

# Corrib 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 Corrib Estuary, as part of the programme of monitoring for the Water Framework Directive (WFD), between the 28<sup>th</sup> of October to the 29<sup>th</sup> of October and the 10<sup>th</sup> of November to the 11<sup>th</sup> of November 2008 by staff from the Central Fisheries Board (CFB) and the Western Regional Fisheries Board (WRFB).

The Corrib Estuary is located in County Galway and borders Galway city (Fig. 1) and covers an area of 9.66km<sup>2</sup> (2,387 acres). The Corrib River which runs south through Galway city flows into the estuary. The river drains a large portion of County Galway and is an important salmon fishing river on the west coast of Ireland.

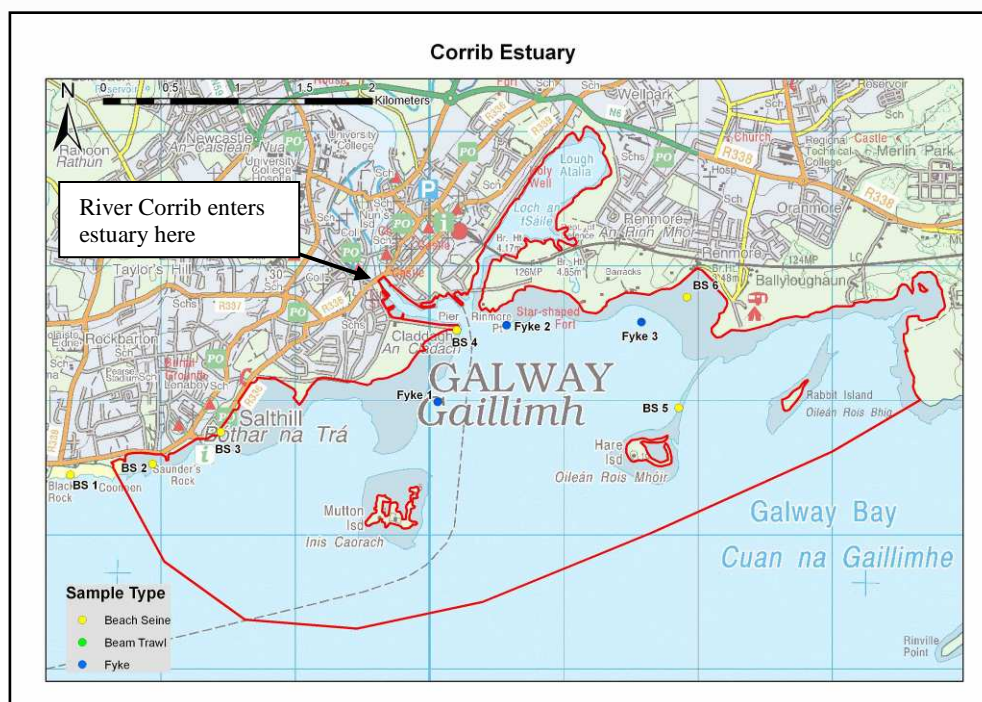
The Corrib Estuary is part of the large area which makes up the Galway Bay Special Area of Conservation (SAC) and Special Protection Area (SPA). The inner bays of this SAC are protected from exposure to Atlantic swells by the Aran Islands and Black Head Bay. The Galway Bay system is approximately 50 kilometres long and ranges from 10 to 30 kilometres in breadth. It has a long shoreline which is highly diverse with a wide variety of rocky terraces, shingle and sandy beaches and fringing salt marshes. Intertidal sand and mud flats are common around much of the shoreline.

The inner Galway Bay provides good quality habitat for common seal, a species that is listed on Annex II of the EU Habitats Directive and also provides optimum habitat for otter. Galway Bay is also a very important ornithological site. It supports a wide variety of over wintering wetland birds such as divers, grebes, cormorants, dabbling duck, sea duck and waders. Seven species listed on Annex I of the E.U. Birds Directive (red-throated diver, black-throated diver, great northern diver, golden plover, bar-tailed godwit, sandwich tern and common tern) are commonly occurring in the Galway Bay area (NPWS 2001). The Corrib estuary is promoted by the Western Regional Fisheries Board as a sea angling venue for eels, mackerel, flounder, mullet and dogfish



**Plate 1: Seine netting  
in the Corrib Estuary**





**Fig. 1: Map of the Corrib 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 Corrib Estuary survey (i.e. beach seines and fyke nets). Portable GPS instruments were used to mark the precise location of each sampling site (Fig. 1).

## RESULTS

Six beach seine sites were selected during the survey. All sites were chosen to encompass the majority of geographical and, where possible, habitat ranges of the estuary (Plate 1). Twelve fish species were captured and the species list was dominated by marine species. The most frequently occurring species were 15-spined stickleback, plaice, and sand goby. The most abundant species were lesser sandeel, followed by sand goby and 15-spined stickleback (Table 1).

Three fyke nets locations were surveyed; all sites were chosen using the same criteria as the site selection for beach seine sites. Eleven fish species were captured in the fyke nets. The most frequently captured and abundant species was five-bearded rockling (Fig. 2) and pollack which were captured at all sites (Table 1). Cod were also present at all fyke net sites.

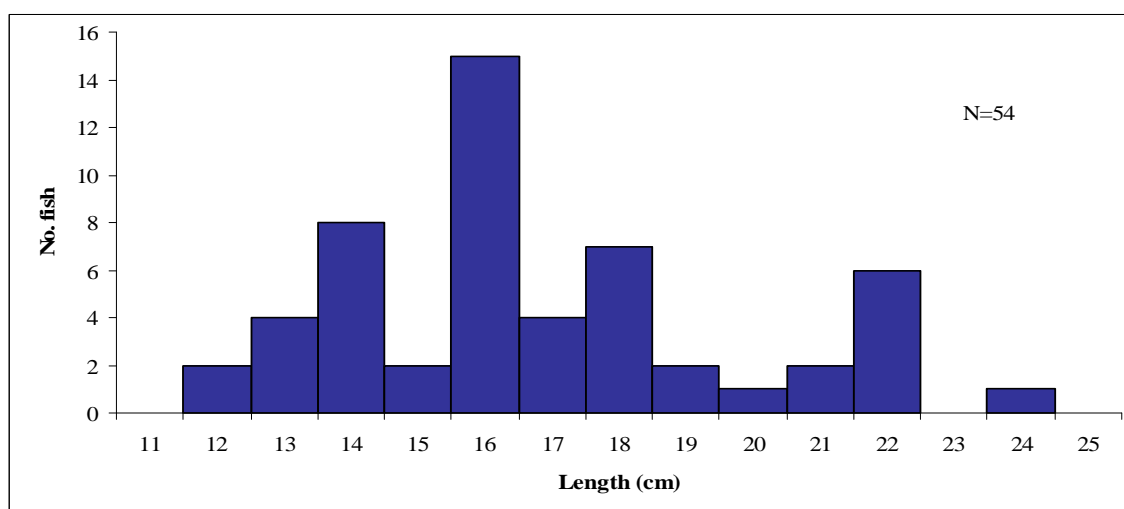
Overall eighteen fish species were recorded during the survey. The most abundant species were 5-bearded rockling (56) followed by lesser sandeel (51) and sand goby (48). Flounder, plaice, long-

spined sea scorpion, 5-bearded rockling and corkwing wrasse were all captured using both sampling techniques.

The estuary is strongly influenced by the marine environment and salinity values taken at beach seine sites ranged from 0.25ppt to 22.15ppt.

**Table 1: List of fish species and abundances of each species by net type in the Corrib Estuary, October-November 2008**

Scientific name	Common Name	Corrib	
		Beach seine (6)	Fyke net (3)
<i>Platichthys flesus</i>	Flounder	1	2
<i>Pollachius virens</i>	Saithe (Coalfish)	-	3
<i>Pomatoschistus minutus</i>	Sand Goby	48	-
<i>Pleuronectes platessa</i>	Plaice	6	2
<i>Anguilla anguilla</i>	Eel	-	3
<i>Taurulus bubalis</i>	Long-Spined Sea-Scorpion	1	7
<i>Ciliata mustela</i>	5-Bearded Rockling	1	55
<i>Spinachia spinachia</i>	15-Spined Stickleback	11	-
<i>Gobiusculus flavescens</i>	2-Spotted Goby	9	-
<i>Pollachius pollachius</i>	Pollack	-	23
<i>Merlangus merlangus</i>	Whiting	-	1
<i>Gadus morhua</i>	Cod	-	10
<i>Labrus bergylta</i>	Ballan Wrasse	-	13
<i>Ammodytes tobianus</i>	Lesser Sandeel	51	-
<i>Symphodus melops</i>	Corkwing Wrasse	4	12
<i>Atherina prebyter</i>	Sand Smelt	1	-
<i>Sprattus sprattus</i>	Sprat	1	-
<i>Syngnathus typhle</i>	Deep-Snout Pipefish	1	-



**Fig. 2: Length frequency distribution 5-bearded rockling Corrib Estuary, October-November 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 Corrib 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 (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 Corrib Estuary has been classed as “Good” status (EQR=0.725) using the fish classification tool.

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

## REFERENCE

- Coates, S., Waugh A., Anwar A. & Robson M. (2007) Efficacy of a multi-metric fish index as an analysis tool for the transitional fish component of the Water Framework Directive. *Marine Pollution Bulletin*, **55**, 225-240.
- Harrison, T.D. and Whitfield, A.K. (2004) A multi-metric index to assess the environmental condition of estuaries. *Journal of Fish Biology*, **65**, 683-710 ([www.blackwell-synergy.com](http://www.blackwell-synergy.com))
- NPWS (2001) Site synopsis: Galway Bay Complex. <http://www.npws.ie/en/media/Media,3908,en.pdf> (accessed 16.4.2009)
- WRBD (2008) *Water Matters, Help us Plan*. Draft River Basin Management Plan for the Western River Basin District.

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