

# Loch Tanaí



## Sampling Fish for the Water Framework Directive - Transitional Waters 2008



The Central and Regional  
Fisheries Boards

## **ACKNOWLEDGEMENTS**

The authors wish to gratefully acknowledge the help and co-operation of the CEO Dr. Greg Forde, the assistant CEO Ms. Amanda Mooney and the staff of the Western Regional Fisheries Board. The authors would also like to gratefully acknowledge the help and cooperation from all their colleagues in the Central Fisheries Board and especially Dr. Jimmy King for his guidance with the transitional waters surveys.

We would also like to thank Dr. Martin O' Grady (CFB) and No. 3 Operational Wing, Irish Air Corps (Aer Chór na hÉireann) for the aerial photographs.

The authors would also like to acknowledge the funding provided for the project from the Department of Communications Energy and Natural Resources for 2008.

*The report includes Ordnance Survey Ireland data reproduced under OSi Copyright Permit No. MP 007508.*

*Unauthorised reproduction infringes Ordnance Survey Ireland and Government of Ireland copyright.  
© Ordnance Survey Ireland, 2009*

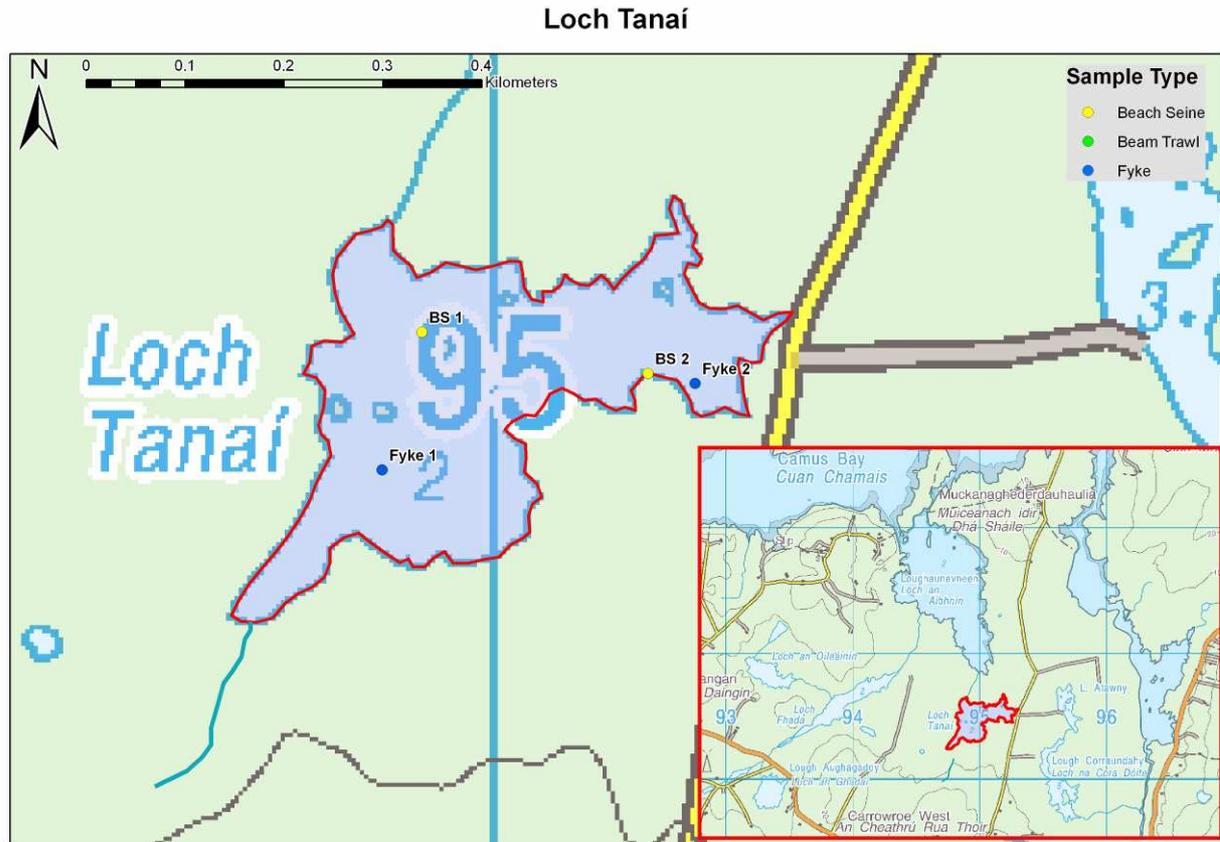
## INTRODUCTION

A fish stock survey was carried out at sites on Loch Tanaí, as part of the programme of monitoring for the Water Framework Directive (WFD), between the 30<sup>th</sup> and the 31<sup>st</sup> of October 2008 by staff from the Central Fisheries Board (CFB) and the Western Regional Fisheries Board (WRFB).

Lough Tanaí is located approximately three kilometres east of Bealadangan, in western Connemara, County Galway (Figure 1). The lagoon is a small shallow transitional water body with peat stained water (Plate 1). The lagoon covers an area of 010km<sup>2</sup> and has a strong marine influence. It lies in an area of lowland peat, where the water depths range from 50-120 cm over most of the lagoon with shallower areas at the margins. The lagoon receives freshwater through a small stream in the southwest corner, through the slow release of groundwater from supersaturated peat and through direct rainfall. There is a short river channel connecting Lough Tanaí to Loughaunavneen, through which it receives seawater from Camus Bay. It is believed that this channel was deliberately cut in order to drain water from the lagoon and the surrounding land however, the exact date of this is not known (Healy *et al.*, 1997).



**Plate 1: Beach seining on Loch Tanaí, October 2008**



**Figure 1: Location map of Loch Tanaí indicating sampling sites, October 2008**

## METHODS

Current work in the UK indicates the need for a multi-method netting approach (seine nets, fyke nets and beam trawls) to sampling for fish in estuaries and these procedures are now the standard CFB methodology for fish stock surveys in transitional waters for the WFD monitoring programme. Two sampling methods were used during the Loch Tanaí survey (i.e. beach seines and fyke nets). Beam trawling was not attempted due to the shallow nature of the lagoon. Portable GPS instruments were used to mark the precise location of each sampling site (Figure 1).

Two beach seine and two fyke net sites were surveyed in 2008. All sites were chosen to encompass the majority of geographical and, where possible, habitat ranges of the estuary.

## RESULTS

Two fish species were captured in the seine nets; three-spined stickleback and thick-lipped grey mullet. Three-spined stickleback was the most frequently occurring and abundant fish species captured in the seine nets (Table 1). Five fish species were captured in the fyke nets. The most frequently captured and abundant species was eel, followed by black goby and thick-lipped grey mullet (Table 1).

Overall five fish species were recorded during the survey (Table 1) and three-spined stickleback were the most abundant. One adult salmon was captured in the fyke nets (length =72.4 cm) and released.

Salinity values taken at beach seine sites ranged from 10.40ppt to 10.50ppt.

**Table 1: List of fish species and abundances of each species by net type in Loch Tanaí, October 2008**

Scientific name	Common Name	Loch Tanaí	
		Beach seine (2)	Fyke net (2)
<i>Chelon labrosus</i>	Thick Lipped Grey Mullet	2	3
<i>Anguilla anguilla</i>	Eel	-	5
<i>Gasterosteus aculeatus</i>	3-Spined Stickleback	857	-
<i>Gobius niger</i>	Black Goby	-	4
<i>Salmo salar</i>	Salmon	-	1

## DISCUSSION

An essential step in the WFD monitoring process is the classification of the status of transitional waters, which in turn will assist in identifying the objectives that must be set in the individual River Basin Management Plans.

The EPA have assigned Loch Tanaí an interim draft classification of “High” status, i.e. must prevent deterioration, based on general physico-chemical elements, phytoplankton and macroalgal growths (WRBD 2008).

A new WFD fish classification tool, Transitional Fish Classification Index or TFCI, has been developed for the island of Ireland (Ecoregion 1) using NIEA and CFB data. This is a multi-metric tool based on similar tools developed in South Africa and the UK (Harrison and Whitfield, 2004; Coates *et al.*, 2007). Loch Tanaí has been assigned a draft classification of “Poor” (EQR=0.275) using the fish classification tool. However, the fish tool for lagoons will be reviewed and revised over the next few months after more data is collected.

A final overall classification will be assigned to the lagoon in December 2009 after the RBD consultation and review period has been completed.

## REFERENCES

Coates, S., Waugh, A., Anwar, A. and Robson, N. (2007) Efficacy of a multi-metric fish index as an analysis tool for the transitional fish component of the Water Framework Directive. *Marine Pollution Bulletin*, **55**, 225-240 ([www.sciencedirect.com](http://www.sciencedirect.com))

- Harrison, T.D. and Whitfield, A.K. (2004) A multi-metric index to assess the environmental condition of estuaries. *Journal of Fish Biology*, **65**, 683-710 ([www.blackwell-synergy.com](http://www.blackwell-synergy.com))
- Healy, B., Oliver, G., Hatch, P., and Good, J. (1997) Coastal Lagoons in the Republic of Ireland (Volume III) Loch Tanaí (<http://www.npws.ie/en/media/Media,6419,en.pdf>)
- WRBD (2008) *Water matters, "Help us plan"*. Draft River Basin Management Plan for the Western River Basin District.

**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**



**The Central and Regional  
Fisheries Boards**