

Argideen 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 Argideen Estuary, as part of the programme of monitoring for the Water Framework Directive (WFD), between the 21st to the 22nd of October 2008 by staff from the Central Fisheries Board (CFB) and the South Western Regional Fisheries Board (SWRFB).

The Argideen Estuary is located approximately 12 kilometres south of Bandon, Co. Cork on the south coast of Ireland. The towns of Timoleague and Courtmacsherry border the estuary (Fig. 1). The estuary covers an area of 4.92km². It consists of the drowned valley of the Argideen River, which is now filled with sediments, resulting in extensive mud and sand flats (Plate 1). The estuary is very shallow in many parts and has a strong marine influence.

The estuary receives some excess sewage from adjoining towns and has had many blooms of common green seaweed (*Ulva* spp.) washing up on the beaches and producing a foul rotting smell during the summer.

The Argideen Estuary is of ornithological importance for the many waders and wildfowl that feed on the mud and sandflats. The estuary is promoted by the SWRFB as a good fishing venue for bass, flounder, plaice, dogfish, mullet, gilt-head bream, conger, dab and thornback ray. The Argideen River, which runs south through the town of Timoleague before entering the estuary, is noted for good stocks of salmon and sea trout, although these species were not captured during the survey.



Plate 1: Aerial photo of the Argideen Estuary with Courtmacsherry on the left. (Photo courtesy of CFB and No. 3 Operational Wing, Irish Air Corps (Aer Chór na hÉireann))

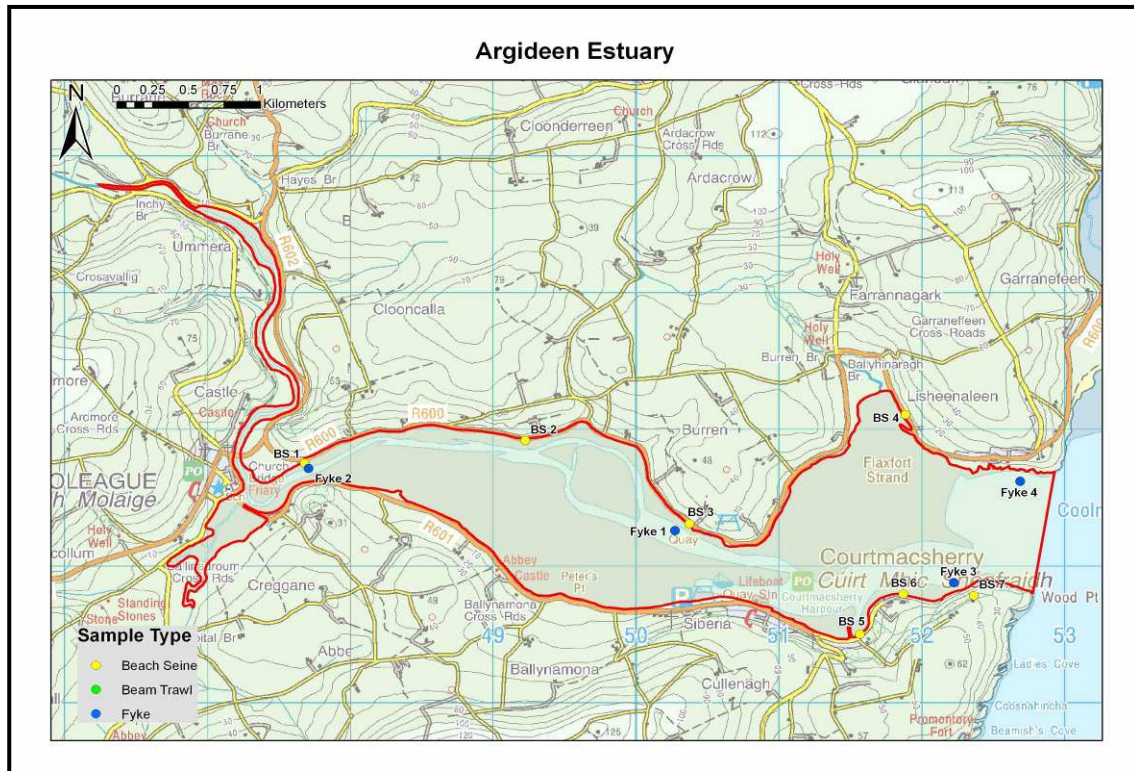


Fig. 1: Location map of the Argideen Estuary indicating sampling sites, October 2008

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 Argideen 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).

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

RESULTS

Eleven fish species were captured at beach seine sites (7 sites) and the hauls were dominated by marine fish species. The most frequently occurring and abundant fish species were common goby followed by sprat and lesser sand-eel (Table 1). Several specimen sized golden grey mullet were captured near Courtmacsherry (Plate 2).

Six fish species were captured in the fyke nets (Table 1). The most frequently captured and abundant species was five-bearded rockling which was captured in three of the four sites (Table 1).

Overall fifteen species were captured during the survey. Overall the most abundant species were sprat (250) followed by common goby (136) and lesser sand-eel (128). No eels were captured during the survey, however they are known to reside in the Argideen River.

Salinity values taken at beach seine sites ranged from 8.15ppt to 34.60ppt.

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

Scientific name	Common Name	Argideen	
		Beach seine (7)	Fyke net (4)
<i>Chelon labrosus</i>	Thick Lipped Grey Mullet	4	1
<i>Platichthys flesus</i>	Flounder	3	4
<i>Sprattus sprattus</i>	Sprat	250	-
<i>Pomatoschistus microps</i>	Common Goby	136	-
<i>Pleuronectes platessa</i>	Plaice	9	-
<i>Ammodytes tobianus</i>	Lesser Sandeel	128	-
<i>Hyperoplus lanceolatus</i>	Greater Sandeel	1	-
<i>Ciliata mustela</i>	5-Bearded Rockling	-	7
<i>Merlangus merlangus</i>	Whiting	-	3
<i>Spinachia spinachia</i>	15-Spined Stickleback	1	-
<i>Gobiusculus flavescens</i>	2-Spotted Goby	7	-
<i>Syngnathus typhle</i>	Deep-Snouted Pipefish	2	-
<i>Scyliorhinus canicula</i>	Lesser Spotted Dog fish	-	3
<i>Conger conger</i>	Conger Eel	-	1
<i>Liza aurata</i>	Golden-Grey Mullet	6	-



Plate 2: Golden-grey mullet (36.7cm) captured near Courtmacsherry

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 in the Argideen estuary (SWRBD 2008). The EPA have assigned the Argideen 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 (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). The Argideen Estuary has been assigned a draft classification of “Moderate” (EQR=0.55) using the fish classification tool which agrees with the classification assigned to the estuary by the EPA (SWRBD 2008).

A final overall classification will be assigned to the estuary in December 2009 after the consultation and review period has been completed.

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