

MEMO

To Fisheries Agency

Effect of eel regulation for 2018

From DTU Aqua

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The aim of this memo is to evaluate the effect of the 2018 eel regulation using data on actual and potential silver eel escapement (stock indicators). These data are reported by EU member states for the 2015 post evaluation of the eel regulation (ICES 2015).

Fisheries exploitation of adult eels in the marine areas has relatively little effect on the biomass of silver eel that potentially can escape to the spawning grounds in the Sargasso Sea. Other anthropogenic causes and predation together with catches of glass eels that are not restocked account for more than 70 % of the actual loss of biomass.

It is estimated that the 2018 fishing regulation for the marine commercial fisheries increases migrating of silver eels towards the spawning grounds in the Sargasso Sea, from expected 10,000 t to 10,200 t, equivalent to 2 % increase.

Stock status and management

The amount of glass eel arriving at European coasts was again in 2017 less than 10 % compared with the period 1960 - 1979 (ICES 2017).

A management framework for eel was established in 2007 through an EU Regulation. The objective of this regulation is the protection and recovery of the stock. To achieve the objective, EU member states have developed eel management plans (EMPs) for their river basin districts.

As expected, the EU eel Regulation has not yet resulted in increased recruitment of glass eels but the recruitment seem to have stabilized at a historical low level (ICES 2017). ICES advice has remained unchanged since 1999 and reads - "all anthropogenic impacts (e.g. recreational and commercial fishing on all stages, hydropower, pumping stations, and pollution) that decrease production and escapement of silver eels should be reduced to – or kept as close to – zero as possible".

Fishing regulation for 2018

The EU Council of Ministers decided to implement a limitation on commercial marine fisheries on eels exceeding 12 cm. The limitation consists of a three-month coherent closed period during 1. September 2018 - 31. January 2019. The closure does not cover freshwater fisheries or recreational fisheries.

The marine landings

The total landings in the marine fisheries in Europe (the Mediterranean, North Sea, Atlantic and Baltic Sea) were c. 800 t in 2014 (FIDES data, WKMAREEL 2017). The Danish fishermen's organization estimates that the 2018 regulation will reduce the marine landings with about 25 %. The Danish landings will thus be reduced from 250 t to 190 t and in Europe probably totally from 800 to 600 t. The regulation will increase escapement of silver eels from 10,000 t to 10,200 t, equivalent to 2 % increase.

The freshwater landings

Freshwater landings in Europe are far greater than the marine fishery about 3,700 t (ICES 2015). If all fishing in fresh and salt waters of adult eel (yellow and silver) throughout Europe ceases, the eel biomass that survives and migrates toward the Sargasso Sea, increases from 10,000 tons to 15,900 t, corresponding to an increase of 59 %.

Glass eel landings

The official glass eel landings in 2014 – 2016 were c. 60 ton. In 2016 12 t (20%) could be identified as being restocked somewhere in Europe (ICES 2016) and 48 t were exported to aquaculture, consumed directly or of unknown use. Restocking is likely to affect escapement of silver eels in local areas where they are stocked, with a time lag from glass to silver eel is 4-7 years in Southern Europe and 10-20 in Northern Europe. In the perspective of a steady state situation, this may account for 23 % biomass loss. If glass eel fisheries not stocked ceases (i.e. 48 t) the eel biomass that survives and migrates toward the Sargasso Sea, increases from 10,000 tons to 14,800 t.

Recreational landings

The total recreational landings in Europe are unknown, but an estimate shows that it is between 7 and 32 % (215 and 1,440 t) of the commercial landings in fresh- and saltwater, but there is likely an underestimate of the true recreational landings throughout Europe (ICES 2015). The upper figure of 1440 t is used in Table 1.

Other anthropogenic mortality and predation

Other anthropogenic mortality caused by industry and agriculture (damming, hydropower turbines, pumps, drainage and pollution) as well as predation from e.g. cormorants may constitute up to 49 % of the total loss. The figure includes all mortalities that are not accounted for including illegal and unreported fisheries e.g. unreported glass eel landings.

Expected escapement and loss of eel biomass after the 2018 eel regulation

The table suggests a steady state situation of eel biomass lost to fisheries and other anthropogenic causes including predation. Current potential escapement is estimated at **30,680 t** and actual escapement before the 2018 regulation **10,000 t**. (WKMAREEL, 2017)

Loss of eel biomass	Tonnes	Share (%)
Commercial landings, Marine	600	3
Commercial landings Freshwater	3,700	18
Glass eel landings (not restocked)*	4,800	23
Recreational landings	1,440	7
Other anthropogenic causes and predation	9,940	49
Total loss of biomass	20,480	100
Actual escapement	10,200	
Potential escapement	30,680	

*It is estimated that 1 kg of glass eel potentially could contribute to 100 kg adult eel biomass.

Table 1: Commercial and recreational landing of eel. Other anthropogenic causes include, damming, hydropower turbines, pumps, drainage, pollution. "Actual escapement" is the biomass of silver eel migrating towards the Sargasso Sea beyond any fishing gear.

References

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