

Tolka 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 Tolka Estuary, as part of the programme of monitoring for the Water Framework Directive (WFD), between the 8th and the 10th of September 2008 by staff from the Central Fisheries Board (CFB) and the Eastern Regional Fisheries Board (ERFB).

The Tolka Estuary is located in County Dublin (Fig. 1). It is situated just south of the north side of Dublin city. It is a relatively shallow estuary with extensive mud/sand flats and extends over an area of 3.58km². The vast majority of riverbank, shoreline and channel in the estuary has been modified and manipulated over time to allow for urban development (e.g. channelisation of the river, building of retaining walls and dredging) (Plate 1).

The River Tolka which flows through counties Meath and Dublin enters the estuary/Dublin Bay at East Wall (Fig. 1). The Tolka catchment has a wide variety of polluting inputs along its length, including agricultural runoff, storm-water runoff, a number of treated and untreated sewerage inputs, as well as litter. It is also noted for having high concentrations of heavy metals in the sediment (Buggy and Tobin, 2006).



Plate 1: Ariel photo of the Tolka Estuary. (Photo courtesy of CFB and No. 3 Operational Wing, Irish Air Corps [Aer Chór na hÉireann])

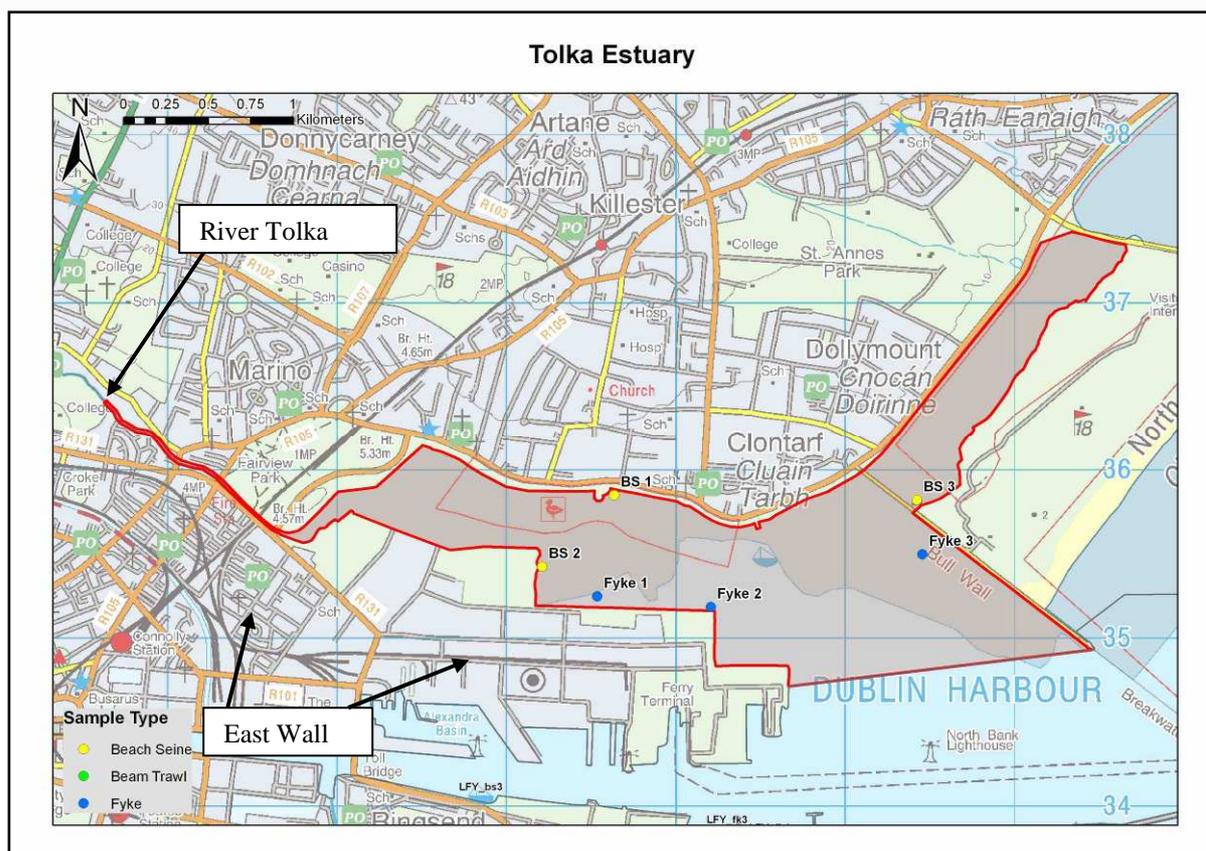


Fig. 1: Location map of the Tolka Estuary indicating sampling sites, September 2008

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 Tolka Estuary survey (i.e. beach seines and fyke nets). However, due to a lack of depth, even at high water, sampling in the upper areas of the estuary was limited and some sites sampled during 2005 survey were not re-surveyed during 2008. 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). Three fyke net and 3 beach seine sites were completed in the estuary.

RESULTS

A total of fourteen fish species were captured. The most common fish species was sand goby (2,741) followed by sprat (404), thick-lipped grey mullet (153) and sand smelt (19) (Table 1). Flounder was the only species that was captured in both sampling methods (Table 1). Sand gobies were present in all beach seines. Eels were present in all three fyke nets.

Salinity values taken at beach seine sites ranged from 17.10ppt to 20.05ppt.

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

Scientific name	Common Name	Tolka	
		Beach seine (3)	Fyke net (3)
<i>Chelon labrosus</i>	Thick Lipped Grey Mullet	122	-
<i>Platichthys flesus</i>	Flounder	7	3
<i>Sprattus sprattus</i>	Sprat	404	-
<i>Ammodytes tobianus</i>	Lesser Sandeel	6	-
<i>Anguilla anguilla</i>	Eel	-	12
<i>Taurulus bubalis</i>	Long-Spined Sea-Scorpion	-	2
<i>Atherina prebyter</i>	Sand Smelt	19	-
<i>Pomatoschistus minutus</i>	Sand Goby	2741	-
<i>Salmo salar</i>	Salmon	-	1
<i>Gasterosteus aculeatus</i>	3-Spined Stickleback	2	-
<i>Gaidropsarus vulgaris</i>	3-Bearded Rockling	-	7
<i>Gadus morhua</i>	Cod	-	11
<i>Pollachius pollachius</i>	Pollock	-	4



Plate 2: Beach seining on the Tolka Estuary with the Eastern Regional Fisheries Board, September 2008

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 Tolka 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 (ERBD).

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 Tolka 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 (ERBD, 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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