Loch an tSaile (Mannin Bay)

Sampling Fish for the Water Framework Directive - Transitional Waters 2009

The Central and Regional Fisheries Boards

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1. INTRODUCTION

A fish stock survey was conducted on Loch an tSáile (Mannin Bay) as part of the programme of fish monitoring for the Water Framework Directive (WFD), between the 27th and the 28th of October 2009 by staff from the Central Fisheries Board (CFB) and the Western Regional Fisheries Board (WRFB).

Loch an tSáile, also known as Loch Athola, is a lagoon covering an area of 0.11km² (Fig, 1.1, Plate 1.1). It is situated on the north side of Mannin Bay, approximately 4km south-west of Clifden town, County Galway. This water body has no visible freshwater input other than rainwater and the surrounding area is predominately composed of bog with some agricultural land.

Loch an tSáile lies within the Slyne Peninsula SAC, which is important for a number of habitats listed in Annex I of the EU Habitats Directive, including lagoons, large shallow inlets and bays and Atlantic salt marsh. The area is also an important habitat for a large number of bird and plant species (NPWS, 2003).

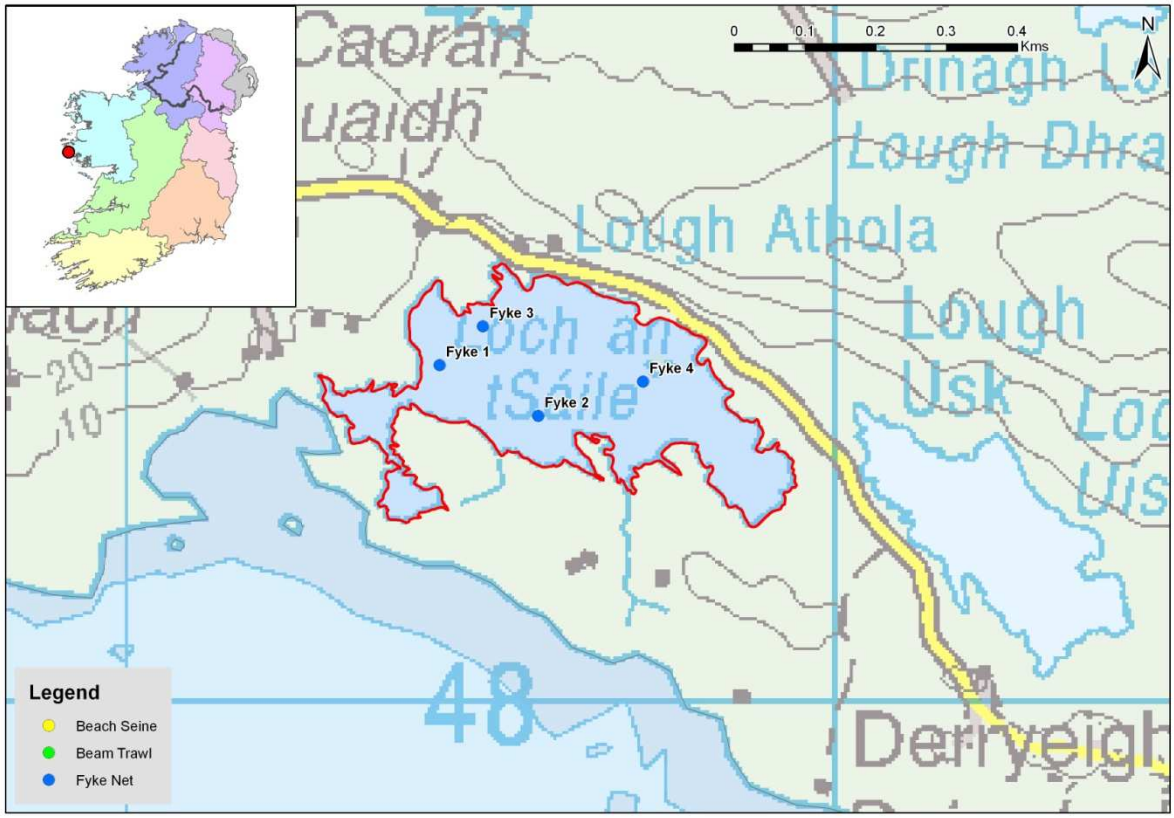

Fig 1.1. Location map of Loch an tSáile indicating sampling sites, October2009

Plate 1.1. Loch an tSáile, October 2009

2. METHODS

Current work in the UK and ROI 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 CFB methodology for fish stock surveys in transitional waters for the WFD monitoring program.

Beach seining is conducted using a 30m x 3m net (10mm mesh size) 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. 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 100 – 200m in length.

Sample sites are selected to represent the range of geographical and habitat ranges within the water body, based on such factors as exposure/orientation, shoreline slope, and substrate type. A handheld GPS is used to mark the precise location of each site.

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, while scales are only collected for certain species, such as salmon and sea trout. Unidentified specimens were retained for subsequent identification in the laboratory.

A total four fyke nets were deployed in Loch an tSáile in October 2009. Beach seining was not conducted in Loch an tSáile for this survey, nor could beam trawling be conducted due to the shallow depth of the lake.

3. RESULTS

A total of nine fish species were recorded in Loch an tSaile (Table 3.1). European eel was the most abundant species, followed by pollack and flounder.

Eels ranged in length from 33.0cm to 72.1cm in length (Fig. 3.1).

Table 3.1. Number of each species captured by each gear type in Loch an tSaile Lagoon, October 2009

Scientific name	Common Name	Beach seine (0)	Fyke net (4)	Beam trawl (0)	Total
Anguilla anguilla	Eel	-	42	-	42
Pollachius pollachius	Pollack	-	5	-	5
Platichthys flesus	Flounder	-	2	-	2
Gobius paganellus	Rock goby	-	1	-	1
Taurulus bubalis	Long-spined sea scorpion	-	1	-	1
Clupea harengus	Herring	-	1	-	1
Ciliata mustela	Five-bearded rockling	-	1	-	1
Myoxocephalus scorpius	Short-spined sea scorpion	-	1	-	1
Syngnathus acus	Greater pipefish	-	1	-	1

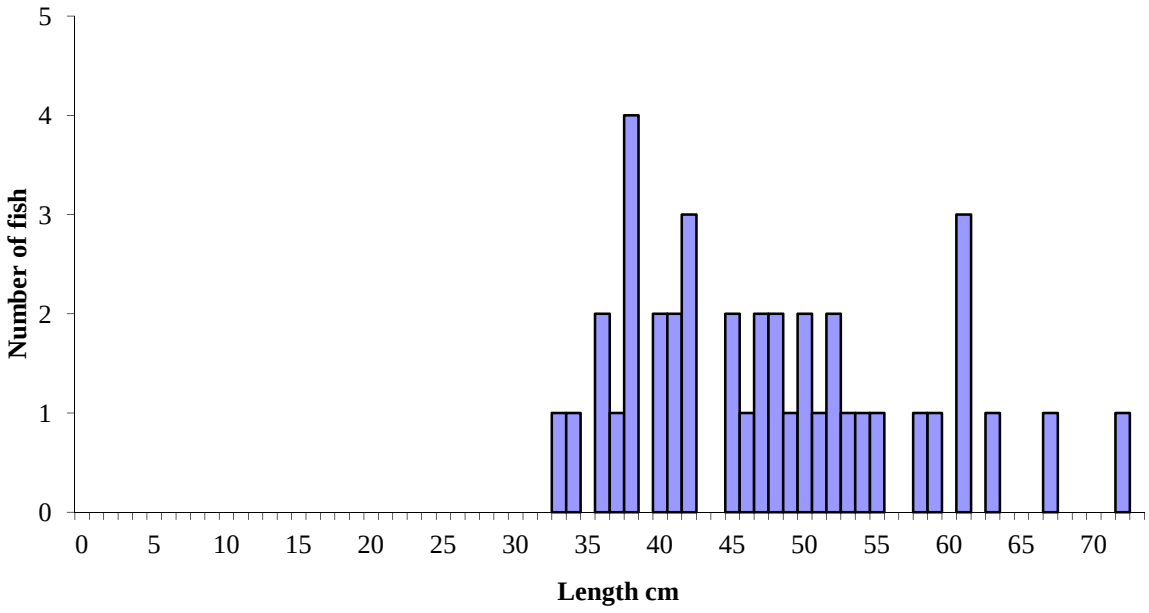

Fig. 3.1. Length frequency distribution of a sub-sample of eels captured in Loch an tSáile, October 2009 (n = 40)

4. SUMMARY

A total of nine fish species were recorded in Loch an tSáile, which is similar to other transitional water bodies (lagoons) surveyed in the WRFB during 2009. Species of angling importance that were present include pollack and flounder, albeit in low abundances. Species richness and distribution among all transitional water bodies surveyed during 2009 can be seen in the 2009 WFD summary report (Kelly *et al*., 2010).

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.

A new WFD fish classification tool, Transitional Fish Classification Index or TFCI, has been developed for the island of Ireland (Ecoregion 1) using Northern Ireland Environment Agency (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 TFCI is still undergoing further development in order to make it fully WFD compliant and to account for differences in estuary typologies; however, at this stage it has been used, along with expert opinion, to provide draft ecological status classifications for each transitional water body surveyed for the WFD.

Using this approach, Loch an tSáile has been assigned a draft ecological status classification of "Moderate" based on the fish populations present.

The EPA have assigned Loch an tSáile an overall interim draft classification of "Good" status, based on general physico-chemical elements, phytoplankton and macroalgal growths.

5. REFERENCES

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