

Fergus Estuary



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 the Fergus Estuary, as part of the programme of monitoring for the Water Framework Directive (WFD), between the 23rd to the 25th of September 2008 by staff from the Central Fisheries Board (CFB) and the Shannon Regional Fisheries Board (ShRFB). Staff from the CFBs large protection vessel, An Cosantóir Bradán also assisted during the survey (Plate 1).

The Fergus Estuary is situated just south of Ennis and Clarecastle, County Clare, approximately 22km west of Limerick (Fig.1). The estuary covers an area of 64.75km². It is a relatively shallow estuary and is part of the greater Shannon Estuary. The estuary is narrow in the upper reaches and is approximately nine kilometres wide where it merges with the Lower Shannon Estuary. There are several large islands in the lower estuary (Fig. 1). The estuary system has extensive inter-tidal mudflats which makes sampling very challenging. The vast mud flats provide vital habitat for wading birds and waterfowl, it is a favourite bird watching location for local bird-watching groups as well as being internationally recognized. In addition, the estuary is utilized by bottle-nosed dolphins which were observed in the lower estuary during the survey. The estuary receives the waters of the River Fergus which rises in the Burren and drains a large portion of County Clare. The estuary is promoted by the Shannon Regional Fisheries Board (ShRFB) as a fishing venue for mullet, flounder, bull huss, dogfish and conger eels.



Plate 1: (A) Seine netting on the Fergus estuary and (B) An Cosantóir Bradán assisting in survey work, September 2008

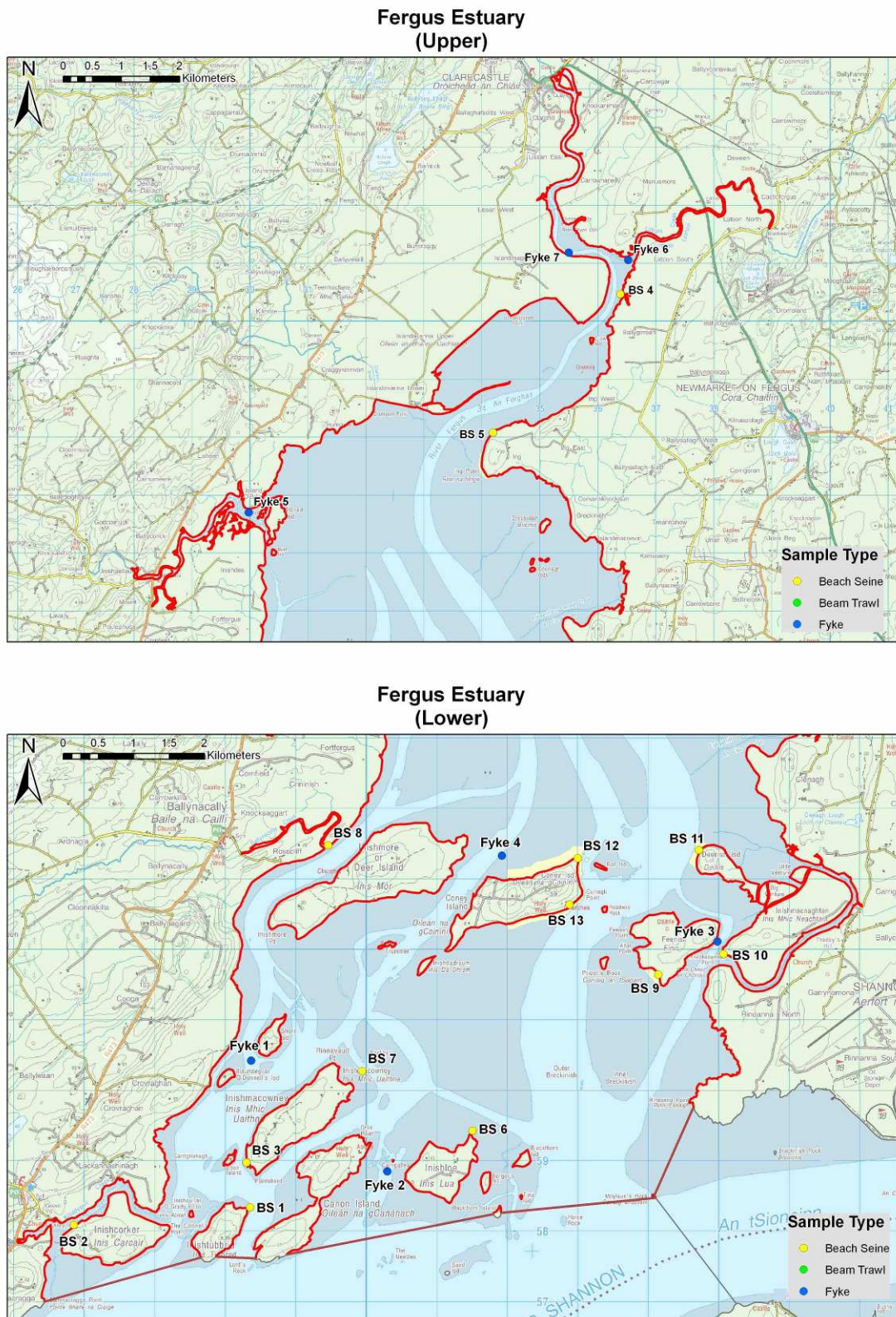


Fig. 1: Location maps of the upper and lower Fergus Estuary indicating sampling sites, September 2008

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 Fergus 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. Sampling of the upper areas of the estuary was limited due to a lack of depth, even at high water. Portable GPS instruments were used to mark the precise location of each sampling site (Fig. 1).

RESULTS

A total of thirteen beach seine sites were selected encompassing the majority of geographical and, where possible, habitat ranges of the estuary. Ten fish species were captured using the beach seine. Sprat were captured at all beach seine sites with several large hauls recorded in the lower estuary. Common goby and greater pipefish were also widespread. Noteworthy numbers of greater pipefish indicate the estuary provides important habitat for this species (Fig. 2). A small number of smelt (*Osmerus eperlanus*) were captured which is important as they are a listed species in the Irish Red Data Book.

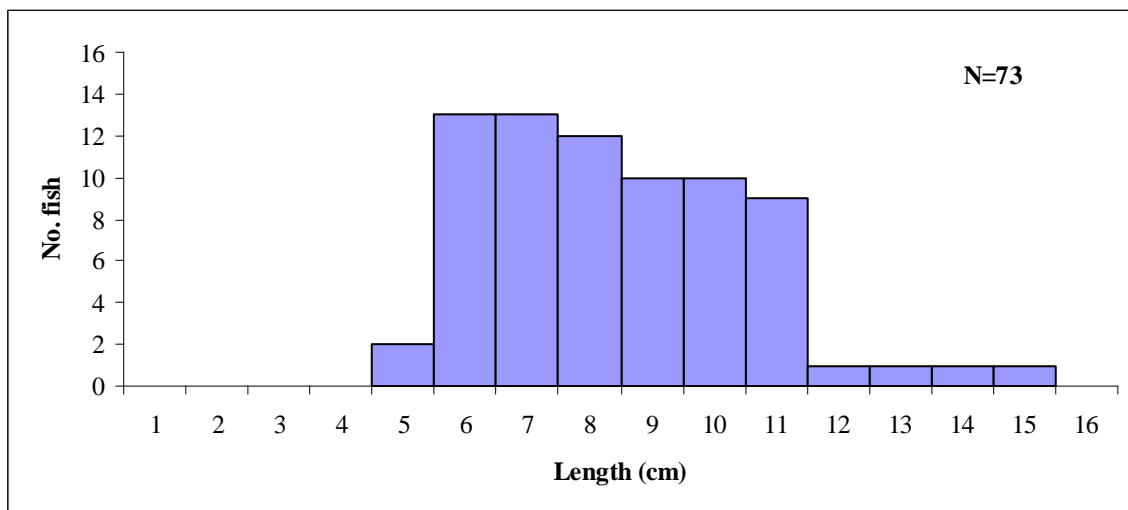


Fig. 2: Length frequency distribution of greater pipefish, Fergus Estuary, September 2008

A total of seven fyke nets were set in the estuary. Seven fish species were captured (Table 1). Flounder was the most abundant species and was recorded in six of the seven sites. In addition, one large conger eel was captured (Plate 2).

Salinity values taken at beach seine sites ranged from 5.25ppt in the upper channel to 18.70ppt in the lower estuary.



Plate 2: Conger eel (120cm and 4.1 kg.) captured in a Fyke net, Fergus Estuary September 2008

Table 1: List of fish species and abundances of each species by net type in the Fergus Estuary, September 2008

Scientific name	Common Name	Fergus	
		Beach seine (13)	Fyke net (7)
<i>Chelon labrosus</i>	Thick Lipped Grey Mullet	2	-
<i>Platichthys flesus</i>	Flounder	20	55
<i>Dicentrarchus labrax</i>	Sea Bass	4	4
<i>Sprattus sprattus</i>	Sprat	3,076	-
<i>Pomatoschistus microps</i>	Common Goby	637	-
<i>Pleuronectes platessa</i>	Plaice	-	1
<i>Anguilla anguilla</i>	Eel	-	6
<i>Atherina prebyter</i>	Sand Smelt	10	-
<i>Ciliata mustela</i>	5-Bearded Rockling	-	9
<i>Gasterosteus aculeatus</i>	3-spined Stickleback	1	-
<i>Spinachia spinachia</i>	15-spined Stickleback	1	-
<i>Syngnathus acus</i>	Greater Pipefish	73	-
<i>Conger conger</i>	Conger Eel	-	1
<i>Trisopterus minutus</i>	Poor Cod	-	2
<i>Osmerus eperlanus</i>	Smelt	3	-

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 Fergus Estuary an interim draft classification of “Good” status, i.e. must prevent deterioration below “Good” status, based on general physico-chemical elements, phytoplankton and macroalgal growths (ShIRBD 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 Fergus Estuary has been classed as “Good” (EQR=0.625) using the fish classification tool which agrees with the classification assigned to the estuary by the EPA (ShIRBD, 2008).

A final overall classification will be assigned to the estuary in December 2009 after the RBD 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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