>, associated habitat supralittoral sediment</td>
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<tr>
<td>Brent geese <em>B. bernicla hrota</em>, associated habitat littoral sediment.</td>
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</table>

At the screening stage the distance of each site to the BMAP plan area was considered. To consider localized impacts on each European site it was considered appropriate to consider the distance between zonings and designations within BMAP and each European site in more detail to see if there were likely to be adverse local effects.

**Larne Lough SPA / Ramsar:**

**BMAP settlements with development zonings within 15km.**

- Metropolitan Carrickfergus and a portion of Metropolitan Newtownabbey
- Towns: Bangor; Holywood; Whitehead; Carrickfergus; Greenisland a portion of Ballyclare
- Villages: Ballynure; Crawfordsburn; Groomsport; Helens Bay; Seahill; Straid

Small settlements were considered but they did not contain any development zonations.

In relation to BMAP lands within approximately 15km of Larne Lough SPA / Ramsar:

Metropolitan Carrickfergus and the portion of Metropolitan Newtownabbey within 15km contains an area of existing employment and a number of housing zonations. The town of Bangor contains major areas of existing employment land, an additional zoned Employment site (BR05), a number of housing zonations, land zoned for educational use, district centres, an urban waterfront and a number of development opportunity sites. The Employment (BR05) could potentially be used for light industrial uses, general industrial uses or storage/distribution uses. The opportunity sites are mainly zoned for retail and the urban waterfront is focused on the existing Bangor Marina.

The town of Carrickfergus includes major areas of existing employment that have additional capacity for light industrial uses, general industrial uses or storage/distribution uses (CS05 and CS06) and numerous housing zonations. The Employment could potentially be used for light industrial uses, general industrial uses or storage/distribution uses. A major power station ‘Kilroot’ is also within Carrickfergus Town but BMAP contains no policies or proposals relating to the power station.

The towns of Holywood, Greenisland and Whitehead, the portion of Ballyclare town and the villages of Ballynure, Groomsport; Helen’s Bay, Seahill and Straid contain several housing zonations. Crawfordsburn does not contain any development zonations.

The nearest road proposal, the Carrickfergus Spine Road including Victoria Road and Spinefield Road is over 6km from the SPA.

The plan has not identified any of the employment land as suitable for special industrial uses. BMAP indicates that applications for planning permission within the zoned employment sites will be determined in accordance with prevailing regional policy and Key Site Requirements in the Plan. The use classes suitable
for each employment zonation are contained within the KSRs for each site. In addition the KSRs indicate that employment developments shall only be permitted in accordance with an overall comprehensive masterplan for the site to be agreed with the Department.

Under the Planning (Use Classes) Order (Northern Ireland) 1989, the Land Classes 6, 7, 8, 9 and 10 were related to Special Industrial Uses which were the uses most likely to result in aerial emissions. These classes were subsequently revoked by amending legislation in 1993 and 1996. The Planning (Use Classes) Order (Northern Ireland) 2004 indicates that no class specified in the schedule includes use for any work required to be registered under Article 20 of the Industrial Pollution Control (Northern Ireland) Order 1997 and regulation 30 of the Pollution Prevention and Control Regulations (Northern Ireland) 2003. These pieces of legislation have subsequently been superseded by the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013. Within the areas described above BMAP has not specifically zoned any land for specific uses that would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013.

**Appropriate Assessment consideration:**

Although it is widely acknowledged that aerial emissions have the potential to damage sensitive plant communities, to-date there has been no specific indication that atmospheric deposition from the BMAP area is a threat to Larne Lough SPA / Ramsar.

BMAP has not identified any specific zonations or policies relating to rural agricultural / manure management proposals that are potential sources of ammonia, for example chicken or pig farms. Nor does it give any requirement for a certain number of these types of developments to be built in the BMAP area. Any such proposals would therefore be out-with any plan proposals and would have to be considered on a case by case basis via development management and the application of prevailing regionally policy and, if appropriate, any relevant policies within BMAP.

Aerial deposition from sources in the BMAP area may have the potential to be a contributing factor to the overall deposition levels at Larne Lough SPA. The adopted plan however does not zone any employment lands for specific industrial uses that would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013. During the lifetime of the plan there may be other future development applications within the BMAP area which could result in aerial deposition on the SPAs in question. Any such proposals would be out-with any plan proposals and would have to be considered on a case by case basis via development management and the application of prevailing regionally policy (in Particular PPS2) and, if appropriate, any relevant policies within BMAP. In addition any such future proposals must comply with legally enforceable obligations designed to avoid environmental effects. Integrated Pollution Protection and Control Guidelines are a Regulatory system that employs an integrated approach to control the environmental impacts of certain industrial activities. The system requires the identification of industrial proposals up to 10-15km from sensitive receptors such as European sites. Where an installation is within such distance of a European site, an assessment has to be made regarding potential impacts. This assessment may require the use of detailed air impact assessment (air dispersion modeling) or in other cases a screening tool can be used to demonstrate whether potential impacts are acceptable. Proposals which may have a potential impact on designated habitats are likely to be considered by both the Industrial Pollution and Radiochemical Inspectorate (IPRI) and Natural Heritage in NIEA. Any adverse impact by subsequent proposals for industry which generates significant aerial emissions should be avoided through implementation of the legally enforceable obligations and the application of regional planning policy.

There is no evidence to suggest that gulls have been displaced to the Larne Lough from the BMAP area as a result of development activities. The opening or closure of landfill sites may influence gull populations in the BMAP area but the BMAP plan does not contain any policies or proposals specific to this issue. Development activities as a result of the BMAP plan will result in additional material going to landfill but other plans and regimes, such as Waste Management Plans and PPS11 are responsible for deciding the best location for these sites and whether or not additional landfill sites are required. The BMAP plan does not include any policies or proposals that would increase human disturbance levels on Larne Lough.
Issues relating to disturbance or habitats destruction or alteration were considered in the assessment. There are no development proposals directly within the SPA/Ramsar and as such there will be no direct destruction of habitat as a result of the implementation of BMAP. Development proposals in the BMAP area are at least 1km away from the SPA/Ramsar and are too distant to cause disturbance impacts to nesting Terns or feeding Brent Geese. There are no BMAP proposals or policies that would increase recreational activities within Larne Lough or impact on sewage discharges. Wind turbines may be proposed within the BMAP area during the life time of the plan but these proposals would be outwith the plan and would have to be considered on a case by case basis having regard to regional planning policy and any detailed information about flight paths that becomes available. The one site that had the potential to result in adverse impacts on habitats within Larne Lough as a result sedimentation or pollution release into the Slaughterford Water (Whitehead Committed Housing Site WD 02/04) has already been developed.

The Conservation Objective Report for Larne Lough SPA considers that actions should be taken to consider collective impact of shipping. Areas within the Irish Sea are utilised feeding. Although BMAP does not contain any specific proposals relating to additional shipping activity it contains one policy (BHA03) that may promote additional boating activity in the Irish Sea. Policy BHA03 recognizes the importance of nature conservation designations as does the natural environment amplification text associated with the Belfast Harbour. However the plan does not give any indication that impacts of increased shipping connected to plan proposals may be an environmental constraint which could result in the need for a Habitat Regulation Assessment to be carried on specific proposals to ensure that there would be no adverse impacts on European Sites, including Larne Lough SPA/Ramsar. As a consequence the plan may indirectly influence disturbance levels and increase the threat of shipping pollution incidents within the Irish Sea which could have adverse effects on the Terns that utilize the area.

<table>
<thead>
<tr>
<th>Integrity of site checklist</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the project or plan have the potential to:</td>
<td></td>
</tr>
<tr>
<td>• cause delays in progress towards achieving the conservation objectives of the site?</td>
<td>No</td>
</tr>
<tr>
<td>• interrupt progress towards achieving the conservation objectives of the site?</td>
<td>No</td>
</tr>
<tr>
<td>• disrupt those factors that help to maintain the favourable conditions of the site?</td>
<td>Yes</td>
</tr>
<tr>
<td>• interfere with the balance, distribution and density of key species that are the indicators of the favourable condition of the site?</td>
<td>No</td>
</tr>
<tr>
<td>Other indicators: Does the project or plan have the potential to:</td>
<td></td>
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<tr>
<td>• cause changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem?</td>
<td>No</td>
</tr>
<tr>
<td>• change the dynamics of the relationships (between, for example, soil and water or plants and animals) that define the structure and/or function of the site?</td>
<td>No</td>
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<tr>
<td>• interfere with predicted or expected natural changes to the site (such as water dynamics or chemical composition)?</td>
<td>No</td>
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<tr>
<td>• reduce the area of key habitats?</td>
<td>No</td>
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<tr>
<td>• reduce the population of key species?</td>
<td>No</td>
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<tr>
<td>• change the balance between key species?</td>
<td>No</td>
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<tr>
<td>• reduce diversity of the site?</td>
<td>No</td>
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<tr>
<td>Question</td>
<td>Yes/No</td>
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<tr>
<td>result in disturbance that could affect population size or density</td>
<td>No</td>
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<tr>
<td>or the balance between key species?</td>
<td></td>
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<tr>
<td>result in fragmentation?</td>
<td>No</td>
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<tr>
<td>result in loss or reduction of key features (e.g. tree cover, tidal</td>
<td>No</td>
</tr>
<tr>
<td>exposure, annual flooding, etc.)?</td>
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</tbody>
</table>

**Appropriate Assessment Conclusion:**
The evidence gathered and assessment undertaken does not enable us to conclude reasonably and objectively that the implementation of BMAP will not adversely affect key species and key habitats or the integrity (structure and function and conservation objectives) of:
Larne Lough SPA

Mitigation measures are required to ensure that BMAP will not have any effect on the integrity of Larne Lough SPA / Ramsar with regard to:
- Collective impact of increased boating activity.
Appropriate Assessment Report for:
Lough Neagh and Lough Beg SPA
Lough Neagh and Lough Beg Ramsar

Elements of BMAP that are likely to give rise to significant effects;

Breeding Common Tern *Sternula hirundo*; overwintering Bewick’s Swan *Cygnus columbianus bewickii*, Whooper Swan *Cygnus Cygnus* and Golden Plover *Pluvialis apricaria*; Black headed Gull *Larus ridibundus* during the breeding season; Great Crested Grebe *Podiceps cristatus* during the breeding season, on passage and over winter; and over winter Pochard *Aythya ferina*, Tufted Duck *Aythya fuligula* scaup *Aythya marlia* and Goldeneye *Bucephala clangula* are the principle species qualifying as reasons for the selection of Lough Neagh and Lough Beg as a SPA. The site also qualifies as an SPA as it regularly supports an internationally important assemblage seabirds including during the breeding season and is a wetland regularly supporting at least 20,000 waterfowl. The site also qualifies as a Ramsar site due to: the site being a good representative of a natural or near-natural wetland; supports an assemblage of rare, vulnerable or endangered plants and invertebrates; has value for maintaining the genetic and ecological diversity of the region; has value as habitat for animals at a critical stage of their biological life cycles; and supports a population of pollan *Coregonus autumnalis*.

Lough Neagh is the largest lake in the UK covering an area of approx. 383km² and is one of the top sites in the UK for wintering waterfowl. The eutrophic lake is shallow for its size with a mean depth of 8.9 meters and a deepest point of 34 meters. Rivers flowing into Lough Neagh drain about 43% of Northern Ireland, plus part of County Monaghan in the Republic of Ireland. The SPA also includes two smaller waterbodies Lough Beg (1,125 ha) and Portmore Lough (286 ha). The main habitats within the SPA are open water with beds of submerged aquatic vegetation, species rich wet grassland, reedbed, islands swamp, fen and carr woodland. The boundary of the Ramsar in Lisburn District is more extensive than the SPA. It includes additional land between Lough Neagh and Portmore Lough, between Lough Neagh and the Shore Road and south of Glenavy River.

Portions of Portmore Lough and a small portion of Lough Neagh are within Lisburn Borough Council resulting in a direct linkage to the BMAP plan area. Development proposals or associated policies within, adjacent or which are linked to watercourses associated with Lough Neagh and Lough Beg SPA / Ramsar could result in habitat destruction, increased disturbance levels or could lead to an alteration to habitats within the SPA / Ramsar. Any development within or directly adjacent to the SPA/Ramsar could destroy habitats utilised by feature species. Development, vehicular and recreational activities in close proximity or within the SPA/Ramsar could increase disturbance events which could alter bird activities and could cause long term species displacement. Increased boating activity could also increase disturbance so BMAP policies or proposals promoting additional boating traffic may have an impact. Developments in the BMAP area may also influence water quality in the surrounding areas in particular localized discharges. Development in the BMAP area in the proximity of rivers that are linked to Lough Neagh and Lough Beg SPA / Ramsar could increase sedimentation, pollution or nutrients into the SPA / Ramsar which could negatively alter habitats utilised by feature species. The past series of lowering Lough Neagh’s water levels has had a fundamental impact on the marginal habitats surrounding the lough. The water demands of new developments in the BMAP area could result in pressure to increase the level of water abstracted from Lough Neagh and thus in turn impact on Lough Neagh and Lough Beg SPA / Ramsar.

Consideration had to be given whether activities associated with the implementation of BMAP have the potential to shift the balance of species utilising the Lough Neagh and Lough Beg SPA / Ramsar, in particular gull populations. It is believed that the increase in gulls throughout the last century was due to increased feeding opportunities of mainly man made origin such as the establishment of large municipal landfill sites (Crème *et al.* 1997). Historically high numbers of blackhead gull in Lough Neagh may have been related to access to feeding opportunities at Denny’s dump site which has since been closed (Cons Objective Report). One of the main sites in Belfast where gulls congregated was the Dargan Road Landfill Site. When the draft BMAP was published a closure plan was already in place for the Dargan site and
landfill operations ceased in 2007. The closure of this gull food source would have required the gull populations to forage elsewhere for food which could have indirectly impacted on the gull populations in Lough Neagh and Lough Beg SPA / Ramsar. BMAP has zoned the Dargan site as mixed use however these zonations are related to the future use of the land and had no bearing on the actual closure of the landfill site. BMAP does not contain any policies or proposals for closure or opening of landfill sites.

Lough Neagh and Lough Beg SPA / Ramsar is linked to BMAP by the potential for aerial depositions. As the key sources of atmospheric pollutants in Northern Ireland are from industry, transport and agricultural sources allocations and zonings associated with the BMA Employment Strategy and BMA Transportation schemes and proposals are the most likely to give rise to aerial deposition impacts.

**In-combination effects from other plans or projects that are likely to have significant effects.**

In relation to aerial deposits there is a potential for in-combination eutrophication and acidification effects arising from development activities in the Antrim Area Plan 1984-2001; Armagh Area Plan 2004; Craigavon Area Plan 2010; Craigavon Town Centre Boundaries and Retail Designation Plan 2010; Cookstown Area Plan 2010; Dungannon and South Tyrone Area Plan 2010; Magherafelt Area Plan (2015); the Banbridge Newry and Mourne Area Plan 2015 and the draft Northern Area Plan 2016 (all within approx 15km from the SAC).

Waste and Water Management Plans and development activities in the BMAP area may lead to increased disturbance, damage, nutrient enrichment or sedimentation in Lough Neagh and Lough Beg which may impact upon the SPA and Ramsar feature species. Development activities associated with other Development Plans within the catchment of the Lough Neagh / Bann system may contribute to water quality impacts within Lough Neagh and Lough Beg SPA / Ramsar.

As Lough Neagh provides water for approximately one third of the population of Northern Ireland there will be cumulative abstraction pressures associated with Development Plans throughout Northern Ireland and Water Resource Plans and associated capital works.

Water levels in Lough Neagh are controlled by Rivers Agency who are required to regulate and control water levels within a specified range, that is 12.45 meters to 12.6 meters Ordnance Datum, as defined in the Lough Neagh Levels Scheme (1955) (as amended). The level of Lough Neagh was considered in the DARD Proposed Lough Neagh (levels) scheme 2004. Water levels are currently controlled by five sluice gates at Toome, where the water enters the Lower Bann River. Incremental adjustments of floodgates is practiced, whenever possible, in order to minimise impact on the range of environmental and other interests associated with the Lough.

NI Water is responsible for supplying the public with clean drinkable water and uses 90% of all water abstracted in Northern Ireland. As a result of the huge volumes of water involved these activities are subject to abstraction licences in line with the Water Abstraction and Impoundment (Licensing) Regulations (Northern Ireland) 2006 No. 482. In addition the Water Framework Directive places controls over water abstractions and impoundments to make sure the directive’s objectives for water bodies are met. The control measures required for the award of a licence will play an important factor in achieving, ‘Good’ ecological status for all water bodies in Northern Ireland.

The exiting abstraction licence for Lough Neagh authorizes NI Water to abstract up to a total of 392 ML/d from three locations around the lough; Castor Bay, Dunore and Moyola (NI Water 2010b). Habitat Regulations Assessments were previously undertaken for the licensed level of abstractions. Abstraction levels were considered in the ‘Proposals for the increased Water Supply Abstraction from Lough Neagh 2005 -2015’ (Water Service) during which an Environmental Statement was prepared to indicate potential environmental impacts. This issue was again considered in NI Waters draft Water Resources Management Plan 2010-2035 (NI Water 2010b) in which one of the options under consideration was to increase the abstraction output from Castor Bay, Dunore and Moyola WTWs by a combined additional volume of 30ML/d. This additional option would continue to abstract water from Lough Neagh within the existing...
Licence limit. An option to abstract water above the total Lough Neagh licensed quantity was discounted as it was apparent that such an increase in capacity would not be required before 2034-35.

The Dunore to Hydepark D2H project to lay a new pressurised watermain pipeline to transfer treated water between Dunore Water Treatment Works in Antrim and Hydepark Service Reservoir in Mallusk was completed in 2006. The pipeline has the capacity to deliver up to 180 million litres of water a day to over one quarter of Northern Ireland’s population. This important transmission system transfers between 130 and 150 million litres of water a day and represents one of two essential large diameter trunk mains in Northern Ireland – the other is the Mourne Conduit.

In general there are several recent or ongoing NI Water projects throughout Northern Ireland to improve the quality, reliability and flexibility of water supply across Northern Ireland while also reducing leakage. http://www.NI Waterater.com/whatweredoing.asp

This includes:

- The Water Mains Rehabilitation project (to upgrade in excess of 1000 kilometres of water main infrastructure throughout Northern Ireland);
- The Alpha Project to upgrade, operate and maintain existing water treatment works (WTW) at four locations across Northern Ireland that can produce up to 50% of NI Water's bulk drinking water supply; and to deliver three major trunk watermains.

These projects will work in combination to improve the efficiency of the water supply system in Northern Ireland.

Although the NI Waters draft Water Resources Management Plan 2010-2035 (NI Water 2010b) include an option to abstract up to currently permitted limits and discount the need to increase capacity above these limits before 2034-35 there is always a possibility that NI Water can apply to increase abstraction from Lough Neagh during the lifetime of BMAP. Any such application would be subject to legislative requirements and environmental assessment including the need to comply with the requirements of the Conservation (Natural Habitats, etc.) Regulations in Northern Ireland (as amended).

Development activities adjacent to Lough Neagh Larne Area Plan may lead to a shift in the balance of species utilizing Lough Neagh SPA and Ramsar in particular those related to landfill sites. In Northern Ireland the NI Waste Management Strategy 2006-2020 (DOE 2006) provided an overall strategy for waste management (this plan was revised by DOE in 2013). The 2006 strategy identified that 3 Waste Management Groups are responsible for drawing up waste management plans on behalf of constituent councils, and, to varying degrees, procuring infrastructure on the council’s behalf. For example the 6 Councils in the Plan Area are part of a larger group of 11 Councils in the eastern part of Northern Ireland which have come together to form ARC21, the Sub-Regional waste planning body. The ARC21 Waste Management Plan, prepared under Article 23 of the Waste and Contaminated Land (NI) Order 1997 and adopted by the Councils in 2003, identifies the key elements in a sub regional network of facilities required to recycle, reuse and recover resources from our waste. The ARC21 Waste Management Plan sets out the need for types of facility and areas of search for the provision of this needed capacity in terms of a sub regional network of waste facilities. The Waste Management Plan also identifies a need for regional waste disposal capacity to meet current needs before alternative options are fully developed. As recovery, reuse and recycling capacity grows, a decreasing amount of landfill will then be required to deal with residual material left by these processes. The Waste Management Plan also identifies ‘areas of search’ for the provision of necessary facilities and capacity. In the absence of identified sites that have planning permission or are otherwise confirmed as potential sites for facilities the Plan has taken account of the need for waste management facilities as identified in terms of “areas of search” by the competent authorities in the ARC21 Plan. The Southern Waste Partnership (SWAMP) which contains 8 councils including Craigavon, Cookstown and Dungannon and South Tyrone, produced the Southern Region Waste Management Plan (2006). The North West Region Waste Management Group (NWRWMG) which contains 7 councils including Magherafelt, produced the North West Regional Waste management Plan (2006). These plans contain similar information to the ARC21 Plan and identify indicative infrastructural requirements for each district and guidance for identifying and choosing the best site specific location. The plans suggest that Magherafelt could indicatively in the future have a new Mechanical Recovery Facility, a
landfill site and composting facility; Cookstown could have a new landfill site and transfer station; Craigavon a new transfer station and Mechanical Recovery Facility; and Dungannon and South Tyrone a new Landfill Site and transfer station. In each instance proposals for waste management facilities will be considered against the regional planning policies of PPS11 Planning and Waste Management and the areas of search identified in the ARC21 Waste Management Plan or indicative infrastructural requirements in the other plans. PPS11 Planning and Waste Management, other PPSs and the Waste Management Plans provide sufficient information to allow individual proposals to be considered through the development control process.

Conservation Objectives and implications for each qualifying interest in light of its conservation objectives.

Breeding Common Tern Sterna hirundo; overwintering Bewick’s Swan Cygnus columbianus bewickii, Whooper Swan Cygnus Cygnus and Golden Plover Pluvialis apricaria; Black headed Gull Larus ridibundus during the breeding season; Great Crested Grebe Podiceps cristatus during the breeding season, on passage and over winter; and over winter Pochard Aythya ferina, Tufted Duck Aythya fuligula scaup Aythya marlia and Goldeneye Bucephala clangula are the principle species qualifying as reasons for the selection of Lough Neagh and Lough Beg as a SPA. The site also qualifies as an SPA as it regularly supports an internationally important assemblage seabirds including during the breeding season and is a wetland regularly supporting at least 20,000 waterfowl. The conservation objectives are to maintain each feature in favorable condition. This includes measurements of population numbers, the fledging success and the maintenance of the extent and quality of roost / loafing sites and natural and semi-natural habitats that are used by the feature species. The Natura 2000 data form for Lough Neagh and Lough Beg SPA records that the site has been vulnerable in the past to severe eutrophication, changes in agricultural land use both intensification and under management, and the introduction of invasive non-native species.

The site also qualifies as a Ramsar site due to: the site being a good representative of a natural or near-natural wetland; supports an assemblage of rare, vulnerable or endangered plants and invertebrates; has value for maintaining the genetic and ecological diversity of the region; has value as habitat for animals at a critical stage of their biological life cycles; and supports a population of pollan Coregonus autumnalis.

SPA and Ramsar individual bird species.

Common Terns are a migratory seabird that feeds mainly on fish. Most feeding takes place within 3-10km of the colony but distances up to 37km have been recorded (Birdlife International 2013). In the winter they migrate to the southern hemisphere and the return to the UK to breed in the summer (April - June). Common Terns breed in a wide variety of habitats in coastal and inland areas (Birdlife International 2013). Inland breeding sites include shingle river banks, islands in lakes, gravel pits, marshes and shallow lagoons, or artificial sites are occasionally used (Stroud et al. 2001). Nesting sites are usually in a sheltered location in a shallow depression on open substrates with little vegetation. In Lough Neagh the most important natural island for nesting Common Terns is Pagan Island in the south east corner of the lough whilst the largest colony of breeding terns can be found at an old Torpedo platform near Antrim. Both sites are managed as nature reserves. The UK SPA Review (Stroud et al. 2001) noted that threats to Common Tern populations in Britain and Ireland are mostly due to habitat change such as development (habitat loss) or increased vegetation cover or increased disturbance, in particular recreation. Predation has been noted as a problem in some areas. Internationally habitat change, disturbance, predation and competition (including by gulls) have also been noted as threats, as have flooding of nests by water fluctuations and chemical pollution (Birdlife International 2013). In the last condition assessment for Lough Neagh SPA and Ramsar (2008) Common Terns were in unfavorable condition.

The sub-species Bewick Swans breed on Arctic tundra across the northern Russian Palaearctic (Stroud et al. 2001). Its main European wintering grounds are in lowland areas of northern Europe and in Northern Ireland flocks occur at Lough Foyle, Neagh and Beg Palaearctic (Stroud et al. 2001). The species shows a high level of winter site fidelity in the UK and movements between sites in the winter is infrequent (Rees 1987; Rees and Bacon 1996). Bewick swans winter on shallow freshwater lakes, marshes, slow moving rivers or adjacent to grasslands liable to flooding. They are predominantly herbivoruous and feed by day whilst returning to wetland areas to roost overnight (Stroud et al. 2001). In Ireland they feed predominantly
on permanent wet grassland (Kennedy et al. 1954) but over the last decades have also taken to foraging on agricultural land. (Rees et al. 1997). They are gregarious and can occur in flocks of several hundred. The species is threatened by degradation and loss of wetlands, peat extraction, changed wetland management practices and eutrophication; collisions with powerlines; lead poisoning from lead shot and fishing weight ingestion and avian influenza (Birdlife International 2013). In the last condition assessment for Lough Neagh SPA and Ramsar (2008) Bewick Swans were in unfavorable condition. This decline parallels wider UK and European trends since the mid-1990s. One possible reason is that the swans stop further east in Continental Europe during milder winters however it has also been noted that the global population has also declined (Holt et al. 2011).

The Whooper Swan has a Paleractic breeding distribution and goes north to breed (Stroud et al. 2001). The Icelandic breeding stock overwinters in Iceland, Britain and Ireland (Stroud et al. 2001). Lough Neagh and Lough Beg SPA is the most important site in Northern Ireland. Although the species shows a high level of winter site fidelity (Black and Rees 1984) the birds are particularly mobile and movement between sites in the winter is frequent (Stroud et al. 2001). Whooper swans winter on freshwater lakes, marshes and arable land. They are predominantly herbivorous and feed on aquatic plants, grasses, sedges and horsetails and in the winter agricultural grain and vegetables can also be eaten (Birdlife International 2013). At Lough Neagh they forage predominately at nearby improved grassland habitats and roost at Lough Neagh and Beg overnight. The species is threatened by habitat degradation and loss of wetlands, disturbance from tourism, changed agricultural management practices, collisions with wind turbines and powerlines; lead poisoning from lead shot, hunting and avian influenza (Birdlife International 2013). In relation to Lough Neagh SPA and Ramsar changes in the distribution of or damage to feeding areas that are outside designated site boundaries are a particular threat. The Icelandic population is believed to be stable or slightly declining (Stroud et al. 2001). In the last condition assessment for Lough Neagh SPA and Ramsar (2008) Whooper Swans were in favorable condition. Numbers of wintering whooper swan numbers have increased in Britain and Ireland over the last 25 years (Holt et al. 2011).

Golden Plover is partially migratory in Britain and Ireland, although it is wholly migratory elsewhere in its range and during the winter British breeding birds can be joined my my migrants from Scandinavia, Iceland and western Siberia (Stroud et al. 2001). The major wintering grounds in Ireland are in the north-east and south coast but in extreme weather birds move south and can leave Ireland altogether (Stroud et al. 2001). Golden Plover occur at traditional wintering grounds, with most large flocks being found close to the coast (Stroud et al. 2001). The inter-tidal zone is an important feeding habitat in Ireland but in other areas earthworm rich grassland (Stroud et al. 2001), wetlands and agricultural lands (Birdlife International 2013) are important feeding habitat. The diet consists predominantly of insects (Birdlife International 2013). Birds can roost on arable land, grassland and inter-tidal areas (Stroud et al. 2001). A decline in the population has been noted in Britain and Ireland since the 1950s (Stroud et al. 2001). Increased forestation and predation in the breeding range and agricultural intensification of both breeding and non-breeding habitats, hunting in wintering grounds such as France and susceptibility to severe winter and weather conditions may be contributing factors (Birdlife International 2013; Stroud et al. 2001). In the last condition assessment for Lough Neagh SPA and Ramsar (2008) Golden Plover were in unfavorable condition .

Black headed gull breed across much of Europe and although many colonies are found along coastlines they also have an extensive inland breeding distribution, including at Lough Neagh (33,000 nests in 1987 Stroud et al. 2001). The species utilize a wide range of habitats for breeding from margin of lakes, bogs and marshes to heath moorland, coastal sand dunes, rocky islets and artificial sites including industrial waste dumps (Birdlife International 2013; Stroud et al. 2001). Inter-colony movements are known to occur (Stroud et al. 2001). Outside the breeding season they occur both at sea and inland including in urban parks, ploughed fields, grasslands, waterbodies, sewage works and refuse tips. The diet consists of aquatic and terrestrial insects and earthworms and marine invertebrates although fish and agricultural grain can also form part of the diet, however outside the breeding season they rely heavily on artificial sources provided by man such as at refuse tips (Birdlife International 2013). Population trends have been variable in the UK with some areas showing increases in numbers since the 1960’s whilst other areas have shown a marked decrease (Stroud et al. 2001). Potential reasons for decreases include agricultural drainage, disturbance and fluctuation in water levels (Stroud et al. 2001). Globally threats include avian influenza, avian botulism, egg collecting, contamination with chemical pollutants and coastal oil spills (Birdlife International 2013).
In the last condition assessment for Lough Neagh SPA and Ramsar (2008) Common Terns were in unfavorable condition.

Pochard is widespread over most of temperate Europe and Asia. There are resident Pochard that breed in the UK but additional numbers arrive in winter from eastern Europe, Russia and Scandinavia (Stroud et al. 2001). They form flocks on open waterbodies, preferring shallow waterbodies with a submerged food source, which they can access by diving to the bottom to forage (Birdlife International 2013; Stroud et al. 2001). They show low fidelity to UK sites and interchange between sites is possible because of changes in food availability and levels of disturbance (Colhoun 2000). They are omnivorous feeding on aquatic plant material and invertebrates, amphibians and small fish (Birdlife International 2013). In Lough Neagh the main food source is Chironomids (Evans 2000). The species is threatened by disturbance activities (including water based recreation and machinery noise from urban development); lead poisoning from lead shot; drowning in freshwater fishing nets, hunting and avian influenza (Birdlife International 2013). In the last condition assessment for Lough Neagh SPA and Ramsar (2008) Pochard were in unfavorable condition. Pochard numbers in Britain have also declined since the 1990s (Holt et al. 2011).

Goldeneye has a wide breeding and wintering distribution with those in the northern breeding areas in continental Eurasia migrating south and west overwinter, where Ireland forms its western limit (Stroud et al. 2001). In Northern Ireland the vast majority originate from Fennoscandia (Allen and Mellon 2006). They winter in both freshwater and coastal habitats where they feed by diving predominantly for small invertebrates with fish and plant material also included in the diet (Birdlife International 2013; Stroud et al. 2001). In Lough Neagh the primary food source is Chironomids (Evans 2000). The species is threatened by wetland degradation and pollution (Birdlife International 2013). In the last condition assessment for Lough Neagh SPA and Ramsar (2008) Goldeneye was in favorable condition, however the population in Lough Neagh has been in decline since this time (Holt et al. 2011) mirroring the general population decline in Britain since 1997/98 (Holt et al. 2011).

Great Crested Grebe breed on fresh or brackish waters with abundant emergent and submerged vegetation. Within the UK the distribution of non-breeding and breeding Great Crested Grebe show a broadly similar distribution. However there is a marked shift from inland waters to the sea in the winter with some birds moving to coastal areas immediately after breeding to moult (Stroud et al. 2001). In the winter Britain and Ireland can receive additional birds from continental western Europe. Coastal areas including shallow waters and estuaries on sheltered areas on the east coast provide suitable habitat but in severe winters birds move throughout Britain in search of milder climates (Stroud et al. 2001; Birdlife International 2013). The diet consists of large fish as well as insects, crustaceans and molluscs (Birdlife International 2013). Although the breeding population in the UK is increasing, severe winters can result in significant mortalities (Stroud et al. 2001). Other threats have been recorded as hunting, introduction of competitors and predators (mammals), drowning in fishing nets, coastal oil spills and avian influenza (Birdlife International 2013). In the last condition assessment for Lough Neagh SPA and Ramsar (2008) Great Crested Grebe was in favorable condition.

Tufted Duck has a wide global breeding and wintering distribution (Stroud et al. 2001). The single UK site holding more than 1% of the international population is Lough Neagh and Lough Beg SPA (Stroud et al. 2001). In winter they favour large freshwater waterbodies. They feed by diving with most of the diet being animal material, especially molluscs but they can also feed on aquatic plants (Birdlife International 2013; Stroud et al. 2001). In Lough Neagh the Chironomids are the preferred food source but Axellus, Gammarus and Mollusca are taken in significant proportions (Evans 2000). The species is threatened in its breeding areas by habitat degradation, recreational disturbance, noise from urban development, hunting and avian influenza (Birdlife International 2013). In the last condition assessment for Lough Neagh SPA and Ramsar (2008) Tufted Duck was in unfavorable condition. This decline does not mirror European trends.

Scaup have a large range, breeding at high latitudes across Eurasia and North America and winters in temperate waters (Stroud et al. 2001). The wintering birds in the UK come from Iceland, Fennoscandia and Russia (Stroud et al. 2001). The single UK site holding more than 1% of the international population is Lough Neagh and Lough Beg (Stroud et al. 2001). Scaup usually winter in areas of soft shore coastlines feeding at night mainly on Mytilus but can also be found on other waterbody types (Stroud et al. 2001).
Scaup are omnivorous and can also feed on a variety of invertebrates and aquatic plants and grain (Birdlife International 2013; Stroud et al. 2001). In Lough Neagh they feed mainly on Chironomids in the larger size classes (Evans 2000). The species is threatened by pollution, drowning in fishing nets, hunting, disturbance and avian influenza. In the last condition assessment for Lough Neagh SPA and Ramsar (2008) Scaup were in favorable condition. Since the mid 1970’s the indices for Scaup in Britain have changed little from year to year, with small periodic fluctuations (Holt et al. 2011).

In the last condition assessment for Lough Neagh SPA and Ramsar (2008) the waterfowl assemblage was in unfavorable condition. This condition was attributable to the decline in diving duck numbers.

SPAs and Ramsar other features:
Lough Neagh and Lough Beg is a good representative example of natural or near-natural wetlands, common to more than one biogeographic region. The site is the largest freshwater lake in the United Kingdom. Lough Neagh a relatively shallow body of water supporting beds of submerged aquatic vegetation fringed by associated species-rich damp grassland, reedbeds, islands, fens, marginal swampy woodland and pasture. Other interesting vegetation types include those associated with pockets of cut-over bog, basalt rock outcrops and boulders, and the mobile sandy shore.

The site supports an appreciable assemblage of rare, vulnerable or endangered species or sub-species of plant or animal or an appreciable number of individuals of any one of these species. The site supports over 40 rare or local vascular plants which have been recorded for the site since 1970; the most notable are eight-stamened waterwort Elatine hydropiper, marsh pea Lathyrus palustris, Irish lady’s tresses Spiranthes romanzoffiana, alder buckthorn Frangula alnus, narrow small-reed Calamagrostis stricta and holy grass Hierochloe odorata. The Lough and its margin are also home to a large number of rare or local invertebrates, including two aquatic and two terrestrial molluscs, a freshwater shrimp Mysis relicta, eight beetles, five hoverflies, seven moths and two butterflies. Of the rare beetles recorded two, Stenus palposus and Dyschirius obscurus, have their only known Irish location around the Lough. The Lough also supports twelve species of dragonfly.

This site is of special value for maintaining the genetic and ecological diversity of a region because of the quality and peculiarities of its flora and fauna. The site regularly supports substantial numbers of individuals from particular groups of waterfowl which are indicative of wetland values, productivity and diversity. In addition, this site is of special value for maintaining the genetic and ecological diversity of Northern Ireland because of the quality and peculiarities of its flora and fauna. A large number of plants and animal species are confined or almost confined to this area within Northern Ireland.

This site is of special value as the habitat of animals at a critical stage of their biological cycles. An internationally important assemblage of waterfowl is regularly supported in Lough Neagh and Lough Beg in winter (The five year peak mean for the period 1989/90 to 1993/94 was 79,915 birds). In addition to the individual SPA and Ramsar bird species highlighted in the section above the site supports the following species, with which occur in nationally important numbers: 390 little grebe Tachybaptus ruficollis (26 % of Irish population), 781 cormorant Phalacrocorax carbo (3.9% of Irish population), 1,375 mute swan Cygnus olor (22.9 % of Irish population), 129 greylag goose Anser anser (3.4 % of Irish population), 165 shelduck Tadorna tadorna (2.3% of Irish population), 3,447 wigeon Anas penelope (2.8% of Irish population), 114 gadwall Anas strepera (19% of Irish population), 1,868 teal Anas crecca (2.9% of Irish population), 4,982 mallard Anas platyrhynchos (10% of Irish population), 173 shoveler Anas clypeata (2.7% of Irish population), and 6,676 coot Fulica atra (26.7% of Irish population).

Lough Neagh is also notable for supporting an important assemblage of seabirds and other breeding birds including the following species with which occur in nationally important numbers: gadwall, tufted duck, snipe Gallinago gallinago, redshank Tringa totanus, common gull Larus canus and lesser black-backed gull Larus fuscus. Other important breeding wetland species include shelduck, teal, shoveler, lapwing and curlew.

The site supports a population of pollan Coregonus autumnalis, one of the few locations in Ireland and one of the two known locations in the UK (the other is Lower Lough Erne). It is one of the most important
species in Ireland in terms of faunal biodiversity since it occurs nowhere else in Europe and the Irish populations are all well outside the typical range – the Arctic Ocean drainages of Siberia, Alaska and north-western Canada, where it is known as the Arctic cisco. Threats to the species include eutrophication (which may favour other fish species); introduced species (roach as a competitor; zebra mussel which alters ecology of lakes); climate change (interferes with lake dynamics which could alter habitat suitability and interfere with behaviour) and uncontrolled commercial fishing (NPWS / EHS 2005).

The most adverse general impacts recorded in the past have been eutrophication and pollution from agricultural fertilizers. The Lough drains some 40% of Northern Ireland and has been subject to severe nitrification as a result of increased nutrient inputs from agricultural run-off and general domestic sewage from catchment housing and other developments. Although some species e.g. swans, use improved fields, recent changes in agricultural land-use i.e. agricultural intensification (land improvements/high grazing levels) and, in some cases, insufficient grazing and tree/scrub management resulting in vegetation succession, may adversely affect feeding/roosting areas for overwintering and breeding waterfowl. Introduction of invasion by non-native species such as Roach and Zebra Mussels could have a deleterious effect on some species. Sand dredging is widespread throughout the Lough but the impact is largely unknown.

*Species disturbance; habitat destruction or alteration.*

The loss of any tern breeding habitat through development is a critical issue in the SPA/ Ramsar. Terns mainly nest on Torpedo Platform, Six Mile Water and also on some islands. They tend not to nest on the Lough Neagh shoreline. These breeding sites are outwith the BMAP plan. BMAP has not zoned any site for development within, or in close proximity to any tern breeding site. In addition BMAP will it impact on management activities associated with these existing tern nesting sites. As a result the plan does not include any policies or proposals that would directly result in the destruction of tern breeding habitat within Lough Neagh and Lough Beg SPA / Ramsar. Active management is undertaken both to manage existing sites and to restore or create additional sites for breeding terns (LNLB AC 2008a).

The loss of open water habitat is an issue that could impact on the SPA/Ramsar. The extent of open water and system dynamics associated with historic lowering of the lough has reduced the area subject to flooding and has altered nearshore morphology and dynamics. Lough Neagh is a major source of drinking water with ongoing abstractions and strategic consideration has been given to abstract additional water from Lough Neagh ((NI Water 2010b). Additional abstractions could further impact on flooding regimes and traditional areas of flooding.

Adjoining habitat is particularly important for swans and geese for providing feeding and roost locations. Development activities could result in the loss of foraging habitat or increased disturbance events. Significant changes in land management and disturbance are key considerations. The key broad areas that are regularly used by swans have been identified previously, for example in the Lough Neagh Wetlands Local Biodiversity Plan (LNLB AC 2008b). Much of the nearby agricultural lowland habitats in the BMAP area are the preferred foraging habitats. BMAP has not identified any site specific development zonation within areas that have been regularly recorded as Whooper Swan feeding areas however the settlement development of Feumore (small settlement) is within Lough Neagh and Lough Beg Ramsar and is in close proximity to lands recorded as regular Whooper Swan feeding areas.

Sand extraction within Lough Neagh SPA/Ramsar or shoreline erosion could alter sedimentology and nearshore morphology, alter lough bed substrata, increase disturbance, result in the loss of sediments and may ultimately impact on birds due to changed sediment character of the benthos and associated invertebrate and macrophyte assemblages. Sand is extracted from Lough Neagh on a commercial scale. Policy MIN1 of the Planning Strategy of Rural Northern Ireland requires the need for a mineral resource to be assessed against the need to conserve and protect the environment and it states that mineral developments within or in close proximity to ASSIs will not normally be given where they would prejudice the essential character of such areas. PPS2 also provides policy protection for European Sites. Policy MIN 3 of the PSRNI however indicates that areas that require to be protected from mineral developments will be identified as Areas of Constraint on Mineral Developments in development plans. Within these areas there
would be a presumption against the granting of planning permission for the extraction and/or processing of minerals. BMAP has not identified any area of Lough Neagh and Lough Beg SPA/Ramsar as an Area of Constraint on Mineral Developments. BMAP does not contain any policies or zonations relating to sand extraction from Lough Neagh.

Developments associated with the plan area have the potential to impact upon the SPA/Ramsar feature species in relation to disturbance or pollution incidents caused by the promotion of additional boating traffic. The Conservation Objective Report considers that commercial sand dredging barges are not a significant issue on the lough but disturbance from recreational boating/jet ski activity is a major concern during the breeding season in particularly sensitive areas within the site such as the Torpedo platform at Six Mile Water. The Conservation Objectives Report considers that appropriate codes of good practice, zoning and by-laws could be applied if necessary and that the collective impact of boating activities should be considered. There are no main boating centres for recreational activity in the Lisburn City Council Area. There are no policies or proposals for additional marinas in the BMAP area or to enable the provision of additional boating facilities in Lough Neagh or Lough Beg SPA / Ramsar. Recreational activities in the area are widespread in summer. BMAP does not contain any proposals directly related to increasing recreational/amenity activity in the area which could lead to increased disturbance levels in the proximity of the SPAs and Ramsar.

Wind energy developments represent a potential threat of collision as feature bird species fly across the BMAP area, in particular to swans and geese. The Conservation Objectives Report highlights that there is a need to consider flight lines, as well as feeding and loafing areas. BMAP does not include any proposals or policies that would promote the development of wind turbine developments in the BMAP area, however proposals for wind energy developments in the BMAP plan area may be submitted during the lifetime of the Plan. Such proposals would have to be considered on a case by case basis utilizing any detailed information about flight paths that becomes available. Planning policy related to renewable energy developments can be found in PPS18.

Water quality
The Conservation Objectives Report considered that the alteration of habitat quality through diminution of water quality is a concern with progressive eutrophication. The Lough and surrounding areas are designated as Sensitive Areas (Eutrophic) under the Urban Wastewater Treatment Directive. Under the Water Framework Directive classifications the Lough Neagh had bad ecological potential and Portmore Lough had bad status in 2009. There is an objective for Lough Neagh to improve the ecological potential (to poor) by 2015 and for Portmore Lough to improve status (to poor) by 2015 (NIEA 2010c). The 4 groundwater bodies within Lough Neagh have been classified as good for both quantitative and chemical status with the exception of Ballymena which had poor status in 2009 (NIEA 2010c). To assist with the management of the quality of Lough Neagh a Local Management Area Action Plan has been developed to implement the local River Basin Management Plan (NIEA 2010c). The plan highlights actions that are to be taken throughout the Local Management Area including assessing pressures, abstraction licences, hydro power developments and nitrate and nutrient trends and promoting riparian zone management, effective farm nutrient and waste management and the control of invasive species. The Action Plan for the Lough Neagh Local Management Area also recommends other specific actions for specific sections of Lough Neagh or connecting waterways.

Portmore Lough had bad ecological status in 2009 mainly due to macrophyte composition and the level of total phosphorus. BMAP does not contain any settlements directly adjacent to the Lough but the lough is feed by water from the Ballinderry River.

Lough Neagh is classed as a heavily modified waterbody. Its bad ecological status was the result of macrophytes and phytoplankton assemblages alongside excessive levels of Total phosphorus. The specific actions relating to Lough Neagh include carrying out phosphorus nutrient budget work, developing lake modeling tools and raising awareness. There are various connecting waterways that can also influence Lough Neagh. Several rivers that occur within the BMAP area enter into Lough Neagh and Lough Beg SPA / Ramsar, the main ones being Crumlin River, Glenavy / Stonyford River, Ballinderry River and the Lagan Canal.
A tributary of the Crumlin River is on the western boundary of Dundrod settlement development limit. The settlement limit was drawn to include existing commitments. The area of land west that is within the settlement development limit dissects a watercourse associated with the Crumlin River. This site has already been developed. This section of the waterbody had moderate status in 2009. The Lough Neagh, Local Management Area Action Plan had an action to investigate impacts of Dundrod WWTW and to review its performance if necessary. Water Service NI indicate that Dundrod has no capacity during the plan period.

The Glenavy River at Glenavy had poor status in 2009 mainly due to phytobenthos and levels of soluble reactive phosphorus. The Lough Neagh, Local Management Area Action Plan had an action to determine and address sources of organic pollution affecting benthic invertebrates. Within Glenavey two areas adjacent to the River have been zoned as Housing Policy Areas GY04/01 and GY02/04 (which has already been developed). The amplification for GY04/01 indicates that there are no public storm water sewers available to serve this land and that it may be possible to drain to the Glenavy River subject to formal approval from Rivers, Agency. The River had been identified as a Local Landscape Policy area which provides it with a degree of protection. The Glenavy River becomes the Stoneyford River whose waterbody had moderate status in 2009. The Lough Neagh, Local Management Area Action Plan had an action to investigate dissolved oxygen suppressions. Within Stoneyford two areas close to the River have been zoned for development; SY03/01 a committed housing site that has already been developed; and SY04/01 a Housing Policy Area which is separated from the river by an existing road. The River had been identified as a Local Landscape Policy area which provides it with a degree of protection.

The Ballinderry River had moderate status in 2009. The Lough Neagh, Local Management Area Action Plan had an action to determine and address sources of organic pollution affecting benthic invertebrates. The Lower Ballinderry settlement development limit is approximately 80m from the river, whilst the river runs through Upper Ballinderry. BMAP does not zone any land adjacent to the Ballinderry River for development in Upper Ballinderry. The river is designated as a Local Landscape Policy Area in Upper Ballinderry which provides it with a degree of protection.

The Lagan Canal and Aghalee Burn form part of the Aghalee waterbody catchment which had poor ecological potential in 2009 due to its benthic invertebrate composition. It is classified as a heavily modified waterbody but there is an action in the Lough Neagh, Local Management Area Action Plan to ground truth the heavily modified designation. There were also actions to determine and address sources of organic pollution affecting benthic invertebrates and to assess WWTWs at Lower Ballinderry to inform future upgrades. Three committed housing sites were identified in Aghalee that are directly adjacent to Aghalee Burn or the Lagan Canal, AG02/01, AG 02/02 and AG 03/01. Each of these sites has already been developed. The burn is designated as a Local Landscape Policy Area and a Site of Local Nature Conservation Importance which provides it with a degree of protection.

Water Service NI indicate that all wastewater treatment facilities serving the settlements identified above are all satisfactory and are capable of accommodating all development that are proposed in the plan through the plan period with the exception of Stoneyford and Dundrod. Stoneyford was programmed for an upgrade between 20011-2015 (subject to funding) whilst Dundrod has no capacity during the plan period.

**Balance of gull species utilizing Lough Neagh and Lough Beg Ramsar**

Within Lough Neagh and Lough Beg Ramsar certain gull species are noteworthy as they occur at levels of international or national importance with the black headed gull (*Larus ridibundus*) and the common gull (*Larus canus*) being regularly supported during the breeding season while the lesser black headed gull (*Larus fuscus*) is a species with peak counts in the spring/autumn. These species form part of the noteworthy waterfowl assemblage that Lough Neagh and Lough Beg supports during the breeding season. Within the Copeland Islands SPA terns have been noted to nest throughout the common gull colony (*Larus canus*) and that both are subject to predation by other gull species (Wolsey 2012). The predation of tern chicks by lesser black-headed (*Larus fuscus*), great black-backed gulls and herring gulls has been observed in Northern Ireland (Leonard 2009; Wolsey 2012). It has been noted that human disturbance increases the likelihood of predation on Common Gull chicks by other gull species (Wolsey 2012). This predation may
reduce the survival rate of chicks. In order to comply with the EU Birds Directive active management on certain predator numbers may need to be pursued. As previously noted BMAP does not include any policies or proposals that would directly influence increased human disturbance levels on Lough Neagh and Lough Beg SPA / Ramsar. The Conservation Objectives Report for Lough Neagh and Lough Beg SPA notes that culling of larger gull species could be undertaken to reduce impact on breeding wildfowl and terns. Gulls have been noted to breed on rooftops of buildings in Belfast City Centre and it is believed that the increase in gulls throughout the last century was due to increased feeding opportunities of mainly man made origin such as the establishment of large municipal landfill sites (Crème et al. 1997). The Conservation Objectives Report for Lough Neagh and Lough Beg SPA specifically referred to the Denny’s dump site that provided feeding opportunities for black-headed gulls which occurred in historically high numbers during the breeding season, but this dump has been closed. BMAP does not contain any policies or proposals for closure or opening of landfill sites.

**Aerial Pollution**

Aerial pollution and associated atmospheric deposition of nitrogen and sulphur compounds arising from the BMAP area have the potential to lead to eutrophication and soil acidification.

There is no field or research evidence that suggests that Terns are particularly sensitive to, or at risk from acidification or eutrophication caused by aerial depositions from the BMAP area however Tern nesting sites requires short vegetation or bare ground amongst longer vegetation which provides cover for chicks (APIS 2013). Nitrogen nutrient enrichment in the broad habitats associated with Terns can increase tall grasses and decrease prostrate plants. (APIS 2013). There is no expected negative impact on Tern species due to acidity impacts (API 2013).

Great Crested Grebe are sensitive to eutrophication caused by N deposition but they are not sensitive to acidification impacts from aerial pollution (API 2013). For Great Crested Grebe increased eutrophication can cause algal blooms that could decrease fish numbers. Nitrogen nutrient enrichment in the littoral sediments associated with these wintering species can cause an increase in late successional species and can also result in increased dominance by graminoids (API 2013).

There is no field or research evidence that suggests that European Golden Plover are particularly sensitive to, or at risk from acidification or eutrophication caused by aerial depositions from the BMAP area however the broad habitat utilized by European Golden Plover is sensitive (API 2013). Nitrogen nutrient enrichment in the broad habitats associated with European Golden Plover might increase sward height on grassland feeding areas (API 2013). There is no expected negative impact on European Golden Plover due to acidity impacts (API 2013).

There is no field or research evidence that suggests that the other bird species in Lough Neagh and Lough Beg SPA/ Ramsar are particularly sensitive to, or at risk from, acidification or eutrophication caused by aerial depositions from the BMAP area, however impacts on the habitats utilised by these sites have to be considered.

The Improved grassland, arable or horticultural lands that may be used for feeding by Whooper Swans and Bewick Swans are not sensitive to acidification or eutrophication (API 2013). The impact of aerial pollution on standing open water or canals is dependent on upon site specific N or P limitation of the waterbody. In general eutrophication has the potential to result in reductions of macrophyte dominated communities with algal blooms thus reducing food availability and also potentially reducing fish numbers, or it can increase food supply for duck species if it results in an increase in invertebrate numbers (API 2013). Acidification in these waterbodies can increase Al3+ concentration, impact on invertebrate populations and result in toxicity to fish but there is no expected negative impact on bird species associated with Lough Neagh due to acidity impacts (API 2013).

To-date aerial pollution and associated atmospheric deposition has not been highlighted as having an effect on Lough Neagh and Lough Beg SPA/Ramsar.
Plan implications
To further assess the implications on Lough Neagh and Lough Beg SPA/Ramsar it was deemed appropriate to consider if critical loads for nutrient-nitrogen or acidity deposition were met or exceeded in 2005 or have been modeled to be exceeded by 2020 using tools within the UK Air Pollution Information System (APIS).

Table 11. Table showing where critical loads for nutrient-nitrogen and acidity have been met* or exceeded** on Lough Neagh and Lough Beg SPA/Ramsar selection features or have been modeled to be exceeded by 2020 using tools within the UK Air Pollution Information System (APIS). The table also shows whether the contribution of any particular source meet* or exceeds** the critical load. SS means that the impacts are site specific and the APIS system does do identify critical loads. Features that are not considered sensitive to nutrient-nitrogen and acidity, or which have no recorded critical load are marked with the / symbol.

<table>
<thead>
<tr>
<th>Lough Neagh and Lough Beg SPA/Ramsar selection feature</th>
<th>Total Critical Load meet or exceeded</th>
<th>Source Critical Load</th>
<th>Critical Load meet or exceeded</th>
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<td>CommonTern Sterna hirundo associated habitat</td>
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<td>Livestock</td>
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<td>supralittoral sediment standing open water</td>
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<td>SS  SS / /</td>
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<tr>
<td>Bewick’s Swan Cygnus columbianus bewickii;</td>
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<tr>
<td>Whooper Swan Cygnus Cygnus Cygnus; Golden Plover Pluvialis apricaria; Great Crested Grebe Podiceps cristatus Pochard Aythya ferina; Greater scaup Aythya marlia marlia; Black headed Gull Larus ridibundus; Tufted Duck Aythya fuligula; Goldeneye Bucephala clangula; species assemblages associated habitats improved grassland / / / /</td>
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<td>Standing open water / canals SS SS SS SS</td>
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<td>littoral sediment SS SS / /</td>
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To assess localized impacts on each European site it was deemed appropriate to consider the distance between zonings and designations within BMAP and each European site in more detail to see if there were likely to be adverse local effects.

Lough Neagh and Lough Beg SPA/Ramsar:
BMAP settlements with development zonings within 15km.
Lisburn City
Towns: Hillsborough and Culcavy; Moira
Villages: Aghalee; Glenavy; Lower Ballinderry; Maghaberry; Stoneyford; Upper Ballinderry;
Other: Strategic Land Reserve of Regional Importance LN08
Small settlements were considered but they did not contain any development zonations.
In relation to BMAP lands within approximately 15km of Lough Neagh and Lough Beg SPA/Ramsar: The portion of the Lisburn City contains major areas of existing employment land, an additional zoned Employment site (LC05), Sprucefield Regional Shopping Centre (LC16) a number of housing zonations, a land zoned for educational use, and a road proposal. The Employment (LC05) could potentially be used for light industrial uses, general industrial uses or storage/distribution uses, business use, hotel, educational use, healthcare facilities or car showrooms. LC16 is designated for retail. The towns of Hillsborough and Moira have a number of housing zonations. The villages of Aghalee, Lower Ballinderry, Maghaberry, Stoneyford and Upper Ballinderry contain several housing zonations. Glenavy has several housing zonings and an employment zoning. The employment land could be used for light or general industry or storage/distribution uses. The Strategic Land Reserve is lands that are safeguarded from any development that would prejudice their potential as a reserve for any major development of regional importance.

BMAP indicates that applications for planning permission within the zoned employment sites will be determined in accordance with prevailing regional policy and Key Site Requirements in the Plan. The use classes suitable for each employment zonation are contained within the KSRs for each site. In addition the KSRs indicate that employment developments shall only be permitted in accordance with an overall comprehensive masterplan for the site to be agreed with the Department.

Under the Planning (Use Classes) Order (Northern Ireland) 1989, the Land Classes 6, 7, 8, 9 and 10 were related to Special Industrial Uses which were the uses most likely to result in aerial emissions. These classes were subsequently revoked by amending legislation in 1993 and 1996. The Planning (Use Classes) Order (Northern Ireland) 2004 indicates that no class specified in the schedule includes use for any work required to be registered under Article 20 of the Industrial Pollution Control (Northern Ireland) Order 1997 and regulation 30 of the Pollution Prevention and Control Regulations (Northern Ireland) 2003. These pieces of legislation have subsequently been superseded by the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013. Within the areas described above BMAP has not specifically zoned any land for specific uses that would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013.

There are many other activities associated with Lough Neagh and Lough Beg SPA / Ramsar that could impact on the SPA/Ramsar features that BMAP has no influence upon. These include commercial or recreational fishing levels; research activities; shoreline dumping or wildfowling.

**Appropriate Assessment consideration:**

*Species disturbance; habitat destruction or alteration.*

BMAP has not zoned any land within Lough Neagh and Lough Beg SPA / Ramsar for development and as such there will be no direct destruction of habitat as a result of the implementation of BMAP, nor there be any impact on any management activities associated with the Lough. The Conservation Objections Report for Lough Neagh SPA / Ramsar recognizes that the potential for increased disturbance is an issue of concern for the SPA/Ramsar. The Plan does not contain any proposals directly related to increasing recreational/amenity activity in the immediate area which could lead to increased disturbance levels in the proximity of the SPA and Ramsar. BMAP has minimal influence over abstraction rates or the level of Lough Neagh when considered in combination with other over-riding plans and projects which are utilised to control Lough Neagh water abstractions and water levels. Many of these plans are based on existing agreed Lough levels or granted abstraction rights. Over-riding Plans and Projects to change these existing agreements are themselves subject to various policies, public consultations and legislative requirements, including the requirements of the Conservation (Natural Habitats, etc.) Regulations Northern Ireland.

There are areas of adjoining habitat within BMAP that would provide suitable feeding habitat for feature species in particular for swans. Within existing settlements there are no site specific development zonations within recorded regularly used swan feeding areas. During the lifetime of the plan however there may be development applications within this area such as single housing, wind energy development, mineral extraction or agricultural diversification which could result in loss of feeding habitat for swans. The RDS (2012), for example, notes that a proportion of the estimated new dwellings required during the plan period
will be built in the open countryside and will depend on the application of PPS21. Any such proposals would be out-with any plan proposals and would have to be considered on a case by case basis via development management and the application of prevailing regional policy (in Particular PPS2). PPS1 indicates that Development Plans are the primary means of evaluating and reconciling any potential conflict between the need for development and the need to protect the environment within particular areas. BMAP does not contain any policies or proposals which would help to reconcile this potential conflict in the plan area. The plan does not give any indication that impacts of development on this suitable feeding area may be an environmental constraint which could result in the need for a Habitat Regulation Assessment to be carried on specific proposals to ensure that there would be no adverse impacts on the features of Lough Neagh and Lough Beg SPA / Ramsar.

The Conservation Objectives identifies sand dredging as an issue that has the potential to alter lough bed substrate and influence near shore sediment mobility. The Conservation Objectives Report highlights that human induced change to system dynamics should be minimised, for example through the assessment of planning applications. There are existing planning policies in PPS2 and the PSRNI (MIN1) that provide a degree of protection from potentially adverse mineral extractions. BMAP has not identified Lough Neagh SAC/SPA/Ramsar as an Area of Constraint on Mineral Development. However nor has BMAP identified any specific location for mineral development. BMAP acknowledges that European Sites require to be protected from inappropriate development. The strategic amplification text for minerals notes the regional planning policies for mineral development are currently set out in PSRNI and that mineral development also needs to respect the environmental policies contained in PPS 2: Natural Heritage. Although BMAP has not zoned any Areas of Constraint on Mineral Developments their omission cannot be used to infer that there are no European Sites in the BMAP area that require to be protected from inappropriate mineral developments.

**Water Quality**

Due to the water quality of Lough Neagh and Portmore Lough and the associated requirements of the Water Framework Directive there is a Lough Neagh Local Management Area Action Plan which aims to improve the ecological status of the Lough and associated waterbodies. Water pollution and eutrophication pose threats to the ecological structure of benthic fauna and flora within Lough Neagh and Portmore Lough.

There has been a notable decline in the diving duck populations utilizing Lough Neagh and Lough Beg SPA / Ramsar. Eutrophic conditions generally benefit Chironomid spp., one of their main food sources (Evans 2000). However hyper-trophic conditions reduce dissolved oxygen in sediments and an increasingly high pH can kill Chironomids (Allen and Mellon 2006). The Chironomids that are most tolerant of these conditions are those that tend to be more abundant in the deeper water and muddier sediments. It has been noted that for some of these diving duck species there has been a general downturn in breeding success affecting European populations and there have been substantial shifts in the distribution of over-wintering birds (Allen and Mellon 2006; Maclean et al. 2006). However it has also been noted that declines of the same magnitude are not evident in other sites in Great Britain and Ireland (Maclean et al. 2006) leading to conclusions that it is highly probable that the causes of decline at Lough Neagh are primarily locally site related. Eutrophication and a re-distribution and alterations to the composition of Chironomid communities have been identified as the most obvious site related factor impacting on diving duck numbers in Lough Neagh (Allen and Mellon 2006; Maclean et al. 2006). In Scotland declines in diving duck were recorded following sewage treatment modernization (Campbell 1978). In work investigating the diving duck declines at Lough Neagh however it has been noted that nutrient levels in the lough increased despite phosphate-stripping at tertiary sewage works in the 1980s. The source of this increase has been attributed to agricultural run-off (Foy et al. 2003, Allen and Mellon 2006; Maclean et al. 2006). The plan has no influence upon agricultural practices. The diving duck species also competes for food with fish species. Eutrophication is also a threat to the pollan as enrichment tends to favour dominance of introduced roach over other fish (NPWS/EHS 2005).

There is an existing regulatory regime in place that should control discharges associated with any proposals resulting from the implementation of BMAP. NIEA are responsible under the Water (NI) Order for preventing or minimizing the effects of pollution entering our waterways and to manage the risk of a
polluting discharge from occurring. There are currently measures in place to ensure that proposals associated with Lough Neagh and its associated waterbodies meet legal requirements associated with: The Drinking Water Directives (80/778/EEC and 98/83/EC); the Major Accidents Directive (96/82/EC); the Environmental Impact Assessment Directive (85/337/EEC); the Sewage Sludge Directive (86/278/EEC); The Urban Waste Water Treatment Directive (91/271/EEC); the Plant protection products Directive (91/414/EEC) the Nitrates Directive (91/676/EEC) and the Integrated Pollution Prevention and Control Directive. In addition to this any discharge of trade, sewage effluent or any other potential pollution (including effluent from any commercial, industrial or domestic premises or site drainage) to any waterway or any water contained in underground strata requires consent from the Department of the Environment under the Water (Northern Ireland) Order 1999 (Consent for certain other discharges are also required under the Water and Sewage Service (NI) Order 1973 as amended). Such consents can include conditions outlining the quantity and quality of the discharges and are drawn up to ensure that the waste can be absorbed by the receiving waterway without affecting the quality of the aquatic environment, or breaching national or European Commission (EC) standards. Water NI considers that the majority of WWTWs associated with settlements in Lisburn City Council that are linked to Lough Neagh waterbodies are satisfactory and capable of accommodating all development within their catchments that are proposed in the Plan through the Plan period and that those which were not were programmed to be upgraded between 2011 and 2015. The regulated discharges from these WWTW will have been granted Water Order permissions. Water Service NI indicated that Dundrod has no capacity during the plan period but the plan has not identified any development sites in this settlement.

There are a number of development zones either in close proximity to, or infrastructurally connected to the connecting waterways or its tributaries that have the potential to interact with Lough Neagh and Portmore Lough in terms of water quality. The majority of these sites have already been developed. The only sites yet to be developed are GY02/04 and SY04/01. The regulatory controls and management measures outlined above should be sufficient to ensure that any BMAP proposals will not have an adverse impact on Lough Neagh and Lough Beg SPA and Ramsar. Although the implementation of BMAP should not have any effect on key species and key habitats or on the integrity of Lough Neagh and Lough Beg SPA and Ramsar there may be occasions when planning permission is sought before consent is gained for discharge consent. Within the area BMAP does not make any reference to the potential for new or unconsented waste discharges from zoned development sites into Lough Neagh or associated watercourses and its tributaries to have adverse impacts on water quality and subsequently on the ecological structure of benthic fauna and flora within Lough Neagh and Portmore Lough and thus to have impacts on the bird species that utilize the SPA / Ramsar.

**Balance of gull species utilizing Lough Neagh and Lough Beg Ramsar**

A further threat to the SPA is predation of tern chicks particularly by gulls. It has been noted that human disturbance increases the likelihood of predation on Common Gull chicks by other gull species (Wolsey 2012). There is no evidence to suggest that gulls have been displaced to Lough Neagh from the BMAP area as a result of development activities. The opening or closure of landfill sites may influence gull populations in the BMAP area but the BMAP plan does not contain any policies or proposals specific to this issue. Development activities as a result of the BMAP plan will result in additional material going to landfill but other plans and regimes, such as Waste Management Plans and PPS11 are responsible for deciding the best location for these sites and whether or not additional landfill sites are required. Research suggests that predation would be best controlled by reducing the access of large gulls to tern colonies and by reducing human disturbance (Wolsey 2012).

**Aerial Pollution**

Although it is widely acknowledged that aerial emissions have the potential to damage sensitive species, to-date there has been no specific indication that atmospheric deposition from the BMAP area is a threat to Lough Neagh and Lough Beg SPA / Ramsar.

BMAP has not identified any specific zonations or policies relating to rural agricultural / manure management proposals that are potential sources of ammonia, for example chicken or pig farms. Nor does it give any requirement for a certain number of these types of developments to be built in the BMAP area. Any such proposals would therefore be out-with any plan proposals and would have to be considered on a
case by case basis via development management and the application of prevailing regional policy and, if appropriate, any relevant policies within BMAP.

Aerial deposition from sources in the BMAP area may have the potential to be a contributing factor to the overall deposition levels at Lough Neagh and Lough Beg SPA / Ramsar. The deposition levels at Lough Neagh are currently exceeding critical nitrogen levels for littoral habitats utilized by Common Tern. Nitrogen nutrient enrichment can increase tall grasses in nesting habitat. The main nesting sites in Lough Neagh, Pagan Island and Torpedo Platform are however actively managed and it is unlikely that grasses would be allowed to grow or spread to damaging levels. In addition the deposition of toxic substances has declined significantly over recent decades and the level of atmospheric deposition into the SPA/Ramsar site is predicted to decrease by 2020.

The adopted plan does not zone any employment lands for specific industrial uses that would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013. During the lifetime of the plan there may be other future development applications within the BMAP area which could result in aerial deposition on the SPAs in question. Any such proposals would be out-with any plan proposals and would have to be considered on a case by case basis via development management and the application of prevailing regionally policy (in Particular PPS2) and, if appropriate, any relevant policies within BMAP. In addition any such future proposals must comply with legally enforceable obligations designed to avoid environmental effects. Integrated Pollution Protection and Control Guidelines are a Regulatory system that employs an integrated approach to control the environmental impacts of certain industrial activities. The system requires the identification of industrial proposals up to 10-15km from sensitive receptors such as European sites. Where an installation is within such distance of a European site, an assessment has to be made regarding potential impacts. This assessment may require the use of detailed air impact assessment (air dispersion modeling) or in other cases a screening tool can be used to demonstrate whether potential impacts are acceptable. Proposals which may have a potential impact on designated habitats are likely to be considered by both the Industrial Pollution and Radiochemical Inspectorate (IPRI) and Natural Heritage in NIEA. Any adverse impact by subsequent proposals for industry which generates significant aerial emissions should be avoided through implementation of the legally enforceable obligations and the application of regional planning policy.

The BMA Employment Strategy provides a measure of certainty about which types of development will and will not be permitted. However there is uncertainty about where new industrial proposals which have the potential to promote uses which generate significant aerial emissions which would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013 are likely to be located. The draft BMAP plan suggested some of the sites within 15km of Lough Neagh and Lough Beg SPA and Ramsar would be suitable for this type of special industrial use. Any new proposals for industry generating significant aerial emissions will be subject to legal obligations, regional planning policy and potentially the Key Site Requirements or the amplification text in the plan. The plan however does not give any indication that impacts of aerial emissions from any sites may be an environmental constraint which could result in the need for a Habitat Regulation Assessment to be carried on specific proposals to ensure that there would be no adverse impacts on European Sites, including Lough Neagh and Lough Beg SPA and Ramsar.

<table>
<thead>
<tr>
<th>Integrity of site checklist</th>
<th>Yes/No</th>
</tr>
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<tbody>
<tr>
<td>Does the project or plan have the potential to:</td>
<td></td>
</tr>
<tr>
<td>- cause delays in progress towards achieving the conservation objectives of the site?</td>
<td>No</td>
</tr>
<tr>
<td>- interrupt progress towards achieving the conservation objectives of the site?</td>
<td>No</td>
</tr>
<tr>
<td>- disrupt those factors that help to maintain the favourable conditions of the site?</td>
<td>Yes</td>
</tr>
<tr>
<td>- interfere with the balance, distribution and density of key species that are the</td>
<td>Yes</td>
</tr>
</tbody>
</table>
indicators of the favourable condition of the site?

**Other indicators: Does the project or plan have the potential to:**

- cause changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem?
- change the dynamics of the relationships (between, for example, soil and water or plants and animals) that define the structure and/or function of the site?
- interfere with predicted or expected natural changes to the site (such as water dynamics or chemical composition)?
- reduce the area of key habitats?
- reduce the population of key species?
- change the balance between key species?
- reduce diversity of the site?
- result in disturbance that could affect population size or density or the balance between key species?
- result in fragmentation?
- result in loss or reduction of key features (e.g. tree cover, tidal exposure, annual flooding, etc.)?

| Yes/No | Yes | Yes | Yes | No | Yes | Yes | No | Yes | No | Yes |

**Appropriate Assessment Conclusion:**

The evidence gathered and assessment undertaken does not enable us to conclude reasonably and objectively that the implementation of BMAP will not adversely affect key species and key habitats or the integrity (structure and function and conservation objectives) of:

Lough Neagh and Lough Beg SPA
Lough Neagh and Lough Beg Ramsar

Mitigation measures are required to ensure that BMAP will not have any effect on the integrity of these SPAs / Ramsar with regard to:

- Aerial pollution.
- Loss of suitable feeding habitat
- Water quality.
- Mineral extraction.
Elements of BMAP that are likely to give rise to significant effects;

Marsh fritillary butterfly, *Euphydryas aurinia*, is the principle reason for the selection of Montiaghs Moss as a SAC.

Montiaghs Moss SAC is linked to BMAP by the potential for aerial depositions and may be hydrologically connected to parts of the Lisburn City Council area via drains that run through Montiaghs Moss SAC and its environs.

It appears most likely that water levels at Montiaghs Moss SAC are controlled by Lough Neagh (Conservation Objective Report). The past series of lowering Lough Neagh’s water levels has had a fundamental impact on the marginal habitats surrounding the lough. The vulnerability section of the Montiaghs Moss SAC Natura 2000 data form identified drainage as one of the likely factors that may be affecting Montiaghs Moss or may affect it in the future. The water demands of new developments in the BMAP area could result in pressure to increase the level of water abstracted from Lough Neagh and thus in turn impact on Montiaghs Moss SAC, whilst developments in the Lisburn City Council area may impact on the drainage regimes associated with the site.

As the key sources of atmospheric pollutants in Northern Ireland are from industry, transport and agricultural sources allocations and zonings associated with the BMA Employment Strategy and BMA Transportation schemes and proposals are the most likely to give rise to aerial deposition impacts.

**In-combination effects from other plans or projects that are likely to have significant effects.**

In relation to aerial deposits the screening identified that there was a potential for in-combination eutrophication and acidification effects arising from development activities in the Antrim Area Plan 1984-2001; Armaigh Area Plan 2004; Craigavon Area Plan 2010; Craigavon Town Centre Boundaries and Retail Designation Plan 2010; Cookstown Area Plan 2010; Dungannon and South Tyrone Area Plan 2010 and the Banbridge Newry and Mourne Area Plan 2015 (all within approx 15km from the SAC).

As Lough Neagh provides water for approximately one third of the population of Northern Ireland there will be cumulative abstraction pressures associated with Development Plans throughout Northern Ireland and Water Resource Plans and associated capital works.

Water levels in Lough Neagh are controlled by Rivers Agency who are required to regulate and control water levels within a specified range, that is 12.45 meters to 12.6 meters Ordnance Datum, as defined in the Lough Neagh Levels Scheme (1955) (as amended). The level of Lough Neagh was considered in the Proposed Lough Neagh (levels) scheme 2004 (DARD). Water levels are currently controlled by five sluice gates at Toome, where the water enters the Lower Bann River. Incremental adjustments of floodgates is practiced, whenever possible, in order to minimise impact on the range of environmental and other interests associated with the Lough.

NI Water is responsible for supplying the public with clean drinkable water and uses 90% of all water abstracted in Northern Ireland. As a result of the huge volumes of water involved these activities are subject to abstraction licences in line with the Water Abstraction and Impoundment (Licensing) Regulations (Northern Ireland) 2006 No. 482. In addition the Water Framework Directive places controls over water abstractions and impoundments to make sure the directive’s objectives for water bodies are met. The control measures required for the award of a licence will play an important factor in achieving 'Good' ecological status for all water bodies in Northern Ireland.
The existing abstraction licence for Lough Neagh authorizes NI Water to abstract up to a total of 392 Ml/d from three locations around the lough; Castor Bay, Dunore and Moyola (NI Water 2010b). Habitat Regulations Assessments were previously undertaken for the licensed level of abstractions. Abstraction levels were considered in the ‘Proposals for the increased Water Supply Abstraction from Lough Neagh 2005 -2015’ (Water Service) during which an Environmental Statement was prepared to indicate potential environmental impacts. This issue was again considered in NI Waters draft Water Resources Management Plan 2010-2035 (NI Water 2010b) in which one of the options under consideration was to increase the abstraction output from Castor Bay, Dunore and Moyola WTWs by a combined additional volume of 30ML/d. This additional option would continue to abstract water from Lough Neagh within the existing Licence limit. An option to abstract water above the total Lough Neagh licensed quantity was discounted as it was apparent that such an increase in capacity would not be required before 2034-35.

The Dunore to Hydepark D2H project to lay a new pressurised watermain pipeline to transfer treated water between Dunore Water Treatment Works in Antrim and Hydepark Service Reservoir in Mallusk was completed in 2006. The pipeline has the capacity to deliver up to 180 million litres of water a day to over one quarter of Northern Ireland’s population. This important transmission system transfers between 130 and 150 million litres of water a day and represents one of two essential large diameter trunk mains in Northern Ireland – the other is the Mourne Conduit.

In general there are several recent or ongoing NI Water projects throughout Northern Ireland to improve the quality, reliability and flexibility of water supply across Northern Ireland while also reducing leakage. http://www.NI Waterater.com/whatweredoing.asp

This includes:

- The Water Mains Rehabilitation project (to upgrade in excess of 1000 kilometres of water main infrastructure throughout Northern Ireland);
- The Alpha Project to upgrade, operate and maintain existing water treatment works (WTW) at four locations across Northern Ireland that can produce up to 50% of NI Water's bulk drinking water supply; and to deliver three major trunk watermains.

These projects will work in combination to improve the efficiency of the water supply system in Northern Ireland.

Although the NI Waters draft Water Resources Management Plan 2010-2035 (NI Water 2010b) include an option to abstract up to currently permitted limits and discount the need to increase capacity above these limits before 2034-35 there is always a possibility that NI Water can apply to increase abstraction from Lough Neagh during the lifetime of BMAP. Any such application would be subject to legislative requirements and environmental assessment including the need to comply with the requirements of the Conservation (Natural Habitats, etc.) Regulations in Northern Ireland (as amended).

There may also be in-combination impacts on the drainage regime associated with Montiaghs Moss SAC from developments within the Craigavon Area Plan 2010 area.

**Conservation Objectives and implications for each qualifying interest in light of its conservation objectives.**

Marsh fritillary butterfly, *Euphydryas aurinia*, is the principle reason for the selection of Montiaghs Moss as a SAC. Montiaghs Moss SAC has a conservation objective to maintain the extent and quality of suitable Marsh Fritillary breeding habitat, particularly suitable rosettes of the larval food plant *Succisa pratensis*.

Condition assessment reports in Northern Ireland note that although the biology and ecology of the Marsh Fritillary butterfly has been studied intensively in Britain, the reasons for its marked population fluctuations and continued overall decline remain uncertain. Populations of marsh fritillary vary greatly in size from year to year, and, at least in part, this is related to cycles of attack from parasitic wasps. Adults tend to be sedentary and remain in a series of linked metapopulations, forming numerous temporary sub-populations, which frequently die out and recolonise. Where unable to do this, populations do not seem to be able to
persist in habitat fragments. It is therefore essential to conserve a cluster of sites in close proximity. Connectivity of suitable breeding habitat is essential for long-term survival (Joyce & Pullin 2003).

Condition assessment reports for Marsh Fritillary sites in Northern Ireland have noted that sheep selectively graze *S. pratensis* and are therefore detrimental to marsh fritillary populations, except at very low stocking rates. Burning and mowing are also known to have caused the extinction of populations. In Northern Ireland the variability in *S. pratensis* plant size and growth between SAC sites are responsive to spatial and temporal variation in environmental conditions, most likely soil drainage and rainfall (Preston et al. 2008). For example there was a recorded decline in *S. pratensis* in Northern Ireland between 2005 and 2006 the likely cause of which was drought (Preston et al. 2008). In contrast to this there is also anecdotal evidence that recent flooding events in Northern Ireland have negatively impacted on some marsh fritillary populations.

The Vulnerability section of the Montiaghs Moss SAC European data form records that the main threats to the site are indiscriminate burning and natural scrub encroachment as a result of lack of management. The Conservation Objectives Report for the Montiaghs Moss SAC identified the following additional most likely factors that may be either affecting Montiaghs Moss, or could affect it in the future: grazing; peat cutting; drainage; eutrophication; water quality; fly-tipping; agricultural reclamation / cultivation / application of fertilisers/supplementary feeding; and changes to surrounding land-use (agricultural intensification, drainage works and development). In 2006, 74 Marsh Fritillary webs were counted; 38 webs in 2007; 2 webs in 2008; 0 webs in 2009; 3 webs in 2010 and 0 webs in 2011.

The Conservation Objective Report suggests that water levels in Montiaghs Moss appear to be controlled by Lough Neagh and as such the drains within the SAC are not having a serious effect on the site, however, it is acknowledged that the hydrology of the area is complex and activities associated with ditches should ideally take place in liaison with the relevant statutory bodies to ensure that the main features of nature conservation interest are taken into consideration and to prevent detrimental effects upon the whole site. In addition future manipulation of the water levels in the area could be useful if it is ever shown that the wetland habitats are drying out.

The BMAP area is approximately 2km from Montiaghs Moss SAC. The village of Aghalee is also approximately 2km away and is the only settlement in BMAP that has the potential to be within the water catchment area of Montiaghs Moss SAC. Aghalee contains a number of housing zonations. Only a small portion of countryside adjacent to Aghalee has the potential to be within the catchment of Montiaghs Moss SAC. On consideration of topography of the housing zonations within Aghalee and adjacent countryside areas it is apparent that any surface run or drainage works associated with these areas will direct water towards the Lagan Canal or Aghalee Burn. The Lagan Canal does not flow towards or through Montiaghs Moss but rather flows towards and into Lough Neagh. The Aghalee burn is, at its closest, 600m from Montiaghs Moss SAC but it flows towards the Portmore Lough drainage system and Selsn Drains rather than Montiaghs Moss. There is very limited scope for developments in the BMAP area to have any impact on the Montiaghs Moss drainage system.

*Succisa pratensis* is more vulnerable to eutrophication than to acidification (Vergeer et al. 2003). *Succisa pratensis* has an Ellenberg nitrogen value of 2 and an Ellenberg pH of 5 suggesting that the species generally prefers moderately acid soils with low soil fertility. *Succisa pratensis* has been shown in a laboratory experiment to have a reduced biomass at high ammonia concentration and low pH (van den Berg et al. 2005). Glasshouse experiments in the Netherlands have shown that individual plant performance was negatively affected by eutrophication and, to a smaller extent, by acidification but the degree of impact depended on population size, with plants from smaller populations performing less well (Vergeer et al. 2003).

Nitrogen nutrient enrichment in the broad habitats associated with Marsh fritillary can increase graminoids, decrease bryophytes, cause a decline in typical species and decrease species richness and diversity whilst acidification and associated leaching will cause a decrease in soil base saturation and increase the
availability of Al\textsuperscript{3+} ions. Mobilisation of Al\textsuperscript{3+} may cause toxicity to plants and mycorrhiza. There may also be direct effects on lower plants (bryophytes and lichens) (APIS 2013).

To-date aerial pollution and associated atmospheric deposition has not been highlighted as having an affect on Montiaghs Moss SAC.

Plan implications
To further assess the implications on Montiaghs Moss SAC it was deemed appropriate to consider if critical loads for nutrient-nitrogen or acidity deposition were met or exceeded in 2005 or have been modeled to be exceeded by 2020 using tools within the UK Air Pollution Information System (APIS).

**Table 12.** Table showing where critical loads for nutrient-nitrogen and acidity have been met or exceeded on selected European Sites or have been modeled to be exceeded by 2020 using tools within the UK Air Pollution Information System (APIS). The table also shows whether the contribution of any particular source meet or exceeds the critical load.

<table>
<thead>
<tr>
<th>European Site and selection feature</th>
<th>Total Critical Load meet or exceeded</th>
<th>Source Critical Load</th>
<th>Critical Load meet or exceeded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Montiaghs Moss SAC</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Total Critical Load meet or exceeded</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>N</td>
<td>N</td>
<td>A</td>
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<td></td>
<td>05</td>
<td>20</td>
<td>05</td>
</tr>
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</table>

At Montiaghs Moss SAC the next major source of total N Deposition after livestock production (N/hectare/year) was attributed to Imported Emissions (e.g. emissions from Europe, Ireland and other countries) whilst the main source of total sulphur deposition (keq) was attributed to Imported Emissions (APIS 2013). It is predicted that the total amount of nitrogen deposition at Montiaghs Moss SAC will increase between 2005 and 2020 whilst the total amount of sulphur deposition is predicted to decrease (APIS 2013).

At the screening stage the distance of each site to the BMAP plan area was considered. To consider localized aerial deposition impacts on each European site it was considered appropriate to consider the distance between zonings and designations within BMAP and each European site in more detail to see if there were likely to be adverse local effects.

**Montiaghs Moss SAC:**
**BMAP settlements with development zonings within 15km.**

<table>
<thead>
<tr>
<th>Lisburn City</th>
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</thead>
<tbody>
<tr>
<td>Towns: Hillsborough and Culcavy; Moira</td>
</tr>
<tr>
<td>Villages: Aghalee; Glenavy; Lower Ballinderry; Maghaberry; Stoneyford; Upper Ballinderry;</td>
</tr>
<tr>
<td>Other: Strategic Land Reserve LN08</td>
</tr>
</tbody>
</table>

Small settlements were considered but they did not contain any development zonations.

In relation to BMAP lands within approximately 15km of Montiaghs Moss SAC: The portion of the Lisburn City contains major areas of existing employment land, a zoned Employment site (LC05), Sprucefield Regional Shopping Centre (LC16) a number of housing zonations, land zoned for educational use, and a road proposal. The Employment land (LC05) could potentially be used for light
industrial uses, general industrial uses or storage/distribution uses, business use (B1, B2, B3, B4), hotel, educational use, healthcare facilities (D1), car showrooms. LC16 is designated for retail. The towns of Hillsborough and Moira have a number of housing zonations. The villages of Aghalee, Lower Ballinderry, Maghaberry, Stoneyford and Upper Ballinderry contain several housing zonations. Glenavy has several housing zonings and an employment zoning. The employment land could be used for light or general industry or storage/distribution uses. The Strategic Land Reserve is lands that are safeguarded from any development that would prejudice their potential as a reserve for any major development of regional importance.

The road schemes associated with Lisburn City (LC 17/01; LC17/02; LC 17/03) are over 10km from the SAC.

BMAP indicates that applications for planning permission within the zoned employment sites will be determined in accordance with prevailing regional policy and Key Site Requirements in the Plan. The use classes suitable for each employment zonation are contained within the KSRs for each site. In addition the KSRs indicate that employment developments shall only be permitted in accordance with an overall comprehensive masterplan for the site to be agreed with the Department.

Under the Planning (Use Classes) Order (Northern Ireland) 1989, the Land Classes 6, 7, 8, 9 and 10 were related to Special Industrial Uses which were the uses most likely to result in aerial emissions. These classes were subsequently revoked by amending legislation in 1993 and 1996. The Planning (Use Classes) Order (Northern Ireland) 2004 indicates that no class specified in the schedule includes use for any work required to be registered under Article 20 of the Industrial Pollution Control (Northern Ireland) Order 1997 and regulation 30 of the Pollution Prevention and Control Regulations (Northern Ireland) 2003. These pieces of legislation have subsequently been superseded by the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013. Within the areas described above BMAP has not specifically zoned any land for specific uses that would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013.

**Appropriate Assessment consideration:**

BMAP has minimal influence over abstraction rates or the level of Lough Neagh when considered in combination with other over-riding plans and projects which are utilised to control Lough Neagh water abstractions and water levels. Many of these plans are based on existing agreed Lough levels or granted abstraction rights. Plans and Projects to change these existing agreements are themselves subject to various policies, public consultations and legislative requirements, including the requirements of the Conservation (Natural Habitats, etc.) Regulations Northern Ireland. In addition as BMAP is not in the immediate vicinity of Montiaghs Moss SAC it will not have any direct impact on its habitats or drainage regimes. The BMAP plan area is distant from Montiaghs Moss SAC and any drainage work or surface run-off in the plan area will be directed to catchments associated with the Lagan Canal and Aghalee burn rather than drainage ditches that run through Montiaghs Moss SAC.

Although it is widely acknowledged that aerial emissions have the potential to damage sensitive plant communities, to-date there has been no specific indication that atmospheric deposition from the BMAP area is a threat to Montiaghs Moss SAC. The main source of potentially damaging aerial deposition onto these SACs has been attributed to imported or agricultural sources.

BMAP has not identified any specific zonations or policies relating to rural agricultural / manure management proposals that are potential sources of ammonia, for example chicken or pig farms. Nor does it give any requirement for a certain number of these types of developments to be built in the BMAP area. Any such proposals would therefore be out-with any plan proposals and would have to be considered on a case by case basis via development management and the application of prevailing regionally policy and, if appropriate, any relevant policies within BMAP.
Aerial deposition from sources in the BMAP area may have the potential to be a contributing factor to the overall deposition levels at Montiaghs Moss SAC. However Montiaghs Moss SAC is not in the immediate vicinity of the majority of BMAP and is relatively remote from most pressures associated with roads employment lands or other built development in the BMAP area. The deposition of toxic substances has declined significantly over recent decades and the level of atmospheric sulphur deposition attributed to housing or commercial sources into the SAC site is predicted to decrease by 2020 (APIS 2013), although Nitrogen deposition is predicted to increase (APIS 2013).

The adopted plan however does not zone any employment lands for specific industrial uses that would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013. Such developments could result in adverse aerial emissions to the SPA. During the lifetime of the plan there may be other future development applications within the BMAP area which could result in aerial deposition on the SPAs in question. Any such proposals would be out-with any plan proposals and would have to be considered on a case by case basis via development management and the application of prevailing regionally policy (in Particular PPS2) and, if appropriate, any relevant policies within BMAP. In addition any such future proposals must comply with legally enforceable obligations designed to avoid environmental effects. Integrated Pollution Protection and Control Guidelines are a Regulatory system that employs an integrated approach to control the environmental impacts of certain industrial activities. The system requires the identification of industrial proposals up to 10-15km from sensitive receptors such as European sites. Where an installation is within such distance of a European site, an assessment has to be made regarding potential impacts. This assessment may require the use of detailed air impact assessment (air dispersion modeling) or in other cases a screening tool can be used to demonstrate whether potential impacts are acceptable. Proposals which may have a potential impact on designated habitats are likely to be considered by both the Industrial Pollution and Radiochemical Inspectorate (IPRI) and Natural Heritage in NIEA. Any adverse impact by subsequent proposals for industry which generates significant aerial emissions should be avoided through implementation of the legally enforceable obligations and the application of regional planning policy.

The BMA Employment Strategy provides a measure of certainty about which types of development will and will not be permitted. However there is uncertainty about where new industrial proposals which have the potential to promote uses which generate significant aerial emissions which would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013 are likely to be located. The draft BMAP plan suggested some of the sites within 15km of Montiaghs Moss SAC would be suitable for this type of special industrial use. Any new proposals for industry generating significant aerial emissions will be subject to legal obligations, regional planning policy and potentially the Key Site Requirements or the amplification text in the plan. The plan however does not give any indication that impacts of aerial emissions from any sites may be an environmental constraint which could result in the need for a Habitat Regulation Assessment to be carried on specific proposals to ensure that there would be no adverse impacts on European Sites, including Montiaghs Moss SAC.

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<td>- cause delays in progress towards achieving the conservation objectives of the site?</td>
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<td>- interrupt progress towards achieving the conservation objectives of the site?</td>
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<td>- disrupt those factors that help to maintain the favourable conditions of the site?</td>
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<td>- interfere with the balance, distribution and density of key species that are the indicators of the favourable condition of the site?</td>
<td>No</td>
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<td><strong>Other indicators: Does the project or plan have the potential to:</strong></td>
<td>Yes/No</td>
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105
• cause changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem?
• change the dynamics of the relationships (between, for example, soil and water or plants and animals) that define the structure and/or function of the site?
• interfere with predicted or expected natural changes to the site (such as water dynamics or chemical composition)?
• reduce the area of key habitats?
• reduce the population of key species?
• change the balance between key species?
• reduce diversity of the site?
• result in disturbance that could affect population size or density or the balance between key species?
• result in fragmentation?
• result in loss or reduction of key features (e.g. tree cover, tidal exposure, annual flooding, etc.)?

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**Appropriate Assessment Conclusion:**
The evidence gathered and assessment undertaken does not enable us to conclude reasonably and objectively that the implementation of BMAP will not adversely affect key species and key habitats or the integrity (structure and function and conservation objectives) of:
Montiaghs Moss SAC

Mitigation measures are required to ensure that BMAP will not have any effect on the integrity of Montiaghs Moss SAC with regards to:
• Aerial Deposition.
Appropriate Assessment Report for: Murlough SAC

Elements of BMAP that are likely to give rise to significant effects;

Murlough is designated as a SAC because it contains the following habitats: Fixed dunes with herbaceous vegetation (grey dunes); Atlantic decalcified fixed dunes (Calluno-Ulicetea); Sandbanks which are slightly covered by sea water at all time; mudflats and sandflats not covered by seawater at low tide; Atlantic salt meadows (Glaucopuccinellietalia maritima); Embryonic shifting dunes; Shifting dunes along the shoreline with Ammophila arenaria (white dunes); and Dunes with Salix repens spp. Argentea (Salicion arenariae). Common seal, Phoca vitulina and Marsh fritillary butterfly, Euphydryas aurinia are also qualifying features.

Murlough SAC is linked to BMAP by the potential for aerial depositions and by the ecological connectivity of seal populations.

As the key sources of atmospheric pollutants in Northern Ireland are from industry, transport and agricultural sources allocations and zonings associated with the BMA Employment Strategy and BMA Transport schemes and proposals are the most likely to give rise to aerial deposition impacts.

SAC site selection for Common Seals has favoured sites that are important both as general haul-out sites and for moulting and pupping. Haul-out areas are thought to be very important for the conservation of the species, as are the most important breeding colonies. As well as their importance in maintaining overall population size, larger breeding sites are significant as sources of emigration to smaller or newly-established colonies. Seals are very mobile within the North Atlantic area as a whole and whilst the SAC series makes a contribution to securing favourable conservation status for this Annex II species, wider measures are also necessary to support its conservation in the UK. Although development in the BMAP area will not directly impact on haul out sites in Murlough SAC development activities in the BMAP area, in particular coastal development could reduce the network of haul out and breeding sites that are utilised by this mobile species.

In-combination effects from other plans or projects that are likely to have significant effects.

The screening identified that there was a potential for in-combination eutrophication and acidification effects arising from development activities in the Ards and Down Area Plan 2015 and the Banbridge, Newry and Mourne Area Plan 2015. Development activities in Lisburn City Council may also have in-combination eutrophication and acidification effects.

Development activities throughout the Northern Ireland coastline have a potential to cumulatively impact upon the network of haul out and breeding sites that are utilised by Common Seals.

Conservation Objectives and implications for each qualifying habitat interest, Marsh fritillary butterfly and Common Seal in light of its conservation objectives.

Murlough is designated as a SAC because it contains the following habitats: Fixed dunes with herbaceous vegetation (grey dunes); Atlantic decalcified fixed dunes (Calluno-Ulicetea); Sandbanks which are slightly covered by sea water at all time; mudflats and sandflats not covered by seawater at low tide; Atlantic salt meadows (Glaucopuccinellietalia maritima); Embryonic shifting dunes; Shifting dunes along the shoreline with Ammophila arenaria (white dunes); and Dunes with Salix repens spp. Argentea (Salicion arenariae). Common seal, Phoca vitulina and Marsh fritillary butterfly, Euphydryas aurinia are also qualifying features.
There are conservation objectives for Murlough SAC to maintain the extent of the feature habitats and their composition, structure and habitat and species diversity. Natural processes and community transitions should also be maintained. There are also conservation objectives to maintain the populations Marsh fritillary butterfly and the habitats that they utilize. There are conservation objectives to maintain the populations of seals and the habitats or features that they utilize.

Marsh Fritillary Butterfly
The vulnerability section of the European data form does not list aerial pollution as a major threat to Murlough SAC however aerial pollution and associated atmospheric deposition arising from the BMAP area has the potential to lead to increased eutrophication and soil acidification. Certain habitats and floral species are particularly sensitive to eutrophication and acidification and air pollution has been listed as a potential threat and pressure for some of the habitats within Murlough SAC including habitats associated with the Marsh fritillary butterfly. Within the habitats that are features of Murlough SAC additional nitrogen nutrients have the potential to: increase tall grasses; increase productivity and biomass; decrease prostrate plants; increase N leaching result in loss of typical lichen species; accelerate succession and increase successional species and increase soil acidity (APIS 2013). Acidification can decrease soil base saturation; increase availability and mobilization of Al3+ ions which may cause toxicity to plants and mychoriza and may have direct impacts on lower plants such as bryophytes and lichens (APIS 2013). Similar impacts can occur on the habitats (dune heath and grey dune) and larval food source, Succisa pratensis, of the Marsh Fritillary Butterfly.

Condition assessment reports in Northern Ireland note that although the biology and ecology of the Marsh Fritillary butterfly has been studied intensively in Britain, the reasons for its marked population fluctuations and continued overall decline remain uncertain. Populations of marsh fritillary vary greatly in size from year to year, and, at least in part, this is related to cycles of attack from parasitic wasps. Adults tend to be sedentary and remain in a series of linked metapopulations, forming numerous temporary sub-populations, which frequently die out and recolonise. Where unable to do this, populations do not seem to be able to persist in habitat fragments. It is therefore essential to conserve a cluster of sites in close proximity. Connectivity of suitable breeding habitat is essential for long-term survival (Joyce & Pullin 2003). In addition condition assessment reports have noted that sheep selectively graze S. pratensis and are therefore detrimental to marsh fritillary populations, except at very low stocking rates. Burning and mowing are also known to have caused the extinction of populations. In Northern Ireland the variability in S. pratensis plant size and growth between SAC sites are responsive to spatial and temporal variation in environmental conditions, most likely soil drainage and rainfall (Preston et. al. 2008). For example there was a recorded decline in S. pratensis in Northern Ireland between 2005 and 2006 the likely cause of which was drought (Preston et al. 2008). In contrast to this there is also anecdotal evidence that recent flooding events in Northern Ireland have negatively impacted on some marsh fritillary populations.

Succisa pratensis is more vulnerable to eutrophication than to acidification (Vergeer et al. 2003). Succisa pratensis has an Ellenberg nitrogen value of 2 and an Ellenberg pH of 5 suggesting that the species generally prefers moderately acid soils with low soil fertility. Succisa pratensis has been shown in a laboratory experiment to have a reduced biomass at high ammonia concentration and low pH (van den Berg et al. 2005). Glasshouse experiments in the Netherlands have shown that individual plant performance was negatively affected by eutrophication and, to a smaller extent, by acidification but the degree of impact depended on population size, with plants from smaller populations performing less well (Vergeer et al. 2003). Nitrogen nutrient enrichment in the broad habitats associated with Marsh fritillary can increase graminoids, decrease bryophytes, cause a decline in typical species and decrease species richness and diversity whilst acidification and associated leaching will cause a decrease in soil base saturation and increase the availability of Al3+ ions. Mobilisation of Al3+ may cause toxicity to plants and mycorrhiza. There may also be direct effects on lower plants (bryophytes and lichens) (APIS 2013).

In the last condition assessment (2007) for Marsh Fritillary the SAC was in favourable condition. The sand dune system at Murlough holds one of the largest populations of Marsh Fritillary Euphydryas aurinia in Northern Ireland, with a number of sub-populations present. The population is long-established and well-studied however, being a sand dune system it is not typical of many of the other populations in the country.
The marsh fritillary butterfly was first recorded on Murlough in 1978. Larval web monitoring started, on the National Trust land at Murlough, in the autumn of 1984 and has continued since. The population has been well-researched at Murlough and despite often large fluctuations from year to year, the species regularly occurs in significant numbers at the site. To ensure optimum conditions for Marsh Fritillary, a series of grazing enclosures have been established in areas where breeding takes place. Despite the fact that the main habitat features associated with the Marsh Fritillary at Murlough SAC were found to be in unfavourable condition in 2006 (i.e. dune heath and grey dune), larval web counts have continued to increase rapidly since 2004 when 40 webs were found to, 2007 when 842 webs were counted. In the 2010 count 716 webs were counted. The current management should ensure that the population of Marsh Fritillary remains healthy.

Terrestrial habitats

In the 2006 condition assessment report for the terrestrial habitats embryonic shifting dunes were in favourable condition but the Atlantic decalcified fixed dunes (Calluno-Ulicetea), shifting dunes along the shoreline with Ammophila arenaria (white dunes), fixed dunes with herbaceous vegetation (grey dunes) and the Atlantic salt meadows were in unfavourable condition. In the 2008 Condition assessment of the marine elements of Murlough SAC sandbanks which are slightly covered by seawater all the time to depths of 20m below low water and mudflats and sandflats not covered by seawater at low tide were in favourable condition.

The dune, grassland and heath habitats in Murlough SAC were unfavourable due to two main factors – encroachment by negative species (specifically scrub and Bracken) and lack of community character species. The dune heath, grey dunes and white dunes all have excessively high levels of scrub encroachment. The grey dunes also have too few community character species across their area. These factors are widespread across many dunes across the UK, and largely reflect the fact that:
(i) traditional agricultural practices in sand dune systems – in particular, livestock grazing - have decreased or stopped altogether
(ii) rabbit populations are generally low, due to myxomatosis.
Lack of grazing results in an increase in leaf litter and tends to favour vigorous, more robust species at the expense of the less competitive species that are associated with more species-rich swards. Over time, this trend generally leads to scrub encroachment and ultimately, conversion to scrub/woodland.

The condition assessment report highlighted that appropriate management is required to control scrub and Bracken. Although appropriate grazing can act to halt further scrub encroachment, given the high levels of infestation, physical control of a proportion of the current tree/scrub encroachment is necessary to reduce cover to the desired target.

Murlough had traditionally been managed as a commercial rabbit warren until the arrival of myxomatosis in the 1950’s. This resulted in a sward that was very short and open. In 1976 there was a particularly bad attack of myxomatosis and when combined with a bad drought let to a rapid decline in the rabbit population. In the 1980’s grazing was introduced, initially with rabbits, then sheep and cattle. National Trust and MOD staff have invested considerable time and effort into restoring the dune system at Murlough SAC to favourable condition. Grazing animals – originally Dexter cattle and Exmoor ponies, and more recently Galloway cattle – have been introduced to reduce rank growth. Scrub and Bracken control measures have also been implemented, with manual cutting and mechanical cutting, and rolling and herbicide spraying employed respectively. Anecdotal evidence would suggest that the overall condition has improved. For example a NIEA assessment of MOD land in 2010 found that the habitats that were previously in unfavorable condition were recovering due to management changes.

The Coastal saltmarsh (Atlantic Salt Meadow) was judged to be in unfavourable condition due to the occurrence of Spartina anglica. S. anglica is a non-native species which was introduced into Strangford Lough during the 1940s to increase sediment accretion in coastal protection schemes. It has since been introduced or has spread to, other sea-loughs in NI.
Common seal

Common seal, *Phoca vitulina* is a qualifying feature of Murlough SAC. There are conservation objectives to maintain the populations of seals and the habitats or features that they utilize.

In the last Condition assessment of the marine elements of Murlough SAC 2008 *Phoca vitulina* – common seal were in favourable condition.

The common seal, or harbour seal as it is also known, is found all around the coastline of Northern Ireland. Common seal feeds at sea but is seen regularly hauled out on rocky shores and sandbanks in sheltered inshore bays or estuaries to rest, or to give birth and to suckle their pups. Strangford Lough, County Down holds the largest colony and is the most important breeding site for the common seal in Ireland.

The main threats to the population are considered to be chemical pollution, oil pollution and disease. In 1988 the European common seal population was decimated by a viral disease, phocine distemper virus (PDV) – it is estimated that around 18,000 seals died, about 50% of the total population. Eventually the population recovered and numbers increased but an outbreak of the disease in 2002-2003 killed a further 22,500 seals. In Northern Ireland around 350 seals died during the two disease outbreaks. As seals are top of the food chain they tend to accumulate pollutants such as heavy metals, organochlorines and polychlorinated biphenyls (PCBs) which are present in the environment and in fish. High levels of pollutants can interfere with seal reproduction and cause breeding failure.

Haul-out areas are thought to be very important for the conservation of the species, as are the most important breeding colonies. As well as their importance in maintaining overall population size, larger breeding sites are significant as sources of emigration to smaller or newly-established colonies. There is a large body of information available about the land-side behaviour of seal species, including breeding conditions, pupping sensitivity and resting haul-outs. Brown and Prior (1997) suggest that the main on-land indicators of disturbance to seals are:

- interruption and disturbance of rest, resulting in lower fitness and health
- interference with nursing young, reducing their health
- separation of mother and pup, resulting in starvation and death of pups
- abandonment of haul-out sites

Common seal haul out sites at Murlough SAC will not be directly impacted by development in the BMAP area, nor will haul out sites associated with Strangford Lough or Copeland Islands. Within the BMAP plan area there are records of haul out sites along the Ards Peninsula and within Belfast Lough. The recorded haul-out sites are either within the BMA Coastal Area or are rock outcrops within the sea. Although some of the haul-out sites are in close proximity to settlements and/or built development the Plan has not identified any additional development zonations in the immediate vicinity / adjacent to the haul out sites with the exception of one housing zonation which has already been built. The only other plan designations in the immediate vicinity / adjacent to the haul out sites are Local Landscape Policy Areas or Areas of Townscape Character. The contents of BMAP will not lead to an increase in disturbance to these haul out sites.

Plan implications (aerial pollution)

To further assess the implications on Murlough SAC it was deemed appropriate to consider if critical loads for nutrient-nitrogen or acidity deposition were met or exceeded in 2005 or have been modeled to be exceeded by 2020 using tools within the UK Air Pollution Information System (APIS).

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6 http://www.habitas.org.uk/priority/species.asp?item=5135
Table 13. Table showing where critical loads for nutrient-nitrogen and acidity have been met* or exceeded** on Murlough SAC selection features or have been modeled to be met* or exceeded** by 2020 using tools within the UK Air Pollution Information System (APIS). The table also shows whether the contribution of any particular source meet* or exceeds** the critical load. Features that are not considered sensitive to nutrient-nitrogen and acidity, or which have no recorded critical load are marked with the / symbol.

<table>
<thead>
<tr>
<th>Murlough SAC selection feature</th>
<th>Total Critical Load meet or exceeded</th>
<th>Source Critical Load</th>
<th>Critical Load meet or exceeded</th>
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<td>Fixed dunes with herbaceous vegetation (grey dunes)</td>
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<td>Atlantic decalcified fixed dunes (Calluno-Ulicetea)</td>
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<td>Sandbanks which are slightly covered by sea water at all time</td>
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<td>Mudflats and sandflats not covered by seawater at low tide</td>
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<td>Atlantic salt meadows (Glaucopuccinellietalia maritimae)</td>
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<td>Embryonic shifting dunes</td>
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<td>Shifting dunes along the shoreline with Ammophila arenaria (white dunes)</td>
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<td>Dunes with Salix repens spp. Argentea (Salicion arenariae)</td>
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<td>Common seal, Phoca vitulina</td>
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<td>Marsh fritillary butterfly, Euphydryas aurinta associated habitat</td>
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<td>Common Seal and associated broad habitat inshore sub-littoral rock</td>
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At Murlough SAC the major source of total N Deposition (N/hectare/year) were attributed to livestock production and Imported Emissions (e.g. emissions from Europe, Ireland and other countries) whilst the main source of total sulphur deposition (keq) was attributed to Imported Emissions (APIS 2013). NOX has a major role as a transboundary pollutant and its atmospheric conversion to nitric acid vapour and nitrate particles can be precipitated hundreds of km from sources (APIS 2013). It is predicted that the total amount of nitrogen and sulphur deposition at Murlough SAC will decrease between 2005 and 2020 (APIS 2013).

At the screening stage the distance of each site to the BMAP plan area was considered. To assess localized impacts on each European site it was deemed appropriate to consider the distance between zonings and designations within BMAP and Murlough SAC in more detail to see if there were likely to be adverse local effects. There were no BMAP settlements with development zonings within 15km of Murlough SAC with the nearest BMAP settlement with development zonings, Dromara, being approximately 17km away. The Village of Dromara contains housing zonations and an employment zonation. The employment could potentially be used for light industrial uses or distribution uses.
Appropriate Assessment consideration:

Although it is widely acknowledged that aerial emissions have the potential to damage sensitive plant communities, to-date there has been no specific indication that atmospheric deposition from the BMAP area is a threat to Murlough SAC. The main threats appear to be threats associated with scrub or bracken encroachment or grazing regimes.

The main source of potentially damaging aerial deposition onto Murlough SAC has been attributed to imported or agricultural sources. BMAP has not identified any specific rural zonations or policies relating to agricultural / manure management proposals that are potential sources of ammonia, for example chicken or pig farms. Nor does it give any requirement for a certain number of these types of developments to be built in the BMAP area. Any such proposals would therefore be out-with any plan proposals and would have to be considered on a case by case basis via development management and the application of prevailing regionally policy and, if appropriate, any relevant policies within BMAP.

Aerial deposition from sources in the BMAP area may have the potential to be a contributing factor to the overall deposition levels at Murlough SACs. However Murlough SAC is not in the immediate vicinity of BMAP and is relatively remote from pressures associated with industrial or other built development in the BMAP area. The deposition of toxic substances has declined significantly over recent decades and the level of atmospheric deposition into the SAC sites is predicted to decrease by 2020. For example it is predicted that the deposition of sulphur onto Murlough SACs attributed to housing or commercial sources will reduce between 2005 and 2020 (APIS 2013). There are no specific proposals for any work in the Plan that could result in significant aerial emissions to Murlough SAC.

The adopted plan does not zone any employment lands for specific industrial uses that would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013. During the lifetime of the plan there may be other future development applications within the BMAP area which could result in aerial deposition on the SAC in question. Any such proposals would be out-with any plan proposals and would have to be considered on a case by case basis via development management and the application of prevailing regionally policy (in Particular PPS2) and, if appropriate, any relevant policies within BMAP. In addition any such future proposals must comply with legally enforceable obligations designed to avoid environmental effects. Integrated Pollution Protection and Control Guidelines are a Regulatory system that employs an integrated approach to control the environmental impacts of certain industrial activities. The system requires the identification of industrial proposals up to 10-15km from sensitive receptors such as European sites. Where an installation is within such distance of a European site, an assessment has to be made regarding potential impacts. This assessment may require the use of detailed air impact assessment (air dispersion modeling) or in other cases a screening tool can be used to demonstrate whether potential impacts are acceptable. Proposals which may have a potential impact on designated habitats are likely to be considered by both the Industrial Pollution and Radiochemical Inspectorate (IPRI) and Natural Heritage in NIEA. Any adverse impact by subsequent proposals for industry which generates significant aerial emissions should be avoided through implementation of the legally enforceable obligations and the application of regional planning policy.

BMAP contains common seal haul out sites which contribute to the network of features which are utilized by this mobile species. Although several of the recorded sites occur in close proximity / adjacent to areas that are already developed BMAP does not zone any additional land for development on these locations. The only BMAP zonations associated with these areas are those whose purpose is to provide protection to environmental assets.
### Integrity of site checklist

#### Does the project or plan have the potential to:

- cause delays in progress towards achieving the conservation objectives of the site? **No**
- interrupt progress towards achieving the conservation objectives of the site? **No**
- disrupt those factors that help to maintain the favourable conditions of the site? **No**
- interfere with the balance, distribution and density of key species that are the indicators of the favourable condition of the site? **No**

#### Other indicators: Does the project or plan have the potential to:

- cause changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem? **No**
- change the dynamics of the relationships (between, for example, soil and water or plants and animals) that define the structure and/or function of the site? **No**
- interfere with predicted or expected natural changes to the site (such as water dynamics or chemical composition)? **No**
- reduce the area of key habitats? **No**
- reduce the population of key species? **No**
- change the balance between key species? **No**
- reduce diversity of the site? **No**
- result in disturbance that could affect population size or density or the balance between key species? **No**
- result in fragmentation? **No**
- result in loss or reduction of key features (e.g. tree cover, tidal exposure, annual flooding, etc.)? **No**

### Appropriate Assessment Conclusion:

The evidence gathered and assessment undertaken enables us to conclude reasonably and objectively that the implementation of BMAP will not adversely affect key species and key habitats or the integrity (structure and function and conservation objectives) of:

Murlough SAC
Appropriate Assessment Report for:
Outer Ards SPA
Outer Ards Ramsar

Elements of BMAP that are likely to give rise to significant effects;

Breeding Arctic Tern *Sterna paradisaea*, and overwintering European Golden Plover *Pluvialis apricaria*, Ruddy Turnstone *Arenaria interpres*, Light-bellied Brent Goose *Branta bernicla hrota* and Ringed Plover *Charadrius hiaticula* are the principle reasons for the selection of Outer Ards as a SPA and Ramsar.

Outer Ards is a coastal site extending from near Grey Point in Belfast Lough to north of Ballyquinten Point at the southern end of the Ards Peninsula. It comprises a variety of inter-tidal shoreline types including rock platforms, cobbled and boulder beaches, gravel, mud or sand dominated beaches and off-shore islands. The wintering waterfowl utilize the open shore whilst the breeding Arctic Tern colony utilizes Cockle Island near Groomsport. Sea areas adjoining Cockle Island are important for courtship, preening, loafing behaviours and feeding. Coastal relief is low so there are no significant cliffs present. Landward the site is generally limited to beach heads and rock platforms but in places it extends further inland where there are habitats such as dune and maritime grassland, maritime heath, cliff ledge vegetation as well as saltmarsh, non-tidal fens and wet flushes justify.

Portions of Outer Ards SPA and Ramsar are within North Down Borough Council resulting in a direct linkage to the BMAP plan area. Development proposals or associated policies within, adjacent or which are linked to watercourses associated with Outer Ards could result in habitat destruction, increased disturbance levels or could lead to an alteration to habitats within the SPA/ Ramsar. Any development within or directly adjacent to the SPA/Ramsar could destroy habitats utilised by feature species. Development, vehicular and recreational activities in close proximity or within the SPA/Ramsar could increase disturbance events which could alter bird activities and cause long term species displacement. Increased boating activity could also increase disturbance so BMAP policies or proposals promoting additional sea traffic may have an impact. Coastal developments in the BMAP area may also influence water quality in the surrounding areas in particular discharges from localized waste water treatment works and industry. Development in the BMAP area in the proximity of rivers that are linked to Outer Ards could increase sedimentation, pollution or nutrients into Outer Ards which could negatively alter habitats utilised by feature species.

Consideration had to be given whether activities associated with the implementation of BMAP have the potential to shift the balance of species utilising the Outer Ards SPA / Ramsar, in particular gull populations. Gulls have been noted to breed on rooftops of buildings in Belfast City Centre and it is believed that the increase in gulls throughout the last century was due to increased feeding opportunities of mainly man made origin such as the establishment of large municipal landfill sites (Crème *et al.* 1997). One of the main sites in Belfast where gulls congregated was the Dargan Road Landfill Site. When the draft BMAP was published a closure plan was already in place for the Dargan site and landfill operations ceased in 2007. The closure of this gull food source would have required the gull populations to forage elsewhere for food which could have indirectly impacted on the gull populations in Outer Ards SPA / Ramsar. BMAP has zoned the Dargan site as mixed use site however this zonation is related to the future use of the land and had no bearing on the actual closure of the landfill site. BMAP does not contain any policies or proposals for closure or opening of landfill sites.

Outer Ards SPA / Ramsar is linked to BMAP by the potential for aerial depositions. As the key sources of atmospheric pollutants in Northern Ireland are from industry, transport and agricultural sources allocations and zonings associated with the BMA Employment Strategy and BMA Transportation schemes and proposals are the most likely to give rise to aerial deposition impacts.
In-combination effects from other plans or projects that are likely to have significant effects.

Waste and Water Management Plans and development activities in the BMAP area may lead to increased disturbance, damage, nutrient enrichment or sedimentation in Outer Ards which may impact upon the SPA and Ramsar feature species.

Development activities associated with other Development Plans within the catchment of Belfast Lough may contribute to water quality impacts within Outer Ards SPA.

Development activities in the Antrim Area Plan 1984-2001, the Ards and Down Area Plan 2015 could lead to cumulative aerial deposition eutrophication and acidification impacts.

Development activities in the Larne Area Plan 2010 and the Ards and Down Area Plan 2015 may lead to a shift in the balance of species utilizing the Outer Ards. The 6 Councils in the Plan Area are part of a larger group of 11 Councils in the eastern part of Northern Ireland which have come together to form ARC21, the Sub-Regional waste planning body. The ARC21 Waste Management Plan, prepared under Article 23 of the Waste and Contaminated Land (NI) Order 1997 and adopted by the Councils in 2003, identifies the key elements in a sub regional network of facilities required to recycle, reuse and recover resources from our waste. The ARC21 Waste Management Plan sets out the need for types of facility and areas of search for the provision of this needed capacity in terms of a sub regional network of waste facilities. The Waste Management Plan also identifies a need for regional waste disposal capacity to meet current needs before alternative options are fully developed. As recovery, reuse and recycling capacity grows, a decreasing amount of landfill will then be required to deal with residual material left by these processes. The Waste Management Plan also identifies ‘areas of search’ for the provision of necessary facilities and capacity. In the absence of identified sites that have planning permission or are otherwise confirmed as potential sites for facilities the Plan has taken account of the need for waste management facilities as identified in terms of “areas of search” by the competent authorities in the ARC21 Plan. Proposals for waste management facilities will be considered against the regional planning policies of PPS11 Planning and Waste Management and the areas of search identified in the ARC21 Waste Management Plan. PPS11 Planning and Waste Management and the ARC21 areas of search provide sufficient information to allow individual proposals to be considered through the development control process.

Conservation Objectives and implications for each qualifying interest in light of its conservation objectives.

Breeding Arctic Tern and overwintering European Golden Plover, Ruddy Turnstone, Light-bellied Brent Goose and Ringed Plover are the principle reasons for the selection of Outer Ards as a SPA and Ramsar. The conservation objectives are to maintain each feature in favorable condition. This includes measurements of population numbers, the fledging success of Terns and the maintenance of the extent and quality of roost / loafing sites and natural and semi-natural habitats that are used by the feature species. The Natura 2000 data form for Outer Ards SPA records that the site has been vulnerable in the past to landclaim of adjoining lands, dredging associated with a number of small harbours, localized housing developments on adjoining land and recreational and tourism disturbance.

Arctic terns feed mainly on fish. In the winter they migrate to the Antarctic and then return to the UK to breed in the summer (April - September). They nest in open ground with little or low vegetation (Hatch 2002). Terns breed in rocky, gravelly islands, barrier beaches, gravel bars and occasionally in marshes and bogs (Hatch 2002). In New Hampshire the decline and abandonment of Arctic Terns from the Isles of Shoals has been attributed to the decrease in human habitation of the islands and the subsequent increase in herring gulls (Larus argentatus) and great black-backed gulls (Larus marinus) which preyed on tern eggs and young. The UK SPA Review (Stroud et al. 2001) noted that threats to Arctic Tern populations included predation by mammals together with coastal development and disturbance such as recreational disturbance. The Report also noted that several declines have been attributed to breeding failures, with breeding success being low throughout most of the 1990s. The breeding failures may have been contributed to by a lack of sand eels the principle food, overfishing by man and bad weather. In the last Outer Ards Condition Assessment Report (2005) Arctic Terns were in favourable condition.
The Light-Bellied Brent Geese populations that migrate to and winter in Ireland (from September-March) breed in Canada. These coastal populations prefer to winter within large estuaries and areas of inter-tidal mudflats with fine sediments. They feed on a range of plants in particular eelgrasses Zostera whose availability influences population movements (Stroud et al. 2001). Population crashes in the 1930’s were attributed to a reduction in eelgrass due to disease and hunting but since then numbers have generally increased (NIEA 2005c; Stroud et al. 2001). There are reports that eelgrass has declined in Strangford Lough, an important congregation area, which has resulted in birds taking to feeding on grasslands and cultivated crops inland. This could lead to conflicts with farmers. The main threats to the species are reported to be hunting, disturbance by vehicles, persecution by farmers and reductions in its wintering food supplies (Birdlife International 2013). Habitat loss, degradation or fragmentation as a result of human developments such as aquaculture or infrastructure developments could also affect populations (NIEA 2005c). Within Northern Ireland there are a number of threats to Zostera beds including: fungal disease; direct damage from activities that disturb sediments (such as impact of vehicular traffic, anchoring of pleasure craft; bait digging; developments that release sediments into estuaries), eutrophication, smothering by Enteromorpha spp. (although Enteromorpha is also a food source: Portig et al. 1994; Mathers et al. 1998); competition from invasive species, Spartina spp. or Sargassum muticum, chemical or organic pollution such as sewage, agricultural fertilizers and oil pollution, and storm events (Portig 2006; Goodwin 2008). In the last condition assessment for Outer Ards SPA (2005) Brent Geese were in favorable condition.

Ringed Plover from all three biogeographical populations may migrate through Britain and Ireland in spring (March-May) and autumn (August-September). Some of the birds stay over winter whilst others are on passage to or from breeding grounds such as Canada, Iceland, Greenland and more southerly wintering locations such as France to Africa (Stroud et al. 2001). Breeding populations in Scandinavia and the Baltic can overwinter in Britain and Ireland whilst some British birds move south to Europe (Stroud et al. 2001). Ringed Plover are found on almost all the coasts of Britain and Ireland with small numbers on inland wetlands. There is evidence that Ringed Plover show fidelity to their wintering sites as well as visiting the same sites during successive migrations (Stroud et al. 2001). Migrating and wintering birds feed on invertebrates that are found in a wide variety habitats (Birdlife International 2013) including sand and shingle shores, sand and mudflats, saltmarshes, short grassland, flooded fields and shores of artificial habitats (Stroud et al. 2001) and also mud and sandbank habitat along rivers and lakes, farmland, reservoirs, sewage works and gravel pits (Birdlife International). They roost communally close to feeding sites along the shoreline, on sandbanks, bare arable fields and in low vegetation. It is difficult to assess international trends in species numbers due to turnover of birds during migrations but estimates suggest that there were increases in the British wintering birds from 1984/85 to 1997/98 mainly due to an increase in use of non-estuarine coast (Stroud et al. 2001). Internationally important wintering habitats are threatened by petroleum pollution, wetland drainage, land management leading to scrub overgrowth (Birdlife International 2013). Avian botulism and mink predation have also been noted (Birdlife International 2013). In the last condition assessment for Outer Ards SPA (2005) Ringed Plover were in favorable condition.

Golden Plover is partially migratory in Britain and Ireland, although it is wholly migratory elsewhere in its range and during the winter British breeding birds can be joined my migrants from Scandinavia, Iceland and western Siberia (Stroud et al. 2001). The major wintering grounds in Ireland are in the north-east and south coast but in extreme weather birds move south and can leave Ireland altogether (Stroud et al. 2001). Golden Plover occur at traditional wintering grounds, with most large flocks being found close to the coast (Stroud et al. 2001). The inter-tidal zone is an important feeding habitat in Ireland but in other areas earthworm rich grassland (Stroud et al. 2001), wetlands and agricultural lands (Birdlife International 2013) are important feeding habitat. The diet consists predominantly of insects (Birdlife International 2013). Birds can roost on arable land, grassland and inter-tidal areas (Stroud et al. 2001). A decline in the population has been noted in Britain and Ireland since the 1950s (Stroud et al. 2001). Increased forestation and predation in the breeding range and agricultural intensification of both breeding and non-breeding habitats, hunting in wintering grounds such as France and susceptibility to severe winter and weather conditions may be contributing factors (Birdlife International 2013; Stroud et al. 2001). In the last condition assessment for Outer Ards SPA (2005) Golden Plover were in favorable condition.
Turnstone has a circumpolar breeding distribution. Breeding occurs from May to August. In winter they are highly migratory moving to north-west Europe to as far south as Australia to overwinter (Stroud et al. 2001). The UK wintering population is part of the Western Palearctic turnstone population that breeds in Canada and Greenland (Stroud et al. 2001). Overwinter turnstone can be found along the entire coastline of the UK with areas of concentration including the east coast of Northern Ireland (Stroud et al. 2001). The preferred overwintering habitat is shores that are rocky, stony or covered in seaweed (Stroud et al. 2001) but they can also be found on saltmarshes, sheltered inlets, estuaries and mudflats with beds of molluscs (Birdlife International 2013). During the winter their diet consists of insects, crustaceans, molluscs, annelids, echinoderms, small fish and carrion (Birdlife International 2013). There is evidence that Turnstone numbers in the UK decreased in the 80’s and 90’s (Stroud et al. 2001) although the causes of the decline are not apparent. Internationally noted threats have included nest predation by mink and susceptibility to avian influenza (Birdlife International 2013). In the last Outer Ards Condition Assessment Report (2005) Turnstone were in favourable condition.

Species disturbance; habitat destruction or alteration.

The loss of any inter-tidal habitat through development is a critical issue as this is the feeding zone for the majority of the feature species. The main threat to date has been from coastal protection schemes, much of the Outer Ards coastline is highly engineered and there is an ongoing problem of erosion (Conservation Objectives Report). BMAP has not zoned any land within Outer Ards SPA / Ramsar for development. BMAP will not impact on management activities on the Cockle Island which is utilised by breeding Arctic Terns. As a result the plan does not include any policies or proposals that would directly result in the destruction of habitats within Outer Ards SPA / Ramsar.

In a number of locations the Outer Ards SPA / Ramsar are within the Bangor Settlement Development Limit (Designation BR01). These lands are also zoned as Coastal Zone which provides a degree of protection from development. The amplification text for the Bangor Settlement Limit recognizes that the opportunity for outward expansion is constrained by the need to protect the coastal zone. The policy for development within Development Limits is Policy SETT2. The policy does not give any recognition to the fact that there are areas of designated European Sites within the Metropolitan Development Limit or Settlement Development Limits. Nor does it indicate that these designations would be an environmental constraint to development and that any specific proposal that would have the potential to result in adverse effects to these European Sites would require a Habitat Regulation Assessment to ensure that there would be no adverse impacts on site integrity.

Beach and sand extraction within Outer Ards SPA could alter sedimentology, increase disturbance, result in the loss of sediments and may ultimately impact on birds due to changed sediment character of beaches. The issue is considered to be widespread within the Outer Ards SPA/Ramsar but it is especially notable in the Cloghy area (Ards Borough Council). The Conservation Objectives Report suggests that permitted extraction of beach and sand gravel in Outer Ards SPA/Ramsar should be halted. Policy MIN1 of the Planning Strategy of Rural Northern Ireland requires the need for a mineral resource to be assessed against the need to conserve and protect the environment and it states that mineral developments within or in close proximity to ASSIs will not normally be given where they would prejudice the essential character of such areas. PPS2 also provides policy protection for European Sites. Policy MIN 3 of the PSRNI indicates that areas that require to be protected from mineral developments will be identified as Areas of Constraint on Mineral Developments in development plans. Within these areas there would be a presumption against the granting of planning permission for the extraction and/or processing of minerals. BMAP has not identified Outer Ards SPA as an Area of Constraint on Mineral Developments. However nor has BMAP identified any specific location for mineral development. The strategic amplification text for minerals notes the regional planning policies for mineral development are currently set out in PSRNI and that mineral development also needs to respect the environmental policies contained in PPS 2: Natural Heritage. Although BMAP has not zoned any Areas of Constraint on Mineral Developments their omission cannot be used to infer that there are no European Sites in the BMAP area that require to be protected from mineral developments. BMAP acknowledges that European Sites require to be protected from inappropriate mineral development.
The Conservation Objections Report for Outer Ards SPA recognizes that adjoining habitat is important for providing high tide roosts, most notably for Golden Plover, and additional feeding habitat. Existing amenity grassland areas adjacent to the lough have been retained as open space zonations within the plan or have been designated as Local Landscape Policy Areas or Sites of Local Nature Conservation Importance. The policy associated with these designations encourages the retention of these open space areas and provides a degree of protection from development.

Many of these open space areas have provided long term public access. For example an amenity coastal path can be found along the majority of the coast in North Down Borough Council. Recreational activities in the area are widespread in summer. BMAP does not contain any proposals directly related to increasing recreational/amenity activity in the area which could lead to increased disturbance levels in the proximity of the SPAs and Ramsar. The plan contains only three development proposals that are directly adjacent to Outer Ards SPA / Ramsar (housing zonations BR 03/09, GT02/01 and GT03/01). Development has already been initiated or competed in each of these sites. The Conservation Objectives Report notes that the main recreational concern is access to Cockle Island which although positively managed is very vulnerable in terms of its position. The Committed Housing site GT02/02 is 200m from Cockle Island and is the closest BMAP development zonation to the Island. This designation is an infill site within an already urbanized street frontage along Groomsport Main Street.

Developments associated with the plan area have the potential to impact upon the SPAs/Ramsar and surrounding sea areas that are utilized by feature species in relation to disturbance, pollution incidents or competition for food sources caused by the promotion of additional sea traffic. The Conservation Objective Report considers that higher boating levels increase the risk of pollution incidents that increased activity may have implications for seabird nesting sites and that ongoing scallop dredging and other trawling may represent competition for piscivorous birds. The Conservation Objectives Report considers that actions should be taken to consider collective impact of boating on Outer Ards SPA. The main boating centres for recreational activity in the area are at Bangor, Carrickfergus, Whiteabbey, Holywood, Cultra and Donaghadee (which is in Ards Borough Council). There are no policies or proposals for additional marinas in the BMAP area. Bangor Urban Waterfront (BR32) is focused around the existing Bangor Marine and aims to make the waterfront more attractive and vibrant. However there are no policies or proposals for additional marinas in the Bangor area. Another source of shipping within the Irish Sea is commercial boating activity which is mainly associated with Belfast Harbour which provides a long-established major shipping channel. Within the Belfast Harbour there are large areas of exiting employment land and the Titanic Quarter. BMAP does not contain any specific proposals relating to additional shipping activity. However Policy BHA03 ‘Port Operations and Port Related Land Uses’ enables the provision of additional port operations. The policy does not refer to potential collective impacts on European Site features as a result of additional shipping activities.

The Conservation Objectives Report considered that the alteration of habitat quality through diminuation of water quality was not a major issue within Outer Ards SPA / Ramsar due to its position in open coastal waters and that any impacts are likely to be localized. The large mixing capacity of the Inner Belfast Lough allows effluent to be dispersed quickly within the lough (AFBI 2012). The inner lough is however hyper-nutriified and is subject to eutrophication (AFBI 2012). The Inner Belfast Lough is designated as Sensitive Area (Eutrophic) under the Urban Wastewater Treatment Directive. The Outer Lough is not designated as a sensitive area but it failed to meet good status under the Water Framework Directive due to levels of inorganic nitrogen. Under Water Framework Directive classifications the Outer Lough had moderate ecological potential in 2009. There is an objective for the Outer Lough to have Good status by 2015 (NIEA 2012). Helen’s Bay, Crawfordsburn, Ballyholme and Groomsport are designated as bathing waters. To assist with the management of the quality of Belfast Lough a Local Management Area Action Plan has been developed to implement the local River Basin Management Plan (NIEA 2012). The dominant land use in the Belfast Lough Local Management Area is improved grassland (33%), suburban and urban development (18%), arable farming (13%) and dwarf shrub heath (7%). The plan highlights actions that are to be taken throughout the Local Management Area including assessing pressures, abstraction licences, hydro power developments and nitrate and nutrient trends and promoting riparian zone management.
effective farm nutrient and waste management and the control of invasive species. The Action Plan for the Belfast Lough Local Management Area also recommends other actions for specific sections of Belfast Lough or connecting waterways. The specific actions relating to Belfast Lough Inner and Belfast Lough Outer include carrying out further monitoring and assessments of trophic status, ammonia levels and sources of faecal contamination at Ballyholme and to provide advice about the various designations within the Lough including the SPAs (NIEA 2012). There are various connecting waterways that can also influence Belfast Lough. Within the Belfast Lough Local Management Area the main rivers entering Belfast Lough along Outer Ards SPA / Ramsar are Ballyholme River and Crawfordsburn River, whilst numerous smaller streams exist throughout the area and enter the lough at various points.

Eutrophication of river systems is mainly due to phosphorus. Eutrophication of coastal ecosystems is mainly due to nitrogen since N is the most limiting factor to production, however the level of phosphorus is also an important factor (Howarth and Marino 2006). The effects of eutrophication include increased production, lower oxygen levels, changes to sedimentation rates, algal blooms and loss of diatoms (Conley 2000; Howarth and Marino 2006). Eutrophication frequently leads to changes in ecological structure in benthic fauna and flora and in the phytoplankton composition (NRC2000 in Howarth and Marino 2006). It is important that N-control strategies for coastal waters go hand in hand with P control, as called for in the EU Water Framework Directive (Chave 2001). Managing water quality in the freshwater ecosystems upstream of coastal systems can be beneficial to water quality in coastal marine ecosystems (Howarth and Marino 2006).

The Conservation Objectives report highlighted that new sewage treatment works for the greater Bangor area at Donaghadee and associated infrastructure had the potential to impact upon the SPA. Such work could alter the water quality in surrounding coastal areas. The North Down/Ards WwTW project was part of the NI Waters Project Omega. The new treatment works and associated feeder pumping stations were needed to provide first time treatment for sewage from Bangor, Donaghadee and Millisle (Rees 2007). One of the aims was to meet EU Directives on water quality by improving the local marine environment and creating cleaner bathing waters along the North Down/Ards coastline. NI Water secured planning permission for the WwWT and the work was completed in 2008. The works have a future population equivalent of 110,000 (Rees 2007) so additional facilities are unlikely to be required for this location during the lifetime of the plan.

Ballyholme River was classed as having bad ecological potential in 2009 (NIEA 2012). Within the river invertebrate communities were impacted and there was organic enrichment. There was also evidence of nutrient enrichment impacting on phosphorus levels and macrophyte and diatom communities. Ballyholme River has been classed as heavily modified water body as it has been affected by a weir and level gauge at Sanhurst, historical engineering, urbanization, culverting and straightening along the Cotton River. Ballyholme River has also been modified to allow for use in flood risk management. Within the Belfast Lough Local Management Area Action Plan there are actions to assess sources of organic pollution (including NIW intermittent Discharges, Sewage Pumping Stations, WWTW works and septic tanks); carry out fish monitoring and assessments to determine morphological condition and impacts on fish passage; carry out compliance assessments by investigating downstream impacts of discharges from industrial premises where a problem has been identified; and to monitor and assess sources of faecal contamination and impacts on water quality at Ballyholme Bathing Water Protected Area. Water Service NI indicate that all wastewater treatment facilities serving North Down settlements are satisfactory and are capable of accommodating all development within their catchments that are proposed in the plan through the plan period. However despite the completion of the new waste water treatment works for Bangor and Donaghadee the bathing water quality at Ballyholme still failed to meet the mandatory standards in 2008, which was attributed to inadequate sewerage infrastructure (NIAE 2012). There is no evidence that this issue has been fully resolved. Within BMAP sections of land adjacent to the Ballyholme River have been identified as Open Space and Local Landscape Policy Area. The policies associated with these designations provide a degree of protection from development. There are 5 housing zonations adjacent to the Ballyholme River and its tributaries. BR 02/38, BR 02/47 and BR 02/52 have already been built. BR 03/17 is a committed site. BR 04/ does not have any KSRs relating to the watercourse but it is noted that consultation with Rivers Agency is required.
Crawfordsburn River had poor status in 2009 (NIEA 2012). Within the river invertebrate communities were impacted and there was organic enrichment. There was also evidence of nutrient enrichment impacting on phosphorus levels and macrophyte and diatom communities. Although Crawfordsburn was not classed as heavily modified it showed impacts from abstraction and flow regulation (NIEA 2012). Within the Belfast Lough Local Management Area Action Plan there are actions to assess sources of organic pollution (including NIW intermittent Discharges, Sewage Pumping Stations, Ballysallagh WTW, septic tanks and polluted areas downstream of Ballysallagh Upper Reservoir and Golf Club); review and assess catchment flows, abstraction levels and current abstraction licence associated with Ballysallagh Reservoirs; assess current forestry operations; and carry out compliance assessments by investigating downstream impacts of discharges from industrial premises where a problem has been identified. Within BMAP sections of land adjacent to the Crawfordsburn River have been identified as Open Space, Local Landscape Policy Area and as Sites of Local Nature Conservation Importance. The policies associated with these designations provide a degree of protection from development. There are no BMAP development zonations in the proximity of Crawfordsburn River. Water Service NI indicate that all wastewater treatment facilities serving North Down settlements are satisfactory and are capable of accommodating all development within their catchments that are proposed in the plan through the plan period.

Wind energy developments represent a potential threat of collision as feature bird species fly across the BMAP area. The Conservation Objectives Report indicates that it is probable that there is movement of birds between Outer Ards and Strangford Lough. BMAP does not include any proposals or policies that would promote the development of wind turbine developments in the BMAP area, however proposals for wind energy developments in the BMAP plan area may be submitted during the lifetime of the Plan. Such proposals would have to be considered on a case by case basis utilizing any detailed information about flight paths that becomes available. Planning policy related to renewable energy developments can be found in PPS18: Renewable Energy. There are many other activities associated with Outer Ards that could impact on the SPA/Ramsar features that BMAP has no influence upon. These include aquaculture, bait-digging, beach cleaning, wildfowling, research activities, seaweed harvesting, predation on Cockle Island by mammals at low tide, site management of Cockle Island, shipping routes or disposal of ballast waters (potential spread of invasive species).

**Balance of gull species utilizing Cockle Island**

Within the nearby Copeland Islands SPA Arctic terns have been noted to nest throughout the common gull colony (*Larus canus*) and that both are subject to predation by other gull species (Wolsey 2012). Within the island the predation of Arctic Tern chicks by lesser black-headed (*Larus fuscus*), great black-backed gulls and herring gulls has been observed (Leonard 2009; Wolsey 2012). It has been noted that human disturbance increases the likelihood of predation on Common Gull chicks by other gull species (Wolsey 2012). This predation may reduce the survival rate of chicks. Wolsey (2012) considers that in order to comply with the EU Birds Directive active management on predator numbers may need to be perused. As previously noted BMAP does not include any policies or proposals that would directly influence increased human disturbance levels on Cockle Island. The Conservations Objectives Report for the site notes that the number of breeding large gulls has declined in recent years and that there has been licensed selective culling of fledglings/young of certain species. Gulls have been noted to breed on rooftops of buildings in Belfast City Centre and it is believed that the increase in gulls throughout the last century was due to increased feeding opportunities of mainly man made origin such as the establishment of large municipal landfill sites (Crème et al. 1997). BMAP does not contain any policies or proposals for closure or opening of landfill sites.

**Aerial Pollution**

Aerial pollution and associated atmospheric deposition of nitrogen and sulphur compounds arising from the BMAP area have the potential to lead to eutrophication and soil acidification.

There is no field or research evidence that suggests that Arctic Terns are particularly sensitive to, or at risk from, acidification or eutrophication caused by aerial depositions from the BMAP area however Terns are found in more than one broad habitat for feeding resting or roosting and nesting requires short vegetation or bare ground amongst longer vegetation which provides cover for chicks (APIS 2013). Nitrogen nutrient enrichment in the broad habitats associated with Arctic Terns can increase tall grasses and decrease
prostrate plants. (APIS 2013). There is no expected negative impact on tern species due to acidity impacts (APIS 2013).

There is no field or research evidence that suggests that Brent Geese are particularly sensitive to, or at risk from, acidification or eutrophication caused by aerial depositions from the BMAP area however Brent Geese feed on vegetation within the littoral sediments which are sensitive (APIS 2013). Nitrogen nutrient enrichment in the broad habitats associated with Brent geese might decrease the surface of early successional vegetation of saltmarsh and thereby suitable foraging area. Increase in the sward height of grassland feeding areas might also occur, reducing food availability (APIS 2013). There is no expected negative impact on Brent Geese due to acidity impacts (APIS 2013).

There is no field or research evidence that suggests that European Golden Plover are particularly sensitive to, or at risk from, acidification or eutrophication caused by aerial depositions from the BMAP area however the broad habitat utilized by European Golden Plover is sensitive (APIS 2013). Nitrogen nutrient enrichment in the broad habitats associated with European Golden Plover might increase sward height on grassland/saltmarsh feeding areas (APIS 2013). There is no expected negative impact on European Golden Plover due to acidity impacts (APIS 2013).

Ringer Plover and Ruddy Turnstone are not sensitive to eutrophication caused by N deposition or to acidification impacts from aerial pollution (APIS 2013).

To-date aerial pollution and associated atmospheric deposition has not been highlighted as having an effect on Outer Ards SPA/Ramsar.

Plan implications
To further assess the implications on Outer Ards SPA / Ramsar it was deemed appropriate to consider if critical loads for nutrient-nitrogen or acidity deposition were met or exceeded in 2005 or have been modeled to be exceeded by 2020 using tools within the UK Air Pollution Information System (APIS).

Table 14. Table showing where critical loads for nutrient-nitrogen and acidity have been met* or exceeded** on Outer Ards SPA/Ramsar selection features or have been modeled to be exceeded by 2020 using tools within the UK Air Pollution Information System (APIS). The table also shows whether the contribution of any particular source meet* or exceeds** the critical load. Features that are not considered sensitive to nutrient-nitrogen and acidity, or which have no recorded critical load are marked with the / symbol.

<table>
<thead>
<tr>
<th>Outer Ards SPA / Ramsar selection feature</th>
<th>Total Critical Load meet or exceeded</th>
<th>Source Critical Load</th>
<th>Critical Load meet or exceeded</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N 05  N 20  A 05  A 20</td>
<td></td>
<td>N 05  N 20  A 05  A 20</td>
</tr>
<tr>
<td>Breeding Arctic Tern <em>Sterna paradisaea</em> associated habitat supralittoral sediment.</td>
<td>* / / / /</td>
<td></td>
<td>/ / / / / /</td>
</tr>
<tr>
<td>European Golden Plover <em>Pluvialis apricaria</em>, Light-bellied Brent Goose <em>Branta bernicla hrota</em> associated habitat littoral sediment.</td>
<td>/ / / / /</td>
<td></td>
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</tr>
<tr>
<td>Ruddy Turnstone <em>Arenaria interpres</em>, and Ringed Plover <em>Charadrius hiaticula</em></td>
<td>/ / / / /</td>
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</tr>
</tbody>
</table>
At the screening stage the distance of each site to the BMAP plan area was considered. To assess localized impacts on each European site it was deemed appropriate to consider the distance between zonings and designations within BMAP and each European site in more detail to see if there were likely to be adverse local effects.

**Outer Ards SPAs / Ramsar:**
- BMAP settlements with development zonings within 15km.
- All proposals and policies within: North Down Borough Council; Metropolitan Carrickfergus; Belfast Harbour; Belfast City Center; and the towns of Carrickfergus; Whitehead and Greenisland.
- Portions of: Belfast City; Metropolitan Castlereagh and Metropolitan Newtownabbey
- Nearest Transport Proposal: Rapid Transit Schemes approx 9km away.

Small settlements were considered but they did not contain any development zonations.

The whole suite of plan proposals relating to development can be found within 15km of Outer Ards SPA / Ramsar including proposals for education, employment, housing, retail and roads.

Within North Down there are major areas of existing employment land, additional zoned Employment sites, a number of housing zonations, land zoned for educational use, district centres, an urban waterfront and a number of development opportunity sites. The Employment could potentially be used for light industrial uses, general industrial uses or storage/distribution uses. The opportunity sites are mainly zoned for retail and the urban waterfront is focused on the existing Bangor Marina. There are no transport proposals in North Down.

The policies and proposals relating to Carrickfergus Borough Council, Belfast City Center and the portions of Belfast Metropolitan Castlereagh include a wide variety of development zonations including areas zoned as existing or for new employment. These sites have capacity for light industrial uses, general industrial uses or storage/distribution uses, or for research and development or science and technology incubation units. The plan has not identified any site as suitable for Special Industrial Uses. A major power station ‘Kilroot’ is within Carrickfergus Town but BMAP contains no policies or proposals relating to the power station.

The policies and proposals relating to Belfast Harbour and the portion of Metropolitan Newtownabbey also include a wide variety of development zonations including areas zoned as existing or for new employment. These sites have capacity for light industrial uses, general industrial uses or storage/distribution uses but the plan does not indicate that Special Industrial Uses would be acceptable in these zones (MNY05 and BHA05). The Belfast City Airport is also within 15km of Outer Ards SPA / Ramsar and could cause potential disturbance or collision risks. The plan does not alter the provisions of the existing Article 40 Agreement between the Department of the Environment (NI), Belfast City Airport Limited and Shorts Brothers. The agreement currently controls the level of airport operations at Belfast City Airport. The plan indicates that applications for airport related used will be considered in the context of the existing agreement, regional planning policy and environmental considerations.

BMAP indicates that applications for planning permission within the zoned employment sites will be determined in accordance with prevailing regional policy and Key Site Requirements in the Plan. The use classes suitable for each employment zonation are contained within the KSRs for each site. In addition the KSRs indicate that employment developments shall only be permitted in accordance with an overall comprehensive masterplan for the site to be agreed with the Department.

Under the Planning (Use Classes) Order (Northern Ireland) 1989, the Land Classes 6, 7, 8, 9 and 10 were related to Special Industrial Uses which were the uses most likely to result in aerial emissions. These classes were subsequently revoked by amending legislation in 1993 and 1996. The Planning (Use Classes) Order (Northern Ireland) 2004 indicates that no class specified in the schedule includes use for any work required to be registered under Article 20 of the Industrial Pollution Control (Northern Ireland) Order 1997 and regulation 30 of the Pollution Prevention and Control Regulations (Northern Ireland) 2003. These pieces of legislation have subsequently been superseded by the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013. Within the areas described above BMAP has not
specifically zoned any land for specific uses that would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013.

**Appropriate Assessment consideration:**

*Aerial Pollution*

Although it is widely acknowledged that aerial emissions have the potential to damage sensitive species, to-date there has been no specific indication that atmospheric deposition from the BMAP area is a threat to Outer Ards SPA / Ramsar.

BMAP has not identified any specific zonations or policies relating to rural agricultural / manure management proposals that are potential sources of ammonia, for example chicken or pig farms. Nor does it give any requirement for a certain number of these types of developments to be built in the BMAP area. Any such proposals would therefore be out-with any plan proposals and would have to be considered on a case by case basis via development management and the application of prevailing regionally policy and, if appropriate, any relevant policies within BMAP.

Aerial deposition from sources in the BMAP area may have the potential to be a contributing factor to the overall deposition levels at Outer Ards SPA / Ramsar. The deposition levels at Outer Ards are currently exceeding critical nitrogen levels for habitats utilized by Arctic Tern. Nitrogen nutrient enrichment can increase tall grasses in nesting habitat. Cockle Island is however actively managed and it is unlikely that grasses would be allowed to grow or spread to damaging levels. In addition the deposition of toxic substances has declined significantly over recent decades and the level of atmospheric deposition into the SPA site is predicted to decrease by 2020.

The adopted plan however does not zone any employment lands for specific industrial uses that would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013. Such developments could result in adverse aerial emissions to the SPA.

During the lifetime of the plan there may be other future development applications within the BMAP area which could result in aerial deposition on the SPA in question. Any such proposals would be out-with any plan proposals and would have to be considered on a case by case basis via development management and the application of prevailing regionally policy (in Particular PPS2) and, if appropriate, any relevant policies within BMAP. In addition any such future proposals must comply with legally enforceable obligations designed to avoid environmental effects. Integrated Pollution Protection and Control Guidelines are a Regulatory system that employs an integrated approach to control the environmental impacts of certain industrial activities. The system requires the identification of industrial proposals up to 10-15km from sensitive receptors such as European sites. Where an installation is within such distance of a European site, an assessment has to be made regarding potential impacts. This assessment may require the use of detailed air impact assessment (air dispersion modeling) or in other cases a screening tool can be used to demonstrate whether potential impacts are acceptable. Proposals which may have a potential impact on designated habitats are likely to be considered by both the Industrial Pollution and Radiochemical Inspectorate (IPRI) and Natural Heritage in NIEA. Any adverse impact by subsequent proposals for industry which generates significant aerial emissions should be avoided through implementation of the legally enforceable obligations and the application of regional planning policy.

The BMA Employment Strategy provides a measure of certainty about which types of development will and will not be permitted. However there is uncertainty about where new industrial proposals which have the potential to promote uses which generate significant aerial emissions which would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013 are likely to be located. The draft BMAP plan suggested some of the sites within 15km of Outer Ards SPA / Ramsar would be suitable for this type of special industrial use. Any new proposals for industry generating significant aerial emissions will be subject to legal obligations, regional planning policy and potentially the Key Site Requirements or the amplification text in the plan. The plan however does not give any indication that impacts of aerial emissions from any sites may be an environmental constraint which could result in
the need for a Habitat Regulation Assessment to be carried on specific proposals to ensure that there would be no adverse impacts on European Sites, including Outer Ards SPA / Ramsar.

*Species disturbance; habitat destruction or alteration.*

BMAP has not zoned any land within Outer Ards SPA / Ramsar for development and as such there will be no direct destruction of habitat as a result of the implementation of BMAP, nor will there be any impact on the management activities on the Cockle Island. The Plan has not zoned any land for development that requires additional coastal protection and the only development proposals that are directly adjacent to Outer Ards SPA / Ramsar have already been built. The Conservation Objections Report for Outer Ards SPA also recognizes that adjoining habitat is important for providing high tide roosts and additional feeding habitat and that the potential for increased disturbance is an issue of concern for the SPA/Ramsar, especially to Cockle Island. To date high tide roost locations have not been published. There is no evidence that any important high tide roost sites will be adversely impacted by BMAP proposals. The Plan has retained existing amenity grassland in close proximity to the SPA/Ramsar and has provided many of these areas with a degree of protection from development by zoning the land as open space or within an environmental designation. Many of these open space areas provide existing public access but the Plan does not contain any proposals directly related to increasing recreational/amenity activity in the immediate area which could lead to increased disturbance levels in the proximity of the SPA and Ramsar. Wind turbines may be proposed within the BMAP area during the life time of the plan but these proposals would be outwith the plan and would have to be considered on a case by case basis having regard to regional planning policy and any detailed information about flight paths that becomes available. There are many other activities associated with Outer Ards that could impact on the SPA/Ramsar features that BMAP has no influence upon. These include aquaculture, bait-digging, beach cleaning, wildfowling, research activities, seaweed harvesting, predation on Cockle Island by mammals at low tide, site management of Cockle Island, shipping routes or disposal of ballast waters (potential spread of invasive species).

In a number of locations the Outer Ards SPA and Ramsar are within the Bangor Settlement Development Limit (Designation BR01). These lands are also zoned as Coastal Zone which provides a degree of protection from development. The amplification text for the Bangor Settlement Limit recognizes that the opportunity for outward expansion is constrained by the need to protect the coastal zone. There are limited BMAP proposals or policies that could increase disturbance levels adjacent to Outer Ards SPA and Ramsar with the exception of the Policy SETT 2. The policy gives no indication that disturbance impacts on SPA or Ramsar features need to be considered to ensure that adverse effects are avoided.

The Conservation Objectives identifies sand extraction as a widespread issue that impacts upon Outer Ards SPA and suggests that permitted extraction of beach and sand gravel should be halted. These impacts could alter sedimentology, increase disturbance, result in the loss of sediments and may ultimately impact on birds due to changed sediment character of beaches. There are existing planning policies in PPS2 and the PSRNI (MIN1) that provide a degree of protection from potentially adverse mineral extractions. BMAP has not identified Outer Ards SPA as an Area of Constraint on Mineral Developments. However nor has BMAP identified any specific location for mineral development. BMAP acknowledges that European Sites require to be protected from inappropriate development. Although BMAP has not zoned any Areas of Constraint on Mineral Developments their omission cannot be used to infer that there are no European Sites in the BMAP area that require to be protected from mineral developments.

The Conservation Objective Report for Outer Ards SPA considers that actions should be taken to consider collective impact of shipping. Although BMAP does not contain any specific proposals relating to additional shipping activity it contains one policy (BHA03) associated with the Belfast Harbour Area that may promote additional boating activity in the Belfast Lough. Policy BHA03 recognizes the importance of nature conservation designations as does the natural environment amplification text associated with the Belfast Harbour. However the plan does not give any indication that impacts of increased shipping connected to plan proposals may be an environmental constraint which could result in the need for a Habitat Regulation Assessment to be carried on specific proposals to ensure that there would be no adverse impacts on European Sites, including Outer Ards SPA / Ramsar.
Due to the water quality of Belfast Lough and the associated requirements of the Water Framework Directive there is a Belfast Lough Local Management Area Action Plan which aims to improve the ecological status of the Lough. Although water pollution and eutrophication pose threats to the ecological structure of benthic fauna and flora within Belfast Lough impacts are likely to be localized due to its position in open coastal waters. There is an existing regulatory regime in place that should control discharges associated with any proposals resulting from the implementation of BMAP. NIEA are responsible under the Water (NI) Order for preventing or minimizing the effects of pollution entering our waterways and to manage the risk of a polluting discharge from occurring. There are currently measures in place to ensure that proposals associated with Belfast Lough meet legal requirements associated with: The Drinking Water Directives (80/778/EEC and 98/83/EC); the Major Accidents Directive (96/82/EC); the Environmental Impact Assessment Directive (85/337/EEC); the Sewage Sludge Directive (86/278/EEC); The Urban Waste Water Treatment Directive (91/271/EEC); the Plant protection products Directive (91/414/EEC) the Nitrates Directive (91/676/EEC) and the Integrated Pollution Prevention and Control Directive. In addition to this any discharge of trade, sewage effluent or any other potential pollution (including effluent from any commercial, industrial or domestic premises or site drainage) to any waterway or any water contained in underground strata requires consent from the Department of the Environment under the Water (Northern Ireland) Order 1999 (Consent for certain other discharges are also required under the Water and Sewage Service (NI) Order 1973 as amended). Such consents can include conditions outlining the quantity and quality of the discharges and are drawn up to ensure that the waste can be absorbed by the receiving waterway without affecting the quality of the aquatic environment, or breaching national or European Commission (EC) standards. Water NI considers that the majority of WWTWs associated with Belfast Lough are satisfactory and capable of accommodating all development within their catchments that are proposed in the Plan through the Plan period and that those which were not were programmed to be upgraded between 2011 and 2015. The regulated discharges from these WWTW will have been granted Water Order permissions.

There are a number of development zones either in close proximity to, or infrastructurally connected to the connecting Ballyholme River or its tributaries that have the potential to interact with Belfast Lough in terms of water quality. The regulatory controls and management measures outlined above should be sufficient to ensure that any BMAP proposals will not have an adverse impact on Outer Ards SPA and Ramsar. Although the implementation of BMAP should not have any effect on key species and key habitats or on the integrity of Outer Ards SPA and Ramsar due to these existing regulatory and management regimes the intermittent bathing water quality of Ballyholme which has been attributed to inadequate sewage treatment and sewerage infrastructure in Bangor is of concern. In addition there may be occasions when planning permission is sought before consent is gained for discharge consent. Within the area BMAP does not make any reference to the potential for new or unconsented waste discharges from zoned development sites into Belfast Lough or associated watercourses and its tributaries to have adverse impacts on water quality and subsequently on the ecological structure of benthic fauna and flora within Belfast Lough and thus to have impacts on the bird species that utilize Outer Ards SPA / Ramsar.

A further threat to the SPA is predation of tern chicks particularly by gulls. There is no evidence to suggest that gulls have been displaced to Cockle Island from the BMAP area as a result of development activities. The opening or closure of landfill sites may influence gull populations in the BMAP area but the BMAP plan does not contain any proposals or policies specific to this issue. Development activities as a result of the BMAP plan will result in additional material going to landfill but other plans and regimes, such as Waste Management Plans and PPS11 are responsible for deciding the best location for these sites and whether or not additional landfill sites are required. Research suggests that predation in Cockle Island would be best controlled by reducing the access of large gulls to tern colonies and by reducing human disturbance (Wolsey 2012). The Conservation Objection Report noted that the number of breeding gulls have declined considerably in recent years.
### Integrity of site checklist

**Does the project or plan have the potential to:**

<table>
<thead>
<tr>
<th>Option</th>
<th>Yes/No</th>
</tr>
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<tbody>
<tr>
<td>cause delays in progress towards achieving the conservation objectives of the site?</td>
<td>No</td>
</tr>
<tr>
<td>interrupt progress towards achieving the conservation objectives of the site?</td>
<td>No</td>
</tr>
<tr>
<td>disrupt those factors that help to maintain the favourable conditions of the site?</td>
<td>Yes</td>
</tr>
<tr>
<td>interfere with the balance, distribution and density of key species that are the indicators of the favourable condition of the site?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Other indicators: Does the project or plan have the potential to:

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<td>cause changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem?</td>
<td>Yes</td>
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<tr>
<td>change the dynamics of the relationships (between, for example, soil and water or plants and animals) that define the structure and/or function of the site?</td>
<td>Yes</td>
</tr>
<tr>
<td>interfere with predicted or expected natural changes to the site (such as water dynamics or chemical composition)?</td>
<td>Yes</td>
</tr>
<tr>
<td>reduce the area of key habitats?</td>
<td>No</td>
</tr>
<tr>
<td>reduce the population of key species?</td>
<td>No</td>
</tr>
<tr>
<td>change the population of key species?</td>
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</tr>
<tr>
<td>reduce diversity of the site?</td>
<td>Yes</td>
</tr>
<tr>
<td>result in disturbance that could affect population size or density or the balance between key species?</td>
<td>Yes</td>
</tr>
<tr>
<td>result in fragmentation?</td>
<td>No</td>
</tr>
<tr>
<td>result in loss or reduction of key features (e.g. tree cover, tidal exposure, annual flooding, etc.)?</td>
<td>No</td>
</tr>
</tbody>
</table>

**Appropriate Assessment Conclusion:**  
The evidence gathered and assessment undertaken does not enable us to conclude reasonably and objectively that the implementation of BMAP will not adversely affect key species and key habitats or the integrity (structure and function and conservation objectives) of:  
Outer Ards SPA  
Outer Ards Ramsar

Mitigation measures are required to ensure that BMAP will not have any adverse effect on the integrity of these SPAs / Ramsar with regard to:  
- Collective impact of increased boating activity.  
- Aerial pollution.  
- Water quality.  
- Settlement Limits.
Appropriate Assessment Report for:  
Rea’s Wood and Farr’s Bay SAC

Elements of BMAP that are likely to give rise to significant effects;

Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion alvae*) is the principle reason for the selection of Rea’s Wood and Farr’s Bay as a SAC.

Reas Wood and Farrs Bay SAC is linked to BMAP by the potential for aerial depositions and is also infrastructural linked by water abstraction from Lough Neagh.

The past series of lowering Lough Neagh’s water levels has had a fundamental impact on marginal habitats, including woodland. Each lowering of the water level in Lough Neagh has resulted in a successional series of shoreline colonisation. Rea’s Wood and Farr’s Bay SAC contains a complete successional sequence from open water through reedswamp to alder woodland. The present foreshore supports inundation Willow/Alder woodland along the shore and Alder swamp woodland in the permanently flooded hollows behind, whilst the drier ridges support base-rich Ash woodland.

The lowering of water levels creates newly exposed beds which are subsequently colonised by new wet woodland, whilst the wet woodland which has developed on previously exposed lake bed has changed to dryer woodland community types as they are increasingly elevated above the current water levels and influence of inundation. The former lakebed has an undulating terrain consisting of raised ridges and wet, occasionally flooded hollows, with a resulting variation in the type of woodland cover. A series of ridges created during the past lowering of Lough Neagh impounds water, keeping parts of Reas Wood and Farris Bay SAC flooded throughout the year. These wooded areas are dependent on winter inundation by Lough Neagh and the subsequent retention of this water during the summer when lake levels are lower. Proposals to increase water extraction from Lough Neagh is likely to lower the summer level of the Lough again but is unlikely to affect winter levels.

The vulnerability section of the Rea’s Wood and Farr’s Bay SAC Natura 2000 data form identifies changes to Lough Neagh water levels as a main threat to the site. The water demands of new developments in the BMAP area could raise pressure to increase the level of water abstracted from Lough Neagh.

As the key sources of atmospheric pollutants in Northern Ireland are from industry, transport and agricultural sources allocations and zonings associated with the BMA Employment Strategy and BMA Transportation schemes and proposals are the most likely to give rise to aerial deposition impacts.

In-combination effects from other plans or projects that are likely to have significant effects.

As Lough Neagh provides water for approximately one third of the population of Northern Ireland there will be cumulative abstraction pressures associated with Development Plans throughout Northern Ireland and Water Resource Plans and associated capital works.

Water levels in Lough Neagh are controlled by Rivers Agency who are required to regulate and control water levels within a specified range, that is 12.45 meters to 12.6 meters Ordnance Datum, as defined in the Lough Neagh Levels Scheme (1955) (as amended). The level of Lough Neagh was considered in the Proposed Lough Neagh (levels) scheme 2004 (DARD). Water levels are currently controlled by five sluice gates at Toome, where the water enters the Lower Bann River. Incremental adjustments of floodgates is practiced, whenever possible, in order to minimise impact on the range of environmental and other interests associated with the Lough.

NI Water is responsible for supplying the public with clean drinkable water and uses 90% of all water abstracted in Northern Ireland. As a result of the huge volumes of water involved these activities are
subject to abstraction licences in line with the Water Abstraction and Impoundment (Licensing) Regulations (Northern Ireland) 2006 No. 482. In addition the Water Framework Directive places controls over water abstractions and impoundments to make sure the directive’s objectives for water bodies are met. The control measures required for the award of a licence will play an important factor in achieving ‘Good’ ecological status for all water bodies in Northern Ireland.

The exiting abstraction licence for Lough Neagh authorizes NI Water to abstract up to a total of 392 Ml/d from three locations around the lough: Castor Bay, Dunore and Moyola (NI Water 2010b). Habitat Regulations Assessments were previously undertaken for the licensed level of abstractions. Abstraction levels were considered in the ‘Proposals for the increased Water Supply Abstraction from Lough Neagh 2005 -2015’ (Water Service) during which an Environmental Statement was prepared to indicate potential environmental impacts. This issue was again considered in NI Waters draft Water Resources Management Plan 2010-2035 (NI Water 2010b) in which one of the options under consideration was to increase the abstraction output from Castor Bay, Dunore and Moyola WTWs by a combined additional volume of 30ML/d. This additional option would continue to abstract water from Lough Neagh within the existing Licence limit. An option to abstract water above the total Lough Neagh licensed quantity was discounted as it was apparent that such an increase in capacity would not be required before 2034-35.

The Dunore to Hydepark D2H project to lay a new pressurised watermain pipeline to transfer treated water between Dunore Water Treatment Works in Antrim and Hydepark Service Reservoir in Mallusk was completed in 2006. The pipeline has the capacity to deliver up to 180 million litres of water a day to over one quarter of Northern Ireland’s population. This important transmission system transfers between 130 and 150 million litres of water a day and represents one of two essential large diameter trunk mains in Northern Ireland – the other is the Mourne Conduit.

In general there are several recent or ongoing NI Water projects throughout Northern Ireland to improve the quality, reliability and flexibility of water supply across Northern Ireland while also reducing leakage. http://www.NI Waterater.com/whatweredoing.asp
This includes:
- The Water Mains Rehabilitation project (to upgrade in excess of 1000 kilometres of water main infrastructure throughout Northern Ireland);
- The Alpha Project to upgrade, operate and maintain existing water treatment works (WTW) at four locations across Northern Ireland that can produce up to 50% of NI Water's bulk drinking water supply; and to deliver three major trunk watermains.

These projects will work in combination to improve the efficiency of the water supply system in Northern Ireland.

Although the NI Waters draft Water Resources Management Plan 2010-2035 (NI Water 2010b) include an option to abstract up to currently permitted limits and discount the need to increase capacity above these limits before 2034-35 there is always a possibility that NI Water can apply to increase abstraction from Lough Neagh during the lifetime of BMAP. Any such application would be subject to legislative requirements and environmental assessment including the need to comply with the requirements of the Conservation (Natural Habitats, etc.) Regulations in Northern Ireland (as amended).

In relation to aerial deposition the screening identified that there was a potential for in-combination eutrophication and acidification effects arising from developments within the Antrim Area Plan 1984-2001 and the Ballymena Area Plan 1986-2001 (within 15km from the SAC).

**Conservation Objectives and implications for each qualifying interest in light of its conservation objectives.**

Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion alvae*) is the principle reason for the selection of Rea’s Wood and Farr’s Bay as a SAC. There are conservation
objectives for Rea’s Wood and Farr’s Bay SAC to maintain the extent of the Alluvial forest, its structure and its habitat and species diversity.

As explained previously the water levels in Lough Neagh’s has had a fundamental impact on the habitats within Rea’s Wood and Farr’s Bay SAC. In the 2005 Condition Assessment the structure of the woodland and the regeneration of native species was favorable, although there had been suggestions that the woodland may be switching to drier woodland communities. Although the drying out of the woodland has yet to be verified it was noted that Ash is regenerating freely in many of the woodland plots which provides some support to the suggestion. In addition a series of ridges created during the past lowering of Lough Neagh impounds water, keeping parts of the wood flooded throughout the year but it has been noted that drains cut through the ridges appear to be causing parts of the woodland to dry-out and shift to species that prefer such conditions. As a precautionary measure the Condition Assessment advised that any active drains associated with the site should be blocked. The Conservation objectives previously suggested that if the effects of drainage are proven significant, the installation of weirs across these drains would allow for controlled retention of water during the summer.

Aerial pollution and associated atmospheric deposition of nitrogen and sulphur compounds arising from the BMAP area have the potential to lead to eutrophication and soil acidification. Air pollution has been suggested as a potential threat and pressure for Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* however an assessment of relevant literature and critical loads indicated that Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* are not considered sensitive to nutrient deposition or acidification (JNCC 2007; APIS 2013). However the Conservation Objectives of Rea’s Wood and Farr’s Bay SAC requires maintenance of the structure of dead wood and epiphytes in the SAC. Atmospheric pollution from ammonia and oxides of nitrogen is considered to have potentially damaging impacts on the bryophyte and lichen communities of wet woodland habitats (JNCC 2007). In the last Condition Assessment (2005) the abundance of epiphytes, bryophytes and lichens was favorable. To-date aerial pollution and associated atmospheric deposition has not been highlighted as having an affect on Rea’s Wood and Farr’s Bay SAC. It is predicted that the total amount of nitrogen and sulphur deposition at Rae’s Wood and Farrs Bay SAC will decrease between 2005 and 2020 (APIS 2013).

To assess localized impacts on each European site it was considered appropriate to consider the distance betweenzonings and designations within BMAP and each European site in more detail to see if there were likely to be adverse local effects.

### Reas Wood and Farris Bay SAC:

**BMAP settlements with development zonings within 15km.**

<table>
<thead>
<tr>
<th>Metropolitan Newtownabbey</th>
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<tr>
<td>Towns: Ballyclare</td>
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<tr>
<td>Villages: Glenavy; Corgy/Kilbride; Doagh.</td>
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</table>

Small settlements were considered but they did not contain any development zonations.

In relation to BMAP lands within 15km of Rea’ Wood and Farr’s Bay SAC: The portion of the Metropolitan Newtownabbey contains some existing employment land, 2 zoned Employment sites, and a number of housing zonations. The Employment/Industry (MNY06 and MNY07) could potentially be used for light industrial uses, general industrial uses or distribution uses (B1, B2, B3, and B4). The plan has not indicated that these lands are acceptable for special industrial uses; the portion of Ballyclare contains some existing employment land, a number of housing zonations and land zoned for Education; the Village of Glenavy contains a number of housing zones and one industrial zonation that could potentially be used for light industrial uses, general industrial uses or distribution uses; the Villages of Doagh and Corgy/Kilbride have a number of housing zonations.

BMAP indicates that applications for planning permission within the zoned employment sites will be determined in accordance with prevailing regional policy and Key Site Requirements in the Plan. The use classes suitable for each employment zonation are contained within the KSRs for each zonation. In addition the KSRs indicate that employment developments shall only be permitted in accordance with an overall comprehensive masterplan for the site to be agreed with the Department.
Under the Planning (Use Classes) Order (Northern Ireland) 1989 the Land Classes 6, 7, 8, 9 and 10 were related to Special Industrial Uses which were the uses most likely to result in aerial emissions. These classes were subsequently revoked by amending legislation in 1993 and 1996. The Planning (Use Classes) Order (Northern Ireland) 2004 indicates that no class specified in the schedule includes use for any work required to be registered under Article 20 of the Industrial Pollution Control (Northern Ireland) Order 1997 and regulation 30 of the Pollution Prevention and Control Regulations (Northern Ireland) 2003. These pieces of legislation have subsequently been superseded by the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013. Within the areas described above BMAP has not specifically zoned any land for specific uses that would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013.

In the last Condition Assessment (2005) the SAC was in unfavourable condition due to the high proportion of non-natives and the level of poaching by deer. BMAP does not exert not have an influence on these factors.

**Appropriate Assessment consideration:**

BMAP has minimal influence over abstraction rates or the level of Lough Neagh when considered in combination with other over-riding plans and projects which are utilised to control Lough Neagh water abstractions and water levels. Many of these plans are based on existing agreed Lough levels or granted abstraction rights. Plans and Projects to change these existing agreements are themselves subject to various policies, public consultations and legislative requirements, including the requirements of the Conservation (Natural Habitats, etc.) Regulations Northern Ireland.

One of the main concerns at Rea’s Wood and Farr’s Bay SAC relates to the cutting of drains through the ridges which assist with the impounding of water over the summer months. Measures have been suggested to block these drains or to add weirs to manage the retention of water during the summer. Other identified threats to the status of Rea’s Wood and Farr’s Bay SAC include the spread of invasive species and poaching by deer.

Although it is widely acknowledged that aerial emissions have the potential to damage sensitive plant communities, to-date there has been no specific indication that atmospheric deposition from the BMAP area is a threat to Rea’s Wood and Farr’s Bay SAC.

BMAP has not identified any specific rural zonations or policies relating to agricultural management proposals that are potential sources of ammonia, for example chicken or pig farms. Nor does it give any requirement for a certain number of these types of developments to be built in the BMAP area. Any such proposals would therefore be out-with any plan proposals and would have to be considered on a case by case basis via development management and the application of prevailing regionally policy and, if appropriate, any relevant policies within BMAP.

Aerial deposition from sources in the BMAP area may have the potential to be a contributing factor to the overall deposition levels at Rea’s Wood and Farr’s Bay SAC. However the SAC is not in the immediate vicinity of BMAP and is relatively remote from pressures associated with industrial or other built development in the BMAP area. The deposition of toxic substances has declined significantly over recent decades and the level of atmospheric deposition into the SAC sites is predicted to decrease by 2020. For example it is predicted that the deposition of sulphur onto Rea’s Wood and Farr’s Bay SAC attributed to housing or commercial sources will reduce between 2005 and 2020 (APIS 2013).

The adopted plan does not zone any employment lands for specific industrial uses that would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013. Such developments could result in adverse aerial emissions to the SAC.
During the lifetime of the plan there may be other future development applications within the BMAP area which could result in aerial deposition on the SAC in question. Any such proposals would be out-with any plan proposals and would have to be considered on a case by case basis via development management and the application of prevailing regionally policy (in Particular PPS2) and, if appropriate, any relevant policies within BMAP. In addition any such future proposals must comply with legally enforceable obligations designed to avoid environmental effects. Integrated Pollution Protection and Control Guidelines are a Regulatory system that employs an integrated approach to control the environmental impacts of certain industrial activities. The system requires the identification of industrial proposals up to 10-15km from sensitive receptors such as European sites. Where an installation is within such distance of a European site, an assessment has to be made regarding potential impacts. This assessment may require the use of detailed air impact assessment (air dispersion modeling) or in other cases a screening tool can be used to demonstrate whether potential impacts are acceptable. Proposals which may have a potential impact on designated habitats are likely to be considered by both the Industrial Pollution and Radiochemical Inspectorate (IPRI) and Natural Heritage in NIEA. Any adverse impact by subsequent proposals for industry which generates significant aerial emissions should be avoided through implementation of the legally enforceable obligations and the application of regional planning policy.

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<td>• change the balance between key species?</td>
<td>No</td>
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<td>• reduce diversity of the site?</td>
<td>No</td>
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<td>• result in disturbance that could affect population size or density or the balance between key species?</td>
<td>No</td>
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<td>• result in fragmentation?</td>
<td>No</td>
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**Appropriate Assessment Conclusion:**
The evidence gathered and assessment undertaken enables us to conclude reasonably and objectively that the implementation of BMAP will not adversely affect key species and key habitats or the integrity (structure and function and conservation objectives) of:
Rea’s Wood and Farr’s Bay SAC
Appropriate Assessment Report for:
Strangford Lough SPA
Strangford Lough SAC
Strangford Lough Ramsar

Elements of BMAP that are likely to give rise to significant effects;

Breeding Common Tern Sterna hirundo, Arctic tern Sterna paradisaea and Sandwich tern Sterna sandvicensis and overwintering Light-bellied brent goose Branta bernicla hrota, Red Knot Calidris canutus and Common Redshank tringa tottus are the principle species qualifying as reasons for the selection of Strangford Lough as a SPA. The site also qualifies as an SPA as it regularly supports an internationally important assemblage of birds overwinter. These species are also qualifying bird species for Strangford Lough Ramsar. The qualifying SAC features are: Large shallow inlet and bay; Coastal Lagoons, Mudflats and sandflats not covered by sea water at low tide, reefs, annual vegetation drift lines, Atlantic salt meadows (Glaucoc-Puccinellietalia maritimae); Perennial vegetation of stony banks; Salicornia and other annuals colonizing mud and sand and the species Common Seal Phoca vitulina. The site also qualifies as a Ramsar as it supports a variety of important wetland features and supports an important assemblage of vulnerable and endangered wetland plants and animal species.

Strangford Lough is a large (150 km²) marine inlet on the east coast of County Down, of which about 50 km² lies between high water mark mean tide (HWMMT) and low water mark mean tide (LWMMT). It is connected to the open sea by the Strangford Narrows, an 8 km long channel with a minimum width of 0.5 km. The Lough is 30 km long from head to mouth and up to 8 km wide. The tidal flats of Strangford Lough form extensive deposits around its northern limits. The Lough supports an impressive range of marine habitats and communities with over 2,000 recorded species. It is important for marine invertebrates, algae and saltmarsh plants, for wintering and breeding wetland birds, and for marine mammals.

There are no portions of Strangford Lough SPA/SAC or Ramsar within the BMAP area. Castlereagh Borough Council is approx. 3km from the boundary of the SPA/SAC/Ramsar whilst North Down Council is approx. 3.8km from the boundary.

BMAP is hydrologically linked to Strangford Lough via the Strangford Lough catchment including the Enler River. Developments in the BMAP area may therefore influence water quality in Strangford Lough by increasing sedimentation, pollution or nutrients into the SPA/SAC/Ramsar which could negatively alter habitats and feature species.

SAC site selection for Common Seals has favoured sites that are important both as general haul-out sites and for moultng and pupping. Haul-out areas are thought to be very important for the conservation of the species, as are the most important breeding colonies. As well as their importance in maintaining overall population size, larger breeding sites are significant as sources of emigration to smaller or newly-established colonies. Seals are very mobile within the North Atlantic area as a whole and whilst the SAC series makes a contribution to securing favourable conservation status for this Annex II species, wider measures are also necessary to support its conservation in the UK. Although development in the BMAP area will not directly impact on haul out sites in Strangford Lough SAC activities in the BMAP area could reduce the network of haul out and breeding sites that are utilised by this mobile species.

Consideration had to be given whether activities associated with the implementation of BMAP have the potential to shift the balance of species utilising the Strangford Lough SPA / Ramsar, in particular gull populations. It is believed that the increase in gulls throughout the last century was due to increased feeding opportunities of mainly man made origin such as the establishment of large municipal landfill sites (Crème et al. 1997). One of the main sites in Belfast where gulls congregated was the Dargan Road Landfill Site. When the draft BMAP was published a closure plan was already in place for the Dargan site and landfill
operations ceased in 2007. The closure of this gull food source would have required the gull populations to forage elsewhere for food which could have indirectly impacted on the gull populations in Strangford Lough SPA / Ramsar. BMAP has zoned the Dargan site as mixed use site however this zonation is related to the future use of the land and had no bearing on the actual closure of the landfill site. BMAP does not contain any policies or proposals for closure or opening of landfill sites.

Strangford Lough SAC/SPA/Ramsar is linked to BMAP by the potential for aerial depositions. As the key sources of atmospheric pollutants in Northern Ireland are from industry, transport and agricultural sources allocations and zonings associated with the BMA Employment Strategy and BMA Transportation schemes and proposals are the most likely to give rise to aerial deposition impacts.

**In-combination effects from other plans or projects that are likely to have significant effects.**

In relation to aerial deposits there is a potential for in-combination eutrophication and acidification effects arising from development activities in the Ards and Down Area Plan 2015 (within approx 15km from the SAC/SPA/Ramsar).

Development activities in the BMAP area may lead to increased disturbance, damage, nutrient enrichment or sedimentation in Strangford Lough which may impact upon the SAC, SPA and Ramsar feature species. Waste Management Plans and development activities associated with other Development Plans within the catchment of the Strangford Lough system may contribute to water quality impacts within Strangford Lough SAC / SPA / Ramsar.

Development activities adjacent to Strangford Lough may lead to a shift in the balance of species utilizing Strangford Lough SPA and Ramsar in particular those related to landfill sites. In Northern Ireland the NI Waste Management Strategy 2006-2020 (DOE 2006) provided an overall strategy for waste management (A revised strategy was published by DOE in Oct 2013). Three Waste Management Groups are responsible for drawing up waste management plans on behalf of constituent councils, and, to varying degrees, procuring infrastructure on the council’s behalf. The 6 Councils in the Plan Area and Ards and Down Councils are part of a larger group of 11 Councils in the eastern part of Northern Ireland which have come together to form ARC21, the Sub-Regional waste planning body. The ARC21 Waste Management Plan, prepared under Article 23 of the Waste and Contaminated Land (NI) Order 1997 and adopted by the Councils in 2003, identifies the key elements in a sub regional network of facilities required to recycle, reuse and recover resources from our waste. The ARC21 Waste Management Plan sets out the need for types of facility and areas of search for the provision of this needed capacity in terms of a sub regional network of waste facilities. The Waste Management Plan also identifies a need for regional waste disposal capacity to meet current needs before alternative options are fully developed. As recovery, reuse and recycling capacity grows, a decreasing amount of landfill will then be required to deal with residual material left by these processes. The Waste Management Plan also identifies ‘areas of search’ for the provision of necessary facilities and capacity. In the absence of identified sites that have planning permission or are otherwise confirmed as potential sites for facilities the Plan has taken account of the need for waste management facilities as identified in terms of “areas of search” by the competent authorities in the ARC21 Plan. In each instance proposals for waste management facilities will be considered against the regional planning policies of PPS11 Planning and Waste Management and the areas of search identified in the ARC21 Waste Management Plan. PPS11 Planning and Waste Management, other PPSs and the Waste Management Plans provide sufficient information to allow individual proposals to be considered through the development control process.

Development activities throughout the Irish Sea coastline have a potential to cumulatively impact upon in the network of haul out and breeding sites that are utilised by Common Seals.
Conservation Objectives and implications for each qualifying interest in light of its conservation objectives.

SPA and Ramsar bird species.

Breeding CommonTern Sterna hirundo, Arctic tern Sterna paradisaea and Sandwich tern Sterna sandvicensis and overwintering Light-bellied brent goose Branta bernicla hrota, Red Knot Calidris canutus and Common Redshank tringa tottus are the principle species qualifying as reasons for the selection of Strangford Lough as a SPA. The site also qualifies as an SPA as it regularly supports an internationally important assemblage of birds overwinter. These species are also qualifying bird species for Strangford Lough Ramsar. For these bird species there are conservation objectives to ensure there are no significant decreases in populations caused by on site factors, to maintain the area/extent of habitat and associated components used by these species, to maintain all locations of roost sites, to maintain the species diversity of the waterfowl assemblage and to maintain the fledging success of breeding birds.

In Strangford Lough a number of tern species can be found nesting on the islands within the lough. Common Terns are a migratory coastal seabird that feeds mainly on fish. Most feeding takes place within 3-10km of the colony but distances up to 37km have been recorded (Birdlife International 2013). In the winter they migrate to the southern hemisphere and the return to the UK to breed in the summer (April - June). Common Terns breed in a wide variety of habitats in coastal and inland areas (Birdlife International 2013). Inland breeding sites include shingle river banks, islands in lakes, gravel pits, marshes and shallow lagoons, or artificial sites are occasionally used (Stroud et al. 2001). Nesting sites are usually in a sheltered location in a shallow depression on open substrates with little vegetation. The UK SPA Review (Stroud et al. 2001) noted that threats to Common Tern populations in Britain and Ireland are mostly due to habitat change such as development (habitat loss) or increased vegetation cover or increased disturbance, in particular recreation. Predation has been noted as a problem in some areas. Internationally habitat change, disturbance, predation and competition (including by gulls) have also been noted as threats, as have flooding of nests by water fluctuations and chemical pollution (Birdlife International 2013). In the last condition assessment for Strangford Lough SPA and Ramsar (2005) Common Terns were in favorable condition.

Arctic terns feed mainly on fish. In the winter they migrate to the Antarctic and then return to the UK to breed in the summer (April - September). They nest in open ground with little or low vegetation (Hatch 2002). Terns breed in rocky, gravelly islands, barrier beaches, gravel bars and occasionally in marshes and bogs (Hatch 2002). In New Hampshire the decline and abandonment of Arctic Terns from the Isles of Shoals has been attributed to the decrease in human habitation of the islands and the subsequent increase in herring gulls (Larus argentatus) and great black-backed gulls (Larus marinus) which prayed on tern eggs and young. The UK SPA Review (Stroud et al. 2001) noted that threats to Arctic Tern populations included predation by mammals together with coastal development and disturbance such as recreational disturbance. The Report also noted that several declines have been attributed to breeding failures, with breeding success being low throughout most of the 1990s. The breeding failures may have been contributed to by a lack of sand eels the principle food, overfishing by man and bad weather. In the last Strangford Lough Condition Assessment Report (2005) Arctic Terns were in favourable condition.

Sandwich Tern are a migratory coastal seabird that feeds mainly on surface dwelling fish (Birdlife International 2013). Most feeding takes place within inshore waters and within a few kilometers of the colonies but longer distances can be traveled (Stroud et al. 2001). In the winter they migrate to the southern hemisphere along western and southern coasts of Africa and the southern coasts of East Africa and the return to the UK to breed in the summer (spring - autumn). British colonies of Sandwich Terns are mostly confined to coastal shingle beaches, sand dunes and offshore islets (Stroud et al. 2001). It breeds in dense colonies often with other terns or gulls and nesting sites are usually in raised, open, un-vegetated sand, gravel or mud (Birdlife International 2013). The UK SPA Review (Stroud et al. 2001) noted that like other tern species numbers can fluctuate possibly due to changes in numbers of adjacent colonies, but the threats to Sandwich Tern populations in Britain and Ireland are mostly due to habitat loss (e.g. when nesting sites are washed away) and predation. Internationally disturbance, coastal wind farms, degradation of habitat, bioaccumulated organochlorine pollutants, egg collection and hunting in Africa have also been noted as
threats (Birdlife International 2013). In the last Strangford Lough Condition Assessment Report (2005) Sandwich Terns were in favourable condition.

The Light-Bellied Brent Geese populations that migrate to and winter in Ireland (from September-March) breed in Canada. These coastal populations prefer to winter within large estuaries and areas of inter-tidal mudflats with fine sediments. They feed on a range of plants in particular eelgrasses Zostera whose availability influences population movements (Stroud et al. 2001). Population crashes in the 1930’s were attributed to a reduction in eelgrass due to disease and hunting but since then numbers have generally increased (NIEA 2005c; Stroud et al. 2001). There have been reports that eelgrass has declined in Strangford Lough, an important congregation area, which has resulted in birds taking to feeding on grasslands and cultivated crops inland. This could lead to conflicts with farmers. The main threats to the species are reported to be hunting, disturbance by vehicles, persecution by farmers and reductions in its wintering food supplies (Birdlife International 2013). Habitat loss, degradation or fragmentation as a result of human developments such as aquaculture or infrastructure developments could also affect populations (NIEA 2005c). Within Northern Ireland there are a number of threats to Zostera beds including: fungal disease; direct damage from activities that disturb sediments (such as impact of vehicular traffic, anchoring of pleasure craft; bait digging; developments that release sediments into estuaries), eutrophication, smothering by Enteromorpha spp. (although Enteromorpha is also a food source: Portig et al. 1994; Mathers et al. 1998); competition from invasive species, Spartina spp. or Sargassum muticum, chemical or organic pollution such as sewage, agricultural fertilizers and oil pollution, and storm events (Portig 2006; Goodwin 2008). During a survey of Zostera in Strangford Lough in 2003 (Portig 2006) it was estimated that there was an area/extent of 924ha of seagrass beds which indicated a positive trend over the previous 10 years suggesting a recovery phase in seagrass abundance had been taking place. In the last condition assessment for Strangford Lough SPA (2005) Brent Geese were in favorable condition.

Redshank breed across most of the UK and throughout Europe on inland and coastal wet grasslands and coastal saltmarshes (Birdlife International 2013; Stroud et al. 2001). Many of the British and Irish breeding birds remain resident throughout the year. Other birds migrate to the UK in the winter and during passage periods from areas such as Iceland and the Faeroes (Stroud et al. 2001). Outside of the breeding season Redshank are a predominantly coastal species frequenting bare mud in estuaries, inlets and sheltered bays as well as rocky shores (NIEA 2005d). During the non-breeding season they feed on insects, spiders, annelid worms, molluscs, crustaceans and occasionally small fish (Birdlife International 2013). Surveys since the 1970’s have indicated that the breeding populations have declined (NIEA 2005d; Stroud et al. 2001). Declines have largely been attributed to a reduction in the area of wet grassland and coastal habitat potentially used by breeding redshank (NIEA 2005d; Stroud et al. 2001). Wetland losses have been due mainly to an intensification of agricultural land management but built developments have also had an influence (NIEA 2005d; Stroud et al. 2001). Predation of chicks has also been noted as a current factor that may be impacting on Redshank populations (NIEA 2005d). Internationally threats have been recorded as loss of habitat, encroachment of Spartina onto mudflats, improvement of marginal grasslands, predation, disturbance on inter-tidal mud-flats, nest predation avian influenza and nest predation (Birdlife International 2013). There are indications that the UK non-breeding numbers have increased and stabilised since the 1980’s (NIEA 2005d; Stroud et al. 2001). In the last Condition Assessment Report (2005) for Strangford Lough SPA Redshank were in favorable condition.

Red Knot breed circumpolar in the high Arctic and migrate through temperate coastal regions in the northern hemisphere to wintering grounds in the southern hemisphere (Stroud et al. 2001). The UK is particularly important for the overwintering Canadian/Greenland population of Knot (sub-species Calidris canutus islandica) where they are almost exclusively estuarine (Stroud et al. 2001). The birds are highly gregarious in winter and forage in flocks. During the non-breeding season they feed predominantly on a wide range of intertidal invertebrates (Birdlife International 2013). There was a large decline in non-breeding populations in the 1970s due to poor breeding seasons, habitat changes and land reclamation, although there have been indications of increases in the British non-breeding populations since the mid 1980s till the 1990s (Stroud et al. 2001) and in some areas populations are stable but globally the populations appear to be decreasing (Birdlife International 2013). Internationally threats have been recorded as land reclamation, over-exploitation of shell-fish, tourism and recreational pressures, industrial
pollution and avian influenza (Birdlife International 2013). In the last Condition Assessment Report (2005) for Strangford Lough SPA Red Knot were in favorable condition.

Within Strangford Lough all wildfowl and wader species could be affected by changes in sediment, nutrient enrichment, inter-specific competition and excessive disturbance. The five winter peak for the period 1992/93 to 1996/97 was approximately 70,200 waterfowl, comprising 48,700 waders and 21,500 wildfowl. In the last Condition Assessment Report (2005) for Strangford Lough SPA the current status of associated waterfowl species were favourable except for Little Grebe which had a small fluctuating decline.

SAC and Ramsar habitats and species (expect birds).

The qualifying SAC features are: Large shallow inlet and bay; Coastal Lagoons, Mudflats and sandflats not covered by sea water at low tide, reefs, annual vegetation drift lines, Atlantic salt meadows (Glauco-Puccinellietalia maritima); Perennial vegetation of stony banks; Salicornia and other annuals colonizing mud and sand and the species Common Seal Phoca vitulina. The site also qualifies as a Ramsar as it supports a variety of important wetland features and supports an important assemblage of vulnerable and endangered wetland plants and animal species. Strangford Lough is one of the largest sea loughs in Northern Ireland, and possesses a landscape of drowned drumlins and raised beach terraces. There are 120 islands within the Lough and 150 miles of coastline. Intertidal deposits cover some 50km² and the diversity of marine habitats is internationally renowned. There are a number of species of interest because they are near the northern (e.g. Diodora apertura, Keyhole Limpet; Elysia viridis, a sea slug; Cereus pedunculatus, Daisy Anemone) or southern (e.g. Acmaea tessulata, Tortoise-shell Limpet; Leptasterias mulleri, a starfish) extremes of their ranges. The richness of the marine flora and fauna can largely be attributed to physiographical features resulting in the immense tidal flow through The Narrows, the range and timing of the tidal variations in the Lough and the wide variety of substrate which occur. The feature habitats have conservation objectives to maintain the extent of the habitat; allow natural processes to operate appropriately; to maintain and enhance, as appropriate, the species diversity within the habitat.

There is also a conservation objective for Atlantic salt meadows to maintain transitions between saltmarsh communities and adjoining habitat.

Mudflats and sandflats not covered by seawater at low tide. The intertidal mudflats and sandflats in the north of Strangford Lough represent the largest single continuous area of such habitat in Northern Ireland. The habitat also occurs in the south-west reaches of the Lough along the northern shore of Lecale. The flats support beds of the eelgrasses Zostera noltii and Z. angustifolia. Common eelgrass Z. marina and tasseled pondweed Ruppia maritima are also present. The green algae Enteromorpha spp. and Ulva lactuca tend to occur where there is seepage of nutrient-enriched freshwater. Many of the invertebrate species present in muds also occur in muddy sand. However, lugworm Arenicola marina and nereid worms are generally dominant, along with bivalve molluscs such as Angulus tenuis, Mya arenaria and Cerastoderma edule. The most recent condition assessment surveys had indicated that community composition may have changed in some areas be due to improved water quality at upgraded sewage outfalls. Anthropogenic activities that have an impact on intertidal sediments include eutrophication resulting from sewage discharge and agricultural run-off containing high fertilizer loads as a result of an increase in intensive farming. There has clearly been a marked decline in the distribution of seagrasses since the 1930s and there has also been a change in the dominant Zostera spp. present in the intertidal areas with Zostera marina (in its perennial form) dominant in the 1930s being replaced by Zostera noltii and Z.marina var. angustifolia by 1970. During a survey of Zostera in Strangford Lough in 2003 (Portig 2006) it was estimated that there was an area/extent of 924ha of seagrass beds which indicated a positive trend over the previous 10 years suggesting a recovery phase in seagrass abundance had been taking place. In the last Strangford Lough SAC Condition Assessment Report (2008) for this habitat Mudflats and sandflats not covered by seawater at low tide were in favorable condition.

Coastal lagoons: The ‘Dorn’ is a silled lagoon on the eastern side of Strangford Lough in Northern Ireland. The Dorn, from the Gaelic word for ‘narrow channel’, refers specifically to the channel which connects several exceptionally sheltered bays to the main area of the lough. Near the mouth, rock barriers or sills hold back water as the tide falls, creating saltwater rapids, unique in Ireland. In the area of the Dorn rapids, abundant growths of sea anemones, sponges and ascidians clothe the rock and boulders. Several of the
animals found in the area of the rapids normally occur in relatively deep water. These include the featherstar Antedon bifida, purple sun-star Solaster endeca, sting winkle Ocinebra erinacea, king scallop Pecten maximus and light-bulb sea-squirt Clavelina lepadiformis. The main trough of the Dorn supports a dense forest of sugar kelp Laminaria saccharina and sea-oak Halidrys siliquosa. The gravelly-sand bottom has unusually dense colonies of peacock worm Sabella pavonina and sand gaper Mya arenaria, with occasional native oysters Ostrea edulis and P. maximus. The channel immediately above the sill has fast tidal streams without turbulence, enabling sponges to grow to exceptional proportions. The sheltered marine ‘ponds’ feeding the Dorn feature beds of common eelgrass Zostera marina and the green alga Codium fragile ssp. tomentosoides. The most recent condition assessment surveys had indicated the presence of Sargassum muticum but it did not appear to have displaced other species and assemblages. In the last Strangford Lough SAC Condition Assessment Report (2008) for this habitat Coastal Lagoons were in favorable condition.

Large shallow inlets and bays: Strangford Lough is an example of a large, enclosed fjordic sea lough. Sea water enters the Lough through a narrow entrance, expanding into a broad, mostly shallow basin that has a central deep channel (30-60 m deep), which carries rapid currents and causes great turbulence in some parts, particularly the Narrows. With a wide range of tidal stream strengths and depths, there is a remarkable marine fauna within Strangford Lough. The communities present range from the very rich high-energy communities near the mouth, which depend on rapid tidal streams, to communities in extreme shelter where fine muds support burrowing brittlestars, Dublin Bay prawn Nephrops norvegicus, and a rich community associated with horse mussels Modiolus modiolus. In the last Strangford Lough SAC Condition Assessment Report (2008) for this habitat Large shallow inlets and bays were in favorable condition.

Reefs: Reefs are rocky marine habitats or biogenic concretions that arise from the seabed but which may extend onto the intertidal zone where there is an uninterrupted zonation of plant and animal communities. Two types of reef occur, those made up of the animals themselves, biogenic reefs, e.g., Modiolus modiolus, and those in which the plant or animal grows on the rock substrate. The reefs in Strangford Lough vary from tide-swept bedrock and large boulders in the main channel of the Narrows, through sand-scoured bedrock and boulders at either end of the channel, to more sheltered bedrock and boulders in the main central portion of the Lough and in parts of the intertidal. Beds of horse mussels Modiolus modiolus form extensive biogenic reefs within the central portion of the Lough. In 1988 there was an unprecedented increase in the trawling activity for queen scallops in the area occupied by the Modiolus/Chlamys community. In response new legislation for zonal fishing was introduced in 1993. Surveys have noted that the Modiolus reefs in the northern part of the trawl zone, corresponding with the area which used to be occupied by the Modiolus/Chlamys biotope, are now almost completely replaced by a seabed consisting of mud overlain by dead shell. MAGNI carried out 99 dives in Strangford Lough during 2006-2007. It was reported that fewer Modiolus beds were apparent and the sites appeared to be more heavily silted than previously recorded. Other investigations have noted that in several areas Modiolus beds have been reduced in extent or are in poor condition due to burial in accumulated muddy sediment. Large numbers of the sea squirt Ascidella aspersa have also been recorded and sponge communities were also reported to have altered indicating a change in sediment regime. The Strangford Lough Ecological Change Investigations noted that particle size had shifted from finer, silty material to much coarser, sandier sediments in the areas surveyed and concluded that sediment records indicate that the sedimentation regime has not been constant over the last 60-80 years. During 2006/2007 it was reported to EHS that the Pacific oyster was observed to be free-settling within the sublittoral zone indicating a viable population which has escaped from oyster farms. In the last Strangford Lough SAC Condition Assessment Report (2008) for this habitat Reefs were in unfavorable condition.

Atlantic salt meadows (Glauco-Puccinellietalia maritima) and Salicornia and other annuals colonizing mud and sand: The fringes of Strangford Lough supports one of the most extensive saltmarsh Ares in Northern Ireland with typical low-level, middle marsh and upper marsh saltmarsh communities and associated species such as Puccinellia maritima, Suada maritime, Aster tripolium, Plantago maritima, Triglochin maritima, Halimione portulacoides and Limonium humile. Salicornia agg. pioneer saltmarsh communities that colonise mud and sand are also present and form important precursors to more stable vegetation of low to mid-marsh. The Colonisation and formation of saltmarsh communities are heavily influenced by physio-chemical characteristics including tidal levels, wave energy, and sediment accretion.
levels. These habitats can be impacted by development of new physical structures altering natural processes, activities that lead to erosion such as trampling, changes to abundance of algal mats caused by changing nutrient regimes or pollution or invasive species. In the last condition assessment of these habitats in Strangford Lough SAC (2002-2004) both the Atlantic salt meadows (Glaucoc-Puccinellietalia maritimae) and Salicornia and other annuals colonizing mud and sand were judged to be in unfavourable condition due to the high frequency of occurrence on the non-native invasive species Spartina anglica.

Perennial vegetation of stony banks corresponds to areas of shingle that are vegetated. Most of this habitat is found in the southern reaches of Strangford Lough such as at Ballyquintin Point and Gransha Point. Natural variation occurs as a result of dynamic coastal processes but in most areas the habitat extent is stable and in several locations grassland makes up the bulk of the community. However in the last condition assessment of Strangford Lough SAC for this habitat (2004) the Perennial vegetation of stony banks were judged to be in unfavourable condition due to the vegetation composition in the dry grassland plots and the indication of improvement (the combined cover of Holcus lanatus, Trifolium repens, and Lolium perenne were too high). The results indicated eutrophication possibly via cattle and/or stock feeding practices and as a consequence it appears that the vegetation has been altered by intensive management.

Annual vegetation drift lines: These communities are found in a narrow strip at the extreme high water mark. Strandline communities are dynamic and are at their peak in August and September before autumn storms have a chance to remove them. An important aspect of this habitat is the ability to respond to natural coastal processes which may alter the distribution of substrates that can be subsequently colonized by pioneer species. Typical communities include Matricaria maritime – Galium aparine stands and species such as Aster tripolium, Atriplex spp., Elymus repens, Festuca rubra, Puccinellia maritima and Sonchus spp. The habitats can be negatively impacted by non-native or invasive species, changes in nutrient status alterations to natural processes and disturbance. In the last Strangford Lough SAC Condition Assessment Report for this habitat (2003) Annual vegetation drift lines were in favorable condition.

Common seal, or harbour seal as it is also known, Phoca vitulina is a qualifying feature of Strangford Lough SAC. Strangford Lough holds the largest colony and is the most important breeding site for the common seal in Ireland. There are conservation objectives to maintain the populations of seals and the habitats or features that they utilize. Common seals are the characteristic seal of sandflats and estuaries, but are also found on rocky shores. As pups swim almost immediately after birth, seals can breed on sheltered tidal areas where banks allow access to deep water. Common seal feeds at sea but are seen regularly hauled out on rocky shores and sandbanks in sheltered inshore bays or estuaries to rest, or to give birth and to suckle their pups. Seals may range widely in search of prey, but individuals often return to favoured haul-out sites. Haul-out areas are thought to be very important for the conservation of the species, as are the most important breeding colonies. As well as their importance in maintaining overall population size, larger breeding sites are significant as sources of emigration to smaller or newly-established colonies. There is a large body of information available about the land-side behaviour of seal species, including breeding conditions, pupping sensitivity and resting haul-outs. Brown and Prior (1997) suggest that the main on-land indicators of disturbance to seals are:

- interruption and disturbance of rest, resulting in lower fitness and health
- interference with nursing young, reducing their health
- separation of mother and pup, resulting in starvation and death of pups
- abandonment of haul-out sites

The main threats to the population are considered to be chemical pollution, oil pollution and disease. In 1988 the European common seal population was decimated by a viral disease, phocine distemper virus (PDV) – it is estimated that around 18,000 seals died, about 50% of the total population. Eventually the population recovered and numbers increased but an outbreak of the disease in 2002-2003 killed a further 22,500 seals. In Northern Ireland around 350 seals died during the two disease outbreaks 7. As seals are top of the food chain they tend to accumulate pollutants such as heavy metals, organochlorines and

7 http://www.habitas.org.uk/priority/species.asp?item=5135
polychlorinated biphenyls (PCBs) which are present in the environment and in fish. High levels of pollutants can interfere with seal reproduction and cause breeding failure.

In the last Strangford Lough SAC Condition Assessment Report (2008) for common seals they were in favorable condition.

Species disturbance; habitat destruction or alteration.

The direct loss of any feature habitat, or habitat used by feature seal or bird species for breeding, feeding or roosting would be a critical issue in the SAC/SPA/ Ramsar. The Conservation Objectives Reports for Strangford Lough has noted that substantial housing developments in the Ards and Down Districts have occurred in recent years and that the cumulative effect of development close to the shore is unlikely to be insignificant. BMAP has not zoned any site for development within, or in close proximity to Strangford Lough SAC/SPA/Ramsar (the nearest development zonation being over 4.5km away). In addition BMAP will not impact on management activities associated with Strangford Lough. As a result the plan does not include any policies or proposals that would directly result in the destruction of habitat within Strangford Lough SAC / SPA / Ramsar.

Adjoining habitat is also important for many feature bird species for providing feeding and roost locations. To-date no high tide roosts or feeding areas for birds associated with Strangford Lough have been published in the BMAP area. However developments within the BMAP area have a potential to impact upon surrounding sea areas that are utilized by feature bird species in particular disturbance or pollution incidents or competition for food sources caused by the promotion of additional sea traffic. The main boating centres for recreational / fishing boating activity within Strangford Lough are not within the BMAP area. However another source of potential shipping impacts is from commercial boating activity within the Irish Sea which is mainly associated with Belfast Harbour. The Conservation Objective Report considers that the potential exists for spillage from shipping in the Irish Sea to enter the Lough System. Within the Belfast Harbour there are large areas of exiting employment land and the Titanic Quarter. BMAP does not contain any specific proposals relating to additional shipping activity. However Policy BHA03 ‘Port Operations and Port Related Land Uses’ enables the provision of additional port operations. The policy does not refer to potential collective impacts on European Site features as a result of additional shipping activities. Developments associated with the plan area having the potential to impact upon the SPA/Ramsar feature species in relation to potential for pollution incidents caused by the promotion of additional boating traffic in the Irish Sea.

Power Cables and wind energy developments represent a potential threat of collision as feature bird species fly across the BMAP area, in particular geese. BMAP does not include any proposals or policies that would promote the development of wind turbine developments in the BMAP area, however proposals for wind energy developments in the BMAP plan area may be submitted during the lifetime of the Plan. Such proposals would have to be considered on a case by case basis utilizing any detailed information about flight paths that becomes available. Planning policy related to renewable energy developments can be found in PPS18 whilst the Onshore Renewable Electricity Action Plan (DETI 2013) highlights the need for additional power cable infrastructure in Northern Ireland in the future.

Haul out sites that are utilised by common seals at Strangford Lough SAC will not be directly impacted by development in the BMAP area. Within the BMAP plan area there are records of haul out sites along the Ards Peninsula and within Belfast Lough. The recorded haul-out sites are either within the BMA Coastal Area or are rock outcrops within the sea. Although some of the haul-out sites are in close proximity to settlements and/or built development the Plan has not identified any additional development zonations in the immediate vicinity / adjacent to the haul out sites with the exception of one housing zonation which has already been built. The only other plan designations in the immediate vicinity / adjacent to the haul out sites are Local Landscape Policy Areas or Areas of Townscape Character. The contents of BMAP will not lead to an increase in disturbance to seals associated with Strangford Lough SAC.

The spread of invasive species within Strangford Lough has been noted as a problem in Conservation Objective Reports, in particular the spread of \textit{Spartina anglica} and \textit{Sargassum muticum}. Due to the ecology
of these invasive species and the difference between the freshwater watercourses in the BMAP area and the estuarine and marine habitats in Strangford Lough there is no risk that activities in the BMAP area will increase the risk of spread of these invasive species.

There are many other activities associated with Strangford Lough SAC / SPA / Ramsar that could impact on the SAC/SPA/Ramsar features that BMAP has no influence upon. These include coastal engineering; sand and gravel extraction; farming; tourism; informal recreation; boating and sailing; horse riding; diving; wildfowling; aircraft from Newtownards Airfield; education and research activities; commercial and recreational fishing; harvesting of shellfish; seaweed harvesting; bait digging; and aquaculture.

**Balance of gull species utilizing Strangford Lough SPA / Ramsar**

Within Strangford Lough Ramsar several gull species breed and nest at levels of national importance at including the black headed gull *Larus ridibundus* (1706 nests noted in Strangford Lough Ramsar citation) Mew Gull *Larus canus canus* (82 nests noted in Strangford Lough Ramsar citation) and Lesser black-backed gull *Larus fuscus graellsii* (128 nests noted in Strangford Lough Ramsar citation). Within the Copeland Islands SPA terns have been noted to nest throughout the common gull colony (*Larus canus*) and that both are subject to predation by other gull species (Wolsey 2012). The predation of Arctic Tern chicks by lesser black-headed, great black-backed gulls and herring gulls has been observed in Northern Ireland (Leonard 2009; Wolsey 2012). It has been noted that human disturbance increases the likelihood of predation on Common Gull chicks by other gull species (Wolsey 2012). Such predation may reduce the survival rate of chicks. Wolsey (2012) considers that in order to comply with the EU Birds Directive active management on predator numbers may need to be perused. Birdlife international (2012) also note that conservation measures for terns include predator control, such as culling, gull harassment or destroying eggs of nests of gull species attempting to nest on islands, to help increase breeding success. The SPA conservation Objectives for Strangford Lough note that selective control of large gull nests at tern colonies may have been undertaken and could continue as necessary. BMAP plan does not include any policies or proposals that would increase human disturbance levels of nesting terns on Strangford Lough, nor does it contain any recreational proposals associated Strangford Lough. Gulls have been noted to breed on rooftops of buildings in Belfast City Centre and it is believed that the increase in gulls throughout the last century was due to increased feeding opportunities of mainly man made origin such as the establishment of large municipal landfill sites (Crème et al. 1997). BMAP does not contain any policies or proposals for closure or opening of landfill sites.

**Water quality**

The SAC Conservation Objectives Report notes that Strangford Lough receives a large number of anthropogenic inputs from sewage outfalls, watercourses, recreational and commercial craft and the open sea. The SPA Conservation Objective Report noted that discharge problems are localized and considered that they are not a major issue. BMAP is hydrologically linked to Strangford Lough via the Enler River. Developments in the BMAP area may therefore influence water quality in Strangford Lough by increasing sedimentation, pollution or nutrients into the SPA/SAC/Ramsar which could negatively alter habitats and feature species.

The SAC Conservation Objectives Report notes that locally significant effects from discharges of storm water can occur and that nitrification may be having a detrimental effect particularly at the northern end of the Lough as increases in the suspension of organic or inorganic material in the water column increases turbidity and reduces light levels, which along with changes in sedimentation may affect the growth of *Zostera*. Sedimentation can result in the smothering of *Zostera* beds, pollutants can result in the death of *Zostera*, whilst an increase in nutrients can increase the growth of *enteromorpha* which in turn can smother *Zoster* beds. Increase in nutrients can also occur from sewage, slurry, silage and agricultural run-off effluents. High nutrient levels can adversely modify local biota such as increasing the abundance of a few tolerant species such as ragworms and the growth of green algae. Some species thrive in nutrient enriched areas and in some instances enrichment can result in some species having a blanketing effect on habitats.

The River Enler catchment and the north end of Strangford Lough and surrounding areas are designated as Sensitive Areas (Eutrophic) under the Urban Wastewater Treatment Directive. Under the Water Framework Directive classifications Strangford Lough North and South had moderate ecological status and Narrows
had good status in 2009. There is an objective for Strangford Lough to maintain this status until 2015 (NIEA 2010d). The Ards peninsula and Downpatrick groundwater bodies have been classified as good for both quantitative and chemical status but the Belfast groundwater body had poor status in 2009 due to water balance and nitrate levels (NIEA 2010d). To assist with the management of the quality of Strangford Lough a Local Management Area Action Plan has been developed to implement the local River Basin Management Plan (NIEA 2010d). The plan highlights actions that are to be taken throughout the Local Management Area including promoting projects to assist the water environment; raising awareness of catchment management issues including effective farm nutrient and waste management; and collating information on the location of aquatic invasive species. The Action Plan for Strangford Lough also recommends other specific actions for specific sections of Strangford Lough or connecting waterways.

The Enler River had poor ecological status in 2009 mainly due to benthic invertebrate composition. It is classed as a heavily modified waterbody. The Strangford Lough, Local Management Area Action Plan has actions to investigate downstream impacts of discharges from industrial premises where problems have been identified; to assess sources of organic pollution including agriculture, NIW intermittent discharges, sewage pumping stations at (Ballyhanwood, Bradshaws Brae and Craigantlet South) and septic tanks; and to investigate agricultural practices in the catchment. There were also actions to raise awareness of the impact of misconnections on water quality; and encouragement of riparian zones management (including sedimentation) and habitat enhancement. Within Metropolitan Castlereagh MCH 03/06 contain and is adjacent to the Enler River and associated tributaries but it is a committed housing zonation. MCH 42/02 which is also associated with the watercourse has already been built for Health Use and MCH02/03 has already been built for housing. Other parts of the Enler River and its tributaries have been identified as open space, as Local Landscape Policy Areas or as Sites of Local Nature Conservation Importance which provides a degree of protection to these areas. Some of the lands between Metropolitan Castlereagh and North Down District have been identified as a Rural Landscape Wedge which provides it with a degree of protection.

The Ballystockart River had poor status in 2009 due to benthic invertebrates. The Strangford Lough, Local Management Area Action Plan had actions to investigate downstream impacts of discharges from industrial premises where problems have been identified; to assess sources of organic pollution including agriculture, NIW intermittent discharges, sewage pumping stations (Lisleen, Limpy, Gransha and Ballystockard), WWTW at (Moneyreagh and Gransha) and septic tanks; and to investigate agricultural practices in the catchment. There were also actions to encourage riparian zones management (including sedimentation). The committed housing site MH 03/01 in Moneyreagh is adjacent to a tributary of this watercourse. The amplification text associated with Moneyreagh notes that discharge from any new development to existing sewers may be limited and a foul pumping station may be required in the area. Water Service NI indicated that Moneyreagh has no WWTW capacity during the plan period.

Ballyknockan contains or is adjacent to waterways that are associated with the River Blackwater which had poor status in 2009 due to its fish populations and levels of soluble reactive phosphorus. The Strangford Lough, Local Management Area Action Plan had actions to investigate downstream impacts of discharges from industrial premises where problems have been identified; to assess sources of organic pollution including agriculture, NIW intermittent discharges, sewage pumping stations, WWTW and septic tanks; and to investigate agricultural practices in the catchment. There were also actions to encourage riparian zones management (including sedimentation). There are no development zonations in the Ballynockan. The whole settlement and surrounding lands have been identified as a Local Landscape Policy Area which provides a degree of protection from inappropriate development.

The catchments of the Comber River and Cullysburn are also partly within the BMAP area. However there are no BMAP settlements associated with these watercourses.

Aerial Pollution
Aerial pollution and associated atmospheric deposition of nitrogen and sulphur compounds arising from the BMAP area have the potential to lead to eutrophication and soil acidification.
Several of the habitats in Strangford Lough SAC could be negatively impacted by increased eutrophication which could cause an increase in late successional species, increase productivity and also increase dominance of graminoid species including in coastal lagoons, atlantic saltmarsh and salicornia and other annuals colonising mud and sand habitats (APIS 2013). Mudflats and sandflats not covered by seawater at low tide, large shallow inlets and bays, reefs and annual vegetation of drift lines are not sensitive to eutrophication. There is no indication that any of these habitats are sensitive to increased acidity (APIS 2013). There is no indication common seals are sensitive to increased eutrophication or acidity (APIS 2013).

There is no field or research evidence that suggests that Terns are particularly sensitive to, or at risk from, acidification or eutrophication caused by aerial depositions from the BMAP area however Tern nesting sites requires short vegetation or bare ground amongst longer vegetation which provides cover for chicks (APIS 2013). Nitrogen nutrient enrichment in the broad habitats associated with Terns can increase tall grasses and decrease prostrate plants (APIS 2013). There is no expected negative impact on Tern species due to acidity impacts (APIS 2013).

There is no field or research evidence that suggests that Brent Geese are particularly sensitive to, or at risk from, acidification or eutrophication caused by aerial depositions from the BMAP area however Brent Geese feed on vegetation within the littoral sediments which are sensitive (APIS 2013). Nitrogen nutrient enrichment in the broad habitats associated with Brent geese might decrease the surface of early successional vegetation of saltmarsh and thereby suitable foraging area. Increase in the sward height of grassland feeding areas might also occur, reducing food availability (APIS 2013). Brent Geese also utilize improved grassland areas but these are not sensitive to eutrophication. There is no expected negative impact on Brent Geese due to acidity impacts (APIS 2013).

There is no field or research evidence that suggests that wintering Common Redshank or Red Knot are particularly sensitive to, or at risk from, acidification or eutrophication caused by aerial depositions. There is no expected negative impact on wintering Common Redshank or Red Knot species due to acidification or eutrophication caused by aerial depositions (APIS 2013). Common redshank may benefit from an increased food supply.

The waterfowl assemblage in Strangford Lough also utilize standing open water habitat. Increased eutrophication in these habitats could decrease bird numbers if algal blooms caused fish numbers to decline whilst increased acidification could impact on invertebrate populations and cause toxicity to fish.

To-date aerial pollution and associated atmospheric deposition has not been highlighted as having an effect on Strangford Lough SAC/SPA/Ramsar.

Plan implications
To further assess the implications on Strangford SAC/SPA/Ramsar it was deemed appropriate to consider if critical loads for nutrient-nitrogen or acidity deposition were met or exceeded in 2005 or have been modeled to be exceeded by 2020 using tools within the UK Air Pollution Information System (APIS).
Table 15. Table showing where critical loads for nutrient-nitrogen and acidity have been met* or exceeded** on Strangford Lough SAC/SPA/Ramsar selection features or have been modeled to be exceeded by 2020 using tools within the UK Air Pollution Information System (APIS). The table also shows whether the contribution of any particular source meet* or exceeds** the critical load. SS means that the impacts are site specific and the APIS system does do identify critical loads. Features that are not considered sensitive to nutrient-nitrogen and acidity, or which have no recorded critical load are marked with the / symbol.

<table>
<thead>
<tr>
<th>Strangford Lough SAC/SPA/Ramsar selection features</th>
<th>Total Critical Load meet or exceeded</th>
<th>Source Critical Load meet or exceeded</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>05 20 05 20</td>
<td>05 20 05 20</td>
</tr>
<tr>
<td>Coastal Lagoons</td>
<td>/ / / /</td>
<td>/ / / /</td>
</tr>
<tr>
<td>Salicornia and other annuals colonizing mud and sand</td>
<td>/ / / /</td>
<td>/ / / /</td>
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<tr>
<td>Atlantic salt meadow</td>
<td>/ / / /</td>
<td>/ / / /</td>
</tr>
<tr>
<td>Mudflats and sandflats not covered by seawater at low tide</td>
<td>/ / / /</td>
<td>/ / / /</td>
</tr>
<tr>
<td>Large shallow inlets and bays</td>
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<td>/ / / /</td>
</tr>
<tr>
<td>Annual vegetation of drift lines</td>
<td>/ / / /</td>
<td>/ / / /</td>
</tr>
<tr>
<td>Reefs</td>
<td>/ / / /</td>
<td>/ / / /</td>
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<tr>
<td>Common Seal <em>Phoca vitulina</em></td>
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<tr>
<td>Common Tern <em>Stern Hirundo</em> Arctic tern *Stern paradisaea and Sandwich tern <em>Stern sandvicensis</em> associated habitat supralittoral sediment</td>
<td>/ / / /</td>
<td>/ / / /</td>
</tr>
<tr>
<td>Light-bellied brent goose <em>Branta bernicla hrota</em>; Common Redshank <em>Tringa totus</em>; and Red Knot <em>Calidris canutus</em> associated habitat littoral sediment</td>
<td>/ / / /</td>
<td>/ / / /</td>
</tr>
<tr>
<td>species assemblages improved grassland Standing open water / canals</td>
<td>SS SS SS SS</td>
<td>SS SS SS SS</td>
</tr>
</tbody>
</table>

SS means that the impacts are site specific and the APIS system does do identify critical loads. Features that are not considered sensitive to nutrient-nitrogen and acidity, or which have no recorded critical load are marked with the / symbol.

To assess localized impacts on each European site it was deemed appropriate to consider the distance between zonings and designations within BMAP and each European site in more detail to see if there were likely to be adverse local effects.

### Strangford Lough SAC/SPA/Ramsar:

- BMAP settlements with development zonings within 15km.
- All proposals and policies within the following Districts: North Down
- The majority of policies and proposals within Castlereagh Borough Council
- A portion of Metropolitan Belfast.
- Villages in Lisburn District such as Drumbo

Small settlements were considered but they did not contain any development zonations.

The whole suite of plan proposals relating to development can be found within 15km of Strangford Lough SAC/SPA/Ramsar including proposals for education, employment; housing, retail and roads. The plan does not identify any of the employment land as being suitable for Special Industrial uses. However as BMAP is
over 3km from the boundary of Strangford Lough SAC/SPA/Ramsar there are no developments proposals, such as for roads, in the immediate vicinity of Strangford Lough.

BMAP indicates that applications for planning permission within the zoned employment sites will be determined in accordance with prevailing regional policy and Key Site Requirements in the Plan. The use classes suitable for each employment zonation are contained within the KSRs for each site. In addition the KSRs indicate that employment developments shall only be permitted in accordance with an overall comprehensive masterplan for the site to be agreed with the Department.

Under the Planning (Use Classes) Order (Northern Ireland) 1989, the Land Classes 6, 7, 8, 9 and 10 were related to Special Industrial Uses which were the uses most likely to result in aerial emissions. These classes were subsequently revoked by amending legislation in 1993 and 1996. The Planning (Use Classes) Order (Northern Ireland) 2004 indicates that no class specified in the schedule includes use for any work required to be registered under Article 20 of the Industrial Pollution Control (Northern Ireland) Order 1997 and regulation 30 of the Pollution Prevention and Control Regulations (Northern Ireland) 2003. These pieces of legislation have subsequently been superseded by the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013. Within the areas described above BMAP has not specifically zoned any land for specific uses that would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013.

**Appropriate Assessment consideration:**

*Species disturbance; habitat destruction or alteration.*

There are no development proposals directly within Strangford Lough SAC/SPA/Ramsar and as such there will be no direct destruction of habitat as a result of the implementation of BMAP. BMAP contains common seal haul out sites which contribute to the network of features which are utilized by this mobile species. Although several of the recorded sites occur in close proximity / adjacent to areas that are already developed BMAP does not zone any additional land for development on these locations. The only BMAP zonations associated with these areas are those whose purpose is to provide protection to environmental assets.

Other issues that are outside the remit of BMAP include coastal engineering; sand and gravel extraction; farming; tourism; informal recreation; boating and sailing; horse riding; diving; wildfowling; aircraft from Newtownards Airfield; education and research activities; commercial and recreational fishing; harvesting of shellfish; seaweed harvesting; bait digging; and aquaculture. There is no risk of the BMAP plan increasing the spread of invasive species within the lough.

There have not been any areas within BMAP that have been identified as providing suitable feeding or roosting habitat associated with Strangford Lough SPA/Ramsar. Wind turbines may be proposed within the BMAP area during the life time of the plan but these proposals would be outwith the plan and would have to be considered on a case by case basis having regard to regional planning policy and any detailed information about flight paths that becomes available. Some of the bird species within Strangford Lough SPA may also utilize the Irish Sea. Although BMAP does not contain any specific proposals relating to additional shipping activity it contains one policy (BHA03) within the Belfast Harbour Area that may promote additional boating activity in the Irish Sea. As a consequence the plan may indirectly influence disturbance levels and increase the threat of shipping pollution incidents within the Irish Sea which could have adverse effects on the bird species that utilize the area. The plan does not give any indication that impacts of increased shipping connected to plan proposals may be an environmental constraint which could result in the need for a Habitat Regulation Assessment to be carried on specific proposals to ensure that there would be no adverse impacts on European Sites, including Strangford Lough SPA / Ramsar.

Due to the water quality of Strangford Lough, its catchments and the associated requirements of the Water Framework Directive there are Local Management Area Action Plans which aims to improve the ecological status of Strangford Lough. Although water pollution and eutrophication pose threats to the ecological structure of benthic fauna and flora within Strangford Lough there is an existing regulatory regime in place that should control discharges associated with any proposals resulting from the implementation of BMAP.
NIEA are responsible under the Water (NI) Order for preventing or minimizing the effects of pollution entering our waterways and to manage the risk of a polluting discharge from occurring. There are currently measures in place to ensure that proposals associated with the rivers and tributaries of Strangford Lough meet legal requirements associated with: The Drinking Water Directives (80/778/EEC and 98/83/EC); the Major Accidents Directive (96/82/EC); the Environmental Impact Assessment Directive (85/337/EEC); the Sewage Sludge Directive (86/278/EEC); The Urban Waste Water Treatment Directive (91/271/EEC); the Plant protection products Directive (91/414/EEC) the Nitrates Directive (91/676/EEC) and the Integrated Pollution Prevention and Control Directive. In addition to this any discharge of trade, sewage effluent or any other potential pollution (including effluent from any commercial, industrial or domestic premises or site drainage) to any waterway or any water contained in underground strata requires consent from the Department of the Environment under the Water (Northern Ireland) Order 1999 (Consent for certain other discharges are also required under the Water and Sewage Service (NI) Order 1973 as amended). Such consents can include conditions outlining the quantity and quality of the discharges and are drawn up to ensure that the waste can be absorbed by the receiving waterway without affecting the quality of the aquatic environment, or breaching national or European Commission (EC) standards. Water NI note that Moneyreagh WWTW has no capacity during the plan period and the plan notes that discharge from any new development to existing sewers may be limited and a foul pumping station may be required in the area. The regulated discharges from Moneyreagh WWTW will have been granted Water Order permissions. Moneyreagh is associated with the Ballystockart River which had poor status in 2009 due to benthic invertebrates. Metropolitan Castlereagh is associated with the Enler River and it is noted that some development proposals in this area may be limited by the availability of sewage and watermain infrastructure.

There are a number of development zones that either contain, are in close proximity to, or which may be infrastructurally connected to the rivers within the Strangford Lough catchment. These have the potential to interact with the water quality of Strangford Lough. The regulatory controls and management measures outlined above should be sufficient to ensure that any BMAP proposals will not have an adverse impact on Strangford Lough SAC/SPA/Ramsar. In addition the relevant BMAP proposals contain key site requirements or amplification text that highlight water quality issues or which require the appropriate retention and protection of associated watercourses. Although the implementation of BMAP should not have any effect on key species and key habitats or on the integrity of Strangford Lough SAC/SPA/Ramsar due to these existing regulatory and management regimes there may be occasions when planning permission is sought before consent is gained for discharge consent. BMAP does not make any reference to the potential for new or unconsented waste discharges from zoned development sites into rivers associated with the Strangford Lough catchments to have adverse impacts on water quality and subsequently on the ecological structure of fauna and flora within the Lough.

**Balance of gull species utilizing Lough Neagh and Lough Beg Ramsar**

A further threat to the SPA is predation of tern chicks particularly by gulls. It has been noted that human disturbance increases the likelihood of predation on chicks by other gull species (Wolsey 2012). There is no evidence to suggest that gulls have been displaced to Strangford Lough from the BMAP area as a result of development activities. The opening or closure of landfill sites may influence gull populations in the BMAP area but the BMAP plan does not contain any policies or proposals specific to this issue. Development activities as a result of the BMAP plan will result in additional material going to landfill but other plans and regimes, such as Waste Management Plans and PPS11 are responsible for deciding the best location for these sites and whether or not additional landfill sites are required. Research suggests that predation would be best controlled by reducing the access of large gulls to tern colonies and by reducing human disturbance (Wolsey 2012).

**Aerial Pollution**

Although it is widely acknowledged that aerial emissions have the potential to damage sensitive species, to-date there has been no specific indication that atmospheric deposition from the BMAP area is a threat to Strangford Lough SAC/SPA/Ramsar.

BMAP has not identified any specific zonations or policies relating to rural agricultural / manure management proposals that are potential sources of ammonia, for example chicken or pig farms. Nor does
it give any requirement for a certain number of these types of developments to be built in the BMAP area. Any such proposals would therefore be out-with any plan proposals and would have to be considered on a case by case basis via development management and the application of prevailing regionally policy and, if appropriate, any relevant policies within BMAP.

Aerial deposition from sources in the BMAP area may have the potential to be a contributing factor to the overall deposition levels at Strangford Lough SAC/SPA/Ramsar. The deposition levels at Strangford Lough are currently exceeding critical nitrogen levels for supralittoral habitats utilized by Tern species. Nitrogen nutrient enrichment can increase tall grasses in nesting habitat. The main nesting sites in Strangford Lough are however actively managed and it is unlikely that grasses would be allowed to grow or spread to damaging levels. In addition the deposition of toxic substances has declined significantly over recent decades and the level of atmospheric deposition into the SAC/SPA/Ramsar site is predicted to decrease by 2020.

The adopted plan does not zone any employment lands for specific industrial uses that would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013. Such developments could result in aerial emissions to the SPA.

During the lifetime of the plan there may be other future development applications within the BMAP area which could result in aerial deposition on the SPAs in question. Any such proposals would be out-with any plan proposals and would have to be considered on a case by case basis via development management and the application of prevailing regionally policy (in Particular PPS2) and, if appropriate, any relevant policies within BMAP. In addition any such future proposals must comply with legally enforceable obligations designed to avoid environmental effects. Integrated Pollution Protection and Control Guidelines are a Regulatory system that employs an integrated approach to control the environmental impacts of certain industrial activities. The system requires the identification of industrial proposals up to 10-15km from sensitive receptors such as European sites. Where an installation is within such distance of a European site, an assessment has to be made regarding potential impacts. This assessment may require the use of detailed air impact assessment (air dispersion modeling) or in other cases a screening tool can be used to demonstrate whether potential impacts are acceptable. Proposals which may have a potential impact on designated habitats are likely to be considered by both the Industrial Pollution and Radiochemical Inspectorate (IPRI) and Natural Heritage in NIEA. Any adverse impact by subsequent proposals for industry which generates significant aerial emissions should be avoided through implementation of the legally enforceable obligations and the application of regional planning policy.

The BMA Employment Strategy provides a measure of certainty about which types of development will and will not be permitted. However there is uncertainty about where new industrial proposals which have the potential to promote uses which generate significant aerial emissions which would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013 are likely to be located. The draft BMAP plan suggested some of the sites within 15km of Strangford Lough would be suitable for this type of special industrial use. Any new proposals for industry generating significant aerial emissions will be subject to legal obligations, regional planning policy and potentially the Key Site Requirements or the amplification text in the plan. The plan however does not give any indication that impacts of aerial emissions from any sites may be an environmental constraint which could result in the need for a Habitat Regulation Assessment to be carried on specific proposals to ensure that there would be no adverse impacts on European Sites, including Strangford Lough SPA, SAC and Ramsar.

<table>
<thead>
<tr>
<th>Integrity of site checklist</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Does the project or plan have the potential to:</strong></td>
</tr>
<tr>
<td>• cause delays in progress towards achieving the conservation objectives of the site?</td>
</tr>
<tr>
<td>• interrupt progress towards achieving the conservation objectives of the site?</td>
</tr>
<tr>
<td>No</td>
</tr>
</tbody>
</table>
- disrupt those factors that help to maintain the favourable conditions of the site?
- interfere with the balance, distribution and density of key species that are the indicators of the favourable condition of the site?

Yes
No

**Other indicators: Does the project or plan have the potential to:**

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>cause changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem?</td>
<td>Yes</td>
</tr>
<tr>
<td>change the dynamics of the relationships (between, for example, soil and water or plants and animals) that define the structure and/or function of the site?</td>
<td>Yes</td>
</tr>
<tr>
<td>interfere with predicted or expected natural changes to the site (such as water dynamics or chemical composition)?</td>
<td>Yes</td>
</tr>
<tr>
<td>reduce the area of key habitats?</td>
<td>No</td>
</tr>
<tr>
<td>reduce the population of key species?</td>
<td>No</td>
</tr>
<tr>
<td>change the balance between key species?</td>
<td>No</td>
</tr>
<tr>
<td>reduce diversity of the site?</td>
<td>Yes</td>
</tr>
<tr>
<td>result in disturbance that could affect population size or density or the balance between key species?</td>
<td>No</td>
</tr>
<tr>
<td>result in fragmentation?</td>
<td>No</td>
</tr>
<tr>
<td>result in loss or reduction of key features (e.g. tree cover, tidal exposure, annual flooding, etc.)?</td>
<td>No</td>
</tr>
</tbody>
</table>

**Appropriate Assessment Conclusion:**
The evidence gathered and assessment undertaken does not enable us to conclude reasonably and objectively that the implementation of BMAP will not adversely affect key species and key habitats or the integrity (structure and function and conservation objectives) of:
- Strangford Lough SAC
- Strangford Lough SPA
- Strangford Lough Ramsar

Mitigation measures are required to ensure that BMAP will not have any effect on the integrity of these SPAs / Ramsar with regard to:
- Collective impact of increased boating activity.
- Aerial pollution.
- Water quality.
Appropriate Assessment Report for: The Maidens cSAC

Elements of BMAP that are likely to give rise to significant effects;

The reason for the identification of The Maidens as a candidate SAC is for the reef habitat, sandbank slightly covered by seawater all the time and the grey seal *Halichoerus grypus*.

The Maidens cSAC is a group of rocky reefs detached from the coast, north east of Larne. The nearest part to the mainland is the south western edge of the proposed boundary that is approximately parallel to the coast and around 5km out.

The Maidens cSAC is linked to BMAP by the potential for aerial depositions and by the ecological connectivity of seal populations.

As the key sources of atmospheric pollutants in Northern Ireland are from industry, transport and agricultural sources allocations and zonings associated with the BMA Employment Strategy and BMA Transportation schemes and proposals are the most likely to give rise to aerial deposition impacts.

SAC site selection for Seals has favoured sites that are important both as general haul-out sites and for moulting and pupping. Haul-out areas are thought to be very important for the conservation of the species, as are the most important breeding colonies. As well as their importance in maintaining overall population size, larger breeding sites are significant as sources of emigration to smaller or newly-established colonies. Seals are very mobile within the North Atlantic area as a whole and whilst the SAC series makes a contribution to securing favourable conservation status for this Annex II species, wider measures are also necessary to support its conservation in the UK. Although development in the BMAP area will not directly impact on haul out sites in the Maidens cSAC development activities in the BMAP area, in particular coastal development could reduce the network of haul out and breeding sites that are utilised by this mobile species.

**In-combination effects from other plans or projects that are likely to have significant effects.**


Development activities throughout the Northern Ireland coastline including those in the Ards and Down Area Plan 2015, the Banbridge, Newry and Mourne Area Plan 2015 and the draft Northern Area Plan 2016 have a potential to cumulatively impact upon in the network of haul out and breeding sites that are utilised by Grey Seals along the Irish Sea.

Developments associated with the Offshore Renewable Energy Action Plan 2012-2020 may also have direct in-combination effects on the ecology of the site.

**Implications for each qualifying habitat interest and Grey Seal.**

The reason for the identification of The Maidens as a candidate SAC is for the reef habitat, sandbank slightly covered by seawater all the time and the grey seal *Halichoerus grypus*.

Conservation objectives for the Maidens cSAC are likely to be developed to maintain the extent of the feature habitats and their composition, structure and habitat and species diversity. Natural processes and community transitions should also be maintained. There are also likely to be conservation objectives to maintain the populations of seals and the habitats or features that they utilize.
Reef
The reefs of The Maidens cSAC stand in the strongly tidal North Channel that connects the Atlantic to the Irish Sea. The many islets, emergent rocks, and submerged pinnacles result in the presence of a wide range of hydrographic conditions ranging from areas exposed to the full force of a 4 knot tidal stream, to more sheltered areas, protected from the main tidal flow. The tidal conditions, relative shelter from wave action and the proximity to deep upwelling water are all factors that are thought to be partly responsible for the rare habitats and species present around The Maidens. Most of the reef area is bedrock reef with a smaller proportion of stony reef.

Many of the reef habitats and species are rare. The presence of these rare species is probably largely because of topography and the hydrographic conditions which result in the presence of a suite of deeper water species, only known from this site and Rathlin Island. These include a particular hydroid assemblage of *Polyplumaria flabellata* and *Diphasia alata* and a community of deeper water sponges.

The reef in The Maidens area is thought to be in good condition. It is likely that some small areas of stony reef and reef with a sediment veneer may have been impacted in the past from trawling and scallop dredging, but there is no evidence of this from surveys (NIEA 2010e). The prospects of the reefs maintaining their structure in the future is good. Small areas of stony reef and reef with a sediment veneer may be vulnerable to mobile fishing gear, however relatively little fishing takes place in this area and the rarest hydroid and deep sponge habitats are on bedrock which is unlikely to have mobile fishing gear deployed onto it (NIEA 2010e).

Sandbank slightly covered by seawater all the time
Some of the area has been classified as ‘rock with sand infill’ which has been shown to be shallow water stable sediments including maerl and other long lived species. These small sandbank areas contain rare habitats and species of conservation importance. Much of The Maidens sandbank area is thought to be in good condition. There has been no aggregate extraction and no evidence of mobile fishing gear in the shallow maerl bed areas, therefore the structure and function of the sandbank features is probably unchanged (NIEA 2010e). The prospects of the sandbanks maintaining their structure in the future is good. Aggregate extraction requires a licence from NIEA for which an appropriate assessment would have to be made. Some mixed sediments may continue to be vulnerable to mobile fishing gear, especially further out from the rocks and islands, however relatively little trawl and dredge fishing takes place closer in due to the strong tidal currents and the danger of rocks and boulders to the boats and fishing gear.

Grey seal *Halichoerus grypus*
The grey seal is included as a secondary interest feature of The Maidens proposed SAC. Surveys have shown there to be frequently around 70 Grey seals hauled out on the rocks around The Maidens which may be a valuable area for non-breeding haul-outs and for accessing feeding grounds. The height out of the high tide zone of sheltered boulders makes the area particularly suitable for pups. Seals are also often observed foraging and ‘bottling’ in open water surrounding the haul-outs, indicating the suitability of the habitat as a relatively undisturbed area for feeding and rest (NIEA 2010e).

In 2002 a survey of seals around the whole coast of Northern Ireland indicated that grey seal numbers around Northern Ireland were relatively low compared to Common seal numbers (NIEA 2010e). The survey detected 100 grey seals and 1248 Common seals; the three sub-regions with largest numbers of grey seals were Copeland, Outer Ards Peninsula and The Maidens.

The main threats to seal populations in Northern Ireland are considered to be chemical pollution, oil pollution and disease. In 1988 the European common seal population was decimated by a viral disease, phocine distemper virus (PDV) – it is estimated that around 18,000 seals died, about 50% of the total population. Eventually the population recovered and numbers increased but an outbreak of the disease in 2002-2003 killed a further 22,500 seals. In Northern Ireland around 350 seals died during the two disease outbreaks. As seals are top of the food chain they tend to accumulate pollutants such as heavy metals, organochlorines and polychlorinated biphenyls (PCBs) which are present in the environment and in fish. High levels of pollutants can interfere with seal reproduction and cause breeding failure.
Haul-out areas are thought to be very important for seals, as are the most important breeding colonies. As well as their importance in maintaining overall population size, larger breeding sites are significant as sources of emigration to smaller or newly-established colonies. There is a large body of information available about the land-side behaviour of seals, including breeding conditions, pupping sensitivity and resting haul-outs. Brown and Prior (1997) suggest that the main on-land indicators of disturbance to seals are:

- interruption and disturbance of rest, resulting in lower fitness and health
- interference with nursing young, reducing their health
- separation of mother and pup, resulting in starvation and death of pups
- abandonment of haul-out sites

Seal haul out sites at The Maidens cSAC will not be directly impacted by development in the BMAP area, nor will haul out sites associated with Strangford Lough or Copeland Islands. Within the BMAP plan area there are records of haul out sites along the Ards Peninsula and within Belfast Lough. The recorded haul-out sites are either within the BMA Coastal Area or are rock outcrops within the sea. Although some of the haul-out sites are in close proximity to settlements and/or built development the Plan has not identified any additional development zonations in the immediate vicinity / adjacent to the haul out sites with the exception of one housing zonation which has already been built. The only other plan designations in the immediate vicinity / adjacent to the haul out sites are Local Landscape Policy Areas or Areas of Townscape Character. The contents of BMAP will not lead to an increase in disturbance to these haul out sites.

Plan implications (aerial pollution)
At the Maidens the major source of total N Deposition (N/hectare/year) and total sulphur deposition (keq) were attributed to International Shipping, Imported Emissions (e.g. emissions from Europe, Ireland and other countries) and Road Transport (APIS 2013). To further assess the implications on the Maidens cSAC it was deemed appropriate to consider if nutrient-nitrogen or acidity deposition would have an impact on the site features. There is no indication that reefs; Sandbank slightly covered by seawater all the time; or grey seals are sensitive to increased aerial eutrophication or acidity (APIS 2013).

Appropriate Assessment consideration:

The main source of potentially damaging aerial deposition onto The Maidens SACs has been attributed to International Shipping, Imported Emissions (e.g. emissions from Europe, Ireland and other countries) and Road Transport. During the lifetime of the plan there may be other future development applications within the BMAP area which could result in increased aerial deposition on the cSAC in question including those that may increase international shipping. Any such proposals would have to be considered on a case by case basis via development management and the application of prevailing regionally policy and, if appropriate, any relevant policies within BMAP and Marine Licensing. Although it is widely acknowledged that aerial emissions have the potential to damage sensitive plant and animal communities, to-date there has been no specific indication that atmospheric deposition from the BMAP area is a threat to the features of The Maidens cSAC.

The main threats to the cSAC appear to be threats associated with fishing, marine renewables, other marine developments and pollution.

The Plan does not zone any land for marine renewable development or any other marine developments. Any such proposals would therefore be out-with any plan proposals and would have to be considered on a case by case basis via the application of Marine Licensing prevailing regional legislation and policy and if required development management.

BMAP contains common seal haul out sites which contribute to the network of features which are utilized by this mobile species. Although several of the recorded sites occur in close proximity / adjacent to areas that are already developed BMAP does not zone any additional land for development on these locations.
The only BMAP zonations associated with these areas are those whose purpose is to provide protection to environmental assets.

Disturbance or pollution incidents or competition for food sources caused by the promotion of additional sea fishing traffic has a potential to impact upon feature habitats and species. The main boating centers for recreational / fishing boating activity in the BMAP area are at Bangor, Carrickfergus, Whiteabbey, Holywood and Cultra and other local harbours. Carrickfergus Urban Waterfront (CS24) and Bangor Urban Waterfront (BR32) are focused around the existing marinas and aim to make the waterfronts more attractive and vibrant. However there are no policies or proposals for additional marinas in the BMAP area. Another source of shipping within the Irish Sea is commercial boating activity which is mainly associated with Belfast Harbour. BMAP contains one policy (BHA03) within the Belfast Harbour Area that may promote additional boating activity although this is likely to be associated with commercial boating rather than fishing. The main boating centres for recreational / fishing boating activity within are not within the Belfast Harbour Area. BMAP does not contain any specific policies or proposals relating to additional uses associated with fishing. It has been noted that relatively little fishing takes place in the Maidens cSAC at present (NIEA 2010e).

<table>
<thead>
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<tr>
<td>- interrupt progress towards achieving the conservation objectives of the site?</td>
<td>No</td>
</tr>
<tr>
<td>- disrupt those factors that help to maintain the favourable conditions of the site?</td>
<td>No</td>
</tr>
<tr>
<td>- interfere with the balance, distribution and density of key species that are the indicators of the favourable condition of the site?</td>
<td>No</td>
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<tr>
<th>Other indicators: Does the project or plan have the potential to:</th>
<th>Yes/No</th>
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<tbody>
<tr>
<td>- cause changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem?</td>
<td>No</td>
</tr>
<tr>
<td>- change the dynamics of the relationships (between, for example, soil and water or plants and animals) that define the structure and/or function of the site?</td>
<td>No</td>
</tr>
<tr>
<td>- interfere with predicted or expected natural changes to the site (such as water dynamics or chemical composition)?</td>
<td>No</td>
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<tr>
<td>- reduce the area of key habitats?</td>
<td>No</td>
</tr>
<tr>
<td>- reduce the population of key species?</td>
<td>No</td>
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<tr>
<td>- change the balance between key species?</td>
<td>No</td>
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<tr>
<td>- reduce diversity of the site?</td>
<td>No</td>
</tr>
<tr>
<td>- result in disturbance that could affect population size or density or the balance between key species?</td>
<td>No</td>
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<tr>
<td>- result in fragmentation?</td>
<td>No</td>
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<tr>
<td>- result in loss or reduction of key features (e.g. tree cover, tidal exposure, annual flooding, etc.)?</td>
<td>No</td>
</tr>
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</table>
Appropriate Assessment Conclusion:
The evidence gathered and assessment undertaken enables us to conclude reasonably and objectively that
the implementation of BMAP will not adversely affect key species and key habitats or the integrity
(structure and function and conservation objectives) of:
The Maidens cSAC
Mitigation Measures

Incorporation of Mitigation Measures into the BMAP Plan

The Appropriate Assessment process undertaken in the previous chapter concluded that a number of mitigation measures are required to ensure that BMAP will not adversely affect the integrity of European Sites.

This included required mitigation measures relating to:

Aerial pollution
- Antrim Hills SPA
- Belfast Lough SPA; Belfast Lough Open Water SPA; Belfast Lough Ramsar
- Lough Neagh and Lough Beg SPA / Ramsar
- Montiaghls Moss SAC
- Outer Ards SPA / Ramsar
- Strangford Lough SAC / SPA / Ramsar

Cumulative impact of increased boating activity
- Belfast Lough SPA; Belfast Lough Open Water SPA; Belfast Lough Ramsar
- Copeland Islands SPA
- Larne Lough SPA / Ramsar
- Outer Ards SPA / Ramsar
- Strangford Lough SAC / SPA / Ramsar

Increased disturbance levels
- Belfast Lough SPA; Belfast Lough Open Water SPA; Belfast Lough Ramsar

Loss of suitable foraging / feeding / roosting habitat
- Antrim Hills SPA
- Lough Neagh and Lough Beg SPA; Ramsar

Water quality
- Belfast Lough SPA; Belfast Lough Open Water SPA; Belfast Lough Ramsar
- Lough Neagh and Lough Beg SPA; Lough Neagh and Lough Beg Ramsar
- Outer Ards SPA / Ramsar
- Strangford Lough SAC, Strangford Lough SPA and Strangford Lough Ramsar.

Settlement Limits.
• Belfast Lough SPA; Belfast Lough Open Water SPA; Belfast Lough Ramsar
• Outer Ards SPA / Ramsar

**Required Mitigation Measures**

**Aerial Pollution**

It is widely acknowledged that aerial emissions have the potential to damage sensitive habitat. Aerial deposition from sources in the BMAP area may have the potential to be a contributing factor to the overall deposition levels at a number of European Sites. This includes potential deposition onto habitats whose deposition levels currently exceed critical thresholds.

The adopted plan does not zone any employment lands for specific industrial uses that would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013. Such developments could result in adverse aerial emissions. Any new proposals for industry generating significant aerial emissions will be subject to legal obligations, regional planning policy, the strategies, policies and amplification within the BMAP plan and potentially the Key Site Requirements of zoned sites.

The BMA Employment Strategy provides a measure of certainty about which types of development will and will not be permitted. However there is uncertainty about where new industrial proposals which have the potential to promote uses which generate significant aerial emissions which would be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013 are likely to be located. The draft BMAP plan (published in 2004) suggested that some of the employment sites within 15km of SACs, SPAs and Ramsar’s would be suitable for this type of special industrial use. The adopted plan does not give any indication that impacts of aerial emissions from any sites may be an environmental constraint which could result in the need for a Habitat Regulation Assessment to be carried on specific proposals to ensure that there would be no adverse impacts on European Sites. It was deemed that mitigation is required to address this issue in the BMA Plan.

**Cumulative impact of increased boating activity**

The open marine waters of the Irish Sea and Belfast Lough contain areas that are utilized by birds from several European Sites including Belfast Lough SPA; Belfast Lough Open Water SPA; Belfast Lough Ramsar, Copeland Islands SPA, Larne Lough SPA / Ramsar, Outer Ards SPA / Ramsar and Strangford Lough SPA / Ramsar. Additional sea traffic increases the potential for pollution incidents, disturbance levels and competition for food sources. Recreational and fishing boating activity is widely distributed throughout the area whilst commercial boating activity in the area is mainly associated with Belfast Harbour.
The Conservation Objective Report for many of these European Sites record that actions should be taken to consider the collective impact of shipping. BMAP does not contain any specific proposals relating to additional shipping activity. However Policy BHA03 ‘Port Operations and Port Related Land Uses’ enables the provision of additional port operations. As a consequence the plan may indirectly influence disturbance levels and increase the threat of shipping pollution incidents which could have adverse effects on feature bird species. The plan does not give any indication that impacts of increased shipping connected to plan proposals may be an environmental constraint which could result in the need for a Habitat Regulation Assessment to be carried on specific proposals to ensure that there would be no adverse impacts on European Sites. It was deemed that mitigation is required to address this issue in the BMA Plan.

**Increased disturbance levels**
Overwintering redshank and great crested grebe roost adjacent to the closed Dargan Road Landfill Site. BMAP has zoned this site as mixed use. Certain proposals in this location could increase disturbance to Belfast Lough SPA / Ramsar features. Proposals or projects within this zoning must be subject to a Habitats Regulations Assessment to ensure that there would be no adverse impact on the integrity of Belfast Lough SPA and Ramsar. It was deemed that mitigation is required to address this issue in the BMA Plan.

**Loss of suitable foraging / feeding / roosting habitat**
There is an area within the BMAP plan that would provide suitable foraging habitat for Hen Harrier during nesting periods (Antrim Hills SPA feature). There is an area outside the boundaries of Lough Neagh and Lough Beg SPA / Ramsar that provide suitable feeding and roosting habitat for Whooper and Bewick swans.

During the lifetime of the plan there may be development applications which could result in loss of foraging, feeding or roosting habitat for these bird species, or could increase disturbance levels. PPS1 indicates that Development Plans are the primary means of evaluating and reconciling any potential conflict between the need for development and the need to protect the environment within particular areas. BMAP does not give any indication that impacts of development on these foraging, feeding or roosting areas may be an environmental constraint which could result in the need for a Habitat Regulation Assessment to be carried out on specific proposals to ensure that there would be no adverse impacts on European site integrity.

This assessment deems that Consultation Zones should be identified for Antrim Hills SPA and Lough Neagh and Lough Beg SPA. The consultation zones indicate, a minimal indicative area, within which proposed developments or operations will require consultation with Natural Heritage, NIEA to ensure that an appropriate Habitats Regulations Assessment is undertaken. In defining these
Consultation Zones, the boundaries have been drawn up to reflect the extent of regularly utilized swan fields or the area of habitat suitable for foraging hen harrier. The consultation zones are identified in Appendix 4.

**Water quality**

There are a number of BMAP development zones either in close proximity to, or infrastructurally connected to waterbodies associated with European Sites including Belfast Lough SPA, Belfast Lough Open Water SPA, Belfast Lough Ramsar, Lough Neagh and Lough Beg SPA, Lough Neagh and Lough Beg Ramsar and Outer Ards SPA / Ramsar and Strangford Lough SAC, SPA and Ramsar.

Water NI have confirmed that the majority of WWTWs associated with the European Sites in question are satisfactory and capable of accommodating all development within their catchments that are proposed in the Plan through the Plan period and that those which were not, were programmed to be upgraded between 2011 and 2015.

There is an existing regulatory regime in place that should control discharges associated with any proposals resulting from the implementation of BMAP. NIEA are responsible under the Water (NI) Order 1999 for preventing or minimizing the effects of pollution entering our waterways and to manage the risk of a polluting discharge from occurring. There are currently measures in place to ensure that proposals associated with the rivers meet legal requirements associated with: The Drinking Water Directives (80/778/EEC and 98/83/EC); the Major Accidents Directive (96/82/EC); the Environmental Impact Assessment Directive (85/337/EEC); the Sewage Sludge Directive (86/278/EEC); The Urban Waste Water Treatment Directive (91/271/EEC); the Plant Protection Products Directive (91/414/EEC) the Nitrates Directive (91/676/EEC) and the Integrated Pollution Prevention and Control Directive. In addition to this any discharge of trade, sewage effluent or any other potential pollution (including effluent from any commercial, industrial or domestic premises or site drainage) to any waterway or any water contained in underground strata requires consent from the Department of the Environment under the Water (Northern Ireland) Order 1999 (Consent for certain other discharges are also required under the Water and Sewage Service (NI) Order 1973 as amended). Such consents can include conditions outlining the quantity and quality of the discharges and are drawn up to ensure that the waste can be absorbed by the receiving waterway without affecting the quality of the aquatic environment, or breaching national or European Commission (EC) standards.

However there may be occasions when planning permission is sought prior to discharge consent being granted. BMAP does not make any reference to the potential for discharges from zoned development sites into rivers associated with the European Sites to have adverse impacts on water quality and subsequently on the integrity of hydrologically connected European Sites.
It was deemed that mitigation is required to address this issue in the BMA Plan.

**Settlement Limits.**
BMAP has not zoned any land within Belfast Lough SPA, Belfast Lough Open Water SPA, Belfast Lough Ramsar or Outer Ards SPA / Ramsar for development. As a result the plan does not include any policies or proposals that would directly result in the destruction of habitats within these European Sites.

However in a number of locations the Belfast Lough Open Water SPA, Belfast Lough SPA and Belfast Lough Ramsar are within the Metropolitan Development Limits or Holywood Settlement Development Limit. In a number of locations the Outer Ards SPA and Ramsar are within the Bangor Settlement Development Limit.

The majority of the overlapping land is zoned as Coastal Zone which provides a degree of protection from development. There are other areas that are ‘whiteland’ such as the D2 lagoons reserve in the Belfast Harbour Estate and intertidal areas including a tidal pondage area south of Dargan Road and an area adjacent to Holywood Waste Water Treatment Works.

The policy for development within the Metropolitan Development Limit and Settlement Development Limits is Policy SETT2. The policy does not give any recognition to the fact that there are areas of designated European Sites within the Metropolitan Development Limit or Settlement Development Limits. Nor does it indicate that these designations would be an environmental constraint to development and that any specific proposal that would have the potential to result in adverse effects to these European Sites would require a Habitat Regulation Assessment to ensure that there would be no adverse impacts on site integrity. It was deemed that mitigation is required to address this issue in the BMA Plan.

**As way of mitigation the BMAP plan has included the following wording within the Natural Environment section of the Plan Strategy and Framework:**

*‘Considerations Arising From the Habitats Regulations Assessment Process’*

*The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended) Habitats Regulations Assessment has been carried out on the impacts of the Plan Proposals on the European Sites within or in close proximity to the Plan Area.*

*The Habitats Regulations Assessment concluded that consultation zones were required for lands outside Antrim Hills SPA and Lough Neagh and Lough Beg SPA due to the utilization of the BMAP area by feature bird species, in particular*
Hen Harrier, Bewick Swans and Whooper Swans. Proposed developments within these consultation zones must be scrutinized to ensure that, in line with the Habitats Directive, there will be no adverse effects on the integrity of the features of these European Sites. The boundaries of these consultation zones are identified in the accompanying Habitats Regulations Assessment Report.

Aerial depositions can damage habitats and associated species. Aerial emissions resulting from new development in the BMAP area, in particular from industrial uses which generate significant aerial emissions, have the potential to be a contributing factor to the overall deposition levels at a number of sensitive European Sites. Any new industrial development proposals in the BMAP area whose operational aerial emissions may affect a European Site must be subject to a Habitats Regulations Assessment to ensure that there would be no adverse impact on European Site integrity. Such proposals are also likely to be subject to control under the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2012/2013.

Deterioration of water quality in the BMAP area is an issue that could have adverse impacts on the integrity of European Sites including Belfast Lough SPA, Belfast Lough Open Water SPA, Belfast Lough Ramsar, Lough Neagh and Lough Beg SPA, Lough Neagh and Lough Beg Ramsar and Outer Ards SPA / Ramsar and Strangford Lough SAC, SPA and Ramsar. Proposed developments that are adjacent to, or that discharge into, waterways associated with European Sites must be scrutinized to ensure, that in line with the Habitats Directive, there will be no adverse impact on the integrity of these European Sites.

At the time of adoption most waste water treatment works (WWTW) associated with the European Sites in question are satisfactory and capable of accommodating all development within their catchments that are proposed in the Plan through the Plan period, whilst a small number have been programmed to be upgraded between 2011 and 2015. If at any point during the Plan period it is deemed that WWTW capacity or associated infrastructure is not sufficient to cope with a proposed development at the time of a planning application or where unsatisfactory intermittent discharges have been identified, the developer will be required to ensure that there will be no adverse impact on any European Site as a result of a lack of waste water treatment provision at any stage of the development process.

In a number of locations Belfast Lough SPA, Belfast Lough Open Water SPA, Belfast Lough Ramsar and Outer Ards SPA / Ramsar are within the Metropolitan Development Limit or Settlement Development Limits. New development proposals within or adjacent to these overlapping areas have the potential to damage the integrity of these European Sites. Any new development proposals within the Metropolitan Development Limit or Settlement Development Limits which are within or adjacent to a European Site must be subject to a Habitats
Regulations Assessment to ensure that there would be no adverse impact on the integrity of the European Site.

Belfast Lough and the Irish Sea are utilized by many birds that are features of nearby European Sites including Belfast Lough SPA, Belfast Lough Open Water SPA, Belfast Lough Ramsar, Copeland Islands SPA, Larne Lough SPA / Ramsar, Outer Ards SPA / Ramsar and Strangford Lough SPA / Ramsar. Proposals that will result in increased shipping or leisure boating activity have the potential to damage the integrity of the bird features of these SPAs and Ramsars by increasing disturbance levels and the likelihood of pollution incidents. Proposals or projects in the Belfast Harbour Area that will increase shipping or leisure boating activity must be subject to a Habitats Regulations Assessment that takes into account the cumulative impact of marine traffic to ensure that there would be no adverse impact on the integrity of any European Site.

The closed Dargan Road landfill site is within the Belfast Harbour Area and has been zoned in the Plan as a mixed-use site. These lands are in close proximity to Belfast Lough SPA and Ramsar, which have been designated due to their important bird populations. Inappropriate proposals in this location have the potential to damage the integrity of the SPA and Ramsar site and associated bird features by increasing disturbance levels. Proposals or projects within this zoning must be subject to a Habitats Regulations Assessment to ensure that there would be no adverse impact on the integrity of Belfast Lough SPA and Ramsar. Buffer zones with no development and restricted access may be required.’
Conclusions

Conclusions of the BMAP Habitats Regulations Assessment

It was apparent that BMAP would not be likely to have a significant effect on the majority of SACs, SPAs and Ramsar sites throughout Europe due to its distance from these sites. A screening exercise was therefore undertaken to identify European sites that BMAP has a potential bearing upon. No European or Ramsar Sites in other UK Regions or Ireland were identified as requiring detailed assessment due to the distance factor and their lack of connectivity to the BMAP area.

Of the Northern Ireland sites identified as requiring Appropriate Assessment the process undertaken concluded that the evidence gathered and assessment undertaken enables us to conclude reasonably and objectively that the implementation of BMAP will not adversely affect key species and key habitats or the integrity (structure and function and conservation objectives) of:

Aughnadarragh Lough SAC;
Ballykilbeg SAC;
Eastern Mournes SAC;
Hollymount SAC;
Lecale Fens SAC;
Murlough SAC;
Rea’s Wood and Farr’s Bay SAC;
The Maidens cSAC; and
Turmennan SAC and Ramsar.

During the HRA process potential risks were identified in so far as they may be reasonably foreseeable, in light of such information as can reasonably be obtained. The Appropriate Assessment process identified that a number of mitigation measures were required to ensure that BMAP will not have any adverse effect on the integrity of the following European Sites: Antrim Hills SPA; Belfast Lough SPA; Belfast Lough Open Water SPA; Belfast Lough Ramsar; Copeland Islands SPA; Larne Lough SPA / Ramsar; Lough Neagh and Lough Beg SPA / Ramsar; Montiaghs Moss SAC; Outer Ards SPA / Ramsar; and Strangford Lough SAC / SPA / Ramsar.

This included required mitigation measures relating to: Aerial pollution; Cumulative impact of increased boating activity; Increased disturbance levels; Loss of suitable foraging / feeding / roosting habitat; Water quality; and Settlement Limits. Associated mitigation measures have been incorporated into the framework of BMAP with the aim of preventing the identified risks from materialising. This included the addition of mitigation text within the Natural Environment section of the BMAP Plan Strategy and Framework and the
identification of consultation zones associated with a Hen Harrier foraging area and a Swan Field.

Taking the incorporated mitigation measures into account the integrity of site checklist associated with the appropriate assessment of each of sites requiring can be revised to read:

<table>
<thead>
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<td><strong>Does the project or plan have the potential to:</strong></td>
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<tr>
<td>- cause changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem?</td>
</tr>
<tr>
<td>- change the dynamics of the relationships (between, for example, soil and water or plants and animals) that define the structure and/or function of the site?</td>
</tr>
<tr>
<td>- interfere with predicted or expected natural changes to the site (such as water dynamics or chemical composition)?</td>
</tr>
<tr>
<td>- reduce the area of key habitats?</td>
</tr>
<tr>
<td>- reduce the population of key species?</td>
</tr>
<tr>
<td>- change the balance between key species?</td>
</tr>
<tr>
<td>- reduce diversity of the site?</td>
</tr>
<tr>
<td>- result in disturbance that could affect population size or density or the balance between key species?</td>
</tr>
<tr>
<td>- result in fragmentation?</td>
</tr>
<tr>
<td>- result in loss or reduction of key features (e.g. tree cover, tidal exposure, annual flooding, etc.)?</td>
</tr>
</tbody>
</table>

The evidence gathered and assessment undertaken enables us to conclude reasonably and objectively that the implementation of BMAP will not adversely affect key species and key habitats or the integrity (structure and function and conservation objectives) of:

Antrim Hills SPA;
Belfast Lough SPA; Belfast Lough Open Water SPA; Belfast Lough Ramsar;
Copeland Islands SPA;
Larne Lough SPA / Ramsar;
Lough Neagh and Lough Beg SPA / Ramsar;
Montiaghhs Moss SAC;
Outer Ards SPA / Ramsar; and
Strangford Lough SAC / SPA / Ramsar

It has been ascertained that the BMAP plan would not adversely affect the key species and key habitats or the integrity (structure and function and conservation objectives) of any European site.
Appendix 1: Conservation Objectives

Current Conservation Objectives

<table>
<thead>
<tr>
<th>Antrim Hills SPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feature</td>
</tr>
<tr>
<td>Hen Harrier breeding population</td>
</tr>
<tr>
<td>Merlin breeding population</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aughnadarragh SAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feature</td>
</tr>
<tr>
<td>Marsh Fritillary Butterfly <em>Euphydryas aurinia</em></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ballykilbeg SAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feature</td>
</tr>
<tr>
<td>Marsh Fritillary Butterfly <em>Euphydryas aurinia</em></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Belfast Lough SPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feature</td>
</tr>
<tr>
<td>Redshank wintering population</td>
</tr>
<tr>
<td>Great Crested Grebe wintering population</td>
</tr>
<tr>
<td>Habitat extent</td>
</tr>
<tr>
<td>Habitat extent</td>
</tr>
<tr>
<td>Roost sites</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Belfast Lough Open Water SPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feature</td>
</tr>
<tr>
<td>Great Crested Grebe wintering population</td>
</tr>
<tr>
<td>Habitat extent</td>
</tr>
<tr>
<td>Roosting/loafing sites</td>
</tr>
</tbody>
</table>
### Copeland Islands SPA

<table>
<thead>
<tr>
<th>Feature</th>
<th>Component Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manx Shearwater breeding population</td>
<td>No significant decrease in population against national trends, caused by on-site factors. Fledging success.</td>
</tr>
<tr>
<td>Arctic Tern breeding population</td>
<td>No significant decrease in population against national trends, caused by on-site factors. Fledging success.</td>
</tr>
<tr>
<td>Habitat extent</td>
<td>To maintain or enhance the area of natural and semi-natural habitats potentially usable by Feature bird species, (breeding areas 201.20ha) subject to natural processes. Maintain the extent of main habitat components subject to natural processes.</td>
</tr>
</tbody>
</table>

### Eastern Mournes SAC

<table>
<thead>
<tr>
<th>Feature</th>
<th>Component Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>European dry heath</td>
<td>Maintain the extent of existing European dry heath vegetation. Maintain and enhance the quality of the European dry heath community types. Seek to expand the extent of the dry heath communities into degraded areas of species poor, dry acid grassland. Maintain the diversity and quality of other habitats of conservation interest, especially where these exhibit natural transition to the dry heath. Seek nature conservation management over suitable areas immediately outside the SAC where there may be the potential for dry heath rehabilitation.</td>
</tr>
<tr>
<td>Northern Atlantic wet heath with <em>Erica tetralix.</em></td>
<td>Maintain the extent of North Atlantic wet heath vegetation. Maintain and enhance the quality of the existing wet heathland. Seek to expand the extent of the wet heath communities into degraded areas of species poor, wet acid grassland. Maintain the diversity and quality of other habitats of conservation interest, especially where these exhibit natural transition to the Northern Atlantic wet heath. Seek nature conservation management over suitable areas immediately outside the SAC where there may be the potential for wet heath rehabilitation.</td>
</tr>
<tr>
<td>Active blanket bog</td>
<td>Maintain the extent of intact blanket bog and actively regenerating blanket bog vegetation. Maintain and enhance the quality of the blanket bog community types including the presence of notable species. Seek to expand the extent of actively regenerating blanket bog vegetation into degraded (non-active) areas of cutover bog. Maintain the diversity and quality of other habitats of conservation interest, especially where these exhibit natural transition to the blanket bog. Maintain the hydrology of the intact blanket bog peat mass. Seek nature conservation management over suitable areas immediately outside the SAC where there may be the potential for blanket bog rehabilitation.</td>
</tr>
<tr>
<td>Alpine and boreal heaths</td>
<td>Maintain the extent of existing alpine and boreal heath vegetation. Maintain and enhance the quality of the existing alpine and boreal heaths. Seek to expand the extent of the alpine and boreal heath communities into degraded areas of species poor acid grassland. Maintain the diversity and quality of other habitats of conservation interest, especially where these exhibit natural transition to the alpine and boreal heaths. Maintain the extent of existing siliceous alpine and boreal grasslands.</td>
</tr>
<tr>
<td>Siliceous alpine and boreal grasslands</td>
<td>Maintain and enhance the quality of the siliceous alpine and boreal grassland community types.</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Seek to expand the extent of the siliceous alpine and boreal grassland communities into degraded areas of species poor, dry acid grassland.</td>
</tr>
<tr>
<td></td>
<td>Maintain the diversity and quality of other habitats of conservation interest, especially where these exhibit natural transition to the siliceous alpine and boreal grasslands.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Siliceous rocky slopes with chasmophytic vegetation</th>
<th>Maintain the existing acid rock chasmophytic Vegetation.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maintain the diversity and quality of other habitats of conservation interest, especially where these exhibit natural transition to the siliceous rocky slopes.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Siliceous scree of the montane to snow levels</th>
<th>Maintain the extent of existing siliceous scree (partially vegetated siliceous scree).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maintain and enhance the quality of the siliceous scree community types.</td>
</tr>
<tr>
<td></td>
<td>Maintain the diversity and quality of other habitats of conservation interest, especially where these exhibit natural transition to the siliceous scree.</td>
</tr>
</tbody>
</table>

### Hollymount SAC

<table>
<thead>
<tr>
<th>Feature</th>
<th>Component Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alluvial forests with <em>Alnus glutinosa</em> and <em>Fraxinus excelsior</em> (<strong>Alno-Padion, Alnion incanae, Salicion alvae</strong>))</td>
<td>Maintain and expand the extent of existing swamp woodland. (There is an area of wetland and damp grassland which have the potential to develop into carr woodland, Map 2)</td>
</tr>
<tr>
<td></td>
<td>Maintain and enhance swamp woodland species diversity and structural diversity</td>
</tr>
<tr>
<td></td>
<td>Maintain the diversity and quality of habitats associated with the swamp woodland, e.g. fen, swamp, especially where these exhibit natural transition to swamp woodland.</td>
</tr>
<tr>
<td></td>
<td>Seek nature conservation management over adjacent forested areas outside the ASSI where there may be potential for woodland rehabilitation.</td>
</tr>
<tr>
<td></td>
<td>Seek nature conservation management over suitable areas immediately outside the ASSI where there may be potential for woodland expansion.</td>
</tr>
</tbody>
</table>

**Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles**

<table>
<thead>
<tr>
<th>Maintain the extent of existing Oak woodland.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintain and enhance Oak woodland species diversity and structural diversity.</td>
</tr>
<tr>
<td>Maintain the diversity and quality of habitats associated with the Oak woodland, e.g. fen, swamp, grasslands, scrub, especially where these exhibit natural transition to Oak woodland</td>
</tr>
<tr>
<td>Seek nature conservation management over adjacent forested areas outside the ASSI where there may be potential for woodland rehabilitation.</td>
</tr>
<tr>
<td>Seek nature conservation management over suitable areas immediately outside the ASSI where there may be potential for woodland expansion.</td>
</tr>
</tbody>
</table>

### Larne Lough SPA

<table>
<thead>
<tr>
<th>Feature</th>
<th>Component Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sandwich Tern breeding population</td>
<td>No significant decrease in breeding population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Roseate Tern breeding population</td>
<td>No significant decrease in breeding population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Common Tern</td>
<td>No significant decrease in breeding population against national trends, caused</td>
</tr>
</tbody>
</table>
breeding population | by on-site factors  
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fledging success</td>
<td></td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>Lecale Fens SAC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Feature</strong></td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>Alkaline fens</td>
</tr>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Lough Neagh &amp; Lough Beg SPA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Feature</strong></td>
</tr>
<tr>
<td>-------------------------------</td>
</tr>
<tr>
<td>Common Tern breeding population</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Great Crested Grebe breeding population</td>
</tr>
<tr>
<td>Great Crested Grebe passage population</td>
</tr>
<tr>
<td>Whooper Swan wintering population</td>
</tr>
<tr>
<td>Bewick’s Swan wintering population</td>
</tr>
<tr>
<td>Golden Plover wintering population</td>
</tr>
<tr>
<td>Great Crested Grebe wintering population</td>
</tr>
<tr>
<td>Pochard wintering population</td>
</tr>
<tr>
<td>Tufted Duck wintering population</td>
</tr>
<tr>
<td>Scaup wintering population</td>
</tr>
<tr>
<td>Goldeneye wintering population</td>
</tr>
<tr>
<td>Little Grebe wintering population</td>
</tr>
<tr>
<td>Feature</td>
</tr>
<tr>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>Cormorant wintering population</td>
</tr>
<tr>
<td>Greylag Goose wintering population</td>
</tr>
<tr>
<td>Shelduck wintering population</td>
</tr>
<tr>
<td>Wigeon wintering population</td>
</tr>
<tr>
<td>Gadwall wintering population</td>
</tr>
<tr>
<td>Teal wintering population</td>
</tr>
<tr>
<td>Mallard wintering population</td>
</tr>
<tr>
<td>Shoveler wintering population</td>
</tr>
<tr>
<td>Coot wintering population</td>
</tr>
<tr>
<td>Lapwing wintering population</td>
</tr>
<tr>
<td>Waterfowl Assemblage wintering population</td>
</tr>
<tr>
<td>Waterfowl Assemblage wintering population</td>
</tr>
<tr>
<td>Habitat</td>
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<tr>
<td>Habitat</td>
</tr>
<tr>
<td>Habitat</td>
</tr>
</tbody>
</table>

**Montiaghgs Moss SAC**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Component Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marsh Fritillary Butterfly <em>Eurodryas aurinia</em></td>
<td>To maintain (and if feasible enhance) population numbers and distribution.</td>
</tr>
<tr>
<td></td>
<td>To maintain (and if feasible enhance) the extent and quality of suitable Marsh Fritillary breeding habitat, particularly suitable rosettes of the larval food plant <em>Succisa pratensis</em></td>
</tr>
</tbody>
</table>

**Murlough SAC**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Component Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlantic decalcified fixed dunes (Calluno-Ulicet)ea</td>
<td>Maintain and feasible, expand the extent of existing decalcified fixed dune, H 11 and H10. Increase permitted into areas of rank dune grassland, NOT into spp-rich short turf (Grey Dune SD8).</td>
</tr>
<tr>
<td></td>
<td>Maintain and enhance structural and species diversity within the H11 and H10 communities including the presence of notable species.</td>
</tr>
<tr>
<td></td>
<td>Seek nature conservation management over suitable areas immediately outside the cSAC where there is possibility of restoring decalcified fixed dune</td>
</tr>
<tr>
<td></td>
<td>Maintain the diversity and quality of habitats associated with the decalcified fixed dunes, e.g. neutral grasslands, scrub, especially where these exhibit natural transition to decalcified fixed dune vegetation.</td>
</tr>
<tr>
<td>Habitat Description</td>
<td>Management Objectives</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>Atlantic salt meadows (Glauco-Puccinellietalia maritimae)</td>
<td>Maintain or extend, as appropriate, the area of saltmarsh, subject to natural processes.</td>
</tr>
<tr>
<td></td>
<td>Maintain or enhance, as appropriate, the composition of the saltmarsh communities.</td>
</tr>
<tr>
<td></td>
<td>Maintain transitions between saltmarsh communities and to other adjoining habitats.</td>
</tr>
<tr>
<td></td>
<td>Permit the continued operation of formative and controlling natural processes acting on the saltmarsh communities.</td>
</tr>
<tr>
<td>Dunes with <em>Salix repens</em> ssp. Argentea (Salicion arenariae)</td>
<td>Maintain and expand the extent of existing Fixed dunes with <em>Salix repens</em>. Increase permitted into areas of rank dune grassland, NOT into <em>Succisa pratensis</em>-rich short turf (Grey Dune SD8).</td>
</tr>
<tr>
<td></td>
<td>Maintain and enhance species diversity within the SD16 community including the presence of notable species.</td>
</tr>
<tr>
<td></td>
<td>Seek nature conservation management over suitable areas immediately outside the cSAC where there is possibility of restoring fixed dune with <em>Salix repens</em>.</td>
</tr>
<tr>
<td>Embryonic shifting dunes</td>
<td>Maintain or enhance the extent of embryonic shifting dunes subject to natural processes.</td>
</tr>
<tr>
<td></td>
<td>Allow the natural processes which determine the development and extent of embryonic shifting dunes to operate appropriately.</td>
</tr>
<tr>
<td>Fixed dunes with herbaceous vegetation (grey dunes)</td>
<td>Maintain and expand the extent of existing species-rich fixed dune, SD8.</td>
</tr>
<tr>
<td></td>
<td>Maintain and enhance species diversity within the SD8 community including the presence of notable species.</td>
</tr>
<tr>
<td></td>
<td>Seek nature conservation management over suitable areas immediately outside the cSAC where there is possibility of restoring fixed dune.</td>
</tr>
<tr>
<td></td>
<td>Maintain the diversity and quality of habitats associated with the fixed dunes, e.g. neutral grasslands, scrub, especially where these exhibit natural transitions to fixed dune vegetation.</td>
</tr>
<tr>
<td>Mudflats and sandflats not covered by seawater at low tide</td>
<td>Maintain the extent of mudflats and sandflats not covered by seawater at low tide.</td>
</tr>
<tr>
<td></td>
<td>Allow the natural processes which determine the development, structure and extent of mudflats and sandflats not covered by seawater at low tide, to operate appropriately.</td>
</tr>
<tr>
<td></td>
<td>Maintain and enhance, as appropriate, the species diversity within this habitat.</td>
</tr>
<tr>
<td>Sandbanks which are slightly covered by sea water all the time</td>
<td>Allow the natural processes which determine the development, structure and extent of sandbanks which are slightly covered by sea water all the time, to operate appropriately.</td>
</tr>
<tr>
<td></td>
<td>Maintain and enhance, as appropriate, the species diversity within this habitat.</td>
</tr>
<tr>
<td></td>
<td>Maintain the extent and volume of sandbanks which are slightly covered by sea water all the time, subject to natural processes.</td>
</tr>
<tr>
<td>Shifting dunes along the shoreline with <em>Ammophila arenaria</em> (white dunes)</td>
<td>Maintain and enhance the extent of white dunes subject to natural processes.</td>
</tr>
<tr>
<td></td>
<td>Allow the natural processes which determine the development and extent of white dunes to operate appropriately.</td>
</tr>
<tr>
<td></td>
<td>Maintain and enhance, as appropriate, the species diversity within this community.</td>
</tr>
<tr>
<td><em>Eurodryas aurinia</em></td>
<td>Maintain (and if feasible enhance) population numbers and distribution.</td>
</tr>
<tr>
<td></td>
<td>Maintain (and if feasible enhance) the extent and quality of suitable Marsh Fritillary breeding habitat, particularly suitable rosettes of the larval food plant <em>Succisa pratensis</em>.</td>
</tr>
<tr>
<td><em>Phoca vitulina</em></td>
<td>Maintain (and if feasible enhance) population numbers and distribution.</td>
</tr>
</tbody>
</table>
of Common Seal. Maintain and enhance, as appropriate, physical features used by Common Seals within the site

### Outer Ards SPA

<table>
<thead>
<tr>
<th>Feature</th>
<th>Component Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arctic Tern breeding population</td>
<td>No significant decrease in population against national trends, caused by on-site factors Fledging success</td>
</tr>
<tr>
<td>Light-bellied Brent Goose wintering population</td>
<td>No significant decrease in population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Golden Plover wintering population</td>
<td>No significant decrease in population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Ringed Plover wintering population</td>
<td>No significant decrease in population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Turnstone wintering population</td>
<td>No significant decrease in population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Habitat extent</td>
<td>To maintain or enhance the area of natural and semi-natural habitats potentially usable by Feature bird species (1001 ha intertidal area), (breeding areas 125 ha) subject to natural processes</td>
</tr>
<tr>
<td>Habitat extent</td>
<td>Maintain the extent of main habitat components subject to natural processes</td>
</tr>
<tr>
<td>Roost sites</td>
<td>Maintain or enhance sites utilised as roosts</td>
</tr>
</tbody>
</table>

### Rea’s Wood & Farr’s Bay SAC

<table>
<thead>
<tr>
<th>Feature</th>
<th>Component Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alluvial forests with <em>Alnus glutinosa</em> and <em>Fraxinus excelsior</em> (<em>Alno-Padion, Alnion incanae, Salicion alvae</em>)</td>
<td>Maintain and expand the extent of the existing Alluvial forests but not at the expense of other SAC (ABC) features. (There are area of wetland and damp grassland which have the potential to develop into Alluvial woodland) Maintain and enhance Alluvial forest species diversity including the presence of notable or rare species. Maintain and enhance Alluvial forests structure Maintain the diversity and quality of habitats associated with the Alluvial forests, e.g. fen meadow, grasslands, wet heath wet woodland and scrub, especially where these exhibit natural transition to Alluvial forests Seek nature conservation management over adjacent forested areas outside the SAC where there may be potential for woodland rehabilitation. Seek nature conservation management over suitable areas immediately outside the SAC where there may be potential for woodland expansion.</td>
</tr>
</tbody>
</table>

### Strangford Lough SAC

<table>
<thead>
<tr>
<th>Feature</th>
<th>Component Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large shallow inlet and bay</td>
<td>Maintain the extent of the large shallow inlet and bay Allow the natural processes which determine the development, structure, function and extent of the large shallow inlet and bay, to operate appropriately Maintain and enhance, as appropriate, the species diversity within this habitat.</td>
</tr>
<tr>
<td>Feature</td>
<td>Component Objective</td>
</tr>
<tr>
<td>---------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Coastal lagoons</td>
<td>Maintain the extent of the coastal lagoons. Allow the natural processes which determine the development, structure, function and extent of the coastal lagoons, to operate appropriately. Maintain and enhance, as appropriate, the species diversity within this habitat.</td>
</tr>
<tr>
<td>Mudflats and sandflats not covered by sea water at low tide</td>
<td>Maintain the extent of mudflats and sandflats not covered by sea water at low tide. Allow the natural processes which determine the development, structure and extent of mudflats and sandflats not covered by sea water at low tide, to operate appropriately. Maintain and enhance, as appropriate, the species diversity within this habitat.</td>
</tr>
<tr>
<td>Reefs</td>
<td>Maintain the extent of the reefs. Allow the natural processes which determine the development, structure, function and extent of the reefs, to operate appropriately. Maintain and enhance, as appropriate, the species diversity within this habitat.</td>
</tr>
<tr>
<td>Annual vegetation of drift lines</td>
<td>Maintain and enhance the extent of annual vegetation of drift lines subject to natural processes. Allow the natural processes which determine the development and extent of annual vegetation of drift lines to operate appropriately. Maintain and enhance, as appropriate, the species diversity within this community including the presence of notable species.</td>
</tr>
<tr>
<td>Atlantic salt meadows (Glaucophyta-Puccinellietalia maritimae)</td>
<td>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.</td>
</tr>
<tr>
<td>Perennial vegetation of stony banks</td>
<td>Maintain and enhance the extent of perennial vegetation of stony banks subject to natural processes. Allow the natural processes which determine the development and extent of perennial vegetation of stony banks to operate appropriately. Maintain and enhance, as appropriate, the species diversity within this community including the presence of notable species.</td>
</tr>
<tr>
<td>Salicornia and other annuals colonising mud and sand</td>
<td>Maintain and enhance the extent of Salicornia and other annuals colonising mud and sand subject to natural processes. Allow the natural processes which determine the development and extent of Salicornia and other annuals colonising mud and sand, to operate appropriately. Maintain and enhance, as appropriate, the species diversity within this habitat.</td>
</tr>
<tr>
<td>Phoca vitulina</td>
<td>Maintain and enhance, as appropriate, the Common Seal population. Maintain and enhance, as appropriate, physical features used by Common Seals within the site.</td>
</tr>
<tr>
<td>Species</td>
<td>Population Status</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------------------------------------------------</td>
</tr>
<tr>
<td>Sandwich Tern breeding</td>
<td>No significant decrease in breeding population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Common Tern breeding</td>
<td>No significant decrease in breeding population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Arctic Tern breeding</td>
<td>No significant decrease in breeding population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Golden Plover wintering</td>
<td>No significant decrease in population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Bar-tailed Godwit wintering</td>
<td>No significant decrease in population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Light-bellied Brent Goose</td>
<td>No significant decrease in population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Shelduck wintering</td>
<td>No significant decrease in population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Knot wintering</td>
<td>No significant decrease in population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Redshank wintering</td>
<td>No significant decrease in population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Great Crested Grebe wintering</td>
<td>No significant decrease in population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Cormorant wintering</td>
<td>No significant decrease in population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Greylag Goose wintering</td>
<td>No significant decrease in population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Wigeon wintering</td>
<td>No significant decrease in population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Gadwall wintering</td>
<td>No significant decrease in population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Teal wintering</td>
<td>No significant decrease in population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Mallard wintering</td>
<td>No significant decrease in population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Pintail wintering</td>
<td>No significant decrease in population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Shoveler wintering</td>
<td>No significant decrease in population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Goldeneye wintering</td>
<td>No significant decrease in population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Red-breasted Merganser</td>
<td>No significant decrease in population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Coot wintering</td>
<td>No significant decrease in population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Oystercatcher wintering</td>
<td>No significant decrease in population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Ringed Plover wintering</td>
<td>No significant decrease in population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Grey Plover wintering</td>
<td>No significant decrease in population against national trends, caused by on-site factors</td>
</tr>
<tr>
<td>Lapwing wintering</td>
<td>No significant decrease in population against national trends, caused by on-site factors</td>
</tr>
</tbody>
</table>
population by on-site factors

<table>
<thead>
<tr>
<th>Feature</th>
<th>Component Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transition mires and quaking bog</td>
<td>Maintain the extent and diversity of existing wetland community types.</td>
</tr>
</tbody>
</table>

Turmennan SAC
Habitat Extent
To maintain or enhance the area of natural and semi-natural habitats potentially usable by Feature bird species (3781 ha intertidal area), (breeding areas X 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
Appendix 2. Screening Assessment Forms

Screening Assessment Forms for Potential Likely Significant Indirect Effects:

- Antrim Hills SPA
- Aughnadarragh Lough SAC
- Ballykillbeg SAC
- Copeland Islands SAC
- Eastern Mournes SAC
- Hollymount SAC
- Lecale Fens SAC
- Montiaghs Moss SAC
- Murlough SAC
- Reas Wood and Farr’s Bay SAC
- Strangford Lough SAC; Strangford Lough SPA; and Strangford Lough Ramsar
- The Maidens cSAC
- Turmennan SAC; and Turmennan Ramsar

### Antrim Hills SPA

<table>
<thead>
<tr>
<th>Ecological Connectivity to BMAP:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antrim Hills SPA is within 150m of Newtownabbey Borough Council. Due to the mobility of birds of prey and the close proximity of the BMAP area there is a potential for birds of prey from the Antrim Hills SPA to utilize the BMAP area. The Doak River and the Six-Mile Water flow through the BMAP area. Upstream tributaries of these rivers originate in Antrim Hills SPA.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Infrastructural or aerial connectivity to BMAP:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antrim Hills SPA occurs within Antrim, Ballymoney, Larne and Moyle Councils. It is located within 15 km of Belfast City, Newtownabbey Borough and Carrickfergus Borough Council. Antrim Hills is linked to BMAP by the potential for aerial depositions. Killylane Reservoir is an impounding Reservoir and Water Treatment Works which serves the Belfast Metropolitan Area. The area is therefore infra-structurally linked to BMAP by water abstractions.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sensitivities of European Features to BMAP connectivity and activities:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breeding populations of Hen Harrier, <em>Circus cyaneus</em> and Merlin <em>Falco columbarius</em> are the principle reasons for the selection of Antrim Hills as a SPA. The conservation objectives for the site are to maintain each feature in favorable condition (including measurements of fledgling success and population numbers). Aerial pollution and associated atmospheric deposition of nitrogen and sulphur compounds arising from the BMAP area have the potential to lead to eutrophication and soil acidification. Increased water abstraction could alter the habitat within Killylane Reservoir. Invasive riverine species have the potential to spread upstream into the Antrim Hills SPA. There is no field or research evidence that suggests that Hen Harrier or Merlin are particularly sensitive to, or at risk from: acidification or eutrophication caused by aerial depositions from the BMAP; from water abstractions from Killylane Reservoir; or from riverine invasive species. The Vulnerability section of the Antrim Hill SPA European data form records that the site could potentially...</td>
</tr>
</tbody>
</table>
be damaged by peat-cutting, heavy grazing, excessive burning and inappropriate management of forestry plantations. The Northern Ireland Species Action Plan for Hen Harrier (NIEA 2005a) identified that the current factors affecting the population in Northern Ireland included agricultural reclamation; over grazing; disturbance; forestry management; persecution; and windfarm developments. These factors could occur in the BMAP area and there is thus a potential for the reduction or fragmentation of habitat availability for Hen Harrier and Merlin.

**Potential for Cumulative Impacts:**
- lead to cumulative aerial deposition eutrophication and acidification impacts;
- result in habitat fragmentation or a reduction in available habitat;
- lead to increased water abstraction from Killylane Reservoir.

**Screening conclusion and finding of no significant impact statement:**
There is connectivity with the BMAP area and a potential for aerial deposition arising from the BMAP area and cumulatively from other development plans to increase eutrophication and acidification within Antrim Hills. However, there is no evidence to suggest that Hen Harrier or Merlin are particularly sensitive to, or at risk from, impacts arising from aerial deposition from the BMAP area, from water abstractions from Killylane Reservoir; or from riverine invasive species.

BMAP in very close proximity to the Antrim Hills SPA. If Merlin or Hen Harrier utilize the BMAP area there is a potential for activities in BMAP to result in habitat reduction or fragmentation and there may therefore be a potential for likely significant impacts.

Under the precautionary methodology utilized in the screening it was deemed that Antrim Hills will require Appropriate Assessment.

**Aughnadarragh Lough SAC**

**Ecological Connectivity to BMAP:**
None identified.

**Infrastructural or aerial connectivity to BMAP:**
Aughnadarragh is within Down District Council. It is located approximately 5-6 km from Castlereagh Borough and Lisburn City Council. Aughnadarragh is linked to BMAP by the potential for aerial depositions.

**Sensitivities of European Features to BMAP connectivity and activities:**
Marsh fritillary butterfly, *Euphydryas aurinia*, is the principle reason for the selection of Aughnadarragh Lough as a SAC. The marsh fritillary butterfly frequents damp grassland and marsh where its larvae feed on devil’s-bit scabious *Succisa pratensis*. Aughnadarragh Lough SAC has a conservation objective to maintain the extent and quality of suitable Marsh Fritillary breeding habitat, particularly suitable rosettes of the larval food plant *Succisa pratensis*.

Aerial pollution and associated atmospheric deposition of nitrogen and sulphur compounds arising from the BMAP area have the potential to lead to eutrophication and soil acidification. Certain habitats and floral species are particularly sensitive to euprophication and acidification.

*Succisa pratensis* has an Ellenberg nitrogen value of 2 and an Ellenberg pH of 5 suggesting that the species generally prefers moderately acid soils with low soil fertility. *Succisa pratensis* has been shown in a laboratory experiment to have a reduced biomass at high ammonia concentration and low pH (van den Berg et al. 2005). Glasshouse experiments in the Netherlands have shown that individual plant performance was negatively affected by eutrophication and, to a smaller extent, by acidification but the degree of impact depended on population size, with plants from smaller populations performing less well (Vergeer et al. 2003). There is no field evidence to show the response of this species in the field (Emmett et al. 2011).

**Potential for Cumulative Impacts:**
Development activities in the Ards and Down Area Plan 2015 and the Banbridge Newry and Mourne Area Plan 2015 (approx 15km from the SAC) may lead to cumulative eutrophication and acidification impacts.

**Screening Conclusion:**
There is a potential risk of aerial deposition arising from the BMAP area and cumulatively from other
development plans leading to eutrophication and acidification impacting on Aughnadarragh Lough SAC. The sensitivity of *Succisa pratensis* (Marsh fritillary larvae food source) to eutrophication and acidification arising from aerial deposition is uncertain and there may therefore be a potential for likely significant impacts. Under the precautionary methodology utilized in the screening it was deemed that Aughnadarragh will require Appropriate Assessment.

**Ballykilbeg SAC**

<table>
<thead>
<tr>
<th>Ecological Connectivity to BMAP:</th>
</tr>
</thead>
<tbody>
<tr>
<td>None identified.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Infrastructural or aerial connectivity to BMAP:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ballykilbeg is within Down District Council. It is located approximately 14 km from Lisburn City Council. Ballykilbeg is linked to BMAP by the potential for aerial depositions.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sensitivities of European Features to BMAP connectivity and activities:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marsh fritillary butterfly, <em>Euphydryas aurinia</em>, is the principle reason for the selection of Ballykilbeg as a SAC. The marsh fritillary butterfly frequents damp grassland and marsh where its larvae feed on devil’s-bit scabious <em>Succisa pratensis</em>. Ballykilbeg SAC has a conservation objective to maintain the extent and quality of suitable Marsh Fritillary breeding habitat, particularly suitable rosettes of the larval food plant <em>Succisa pratensis</em>. Aerial pollution and associated atmospheric deposition of nitrogen and sulphur compounds arising from the BMAP area have the potential to lead to eutrophication and soil acidification. Certain habitats and floral species are particularly sensitive to eutrophication and acidification. <em>Succisa pratensis</em> has an Ellenberg nitrogen value of 2 and an Ellenberg pH of 5 suggesting that the species generally prefers moderately acid soils with low soil fertility. <em>Succisa pratensis</em> has been shown in a laboratory experiment to have a reduced biomass at high ammonia concentration and low pH (van den Berg <em>et al.</em> 2005). Glasshouse experiments in the Netherlands have shown that individual plant performance was negatively affected by eutrophication and, to a smaller extent, by acidification but the degree of impact depended on population size, with plants from smaller populations performing less well (Vergeer <em>et al.</em> 2003). There is no field evidence to show the response of this species in the field (Emmett <em>et al.</em> 2011).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Potential for Cumulative Impacts:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development activities in the Ards and Down Area Plan 2015 and the Banbridge Newry and Mourne Area Plan 2015 (approx 11 km from the SAC) may lead to cumulative eutrophication and acidification impacts.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Screening Conclusion:</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is a potential risk of aerial deposition arising from the BMAP area and cumulatively from other development plans leading to eutrophication and acidification impacting on Ballykilbeg SAC. The sensitivity of <em>Succisa pratensis</em> (Marsh fritillary larvae food source) to eutrophication and acidification arising from aerial deposition is uncertain and there may therefore be a potential for likely significant impacts. Under the precautionary methodology utilized in the screening it was deemed that Ballykilbeg will require Appropriate Assessment.</td>
</tr>
</tbody>
</table>

**Copeland Islands SPA**

<table>
<thead>
<tr>
<th>Ecological Connectivity to BMAP:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Due to proximity of BMAP and its coastal location there is a potential for bird competition from species that utilize the BMAP area, in particular gull species.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Infrastructural or aerial connectivity to BMAP:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copeland Islands are within Ards Borough Council. They are located within 15 km of North Down Borough and Carrickfergus Borough Council. The Copeland Islands are linked to BMAP by the potential for aerial depositions.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sensitivities of European Features to BMAP connectivity and activities:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breeding colonies of Arctic Tern <em>Sterna paradisaea</em> and Manx Shearwater <em>Puffinus puffinus</em> are the</td>
</tr>
</tbody>
</table>
principle reasons for the selection of the Copeland Islands as a SPA. The conservation objectives for the site are to maintain each feature in favorable condition (including measurements of fledgling success and population numbers). The vulnerability section of the Copeland Islands SPA European data form records that there are no current or known future activities that represent significant actual or potential impacts to the site.

However, the number of breeding Arctic Terns in the Copeland Islands was positive in 2009; however, the predation of Arctic Tern chicks by Lesser black-headed, Great black-backed gulls *Larus marinus* and herring gulls has been observed on Copeland Islands (Leonard 2009; Wolsey 2012). This predation may reduce the survival rate of chicks in the Copeland Islands. In New Hampshire the decline and abandonment of Arctic Terns from the Isles of Shoals has been attributed to the decrease in human habitation of the islands and the subsequent increase in herring gulls *Larus argentatus* and Great black-backed gulls which prey on tern eggs and young. The UK SPA Review (Stroud et al. 2001) noted that threats to Arctic Tern populations included predation by mammals together with coastal development and disturbance such as recreational disturbance. The Report also noted that several declines have been attributed to breeding failures, with breeding success being low throughout most of the 1990s. The breeding failures may have been contributed to by a lack of sand eels the principle food, overfishing by man and bad weather.

The Pembrokeshire Biodiversity Partnership (the Pembrokeshire Islands are thought to hold almost half the world’s population of Manx shearwaters) have identified the following factors as affecting Manx Shearwater populations: Predation by ground predators or great black-backed gulls; limited availability of soft ground for burrowing; human disturbance boating activity or trampling; acute pollution e.g. oil spills; availability of prey species. The UK SPA Review (Stroud et al. 2001) noted that nesting Manx Shearwaters are susceptible to the effects of mammalian predation and that population declines and extinctions had been recorded on islands that had been invaded by rats.

Activities within the BMAP area may have the potential to shift the balance of species utilising the Copeland Islands SPA. In particular the future of landfill operations has the potential to impact on breeding seabirds.

Aerial pollution and associated atmospheric deposition of nitrogen and sulphur compounds arising from the BMAP area have the potential to lead to eutrophication and soil acidification. There is no field or research evidence that suggests that Manx Shearwater or Arctic Tern are particularly sensitive to, or directly at risk from, acidification or eutrophication caused by aerial depositions. However there is evidence that the broad habitats in which they nest and breed are negatively sensitive to nitrogen impacts (APIS 2013). Terns require patches of short vegetation or bare ground for nesting amongst longer vegetation for cover for chicks. Increased eutrophication may increase the abundance of tall grasses and decrease prostrate plants.

<table>
<thead>
<tr>
<th>Potential for Cumulative Impacts:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development activities in the Larne Area Plan 2010 and the Ards and Down Area Plan 2015 may lead to a shift in the balance of species utilizing the Copeland Islands or could lead to cumulative aerial deposition eutrophication and acidification impacts.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Screening conclusion:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activities within the BMAP area have the potential to shift the balance of species utilising the Copeland Islands SPA. In particular the future of landfill operations has the potential for likely significant impacts on breeding seabirds. Increase in Larus gulls throughout the last century has been due to increased feeding opportunities of mainly man made origin such as the establishment of large municipal landfill sites (Crème et al. 1997). There is a potential for aerial deposition arising from the BMAP area and cumulatively from other development plans to increase eutrophication and acidification within the Copeland Islands SPA. There is evidence that the habitats utilized for breeding by terns are sensitive to increases in eutrophication. Under the methodology utilized in the screening it was deemed that Copeland Islands SPA will require Appropriate Assessment.</td>
</tr>
</tbody>
</table>

**Eastern Mournes SAC**

<table>
<thead>
<tr>
<th>Ecological Connectivity to BMAP:</th>
</tr>
</thead>
<tbody>
<tr>
<td>None Identified.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Infrastructural connectivity to BMAP:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Silent Valley and Ben Crom reservoirs (both within Eastern Mournes SAC) supply water for most of</td>
</tr>
</tbody>
</table>
County Down and a large part of Belfast, providing approximately 400,000 people with up to 30 million gallons (130 million liters) of water a day. There is a potential for damage to heathland communities in the SAC if there are increased demands for water abstraction and associated requirements to lay new water pipelines.

**Sensitivities of European Features to BMAP connectivity and activities:**
Northern Atlantic wet heaths with *Erica tetralix* and European Dry Heath are the primary reasons for the selection of the Eastern Mournes SAC. Other Annex I habitats that are present as a qualifying feature, but not a primary reason for selection of this site include: Alpine and boreal heaths; Blanket Bog; Siliceous alpine and boreal grasslands; Siliceous rocky slopes with chasmophytic vegetation; Siliceous scree of the montane to snow levels.

There are conservation objectives for Eastern Mournes SAC to maintain the extent and quality of the selection features and their structure and habitat and species diversity. There is also a conservation objective to maintain the hydrology of the active blanket bog.

The draft Conservation Objectives Report for the Eastern Mournes SAC (NIEA) identified that water abstraction is a factor that may be either affecting Eastern Mourne SAC, or could affect it in the future.

The draft Conservation Objective report noted that: Within the Mourne Wall, the land is managed by Water Service for the purpose of water abstraction and supply. With growing water requirements within the Belfast area, there is constant pressure to increase supply. There may be a requirement to lay new water pipelines from the upper reservoirs (Silent Valley or Ben Crom) down to Spelga Dam or Fofany Dam.

**Potential for Cumulative Impacts:**
Development activities in the Ards and Down Area Plan 2015 and the Banbridge Newry and Mourne Area Plan 2015 may lead to cumulative pressure for increased water abstraction.

Infrastructural Water plans and associated Capital Works may result in additional construction work in Eastern Mournes SAC.

**Screening Conclusion:**
There is a potential risk of increased demand for water from the BMAP area and cumulatively from other development plans leading to the need for additional pipe laying and subsequent potential impacts on Eastern Mournes SAC.

Under the precautionary methodology utilized in the screening it was deemed that Eastern Mournes will require Appropriate Assessment.

**Hollymount SAC**

**Ecological Connectivity to BMAP:**
None Identified

**Infrastructural or aerial connectivity to BMAP:**
Hollymount SAC is within Down District Council. It is located approximately 14 km from Lisburn City Council. Hollymount SAC is linked to BMAP by the potential for aerial depositions.

**Sensitivities of European Features to BMAP connectivity and activities:**
Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion alvae*) is the principle reason for the selection of Hollymount as a SAC. Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles is also present as a qualifying feature. There are conservation objectives for Hollymount SAC to maintain the extent of the Alluvial forest and Old sessile oak woods and their structure and habitat and species diversity.

Aerial pollution and associated atmospheric deposition of nitrogen and sulphur compounds arising from the BMAP area have the potential to lead to eutrophication and soil acidification. Certain habitats and floral species are particularly sensitive to eutrophication and acidification.

An assessment of relevant literature and critical loads indicated that Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* are not considered sensitive to nutrient deposition or acidification (JNCC 2007). However the assessment did not explicitly consider concentrations of atmospheric pollution from ammonia and oxides of nitrogen, which are considered to have potentially damaging impacts on the bryophyte and lichen communities of wet woodland habitats. The JNCC (2007) report identifies air pollution as a potential threat and pressure for Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* and for Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles.
### Potential for Cumulative Impacts:
Development activities in the Ards and Down Area Plan 2015 and the draft Banbridge Newry and Mourne Area Plan 2015 (approx 14km from the SAC) may lead to cumulative eutrophication and acidification impacts.

### Screening Conclusion:
There is a potential risk of aerial deposition arising from the BMAP area and cumulatively from other development plans leading to eutrophication and acidification impacting on Hollymount SAC, in particular its lichen and bryophyte communities. Under the precautionary methodology utilized in the screening it was deemed that Hollymount SAC will require Appropriate Assessment.

### Lecale Fens SAC

<table>
<thead>
<tr>
<th>Ecological Connectivity to BMAP:</th>
</tr>
</thead>
<tbody>
<tr>
<td>None Identified</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Infrastructural or aerial connectivity to BMAP:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecale Fen SAC is within Down District Council. It is divided into four sites. One of the sites is located approximately 15 km from Lisburn City Council. Lecale Fens SAC is linked to BMAP by the potential for aerial depositions.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sensitivities of European Features to BMAP connectivity and activities:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alkaline Fen is the principle reason for the selection of Lecale Fens as a SAC. There are conservation objectives for Lecale Fens SAC to maintain the extent of the Alkaline Fens and their structure and habitat and species diversity. The effects of air pollution on alkaline fens has received little attention. However there is some literature which suggests: that the sensitivity of fens to changes to in water chemistry makes them susceptible to acid rain and air pollution (Siegel 1998 and Chapman et al. 2003 in Cohen and Kost 2008); and that fen systems surrounded by cultivated lands that are close to industrial and urban areas face a threat from dust-fall and atmospheric deposition (Damman 1990 in Cohen and Kost 2008). Aerial pollution and associated atmospheric deposition (such as of nitrogen, sulphur, calcium and heavy metals; Chapman et al. 2003 and Damman 1990 in Cohen and Kost 2008) arising from the BMAP area may therefore have the potential to lead to eutrophication and acidification of fen habitats.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Potential for Cumulative Impacts:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development activities in the Ards and Down Area Plan 2015 and the Banbridge Newry and Mourne Area Plan 2015 (approx 11km from the SAC) may lead to cumulative eutrophication and acidification impacts from aerial pollution.</td>
</tr>
</tbody>
</table>

### Screening Conclusion:
There is a potential risk of aerial deposition arising from the BMAP area and cumulatively from other development plans leading to eutrophication and acidification impacting on Lecale Fens SAC. Under the precautionary methodology utilized in the screening it was deemed that Lecale Fens SAC will require Appropriate Assessment.

### Montiaghs Moss SAC

<table>
<thead>
<tr>
<th>Ecological Connectivity to BMAP:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Montiaghs Moss is within Craigavon Council. There are several large drains running through the centre of Montiaghs Moss SAC and throughout the surrounding area. Parts of Lisburn City Council may be hydrologically connected to these drains.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Infrastructural or aerial connectivity to BMAP:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Montiaghs Moss is within Craigavon Council. It is located approximately 1.5 km from Lisburn City Council. Montiaghs Moss is linked to BMAP by the potential for aerial depositions.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sensitivities of European Features to BMAP connectivity and activities:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marsh fritillary butterfly, <em>Euphydryas aurinia</em>, is the principle reason for the selection of Montiaghs Moss as a SAC. The marsh fritillary butterfly frequents damp grassland and marsh where its larvae feed on</td>
</tr>
</tbody>
</table>
devil’s-bit scabious *Succisa pratensis*. Montiaghs Moss SAC has a conservation objective to maintain (and if feasible enhance) the extent and quality of suitable Marsh Fritillary breeding habitat, particularly suitable rosettes of the larval food plant *Succisa pratensis*.

Aerial pollution and associated atmospheric deposition of nitrogen and sulphur compounds arising from the BMAP area have the potential to lead to eutrophication and soil acidification. Certain habitats and floral species are particularly sensitive to eutrophication and acidification. *Succisa pratensis* has an Ellenberg nitrogen value of 2 and an Ellenberg pH of 5 suggesting that the species generally prefers moderately acid soils with low soil fertility. *Succisa pratensis* has been shown in a laboratory experiment to have a reduced biomass at high ammonia concentration and low pH (van den Berg *et al.* 2005). Glasshouse experiments in the Netherlands have shown that individual plant performance was negatively affected by eutrophication and, to a smaller extent, by acidification but the degree of impact depended on population size, with plants from smaller populations performing less well (Vergeer *et al.* 2003). There is no field evidence to show the response of this species in the field (Emmett *et al.* 2011).

The draft Conservation Objectives Report for the Montiaghs Moss SAC and ASSI (NIEA) identified that drainage; eutrophication/water quality; agricultural reclamation/cultivation/application of fertilisers/supplementary feeding; and changes to surrounding land-use (agricultural intensification, drainage works and development) are factors that may be either affecting Montiaghs Moss, or could affect it in the future.

In relation to eutrophication from surrounding land it is noted that the area outside the SAC is generally in intensive agriculture. Therefore, the area is potentially at risk from eutrophication caused by agricultural run-off from within the catchment (draft Conservation Objective Report).

### Potential for Cumulative Impacts:

Development activities in the Antrim Area Plan 1984-2001; Armagh Area Plan 2004; Craigavon Area Plan 2010; Craigavon Town Centre Boundaries and Retail Designation Plan 2010; Cookstown Area Plan 2010; Dungannon and South Tyrone Area Plan 2010 and the Banbridge Newry and Mourne Area Plan 2015 (all within approx 15km from the SAC) may lead to additional land drainage or cumulative eutrophication and acidification impacts from aerial deposition.

### Screening Conclusion:

There is a potential risk of aerial deposition arising from the BMAP area and cumulatively from other development plans leading to eutrophication and acidification impacting on Montiaghs Moss SAC. The sensitivity of *Succisa pratensis* (Marsh fritillary larvae food source) to eutrophication and acidification arising from aerial deposition is uncertain and there may therefore be a potential for likely significant impacts.

There is a potential risk of hydrological connections and agricultural activities, from the BMAP area and cumulatively from other development plans increasing eutrophication of Montiaghs Moss SAC. There is a potential for changes to surrounding land use in BMAP and other areas to impact on the drainage regime within Montiaghs Moss SAC.

Under the precautionary methodology utilized in the screening it was deemed that Montiaghs Moss SAC will require Appropriate Assessment.

### Murlough SAC

#### Ecological Connectivity to BMAP:

Murlough SAC is ecologically connected by marine waters to BMAP. This may be particularly relevant for mobile species such as common seals.

#### Infrastructural or aerial connectivity to BMAP:

Murlough is located within Down District Council and Newry and Mourne District Council. It is located approximately 13 km from Lisburn City Council. Murlough SAC is linked to BMAP by the potential for aerial depositions.

#### Sensitivities of European Features to BMAP connectivity and activities:

Murlough is designated as a SAC because it contains the following habitats: Fixed dunes with herbaceous vegetation (grey dunes); Atlantic calcified fixed dunes (*Calluno-Ulicetea*); Sandbanks which are slightly covered by sea water at all time; mudflats and sandflats not covered by seawater at low tide; Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*); Embryonic shifting dunes; Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes); and Dunes with *Salix repens* spp. Argentea (*Salicion arenariae*). Common seal, *Phoca vitulina* and Marsh fritillary butterfly, *Euphydryas aurinia* are also...
The vulnerability section of the European data form does not list aerial pollution as a major threat to Murlough SAC however aerial pollution and associated atmospheric deposition arising from the BMAP area has the potential to lead to increased eutrophication and soil acidification. Certain habitats and floral species are particularly sensitive to eutrophication and acidification. For example the marsh fritillary butterfly frequents damp grassland and marsh where its larvae feed on devil’s-bit scabious *Succisa pratensis*. Murlough SAC has a conservation objective to maintain the extent and quality of suitable Marsh Fritillary breeding habitat, particularly suitable rosettes of the larval food plant *Succisa pratensis*. *Succisa pratensis* has an Ellenberg nitrogen value of 2 and an Ellenberg pH of 5 suggesting that the species generally prefers moderately acid soils with low soil fertility. *Succisa pratensis* has been shown in a laboratory experiment to have a reduced biomass at high ammonia concentration and low pH (van den Berg *et al.* 2005). Glasshouse experiments in the Netherlands have shown that individual plant performance was negatively affected by eutrophication and, to a smaller extent, by acidification but the degree of impact depended on population size, with plants from smaller populations performing less well (Vergeer *et al.* 2003). There is no field evidence to show the response of this species in the field (Emmett *et al.* 2011). Air pollution is listed as a potential threat and pressure for many coastal sand dunes and continental dunes (JNCC 2007).

There is a possibility that the seal population in Murlough Bay would utilize areas in the vicinity of the BMAP area. If this is the case there is the potential for BMAP activities to reduce habitat availability, cause habitat fragmentation or result in behavioral changes of seals.

<table>
<thead>
<tr>
<th>Potential for Cumulative Impacts:</th>
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<tbody>
<tr>
<td>Development activities in the Ards and Down Area Plan 2015 and the Banbridge, Newry and Mourne Area Plan 2015 may lead to cumulative eutrophication and acidification impacts from aerial deposition or alteration of habitat availability for seals.</td>
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<th>Screening Conclusion:</th>
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<tr>
<td>There is a potential risk of aerial deposition arising from the BMAP area and cumulatively from other development plans leading to eutrophication and acidification impacting on Murlough SAC.</td>
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<tr>
<td>There is a potential risk that activities in BMAP and cumulatively from other development plans could alter the habitat availability for seals and lead to behavioral changes.</td>
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<tr>
<td>Under the precautionary methodology utilized in the screening it was deemed that Murlough SAC will require Appropriate Assessment.</td>
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**Reas Wood and Farr’s Bay SAC**

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<th>Ecological Connectivity to BMAP:</th>
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<td>None Identified</td>
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| Infrastructural or aerial connectivity to BMAP: |
| Reas Wood and Farr’s Bay SAC is within Antrim Borough Council. It is located within 15 km from Belfast City Council, Lisburn City Council and Newtownabbey Borough Council. Reas Wood and Farr’s Bay SAC is linked to BMAP by the potential for aerial depositions. Lough Neagh provides water for approximately one third of the population of Northern Ireland including parts of BMAP. Water from Lough Neagh is delivered to the Plan area via Dunore Water Treatment Works just outside Antrim. BMAP is therefore infrastructurally linked to Lough Neagh via water abstraction. |

| Sensitivities of European Features to BMAP connectivity and activities: |
| Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion alvae*) is the principle reason for the selection of Reas Wood and Farr’s Bay as a SAC. There are conservation objectives for Reas Wood and Farr’s Bay SAC to maintain the extent of the Alluvial forest and its structure and its habitat and species diversity. Aerial pollution and associated atmospheric deposition of nitrogen and sulphur compounds arising from the BMAP area have the potential to lead to eutrophication and soil acidification. An assessment of relevant literature and exceedence critical loads indicated that Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* are not considered sensitive to nutrient deposition or acidification (JNCC 2007). However the assessment did not explicitly consider concentrations of atmospheric pollution from ammonia and oxides of nitrogen, which are considered to have potentially damaging impacts on the bryophyte and lichen communities of wet woodland habitats. The JNCC (2007) report identifies air pollution as one of the main |
future threats for Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*.

The Vulnerability section of the Rea’s Wood and Farr’s Bay SAC European data form records that the main threats to the site include changes to water levels in Lough Neagh. The draft Conservation Objectives Report for Rea’s Wood and Farr’s Bay noted that the past series of lowering Lough Neagh’s water levels has had a fundamental impact on the marginal habitats, including woodland. Each lowering of the water level has resulted in a successional series of shoreline colonisation. Wet woodland which has developed on previously exposed lake bed has changed to dryer woodland community types, with the increasingly elevated shoreline, after each lowering of the loughs water level. The lowering of water levels also creates newly exposed beds which are subsequently colonised by new wet woodland. Proposals to increase water extraction from the Lough will lower the summer water level again but is unlikely to effect winter levels.

### Potential for Cumulative Impacts:

Development activities in the Antrim Area Plan 1984-2001 and the Ballymena Area Plan 1986-2001 (within 15km from the SAC) may lead to cumulative eutrophication and acidification impacts. As Lough Neagh provides water for approximately one third of the population of Northern Ireland there will be cumulative abstraction pressures associated with Water Resource Plans, associated capital works and other Development Plans throughout Northern Ireland.

### Screening Conclusion:

There is a potential risk of aerial deposition arising from the BMAP area and cumulatively from other development plans leading to eutrophication and acidification impacting on Rea’s Wood and Farr’s Bay SAC, in particular its lichen and bryophyte communities. There is a potential risk that additional water abstraction requirements associated with the implementation of BMAP and cumulatively from other development plans may impact on the water levels of Lough Neagh and subsequently Rea’s Wood and Farr’s Bay SAC. Under the precautionary methodology utilized in the screening it was deemed that Rea’s Wood and Farr’s Bay SAC will require Appropriate Assessment.

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**Strangford Lough SAC**

**Strangford Lough SPA**

**Strangford Lough Ramsar**

### Ecological Connectivity to BMAP:

Strangford Lough is located within Ards Borough and Down District Council. The source of the Enler River originates from the BMAP area. The Enler River flows through the BMAP area into Ards Borough Council where it enters into Strangford Lough at the Comber Estuary. BMAP is therefore hydrologically connected to Strangford. Strangford is also ecologically connected by marine waters to BMAP. This may be particularly relevant for mobile species such as common seals.

### Infrastructural or aerial connectivity to BMAP:

Strangford Lough is located within 15 km from Belfast City, Lisburn City, Castlereagh Borough, Newtownabbey Borough and North Down Borough. Strangford Lough is linked to BMAP by the potential for aerial depositions.

### Sensitivities of European Features to BMAP connectivity and activities:

Strangford Lough is designated as a SAC because it contains the following habitats: Coastal lagoons; large shallow inlets and bays; annual vegetation of drift lines; Atlantic salt meadows (*Glaucoc-Puccinelliatia maritima*); mudflats and sandflats not covered by seawater at low tide; perennial vegetation of stony banks; reefs; and *Salicornia* and other annuals colonising mud and sand. Common seal, *Phoca vitulina* is also a qualifying feature. There are conservation objectives for Strangford Lough SAC to maintain the extent and species diversity of selection features and to allow natural processes to operate appropriately. There are also conservation objectives to maintain transitions between saltmarsh communities and to maintain features used by common seals.

The Vulnerability section of the Strangford Lough SAC European data form records that the main threats to the site include pollution loadings. The draft Conservation Objectives Report for the Strangford Lough SAC (NIEA) identifies operations affecting water quality as one of the most likely factors that may be either affecting Strangford Lough, or could affect it in the future. There is a possibility that the seal population in Strangford Lough would utilize areas in the vicinity of the BMAP area. If this is the case there is the potential for BMAP activities to reduce habitat availability, cause
habitat fragmentation or result in behavioral changes of seals. Strangford Lough is designated as a SPA because it contains internationally important bird populations and assemblages. This includes breeding populations of both Sandwich Tern Sterna sandvicensis and Common Tern Sterna hirundo. The site also regularly supports over 20,000 over-wintering waterfowl, including internationally important numbers of Light-bellied Brent Geese Branta bernicla hrota, Knot Calidris canutus and Redshank Tringa totanus. The conservation objectives for the site are to maintain each feature in favorable condition (including measurements of fledgling success and population numbers). The Vulnerability section of the Strangford Lough SPA European data form records that all wildfowl and wader species could be affected by changes in sediment, nutrient enrichment and inter-specific competition.

**Potential for Cumulative Impacts:**
Development activities in the Ards and Down Area Plan 2015 and Banbridge Newry and Mourne Area Plan 2015 and activities associated with Water Resource Plans and associated capital works may lead to cumulative
- eutrophication and acidification impacts from aerial deposition
- eutrophication, pollution and sedimentation impacts from hydrological connections
- reduced or altered habitat availability for seals
- alteration of wildfowl and wader habitat.

**Screening Conclusion:**
There is a potential risk of aerial deposition arising from the BMAP area and cumulatively from other development plans leading to eutrophication and acidification impacting on Strangford Lough SAC, SPA and Ramsar. There is a potential risk of hydrological connections from the BMAP area and cumulatively from other development plans leading to eutrophication, pollution and sedimentation impacting on Strangford Lough SAC, SPA and Ramsar. There is also a potential risk that activities in BMAP and cumulatively from other development plans could alter the habitat availability for seals and lead to behavioral changes. Under the precautionary methodology utilized in the screening it was deemed that Strangford Lough SAC, SPA and Ramsar will require Appropriate Assessment.

### The Maidens cSAC

**Ecological Connectivity to BMAP:**
The Maidens is ecologically connected by marine waters to BMAP. This may be particularly relevant for mobile species such as grey seals.

**Infrastructural or aerial connectivity to BMAP:**
The Maidens cSAC is a marine location in the Irish Sea which is located approximately 10 km from Carrickfergus Council. The Maidens cSAC is linked to BMAP by the potential for aerial depositions.

**Sensitivities of European Features to BMAP connectivity and activities:**
The Maidens has been proposed as an SAC is for its reef habitat, sandbank slightly covered by seawater all the time and grey seal Halichoerus grypus. The vulnerability section of the European data form does not list aerial pollution as a major threat to the Maidens cSAC however aerial pollution and associated atmospheric deposition arising from the BMAP area has the potential to lead to increased eutrophication and acidification. Certain habitats and floral species are particularly sensitive to eutrophication and acidification. There is a possibility that the seal population in the Maidens cSAC would utilize areas in the vicinity of the BMAP area. If this is the case there is the potential for BMAP activities to reduce habitat availability, cause habitat fragmentation or result in behavioral changes of seals.

**Potential for Cumulative Impacts:**
Development activities in the Larne Area Plan 2010, Antrim Area Plan 1984-2001, Ballymena Area Plan 1986-2002, Ballymena Town Centre Local Plan 1991-2002 and the draft Northern Area Plan 2016 may lead to cumulative aerial deposition eutrophication and acidification impacts. Development activities throughout the Northern Ireland Irish Sea coastline have a potential to cumulatively impact upon the network of haul out and breeding sites that are utilised by Grey Seals.

**Screening Conclusion:**
There is a potential risk of aerial deposition arising from the BMAP area and cumulatively from other development plans leading to eutrophication and acidification impacting on The Maidens cSAC.
There is a potential risk that activities in BMAP and cumulatively from other development plans could alter the habitat availability for seals and lead to behavioral changes.
Under the precautionary methodology utilized in the screening it was deemed that the Maidens cSAC will require Appropriate Assessment.

**Turmennan SAC and Ramsar**

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<th>Ecological Connectivity to BMAP:</th>
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**Infrastructural or aerial connectivity to BMAP:**
Turmennan SAC and Ramsar is within Down District Council. It is located approximately 14 km from Lisburn City Council and Castlereagh Borough Council. Turmennan SAC is linked to BMAP by the potential for aerial depositions.

**Sensitivities of European Features to BMAP connectivity and activities:**
Transition mires and quaking bogs is the principle reason for the selection of Turmennan as a SAC. There are conservation objectives for Turmennan SAC to maintain the extent of transition mires and quaking bogs and their structure and habitat and species diversity. There are also conservation objectives to maintain the populations of rare plant species and the diversity of invertebrate communities.
The vulnerability section of the European data form identified eutrophication as one of the main potential threats to the site and nutrient enrichment as a major cause for concern. The JNCC (2007) identified air pollution as one of the main threats and pressures for transitional mires and quaking bogs.
Aerial pollution and associated atmospheric deposition of nitrogen and sulphur compounds arising from the BMAP area have the potential to lead to eutrophication and soil acidification.

**Potential for Cumulative Impacts:**
Development activities in the Ards and Down Area Plan 2015 and the Banbridge Newry and Mourne Area Plan 2015 (approx 14km from the SAC) may lead to cumulative eutrophication and acidification impacts.

**Screening Conclusion:**
There is a potential risk of aerial deposition arising from the BMAP area and cumulatively from other development plans leading to eutrophication and acidification impacting on Turmennan SAC.
Under the precautionary methodology utilized in the screening it was deemed that Turmennan SAC will require Appropriate Assessment.
Appendix 3: Map Series
Appendix 4: Consultation Zones

The consultation zones indicate a minimal indicative area, within which proposed developments or operations will require consultation with Natural Heritage, NIEA to ensure that an appropriate Habitats Regulation Assessment is undertaken.

Antrim Hills SPA

Drundarragh Hill Hen Harrier Foraging Consultation Zone
Lough Neagh SPA / Ramsar

Flatfield Swan Field Consultation Zone
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