



# Gwynedd Local Flood Risk Management Strategy

## Habitats Regulations Assessment (HRA) (Consultation Draft)

February 2024

CPF8599



# Document Control Sheet

<b>Document Title:</b>	Habitats Regulations Assessment (Consultation draft)
<b>Document Author(s):</b>	Rhys Thomas
<b>Project Ref / Title:</b>	CPF 8599 – Local Flood Risk Management Strategy
<b>Project Manager:</b>	Rhydian Roberts

## Revision History

Date	Version No.	Summary of Changes
08/11/2023	0.01	Initial Draft
17/11/2023	0.02	Revised draft following review
27/02/2024	0.03	Updated draft to reflect minor changes to GLFRMS objectives

## Reviews

Name	Title	Date	Version
Nancy Wilkinson	Senior Environment Officer (Ecology)	14/11/2023	0.02

## Approvals

Name	Title	Date	Version
Rhydian Roberts	Principal Engineer	27/02/2014	0.03

## Distribution

Name	Title	Date	Version

© 2023-24 Gwynedd Council / YGC. All Rights Reserved.

Copyright in any or all of this documentation belongs to Gwynedd Council / YGC of Council Offices, Shirehall Street, Caernarfon, Gwynedd, LL55 1SH (the 'Owner') and may not be used, sold, transferred, copied or reproduced in whole or in part, in any manner of form or on any media to any person other than in accordance with the terms of the Owner's agreement or otherwise without the prior written consent of the Owner.



ISO9001:2015  
F3526386



ISO14001:2015  
EMS 526388



ISO45001  
OHS 526389

## Contents

### Cynnwys

1.0	INTRODUCTION .....	5
2.0	THE NEED FOR ASSESSMENT AND IDENTIFYING EUROPEAN SITES AT RISK.....	11
3.0	SCREENING .....	22
4.0	ASSESSING THE LIKELIHOOD OF IN-COMBINATION EFFECTS .....	46
5.0	FORMAL SCREENING OPINION.....	48
6.0	APPROPRIATE ASSESSMENT.....	49
7.0	CONCLUSION .....	60
8.0	REFERENCES .....	61

### Appendices

- A. European Sites within or adjacent to GLFRMS area.
- B. European Sites Potentially at Risk – Pre-screening table

## List of Abbreviations

AA	Appropriate Assessment
AEOI	Adverse Effect on the Integrity of the Site
AIES	Assessment of Implications on European Sites
cSAC	Candidate Special Area of Conservation
DCWW	Dwr Cymru Welsh Water
EMS	European Marine Site
FCERM	Flood and Coastal Erosion Risk Management
FCS	Favourable conservation status
FRMP	Flood Risk Management Plan
GLFRMS	Gwynedd Local Flood Risk Management Strategy
GPP	Guidance for Pollution Prevention
HRA	Habitats Regulations Assessment
IEEM	Institute of Ecology and Environmental Management
INNS	Invasive Non Native Species
IROPI	Imperative Reasons of Over-riding Public Interest
JLDP	Joint Local Development Plan
JNCC	Joint Nature Conservation Committee
LDP	Local Development Plan
LLFA	Lead Local Flood Authority
LSE	Likely Significant Effect
NFM	Natural Flood Management
NRW	Natural Resources Wales
OMS	Offshore Marine Site
PEU	Plainly Established and Uncontroversial
PPG	Pollution Prevention Guideline
pRamsar	Possible Ramsar Site
pSAC	Possible Special Area of Conservation
pSPA	Potential Special Protection Area
RBMP	River Basin Management Plan
SAC	Special Area of Conservation
SMP	Shoreline Management Plan
SPA	Special Protection Area
SUDS	Sustainable Drainage System
TAN	Technical Advice Note
WG	Welsh Government
WNMP	Welsh National Marine Plan

## **Executive Summary**

Habitats Regulations Assessment (HRA) is required under the EU Habitats Directive (92/43/EEC) for any proposed plan or project which may have a significant effect on one or more European sites and which is not necessary for the management of those sites. As the competent authority Gwynedd Council has therefore assessed the potential effects of its Local Flood Risk Management Strategy on 'European sites' (namely Special Areas of Conservation, Special Protection Areas and Ramsar sites).

A scoping exercise was initially completed to identify the European sites that fall within the Gwynedd Local Flood Risk Management Strategy (GLFRMS) area. This exercise then proceeded to identify which of these sites are likely to remain unaffected by the GLFRMS and hence not requiring to be considered further. 7 sites were scoped out, leaving 25 European sites, comprising 18 SACs, 4 SPAs, and 3 Ramsar Sites, to be considered in the assessment.

A scoping exercise was also completed to investigate which of the GLFRMS Objectives / Actions have the potential for a significant effect on European sites. Potential adverse effects associated with the GLFRMS may occur from a limited number of the GLFRMS objectives. Many of the options are involved with non-environmentally damaging operations, such as development of flood risk community engagement and emergency planning, and hence will not have an adverse effect on the environment.

A screening process was undertaken which involved an assessment of likely significant effects on the identified European sites screened in, taking account of the screened in GLFRMS objectives and the likely impacts from these objectives / actions. The screening exercise concluded that likely significant effects (LSE) could not be ruled out for a total of 18 SACs, 4 SPAs, and 3 Ramsar sites. Therefore, an appropriate assessment was required for these likely significant effects.

The Appropriate Assessment found that some of the objectives/actions of the GLFRMS could effect the integrity of European sites. However, due to the high level of the strategy it is not possible to conclude with any certainty which, if any sites will be affected, or if the effects will be significant. Subsequent plans and projects / schemes arising from the GLFRMS will need to be subject to HRA if there is a potential to affect European Designated Sites, under the Habitats Regulations.

The assessment showed that for identified likely impacts, effective mitigation approaches are available at lower – tier levels. Provided that effective and appropriate mitigation is implemented it can be concluded that no adverse effects on European Site integrity will occur as a result of adopting the GLFRMS. The Appropriate Assessment therefore concluded that the GLFRMS is not likely to have any significant adverse effects on European sites, alone or in combination with other plans or projects. Detailed assessments will be required at lower-tier levels to identify any likely significant effects at the site-specific level and implementation of the required mitigation to avoid these.

## **1.0 INTRODUCTION**

Cyngor Gwynedd is currently developing its Local Flood Risk Management Strategy (LFRMS) and is undertaking Habitats Regulations Assessment (HRA) in line with the requirements set by The Conservation of Habitats and Species Regulations 2010 (as amended).

Habitats Regulations Assessment is also commonly referred to as Appropriate Assessment (AA) although the requirement for AA is first determined by an initial 'screening' stage undertaken as part of the full HRA. The HRA screening report addresses the likely significant effects on designated European Sites of implementing the objectives and measures of the LFRMS.

Cyngor Gwynedd is preparing its LFRMS in its role as a Lead Local Flood Authority (LLFA), under the Flood and Water Management Act 2010. Gwynedd's LFRMS will aim to address flood risk management at the local scale within the county boundary, including the Snowdonia National Park Authority area that falls within Gwynedd. Local flood risk includes surface runoff, groundwater, and ordinary watercourses (including lakes and ponds). Ordinary watercourses are defined as those that do not form part of a main river.

The LFRMS must specify the following:

- 1) The risk management authorities in Gwynedd;
- 2) The flood and coastal risk management functions that may be exercised by those authorities in relation to Gwynedd;
- 3) The objectives for managing local flood risk;
- 4) The measures proposed to achieve those objectives;
- 5) How and when the measures are expected to be implemented;
- 6) The costs and benefits of those measures, and how they are to be paid for;
- 7) The assessment of local flood risk for the purpose of the strategy;
- 8) How and when the strategy is to be reviewed, and;
- 9) How the strategy contributes to the achievement of wider environmental objectives.

The LFRMS must accord with the Welsh Government's National Flood and Coastal Erosion Management Strategy. The National Strategy sets out the legislative context to FCERM activities in Wales. This will chiefly deal with flood risk from main rivers, the sea and reservoirs. However, the interaction of these aspects with local sources of flooding must still be considered within the LFRMS.

Within the LFRMS application area there are various designated nature conservation sites that form part of the Natura 2000 network; this is an EU-wide network of nature protection areas established under the 1992 Habitats Directive (92/43/EEC) to ensure the long-term survival of Europe's most valuable and threatened species and habitats. The network is comprised of Special Areas of Conservation (SAC) designated by Member States under the Habitats Directive, and also incorporates Special Protection Areas (SPAs) designated under the 1979 Birds Directive (79/409/EEC), as superseded by the 2009 Birds Directive (2009/147/EC). Together with Ramsar sites, which are wetlands of international importance designated under the Convention on Wetlands (Ramsar, Iran, 1971), these are collectively referred to as 'European Sites'.

Before it is formally adopted, Gwynedd Council, as the competent authority, must consider the potential effects of its LFRMS on European Sites using a process known as Habitats Regulations Assessment (HRA). This report documents the first stage of the process, which screens the likelihood of significant adverse effects upon the qualifying interests of the European Sites and concludes whether the Final Draft LFRMS should be subject to Appropriate Assessment before it is formally adopted.

## **1.2 Authors**

This HRA has been prepared by:

- Rhys Meilyr Thomas, PGDip, with 5 years of ecological consultancy experience, including HRA and Environmental Impact Assessment (EIA) of large projects;
- Nancy Wilkinson PGDip BSc (Hons) MCIEEM, with over 15 years of ecological consultancy experience, including HRA and Ecological Impact Assessment (EclA) of large projects.

### 1.3 European Sites and Ramsars

The EU Habitats Directive requires competent authorities to assess the impacts of plans and projects on the Natura 2000 network of protected sites, including Special Protection Areas (SPAs) and Special Areas of Conservation (SACs). In England and Wales, the Directive is implemented by the Conservation of Habitats and Species and Planning (Various Amendments) (England and Wales) Regulations 2017 (the 'Habitats Regulations'). These set out the requirement for a Habitats Regulations Assessment (HRA) where necessary, comprising a series of mandatory tests.

According to Government policy and advice, 'Wetlands of International Importance' or Ramsar sites, although not subject to the Habitats Regulations, should be treated within the planning system in the same way as SACs and SPAs (or 'European sites'). The same level of protection is also given to potential or proposed sites (i.e. pSPA, pSAC and pRamsar), which have not yet been formally designated.

### 1.4 The HRA of Plans

The Habitats Regulations Assessment process, requires compliance with procedures and the application of a method for assessment. There are statutory procedures which must be complied with during the assessment of plans. These step-wise procedural requirements are set out by the Habitats Regulations (summarised below in Figure 1).

The Habitats Regulations do not prescribe a particular methodology for carrying out an assessment of a plan, or how to report the outcomes of the assessment. To ensure that the procedural requirements of the Directive and Regulations have been or are being met, a step-wise process, going through four stages of assessment is recommended. This should be undertaken in the correct sequence of stages so that each step is considered in the context of the whole process.

Firstly, a pre-screening process establishes whether a plan can be exempted, excluded or eliminated, either because it is directly connected with or necessary to the conservation management of a protected site, or not a 'plan' within the meaning and scope of the Habitats Directive, or because it couldn't conceivably affect any protected sites. If it cannot be discounted for these reasons, it has to undergo a process involving the four stages outlined in Table 1 and Figure 1 below.

The first stage is to screen the plan to identify if it may result in a likely significant effect, whether alone or in-combination with other plans or projects. Provided that these significant effects can be ruled out, then no further assessment is needed. Following recent case law (*People over Wind*, 2017), mitigation cannot be taken into consideration at this stage.

If likely significant effects cannot be ruled out, then the plan will proceed to the 'Appropriate Assessment' stage which explores the impacts in terms of the site's conservation objectives. This is to identify whether it can be ascertained that *it will not adversely affect the integrity of the European site*. It is only at this stage that mitigation measures can be considered or imposed. If the Appropriate Assessment can rule out any adverse effects on the integrity of European sites (with or without mitigation), the plan may then be approved.

If adverse effects cannot be ruled out, then the assessment progresses to stages three and four and specific derogations may be sought. These determine whether alternative solutions exist and if not, whether imperative reasons of overriding public interest apply and if so, whether compensation is feasible. It should be noted that use of the derogations is regarded as a last resort and should be considered only in exceptional circumstances. The majority of plans are resolved during stages 1 and 2 of the HRA process, as few would manage to pass the strict tests of stages 3 and 4.

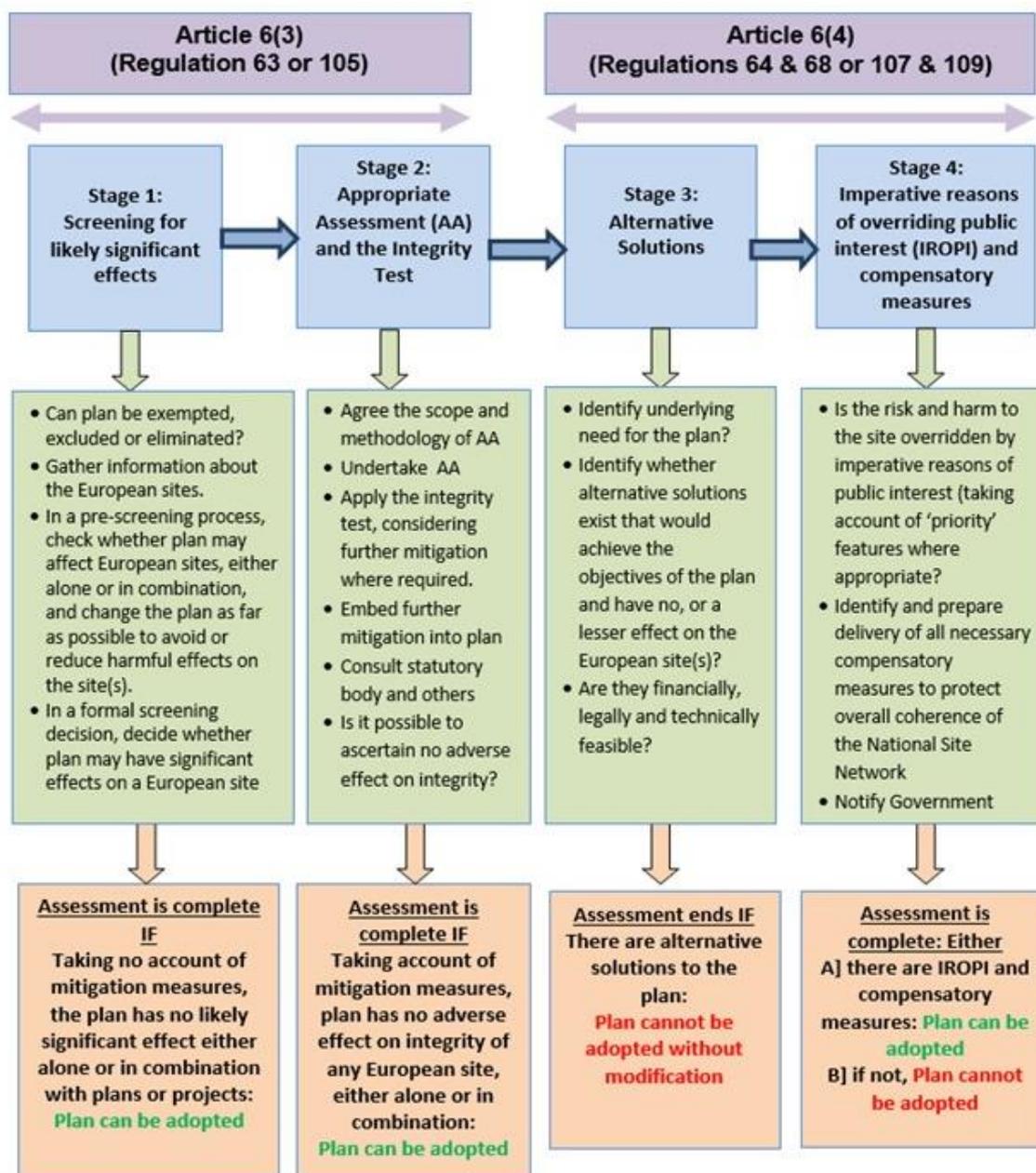
**Table 1:** Summary of the four-stage HRA process

Stage	Test	Task
1	Screening	<p>If the project cannot be excluded from the process (pre-screening), this stage determines if the project will lead to a 'likely significant effect' on a European site alone or in-combination with other plans or projects.</p> <p>This stage uses a very precautionary approach, without consideration of mitigation measures.</p> <p>This stage involves gathering information about the protected sites but is not a detailed analysis of the impacts</p>
2	Appropriate Assessment and Integrity Test	<p>If 'likely significant effects' cannot be ruled out, a more thorough 'appropriate assessment' must be carried out to assess whether it is possible to ascertain whether the project will have an 'adverse effect on the integrity of the site' (AEOI) or not.</p> <p>Mitigation can be considered at this stage but not before</p>
3	Alternative Solutions	<p>If 'AEOI' cannot be ruled out, the HRA must explore whether less damaging 'alternative solutions' could deliver the overall objective of the project</p>
4	Imperative Reasons of Over-riding Public Interest (IROPI) and Compensation	<p>If no alternative solutions exist, the project can only proceed if 'IROPI' apply and 'compensatory measures' must be delivered before consent can be granted</p>

This HRA uses guidance provided by the Habitats Regulations Assessment Handbook (DTA, 2013, January 2021 edition), which draws on best practice and case law from the UK and across the EU to inform best practice. The definitions of HRA terminology used in the assessment can be found in the HRA Handbook.

This document contains information for Stage 1 (Screening) - Test of Likely Significant Effects and information to inform Stage 2: Appropriate Assessment – the consideration of the impact of the plan on the integrity of the internationally protected sites, either alone or in combination with other projects or plans.

Extent of knowledge, use of professional judgement and the precautionary principal of professional judgment have been used in the gathering of data and in the interpretation of results gained in relation to the potential impacts, mitigation and significance of any residual impacts, and consideration against conservation objectives. If information is unknown about a potential impact on a species, then the precautionary principal has been used.



Extract from *The Habitats Regulations Assessment Handbook*, [www.dtapublications.co.uk](http://www.dtapublications.co.uk)  
 © DTA Publications Limited (October 2018) all rights reserved  
 This work is registered with the UK Copyright Service

**Figure 1:** Outline of the four-stage approach to the Habitats Regulations Assessment of plans

## 1.5 Definitions, Evidence and Case Law

### Stage One – Screening

In the context of a likely significant effect, 'likely' means a possible (or the risk of a) significant effect whose occurrence cannot be excluded on the basis of objective information. 'Significant' means if it is likely to undermine the conservation objectives of a European / internationally important site. 'Objective information' can be defined as a clear verifiable fact rather than a subjective opinion and when carrying out a screening assessment, it is not that significant effects are probable, it is that a risk is 'sufficient'. However, there must be credible evidence that there is a 'real', rather than a 'hypothetical' risk.

An ‘in-combination’ assessment is only required when an impact is identified as having an insignificant effect on its own (but residual effects remain) that may become significant when taken into consideration with other plans or projects. This type of assessment is only required during the screening stage, although it can be difficult to distinguish between likely significant effects when considered alone or in-combination. Additionally, the rather coarse nature of the screening stage can sometimes preclude or compromise the necessary analysis and an incorrect choice can sometimes prompt extensive and unnecessary work, which is a limitation of this process. Therefore, unless the issues at the screening stage are clear, this HRA assumes that all likely significant effects apply alone with no residual effects. This will ensure all possible effects are considered and assessed for more thorough analysis in the appropriate assessment if required.

### **Stage Two – Appropriate Assessment and the Integrity Test**

Regulation 63 states that where a plan is ‘likely to have a significant effect’, it can only be consented if the competent authority can ascertain that it ‘will not adversely affect the integrity of the European site.’ An Appropriate Assessment is defined as “the consideration of the impact on the integrity of the Natura 2000 site of the project or plan, either alone or in combination with other projects or plans, with respect to the site’s structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts”.

The ‘integrity’ of a European site is defined as:

*‘the coherence of its ecological structure and function, across its whole area, which enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified or listed.’*

The European Commission defined it more recently as follows:

*‘The integrity of the site involves its constitutive characteristics and ecological functions. The decision as to whether it is adversely affected should focus on and be limited to the habitats and species for which the site has been designated and the site’s conservation objectives.’*

As the HRA process is an iterative process, further scrutiny during the Appropriate Assessment will inevitably confirm or challenge the outcomes of the screening exercise. As a result, this may result in changes such as the identification of new or removal of existing effects, or the need for an in-combination screening assessment.

In accordance with the principles of the mitigation hierarchy, if mitigation measures are able to remove an adverse effect, the measure should be adopted regardless of the cost or difficulty.

### **Favourable Conservation Status**

The aim of the Habitats Directive is to maintain or restore the habitats and species (or qualifying features) listed in Annex I and Annex II respectively, to favourable conservation status (FCS) to ensure their long-term survival is secured across their natural range within the EU. This is described in Articles 1(e) and 1(i) of the Directive as follows:

*The conservation status of a natural habitat will be taken as favourable when:*

- *Its natural range and areas it covers within that range are stable or increasing;*
- *The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and*
- *The conservation status of its typical species is favourable as defined in (i);*

[and]

*The conservation status of a species will be taken as favourable when:*

- *Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats;*
- *The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and*
- *There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.*

These targets may apply across several member states but are delivered by site-based conservation objectives. Site-based conservation objectives can be defined as *'a set of specified objectives to be met in a site in order to make sure that the site contributes in the best possible way to achieving FCS at the appropriate level (taking into account the natural range of the respective species or habitat types)'*.

### **Priority features**

Some of the qualifying features of the Natura 2000 European sites are listed as 'Priority features'. These are treated in the same way as the other features during Stages 1 and 2 of an HRA, but at Stage 4, Imperative reasons for overriding public interest (IROPI) are restricted to those relating to human health, public safety or beneficial effects on the environment if priority features would or could be adversely affected by a plan or project. In other words, IROPI of a social or economic nature alone cannot be considered sufficient reasons for impacts on 'priority features' when assessing the derogations (Stages 3 and 4 of HRA).

### **Mitigation and case law**

The People Over Wind case provided a new interpretation of when and how mitigation measures should be considered in an HRA. In 2017, the European Court of Justice departed from previous decisions, clearly identifying that measures specifically designed to avoid or reduce likely significant effects should not be evaluated at the screening stage, and should be reserved for the Appropriate Assessment stage.

### **Role of the competent authority**

It is the competent authority's responsibility to decide whether or not to adopt this assessment as part of their duty under the Habitats Regulations.

## **2.0 THE NEED FOR ASSESSMENT AND IDENTIFYING EUROPEAN SITES AT RISK**

### **2.1 Exclusion, Elimination and Exemption from the Need for Assessment**

Prior to the identification of vulnerable European sites, Stage 1 of the HRA process encourages a brief 'pre-screening' exercise to determine whether there is actually a need for an HRA. It decides whether a plan can be:

- **Exempted** from the HRA because it is '... directly connected with or necessary for the management of the ... European site';
- **Excluded** from the HRA because 'it is not a plan/project within the meaning and scope of the Habitats Directive'; or
- **Eliminated** from the HRA because it can easily be shown that although 'it is a plan/project ... it could not have any conceivable effect on any European site'.

Following this pre-screening exercise, it is evident that the document does in fact represent a plan within the meaning and scope of the Habitats Directive with the potential to cause harm to European sites. As a result, it can neither be excluded nor eliminated from the HRA. Additionally, the purpose of the plan is not directly connected with or necessary to the management of European sites, and so it cannot be made exempt from the HRA process. Therefore, the first steps of the Stage 1 assessment will need to commence by identifying which European sites (and associated features) may be at risk. The identification of these sites is outlined in the section below.

### **2.2 Identification of European sites at risk**

The HRA process requires the consideration of all European Sites that have potential to be adversely affected by Gwynedd's LFRMS. The GLFRMS covers all of the land within the Gwynedd boundaries (including the area of the Snowdonia National Park within Gwynedd). For the purpose of this HRA, those sites that lie within, or partially within Gwynedd and also those sites in neighbouring local authorities which may be at risk of receiving negative impacts (e.g. water pollution) via causal pathways as a result of the GLFRMS, have been considered. Appendix A shows the location of European sites located within and adjacent to Gwynedd.

Table 2 below identifies all of the European Sites that have been considered in this assessment. A total of 32 European Sites comprising 19 SACs, 9 SPAs and 4 Ramsar sites were initially identified for inclusion at the scoping stage. No cSACs, pSACs, pSPAs or pRamsar sites have been identified within the study area. The sites considered to be most at risk are those with aquatic habitats and features, as the GLFRMS may result in projects that adversely affect water quality and riparian habitat.

**Table 2.** European sites considered at the scoping stage of the HRA:

European site	Location (inside / outside GLFRMS application area.
Aber Dyfi / Dyfi Estuary SPA	Inside & Outside
Afon Dyfrdwy a Llyn Tegid / River Dee and Bala Lake SAC	Inside & Outside
Afon Eden – Cors Goch Trawsfynydd SAC	Inside
Afon Gwyrfai a Llyn Cwellyn SAC	Inside
Bae Lerpwl / Liverpool Bay SPA	Inside & Outside
Berwyn SPA	Inside & Outside
Berwyn a Mynyddoedd De Clwyd / Berwyn and South Clwyd Mountains SAC	Inside & Outside
Cadair Idris SAC	Inside
Clogwyni Pen Llyn / Sea Cliffs of Llyn SAC	Inside
Coedydd Aber SAC	Inside
Coedydd Derw a Safleoedd Ystlumod Meirion / Meirionnydd Oakwoods and Bat Sites SAC	Inside
Cors Fochno and Dyfi Ramsar	Inside & Outside
Corsydd Eifionydd / Eifionydd Fens SAC	Inside
Corsydd Llyn / Llyn Fens SAC	Inside
Corsydd Mon a Llyn / Anglesey and Llyn Fens Ramsar	Inside & Outside
Craig yr Aderyn (Bird’s Rock) SPA	Inside
Eryri / Snowdonia SAC	Inside
Glannau Aberdaron ac Ynys Enlli / Aberdaron Coast and Bardsey island SPA	Inside
Glynllifon SAC	Inside
Gogledd Bae Ceredigion / Northern Cardigan Bay SPA	Inside & Outside
Gorllewin Cymru Forol / West Wales Marine SAC	Inside & Outside
Llyn Idwal Ramsar	Inside
Llyn Tegid Ramsar	Inside
Migneint-Arenig-Dduallt SAC	Inside & Outside
Migneint-Arenig-Dduallt SPA	Inside & Outside
Morfa Harlech a Morfa Dyffryn SAC	Inside
Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal SPA	Inside
Pen Llyn a’r Sarnau / Llyn Peninsula and the Sarnau SAC	Inside & Outside
Rhinog SAC	Inside
Traeth Lafan / Lafan Sands SPA	Inside & Outside
Y Fenai a Bae Conwy / Menai Strait and Conwy Bay SAC	Inside & Outside

The presence of a site on the list in Table 2 doesn't in itself justify its inclusion in subsequent stages of the HRA process, as this depends on the nature of the GLFRMS objective/action, characteristics of the site and the possible impact pathways between the two. Therefore a pre-screening assessment has been carried out looking at which GLFRMS objectives and actions are to be assessed further, along with which European Sites (from the list identified in Table 2) are considered at risk and where further scrutiny is needed. Where evidence demands that harmful effects are unlikely, the GLFRMS objectives and European sites have been scoped out from further assessment. The full pre-screening table can be viewed in full in Appendix B. Information on the screening of GLFRMS Objectives / Actions is provided in section 2.3 below.

### 2.3 Review of GLFRMS Objectives

The Welsh Government National Strategy provides the framework for flood and coastal erosion risk management in Wales. The framework is centred around an aim, five key objectives and the measures to achieve those objectives. The aim of the strategy is to 'reduce the risk to people and communities from flooding and coastal erosion'. The aim is supported by five objectives that complement and overlap each other with the intention of reducing the risk to life.

For the Gwynedd Local Flood Risk Management Strategy, Cyngor Gwynedd has developed its own strategic objectives which both align with the National strategy objectives and reflect the local context and priorities. The objectives have been selected to reflect the greatest areas of priority whilst considering the Council's remit for managing risk associated with local flooding and coastal erosion. All objectives are supported by a range of actions, listed in Table 3 below, which are designed to complement and improve the methods currently adopted by the Council to manage flood and coastal erosion risks.

A screening process was undertaken to determine which of the GLFRMS actions could have the potential to adversely affect European sites. Many of the actions related specifically to social effects (e.g. testing of emergency plans) and have therefore been scoped out of further assessment at this stage as it is deemed that such actions will not have a potential adverse effect on European sites.

Table 3 below shows the GLFRMS Objectives and actions, an assessment of potential effect, and whether the actions have been scoped in or out for further assessment.

The screening exercise identified four GLFRMS actions which are considered to have a potential adverse effect on European sites. The four actions that are scoped in for further assessment are:

***Action 1.2 Flood and coastal erosion risk management improvements:***

*Action 1.2A - Prepare annual list of schemes from long-term action plan to reduce risk of flooding and coastal erosion to be presented for inclusion on WG capital programme*

***Action 1.4 Maintenance and deployment of flood/coastal erosion risk management assets:***

*Action 1.4A - Prepare and deliver minor works programme (revenue) based on findings of asset condition assessment to maintain standard of protection afforded by flood risk/coastal erosion assets.*

***Action 3.3 Sustainable Drainage Systems (SuDS) and Natural Flood Risk Management (NFM):***

*Action 3.3A - Identify opportunities for the implementation of SuDS and NFM schemes in areas which will deliver meaningful flood risk benefits as well as other environmental and amenity benefits*

*Action 3.3B – Work with partner authorities and landowners to deliver NFM schemes as part of a national programme.*

Some of the potential impacts that could arise from these actions are:

- Disturbance of features by factors such as noise, vibration, light etc;
- Loss of habitat area, quality, or connectivity;
- Changes to flow regime and sediment characteristics;
- Changes in drainage characteristics;
- Deterioration of water quality and changes in the nutrient loads of receiving waters;
- Introduction of physical and hydrological barriers etc. in watercourses

At this stage it is considered very difficult to determine exactly which sites may be affected by the GLFRMS or the extent of any effects, due to uncertainty about where and how the GLFRMS measures will be implemented. However, a precautionary approach has been taken and professional judgment has been applied to identify potential adverse effects and whether these are likely to be significant. A summary of the scoping exercise for European sites is provided in section 2.4 below.

**Table 3. GLFRMS Objectives and Actions screening table**

<b>Objectives Screening Table</b>		
<b>GLFRMS Objectives and Actions (Draft)</b>	<b>Potential Effect</b>	<b>Scoped in / out</b>
<b>Objective 1: To aim to reduce the level of flood and coastal erosion risk to the residents of Gwynedd.</b>		
<p><b>1.1 Flood and coastal erosion risk management programmes:</b></p> <p>Action 1.1A - Maintain long-term capital programme to reduce risk of inland flooding</p> <p>Action 1.1B - Maintain long-term capital programme to reduce risk of coastal flooding/erosion, incorporating actions identified within SMP2</p>	<p>There is not a pathway between the plan objective and the European sites interest features, whether direct, indirect or induced pathway. The actions are not considered to have an adverse effect on European sites as they are involved with maintaining programmes of studies and schemes only. (Although maintaining such programmes can eventually make provisions for potential development works, such works as a direct result of these programmes are covered in 1.2 below.)</p>	<p>Scoped out</p>
<p><b>1.2 Flood and coastal erosion risk management improvements:</b></p> <p>Action 1.2A - Prepare annual list of schemes from long-term action plan to reduce risk of flooding and coastal erosion to be presented for inclusion on WG capital programme</p>	<p>The actions make provision for potential development works in locations that could be within or adjacent to European sites, or where there could be a direct pathway. For this reason, significant effects cannot be ruled out.</p>	<p>Scoped in</p>
<p><b>1.3 Management of flood/coastal erosion risk management assets:</b></p> <p>Action 1.3A – Develop register and map of highway drainage assets in flood prone areas</p> <p>Action 1.3B - Develop register and map of all SuDS elements adopted by the Council</p>	<p>There is not a pathway between the plan objective and the European sites interest features, whether direct, indirect or induced pathway. The actions are not considered to have an adverse effect on European sites as they are involved with developing a register and mapping activities only.</p>	<p>Scoped out</p>
<p><b>1.4 Maintenance and deployment of flood/coastal erosion risk management assets</b></p>	<p>The actions make provision for potential development works in locations that could be within or adjacent to European sites, or</p>	<p>Scoped in</p>

Action 1.4A - Prepare and deliver minor works programme (revenue) based on findings of asset condition assessment to maintain standard of protection afforded by flood risk/coastal erosion assets	where there could be a direct pathway. For this reason, significant effects cannot be ruled out.	
<b>Objective 2: To further develop an understanding of the flood risk to Gwynedd and the impacts of climate change.</b>		
<p><b>2.1 Working with partner RMA's:</b></p> <p>Action 2.1A – Contribute to stakeholder events with colleagues from other RMAs i.e. North Wales Regional Flood Group, West of Wales Coastal Group</p> <p>Action 2.1B – Hold regular discussions regarding flood risk issues within Gwynedd with colleagues from NRW and DCWW.</p>	There is not a pathway between the plan objective and the European sites interest features, whether direct, indirect or induced pathway. The actions are not considered to have an adverse effect on European sites as they are involved with stakeholder engagement activities.	Scoped out
<p><b>2.2 Flood Investigations:</b></p> <p>Action 2.2A – Develop and improve current mechanisms to identify incidents of flooding within Gwynedd as early as possible.</p>	There is not a pathway between the plan objective and the European sites interest features, whether direct, indirect or induced pathway. The actions are not considered to have an adverse effect on European sites as they are involved with flood investigation activities only.	Scoped out
<p><b>2.3 Flooding to highway network</b></p> <p>Action 2.3A – Initiate study to identify areas of the county highway network that are most vulnerable to flooding and will become more susceptible as a result of climate change effects in the future.</p>	There is not a pathway between the plan objective and the European sites interest features, whether direct, indirect or induced pathway. The actions are not considered to have an adverse effect on European sites as they are involved with desk based study activities only.	Scoped out
<p><b>2.4 Flood Modelling:</b></p>	There is not a pathway between the plan objective and the European sites interest features, whether direct, indirect or induced pathway. The actions are not considered to have an adverse effect on	Scoped out

<p>Action 2.4A – Development of high quality hydrological and hydraulic modelling to build on national maps and better understand flood risk at local level.</p> <p>Action 2.4B – Incorporate most up-to-date climate change projections into all flood modelling exercises.</p> <p>Action 2.4C – Sharing of local flood modelling information with NRW so that national maps can be updated as appropriate.</p>	<p>European sites as they are involved with flood modelling activities only.</p>	
<p><b>2.5 Data Collection:</b></p> <p>Action 2.5A – Enhancing our network of LoraWAN sensors to measure water levels within watercourses as well as groundwater level in areas of particular interest</p> <p>Action 2.5B – Develop and implement a monitoring programme for areas of the coastline where cliff instability poses a risk to people and property.</p>	<p>There is not a pathway between the plan objective and the European sites interest features, whether direct, indirect or induced pathway. The actions are not considered to have an adverse effect on European sites as they are involved with data collection activities only.</p>	<p>Scoped out</p>
<p><b>Objective 3: To continue to work with all relevant bodies to ensure appropriate and sustainable development in Gwynedd</b></p>		
<p><b>3.1 Development Planning / Development Control:</b></p> <p>Action 3.1A – Incorporation within the Local Development Plan of the requirements contained within TAN15 with regard to Strategic Flood Consequence Assessment</p> <p>Action 3.1B – Regard within the Local Development Plan of recommendations for future changes in coastal policy, and subsequent implications for land use near the coastline</p>	<p>There is not a pathway between the plan objective and the European sites interest features, whether direct, indirect or induced pathway. The actions are not considered to have an adverse effect on European sites as they are involved with developing plans and compliance with policy and register and mapping activities only.</p>	<p>Scoped out</p>
<p><b>3.2 Works near watercourses:</b></p>	<p>The actions are not considered to have an adverse effect on European sites as they are involved with developing policies that will</p>	<p>Scoped out</p>

<p>Action 3.2A - Periodic review of all policies relating to Land Drainage consenting procedures to ensure best practice is maintained and proposed developers are aware of design and construction requirements</p>	<p>promote best practice, including protecting and enhancing the natural environment.</p>	
<p><b>3.3 Sustainable Drainage Systems (SuDS) and Natural Flood Risk Management (NFM):</b></p> <p>Action 3.3A – Identify opportunities for the implementation of SuDS and NFM schemes in areas which will deliver meaningful flood risk benefits as well as other environmental and amenity benefits</p> <p>Action 3.3B – Work with partner authorities and landowners to deliver NFM schemes as part of a national programme</p> <p>Action 3.3C – Develop position statement which clearly outlines how NFM schemes should be designed and developed to obtain necessary watercourse consents (S23 and LD bylaws) from Gwynedd Council.</p>	<p>Although the actions are essentially involved with developing SuDS and NFM programmes that will promote best practice, including protecting and enhancing the natural environment including biodiversity, the actions make provision for potential development works in locations that could be within or adjacent to European sites, or where there could be a direct pathway. For this reason, significant effects cannot be ruled out.</p>	<p>Scoped in</p>
<p><b>Objective 4: Raising awareness of local flood and coastal erosion risk</b></p>		
<p><b>4.1 Raising awareness of local flood risk:</b></p> <p>Action 4.1A – Gwynedd Council will raise awareness of flood risk to its residents</p> <p>Action 4.1B – Gwynedd Council will advise on and promote flood resilience and resistance measures amongst its residents</p> <p>Action 4.1C – Gwynedd Council will prepare and publish an information pamphlet available to all residents within flood risk areas, and any residents that have experienced flooding to their properties</p>	<p>There is not a pathway between the plan objective and the European sites interest features, whether direct, indirect or induced pathway. The actions are not considered to have an adverse effect on European sites as they are involved with awareness raising activities only.</p>	<p>Scoped out</p>

<p><b>4.2 Raising awareness of coastal erosion risk:</b></p> <p>Action 4.2A – Cyngor Gwynedd will raise awareness of coastal erosion risk to its residents, focusing on the most at risk areas</p>	<p>There is not a pathway between the plan objective and the European sites interest features, whether direct, indirect or induced pathway. The actions are not considered to have an adverse effect on European sites as they are involved with awareness raising activities only.</p>	<p>Scoped out</p>
<p><b>Objective 5: Working collaboratively with all other Risk Management Authorities and relevant groups/bodies to ensure a coordinated response to flood and coastal erosion events</b></p>		
<p><b>5.1 Preparation and testing of Emergency Plans:</b></p> <p>Action 5.1A - Cyngor Gwynedd will review and update its flood emergency plans alongside North Wales Councils Regional Planning Service; to include evacuation and rest centre plans.</p>	<p>There is not a pathway between the plan objective and the European sites interest features, whether direct, indirect or induced pathway. The actions are not considered to have an adverse effect on European sites as they are involved with emergency planning and responses.</p>	<p>Scoped out</p>

## 2.4 Scoping of European sites for the screening stage

Following the identification of the European Sites that may be adversely affected by Gwynedd's LFRMS (see Table 2), a scoping exercise was completed to determine whether it could be objectively concluded that certain sites would not be affected, prior to completing the screening assessment. This pre-screening assessment is outlined in full in Appendix A.

The sites listed in Table 4 below were determined to be unaffected by Gwynedd's LFRMS and hence scoped out of the Screening stage. These include sites outside of the GLFRMS study area that are not considered to be at risk of impacts via causal pathways and other sites that are not considered to be at risk due to their geographic location and/or designated features. A total of 7 European Sites, comprising 1 SACs, 5 SPAs, and 1 Ramsar were scoped out (see Table 4).

**Table 4.** European sites scoped out of the HRA screening stage

European Site	Designation	Justification
Bae Lerpwl / Liverpool Bay	SPA	The site is located off the north-eastern coast of Gwynedd, just outside the GLFRMS area. Given its location, no pollution or disturbance impacts potentially caused by the GLFRMS are envisaged to cause negative impacts upon this site or its bird features.
Craig yr Aderyn (Bird's Rock)	SPA	This site is designated for breeding and wintering Chough and is an unusual inland breeding site for Cormorant. It is restricted to the crags of Craig yr Aderyn and the LFRMS is not expected to result in any flood management projects in this location nor any impacts on the bird species for which the site is designated.
Glannau Aberdaron ac Ynys Enlli / Aberdaron Coast and Bardsey Island	SPA	This site is designated for breeding Chough and Manx Shearwater and is therefore restricted to Ynys Enlli and the coastline of the tip of Pen Llyn. The designation does not include any freshwater habitats and the LFRMS is not expected to result in any flood management projects in this location nor any impacts on the two bird species for which the site is designated.
Gogledd Bae Ceredigion / Northern Cardigan Bay	SPA	The site is designated for its population of Red Throated Diver. Although sensitive to marine pollution and potential disturbance, it is unlikely that projects are going to be at a scale that could adversely impact upon the species feature of this site.
Llyn Idwal	Ramsar	Due to the small size of this site (13.51ha) and its upland location with limited controlled drainage, it is considered unlikely that this site will be at risk of potential adverse effects from maintenance / construction work related to the GLFRMS.
Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal	SPA	This site is designated for breeding and wintering Chough and is restricted to the coastline of the southern tip of Pen Llŷn. The designation does not include any freshwater habitats and the LFRMS is not expected to result in any flood management

		projects in this location nor any impacts on the bird species for which the site is designated.
Y Twyni o Abermenai i Aberffraw / Abermenai to Aberffraw Dunes	SAC	This site is located in the south-western corner of Anglesey and at the mouth of Foryd Bay in Gwynedd. It is designated for its dune systems and associated plant species and has been identified for the HRA as it is partially within the GLFRMS area. However, no pollution impacts, potentially caused by the LFRMS are envisaged to cause negative impacts to the dune features of this site.

**Table 5.** European sites included in the screening stage

<b>European Site</b>	<b>Designation</b>
Aber Dyfi / Dyfi Estuary	SPA
Afon Dyfrdwy a Llyn Tegid / River Dee and Bala Lake	SAC
Afon Eden – Cors Goch Trawsfynydd	SAC
Afon Gwyrfai a Llyn Cwellyn	SAC
Berwyn	SPA
Berwyn a Mynyddoedd De Clwyd / Berwyn and South Clwyd Mountains	SAC
Cadair Idris	SAC
Clogwyni Pen Llyn / Sea Cliffs of Llyn	SAC
Coedydd Aber	SAC
Coedydd Derw a Safleoedd Ystlumod Meirion / Meirionnydd Oakwoods and Bat Sites	SAC
Cors Fochno and Dyfi	Ramsar
Corsydd Eifionydd / Eifionydd Fens	SAC
Corsydd Llyn / Lleyn Fens	SAC
Corsydd Mon a Llyn / Anglesey and Lleyn Fens	Ramsar
Eryri / Snowdonia	SAC
Glynllifon	SAC
Gorllewin Cymru Forol / West Wales Marine	SAC
Llyn Tegid	Ramsar
Migneint-Arenig-Dduallt	SAC
Migneint-Arenig-Dduallt	SPA
Morfa Harlech a Morfa Dyffryn	SAC
Pen Llyn a'r Sarnau / Lleyn Peninsula and the Sarnau	SAC
Rhinog	SAC
Traeth Lafan / Lafan Sands	SPA
Y Fenai a Bae Conwy / Menai Strait and Conwy Bay	SAC

## **3.0 SCREENING**

### **3.1 Purpose**

The purpose of the screening exercise determines whether or not a plan or project will lead to a 'likely significant effect' or, in other words, whether there is a risk that the proposed works will lead to effects that would 'undermine the conservation objectives' of the site and cannot be 'excluded on the basis of objective information'. An Appropriate Assessment is required when likely significant effects (that are credible and not hypothetical) are identified (or cannot be ruled out).

### **3.2 Approach**

In order to complete the screening stage and identify any likely significant effects on site features, additional information is needed for each site at risk. Table 6 below therefore collates information for each site, including a site description and list of qualifying features, and use this to identify any likely significant effects from the plan (based on the objectives/actions and threats listed in section 2.3 and table 3 above) and the site features potentially affected. The site-specific information provided in table 6 has been collated from the Natural Resources Wales and JNCC websites. If necessary, more detailed descriptions of the sites will be provided at the Appropriate Assessment stage, including the conservation objectives, but the information in Tables 6 below is sufficient for the screening stage.

In-depth analysis is not required at the screening stage as it should only operate as a 'trigger' to determine if an Appropriate Assessment is needed. Therefore, detailed examination of each of the conservation objectives of each of the features of the sites will not be undertaken at this stage, and is reserved for the Appropriate Assessment stage. Instead, this section only broadly explores whether it is possible that conservation objectives could be undermined and takes into account the risk of a potential significant effect.

As a result of the 'People Over Wind' decision, the screening stage is able to consider the essential features and characteristics of a plan but is not able to take bespoke mitigation measures into account. The consideration of all mitigation for this plan is therefore reserved for the Appropriate Assessment stage.

**Table 6.** Assessment of Likely Significant Effects on European Sites

Site Screening Table			
European site	Qualifying features	Potential significant effects on European site (Including GLFRMS objective/action of concern)	Likely Significant Effects?
<p><b>Aber Dyfi / Dyfi Estuary SPA</b></p> <p>The Dyfi Estuary is located on the west coast of Wales on the boundary between Ceredigion, Gwynedd and Powys. The SPA comprises the estuary, with adjoining saltmarsh, marshy grassland and improved grassland. The estuarine complex is of outstanding physiographic interest. It includes sandbanks, mud-flats, saltmarsh, peatbogs, river channels and creeks, with an extensive sand dune complex across the mouth of the estuary. The estuary itself is a feature of the Penllyn a’r Sarnau marine SAC. The site is of importance as a traditional wintering area for Greenland White-fronted Goose <i>Anser albifrons flavirostris</i> – the most southerly regularly used area for this population in the UK.</p> <p>Vulnerability: Disturbance by leisure activities and increasing resident flock of Canada goose cause disturbance to Greenland White-fronted goose.</p>	<p><b>Annex I Birds and regularly occurring migratory birds not listed on Annex I</b></p> <p>Greenland White-fronted Goose <i>Anser albifrons flavirostris</i></p>	<p>Adverse effects from Noise / visual disturbance to Greenland White-fronted Geese due to maintenance of flood and coastal erosion risk management assets (1.4), and any works associated with FCERM programme / improvements (1.2) or SuDS/NFM implementations (3.3).</p>	<p>It is considered that the threat of disturbance to species features, could potentially undermine the conservation objectives of the site for all Annex I and Annex II features listed and therefore is included as a likely significant effect.</p>
<p><b>Afon Dyfrdwy a Llyn Tegid / River Dee and Bala Lake SAC</b></p>	<p><b>Annex I Habitat:</b></p>	<p>Maintenance of flood and coastal erosion risk management assets</p>	<p>It is considered that the threat of disturbance to species features,</p>

<p>The site extends from the western extremity of Llyn Tegid taking in the entire lake and its banks to its outfall into the River Dee. It then takes in the river and its banks downstream to where it joins the Dee Estuary SSSI. A number of the Dee's tributaries are also included, these being the Ceiriog, Meloch, Tryweryn, and Mynach. The site is designated for its Rivers with floating vegetation often dominated by water-crowfoot habitat feature, along with several species features including; Bullhead, River lamprey, Brook lamprey, Floating water-plantain, Otter, Sea lamprey, and Atlantic salmon.</p> <p>Vulnerability: The site and its features are threatened by practices which have an adverse effect on the quality, quantity and pattern of water flows including the following: inappropriate flow regulation; excessive abstraction (for industry, agriculture and domestic purposes); threats to water quality from direct and diffuse pollution; eutrophication and siltation. Degradation of riparian habitats due to engineering works, agricultural practices and invasive plant species may also have an adverse effect. The Atlantic salmon population is threatened by excessive exploitation by high sea, estuarine and recreational fisheries. Introduction of non-indigenous species</p>	<p>Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation</p> <p><b>Annex II Species:</b></p> <p>Atlantic salmon <i>Salmo salar</i></p> <p>Floating water-plantain <i>Luronium natans</i></p> <p>Sea lamprey <i>Petromyzon marinus</i></p> <p>Brook lamprey <i>Lampetra planeri</i></p> <p>River lamprey <i>Lampetra fluviatilis</i></p> <p>Bullhead <i>Cottus gobio</i></p> <p>Otter <i>Lutra lutra</i></p>	<p>(1.4), FCERM programme / improvement works (1.2), and SuDS/NFM implementation works (3.3) could cause adverse effects due to disturbance to species features and potential loss of habitats, along with potential adverse effects on water quality through maintenance / construction work.</p>	<p><b>potential habitat loss, and degradation of water quality could potentially undermine the conservation objectives of the site for all Annex I and Annex II features listed and therefore is included as a likely significant effect.</b></p>
---	--	--	---

<p>could also threaten both fish and plant species.</p>			
<p><b>Afon Eden – Cors Goch Trawsfynydd SAC</b></p> <p>The Afon Eden/River Eden is a relatively unmodified river, mainly upland in character, of approximately 10km length. The watershed begins just south of Llyn Trawsfynydd, within an area of gently sloping and poorly drained land. The upper section of the catchment is slow-flowing with a number of deep pools along its length. In the lower two-thirds of the catchment the river flows more steeply into a narrow rocky gorge, with an adjacent area of forestry plantation, known as Coed y Brenin. The Afon Eden joins with the Afon Mawddach, just above the village of Ganllwyd, but the SAC boundary continues downstream to the tidal limit of the Mawddach at Llanelltyd. The river contains the largest known population of freshwater pearl mussels surviving in Wales, they are almost entirely confined to one section of the river. Other qualifying features of the site include Active raised bogs, Floating water plantain, Otter, and Atlantic salmon.</p> <p>Vulnerability: Pearl mussel and salmonids are particularly vulnerable to water pollution e.g. nitrate input, sediment input and inappropriate river management.</p>	<p><b>Annex I Habitat</b></p> <p>Active Raised Bogs</p> <p><b>Annex II Species</b></p> <p>Freshwater Pearl Mussel <i>Margaritifera margaritifera</i></p> <p>Floating Water-plantain <i>Luronium natans</i></p> <p>Atlantic Salmon <i>Salmo salar</i></p> <p>Otter <i>Lutra lutra</i></p>	<p>Maintenance of flood and coastal erosion risk management assets (1.4), FCERM programme / improvement works (1.2), and SuDS/NFM implementation works (3.3) could cause adverse effects due to disturbance to species features and potential loss of habitats, along with potential adverse effects on water quality through maintenance / construction work.</p>	<p>It is considered that the threat of disturbance to species features, potential habitat loss, and degradation of water quality could potentially undermine the conservation objectives of the site for all Annex I and Annex II features listed and therefore is included as a likely significant effect.</p>

<p><b>Afon Gwyrfai a Llyn Cwellyn SAC</b></p> <p>This site comprises the Afon Gwyrfai and Llyn Cwellyn. The Gwyrfai flows out of Llyn y Gader near Rhyd Ddu and passes through Llyn Cwellyn on its way to the sea at Y Foryd, Caernarfon Bay. It also includes a tributary of the Gwyrfai, the Afon Treweunydd, and the small lake it flows from on the slopes of Snowdon. Sporadically throughout its course, the SAC is abutted by semi-natural wetland riparian habitat much of which is within the SSSI. The whole of the Gwyrfai river system is of outstanding ecological quality. The river is particularly noted for its salmon population, for which it is considered to be one of the best supporting rivers in the United Kingdom. It is also notable for its otter population which occur here in good numbers because of the relative naturalness of its riparian habitats and the abundance of undisturbed dense cover. In addition to the lake, the river supports a discrete community of floating water plantain, and water-crowfoot <i>Ranunculus</i> spp, with other associated vegetation including bryophyte assemblages occurring in various sectors of the river.</p> <p>Vulnerability: The Afon Gwyrfai is likely to be most vulnerable to cumulative impacts of small-scale changes along its length</p>	<p><b>Annex I Habitat</b></p> <p>Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea</p> <p>Watercourses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation</p> <p><b>Annex II Species</b></p> <p>Atlantic Salmon <i>Salmo Salar</i></p> <p>Floating Water-plantain <i>Luronium natans</i></p> <p>Otter <i>Lutra lutra</i></p>	<p>Maintenance of flood and coastal erosion risk management assets (1.4), FCERM programme / improvement works (1.2), and SuDS/NFM implementation works (3.3) could cause adverse effects due to disturbance to species features and potential loss of habitats, along with potential adverse effects on water quality through maintenance / construction work.</p>	<p>It is considered that the threat of disturbance to species features, potential habitat loss, and degradation of water quality could potentially undermine the conservation objectives of the site for all Annex I and Annex II features listed and therefore is included as a likely significant effect.</p>
---	---	--	---

<p>which may affect water quality and habitat structure.</p>			
<p><b>Berwyn SPA</b></p> <p>Berwyn is the most important upland in Wales for breeding birds. It supports a wide range of species including internationally significant numbers of hen harrier <i>Circus cyaneus</i>, merlin <i>Falco columbarius</i>, peregrine <i>Falco peregrinus</i> and red kite <i>Milvus milvus</i>, as well as significant proportions of the Welsh populations of other species including short eared owl <i>Asio flammeus</i>, golden plover <i>Pluvialis apricaria</i>, red grouse <i>Lagopus lagopus</i> and black grouse <i>Tetrao tetrix</i>.</p> <p>Vulnerability: The blanket bog, heaths, fens, and grasslands have been threatened by inappropriate agricultural development including drainage, reseeding, application of fertilisers, burning, track construction and the adoption of damaging grazing regimes. Recreational use can cause erosion.</p>	<p><b>Annex I Birds and regularly occurring migratory birds not listed on Annex I</b></p> <p>Hen Harrier <i>Circus cyaneus</i></p> <p>Merlin <i>Falco columbarius</i></p> <p>Peregrine <i>Falco peregrinus</i></p> <p>Red Kite <i>Milvus milvus</i></p>	<p>Adverse effects from Noise / visual disturbance to nesting raptors due to maintenance of flood and coastal erosion risk management assets (1.4) and any potential FCERM improvement works (1.2 &amp; 2.2) and SuDS/NFM implementation works (3.3).</p>	<p>It is considered that the threat of disturbance to species features could potentially undermine the conservation objectives of the site for all Annex I and Annex II features listed and therefore is included as a likely significant effect.</p>
<p><b>Berwyn a Mynyddoedd De Clwyd / Berwyn and South Clwyd Mountains SAC</b></p> <p>The Berwyn and South Clwyd Mountains SAC is a large upland site (27,132 ha), the largest area of blanket bog and European dry heath in Wales. It comprises three discrete sites, Berwyn SSSI, Llandegla</p>	<p><b>Annex I Habitat</b></p> <p>European Dry Heaths</p> <p>Blanket Bogs</p>	<p>Alteration to upland drainage (e.g. ditches, drains) through maintenance, including channel clearing, could have adverse effects on wetland habitat features of the site (e.g. blanket bog and wet heath)</p>	<p>It is considered that the threat of potential habitat loss/degradation could potentially undermine the conservation objectives of the site for all Annex I and Annex II features listed and therefore is included as a likely significant effect.</p>

<p>Moor SSSI and Ruabon and Llantysilio Mountains and Minera SSSI. All of these sites are predominantly a mixture of dry heath and blanket bog vegetation with patches of transition mires and quaking bogs vegetation found as an intricate mosaic, usually on acidic rock types, and can together be described as upland moorland.</p> <p>Vulnerability: The blanket bog, heaths, fens, and grasslands have been threatened by inappropriate agricultural development including drainage, reseeding, application of fertilisers, burning, track construction and the adoption of damaging grazing regimes. Recreational use can cause erosion.</p>	<p>Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>)</p> <p>Transition mires and quaking bogs</p> <p>Calcareous and calschist screes of the montane to alpine levels (<i>Thlaspietea rotundifolii</i>)</p> <p>Calcareous rocky slopes with chasmophytic vegetation</p>		
<p><b>Cadair Idris SAC</b></p> <p>The site is located to the south of Dolgellau and is of special interest for its biological, Ordovician/igneous bedrock geology and Pleistocene/Quaternary geomorphology features. The site encompasses Cadair Idris mountain and the lower slopes, which are a mosaic of broadleaved woodland, wet meadows, upland habitats and grassland. The broad range of physical conditions gives rise to a wide range of habitat types. These include dwarf scrub heath communities, montane grasslands, herb- and fern-rich communities, blanket mire, soligenous flush communities, a spring-flush habitat,</p>	<p><b>Annex I habitats</b></p> <p>Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i></p> <p>Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>)</p> <p>Calcareous rocky slopes with chasmophytic vegetation</p> <p>Siliceous rocky slopes with chasmophytic vegetation</p>	<p>Alteration to upland drainage (e.g. ditches, drains) through maintenance (1.4), including channel clearing, or NFM schemes (3.3) could have adverse effects on wetland habitat features of the site (e.g. blanket bog and wet heath)</p>	<p><b>It is considered that the threat of potential habitat loss, and degradation of water quality could potentially undermine the conservation objectives of the site for all Annex I and Annex II features listed and therefore is included as a likely significant effect.</b></p>

<p>open water and oak woodland. The most prevalent are acid grasslands dominated by <i>Nardus stricta</i> and <i>Festuca ovina</i> and acid dry heaths dominated by <i>Calluna vulgaris</i>. In the context of the SSSI the site is also of special interest for its assemblage of higher plants, lichens, bryophytes and montane invertebrates. Nine higher plants are of special interest in their own right as is the (SAC feature) slender green feather moss <i>Hamatocaulis vernicosus</i> and an edge of range lichen species.</p> <p>Vulnerability: Visitor pressure leads to local damage to vegetation. High rainfall renders the site vulnerable to acidification. Heavy grazing and burning can lead to change in structure of the site.</p>	<p>Northern Atlantic wet heaths with <i>Erica tetralix</i></p> <p>European dry heaths</p> <p>Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinia caerulea</i>)</p> <p>Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels</p> <p>Blanket bogs</p> <p>Alkaline fens</p> <p>Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles</p> <p><b>Annex II species</b></p> <p>Marsh fritillary butterfly <i>Euphydryas (Eurodryas, Hypodryas) aurinia</i></p> <p>Slender green feather-moss <i>Drepanocladus (Hamatocaulis) vernicosus</i></p>		
<p><b>Clogwyni Pen Llyn / Sea Cliffs of Llyn SAC</b></p> <p>The Clogwyni Pen Llyn SAC site occupies a large section of the coast of the Llyn Peninsula, bordered by the Irish Sea and exposed to the prevailing winds and weather</p>	<p><b>Annex I habitats</b></p> <p>Vegetated sea cliffs of the Atlantic and Baltic Coasts</p>	<p>Adverse effects on cliff habitats due to engineering works associated with maintenance of flood/coastal erosion assets (1.4) and any additional construction works associated with FCERM</p>	<p>It is considered that the threat of potential habitat loss could potentially undermine the conservation objectives of the site for all Annex I and Annex II features listed and therefore is included as a likely significant effect.</p>

<p>systems. Its habitats are necessarily influenced by its location, geology and the climate, and the coastal area supports some of the best remaining examples of coastal and maritime heaths and grasslands on the Llyn. The site has been designated as a SAC for the internationally important habitat 'Vegetated Sea Cliffs of the Atlantic and Baltic Coasts'. This feature covers a range of habitats many of which are represented on this site, including hard and soft cliffs, maritime and coastal heath, maritime grassland and maritime therophyte communities.</p> <p>Vulnerability: Engineering works undertaken to the cliffs themselves and artificial sea defences. Changes in climatic conditions can lead to increases or decreases in storminess and associated high, salt-laden winds, which may affect the relative distribution of maritime grassland and maritime heath, habitats that are very much interlinked.</p>		<p>programmes and improvements (1.2 &amp; 3.3).</p>	
<p><b>Coedydd Aber SAC</b></p> <p>Coedydd Aber extends 4 km along the steep-sides valleys of the Afon Rhaeadr Fawr and Afon Anafon, which are situated immediately south of Abergwyngregyn village. Coedydd Aber is of special interest for its botanical, ornithological and entomological interest. The site supports a mosaic of native broadleaved woodland</p>	<p><b>Annex I Habitat</b></p> <p>Old sessile oak woods with Ilex and Blechnum in the British Isles</p> <p>Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)</p>	<p>Adverse effect on water quality through any maintenance work to flood risk management assets (1.4), FCERM programme/improvement works (1.2), and SuDS/NFM implementation works (3.3). Alluvial forests could be sensitive to changes in water quality.</p>	<p><b>It is considered that the threat of degradation to water quality could potentially undermine the conservation objectives of the site for all Annex I and Annex II features listed and therefore is included as a likely significant effect.</b></p>

<p>types of international importance including alluvial forests with alder and ash, and old sessile oak woods, which form a natural elevation – dependent habitat transition from coast to open mountain.</p> <p>Vulnerability: The woodland habitat is relatively robust, but there is scope for its enhancement through removal of conifers and other invasive species.</p>			
<p><b>Coedydd Derw a Safleoedd Ystlumod Meirion / Meirionnydd Oakwoods and Bat Sites SAC</b></p> <p>The Meirionnydd Oakwoods and Bat Sites SAC is made up of a series of woodlands, stretching from Dolgellau in the south to Eryri in the north. The majority of the SAC is classified as the woodland type known as “Old sessile oak woods with Ilex and Blechnum in the British Isles”, which covers approximately 84% of the SAC and is the dominant woodland type at most of the sites. A key feature of European importance is the rich Atlantic bryophyte communities that are often well developed within this Annex I habitat. Lesser horseshoe bats have over 20 known roosts within the SAC and forage widely within the SAC’s woodlands, associated habitats and the surrounding countryside.</p>	<p><b>Annex I Habitat</b></p> <p>Old sessile oak woods with Ilex and Blechnum in the British Isles</p> <p>Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)</p> <p>Watercourses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation</p> <p>Northern Atlantic wet heaths with Erica tetralix</p> <p>European dry heaths</p> <p>Tilio-Acerion forests of slopes, screes and ravines</p> <p>Bog woodland</p>	<p>Adverse effect on water quality through any maintenance work to flood risk management assets (1.4), FCERM programme / improvement works (1.2), or SuDS/NFM implementation works (3.3). Features such as ‘Watercourses of plain to montane levels’ are sensitive to changes in water quality.</p> <p>Maintenance of structures (those large enough to have free space suitable for a free hanging bat (e.g. some culverts and bridge structures) could cause adverse effects due to loss of habitat or disturbance to Lesser Horseshoe bats.</p>	<p><b>It is considered that the threat of disturbance to species features, potential habitat loss, and degradation of water quality could potentially undermine the conservation objectives of the site for all Annex I and Annex II features listed and therefore is included as a likely significant effect.</b></p>

<p>Vulnerability: Mosses and liverworts in gorges where recreational activities such as gorge-walking and extreme canoeing take place are threatened by over-use. Feral goats present within some of the sites require careful control to prevent bark-stripping and browsing damage to sapling and seedling trees. In the past the heathland has been threatened by inappropriate burning/grazing and afforestation. Lesser horseshoe bats are most vulnerable in their summer and winter roosts. Many roosts in mine adits have now been grilled to prevent disturbance to hibernating bats. Bats are also affected by a reduction in the availability of insect prey due to changes in agricultural practices and pesticides.</p>	<p><b>Annex II Species</b></p> <p>Lesser horseshoe bat <i>Rhinolophus hipposideros</i></p>		
<p><b>Cors Fochno and Dyfi Ramsar</b></p> <p>Corsf Fochno and Dyfi Ramsar is located partly within the south of Gwynedd and in the north of Ceredigion.</p>	<p><b>Ramsar Criterion 1</b></p> <p>The site contains the largest expanse of primary raised mire in lowland Britain; the largest estuarine raised mire and the third-largest 'active' raised mire in Britain. Habitats Directive Annex I Features present on the SAC component include:</p> <ul style="list-style-type: none"> <li>• Active raised bogs</li> <li>• Degraded raised bogs still capable of regeneration</li> <li>• Depressions on peat substrates of the Rhynchosporion</li> </ul>	<p>Adverse effect on water quality due to any maintenance work on flood and coastal erosion risk management assets (1.4) or FCERM improvement works (1.2) or SuDS/NFM implementation works (3.3)</p> <p>Adverse effects from Noise / visual disturbance to bird species features due to maintenance of flood and coastal erosion risk management assets or FCERM improvement works.</p>	<p><b>It is considered that the threat of disturbance to species features, and degradation of water quality could potentially undermine the conservation objectives of the site for all Annex I and Annex II features listed and therefore is included as a likely significant effect.</b></p>

	The site supports the only regular wintering flock of Greenland White-fronted Geese in England and Wales, and is a key site in Wales for breeding waders.		
<p><b>Corsydd Eifionydd / Eifionydd Fens SAC</b></p> <p>Corsydd Eifionydd SAC is made up of four separate Sites of Special Scientific Interest; Cors Graianog SSSI, Cors Gyfelog SSSI/NNR, Cors Llanllyfni SSSI and Cors y Wlad SSSI. The sites are situated within the upland-fringe transition between Snowdonia and the Llyn Peninsula and together they cover an area of over 144 ha. Between them, they should support three features of international importance namely transition mire and quaking bog, marsh fritillary and slender green feather moss. The sites should also support a range of other wetland habitats including marshy grassland, fen, bog, wet woodland and swamp habitats</p> <p>Vulnerability: The principal pressure the site is under is scrub encroachment due to a lack of grazing, which is a reflection of the inaccessible, boggy nature of the terrain. Drainage and pollution are additional threats.</p>	<p><b>Annex I Habitat</b></p> <p>Transition mires and quaking bogs</p> <p><b>Annex II Species</b></p> <p>Marsh fritillary butterfly <i>Euphydryas (Eurodryas, Hypodryas) aurinia</i></p> <p>Slender green feather-moss <i>Drepanocladus (Hamatocaulis) vernicosus</i></p>	<p>Adverse effect on water quality through any maintenance work to flood risk management assets (1.4), FCERM programme/improvement construction work (1.2) or SuDS/NFM implementation works (3.3).</p> <p>The habitat features of this SAC are considered particularly sensitive to changes in water quality.</p> <p>Alteration to drainage (e.g. ditches, drains, culverts) through maintenance, including channel clearing, could have adverse effects on wetland habitat features of the site (e.g. transition mires and quaking bogs).</p>	<p>It is considered that the threat of potential habitat loss, and degradation of water quality could potentially undermine the conservation objectives of the site for all Annex I and Annex II features listed and therefore is included as a likely significant effect.</p>
<p><b>Corsydd Llyn / Lleyn Fens SAC</b></p> <p>Corsydd Llyn SAC consists of a chain of four rich-fen sites running across the</p>	<p><b>Annex I Habitat</b></p> <p>Alkaline fens</p>	<p>Adverse effect on water quality through any maintenance work to flood risk management assets (1.4), FCERM programme</p>	<p>It is considered that the threat of potential habitat loss, and degradation of water quality could potentially undermine the conservation</p>

<p>centre of the Llyn Peninsula, north-west Wales. Cors Geirch is the largest component site; the remaining three component sites of Cors Hirdre, Rhyllech Uchaf and Aber Geirch occupy separate hydrotopographical units. Features include Calcium-rich fen dominated by great fen sedge, Calcium-rich springwater-fed fens, Geyer's whorl snail, Desmoulin's whorl snail.</p> <p>Vulnerability: The site is under pressure from agricultural pressures (e.g. ditch maintenance, fertiliser application, neglect). Water quality of the site is vulnerable to deterioration due to agricultural activities (e.g. slurry). Scrub encroachment is an ongoing management problem.</p>	<p>Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i></p> <p><b>Annex II Species</b></p> <p>Desmoulin's whorl snail <i>Vertigo moulinsiana</i></p> <p>Geyer's whorl snail <i>Vertigo geyeri</i></p>	<p>construction works (1.2) or SuDS/NFM implementation works (3.3).</p> <p>The features of this SAC are considered particularly sensitive to changes in water quality.</p> <p>Alteration to drainage (e.g. ditches, drains, culverts) through maintenance, including channel clearing, could have adverse effects on wetland habitat features of the site.</p>	<p><b>objectives of the site for all Annex I and Annex II features listed and therefore is included as a likely significant effect.</b></p>
<p><b>Corsydd Mon a Llyn / Anglesey and Lleyn Fens Ramsar</b></p> <p>An internationally important suite of base-rich fens comprised of six component sites, supporting a range of associated floral and faunal rarities. The six wetlands occupy valley heads and former lake basins which have mostly infilled with marl and peat deposits, with open water persisting at two of the sites. Calcareous springs from limestone and calcareous drift aquifers irrigate the fens and result in a distinctive vegetation. These fens are notable as the best sites in Wales for stoneworts.</p>	<p><b>Ramsar Criterion 1</b></p> <p>The site supports a suite of base-rich, calcareous fens, a rare habitat type in the UK.</p> <p>Annex I features include:</p> <ul style="list-style-type: none"> <li>• Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp</li> <li>• Northern Atlantic wet heaths with <i>Erica tetralix</i></li> <li>• <i>Molinia</i> meadows on calcareous, peaty or clayey—silt-laden soils (<i>Molinion caeruleae</i>)</li> </ul>	<p>Maintenance of flood and coastal erosion risk management assets (1.4), FCERM programme construction works (1.2) or SuDS/NFM implementation works (3.3) could cause adverse effects from disturbance to species features or potentially loss of habitats.</p> <p>Adverse effect on water quality through any maintenance work to flood risk management assets. Many of the features of this Ramsar site are sensitive to changes in water quality.</p>	<p><b>It is considered that the threat of disturbance to species features, potential habitat loss, and degradation of water quality could potentially undermine the conservation objectives of the site for all Annex I and Annex II features listed and therefore is included as a likely significant effect.</b></p>

	<ul style="list-style-type: none"> <li>• Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i></li> <li>• Alkaline fens</li> <li>• Geyer's Whorl Snail <i>Vertigo geyeri</i></li> <li>• Southern damselfly <i>Coenagrion Mercuriale</i></li> <li>• Marsh Fritillary butterfly <i>Euphydryas (Eurodryas, Hypodryas) aurinia</i></li> </ul> <p><b>Ramsar Criterion 3</b></p> <p>The site supports diverse flora and fauna and is of special value for maintaining genetic / ecological diversity.</p>	<p>Alteration to drainage (e.g. ditches, drains, culverts) through maintenance, including channel clearing, could have adverse effects on wetland habitat features of the site.</p>	
<p><b>Eryri / Snowdonia SAC</b></p> <p>Eryri comprises three upland massifs separated by roads, the Carneddau, Glyderau and Yr Wyddfa. All three host a number of biological and geological SSSI features and SAC features. Qualifying features include; High altitude plant communities associated with areas of water seepage, Blanket Bog, Species-rich grassland with mat-grass in upland areas, Alpine and subalpine heaths, dry heaths, and western acidic oak woodland.</p> <p>Vulnerability: Overgrazing can affect some vegetation communities. The high rainfall and extensive acidic geology/pedology renders this area, especially its</p>	<p><b>Annex I Habitats</b></p> <p>Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i></p> <p>Siliceous alpine and boreal grasslands</p> <p>Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels</p> <p>Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>)</p>	<p>Alteration to upland drainage (e.g. ditches, drains) through maintenance (1.4), including channel clearing, could have adverse effects on wetland habitat features of the site (e.g. blanket bog and wet heath). Implementation of NFM (3.3) could also effect some features (such as European Dry Heath) by increasing water levels on land.</p> <p>Adverse effect on water quality through any maintenance work to flood risk management assets. Some features of this SAC are sensitive to changes in water quality.</p>	<p><b>It is considered that the threat of potential habitat loss, and degradation of water quality could potentially undermine the conservation objectives of the site for all Annex I and Annex II features listed and therefore is included as a likely significant effect.</b></p>

<p>watercourses and lakes, vulnerable to acidification.</p>	<p>Calcareous rocky slopes with chasmophytic vegetation</p> <p>Siliceous rocky slopes with chasmophytic vegetation</p> <p>Northern Atlantic wet heaths with <i>Erica tetralix</i></p> <p>European dry heaths</p> <p>Alpine and Boreal heaths</p> <p>Alpine and subalpine calcareous grasslands</p> <p>Species-rich <i>Nardus</i> grassland on siliceous substrate in mountain areas</p> <p>Blanket bogs</p> <p>Depressions of peat substrates of the Rhynchosporion</p> <p>Petrifying springs with tufa formation (<i>Cratoneurion</i>)</p> <p>Alkaline fens</p> <p>Alpine pioneer formations of the <i>Caricion bicloris-atrofuscae</i></p> <p>Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles</p>		
---	---	--	--

	<p><b>Annex II Species</b></p> <p>Slender green feather-moss <i>Drepanocladus (Hamatocaulis) vernicosus</i></p> <p>Floating water-plantain <i>Luronium natans</i></p>		
<p><b>Glynllifon SAC</b></p> <p>Glynllifon SAC is designated for its population of Lesser horseshoe bats. There are three maternity roosts within the site and two hibernation roosts. Although some habitat is included within the SAC boundary, the bats use a much wider area for feeding and commuting and there are also known linked roosts outside of the SAC boundary.</p> <p>Vulnerability: Development, including loss of roost sites and impact upon flightlines through vegetation/tree clearance. Flightlines linking the SAC units are also very important and need to be considered when assessing developments. Bats are susceptible to disturbance, particularly during the summer maternity season. Bats are also affected by a reduction in the availability of insect prey due to changes in agricultural practices and pesticides.</p>	<p><b>Annex II Species</b></p> <p>Lesser Horseshoe Bat <i>Rhinolophus hipposideros</i></p>	<p>Adverse impact to Lesser Horseshoe Bat flightlines through vegetation clearance due to FCERM programme or SuDS/NFM construction work (1.2 &amp; 3.3) or management of flood assets (1.4). Flightlines located outside the SAC are also sensitive as they link SAC components and potential foraging sites.</p>	<p>It is considered that the threat of disturbance to species features, and habitat degradation could potentially undermine the conservation objectives of the site for all Annex I and Annex II features listed and therefore is included as a likely significant effect.</p>
<p><b>Gorllewin Cymru Forol / West Wales Marine SAC</b></p>	<p><b>Annex II Species</b></p>	<p>Adverse effect on mobile species feature Harbour Porpoise due to potential for coastal protection</p>	<p>It is considered that the threat of disturbance to species features could potentially undermine the</p>

<p>The West Wales Marine / Gorllewin Cymru Forol SAC covers an area of 7,376km<sup>2</sup> extending southwards from the western end of the Llyn Peninsula across Cardigan Bay to Pembrokeshire. It is designated for its population of Harbour Porpoise.</p> <p>Vulnerability: Disturbance originating from underwater noise. Fisheries activities, including bycatch of harbour porpoise and removal of prey species. Recreational boating activity, causing disturbance or collision.</p>	<p>Harbour Porpoise <i>Phocoena phocoena</i></p>	<p>schemes to create underwater noise (1.2).</p>	<p>conservation objectives of the site for all Annex I and Annex II features listed and therefore is included as a likely significant effect.</p>
<p><b>Llyn Tegid Ramsar</b></p> <p>The largest natural lake in Wales, set in a deep formerly-glaciated trough. Its aquatic vegetation is sparse, but the range of species, several of which are scarce in Britain, is indicative of generally average nutrient conditions. Llyn Tegid is one of only six sites in Britain for the fish <i>Coregonus lavaretus</i> and is an unusual habitat for the normally riverine fish <i>Thymallus thymallus</i>.</p>	<p><b>Ramsar Criterion 1</b></p> <p>Largest natural lake in Wales, lying deep in a formerly glaciated trough.</p> <p><b>Ramsar Criterion 2</b></p> <p>Plant species growing in or beside the lake are mudwort <i>Limosa aquatica</i>, six-stamened waterwort <i>Elatine hexandra</i>, water sedge <i>Carex aquatilis</i> and floating water plantain <i>Luronium natans</i>, all of which are scarce in Britain. The latter species is regarded as vulnerable on a global scale.</p> <p>This site is also one of only six sites in Britain for whitefish or Gwyniad <i>Coregonus lavaretus</i>; the Welsh population of this fish is genetically distinct.</p>	<p>Maintenance of flood and coastal erosion risk management assets (1.4) could cause adverse effects from disturbance to species features or potentially loss of habitats.</p> <p>Adverse effect on water quality through any maintenance / construction work.</p>	<p>It is considered that the threat of disturbance to species features, potential habitat loss, and degradation of water quality could potentially undermine the conservation objectives of the site for all Annex I and Annex II features listed and therefore is included as a likely significant effect.</p>

	<p>Llyn Tegid is also an unusual habitat for the normally riverine fish grayling <i>Thymallus thymallus</i>.</p> <p>The nationally rare glutinous snail <i>Myxas glutinosa</i> has been rediscovered in the shallow gravels of the lake shore.</p>		
<p><b>Migneint-Arenig-Dduallt SAC</b></p> <p>Migneint-Arenig-Dduallt is a large upland site that stretches between Ysbyty Ifan and Penmachno in the north down to Rhydymain in the south, and from Trawsfynydd in the west to just east of Llyn Celyn. It ranges in altitude from 300 m to 712 m. The northern section encompasses a high peatland plateau centred on Migneint and extending to Tomen y Mur in the west and Cwm Hesygn in the east, with higher points such as Arenig Fach around the rim. The southern section, south of the Afon Lliw, also comprises a high plateau surrounded by higher ground and dominated by Dduallt mountain. The central section, lies south of Cwm Prysor and Llyn Celyn and includes Moel Llyfnant and Moel y Slates as well as the Arenig Fawr mountain ridge which is the highest part of the whole site. The SAC habitats are blanket bog, dry heath, wet heath, lakes and woodland</p> <p>Vulnerability: Inappropriate grazing, burning and drainage leading to the</p>	<p><b>Annex I Habitat</b></p> <p>European dry heaths</p> <p>Blanket bogs</p> <p>Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea</p> <p>Natural dystrophic lakes and ponds</p> <p>Northern Atlantic wet heaths with <i>Erica tetralix</i></p> <p>Old sessile oak woods with Ilex and Blechnum in the British Isles</p>	<p>Alteration to upland drainage (e.g. ditches, drains) through maintenance (1.4), including channel clearing, could have adverse effects on wetland habitat features of the site (e.g. blanket bog and wet heath).</p> <p>Adverse effect on water quality through any maintenance or construction work. Some features of this SAC are sensitive to changes in water quality.</p>	<p>It is considered that the threat of potential habitat loss, and degradation of water quality could potentially undermine the conservation objectives of the site for all Annex I and Annex II features listed and therefore is included as a likely significant effect.</p>

<p>degradation of the blanket bog and heath are the main threats adversely affecting the site. The vegetation and lake features are vulnerable to acidification due to atmospheric pollution.</p>			
<p><b>Migneint-Arenig-Dduallt SPA</b></p> <p>Migneint-Arenig-Dduallt is a large upland site that stretches between Ysbyty Ifan and Penmachno in the north down to Rhydymain in the south, and from Trawsfynydd in the west to just east of Llyn Celyn. The SPA is designated for Hen Harrier <i>Circus cyaneus</i>, Merlin <i>Falco columbarius</i>, Peregrine <i>Falco peregrinus</i>.</p> <p>Vulnerability: Inappropriate grazing/burning/drainage management has damaged the feeding/breeding habitat of the SPA features. Feeding/breeding habitats of all three species are also vulnerable to acidification due to atmospheric pollution being compounded by the high rainfall and acidic geology/pedology of the site. This site has also been significantly affected in the past by quarrying operations which have resulted in the destruction of habitats used by breeding birds.</p>	<p><b>Annex I Birds and regularly occurring migratory birds not listed on Annex I</b></p> <p>Hen Harrier <i>Circus cyaneus</i></p> <p>Merlin <i>Falco columbarius</i></p> <p>Peregrine <i>Falco peregrinus</i></p>	<p>Adverse effects from Noise / visual disturbance to nesting raptors due to maintenance of flood and coastal erosion risk management assets (1.4), FCERM programme construction work (1.2) or SuDS/NFM implementation works (3.3).</p>	<p>It is considered that the threat of disturbance to species features could potentially undermine the conservation objectives of the site for all Annex I and Annex II features listed and therefore is included as a likely significant effect.</p>
<p><b>Morfa Harlech a Morfa Dyffryn SAC</b></p> <p>The Morfa Harlech a Morfa Dyffryn SAC covers two sand dune systems, Morfa Harlech to the north and Morfa Dyffryn to</p>	<p><b>Annex I Habitat</b></p> <p>Embryonic shifting dunes</p>	<p>The potential for adverse effects on this site is considered to be very limited, as the qualifying features are principally terrestrial habitats and their associated vegetation.</p>	<p>It is considered that the threat of potential habitat loss or degradation could potentially undermine the conservation objectives of the site for all Annex I and Annex II features listed</p>

<p>the south. Morfa Harlech is a rapidly accreting dune system gaining sand from the coast to the south including the dune system at Morfa Dyffryn, which is eroding. The Morfa Harlech a Morfa Dyffryn SAC supports the following SAC features:</p> <ul style="list-style-type: none"> <li>• Embryonic shifting dunes</li> <li>• Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes')</li> <li>• Humid dune slacks</li> <li>• Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arinarea</i>)</li> <li>• Petalwort <i>Petalophyllum ralfsii</i></li> </ul> <p>Vulnerability: Heavy recreational pressures on the beaches and dunes, leading to destabilisation are the main threat to this site.</p>	<p>Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes')</p> <p>Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>)</p> <p>Humid dune slacks</p> <p><b>Annex II Species</b></p> <p>Petalwort <i>Petalophyllum ralfsii</i></p>	<p>The dune features would be sensitive to a constraint to natural sand movement, for example through new coastal defence structures (1.2), therefore this would need to be considered in relation to any coastal defence works within the same coastal 'cell'.</p>	<p><b>and therefore is included as a likely significant effect.</b></p>
<p><b>Pen Llyn a'r Sarnau / Lley Peninsula and the Sarnau SAC</b></p> <p>The Pen Llŷn a'r Sarnau SAC encompasses areas of sea, coast and estuary that support a wide range of different marine habitats and wildlife. The nature of the seabed and coast and the range of environmental conditions present vary throughout the SAC. Differences in rock and sediment type, aspect, sediment movement, exposure to tidal currents and wave action, water clarity and salinity together with biological and food chain interactions have created a wide range of habitats and associated communities of</p>	<p><b>Annex I Habitats</b></p> <p>Sandbanks which are slightly covered by sea water all the time</p> <p>Estuaries</p> <p>Coastal Lagoons</p> <p>Large shallow inlets and bays</p> <p>Reefs</p> <p>Mudflats and sandflats not covered by seawater at low tide</p>	<p>FCERM improvement works (1.2), maintenance of flood and coastal erosion risk management assets (1.4) and SuDS/NFM implementation works (3.3) could potentially cause adverse effects due to loss of habitat features or disturbance to species features.</p> <p>Adverse effect on marine water quality due to any maintenance or construction work.</p>	<p><b>It is considered that the threat of disturbance to species features, potential habitat loss through damage or coastal squeeze, and degradation of water quality could potentially undermine the conservation objectives of the site for all Annex I and Annex II features listed and therefore is included as a likely significant effect.</b></p>

<p>marine plant and animal species, some of which are unique in Wales.</p> <p>Pen Llŷn a'r Sarnau SAC is a multiple interest site that has been selected for the presence of 9 marine habitat types and associated wildlife (Habitats Directive Annex I habitat types) and 3 mammal species (Habitats Directive Annex II species). For the qualifying habitats and species, the Pen Llŷn a'r Sarnau SAC is considered to be one of the best areas in the UK for: Reefs, Large shallow inlets and bays, Sandbanks which are slightly covered by seawater all the time, Estuaries, Coastal lagoons.</p> <p>Vulnerability: Construction (e.g. of slipways, coastal defence and marinas/harbours) could cause disturbance to the estuarine, intertidal mudflat and sandflat, and reef habitats and disrupt physical processes essential for maintenance of these habitats. Certain reef communities are vulnerable to disturbance from specific fishing methods, in particular heavy bottom-fishing gear. Communities in the SAC are sensitive to oil pollution.</p>	<p>Salicornia and other annuals colonising mud and sand</p> <p>Atlantic salt meadows (<i>Glaucopuccinellietalia maritima</i>)</p> <p>Submerged or partially submerged sea caves</p> <p><b>Annex II Species</b></p> <p>Bottlenose dolphin <i>Tursiops truncatus</i></p> <p>Otter <i>Lutra lutra</i></p> <p>Grey seal <i>Halichoerus grypus</i></p>		
<p><b>Rhinog SAC</b></p> <p>The Rhinogydd are carved out of the hard, acidic Cambrian grits of the Harlech dome and have a rugged topography with</p>	<p><b>Annex I Habitats</b></p> <p>European Dry Heaths</p> <p>Old sessile oak woods with Ilex and Blechnum in the British Isles</p>	<p>Alteration to upland drainage (e.g. ditches, drains) through maintenance (1.4), including channel clearing, could have adverse effects on wetland habitat features of the site (e.g. blanket</p>	<p><b>It is considered that the threat of degradation to water quality could potentially undermine the conservation objectives of the site for all Annex I and Annex II features listed</b></p>

<p>scattered upland lakes, block-littered slopes, cliffs and outcrops. The geographical position of the site imposes an oceanic influence on the climate resulting in high rainfall, moderate temperatures and generally high humidity. The vegetation is dominated by heather <i>Calluna vulgaris</i> growing on thin, poor acidic soils. Grazing and burning practices over the past 60 years have been relatively minor and as such the heather stands are deep and mature. This, together with the prevailing climatic conditions, has resulted in a luxuriant ground flora of bryophytes and ferns. As an example of such unmodified <i>Calluna</i> habitat this site is unique in Wales.</p> <p>Vulnerability: The high rainfall and extensive acidic geology/pedology renders this area, especially its watercourses and lakes, vulnerable to acidification. The lichen-rich and bryophyte-rich oceanic heathland is vulnerable to burning and over-grazing.</p>	<p>Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea</p> <p>Northern Atlantic wet heaths with <i>Erica tetralix</i></p> <p>Alpine and boreal heaths</p> <p>Blanket bogs</p> <p>Depressions on peat substrates of the Rhynchosporion</p> <p><b>Annex II Species</b></p> <p>Floating water-plantain <i>Luronium natans</i></p>	<p>bogs and wet heaths) Damage/loss of habitat through the implementation of NFM schemes (3.3) by increasing water levels in areas.</p>	<p><b>and therefore is included as a likely significant effect.</b></p>
<p><b>Traeth Lafan / Lafan Sands SPA</b></p> <p>Traeth Lafan / Lavan Sands is located in Conwy Bay lying between Bangor and Llanfairfechan in north-west Wales. This large area of intertidal sand- and mud-flats lies at the eastern edge of the Menai Strait. The area has a range of exposures and a diversity of conditions, enhanced by</p>	<p><b>Annex I Birds and regularly occurring migratory birds not listed on Annex I</b></p> <p>Oystercatcher <i>Haematopus ostralegus</i></p> <p>Curlew <i>Numenius arquata</i></p>	<p>Adverse effects from Noise / visual disturbance to bird species features due to maintenance of flood and coastal erosion risk management assets (1.4).</p>	<p><b>It is considered that the threat of disturbance to species features, could potentially undermine the conservation objectives of the site for all Annex I and Annex II features listed and therefore is included as a likely significant effect.</b></p>

<p>freshwater streams that flow across the flats. The site is of importance for wintering waterbirds, especially Oystercatcher (<i>Haematopus ostralegus</i>) and Curlew (<i>Numenius arquata</i>). In conditions of severe winter weather, Traeth Lafan acts as a refuge area for Oystercatchers displaced from the Dee Estuary. The site is also an important moulting roost for Great Crested Grebe (<i>Podiceps cristatus</i>) in late summer/early autumn.</p> <p>Vulnerability: There have been concerns that the sporadic cockle suction-dredging may deplete oystercatchers' food source.</p>	<p>Great Crested Grebe <i>Podiceps cristatus</i></p>		
<p><b>Y Fenai a Bae Conwy / Menai Strait and Conwy Bay SAC</b></p> <p>The unique physiographic conditions experienced within the Menai Strait and Conwy Bay SAC make this an unusual site, which has long been recognised as important for marine wildlife. The variation in physical and environmental conditions throughout the site, including rock and sediment type, aspect, water clarity and exposure to tidal currents and wave action result in a wide range of habitats and associated marine communities. Many of these community types are unusual in Wales. Of particular interest is the continuum of environmental and physical conditions and associated marine communities from</p>	<p><b>Annex I Habitats</b></p> <p>Sandbanks which are slightly covered by sea water at all times</p> <p>Mudflats and sandflats not covered by seawater at low tide</p> <p>Reefs</p> <p>Large shallow inlets and bays</p> <p>Submerged or partially submerged sea caves</p>	<p>Maintenance of flood and coastal erosion risk management assets (1.4), FCERM programme related construction works (1.2) or SuDS/NFM implementation works (3.3) could potentially cause adverse effects due to loss of habitat features.</p> <p>Adverse effect on marine water quality due to any maintenance work on flood and coastal erosion risk management assets.</p>	<p>It is considered that the threat of potential habitat loss, and degradation of water quality could potentially undermine the conservation objectives of the site for all Annex I and Annex II features listed and therefore is included as a likely significant effect.</p>

<p>the tide swept, wave-sheltered narrows of the Menai Strait to the more open, less tide-swept waters of Conwy Bay and the moderately wave-exposed Great and Little Ormes. The Menai Strait and Conwy Bay SAC is a multiple interest site that has been selected for the presence of 5 marine habitat types and associated wildlife (Habitats Directive Annex I habitat types).</p> <p>For the qualifying habitats the SAC is considered to be one of the best areas in the UK for; Mudflats and sandflats not covered by seawater at low tide, Reefs, Sandbanks which are slightly covered by seawater all the time.</p> <p>Vulnerability: Construction (e.g. of slipways, coastal defence and marinas/harbours) could cause disturbance to the European habitats and disrupt physical processes essential for the maintenance of these habitats. The potential impacts of heavy bottom-fishing gear on the subtidal sandbank and shallow inlet and bay habitats could be damaging. Disposal of dredged material could be negative. Marine communities in the SAC are sensitive to oil pollution.</p>			
---	--	--	--

## 4.0 ASSESSING THE LIKELIHOOD OF IN-COMBINATION EFFECTS

### 4.1 Potential In-combination Effects with Other Relevant Plans

In addition to considering the likely significant effects of the GLFRMS in isolation, the Habitats Regulations require a determination of whether a plan/project would have significant effects in combination with other plans and projects. In this section we consider which plans have the potential to act in combination with the GLFRMS.

Given the extensive range of plans and projects that may affect European sites within the GLFRMS area and the lack of scheme-specific information in the GLFRMS, a pragmatic approach to the in-combination assessment was taken. Therefore, to ensure it considered the most relevant matters, the in-combination assessment was focused on those plans and projects considered as having a potentially significant interaction with the GLFRMS with regards to biodiversity receptors i.e. features of European sites. At appropriate assessment stage we will consider in greater detail the in-combination effects of the GLFRMS actions that have been scoped in.

Table 7 presents details of the relevant plans that could potentially have in-combination effects with the GLFRMS. These plans are considered the most relevant to the GLFRMS as they largely deal with the management of aquatic resources. The Gwynedd & Anglesey and Eryri Local Development Plans were considered as they are large scale development plans covering the whole of Gwynedd and set out the broad framework for planning and development. Dwr Cymru/ Welsh Water Resources Management Plan is also considered relevant as it includes the water resource plans for catchments within Gwynedd, which have the potential to act in-combination with the GLFRMS.

**Table 7:** Plans which could act in combination with the GLFRMS.

Name of Plan	Owner / Author	Document Detail
Anglesey and Gwynedd Joint Local Development Plan (LDP) 2011- 2026	Isle of Anglesey County Council & Cyngor Gwynedd	The Anglesey and Gwynedd Joint Local Development Plan sets out the strategy for development and land use in Anglesey and Gwynedd for the period 2011 – 2026. It sets out policies to implement the strategy and provide guidance on the location of new houses, employment opportunities and leisure and community facilities.
Eryri Local Development Plan (LDP) 2016 - 2031	Snowdonia National Park Authority	This document sets out the 15-year land use planning framework for Snowdonia National Park. The Local Development Plan includes strategic policies and development policies which will deliver the long-term spatial vision for the future of Snowdonia National Park.
Dee and Western Wales River Basin Management Plans 2021 - 2027	Natural Resources Wales (2022)	River basin management plans provide the overarching framework for water management, helping to protect and improve our water environment. Our rivers, lakes, wetlands, ground waters, estuaries and coastal waters - including those in protected areas - all fall under these plans.

West of Wales Shoreline Management Plan (SMP2)	West of Wales Coastal Group (Royal Haskoning, 2012)	The SMP is the regional strategic plan that sets out the priorities and strategic direction for all flood and coastal erosion risk management on the coast. SMPs have a geographic framework set out according to an area of coastline known as a sub-cell within a littoral sediment cell (length of coastline that is relatively self-contained in terms of the movement of sediment). A policy is assigned to each sub-cell to direct FRM activities around the coast.
The Welsh National Marine Plan (WNMP)	Welsh Government (2019)	Implements the requirements of The Marine and Coastal Access Act 2009 and sets out a framework for a system of marine planning, providing the high-level policy context for the sustainable development of the Wales marine area, supporting the vision for clean, healthy, safe, productive and biologically diverse oceans and seas. The WNMP was adopted in November 2019. It sets the planning framework that applicants and public authorities must use in applying for and determining proposals and licence applications.
Flood Risk Management Plan (FRMP) for Wales	Natural Resources Wales (under review)	FRMPs are high-level planning tools that set out objectives for flood risk management across each river catchment and estuary. They were adopted in 2015 by NRW and the Environment Agency for the three main catchments in Wales (NRW led on the Western Wales FRMP and Dee FRMP and the Environment Agency led on the Severn FRMP). They consider inland flood risk from rivers, surface water, groundwater and tidal flooding, and are designed to set the overall direction of flood risk management on a catchment basis. They identify broad flood risk management policies that are economically practical, have a potential life of 50 to 100 years, and will help NRW work with others to put them in place. The FRMPs are currently under review.
Water Resources Management Plan	Dwr Cymru Welsh Water (2023)	WRMPs are written in response to, primarily, the Water Act (2003); though many other regulatory documents are linked to the plans (e.g. Water Strategy for Wales 2015, Well being for Future Generations (Wales) Act 2015, Environment (Wales) Act 2016, and the English equivalents). Every five years these plans are published to deal with water supply

		<p>and demand pressures identified across the set River Basin Districts, with a view to the challenges of at least the next 25 years.</p> <p>Dŵr Cymru Welsh Water (DCWW) has prepared its WRMP (WRMP24) for the period 2025 – 2050. The WRMP sets out DCWW’s preferred resource and demand management options (‘the preferred options’) for meeting predicted deficits in the water available for Public Water Supply, and for ensuring security of supply.</p>
--	--	--

## **5.0 FORMAL SCREENING OPINION**

The plan has been screened according to the statutory procedures laid out in the Habitats Regulations 2017 (as amended) using the methodology outlined in the Habitats Regulations Assessment Handbook.

The screening exercise concluded that likely significant effects (LSE) could not be ruled out for a total of 18 SAC’s, 4 SPA’s, and 3 Ramsar sites, due to the reasons outlined in Table 6 above. Therefore, an appropriate assessment is required for these likely significant effects.

## **6.0 APPROPRIATE ASSESSMENT**

### **6.1 Purpose**

Where a plan is likely to have a significant effect, the precautionary principle emphasises that approval can only be granted if the competent authority can ascertain that the plan will not adversely affect the integrity of the European site, following an appropriate assessment. This is the purpose of the appropriate assessment stage.

In accordance with the ‘People Over Wind’ ruling, the appropriate assessment takes any incorporated mitigation measures into account that are sufficient to remove the likely significant effect. Conversely, if mitigation measures are not proposed, or prove to be inadequate, they can be imposed by the competent authority via conditions or other planning tools.

The role of mitigation is different to that of compensation. Mitigation measures aim to avoid, remove or reduce significant effects on European sites, whereas compensation is only considered under the derogations at the later stages of the HRA if required.

The HRA Handbook outlines the definition of integrity in contemporary planning policy and states that for a consent-making body to conclude the absence of an adverse effect, then it should be ‘convinced’ that no reasonable scientific doubt remains. As defined by the CJEU (Sweetman) and European Commission, the integrity of the site is ‘the lasting preservation of the constitutive characteristics of the site’. For further definitions see Section 1.5 above.

### **6.2 Approach**

The likelihood and significance of effects of the plan have been identified in the earlier parts of this HRA. The Appropriate Assessment (AA) is the consideration of whether adverse effects on site integrity will occur for the objectives / actions that have not been screened out. These objectives / actions have been taken forward into the Appropriate Assessment because of uncertainty over the scale/location/magnitude of significant effects that we could not conclude were not likely to happen. There are credible pathways for effect that could occur, but at this level of plan we do not have the detail available to say where, how or when the effects might occur. As a result, avoidance and mitigation measures are outlined that give confidence that any adverse effect on European sites will be avoided or adequately mitigated.

Each of the objectives / actions that have been screened in, have the potential to result in physical works, therefore the HRA needs to establish that there are no unintended consequences of the implementation of the GLFRMS on the identified European Sites.

The screening stage of the HRA identified which European sites within and around the plan area should be considered in further detail as part of the Appropriate Assessment. The screening stage also identified the GLFRMS Objectives and Actions that could potentially affect the integrity of the identified European sites. The sites and objectives screened in for Appropriate Assessment are listed in Table 8 below.

**Table 8: European sites and GLFRMS Objectives / Actions screened in for Appropriate Assessment.**

<b>European sites screened in to Appropriate Assessment:</b>
<b>European site</b>
Aber Dyfi / Dyfi Estuary SPA
Afon Dyfrdwy a Llyn Tegid / River Dee and Bala Lake SAC
Afon Eden – Cors Goch Trawsfynydd SAC
Afon Gwyrfai a Llyn Cwellyn SAC

Berwyn SPA
Berwyn a Mynyddoedd De Clwyd / Berwyn and South Clwyd Mountains SAC
Cadair Idris SAC
Clogwyni Pen Llyn / Sea Cliffs of Llyn SAC
Coedydd Aber SAC
Coedydd Derw a Safleoedd Ystlumod Meirion / Meirionnydd Oakwoods and Bat Sites SAC
Cors Fochno and Dyfi Ramsar
Corsydd Eifionydd / Eifionydd Fens SAC
Corsydd Llyn / Llyn Fens SAC
Corsydd Mon a Llyn / Anglesey and Llyn Fens Ramsar
Eryri / Snowdonia SAC
Glynllifon SAC
Gorllewin Cymru Forol / West Wales Marine SAC
Llyn Tegid Ramsar
Migneint-Arenig-Dduallt SAC
Migneint-Arenig-Dduallt SPA
Morfa Harlech a Morfa Dyffryn SAC
Pen Llyn a'r Sarnau / Llyn Peninsula and the Sarnau SAC
Rhinog SAC
Traeth Lafan / Lafan Sands SPA
Y Fenai a Bae Conwy / Menai Strait and Conwy Bay SAC
<b>GLFRMS Objectives / Actions screened in to Appropriate Assessment:</b>
<b>Objective 1: To aim to reduce the level of flood risk and coastal erosion to the residents of Gwynedd.</b>
<b>Action 1.2 Flood and coastal erosion risk management improvements:</b>
<i>Action 1.2A - Prepare annual list of schemes from long term action plan to reduce risk of flooding and coastal erosion to be presented for inclusion on WG capital programme</i>
<b>Action 1.4 Maintenance and deployment of flood/coastal erosion risk management assets:</b>
<i>Action 1.4A - Prepare and deliver minor works programme (revenue) based on findings of asset condition assessment to maintain standard of protection afforded by flood risk/coastal erosion assets.</i>
<b>Objective 3: To continue to work with all relevant bodies to ensure appropriate and sustainable development in Gwynedd</b>
<b>Action 3.3 Sustainable Drainage Systems (SuDS) and Natural Flood Risk Management (NFM):</b>
<i>Action 3.3A - Identify opportunities for the implementation of SuDS and NFM schemes in areas which will deliver meaningful flood risk benefits as well as other environmental and amenity benefits</i>

Because of the high level of the plan, there are inherent difficulties and uncertainties in carrying out an Appropriate Assessment (AA) at this scale. However, adverse effects on the integrity of European sites must be assessed as far as possible using the available detail associated with the screened in actions.

This AA must then inform development of these actions, with lower tier plan, programme and project level HRA increasing in specificity in subsequent stages.

In this AA we aim to provide high level mitigation to avoid or reduce any possible impacts associated with the development and delivery of the screened in objectives / actions. These are described in section 6.4 and they provide us with confidence that lower tier plans, programmes and projects can be developed and delivered without causing an adverse effect on site integrity for any European sites. The mitigation is not intended to be comprehensive, and it is very likely that there will be other impacts and therefore other mitigation that will be required which it is not possible to identify at plan level because the nature, timing, duration, scale or location is not yet known. This detail is deferred to the HRA of lower tier plans, programmes and projects.

### 6.3 Assessing the impacts of GLFRMS Objectives / Actions

Table 9: Assessment of GLFRMS Actions with potential likely impacts on European Sites

GLFRMS Action	Key impacts
<p><b>1.2 Flood and coastal erosion risk management improvements:</b></p> <p>Action 1.2A - Prepare annual list of schemes from long-term action plan to reduce risk of flooding and coastal erosion to be presented for inclusion on WG capital programme. Our works programmes (inland and coastal) will form the basis of our annual submission of studies and schemes to be included on the national FCERM programmes thereby securing grant support from Welsh Government.</p>	<p>Habitat loss, damage or fragmentation Disturbance to species features Emissions to air (dust, vehicle emissions) Degradation of water quality Biosecurity</p>
<p><b>Assessment</b></p>	
<p>This GLFRMS action is likely to lead to the implementation of schemes which will involve physical works at sites identified as being at risk of flooding and coastal erosion. Whether physical actions will take place, the magnitude or the location of the physical actions is unknown. Such physical works could potentially impact upon habitat features of identified European Sites through physical damage caused by construction activities (removal of trees / vegetation, damage to river beds due to in-river works etc). Physical changes caused by such works can also affect habitat features in the long-term through changes in physical processes, or alteration in water levels (such as changes in sedimentation movements long the coast due to coastal defences, or alterations to drainage regimes affecting wetland areas inland). Coastal squeeze is also a factor that needs to be considered when developing coastal defences, which could have an impact upon the habitat features of those sites situated on the coast and within the marine environment. As the location and magnitude of any potential schemes is not yet known, it is considered that this action could impact upon the conservation objectives of all of the European sites identified in Table 8 above.</p> <p>Any construction works could also impact upon species features of the identified European sites. Many species features are sensitive to disturbance, such as through noise, light or vibration. Such disturbance could displace species features from important foraging areas or commuting routes, having an impact on local populations. This could impact upon the conservation objectives of all the identified sites that have species features, (such as Afon Gwyrfai and Llyn Cwellyn SAC which has otter as a qualifying species feature, a species which is sensitive to human disturbance).</p>	

Similarly, the implementation of schemes within the water environment could potentially create barriers to commuting / migratory pathways within catchments. This could impact upon species such as Atlantic Salmon (A species feature of the Afon Eden – Cors Goch Trawsfynydd SAC, and River Dee and Bala Lake SAC) who migrate up river catchments to spawn.

There is a risk of physical works leading to emissions to air during construction works, either through dust emissions, or emissions from vehicles/plants used during construction. The scale and nature of projects will determine the potential level of risk of emissions to air impacting upon European sites, and this is currently unknown. Without the implementation of standard best practice, impacts upon the conservation objectives of European sites cannot be ruled out.

The use of plant and machinery during construction works poses a risk of pollution through accidental spillage from vehicles or storage areas. Ground disturbance, earthworks and in-river works also have the potential to cause silt run-off which can pollute the water environment. Such incidents have the potential to cause degradation of water quality, which can lead to impacts on European sites such as habitat degradation, displacement of species features, reduction in prey availability for species features, smothering of spawning beds, etc. This has the potential to impact upon the conservation objectives of all the identified European sites that have water/wetland features, and species features that rely on such habitats.

Working with construction equipment within, and importing material to, watercourses poses a risk of introducing Invasive Non Native Species (INNS) to an area, or spreading diseases / pathogens. This could impact upon the conservation objectives for European sites.

GLFRMS Action	Key impacts
<p><b>1.4 Maintenance and deployment of flood/coastal erosion risk management assets</b></p> <p>Action 1.4A - Prepare and deliver minor works programme (revenue) based on findings of asset condition assessment to maintain standard of protection afforded by flood risk/coastal erosion assets.</p> <p>Following completion of our asset inspection programme the Council shall identify a risk-based programme of maintenance or minor works to ensure that asset condition is maintained and present-day standard of protection is not compromised. Any works that cannot be carried out using the Council's dedicated revenue budget for any given year will be included on a capital works programme.</p>	<p>Habitat loss, damage or fragmentation</p> <p>Disturbance to species features</p> <p>Emissions to air (dust, vehicle emissions)</p> <p>Degradation of water quality</p> <p>Biosecurity</p>
Assessment	
<p>This GLFRMS action is likely to lead to the implementation of maintenance programmes and minor works schemes, which will involve physical works at sites where the Council have flood risk / coastal defence assets. Whether physical actions will take place, the magnitude or the location of the physical actions is unknown.</p> <p>The undertaking of physical works could potentially impact upon habitat and species features of European sites through habitat loss, damage or fragmentation, disturbance to species features,</p>	

emissions to air, degradation of water quality, or biosecurity. The assessment of potential impacts upon identified European sites is the same as stated for 1.2 above.

GLFRMS Action	Key impacts
<p><b>3.3 Sustainable Drainage Systems (SuDS) and Natural Flood Risk Management (NFM):</b>            Action 3.3A – Identify opportunities for the implementation of SuDS and NFM schemes in areas which will deliver meaningful flood risk benefits as well as other environmental and amenity benefits.</p> <p>SUDS are drainage systems that are considered to be environmentally beneficial, causing minimal or no long-term detrimental damage. They are often regarded as a sequence of management practices, control structures and strategies designed to efficiently and sustainably drain surface water, while minimising pollution and managing the impact on water quality of local water bodies.</p> <p>NFM involves working with nature to reduce the risk of flooding for communities. It uses various techniques to restore or mimic the natural functions of rivers, floodplains and the wider catchment. It aims to store water in the catchment and slow the rate at which water runs into rivers, to help reduce flooding downstream.</p> <p>A key priority of the National Strategy is to deliver more schemes of this kind, and with this in mind Gwynedd Council will identify urban and upland areas that are suitable for delivery of SuDS and NFM interventions respectively, either as stand-alone projects or as part of wider flood risk management schemes.</p> <p>Action 3.3B – Work with partner authorities and landowners to deliver NFM schemes as part of a national programme.</p> <p>As funding becomes available for NFM schemes Gwynedd Council will identify and work alongside landowners and partners to deliver successful projects that realise all potential benefits associated with NFM.</p>	<p>Habitat loss, damage or fragmentation            Disturbance to species features            Emissions to air (dust, vehicle emissions)            Degradation of water quality            Biosecurity</p>
Assessment	
<p>The nature of this objective / action is intended to protect the natural environment, including biodiversity, enhancing the natural environment. However, such enhancements are still likely to involve a degree of physical works in order to implement the required features and enhancements. This could</p>	

steer physical actions towards or encourage physical actions in an area that includes a European site or an area where physical actions may indirectly affect a European site.

As stated in 1.2 above, the physical work of implementing SuDS or NFM schemes could cause habitat loss, damage or fragmentation if they are to take place within or near an identified European site.

SuDS and NFM enhancements can also lead to physical changes, such as alterations in water levels, drainage regimes etc, and although such interventions can have beneficial effects, the potential for adverse effects also cannot be ruled out, especially for those European sites that have wetland features and species features that rely on them.

The implementation of such schemes could also have disturbance impacts during construction, with potential to impact species features such as otters, bats and birds, as discussed under Action 1.2 above. The potential to inadvertently create barriers to migratory or commuting pathways also needs to be considered during the implementation of such schemes.

As discussed under Action 1.2 above, the implementation of SuDS and NFM enhancement could cause other adverse effects during construction, such as emissions to air, degradation of water quality due to contamination, and biosecurity risks due to movement of equipment and materials.

## 6.4 Mitigation Measures

There are inherent uncertainties when carrying out Appropriate Assessment for higher level plans. The absence of a spatial context means that locations and impacts of lower-tier plans and projects arising as a result of the adoption of this plan cannot always be identified at this stage. As a result, it has not been possible to provide detailed consideration of the impact of the measures on specific European sites.

The development of site or project-specific mitigation proposals is neither possible nor appropriate at this level and instead generic mitigation principles are proposed. These should be considered when carrying out HRAs on lower level plans or projects.

It should be noted that certain measures in the plan can serve to conserve and/or enhance European Sites. The plan presents opportunities for environmental enhancement while at the same time reducing flood risk.

The core aim of the Habitats Directive is to support the maintenance and promotion of biodiversity. Habitats Regulations Assessment provides the tool through which planners can ensure that they are meeting the commitments and legal requirements of the European and National legislation.

Where adverse effects have been identified, it is appropriate to first consider an avoidance option whereby the strategy, plan or project is abandoned for a do-nothing option. Many of the objectives and measures detailed in this strategy have been developed as a result of higher-level policies such as the Flood and Water Management Act 2010 and higher-level strategy documents such as National Strategy for Flood and Coastal Erosion Risk Management Strategy in Wales (Welsh Government). It is therefore not always possible to adopt an avoidance approach as there is a requirement for Cyngor Gwynedd to produce an LFRMS supporting the overarching aims and objectives of the Flood and Water Management Act.

The next stage is the consideration and assessment of alternatives. Implementation of the GLFRMS has the potential to give rise to a wide range of potential alternative solutions, plans and projects. It is not, at this stage, practical to undertake an assessment for all possible alternatives.

It is not possible at this higher level to provide specific proposals to mitigate the impacts of the strategy as these will depend on when and where they are implemented. Mitigation measures will be dependent on the European Designated Sites' conservation objectives and the type of impact the measure or objective will have. Therefore, this AA should be considered precautionary and further HRAs will be conducted as more detailed plans become available. In these HRAs, detailed mitigation measures can be explored. Generic mitigation measures have therefore been provided and it is crucial that these are tailored to the impacts which arise from lower-level plans or projects (see Table 10 below).

Mitigation is also effectively prescribed through objectives contained within the strategy itself, as listed below. Alternative measures to construction of flood defences such as Natural Flood Management (NFM) and Sustainable Drainage Systems (SuDS) will be considered and promoted through the Local Strategy; these measures are also likely to reduce detrimental effects on European Designated Sites.

Mitigation prescribed through strategy objectives include:

**Objective 1 – Action 1.2A:**

As well as reducing flood and coastal erosion risks all schemes will be developed with the aim of maximising environmental and socio-economic benefits to the study areas. This will include reducing any adverse effects on designated ecological sites which will be driven by EIA and HRA processes.

**Objective 1 – Action 1.3A:**

The record of drainage assets shall include information on sensitive environmental features associated with the asset (if applicable), such as any archaeological and/or biodiversity designations, so that these can be considered if any maintenance arises.

**Objective 3 – Action 3.2A:**

Gwynedd Council is opposed to the culverting of watercourses because of the adverse ecological, flood risk, human safety and aesthetic impacts.

Opportunities to deliver environmental enhancement will be included in such policies where relevant, including proactive use of green infrastructure, reducing volume of silt run-off, and restoring natural processes. WFD objectives and measures are to be delivered where reasonable to do so.

**Objective 3 – Action 3.3A:**

Gwynedd Council will identify urban and upland areas that are suitable for delivery of SuDS and NFM interventions respectively, either as stand-alone projects or as part of wider flood risk management schemes.

**Objective 3 – Action 3.3B:**

As funding becomes available for NFM schemes Gwynedd Council will identify and work alongside landowners and partners to deliver successful projects that realise all potential benefits associated with NFM.

**Objective 3 – Action 3.3C**

Gwynedd Council will develop a position statement to establish design criteria for NFM measures which require our consent to avoid any conflict with our current consenting procedures. Such criteria will promote options that provide environmental enhancement measures.

**Table 10:** Generic Mitigation measures:

Generic mitigation measures proposed to reduce or avoid impacts on European Sites
<ul style="list-style-type: none"><li>● Pollution Prevention Guidance to be followed when undertaking works, including:<ul style="list-style-type: none"><li>- Guidance for Pollution Prevention GPP1 – Understanding your environmental responsibilities</li><li>- GPP5 – Works and Maintenance in or near water</li><li>- GPP6 – Working on construction and demolition sites.</li></ul></li><li>● Appropriate silt control measures to be used (such as silt traps, settlement ponds) where activities are likely to disturb sediments.</li><li>● Water quality monitoring to be undertaken during works to ensure levels do not deteriorate significantly.</li><li>● Works are to be timed to avoid the most sensitive periods e.g. fish migration and spawning, otter resting/breeding, bat roosting, bird nesting, overwintering birds and otter movement.</li><li>● Minimise footprint of the works where possible, where works are within or adjacent to European sites.</li><li>● Make certain that impact pathways are well understood and ensure that appropriate mitigation measures can be delivered and are built into method statements where potential for adverse effects are identified.</li><li>● European site features can be affected by water abstraction and holding (e.g. ponding), therefore ensure that potential impacts have been considered within and outside of a plan/project area.</li><li>● An assessment should be made of potential risk of INNS; both to the habitat and features at the working site, or if there are any present that could later be spread elsewhere.</li></ul>

## 6.5 Assessment of in-combination effects

The Habitats Regulations require competent authorities to include within an AA, the assessment of effects on a European site in combination with other plans or projects.

For the purpose of this assessment, and in-keeping with the high level nature of the plan, only key relevant high-level plans that could potentially result in in-combination effects have been considered. At this scale, it is not possible to provide an extensive list of all plans and projects which may lead to in-combination effects together with the GLFRMS. These will however need to be considered further where AA is required in lower tier assessments. The key plans considered are summarised below (as identified in section 4.1).

- Anglesey and Gwynedd Joint Local Development Plan (LDP) 2011- 2026
- Eryri Local Development Plan (LDP) 2016 – 2031
- Dee and Western Wales River Basin Management Plans 2021 – 2027
- West of Wales Shoreline Management Plan (SMP2)
- The Welsh National Marine Plan (WNMP)

- Flood Risk Management Plan (FRMP) for Wales
- Water Resources Management Plan (DCWW)

**Table 11:** Assessment of potential in-combination effects with other plans

Name of Plan	Assessment of potential in-combination effects
<p>Anglesey and Gwynedd Joint Local Development Plan (LDP) 2011- 2026</p> <p>Isle of Anglesey County Council &amp; Cyngor Gwynedd</p>	<p>The screening found that development proposed at the site allocations alone or in-combination with each other at settlements are unlikely to have significant effects on any European sites. While there are potential pathways for impacts on some European sites, the small scale of proposed development and mitigation provided through Deposit JLDP policies and available at the project level will ensure that there are no significant effects.</p> <p>Given the implementation of mitigation in the GLFRMS, which includes the need to consider HRA at project-specific level, no likely significant effects are predicted in-combination with the Gwynedd and Anglesey JLDP.</p>
<p>Eryri Local Development Plan (LDP) 2016 – 2031</p> <p>Snowdonia National Park Authority</p>	<p>The adopted Eryri Local Development Plan (2016-2031) was subject to a Habitats Regulation Assessment to assess whether its implementation would have any impact on any European sites of nature conservation importance (such as SAC, SPA). This involved screening all LDP Policies and proposals and a detailed assessment of likely impacts.</p> <p>The plan has not relied on the implementation of mitigation during the screening stage, therefore no likely significant effects were identified, either alone or in relation to other plans or policies. Given the implementation of mitigation in the GLFRMS, which includes the need to consider HRA at project-specific level, no likely significant effects are predicted in-combination with the Eryri LDP.</p>
<p>Dee and Western Wales River Basin Management Plans 2021 – 2027</p> <p>Natural Resources Wales (2022)</p>	<p>The HRA of the Dee and Western Wales RBMP3 took 9 of the 86 Welsh measures to AA. This approach was taken on a precautionary basis in light of case law and the uncertainty of effects of certain measures at the high level of the RBMP. At AA stage the case was made to defer the HRA down to lower tier plans and projects. It should be considered in the context of the main aim of the RBMPs which are to improve the water environment, including National Site Network sites.</p> <p>The generic mitigation measures identified in the AA, along with those enhancement measures prescribed within the GLFRMS Objectives, will complement the RBMP and would be unlikely to result in significant effects on European sites.</p>
<p>West of Wales Shoreline Management Plan (SMP2)</p> <p>West of Wales Coastal Group (Royal Haskoning, 2012)</p>	<p>Shoreline Management Plans (SMPs), the second generation of which were adopted in Wales in 2013, set out the priorities and the strategic direction for all flood and coastal erosion risk management on the coast. SMP policy is largely focused on maintaining or pursuing measures which will either maintain or enhance the features of International sites.</p>

	<p>The HRA identified potential significant adverse effects for certain zones of the coast which could not be avoided or mitigated. The sites which are potentially affected by the SMP2 include some of those identified as being adversely effected by the outcomes of the GLFRMS. These include Pen Llŷn a’r Sarnau SAC, Menai Strait and Conwy Bay SAC, Dyfi Estuary SPA, Lafan Sands SPA, and Cors Fochno and Dyfi Ramsar site.</p> <p>The significant effects outlined in the SMP2 are primarily concerned with habitat loss, especially intertidal mudflat and sandflat and saltmarsh features due to policies such as managed re-alignment.</p> <p>Implementation of the GLFRMS will not add to or exacerbate those adverse effects potentially caused by the SMP2. Therefore, it is not considered that the GLFRMS and the SMP2 would cumulatively cause a significant adverse effect on European sites.</p>
<p>The Welsh National Marine Plan (WNMP)</p> <p>Welsh Government (2019)</p>	<p>The WNMP HRA focussed on the potential effects of sector policies promoting or supporting development on European sites. The high level nature of the plan, meaning uncertainties in location, scale, type and timing of future activities, meant that the HRA could not identify specific effects on European sites. Uncertainties are inevitable and common in high level plans and the HRA recommended that the general policy safe-guards, a requirement for project level HRA and regular review of the WNMP (3 yearly) will ensure no adverse effect on the integrity of European sites.</p> <p>The WNMP explicitly supports the achievement of Good Environmental Status (GES) under the UK Marine Strategy. Its goal is to achieve or maintain GES in coastal and marine waters, which is defined through 11 “Descriptors” covering the whole marine environment. The policies set out in the WNMP play a key role in supporting the achievement of GES. The generic mitigation measures identified in the AA, along with those enhancement measures prescribed within the GLFRMS Objectives, will complement the WNMP and would be unlikely to result in significant effects on European sites.</p>
<p>Flood Risk Management Plan (FRMP) for Wales</p> <p>Natural Resources Wales (under review)</p>	<p>The first cycle FRMPs were published alongside the second cycle RBMPs in 2015. They are high-level planning tools that set out objectives for flood risk management across each river catchment and estuary. The FRMPs are designed to set the overall direction of flood risk management, prioritised depending upon risk to communities. They identify broad flood risk management policies that are economically practical, have a potential life of 50 to 100 years, and help NRW to work with others to put them in place.</p> <p>The second cycle FRMPs are being developed and are at consultation phase. The draft FRMP HRA has taken 9 of the 58 national measures to AA. This approach was taken on a precautionary basis in light of case law and the uncertainty of effects of certain measures of the FRMP. At AA stage the case was made to defer the HRA down to lower tier plans and projects. Through the measures and approaches detailed in the HRA report, along with an appropriately detailed HRA with mitigations implemented at lower tier level, impacts on site integrity can be</p>

	avoided. No likely significant effect are predicted in-combination with the GLFRMS.
Water Resources Management Plan  Dwr Cymru Welsh Water (2023)	<p>The Water Resources Management Plan provides details of how Dwr Cymru will ensure that adequate water is available to meet the planned growth in population, housing and economic activity in its supply area, while taking account of climate change and minimising impacts on customers' bills and the environment.</p> <p>Options to address a deficit in water supply include:</p> <ul style="list-style-type: none"> <li>• encouraging water efficiency,</li> <li>• reducing leakages and</li> <li>• seeking water resource through new or existing sources.</li> </ul> <p>The HRA of the WRMP concluded that it will have no significant or adverse effects on any European site as a result of implementation.</p> <p>No significant effects on European sites are likely in-combination with the GLFRMS.</p>

Due to the strategic level of the above strategy / plan documents, it is considered that in-combination effects would only be likely at project level where site-specific proposals and sensitivities can be thoroughly assessed. It is therefore recommended that HRA is undertaken for all projects arising as a result of the GLFRMS, where relevant. Similar recommendations for project level HRA have been made in the HRAs undertaken for the above referenced plans / strategies.

While project level activities may have the potential for in-combination effects, implementation of the strategy at this level will not in itself result in likely significant effects.

## **7.0 CONCLUSION**

In line with the requirements of the Habitats Regulations, an Appropriate Assessment has been conducted to determine the potential impact of the GLFRMS on European Designated Sites. This assessment has been undertaken on a precautionary basis in light of the uncertainty of the effects of the Strategy's objectives / actions at the high level of the plan.

This Appropriate Assessment has found that some of the objectives / actions and of the GLFRMS could affect the integrity of European Designated Sites. However, these objectives / actions provide no indication of what will be involved or the location of works.

At this high-level stage, it is not possible to conclude with any certainty which, if any, sites will be affected or if the effects will be significant in regard to the conservation objectives of the European Designated Sites highlighted in this report. It is acknowledged that the GLFRMS sets out the strategic direction for managing flood risk in Gwynedd and that no impacts will arise directly from the strategy itself.

The strategy, however, cannot be put into effect until lower-tier plans, projects or activities arising out of this Local Strategy are determined and implemented; therefore the potential impacts of the strategy cannot be fully determined until more detailed plans are confirmed. Subsequent plans and projects / schemes arising from the GLFRMS will be subject to HRA if there is a potential to affect European Designated Sites, under the Habitats Regulations.

The GLFRMS does not constrain where or how the Strategy's actions will take place, therefore the objectives and actions can go ahead somewhere or in some way that will not have a significant effect on any European Designated Site.

The assessment shows that for identified likely impacts, effective mitigation approaches are available at lower – tier levels. Provided that effective and appropriate mitigation is implemented it can be concluded that no adverse effects on European Site integrity will occur as a result of adopting the GLFRMS. This AA therefore concludes that the GLFRMS is not likely to have any significant adverse effects on European sites, alone or in combination with other plans or projects. Detailed assessments will be required at lower-tier levels to identify any likely significant effects at the site-specific level and implementation of the required mitigation to avoid these.

## 8.0 REFERENCES

Enfusion 2013, *Anglesey County Council and Gwynedd Council Joint Local Development Plan Habitats Regulations Assessments Screening Report*

Chapman, C., and Tyldesley, D. 2015. *Functional Linkage: How areas that are functionally linked to European sites have been considered when they may be affected by the projects – a review of authoritative decisions*. Natural England Research Report.

David Tyldesley and Associates for the Countryside Council for Wales (November 2009): *Guidance for Plan Making Authorities In Wales – the Appraisal of Plans under the Habitats Directive*

European Union. 2019. *Managing Natura 2000 sites: The provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC*.

Joint Nature Conservation Committee (JNCC). Not dated. *Dyfi Estuary SPA Standard Data Form*. Available from: <https://jncc.gov.uk/jncc-assets/SPA-N2K/UK9020284.pdf>

Joint Nature Conservation Committee (JNCC). Not dated. *River Dee and Bala Lake SAC*. Available from: <https://sac.jncc.gov.uk/site/UK0030252>

Joint Nature Conservation Committee (JNCC). Not dated. *Afon Eden – Cors Goch Trawsfynydd SAC* <https://sac.jncc.gov.uk/site/UK0030075>

Joint Nature Conservation Committee (JNCC). Not dated. *Afon Gwyrfai a Llyn Cwellyn SAC*. Available from: <https://sac.jncc.gov.uk/site/UK0030046>

Joint Nature Conservation Committee (JNCC). Not dated. *Berwyn a Mynyddoedd De Clwyd SAC*. Available from: <https://sac.jncc.gov.uk/site/UK0012926>

Joint Nature Conservation Committee (JNCC). Not dated. *Cadair Idris SAC*. Available from: <https://sac.jncc.gov.uk/site/UK0030104>

Joint Nature Conservation Committee (JNCC). Not dated. *Clogwyni Pen Llyn SAC*. Available from: <https://sac.jncc.gov.uk/site/UK0030271>

Joint Nature Conservation Committee (JNCC). Not dated. *Coedydd Aber SAC*. Available from: <https://sac.jncc.gov.uk/site/UK0030118>

Joint Nature Conservation Committee (JNCC). Not dated. *Corsydd Eifionydd SAC*. Available from: <https://sac.jncc.gov.uk/site/UK0030121>

Joint Nature Conservation Committee (JNCC). Not dated. *Coedydd Derw a Safleoedd Ystlumod Meirion / Meirionnydd Oakwoods and Bat Sites SAC*. Available from: <https://sac.jncc.gov.uk/site/UK0014789>

Joint Nature Conservation Committee (JNCC). Not dated. *Corsydd Llyn SAC*. Available from: <https://sac.jncc.gov.uk/site/UK0030187>

Joint Nature Conservation Committee (JNCC). Not dated. *Eryri SAC*. Available from: <https://sac.jncc.gov.uk/site/UK0012946>

Joint Nature Conservation Committee (JNCC). Not dated. Glynllifon SAC. Available from: <https://sac.jncc.gov.uk/site/UK0012946>

Joint Nature Conservation Committee (JNCC). Not dated. *West Wales Marine SAC*. Available from: <https://sac.jncc.gov.uk/site/UK0030397>

Joint Nature Conservation Committee (JNCC). Not dated. *Migneint-Arenig-Dduallt SAC*. Available from: <https://jncc.gov.uk/jncc-assets/SPA-N2K/UK9013131.pdf>

Joint Nature Conservation Committee (JNCC). Not dated. *Morfa Harlech a Morfa Dyffryn SAC*. Available from: <https://sac.jncc.gov.uk/site/UK0030049>

Joint Nature Conservation Committee (JNCC). Not dated. *Rhinog SAC*. Available from: <https://sac.jncc.gov.uk/site/UK0012945>

Joint Nature Conservation Committee (JNCC). Not dated. *Y Fenai a Bae Conwy SAC*. Available from: <https://sac.jncc.gov.uk/site/UK0030202>

Joint Nature Conservation Committee (JNCC). Not dated. *Pen Llyn a'r Sarnau / Llyn Peninsula and the Sarnau SAC*. Available from: <https://sac.jncc.gov.uk/site/UK0013117>

Natural Resources Wales / Environment Agency, 2022. *Habitats Regulations Assessment of the third cycle Western Wales and Dee River Basin Management Plans*

Natural Resources Wales 2015. *Habitats Regulations Assessment of the Western Wales Flood Risk Management Plan*.

Royal Haskoning 2011. *West of Wales Shoreline Management Plan 2 Habitats Regulations Assessment*.

Tyldesley, D., and Chapman, C. 2013. *The Habitats Regulations Assessment Handbook, November 2018 edition UK*: DTA Publications Ltd.

Welsh Government 2019, *Welsh National Marine Plan Habitats Regulation Assessment*.

WSP / Dwr Cymru Welsh Water 2023, *Habitats Regulations Assessment of the Water Resource Management Plan 2024*

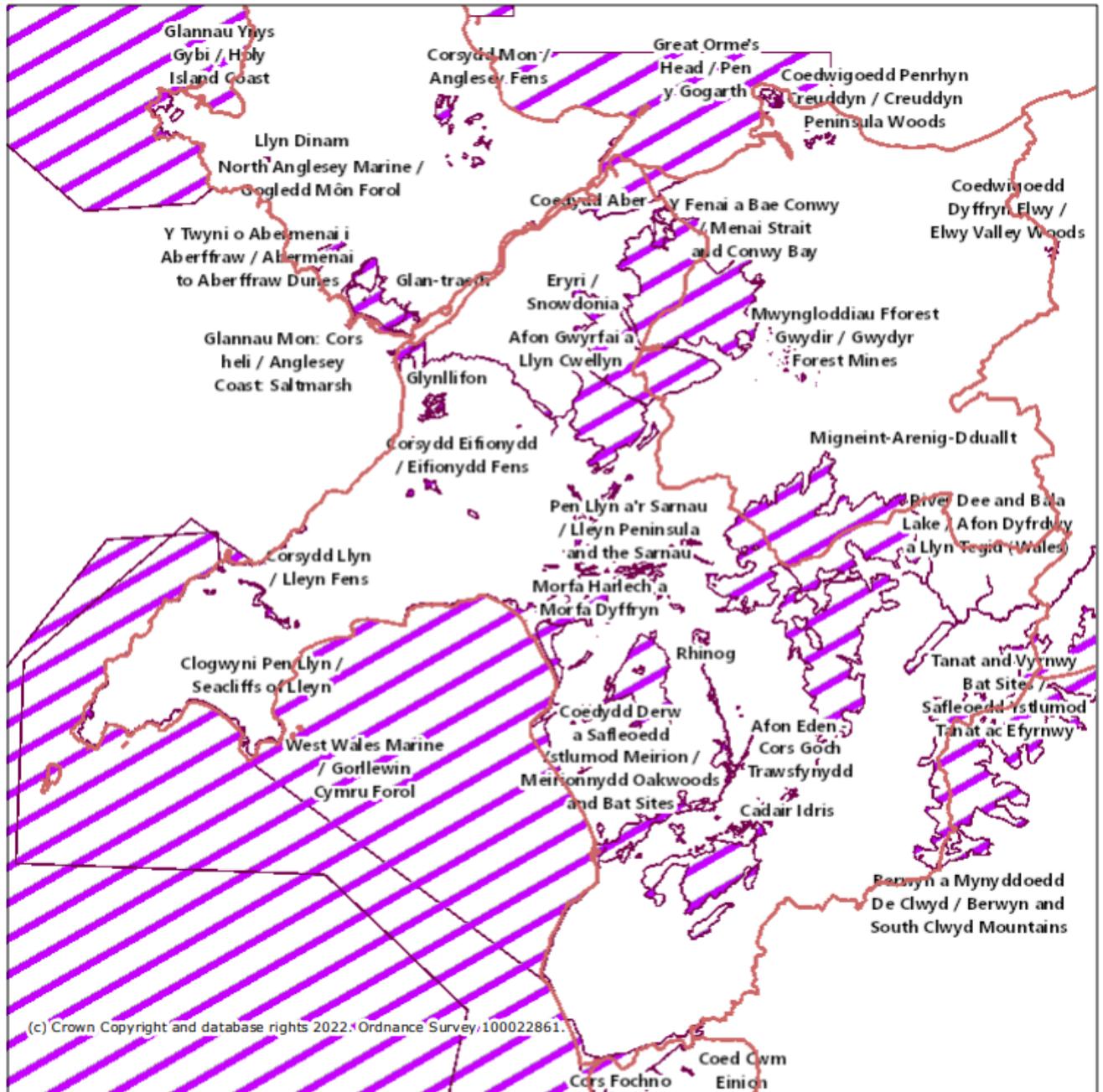
# APPENDICES

**Appendix A: European sites located within or adjacent to Gwynedd LFRMS area**

**1: Special Areas of Conservation (SACs) located within or adjacent to Gwynedd:**

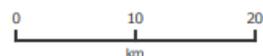
**MAGiC**

**SAC**



**Legend**

-  Counties, Metropolitan Districts and Unitary Authorities (GB)
-  Special Areas of Conservation (Wales)



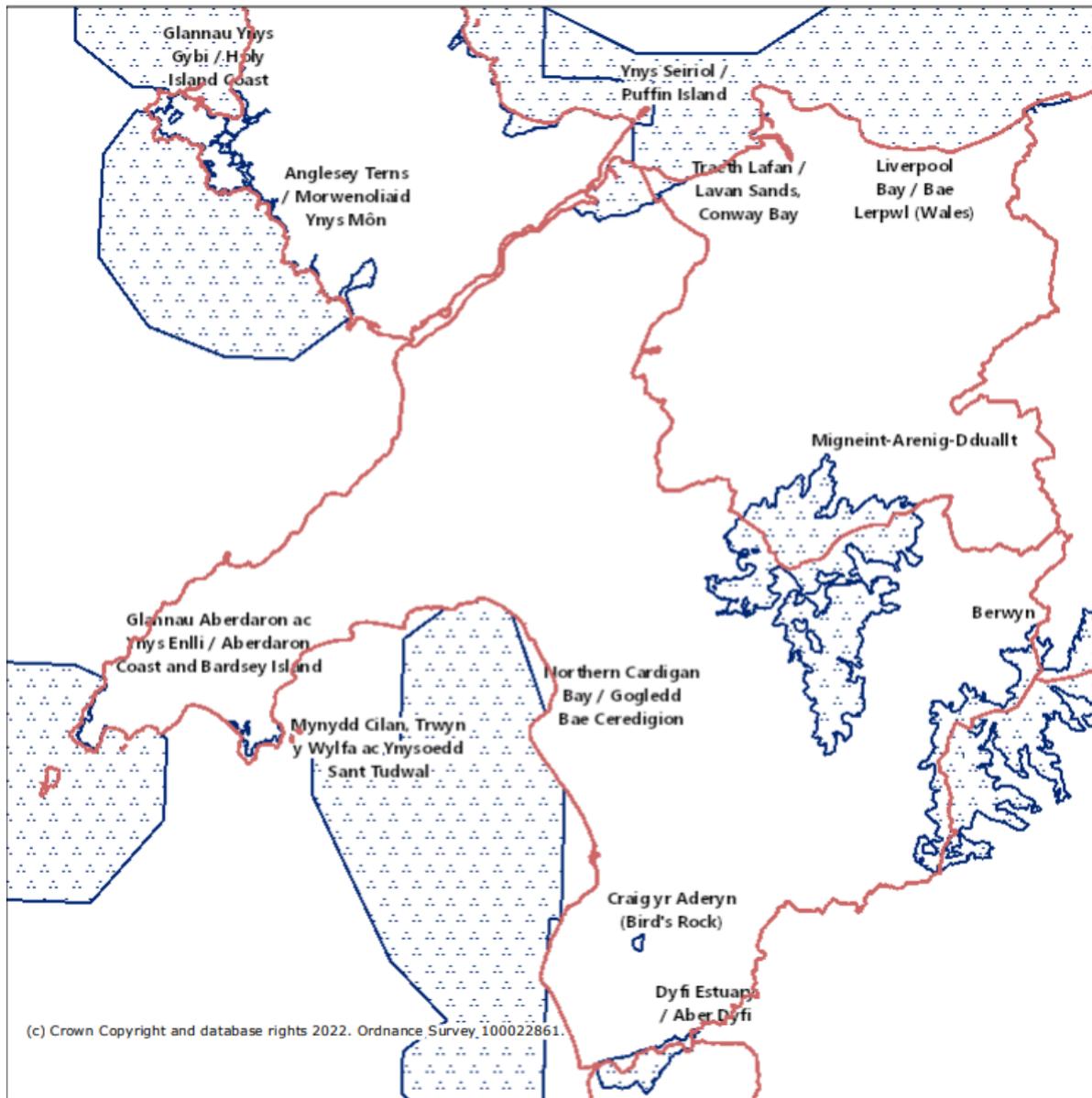
Projection = OSGB36  
 xmin = 130900  
 ymin = 280000  
 xmax = 382700  
 ymax = 403900

Map produced by MAGIC on 9 October, 2023.  
 Copyright resides with the data suppliers and the map must not be reproduced without their permission.  
 Some information in MAGIC is a snapshot of the information that is being maintained or continually updated by the originating organisation. Please refer to the metadata for details as information may be illustrative or representative rather than definitive at this stage.

2: Special Protection Areas (SPAs) located within or adjacent to Gwynedd:

MAGiC

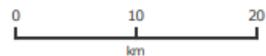
SPA



(c) Crown Copyright and database rights 2022. Ordnance Survey, 100022861.

Legend

- Counties, Metropolitan Districts and Unitary Authorities (GB)
- Special Protection Areas (Wales)



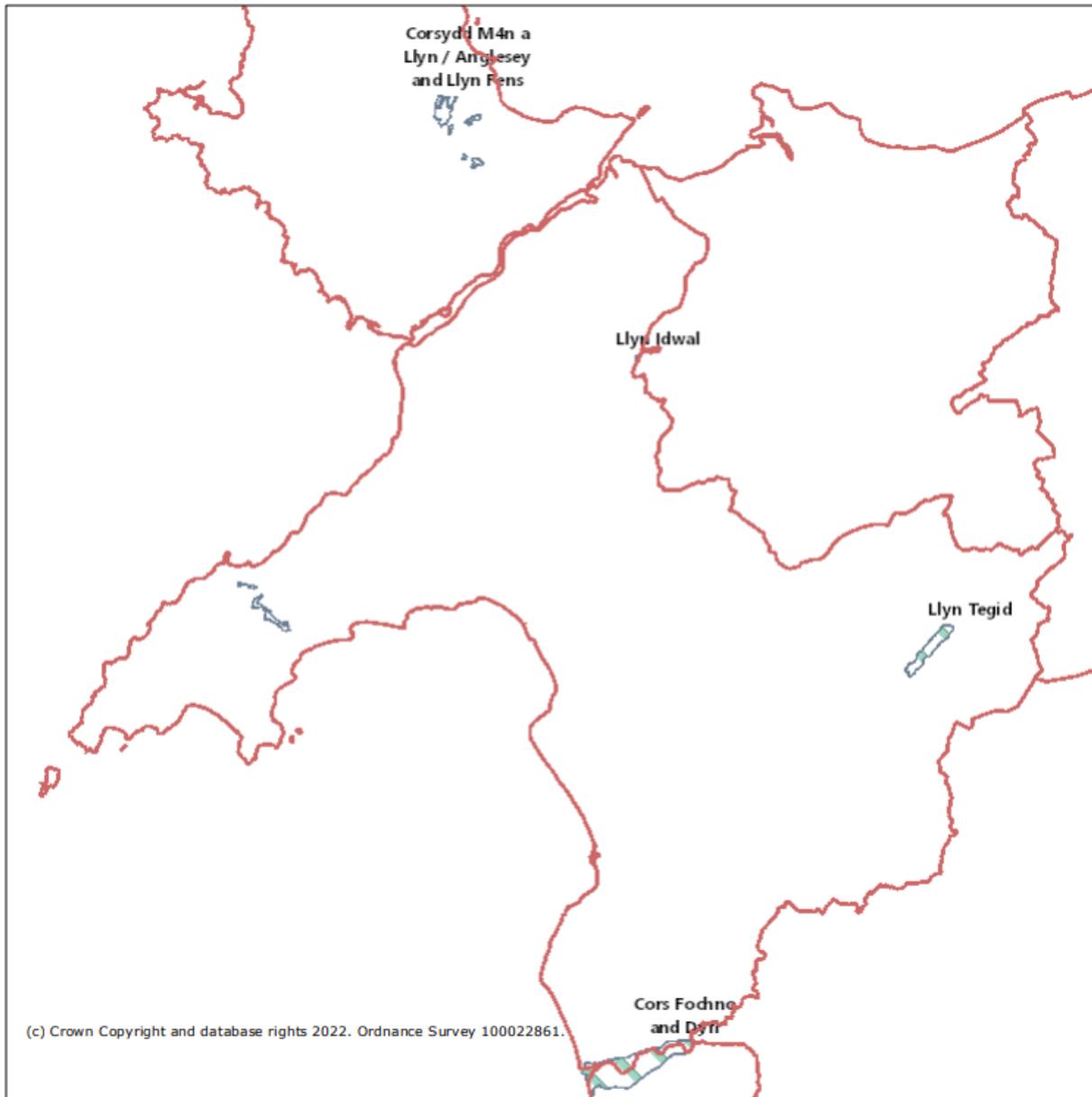
Projection = OSGB36  
 xmin = 130900  
 ymin = 280000  
 xmax = 382700  
 ymax = 403900

Map produced by MAGiC on 9 October, 2023.  
 Copyright resides with the data suppliers and the map must not be reproduced without their permission. Some information in MAGiC is a snapshot of the information that is being maintained or continually updated by the originating organisation. Please refer to the metadata for details as information may be illustrative or representative rather than definitive at this stage.

3: Ramsars located within or adjacent to Gwynedd:

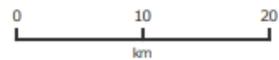
MAGIC

Ramsar



Legend

- Counties, Metropolitan Districts and Unitary Authorities (GB)
- Ramsar Sites (Wales)



Projection = OSGB36

xmin = 130900

ymin = 280000

xmax = 382700

ymax = 403900

Map produced by MAGIC on 9 October, 2023.  
Copyright resides with the data suppliers and the map must not be reproduced without their permission. Some information in MAGIC is a snapshot of the information that is being maintained or continually updated by the originating organisation. Please refer to the metadata for details as information may be illustrative or representative rather than definitive at this stage.

## Appendix B: European sites potentially at risk (full table)

European sites potentially at risk - Pre-Screening Table	
European site	Pre Screening Assessment
<p><b>Aber Dyfi / Dyfi Estuary SPA</b></p> <p>The Dyfi Estuary is located on the west coast of Wales on the boundary between Ceredigion, Gwynedd and Powys. The SPA comprises the estuary, with adjoining saltmarsh, marshy grassland and improved grassland. The estuarine complex is of outstanding physiographic interest. It includes sandbanks, mud-flats, saltmarsh, peatbogs, river channels and creeks, with an extensive sand dune complex across the mouth of the estuary. The estuary itself is a feature of the Penllyn a’r Sarnau marine SAC. The site is of importance as a traditional wintering area for Greenland White-fronted Goose <i>Anser albifrons flavirostris</i> – the most southerly regularly used area for this population in the UK.</p> <p>Vulnerability: Disturbance by leisure activities and increasing resident flock of Canada goose cause disturbance to Greenland White-fronted goose.</p>	<p>Adverse effects from Noise / visual disturbance to Greenland White-fronted Geese due to maintenance of flood and coastal erosion risk management assets, and any works associated with FCERM programme / improvements.</p> <p><b>Scoped in</b></p>
<p><b>Afon Dyfrdwy a Llyn Tegid / River Dee and Bala Lake SAC</b></p> <p>The site extends from the western extremity of Llyn Tegid taking in the entire lake and its banks to its outfall into the River Dee. It then takes in the river and its banks downstream to where it joins the Dee Estuary SSSI. A number of the Dee’s tributaries are also included, these being the Ceiriog, Meloch, Tryweryn, and Mynach. The site is designated for its Rivers with floating vegetation often dominated by water-crowfoot habitat feature, along with several species features including; Bullhead, River lamprey, Brook lamprey, Floating water-plantain, Otter, Sea lamprey, and Atlantic salmon.</p> <p>Vulnerability: The site and its features are threatened by practices which have an adverse effect on the quality, quantity and pattern of water flows including the following: inappropriate flow regulation; excessive abstraction (for industry, agriculture and domestic purposes); threats to water quality from direct and diffuse pollution; eutrophication and</p>	<p>Maintenance of flood and coastal erosion risk management assets and FCERM programme / improvement works could cause adverse effects due to disturbance to species features and potential loss of habitats, along with potential adverse effects on water quality through maintenance / construction work.</p> <p><b>Scoped in</b></p>

siltation. Degradation of riparian habitats due to engineering works, agricultural practices and invasive plant species may also have an adverse effect. The Atlantic salmon population is threatened by excessive exploitation by high sea, estuarine and recreational fisheries. Introduction of non-indigenous species could also threaten both fish and plant species.

**Afon Eden – Cors Goch Trawsfynydd SAC**

The Afon Eden/River Eden is a relatively unmodified river, mainly upland in character, of approximately 10km length. The watershed begins just south of Llyn Trawsfynydd, within an area of gently sloping and poorly drained land. The upper section of the catchment is slow-flowing with a number of deep pools along its length. In the lower two-thirds of the catchment the river flows more steeply into a narrow rocky gorge, with an adjacent area of forestry plantation, known as Coed y Brenin. The Afon Eden joins with the Afon Mawddach, just above the village of Ganllwyd, but the SAC boundary continues downstream to the tidal limit of the Mawddach at Llanelltyd. The river contains the largest known population of freshwater pearl mussels surviving in Wales, they are almost entirely confined to one section of the river. Other qualifying features of the site include Active raised bogs, Floating water plantain, Otter, and Atlantic salmon.

Vulnerability: Pearl mussel and salmonids are particularly vulnerable to water pollution e.g. nitrate input, sediment input and inappropriate river management.

Maintenance of flood and coastal erosion risk management assets and FCERM programme / improvement works could cause adverse effects due to disturbance to species features and potential loss of habitats, along with potential adverse effects on water quality through maintenance / construction work.

**Scoped in**

**Afon Gwyrfai a Llyn Cwellyn SAC**

This site comprises the Afon Gwyrfai and Llyn Cwellyn. The Gwyrfai flows out of Llyn y Gader near Rhyd Ddu and passes through Llyn Cwellyn on its way to the sea at Y Foryd, Caernarfon Bay. It also includes a tributary of the Gwyrfai, the Afon Treweunydd, and the small lake it flows from on the slopes of Snowdon. Sporadically throughout its course, the SAC is abutted by semi-natural wetland riparian habitat much of which is within the SSSI. The whole of the Gwyrfai river system is of outstanding ecological quality. The river is particularly noted for its salmon population, for which it is considered to be one of the best supporting rivers in the United Kingdom. It is also notable for its otter population which occur here in good numbers because of the relative naturalness of its riparian habitats and the abundance of undisturbed dense cover. In addition to the lake, the river supports a discrete community of floating water

Maintenance of flood and coastal erosion risk management assets and FCERM programme / improvement works could cause adverse effects due to disturbance to species features and potential loss of habitats, along with potential adverse effects on water quality through maintenance / construction work.

**Scoped in**

<p>plantain, and water-crowfoot <i>Ranunculus</i> spp, with other associated vegetation including bryophyte assemblages occurring in various sectors of the river.</p> <p>Vulnerability: The Afon Gwyrfai is likely to be most vulnerable to cumulative impacts of small-scale changes along its length which may affect water quality and habitat structure.</p>	
<p><b>Bae Lerpwl / Liverpool Bay SPA</b></p> <p>Bae Lerpwl / Liverpool Bay SPA is located off the north east coast of Gwynedd, stretching eastwards along the north Wales coast and along the north west coast of England. It is designated for common scoter (<i>Melanitta nigra</i>), red-throated diver (<i>Gavia stellata</i>) and waterbird assemblage, along with non-breeding little gull (<i>Hydrocoloeus minutus</i>), breeding little tern (<i>Sternula albifrons</i>) and breeding common tern (<i>Sterna hirundo</i>).</p> <p>Vulnerability: Coastal and offshore developments, commercial shipping, Fishing.</p>	<p>The site is located off the north-eastern coast of Gwynedd, just outside the GLFRMS area. Given its location, no pollution or disturbance impacts potentially caused by the GLFRMS are envisaged to cause negative impacts upon this site or it's bird features.</p> <p><b>Scoped out</b></p>
<p><b>Berwyn SPA</b></p> <p>Berwyn is the most important upland in Wales for breeding birds. It supports a wide range of species including internationally significant numbers of hen harrier <i>Circus cyaneus</i>, merlin <i>Falco columbarius</i>, peregrine <i>Falco peregrinus</i> and red kite <i>Milvus milvus</i>, as well as significant proportions of the Welsh populations of other species including short eared owl <i>Asio flammeus</i>, golden plover <i>Pluvialis apricaria</i>, red grouse <i>Lagopus lagopus</i> and black grouse <i>Tetrao tetrix</i>.</p> <p>Vulnerability: The blanket bog, heaths, fens, and grasslands have been threatened by inappropriate agricultural development including drainage, reseeding, application of fertilisers, burning, track construction and the adoption of damaging grazing regimes. Recreational use can cause erosion.</p>	<p>Adverse effects from Noise / visual disturbance to nesting raptors due to maintenance of flood and coastal erosion risk management assets and any potential FCERM programme / improvement works.</p> <p><b>Scoped in</b></p>
<p><b>Berwyn a Mynyddoedd De Clwyd / Berwyn and South Clwyd Mountains SAC</b></p> <p>The Berwyn and South Clwyd Mountains SAC is a large upland site (27,132 ha), the largest area of blanket bog and European dry heath in Wales. It comprises three discrete sites,</p>	<p>Alteration to upland drainage (e.g. ditches, drains) through maintenance, including channel clearing, could have adverse effects on wetland habitat features of the site (e.g. blanket bog and wet heath)</p> <p><b>Scoped in</b></p>

Berwyn SSSI, Llandegla Moor SSSI and Ruabon and Llantysilio Mountains and Minera SSSI. All of these sites are predominantly a mixture of dry heath and blanket bog vegetation with patches of transition mires and quaking bog vegetation found as an intricate mosaic, usually on acidic rock types, and can together be described as upland moorland.

Vulnerability: The blanket bog, heaths, fens, and grasslands have been threatened by inappropriate agricultural development including drainage, reseeding, application of fertilisers, burning, track construction and the adoption of damaging grazing regimes. Recreational use can cause erosion.

**Cadair Idris SAC**

The site is located to the south of Dolgellau and is of special interest for its biological, Ordovician/igneous bedrock geology and Pleistocene/Quaternary geomorphology features. The site encompasses Cadair Idris mountain and the lower slopes, which are a mosaic of broadleaved woodland, wet meadows, upland habitats and grassland. The broad range of physical conditions gives rise to a wide range of habitat types. These include dwarf scrub heath communities, montane grasslands, herb- and fern-rich communities, blanket mire, soligenous flush communities, a spring-flush habitat, open water and oak woodland. The most prevalent are acid grasslands dominated by *Nardus stricta* and *Festuca ovina* and acid dry heaths dominated by *Calluna vulgaris*. In the context of the SSSI the site is also of special interest for its assemblage of higher plants, lichens, bryophytes and montane invertebrates. Nine higher plants are of special interest in their own right as is the (SAC feature) slender green feather moss *Hamatocaulis vernicosus* and an edge of range lichen species.

Vulnerability: Visitor pressure leads to local damage to vegetation. High rainfall renders the site vulnerable to acidification. Heavy grazing and burning can lead to change in structure of the site.

Alteration to upland drainage (e.g. ditches, drains) through maintenance, including channel clearing, could have adverse effects on wetland habitat features of the site (e.g. blanket bog and wet heath)

**Scoped in**

**Clogwyni Pen Llyn / Sea Cliffs of Lleyn SAC**

The Clogwyni Pen Llŷn SAC site occupies a large section of the coast of the Llyn Peninsula, bordered by the Irish Sea and exposed to the prevailing winds and weather systems. Its habitats are necessarily influenced by its location, geology and the climate, and the coastal

Adverse effects on cliff habitats due to engineering works associated with maintenance of flood/coastal erosion assets and any additional construction works associated with FCERM programmes and improvements.

area supports some of the best remaining examples of coastal and maritime heaths and grasslands on the Llyn. The site has been designated as a SAC for the internationally important habitat 'Vegetated Sea Cliffs of the Atlantic and Baltic Coasts'. This feature covers a range of habitats many of which are represented on this site, including hard and soft cliffs, maritime and coastal heath, maritime grassland and maritime therophyte communities.

Vulnerability: Engineering works undertaken to the cliffs themselves and artificial sea defences. Changes in climatic conditions can lead to increases or decreases in storminess and associated high, salt-laden winds, which may affect the relative distribution of maritime grassland and maritime heath, habitats that are very much interlinked.

**Scoped in.**

**Coedydd Aber SAC**

Coedydd Aber extends 4 km along the steep-sides valleys of the Afon Rhaeadr Fawr and Afon Anafon, which are situated immediately south of Abergwyngregyn village. Coedydd Aber is of special interest for its botanical, ornithological and entomological interest. The site supports a mosaic of native broadleaved woodland types of international importance including alluvial forests with alder and ash, and old sessile oak woods, which form a natural elevation – dependent habitat transition from coast to open mountain.

Vulnerability: The woodland habitat is relatively robust, but there is scope for its enhancement through removal of conifers and other invasive species.

Adverse effect on water quality through any maintenance work to flood risk management assets or FCERM programme/improvement works. Alluvial forests could be sensitive to changes in water quality.

**Scoped in**

**Coedydd Derw a Safleoedd Ystumod Meirion / Meirionnydd Oakwoods and Bat Sites SAC**

The Meirionnydd Oakwoods and Bat Sites SAC is made up of a series of woodlands, stretching from Dolgellau in the south to Eryri in the north. The majority of the SAC is classified as the woodland type known as "Old sessile oak woods with Ilex and Blechnum in the British Isles", which covers approximately 84% of the SAC and is the dominant woodland type at most of the sites. A key feature of European importance is the rich Atlantic bryophyte communities that are often well developed within this Annex I habitat. Lesser horseshoe bats have over 20 known roosts within the SAC and forage widely within the SAC's woodlands, associated habitats and the surrounding countryside.

Adverse effect on water quality through any maintenance work to flood risk management assets or FCERM programme / improvement works. Features such as 'Watercourses of plain to montane levels' are sensitive to changes in water quality.

Maintenance of structures (those large enough to have free space suitable for a free hanging bat (e.g. some culverts and bridge structures) could cause adverse effects due to loss of habitat or disturbance to Lesser Horseshoe bats.

**Scoped in**

Vulnerability: Mosses and liverworts in gorges where recreational activities such as gorge-walking and extreme canoeing take place are threatened by over-use. Feral goats present within some of the sites require careful control to prevent bark-stripping and browsing damage to sapling and seedling trees. In the past the heathland has been threatened by inappropriate burning/grazing and afforestation. Lesser horseshoe bats are most vulnerable in their summer and winter roosts. Many roosts in mine adits have now been grilled to prevent disturbance to hibernating bats. Bats are also affected by a reduction in the availability of insect prey due to changes in agricultural practices and pesticides.

**Cors Fochno and Dyfi Ramsar**

Cors Fochno and Dyfi Ramsar is located partly within the south of Gwynedd and in the north of Ceredigion. The site contains the largest expanse of primary raised mire in lowland Britain; the largest estuarine raised mire and the third-largest ‘active’ raised mire in Britain. Habitats Directive Annex I Features present on the SAC component include:

- Active raised bogs
- Degraded raised bogs still capable of regeneration
- Depressions on peat substrates of the *Rhynchosporion*

The site supports the only regular wintering flock of Greenland White-fronted Geese in England and Wales, and is a key site in Wales for breeding waders.

Adverse effect on water quality due to any maintenance work on flood and coastal erosion risk management assets or FCERM improvement works.

Adverse effects from Noise / visual disturbance to bird species features due to maintenance of flood and coastal erosion risk management assets or FCERM improvement works.

**Scoped in**

**Corsydd Eifionydd / Eifionydd Fens SAC**

Corsydd Eifionydd SAC is made up of four separate Sites of Special Scientific Interest; Cors Graianog SSSI, Cors Gyfelog SSSI/NNR, Cors Llanllyfni SSSI and Cors y Wlad SSSI. The sites are situated within the upland-fringe transition between Snowdonia and the Llyn Peninsula and together they cover an area of over 144 ha. Between them, they should support three features of international importance namely transition mire and quaking bog, marsh fritillary and slender green feather moss. The sites should also support a range of other wetland habitats including marshy grassland, fen, bog, wet woodland and swamp habitats

Vulnerability: The principal pressure the site is under is scrub encroachment due to a lack of grazing, which is a reflection of the inaccessible, boggy nature of the terrain. Drainage and pollution are additional threats.

Adverse effect on water quality through any maintenance work to flood risk management assets or FCERM programme/improvement construction work. The habitat features of this SAC are considered particularly sensitive to changes in water quality.

Alteration to drainage (e.g. ditches, drains, culverts) through maintenance, including channel clearing, could have adverse effects on wetland habitat features of the site (e.g. transition mires and quaking bogs).

**Scoped in**

<p><b>Corsydd Llyn / Lleyn Fens SAC</b></p> <p>Corsydd Llyn SAC consists of a chain of four rich-fen sites running across the centre of the Llyn Peninsula, north-west Wales. Cors Geirch is the largest component site; the remaining three component sites of Cors Hirdre, Rhyllech Uchaf and Aber Geirch occupy separate hydrotopographical units. Features include Calcium-rich fen dominated by great fen sedge, Calcium-rich springwater-fed fens, Geyer’s whorl snail, Desmoulin’s whorl snail.</p> <p>Vulnerability: The site is under pressure from agricultural pressures (e.g. ditch maintenance, fertiliser application, neglect). Water quality of the site is vulnerable to deterioration due to agricultural activities (e.g. slurry). Scrub encroachment is an ongoing management problem.</p>	<p>Adverse effect on water quality through any maintenance work to flood risk management assets or FCERM programme construction works.</p> <p>The features of this SAC are considered particularly sensitive to changes in water quality.</p> <p>Alteration to drainage (e.g. ditches, drains, culverts) through maintenance, including channel clearing, could have adverse effects on wetland habitat features of the site.</p> <p><b>Scoped in</b></p>
<p><b>Corsydd Mon a Llyn / Anglesey and Lleyn Fens Ramsar</b></p> <p>The site supports a suite of base-rich, calcareous fens, a rare habitat type in the UK. Annex I features include:</p> <ul style="list-style-type: none"> <li>• Hard <i>oligo-mesotrophic</i> waters with benthic vegetation of <i>Chara spp</i></li> <li>• Northern Atlantic wet heaths with <i>Erica tetralix</i></li> <li>• Molinia meadows on calcareous, peaty or clayey—silt-laden soils (<i>Molinion caeruleae</i>)</li> <li>• Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i></li> <li>• Alkaline fens</li> <li>• Geyer’s Whorl Snail <i>Vertigo geyeri</i></li> <li>• Southern damselfly <i>Coenagrion Mercuriale</i></li> <li>• Marsh Fritillary butterfly <i>Euphydryas (Eurodryas, Hypodryas) aurinia</i></li> </ul> <p>The site supports diverse flora and fauna and is of special value for maintaining genetic / ecological diversity.</p>	<p>Maintenance of flood and coastal erosion risk management assets or FCERM programme construction works could cause adverse effects from disturbance to species features or potentially loss of habitats.</p> <p>Adverse effect on water quality through any maintenance work to flood risk management assets. Many of the features of this Ramsar site are sensitive to changes in water quality.</p> <p>Alteration to drainage (e.g. ditches, drains, culverts) through maintenance, including channel clearing, could have adverse effects on wetland habitat features of the site.</p> <p><b>Scoped in</b></p>
<p><b>Craig yr Aderyn (Bird’s Rock) SPA</b></p> <p>The high crag of Craig Yr Aderyn, rising from sea level to over 250 metres is a striking landscape feature on the south side of the Dysynni valley. The site is a Special Protection Area</p>	<p>This site is designated for breeding and wintering Chough and is an unusual inland breeding site for Cormorant. It is restricted to the crags of Craig yr Aderyn and the LFRMS is not expected to result in any</p>

<p>because it is an important breeding and roosting site for chough.</p> <p>Vulnerability: Disturbance of chough and bracken encroachment.</p>	<p>flood management projects in this location nor any impacts on the bird species for which the site is designated.</p> <p><b>Scoped out</b></p>
<p><b>Eryri / Snowdonia SAC</b></p> <p>Eryri comprises three upland massifs separated by roads, the Carneddau, Glyderau and Yr Wyddfa. All three host a number of biological and geological SSSI features and SAC features. Qualifying features include; High altitude plant communities associated with areas of water seepage, Blanket Bog, Species-rich grassland with mat-grass in upland areas, Alpine and subalpine heaths, dry heaths, and western acidic oak woodland.</p> <p>Vulnerability: Overgrazing can affect some vegetation communities. The high rainfall and extensive acidic geology/pedology renders this area, especially its watercourses and lakes, vulnerable to acidification.</p>	<p>Alteration to upland drainage (e.g. ditches, drains) through maintenance, including channel clearing, could have adverse effects on wetland habitat features of the site (e.g. blanket bog and wet heath).</p> <p>Adverse effect on water quality through any maintenance work to flood risk management assets. Some features of this SAC are sensitive to changes in water quality.</p> <p><b>Scoped in</b></p>
<p><b>Glannau Aberdaron ac Ynys Enlli / Aberdaron Coast and Bardsey island SPA</b></p> <p>The site lies at the very southwestern tip of the Llyn Peninsula, almost surrounded by the Irish Sea and exposed to the prevailing winds and weather systems. Its habitats are necessarily influenced by its location, geology and the climate, and the coastal area supports some of the best remaining examples of coastal and maritime heaths and grasslands on the Llyn, with areas further inland supporting more agriculturally improved areas. The site includes three islands, Ynys Enlli and two small islands known as Ynysoedd y Gwylanod. The site is designated an SPA for its ornithological interest and is particularly important for its chough and Manx shearwater breeding populations.</p> <p>Vulnerability: Human disturbance of burrows / nesting sites.</p>	<p>This site is designated for breeding Chough and Manx Shearwater and is therefore restricted to Ynys Enlli and the coastline of the tip of Pen Llyn. The designation does not include any freshwater habitats and the LFRMS is not expected to result in any flood management projects in this location nor any impacts on the two bird species for which the site is designated.</p> <p><b>Scoped out</b></p>
<p><b>Glynllifon SAC</b></p> <p>Glynllifon SAC is designated for its population of Lesser horseshoe bats. There are three maternity roosts within the site and two hibernation roosts. Although some habitat is</p>	<p>Adverse impact to Lesser Horseshoe Bat flightlines through vegetation clearance due to FCERM programme construction work or management of flood assets. Flightlines located outside the SAC are also</p>

<p>included within the SAC boundary, the bats use a much wider area for feeding and commuting and there are also known linked roosts outside of the SAC boundary.</p> <p>Vulnerability: Development, including loss of roost sites and impact upon flightlines through vegetation/tree clearance. Flightlines linking the SAC units are also very important and need to be considered when assessing developments. Bats are susceptible to disturbance, particularly during the summer maternity season. Bats are also affected by a reduction in the availability of insect prey due to changes in agricultural practices and pesticides.</p>	<p>sensitive as they link SAC components and potential foraging sites.</p> <p><b>Scoped in</b></p>
<p><b>Gogledd Bae Ceredigion / Northern Cardigan Bay SPA</b></p> <p>The SPA, located in the northern half of Cardigan Bay on the west coast of Wales, is designated for Red Throated Diver. Several rivers flow into the northern part of Cardigan Bay including the Dwyfach, Glaslyn/Dwyrhyd, Wnion, Dysynni, Leri, Mawddach and Dyfi.</p> <p>Vulnerability: Exploration and extraction of oil or gas, Marine water pollution and Fishing and harvesting aquatic resources. Other activities have the potential to create pressure or threat by disturbance to the feature, for example from noise or high-speed activity.</p>	<p>The site is designated for its population of Red Throated Diver. Although sensitive to marine pollution and potential disturbance, it is unlikely that projects are going to be at a scale that could adversely impact upon the species feature of this site.</p> <p><b>Scoped out</b></p>
<p><b>Gorllewin Cymru Forol / West Wales Marine SAC</b></p> <p>The West Wales Marine / Gorllewin Cymru Forol SAC covers an area of 7,376 km<sup>2</sup> extending southwards from the western end of the Llyn Peninsula across Cardigan Bay to Pembrokeshire. It is designated for its population of Harbour Porpoise.</p> <p>Vulnerability: Disturbance originating from underwater noise. Fisheries activities, including bycatch of harbour porpoise and removal of prey species. Recreational boating activity, causing disturbance or collision.</p>	<p>Adverse effect on mobile species feature Harbour Porpoise due to potential for coastal protection schemes to create underwater noise.</p> <p><b>Scoped in</b></p>
<p><b>Llyn Idwal Ramsar</b></p> <p>A small, shallow oligotrophic corrie lake. The semi-circular rock basin (or cwm) containing the lake is one of the finest examples in Snowdonia.</p>	<p>Due to the small size of this site (13.51ha) and its upland location with limited controlled drainage, it is considered unlikely that this site will be at risk of potential adverse effects from maintenance / construction work related to the GLFRMS.</p> <p><b>Scoped out</b></p>

Species rich plant community including almost all of the species typical of oligotrophic waters in Britain. Notable species include *Elatine hexandra* and *Subularia aquatica* (both nationally scarce) and *Pilularia globulifera* (vulnerable at a European level).

**Llyn Tegid Ramsar**

Largest natural lake in Wales, lying deep in a formerly glaciated trough. Plant species growing in or beside the lake are mudwort *Limosa aquatica*, six-stamened waterwort *Elatine hexandra*, water sedge *Carex aquatilis* and floating water plantain *Luronium natans*, all of which are scarce in Britain. The latter species is regarded as vulnerable on a global scale. This site is also one of only six sites in Britain for whitefish or Gwyniad *Coregonus lavaretus*; the Welsh population of this fish is genetically distinct. Llyn Tegid is also an unusual habitat for the normally riverine fish grayling *Thymallus thymallus*. The nationally rare glutinous snail *Myxas glutinosa* has been rediscovered in the shallow gravels of the lake shore.

Maintenance of flood and coastal erosion risk management assets could cause adverse effects from disturbance to species features or potentially loss of habitats.

Adverse effect on water quality through any maintenance / construction work.

**Scoped in**

**Migneint-Arenig-Dduallt SAC**

Migneint-Arenig-Dduallt is a large upland site that stretches between Ysbyty Ifan and Penmachno in the north down to Rhydymain in the south, and from Trawsfynydd in the west to just east of Llyn Celyn. It ranges in altitude from 300 m to 712 m. The northern section encompasses a high peatland plateau centred on Migneint and extending to Tomen y Mur in the west and Cwm Hesgyn in the east, with higher points such as Arenig Fach around the rim. The southern section, south of the Afon Lliw, also comprises a high plateau surrounded by higher ground and dominated by Dduallt mountain. The central section, lies south of Cwm Prysor and Llyn Celyn and includes Moel Llyfnant and Moel y Slatas as well as the Arenig Fawr mountain ridge which is the highest part of the whole site. The SAC habitats are blanket bog, dry heath, wet heath, lakes and woodland.

Vulnerability: Inappropriate grazing, burning and drainage leading to the degradation of the blanket bog and heath are the main threats adversely affecting the site. The vegetation and lake features are vulnerable to acidification due to atmospheric pollution.

Alteration to upland drainage (e.g. ditches, drains) through maintenance, including channel clearing, could have adverse effects on wetland habitat features of the site (e.g. blanket bog and wet heath).

Adverse effect on water quality through any maintenance or construction work. Some features of this SAC are sensitive to changes in water quality.

**Scoped in**

**Migneint-Arenig-Dduallt SPA**

Migneint-Arenig-Dduallt is a large upland site that stretches between Ysbyty Ifan and Penmachno in the north down to Rhydymain in the south, and from Trawsfynydd in the west to just east of Llyn Celyn. The SPA is designated for Hen Harrier *Circus cyaneus*, Merlin *Falco columbarius*, Peregrine *Falco peregrinus*.

Vulnerability: Inappropriate grazing/burning/drainage management has damaged the feeding/breeding habitat of the SPA features. Feeding/breeding habitats of all three species are also vulnerable to acidification due to atmospheric pollution being compounded by the high rainfall and acidic geology/pedology of the site. This site has also been significantly affected in the past by quarrying operations which have resulted in the destruction of habitats used by breeding birds.

Adverse effects from Noise / visual disturbance to nesting raptors due to maintenance of flood and coastal erosion risk management assets or FCERM programme construction work.

**Scoped in**

**Morfa Harlech a Morfa Dyffryn SAC**

The Morfa Harlech a Morfa Dyffryn SAC covers two sand dune systems, Morfa Harlech to the north and Morfa Dyffryn to the south. Morfa Harlech is a rapidly accreting dune system gaining sand from the coast to the south including the dune system at Morfa Dyffryn, which is eroding. The Morfa Harlech a Morfa Dyffryn SAC supports the following SAC features:

- Embryonic shifting dunes
- Shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes')
- Humid dune slacks
- Dunes with *Salix repens* ssp. *argentea* (*Salicion arinarea*)
- Petalwort *Petalophyllum ralfsii*

Vulnerability: Heavy recreational pressures on the beaches and dunes, leading to destabilisation are the main threat to this site.

The potential for adverse effects on this site is considered to be very limited, as the qualifying features are principally terrestrial habitats and their associated vegetation. The dune features would be sensitive to a constraint to natural sand movement, for example through new coastal defence structures, therefore this would need to be considered in relation to any coastal defence works within the same coastal 'cell'.

**Scoped in**

**Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal SPA**

This coastal site, located on the southern side of the Llyn Peninsula, is designated for its population of breeding chough. The site is regularly used by 3% of the Great Britain population of this charismatic bird throughout the breeding and non-breeding season. The sea cliffs and caves provide breeding and roosting sites, while the cliffs, heath, maritime

This site is designated for breeding and wintering Chough and is restricted to the coastline of the southern tip of Pen Llŷn. The designation does not include any freshwater habitats and the LFRMS is not expected to result in any flood management projects in this location

grassland, and adjacent pasture and arable fields provide feeding sites throughout the year for these specialist invertebrate feeders.

Vulnerability: Extent and condition of heathland, including grazing practices.

nor any impacts on the bird species for which the site is designated.

**Scoped out**

**Pen Llŷn a’r Sarnau / Lleyn Peninsula and the Sarnau SAC**

The Pen Llŷn a’r Sarnau SAC encompasses areas of sea, coast and estuary that support a wide range of different marine habitats and wildlife. The nature of the seabed and coast and the range of environmental conditions present vary throughout the SAC. Differences in rock and sediment type, aspect, sediment movement, exposure to tidal currents and wave action, water clarity and salinity together with biological and food chain interactions have created a wide range of habitats and associated communities of marine plant and animal species, some of which are unique in Wales.

Pen Llŷn a’r Sarnau SAC is a multiple interest site that has been selected for the presence of 9 marine habitat types and associated wildlife (Habitats Directive Annex I habitat types) and 3 mammal species (Habitats Directive Annex II species). For the qualifying habitats and species, the Pen Llŷn a’r Sarnau SAC is considered to be one of the best areas in the UK for: Reefs, Large shallow inlets and bays, Sandbanks which are slightly covered by seawater all the time, Estuaries, Coastal lagoons.

Vulnerability: Construction (e.g. of slipways, coastal defence and marinas/harbours) could cause disturbance to the estuarine, intertidal mudflat and sandflat, and reef habitats and disrupt physical processes essential for maintenance of these habitats. Certain reef communities are vulnerable to disturbance from specific fishing methods, in particular heavy bottom-fishing gear. Communities in the SAC are sensitive to oil pollution.

FCERM improvement works and maintenance of flood and coastal erosion risk management assets could potentially cause adverse effects due to loss of habitat features.

Adverse effect on marine water quality due to any maintenance or construction work.

**Scoped in**

**Rhinog SAC**

The Rhinogydd are carved out of the hard, acidic Cambrian grits of the Harlech dome and have a rugged topography with scattered upland lakes, block-littered slopes, cliffs and outcrops.

The geographical position of the site imposes an oceanic influence on the climate resulting in high rainfall, moderate temperatures and generally high humidity. The vegetation is dominated by heather *Calluna vulgaris* growing on thin, poor acidic soils. Grazing and burning

Alteration to upland drainage (e.g. ditches, drains) through maintenance, including channel clearing, could have adverse effects on wetland habitat features of the site (e.g. blanket bogs and wet heaths)

**Scoped in**

practices over the past 60 years have been relatively minor and as such the heather stands are deep and mature. This, together with the prevailing climatic conditions, has resulted in a luxuriant ground flora of bryophytes and ferns. As an example of such unmodified Calluna habitat this site is unique in Wales.

Vulnerability: The high rainfall and extensive acidic geology/pedology renders this area, especially its watercourses and lakes, vulnerable to acidification. The lichen-rich and bryophyte-rich oceanic heathland is vulnerable to burning and over-grazing.

**Traeth Lafan / Lafan Sands SPA**

Traeth Lafan / Lavan Sands is located in Conwy Bay lying between Bangor and Llanfairfechan in north-west Wales. This large area of intertidal sand- and mud-flats lies at the eastern edge of the Menai Strait. The area has a range of exposures and a diversity of conditions, enhanced by freshwater streams that flow across the flats. The site is of importance for wintering waterbirds, especially Oystercatcher (*Haematopus ostralegus*) and Curlew (*Numenius arquata*). In conditions of severe winter weather, Traeth Lafan acts as a refuge area for Oystercatchers displaced from the Dee Estuary. The site is also an important moulting roost for Great Crested Grebe (*Podiceps cristatus*) in late summer/early autumn.

Vulnerability: There have been concerns that the sporadic cockle suction-dredging may deplete oystercatchers' food source.

Adverse effects from Noise / visual disturbance to bird species features due to maintenance of flood and coastal erosion risk management assets.

**Scoped in**

**Y Fenai a Bae Conwy / Menai Strait and Conwy Bay SAC**

The unique physiographic conditions experienced within the Menai Strait and Conwy Bay SAC make this an unusual site, which has long been recognised as important for marine wildlife. The variation in physical and environmental conditions throughout the site, including rock and sediment type, aspect, water clarity and exposure to tidal currents and wave action result in a wide range of habitats and associated marine communities. Many of these community types are unusual in Wales. Of particular interest is the continuum of environmental and physical conditions and associated marine communities from the tide swept, wave-sheltered narrows of the Menai Strait to the more open, less tide-swept waters of Conwy Bay and the moderately wave-exposed Great and Little Ormes. The Menai Strait and Conwy Bay SAC is a multiple interest site that has been selected for the presence of 5

Maintenance of flood and coastal erosion risk management assets and FCERM programme related construction works could potentially cause adverse effects due to loss of habitat features.

Adverse effect on marine water quality due to any maintenance work on flood and coastal erosion risk management assets.

**Scoped in**

marine habitat types and associated wildlife (Habitats Directive Annex I habitat types). For the qualifying habitats, the SAC is considered to be one of the best areas in the UK for; Mudflats and sandflats not covered by seawater at low tide, Reefs, Sandbanks which are slightly covered by seawater all the time.

Vulnerability: Construction (e.g. of slipways, coastal defence and marinas/harbours) could cause disturbance to the European habitats and disrupt physical processes essential for the maintenance of these habitats. The potential impacts of heavy bottom-fishing gear on the subtidal sandbank and shallow inlet and bay habitats could be damaging. Disposal of dredged material could be negative. Marine communities in the SAC are sensitive to oil pollution.

**Y Twyni o Abermenai i Aberffraw / Abermenai to Aberffraw Dunes SAC**

The Abermenai to Aberffraw Dunes SAC lies at the southern end of the Menai Strait in Ynys Môn and Gwynedd, Wales. It comprises 3 main areas, one of which is located in Gwynedd, Morfa Dinlle. Morfa Dinlle comprises a complex shingle / dune spit which formed as a result of erosion of glacial deposits, primarily to the south of the site, and their transport northwards and subsequent deposition. At the seaward boundary much of the site is characterised by bare shingle, which gives way inland to vegetated shingle and sand dunes.

Vulnerability: Heavy recreational pressures on the beaches and dunes, leading to destabilisation.

This site is located in the south-western corner of Anglesey and at the mouth of Foryd Bay in Gwynedd. It is designated for its dune systems and associated plant species and has been identified for the HRA as it is partially within the GLFRMS area. However, no pollution impacts, potentially caused by the LFRMS are envisaged to cause negative impacts to the dune features of this site.

**Scoped out**

