



# GWYNEDD LOCAL FLOOD RISK MANAGEMENT STRATEGY (GLFRMS)

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STRATEGIC ENVIRONMENTAL ASSESSMENT

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ENVIRONMENTAL REPORT  
NON-TECHNICAL SUMMARY

CPF: 3861

## Document Control

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## Approvals

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## Distribution

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## **1 Introduction**

- 1.1 Gwynedd Council is currently preparing its Local Flood Risk Management Strategy as required by the Flood and Water Management Act 2010, which placed statutory obligations on local authorities to manage flood risk in their respective areas. As part of this process, it is a statutory requirement for Gwynedd Council to complete a Strategic Environmental Assessment (SEA) of the potential environmental effects of their Strategy before it is finally adopted.
- 1.2 The results of the SEA process have been documented in an Environmental Report that has been produced for consultation alongside the Consultation Draft of the Gwynedd Local Flood Risk Management Strategy (GLFRMS). This is the Non-Technical Summary of the Environmental Report and should be read in conjunction with the two consultation draft documents.
- 1.3 The aim of the Non-Technical Summary is to present the information that has been gathered as part of the SEA process and documented in the Environmental Report in a concise and clear manner, particularly regarding the SEA process, the likely significant environmental effects of the GLFRMS and an explanation of the difference the SEA process has made.

## **2 Strategic Environmental Assessment**

- 2.1 SEA is a statutory requirement of the European Union's SEA Directive and involves the appraisal of the potential environmental effects (positive and negative) of plans and programmes (including strategies) so that they can be taken into account prior to being approved and formally adopted. In Wales, the SEA Directive is implemented by The Environmental Assessment of Plans and Programmes (Wales) Regulations 2004 (the SEA Regulations). As local strategies are considered to be statutory plans the GLFRMS has been subject to the SEA process.
- 2.2 In addition, as the GLFRMS has been identified as having the potential to result in significant effects on sites of international nature conservation importance a Habitats Regulations Assessment (HRA), in accordance with the EU Habitats Directive (implemented in the United Kingdom by The

Conservation of Habitats and Species Regulations 2010 (as amended)) has been undertaken in parallel with the SEA.

## **Scoping**

2.3 The SEA Regulations require that a Scoping exercise is completed prior to commencing with the SEA and writing the Environmental Report. The Scoping Report was completed in June 2012 and included:

- An explanation of the GLFRMS and the requirement for SEA;
- A description of other plans, programmes and environmental protection objectives, focusing on those that may influence or be influenced by the GLFRMS;
- A summary of the existing baseline environmental information for the study area and clarification of which environmental topics were to be scoped in and out of the SEA;
- Identifying the environmental issues and problems within the study area;
- Developing a list of proposed SEA objectives, assessment criteria and monitoring indicators, and;
- Outlining the proposed structure of the Environmental Report, the approach to the SEA and explaining the statutory consultation process.

2.4 The Scoping Report was submitted to Cadw, the Countryside Council for Wales (CCW) and the Environment Agency Wales (EAW) as the statutory Welsh consultation bodies for SEA and also to Gwynedd Archaeological Planning Service (GAPS), Gwynedd Council and the Snowdonia National Park Authority (SNPA). The responses influenced the SEA and Environmental Report.

## **The Study Area**

2.5 The GLFRMS application area covers all of the land within the Gwynedd boundaries (including the area of the Snowdonia National Park that lies within Gwynedd). Therefore, the Gwynedd boundaries form the Study Area for the SEA (see Figure 1).



Figure 1: Study Area (source: 'Map Gwynedd'; Gwynedd Council)

### 3 The Gwynedd Local Flood Risk Management Strategy

3.1 In accordance with the Flood and Water Management Act 2010, Gwynedd Council must develop, maintain, apply and monitor a strategy for local flood risk management in Gwynedd in its new role as Lead Local Flood Authority (LLFA). Local flood risk is defined by the Flood and Water Management Act as flood risk resulting from surface runoff, groundwater, and ordinary watercourses (including lakes and ponds). Flood risk is the combination of the likelihood (or probability) of a particular flood event occurring and the consequence (or impact) of the flood event if it occurred.

- 3.2 The main sources of flood risk in Gwynedd include river flooding, tidally-influenced river flooding, surface water flooding and tidal flooding, with occasional sewer and groundwater flooding. The North West Wales Catchment Flood Management Plan (Environment Agency Wales, 2010) identifies the following populated areas in Gwynedd as being particularly susceptible to river flooding: Pwllheli, Bangor, Llanfairfechan, Porthmadog, Fairbourne and Tywyn.
- 3.3 In order to meet the requirements of the Flood and Water Management Act the GLFRMS must specify:
- 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.
- 3.4 Gwynedd Council must consult the risk management authorities that may be affected by its Local Flood Risk Management Strategy, as well as the general public. Gwynedd's public consultation draft LFRMS sets out the objectives by which it will aim to manage flood risk in its area and describes the measures which will be applied to achieve this.

## **4 Methods and SEA Framework**

- 4.1 The approach taken for the SEA was based on the Office of the Deputy Prime Minister's 2005 Practical Guide to SEA. The ODPM document provides guidance and methods to enable an SEA to meet statutory requirements by following a logical series of stages (A to E):

- Stage A: Setting the context and objectives, establishing the baseline and deciding on the scope of the SEA.
- Stage B: Developing and refining alternatives and assessing effects.
- Stage C: Preparing the Environmental Report.
- Stage D: Consulting on the draft plan or programme and the Environmental Report (this is the current stage of the SEA process).
- Stage E: Monitoring implementation of the plan or programme.

### **Defining the GLFRMS Objectives for the SEA**

- 4.1 The National Strategy for Flood and Coastal Erosion Risk Management in Wales, prepared under the terms of the Flood and Water Management Act 2010, contains four overarching Objectives for addressing flood risk management, along with Sub-objectives and associated Measures with which to implement them. Seven of the 'Sub-objectives' are considered relevant to the GLFRMS and have been included as its Objectives; these are referred to in the SEA as the 'Gwynedd LFRMS Objectives'.
- 4.2 Under each Sub-objective the NSFCERM provides relevant 'Measures' through which the management of flood and coastal risk can be achieved. Those relevant to the GLFRMS have been developed to ensure that they are more specific to the local needs of Gwynedd. Within the SEA, these Measures are referred to as 'Options'. The SEA has considered the potential environmental effects of the GLFRMS Objectives by assessing each associated Option.

## **5 Considering Alternatives**

- 5.1 The Gwynedd Local Flood Risk Management Strategy is a statutory requirement of the Flood and Water Management Act 2010 and must follow the objectives of the Welsh Government's National Strategy for Flood and Coastal Erosion Risk Management in Wales. Therefore consideration of alternative options to the Strategy itself is not considered realistic or feasible. However, within the Strategy several options have been identified at the consultation stage for each GLFRMS objective. These options follow a risk-based approach to adapting to the effects of flooding at a local level and have been assessed against the SEA objectives to identify any potentially significant environmental effects.

- 5.2 A 'Do Minimum' scenario has also been considered in order to provide a comparison of the potential environmental effects without the GLFRMS; for this SEA 'Do Minimum' means that the current measures for managing flood risk would not change.

## **6 The Baseline Environment**

- 6.1 The GLFRMS must comply with existing policies, plans and programmes at international to local levels and strengthen and support local plans and strategies. Therefore policies, plans, programmes and environmental protection objectives which are relevant to both the GLFRMS and the SEA were identified and reviewed to allow any potential synergies and inconsistencies or constraints to be addressed. A comprehensive description of these, together with their relevance to the GLFRMS, is provided within Appendix A of the Environmental Report.
- 6.2 In accordance with the SEA Directive the following Environmental Topics were included for consideration at the SEA scoping stage: Population and Human Health; Material Assets; Biodiversity, Flora and Fauna; Soil (including Geology and Geomorphology); Water; Air (including Climate); Cultural, Architectural and Archaeological Heritage; Landscape (including Visual Amenity), and the inter-relationship between the above topics.
- 6.3 The Scoping Report explains which topics were scoped into or out of the SEA along with a justification.
- 6.4 The key characteristics of Gwynedd's environment and their relevance to the GLFRMS are outlined as follows:

### **Population and Human Health**

Flooding can have far-reaching socio-economic consequences in Gwynedd by influencing people's Quality of Life through direct damage to properties and associated stress and through restricting access to key services and employment. Flooding can also be exacerbated as a result of increased development pressure to address population growth, especially if the development does not consider the effect on flood risk or include sustainable

drainage systems. The GLFRMS and the options considered within it will seek to manage flood risk for the benefit of the population of Gwynedd. The GLFRMS may therefore positively affect the likelihood of resident's properties being affected by flooding and public access to key services and employment by addressing flooding issues at the local scale.

### **Material Assets**

Gwynedd is a peripheral County within Wales and the UK and much of its Material Assets are centred on its natural beauty (tourism) and large, undeveloped areas of land (agriculture). Gwynedd's transport infrastructure is critical to both the local population and seasonal tourists and all of Gwynedd's assets can be influenced by flooding to varying degrees. The increasing demand for housing and economic growth has the potential to exacerbate flood risk in areas if it is not planned and designed to consider this.

### **Biodiversity, Flora and Fauna**

Gwynedd contains a large amount and diversity of protected sites, species and habitats that are vulnerable to development and land use change. There are 29 sites of international importance within or partially within Gwynedd covering three designation types; Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites. There are also 26 National Nature Reserves (NNRs) and 151 Sites of Special Scientific Interest (SSSI) as well as over 1100 Local Wildlife Sites (LoWS).

### **Soils, Geology and Geomorphology**

In a farming context the relatively poor soils in Gwynedd means that sheep farming (rough grazing) comprises a large component of agricultural land usage. Gwynedd has a variety of geomorphological features, due to its numerous watercourses of varying sizes and its coastal location, where numerous coastal processes have shaped estuaries and sand dune systems. There are 90 Geological Conservation Review (GCR) sites in Gwynedd encompassing British geological and geomorphological features. There are also 40 SSSIs in Gwynedd which are solely designated for their geological features and 28 which have mixed biological and geological interests.

Gwynedd does not contain large areas of contaminated land from current manufacturing and industrial activity, but there is a legacy of contamination

from numerous metal mining activities which still persists today and can cause elevated contamination levels in some rivers, especially after flooding and heavy rainfall.

The GLFRMS could affect soils, geology and geomorphology via changes in flooding regime and frequency or changes in water levels.

### **Water**

Gwynedd has a comparatively high rainfall and contains a large number of watercourses, many of which have good water quality and provide valuable resources for wildlife, abstraction, tourism and fisheries. The Water Framework Directive places obligations for the satisfactory control of watercourse quality within Gwynedd by 2015. There is a potential for future water shortage within the North Eryri – Ynys Mon Water Resource Zone due to the effects of climate change.

### **Cultural, Architectural and Archaeological Heritage**

Gwynedd has a highly-valued historic landscape resource which includes numerous designated areas such as historic landscapes, scheduled ancient monuments, registered parks and gardens, listed buildings, conservation areas and a UNESCO World Heritage site.

### **Landscape and Visual Amenity**

Gwynedd's distinctive landscapes are a key feature and the natural beauty and diversity of Gwynedd are reflected by the fact that around two-thirds of it falls within the Snowdonia National Park (SNP). The Llŷn Area of Outstanding Natural Beauty (AONB) and Llŷn Heritage Coast are also located within Gwynedd. By attracting tourists to Gwynedd this landscape helps to support an important local economy but is also sensitive to change.

### **Climate Change**

Despite uncertainties over the extent of predicted local effects of climate change there can be little doubt that flooding linked to increased rainfall is likely to become an increasing problem in Gwynedd. Increases in winter precipitation, sea level and peak river flows are all expected by the 2050's and all are linked to increased flood risk.

Based on a 'medium emissions scenario' in North West Wales average summer and winter temperatures are expected to rise by up to 3°C by 2050. Average summer rainfall is predicted to decrease by up to 30% and average winter rainfall to increase by up to 20%. In addition, Gwynedd's coastline is expected to receive more pressure from sea level rise and increased rates of erosion and coastal flooding.

## **7 Assessment of the Gwynedd Local Flood Risk Management Strategy**

7.1 Following the scoping of environmental topics, compilation of the baseline information and identification of the environmental problems and issues a series of objectives was developed, against which the SEA process was used to assess the potential environmental effects of the GLFRMS. The SEA Objectives are:

- 1) Protect and enhance public health and community services;
- 2) Minimise flooding to Gwynedd's material assets, including transport links and high quality agricultural land;
- 3) Conserve, avoid damage to and enhance where possible designated wildlife sites and protected species and habitats in Gwynedd;
- 4) Reduce contamination and safeguard the quality and quantity of Gwynedd's soils, geomorphology and geodiversity sites;
- 5) Protect, maintain and enhance Gwynedd's water quality and resources.
- 6) Protect, maintain and enhance Gwynedd's Cultural, Architectural and Archaeological Heritage;
- 7) Protect, maintain and enhance Gwynedd's Landscape and Visual Amenity, and;
- 8) Contribute to adapting to the effects of climate change.

7.2 In order to compare the potential environmental effects for each of the 7 GLFRMS Objectives a matrix method was used whereby each of the Options proposed to achieve the GLFRMS Objective was assessed against the SEA Objective. The temporal scale of each potential effect was considered based on the following epochs of implementation of each option:

- Short term: expected to be prevalent from the implementation of the option over the following 5 years;

- Medium term: expected to be prevalent for up to 5 to 10 years following the implementation of the option, and;
- Long term: expected to be prevalent for more than 10 years following the implementation of the option.

7.3 The nature of each potential effect (e.g. positive or negative, permanent or temporary) its probability and frequency, as well as the possibility of secondary (indirect), cumulative or synergistic effects was also considered.

7.4 Each potential effect was allocated a level of magnitude as follows:

+ +	Very Positive
+	Positive
0	Neutral
-	Negative
- -	Very Negative

7.5 Following the SEA process it was concluded that each of the seven GLFRMS Objectives would result in positive effects for Population and Human Health (SEA Objective 1), Material Assets (SEA Objective 2) and adapting to Climate Change (SEA Objective 8). No adverse environmental effects were identified as a result of GLFRMS Objectives 2, 4, 5 and 6.

7.6 By not considering the increasing risks posed by climate change and not addressing flood management more effectively at the local level the Do Minimum scenario was concluded to lead to negative effects for all of the SEA Objectives.

7.7 Potential negative environmental effects were identified for Objectives 1, 3 and 7. The following section provides a summary of the potential negative environmental effects which have been identified. If the recommended mitigation is implemented the potential negative effects associated with these Objectives would be expected to be avoided or at least reduced so that they were no longer significant.

**GLFRMS Objective 1 - Provide strategic leadership and direction at a local level:** Negative environmental effects as a result of Option 1.1, which

involves implementing the Shoreline Management Plan through the GLFRMS, were identified. This could affect SEA Objectives 3, 4, 6 and 7 as a result of any work carried out at the project level that does not allow for consideration of permanent environmental effects on biodiversity, soils/geology and geomorphology, cultural heritage and landscape.

**GLFRMS Objective 3 - Establish regular maintenance schedules for flood and coastal erosion risk management assets:** Negative effects in the short term were identified for the biodiversity, water and cultural heritage SEA Objectives. This would be a result of maintenance works associated with Option 3.4 that do not fully consider their effect on biodiversity (such as disturbance of protected species), water quality (especially in the short term through water pollution from construction activities) and cultural heritage features (particularly works to listed and designated features), although reduced flooding of cultural heritage interest features could lead to potential positive effects on this receptor.

**GLFRMS Objective 7 - Facilitate recovery from flooding within the shortest possible timescales.:** Negative effects associated with Option 7.1 were identified for biodiversity in the short term due to potential adverse effects caused by the removal of any debris that has become habitat for protected species (such as otter resting places and bird nests, e.g. dippers).

### **Consideration of Cumulative/Synergistic Effects**

- 7.8 Following the assessment of each GLFRMS Option, the cumulative/synergistic effect (*i.e.* individual effects combining to create a larger effect) of the combined Options against each SEA Objective was assessed and the results summarised as follows.
- 7.9 No negative cumulative effects were identified. The Options proposed to achieve GLFRMS Objective 1 are expected to collectively result in a permanent cumulative positive effect on the SEA Objectives. There is uncertainty over how Option 1.1 will be implemented to ensure no negative effects on environmental features, although mitigation measures have been proposed to address this in the final GLFRMS.

- 7.10 The Options proposed to achieve GLFRMS Objective 2 are expected to result in a permanent cumulative positive effect on SEA Objectives 1 – 5 and 8.
- 7.11 The Options proposed to achieve GLFRMS Objectives 3, 4, 5, 6 and 7 are expected to result in a permanent cumulative positive effect on the Population and Human Health, Material Assets and Climate Change SEA Objectives.
- 7.12 There are considered to be no cumulative effects for the remaining SEA objectives due to the nature of the proposed Options chiefly relating to improved community awareness, preparedness, response and resilience to flooding.
- 7.13 There is also potential for cumulative effects between the GLFRMS and other local management strategies, particularly the West of Wales Shoreline Management Plan 2 and the Regional River Basin Management Plans. Such cumulative effects could negatively affect SEA Objectives 3 to 7 (biodiversity, soils/geology/geomorphology, water, cultural heritage and landscape) if appropriate mitigation is not considered in advance of any projects arising from them. However, there is considerable uncertainty regarding this depending on how the strategies are implemented at the project level. There is potential for positive cumulative (synergistic) effects between the GLFRMS and emerging Gwynedd/Anglesey Joint LDP and Eryri LDP on all SEA Objectives.

## 8 Mitigation and Enhancement Measures

8.1 Where negative effects through the implementation of the GLFRMS Objectives have been predicted, mitigation and enhancement measures have been proposed to reduce or eliminate them. The main environmental effects from the GLFRMS are considered to be a result of the implementation of Shoreline Management Plan (SMP2) schemes, maintenance of flood and coastal risk assets and clearance of flood debris. The mitigation and enhancement measures to be developed and included in the GLFRMS will include the following:

- Adherence to the SMP2 objectives and the control measures identified in the SMP2 Habitats Regulation Assessment;
- Completion of project-level environmental assessments and reports before work commences (including HRA and EIA, where appropriate);
- Consultation with the statutory environmental bodies at the feasibility and design phase of GLFRMS projects, especially those arising from the SMP2 but also those directly related to the GLFRMS;
- Maintaining good site practices during project-level schemes to reduce any negative effects on water quality (e.g. adhering to PPG5);
- Implementation of method statements and obtaining any relevant licences/consents prior to project-level work

8.2 The following enhancement measures, to improve the GLFRMS Objectives, are also proposed to be incorporated within the final GLFRMS:

- For Option 1.5 It is recommended that the consenting procedure for any works within designated protected sites is clarified in the final GLFRMS to ensure that this aspect of the procedure is not overlooked;
- For Option 3.3 it is recommended that the record of drainage assets includes information on sensitive environmental features associated with the asset, such as any archaeological and/or biodiversity designations, so that these can be considered as any maintenance arises, and;
- For Option 4.3 it is recommended that the advice note provided to landowners as part of the final GLFRMS is revised to include advice on how they should consider biodiversity and other environmental features when carrying out maintenance activities.

- 8.3 By identifying potential adverse environmental effects and proposing mitigation and enhancement measures the SEA process is considered to have made a beneficial difference to the draft GLFRMS before it is formally approved and adopted.

## **9 Monitoring**

- 9.1 It is important that the implementation of the GLRFMS is monitored to ensure that any unforeseen negative environmental effects are identified, predicted effects are measured and remedial action can be applied if required.
- 9.2 The GLFRMS will be reviewed at a frequency to coincide with the Environment Agency's review of the National Strategy for Flood and Coastal Erosion Risk Management in Wales. This is expected to involve a six yearly reporting cycle and the first review of the National Strategy will take place in 2016, with subsequent reviews every six years thereafter. Therefore, it is proposed that the SEA monitoring and reporting of the GLFRMS is designed to tie in with this.
- 9.3 It will also be necessary to undertake minor reviews should there be any changes in legislation or other factors which alter the LLFA's understanding of flood risk.
- 9.4 The monitoring will involve testing the assessment criteria that have been proposed for the SEA Objectives using the relevant indicators. Reporting will occur following each monitoring review. Monitoring reports will be submitted to the statutory environmental bodies in Gwynedd, namely: Cadw (including Gwynedd Archaeological Planning Service), Countryside Council for Wales (CCW) and the Environment Agency Wales (EAW), as well as the Gwynedd Council Lead Local Flood Authority (LLFA). The LLFA will be informed of any concerns identified by the monitoring and reporting process so that the GLFRMS can be revised, updated and improved accordingly.

## **10 The Next Step**

- 10.1 If you wish to comment on the draft GLFRMS, suggest alternatives, comment on the draft Environmental Report and/or the Habitats Regulations Assessment, or request further information you should write to Gwynedd

Council at the postal or email address below. All such correspondence should be sent to arrive no later than the end of the period stated in the public notice:

Flood and Coast Risk Management Unit, Council Offices, Cae Penarlag,  
Dolgellau, Gwynedd. LL40 2YB  
e-mail: FCRMU@gwynedd.gov.uk

- 10.2 Your correspondence will be considered by the project team and it may be necessary to consult with people and organisations outside of Gwynedd Council. As part of the process of consulting with others your information may be passed to them, including information you have provided together with your personal data. However, your personal details will only be disclosed where it is necessary to be able to deal with issues you have raised.
- 10.3 Following the public consultation the findings of the SEA will be taken into account by Gwynedd Council as it finalises the LFRMS. The full Environmental Report and this Non-Technical Summary will then be updated to reflect any consultation comments received on the SEA, and any changes made to the measures in the final LFRMS that will be formally approved by the Council's cabinet and adopted as a Council strategy.