Rialtas na hÉireann
Government of Ireland

Screening for Appropriate Assessment

Translocation of Freshwater Pearl Mussels from Lough Corrib Special Area of Conservation as part of an on-going captive breeding programme in accordance with Regulation 42A EC (Birds and Natural) Habitats Regulations 2011-2021

Prepared by the Department of Housing, Local Government and Heritage
npws.ie

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1. Introduction

This determination on Screening for Appropriate Assessment (AA) has been made by the Ecological Assessment Unit (EAU) of the Department of Housing, Local Government and Heritage (DHLGH) in accordance with Regulation 42A(8) of the European Communities (Birds and Natural Habitats) Regulations 2011-2021 ('the 2011 Regulations").[1]

On the 27th July 2023, in accordance with the requirements of Regulation 42A(3) of the 2011-2021 Regulations, the Minister for Housing, Local Government and Heritage ('the Minister') furnished the EAU with a request for a Screening for Appropriate Assessment (AA) determination for the translocation of *c*.40 individual Freshwater Pearl Mussel *Margaritifera margaritifera* from the Owenriff River, part of the Lough Corrib Special Area of Conservation [Site code: 000297] to the Marine Institute's Furnace Salmon Hatchery, as part of a pilot captive breeding programme. Hereafter referred to as "the project".

The EAU have evaluated and analysed the information contained in the referred to above document and location maps provided and carried out a determination. The purpose of this document is to provide a record and an audit trail of the EAU reasoned thinking in view of best scientific knowledge and the Conservation Objectives of European Sites.

[1] As inserted by Regulation 7 of the European Union (Birds and Natural Habitats) (Amendment).

2. Background

Pursuant to Regulation 42A(1) of the European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. 477 of 2011), a Screening for AA is required to be carried out on the project. AA is a process required under Article 6(3) of the EU Habitats Directive. Article 6(3) is transposed in Ireland by the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), as amended, and by Part XAB of the Planning and Development Act, 2000, as amended.

All plans and projects which are not directly connected with or necessary to the management of a European Site, but which either individually or in combination with other plans or projects, are likely to have a significant effect on a “European Site”, require that an AA of these effects to determine if they will adversely affect the integrity of these sites. The proposed conservation measures are considered to fall under the requirements of AA as applied to all plans and projects.

The Screening for AA process scrutinises the plan or project to determine if there is potential for likely significant effects either individually or in combination with other plans or projects, on a European Site. European Sites are part of the Natura 2000 network and include those designated as Special Areas of Conservation (SAC), Candidate SACs (cSACs) or Special Protection Areas (SPA). This Screening for Appropriate Assessment describes the outcome of this analysis in respect of the project.

3. Legislation and Guidance

This section provides details on the adopted methodology with sources of guidance and information gathered to inform the preparation of the report.

3.1. Guidance and Data Sources

- AA of Plans and Projects in Ireland - Guidance for Planning Authorities (Department of Environment, Heritage and Local Government, 2010 revision);
- AA under Article 6 of the Habitats Directive; Guidance for Planning Authorities. Circular NPW 1/10 and PSSP 2/10;
- Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites: Methodical Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC (European Commission Environment Directorate-General, 2021);
- Communication from the Commission on the precautionary principle. European Commission (2000);
- Guidance Document on Article 6(4) of the Habitats Directive 92/43/EEC (European Commission, 2007);
- Guidelines for Good Practice AA of Plans under Article 6(3) Habitats Directive (International Workshop on Assessment of Plans under the Habitats Directive, 2011);
- Managing Natura 2000 Sites: The Provision of Article 6 of the Habitats Directive 92/43/EEC (European Commission Environment Directorate-General, 2018); [hereafter referred to as MN 2018]; and
- Office of the Planning Regulator Practice Note PN01 - AA Screening for Development Management (OPR, 2021).
- Preston, S.J., Keys, A. and Roberts, D., 2007. Culturing freshwater pearl mussel Margaritifera margaritifera: a breakthrough in the conservation of an endangered species. Aquatic Conservation: Marine and Freshwater Ecosystems, 17(5), pp.539-549.
- Moorkens, E.A. & Killeen, I.J. (2020) Monitoring Populations of the Freshwater Pearl Mussel, Margaritifera margaritifera, Stage 3 and Stage 4 Survey. Irish Wildlife Manuals, No. 122. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland.

3.2. Assessment Methodology

This report is based on review of desktop data. Sources of information utilised for this report and accessed during July 2023 include the following:

- National Parks & Wildlife Service (NPWS) Designations Viewer[2]; and,
- National Biodiversity Data Centre (NBDC) Maps[3].

3.3. Legislative Background

According to the EU Habitats Directive (92/43/EEC) and the EU Birds Directive (79/409/EEC), Member States are required to establish a Natura 2000 network of sites of highest biodiversity importance for rare and threatened habitats and species across the EU.

In Ireland, the Natura 2000 network of European sites comprises SACs, candidate SACs and SPAs.

SACs are selected for the conservation of Annex I habitats (including priority types which are in danger of disappearance) and Annex II species (other than birds). SPAs are selected for the conservation of Annex I birds and all migratory birds and their habitats. The Annex habitats and species, for which each site is selected, are the qualifying interests (QI) for SACs and special conservation interests (SCI) for SPAs of each site. Conservation objectives for the site are defined for these qualifying interests.

A key requirement of the Habitats Directive is that the effects of any plan or project, which is not directly connected with or necessary to the management of a European Site, but which alone, or in combination with, other plans or projects, are likely to have a significant effect on a European Site, should be assessed before any decision is made to allow that plan or project to proceed. The obligation to undertake a screening for AA, and if necessary, an AA, derives from Article 6(3) of the Habitats Directive and both involve a number of steps and tests that need to be applied in sequential order.

Article 6(3) is concerned with the strict protection of sites, while Article 6(4) is the procedure for allowing derogation from this strict protection in certain restricted circumstances.

[2] National Parks & Wildlife Service Designation Viewer. Accessed at ArcGIS Web Application 27/07/2023

[3] National Biodiversity Data Centre Maps. Accessed at Maps - Biodiversity Maps (biodiversityireland.ie) 27/07/2023

Article 6(3) of the Habitats Directive states:

> "Any plan or project not directly connected with, or necessary to, the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans and projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only having ascertained that it will not adversely affect the integrity of the site concerned and if appropriate, after having obtained the opinion of the general public".

Article 6(4) states:

> "If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.
>
> Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest."

The competent authority is required to carry out a screening for AA, and if necessary, an AA as required by Article 6(3) of the Habitats Directive. If the competent authority determines that the plan or project will adversely affect the integrity of a European site, it may only authorise that plan or project by following the Article 6(4) procedure.

The Article 6(3) and 6(4) procedures are outlined as follows:

Stage 1 - Screening for Appropriate Assessment – to assess, in view of best scientific knowledge, if the project or plan, individually or in combination with another plan or project is likely to have a significant effect on the Natura 2000 site.

Stage 2 - Appropriate Assessment – This is required if it cannot be excluded, on the basis of objective information, that the project or plan, individually or in combination with other plans or projects, will have a significant effect on a Natura 2000 site. The AA must include a final determination by the competent authority as to whether or not a proposed project would adversely affect the integrity of a Natura 2000 site. In order to reach a final determination, the competent authority must undertake examination, analysis and evaluation, followed by findings, conclusions and a final determination. The appropriate assessment must contain complete, precise and definitive findings and conclusions, and may not have lacunae or gaps.

Stage 3 – Assessment of alternative solutions - the process which examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 site.

Stage 4 - Assessment where no alternative solutions exist and where adverse impacts remain - an assessment of compensatory measures where, in the light of an assessment of imperative reasons of overriding public interest (IROPI), it is deemed that the project or plan should proceed.

Under Regulation 42A(1) of the European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. 477 of 2011), the Ecological Assessment Unit is the competent authority in relation to screening for AA of projects and plans (such as the proposed conservation measures) which the Minister proposes to undertake or adopt.

4. Overview of the Project

Lough Corrib is situated to the north of Galway city and is the second largest lake in Ireland, with an area of approximately 18,240 ha (the entire site is 20,556 ha). The lake can be divided into two parts: a relatively shallow basin, underlain by Carboniferous limestone, in the south, and a larger, deeper basin, underlain by more acidic granite, schists, shales and sandstones to the north. The surrounding lands to the south and east are mostly pastoral farmland, while bog and heath predominate to the west and north. A number of rivers are included within the cSAC as they are important for Atlantic Salmon. These rivers include the Clare, Grange, Abbert, Sinking, Dalgan and Black to the east, as well as the Cong, Bealanabrack, Failmore, Cornamona, Drimneen and Owenriff to the west (See Figure 1).

The Owenriff catchment is located on the north-western end of the Lough Corrib catchment and the main Owenriff River drains into Lough Corrib Upper downstream of Oughterard, Co. Galway.

The interest of the Owenriff lies primarily in its importance as a Salmonid river and the presence of a significant population of Freshwater Pearl Mussel, a species listed on Annex II of the E.U. Habitats Directive and also protected under the Wildlife Acts 1976-2021.

The Owenriff population was estimated as *c.*1 million in 2009. Monitoring by NPWS estimated that it had reduced to 940,000 in 2012, based on a 1% per year decline owing to insufficient recruitment. Declines were detected in 2011, 2014 and 2015. A large kill followed a drought in 2014. The Owenriff population has been surveyed frequently since the 1990s, and monitored regularly since the baseline survey in 2004. Mussels are abundant (over 250 per 100m, often 150/m²) from the hatchery at Canrawer East to upstream of Oughterard wastewater treatment plant (WWTP) discharge. The target is for the species to be sufficiently abundant to maintain itself on a long-term basis as a viable component of the Owenriff system.

The Freshwater Pearl Mussel grows to 140 mm in length, and burrows into sandy substrates, often between boulders and pebbles, in fast-flowing rivers and streams. It requires cool, well-oxygenated soft water free of pollution or turbidity. The Freshwater Pearl Mussel spends its larval, or glochidial, stage attached to the gills of salmonid fishes. The larvae attach themselves during mid to late summer and drop off the following spring to settle in the riverbed gravel where they grow to adulthood.

Population declines have been caused by factors such as pollution, acidification, organic enrichment, siltation, river engineering, and declining salmonid stocks. The Freshwater Pearl Mussel is now increasingly endangered and its increasing rarity in mainland Europe gives extra significance to the Irish populations.

5. Purpose

The project is part of a captive breeding pilot that commenced in 2020. Survival of adult mussels, the glochidial encystment and survival of juvenile mussels at the MI research station have been encouraging to date, however encystment of glochidia did not occur in the 2022/23 cohort of fish comparing breeding success of mussels held in captivity for 2 years (since 2020) with newly translocated mussels in 2022. The purpose of this translocation will allow comparison of glochidiosis rates on hatchery reared salmon and trout respectively.

Habitats Directive (Article 6.2) obliges Member States to take appropriate steps to avoid the deterioration of natural habitats and the significant disturbance of the species for which a site has been designated. In this context 'taking appropriate steps' means for the Minister to adopt the necessary legal and/or contractual measures to make sure that the deterioration of Freshwater Pearl Mussels for which the Special Area of Conservation network has been designated is avoided.

This programme contributes to filling knowledge gaps as identified in the Prioritized Action Framework (Action E.1.4) and the development of ex-situ breeding facilities/programme for Freshwater Pearl Mussels is a prioritised measure (Action E.2.8).

6. Project Description

Freshwater Pearl Mussels will be collected from the Owenriff River, at Oughterard, Co. Galway upstream of the settlement of Oughterard and translocated to the Marine Institute's Furnace Salmon Hatchery, approximately 60 km north of the Corrib Catchment. The translocation of 40 adult Freshwater Pearl Mussels is planned for late July 2023 as part of a pilot captive breeding programme.

Mussels will be placed in net bags before being put into buckets containing river water. Mussels will be transported by car directly to the Marine Institute. On arrival, mussels will be measured and groups of ten mussels will be placed into four 11x11x11cm water plant pots containing washed gravels taken from a natural deposition point in the Owenriff River.

The mussels will be placed in the baskets and then into two 2x2m holding tanks. The tanks are supplied by a gravity-fed through-flow system in which hatchery reared 0+ salmon and brown trout (from the Burrishoole catchment) will have been placed 2-3 weeks earlier to become acclimatized to their condition. The fish and mussels will be kept together until after glochidiosis has occurred. Fish will be reared on for up to ten months. A Health Product Regulatory Authority (HPRA) authorization and Fish Health Authorisation are already in place for the rearing of salmonids and the operation of the captive breeding programme. The adult mussels and resulting juvenile mussels will be held in captivity until at least September 2024.

7. Part 1: Necessary conservation measures

Answer these questions if the activity is “directly connected with or necessary to the management of the site”. Otherwise go to Part 2.

a). List the European site(s) and the relevant Conservation Objectives (include version number of the Conservation Objective).

Lough Corrib SAC [Site code: 000297].

NPWS (2017) Conservation Objectives: Lough Corrib SAC 000297. Version 1. Accessed 27th July 2023. Available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000297.pdf

Qualifying Interests

Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110]

Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130]

Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. [3140]

Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260]

Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210]

Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410]

Active raised bogs [7110]

Degraded raised bogs still capable of natural regeneration [7120]

Depressions on peat substrates of the Rhynchosporion [7150]

Calcareous fens with Cladium mariscus and species of the Caricion davallianae [7210]

Petrifying springs with tufa formation (Cratoneurion) [7220]

Alkaline fens [7230]

Limestone pavements [8240]

Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]

Bog woodland [91D0]

Margaritifera margaritifera (Freshwater Pearl Mussel) [1029]

Austropotamobius pallipes (White-clawed Crayfish) [1092]

Petromyzon marinus (Sea Lamprey) [1095]

Lampetra planeri (Brook Lamprey) [1096]

Salmo salar (Salmon) [1106]

Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303]

Lutra lutra (Otter) [1355]

Najas flexilis (Slender Naiad) [1833]

Hamatocaulis vernicosus (Slender Green Feather-moss) [6216]

Conservation Objectives for Qualifying Interests.

Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110]

To maintain the favourable conservation condition of Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) in Lough Corrib SAC, which is defined by the following list of attributes:

- Habitat area.
- Habitat distribution.
- Typical species.
- Vegetation composition: characteristic zonation.
- Vegetation distribution: maximum depth.
- Hydrological regime: water level fluctuation.
- Lake substratum quality.
- Water quality: transparency; nutrients; phytoplankton biomass; phytoplankton composition; attached algal biomass; and, macrophyte status.
- Acidification status.
- Water colour.

- Dissolved organic carbon (DOC).
- Turbidity.
- Fringing habitat: area and condition.

Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130]

To maintain the favourable conservation condition of Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea in Lough Corrib SAC, which is defined by the following list of attributes

- Habitat area.
- Habitat distribution.
- Typical species.
- Vegetation composition: characteristic zonation.
- Vegetation distribution: maximum depth.
- Hydrological regime: water level fluctuation.
- Lake substratum quality.
- Water quality: transparency; nutrients; phytoplankton biomass; phytoplankton composition; attached algal biomass; and, macrophyte status.
- Acidification status.
- Water colour.
- Dissolved organic carbon (DOC).
- Turbidity.
- Fringing habitat: area and condition.

Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. [3140]

To restore the favourable conservation condition of Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. in Lough Corrib SAC, which is defined by the following list of attributes:

- Habitat area.
- Habitat distribution.
- Typical species.
- Vegetation composition: characteristic zonation.
- Vegetation distribution: maximum depth.
- Hydrological regime: water level fluctuations.
- Lake substratum quality.
- Water quality: transparency; nutrients; phytoplankton biomass; attached algal biomass; and, macrophyte status.
- Acidification status.
- Water colour.
- Dissolved organic carbon (DOC).
- Turbidity.
- Fringing habitat: area and condition.

Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260]

To maintain the favourable conservation condition of Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation in Lough Corrib SAC, which is defined by the following list of attributes:

- Habitat area.
- Habitat distribution.
- Hydrological regime: river flow; and, groundwater discharge.
- Substratum composition: particle size range.

- Water quality.
- Vegetation composition: typical species.
- Floodplain connectivity: area.
- Riparian habitat: area.

Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210]

To maintain the favourable conservation condition of Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) in Lough Corrib SAC in owing list of attributes:

- Habitat area.
- Habitat distribution.
- Vegetation composition: typical species; negative indicator species; non-native species; woody species and bracken; and, broadleaf herb:grass ratio.
- Vegetation structure: sward height; and, litter.
- Physical structure: bare soil; and, disturbance.

Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410]

To maintain the favourable conservation condition of Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) in Lough Corrib SAC, which is defined by the following list of attributes:

- Habitat area.
- Habitat distribution.
- Vegetation composition: typical species; negative indicator species; non-native species; moss species; woody species and bracken; and, broadleaf herb:grass ratio.
- Vegetation structure: sward height; and, litter.
- Physical structure: bare soil; and, disturbance.

Active raised bogs [7110]

To restore the favourable conservation condition of Active raised bogs in Lough Corrib SAC, which is defined by the following list of attributes:

- Habitat area.
- Habitat distribution.
- High bog area.
- Hydrological regime: water levels; and, flow patterns.
- Transitional areas between high bog and adjacent mineral soils.
- Vegetation quality: bog moss Sphagnum species.
- Typical Active Raised Bog Species: flora; and, fauna.
- Air Quality: nitrogen deposition.
- Negative physical indicators.
- Vegetation composition: native negative indicator species; non-native invasive species
- Elements of local distinctiveness.

Degraded raised bogs still capable of natural regeneration [7120]

The long-term aim for Degraded raised bogs still capable of natural regeneration is that its peat-forming capability is re-established; therefore, the conservation objective for this habitat is inherently linked to that of Active raised bogs (7110). A separate conservation objective has not been set in Lough Corrib SAC.

Depressions on peat substrates of the Rhynchosporion [7150]

Depressions on peat substrates of the Rhynchosporion is an integral part of good quality Active raised bogs (7110) and thus a separate conservation objective has not been set for the habitat in Lough Corrib SAC.

Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210]

To restore the favourable conservation condition of Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae** in Lough Corrib SAC, which is defined by the following list of attributes:

- Habitat area.
- Habitat distribution.
- Ecosystem function: soil nutrients; peat formation; hydrology- groundwater levels; hydrology – surface water flow; and, water quality.
- Vegetation composition: cover of *Cladium mariscus*; typical vascular plants; native negative indicator species; non-native species; native trees and shrubs; and, algal cover.
- Vegetation structure: vegetation height.
- Physical structure: disturbed bare ground; and, tufa formations.
- Indicators of local distinctiveness.
- Transitional areas between fen and adjacent habitats.

Petrifying springs with tufa formation (Cratoneurion) [7220]

To restore the favourable conservation condition of Petrifying springs with tufa formation in Lough Corrib SAC, which is defined by the following list of attributes:

- Habitat area.
- Habitat distribution.
- Hydrological regime: height of water table; water flow.
- Physical structure: tufa formations.
- Ecosystem function: water quality- nitrate level; phosphate level.
- Vegetation composition: community diversity; positive indicator species; negative indicator species; algal cover.
- Vegetation structure: sward height.

- Physical structure: trampling dung
- Indicators of local distinctiveness

Alkaline fens [7230]

To restore the favourable conservation condition of Alkaline fens in Lough Corrib SAC, which is defined by the following list of attributes:

- Habitat area.
- Habitat distribution.
- Ecosystem function: soil nutrients; peat formation; hydrology-groundwater levels; hydrology – surface water flow; water quality.
- Vegetation composition: community diversity; typical brown mosses; typical vascular plants; native negative indicator species; non-native species; native trees and shrubs; algal cover.
- Vegetation structure: vegetation height.
- Physical structure: disturbed bare ground; tufa formations.
- Indicators of local distinctiveness.
- Transitional areas between fen and adjacent habitats.

Limestone pavements [8240]

To restore the favourable conservation condition of the Limestone pavements in Lough Corrib SAC, which is defined by the following list of attributes:

- Habitat area.
- Habitat distribution.
- Vegetation composition: positive indicator species; bryophyte layer; negative indicator species; non-native species; scrub; and, bracken cover.
- Vegetation structure: woodland canopy; and, dead wood.
- Physical structure: disturbance.
- Indicators of local distinctiveness.

Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]

To maintain the favourable conservation condition of Old sessile oak woods with Ilex and Blechnum in the British Isles in Lough Corrib SAC, which is defined by the following list of attributes:

- Habitat area.
- Habitat distribution.
- Woodland size.
- Woodland structure: cover and height; community diversity and extent; natural regeneration; dead wood; veteran trees; and, indicators of local distinctiveness.
- Vegetation composition: native tree cover; typical species; and, negative indicator species.

Bog woodland [91D0]

To maintain the favourable conservation condition of Bog woodland in Lough Corrib SAC, which is defined by the following list of attributes:

- Habitat area.
- Habitat distribution.
- Vegetation composition: positive indicator species; and, negative indicator species.
- Woodland structure: cover and height of Birch; dwarf shrub cover; ling cover; bryophyte cover; tree size classes; and, senescent and dead wood.

Freshwater Pearl Mussel Margaritifera margaritifera [1029]

To restore the favourable conservation condition of Freshwater Pearl Mussel (Margaritifera margaritifera) in Lough Corrib SAC, which is defined by the following list of attributes:

- Distribution.
- Population size.

- Population structure: recruitment; and, adult mortality.
- Suitable habitat: extent; and, condition
- Water quality: macroinvertebrate and phytobenthos (diatoms)
- Substratum quality: filamentous algae (macroalgae); and, macrophytes (rooted higher plants); sediment; and, oxygen availability.
- Hydrological regime: flow variability.
- Host fish.
- Fringing habitat: area and condition.

Austropotamobius pallipes (White-clawed Crayfish) [1092]

To maintain the favourable conservation condition of White-clawed Crayfish in Lough Corrib SAC, which is defined by the following list of attributes:

- Distribution: rivers; and, Lough Corrib.
- Population structure: recruitment.
- Negative indicator species.
- Disease.
- Water quality.
- Habitat quality: heterogeneity

Petromyzon marinus (Sea Lamprey) [1095]

To restore the favourable conservation condition of Sea Lamprey in Lough Corrib SAC, which is defined by the following list of attributes:

- Distribution: extent of anadromy.
- Population structure of juveniles.
- Juvenile density in fine sediment.
- Extent and distribution of spawning habitat.
- Availability of juvenile habitat.

Lampetra planeri (Brook Lamprey) [1096]

To maintain the favourable conservation condition of Brook Lamprey in Lough Corrib SAC, which is defined by the following list of attributes:

- Distribution.
- Population structure of juveniles.
- Juvenile density in fine sediment.
- Extent and distribution of spawning habitat.
- Availability of juvenile habitat.

Salmon Salmo salar [1106]

To maintain the favourable conservation condition of Atlantic Salmon (Salmo salar) in Lough Corrib SAC, which is defined by the following list of attributes:

- Distribution: extent of anadromy.
- Adult spawning fish.
- Salmon fry abundance.
- Out-migrating smolt abundance.
- Number and distribution of redds.
- Water quality.

Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303]

To restore the favourable conservation condition of Lesser Horseshoe Bat in in Lough Corrib SAC, which is defined by the following list of attributes:

- Population per roost.
- Winter roosts.
- Summer roosts.
- Auxillary roosts.
- Extent of potential foraging habitat.

- Linear features.
- Light pollution.

Otter Lutra lutra [1355]

To maintain the favourable conservation condition of Otter in Lough Corrib SAC, which is defined by the following list of attributes:

- Distribution.
- Extent of terrestrial habitat.
- Extent of marine habitat.
- Extent of freshwater (lake) habitat.
- Couching sites and holts.
- Fish biomass available.
- Barriers to connectivity.

Slender Naiad Najas flexilis [1833]

To maintain the favourable conservation condition of Slender Naiad in Lough Corrib SAC, which is defined by the following list of attributes:

- Population: extent; depth; viability; and, abundance.
- Species distribution.
- Habitat extent.
- Hydrological regime: water level fluctuations.
- Lake substratum quality.
- Water quality.
- Acidification status.
- Water colour.
- Associated species.
- Fringing habitat: area and condition.

Hamatocaulis vernicosus (Slender Green Feather-moss) [6216]

To maintain the favourable conservation condition of Slender Green Feather-moss (Shining Sickle-moss) in Lough Corrib SAC, which is defined by the following list of attributes:

- Distribution of populations
- Population size.
- Population cover.
- Area of suitable habitat.
- Hydrological conditions: water level table.
- Vegetation composition: tree cover; shrub cover; grass cover; bryophyte cover; and, cover of *Callergonella cuspidata*.
- Vegetation structure: vegetation height.

b). State how this activity furthers the Conservation Objective(s)

Under Article 6 of the EU Habitats Directive, DHLGH is required to ensure the favourable conservation status of all Annex I habitats and Annex II species within SACs.

The Conservation Objectives seek to maintain protected SAC feature(s) where evidence exists that it is in favourable condition in the site, or where there is uncertainty concerning the assessed condition of a feature but no reason to suspect deterioration in condition since designation.

Where evidence exists that a feature is declining and/or damaged and therefore not in a favourable condition in the site, the Conservation Objectives will seek to restore the protected feature.

As Freshwater Pearl Mussels do not reach reproductive maturity until at least 12 years old and may live for over 120 years, population age-structure is vitally important when assessing viability. The presence of juveniles (a feature essential to the long-term sustainability of mussel populations) is a clear indicator of the structural and functional features of the habitat required for the survival and reproduction of the species. The implementation of the captive breeding programme within the site as outlined above will directly contribute to the Site Specific Conservation Objectives.

Notably:

Margaritifera margaritifera (Freshwater Pearl Mussel) [1029]

Population structure: recruitment

In the absence of the project, the Conservation Objectives for Lough Corrib SAC would not be achieved as there would continue to be too few individuals to maintain a self-sustaining population, particularly in the face of environmental pressures. The success of the programme will inform necessary conservation measures applicable through-out the SAC network for Freshwater Pearl Mussel as part of a multi-faceted, holistic, integral approach to this species conservation and recovery.

The project will be beneficial to maintaining and working towards achieving favourable conservation condition of Freshwater Pearl Mussel in the network of sites designated for this Qualifying Interest.

c). Does this activity have the potential to impact negatively on any Conservation Objective (CO), Qualifying Interest (QI)/Special Conservation Interest (SCI) for this or any other European site?

Yes ☐ No ☑

The effect on European Sites and their QI/SCI within a defined Zone of Influence of the proposed Freshwater Pearl Mussel translocation was assessed using expert opinion.

The potential effect of human disturbance on QI in stream while undertaking the translocation is considered negligible, given the experience of licenced NPWS staff undertaking the practical fieldwork, the short-term duration and specific targeted location of measures.

There is not considered to be any potential for disturbance beyond a *de minimus* level on Atlantic Salmon for which the Lough Corrib SAC is designated.

No significant adverse impacts on the QI or SCI features of any other SAC or SPA are anticipated.

d). Are there aspects of this activity which are NOT directly connected with the management of the site?

Yes ☐ No ☑

If the answer to EITHER of the above questions is **Yes** a Screening for AA is required, go to Part 2.

If the answer to BOTH questions is **No** go to Part 5.

8. Part 2: Identification of European Sites within the Potential Zone of Influence of proposed activities

List all European sites which may be affected by this activity because they are linked by an ecological pathway. If the site has a second European designation (SAC, SPA) this also needs to be considered.

9. Part 3: Assess the likelihood of significant effects

Provide this information for **each site** listed in Part 2.

List the QI/SCIs for the site(s), their current conservation condition and the Site Specific Conservation Objectives (SSCO) for that QI/SCI. Then answer the questions about the impact on that QI/SCI.

Tick all the boxes below which may apply.

Your answer will determine if the activity is likely to have a (negative) effect on this QI/SCI. Negative effects may arise because of the activity's location within the site; its proximity to the QI/SCI or the size of the land take involved; the abstraction of water or minerals; emissions or waste arising; the types of transport or machinery being used; the length of time involved or seasonality of the work.

a). There is likely to be a reduction in the area of QI/SCI habitat ☐

b). The physical/chemical quality of the environment is likely to be changed in a way which may cause the deterioration of the QI/SCI habitat (e.g. applying lime to an acidic soil) ☐

c). The structure of the ecological community is likely to be altered (e.g. through altered species composition) in a way which will have negative impact on the QI/SCI. ☐

d). A QI/SCI species is likely to be disturbed (e.g. through noise, vibrations) ☐

e). The population size, characteristics or reproductive success of a QI/SCI species is likely to be changed either directly or indirectly (e.g. lighting close to a bat roost entrance) ☐

f). QI/SCI species or habitats are likely to be more vulnerable to change or less resilient to external change (e.g. to flooding, fire or drought) ☐

g). There are likely to be effects on other species /habitats (not a QI/SCI for this site) which are ecologically linked with this QI/SCI and, as a consequence, there are likely to be negative effects on this QI/SCI (e.g. the impacts on geese which are the SCI when their non-QI feeding areas are damaged). ☐

h). This activity will cause a deterioration in the conservation condition of this QI/SCI. ☐

i). There are likely to be other ecological effects not listed above which are likely to have a significant effect on the QI/SCI. ☐

Explain the effects:

_____

If you have ticked a box for any QI/SCI in any of the sites affected by this activity the likelihood of a significant effect cannot be ruled out and the activity MUST be screened IN for AA.

10. Part 4: In Combination Effects

Is this activity likely to cause negative effects in combination with any other plan or project?

(In answering this question you should consider any other consents which have been applied for or granted. For example, other ARCs, planning consents, forestry consents, or activities authorised as part of an agreed farm or land management plan. List the plans or projects considered).

_____

_____

No ☑ **Yes** ☐ **Uncertain** ☐

If the answer is Yes or Uncertain the activity MUST be screened IN for AA. Fill in Part 5 accordingly.

11. Part 5: Findings of the Screening for AA

Screening not carried out as the activity is “directly connected with or necessary to the management of the site”. ☑

Likely significant effects are expected or uncertain.

This activity Screens **IN** and AA **is** required. ☐

Likely significant effects are NOT expected.

This activity Screens **OUT** AA **is not** required. ☐

Signature: Ryan Wilson-Parr, Head of Ecological Assessment

Date: 31st July 2023

12. Part 6: Conclusion

Following an analysis of the activity, the EAU determines[4], in accordance with Regulation 42A(8) of the 2011 Regulations, that the translocation of Freshwater Pearl Mussel within the Lough Corrib SAC and the implementation of the captive breeding programme are entirely comprised of activities that directly support the Conservation Objectives of this European site.

It can be concluded with certainty that the project is a necessary conservation measure that is directly connected with or necessary for the management of the site.

[4] Ryan Wilson-Parr (Head of Ecological Assessment, Department of Housing, Local Government and Heritage) 31st July 2023

13. Supplementary Information

Figure 1. (below): Location of Lough Corrib Special Area of Conservation as per NPWS (2017) Conservation Objectives: Version 1.

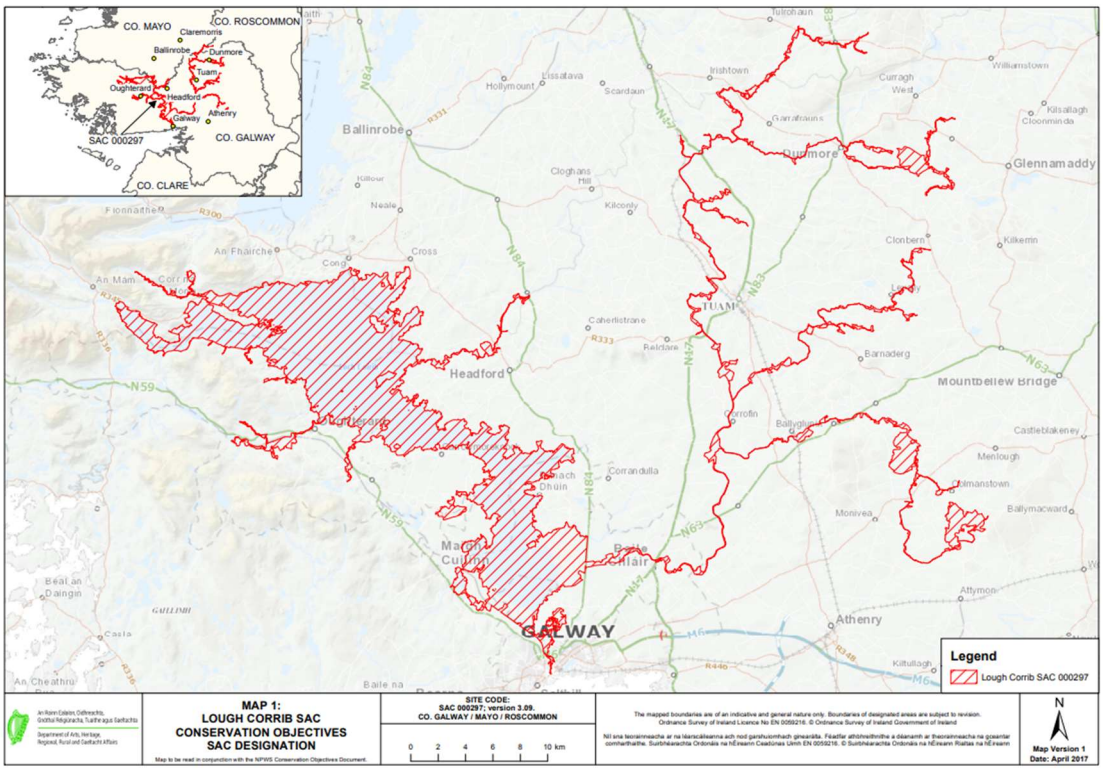


Figure 2. (below): Adjacent, adjoining and overlapping designations in relation to the Lough Corrib Special Area of Conservation as per NPWS (2017).

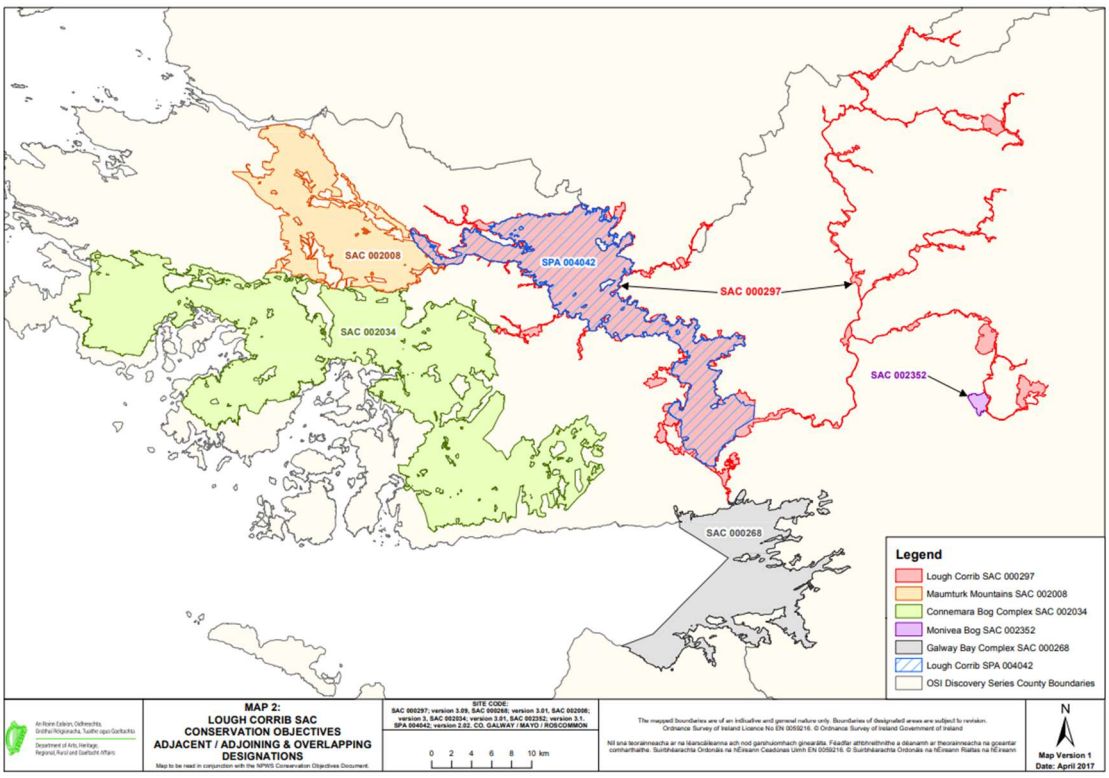
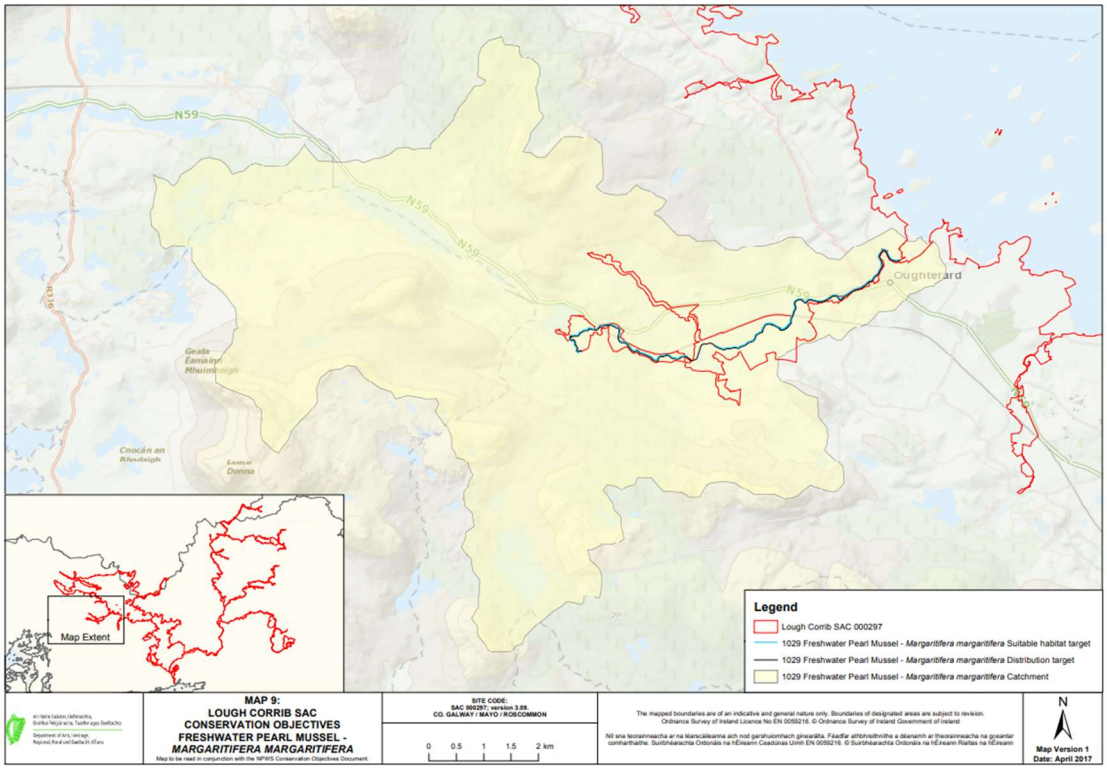


Figure 3. (below): Conservation Objectives for Margaritifera in the Lough Corrib Special Area of Conservation as per NPWS (2017). Conservation Objectives. Version 1.



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