

SPECIES INFORMATION SHEET

Zoarces viviparus

English name: Eelpout / Viviparous blenny	Scientific name: <i>Zoarces viviparus</i>	
Taxonomical group: Class: Actinopterygii Order: Perciformes Family: Zoarcidae	Species authority: Linnaeus, 1758	
Subspecies, Variations, Synonyms: –	Generation length: 6.7 years	
Past and current threats (Habitats Directive article 17 codes): Climate change (M01.01), Contaminant pollution (H03), Competition and predation (I02), By-catch (F02)	Future threats (Habitats Directive article 17 codes): Climate change (M01.01), Contaminant pollution (H03), Competition and predation (I02), By-catch (F02), Alien species (I01).	
IUCN Criteria: A2b	HELCOM Red List Category:	NT Near Threatened
Global / European IUCN Red List Category NE/NE	Habitats Directive: –	
Previous HELCOM Red List Category (2007): LC		
Protection and Red List status in HELCOM countries: Denmark –/–, Estonia –/LC, Finland –/LC, Germany –/V (Near threatened, Baltic Sea), Latvia –/–, Lithuania –/–, Poland –/–, Russia –/–, Sweden –/NT		

Distribution and status in the Baltic Sea region

Eelpout is widely distributed and reproducing in coastal areas in the whole HELCOM area. As eelpout is not one of the most important commercial fish species, the data on its population development does not cover the whole Baltic Sea. However, in two of the four Swedish surveys available significant declines of more than 50% have been observed during the last 20 years. Despite the species being commonly used for environmental monitoring, index of abundance data is not collected in other regions. Eelpout is commercially fished in Latvia and in the Russian part of the Gulf of Finland fishermen often catch it from ice when hook-fishing smelt in spring time. There are no signals about stock decline in these areas. Eelpout is common also in Estonia and Finland. In Germany it has been considered near being threatened.



Eelpout. Photo by Vivica von Vietinghoff, Deutsches Meeresmuseum.

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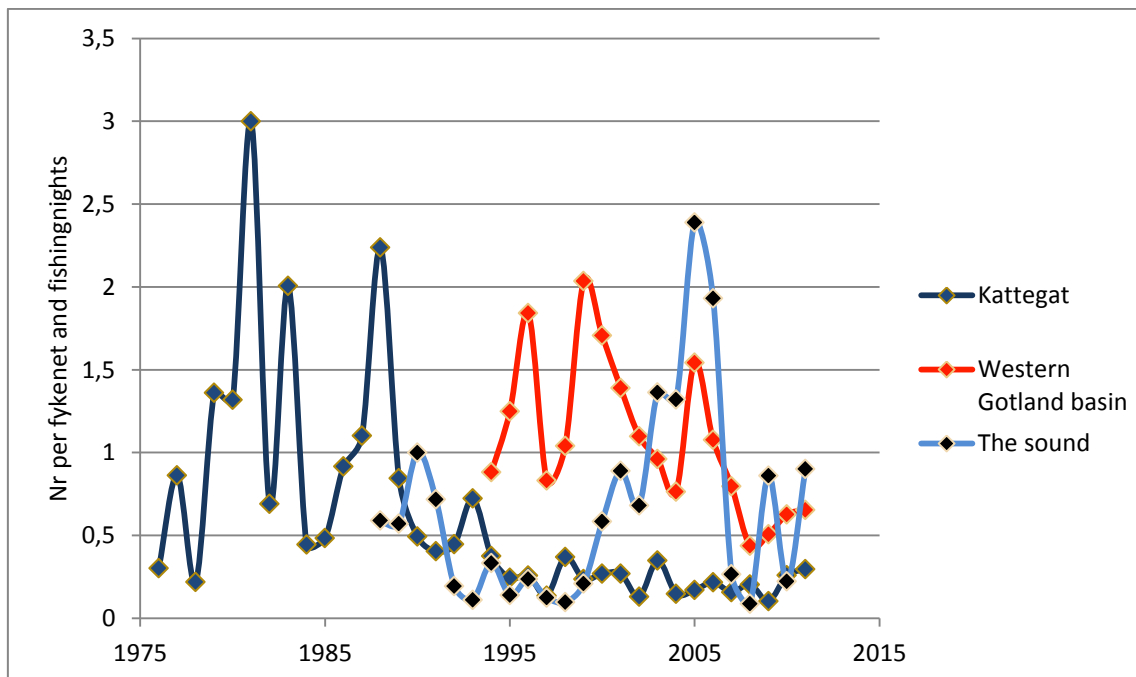
Zoarces viviparus

Fig. 1. Catch per unit effort of eelpout in different Swedish fykenet monitoring programs. The assessment period is 1991–2011.

Table 1. Mean catch per unit effort in Swedish monitoring programs during the assessment period 1991-2011. Comparison of mean level at the beginning and start of the assessment period (3 year average) and correlation coefficient and P-values from a Linear regression of Ln transformed cpue values over the assessment period.

Mean cpue (3 year average)	Kattegat	Western Gotland	The Sound	Åland Sea
Start of assessment period	0.52	1.32	0.34	10.8
End of assessment period	0.22	0.59	0.66	4.67
Relative change	-0.58	-0.55	+0.94	-0.57
R2	0.32	0.37	0.16	0.06
P	0.008	0.007	0.07	0.26

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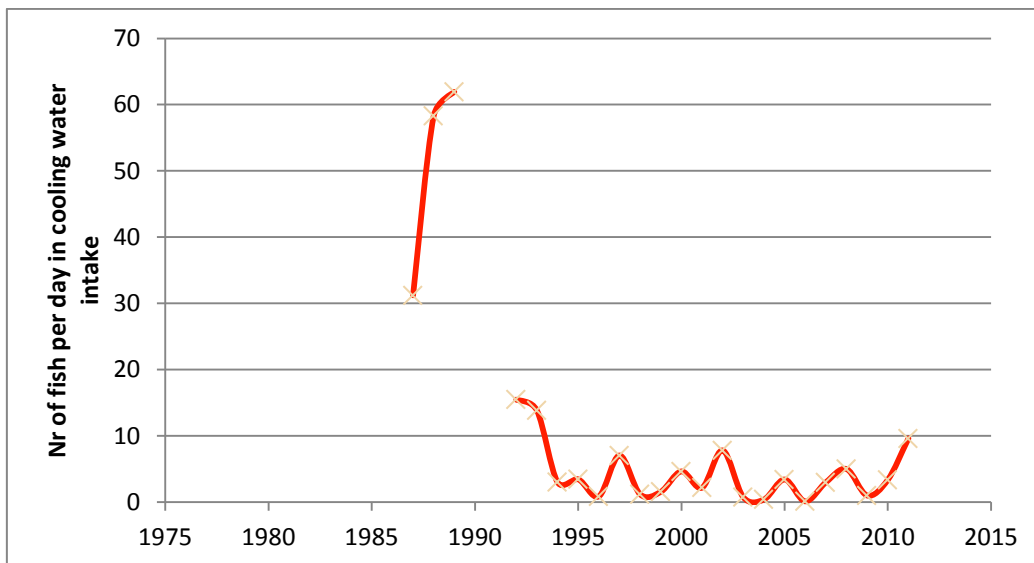
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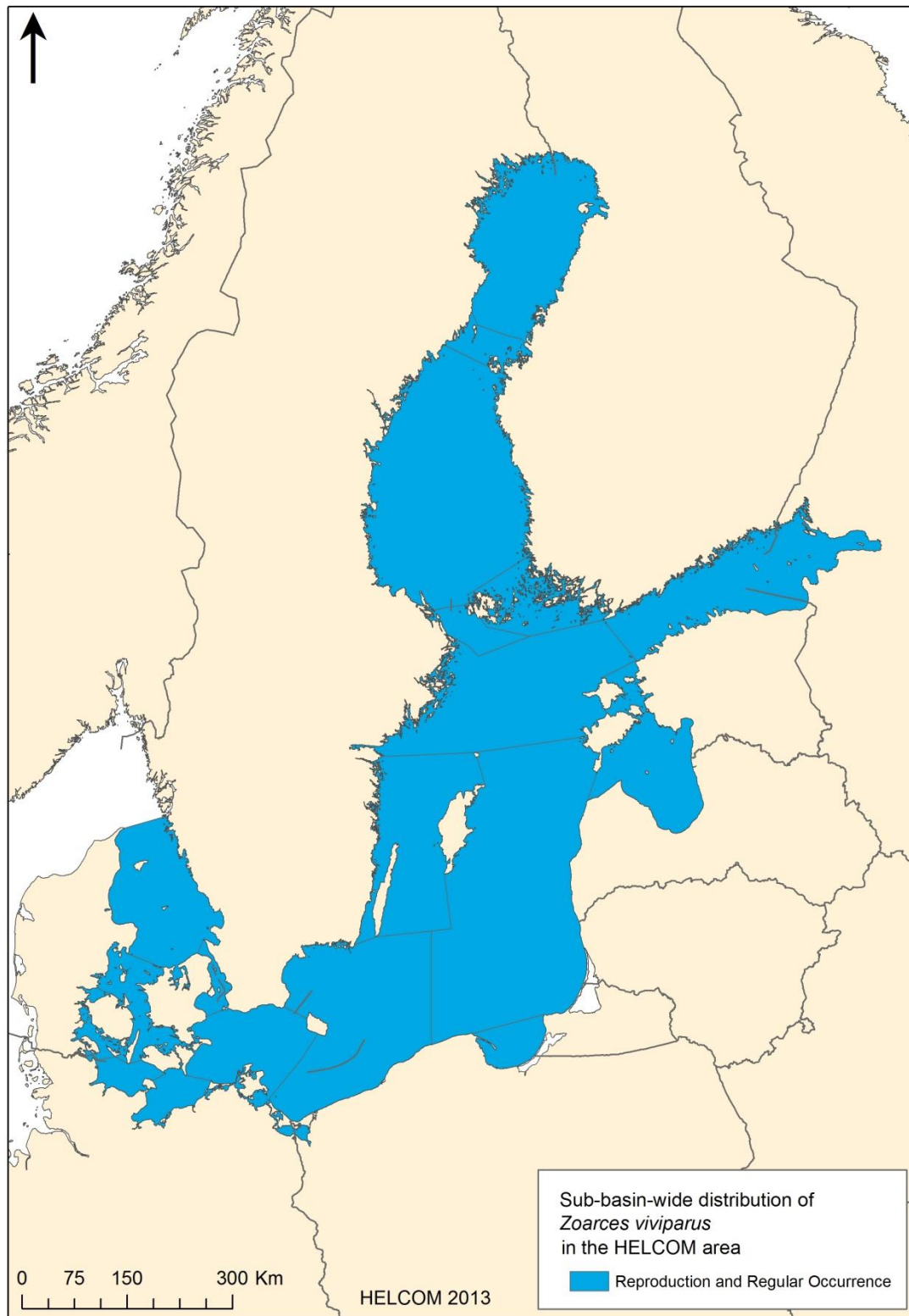
Fig.2. Trends in number of eelpouts in the cooling water intake at Forsmark nuclear powerplant in Åland Sea. No data from 1990 and 1991. The assessment period is 1991–2011.

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Distribution map

The map shows the sub-basins in the HELCOM area where the species is known to occur regularly and to reproduce (HELCOM 2012).



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Habitat and ecology

The eelpout is a widespread species in the coastal waters of the North Sea and Baltic Sea commonly occurring in shallow shores and estuaries down to 40 m depth. It is considered a cold water species and survival is lower during warm summers. Increasing temperature also results in reduced growth and fecundity. Mating takes place in August–September with internal fertilization of the eggs. Female give birth to 30–400 developed young (35–55 mm) in December–February. Due to its viviparous behavior, reproductive impairments can easily be linked to the mother fish and due to its stationary behavior it can also be linked to the environment. Therefore this species has been commonly used in environmental monitoring and toxicology studies. A recent genetic study has revealed considerable gene flow and an absence of genetic divergence on distances up to 90 km in the Baltic Sea, suggesting that migration might be more common than previously believed.

Eelpout feeds mainly on gastropods, chironomids and crustaceans, and occasionally on fish eggs and larvae. Adults range from 20 to 40 cm in size and have a life span of approximately 5–14 years. Females reach maturity at an age of 1–2 years and males already at one year. There is a differentiation in life-history traits in the Baltic Sea with more slow-growing, later maturing individuals in northern, less saline areas.

Description of major threats

The reasons for the decrease are unknown but since eelpout is a cold water species, increased water temperatures due to changed climate may affect eelpout reproduction and hasten the rate of decline. Reproductive impairment due to pollution may have serious consequences not only for individuals but also for populations. Other perceivable threats may be predation by cormorants and cod and by-catch in fishery. The invasive round goby (*Neogobius melanostomus*) could also possibly have a negative effect on the eelpout as they overlap in habitat.

Assessment justification

The data on population development of eelpout does not cover the whole Baltic Sea. However, in the Swedish monitoring (Kattegat, Sound, Western Gotland Basin, Åland Sea), two out of four areas show significant declines of more than 50%. If it is assumed that this represents the trends in the whole Baltic Sea, the eelpout could have decreased with an average of almost 30% during the last three generations. It might be argued that the decrease of eelpout is only reflecting a return to normal values due to a change to warmer climate after a cold period in the 1980s. However, one of the monitoring series, the Kattegat, goes back to 1976 and although there is a clear increase in cpue in late 1980s, the values in the late 2000s are still only 50% of the values in the beginning of the data series. This implies that the observed decline cannot be explained purely by climate-driven natural fluctuation and hence the criteria of more than 30 % decline in population size (A2b) is almost fulfilled resulting in the categorisation of eelpout as Near Threatened (NT) in the HELCOM area. The threat category is not downgraded due to immigration from outside the HELCOM area for two reasons; eelpout is considered a sedentary species and there has been a negative population development also in the Skagerrak.

Recommendations for actions to conserve the species

The reasons for the decrease are unknown but the development of the stock should be followed and surveys where data are missing should be undertaken. Investigations of the extent of bycatches in the fishery and the impact of cormorant predation are recommended as well as more comprehensive studies of the effects of climate change on eelpout populations.

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Common names

D: Aalmutter; DK: Ålekvabbe; ES: emakala; FI: Kivinilkka; GB: Checker eelpout; LI: Gyvavedè vègèlè; LV: Lucītis; PL: Węgorzyca; RU: Европеискaja bel'djuga; SE: Tånglake

References

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