

# Lough O'Flynn



## Sampling Fish for the Water Framework Directive - Lakes 2008



The Central and Regional  
Fisheries Boards

## **ACKNOWLEDGEMENTS**

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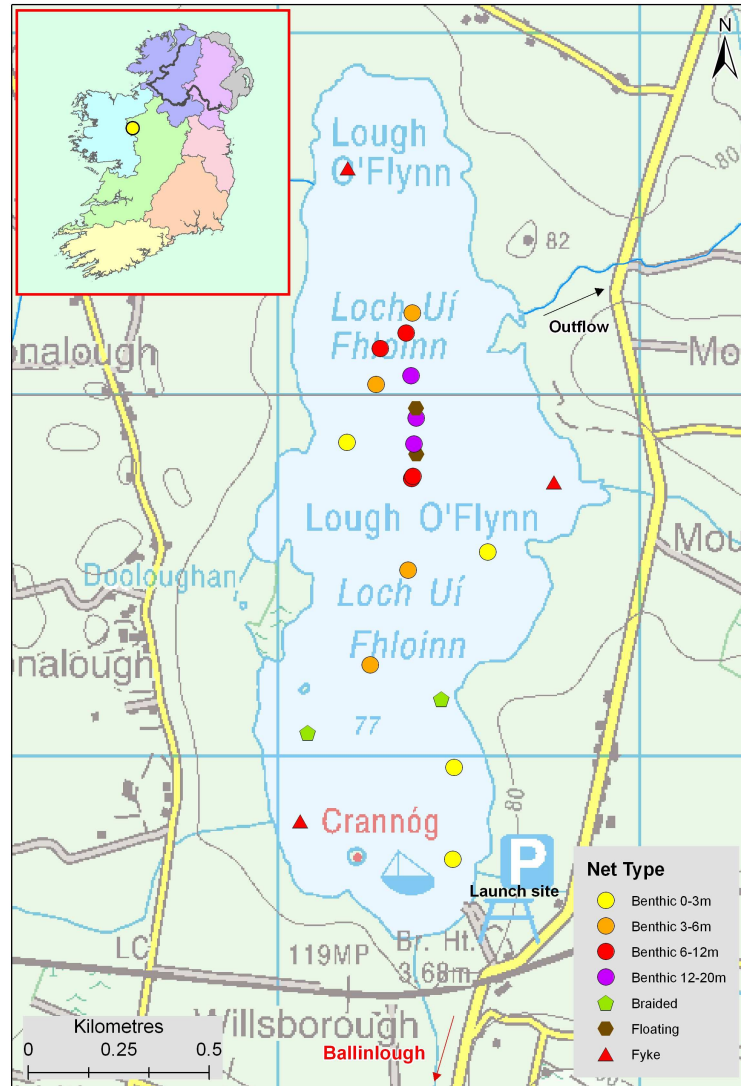
## **1.1 Introduction**

Lough O’Flynn (Plate 1.1, Fig. 1.1) is situated in Co. Roscommon in the Suck catchment. The lake is located approximately one kilometre due north of the village of Ballinlough on the N60 Castlereagh-Ballyhaunis road. This rich limestone lake has a surface area of 136ha, mean depth of 4-5m and a maximum depth of 16.5m. Lough O’Flynn falls into typology class 10 (as designated by the EPA for the Water Framework Directive), i.e. shallow (<4m), greater than 50ha and high alkalinity (>100mg/l CaCO<sub>3</sub>). The lake overlies limestone geology.

Lough O’Flynn holds good stocks of wild and stocked brown trout averaging about 0.7kg with fish 1.4kg to 1.8kg sometimes caught. It also holds pike, perch, roach and eels. Crayfish are also present. This lough was initially developed as a trout fishery by the Inland Fisheries Trust and development work continues under the Shannon Regional Fisheries Board (ShRFB). The lake is stocked regularly by the ShRFB with approximately 3,000 2+ brown trout annually. Lough O’Flynn is renowned for its prolific mayfly hatches and anglers have reported ‘good’ fishing from May to July.



**Plate 1.1. Lough O’Flynn (Photo courtesy of CFB and No. 3 Operational Wing, Irish Air Corps (Aer Chór na hÉireann))**



**Fig. 1.1. Location map of Lough O'Flynn indicating the locations and depths of each net (outflow is shown on map)**

## 1.2 Methods

A fish stock survey was carried out on Lough O' Flynn as part of the programme of surveillance monitoring for the Water Framework Directive (WFD), over two nights between the 30<sup>th</sup> of June and the 1<sup>st</sup> of July 2008 (prior to brown trout stocking) by staff from the Central Fisheries Board (CFB) and the Shannon Regional Fisheries Board (ShRFB) using the standard CFB WFD sampling method for fish in lakes. A total of three sets of Dutch fyke nets, 15 (4 @ 0-2.9m, 4 @ 3-5.9m, 4 @ 6-11.9m and 3 @) 12-19.9) benthic monofilament multi-mesh (12 panel, 5-55mm mesh size) survey gill nets and two surface floating monofilament multi-mesh (12 panel, 5-55mm mesh size) survey gill nets were deployed randomly in the lake (20 sites). The netting effort was supplemented using two benthic braided (62.5mm mesh knot to knot) survey gill nets (2 additional sites). This sampling effort was repeated between the 14<sup>th</sup> and 16<sup>th</sup> October 2008 during a comparative netting exercise to evaluate the

differences in catches and length of fish captured using two lake fish sampling methods (WFD standard lake sampling method Vs CFB standard lake sampling for brown trout) and this data is presented in a separate report.

All survey locations were randomly selected using a grid placed over the map of the lake. A handheld GPS was used to mark the precise location of the net. The angle of each gill net in relation to the shoreline was randomized. Live fish were returned to the water whenever possible (i.e. when the likelihood of their survival was considered to be good). Samples of fish were returned to the laboratory for further analysis.

### 1.3 Results

#### 1.3.1 Species Richness

A list of the species encountered and numbers captured by each method and gear type is compiled in Table 1.1. A total of five fish species were recorded in Lough O’Flynn in June and October 2008 using the standard CFB WFD methodology. Perch were the most common fish species encountered during the survey. Roach, pike, brown trout and eels were also present.

**Table 1.1. List of fish species recorded (including numbers captured) on Lough O’Flynn, June 2008**

<i>Scientific names</i>	Common names	Benthic monofilament gill nets	Benthic braided gill nets	Surface gill nets	Dutch Fykes	Total
<i>Perca fluviatilis</i>	Perch	175	-	5	3	183
<i>Rutilus rutilus</i>	Roach	8	-	-	-	8
<i>Esox lucius</i>	Pike	5	-	-	-	5
<i>Salmo trutta</i>	Brown trout	3	-	-	-	3
<i>Anguilla anguilla</i>	Eel	-	-	-	16	16

#### 1.3.2 Fish abundance

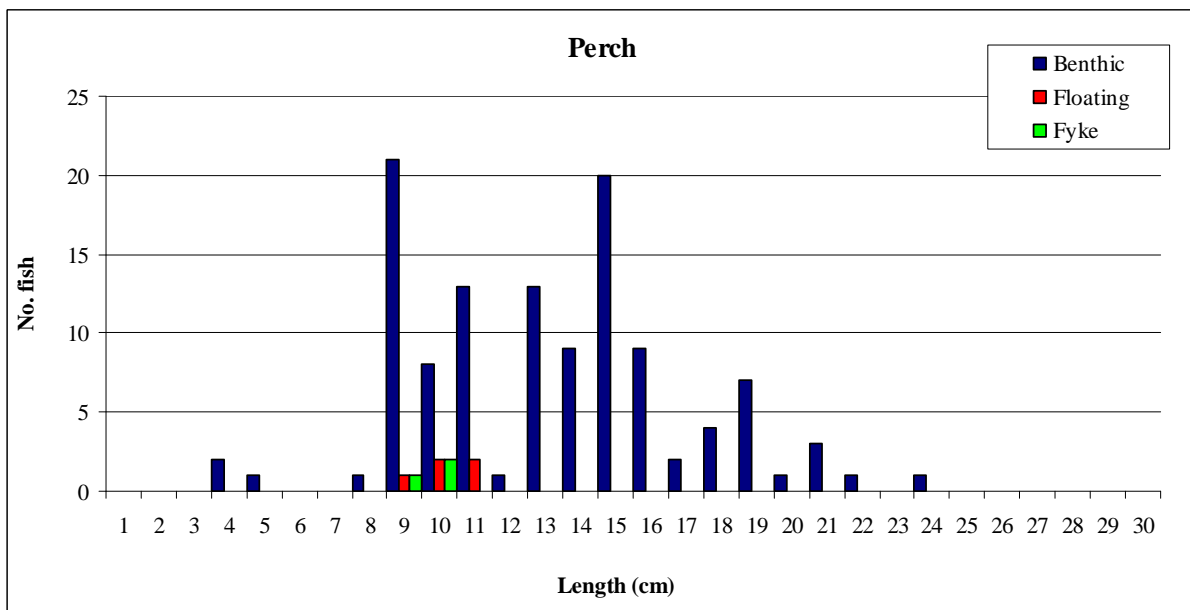
Fish abundance was calculated as the mean number of fish caught per metre of net, i.e. mean CPUE. Fish biomass was calculated as the mean weight of fish caught per metre of net, i.e. mean BPUE. A summary of CPUE and BPUE data for each species and gear type is shown in Table 1.2. Perch were the dominant fish species in terms of abundance and biomass.

**Table 1.2. Mean CPUE (mean number of fish per m of net) on Lough O’Flynn, June 2008**

Gear type	Brown trout	Perch	Roach	Pike	Eel
<b>Mean CPUE (mean number of fish/m of net)</b>					
Gill nets (all)	0.005	0.316	0.014	0.009	-
Fykes	0.000	0.017	0.000	0.000	0.089
<b>Mean BPUE (mean weight (g) of fish/m of net)</b>					
Gill nets (all)	1.554	7.925	0.457	6.307	-
Fykes	0.000	0.144	0.000	0.000	40.377

1.3.3 Length frequency distributions

Perch ranged in length from 3.4cm to 24.0cm (mean length = 12.6cm) (Fig. 1.3). Stocked brown trout ranged from 29.8cm to 33.5cm (Fig. 1.4). Pike ranged in length from 25.6cm to 74.2cm (mean length = 41.1 cm) (Fig. 1.5). Roach length frequency ranged from 16.7cm to 18.8cm (mean length = 18.1cm) (Fig. 1.6). Eels ranged in length from 53.3cm to 84.0cm (mean length = 69.4cm).



**Fig. 1.3. Length frequency of perch captured on Lough O’Flynn in June 2008**

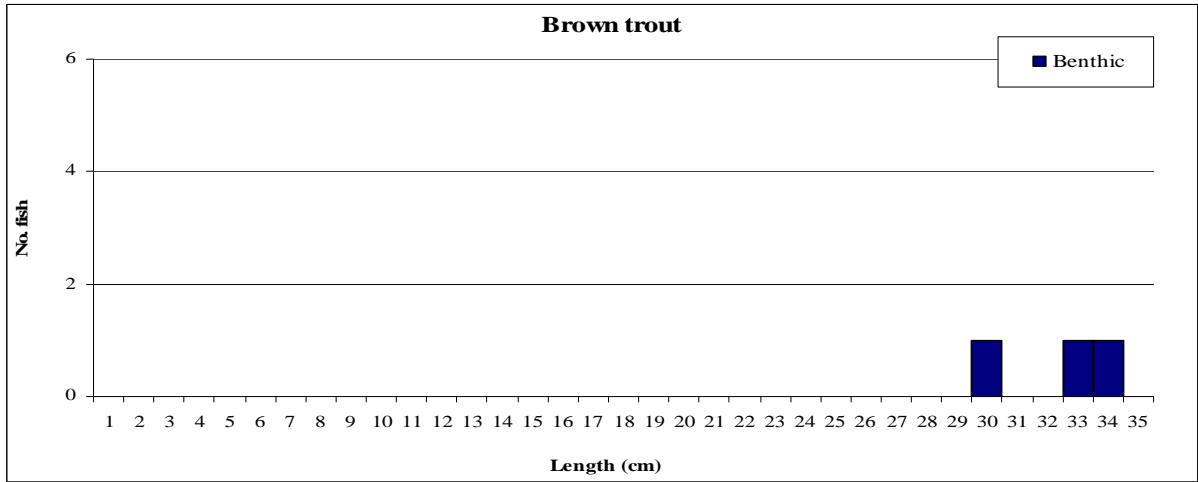


Fig. 1.4. Length frequency of brown trout captured on Lough O'Flynn in June 2008

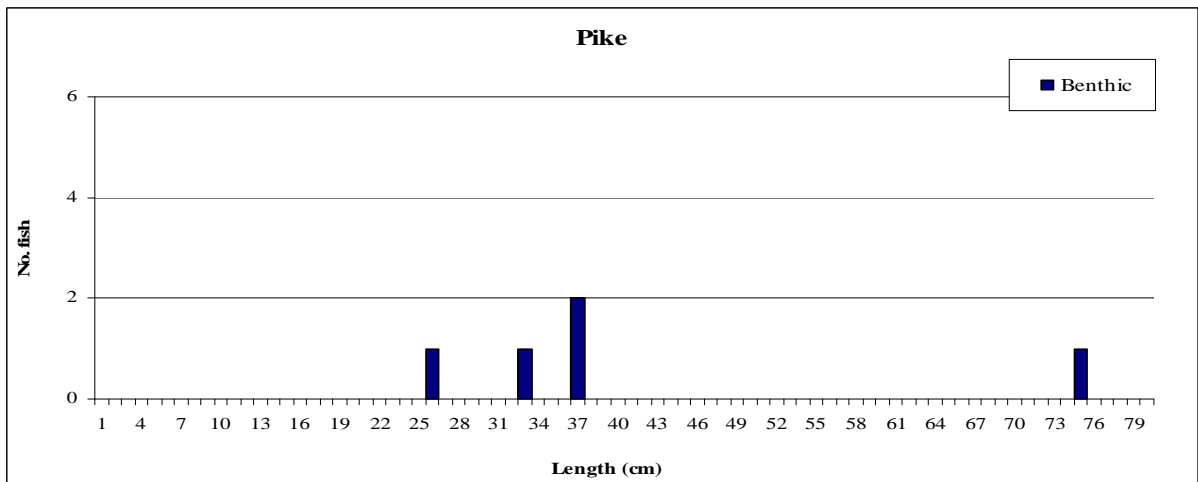


Fig. 1.5. Length frequency of pike captured on Lough O'Flynn in June 2008

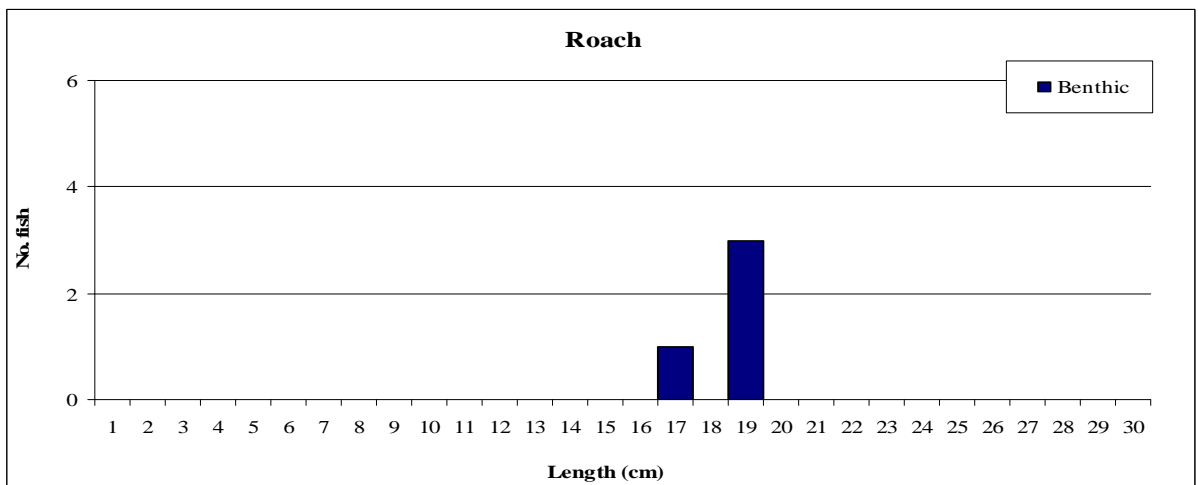


Fig. 1.6. Length frequency of roach captured on Lough O'Flynn in June 2008

1.3.4 Fish age and growth

Perch ranged in length from 3.4cm to 24.0cm and were aged between 0+ and 5+. Mean perch L1 was 6.4cm (Table 1.3). Roach were all 3+ in age (Table 1.4). Mean roach L1 was 3.9cm (Table 1.4). Pike ranged in age from 1+ to 8+. All three brown trout recorded were stocked and aged at 3+.

**Table 1.3. Mean (SD) perch length at age for Lough O’Flynn, June 2008**

Lake	Year		L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	L <sub>5</sub>
Lough O’ Flynn	June 2008	Mean	6.4 (1.15)	11.4 (1.58)	15.7 (1.36)	17.8 (1.49)	19.1 (2.38)
		N	64	42	14	9	4
		Range	4.7-9.8	8.5-15.3	12.2-17.6	16.1-20.3	17-22.3

**Table 1.4. Mean (SD) roach length at age for Lough O’Flynn, June 2008**

Lake	Year		L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>
Lough O’ Flynn	June 2008	Mean	3.9 (0.29)	8.2 (0.32)	16.2 (0.64)
		N	3	3	3
		Range	3.6-4.2	7.8-8.4	15.7-16.9

**1.4 Conclusions and recommendations**

Perch were the dominant species in terms of CPUE and BPUE followed by roach in Lough O’Flynn during the June 2008 survey. Data shows that perch growth and mean CPUE was low in comparison to other high alkalinity lakes, e.g. Lough Sheelin and Lough Egish. No wild brown trout were detected during the survey. In the June 2008 survey, Lough O’Flynn had a mean CPUE for eels that was considerably higher than other high alkalinity lake surveyed in the same year and was comparable to CPUEs for eels from moderate and low alkalinity lakes. The mean CPUE for pike in the June WFD survey was the second highest recorded for all the high alkalinity WFD lakes sampled in 2008. Only Templehouse Lake had a higher mean CPUE. The mean CPUE for roach was low in comparison to other high alkalinity lakes e.g Lough Egish.

Hatchery reared brown trout are regularly stocked into Lough O’ Flynn. These hatchery reared fish have been released into the lake to increase numbers for angling purposes, as the native stock cannot support large fishing pressures. Many factors must be considered before stocking is carried out because inappropriate stocking could have detrimental effects on the local environment. Some fear exists that stocked fish may pass on parasites or disease to the wild population when introduced to a lake. These fish may also change the genetic composition and fitness of wild stocks through interbreeding. There is also concern that stocked fish may also out-compete native fish for food and



habitat. However, netting surveys and angling catches indicate that stocked and wild trout do not mix and that wild stocks occupy the best feeding areas at any particular time (O'Grady, 2008). A review of the survival of stocked fish in this lake is recommended, and the stocking policy for the lake should also be reviewed and revised. Stocking programmes developed should be consistent with EU legislation (WFD, Habitats Directive and the Fish Health Directive) and national programmes such as the National Biodiversity Plan. The revised stocking policy for the lake should include a review of habitat and spawning potential of the wild brown trout population, catch and release policy, bag limits, etc.

Classification and assigning lakes with a biological status is a critical part of the WFD monitoring programme. It allows RBD managers to identify and prioritise lakes that currently fall short of the minimum "Good Ecological Status" that is required by 2015 if Ireland is not to incur penalties. A new WFD multimetric fish classification tool has been developed for the island of Ireland (Ecoregion 1) using NIEA and CFB data. Using this tool and expert opinion Lough O'Flynn has been assigned a draft classification of moderate status for fish. The EPA has assigned Lough O'Flynn an overall interim draft classification of good status. This is based on physico-chemical parameters and biotic elements such as macroinvertebrates and macrophytes.

## **1.5 References**

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**The Central Fisheries Board  
Swords Business Campus,  
Swords,  
Co. Dublin,  
Ireland.**

**Web: [www.wfdfish.ie](http://www.wfdfish.ie)  
[www.cfb.ie](http://www.cfb.ie)  
Email: [info@cfb.ie](mailto:info@cfb.ie)  
Tel: +353 1 8842600  
Fax: +353 1 8360060**



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