

**A Synopsis of the WFD Surveillance Monitoring Fish Stock Survey on
Lough Cullin, July 2009**

Lough Cullin is a large, shallow lake, that is connected to Lough Conn by a narrow inlet at Pontoon, Co. Mayo. The outflow from Lough Cullin discharges directly into the River Moy (NPWS, 2004). Lough Cullin lies to the west of Foxford. The lake has a surface area of 1019.3 hectares with a maximum depth of approximately three meters. It is accessible only from its northern shore. The underlying geology of the lake is mainly granite with some areas of limestone present in the southern region of the catchment (NPWS, 2004). The lake is categorised as typology class 10 for the purposes of the WFD (as designated by the EPA), i.e. shallow (<4m), greater than 50ha and high alkalinity (20-100mg/l CaCO₃).

Lough Cullin was once regarded as one of Irelands premier brown trout angling fisheries but was often considered to be the ‘poor relation’ of Lough Conn. Historically, in angling terms Lough Cullin was noted for supporting a large population of relatively small (<0.5kg) brown trout (O’ Grady, 2001). The lake was also regarded as a very important salmon fishery which receives a run of salmon during both the spring and summer months (NPWS, 2004; O’Reilly 1998). In fact, all the fish, of which there can be many, destined for Lough Conn and its inflowing rivers must pass through Cullin.

Lough Cullin was previously surveyed by the Central Fisheries Board and the North Western Regional Fisheries Board in 1994, 1998 and 2001 by (O’ Grady and Delanty, 2001). These surveys revealed that the trout population declined dramatically between 1995 and 2001. Cultural eutrophication problems have been evident in the lake in recent years. There has been a population of rudd in the lake since the 1960s, however roach a non native species became established in the lake in the 1990s (O’ Grady and Delanty, 2001).



Plate 1.1 Lough Cullin

1.2 Methods

The lake was surveyed over one night on the 27th July 2009. A total of six sets of Dutch fykes, 12 (12 @ 0-2.9m) benthic monofilament survey gill nets (18 sites). The netting effort was supplemented using three benthic braided (62.5mm mesh knot to knot) gill nets (3 additional sites). Survey locations were randomly selected using a grid placed over the map of the lake. Portable GPS instruments were used to mark the precise location of each net. The angle of each gill net in relation to the shoreline was randomised.

All fish apart from perch were measured and weighed on site and scales were removed from all trout, pike and roach. Where possible, live fish were returned to the water when the likelihood of their survival was considered to be good. Samples of fish were retained for further analysis.



Plate 1.1 Lough Cullin trout

1.3 Results

1.3.1 Species Richness

A total of six fish species were recorded on Lough Cullin in July 2009. A list of the species encountered and numbers captured by each gear type is compiled in Table 1.1. A total of 513 fish were captured during the survey. Roach were the most common fish species encountered in the benthic gill nets. Small numbers of brown trout were also captured in the gill nets. Eels were captured in fyke nets during the survey.

Table 1.1: List of fish species recorded (including numbers captured) during the survey on Lough Cullin, July 2009

Scientific names	Common names	Number of fish captured			Total
		Benthic monofilament gill nets	Benthic braided gill nets	Dutch fykes	
<i>Salmo trutta</i>	Brown trout	13	1	0	14
<i>Rutilus rutilus</i>	Roach	376	0	0	376
<i>Perca fluviatilis</i>	Perch	71	0	1	72
<i>Esox lucius</i>	Pike	1	0	0	1
<i>Tinca tinca</i>	Tench	0	0	2	2
<i>Anguilla anguilla</i>	Eel	0	0	48	48

1.3.2 Fish abundance

Fish abundance was calculated as the mean number of fish caught per meter of net, i.e. mean CPUE. Mean CPUE for all fish species per gear type on Lough Cullin are summarised in Table 1.2.

Table 1.2: Mean CPUE (mean number of fish per m of net) on Lough Cullin, July 2009

Mean CPUE (mean number of fish/m of net)						
Gear type	Brown trout	Roach	Perch	Pike	Tench	Eel
Gill nets (all)	0.031	0.835	0.157	0.0022	0	-
Fykes	0	0	0.0027	0	0.0055	0.133

1.4 Further work

All fish apart from perch were measured and weighed and scales were removed from brown trout, pike and roach on site. Perch will be measured and weighed and opercular bones will be removed in the laboratory and fish will be aged. A water sample was taken; the chemical results and age analysis will be available in due course. A more detailed report will be available in 2010.

1.5 References

NPWS (2004) Site Synopsis. Lough Cullin (Mayo) SPA. Site code 004054.

<http://www.npws.ie/en/media/Media,4468,en.pdf>

O' Grady, M.F. and Delanty, K. (2001) *A Review of Changes in the Fish Stocks of Loughs Conn and Cullin over time (1978 – 2001) and Recommendations in Relation to the Long-term Management of these Lakes and the River Moy as Salmonid Fisheries*. Central Fisheries Board, unpublished report.

O'Reilly P 1998. *Loughs of Ireland. A Flyfisher's Guide*. 3rd edition. Merlin Unwin Books.