

## EU request to review the list of Baltic Sea wild salmon rivers in Annex I of the EC Multiannual plan on Baltic Sea salmon

### Advice summary

ICES has reviewed the list of Baltic wild salmon rivers included in Annex I of the EC Multiannual plan on Baltic Sea salmon. Based on this review, ICES advises that two Swedish formerly potential salmon rivers (Testeboån, Kågeälven) should be included in Annex 1, and that two rivers (River Pärnu, Estonia and Nemunas river basin (Zeimena), Lithuania) should be removed.

### Request

ICES is requested to update the Annex 1 containing list of rivers with self-sustaining wild salmon populations with no or limited release of reared salmon.

Wild salmon rivers in Annex I of the EC Multiannual plan on Baltic Sea salmon.

Country/Countries	River
Finland	Simojoki
Finland/Sweden	Tornionjoki/Torneälven
Sweden	Kalixälven, Råneälven, Piteälven, Åbyälven, Byskeälven, Rickleån, Sävarån, Ume/Vindelälven, Öreälven, Lögdeälven, Emån, Mörrumsån, Ljungan
Estonia	Pärnu, Kunda, Keila, Vasalemma
Latvia	Salaca, Vitrupe, Peterupe, Irbe, Uzava, Saka
Latvia/Lithuania	Barta/Bartuva
Lithuania	Nemunas river basin (Zeimena)

### Elaboration on the advice

ICES examined the current list of wild salmon rivers in Annex 1 of the proposed EC Multiannual plan on Baltic Sea salmon (hereafter simply referred to as Annex 1) and the current ICES lists of wild and potentially wild salmon rivers in the Baltic. Two rivers are proposed to be added to Annex 1, and two removed.

Testeboån and Kågeälven rivers should be added to Annex 1. In 2013 and 2014, these formerly potential salmon rivers in Sweden were assessed as wild by ICES, as they had fulfilled the ICES criteria for wild salmon rivers (ICES, 2008). The original salmon populations became extinct in the 1960s (Testeboån) and 1870s (Kågeälven). Around 1990, reintroduction programmes were instigated in both rivers, based on releases of reared salmon (mainly fry) from neighbouring rivers. The last releases of newly hatched fry occurred in 2004 (Kågeälven) and 2006 (Testeboån). The presence of salmon parr in samples during electrofishing surveys in subsequent years demonstrated the occurrence of natural spawning. After stocking stopped, when wild-born salmon were themselves the offspring of wild-born salmon, the rivers were considered to be wild. Further details on the upgrading of status for Testeboån and Kågeälven are given in ICES (2013; 2014). None of the remaining 22 potential wild salmon rivers in the Baltic are presently considered to fulfill the criteria for having their status upgraded to wild.

River Pärnu in Estonia is listed as wild in Annex 1, but should be removed. Its salmon production has remained very low for many years, and in 2012 a restoration programme that included substantial annual releases of hatchery-reared juveniles was initiated. Therefore, this river should currently be considered as mixed (ICES, 2018). Some time after these releases are stopped, Pärnu could again be examined against the criteria for wild salmon rivers.

The Nemunas river basin (tributary Zeimena) in Lithuania is also listed as wild in Annex I. ICES has classified the entire Nemunas river basin as mixed, but has not classified the tributary Zeimena separately.

Salmon does not reproduce in the main river. Stocking occurs in the Nemunas river basin, but not in the Zeimena tributary.

ICES recommends that the Zeimena tributary should be removed from Annex 1 until further evidence is available to determine if the Zeimena tributary can be considered as a separate wild salmon river against the ICES criteria.

## Suggestions

Annex 1 of the proposed plan should be reviewed periodically to keep it up to date with scientific information and management actions. Classification of rivers is expected to change. For example, among the 13 Baltic salmon rivers currently classified as mixed by ICES, the present level of salmon releases in Estonian rivers Pirita and Väänä are close to the threshold of less than 10% reared smolt production adopted as a criterion for wild rivers (Annex 1). Hence, if stocking were further reduced or stopped, these rivers could become candidates for receiving wild status.

Some rivers with no or limited release of reared salmon show very low natural productivity, because of small river size or for other reasons. For example, salmon production in the wild river Barta/Bartuva (Latvia/Lithuania) has remained very low for many years (often no salmon at all is found when electrofishing). If further updates of Annex 1 are requested, it would be useful to determine whether the intent of the Annex 1 is to include all rivers with salmon reproduction, irrespective of their size or inherent level of productivity.

## Basis of the advice

### Background

In 2011, the European Commission (EC) tabled a proposal for a Baltic salmon management plan (EC, 2011). The objective of the proposal is *“to establish a multiannual plan for the management of the fisheries on the salmon stocks in the Baltic Sea to ensure that the conservation status of the entire Baltic stock, i.e. including all salmon rivers' stocks, is favourable and provide for sustainable exploitation. The specific objectives of the proposed plan are to ensure that:*

- a) the Baltic salmon stock is exploited in a sustainable way according to the principle of maximum sustainable yield;*
- b) the genetic integrity and diversity of the Baltic salmon stock is safeguarded.”*

For this purpose, the EC proposed conservation measures and targets for wild salmon rivers which are listed in Annex 1 of the proposal. The proposed plan has not been formally adopted.

In October 2017, the EU requested ICES to update Annex 1 that contains a list of rivers with self-sustaining wild salmon populations with no or limited release of reared salmon.

### Results and conclusions

Based on an analysis of available information relative to the criteria to classify Baltic Sea salmon, River Testeboån and Kågeälven should be added to Annex 1 and River Pärnu and Nemunas river basin (Zeimena) should be removed.

For River Testeboån, the assessment that the river should be classified as wild is based on an evaluation of the reintroduction programme that was carried out in 2013 (ICES, 2013). The available information examined in 2013 was as follows (excerpt from ICES, 2013):

- *The last releases of reared salmon (fry) were made in 2006. Assuming a smolt age of two years (based on previous age analyses of smolts from the river), and that a majority of the returning spawners have spent two years at sea, 0+ parr observed in the electrofishing in 2012 were wild-born and mainly offspring of salmon which themselves also were wild-born. This suggested that the salmon have the possibility to fulfil the whole life cycle and are able to reproduce in the wild.*
- *A fairly stable level of 0+ parr densities in years prior to the evaluation, except for 2008 when 0+ parr were absent due to a very poor spawning run in 2007, indicates that the population was self-sustaining.*

For River Kågeälven, the assessment that the river should be classified as wild is based on an evaluation of the reintroduction programme carried out in 2014 (ICES, 2014). The available information examined was as follows (excerpt from ICES, 2014):

- *The last releases of reared salmon (0+) were made in 2004. Assuming a mean smolt age of three years (based on analyses of smolt age in neighbouring rivers), and that a majority of the returning spawners have spent two years at sea, 0+ parr observed in the electrofishing in 2013 were wild-born and mainly offspring of salmon which themselves also were wild-born. This suggested that the salmon in Kågeälven have the possibility to fulfil the whole life cycle and are able to reproduce in the wild.*
- *A stable level of 0+ parr densities in years immediately previous to the evaluation indicated that the population is self-sustaining. Spawning occurs in the whole river stretch.*

For River Pärnu, the reintroduction of a restoration programme initiated in 2012 that includes substantial annual releases of hatchery-reared juveniles and that accounts for more than 10% of the smolt production, results in this river no longer meeting the criteria for classification as a wild river.

No further information is available for Nemunas river basin (tributary Zeimena).

## Methods

ICES (2008) established criteria to classify Baltic Sea salmon rivers into four different categories, based on whether the fish are of wild or reared origin and whether re-establishment is taking place. The criteria (Table 1) allow classification of Baltic Sea salmon rivers according to the categories contained in the proposed EC Multiannual plan on Baltic Sea salmon.

**Table 1** Classification criteria for wild, mixed, reared and potential salmon rivers in the Baltic Sea according to ICES (2008). Indicated in the table are the corresponding categories according to the classification system in the proposed EC Multiannual plan on Baltic Sea salmon (EC, 2011).

Category of salmon river	Management plan for the salmon stock in the river	Releases	Criteria for wild smolt production	European Commission's proposal of a multiannual plan for the Baltic salmon stock
Wild	Self-sustaining	No continuous releases	>90% of the total smolt production	Wild salmon river
Mixed	Not self-sustaining at these production levels	Releases occur	10–90% of the total smolt production	-
Reared	Not self-sustaining	Releases occur	<10% of the total smolt production	-
Potential leading to category wild	Lead to self-sustaining river stock	Releases occur during re-establishment	Long-term >90% of the wild smolt production	Potential salmon river
Potential leading to category mixed	Not self-sustaining river stock	Releases occur	Long-term 10–90% of the total smolt production	-

Under the classification scheme, the rivers are assessed based on the available information on the presence or absence of releases, the percentage of total smolt production generated from the wild, and whether or not the population may be self-sustaining.

## Sources and references

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