

The potential contribution of small coastal streams to the conservation of declining and threatened diadromous fishes, especially the European eel

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LOCAL AND GLOBAL INITIATIVES:

HOW SCIENCE SUPPORTS MANAGEMENT ACTIONS ON DIADROMOUS FISH

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Photo of Dunes

Photo of Stream

- Introduction - context
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Introduction



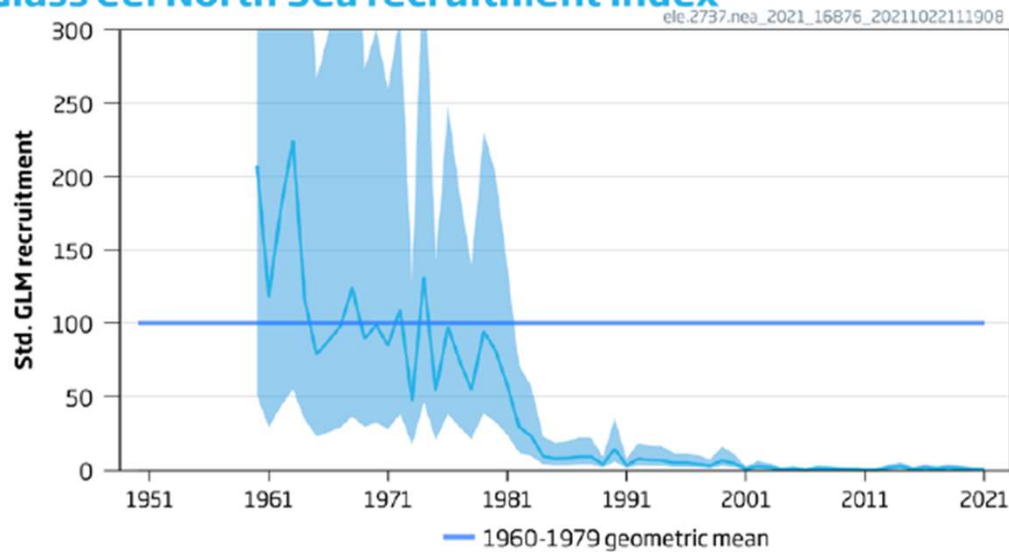
ICES Advice on fishing opportunities, catch, and effort
Ecoregions in the Northeast Atlantic
Published 4 November 2021



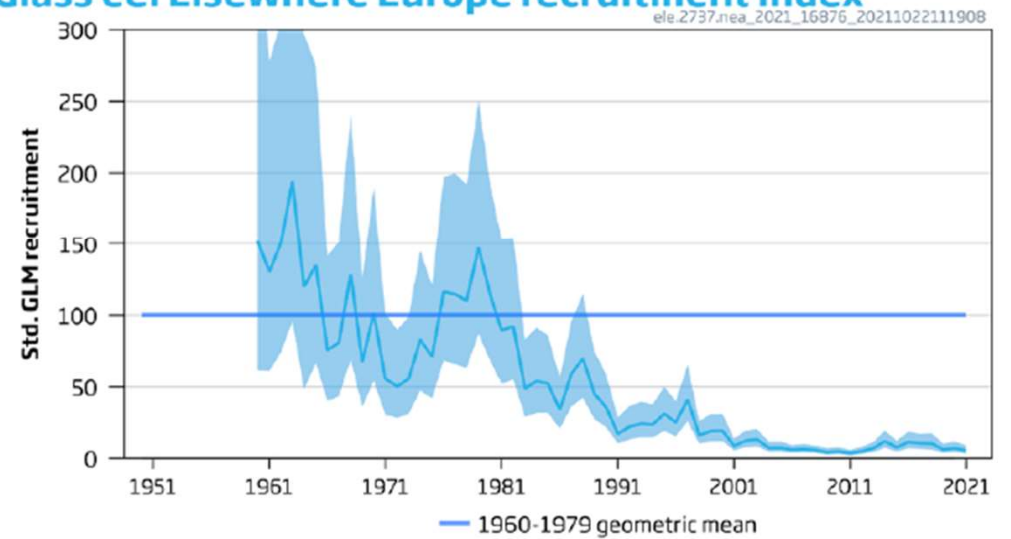
Status of eel

European eel (*Anguilla anguilla*) throughout its natural range

Glass eel North Sea recruitment index



Glass eel Elsewhere Europe recruitment index



Introduction

22.9.2007

EN

Official Journal of the European Union

L 248/17

COUNCIL REGULATION (EC) No 1100/2007 of 18 September 2007

establishing measures for the recovery of the stock of European eel

Article 2

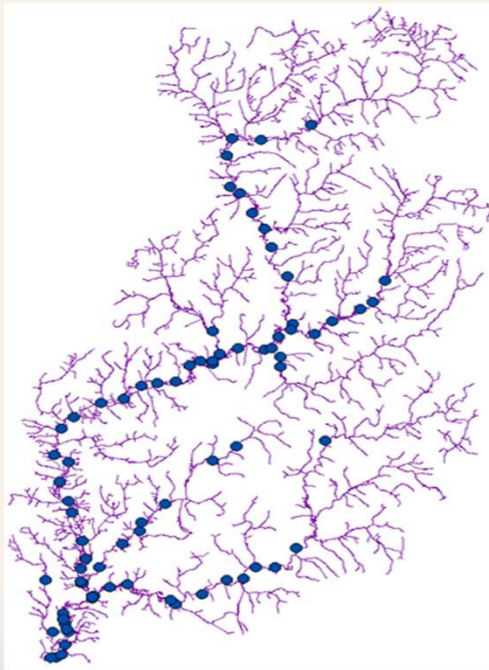
Establishment of Eel Management Plans

1. Member States shall identify and define the individual river basins lying within their national territory that constitute natural habitats for the European eel (eel river basins) which may include maritime waters. If appropriate justification is provided, a Member State may designate the whole of its national territory or an existing regional administrative unit as one eel river basin.

What is natural eel habitat?
How to quantify & map it?

Introduction

Map of river basin districts in
England and Wales



- Most Eel Management Plans use GIS mapping
- GIS maps can be limited by resolution – 1st order small streams?
- Small streams are big!
- 75% of 'river' length in UK & RoI
- Important for aquatic biodiversity



Introduction

Today's talk - Coastal streams

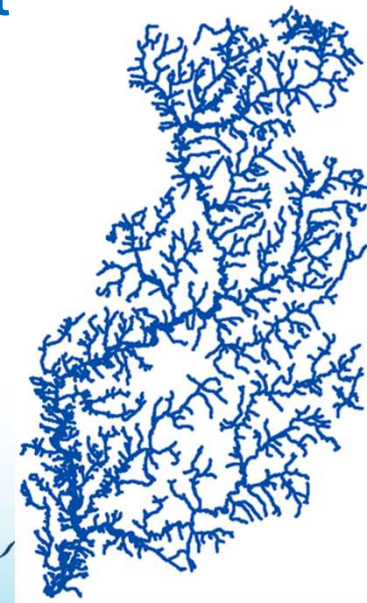
Important for diadromous species



France: small coastal streams a hydrosystem of great conservation importance (Maire et al 2017)

For eels?

1. How much small stream eel habitat is there?
2. How much eel production is there?



Study area – ‘La Wareenne’

Dunes d'Écault

University of Hertfordshire logo

Map of northern
France and sea



La Wareenne stream

La Wareenne

Photo of Dunes

Map of La Wareenne

Photo of Stream

- 3.4 km long
- 1 m width
- 7 km² drainage
- No obstacles to eel migration

Electrofishing

1998, 1999: October
6 survey sites
100 m long stretches
Eels & flounder caught
Eels size ~10-100 cm TL



Eel densities

Fish	Year 1998						Year 1999					
	Site					Beach	Site					Beach
	1	2	3	4	5	6	1	2	3	4	5	6
European eel	0	0	0	36	49	0	0	0	25	80	25	0
Juvenile flounder	0	0	0	0	2	0	0	0	0	0	5	0

Map of La Warene

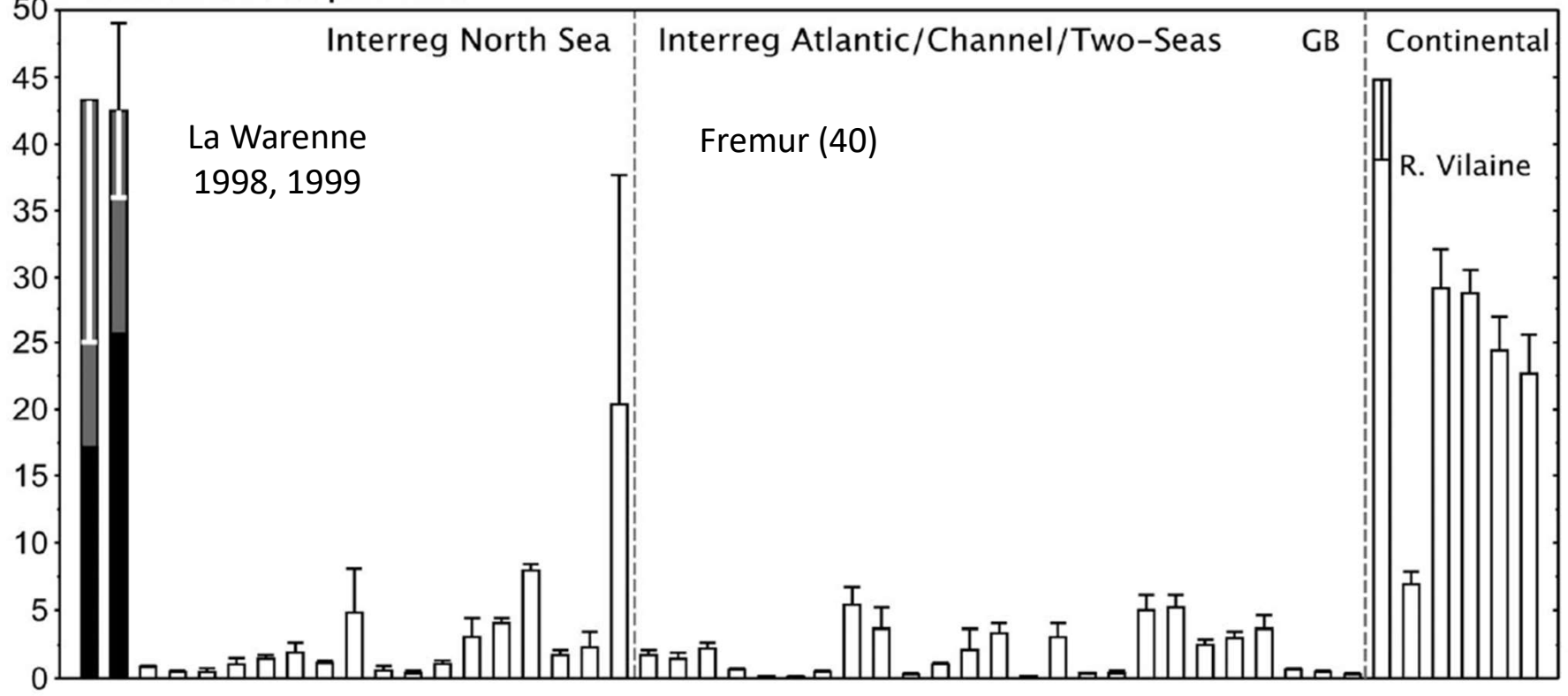


Photo of Stream

Discussing the results



Mean No. eels per 100²



LOCAL AND GLOBAL INITIA

Points for consideration

Propose:

- Small, coastal streams may be important contributors to eel
- Remember these habitats in area-based production & escapement estimates, and associated targets

Points for consideration

Clock face
marking time

?

- Consider: for eels
 - Surveys were 1998, 1999 – what about 2022 or 2030?
 - Small stream conditions are very dynamic, so long-term studies especially important
 - What is the wetted area contribution of small streams to regions?

Points for consideration

Image
representing
aquatic and
terrestrial
ecosystems

Image
representing
citizen scientists

- Consider: for small streams
 - Small & coastal streams important for other diadromous species too
 - They contribute to diversity of the habitat mosaic
 - Spatial spread and diversity in character = monitoring challenges
 - But perhaps an ideal opportunity for volunteer data collection

Concluding statement

« a better understanding of the ecosystem services benefits provided by small streams will help develop a more convincing case for devoting resources to their conservation »

IBIS/Atlantic Salmon Trust 2012



Merci

River Research and Applications

SHORT COMMUNICATION

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- To the many final-year BSc students who participated in the annual *French Field Course* in the Pas-de-Calais region in 1998 and 1999

- And, to you all for listening.