

Kilkeran Lake



Sampling Fish for the Water Framework Directive - Transitional Waters 2008



The Central and Regional
Fisheries Boards

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INTRODUCTION

A fish stock survey was carried out at sites on Kilkeran Lake, as part of the programme of monitoring for the Water Framework Directive (WFD), between the 22nd to the 23rd of October 2008 by staff from the Central Fisheries Board (CFB) and the South Western Regional Fisheries Board (SWRFB).

Kilkeran Lake is a natural sedimentary lagoon, connected to the sea by a narrow, intermittently blocked channel (Plate 1). The lake is located behind sand hills, approximately six kilometres east south-east of the town of Roscarberry and two kilometres north of Galley Head in County Cork (Fig. 1). The lagoon covers an area of 0.18km². Kilkeran Lake is a natural sedimentary brackish lagoon that receives freshwater from one main stream (Plate 1). The lake is blocked from the sea for most of the year by a short, coarse sand barrier; however the lake receives saltwater during breaches of the outlet channel by the sea when water levels rise. Saltwater may also enter the lagoon through seepage. The lake was at peak capacity during sampling.

The lake has suffered from eutrophication in the past, and the once thriving trout fishery on the lake has now gone (NPWS 2000). Lagoons are significant as they are becoming increasingly rare in Ireland and Europe and Kilkeran Lake is the best example of a sedimentary lagoon in south-west Ireland.



Plate 1: Aerial photo of Kilkeran Lake (Photo courtesy of CFB and No. 3 Operational Wing, Irish Air Corps [Aer Chór na hÉireann])

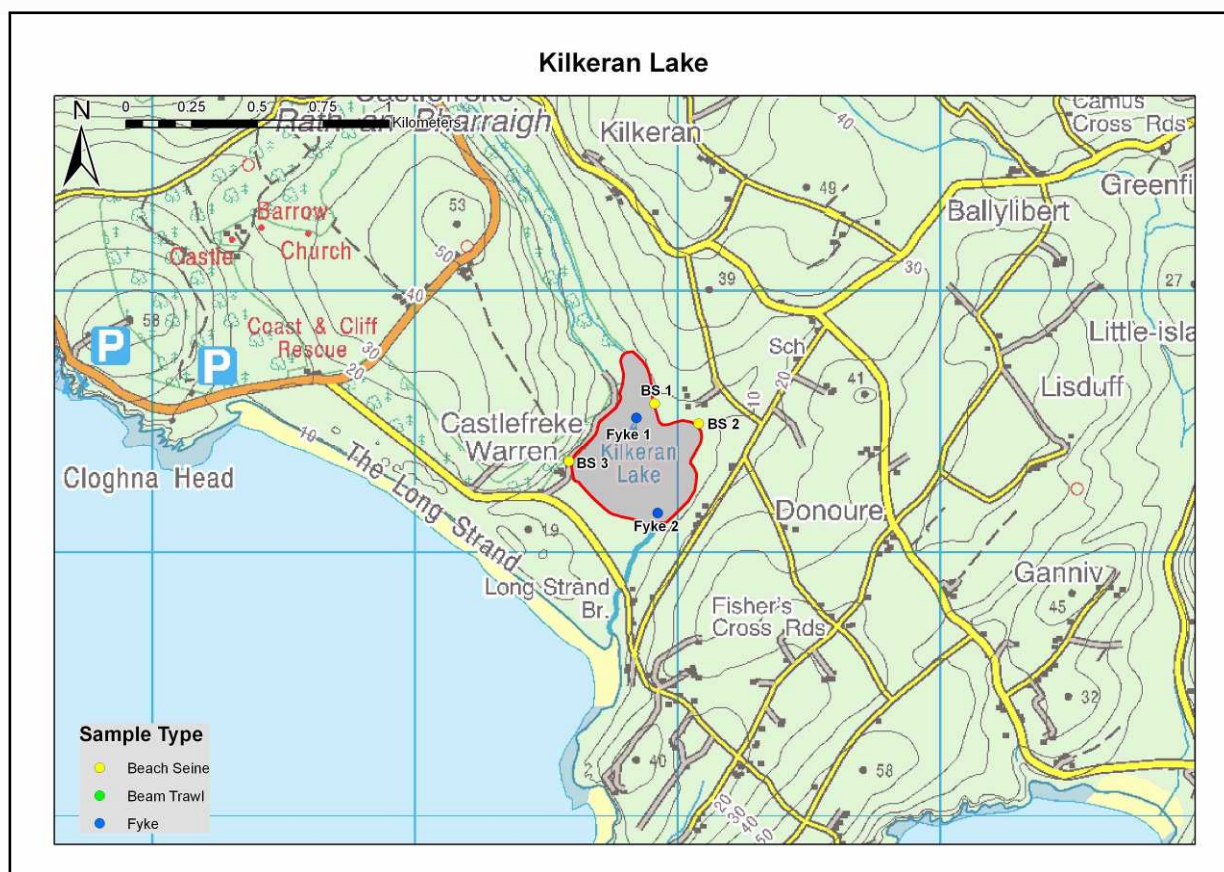


Figure 1: Location map of Kilkeran Lake indicating sampling sites, October 2008.

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 Kilkeran Lake survey (i.e. beach seines and fyke nets). Beam trawling was not attempted due to the small size of the lagoon. Portable GPS instruments were used to mark the precise location of each sampling site (Fig. 1).

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

RESULTS

The first two seine net hauls produced no fish, however the final seine captured 6 large three-spined stickleback. Three fish species were captured in the fyke nets. The most abundant species was eel (12) followed by, three-spined stickleback (10) and thick-lipped grey mullet (6) (Table 1).

Overall species diversity was low and only three fish species were captured in the survey. More intensive sampling could yield more species but it is hard to justify more sampling on a water body of

this size. Timing could affect species diversity as more species could utilize the lagoon when the lagoon is breached.

Salinity values taken at beach seine sites ranged from 2.40ppt to 3.50ppt.

Table 1: List of fish species and abundances of each species by net type in Kilkeran Lake, October 2008

Scientific name	Common Name	Kilkeran lake	
		Beach seine (3)	Fyke net (2)
<i>Chelon labrosus</i>	Thick Lipped Grey Mullet	-	6
<i>Anguilla anguilla</i>	Eel	-	12
<i>Gasterosteus aculeatus</i>	3-Spined Stickleback	6	10

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 Kilkeran Lake 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 (SWRBD 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). Kilkeran Lake has been assigned a draft classification of “Poor” status (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 consultation and review period has been completed.

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