

# Fish Stock Survey of Transitional Waters in the South Western River Basin District 2020

## Ferta Estuary

IFI/2020/1-4528



Iascach Intíre Éireann  
Inland Fisheries Ireland

Inland Fisheries Ireland

National Research Survey Programme

**Fish Stock Survey of Transitional Waters in the South Western River  
Basin District 2020– Ferta estuary**

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## **1. Summary**

This report presents fish capture data collected during Inland Fisheries Ireland (IFI) surveys of transitional waterbodies. This report focuses on the survey which was conducted within the Ferta estuary on the south western coast of Ireland. It was conducted primarily to designate an ecological status based on fish populations, as per the requirements of the Water Framework Directive (Directive 2000/60/EC). The populations of species of angling and conservation importance are also discussed.

A number of fish sampling methods were used to ensure that a range of habitat types were sampled, thus making it likely that all fish species present in the estuary were captured. Across the survey, a total of 19 species and 188 individual fish were captured. This was the first time with estuary had been surveyed.

## **2. Introduction**

The Ferta estuary is situated on Ireland's south west coast, adjacent to the town of Cahersiveen, Co. Kerry and covers an area of 2.4 km<sup>2</sup> (Fig. 1). The River Ferta and Carhan River flow into the upper estuary. The upper estuary is relatively shallow and comprises of extensive mud flats that are exposed at low tide. The shores of estuary comprise cobbled substrate with attached seaweed with some larger rocks scattered across the foreshore. Both the rivers are noted for salmon and sea trout.

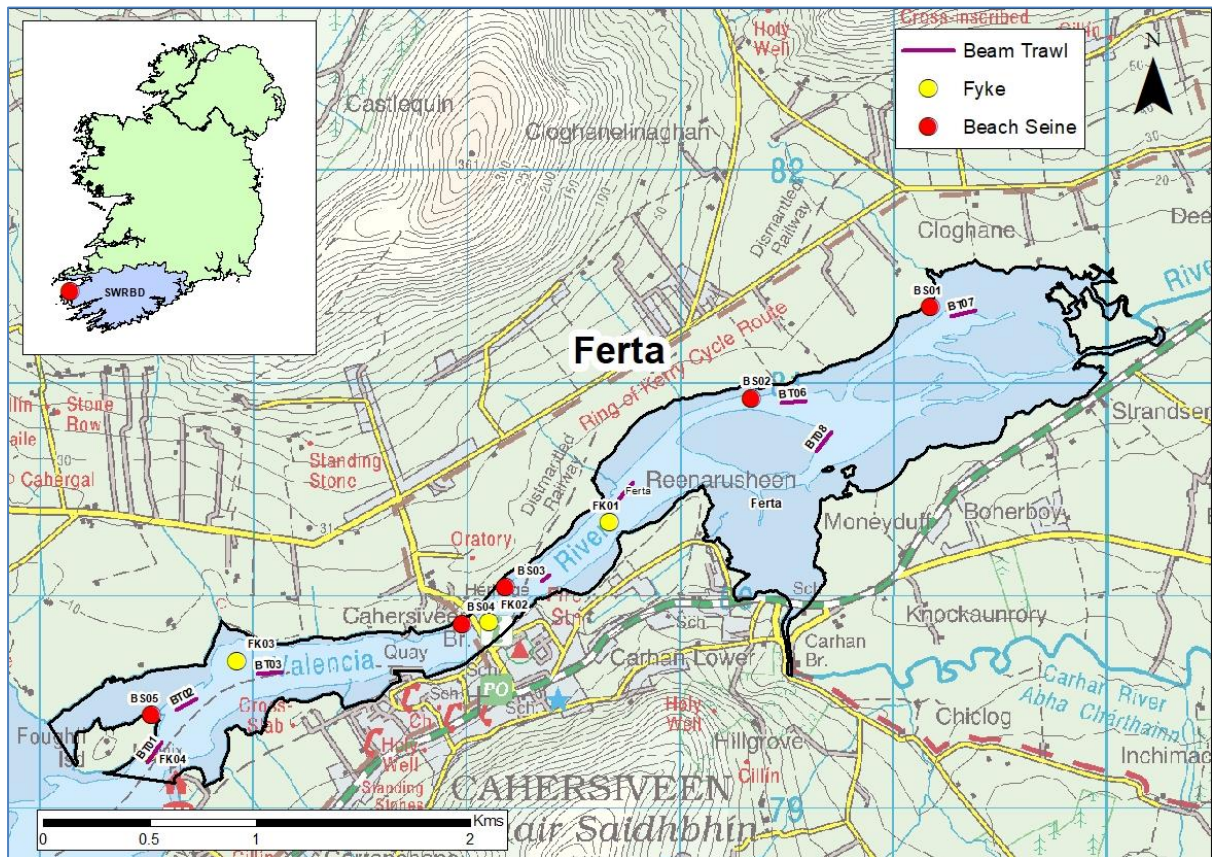
The middle estuary is narrow and has an abandoned railway bridge and road bridge crossing the channel. The tide is relatively strong in this narrow section, at midwater, where it forms a chokepoint. The town of Cahersiveen is the dominant urbanised feature on the south shore in this section. There is some modifications of the estuary with a boat slip and marina in this section.

The outer estuary opens into Valentia harbour. The main channel in the lower estuary is this section is marked with channel markers for the local traffic.

The main objectives of the current survey are:

- To measure the ecological status of fish populations in the estuary complex as per the requirements of the European Water Framework Directive (WFD; 2000/60/EC).
- To examine fish population dynamics in the estuary.
- To provide scientific advice to support conservation measures within the estuary complex.

According to the WFD, ecological status of waterbodies must be assessed by both a number of physical and chemical characteristics and a range of biological indicators. Fish populations are one of the key biological indicators of ecological status in transitional waters. Essentially, they are assessed by comparing data collected from monitoring against reference (natural) conditions. Fish status was assessed using the estuarine multi-metric fish index (EMFI) (Harrison and Kelly, 2013) to derive ecological status. As the estuary was surveyed in 2009, it was possible to examine any changes in population structure in the intervening years.



**Fig. 1:** Map of the Ferta Estuary showing all samples taken during the September 2020 survey.

### 3. Methods

The Ferta estuary covers an area of 2.4km<sup>2</sup>. Fish stock surveys were conducted to ensure sufficient coverage of the water body so that stocks could be assessed. Sampling took place between 14<sup>th</sup> - 15<sup>th</sup> September 2020. Habitat types across the sites typically consisted of the shores being composed of cobble/gravel with attached seaweed with some larger rocks scatter across the foreshore. While the bottom consisted of soft mud/sand. Estuarine waters ranged from brackish to fully saline and all in between. The separate waterbodies are described in more detail in [www.wfdfish.ie](http://www.wfdfish.ie).

Current work in the Republic of Ireland and United Kingdom indicates the need for a multi-method (beach seine, fyke net and beam trawl) approach to sampling fish in estuaries and these procedures are now the standard IFI methodology for fish stock surveys in transitional waters for the WFD monitoring program.

In 2020, due to Covid-19 (i.e. social distancing) and manual handling considerations a lighter beach seine and reduced numbers of fykes in each fyke set were utilised. Beach seining was conducted using a 30m x 2.5m net (14mm mesh size side panels 12m x 2.5m with the middle/bunt of the net 6.5mm mesh size 6m x 2.5m) to capture fish in littoral areas. The bottom of the net has a weighted lead line to increase sediment disturbance and catch efficiency. Fyke nets (15m in length with a 0.8m diameter front hoop, joined by an 8m leader with a 10mm square mesh) are used to sample benthic fish in the littoral areas. Previous surveys used 3 fyke nets tied together to form a set whereas 2 fykes were tied together to form a set in 2020. Beam trawls are used for sampling benthic fish in the littoral and open waters, where bed type is suitable. The beam trawl measures 1.5m x 0.5m, with a 10mm mesh bag, decreasing to 5mm mesh in the cod end. The trawl is attached to a 20m tow rope and towed by a boat. Trawls are conducted along transects of 100m in length.

All nets are processed on-site by identifying the species present and counting the total numbers caught in each. Length measurements are recorded for each species using a representative sub-sample of 30 fish if necessary. Unidentified fish specimens were retained for subsequent identification in the laboratory.

A handheld GPS was used to mark the precise location of each site. Physiochemical data were also collected at each beach seine site.

## **4. Results**

### **4.1 Data summary – 2020 survey**

A total of 17 samples were taken using three different sampling methods (5 beach seine, 4 fykes and 8 beam trawls), over the course of the sampling programme (Fig.1). Temperatures ranged from 16.5-17.8 °C (mean = 17.1°C) and salinity (PPT) ranged from 15.3 to 30.1 (mean= 26.8).

In the Ferta estuary, 188 individual fish were captured, counted, and identified to species level prior to release. Nineteen different fish species were encountered over the course of the survey (Table 1).

The most abundant species were pollack (42.6%), fifteen-spined stickleback (12.2%) and sand goby (9.6%) (Table 1).

**Table 1:** List of species captured during the 2020 WFD survey of the Ferta estuary

Species	Total count	Count measured	Ave length(cm)	Max length(cm)	Min length(cm)	Standard deviation (cm)	Relative abundance %
Ballan wrasse	6	5	12.6	18.9	5.4	4.8	3.2
Black goby	2	2	8.7	8.8	8.5	0.2	1.1
Cod	6	6	14.1	16.2	9.8	2.2	3.2
Common dragonet	2	2	8.3	8.6	7.9	0.5	1.1
Common sole	3	3	9.9	14.6	7	4.1	1.6
Conger eel	3	3	46.0	54	40	7.2	1.6
Corkwing wrasse	1	1	9.5	9.5	9.5	N/A	0.5
Deep-snouted pipefish	1	1	13.1	13.1	13.1	N/A	0.5
Fifteen-spined stickleback	23	23	8.4	11.2	6.6	1.2	12.2
Five-bearded rockling	7	7	15.4	21	11.5	3.7	3.7
Flounder	2	1	22.5	22.5	22.5	N/A	1.1
Long-spined sea scorpion	7	7	8.9	14.5	7.2	2.5	3.7
Plaice	5	5	6.9	8.1	6	0.8	2.7
Pollack	80	43	13.0	16.8	8.6	2.0	42.6
Sand goby	18	18	6.0	7.8	4	0.9	9.6
Sand smelt	6	6	14.4	15	13	0.7	3.2
Thick-lipped grey mullet	1	1	3.5	3.5	3.5	N/A	0.5
Two-spotted goby	12	12	4.0	5.6	3	0.7	6.4
Worm pipefish	3	3	12.1	15	8.1	3.6	1.6

#### 4.2 Key species

A diverse array of fish species of angling interest was captured over the course of the survey which suggest that the estuary has an important nursery function, especially the lower reaches. Conger eel, and juvenile fish including plaice, sole, cod and pollock were captured and are species targeted by anglers.

The Ferta estuary is not noted as an angling venue. Valentia Harbour is noted for bass, flounder bull huss and thornback ray angling (<https://fishinginireland.info>) and anglers should catch flounder and bass in the Ferta estuary. Only a few flounder were captured and no bass.

### 4.3 EMFI quality rating

The Ferta estuary achieved WFD Fish 'Good' status in 2020 (Table 2). No previous WFD Fish assessments have been carried out.

**Table 2.** EMFI quality ratings of the Ferta estuary 2020

Name	Year	EMFI	EQR	Classification
Ferta	2020	59	0.80	Good

## **5. Discussion**

The Ferta estuary had a diverse mix of fish species with 19 species captured. Other estuaries sampled in 2020 throughout Ireland, by IFI, were typically dominated by two species (flounder and sand goby), which often made up the bulk of the catch (>80%).

The Ferta's top two species pollock and fifteen-spined stickleback comprised 54.8% of the catch. The shore of the Ferta has extensive amounts of seaweed which are utilised by fifteen-spined stickleback and can provide nursery habitat for pollack which likely accounts for overall species composition.

## **6. References**

Harrison, T.D. and Kelly, F.L., 2013. Development of an estuarine multi-metric fish index and its application to Irish transitional waters. *Ecological indicators*, 34, pp.494-506.

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