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| **Document title** | Compiled reporting on HELCOM Recommendation 32-33/1 |
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## Background

A request to the contacts of HELCOM Fish group to report on the Recommendation 32-33/1 Conservation of Baltic salmon and sea trout populations by the restoration of their river habitats and management of river fisheries was submitted by the Secretariat on 1 June 2022.

Input was received through word, pdf and excel format, and this document contains the compiled reporting forms of the Recommendation, as submitted by Denmark, Estonia, Germany, Poland, Finland, and Sweden, as well as the agreed follow-up of the Recommendation (Annex 7). The Excel annexes are available on this folder.

## Action requested

The Contracting Parties are invited to approve the publishing of the Recommendation 32-33/1 reporting through the HELCOM Explorer.

# Annex 1. Reporting by Denmark

**I. Salmon and sea trout populations that reproduce at a level of less than 50% of PSPC (cf. Annex 1)**

a) List all original salmon and sea trout populations that have been subject to measures for the recovery of the populations. Specify for each population what the measures have been and group them according to the main factors as follows:

1) Measures for restoring river habitats towards a salmonid habitat in good state as characterised in the Recommendation

2) Measures for improving the accessibility of the rivers including the assessments of man-made migration hindrances

3) Measures for the management of river fisheries through a participatory and open process

Denmark has no original salmon population in the Baltic Sea area.

Denmark has approximately 200 sea trout rivers in the Baltic Sea area. It is uncertain to what extent these, strictly speaking, are genetically original because of possible introgression from previous (historic) releases of reared hatchery trout strains. In this context, the sea trout populations included in Annex 2 are defined as populations with no stocking within the last approx. 10 years.

The list includes sea trout rivers and streams (including tributaries) where status was investigated during the period 2014-16 and 2017-2020, where the smolt production is estimated to be below 50% of the PSPC, irrespective of possible actions for the recovery of populations.

### *1) Measures for restoring river habitats towards a salmonid habitat in good state as characterised in the Recommendation*

The most commonly used method to support salmonid populations has been to improve the spawning possibilities by adding gravel, mostly in smaller streams. Re-meandering sections of streams that were formerly aligned for agricultural purposes has also been done in a number of streams. In some streams, culverted (piped) sections have been re-opened.

Larger projects, such as re-meandering streams and opening of culverted streams, are exclusively done by public authorities (mostly under the EU Water Directive Framework). Smaller projects (mostly local improvement of spawning possibilities) may be carried out by NGO's

Water quality is in general sufficiently good to support a trout population, but in some places, ochre (iron) is a problem. This problem is in general addressed by establishing small artificial lakes designed to remove the ochre.

### *2) Measures for improving the accessibility of the rivers including the assessments of man-made migration hindrances*

Removal of artificial barriers at dams, fish-farms and road crossings has almost exclusively been done by establishing nature-like bypasses and rapids. I.e. the barrier is changed into a rapid, which in some cases is suitable for trout spawning.

### *3) Measures for the management of river fisheries through a participatory and open process*

Sea trout fishing is regulated by law. Trout is protected by a minimum length, closed season, closed areas (especially near outlets of streams into the sea) and by restrictions in the use of fixed gears. In streams only angling takes place. In most rivers, the closed season is voluntarily prolonged, and in some rivers, a voluntary

catch restriction is implemented. Closed areas at river mouths are revised regularly, and, if these are adjusted or new areas are established this is always subject to a hearing process.

## II. Potential salmon populations and rivers

b) List potential original salmon populations (Dalälven, Iijoki, Indalsälven, Ljusnan, Luleälven, Skellefteälven or Ångermanälven) that have been subject to measures for re-establishment into their native rivers and describe the measures

Not applicable.

c) List potential salmon rivers (Kemijoki, Kymijoki or Oulujoki) that have been subject to measures for opening the migratory routes to their historical reproduction areas and describe the individual measures

Not applicable.

## III. Assessments of man-made migration hindrances for salmonids

d) Have significant migration hindrances in salmonid rivers been the subject of an assessment as provided for in the Recommendation? If yes, describe the main outcome of each individual assessment.

There are a couple of examples regarding weir removal and the effect of artificial lakes.
The effect from removal of a series of migration barriers was demonstrated in the River Villestrup Å, where the result meant a substantial increase in trout densities, smolt run and subsequently a stronger resulting spawning population.

The negative effect on sea trout populations from constructed artificial lakes created in order to reduce nitrogen load in coastal areas have been demonstrated in two specific studies (Rivers Århus Å and Egå).
The lakes resulted in high mortalities of downstream migrating smolt.

e) Have any new, permanent or temporary, migration hindrances been built that may negatively affect the accessibility of the rivers for salmonids? If yes, specify river name and type of construction.

No new migration hindrances estabished

## IV. Other actions for the implementation of the Recommendation

f) List other significant actions that have been taken for the implementation of the Recommendation. Describe the individual actions and group them according to the main factors as follows:
1) Measures for restoring river waters or habitats towards a salmonid habitat in good state as characterised in the Recommendation

Under the Danish fishing license program ("fiskepleje") several activities directed towards a.o. habitat improvement are conducted. At two annual coarses (theoretical as well as practical) NGO's are taught how to establish new or improve existing spawning grounds.
Under the same programme, advise on specific issues is provided to both public authorities and to NGO's.
Information on 'how-to-do' restauration is also available on the internet.

## 2) Measures for improving the accessibility of the rivers including the assessments of man-made migration hindrances

as described above for habitats

## 3) Measures for the management of river fisheries through a participatory and open process

as described above for habitats

# Annex 2. Reporting by Estonia

**I. Salmon and sea trout populations that reproduce at a level of less than 50% of PSPC (cf. Annex 1)**

a) List all original salmon and sea trout populations that have been subject to measures for the recovery of the populations. Specify for each population what the measures have been and group them according to the main factors as follows:

Kunda, Vasalemma, Keila, Pirita, Pühajõgi, Selja, Vääna, Valgejõgi, Purtse, Loobu, Pärnu.

1) Measures for restoring river habitats towards a salmonid habitat in good state as characterised in the Recommendation
2) Measures for improving the accessibility of the rivers including the assessments of man-made migration hindrances

River Pärnu- 2020 Sindi dam was removed and artificial rapid was created (first dam from the sea).

River Vasalemma- 2018 Vanaveski dam (first dam on the river) broke and has been passable for salmon and sea trout.

River Pirita- habitat restoration (additional gravel beds created) work was carried out in 2019-2020.

River Vääna- habitat restoration (additional gravel beds created) work was carried out in 2019-2020.

3) Measures for the management of river fisheries through a participatory and open process

Rivers Kunda, Vasalemma, Keila, Pirita, Purtse, Selja, Valgejõgi and Vääna – closed areas for fishery in the river mouths is 1000 meters radius and in 1 September to 31 October closed area is enlarged by 500 meters and closed area is total 1500 meters in radius.

**II. Potential salmon populations and rivers**

b) List potential original salmon populations (Dalälven, Iijoki, Indalsälven, Ljusnan, Luleälven, Skellefteälven or Ångermanälven) that have been subject to measures for re-establishment into their native rivers and describe the measures

c) List potential salmon rivers (Kemijoki, Kymijoki or Oulujoki) that have been subject to measures for opening the migratory routes to their historical reproduction areas and describe the individual measures

### III. Assessments of man-made migration hindrances for salmonids

d) Have significant migration hindrances in salmonid rivers been the subject of an assessment as provided for in the Recommendation? If yes, describe the main outcome of each individual assessment.

e) Have any new, permanent or temporary, migration hindrances been built that may negatively affect the accessibility of the rivers for salmonids? If yes, specify river name and type of construction.

No new migration hindrances have been built in the salmonid rivers in recent years.

### IV. Other actions for the implementation of the Recommendation

f) List other significant actions that have been taken for the implementation of the Recommendation. Describe the individual actions and group them according to the main factors as follows:

1) Measures for restoring river waters or habitats towards a salmonid habitat in good state as characterised in the Recommendation

2) Measures for improving the accessibility of the rivers including the assessments of man-made migration hindrances

3) Measures for the management of river fisheries through a participatory and open process

Fishing closure for specially licensed salmon and sea trout rod fishery in rivers Purtse, Selja, Pirita, Vääna, Loobu and Pühajõel was closed for spawning period (high peak) of 20. Oct-30. Nov. to enhance spawning success in rivers where natural reproduction takes place. River Pärnu salmon and sea trout fishing is prohibited all-round the year.

# Annex 3. Reporting by Germany

All questions are answered separately for each of the two Federal States that border the Baltic Sea: Mecklenburg-Vorpommern (MV) and Schleswig-Holstein (SH).

## I. Salmon and sea trout populations that reproduce at a level of less than 50% of PSPC (cf. Annex 1)

### a) List all original salmon and sea trout populations that have been subject to measures for the recovery of the populations

Mecklenburg-Vorpommern:

There are no original salmon populations in the Mecklenburg-Vorpommern part of the German Baltic Sea catchment area.

The only designated salmonid waters according to the Directive 78/659/EWG on the quality of fresh waters needing protection or improvement in order to support fish life was Beke river.

Natural sea trout reproduction takes place in at 60 rivers in Mecklenburg-Vorpommern (Table 1), whether these are still the original populations cannot be confirmed at the moment. Many sea trout rivers are stocked to re-introduce and support the sea trout populations.

*Table 1: List of water bodies in Mecklenburg-Vorpommern with natural sea trout reproduction*

| River / Water body | Planning Unit / Water System |
|---|---|
| Althöfer Bach | Warnow/Peene - Küstengebiet West |
| Bach aus Parchow | Warnow/Peene - Küstengebiet West |
| Bach aus Ravensberg | Warnow/Peene - Küstengebiet West |
| Bach aus Zierow | Warnow/Peene - Küstengebiet West |
| Beke | Warnow/Peene - Warnow |
| Blowatzer Bach | Warnow/Peene - Küstengebiet West |
| Bollhäger Fließ | Warnow/Peene - Küstengebiet West |
| Brüeler Bach | Warnow/Peene - Warnow |
| Carbäck | Warnow/Peene - Warnow |
| Damshäger Bach | Warnow/Peene - Küstengebiet West |
| Farpener Bach/Fauler Bach | Warnow/Peene - Küstengebiet West |
| Gätenbach | Warnow/Peene - Peene |
| Goldbach | Warnow/Peene - Peene |
| Göwe | Warnow/Peene - Warnow |
| Graben aus Ahrendsee | Warnow/Peene - Küstengebiet Ost |
| Graben aus Thorstorf | Warnow/Peene - Küstengebiet West |
| Hanshagener Bach | Warnow/Peene - Küstengebiet Ost |
| Haubach | Warnow/Peene - Küstengebiet Ost |
| Hellbach | Warnow/Peene - Küstengebiet West |

| | |
|---|---|
| Hohensprenzer Mühlbach | Warnow/Peene - Warnow |
| Holmbacher Graben | Schlei/Trave - Stepenitz |
| Katzbach | Warnow/Peene - Küstengebiet West |
| Klaasbach | Warnow/Peene - Warnow |
| Klützer Bach | Warnow/Peene - Küstengebiet West |
| Köppernitz | Warnow/Peene - Küstengebiet West |
| Körkwitzer Bach | Warnow/Peene - Küstengebiet Ost |
| Korleputer Mühlbach | Warnow/Peene - Küstengebiet Ost |
| Kösterbeck | Warnow/Peene - Warnow |
| Lößnitz | Warnow/Peene - Warnow |
| Malliner Wasser | Warnow/Peene - Peene |
| Maurine | Schlei/Trave - Stepenitz |
| Mechelsdorfer Bach | Warnow/Peene - Küstengebiet West |
| Mildenitz | Warnow/Peene - Warnow |
| Moltenower Bach | Warnow/Peene - Warnow |
| Mühlenbach(Strelasund) | Warnow/Peene - Küstengebiet Ost |
| Mühlenfließ | Warnow/Peene - Küstengebiet West |
| Nebel | Warnow/Peene - Warnow |
| Panzower Bach | Warnow/Peene - Küstengebiet West |
| Peezer Bach | Warnow/Peene - Warnow |
| Poischower Mühlbach | Schlei/Trave - Stepenitz |
| Radebach | Warnow/Peene - Warnow |
| Radegast | Schlei/Trave - Stepenitz |
| Randkanal | Warnow/Peene - Küstengebiet West |
| Recknitz | Warnow/Peene - Küstengebiet Ost |
| Rotbäk | Warnow/Peene - Küstengebiet West |
| Schwinge | Warnow/Peene - Peene |
| Sehrowbach | Warnow/Peene - Küstengebiet Ost |
| Stepenitz | Schlei/Trave - Stepenitz |
| Strasburger Mühlbach | Stettiner Haff |
| Swinow | Warnow/Peene - Peene |
| Tarnewitzer Bach | Warnow/Peene - Küstengebiet West |
| Teetzlebener Mühlenbach | Warnow/Peene - Peene |
| Teppnitzbach | Warnow/Peene - Warnow |

| | |
|---|---|
| Tesssenitz | Warnow/Peene - Warnow |
| Tribohmer Bach | Warnow/Peene - Küstengebiet Ost |
| Waidbach | Warnow/Peene - Warnow |
| Wallensteingraben | Warnow/Peene - Küstengebiet West |
| Warnow | Warnow/Peene - Warnow |
| Westpeene | Warnow/Peene - Peene |
| Zarnow | Warnow/Peene - Warnow |
| Zierower Bach | Warnow/Peene - Küstengebiet West |

Sea trout is being stocked in about 30 sea trout rivers, including some of the rivers with natural reproduction. Stocking started in 1992 in Hellbach river as a pilot study. Broodlings came from nearby Beke river and from Schleswig-Holstein rivers. It is uncertain whether there was a viable original population left in Hellbach river when stocking started. Stocking was carried out until 1999. The pilot study was successful – the Hellbach river system has now become the most important sea trout spawning area in our part of the Bay of Mecklenburg catchment area. Year for year about 1,000 – 2,500 spawners are migrating up into the Hellbach system for natural reproduction. Because of this success, a stocking programme was initiated in 2002, now covering 30 rivers and brooks. About 300.000 – 600.000 sea trout broodlings originating from spawners in Hellbach and Beke rivers are released per year.

In addition to the stocking programme, a project to assess the annual spawner stock in selected spawning rivers is running since 2011. A model was developed to assist the stock assessment programme. In 2018, a video surveillance device will be deployed at the Wismar meander fish path to facilitate counting in the spawning season. The sea trout stock assessment project aims at establishing a stock monitoring system covering the whole coastal region of Mecklenburg-Vorpommern by 2023.

Management measures focus on improving the accessibility for migrating species and improving the overall ecological status (structure of river bed, water quality).

Schleswig Holstein:

In Schleswig-Holstein's fisheries administration, salmonid stocks are assessed on the basis of the Parr Habitat Index (PHI), which was established as the standard in the Baltic Sea region by the ICES Working Group on Baltic Salmon and Trout (WGBAST). Calculations regarding the "Potential smolt production capacity" (PSPC) are not available and a possibility of converting PSPC into PHI is not known, therefore the question cannot be answered directly.

A list water bodies that have been reported to ICES as sea trout population waters, for which PHI calculations are available, is included (Table 2). Some of the water bodies flow directly into the Baltic Sea, others flow into larger systems such as the Trave. Naming of populations cannot be answered unequivocally without defining clear criteria for designating a population for the PSPC.

*Table 2: Water Bodies with sea trout populations in Schleswig Holstein*

| Water system | River / Water body | PHI |
|---|---|---|
| Schwentine | Alte Schwentine / Kührener Au UL | 5 |
| Trave | Barnitz | 8 |
| Trave | Beste | 7 |
| Schlei | Birkenmoorgraben | 6 |

| | | |
|---|---|---|
| Trave | Brandsau | 9 |
| Trave | Buurdieksgraben | 6 |
| Trave | Curau | 7 |
| Schlei | Dingwatter Au | 9 |
| Schlei | Ekeberger Au | 6 |
| Ostsee | Esgruser Mühlenstrom | 7 |
| Ostsee | Farver Au | 10 |
| Trave | Faule Trave | 5 |
| Schlei | Flaruper Au | 7 |
| Ostsee | Goddestorfer Au | 8 |
| Ostsee | Gösebek | 4 |
| Schlei | Grimsau | 8 |
| Trave | Grinau | 8 |
| Schlei | Große Hüttener Au | 8 |
| Schlai | Große Schierbek | 10 |
| Ostsee | Haberniser Au | 6 |
| Ostsee | Hagener Au | 8 |
| Trave | Haisterbek | 7 |
| Trave | Heilsau | 7 |
| Trave | Hohler Bach | 8 |
| Ostsee | Johannisbek | 7 |
| Schwentine | Kiebitzbek | 8 |
| Ostsee | Kobek | 9 |
| Schlei | Koseler Au | 7 |
| Ostsee | Kossau | 8 |
| Ostsee | Kremper Au | 9 |
| Schlei | Kriesebyau | 8 |
| Ostsee | Kronsbek - Aschau | 9 |
| Ostsee | Krusau | 7 |
| Ostsee | Lachsbach | 9 |
| Trave | Landsgraben | 9 |
| Ostsee | Langballigau | 8 |
| Ostsee | Lehbekerau | 7 |
| Schlei | Lindau | 9 |
| Ostsee | Lippingau | 7 |
| Schlei | Loiter Au | 7 |
| Ostsee | Lübscher Mühlenbach | 7 |
| Schwentine | Malenter Au | 8 |
| Ostsee | Mühlenau I | 8 |
| Ostsee | Mühlenau, Flaßlandbek, Schmiedenau | 9 |
| Ostsee | Mühlenau, Mühlenbach | 8 |
| Ostsee | Mühlenbach | 5 |
| Ostsee | Mühlenstrom | 8 |
| Schlei | Osterbek | 8 |
| Schlei | Oxbek | 8 |
| Trave | Pilkenbek | 9 |

| | | |
|---|---|---|
| Trave | Pulverbek | 7 |
| Trave | Ritzerauer Mühlenbach | 8 |
| Ostsee | Salzau | 8 |
| Trave | Schwartau | 6 |
| Ostsee | Schwastrumer Au | 9 |
| Ostsee | Schwennau | 8 |
| Schwentine | Schwentine | 6 |
| Schlei | Selker Mühlenbach | 8 |
| Trave | Steinau/bei Nusse | 8 |
| Ostsee | Stenderuper Au | 5 |
| Trave | Süderbeste | 5 |
| Trave | Tegelbek/Twisselbek | 5 |
| Schwentine | Tensfelder Au | 7 |
| Ostsee | Testorfer Au | 8 |
| Trave | Trave | 6 |
| Trave | Twisselbek | 5 |
| Ostsee | Vorfluter Kronstrang | 6 |
| Schlei | Wellspanger Au | 6 |

## 1) Measures for restoring river habitats towards a salmonid habitat in good state as characterised in the Recommendation

Mecklenburg-Vorpommern:

Since 2006, efforts to re-establish good environmental status in rivers in Mecklenburg-Vorpommern have increased considerably because in addition to restoration projects for purposes of nature conservation, the WFD requirements regarding the ecological status of surface waters triggered a lot of river restoration projects. These also included sea trout rivers. In cooperation between WFD and HBD implementation, measures were planned to support sea trout reproduction. These measures usually aim at (re-)installing gravel beds and increasing the general quality and variability of the river bed. For example, boulders and other structural elements (e.g. tree trunks) were deposited in addition to gravel to support the river's own dynamic development. Sometimes, gravel deposition was focusing on the bottom below bridges in order not to change the natural river type too much (e.g. in rivers of the organic type).

Schleswig-Holstein:

No systematic information is available.

## 2) Measures for improving the accessibility of the rivers including the assessments of man-made migration hindrances

Mecklenburg-Vorpommern:

In 2006, a priority concept[1] for the removal of fish migration obstacles was elaborated in a joint effort of experts representing water management, nature protection and fisheries management in Mecklenburg-Vorpommern. All fish migration obstacles were listed and ranked with regard to need for removal. Several criteria were considered for priorization, among them priority species like sea trout, priority migration

[1] https://www.wrrl-mv.de/static/WRRL/Dateien/Dokumente/Service/Dokumente/2006_mv_prio_konzept_dgk.pdf

routes and potential for recolonization. This resulted in a total number of 546 migration obstacles to be tackled (Baltic and North Sea catchment taken together). Between 2006 and 2012, abt. 18 % of these have been removed, and out of these abt. 25 % had been assessed as being of very high, high or medium priority. In 2021[2], the concept was updated the second time based on increased knowledge regarding fish populations in our waters and technical issues. Until now over 200 migration obstacles have been removed in sea trout rivers. Among these are for example the fishway Lüssow built in 2015 to re-connect the Nebel river system with Warnow river and the meander fish pass in Wismar, enabling salmonids and other fish to migrate into Wallensteingraben which is connecting Lake Schwerin with the Baltic Sea.

Schleswig-Holstein:

No systematic information is available.

### 3) Measures for the management of river fisheries through a participatory and open process

Mecklenburg-Vorpommern:

Sea trout fishing in Mecklenburg-Vorpommern is regulated by law. No fishing is allowed during spawning season (inland waters: 01. September to 31. March, coastal waters: 15. September to 14. December). There are additional regulations regarding the fishing technique, the minimum size and the maximum number of salmonids to be caught per person and day (e.g. in salmonid rivers which fall under the responsibility of the Angler's Association (Landesanglerverband) Mecklenburg-Vorpommern).

Schleswig-Holstein:

On the one hand, the basic fisheries law and regulations apply (LFischG – State Fisheries Act, BiFVO – Inland Fisheries Ordinance, KüFVO – Costal Fisheries Ordinance). On the other hand, reference is made here to the funding program "Fischhorizonte" (Fish Horizons). This program offers extensive opportunities for those subject to conservation obligations and those authorized to fish to cooperate and participate. Worth mentioning is the considerable voluntary commitment observed with regard to catching spawning fish, hatching and stocking.

## II. Potential salmon populations and rivers

### b) List potential original salmon populations that have been subject to measures for re-establishment into their native rivers and describe the measures.

Mecklenburg-Vorpommern:

There are no original salmon populations in the Mecklenburg-Vorpommern part of the German Baltic Sea catchment area.

Schleswig-Holstein:

According to the current German Red List, the status of salmon in Schleswig-Holstein is unknown. It is assumed for the catchment area of the Baltic Sea that there were autochthonous populations in the Trave and a tributary to the Schlei, another potentially original spawning area (Lachsbach) flows directly into the Baltic Sea. Due to the risk of possible confusion with the sea trout, however, corresponding information from historical sources can also be incorrect. It can primarily be assumed that sea trout will colonize the entire area.

[2] https://www.wrrl-mv.de/static/WRRL/Dateien/Dokumente/Service/Dokumente/2021_Prio_konzept_inkl_Anhaenge_bf.pdf

In the Trave there has been conducted a reintroduction project (restocking), which was terminated several years ago due to a lack of sustainable success. Currently there is stocking of smolt taking place near the river mouth.

### c) List potential salmon rivers that have been subject to measures for opening the migratory routes to their historical reproduction areas and describe the individual measures.

Mecklenburg-Vorpommern:

No historical salmon reproduction areas known in the Mecklenburg-Vorpommern part of the Baltic Sea catchment area.

Schleswig-Holstein:

No systematic information is available.

## III. Assessment of man-made hindrances for salmonids

### d) Have significant migration hindrances in salmonid rivers been the subject of an assessment as provided for in the Recommendation? If yes, describe the main outcome of each assessment.

Mecklenburg-Vorpommern:

Yes, all migration obstacles were assessed in terms of their priority for removal (priority concept 2006, updated 2013 and 2021). Sea trout was one of the priority species. The assessment covered all rivers with a catchment area of at least 10 km2 in Mecklenburg-Vorpommern. A specific overview of migration obstacles in salmonid rivers is available in a WFD information system (FIS WRRL). In addition to the priority concept for removal of migration obstacles, a programme for controlling the proper functioning of fishways was launched, based on a report of the status quo and assisted by a manual for the assessment of fishway functioning (efficiency controls).

Schleswig-Holstein:

No systematic information is available.

### e) Have any new, permanent or temporary, migration hindrances been built that may negatively affect the accessibility of rivers for salmonids? If yes, specify river name and type of construction.

Mecklenburg-Vorpommern:

No

Schleswig-Holstein:

No systematic information is available. According to the best of our knowledge, no new obstacles have been erected.

## IV. Other actions for the implementation of the Recommendation

### f) List other significant actions that have been taken for the implementation of the Recommendation. Describe the individual actions and goup them according to the main factors as follows:

1. Measures for restoring river waters or habitats towards a salmonid habitat in a good state as characterized in the Recommendation

See above

2. Measures for improving the accessibility of the rivers including the asessments of man-made migration hindrances

See above

3. Measures for the management of river fisheries through participatory and open process

See above

Schleswig-Holstein:
The reintroduction of salmon is part of the biodiversity strategy of the Federal State of SH. The implementation was previously not possible due to a lack of resources.

# Annex 4. Reporting by Poland

**I. Salmon and sea trout populations that reproduce at a level of less than 50% of PSPC (cf. Annex 1)**

a) List all original salmon and sea trout populations that have been subject to measures for the recovery of the populations. Specify for each population what the measures have been and group them according to the main factors as follows:

1) Measures for restoring river habitats towards a salmonid habitat in good state as characterised in the Recommendation

2) Measures for improving the accessibility of the rivers including the assessments of man-made migration hindrances

3) Measures for the management of river fisheries through a participatory and open process

No original salmon population in Polish rivers. All native salmon population have become extinct in last century. The self-reproducing salmon population is currently only found in the Słupia River. Its condition has been monitored since 2009 by annual parr catches (WGBAST 2021). Genetic analyses have shown that these population come from the Latvian line (Daugava River), which is used for stocking in Poland. In addition, in recent years, parr from natural spawning were also caught in the Drawa River (Odra basin) and Łupawa River (Pomerania region), but the situation requires further observations and longer series of catches.

Sea trout populations are present in the Pomerania rivers and some tributaries of the Odra and Vistula rivers. Overall, naturally reproduced sea trout are found at least in 26 rivers, mainly in Pomeranian rivers (twelve) but also in the Vistula (six) and Odra (six) systems (including the main rivers). All Polish sea trout populations are mixed due to supplemental stocking since many years. Polish populations of sea trout from Pomeranian rivers are unique in the Baltic Sea in terms of population size. In rivers such as Rega, Parsęta or Słupia, several thousand fish goes to spawn annually (WGBAST 2021). Detailed descriptions of rivers and populations can be found in the Polish HELCOM national report (https://helcom.fi/wp-content/uploads/2019/08/BSEP126B-PL.pdf) and the assessment results are published in the annual ICES/WGBAST reports (https: / /ices-library.figshare.com/articles/report/Baltic_Salmon_and_Trout_Assessment_Working_Group_WGBAST_/18619151).

Habitat restoration measures and measures for improving the accessibility:

Ad 1) and 2) As part of the LIFE Drawa project (Project LIFE13 NAT/PL/000009 LIFEDrawaPL), the construction or modernization of several fish passes was completed: on the Drawa River at EW Kamienna, in Drawsko Pomorskie and in Borów, as well as on the left-bank tributary of the Drawa on the Korytnica River in Jaźwiny and Sówka. The post-completion RFID telemetry monitoring showed high efficiency of fish passes. Artificial spawning grounds were also made as part of the project and the old spawning grounds were refreshed. The data from the fish counter at the Kamienna HP showed that in recent years there have been spawning salmon in the fish pass (several to several dozen). Natural spawning parr were also found.
(http://drawalifeplus.rdos.szczecin.pl/en/life-project/).
In the Pomeranian region, an important change is the launch of a fish pass on the Łupawa River at the HP in Smołdzino (2020 year). Also restoration of several tributaries of Parsęta River were finished.

Measures for the management of river fisheries through a participatory and open process

Ad 3) **Local rules are developed in an open and participatory process together with Polish Angling Association, scientists, and local NGOs.** In many cases local NGOs are active in order to protect rivers against poaching, pollution, they protect and monitor spawning sites of sea trout and salmon. Fisheries regulations are also established to protect natural population of salmon and sea trout in rivers.

**Protection areas for salmonids of Fisheries Angling Association in Szczecin (angling ban):** the Krąpiel river (Ina tributary), the Gowienica (at some river sections) the Rega tributaries: Łoźnica, Brzezinka, Węgorza, Gardominka, Sąpólna, Lubieszowa, Ukleja, Piaskowa, Mołostowa and her two tributaries Brodziec and Wkra. Also the Słubia, Tywa and the Wołczenica rivers.

**Protection areas for salmonids of Fisheries Angling Association in Slupsk (angling ban):** the Słupia tributaries: Kwacza and Gnilna. Next protection area is being set on rivers: Kamienna, Zelkowa Struga, Glaźna, Ciek Kawienie, Ryczewski Strumyk, and two protection areas are being set on the Skotawa river.

**Protection areas for salmonids of Fisheries Angling Association in Gdańsk (angling ban):** the Kłodawa river (Motława River tributary), Styna and Czerwona Struga (Kłodawa River tributaries), the Radunia River (at some river sections), Reknica (Radunia tributary), some sections of Zagórska Struga, Reda, Czarna Woda, Piaśnica and Cedron rivers.

**Association of Towns and Communes of the Parsęta River Basin introduced the following restrictions on the fishing of Salmonids:** from October 1 to December 31, there is a total ban on spinning on the entire fishing circuit, except for the Pyszka Pool, the Drzewny Channel, dam reservoirs on the Wogra River and in the oxbow lakes and other standing reservoirs . Fishing is allowed up to one hour after dusk and before dawn. Salmon is absolutely prohibited from taking caught fish (only catch and release) . The following quantitative limits for fish to be taken from the fisheries are introduced (during the day, from 0.00 to 24.00): sea trout - 2 pcs. The following protective dimensions of fish apply: sea trout up to 50 cm and from 90 cm in August and September. In matters not covered by these regulations, the provisions of generally applicable law shall apply, in particular: - The Act on inland fishing, Regulation of the Minister of Agriculture and Rural Development on catching fish and the conditions of farming, breeding and catching other organisms living in water, The Environmental Protection Law and the Act on nature protection - and the provisions of local law in force in the area of a given fishing district.

**II. Potential salmon populations and rivers**

b) List potential original salmon populations (Dalälven, Iijoki, Indalsälven, Ljusnan, Luleälven, Skellefteälven or Ångermanälven) that have been subject to measures for re-establishment into their native rivers and describe the measures

**Not applicable**

c) List potential salmon rivers (Kemijoki, Kymijoki or Oulujoki) that have been subject to measures for opening the migratory routes to their historical reproduction areas and describe the individual measures

**Not applicable**

**III. Assessments of man-made migration hindrances for salmonids**

d) Have significant migration hindrances in salmonid rivers been the subject of an assessment as provided for in the Recommendation? If yes, describe the main outcome of each individual assessment.

In every assessment of the population status of sea trout and salmon, for instance for such ICES working groups as WGBAST or WGTRUTTA, or other scientific studies, impact of man-made hindrances are always taken into account to some extent. Such assessments are done especially when building fish passes or in other river restoration activities. Several scientific studies have been done in order to assess historical distribution of migratory fish species and effectiveness of fish ways (including scientific studies, projects such as AMBER), as well as studies done in a framework of cooperation between scientific institutes such as Inland Fisheries Institute and WWF. Also there was quite a comprehensive assessment done on needs and priorities concerning removing of the hindrances in a perspective of achieving good status of Polish waters (under Water Framework Directive) http://www.poznan.rzgw.gov.pl/aktualnosci/187-ocena-potrzeb-i-priorytetow-udronienia-cigoci-morfologicznej-rzek-w-kontekcie-osignicia-dobrego-stanu-i-potencjau-czci-wod-w-polsce

**All these assessments and studies may not be as comprehensive as it is required under HELCOM Recommendation 32-33/1.** However, a comprehensive assessment may not be possible as most important hindrances were built in Poland in the beginning of XX century and the full assessment of the historical distribution of salmon and sea trout populations may be difficult.

Additionally, the Regulation of the Minister of Agriculture and Rural Development on the definition of aquatic organisms of economic importance and areas designated for protection of these organisms (as from 2021), implemented protection of migration routes for sea trout.

e) Have any new, permanent or temporary, migration hindrances been built that may negatively affect the accessibility of the rivers for salmonids? If yes, specify river name and type of construction.

No ,but discussions on construction of new migration hindrances are ongoing. Currently, there are plans to construct new dams on the Vistula (Siarzewo) and Odra rivers. At the moment, there is no confirmation of the implementation of these projects yet. However, the probability of their emergence is high.

**IV. Other actions for the implementation of the Recommendation**

f) List other significant actions that have been taken for the implementation of the Recommendation. Describe the individual actions and group them according to the main factors as follows:

1) Measures for restoring river waters or habitats towards a salmonid habitat in good state as characterised in the Recommendation

2) Measures for improving the accessibility of the rivers including the assessments of man-made migration hindrances

In the update of the river basin management plans in accordance with the WFD, especially for the Natura 2000 areas and species of fish protected under the Habitats Directive, special conservation plans has been planned for the rivers, including the improvement of the migration routes for salmon and other fish species.

3) Measures for the management of river fisheries through a participatory and open process

A pilot study of estimation of Polish river recreational catches has begun in 2017 and was continued until present year. First on three rives: Ina, Rega and Słupia and from 2018 also on Parsęta River. In 2020 three new rivers were added to the survey: Łeba, Reda and Drwęca River. The method used is

based on catch records provided by fishing users supplemented with data from on-site surveys of anglers carried out according to the same schedule on the rivers studied. Based on the survey recreational catch in Polish rivers was estimated for 40–80 specimens of salmon and about 10 tons of sea trout yearly. As a result of the pilot study a method for catches estimation on main sea trout rivers was proposed.

# Annex 5. Reporting by Finland

**I. Salmon and sea trout populations that reproduce at a level of less than 50% of PSPC (cf. Annex 1)**

a) List all original salmon and sea trout populations that have been subject to measures for the recovery of the populations. Specify for each population what the measures have been and group them according to the main factors as follows:

1) Measures for restoring river habitats towards a salmonid habitat in good state as characterised in the Recommendation

2) Measures for improving the accessibility of the rivers including the assessments of man-made migration hindrances

3) Measures for the management of river fisheries through a participatory and open process

Salmon

Status of the salmon stock is estimated to be good. Smolt production in both rivers is clearly above 50% of PSPC.

Tornionjoki and Simojoki are only salmon rivers holding original salmon populations in Finland in the Baltic Sea area. Both rivers are free flowing (no dams) except one tributary in Tornionjoki (Tengeliönjoki). This is migration obstacle mainly for to sea trout. In Tornionjoki main stem there has been little clearing for log floating. In Simojoki the rapids were cleared from stones in 1950s but were mainly restored back in 1970s. Water quality in Tornionjoki is good but in Simojoki there are some water quality problems mainly due to forestry and peat production.

Fishing rules including weekly closures, bag limit and other technical measures in river fishing has been implemented.

Sea trout

In Tornionjoki sea trout fishing has been prohibited since 2013. Habitat restoration has taken been conducted in some tributaries but there are still some water quality problems due to forestry. Hydropower dam prevents access for sea trout to Tengeliönjoki (tributary on Tornionjoki), but fish pass (natural type) has been planned and building permit application is pending.

In the table below is presented the status of stocks in the rivers where regular monitoring takes place. In addition to below listed rivers there are number of rivers and brooks where sea trout breed with varying success. Sea trout with adipose fin has been protected in inland waters (with connection to sea) since 2016 south from 64N latitude and in all sea areas since 2019. In general, there has been a positive trend in sea trout abundances in many areas.

Table. Status of sea trout stocks (observed 0+ parr density compared to potential 0+ parr density). In addition measures that has been undertaken in the last ten years.

| | | | | | | | recently undertaken measures | | | young fish releases |
|---|---|---|---|---|---|---|---|---|---|---|
| ICES subdiv | River | Tributary | 2018 | 2019 | 2020 | 2021 | dam removal | fishway building | habitat restoration | |
| **31** | **Torniojoki** | Kangosjoki | <50% | <50% | <50% | <50% | - | - | yes | - |
| **31** | **Torniojoki** | Pakajoki | <50% | <50% | <50% | <50% | - | - | yes | - |
| **31** | **Torniojoki** | Naamijoki | <50% | <50% | <50% | <50% | - | - | yes | - |
| **31** | **Torniojoki** | Äkäsjoki | 50-75% | 50-75% | 50-75% | 50-75% | - | - | - | - |
| **31** | **Lestijoki** | Lestijoki | <50% | <50% | <50% | <50% | - | - | yes | yes |
| **30** | **Isojoki** | Isojoki | 50-75% | 50-75% | 50-75% | 50-75% | - | yes | yes | yes |
| **32** | **Ingarskilanjoki** | Ingarskilanjoki | >75% | 50-75% | >75% | >75% | - | - | yes | - |
| **32** | **Mankinjoki** | Gumbölenjoki | 50-75% | <50% | <50% | <50% | - | - | yes | - |
| **32** | **Espoonjoki** | Glomså | 50-75% | <50% | 50-75% | 50-75% | - | - | yes | - |
| **32** | **Vantaanjoki** | Longinoja | >75% | >75% | >75% | >75% | - | - | yes | - |
| **32** | **Mustajoki** | Mustajoki | 50-75% | 50-75% | >75% | 50-75% | - | - | yes | - |

## II. Potential salmon populations and rivers

b) List potential original salmon populations (Dalälven, Iijoki, Indalsälven, Ljusnan, Luleälven, Skellefteälven or Ångermanälven) that have been subject to measures for re-establishment into their native rivers and describe the measures

Not applicable

c) List potential salmon rivers (Kemijoki, Kymijoki or Oulujoki) that have been subject to measures for opening the migratory routes to their historical reproduction areas and describe the individual measures.

Kemijoki

In the lowermost dam, Isohaara, fish passess has been build in 1993 and 2012. Salmon has access to the next dam basin and tributaries exiting to the dam but these have insignificant areas of spawning or rearing habitats for salmon. There are another four hydropower dams without fish passes before the Ounasjoki tributary where is production areas for approx. 300 000 smolts.

Fishing for both wild and reared salmon is allowed in river. Fishing is closed from September to November.

Oulujoki

In Oulujoki River, fishway to the lowermost hydropower dam, Merikoski, was built in 2003. In past five years, 1000-4000 salmon and 200-500 sea trout have passed through the fishway. The fish trapping device to the second lowermost dam, Montta, was built in 2017, but only few fish have been successfully caught. There exists 7 hydropower dams upstream to the first one, and close to none reproduction area in blocked sections of the main channel, but some in side channels. In 2017-18 the Hupisaaret stream network length of 2km was restored, which now offers some reproduction area for sea trout in the river mouth.

Fishing of both reared and wild salmon is allowed in the river. Fishing of sea trout with the adipose fin is forbidden. Generally fishing is not allowed in September-November, and there are other restrictions concerning the length of the fish and timing of the fishing too.

Kymijoki

In Kymijoki Korkeakoski hydropower dam a fish pass was built in 2016 but it does not work well. Salmon gather below the dam but they don't find their way to the fish ladder likely because the too little of attraction flow guiding towards the entrance. Only some tens of salmon have passed the ladder in the last few years.

There is also other access to Kymijoki in the Langinkoski branch but there is also hydropower dam that significantly impairs the access of salmon to the river. In the old river bed next to the power station there is a fish ladder from 1930s but salmon find their way there only during a rather rare occurring water bypasses to the channel. There is also other fish pass at the power station dam (renovated in 1980s) but only a few salmon find their way there.

Salmon fishing in river is allowed from June to September. Only adipose fin clipped salmon over 60 cm are allowed to land in the river fishing (bag limit 1 salmon per day).

## III. Assessments of man-made migration hindrances for salmonids

d) Have significant migration hindrances in salmonid rivers been the subject of an assessment as provided for in the Recommendation? If yes, describe the main outcome of each individual assessment.

The Regional Centres for Economic Development, Transport and the Environment have ongoing project to survey all migration barriers and their status within their own regions. The estimates of more than 5200 barriers, excluding the culverts, exist so far in Finland.

e) Have any new, permanent or temporary, migration hindrances been built that may negatively affect the accessibility of the rivers for salmonids? If yes, specify river name and type of construction.

No new permanent or temporary migration hindrances for salmonids have been built. (This is concluded despite of the fact that there is no national register on migration hindrances.)

## IV. Other actions for the implementation of the Recommendation

f) List other significant actions that have been taken for the implementation of the Recommendation. Describe the individual actions and group them according to the main factors as follows:

1) Measures for restoring river waters or habitats towards a salmonid habitat in good state as characterised in the Recommendation

Habitat restoration has taken place in a numerous sea trout streams and brooks (no national register for such activities).

2) Measures for improving the accessibility of the rivers including the assessments of man-made migration hindrances

Old mill and hydropower dams has been removed in few sea trout rivers and streams. In addition, natural and technical fish passes have been built in several locations (no national register for such activities).

### 3) Measures for the management of river fisheries through a participatory and open process

The use and management plans of regional fisheries areas are currently being revied by the regional fisheries authorities (Centres for Economic Development, Transport and the Environment). Part of these plans include elements of fishing regulations on salmon and sea trout in rivers.

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# Swedish Report on Recommendation 32-33/1 on Conservation of Baltic salmon (*Salmo salar*) and Sea trout (*Salmo trutta*) populations by the restoration of their river habitats and management of river fisheries

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***I. Salmon and sea trout populations that reproduce at a level of less than 50% of PSPC (cf. Annex 1)***

*a) List all original salmon and sea trout populations that have been subject to measures for the recovery of the populations.*

*Salmon*

At present there are 10 rivers with wild reproduction of salmon where the production is less than 50% of the potential smolt production capacity (PSPC). For salmon rivers in the Gulf of Bothnia and Baltic Proper, the production of smolt and estimates of PSPC were obtained from ICES (2021; Table 4.2.3.3). The current smolt production was calculated as the average across years 2019-2021. PSPC levels for the Swedish west coast rivers (debouching in Kattegat) were calculated using the potential smolt production capacity per hectare in Högvadsån (the only river on the Swedish west coast where all life stages are counted; see Tamario and Degerman, 2017), extrapolated to the other rivers based on available salmon habitats in each river. The current smolt production was calculated using average densities of parr in each river across years 2017-2021 in combination with river specific production areas, multiplied by the survival estimate from parr to smolt in Högvadsån (Tamario and Degerman, 2017). The current smolt production was then compared to PSPC to determine status.

In the previous evaluation (from 2017) of Gulf of Bothnia and Baltic Proper rivers, Mörrumsån, Emån, Kågeälven and Testeboån were listed as having a smolt production below 50% of PSPC. In the current evaluation, Emån, Testeboån, Ljungan, Lögdeälven, Öreälven, Vindelälven and Rickleån were assessed to produce less than 50% of PSPC (Annex 1). Mörrumsån and Kågeälven have improved since the previous assessment while the estimated status of Ljungan, Öreälven, Lögdeälven, Vindelälven and Rickleån has decreased. Note, however, that the salmon populations in Rickleån, Öreälven and Lögdeälven have shown a positive development in recent years. The decline in estimated status for these



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three populations is an effect of increasing production areas as salmon is spreading in upper parts of the river systems; when salmon colonise new areas, densities of parr will be low initially, which will temporally affect the status evaluation. In contrast, the decline in status for Ljungan and Vindelälven is a result of reduced population sizes due to health problems in recent years, primarily among ascending salmon spawners.

In the previous evaluation of rivers on the Swedish west coast (Kattegat), Rönne å and Nissan (Sennan) were listed as having a smolt production below 50% of PSPC. In the current evaluation, Törlan, Nissan (Sennan) and Fylleån were assessed to produce less than 50% of PSPC (Annex 1). Rönne å has improved since the previous assessment while the status of Törlan and Fylleån has decreased.

*Sea trout*

Status of sea trout is normally assessed using electrofishing data, i.e. recruitment status, as suggested by ICES SGBALANST 2011 (see also Pedersen et al., 2017) by comparing observed with estimated maximum possible densities under different habitat conditions. The estimated values are adjusted for differences in climate and river magnitude across the Baltic Sea. Sea trout streams are defined as having a catchment less than 1000 $km^2$ and that the salmonid abundance is not dominated by salmon, as recommended by SGBALANST. The data included are mainly from regional monitoring programmes of varying duration. All data are quality controlled and stored in the national Swedish Electrofishing RegiSter (SERS). In the current assessment, the method and reference values have been updated (see Annex 2).

Data was available from 86 (28%) out of 305 streams when the criterion was that data should be available in the period 2005-2010 and 2019-2021. 27% of streams had a status below 50% in 2019-2021 (Table 1). Comparing the status 2019-2021 with the status for streams sampled 2005-2010 (n=86), 29% had increased status, 48% remained unchanged and 23% had lowered status (Table 2). This outcome significantly deviates from no change (one-sample t-test, $p < 0.001$). Thus, in the majority of the monitored streams, the status has been relatively stable or increased in status. It is suggested that the relatively large sample (n=86) reflects the situation in all 305 streams included in the initial reporting to HELCOM in 2011. There is, however, a probable bias in the results due to that local and regional monitoring may focus on running waters where restoration measures have been undertaken.

Table 1. Status in sampled Swedish sea trout rivers 2019-2021

| Status | Frequency | Proportion (%) |
|---|---|---|
| 0-20 | 6 | 7 |
| 20-50 | 17 | 20 |
| 50-80 | 38 | 44 |
| 80-100 | 25 | 29 |
| Sum | 86 | |

Table 2. Change in status from 2005-2010 to 2019-2021 in sampled sea trout streams (n=86)

| | Change from 2005-2010 | |
|---|---|---|
| Status | Frequency | Proportion (%) |
| Increased | 25 | 29 |
| Unchanged | 41 | 48 |
| Decreased | 20 | 23 |
| Sum | 86 | |

*Specify for each population what the measures have been and group them according to the main factors as follows:*
*1) Measures for restoring river habitats towards a salmonid habitat in good state as characterised in the Recommendation*

**Nissan.** Habitat improvements in the tributary Sennan were carried out at Möllan in 2019 and Kvarnalyckan in 2017. Nissan's Water Council will carry out a habitat mapping of a number of tributaries to Nissan in 2022-2023. Halmstad Municipality carried out a habitat mapping of lower Sennan in 2020 (upper Sennan will be included in the water council's mapping in 2022-2023).

**Törlan.** Biotope mapping was carried out in 2021. The TUR's Water Council wants to implement measures focusing on habitat management in Törlan/Sandabäcken.

**Vindelälven**. Habitat restorations are carried out continuously.

**Emån.** Habitat restoration of reproduction areas and restoration from log-driving.

**Ljungan.** Habitat restoration of the whole river from log-driving and construction of spawning areas.

**Lögdeälven.** Habitat restoration of the river from log-driving and construction of spawning areas, in total 6.2 km of the river has been restored and 620 spawning grounds constructed under the project *Reborn* that started in 2016 and finished 2021.

**Rickleån.** The power company Skellefteå kraft is planning large scale measures to facilitate migration of salmonids and to restore habitat and create spawning grounds.

**Testeboån.** Habitat restorations (spawning and rearing grounds) are carried out continuously.

**Öreälven.** Habitat restoration of the river from log-driving and construction of spawning areas. This is an EU life project implementing the EU´s habitat and water framework directives starting in 2021 and finishing in 2027, focusing on habitat restoration, wetland and stream hydrology and stream connectivity.

*2) Measures for improving the accessibility of the rivers including the assessments of man-made migration hindrances*

**Nissan.** In the tributary Sennan, two migration hindrances have been removed (Möllan in 2019 and Kvarnalyckan in 2017).

**Fylleån.** An application for environmental readjustments of power plants will be submitted in 2022 to the environmental court (see below).

**Törlan.** In the habitat mapping in 2021 some culverts were identified in upper Törlan and a demolished dam in the tributary Sandabäcken.

**Emån.** Construction of a fauna passage with an automatic fish counter through the hydropower plant in Karlshammar was finalised in 2020. A lowering of a dam (Åby kvarn) at Fliseryd has led to a restoration of the old mill area and preliminary results show an improvement of sea trout reproduction. The energy company Uniper will install fish lifts at the hydropower plant in Finsjö in 2022 to facilitate fish migration. Currently salmonid fish can migrate 40 km upstream from the sea until they are stopped at Högsby power plant.

**Ljungan.** Migrating fish are stopped by the Viforsen power plant which is the first hydropower plant approximately 20 km upstream from the sea. The environmental terms of this power plant will be reassessed according to the national plan for an environmental reconsideration of hydropower (governments proposition 2017/18:243, see below), and may result in a future fish passage.

**Lögdeälven.** Approximately 60 km upstream from the sea there is a natural migration hindrance (Fällfors) with a constructed fish passage. There are no other migration hindrances in the river.

**Rickleån.** In the lower parts of the river three hydropower plants (Bruksfors, Sågfors and Fredriksfors) and one dam (Bjursjöns) are planned to be removed to facilitate migration. In the upper part of the river fish passages are planned through the Älglunds hydropower plant, and the dam Gamla Bygdeträskdammen will be removed, and three additional dams (Lidträsk, Granträsk, and Tallträsk) will be modernised to facilitate a more even flow of water. Fish will finally be stopped at the Bygdsiljum hydropower plant, increasing the accessibility of the river and resulting in a total of 50 km from the sea up to Bygdsiljum that can be reached by anadromous fish.

**Testeboån.** Since 2018, the hydropower plant is closed one day per week during the spawning migration to increase the possibilities for fish to find the fish passage. A fish diverter was installed in 2014 at the inlet of the power plant. The diverter does not work properly but likely save part of the smolt run and all downstream migrating kelts from passing the turbines.

**Öreälven.** Today there is a 60 km stretch from the sea up to the first man made migration hindrance at Agnäs hydropower plant, which has a fish passage. The power plant will be evaluated in 2024 according to the government's proposition 2017/18:243 (see below).

*3) Measures for the management of river fisheries through a participatory and open process*

For more detailed descriptions of the management of river and coastal fisheries in Sweden, see section IV below. In this paragraph, only local measures in a few weaker salmon rivers are listed below.

**Vindelälven**. A maximum size limit of 65 cm for the river fishery, and restrictions for the coastal fishery in the river mouth, were introduced in 2019 to reduce exploitation levels and increase possibilities for recovery.

**Emån.** Fishing has been further restricted in the river mouth in an extended area and is now during the whole year.

**Ljungan.** From 2019 and onwards there has been a total ban of catching salmon in the river. From 2022, stricter gear restrictions will be implemented that in practice impede fishing for both salmon and sea trout.

**Testeboån.** Harvest of salmon and sea trout is prohibited in the river throughout the year.

***II. Potential salmon populations and rivers***

*b) List potential original salmon populations (Dalälven, Iijoki, Indalsälven, Ljusnan, Luleälven, Skellefteälven or Ångermanälven) that have been subject to measures for re-establishment into their native rivers and describe the measures*

**Dalälven.** Currently, natural reproduction of salmon and sea trout occurs in a small area below the power plant in Älvkarleby. The county board in Gävleborg has proposed measures to facilitate migration and reproduction further up in the river. This includes habitat restoration and increased minimum flow from dams and hydropower plants and construction of upstream and downstream fish passages through these. In addition, the county board has conducted telemetry studies on spawning salmon and smolt to track downstream and upstream migration. This knowledge is needed to construct proper fish passages in the future (governments proposition 2017/18:243). In total, there is an 80 km long stretch of the river that is under consideration for measures.

**Ljusnan** is so exploited for hydropower purposes that natural habitats for reproduction and nursing is non-existent (dammed over upstream or dried out downstream the hydropower plants), and hence, there has been no effort to construct fish passages through dams and hydropower plants nor to reintroduce wild salmon. Today no fish can pass the Ljusnefors hydropower plant, which is a plant directly placed close to the river mouth.

**Luleälven** is so exploited for hydropower purposes that natural habitats for reproduction and nursing is non-existent (dammed over upstream or dried out downstream the hydropower plants), and hence, there has been no effort to construct fish passages through dams and hydropower plants nor to reintroduce wild salmon. Today no fish can pass the hydropower plant in Boden, which is the first plant from the sea approximately 40 km upstream.

**Indalsälven** and **Ångermanälven** are so exploited for hydropower purposes that natural habitats for reproducing and nursing is non-existent (dammed over upstream or dried out downstream the hydropower plants), and hence, there has been no effort to construct fish passages through dams and hydropower plants nor to reintroduce wild salmon. In some small tributaries close to the sea salmon parr are occasionally caught during electrofishing. However, in these tributaries measures have focused on sea trout habitat restoration. In the river Indalsälven the salmon can migrate no further than the Bergforsens power plant 10 km upstream from the river mouth, and in Ångermanälven to Sollefteå power plant, 40 km from the sea.

**Skellefteälven** is so exploited for hydropower purposes that natural habitats for reproducing and nursing is non-existent (dammed over upstream or dried out downstream the hydropower plants), and hence, there has been no effort to construct fish passages through dams and hydropower plants nor to reintroduce wild salmon. Salmon can today not reach further upstream than to the first hydropower plant Kvistforsen approximately 20 km upstream from the sea.

Additional potential salmon rivers

There are additional Swedish rivers that once had salmon populations that have become extinct, for example the rivers Moälven, Alsterån, and Helgeå (see below). In the near future, ICES plan to review the criteria used for classification of salmon rivers in the Baltic Sea. A possible outcome of this evaluation maybe an extended list of potential salmon rivers and maybe new wild rivers as well.

**Moälven.** Habitat restorations of former log-driving areas have been carried out, and salmon and sea trout eggs and fry (with various genetic origins) have been released during many years to build up a salmon population in the river. The river still has connectivity problems. There is a poorly functioning fish passage at Gottne power plant, and further upstream at Anundsjö power plant there is a fish counter and a 450 m fish passage, where, for example, only one salmon passed in 2017. In the tributary Utterån there is a natural definite migration hindrance 2 km upstream from the river bifurcation, where a fish passage has been built. Natural reproduction of salmon has been observed in Moälven main stem and the tributary Utterån since 2014.

**Alsterån.** An *EU/LIFE+/Life Connects* project that runs through 2019-2025 aims to improve river connectivity and habitats for salmon. The river is 125 km long and entirely a Nature 2000 area. Alsterån has been a pilot project for the national plan (see below) where 44 hydropower plants and dams were assessed in a report finished in 2020. Salmon occurs sporadically at lower densities in the river.

**Helgeå** has 15 hydropower plants that impede connectivity. An *EU/LIFE+/ Life Connects* project that runs through 2019-2025 aims to improve river connectivity and habitats for salmon. The main focus of *Life Connects* is on the 39 km tributary Vramsån that is almost entirely a Nature 2000 area. Salmon occurs sporadically at lower densities in the river.

***III. Assessments of man-made migration hindrances for salmonids***
*d) Have significant migration hindrances in salmonid rivers been the subject of an assessment as provided for in the Recommendation? If yes, describe the main outcome of each individual assessment.*

There are no national initiatives to assess migration hindrances specifically, but some local initiatives to assess effects of migration hindrances exists, such as e.g. in Testeboån (see above). However, many migration hindrances connected to power plants and dams will be evaluated in the National plan for modern environmental terms and conditions for hydropower plants (Governments proposition 2017/18:243), that was decided in 2020 and initiated in 2022. During this process, all hydropower plants in Sweden (except power plants with exemptions) will be evaluated and tried in environmental court and receive permits if environmental quality standards are fulfilled.

The trial process will start in 2022 and go on until 2037, and individual rivers are handled successively according to a priority list. Examples of evaluations and court trials include applications for environmental readjustment of a number of power plants in Halland that will be submitted in 2022 to the environmental court: Stensån was the first to submit an application in February 2022 and applications for facilities in Genevadsån with tributaries, Fylleån, Suseån with tributaries, Tvåkersån, Rolfsån and Kungsbackaån will follow. The measures proposed for the different facilities vary, but are based on national guidance, low-slope grids, smolt spillways, bypasses, etc. An application for removal of the dam at Lilla Röd in Örekilsälven has been submitted to the environmental court.

*e) Have any new, permanent or temporary, migration hindrances been built that may negatively affect the accessibility of the rivers for salmonids? If yes, specify river name and type of construction.*

No new man-made migration hindrances in salmonid rivers listed by Helcom.

***IV. Other actions for the implementation of the Recommendation***
*f) List other significant actions that have been taken for the implementation of the Recommendation. Describe the individual actions and group them according to the main factors as follows:*
*1) Measures for restoring river waters or habitats towards a salmonid habitat in good state as characterised in the Recommendation*

There are many ongoing projects focusing on restauration of habitats in salmonid rivers, initiated by local fishery owners, municipalities and county administrations, too many to be listed individually. For example, the database “Åtgärder i vatten” lists close to 300 measures in 2017-2021 where substrate has been restored that benefits trout. Within the project *Reborn Life* (EU-Life) 2016-2022 more than 14 000 spawning grounds for salmon and trout have been restored in Lögdeälven, Byskeälven, Åbyälven, Piteälven, Råneälven, and Kalixälven.

Examples from the Swedish west coast include habitat restorations in Sörån within Rolfsån's water system in 2019 and 2020. Extensive habitat improvements are also planned in Örekilsälven, in several places between Kärnsjön and the

mouth of Gullmarsfjorden. In 2021, habitat improvements were implemented in Munkedalsälven. In addition, liming has been carried out in some rivers on the Swedish west coast to address acidification, which is the main threat to salmon populations in this area.

The work with water restoration is now part of the work required by the Water Framework directive. At present, Swedish authorities are evaluating the status of freshwaters and will develop restoration plans for freshwaters with low ecological status. Meanwhile, counteracting the effects of acidification is prioritized as it is essential to biodiversity and anadromous fish stocks, especially in south-western Sweden.

*2) Measures for improving the accessibility of the rivers including the assessments of man-made migration hindrances*

The database "Åtgärder i vatten" lists 19 removed migration hindrances (mainly dams) during the period 2017-2021 (but this list is not complete). Examples of other initiatives include the project *Life Connects* 2019-2025 which will work with removal of hydropower plants and dams in seven rivers to create fauna passages and improve migration paths at barriers, and with riverbed restorations to gain more natural habitats and improved water quality.

Other examples include the wild salmon river Mörrumsån, where a hydropower plant was removed in 2020 and river habitats were restored. In Rönne å, five migration hindrances will be removed 2019-2025 to facilitate connectivity for salmonids within the *Life Connects* project. Two new fish passages have been built in Suseån in 2021 (Berte kvarn). New fish passages are planned in Lärjeån. A fish passage was created in 2021 that made new habitats for salmon and trout available in tributary Säveån (Göta älv), upstream of Hillefors power plant. In Genevadsån, a bypass at Plingshults kvarn was restored and a dam at Kuhult was removed in 2019. In order to establish salmon in the upper part of the Rolfså river system, spawning salmon caught in the lower part of the river have been moved upstream to the upper part for a few years. A fish passage will be built at Torp in Örekilsälven.

*3) Measures for the management of river fisheries through a participatory and open process*

The Swedish commercial offshore fishery for salmon in the southern Baltic Sea was phased out in 2013, and the national salmon quota is nowadays completely utilised in the coastal fishery. In recent years, the national quota has been divided between different coastal areas in order to focus exploitation mainly on stronger wild populations and reared salmon. Since 2013, Swedish offshore trolling fisheries (that mainly takes place in the Main Basin) are only allowed to land salmon without an adipose fin (i.e. fin-clipped reared salmon). In 2022, an international regulation is implemented that allows only landing of fin-clipped salmon in the trolling fishery in the southern Baltic Sea, with a bag-limit of one fin-clipped salmon per fisherman and day.

In all rivers there is a general bag limit of one salmon and one trout per fisherman and day. Also fishing periods are regulated on a national level. In Gulf of Bothnian wild rivers, for example, angling for salmon is forbidden from 1 September until 31 December, and in some rivers, angling is also forbidden between 1 May and 18 June. In 2019, new regulations were introduced in Vindelälven and Ljungan, including a maximum size limit of 65 cm in Vindelälven and a total ban for catching salmon in Ljungan. These restrictions were introduced to protect the weak wild salmon populations is these rivers. In addition to national regulations, local fishing and management organizations may stipulate more restrictive rules. For example, in 2022 new gear restrictions will be implemented in Ljungan (see above). Another example is river Örekilsälven, where all female salmon above 90 cm must be released back (implemented in 2020). From 2022 and onwards, also males above 90 cm must be released. Other examples of local management measures include the use of tags in some river stretches in northern Bothnian Bay rivers. These tags must be bought together with the fishing license and attached to landed salmon. The idea is to improve catch reporting and facilitate a real-time follow up of catches.

The management of fisheries in the boarder river Torneälven, including the coastal area directly outside the river mouth, is handled through an agreement between Sweden and Finland. The Swedish-Finnish agreement includes for example a specified time period within which the commercial coastal fishery in the river mouth is allowed to start. Regulations targeting the river fishery are also handled in the agreement.

In order to improve the situation for weak sea trout stocks in SD 31, a number of changes have been implemented in recent years. Since the last reporting to HELCOM in 2017, new fishing regulations have been introduced in SD 30 (Bothnian Sea) to improve the situation for coastal fish populations in this area. These regulations include a ban for fishing with nets in areas with less than 3 meters depth between 1 September and 10 June, a complete net ban between 15 October and 30 November, increase of the minimum size for sea trout from 40 to 50 cm, and a daily bag limit of one wild sea trout when fishing with sport fishing equipment or fykenets. In 2021, a daily bag limit of one wild sea trout when fishing with sport fishing equipment or fykenets was introduced also along the Swedish southeast coast (SD 27–29). The new regulations implemented in 2021 also include a few new protection areas along the south-eastern coast to protect sea trout during the autumn migration.

In 2020, the Swedish Agency for Marine and Water Management initiated an overview of the fishing regulations in both rivers and coastal areas. This process is ongoing and will likely result in updated regulations/restrictions in the coming years. The aim of the overview is to develop the fishery management to become more stock-specific so that fishing possibilities will be adapted to the status of individual river stocks of salmon and sea trout, and also to the situation for other migrating and coastal fish species. This process has involved consultation with stakeholders, environmental organisations and authorities involved in the management. In parallel to the above process, the County administrations have initiated work to develop an ecosystem-based management of rivers and coastal areas. This work will certainly involve participatory elements as one goal is to

adapt the management to local conditions, taking into account both biological and resource exploitation perspectives.

The Swedish Agency for Marine and Water Management in collaboration with the County administrations in Sweden are jointly developing two IT solutions that will facilitate the monitoring and management of environmental measures and fishery regulations. “Åtgärder i vatten” is a data base where physical measures such as habitat restorations, dam removals and fish passages will be registered, and “Laxportalen” is a website where information is compiled and presented about salmon and sea trout rivers, including e.g. information on population status, fishery regulations, catch statistics, data collection projects etc.

**References**

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# Annex 7. Agreed follow-up of HELCOM Recommendation 32-33/1 and 19/2

Indicators at national (when relevant) and regional level. Please note that the rules for assessing level of accomplishment (green, orange, red) only refer to the regional level.

The results of the questionnaire will be used for assessing the following indicators related to implementation of agreed fish related HELCOM commitments.

**HELCOM Recommendation 32-33/1** Conservation of Baltic salmon (*Salmo salar*) and sea trout (*Salmo trutta*) populations by the restoration of their river habitats and management of river fisheries

| **Action** | **Deadline**[1] | **Level of implementation** | **Indicator of national implementation** | **Indicator of regional implementation** | **ASSESSMENT CRITERIA** | | |
|---|---|---|---|---|---|---|---|
| | | | | | **Accomplished (Regional)** | **Partly accomplished (Regional)** | **Not accomplished (Regional)** |
| Urgent measures for the recovery of the original salmon and sea trout populations that reproduce at a level of less than 50 % of the potential smolt production capacity (PSPC) (Annex 1 of the Rec 32-33/1). | 2021 | National | The percent of rivers at the CP's territory where salmon and sea trout populations reproduce at a level of less than 50% of PSPC. | The percent of rivers in the HELCOM region where salmon and sea trout populations reproduce at a level of less than 50% of PSPC. | The number of rivers where salmon and sea trout populations reproduce at a level of less than 50% of PSPC is less than 10% from the original list. | The number of rivers where salmon and sea trout populations reproduce at a level of less than 50% of PSPC has decreased more than 20% from the original list. | The number of rivers where salmon and sea trout populations reproduce at a level of less than 50% of PSPC has decreased less than 20% from the original list. |
| Restoration of river waters and habitats that hold naturally reproducing salmon and sea trout populations towards a salmonid habitat in good state. | 2021 | National | The percent of rivers at the CP's territory listed in the Rec 32-33/1 which are in a good state | The percent of rivers in the HELCOM region listed in the Rec 32-33/1 which are in a good state | More than 90% of the rivers listed in the Rec 32-33/1 which are in a good state | More than 20% of the rivers listed in the Rec 32-33/1 which are in a good state | Less than 20% of the rivers listed in the Rec 32-33/1 which are in a good state |

[1] The 2021 is from the reporting round in 2021 and should be discussed further by FISH 14-2022

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Assessments of man-made migration hindrances for salmonids | 2021 | National | The percent of the man-made migration hindrances for salmonids revealed at the CP's territory for which removing feasibility was assessed. | The percent of the man-made migration hindrances for salmonids revealed in the HELCOM region for which removing feasibility was assessed. | The assessment of feasibility of removing of the revealed man-made migration hindrances for salmonids is carried out for more than 90% of cases. | The assessment of feasibility of removing of the revealed man-made migration hindrances for salmonids is carried out for more than 20% of cases. | The assessment of feasibility of removing of the revealed man-made migration hindrances for salmonids is carried out for less than 20% of cases. |
| Re-establishing the original salmon populations of Dalälven, Iijoki, Indalsälven, Ljusnan, Luleälven, Skellefteälven and Ångermanälven and opening migratory routes for salmon and sea trout to historical reproduction areas of the rivers Kemijoki, Kymijoki and Oulujoki. | 2021 | National | The percent of the rivers located at the CP's territory in which original salmon populations are re-established and migratory routes are opened. | The percent of the rivers listed in the Rec 32-33/1 in which original salmon populations are re-established and migratory routes are opened. | The original salmon populations are re-established and migratory routes opened in all the rivers listed in the Rec 32-33/1 | The original salmon populations are re-established and migratory routes opened in more than 50% of the rivers listed in the Rec 32-33/1 | The original salmon populations are re-established and migratory routes opened in less than 50% of the rivers listed in the Rec 32-33/1 |
| Developing fishing rules for the management of river fisheries through a participatory and open process that includes local stakeholders | 2021 | National | National fishing rules for the management of river fisheries in accordance with the Rec 32-33/1 are adopted. | The percent of the CPs that have developed fishing rules for the management of river fisheries in accordance with the Rec 32-33/1 | All the CPs have developed fishing rules for the management of river fisheries in accordance with the Rec 32-33/1 | More than 50% of the CPs have developed fishing rules for the management of river fisheries in accordance with the Rec 32-33/1 | Less than 50% of the CPs have developed fishing rules for the management of river fisheries in accordance with the Rec 32-33/1 |

In order to justify the indicators of national implementation of the Recommendation 32-33/1 the text report describing the implemented actions should be submitted by the Contracting Parties in accordance with the Annex 2 of the Recommendation.