Eel management in Sweden

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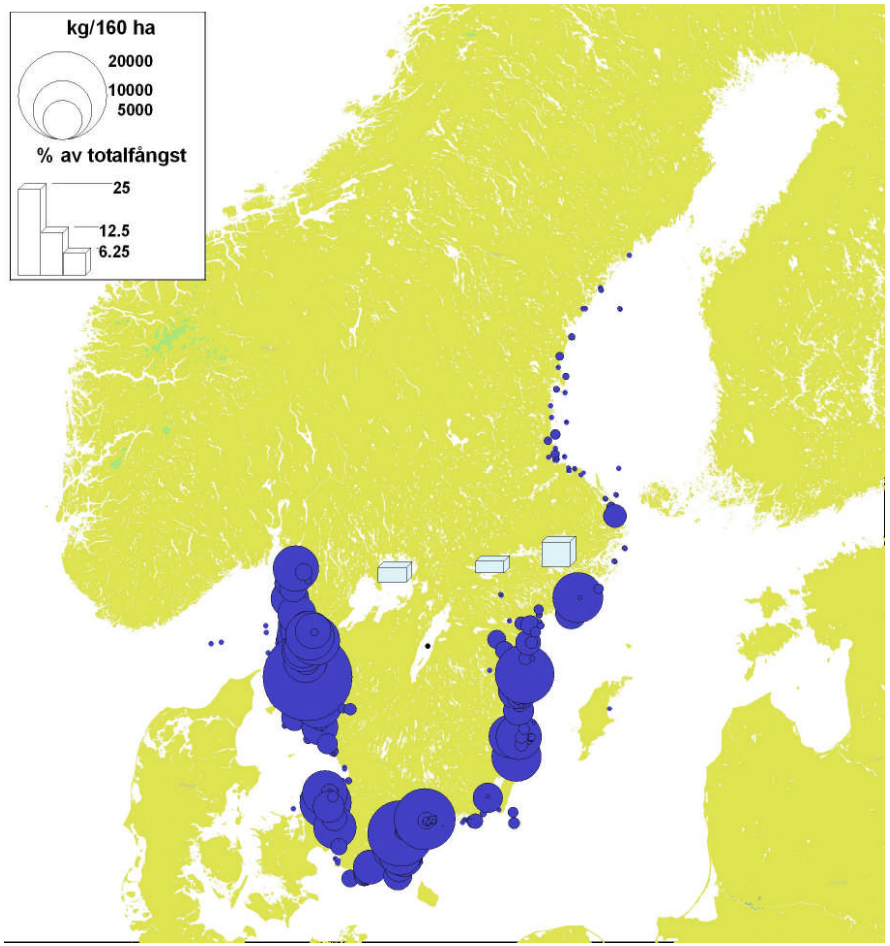
The Swedish eel fishery

- Yellow eel on the west-coast
- Silver eel in the Baltic and inland lakes
- Predominantly coastal fishery (85 % of landings)
- Commercial catch is ~500 ton, divided appr evenly between east- and west-coast
- Non-licenced catch ~250 ton, angling 30% of this



Importance

Economically eel is the 5:th most important fish species in the Swedish fishery

More than 1/3 of all fishermen fish eel to some extent

Especially valuable for the small-scale coastal and inland fishery

- Logistic advantage
- Integral part of mixed fishery, which otherwise would be unprofitable
- Low investment makes it a starting point for recruitment to the fishery

So..

Without the eel as a resource the future of small-scale fishery is bleak

Sweden has actively worked for a common management of the stock

Progress Internationally is slow

This is why Sweden is concerned!

Present regulation

Glass eel fishery forbidden

River passage may not be fully blocked by eel gear

Minimum landing size (370 mm on the West-coast, 600 on the East-coast)

Maximum number of fykes 600

Fishing season limited to april-december

Management plan

Three main areas:

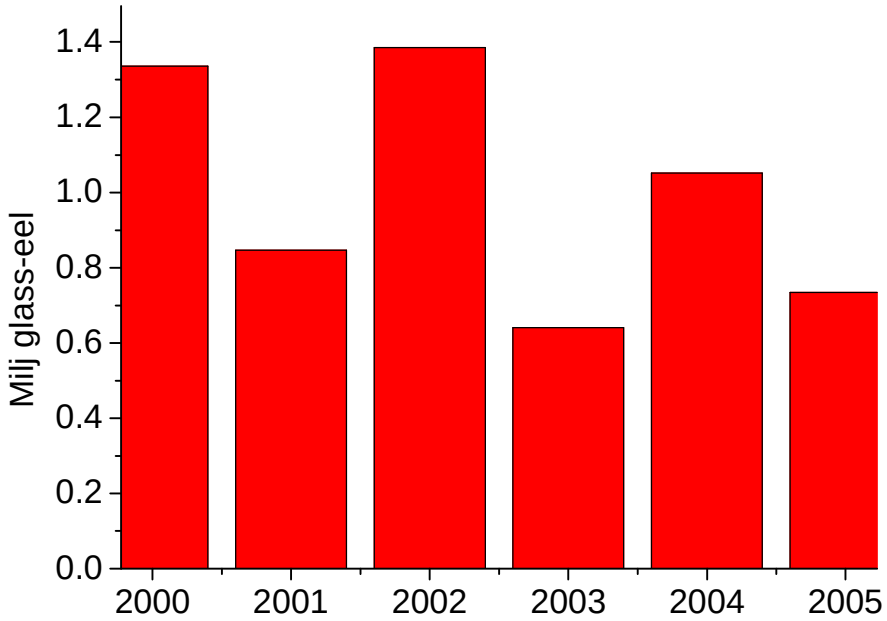
- Stocking
- Up- and downstream migration
- Fishery regulation

Stocking

A transition is made from stocking for enhancing fishery to enhancing escapement

Volume of stocking has declined due to

- Decreasing funds
- Increasing price



Conflicting views on stocking

Concerns about genetics and spreading of diseases

- New scientific results says that there is just one single stock
- Diseases still a problem that has to be observed

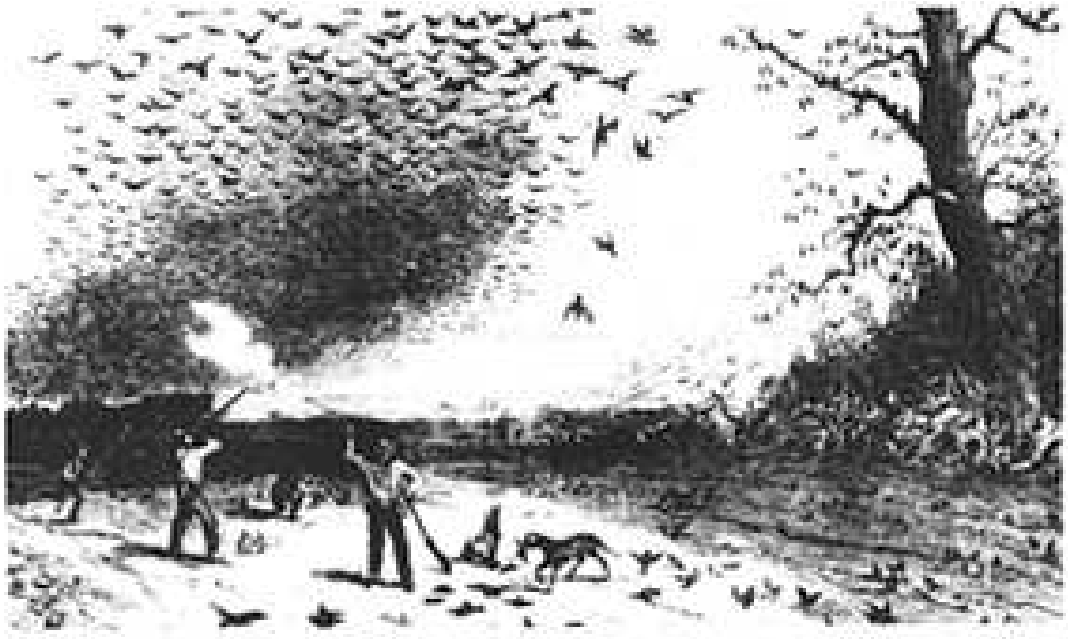
Doubts about the ability of stocked eel to navigate properly

But..

Stocking may be the only way out of a depensation trap, where the eel already is in practice extinct

The most common bird in the world

Extinct in less than 100 years



The eel problem

A single stock – no reserve populations

Loss of habitat

High, unregulated fishing pressure

Spawning behaviour requires large numbers

All factors in common with the North American passenger pigeon

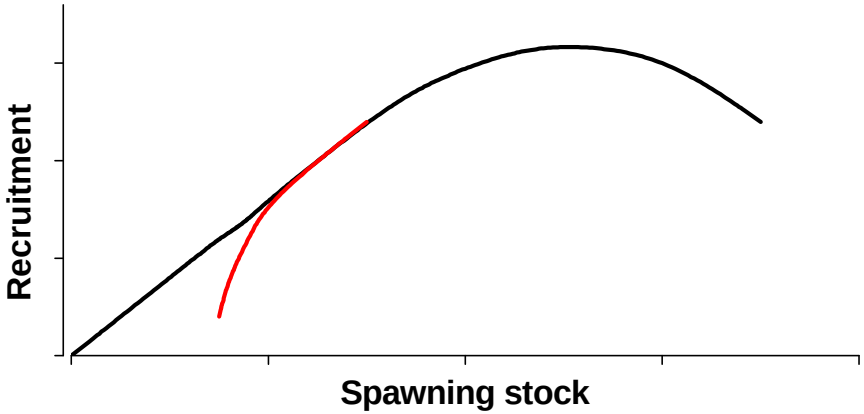
Depensation

The spawning stock which will result from today's recruitment may be below the depensation threshold even with a total ban on fishing

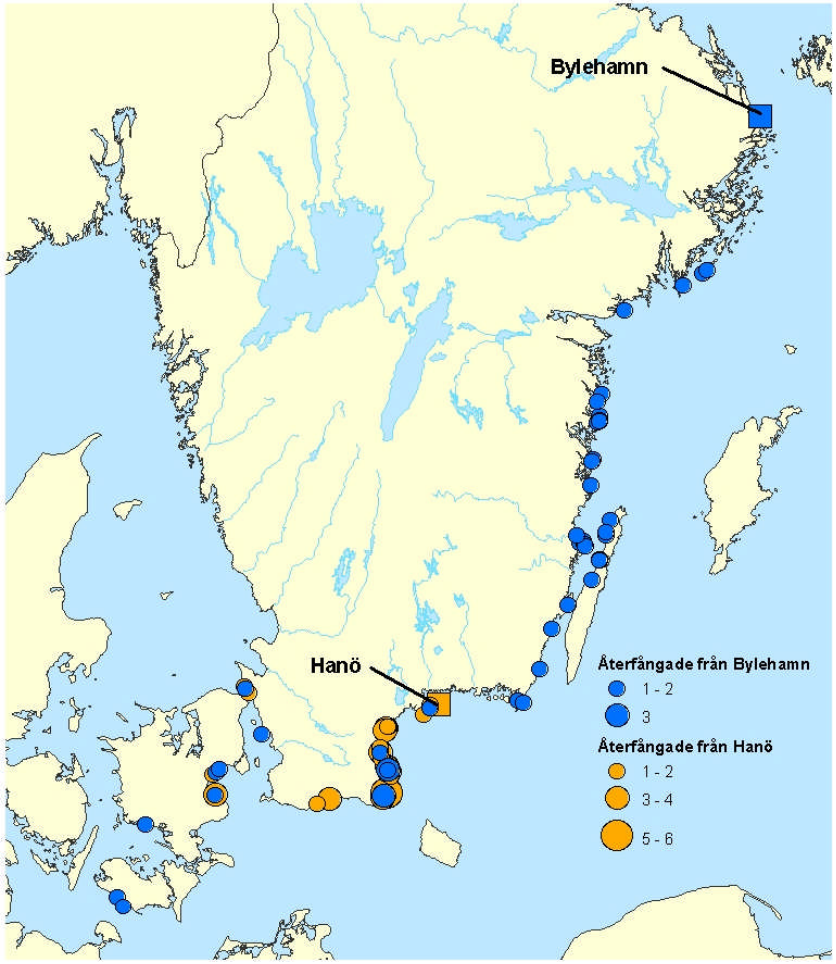
If the glass-eel recruitment ceases there is no return

Stocking may be the only measure which can prevent extinction

It is urgent, the surplus may disappear any year



Migration behaviour



Tagging studies made 2006

715 eels tagged, 251 returns

Most of recaptured eels are now analysed for origin using Sr/Ca ratio in otholithes

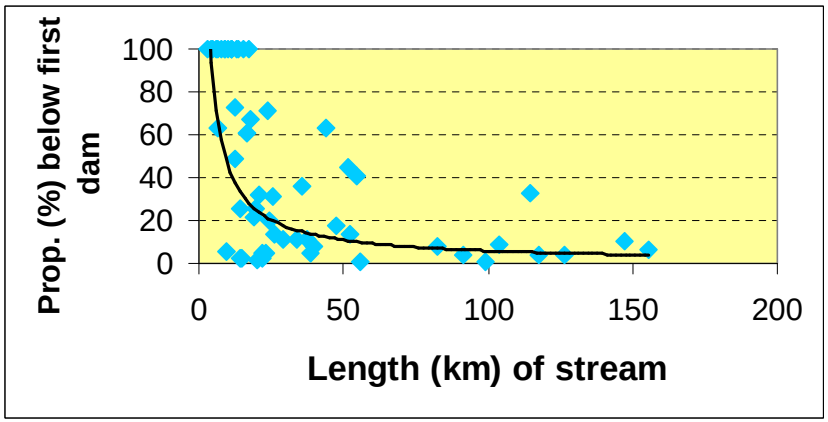
No sign of erratic behaviour in recaptures

Obstruction to migration

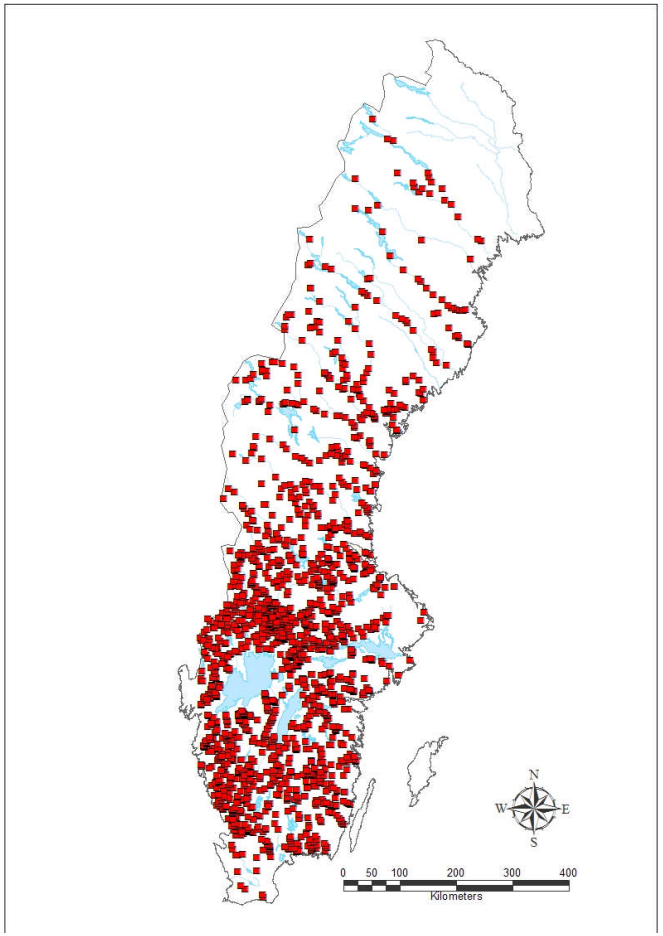
Loss of wetland for the whole area of distribution of the eel is 56 %, in Sweden the loss is ~42 % (www.ramsar.org)

In addition an increasing proportion of the remaining area is made inaccessible

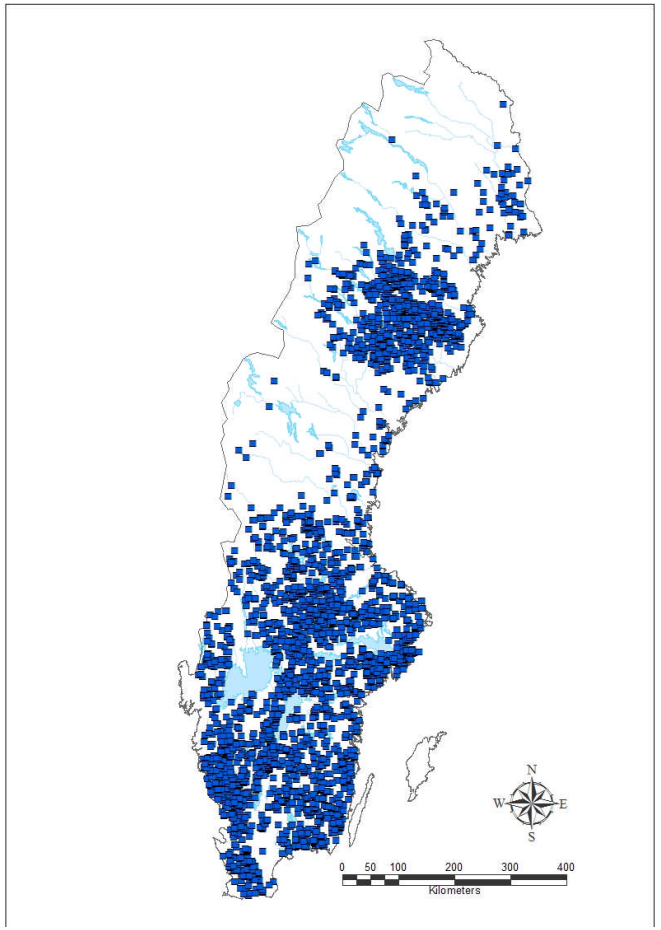
In Sweden 78 % of eel freshwater habitats is closed by dams



Dams in Sweden.(appr 5400)



Hydropower



Others

Measures to reduce mortality

Approximately 10% of dams have been visited to assess migration possibility. In all 3400 dams have been evaluated for up-and downstream passage.

Priorities are now made of where measures will give largest reduction of eel mortality

An international workshop on technical solutions for eel downstream passage will be held 2-4 May in Sweden

New fishery regulations

From 1 May 2007 all fishing of eel is prohibited in Sweden, with the following derogations

- Fishermen for whom eel is an important part of the economy can apply for a special permit to fish for eel
- In inland waters upstream of three hydropower station without facilities for downstream passage of eel fishery is allowed

Minimum landing size is increased to 400 mm on the west-coast and 650 mm on the east-coast and in inland waters

The maximum number of fyke nets is reduced to 500

What is meant by important for the fishery economy?

Fishermen who have documented a mean yearly catch of eel exceeding 400 kg during the reference period 2003-2005 can have an eel fishing permit issued by the county fishery administration

Fishermen who can demonstrate a value from their own processing of a smaller catch of eel, e.g. by smoking, which is equivalent to direct landing of 400 kg can apply and get a permit issued by the national administration

The permits are given for one year initially, pending the outcome of EU-regulations

Consequences

The overall reduction of fishery mortality by the exclusion of present fishing effort is approximately 35 %

The effects of increased minimum landing size and reduction of gears gives an additional effect of roughly 10 %

There is an offset due to increased CPUE for the remaining fishery and loss of escaped Baltic eels in the Danish fishery, which is difficult to quantify