

Bridge Lough Knockakilleen



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 Bridge Lough, as part of the programme of monitoring for the Water Framework Directive (WFD), between the 29th to the 30th of October 2008 by staff from the Central Fisheries Board (CFB) and the Western Regional Fisheries Board (WRFB).

Bridge Lough is located on the south side of Galway Bay, 4 kilometres north-west of Kinvarra, County Clare (Fig. 1). It is a shallow lagoon, with large submerged rocks spread throughout, which made access for sampling difficult (Plates 1 and 2). The lagoon covers an area of 0.08km². The Lough is divided into two areas; the main section (approximately 5ha) of the lagoon lies between a causeway and a road to the west which runs parallel to it (Plate 1) and the smaller section of the lagoon lies to the west of the road (Plate 2) and is very shallow and much rockier.

The lagoon lies on limestone bedrock and appears to have no obvious freshwater or seawater inlet. However due to the calcareous nature of the bedrock underground channels may feed the lagoon. The lagoon appears to be highly eutrophic with deep layers of anoxic sediment and thick growths of filamentous algae and is probably due to the fact the lagoon is impounded by a causeway and has a very limited tidal exchange through a small outlet running under the road at the southern end of the causeway.



Plate 1: The main section of Bridge Lough. The causeway to the east of the lagoon along with some large rocks can be seen in rear of the picture



Plate 2: The smaller section of Bridge Lough which lies west of the road

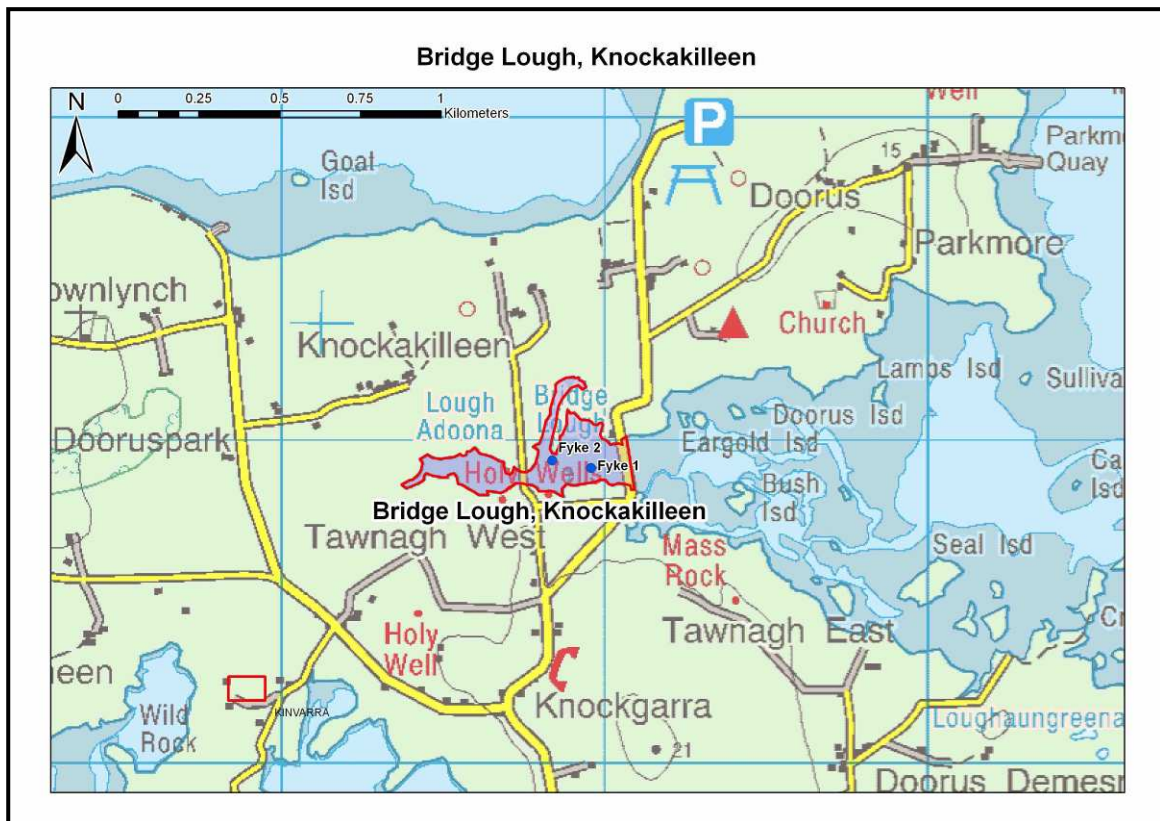


Fig. 1: Location map of Bridge Lough indicating sampling sites, October 2008

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. One sampling method was used during the Bridge Lough survey (i.e. fyke nets). Beach seining and beam trawling were not undertaken due to the lack of access, the shallow nature of most of the lough and the rocky substrate. Portable GPS instruments were used to mark the precise location of each sampling site (Fig. 1).

RESULTS

Only one fish species was captured during the survey, i.e. thick-lipped grey mullet. Two fyke nets were set over night which yielded nine thick lipped grey mullet. Length frequency distribution shows two distinct age groups (Fig. 2).

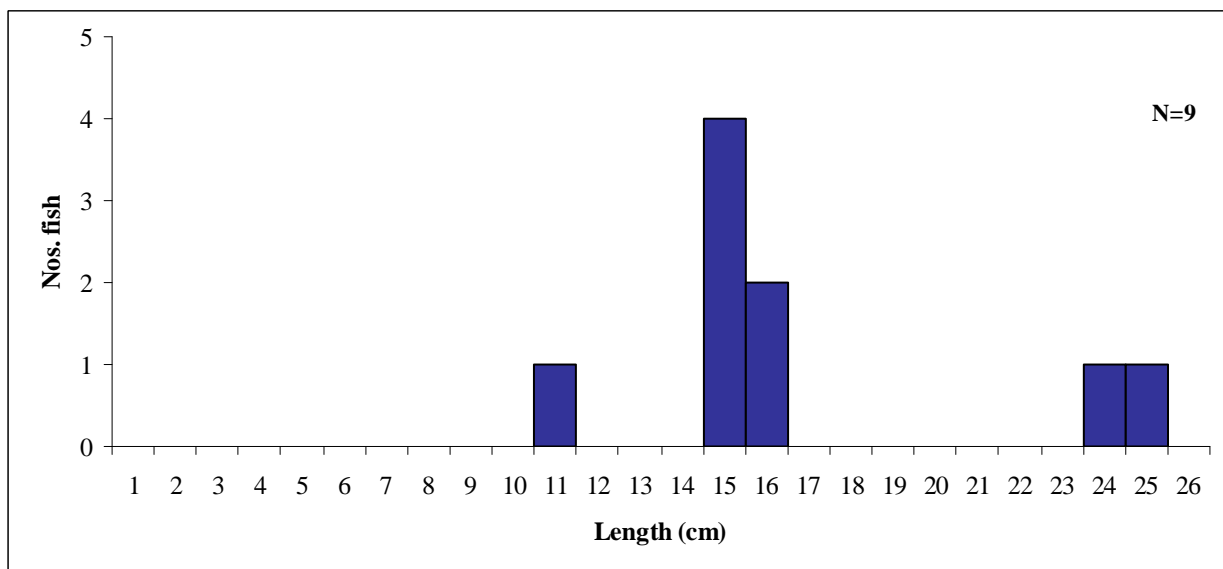


Fig. 2: Length frequency distribution of thick-lipped grey mullet, Bridge Lough, October 2008

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 Bridge Lough an interim draft classification of “Moderate” status, i.e. must be improved to “Good” status by 2015, 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). Bridge Lough has been assigned a draft classification of “Bad” (EQR=0) (i.e. must be improved to “Good” quality by 2015) 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
- 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)
- 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
www.cfb.ie
Email: info@cfb.ie
Tel: +353 1 8842600
Fax: +353 1 8360060**



**The Central and Regional
Fisheries Boards**