

Deel 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 in the Deel Estuary, as part of the programme of monitoring for the Water Framework Directive (WFD), between the 23rd to the 24th 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, provided assistance during the survey.

The Deel Estuary is located just north of Askeaton, on Ireland's west coast approximately 25km west of Limerick City (Fig. 1). The estuary covers an area of 3.02km². The upper estuary is a narrow channel (100m wide) while the lower estuary (Plate 1) is approximately 3 kilometres wide. Most of the estuary is very shallow and can only be accessed at high tide. The habitat was primarily low gradient mud-flats and some larger rocks with attached seaweed were also present.

The estuary receives the water of the River Deel which rises near Drumina in north Cork. The river is 64 kilometres in length and its innumerable tributaries drain the hills of west Limerick around Newcastle West (O'Reilly 2002). The river has been arterially drained by the Office of Public Works. The estuary appeared to be relatively healthy although there is an out-flow from the Wyeth pharmaceutical factory (located on the out-skirts of Askeaton in the upper estuary) into the estuary (Fig. 1).



Plate 1: Beach seining in the lower portion of the Deel Estuary, September 2008

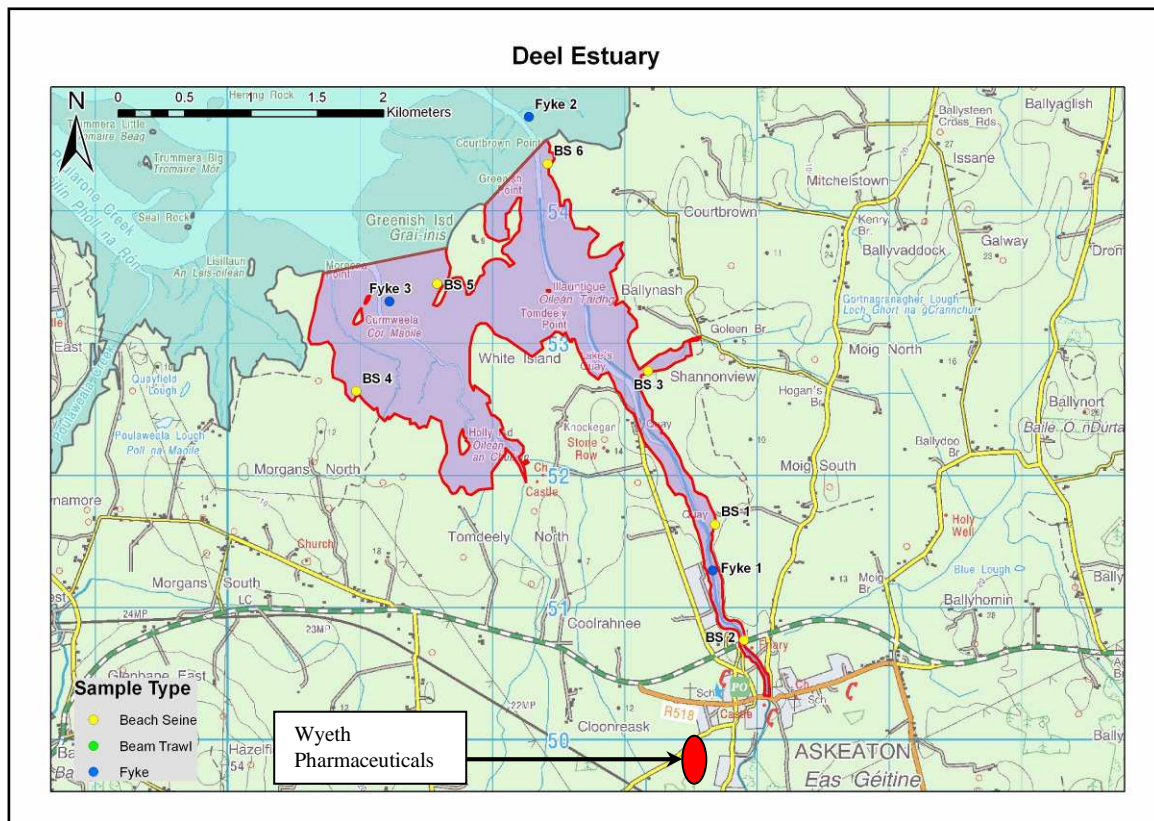


Fig. 1: Location map of the Deel Estuary indicating sampling sites, 2008

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 Deel 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).

RESULTS

A total of six beach seine sites were selected in the Deel Estuary encompassing the majority of geographical and where possible, habitat ranges of the estuary. A total of five fish species were captured using the beach seine. The most abundant fish species was sprat (2,053) followed by common goby (87) (Table 1). Sprat were recorded at most seine net sites with several large hauls captured in the lower estuary. Sand goby were also present in all seine net sites.

A total of three fyke nets were set in the estuary. Five fish species were captured. Flounder was the most abundant species and was found at all three sites. Eels were captured in two of the three sites.

Salinity values taken at beach seine sites ranged from 0.55ppt in the upper channel to 10.35ppt in the lower estuary.

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

Scientific name	Common Name	Deel	
		Beach seine (6)	Fyke net (3)
<i>Chelon labrosus</i>	Thick Lipped Grey Mullet	-	2
<i>Platichthys flesus</i>	Flounder	-	11
<i>Dicentrarchus labrax</i>	Sea Bass	1	-
<i>Sprattus sprattus</i>	Sprat	2,053	-
<i>Pomatoschistus microps</i>	Common Goby	87	-
<i>Pleuronectes platessa</i>	Plaice	-	1
<i>Anguilla anguilla</i>	Eel	-	2
<i>Ciliata mustela</i>	5-Bearded Rockling	-	1
<i>Salmo trutta</i>	Brown Trout	1	-
<i>Syngnathus acus</i>	Greater Pipefish	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.

Eutrophication has been identified as a problem in the Shannon region and measures to address the causes have been identified (ShIRBD 2008). The EPA have assigned the Deel Estuary 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 (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 Deel Estuary has been classed as “Moderate” status (EQR=0.45) using the fish classification tool and 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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