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Salmon and Sea Trout Populations and Rivers in Estonia

HELCOM assessment of salmon (*Salmo salar*) and sea trout (*Salmo trutta*) populations and habitats in rivers flowing to the Baltic Sea.

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Contents

1. Introduction

This Report gives a description of Estonian salmon and sea trout populations and rivers that empty into the Baltic Sea. The Report is based on the HELCOM SALAR Project that focused on the state of salmon (*Salmo salar*) and sea trout (*Salmo trutta*) populations in rivers flowing to the Baltic Sea.

The deliveries of the HELCOM SALAR Project include a General Report on Baltic salmon and sea trout populations and rivers (BSEP 126A) as well as reports with individual descriptions of populations and rivers separately for Denmark, Estonia, Finland, Latvia, Lithuania, Poland, Russia and Sweden (BSEP 126B). The project also prepared a GIS map of salmon rivers as well as a database compiling information on salmon and sea trout populations and rivers.

The overall ecological state of the Baltic rivers and their fish populations has deteriorated from their pristine state. This is a consequence of direct anthropogenic impacts caused by many activities in the drainage area, in the rivers and in the Baltic Sea. In the rivers, the most detrimental activities have been damming, dredging and channelizing rivers to serve for hydropower production, log driving and agricultural purposes. Also indirect impacts of human activities such as nutrient and sediment loads from agriculture, forestry and sewage sources have had negative consequences on the ecological state of the Baltic rivers.

The General Report of the HELCOM SALAR Project presents an overview, inventory and classification of Baltic rivers with salmon and/or sea trout populations. In order to improve the status of these populations, the Report recommends measures for the restoration of river habitats and waters, for the opening of passage as well as for fisheries management in rivers. Furthermore, a prioritization of Baltic salmon and sea trout populations in need of urgent actions for their recovery is included. The recommendations and prioritizations form a basis for the development of international and national programs for the planning, funding and systematic realization of these actions.

The HELCOM SALAR Project was funded through a co-financing agreement between the European Commission (DG MARE) and HELCOM. It implements fisheries actions in the strategic HELCOM Baltic Sea Action Plan to radically reduce pollution to the sea and to restore the good ecological status of the marine environment by 2021.

The Reports have been prepared in co-operation with nominated salmonid and river habitat experts of the Baltic Sea countries as mentioned on the second page. The texts concerning salmonid populations and rivers in each country have been produced by the nominated experts and edited by the project staff in the HELCOM secretariat.

The General Report, the Reports with river descriptions and the GIS map are available at www.helcom.fi and the databank as an excel file at the institutions of the nominated experts.

2.Salmon and sea trout populations and rivers in Estonia

The River Jägala

The River Jägala is a salmon river and a historical sea trout river flowing to the Gulf of Finland.

Basic hydrological facts (main river)

River length: 97 km of which 1.5 km accessible for salmonids
Size of catchment area: 1,573 km^2
Average flow: 7.24 m^3/ s
Daily lowest flow: 0.92 m^3/ s
Number of migration hindrances: 2

Habitat and water quality in River Jägala

The River Jägala has six major tributaries: rivers Ambla, Jänijõgi, Mustjõgi, Aavoja, Soodla and Jõelähtme. All of them have resident brown trout populations. The catchment area consists mainly of farmland and forest. As the river is part of Tallinn's drinking water supply system, extra water is directed to it from the river Pärnu and some water is directed away through channels to the river Pirita, where, in turn some of the water is also abstracted.

There is a 7 m high natural waterfall 4.3 km from the coast which is a natural obstacle for salmonids. Historically there has been 7–8 ha of rapids below the waterfall. In 1924 Linnamäe hydropower station was built 1.3 km from the sea. The 11 m high dam floods most of the historical rapids and prevents any migration to the remaining 2.3 ha of rapids remaining below the waterfall. Below the Linnamäe dam there remains 0.3 ha of rapids that are available for anadromous fish. Water quality is presently classified as good and poses no threat to salmonids. However, in the early 1990s water quality was classified as very bad.

The Jägala salmon stock

The river Jägala was historically considered to be a significant salmon river. After the construction of Linnamäe hydropower station in 1924 the river lost its importance as a salmon river. The remaining spawning area below the dam is probably too small for a self-sustaining salmon population.

Small annual compensatory releases started in 1998. Since then wild YOY and parr are found below the Linnamäe dam in low numbers. Considering that the suitable habitat below the dam is also of poor quality, the prospect of a future increase in wild reproduction is poor. The reservoir above the Linnamäe dam can potentially cause high mortality among descending juveniles and potentially nullify all other restoring efforts.

Fishing regulations in River Jägala

Minimum legal length for salmon is 60 cm and for sea trout 50 cm. In the river (from the river mouth to the lowermost dam) recreational angling is allowed only with a special license. All other fishing (except lamprey fishing) is forbidden.

River Jägala according to the Water Framework Directive

The name of the water management district is West Estonian watershed and the river type is a large oligotrophic river.

(From the river mouth to the first dam)
Ecological status: Good
Biological status: Good
Physical & chemical status: Good

(From the lowermost dam to the waterfall)
Ecological status: Poor
Biological status: Poor
Physical & chemical status: Good

The main measures in the water management plan are the building of a workable fish pass to Linnamäe dam and restoring wild reproduction in the rapids below the waterfall.

Natura 2000

River belongs to the Natura 2000 network from the river mouth to the waterfall.

Specific actions for the development of the salmonid populations

Restoring the reproduction habitat below the waterfall is recommended.

The recommendations in the general report of the HELCOM SALAR project concerning accessibility and river fisheries management are applicable for this river.

The River Keila

The River Keila is a salmon and sea trout river flowing to the Gulf of Finland.

Basic hydrological facts

River length: 116 km of which 1.7 km accessible for salmonids
Size of catchment area: 682 km^2
Average flow: 6.19 m^3/ s
Daily lowest flow: 0.54 m^3/ s
Number of migration hindrances: 1

Habitat and water quality in the River Keila

The River Keila catchment area consists mainly of farmland, the share of forests and swamps is small. There are two major tributaries (Atla and Maidla) joining the upper and middle reaches of the river.

There is a 6 m high natural Keila-Joa waterfall 1.7 km from the sea which is a definite obstacle for migratory fish. Below the waterfall there are altogether 3.5 ha of rapids available for salmon and sea trout. At the waterfall there is a hydropower station that occasionally disturbs the hydrological regime downstream. This has a negative effect on salmon and sea trout, especially in the years of low precipitation.

Because of intensive agricultural land use on the catchment area the river is eutrophied and the water quality is poor.

River Keila according to the Water Framework Directive

The name of the water management district is West Estonian watershed and the river type is a medium-sized oligotrophic river

(From the river mouth to the Keila-Joa waterfall)
Ecological status: Poor
Biological status: Good
Physical & chemical status: Poor

The main measure in the water management plan is to further improve the water quality.

Natura 2000

The lower 1.8 km of the river belongs to the Natura 2000 network.

The Keila salmon and sea trout stocks

The first salmon hatchery in Estonia was established at the Keila-Joa waterfall in 1924. At the same time the lower part of the river up to the waterfall was rented to the Sport Anglers Society of Tallinn with an obligation to provide rearing material to the hatchery.

In 1925–1932 the annual catch of the anglers varied between 4–75 salmon, average being 38 fish with an average weight of 10.2 kg. In the period of 1957–1986 the average number of caught fish was 45 (ranging from 8 to 218). Despite the numerous releases carried out from the 1920s to early 1980s, the present stock is still considered to be original and genetically distinct. There are no major periods without wild reproduction, although from 1994 to 2009 three year classes have been absent. The parr density was above average in 2008 and in 2009.

Sea trout also regularly spawns in the river. However the parr densities are much lower than the densities of salmon parr.

Salmon population facts

Population category: 1
Reproduction area: 3.5 ha
Production capacity: 5,400
Recent wild smolt production estimate: 1,000 (ICES 2010)

Fishing regulations in the River Keila

All fishing (except lamprey fishing) from the river mouth to the lowermost dam is closed.

Specific actions for the development of the salmonid populations

An effective protection zone should be established along the agricultural lands by the river. Minimum water flow should be guaranteed in the river below the power station.

The recommendations in the general report of the HELCOM SALAR project concerning accessibility and river fisheries management are applicable for this river.

The River Kunda

The River Kunda is a salmon and sea trout river flowing to the Gulf of Finland.

Basic hydrological facts (main river)

River length: 64 km of which 2.3 km accessible for salmonids
Size of catchment area: 530 km^2
Average flow: 4.26 m^3/ s
Daily lowest flow: 1.01 m^3/ s
Number of migration hindrances: 5

Habitat and water quality in the River Kunda

The River Kunda has two tributaries, rivers Ädara and Vaeküla, entering the upper reach of the river Kunda. The catchment area consists mainly of forests and farmland, the share of swamps is low. The river has a rather stable flow regime, because 54% of the annual flow consists of spring water.

The river has five manmade obstacles blocking the way to about 90% of the historical spawning grounds. The first definite fish migration obstacle preventing upstream movement is located 2.3 km from the river mouth. The dams of the river have no fish passes. Downstream of the lowermost dam there are a total of 1.9 ha of suitable spawning and juvenile nursery areas.

The water quality is classified as good and poses no threat to salmon.

River Kunda according to the Water Framework Directive

The name of the water management district is East Estonian watershed and the river type is a medium-sized oligotrophic river (From the river mouth to the second dam)

(From the river mouth to the first dam)
Ecological status: Good
Biological status: Good
Physical & chemical status: Good

(Upstream of the lowermost dam)
Ecological status: Poor
Biological status: Poor
Physical & chemical status: Excellent

The main measures in the water management plan are to provide free fish passage on the four lowermost dams.

Natura 2000

Major parts of the river belong to the Natura 2000 network.

The Kunda salmon and sea trout stocks

The River Kunda is considered to have an original wild salmon stock, which spawns only on the lower 2.3 km of the river. The only salmon releases occurred in the period 1945–1956, when the total number of released alevins and fry of mixed origin amounted to 100,000. Wild YOY parr density has high annual variation indicating disturbances in reproduction and/or low number of spawners. Therefore it must be concluded that the stock is still in a critical state.

Sea trout existed historically in most tributaries upstream of the present migration obstacles. Presently sea trout spawns regularly only in the lower part of the river.

Salmon and sea trout population facts

Population category: 1 (salmon and sea trout)
Reproduction area: 1.9 ha (salmon and sea trout)
Production capacity: 2,100 smolts (salmon); 1,500 (sea trout)
Recent wild smolt production estimate: 100 (salmon)

Fishing regulations in River Kunda

All fishing (except lamprey fishing) from the river mouth to the lowermost dam is closed.

Specific actions for the development of the salmonid populations

The recommendations in the general report of the HELCOM SALAR project concerning accessibility and river fisheries management are applicable for this river.

The River Loobu

The River Loobu is a salmon and sea trout river flowing to the Gulf of Finland.

Basic hydrological facts (main river)

River length: 62 km of which 10.4 km accessible for salmonids
Size of catchment area: 308 km^2
Average flow: 1.97 m^3/ s
Daily lowest flow: 0.3 m^3/ s
Number of migration hindrances: 3

Habitat and water quality in the River Loobu

The River Loobu has three major tributaries, rivers Udriku, Vohnja and Läsna. The tributaries connect to the middle and upper reaches of the river. The catchment area consists mainly of farmland and forest.

The river has three manmade obstacles. The lowermost is situated 10.4 km from the coast and has no fish pass. Immediately below the dam there are several small waterfalls (combined height about 4 m) that are passable to fish. In total, dams block the way to about 30% of the potential spawning grounds. There is an operational power station at the lowermost dam that regularly disturbs the natural flow regime in the lower part of the river. This can potentially impair salmonid reproduction, especially in the years of low precipitation. There are plans to build a fish pass or to demolish the two lowermost dams. However, an agreement with the dam owners and the Ministry for the Environment has not yet been reached.

Due to intensive agricultural land use in the catchment area, the water quality has previously been poor. However, the water quality has improved and is now classified as good.

River Loobu according to the Water Framework Directive

The name of the water management district is East Estonian watershed and the river type is a medium-sized oligotrophic river

Ecological status: Good
Biological status: Poor
Physical & chemical status: Good

The main measures in the water management plan are to provide fish passage on the two lowermost dams.

Natura 2000

Most of the river belongs to the Natura 2000 network.

The Loobu salmon and sea trout stocks

Up to the year 2002 no salmon releases have been made in the river and the stock was considered to be genetically original. From 2002 to 2007 stocked fish originated from the River Neva. Since 2008 stocking material originated from river Kunda, which is more closely related to the original strain.

However, wild salmon parr densities have been low in most monitoring years and several year classes have even been lacking. Possible reasons for this are that the water quality was previously poor and that the flow regime is presently disturbed. Stronger year classes occurred in 2005, 2008 and 2009. Despite the recently increased parr density, the salmon stock should still be considered as being in a poor state.

Sea trout spawns in the river regularly and the parr density in most years is much higher than in the case of salmon.

Salmon and sea trout population facts

Population category: 4 (salmon), 1 (sea trout)
Reproduction area: 9.9 ha (salmon and sea trout)
Production capacity: 10,000 smolts (salmon and sea trout)
Recent wild smolt production estimate: 200 (salmon)

Fishing regulations in River Loobu

All fishing (except lamprey fishing) from the river mouth to the lowermost dam is forbidden.

Specific actions for the development of the salmonid populations

The recommendations in the general report of the HELCOM SALAR project concerning accessibility and river fisheries management are applicable for this river.

The River Pirita

The River Pirita is a salmon and sea trout river flowing to the Gulf of Finland.

Basic hydrological facts (main river)

River length: 105 km of which 69.5 km accessible for salmonids
Size of catchment area: 799 km^2
Average flow: 6.59 m^3/ s
Daily lowest flow: 0.4 m^3/ s
Number of migration hindrances: 4 (one has a fish way)

Habitat and water quality in the River Pirita

The River Pirita has four major tributaries: rivers Kuivajõgi, Tuhala, Angerja and Leiva. The catchment area consists mainly of farmland and forest. Most rapids are located in the lower 12 km stretch of the river.

The river is a significant part of the Tallinn's drinking water supply system. Extra water is

directed from the neighboring river Jägala and the upper part of the neighboring river Vääna was also permanently directed to river Pirita (now the Angerja tributary). Water is directed away to lake Ülemiste by a weir and channel system located at Vaskjala, 24.6 km from the sea. The weir itself is 1.6 m high and it is passable to salmon and sea trout during periods of high flow. Construction of the dam and the channel was completed in 1970. After this, flow on the lower 24 km long part, where the spawning and nursery grounds of salmon were situated, dropped drastically. Automatic flow gauging facilities were built only in 1998, which have improved the flow regime downstream significantly. The present water permit sets a minimum flow of 0.6 m^3/s.

Due to high nutrient load the water quality has been worse in the past. The water quality is classified poor and it should be improved.

River Pirita according to the Water Framework Directive

The name of the water management district is West Estonian watershed and the river type is a medium-sized oligotrophic river.

(From the river mouth to the second dam)
Ecological status: Poor
Biological status: Poor
Physical & chemical status: Poor

The main measures in the water management plan are to further improve the water quality, and to improve fish passage on the two lowermost dams.

Natura 2000

The lowest 22 km of the river belongs to the Natura 2000 network.

The Pirita salmon and sea trout stocks

After the construction of Vaskjala dam in 1970 the river lost its importance as a salmon river. The amount of flow was significantly reduced, especially in years of low precipitation. This resulted in disturbances of salmon reproduction. Up to the late 1990s wild salmon parr have been found only in some years and always in low numbers. Significant increase in wild parr density occurred from 2005 onward. In 2009 parr density was at the highest recorded level. Smolt counting has been undertaken in the river since 2006 and estimated smolt numbers have also increased in parallel with parr density

Salmon and sea trout population facts

Salmon
Population category: 4 (salmon); 3 (main river); 1 (tributaries) (sea trout)
Reproduction area: 9.6 ha (salmon); 11.6 ha (sea trout)
Production capacity: 9,600 smolts (salmon); 4,000 smolts (sea trout)
Recent wild smolt production estimate: 5,700 (salmon); 2,100 (sea trout)

Fishing regulations in River Pirita

Minimum legal length for salmon is 60 cm and for sea trout 50 cm. Only recreational fishing is allowed in the river. Rod fishing for salmon and sea trout is allowed only with a special license from October 1 – November 30.

Specific actions for the development of the salmonid populations

The amount of abstracted water at Vaskjala dam should not increase. A minimum flow should be guaranteed to allow for salmonid reproduction and survival. Water quality should be improved by more efficient sewage treatment and by establishing effective protection zones along agricultural lands by the river.

The recommendations in the general report of the HELCOM SALAR project concerning accessibility and river fisheries management are applicable for this river.

The River Purtse

The River Purtse is a salmon and sea trout river flowing to the Gulf of Finland.

Basic hydrological facts

River length: 51 km of which 4.9 km accessible for salmonids
Size of catchment area: 810 km^2
Average flow: 6.7 m^3/ s
Daily lowest flow: 3.7 m^3/ s
Number of migration hindrances: 2 (1 contains a fish way)

Habitat and water quality in River Purtse

The catchment area of the River Purtse consists of large swamps and forests. In 2009 there were nine closed and two operational oil shale mines in its watershed. Another two mines are planned to be opened in the near future. From operating mines the water is pumped out, while from closed mines it flows freely. There are four major tributaries: Hirmuse, Erra, Kohtla and Ojamaa entering on the middle reach of the river.

The first definite fish migration obstacle preventing salmonid upstream migration is located 4.9 km from the river mouth. The dam has a fish pass, but there is no evidence of salmon using it. Downstream of this dam there are totally 7.6 ha of suitable spawning and juvenile nursery areas available for salmonids. Upstream of the dam there is at least 10 ha of suitable spawning area for salmon.

Until 1930s the River Purtse was considered to be a significant salmon river flowing to the Gulf of Finland. Following the development of oil shale mining and processing in the catchment area in the 1920s, the local salmon population gradually became extinct. In 1977, during the first documented River Purtse inventory, the lower reach of the River Purtse was found to be without any fish fauna.

Since 2000, all the wastewater from oil shale processing is treated in a purification plant, and drained through a pipe directly into the Baltic Sea. As a result, the water quality in River Purtse has significantly improved. Despite some remaining pollution from the oil shale

industry, the water quality according to the EU Water Framework Directive is (2009) classified as good (National water monitoring programme).

Despite the apparent improvement in the water quality, a significant amount of solidified PCBs and phenols still remain in the fine sediment of the river bottom and in the banks of the river, posing a potential threat in case of resuspension. It is estimated that there is in total 32,500 m^2 of polluted sediment in the River Purtse basin, and a possible action plan to reduce the risk of resuspension is currently under work.

River Purtse according to the Water Framework Directive

The name of the water management district is East Estonian watershed and the river type is a medium-sized oligotrophic river.

(From the river mouth to the second dam)
Ecological status: Poor
Biological status: Poor
Physical & chemical status: Good

(Upstream of the second dam)
Ecological status: Poor
Biological status: Poor
Physical & chemical status: Good

The main measures in the water management plan are to further improve the water quality and to provide fish passage.

Natura 2000

The river does not belong to the Natura 2000 network.

The Purtse salmon and sea trout stocks

The original salmon population was lost in the early 1930s. The first observations of salmonids spawning in the river again came from recreational fishermen in 2005. A brief electro-fishing survey performed in the same autumn verified that adult salmon and sea trout were spawning in the river. All sampled spawning salmon had a clipped adipose fin, which indicates that they were reared.

Subsequently, wild young-of-the-year (YOY) salmon and trout parr were found also in the fall 2006. Since then, wild YOY parr both salmon and trout at modest densities have been found annually. The future development of this stock is still uncertain. To increase the number of spawners a supplementary stocking was initiated in 2005.

Salmon and sea trout population facts

Population category: 5 (salmon), 1 (sea trout)
Reproduction area: 7.6 ha (salmon and sea trout)
Production capacity: 7,600 smolts (salmon); 3,500–4,000 smolts (sea trout)
Recent wild smolt production estimate: 1,800 (salmon)

Fishing regulations in the River Purtse

Minimum legal length for salmon is 60 cm and for sea trout 50 cm. In the river (from the river mouth to the lowermost dam) recreational angling is allowed only with a special license. All other fishing (except lamprey fishing) is forbidden.

Specific actions for the development of the salmonid populations

The water quality should be improved by decreasing pollution load from the oil shale processing and mining industry. The risk of resuspension of PCBs and phenol in the river sediments and banks should be minimised by appropriate measures.

The recommendations in the general report of the HELCOM SALAR project concerning accessibility and river fisheries management are applicable for this river.

The River Pärnu

The River Pärnu is a large salmon river and historical sea trout river flowing to the Gulf of Riga.

Basic hydrological facts

River length: 144 km of which 15 km accessible for salmonids
Size of catchment area: 6,920 km^2
Average flow: 49 m^3/ s
Daily lowest flow: 4.31 m^3/ s
Number of migration hindrances: 3 (1 has a fish way)

Habitat and water quality in the River Pärnu

The River Pärnu starts from Roosna-Alliku spring lake 144 km from the sea and drains into the Pärnu Bay. The catchment area consists mainly of farmland and forests, and the swamps make up for 16% of it. There are fifteen major tributaries joining the river.

In the beginning of the 20th century there were at least 18 mills only in the main river. By now most of them are gone and the three remaining mills are broken and not operational. The biggest and lowermost dam is located 15 km from the sea at the town Sindi.

There are 5.4 ha of rapids available to anadromous fish below the Sindi dam. A fish ladder was constructed at Sindi dam in 1977. However its efficiency was evaluated to be low. It is known that only sea trout and vimba bream have been able to ascend upstream in low numbers. Further upstream, until the next dam, there are potentially 35.2 ha of rapids in the River Pärnu and an additional 10.1 ha in the tributaries (rivers Navesti and Saarjõgi).

The second dam is located 76 km from the sea at Kurgja. The one meter high dam is probably not a definite obstacle for salmon. Upstream of the dam there are 14.1 ha of rapids until the third dam. The third dam is located 92 km from the sea, at Jändja. The dam is 1.8 m high and is probably not passable for fish. Upstream of the Jändja dam there are 3.6 ha of rapids suitable for sea trout in the main river and an additional 19.2 ha in the tributaries of Prandi, Esna and Vodja.

Water quality is classified as good or excellent in the entire river and is probably not a limiting factor for fish.

River Pärnu according to the Water Framework Directive

The name of the water management district is West Estonian watershed and the river type is a large oligotrophic river.

(From the river mouth to the first dam)
Ecological status: Good
Biological status: Excellent
Physical & chemical status: Good

(Upstream of the first dam)
Ecological status: Poor
Biological status: Poor
Physical & chemical status: Excellent

The main measures in the water management plan are to provide fish passage on the three lowermost dams.

Natura 2000

The river belongs to the Natura 2000 network.

The Pärnu salmon and sea trout stocks

No enhancement releases have been carried out since 1994. Wild salmon parr are only found from the rapids below the lowermost Sindi dam and in most years the parr density is just a few individuals per 100 m^2. There have been four years during the past decade when no parr at all have been observed. Therefore the stock is in a most critical state and is at the risk of extinction.

Salmon population facts

Population category: 1
Reproduction area: 5.4 ha
Production capacity: 3,500 smolts
Recent wild smolt production estimate: 0.5

Fishing regulations in the River Pärnu

All fishing is closed 500 m downstream of the Sindi dam. Salmon and sea trout fishing is forbidden from October 1 – November 30.

Specific actions for the development of the salmonid populations

The recommendations in the general report of the HELCOM SALAR project concerning accessibility and river fisheries management are applicable for this river.

The River Selja

The River Selja is a salmon and sea trout river flowing to the Gulf of Finland.

Basic hydrological facts (main river)

River length: 44 km of which 39.2 km accessible for salmonids
Size of catchment area: 410 km^2
Average flow: 2.43 m^3/ s
Daily lowest flow: 0.29 m^3/ s
Number of migration hindrances: 2

Habitat and water quality in River Selja

The river Selja has one major tributary, River Sõmeru, entering on the upper reach of the river. The catchment area is mainly farmland. The river has a rather stable flow regime since 47% of the annual flow amount consists of spring water.

The river has one manmade obstacle located 39.2 km from the sea, blocking the way to about 10% of the historical spawning grounds. The dam has no fish pass. Due to intensive agricultural land use on the catchment area the nutrient and sediment load is high. Therefore poor water quality is the sole reason for the present poor ecological status of the river.

River Selja according to the Water Framework Directive

The name of the water management district is East Estonian watershed and the river type is a medium-sized oligotrophic river.

Ecological status: Poor
Biological status: Poor
Physical & chemical status: Poor

The main measure in the water management plan is to further improve the water quality.

Natura 2000

Most of the lower part (where most spawning areas are located) of the river belongs to the Natura 2000 network.

The Selja salmon and sea trout stocks

Due to poor water quality the salmon stock declined considerably in the 1950s and no salmon was reported having entered the river 1974–1983. The water quality has somewhat improved since the early 1990s and wild YOY and post-young-of-the-year (PYOY) parr at modest density were again found in 1995. Since then, wild reproduction remained low and irregular.

More recently, stronger year classes occurred in 2005, 2008 and 2009. To increase the number of spawners annual supplementary stocking has been carried out since 1997.

Despite the improved parr density during the recent years, the salmon stock is still considered to be in poor state.

The sea trout stock is a mixture of the local strain and the introduced Pudisoo strain.

Salmon and sea trout population facts

Population category: 4 (salmon); 3 (main river), 1 (tributaries Sõmeru and Muru) (sea trout)
Reproduction area: 11.3 ha (salmon and sea trout)
Production capacity: 11,000 smolts (salmon); 6,700 smolts (sea trout)
Recent wild smolt production estimate: 3,200 (salmon)

Fishing regulations in River Selja

Minimum legal length for salmon is 60 cm and for sea trout 50 cm. On the lower 31 km stretch recreational angling is allowed only with a special license. All other fishing (except lamprey fishing) is forbidden.

Specific actions for the development of the salmonid populations

An effective protection zone should be established along the river to improve water quality through decreasing nutrient and sediment loads from agriculture.

The recommendations in the general report of the HELCOM SALAR project concerning accessibility and river fisheries management are applicable for this river.

The River Valgejõgi

The River Valgejõgi is a salmon and sea trout river flowing to the Gulf of Finland.

Basic hydrological facts

River length: 85 km of which 9 km accessible for salmonids
Size of catchment area: 453 km^2
Average flow: 3.49 m^3/ s
Daily lowest flow: 0.59 m^3/ s
Number of migration hindrances: 5

Habitat and water quality in River Valgejõgi

The river Valgejõgi starts from the small spring fed by Lake Porkuni, 107 m above the sea level and 85 km from the coast. The river has no significant tributaries. The catchment area consists mainly of farmland and forest. Swamps cover about 14% of the catchment area. The river has a very stable flow regime, because spring water constitutes 58% of the annual amount of flow.

There are altogether 15.7 ha of rapids scattered in the lower 66 km of the river, but two manmade obstacles prevent fish migration to over 90% of them. Both of these dams are non-

operational mills that are planned to be demolished. Immediately below the second dam there is a small 1.3 m high waterfall that is known to be passable to salmon and sea trout.

The water quality is presently classified as excellent and poses no threat to salmon. In 1970s and 1980s the water quality was much worse.

River Valgejõgi according to the Water Framework Directive

The name of the water management district is West Estonian watershed and the river type is a medium-sized oligotrophic river

(From the river mouth to the first dam)
Ecological status: Excellent
Biological status: Excellent
Physical & chemical status: Excellent
(Upstream from the lowermost dam)
Ecological status: Poor
Biological status: Poor
Physical & chemical status: No information

The main measures in the water management plan are to make two of the lower dams passable for the migratory fish.

Natura 2000

Most of the river belongs to the Natura 2000 network.

The Valgejõgi salmon and sea trout stocks

The first electro-fishing survey was performed in 1976 and wild salmon parr was found only in low numbers. After that wild parr was again found only in 1999. Since then wild parr has been found regularly with increasing densities. So far the highest recorded density occurred in 2009.

The increased parr density is most probably due to supplementary releases. Annual supplementary stocking was initiated in 1996 just a few years before wild parr started reoccurring. To have any significant increase in smolt production, free passage to the main spawning areas must be provided.

Salmon and sea trout population facts

Population category: 5 (salmon), 1 (sea trout)
Reproduction area: 1.5 ha (salmon and sea trout)
Production capacity: 1,700 smolts (salmon); 1,500 smolts (sea trout)
Recent wild smolt production estimate: 400 (salmon)

Fishing regulations in River Valgejõgi

Minimum legal length for salmon is 60 cm and for sea trout 50 cm. In the river (from the river mouth to the lowermost dam) recreational angling is allowed only with a special license. All other fishing (except lamprey fishing) is forbidden.

Specific actions for the development of the salmonid populations

The recommendations in the general report of the HELCOM SALAR project concerning accessibility and river fisheries management are applicable for this river.

The River Vasalemma

The River Vasalemma is a salmon and sea trout river flowing to the Gulf of Finland.

Basic hydrological facts

River length: 50 km of which 4.5 km accessible for salmonids
Size of catchment area: 403 km^2
Average flow: 3.49 m^3/ s
Daily lowest flow: 0.2 m^3/ s
Number of migration hindrances: 2

Habitat and water quality in the River Vasalemma

The River Vasalemma catchment area consists mainly of farmland and forests, and 35% of the area is swamps. There is one major tributary, Munalaskme, joining at the middle part of the river.

There are 2.4 ha of rapids available below the lowermost dam at Vanaveski. The dam is part of a former fish farm that is no longer operational. In rainy autumns some salmon can pass the 2 m high dam by jumping over it. Upstream of the Vanaveski dam there are potentially an additional 3.9 ha of rapids available. No investigation has been made of the size of potential habitat area above the second dam.

No recent data about the water quality is available, but in the late 1990s the water quality was classified as good. Since then there are no significant changes in land use in the catchment area and therefore it is likely that the water quality has not deteriorated during the past decade.

River Vasalemma according to the Water Framework Directive

The name of the water management district is West Estonian watershed and the river type is a medium-sized oligotrophic river.

(From the river mouth to the second dam)
Ecological status: Poor
Biological status: Poor
Physical & chemical status: No information

The main measures in the water management plan are to provide fish passage on the Vanaveski dam.

Natura 2000

The river section 0.7–8.6 km from the sea belongs to the Natura 2000 network.

The Vasalemma salmon and sea trout stocks

Despite of some releases carried out in 1933–1936 (32,000 salmon fry originating from Keila-Joa hatchery) and in 1985 (2000 two-year-old salmon originating from the river Salaca) the present stock is considered to be original and genetically distinct. In most years brown trout parr are more abundant than salmon, but significant variation in parr density is characteristic for both of the species. During the period of 1995–2009 there has been four years when YOY salmon parr have not been observed and similarly relatively good year classes have also occurred in four years. In general the stocks are in a poor state.

Salmon and sea trout population facts

Population category: 1 (salmon and sea trout)
Reproduction area: 2.4 ha (salmon and sea trout)
Production capacity: 2,000 smolts (salmon and sea trout)
Recent wild smolt production estimate: 100 (salmon) (ICES 2010)

Fishing regulations in the River Vasalemma

All fishing (except lamprey fishing) from the river mouth to the lowermost dam is closed.

Specific actions for the development of the salmonid populations

The recommendations in the general report of the HELCOM SALAR project concerning accessibility and river fisheries management are applicable for this river.

The River Vääna

The River Vääna is a salmon and sea trout river flowing to the Gulf of Finland.

Basic hydrological facts (main river)

River length: 64 km of which 43.9 km accessible for salmonids
Size of catchment area: 316 km^2
Average flow: 1.92 m^3/ s
Daily lowest flow: 0.27 m^3/ s
Number of migration hindrances: 2

Habitat and water quality in the River Vääna

The River Vääna has two tributaries, river Pääsküla and Vanamõisa stream. As part of the Tallinn's drinking water system, the upper part of the main river was directed to river Pirita in 1967. Before that the River Vääna was 75 km long and had a catchment area of 407 km^2. The vast majority of the catchment area consists of farmland.

The river has a small (about 1m high) waterfall 21.5 km from the coast. It is not a serious migration obstacle for salmonids as adult sea trout are common above the waterfall. There are about 3 ha of rapids in the river in total and 1 ha of it is situated upstream of the waterfall. Also, one manmade obstacle is located 43.9 km from the coast, but there are no rapids upstream of it.

Due to intensive agriculture of the catchment area, the water quality of the river is considered to be very poor and represents the biggest threat to wild salmonid reproduction.

River Vääna according to the Water Framework Directive

The name of the water management district is West Estonian watershed and the river type is a medium-sized oligotrophic river.

(From the river mouth to the second dam)
Ecological status: Poor
Biological status: Poor
Physical & chemical status: Poor

The main measure in the water management plan is to further improve the water quality.

Natura 2000

The lowest 22 km of the river belongs to the Natura 2000 network.

The Vääna salmon and sea trout stocks

Historically the river is well known for its sea trout runs. Salmon had occurred only sporadically. Most probably due to poor water quality only few salmon parr were found in the river in the 1990s and early 2000s. Wild YOY salmon parr in high density have been found in 2006, 2008 and 2009 most likely because enhancement releases were carried out from 1999

to 2005. The releases were, however, stopped because of high risk of returning adults straying into the neighboring river Keila which has a genetically distinct original population.

Salmon and sea trout population facts

Population category: 3 (salmon); 2 (main river), 1 (tributary Vanamõisa) (sea trout)
Reproduction area: 2 ha (salmon) (ICES 2010); 3 ha (main river); 0.15 ha (tributary Vanamõisa) (sea trout)
Production capacity: 2,000 smolts (salmon) (ICES 2010); 3,000 smolts (sea trout)
Recent wild smolt production estimate: 0 (salmon) (ICES 2010)

Fishing regulations in the River Vääna

Minimum legal length for salmon is 60 cm and for sea trout 50 cm. In the river (from the river mouth to the waterfall) recreational angling is allowed only with a special license. All other fishing (except lamprey fishing) is forbidden.

Specific actions for the development of the salmonid populations

An effective protection zone should be established along the river to improve water quality through decreasing nutrient and sediment loads from agriculture.

The recommendations in the general report of the HELCOM SALAR project concerning river fisheries management are applicable for this river.

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