

Cashen-Feale 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 Cashen/Upper Feale Estuary, as part of the programme of monitoring for the Water Framework Directive (WFD), between the 12th and 14th of September 2008 by staff from the Central Fisheries Board (CFB) and the Shannon Regional Fisheries Board (ShRFB).

The Cashen/Upper Feale Estuary is located in County Kerry and is separated into the upper (Upper Feale Estuary) (Fig. 1) and lower (Cashen Estuary) (Fig. 2) estuaries for WFD sampling and reporting purposes. The Upper Feale Estuary is located just downstream of Listowel and covers an area of 0.37km² (93 acres). The Upper Feale Estuary starts at the confluence of the River Galey and the River Feale and continues up to Finuge Bridge (Fig. 1). The Cashen Estuary (area 2.67km²) is located adjacent to the town of Ballybunion where it meets the Atlantic Ocean (Fig. 2). The Cashen Estuary begins where the ocean meets it and extends upstream to the River Galey. The vast majority of riverbank, shoreline and channel in both estuaries has been modified and manipulated over time by the Office of Public Works arterial drainage division with flood relief works (Plates 1 and 2).

Both estuaries are fed by the River Feale which rises in the mountains of north Cork, near Rockchapel, and flows for approximately 74 km through the towns of Abbeyfeale and Listowel before entering the sea at Ballybunion. The Cashen Estuary is also fed by the River Galey and River Brick which are part of the River Feale but enter the river downstream of the Upper Feale Estuary. The Feale catchment is one of the most important sea trout fisheries in Ireland and is also known as a salmon fishery. Pollution problems have been recorded on the middle and lower reaches of the River Galey and on the main channel of the River Feale downstream of Listowel and at Abbeyfeale.



Plate 1: Seine netting on the Upper Feale Estuary, September 2008

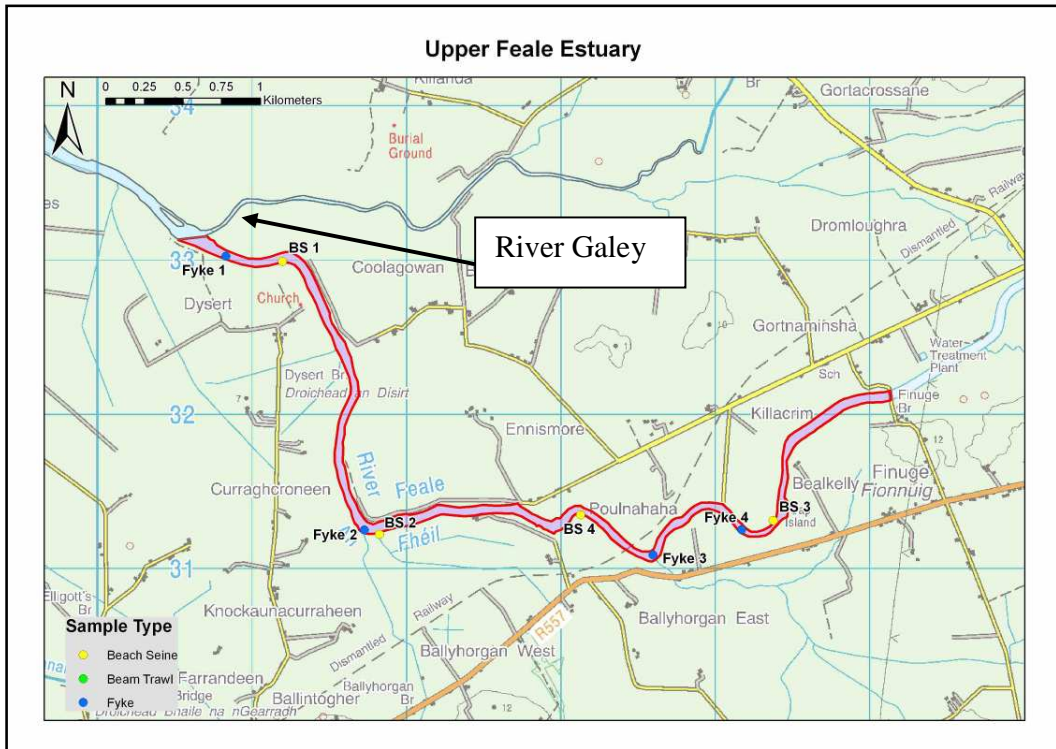


Fig. 1: Location map of the Upper Feale Estuary indicating sampling sites, September 2008



Plate 2: Seine netting on the Cashen Estuary, September 2008

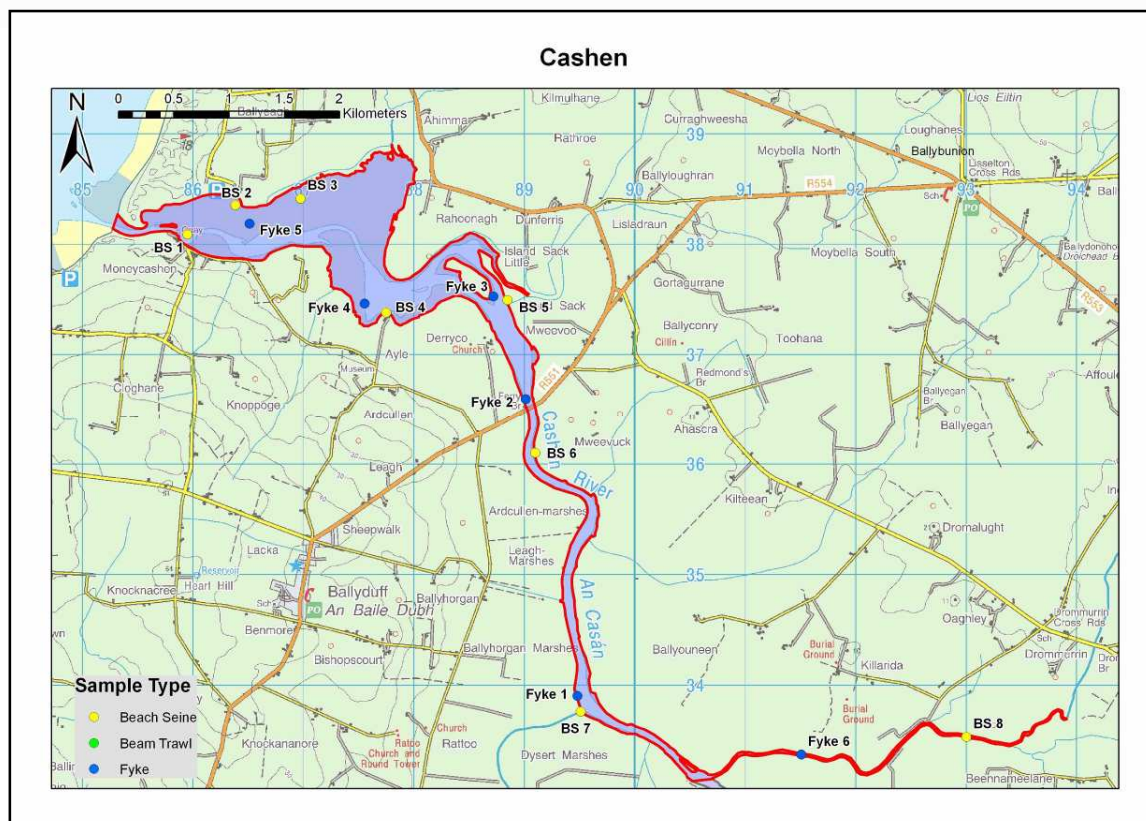


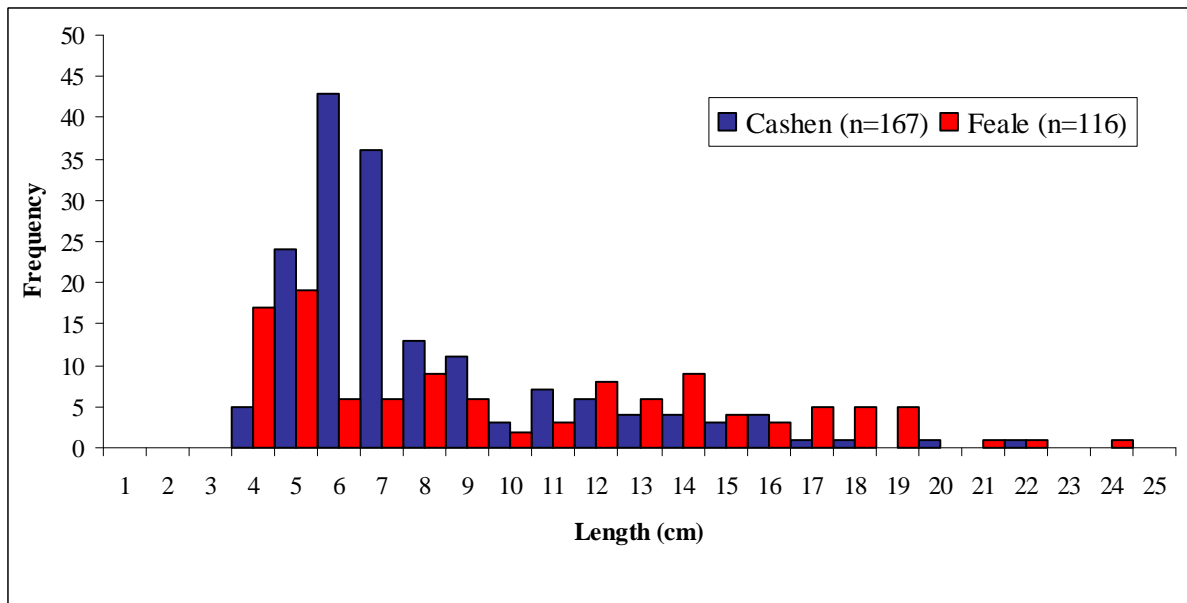
Fig. 2: Location map of the Cashen Estuary indicating sampling sites, September 2008

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 Cashen/Feale 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

Seven beach seine and six fyke net sites were selected encompassing the majority of geographical and, where possible, habitat ranges of the Cashen Estuary. A total of fourteen fish species were captured in the estuary. The most common species was sand goby (1,081) followed by common goby (329) and flounder (215) (Table 1). Flounder, eel and fifteen-spined stickleback were captured in both the fyke nets and the beach seines (Table 1). The Cashen Estuary is promoted by the ShRFB for having excellent flounder fishing and this was confirmed by the presence of a healthy flounder population (Fig. 3).



**Fig. 3: Length frequency distribution of flounder, on the Cashen and Upper Feale Estuary
September 2008**

A total of four beach seine and our fyke net sites were selected encompassing the majority of geographical and, where possible, habitat ranges of the Upper Feale Estuary. A total of eight fish species and sea trout were captured in the estuary. The most common species was three-spined stickleback (7,268) followed by minnow (692) and flounder (196). Flounder, eel, brown trout and salmon were captured in both the fyke nets and the beach seines. The Upper Feale estuary also appears to be an important nursery area for flounder (Fig. 3). The estuary was dominated by freshwater species.

Salinity values taken at beach seine sites ranged from 1.5ppt to 0.0ppt in the Cashen Estuary and were 0.0ppt at all sites in the Upper Feale Estuary.

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

Scientific name	Common Name	Cashen		Feale	
		Beach seine (8)	Fyke net (6)	Beach seine (4)	Fyke net (4)
<i>Chelon labrosus</i>	Thick Lipped Grey Mullet	1	-	-	-
<i>Platichthys flesus</i>	Flounder	184	31	45	151
<i>Sprattus sprattus</i>	Sprat	63	-	-	-
<i>Pomatoschistus microps</i>	Common Goby	329	-	76	-
<i>Pleuronectes platessa</i>	Plaice	4	-	-	-
<i>Ammodytes tobianus</i>	Lesser Sandeel	15	-	-	-
<i>Anguilla anguilla</i>	Eel	1	21	2	30
<i>Gobius niger</i>	Black Goby	-	-	1	-
<i>Pomatoschistus minutus</i>	Sand Goby	1,081	-	-	-
<i>Ciliata mustela</i>	5-Bearded Rockling	-	2	-	-
<i>Salmo trutta</i>	Brown Trout	-	-	1	6
<i>Salmo trutta</i>	Sea Trout*	-	-	-	1
<i>Salmo salar</i>	Salmon	1	-	6	3
<i>Gasterosteus aculeatus</i>	3-spined stickleback	5	-	7,268	-
<i>Scophthalmus rhombus</i>	Brill	6	-	-	-
<i>Syngnathus rostellatus</i>	Nilsson's pipe fish	2	-	-	-
<i>Spinachia spinachia</i>	15-spined stickleback	1	1	-	-
<i>Phoxinus phoxinus</i>	Minnow	-	-	692	-

*sea trout are included as a separate "variety" of trout

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 Cashen and Upper Feale waterbodies 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 Cashen Estuary has been classed as "Good" (EQR=0.60) (i.e. must prevent deterioration from "Good" status) and the Upper Feale Estuary has been classed as "Moderate" (EQR=0.575) status using the fish classification tool.

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

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