

Westport Bay



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 Westport Bay, as part of the programme of monitoring for the Water Framework Directive (WFD), between the 22nd to the 24th of October 2008 by staff from the Central Fisheries Board (CFB) and the Western Regional Fisheries Board (WRFB).

Westport Bay is located adjacent to Westport town, Co. Mayo (Fig. 1). The estuary is west facing and is part of the larger Clew Bay complex (Fig. 1). Due to the open nature of the bay it is very susceptible to westerly swells and oncoming winds from the Atlantic and is therefore strongly influenced by the marine environment (Plate 1). The bay covers an area of 15.32km². There are many drumlins scattered throughout Clew Bay. This unusual drumlin landscape was formed during the last ice age when sediments were laid down and smoothed over by advancing ice. The sea subsequently inundated this area, which has led to the creation of a multitude of islands. Along the inner margins of the bays are shores which are comprised of mixed boulders, cobbles, gravels, sands and mud.

There is some commercial salmon farming taking place in Clew Bay which has become a contentious issue in recent years with calls to reduce the amount of salmon farming (Western People, 2001). Westport Bay receives the waters of the Owenwee and Carrowbeg rivers. The Owenwee River is noted for salmon and sea trout fishing while the Carrowbeg River holds good stocks of brown trout.

Clew Bay also supports important populations of Otter and Common Seals, both of which are on Annex II of the EU Habitats Directive. Nationally important numbers of red-breasted merganser and ringed plover are found in the Clew Bay complex. Barnacle geese, which are listed on Annex I of the EU Birds Directive, are also common in the Bay during the winter months.



Plate 1: Aerial photo of Westport Bay. (Photo courtesy of CFB and No. 3 Operational Wing, Irish Air Corps [Aer Chór na hÉireann])

Plate 2: Beach seining a sandy area of Westport Bay, October 2008



RESULTS

Fourteen fish species were captured in the seine nets and the catches were dominated by marine fish species. The most abundant fish species were two-spotted goby (400) followed by lesser sandeel (152) and sand goby (113) (Table 1). The most frequently occurring species was sand goby and fifteen-spined stickleback followed by two-spotted goby and common goby (Table 1).

Seventeen fish species were captured in the fyke nets. The most frequently captured and abundant species was five-bearded rockling which was captured in all six fyke net sites. A good number of lesser spotted dogfish were also captured in the fyke nets (Table 1). Length frequency distribution of lesser spotted dogfish indicates two possible age-classes (Fig. 2).

Overall twenty four fish species were captured during the survey. The most abundant species were two-spotted goby (400) followed by lesser sandeel (152) and sand goby (113). Cod, two-spotted goby, three-bearded rockling, plaice, common goby and flounder were all captured using both sampling techniques.

Salinity values taken at beach seine sites ranged from 12.30ppt to 32.85ppt.

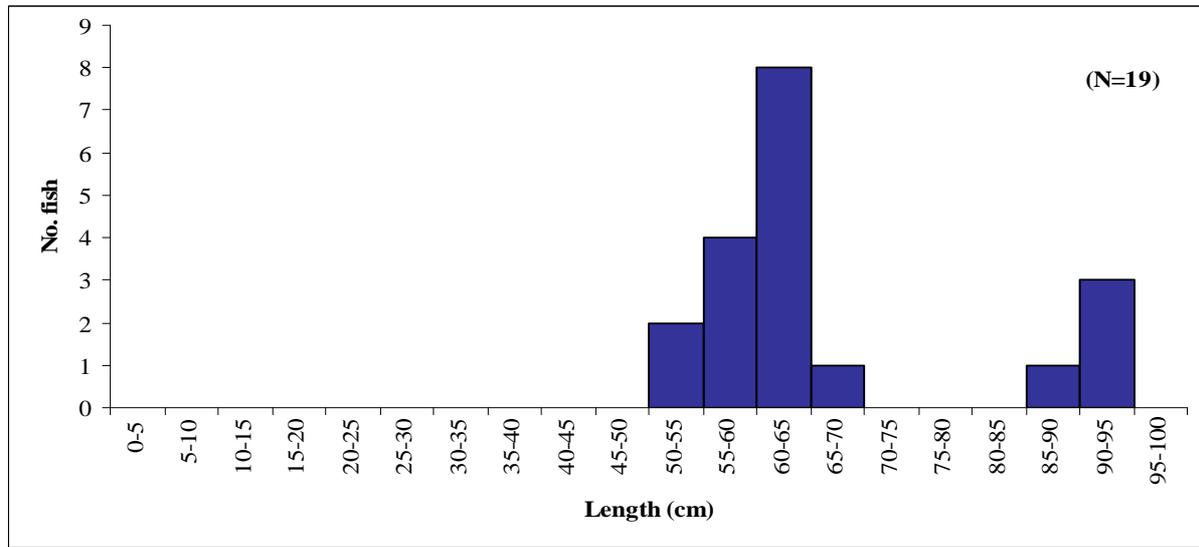


Fig. 2: Length frequency distribution of lesser spotted dogfish, Westport Bay, October 2008

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

Scientific name	Common Name	Westport	
		Beach seine (8)	Fyke net (6)
<i>Platichthys flesus</i>	Flounder	1	1
<i>Pomatoschistus minutus</i>	Sand goby	113	-
<i>Pomatoschistus microps</i>	Common goby	82	1
<i>Pleuronectes platessa</i>	Plaice	3	1
<i>Taurulus bubalis</i>	Long-Spined Sea Scorpion	-	2
<i>Ciliata mustela</i>	5-Bearded Rockling	-	59
<i>Gaidropsarus vulgaris</i>	3-Bearded Rockling	1	1
<i>Scyliorhinus canicula</i>	Lesser Spotted Dogfish	-	19
<i>Spinachia spinachia</i>	15-Spined Stickleback	27	-
<i>Agonus cataphractus</i>	Pogge	-	1
<i>Gobiusculus flavescens</i>	2-Spotted Goby	400	1
<i>Pollachius pollachius</i>	Pollack	-	7
<i>Callionymus lyra</i>	Dragonet	-	1
<i>Gadus morhua</i>	Cod	1	1
<i>Labrus bergylta</i>	Ballan Wrasse	-	14
<i>Ammodytes tobianus</i>	Lesser Sandeel	152	-
<i>Symphodus melops</i>	Corkwing Wrasse	8	8
<i>Myoxocephalus scorpius</i>	Short Spined Sea Scorpion	-	3
<i>Scyliorhinus stellaris</i>	Greater Spotted Dogfish	-	2
<i>Conger conger</i>	Conger Eel	-	2
<i>Pholis gunnellus</i>	Gunnel (Butterfish)	1	-
<i>Syngnathus rostellatus</i>	Nilsson's Pipefish	1	-
<i>Entelrus aequoreus</i>	Snake Pipefish	1	-
<i>Atherina prebyter</i>	Sand Smelt	57	-

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 Westport Bay 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). Westport Bay has been assigned a draft classification of “Good” (EQR=0.675) using the fish classification tool.

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

REFERENCES

- Coates, S., Waugh, A., Anwar, A. and Robson, N. (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 (www.sciencedirect.com)
- 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)
- Western People Newspaper (2001) Major clean-up for Clew Bay as rainbows threaten wild sea trout and salmon. (<http://archives.tcm.ie/westernpeople/2001/10/25/story7088.asp>)
- WRBD (2008) *Water matters*, “*Help us plan*”. Draft River Basin Management Plan for the Western River Basin District.

**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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