

Ballysadare Estuary



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 Mr. Vincent Roche, the assistant CEO Dr. John Conneely and the staff of the North 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.

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INTRODUCTION

A fish stock survey was carried out on the Ballysadare Estuary, as part of the programme of monitoring for the Water Framework Directive (WFD), between the 9th and 10th of October 2008 by staff from the Central Fisheries Board (CFB) and the North Western Regional Fisheries Board (NWRFB).

Ballysadare Estuary is located approximately 1km north-west of Ballysadare town, in County Sligo and extends for about 5km westwards from Ballysadare to where it enters Sligo Bay (Fig. 1). The estuary covers an area of 8.72km². The Ballysadare River is the main river entering the estuary. The estuary has extensive mud flats and completely drains at low tide except for a narrow channel created by the Ballysadare River (Plate 1). The Ballysadare River rises in the Curlew Mountains near the boundary between County Sligo and County Roscommon and it flows northwards into Ballysadare Bay. It is fed by two main tributaries, the Owenmore which also rises in the Curlew Mountains and the Unshin which drains Lough Arrow. Both these rivers join near Collooney to form the Ballysadare River. The Ballysadare River is promoted by the North Western Regional Fisheries Board as a good venue for salmon fishing as well as sea trout which are seen in the estuary on the rising tide.

Ballysadare Bay contains extensive intertidal sand and mudflats. The mud provides an abundance of food for wildfowl, in the form of colonising plants and invertebrates on which both wildfowl and waders feed. Ballysadare Bay is listed as both a Special Area of Conservation (SAC) and a Special Protection Area (SPA). The site has been designated as a SPA under the E.U. Birds Directive and is of particularly high ornithological importance as it supports a light-bellied brent goose population of international importance as well as nationally important populations of grey plover, dunlin, bar-tailed godwit, redshank and greenshank. Bar-tailed godwit, golden plover and whooper swans which are all found along the estuary, are all listed on Annex I of the E.U. Birds Directive (NPWS, 2001).



Plate 1: Aerial photo of Ballysadare Estuary at low tide. Photo courtesy of CFB and No. 3 Operational Wing, Irish Air Corps (Aer Chór na hÉireann)

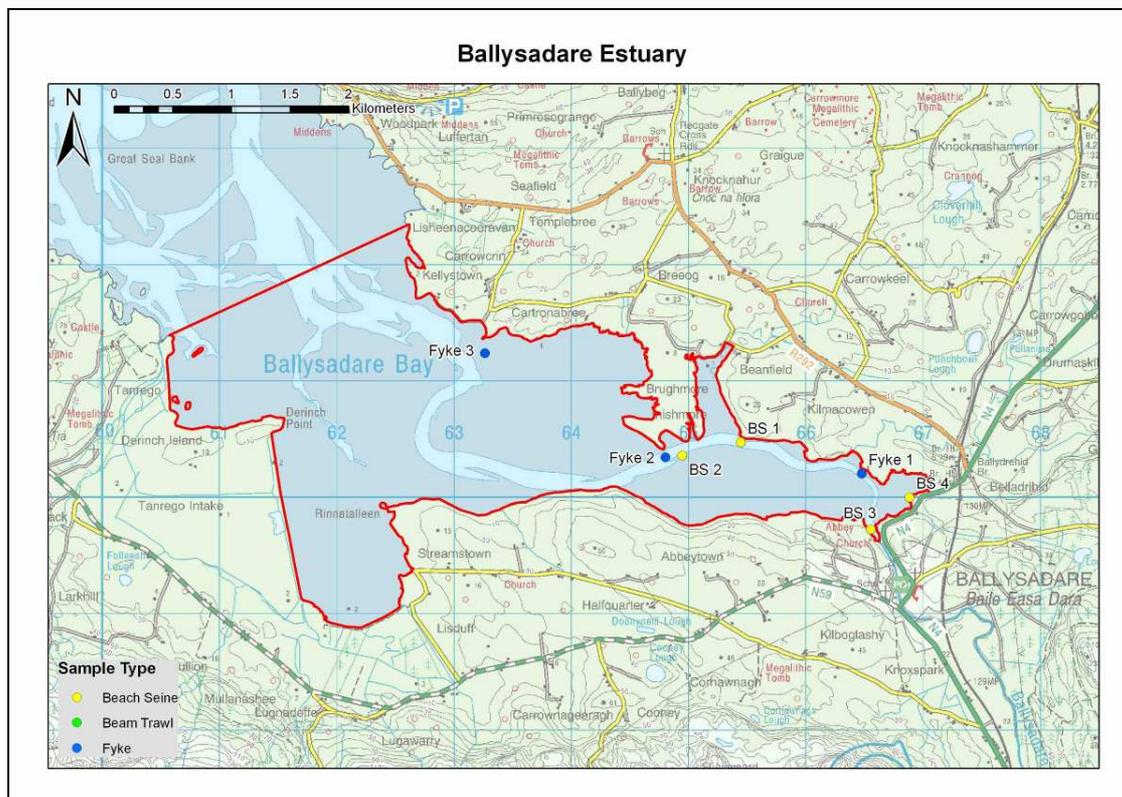


Fig. 1: Location map of Ballysadare Estuary indicating sampling sites, October 2008

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 Ballysadare Estuary survey (i.e. beach seines and fyke nets). Beam trawling was not attempted due to the soft mud substrate and shallow nature of most of the estuary. Portable GPS instruments were used to mark the precise location of each sampling site (Fig. 1).

Four beach seine and three fyke net sites were surveyed during October 2008. All sites were chosen to encompass the majority of geographical and, where possible, habitat ranges of the estuary.

RESULTS

Eight fish species were captured using the beach seine. The most abundant species were sand goby followed by flounder and common goby. Sand goby was the most frequently captured fish species and

was captured in each seine haul (Table 1). Four fish species were captured in the fyke nets. The most frequently captured and abundant species was flounder which was captured at two of the three sites.

Overall nine fish species were captured during the survey. The majority of the species were captured using the beach seine. One perch, a freshwater species was also captured during the survey. Perch reside in the Ballysadare River and this fish was likely swept downstream into the estuary during a flood event.

The estuary does not have a strong marine influence. Salinity values taken at beach seine sites ranged from 0.00ppt to 0.15ppt.

Table 1: List of fish species and abundances of each species by net type captured in the Ballysadare Estuary, October 2008

Scientific name	Common Name	Ballysadare Estuary	
		Beach seine (4)	Fyke net (3)
<i>Platichthys flesus</i>	Flounder	9	11
<i>Gobiusculus flavescens</i>	2-Spotted Goby	1	-
<i>Pomatoschistus minutes</i>	Sand Goby	11	-
<i>Pomatoschistus microps</i>	Common Goby	5	-
<i>Anguilla anguilla</i>	Eel	1	1
<i>Taururus bubalis</i>	Long-Spined Sea Scorpion	-	1
<i>Salmo trutta</i>	Sea Trout	1	1
<i>Spinachia spinachia</i>	15-Spined Stickleback	2	-
<i>Perca fluviatilis</i>	Perch	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 the Ballysadare Estuary an interim draft classification of “Good” status, i.e. must prevent deterioration from “Good” status by 2015, based on general physico-chemical elements, phytoplankton and macro-algal 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). The Ballysadare Estuary has been assigned a draft classification of “Moderate” status (EQR=0.475)(i.e. must be restored to “Good” status by 2015) using the fish classification tool. A final classification will be assigned to the estuary in December 2009 after the consultation and review period has been completed.

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**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**



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