"...NO OTHER FISH STOCK WITHIN ICES AREA IS AS WIDESPREAD OR INVOLVES SO MANY FISHERMEN"

Glass eel.
Photo by Claude Belpaire.

Eels in crisis

Do you know what a snig (English) is? or un pibale (French), een talletje (Dutch), snurring (Swedish), ceca (Italian), angulas (Spain), Bundaal (Germany)? Very few readers will know the answers. Yet the eel to which all these terms refer, is found in virtually every coastal and inland water around Europe and along the Mediterranean coasts of Africa and Asia, and provides a crucial income for over 25,000 fishermen. In fact, no other fish stock within the ICES Area is as widespread or involves so many fishermen. That is, for as long as it lasts, as the eel stock is dwindling rapidly. Without better, co-ordinated assessments and an international management plan, the future looks bleak for these ocean travellers.

To understand more about why eels are in decline, let us start at the beginning of their lives.

Beginning life in the Atlantic

No one knows exactly where eels spawn, but the smallest larvae are found in the Sargasso Sea, south of Bermuda, suggesting that spawning occurs nearby. The Leptocephalus larvae drift northeast with the Gulf Stream, arriving in early winter off Southern Europe and in spring or early summer in Northern Europe.

Moving into freshwater

Once they arrive in coastal waters, the leaf-like larvae transform into typically eel-shaped, transparent juveniles called glass eels. These glass eels gather in river estuaries and wait for the river water to reach 10–12°C, before swimming upstream and migrating into inland waters. It is while they are waiting for the rivers to warm that they first become a target for fishermen. The total catch in Europe, in the early 1990s, amounted to ca. 500 t, or about 1.5 thousand million glass eels and they are caught in almost all estuaries south of 50°N.

Most of the catch is exported for aquaculture in eastern Asia with some going to European eel farms. Eel farming depends entirely on wild-caught seed material, as the eel has not been successfully bred in captivity. The remainder of the catch is used for re-stocking northern European waters and for direct human consumption. But the latter usage has strongly declined in favour of aquaculture.

Only a small percentage of the glass eels get into the rivers. Those that are fortunate enough to make it, then acquire green and brown pigments to become yellow eels.

Life in a river

Yellow eels spend between 2 and 20 years in rivers. During this time the male eels grow to an average size of 40 cm and the females to 70 cm. The record for the largest eel ever measured was 133 cm while the oldest eel that has ever been found had reached the remarkable age of 84. Eels that reach this size or age are rare as during their time in the river they are heavily targeted by fisheries that yield ca. 20,000 t (early 1990s) in the distribution area.

A European eel. Photo by Tim Martin, Nature Picture Library

"...THE FIRST PRIORITY IS TO GET THE MESSAGE ACROSS TO FISHERMEN, MANAGERS, AND POLITICIANS, THAT THE MOST WIDESPREAD AND HIGHEST EMPLOYING, SINGLE FISH STOCK IN EUROPE IS DANGEROUSLY CLOSE TO COLLAPSE"

Leptocepahlus larvae
Photo by Uwe Kils.

By Willem Dekker

Return to the sea

Those that survive their time in the river then undergo one final transformation into silver eels. During this change, the eels' backs darken, their bellies whiten (to better camouflage them in the sea) and their eyes grow bigger. They are then ready to start their last journey, back out to the Atlantic Ocean to spawn. On their way out of the rivers they are trapped and netted in a variety of traditional small-scale fisheries, yielding over 5,000 t across Europe. The escapees then leave the rivers and disappear into the vastness of the Atlantic Ocean, heading back to the as yet unknown spawning area.

ICES involvement with eels

Fascinating as the eel's biology and all its remaining mysteries may be, this is not why ICES became involved with eels. Until recently, ICES had very limited involvement, the reason being that eel fisheries were viewed as inland fisheries, under national jurisdictions. With mainly small-scale, individual fisheries scattered all over Europe and the Mediterranean coasts, and sufficient glass eels recruiting from the ocean, there was no desire to centralise fisheries management. Research focused on eel biology and fisheries development.

But then, in the mid-1980s, the situation changed dramatically. The number of new glass eels entering rivers declined to 10% of former levels and recent figures show that this has now dropped to 1% (see Figure 1). The crash happened over the whole European continent with no single, obvious cause. Suggestions for possible causes have included over-exploitation, inland habitat loss, climate and ocean current change, disease and pollution.

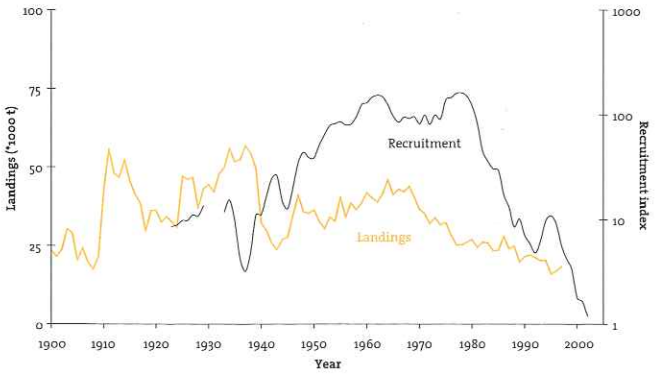
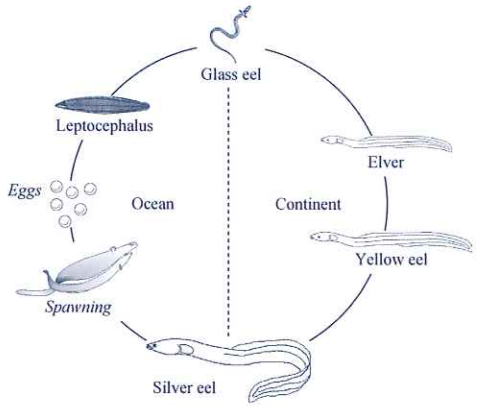


Figure 1. Estimated trends in recruitment and landings of the European eel showing the downward trend in recruitment.

Eels in crisis

Whatever the reasons for the population decline, managers are suddenly facing the need to organise urgent international management measures. For any measures to be effective the managers need to know what is happening to the eel stocks. This requires an information basis of properly co-ordinated recruitment surveys, reliable landings statistics, and assessments of the impact of exploitation and habitat loss.



The life cycle of the European eel. The names of the major life stages are indicated; spawning and eggs have never been observed in the wild and are therefore only tentatively included.

Starting without all this, the Eel Working Group (jointly organized by the European Inland Fisheries Advisory Commission of the FAO, and ICES) has collated the available data, set about filling in the data gaps and initiated the development of new management concepts for a scattered, but shared stock.

However, the first priority is to get the message across to fishermen, managers, and politicians, that the most widespread and highest employing, single fish stock in Europe is dangerously close to collapse.

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