



**Map Legend**

**Habitat Base Map v1**

- Buildings and artificial surfaces (BL3)
- Spill and bare ground (ED3)
- Depositing/lowland rivers (FW2)
- Improved agricultural grassland (GA1)
- Amenity grassland (improved) (GA2)
- Marsh (GM1)
- Dry meadows and grassy verges (GS2)
- Wet grassland (GS4)
- (Mixed) broadleaved woodland (WD2)
- Conifer plantation (WD4)
- Wet willow-elder-rich woodland (WN6)
- Scrub (WS1)

**Linear Habitats**

- Drainage Ditches (FW4)
- Hedgerows (WL2)
- Treelines (WL2)
- Invasive Species
- Japanese knotweed
- 7m Buffer

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**Habitat Map**

**Project File**

**Crossmolina Flood Relief Scheme**

**Drawn by:** JOS **Checked by:** PR

**Project No:** 120211-a **Figure No:** Figure 3.2b

**Scale:** 1:12000 **Date:** 15.05.2020

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**Map Legend**

- Annex I Alluvial Woodland
- Washlands Extent
- Temporary Construction Works Area
- Permanent Works Area
- 1:5 Year Existing Flood Extent
- 1:100 year Post Scheme Flood Extent



Drawing Title  
**Annex I Alluvial Woodland and Flood Extent**  
Project Title  
**Crossmolina Flood Relief Scheme**

Drawn By <b>JOS</b>	Checked By <b>PR</b>
Project No. <b>120211 -a</b>	Drawing No. <b>Figure 3.3</b>
Scale <b>1:25000</b>	Date <b>15.05.2020</b>

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### 3.3.2 Fauna

#### Birds

The bird species recorded during the walkover surveys were typical of the habitats along the route of the proposed works. Species including Kingfisher (*Alcedo atthis*) and Dipper (*Cinclus cinclus*) were recorded in the corridor of the River Deel along with songbirds such as Chaffinch (*Fringilla coelebs*) and Willow Warbler (*Phylloscopus trochilus*). The lands where the bypass channel is proposed supported lower levels of bird activity and common passerines and corvids were recorded frequently in this area.

The washlands included habitats including wet woodlands, flooded fields, wet grasslands and lakeshore habitats. These lands provide high quality habitat for a wide range of bird species and are partially included within the Lough Conn & Lough Cullin SPA. Whilst no works are being undertaken in the washlands, a dedicated bird survey was undertaken on a monthly basis throughout 2016 and in early (Jan – Mar) 2017. The results of these surveys including details of the species recorded, maximum flock size and flightline mapping is presented in Appendix VII. These surveys were undertaken at an early stage in the design process, when the potential for significant physical works in this area had not been excluded and low levels of bird activity was recorded. For these reasons, no further surveys were required.

The results as they pertain to the Special Conservation Interests (SCI) of the SPA are summarised below. As the SCIs include wetlands and waterbirds in general, this covers usage of the area by wildfowl that are not specifically mentioned in the Conservation Objectives. All bird species were recorded and included for assessment.

Tufted duck (*Aythya fuligula*) was only recorded on the January 2016 VP. Birds were observed on Lough Conn and within the lakes flooded extent and within the river flowing into the lake at the survey area. The maximum number of birds recorded was 40.

Common Scoter (*Melanitta nigra*) was not recorded during any of the surveys that were undertaken. This species is known to be in decline on the lake (Hunt et.al., 2012) and breeds on wooded islands. The habitats in the washlands and in the surrounding area are unlikely to be used by this species.

Common gull (*Larus canus*) was observed during January, March, April, May, June, July, August and December in 2016 and in March 2017. All of the birds were recorded flying over Lough Conn or within and adjacent to the lake shore. The largest number recorded was a flock of 130 in March 2017.

Greenland white-fronted geese (*Anser albifrons flavirostris*) were recorded on three separate months, February, November and December 2016. The highest number observed was in November and December 2016 of 24 birds with activity restricted to Lough Conn and wet grassland habitat south of the washlands and adjacent to the lake.

## Mammals

The study area between the proposed weir at Cartrongilbert to the washlands adjacent to Lough Conn at Gortnaraby and Mullenmore North was searched for signs of mammal activity with dedicated surveys undertaken for otter, which is among the Qualifying Interests of the River Moy SAC.

## Otter

Otter surveys were conducted as per NRA (2009) guidelines (Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes). These involved a search for all Otter signs e.g. spraints, scat, prints, slides, trails, couches and holts. In addition to the width of the rivers/watercourses, a 10m riparian buffer (both banks) was considered to comprise part of the Otter habitat (NPWS 2009, Threat Response Plan: Otter (2009-2011)). The area surveyed for otter included dedicated searches of both banks for a distance of over 150 metres upstream and downstream of the proposed works areas on the River Deel and along the length of the Mullenmore Stream. A dedicated Otter survey also followed the guidance as set out in NRA (2008) 'Guidelines for the Treatment of Otters Prior to the Construction of National Roads Schemes'. This was repeated in March 2018, April and July 2019 and in May 2020. In addition, signs of otter were recorded during the multi-disciplinary walkover surveys that were undertaken on the site.

Extensive evidence of otter (*Lutra lutra*) was observed along the banks of the River Deel during the surveys with records including spraints, slides and prints recorded throughout the survey area. Similarly, evidence of otter in the form of prints and numerous spraints were found from the banks of The Mullenmore Stream in the east of the study area. These watercourses are utilized extensively by otter, which is a Qualifying Interest of the River Moy SAC. The spraints observed contained fish remains and remains of the Annex II species freshwater white-clawed crayfish (*Austropotamobius pallipes*) which is also a Qualifying Interest of the SAC. There is also suitable habitat for otter along the shoreline of Lough Conn although no otter signs were observed along the lake shore during the site visits. The location of otter signs recorded are shown on the faunal records map (Confidential Appendix VIII).

A suspected otter holt was recorded in previous surveys undertaken in 2014 and 2015. This was located on the left bank of the River Deel, approximately 50 metres downstream of the proposed works associated with the flow control structure. This was resurveyed in 2018, 2019 and 2020 and whilst prints were recorded in the sediments on the river bank close to the suspected holt, no signs of activity within it were recorded. An otter holt was recorded approximately 10m to the north of the proposed flow control structure during a survey undertaken in 2020. The location of this holt is shown in confidential Appendix VIII. A camera trap was placed on the holt for a period of 10 days in May 2020 and no activity was recorded.

No evidence of otter activity or commuting routes outside the river corridor of either the River Deel and the Mullenmore Stream were identified and all signs were recorded alongside these watercourses.

## Fisheries Habitat



The fisheries habitat of the River Deel was initially assessed by means of a desk study and was visually assessed during the walkover and freshwater pearl mussel surveys. It is well known as a high quality fisheries habitat with significant populations of Salmon (*Salmo salar*), Trout (*Salmo trutta*) and Lamprey species (*Lampetra* & *Petromyzon* Spp.). The river also provides habitat for European eel. The substrate of the river, whilst silty at the edges and heavily shaded in places, supported good spawning gravels, cobbles and boulders. Whilst it has been drained through blasting (downstream of the Jack Garrett bridge) and dries out entirely during the summer months, it still retains very high-quality fishery features with a natural 'riffle, glide, pool' sequence throughout along much of its length. A dedicated fisheries habitat assessment was undertaken in May 2020 and is included as Appendix IX. The discussion and recommendations of the dedicated fisheries habitat report are summarized below:

*A fisheries appraisal was undertaken on a 1.3km length of the River Deel in the vicinity of Crossmolina on May 12th 2020. While the river channel was largely dry at the time of the survey, it allowed inspection of the riverbed substrata size classes. This helped identify the river's inherent fisheries value when considered in terms of normal flow regimes (i.e. naturally a swift flowing glide and pool spate channel). Under such normal flow conditions the River Deel supports an abundance of salmonids and other species. Indeed, even during the observed dry weather flows, the small pools of water remaining supported locally abundant juvenile salmonids (many observably 0+ age class), exemplifying the area's importance as a spawning and nursery habitat for salmonids. Taking full-flow periods into consideration, the river offered good salmonid habitat throughout the 1.3km survey reach, with sections 2 and 8 offering excellent overall salmonid habitat. Habitat was typically poorer downstream of Crossmolina, where historical works had altered the river channel (much lower RHAT scores, Table 3.4). Holding habitat for adult fish was typically good throughout the survey area, although some glide profile-dominated sections featured few deeper areas (these were more suitable as nursery areas). Salmonid spawning habitat was considered good and widespread in all areas upstream of Crossmolina with the more prolific adult salmonid spawning habitat being situated at the tailings of deeper pool areas. Spawning was considered less optimal downstream of Jack Garrett Bridge, albeit the area may still support spawning adult fish during peak runs. In terms of the location of the best spawning habitat, a particularly suitable spawning area of loose, small cobble/very coarse gravel was located immediately upstream of the deep pool area in section 9 (near the small meander/channel constriction). Overall, the Deel was considered to offer very good salmonid nursery habitat during wetted periods throughout the survey reaches (as supported by widespread 0+ salmonids in scattered remnant pools), with the best habitat located both upstream and c.300m downstream of the proposed instream flood control structure.*

*The overall habitat quality of the surveyed sections for *Lampetra* sp. (i.e. river/brook lamprey) ranged from poor to moderate, with overall habitat quality for sea lamprey (*Petromyzon marinus*) improved given the predominance of larger substrata more suitable for spawning (moderate to good habitat overall). In general, the river throughout the 1.3km survey reach offered very limited larval lamprey habitat given the paucity of soft sediment accumulations. Only sections 1, 2 and 9 offered potential for ammocoete burial, although this was highly localised in small marginal areas of sand-dominated soft sediment. Lamprey ammocoetes, regardless of species, require soft sediment in which*

*to burrow, be it mud, sand, silt, clay or a matrix of all types, which is  $\geq 5\text{cm}$  in depth (Maitland, 2003). No soft sediment areas were identified in the immediate vicinity of the proposed flood control structure or diversion channel works area.*

*Sea lamprey spawning potential was good throughout most survey sections (i.e. given the species preference for coarser gravels under cobble as described in more detail below), with spawning habitat for smaller Lampetra species considered moderate overall (i.e. typically less finer gravel fractions in study area). Both sea lamprey and Lampetra sp. are known from the River Deel upstream of Crossmolina (O'Connor, 2004). Sea lamprey typically utilise similar (or even the same) spawning areas to Atlantic salmon, spawning in coarse gravel, pebbles and sand, where the diameter of the gravel can vary from 1–11cm (Igoe et al., 2004). Such habitat was widespread throughout the survey sections. Owing to their relatively small morphologies, Lampetra species (i.e. River & Brook species) require clean, fine gravels in which to dig their redds (Rooney et al., 2013; Aronsuu & Virkkala, 2014) although areas may also include fractions of sand, larger gravels, and cobble (Nika & Virbickas, 2010). The sediment particle size usually associated with Lampetra species is fine to coarse sands (0.2–1.4 mm) (Goodwin et al., 2008) and these were present locally in interstitial spaces throughout all survey sections but largely disguised by the overburden of coarser material. It is likely that, in addition to known upstream spawning areas, the survey area in the vicinity of Crossmolina may also support some localised spawning for lamprey species, albeit the paucity of burial habitat near to these areas would somewhat reduce the viability of spawning site selection by adults.*

The Mullenmore Stream is a much less significant channel in terms of fisheries habitat. Much of its length is at a very flat grade with sluggish flow and silty substrate with only a small section close to the springs that has a steeper gradient and some cobbles and gravels present in the substrate.

There is little suitable Salmonid habitat but potentially suitable habitat for Lamprey species (particularly juvenile Lamprey). Brook Lamprey were recorded spawning within the stream during the freshwater pearl mussel survey in May 2017. The species was utilizing a small patch of gravels in the midst of the silty substrate.