

KALA- JA RIISTARAPORTTEJA nro 410

*Petri Heinimaa, Eero Jutila ja
Tapani Pakarinen (toim.)*

Itämeren meritaimentyöpaja

Baltic Sea Trout Workshop

Helsinki 2007



RIISTAN- JA KALANTUTKIMUS

Petri Heinimaa, Eero Jutila ja Tapani Pakarinen (toim.)

Itämeren meritaimentyöpaja (Baltic Sea Trout Workshop)

Tutkimusraportti

Riista- ja kalatalouden tutkimuslaitos

Itämeren meritaimentyöpaja (*Salmo trutta*) järjestettiin 31.5.-2.6.2006 Kotkassa. Työpaja kokosi yhteen 40 tutkijaa ja kalataloushallinnon edustajaa seitsemästä Itämeren alueen maasta (Tanska, Ruotsi, Suomi/Ahvenanmaa, Venäjä, Viro, Liettua ja Puola). Työpajassa tarkasteltiin Itämeren rantavaltioiden meritaimenkantoja käsitteleviä tutkimustuloksia ja hoitokäytäntöjä. Osana työpajaa järjestettiin aivorihi uusien tutkimusaiheiden kehittämiseksi. Työpajan tuloksena perustettiin Itämeren meritaimen verkosto tutkijoita ja kalataloushallinnon edustajien yhteistyön ja tiedonvaihdon tehostamiseksi. Työpajassa esitetyt esitelmät ovat luettavissa internet-sivulla http://www.rktl.fi/english/fish/fish_resources/baltic_sea_trout.html. Tähän raporttiin on kerätty työpajassa esitetyt maaraportit.

Itämeren luonnonvaraiset meritaimenkannat ovat taantuneet voimakkaasti ja useissa maissa niiden tilan arvioidaan olevan vaarantunut tai uhanalainen. Viime vuosikymmenenä meritaimenen istutusten tuloksellisuus on voimakkaasti heikentynyt, ja monin paikoin niiden istutus ei ole enää taloudellisesti kannattavaa. Työpajassa esitetyistä esitelmistä kävi ilmi, että meritaimenkantojen taantuminen on laajentumassa uusille Itämeren alueille. Tanskassa ja Ruotsissa on kuitenkin myös hyviä kokemuksia meritaimenkantojen elpymisestä tiukkojen kalastuksensäätelymenpiteiden sekä jokiympäristöjen kunnostamisen ansiosta. Koska meritaimenkantojen hoito jää kansallisesti usein lohien varjoon, se voisi hyötyä Itämeren laajuisesta yhteistyöstä. Avainluennoitsija Nigel Milner Iso-Britanniasta edusti kansainvälistä mielenkiintoa meritaimenasioihin ja loi osaltaan mahdollisuuksia yhteistyön kehittämiseksi Itämerialueen meritaimenkantojen tutkijoiden ja kalatalousviranomaisten kesken kansainvälisellä tasolla.

Itämeri, meritaimen, *Salmo trutta*, kalastus, saaliit, kalastuksen sääätely, kalakannat, seuranta, tutkimus, istutukset, merkintä

Kalatutkimuksia – Fiskundersökningar 410

978-951-776-563-3

1238-3325

69 s.

Suomi

Julkinen

Riista- ja kalatalouden tutkimuslaitos
PL 2
00791 Helsinki

Riista- ja kalatalouden tutkimuslaitos
PL 2
00791 Helsinki

Puh. 0205 7511 Faksi 0205 751 201

Puh. 0205 7511 Faksi 0205 751 201

<http://www.rktl.fi/julkaisut/> (pdf)

Utgivare

Vilt- och fiskeriforskningsinstitutet

Utgivningsdatum

Maj 2007

Författare

Petri Heinimaa, Eero Jutila och Tapani Pakarinen (red.)

*Publikationens namn***Workshop för Östersjöns havsöring, (Baltic Sea Trout Workshop)***Typ av publikation*

Forskningsrapport

*Uppdragsgivare**Datum för uppdragsgivandet**Projektnamn och -nummer**Referat*

En workshop för havsöringen i Östersjön (*Salmo trutta*) arrangerades 31.5.-2.6.2006 i Kotka. Mötet samlade 40 forskare och representanter för fiskeriförvaltningen från länderna i Östersjöregionen (Danmark, Sverige, Finland/Åland, Ryssland, Estland, Lettland och Polen). Under workshopen granskades forskningsresultat, göllande havsöringsbestånden i länderna runt Östersjön och ländernas fiskevårdspraxis. En del av sammankomsten ägnades åt brainstorming för att ta fram nya forskningsteman. Ett resultat av workshopen var det nätverk av forskare och representanter för fiskeriadministrationen som grundades för att effektivisera samarbetet och informationsutbytet. Föredragen, som hölls vid tillfället, kan läsas på internetsidan http://www.rkti.fi/english/fish/fish_resources/baltic_sea_trout.html. De rapporter som presenterades av de olika länderna finns samlade i denna publikation.

Östersjöns naturliga havsöringsstammar har gått kraftigt tillbaka och i de flesta av länderna bedöms de vara hotade. Under det senaste decenniet har resultaten från utsättning av havsöring försämrats avsevärt och på många håll är utsättningarna inte längre ekonomiskt lönsamma. Det framgick av de presentationer som gavs, att nedgången i havsöringsbestånden berör allt större områden i Östersjön. I Danmark och Sverige finns trots allt också goda erfarenheter av att havsöringsbestånden återhämtat sig, tack vare strikt fiskereglering och restaurering av miljön kring älvarna. Eftersom skötseln av havsöringsbestånden nationellt ofta hamnar i skuggan av laxen, kunde man för havsöringen del utnyttja det omfattande samarbetet kring Östersjön. En av de centrala föreläsarna, Nigel Milner från Storbritannien, som representerade det internationella intresset för havsöringsfrågor, erbjöd för sin del möjligheter till ett utvecklat samarbete på internationell nivå mellan forskare och fiskerimyndigheter kring Östersjöns havsöringstammar.

Nyckelord

Östersjön, havsöring, *Salmo trutta*, fiske, fångster, fiskereglering, fiskbestånd, uppföljning, forskning, utsättning, märkning

Seriens namn och nummer

Kalatutkimuksia – Fiskundersökningar 410

ISBN

978-951-776-563-3

ISSN

1238-3325

Sidoantal

69 s.

*Språk**Pris**Sekretessgrad*

Offentlig

Försäljning

Vilt- och fiskeriforskningsinstitutet
PB 2
Tel. 0205 751 1 Fax 0205 751 201
<http://www.rkti.fi/julkaisut> (pdf)

Förlag

Vilt- och fiskeriforskningsinstitutet
PB 2
00791 Helsinki
Tel. 0205 7511 Fax 0205 751 201

Published by

Finnish Game and Fisheries Research Institute

Date of Publication

May 2007

Author(s)

Petri Heinimaa, Eero Jutila and Tapani Pakarinen (ed.)

*Title of Publication***Baltic Sea Trout Workshop**

*Type of Publication**Commissioned by**Date of Research Contract*

Title and Number of Project

Abstract

The Baltic Sea Trout (*Salmo trutta*) workshop was arranged on 31.5.-2.6.2006 in Kotka, Finland. The workshop gathered together 40 researchers and managers from 7 Baltic Sea countries (Denmark, Sweden, Finland/Åland, Russia, Estonia, Lithuania and Poland). The workshop updated the research knowledge and management practices on the Baltic sea trout stocks in different Baltic Sea countries. Part of the workshop was a brainstorm session for the new project ideas. As a result of the workshop a Baltic Sea trout network of researchers and managers was created to improve co-operation and information exchange. All the material presented at the workshop is available at the website http://www.rkti.fi/english/fish/fish_resources/baltic_sea_trout.html. In this report the country reports are presented.

The status of wild sea trout stocks has declined dramatically and therefore the wild populations are in several countries seen extremely endangered. At the same time also the returns of stockings in many areas have declined to a level where they are not anymore profitable. Also according to many presentations given at the workshop the poor status of sea trout stocks seems to be escalating to different areas of the Baltic Sea. However, there are also good experiences of the effects of strict fishing regulations and stream restorations in Denmark and Sweden. As the sea trout questions are often nationally neglected in comparison to salmon, the sea trout research and management benefits out of Baltic Sea-wide co-operation. One keynote lecturer, Nigel Milner from Great Britain, was representing the international interest in sea trout questions providing links and possibilities to co-operation between the Baltic Sea Trout activities and other European countries on an international level.

Key words

Baltic sea, sea trout, *Salmo trutta*, fishing, catches, fishing regulations, stocks, monitoring, research, stocking, releases, tagging

Series (key title and no.)

Kalatutkimuksia – Fiskundersökningar 410

ISBN

978-951-776-563-3

ISSN

1238-3325

Pages

69 p.

Language

English

*Price**Confidentiality*

Public

Distributed by

Finnish Game and Fisheries Research Institute
P.O. Box 2
FIN-00791 Helsinki, Finland
Phone +358 205 751 1 Fax +358 205 751 201
<http://www.rkti.fi/julkaisut/> (pdf)

Publisher

Finnish Game and Fisheries Research Institute
P.O.Box 2
FIN-00791 Helsinki, Finland
Phone +358 205 7511 Fax +358 205 7511

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Baltic Sea Trout Workshop

Kotka 31.5.-2.6.2006

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Introduction

The report is an overview of the state of the sea trout in different Baltic Sea countries presented at the Baltic Sea Trout Workshop which was held on the 31.5.–2.6.2006 in Kotka Finland. The aim of the workshop was to create a Baltic Sea trout (*Salmo trutta* m. *trutta*) network to improve co-operation and information exchange between researchers and fisheries managers from different Baltic Sea countries. This is very important as so far the Baltic salmon has attracted the biggest interest of researchers and managers and therefore sea trout has been neglected due to smaller catches and less interest. The ICES/ACFM meeting in Copenhagen in 2005 also recognized the decline of sea trout stocks and gave recommendations on several actions to take place in order to enhance the sea trout stocks and better knowledge of their status.

Natural sea trout stocks have declined dramatically from their original abundance especially in the Finnish coastal area and therefore the wild populations are nowadays extremely endangered. At the same time also the results of sea trout stockings have declined to a level where they are not anymore profitable. The phenomenon seems to be enlarging from the Finnish coast to different areas of the Baltic Sea. However there are also areas where the natural stocks are still in fairly good shape (coast of the Baltic Sea Main Basin in Denmark and Sweden) and the stockings give good results (Poland).

At the First International Sea Trout Symposium in Cardiff, Wales in 2004 it was declared that immediate action should be taken to protect and conserve sea trout stocks throughout their geographical range. It was also recognized that more detailed research information is needed as the exceptional variety of trout life histories and habitat use adds significantly to the biodiversity of many types of waters. In the case of sea trout this includes rivers, lakes, estuaries, coastal waters and a huge network of otherwise neglected small coastal streams. Sea trout populations are thus particularly valuable in assessing ecosystem health in the context of the Water Framework Directive.

The project gathered together 40 researches and fisheries managers who are concerned over the situation. It also gave a possibility to pass information around and create a basis for future co-operation in resolving the problems with the natural sea trout stocks and stockings.

Danish country report

Gorm Rasmussen & Stig Pedersen
Danish Institute for Fisheries Research

Introduction



Figure 1. The Danish part of the Baltic area comprises ICES Areas 22-25, but it is known that Danish sea trout outside the Baltic area also migrates into the Baltic Sea (all areas).

1. Fishing and catches by sea areas

Sea trout is only targeted directly to a small extent by professional fishermen in Denmark. By professionals it is caught partly as a by-catch in the salmon fishery, and partly also by coastal fishermen and probably as a by-catch in herring trawl fishery.

The major part of the catch of sea trout is believed to be by recreational fishermen using semi-professional gears, and an increasing number of sea trout are also caught by sports fishermen in the sea or in rivers. It is known that a part of the catch by recreational fishermen is marketed unofficially, but numbers are unknown. No number or estimates of caught sea trout are available for either type of recreational fishery.

Almost all officially registered marketed sea trout are caught in the Baltic.

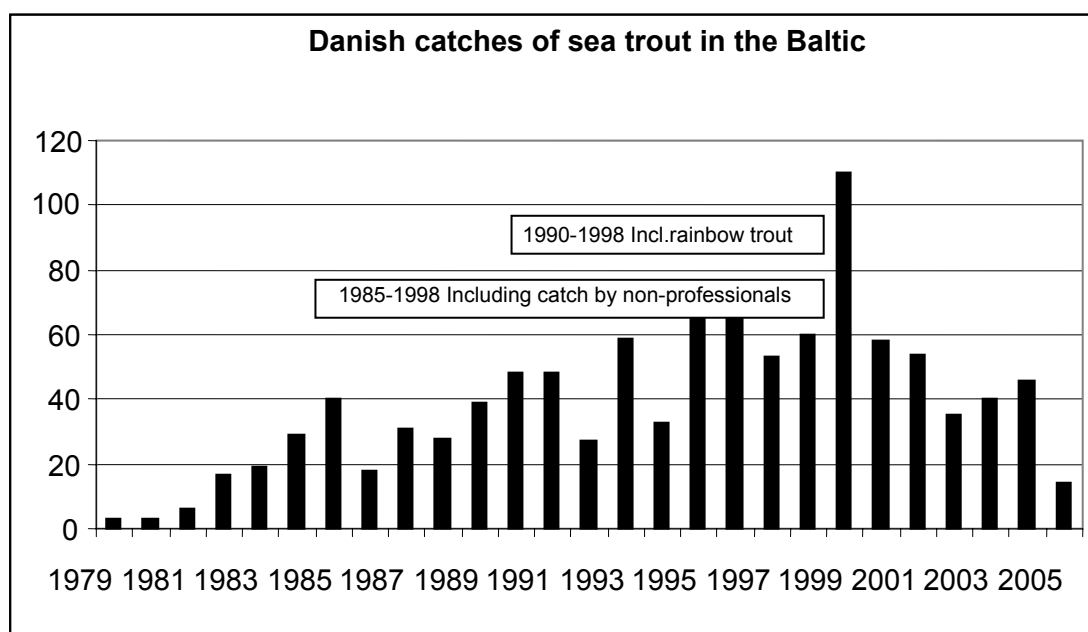


Figure 2. Nominal catches of sea trout in the Baltic for Denmark 1979 - 2005.

During the period 1997-2005 an average of 46.7 tonnes with an average first hand value of DKK 688,000 (EURO 91,700) were marketed annually.

It is not known how large the real total catch is. It has been estimated, however, that the total catch in the Limfjord area was 48,000 sea trout (91 tonnes) in 2002. This area represents approximately 1/6 of the total Danish production. If the catch also represents 1/6 the total catch would be 545 ton and 288,000 sea trout. At least half of this would be from the Baltic area. As a very tentative estimate, the official numbers may represent about 1/6'th of the total catch in the Baltic area.

Sea trout are caught as a by-catch in the offshore salmon fishery, but also as a by-catch in the coastal fishery and probably herring trawl fishery in the south-western Baltic. A substantial part of the catch during the period 1997 – 2005 was landed on Zealand, mainly in the southern part of this island (Figure 3). The average price pr. kilo was significantly lower on the island of Bornholm, than it was on all other markets. It is not known what part of the sea trout are caught as by-catch in the salmon fishery and in the coastal pound-net fishery or possibly as a by-catch in trawl fishery for herring.

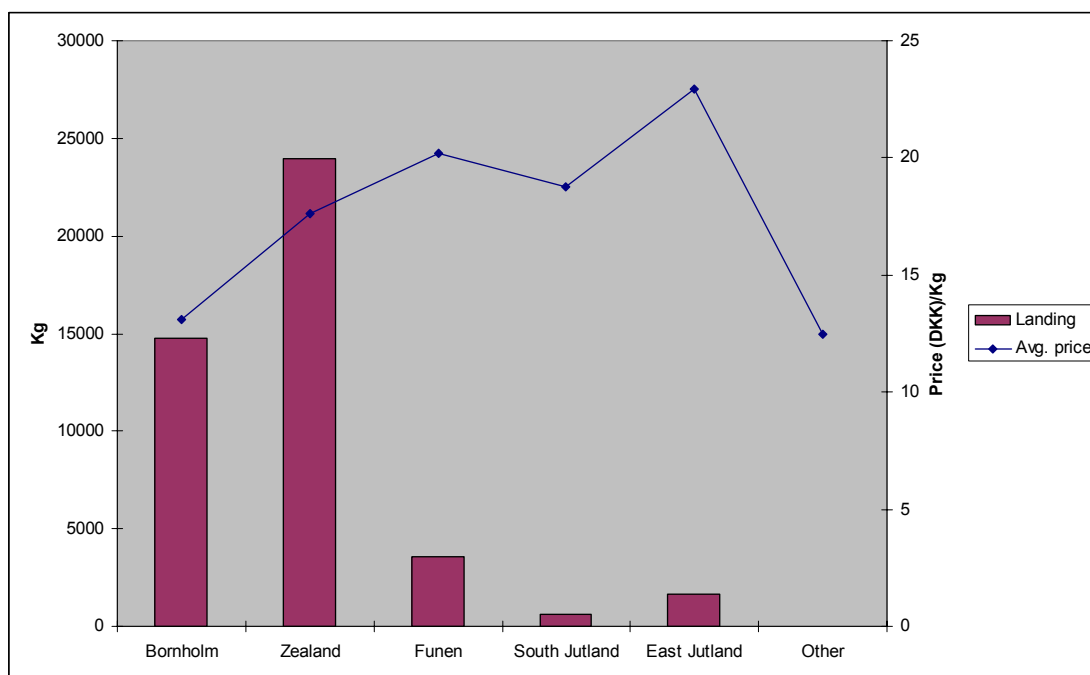


Figure 3. Distribution of nominal landings of sea trout caught in the Baltic 1997-2005.

Numbers of sea trout caught by the sports fishery are largely unknown. Anglers are not obliged to report catches, and in many rivers the sports fishermen keep their catches secret, even if attempts are made to collect the information from the fishermen.

From a few rivers the recorded catch is available to a certain extent, and an index indicating abundance is presented in figure 4. A clear tendency to increased catches in the period from 1991 to 2005 is found in both streams.

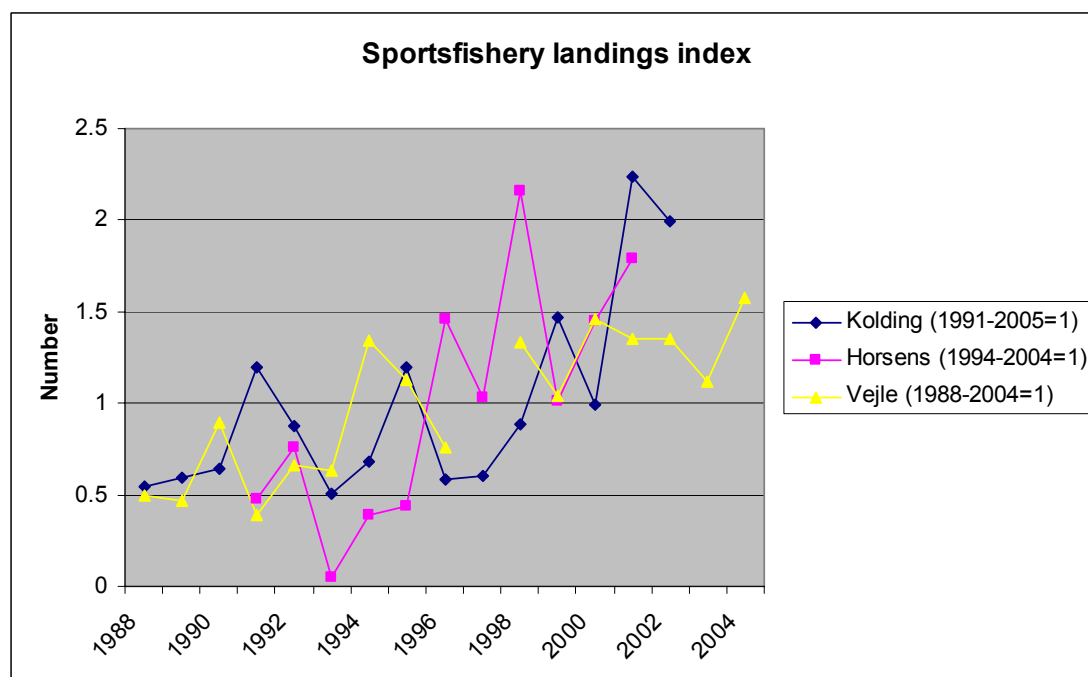


Figure 4. Index of sea trout catch in three rivers (Vejle, Kolding and Horsens) on the east coast of Jutland. Total recorded catch varied between 225 – 929 sea trout in one river and 1 – 28 in the other.

2. Fishing regulations

Legal catch size in the sea and rivers ≥ 40 cm (total length), mature and maturing trout may not be caught in the period 16. November - 15. January. In several rivers this period is extended on a voluntarily local basis.

Sea fishing

- No fishing is permitted within 500 m from river mouths with width ≥ 2 m. (some exceptions)
- No fishing permitted within 500 m from river mouth with width < 2 m during the period 16. September to 15. March (some exceptions)
- Stop nets or grids (75 mm) in first frame of fyke-nets (to prevent otter (*Lutra lutra*) from entering the gear)
- Pound nets: in many areas upper edge of net must be lowered 10 cm below water surface March – May
- Recreational fishermen:
 - Illegal to sell catch – only for self-consumption.
 - Normally 300 m between fixed pound nets
 - Gill-nets, long-lines and fyke-nets: distance at least 150 m to professional gear and fixed pound nets
 - Gill-nets: distance at least 100 m from low-water line at shore, sailing channels and low water areas
 - Maximum number of gears is 6 of which:
 - Max. 3 gill-nets each with max. length 45 m. Mesh size < 50 mm (knot to knot) or > 65 mm during period 1 July – 15. November.
 - Hooklines: max. number of hooks is 100
 - Only 1 fixed pound net each license
- Sports fishery:
 - No trolling (engine powered vessel) within 100 m from low-water line at shore
- Bornholm and various local areas: extended closed area around many streams irrespective of size of these

Rivers and lakes

- No fishing in fish ways at weirs etc. 50 m above and below these (some exceptions)
- No gill-nets, seines and trawls in rivers; gill-nets are not permitted in lakes in April and May
- Use of fyke-nets only by land owner or long-time leaser
- Fyke-nets may cover max 1/3 of stream and lake
- Traps (e.g. for eel) covering the entire stream only where historical rights exist
- Stop nets or grids (75 mm) in first frame of fyke-nets (to prevent otter from entering gear).

- In general gears blocking the river are prohibited – except on locations with historical rights.
- Closed season 16. November - 15. January; extended in many rivers

Grids at fish farms and turbines

Water in- and outlet at freshwater fish farms must have grids with max. 6 mm and 10 mm openings, respectively. In many rivers there are small water electricity plants with 10 mm grids at inlet.

3. Sea trout stocks and their status by sea areas

The total smolt production to the Baltic area from Denmark was in recent years approximately 700,000 smolt. Especially wild production increases gradually, as does river mouth releases after year 2000, while smolt production as a result of river releases of younger (i.e. fry, ½- and one yearlings) fish diminishes (Figures 5 – 8).

The reason for the increase in river mouth releases was a change of procedure; river mouth releases were increased while the former coastal releases were stopped in 2001. This change was made in order to diminish straying.

The increase observed in the wild production of smolt was mainly due to increases on Jutland and Funen. They are a result of increased accessibility to spawning areas, increased spawning areas as a result of river restoration, improvements in habitat quality as such and probably also of increased number of spawners, due to improved survival of both smolt and sea trout during the sea migration. At the same time the parental fish for producing fish for release has increasingly changed toward F1 offspring from wild spawners returning to the stream.

The larger part of the river mouth releases take place on Zealand. This is partly illustrating the lack of suitable habitat (i.e. growth up areas in the rivers) area on this island.

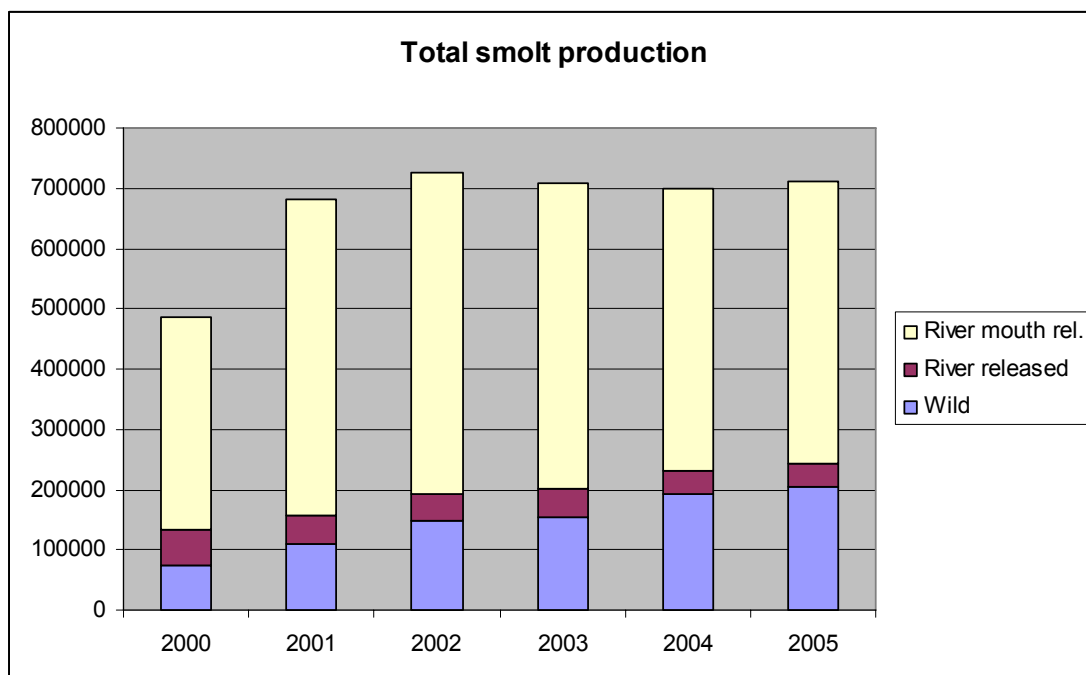


Figure 5. Total smolt production in the period 2000-2005 from rivers going into the Baltic Sea.

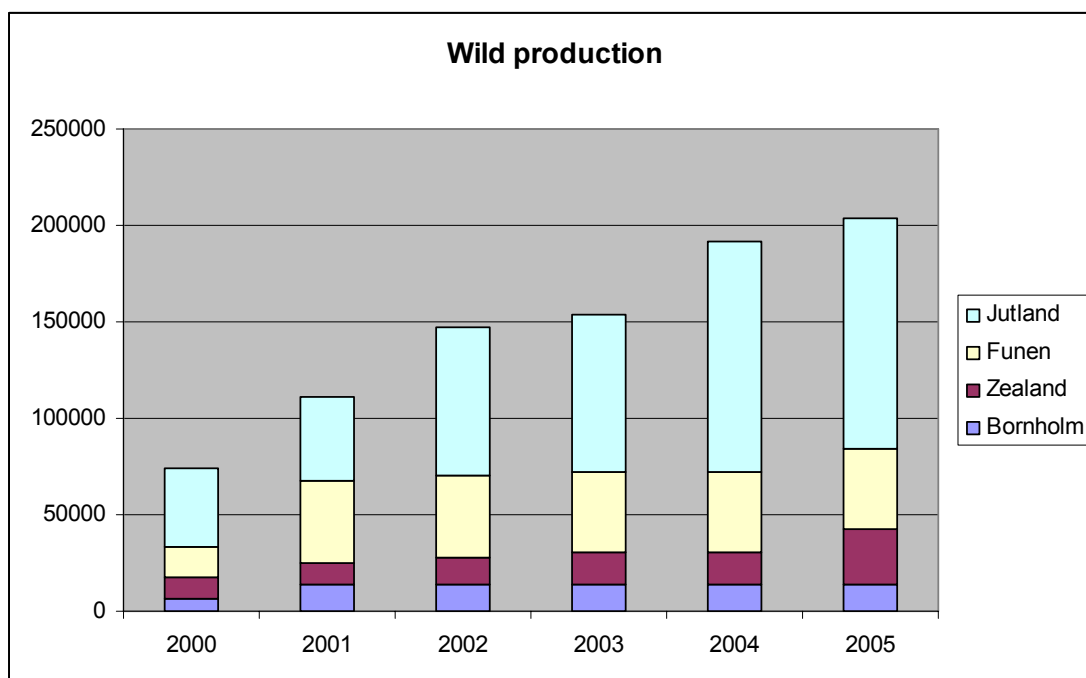


Figure 6. Wild smolt production in the period 2000-2005 from rivers going into the Baltic Sea.

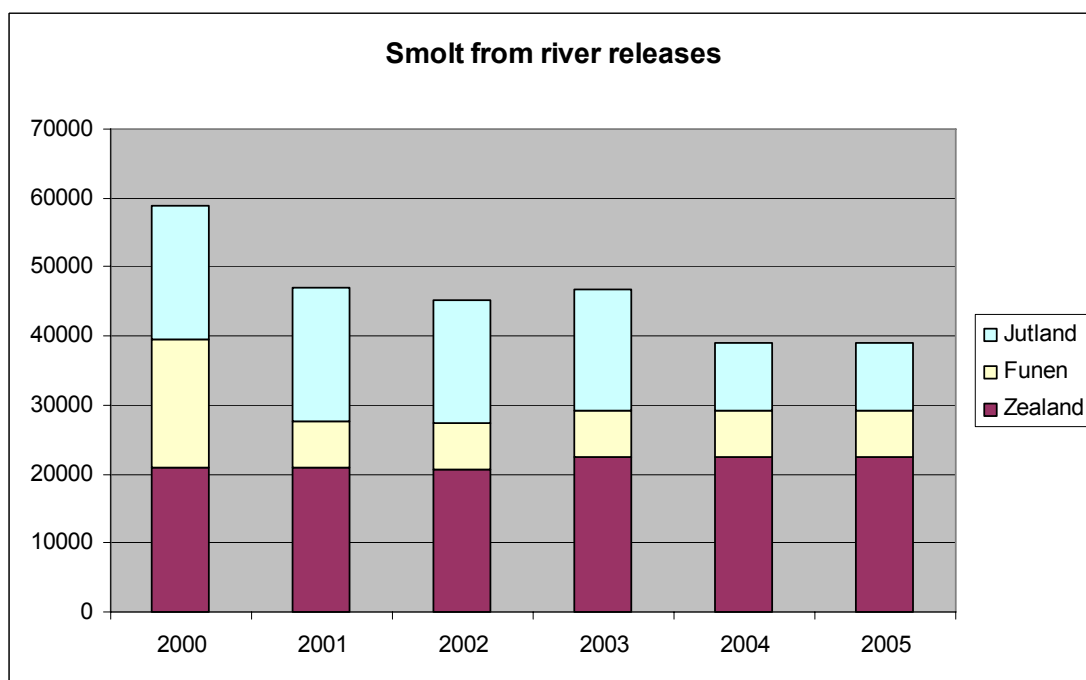


Figure 7. Smolt production from releases of fry, ½- and one yearlings and smolt in the period 2000-2005 from rivers going into the Baltic Sea.

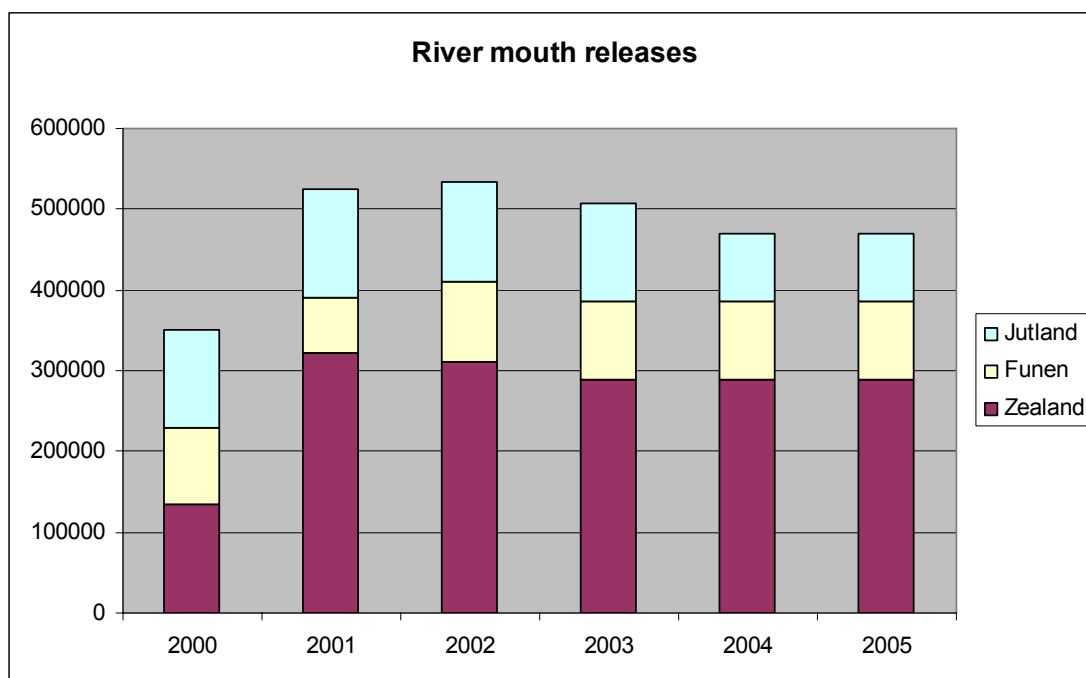


Figure 8. Smolt production from river mouth releases in the period 2000-2005 from rivers going into the Baltic Sea.

The number of rivers with wild production estimated to be good, satisfactory or poor relative to the estimated habitat area and quality is summarised in Table 1 and Figure 9 – 12. Numbers for each area is compiled from one to several stocking schemes. These are revised every 7th year, except for Bornholm, where the stocking schemes are not revised. For example the schemes were revised for Funen in 2001, resulting in changed numbers in 2001.

In general, the number of rivers with a good production increases, especially in the Jutland area. On Zealand the number of rivers with production as such increases, reflecting the effect from restoration projects in the streams, and a continued effort towards water quality improvements (water purification plants, draining from buildings in the countryside, surveillance of farms with livestock).

Table 1. Number of rivers with wild production of trout judged as good (=full production relative to habitat area and quality), satisfactory (“reasonable” production) or poor (low production).

Area	Year					
Bornholm	2000	2001	2002	2003	2004	2005
Good	1	1	1	1	1	1
Satisfactory	12	11	11	11	11	11
Poor	10	9	9	9	9	9
Zealand						
Good	1	1	2	2	2	2
Satisfactory	6	6	10	10	10	10
Poor	17	17	25	25	25	25
Funen						
Good	2	6	6	6	6	6
Satisfactory	11	12	12	12	12	12
Poor	19	14	14	14	14	14
Jutland						
Good	12	12	15	15	41	41
Satisfactory	24	24	53	53	29	29
Poor	37	37	69	69	16	16

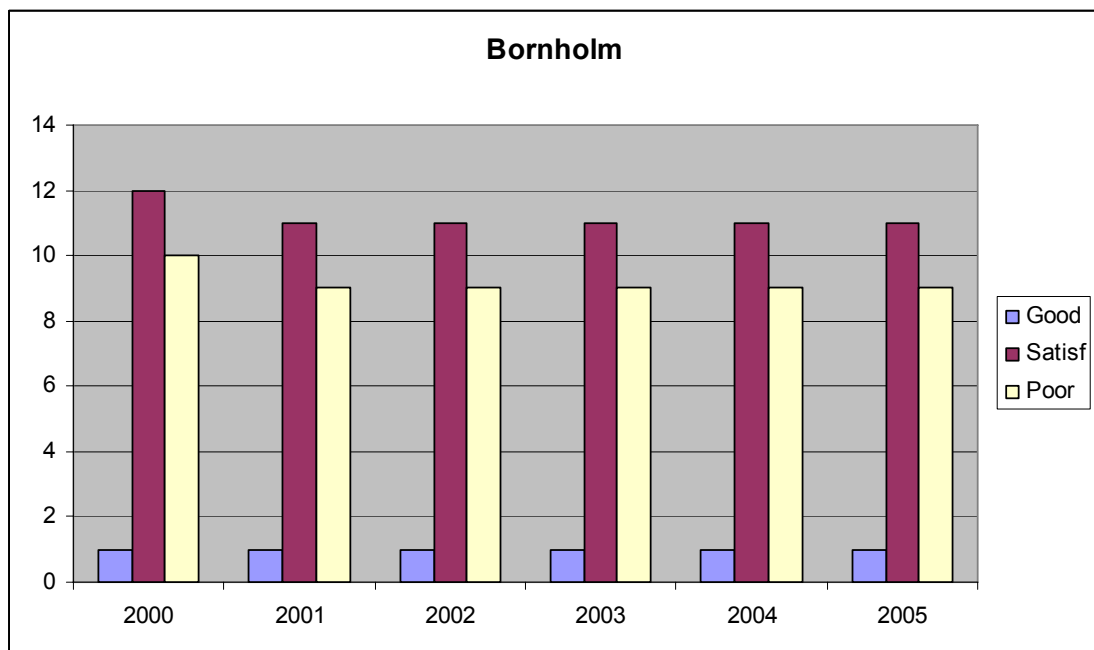


Figure 9. Number of rivers in Bornholm with wild production of trout judged as good, satisfactory or poor in 2000 – 2005.

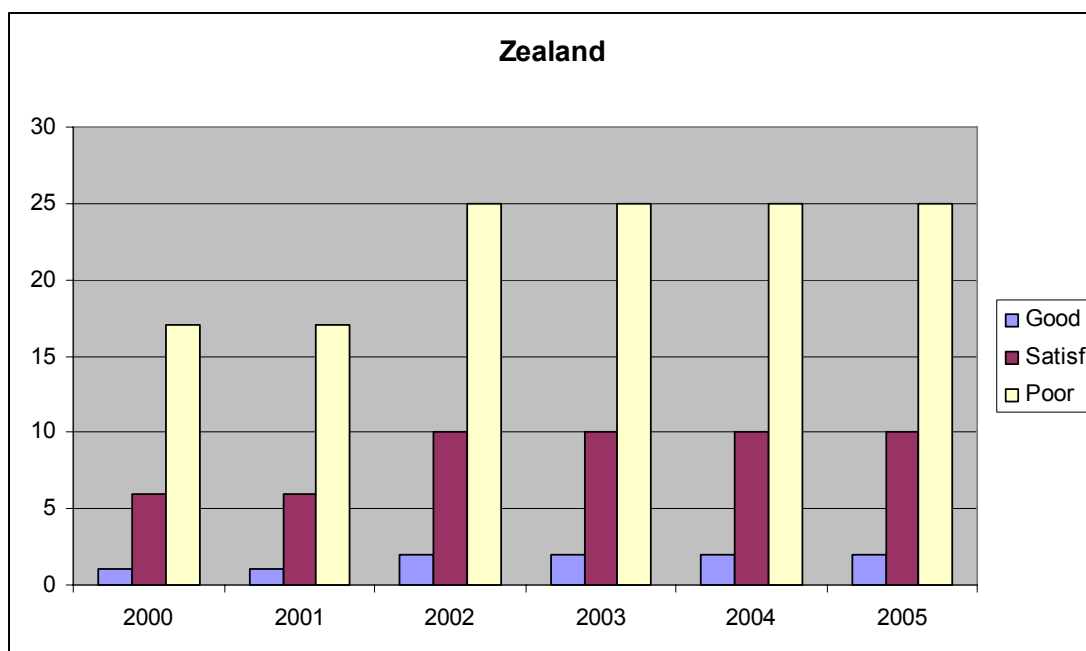


Figure 10. Number of rivers in Zealand with wild production of trout judged as good, satisfactory or poor in 2000 – 2005.

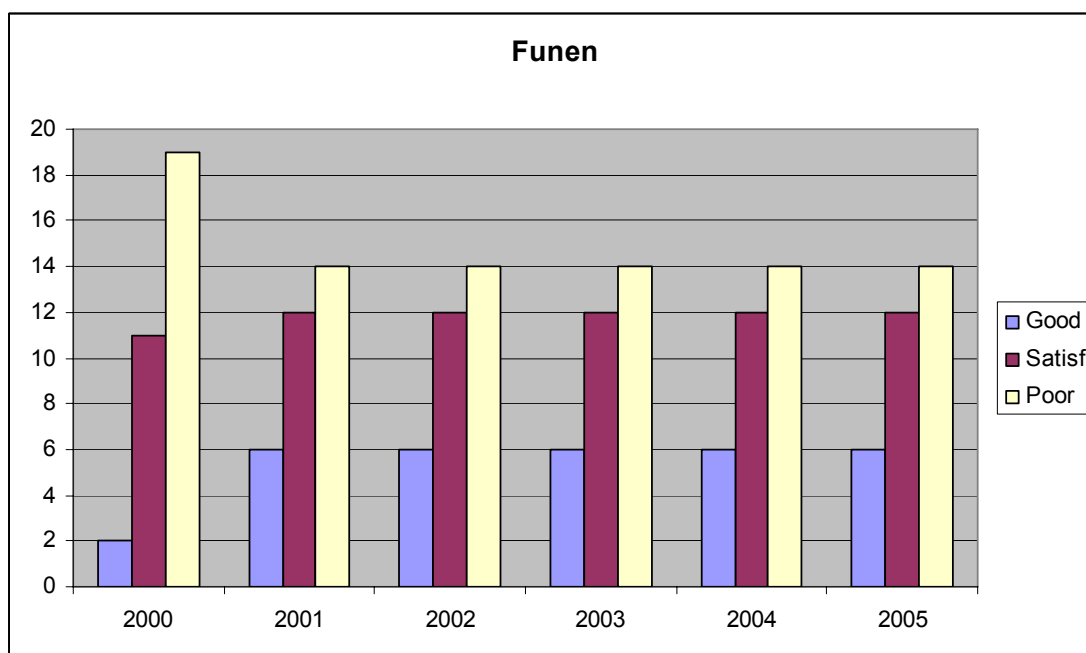


Figure 11. Number of rivers in Funen with wild production of trout judged as good, satisfactory or poor in 2000 – 2005.

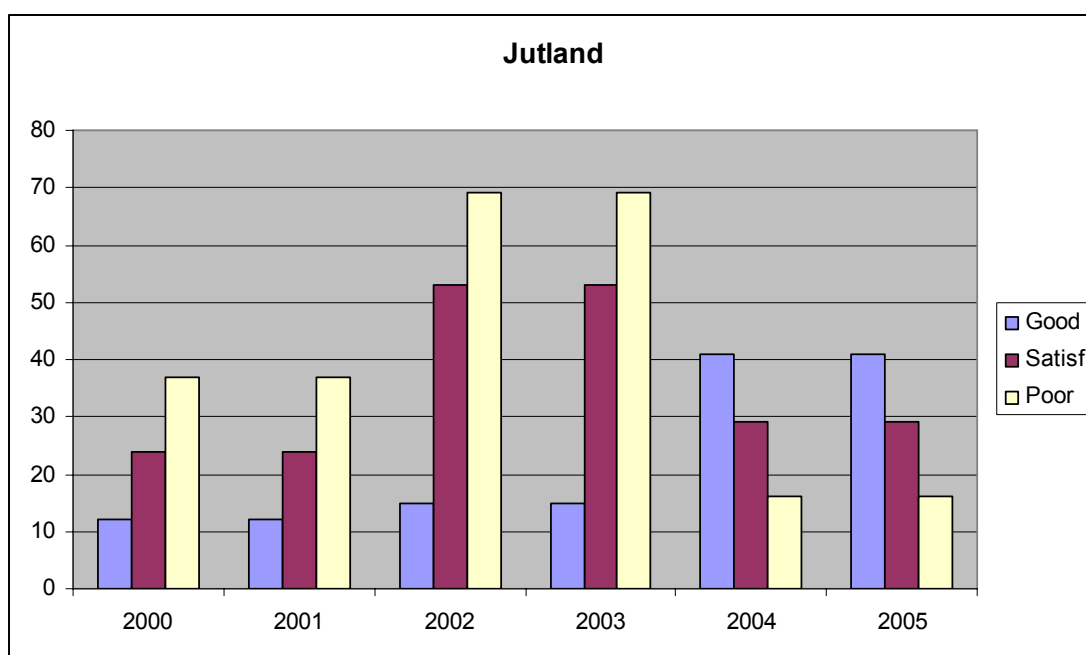


Figure 12. Number of rivers in Jutland with wild production of trout judged as good, satisfactory or poor in 2000 – 2005.

4. Annual monitoring of sea trout stocks by sea areas

In total 2,135 river locations are routinely monitored every 7th year by DIFRES. In addition several thousand locations are monitored by the local authorities. DIFRES does not monitor the streams on Bornholm.

Table 2. Annual monitoring of sea trout stocks in different sea areas.

Land area	Rivers monitored, i.e. electric fished or inspected	Total n of sites	Notes	Frequency
Bornholm	18	36	Local authorities	Annually
Zealand	253	734	DIFRES	Every 7 th year
Funen	70	411	“-“	-
Jutland	176	1006	“-“	-

5. Threats for the stocks

Table 3. Threats for the sea trout stocks

Sea area	Threats
Bornholm	Low flow periods especially during summer, bird predation, access to spawning grounds during low flow periods
Zealand	Lack of water in dry periods (all summers), silting of spawning grounds, silting of habitat area in streams, quality of habitat areas
Funen	Illegal fishing, quality of habitat areas, access to spawning areas, bird predation
Jutland	Illegal fishing, silting of spawning grounds, silting of habitat areas, quality of habitat areas, access to spawning areas, passage of weirs at downstream migration of smolt, bird predation

6. Improvement measures in sea trout rivers

Table 4. Improvement measures in sea trout rivers.

Sea area	Restoration	Enhancement/supportive stocking
Bornholm	Partial in some rivers	None
Zealand	Partial in many rivers	Diminishing
Funen	Intensive	“_”
Jutland	Partial in many rivers	“_”

7. Potential rivers likely to be suitable for enhancement/restocking

It is currently estimated from the monitoring programme, that more or less all rivers with at least some suitable spawning and habitat areas are productive to some extent. The spawning and habitat areas may increase in a number of rivers, thus raising the natural and enhanced population size, but the number of rivers with trout populations is probably not likely to increase. Currently no estimate of the magnitude of improvement is available.

8. Releases (compensation/sea ranching)

8a. Description of the operation

History shortly

- Started around year 1900, increased in intensity during the period 1950 – 1970. Stocking schemes for stocking fry in individual river systems were implemented from 1930'ies, however only for a few of the larger rivers. After introduction of electric fishing in Denmark in 1947 stocking of fry, ½- and one yearlings have been based on the actual need for stocking. Since 1990 stocking schemes for all rivers and streams in Denmark, with central coordination of releases.
- From 2006 only offspring F1 from wild trout are released.
- Releases were used firstly for compensatory stocking (at weirs etc.), later for enhancement (to make use of the productive area) and in recent years in an attempt to restore self sustaining populations.

Hatcheries (governmental/private)

- All hatcheries are private
- In some river systems hatcheries are run by local sports fisher associations
- For some river systems, professional hatcheries handle the raising of fry etc. for sports fisher associations.

Brood stocks/ collecting of spawners

- Previously the stocking material was based on hatchery (i.e. domesticated) strains in many rivers. In recent years increasingly on offspring from wild spawners returning to the stream.
- From 2006 entirely based on wild spawners.
- More and more emphasis on improving wild production (restoration of stream instead of releasing fish).

Quality criteria for young fish

- Fry fed at least for 3 weeks; ½-yearlings 5-8 cm; one yearlings 9-13 cm; smolt size minimum 14 cm (range 14-17 cm),
- Fry and one year old trout should be stocked in April; smolts should be stocked in March or April (preferably between week 13 and 16). Sea temperature at outlet should be > 4° C. ½-yearlings stocked in September-October.

Outcome of the releases.

Time series of recapture percentages for smolt releases in the River Gudenå (including releases at river mouth and in the fjord outside the river) are presented in Figure 13. In the figure upper-river releases are releases upstream an artificial lake. It should be noted that releases were done in many different localities, with different aims, and the development in recapture percentage is not directly comparable between years.

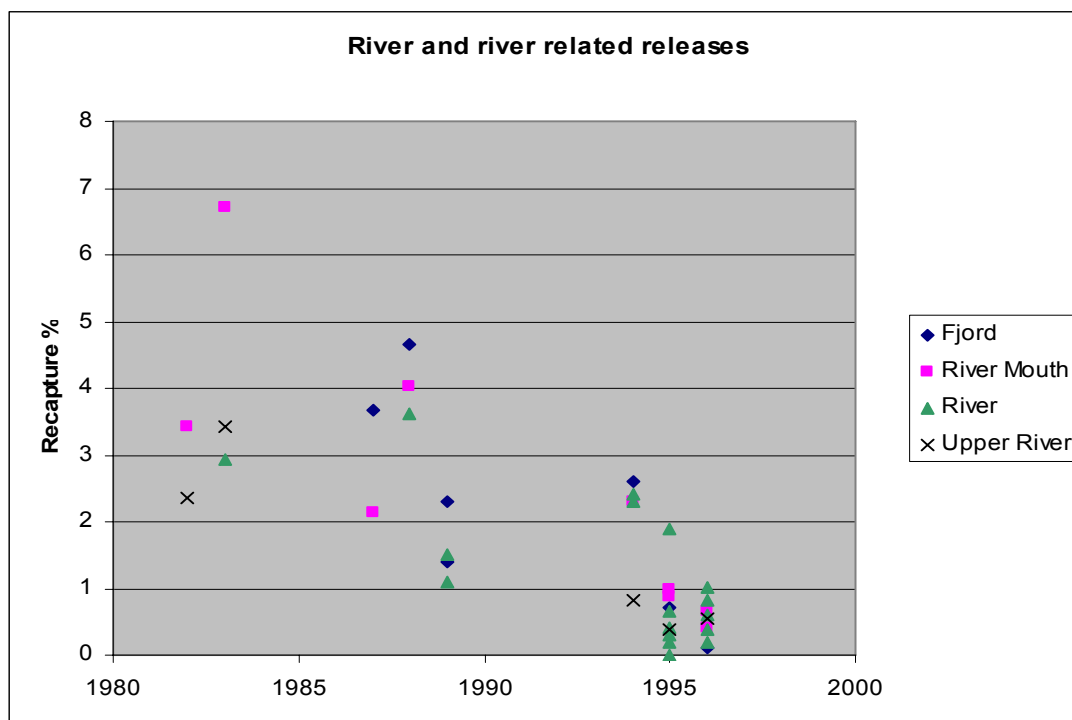


Figure 13. Time series of recaptures of trout tagged and released in the river Gudenå.

An overview of recaptures in various other rivers and coastal releases are presented in Figures 14 and 15. These smolt releases were also done for various purposes and are presented only to give an impression of the magnitude of the recapture over time.

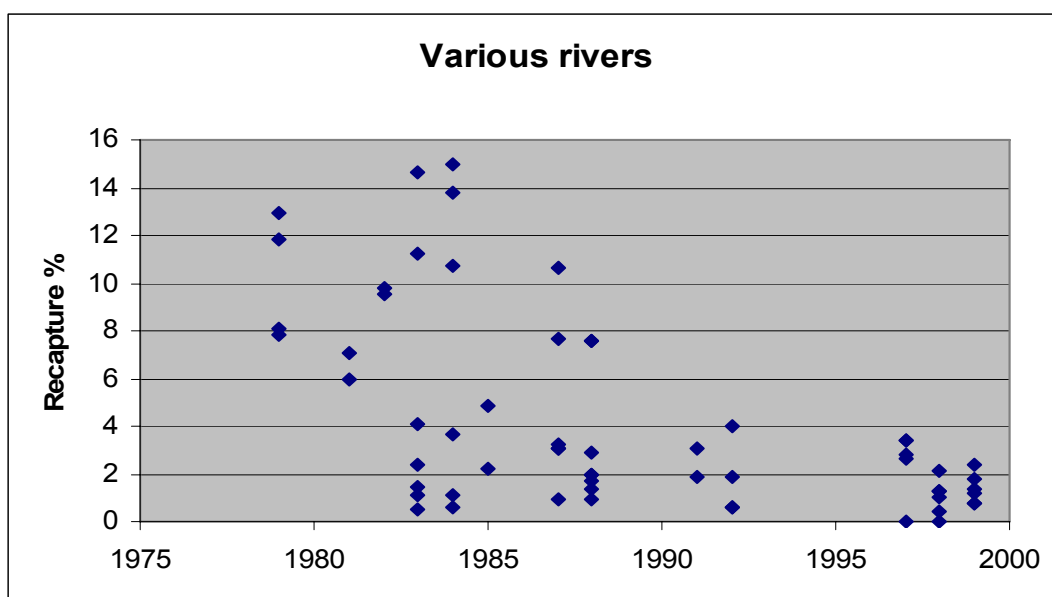


Figure 14. Recapture percentages from releases in various rivers (Karup, Odense, Brændeå, Voer, Lindenberg, Ryå, Storå, Skjernå, Halleby, Suså, Havmølle).

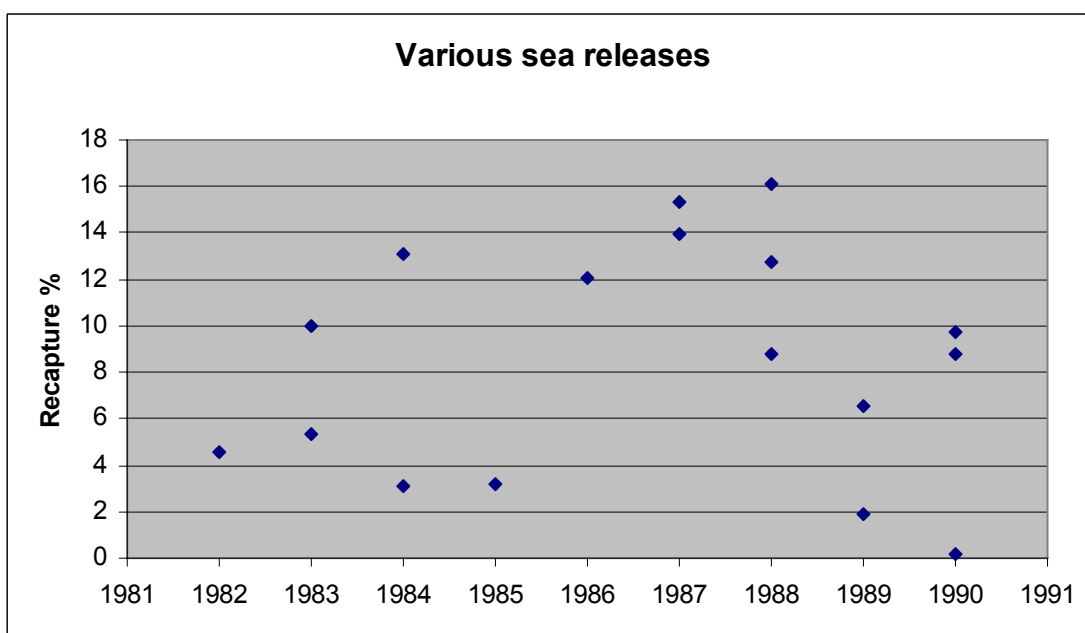


Figure 15. Recapture percentages from releases of trout in three different sea areas: Limfjord, Århus Bay, South Funen.

8b. Annual releases by sea areas

See section 3 above.

9. Research activities

Major activities

- Study on mortality and behaviour at passing of weirs (mostly fish farms)
- Routine monitoring of populations in streams
- Migration pattern of mature fish through estuaries, fjords and rivers using acoustic tags
- Effect of bird (mostly cormorant (*Phalacrocorax carbo*) and heron (*Ardea cinerea*)), secondarily from otter and mink (*Mustela vison*) predation in rivers, lakes and estuaries during smolt migration in spring using telemetry and genetics
- Population dynamics (number, mortality, growth, production, feeding habits, smolt production)
- Habitat requirements in rivers
- Evaluation of heredity versus environment on growth, behaviour and survival (common garden experiments)
- Stock identification by genetic methods
- Physiological and behavioural studies of winter migrating immature sea trout
- Comparisons of wild and hatchery reared offspring from wild sea trout using Carlin tags

Research needs and interests

- Index river for smolt production of stocked fry, 1/2- and one yearlings and wild smolt; and spawning escapement
- Counts of spawners – model for sea- and freshwater survival
- Sea trout biology as such in coastal and marine areas
- Spawning escapement in different river systems
- Modelling of stream habitat quality and trout population density (possibly by RHYHABSIM or similar, in relation to stream maintenance and discharge)
- Habitat requirements in natural and regulated (maintained) rivers and rivers with differing discharge pattern.
- Sea trout production (i.e. population dynamics) in large rivers where the present monitoring does not take place
- Tagging methods for small (<11 cm) trout for identification and locating fish on distance (like e.g. PIT or visible elastomer).

10. Needs for national conservation and management measures

- Limitation of predation from birds
- Reduction of by catch of smolt during migration in fjord and coastal fishery
- Action against illegal fishing in river mouths and other places

11. Needs for international cooperation in research

- Coordinated tagging protocols and reporting
- Research on sea migration and biology in sea of sea trout
- Influence of sediment load in spawning and nursery areas: natural streams vs. regulated (Danish) streams
- Study on origin of sea trout caught in different areas in the Baltic.
- Stocked vs. wild behaviour and performance to evaluate the outcome from stocking compared to the value of restoring streams

12. Needs for international cooperation in management

- Same closed season and legal size in larger areas in the Baltic, e.g. the southern part

13. Main conclusions

- Sea trout populations in DK are in “reasonably” good and improving condition
- Main threats to the populations:
 - Problems with cormorant predation especially during sea-ward migration persist
 - Beaver dams in some areas
 - Releases in streams contribute only to minor extent to production
 - Illegal fishing in river mouths and fjords and too close to coast in some areas.
 - Widespread problems with covering of spawning and nursery areas with sediment (sand). Sand influences also availability of habitats.
- Improving of the spawning, and nursery habitats in rivers is needed
- International communication and corporation in research projects is needed
- Finances

Finnish country report

Ari Saura, Eero Jutila & Tapani Pakarinen

Finnish Game and Fisheries Research Institute

1. Fishing and catches by sea areas

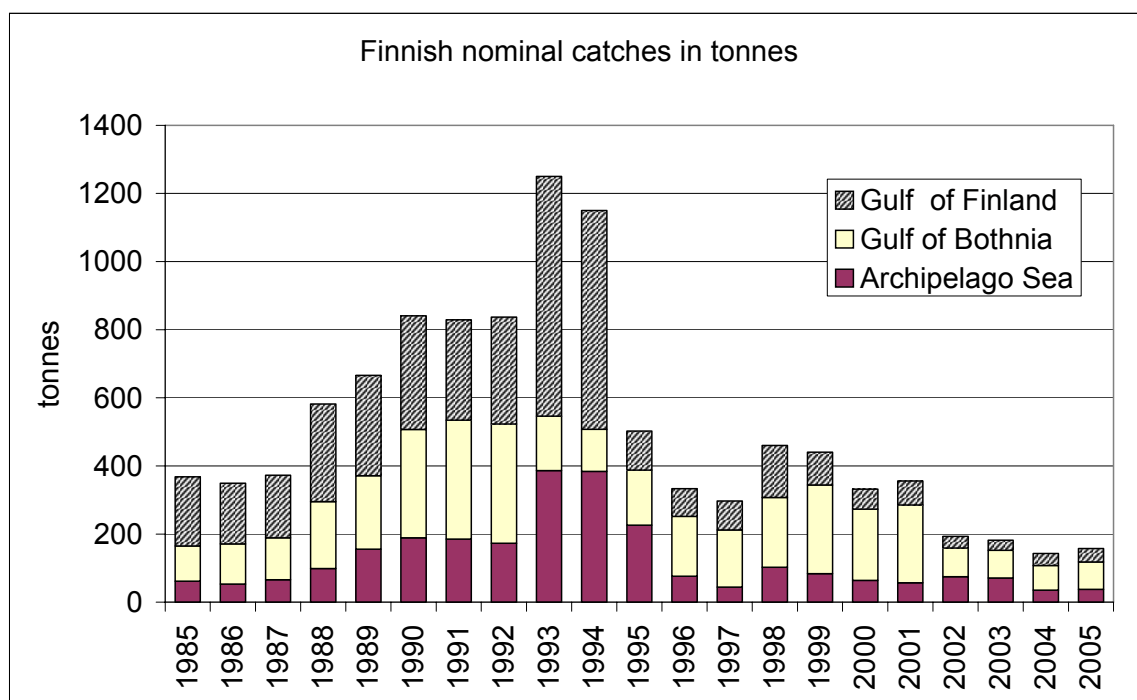


Figure 1. Finnish nominal catches of sea trout in 1985-2005.

2. Fishing regulations

Legal catch size in the sea and rivers ≥ 40 cm (total length).

Sea fishing

- 1/3 of the main stream or legally marked fish passage must be kept open at the river mouth
- 80 mm minimum mesh size (bar length) in surface gill nets targeted for sea trout
- Off the private shorenear waters in the Gulf of Finland, 65 mm minimum mesh size (bar length) in bottom gill nets targeted for sea trout, minimum length 50 cm.
- Many of the private water owners (so called fishery areas) have enforced 60 mm minimum mesh size for bottom gill nets in sea trout fishing in the Gulf of Finland, respectively.
- In the Gulf of Bothnia, some private water owners (fishery areas) have their own minimum mesh size in gill nets
- At the mouth of a few sea trout rivers, private stakeholders have enforced a closed season for gill netting in summer and autumn.

Rivers

- Angling with worm is forbidden in rapids.
- Gillnet fishing forbidden in most of the sea trout rivers.
- 1/3 of the main stream (so called king's passage) must be kept open in gill netting or fishing with fixed gear.
- Fishing with gill nets is forbidden 1st September - 30th November.
- Rod fishing forbidden 11th September – 31st November.

3. Sea trout stocks and their status by sea areas

Table 1. Sea trout stocks, their status and potential smolt production.

Sea area	Number and status of sea trout stocks		Potential smolt production (approximated)	Notes
	Original/probably original	Stocked/Mixed		
Bothnian Bay	1 critical 1 poor	1 poor	50 000 – 100 000	Supportive stocking in 3 rivers
Bothnian Sea	1 poor	1 poor	10 000 - 25 000	Supportive stocking in 2 rivers
Archipelago Sea	0	2 poor	< 5 000	
Gulf of Finland	3 critical 3 poor	5 poor	70 000 - 100 000	Supportive stocking in 4 rivers

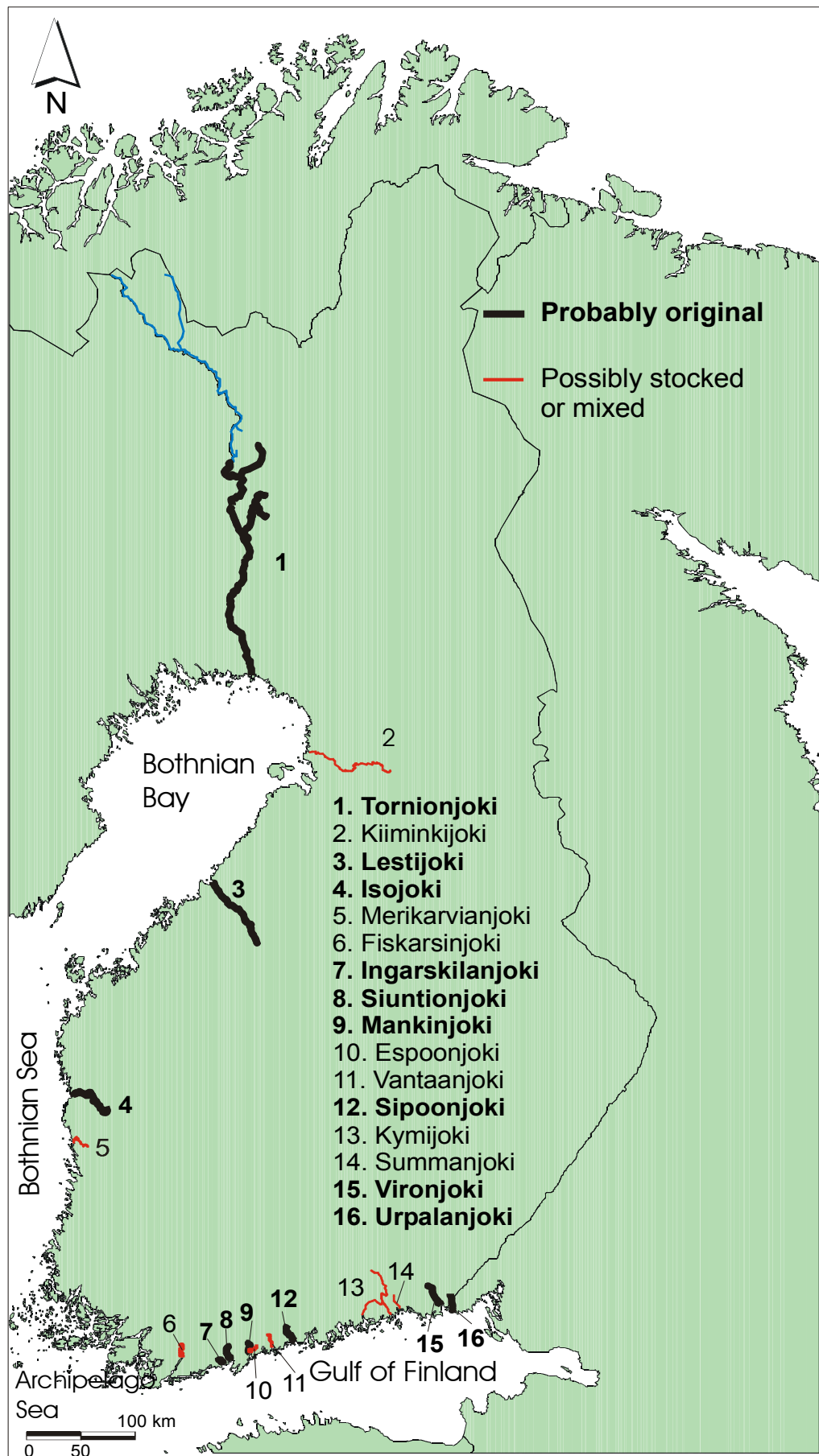


Figure 2. Finnish stocks of Baltic sea trout

4. Annual monitoring of sea trout stocks by sea areas

Table 2. Annual monitoring of sea trout stocks by sea areas.

Sea area	Rivers electrofished	Total n of sites	Carlin tagging, numb. of stocks	Average tagged (n)
Bothnian Bay	2	40	3	4 000
Bothnian Sea	1	20	1	2 000
Archipelago Sea	0	0	1	1 000
Gulf of Finland	5	30	2	2 000

5. Threats for the stocks

Table 3. Threats for the stocks.

Sea area	Threats
Bothnian Bay	Sea fishing, water quality, silting of spawning grounds
Bothnian Sea	Sea fishing, water quality, silting of spawning grounds, low flow period
Archipelago Sea	Sea fishing, water quality, silting of spawning grounds, low flow period
Gulf of Finland	Sea fishing, silting of spawning grounds, water quality, low flow periods, predators, water regulation

6. Improvement measures in sea trout rivers

Table 4. Improvement measures in sea trout rivers.

Sea area	Fish ways	Restoration	Enhancement/supportive stocking
Bothnian Bay	No	Partial in some rivers	100 000 parr/ year, 9 000 smolts/year
Bothnian Sea	2	No	20 000 parr/ year, 4 000 smolts/year
Archipelago Sea	1	Partial in some rivers	No
Gulf of Finland	13	Partial in many rivers	3 000 parr/ year, 9 000 smolts/year

7. Potential rivers likely suitable for enhancement/restocking

Table 5. Potential rivers likely suitable for enhancement and/or restocking.

Sea area	Estimate of the numbers	Potential smolt production
Bothnian Bay	7	5 000 - 20 000
Bothnian Sea	2	<5 000
Archipelago Sea	2	<5 000
Gulf of Finland	9	5 000- 10 000

8. Releases (compensation/sea ranching)

8a. Description of the operation

History shortly

- Started in the 1960s, the biggest release programs started in the early 1980s.
- Releases were used firstly for compensatory stocking, nowadays also for sea ranching and enhancement

Hatcheries (governmental/private)

- Governmental hatcheries are responsible for maintaining the brood stocks for enhancement purposes.
- Private hatcheries produce smolts for compensation and sea ranching.

Brood stocks/ collecting of spawners

- Egg production based solely on reared brood stocks, which are supplemented occasionally by offspring from returning spawners.
- Now totally 5 sea trout stocks are maintained as hatchery brood stocks.

Quality criteria for young fish

- Minimum size for stocked smolts 18 cm, no other criteria.
- Time series of recapture rate (see figures 3 – 6.)

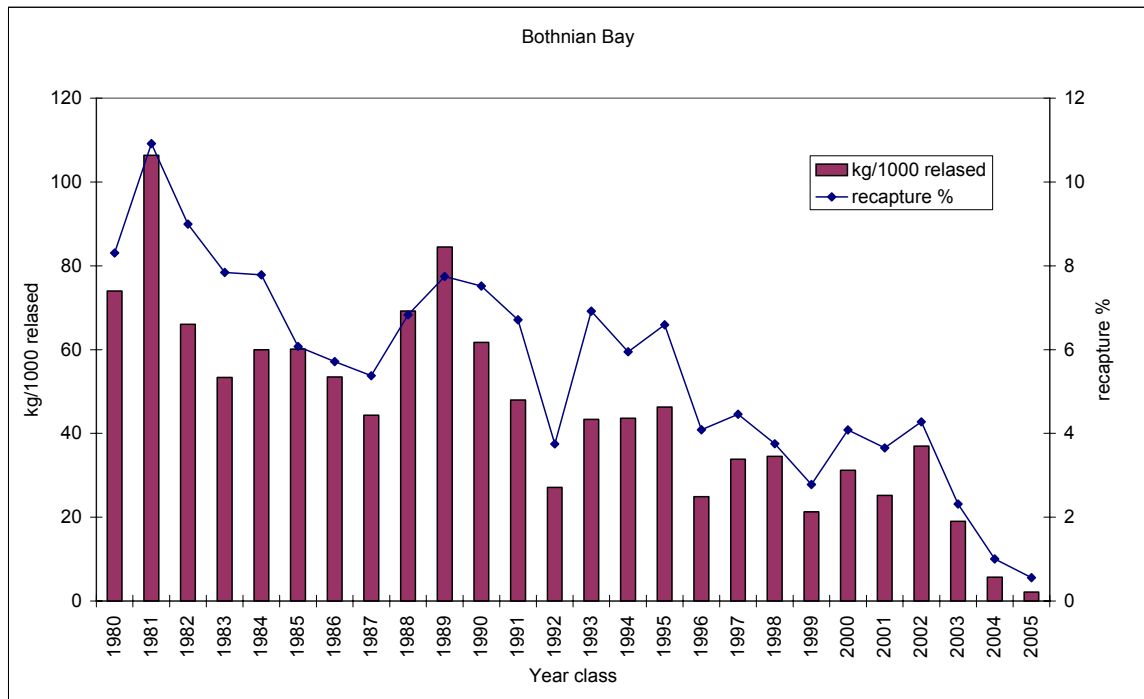


Figure 3. Recapture rate from sea trout stockings to Bothnian Bay in 1980-2005.

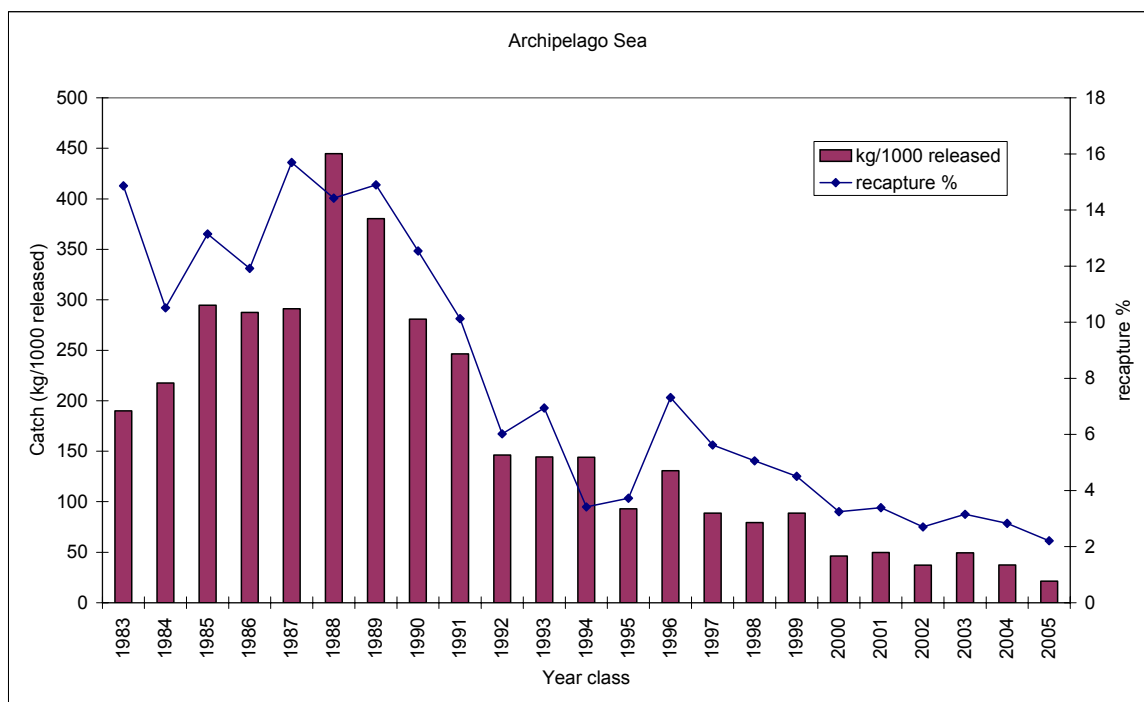


Figure 4. Recapture rate from sea trout stockings to Archipelago Sea in 1983-2005.

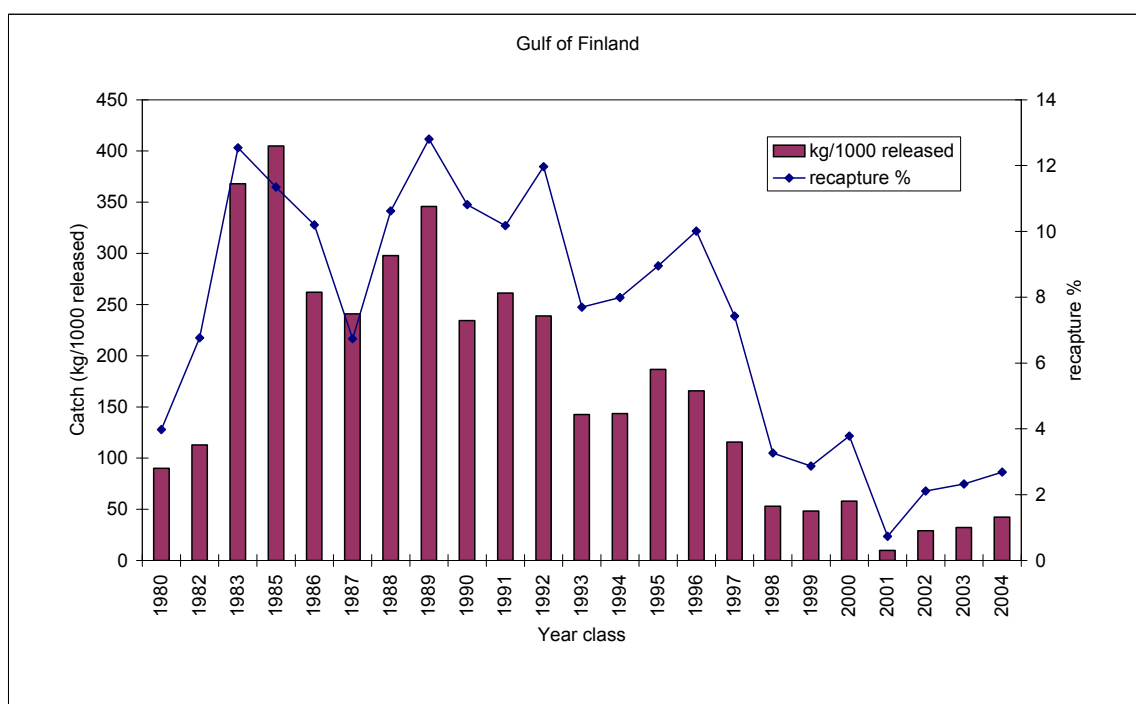


Figure 5. Recapture rate from sea trout stockings to Gulf of Finland in 1980-2005.

8b. Annual releases by sea areas

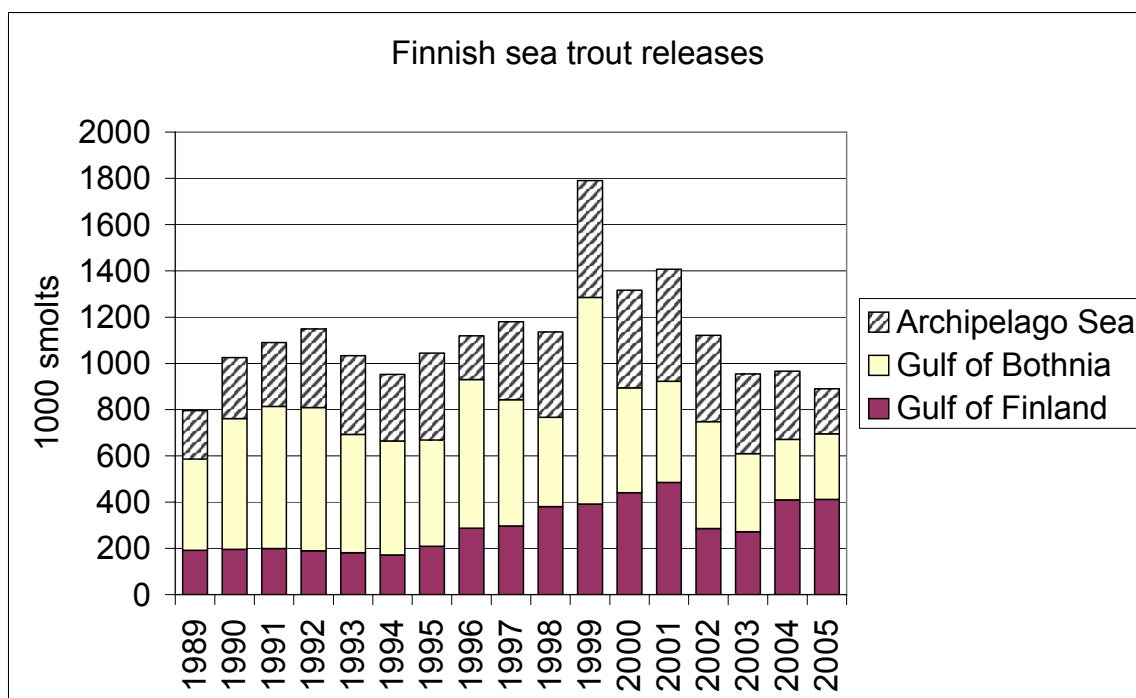


Figure 6. Finnish sea trout releases in 1989-2005.

9. Research activities

Major activities

- Electric fishing surveys in sea trout rivers
- Carlin tagging, analysis of tag recovery data
- Catch data
- Genetic studies
- Mapping of reproduction habitats (also potential)

Research needs and interests

- Smolt trapping
- Counts of spawners
- Modelling the utility of optional management options for all different fisheries influencing to sea trout

10. Needs for national conservation and management measures

- Increase in minimum mesh sizes for gill nets in the sea fishery
- Temporal and areal fishing restrictions for the gill net fishing
- Increase of minimum landing size for sea trout (up to 50 cm)
- Management plans for sea trout rivers
- Recovery plans for potential sea trout rivers
- Construction of fish ways
- Improvement of water quality; mitigation of damages caused by agriculture (nutrients) and forestry (drainage -> silting, etc.), prevention of water pollution in general
- Seek for such management/regulatory measures for fishing of other species which prevents sea trout to get caught as a by-catch. The main target species in these fisheries are usually whitefish and pikeperch, which would benefit from e.g. increasing of the mesh size.

11. Needs for international cooperation in research

- Fisheries related subject at the stock recovery phase: selectivity/catchability (gear, time, area)
- Improvement of habitats: fish ladders, eutrophic habitats, conflict with hydropower production in small rivers (sociology, economy)
- Tagging programs / exchange of tagging data (releases and recoveries)
- Genetic studies: exchange of baseline samples
- Viability analysis of the sea trout stocks: methodology and potential data
- Aquaculture related: enhancement (age, stock)
- Joint projects: Import of brood stock(s) from Russia in the Gulf of Finland

12. Needs for international cooperation in management

- Planning and implementation of joint management plans in the Gulf of Bothnia (FIN – SWE) and Gulf of Finland (FIN – RUS – EST)
- Baltic sea trout action plan

13. Main conclusions

- All sea trout stocks in Finland are in poor or critical state.
- The main reason for the present decline is too high fishing pressure in the sea.
- Majority of sea trout are caught premature as a by-catch by bottom gillnets for other species.
- Low numbers of spawners result in risks both for natural reproduction and for the maintenance of the hatchery brood stocks.
- Releases are not economically profitable
- Immediate management actions are needed to be taken in all sea areas to avoid the risk of extinction.
- Urgent updating of fishing rules are needed (technical regulation measures, e.g. minimum mesh size, temporal and spatial regulations, effort regulation by number of gears/fisher) and of the minimum landing size.
- Improving of the spawning and rearing habitats is needed
- Stock-specific recovery plans by sea areas should be enforced
- Restocking plans for potential sea trout rivers should be established
- Promotion of international communication in research and management is still needed
- Critical status of many wild sea trout stocks has been clearly acknowledged by the experts. Political decisions are needed for improving management actions.

Åland islands – country report

Olof Karlsson

The Government of Åland, Department for Trade and Industry, Fisheries Section

Based upon the autonomous status of the Åland Islands, the administration of the fisheries sector - as well as the environmental sector, is conducted on a regional level by the Government of the Åland Islands, including legislation, management, monitoring and control. For this reasons it is appropriate, when discussing fisheries issues, to treat the Åland Islands separately from the rest of Finland.

Fishing, management and stocks

There are no stocks of Baltic Sea Trout in the Åland Islands area, known to be naturally reproducing. The fishing activity is completely depending on sea ranching. The professional fishing is not targeted on Sea Trout, and thus the catches are primarily by catches from salmon and other small scale coastal fisheries with drift nets, traps and anchored nets. Catch reports earlier than 1988 do not separate Sea Trout from Salmon and there are no catch figures or other statistics available with respect to recreational fisheries. The annual catches of Sea Trout from professional fisheries have been rapidly decreasing from almost 70 tons in 1988 to less than one ton in 2003-2004. Some improvement have been noticed since last year.

The fishing of Sea Trout is managed partly through international regulations on a EU-level and partly through national legislation, including minimum landing size and minimum mesh size and other technical rules concerning the fishing gear. Because of the lack of natural reproducing Sea Trout stocks and reproduction areas there has been no need for further detailed fishing regulations.

Sea Ranching

Releases of Baltic Sea Trout has been made for more than 30 years mainly on a sea ranching basis with the aim to support and improve the conditions for recreational fisheries. The stocks used have been mainly Dalälven (Sweden and Isojoki (Finland), as far as possible using spawners from local fishermen. Smolts are released both as 1- and 2-years old, partly by delayed release from net cages. The total numbers of released smolts have been ranging from about 50.000 per year to more than 350.000.

Some efforts have been made to monitor the stocks and the results of the sea ranching activity by markings and recapture.

Future actions and needs

The main concern for the management and administrations of the Sea Trout in the Åland Islands area is to improve the knowledge and scientific basis for a long term strategy in order to secure and improve the recapture rate and thus economical results of the sea ranching activity. This includes guidelines and criteria concerning the production and quality of the fish as well as the release of the smolts, monitoring and control activity etc. There has also been discussion about the possibilities to create local and naturally reproducing stocks. Due to restricted resources and the lack of research of our own the Åland Islands is this respect depending on national and international cooperation.

Swedish country report

Jonas Dahl

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Brobacken, Älvkarleby

There are approximately 600 rivers and creeks that have viable sea trout populations in Sweden. Based on relatively few but long time series, the status of sea trout populations in the South of Sweden, Main Basin and Bothnian Sea has generally been improved compared to the 1920 – 1970's (Degerman et al. 2006). The exception is the Bothnian Bay area, where the sea trout populations are very weak.

1. Fishing and catches by sea areas

By tradition, there has been a low interest for commercial sea trout fishing in Sweden, whereas sportfishing and non-commercial net fishing has been more popular. A national survey (Svenskt Fiske 2005) of 7000 fishermen (both sport fisherman and non-commercial net fishermen) showed that recreational fishing (rod) was the main source of the Swedish catches (expressed in tons) in 2004 (Table 1). Data for commercial fishing are taken from log books.

Table 1. Swedish sea trout catches in 2004 (in tons).

Sportfishing (rod)	336	68%
Non-commercial (net &traps)	124	25%
Commercial fishery	33	7%
	493	

However, the non-commercial net-fishing becomes more important in the northern parts of Sweden (Table 2).

Table 2. Swedish sea trout non-commercial catches in 2004 (in tons).

Area	Sportfishing	Nets and Traps
West coast	98,6 (92 %)	8,9 (8%)
The sound	59,7 (90 %)	6,4 (10 %)
Main Basin	122,7 (68 %)	58,2 (32 %)
Bothnian Bay and Bothnian Sea	55,5 (52 %)	50,6 (48 %)

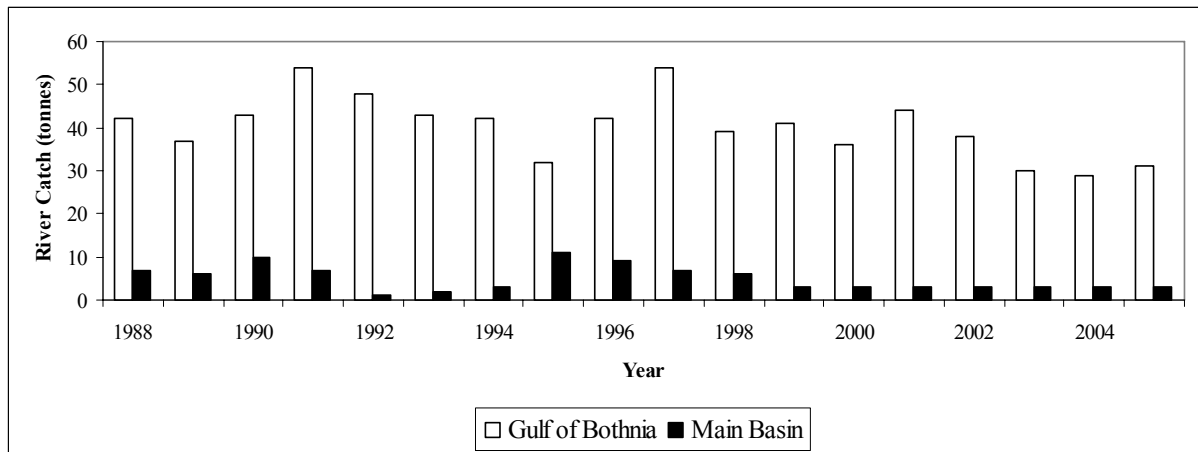


Figure 1. Nominal river catches (tons) of sea trout divided in Main basin and Gulf of Bothnia. Data collected only from rivers with salmon stocks.

2. Fishing regulations

Bothnian Bay (New rules starting from 1 June 2006)

Sea

- 50 cm minimum size
 - No nets in shallower waters than 3 meters during spring (1 April – 10 June) and fall (1 October – 31 December).
 - Each river or creek has a restricted area outside of the river mouth where fishing is prohibited.

River

- Fishing allowed usually during 18 June - 31 August but differs among rivers. Rivers with only hatchery production has longer fishing season.
- 1 salmon or sea trout per day in rivers with wild stocks where sportfishing is allowed. In rivers with hatchery production, local rules are applied.

Bothnian Sea

Sea

- Each river or creek has a restricted area outside of the river mouth where fishing is prohibited
- Still 40 cm minimum size

River

- Fishing allowed usually during June, July and August but differs among rivers. Rivers with
- only hatchery production has longer fishing season, for example Dalälven 1/3 – 31/10.

Main Basin

Sea

- 50 cm minimum size
- Restricted areas are established outside the mouth of some rivers and streams.
- In Scania and Blekinge, fishing after Sea trout is allowed between 1/1 – 15/9.

River

- Fishing usually allowed 1/4 – 30/9 but differs among rivers.

West coast

Sea

- 45 cm
- Fishing for sea trout allowed 1 April – 30 September.
- Restricted areas are established outside the mouth of specific rivers and streams.
- Only 120 mm mesh is allowed in waters shallower than 3 meters.

River

- Fishing usually allowed 1/3 - 30/ 8 in larger rivers but differs among rivers.

3. Sea trout stocks and their status by sea area

Preliminary data suggests that only 11 % of the rivers in Bothnian bay, 31 % in the Bothnian Sea, 35 % in the East Main Basin and 41 % in the South Main Basin has expected densities of sea trout parr in waters with high/good ecological status. These expectations are derived from the EU water directive which divides running waters into five categories (high, good, intermediate, poor and bad). Different biological, chemical and geological parameters are used to determine the status of a specific river or creek.

4. Annual monitoring of trout stocks

Table 3. Number of rivers and localities that is electrofished annually in Sweden (specifically for sea trout).

<u>Area</u>	<u>Rivers</u>	<u>Localities</u>
Bothnia Bay	10	134
Bothnia Sea	18	34
South Main Basin	29	47
Scania	35	49
West Coast	106	164

5. Threats for the stocks

- Water regulation
- Sea fishing
- Water quality
- Morphological degradation of streams (effects of canalization and timber rafting)
- Low flow periods
- Nutrient retention ponds

6. Improvement measures in sea trout rivers

- Restoration after excavation for timber rafting.
- By-pass channels (nature-like fish ways) has become very popular, allows also other species to migrate upstream.
- Dams and other obstacles are removed or fish ladders are constructed.
- Liming

7. Releases of hatchery trout smolts (range between 1999-2005).

Table 4. Releases of hatchery sea trout smolts (range 1999-2005). All hatchery fish has their adipose fin removed, since 2005.

<u>Sea Area</u>	<u>Numbers of smolt released</u>	<u>Carlin Tagging</u>
Bothnian Bay	125 000 - 148 000	2980 - 5000
Bothnian Sea	232 000 - 302 000	7000 - 12 488
Main Basin	37 000 - 215 000	600 - 1827
West Coast	3 000 - 10 000	0 – 1000

8. Recapture rates (Carlin-tagging)

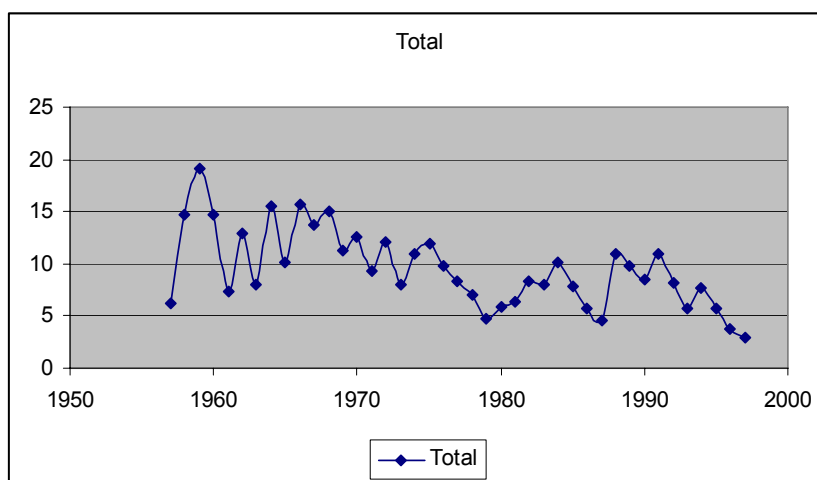


Figure 2. Mean recapture of Carlin-tagged sea trout smolts in the Gulf of Bothnia (Lule älv River, Skellefteälv River, Umeälv River, Ångermanälven River, Indalsälven River, Ljusnan River and Dalälven River). Recapture rates expressed in %. Results in 1950's based on small datasets.

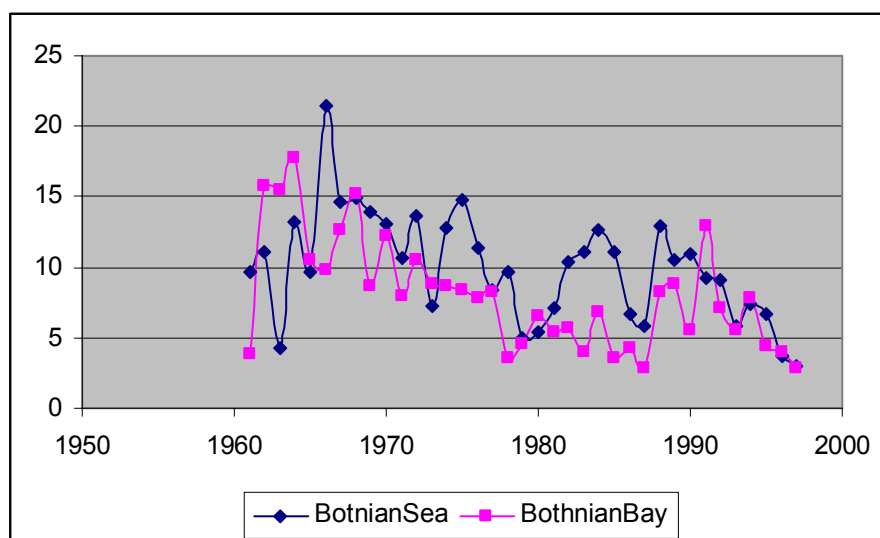


Figure 3. Recapture rates (expressed in %) of hatchery sea trout divided into Bothnian Bay (Luleälven River, Skellefteälven River and Umeälven River) and Bothnian Sea (Ångermanälven River, Indalsälven River, Ljusnan River and Dalälven River).

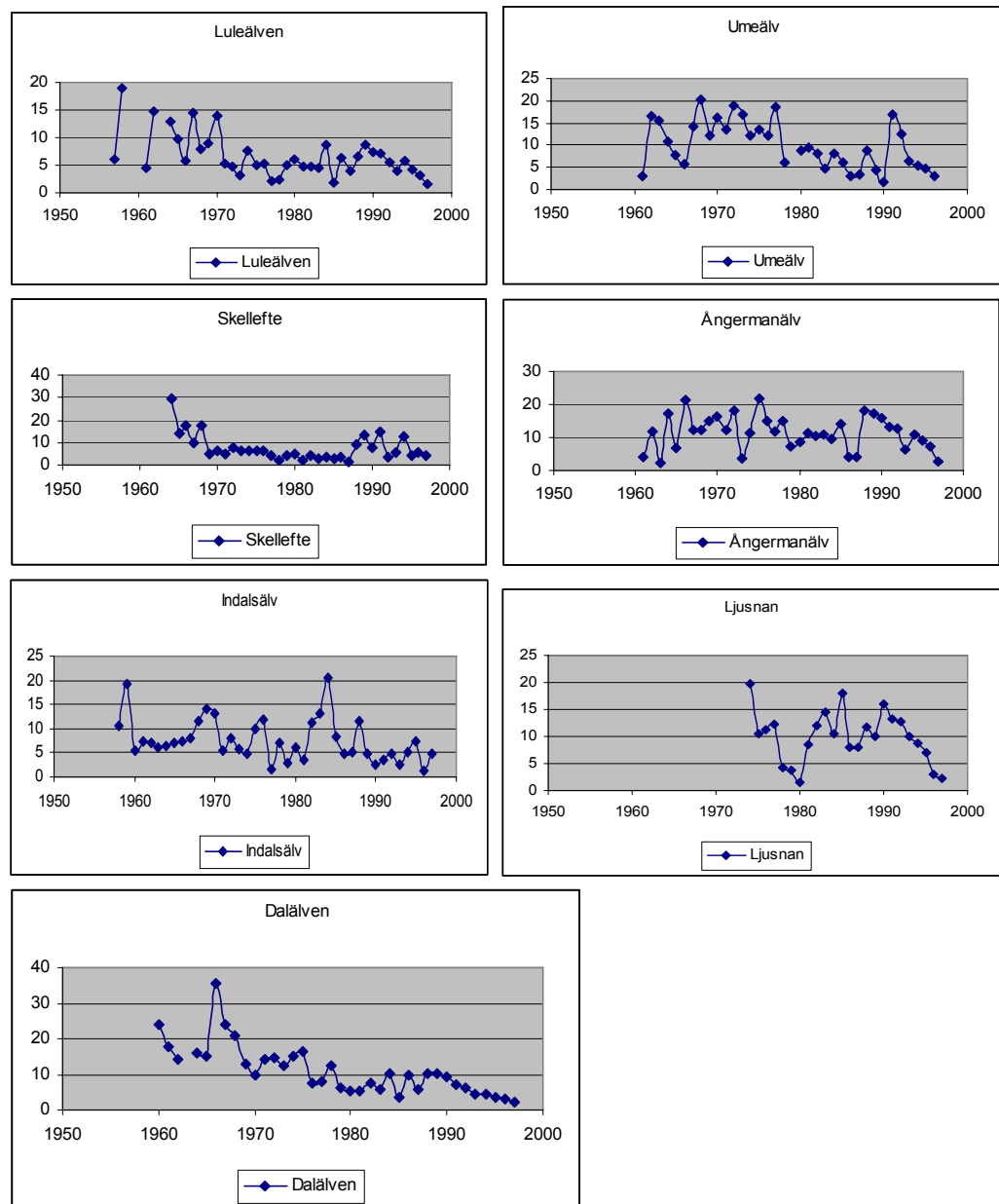


Figure 4. Recapture rates (expressed in %) for the individual rivers.

9. Research activities

- Electrofishing surveys in sea trout rivers
- Carlin tagging
- Smolt trapping
- How to produce a more nature-like hatchery trout?
- Effects of fish food fat levels on hatchery trout survival
- Determine reproductive success
- Local adaptations in sea trout populations
- Sexual selection vs. artificial selection.

10. Needs for national conservation and management measures

- Increase minimum size in the Bothnian Sea, all areas in the Baltic Sea should have at least 50 cm.
- Restoration in rivers with former timber rafting.
- Establishment of long-term index rivers.

11. Main conclusions

Preliminary data suggests that in waters with high/good ecological status, only 11 % of the rivers in Bothnia Bay, 31 % in the Bothnia Sea, 35 % in the East Main Basin and 41 % in the South Main Basin has expected densities of sea trout parr.

Sportfishing is the main mortality source for Swedish sea trout in the West coast, Scania and in the main Basin whereas sportfishing, non-commercial fishing with nets and commercial trap nets is of equal importance in the Bothnian Sea and Bothnian Bay.

The conditions for the sea trout are critical in the Bothnia Bay. The main reasons are believed to be fishing and poor freshwater habitat conditions. Important management measures have been implemented in this area (starting from 1 June 2006). This work will then continue also in Bothnian Sea and in the Main Basin.

Estonian country report

Mart Kangur, Mari-Liis Viilmann & Martin Kesler

Estonian Marine Institute, University of Tartu

Herki Tuus

Fishery Resources Department, Ministry of Environment

1. Fishing and catches by sea areas

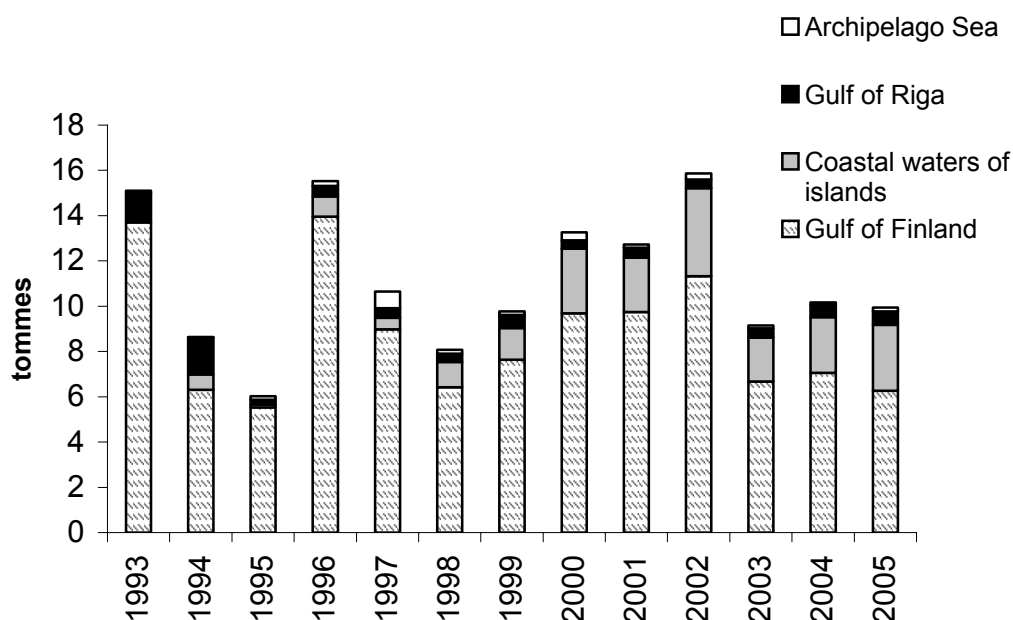


Figure 1. Catch of sea trout in Estonia in 1993-2005.

2. Fishing regulations

Legal catch size in the sea and rivers ≥ 50 cm (total length) or 45 cm (standard length)

Sea fishing

- 2/3 of the strait must be kept open
- 35 mm minimum mesh size (bar length) in gill nets
- ≥ 24 mm minimum mesh size in cod end in trap with leader net (bar length).
- At the mouth of a sea trout rivers a closed area and season for fishing:
 - 1000 m in 12 rivers and brooks all a round of year
 - 500 m in 15 rivers and brooks from 15 of August to 31 of December
 - 500 m in 22 rivers and brooks from 1 of September to 30 of November

- Limited minimum distances between fishing gears
- Limited number of gears
- Drift nets and anchored floating nets with mesh size < 157 mm forbidden

Rivers

- Gillnet, trap net (except lamprey traps) and some types of river seines fishing forbidden in all sea trout rivers.
- Salmon and sea trout, rod fishing forbidden from 1 September to 30 November in salmon rivers, in sea trout rivers from 1 September to 31 October.
- Wading forbidden in salmonids spawning rivers in closed period.
- Fishing in 26 rivers and brooks is forbidden round all of year
- Fishing in 12 rivers forbidden in stretch below a first definite migration obstacle
- Fishing on fish ladders and 50 m upstream forbidden
- Fishing below dams in distance of 100 - 500 m forbidden

3. Sea trout stocks and their status by sea areas

Table 1. Sea trout stocks, their status by sea areas and potential smolt production.

Sea area	Number and status of sea trout stocks		Potential smolt production (guess)	Notes
	Original/probably original	Stocked/Mixed		
Coastal waters of islands	0 good 5 satisfactory 3 poor	1 good 0 satisfactory 2 poor	4000 – 8000	Supportive stocking in 4 rivers
Gulf of Riga	1 good 5 satisfactory 3 poor 1 not known	0 good 0 satisfactory 1 poor	20 000 – 30 000	
Archipelago Sea	0	0	0	
Gulf of Finland	3 good 8 satisfactory 7 poor 8 not known	0 good 7 satisfactory 3 poor	up to 100 000	Supportive stocking in 10 rivers

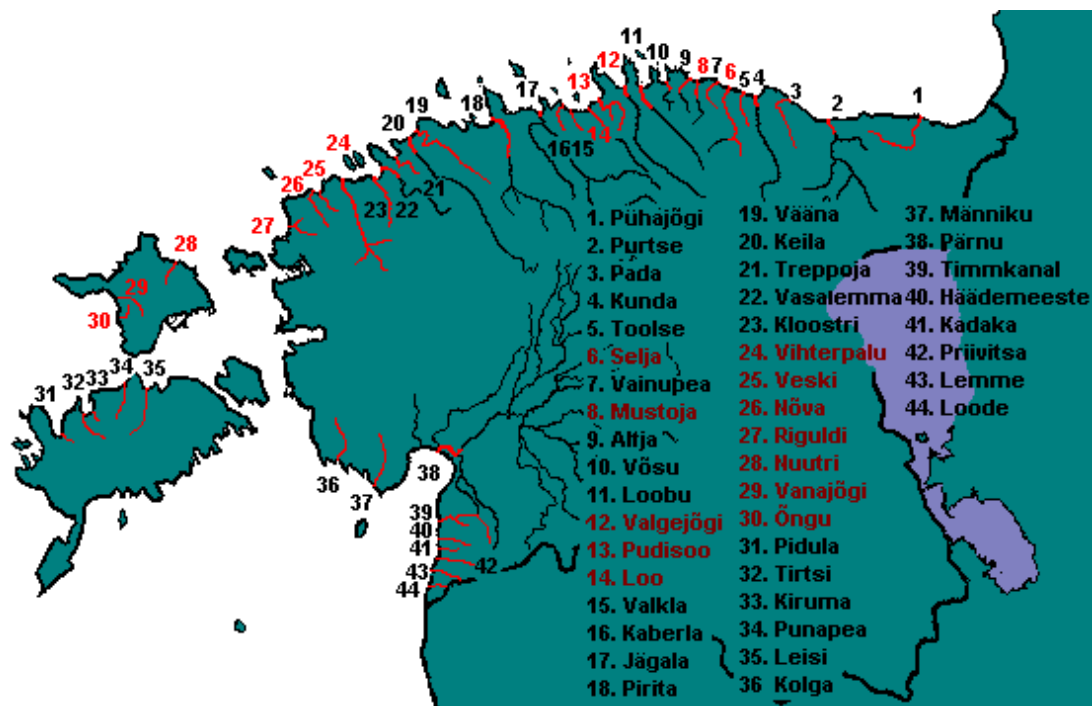


Figure 2. Main Estonian stocks of Baltic sea trout.

4. Annual monitoring of sea trout stocks by sea areas

Table 2. Annual monitoring of sea trout stocks by sea areas.

Sea area	Rivers electro fished	Total n of sites	Carlin tagging, numb. of stocks	Average tagged (n)	Fin clipped
Gulf of Riga	2 each year 8 approx. once per 3-5 year	16	0	0	0
Coastal waters of islands	11 approx. once per 3-5 year	13	1	2000 (in 2005)	all 2 yr old tot 172 000 1999-2005
Archipelago Sea	0	0	0	0	0
Gulf of Finland	22 each year 11 approx. once per 3-5 year	44	3	460 2002-2005	all 1, 1+, 2 yr old tot 71 000 2001-2005

5. Threats for the stocks

Table 3. Threats for the sea trout stocks in different sea areas.

Sea area	Threats
Gulf of Riga	Sea fishing, river poaching, water quality, silting of spawning grounds, low flow periods
Coastal waters of islands	Sea fishing, water quality, silting of spawning grounds, low flow periods
Archipelago Sea	No stocks
Gulf of Finland	Sea fishing, river poaching, silting of spawning grounds, water quality, low flow periods, water regulation, beaver dams

6. Improvement measures in sea trout rivers

Table 4. Improvement measures in sea trout rivers.

Sea area	Fish ways	Restoration	Enhancement/supportive stocking
Gulf of Riga	1	Partial in river Pärnu	0
Coastal waters of islands	0	No	25 000 parr/ year, 2100 smolts/year 1999-2005
Archipelago Sea	0	No	No
Gulf of Finland	1	No	31 400 parr/ year, 5 100 smolts/year 2001-2005

7. Potential rivers likely suitable for enhancement/restocking

Table 5. Potential rivers likely suitable for enhancement and/or restocking.

Sea area	Estimate of the numbers	Potential smolt production
Gulf of Riga	2	5 000 - 10 000
Coastal waters of islands	2	<2 000
Archipelago Sea	0	0
Gulf of Finland	4	5 000- 8 000

8. Releases (compensation/sea ranching)

8a. Description of the operation

History shortly (starting from 1990s)

- Islands: Started in the 1990, 1 hatchery, possible production 2 yr old smolts 30 000
- Gulf of Finland: started in 2001
- Releases were used for sea ranching and enhancement

Hatcheries (governmental/private)

- Governmental (1) and private (1) hatcheries produce parrs for enhancement purposes and smolts for sea ranching

Quality criteria for young fish

- Minimum size or other criteria for stocked parrs and smolts not established. Time series of recapture rate are absent

Tagging and fin clipping

- Tagging and fin clipping is provided by hatcheries

8b. Annual releases by sea areas

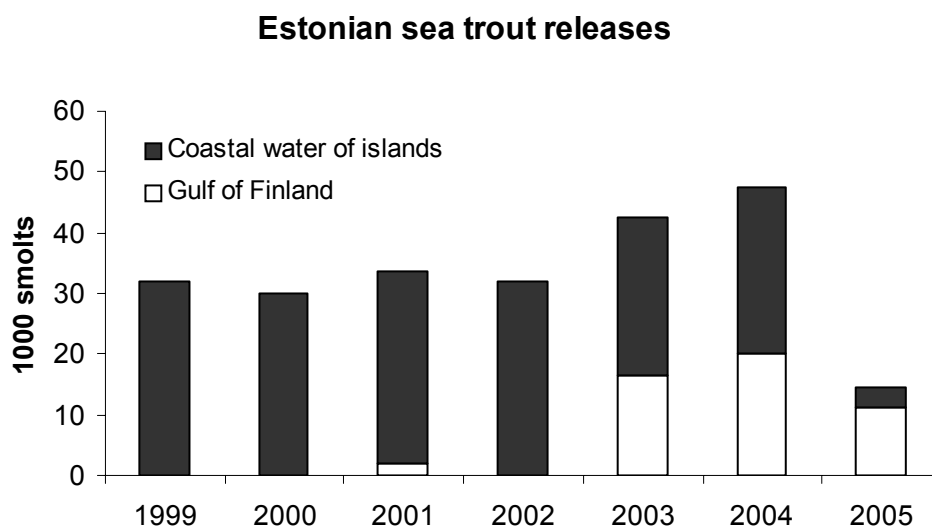


Figure 3. Estonian sea trout releases in 1999-2005.

9. Research activities

Major activities

- Electric fishing surveys in sea trout rivers
- Analysis of tag recovery data
- Analyses of catch data

- Genetic studies
- Sampling programme
- Mapping of reproduction habitats (also potential)

Research needs and interests

- Smolt trapping (present on one river)
- Counts of spawners

10. Needs for national conservation and management measures

- Increase of minimum mesh sizes for gill nets in period of maximal catches of sea trout in the sea fishery.
- Temporal and areal fishing restrictions for the gill net fishing.
- Management plans for sea trout rivers.
- Improvement of habitat.
- Recovery plans for potential sea trout rivers.
- Construction of fish ways.
- Improvement of water quality; mitigation of damages caused by agriculture (nutrients) and forestry (drainage -> silting, etc.), prevention of water pollution in general.
- Seek for such management/regulatory measures for fishing of other species, which prevents sea trout to get caught as a by-catch.
- Increase of control in rivers and sea.
- Promotion of public awareness.

11. Needs for international cooperation in research

- Fisheries related subject at the stock recovery phase: selectivity/catchability (gear, time, area).
- Improvement of habitats: fish ladders, conflict with hydropower production in small rivers (sociology, economy).
- Tagging programs / exchange of tagging data (releases and recoveries).
- Genetic studies: exchange of baseline samples.
- Viability analysis of the sea trout stocks: methodology and potential data.
- Aquaculture related: enhancement (age, stock).

12. Needs for international cooperation in management

- Planning and implementation of joint management plans in Gulf of Finland (FIN – RUS – EST)
- Baltic sea trout action plan

13. Main conclusions

- Natural reproduction sea trout stocks in Estonia declined.
- The main reasons of decline is too high fishing pressure in the sea and poaching in the rivers.
- Sea trout are caught mostly as a by-catch by bottom gillnets.
- Low numbers of spawners result in risks for natural reproduction.
- Releases are not economically profitable.
- Real fulfilling of fishing rules needed.
- Improving of the spawning and rearing habitats is needed
- Stock-specific recovery and enhancement plans by sea areas should be enforced.
- Promotion of international communication in research and management is still needed.

Lithuanian country report

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1. Fishing and catches

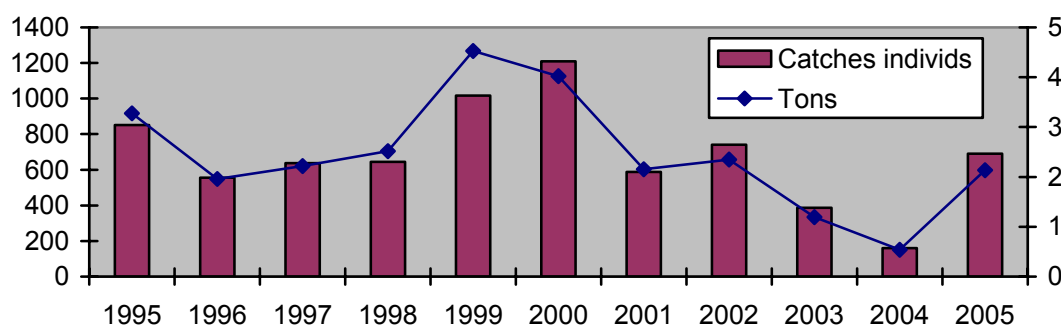


Figure 1. Commercial catches of sea-trout in the Baltic Sea and Curonian lagoon

Mean catches of Lithuanian fishermen there are 680 ind. of Sea trout, which weight approx. 2,44 tones. In 2005 Lithuanian fishermen caught 353 sea trout (1,096 t) in coastal fishery, majority of sea trout is caught together with salmon. Biggest part sea trout Lithuanian fishermen caught in Curonian lagoon 230 (0,618 t) individuals. In the rivers caught 107 (0,417 t) for artificial rearing.

2. Fishing regulations

The minimum size of sea-trout in the sea and rivers is $L - 60$ cm.

Regulations in the Baltic Sea and Curonian lagoon

During salmon and sea-trout migration, commercial fishery is under regulation in Klaipėda strait and Curonian lagoon. Fishery is prohibited the whole year round in the Klaipėda strait – from northern breakwater to the northern border of 15-th fishing bay. From September 1 till October 31, during salmon and sea-trout migration, fishing with nets is prohibited in the eastern stretch of Curonian lagoon between Klaipėda and Skirvyte, in 2 km distance from eastern shore. From September 15 till October 31 fishing is prohibited in 1 km radius from Šventoji and Rėkštyne river mouths and from southern and northern breakwaters of Klaipėda strait.

Regulations in the rivers

Sea trout angling in the rivers permitted with valid licenses only. License amateur fishing of Sea trout permitted in 9 Lithuanian rivers in specially designated stretches. Annual quota for sea trout licenses – 750 specimens. Sea trout fishing is legal from 1st of January till 1st of May only.

3. Sea trout stocks

Nevertheless, salmonids inhabit more than 180 rivers in Lithuania (Kesminas, Virbickas, 2001). River trout inhabits 76 rivers, Baltic salmon spawned in 14-16 Lithuanian rivers (Baltic Salmon Rivers, 1999; Baltijos lašiša Lietuvoje. 2000). According expert evaluation in 1999 potential sea trout smolt production there is 323 800 specimens, as natural reaches 94 500 smolts every year only.

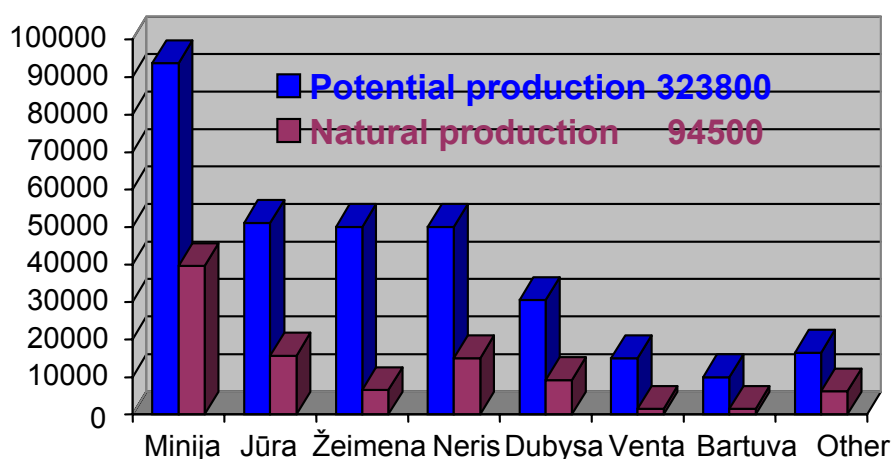


Figure 2. Potential and natural production of sea-trout in the rivers of Lithuania, 1999.

Status of sea trout populations

Population of sea-trout in Lithuania is greater than of salmon. Wild sea-trout populations are known in the catchments of 10 rivers basins. Sea-trout smolt production in 2005 year decreased to 17 300 individuals (i. e. approximately 60 %) compare to year 2004. Sea-trout population is particularly numerous in the Western Lithuania – Minija River catchment. Average density of sea-trout parr in the Minija catchment is 9,06 ind/100m², smolt production – 5 900 individuals (Table 1). In the rest river catchments smolt production is much lower. If compared with previous year, in 2005 sea-trout smolt production decreased twice.

Table 1. Wild sea trout electrofishing survey in 2005.

River	No. sites sampled	Parr No of 0+ and >0+// 100 m ²	Smolt production	Remarks
Neris basin	22	1,8	3 700	Increased 2,3 times
Žeimenos basin	10	0	0	Decreased 5.0 times
Šventosios basin	12	4,0	2 500	Increased 1,4 times
Minijos basin	15	9,06	5 900	Decreased 2,4 times
Jūros basin	11	3,13	1 900	Increased 1,2 times
Dubysos basin	6	11,6	1 800	Decreased 1.0 times
Bartuvos basin	4	2,69	100	Decreased 11 times
Akmenos - Danės basin	2	24,3	300	Decreased 1.3 times
Šyšos basin	2	14,6	1000	Decreased 1.3 times
Baltijos - Šventoji basin	3	11,36	100	Unchanged
Total	87		17 300	

4. Monitoring

In 2005 m. monitoring and restoration works of salmon and sea-trout have been carried out in accordance with Lithuanian Salmon Action Plan, 1997 – 2010.

Table. 2. Monitoring structure in Lithuania

Regular monitoring	Methods	Rivers	Sites	Responsible institutions
Monitoring of sea- trout reproducers migrating into the Nemunas river basin	CPUE	Nemunas River	1	Institute of Ecology
Monitoring of parr abundance of salmonids	Electrofishing	60	85	Institute of Ecology, University of Klaipėda
Monitoring of smolt migration	Smolt traping	Mera, Siesartis and Veiviržas	3	Institute of Ecology, University of Klaipėda
Monitoring of important spawning areas	Visual observations	Žeimena, Mera, Vilnia, Siesartis, Upper Minija, Veiviržas, Šalpė	8	Institute of Ecology, University of Klaipėda

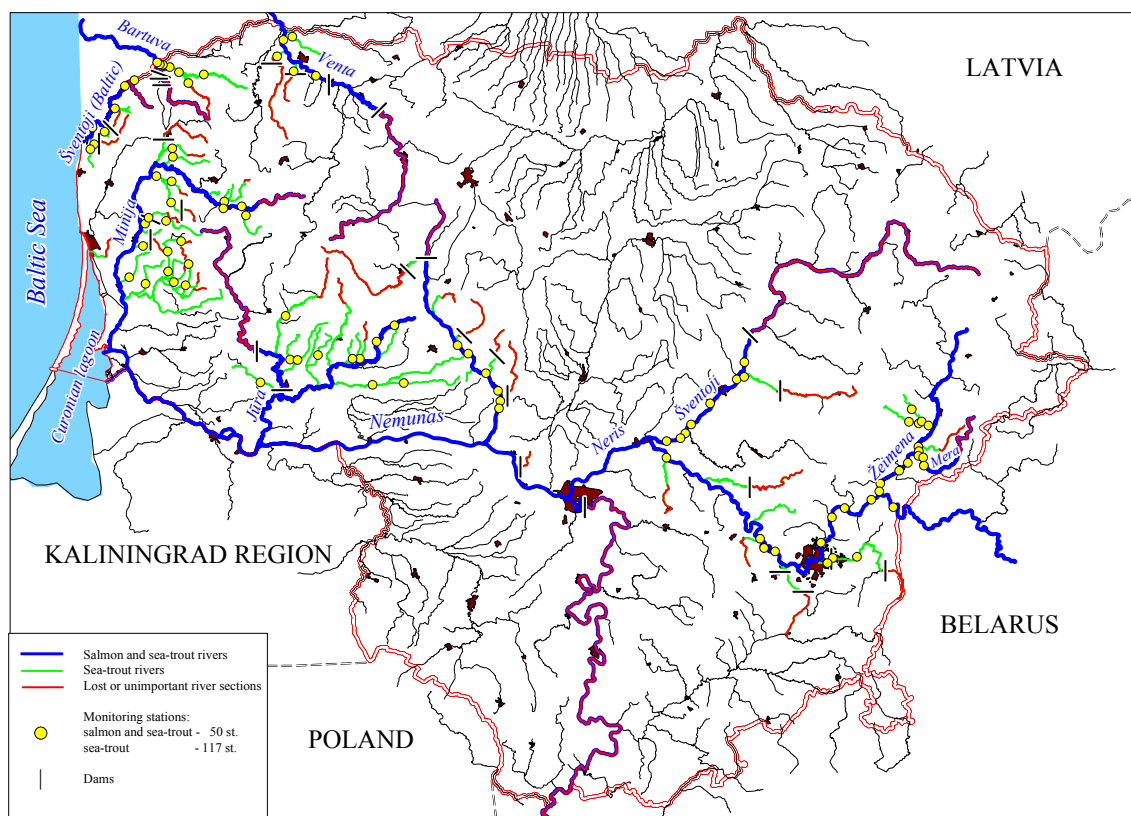


Figure 3. Salmonid rivers and monitoring stations in Lithuania.

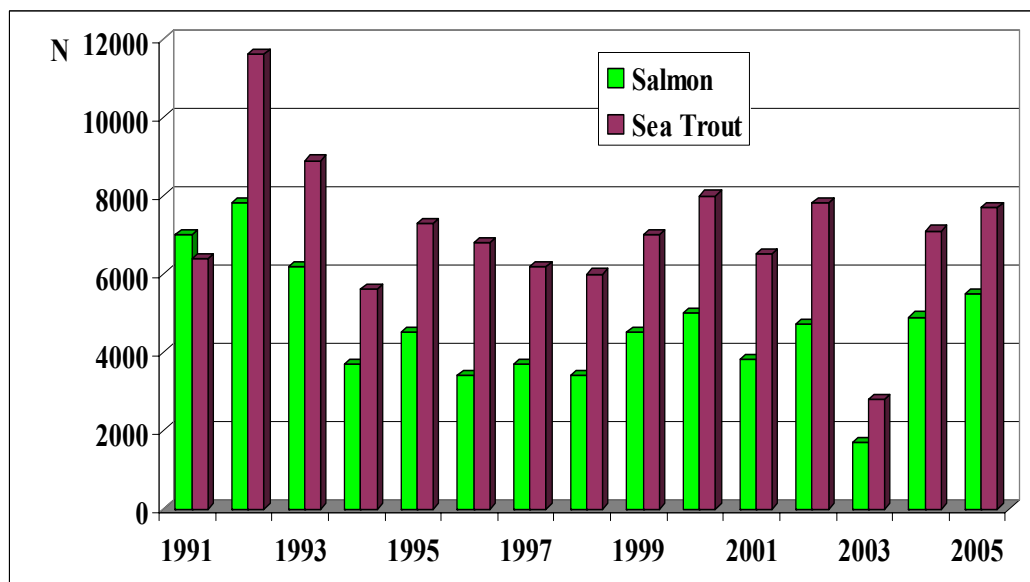


Figure 4. Abundance of salmon and sea-trout (N - individuals) migrating to the Nemunas basin in 1991-2005.

Table 3. Sea trout stocks and their status in Lithuania.

River basin	Number and status of sea trout stocks		Potential smolt production	Notes
	Original/ probably original	Stocked/Mixed		
Neris basin	1 poor	1 good 3 satisfactory 3 poor, 1 critical	50 000	Supportive stocking in 12 rivers
Žeimenos basin	3 poor, 2 critical	1 poor	50 000	Supportive stocking in 1 river
Šventosios basin		1 good 2 satisfactory 3 poor	25 000	Supportive stocking in 7 rivers
Minijos basin	4 good, 6 satisfactory		93 700	
Jūros basin		2 satisfactory 6 poor	51 100	Supportive stocking in 6 rivers
Dubysos basin		3 good 1 poor	30 500	Supportive stocking in 4 rivers
Bartuvos basin	1 satisfactory 1 poor 1 critical		10 000	
Akmenos - Danės basin	1 satisfactory		5 000	
Šyšos basin	1 good 1 poor		2000	
Baltijos - Šventoji basin		2 satisfactory 2 poor	5 900	Supportive stocking in 4 rivers

5. Threats for the stocks

Table 4. Threats for the sea trout stocks.

River basin	Threats
Neris basin	Water quality, illegal fishing, limited area of spawning grounds, dams and water regulation
Žeimenos basin	illegal fishing, eutrofication, impact of beavers activity
Šventosios basin	limited area of spawning grounds, silting of spawning grounds, water temperature regime, dams and water regulation, eutrofication
Minijos basin	dams and water regulation, , eutrofication, impact of beavers activity
Jūros basin	dams and water regulation, eutrofication, illegal fishing, impact of beavers activity
Dubysos basin	dams and water regulation, eutrofication
Bartuvos basin	dams and water regulation, eutrofication, silting of spawning grounds, water quality, impact of beavers activity
Akmenos - Danės basin	dams and water regulation, eutrofication, silting of spawning grounds, water quality, water temperature regime
Šyšos basin	dams and water regulation, eutrofication, silting of spawning grounds, water quality
Baltijos - Šventoji basin	dams and water regulation, eutrofication, silting of spawning grounds, water quality, water temperature regime

6. Improvement measures in sea trout rivers

Table 5. Improvement measures in sea trout rivers

River basin	Fish ways and measures to improve migration	Restoration	Restocking
Neris basin	2 fish ways operating/ 4 needed , measures to improve migration in some places	partial in some rivers	needed
Žeimenos basin	measures to improve migration in some places	no	no
Šventosios basin	3 fish ways operating/ 3 needed , measures to improve migration in some places	partial in some rivers	needed
Minijos basin	2 fish ways operating/ 3 needed , measures to improve migration in some places	no	no
Jūros basin	1 fish way operating/ 2 needed , measures to improve migration in some places	partial in some rivers	needed
Dubysos basin	1 fish way needed , measures to improve migration in some places	partial in some rivers	needed
Bartuvos basin	measures to improve migration in some places	no	no
Akmenos - Danės basin	measures to improve migration in some places	no	no
Šyšos basin	measures to improve migration in some places	no	no
Baltijos - Šventoji basin	1 fish way needed/ measures to improve migration in some places	partial in some rivers	needed

7. Potential rivers

Table 6. Potential sea trout rivers in Lithuania.

River basin	Estimate of the numbers	Potential smolt production
Venta basin	3	15 000
Merkys basin	7	50 000
River stretches upstream of dams	6-10 (?)	?

8. Releases (compensation/sea ranching)

In 2005, 150 000 individuals of sea-trout fry and 50 000 of 1 summer old parr were released. Sea trout fry were released into 30 rivers, mainly in small salmon-type rivers. One summer old parr were released into Neris, Šventoji, Minija Rivers.

History shortly

Artificial rearing of sea trout in Lithuania started in 1999 with construction of first hatchery. In Lithuania majority of sea trout released as fry, other part of released sea trout there are parr. Smolt stocking still very low compare with younger specimens.

Hatcheries (governmental/private)

Only sea trout hatchery in Lithuania is government.

There are no private sea trout hatcheries in Lithuania at the moment.

Brood stocks collecting of spawners

Egg production solely based on captured wild sea trout in some rivers.

In the hatchery broodstock about to be formed.

Quality criteria for young fish

There are no special criteria for sea trout stocking. Minimal size of fry released in rivers – 0,8-1,2 g. Parr mainly released being 11-18 g. Stocking efficiency is monitored every autumn in indicator rivers.

9. Research and monitoring

Major activities

- Electric fishing surveys in sea trout rivers
- Genetic studies
- Catch data
- Mapping of reproduction habitats
- Survey of sea trout upstream migration

Research needs and potential interests

- Tagging.
- Smolt trapping
- Counts of spawners

10. Needs of national conservation and management measures

- Increase in minimum mesh size for gill nets in the coastal fishery.
- Reduce of illegal fishing impact in the sea, migratory rivers and reproduction areas.
- Management plans for sea trout rivers
- Construction of fish ways.
- Recovery plans for potential sea trout rivers
- Improvement of river water quality in salmon rivers
- Increase of artificially reared and stocked smolts.

11. Needs for international cooperation in research

- Fisheries related subject at the stock recovery phase: selectivity/catch ability (gear, time, area)
- Improvement of habitats: fish ladders, eutrophic habitats, conflict with hydropower production in small rivers (sociology, economy)
- Tagging programs / exchange of tagging data (releases and recoveries)
- Genetic studies: exchange of baseline samples
- Viability analysis of the sea trout stocks: methodology and potential data
- Cooperation in aquaculture: methodology, stocking efficiency,
- Collaborative projects with Latvia on same river basins (Venta and Bartuva)

12. Needs for international cooperation in management

Planning and implementation of joint management plans in the Baltic Sea together with Latvia, Russia and Poland.

13. Main conclusions

- Almost all sea trout stocks in Lithuania are in poor or critical state. Only few river stocks are satisfactory.
- The main reason for the present decline is too high fishing pressure in the sea.
- Majority of sea trout are caught in coastal areas as a by-catch by gillnets for other species.
- Low numbers of spawners result in risks both for natural reproduction. Restocking was effective in some rivers.
- Improving of the spawning and rearing habitats is needed
- Restocking plans for potential sea trout rivers should be continued
- Promotion of international communication in research and management is needed
- Critical status of many wild sea trout stocks has been clearly acknowledged by the experts. Political decisions are needed for improving management actions.

Polish country report

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1. Fishing and catches

Sea trout is the most important part (over 90 %) of all salmonid coastal catches carried out by boats; however, majority of sea trout is caught in offshore fishing, together with salmon. Driftnets are usually used in offshore operations and gillnets in coastal fishery. The majority of offshore and coastal catches takes place in sub-divisions 26 (c.a. 85% of the total catch) and the rest in 25 (c.a. 14%) and 24 (c.a. 1%). The fishing grounds are the same as for salmon. The bulk of fish is caught during period of January –April in fishing grounds NE of Hel Peninsula (sub-division 26).

In 2005 total number of vessels involved in sea trout fishery was 349, operating from 52 harbours and jetties. Main fishing ports were: Jastarnia (44 vessels) and Kuznica (27 vessels) in sub-div. 26 and Ustka (24 vessels) and Darlowo (22 vessels) in sub-div. 25. Vessel length was 8-24,5 m but prevailing number of vessels had length of 16-24 m.

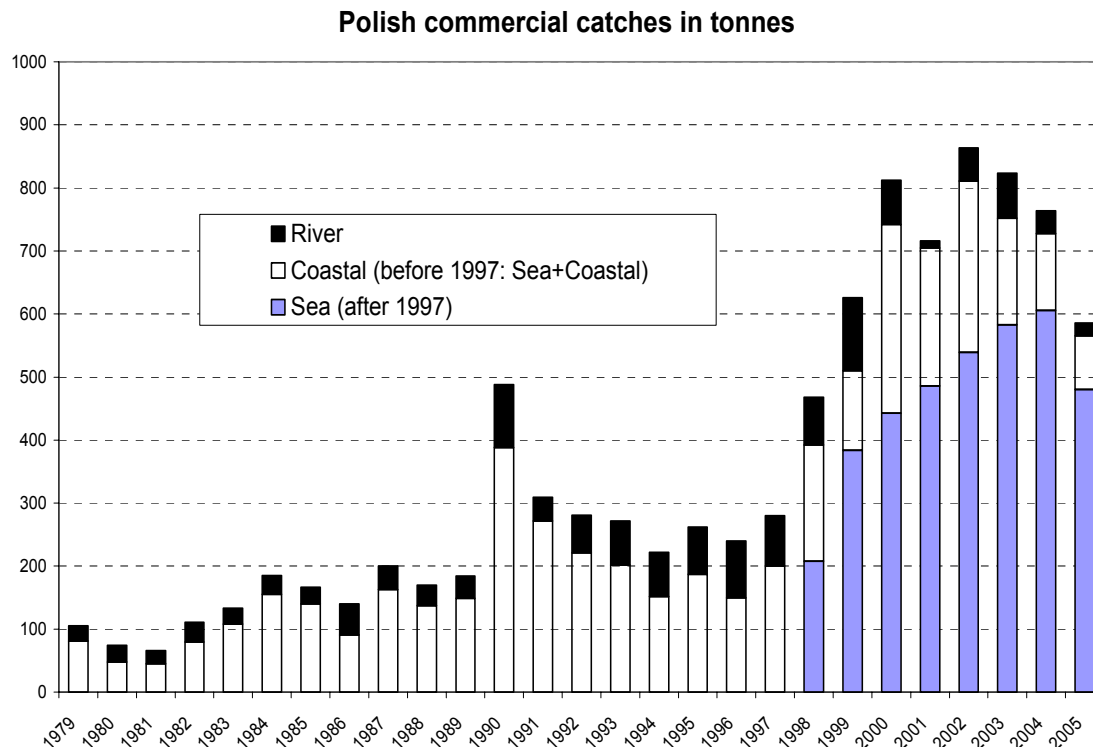


Figure 1. Polish commercial catches in tons in 1979 – 2005.

Polish catches, after rather stable level in 1991-1997, since 1998 were increasing but in 2005 total catch was 585,8 t (c.a.151 thousand fish) and it was 25% lower than in 2004. The higher decrease occurred in offshore fishery.

Some amount of reported sea trout in offshore catches could be, in fact salmon, but magnitude of such misreporting is not scientifically assessed yet.

The highest river catches are in Vistula R.: commercial catch in 2005 was about 10 tons (recreational catches are unimportant), less than half of 2004 value and few times less than few years ago. The difference was caused partly by changes in fishery rights. In other rivers only recreational and brood stock fishery exists – both are on the level of 10 t in total.

2. Main fishing regulations

The regulations in offshore fishery follow the EU regulations EU 2187/2005.

Territorial sea waters

- minimum landing size 50 cm;
- minimum mesh bar 80 mm;
- 1 mile closed zone off the mouth of Vistula R.;
- 500 or 250 m closed zone off mouths of other rivers;
- closed season 15 th September – 15 th November, except Gulf of Gdansk and Vistula Lagoon;
- closed season 15 th August – 31 st December .

Freshwater

- minimum fish length 35 cm;
- closed season:
 - 1 st October - 31 st December and from Thursday to Sunday in Vistula R. above Wloclawek dam;
 - 1 st December – 29 th February and from Friday to Sunday in period 1 st March - 31 st December in Vistula R. below Wloclawek dam;
 - 1 st October - 31 st December in other rivers;
- in majority of rivers managed by anglers associations only rod fishing with artificial lure is allowed;
- in rivers managed by anglers associations catch of maximum 2 fish is allowed.

3. Sea trout stocks and their status by sea area (Appendix 1)

All Polish stocks belong to the Main Basin area and all river are stocked.

Table 1. Sea trout stocks and their status by sea area.

Number of stocks	Stocks in good condition	Stocks in satisfactory condition	Stocks in poor condition	Number of rivers in the past
19	2	5	12	?



Figure 2. Sea trout rivers in Poland.

4. Annual monitoring of sea trout stocks (Appendix 2)

- Carling tagging: 9 stocks (36 000)
- Fin clipping: 2 stocks
- Redds inventory: 5 stocks
- Electrofishing: 4 stocks (12 sites)

5. Threats (Appendix 2)

- dams;
- river channelization;
- water quality;
- pouching.

6. Improvement measures (Appendix 2)

- fish ways (13);
- artificial spawning ground (3);
- habitat restoration.

7. Potential rivers (not specified)

8. Releases

History:

- started in the end of 1950s;
- at the beginning mainly in tributaries of upper Vistula R.;
- until half of 1970s Vistula R. was stocked also with fish of Pomeranian rivers origin;
- from 2000 financed from national budget.

Hatcheries:

- private hatcheries – every connected with specific stock.

Spawners:

- returning spawners are caught in lower part of every river;
- hatchery brood stocks of Vistula R. trout;
- a lot of fish entering Pomeranian rivers stray.

Quality criteria:

- minimum length of smolts 14.5 cm;
- smolt releasing season 15 th March – 15 th May.

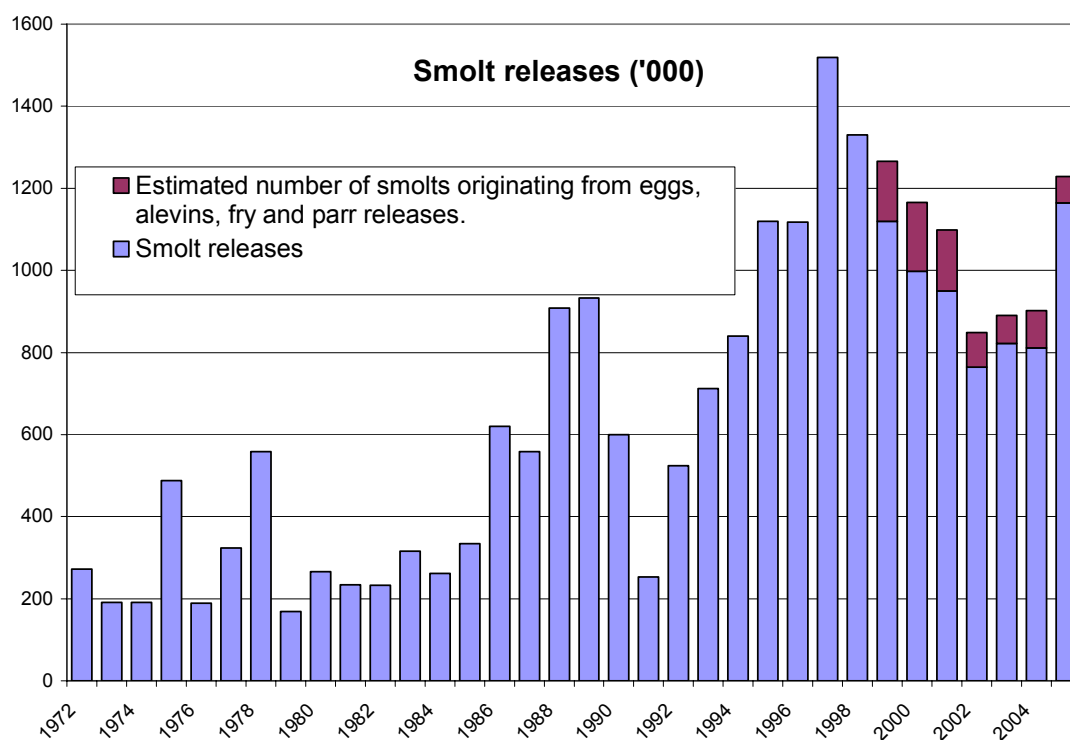


Figure 3. Sea trout smolt releases in Poland in 1972-2005.

9. Research activities

Activities:

- Carling tagging
- catch data collection;
- size and age samples;
- inventory of redds;
- electrofishing survey.

Needs:

- regular electrofishing inventory of natural reproduction;
- smolt trapping;
- counts of spawners;
- detailed river description;
- mapping of reproduction habitats;
- estimation of potential natural production.

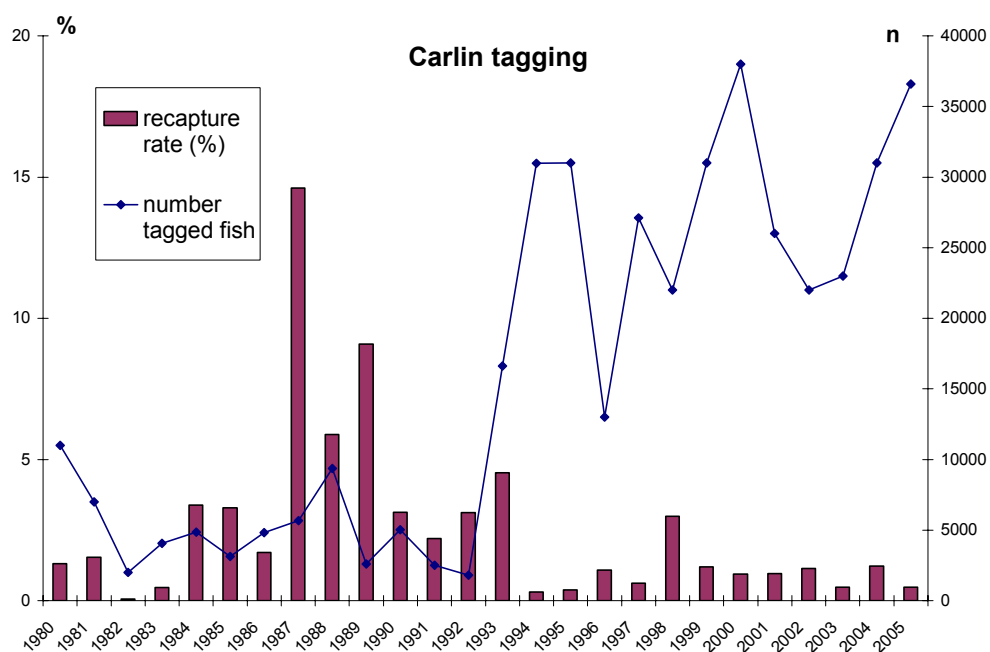


Figure 4. Number of tagged sea trout and recapture rates in 1980-2005.

10. Needs for national conservation and management measures

- Improvement of catch statistics of sea fishery;
- catch statistics of recreational fishery;
- recovery and management plans for sea trout rivers;
- reopening of migratory routes;
- rehabilitation of habitat.

11. Needs for international cooperation in research

- Methodology of estimation of natural production;
- exchange of tagging data;
- genetic studies – analysis of catch composition;

12. Needs for international cooperation in management

- Baltic sea trout action plan

13. Main conclusion

- All sea trout rivers are stocked – there are no really natural population;
- populations of Pomeranian rivers are mixed;
- reproduction areas are very limited due to river character and damming;
- natural production is unknown;
- sea catch statistics are not fully reliable;
- reopening of migration routes, rehabilitation of spawning and nursery habitats are needed;
- inventory of natural and potential production should be made;
- great importance of sea trout for nature and economy (tourism, angling) should be appreciated.

Appendix 1

	River	System	SD	Drainage basin (thou. km ²)	River length (km)	Reach of migration in main river (km)	Reach of migration in tributaries (km)	Existing spawning area (ha)	Potential spawning area (ha)
1	Pasleka	Vistula Lagoon	26	2.3	185	37	5	0	6
2	Bauda	Vistula Lagoon	26	0.3	59	40	15	?	?
3	Vistula	Baltic S.	26	194.4	1047	370	12	?	?
4	Drweca	Vistula R.	26	5.3	207	180	30	?	4
5	Zagorska Struga	Gulf of Gdansk	26	0.1	28	5	0	0.2	0.2
6	Reda	Gulf of Gdansk	26	0.5	51	22	0	1.0	2
7	Czarna Wda	Baltic S.	26	0.1	20	15	0	0	0
8	Piasnica	Baltic S.	26	0.3	31	25	1	0.5	1
9	Leba	Baltic S.	25	1.8	135	59	5	1.5	4
10	Lupawa	Baltic S.	25	1.0	110	11	2	0	10
11	Slupia	Baltic S.	25	1.6	126	53	15	2.0	9
12	Wieprza	Baltic S.	25	2.2	125	73	55	1.5	7
13	Parseta	Baltic S.	25	3.1	157	111	80	3.5	2.5
14	Rega	Baltic S.	25	2.7	184	42	5	?	?
15	Gowienica	Odra R.	24	0.4	54	13	0	?	?
16	Ina	Odra R.	24	2.1	143	57	?	?	?
17	Drawa	Odra R.	24	3.3	186	37	50	4	?
18	Gwda	Odra R.	24	4.7	149	20	0	0	?
19	Odra	Baltic S.	24	119	854	280	?	?	?

Appendix 2

	River	Amount of entering spawners	Stock status	Critical factors	Improvement measures	Stocking	Monitoring
1	Pasleka	very few	poor	dam	fish way (1)	fry, smolts	
2	Bauda	very few	poor	water quality		fry	
3	Vistula	a lot	poor	dams, water quality, river fishery	fish way (1?)	alevin, fry, parr, smolts	Carling tagging
4	Drweca	a lot	poor	dams, water quality	fish ways (2)	alevin, parr, smolts	Carling tagging
5	Zagorska Struga	few	satisfactory	dam			
6	Reda	quite a lot	satisfactory	dam	fish way (1)	smolts	Carling tagging, fin clipping, redds inventory
7	Czarna Wda	few	poor	channelization		fry, parr	
8	Piasnica	few	poor	dam, flow regulations		fry, parr	
9	Leba	quite a lot	satisfactory	dam, channelization	fish way (1), artificial spawning grounds	alevin, smolts	Carling tagging, redds inventory, electrofishing
10	Lupawa	few	poor	dams		alevin	
11	Slupia	a lot	good	dams	fish ways (2), artificial spawning grounds, habitat restoration	alevin, smolts	Carling tagging, fin clipping, redds inventory, electrofishing
12	Wieprza	a lot	satisfactory	dams, channelization	fish way (1)	alevin, smolts	Carling tagging, redds inventory, smolt trapping, electrofishing
13	Parseta	a lot	good	dams	fish way (1)	alevin, smolts	Carling tagging, electrofishing
14	Rega	a lot	satisfactory	dams, water quality	fish way (3?)	alevin, smolts	Carling tagging
15	Gowienica	few	poor	dams		alevin	
16	Ina	few	poor	dams, water quality		alevin	
17	Drawa	few	poor	dams, water quality		smolts	redds inventory
18	Gwda	few	poor	dams, water quality		smolts	
19	Odra	few	poor	dams, water quality, river fishery		alevin, smolts	Carling tagging

Russian country report

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1. Fishing and catches by sea areas

Until 1999 there were not the special catches of Sea Trout in the Russian Part of Baltic Sea. The main part of trout spawners were caught as a by-catch by gillnets during fishing of the salmon and other species. Since 1999 the Baltic Trout was included into Russian Red Book. And as the Sea Trout is the protected species in the Russian part of the Baltic Sea, the fishing of the spawners was not carried out at all.

2. Fishing regulations

Neither commercial, nor recreational legal fishing of Sea Trout were carried out in the Russian part of the Baltic Sea (in the rivers and in the open sea).

3. Sea trout stocks and their status by sea areas

Table 1. Sea trout stocks, their status by sea area and potential smolt production.

Sea area	Number and status of sea trout stocks		Potential smolt production (approximated)	Notes
	Original	Mixed		
Gulf of Finland (sub-div 32)	*24 poor 5 satisfactory	1 satisfactory	200 000 - 300 000	Supportive stocking in 1 trib. of Luga river
Kaliningrad Region (sub-div 26)	**3 poor	—	n.d.	—

*Additionally in Luga river basin (in the tributaries) there are about 6-7 local populations of sea trout

**The data of our colleagues from Kaliningrad Region

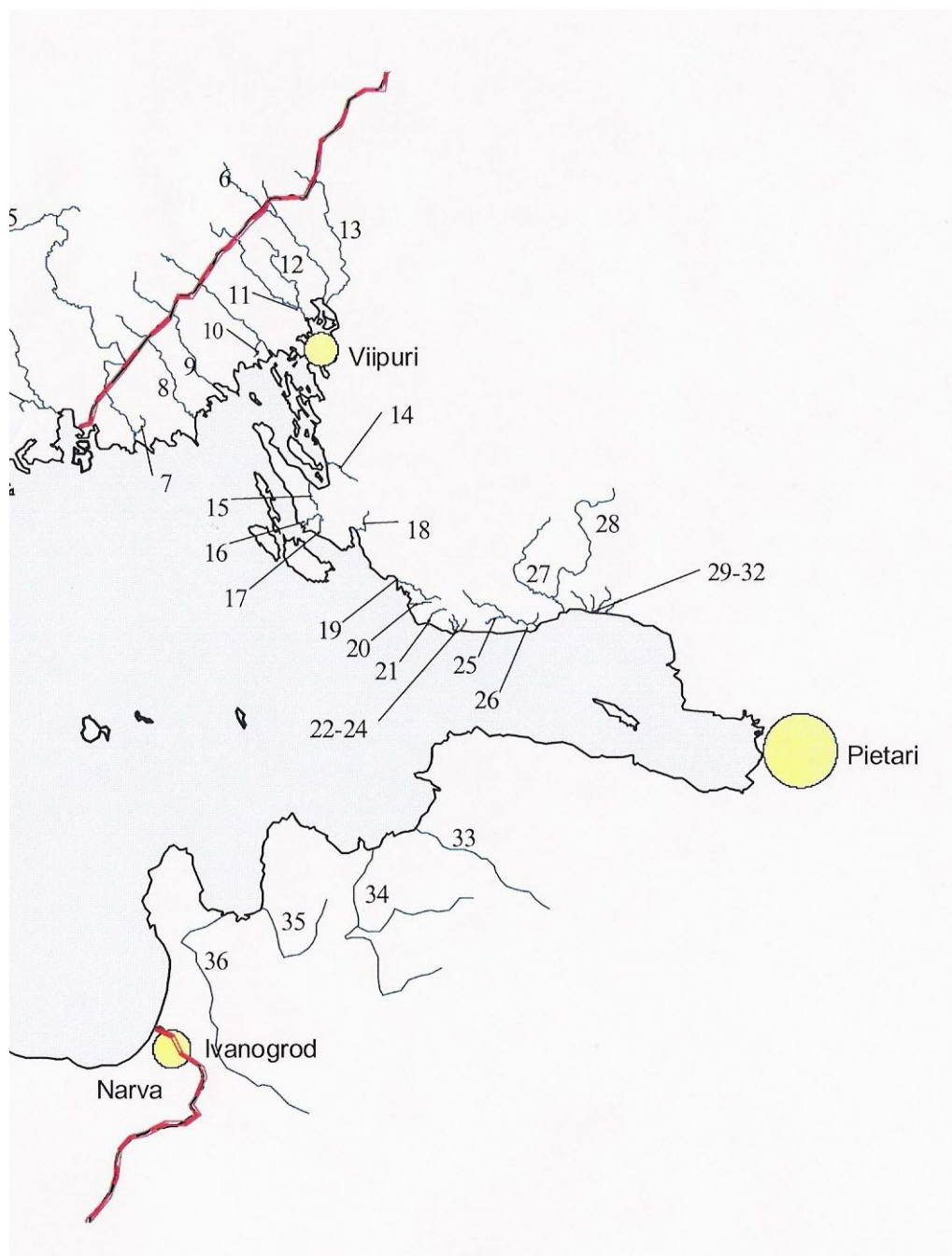


Figure 1. Russian stocks of Baltic sea trout.

List of the Russian Baltic Sea Trout Rivers

7. Ser'ga river (Urpalanjoki)
8. Peschannaja river (Santajoki)
9. Velikaja river (Vilajoki)
10. Polevaja river (Tervajoki)
11. Seleznevka river (Rakkolanjoki)
12. Gusinaja river (Hanhijoki)
13. Petrovka river (Kilpeenjoki)
14. Rämpötinpuro brook
15. Mel'nichnyi brook (Myllyoja)

16. Koivistonpuro brook
17. Penttilänoja brook
18. Kello-oja brook
19. Lohijoki river
20. Papinoja brook
21. Toivola brook
22. Jukkola (west) brook
23. Jukkola (middle) brook
24. Jukkola (east) brook
25. Privetnaja river (upstreams)
26. Privetnaja river (lower stream)
27. Gladyshevka river
28. Roschinka river
29. Ushkovski brook (Tyrisevänoja)
30. Bysryi brook
31. Zelenogorski brook
32. Huumosenoja brook
33. Voronka river
34. Sista river
35. Khabolovka river
36. Luga river

4. Annual monitoring of sea trout stocks by sea areas

Table 2. Annual monitoring of sea trout stocks by sea areas.

Sea area	Rivers smolt trapping	Rivers electrofished	Total n of sites	Carlin tagging, numb. of stocks
Gulf of Finland (sub-div 32)	1	*12	32	—
Kaliningrad Region (sub-div 26)	—	n.d.	n.d.	—

*including 4 trib. of Luga river

5. Threats for the stocks

Table 3. Threats for the stocks.

Sea area	Threats
Gulf of Finland (sub-div 32)	Illegal fishing in Sea and Rivers, by-catches of smolts and adults, silting of spawning grounds, water quality, predators
Kaliningrad Region (sub-div 26)	n.d.

6. Improvement measures in sea trout rivers

Table 4. Improvement measures in sea trout rivers.

Sea area	Fish ways	Restoration	Enhancement/supportive stocking
Gulf of Finland (sub-div 32)	No	No	50 000 parr/ year, 3 000 smolts/year
Kaliningrad Region (sub-div 26)	No	No	10 000 parr since last year,

7. Potential rivers likely suitable for enhancement/restocking

Table 5. Potential rivers likely suitable for enhancement and/or restocking.

Sea area	Estimate of the numbers	Potential smolt production
Gulf of Finland (sub-div 32)	5-6	10 000 - 15 000
Kaliningrad Region (sub-div 26)	n.d	n.d.

8. Releases (compensation/sea ranching)

8a. Description of the operation

History shortly

- Since 1958 the releases of trout smolts to Narva River have started, and were finished in 1990s. Releases were used for the compensatory stocking.
- At the present time (since 1990s) trout smolts and parrs are reared at Luga hatchery only.

Brood stocks/ collecting of spawners

- At present only 1 sea trout stock (at Luga river) is maintained as hatchery brood stocks. And all the spawners are from Luga river.

Hatcheries (governmental/private)

- All the hatcheries are Governmental.

Quality criteria for young fish

- Now no real quality criteria there are.

9. Research activities

Major activities

- Mapping of reproduction habitats (also potential)
- Smolt trapping on Luga River
- Electric fishing surveys in sea trout rivers
- Genetic studies

Research needs and interests

- Additional smolt trapping (on the other than Luga rivers)
- Counts of spawners
- Surveys of postsmolt's migrations in sea area
- Surveys of by-catches of trout postsmolts migrating in sea area

10. Needs for national conservation and management measures

- Management plans for sea trout rivers
- Effective guarding on trout rivers
- Restoration of spawning areas on trout rivers
- Recovery plans for potential sea trout rivers
- Seek for such management/regulatory measures for fishing of other species which prevents sea trout postsmolts to get caught as a by-catch.
- Excluding Baltic Sea Trout from the Russian Red Book
- Temporal and areal fishing restrictions for the gill net fishing
- Improvement of water quality; mitigation of damages caused by agriculture) and forestry prevention of water pollution in general

11. Needs for international cooperation in research

- Fisheries related subject at the stock recovery phase: selectivity/catchability (gear, time, area)
- Improvement of habitats
- Tagging programs / exchange of tagging data (releases and recoveries)
- Genetic studies: exchange of baseline samples
- Viability analysis of the sea trout stocks: methodology and potential data
- Joint projects: surveys and monitoring of joint Finnish-Russian trout Rivers

12. Needs for international cooperation in management

- Baltic sea trout action plan
- Action Plan in management of joint Finnish-Russian trout Rivers
- Planning and implementation of joint management plans in the Gulf of of Finland (FIN – RUS – EST)

13. Main conclusions

- The main part of sea trout stocks in Russia are in poor state.
- The main reason for the present decline is the illegal fishing (poaching) pressure in the rivers and sea area.
- Large part of sea trout smolts and adults are caught premature as a by-catch by gillnets for other species.
- Immediate management actions are needed to be taken in all sea areas to avoid the risk of extinction.
- Improving of the spawning and rearing habitats is needed.
- Restocking plans for potential sea trout rivers should be established
- Excluding Baltic Sea Trout from the Russian Red Book is a need.
- Investigation and monitoring of real and potential trout rivers in Kaliningrad Region is needed.
- Promotion of international communication in research and management is still needed
- Critical status of many wild sea trout stocks has been clearly acknowledged by the experts. Political decisions are needed for improving management actions.
- The Russian National Programme “Baltic Sea Trout” is still needed.
- Regular (one at year or one at 2 years) joint Baltic Sea Trout Workshops are needed.

Statements /22.6.2006

Baltic Sea Trout Workshop 31.5.-2.6.2006 in Kotka, Finland

Concerned on the present status of the natural sea trout stocks in the Baltic Sea and aware of the declined stock size and risks of extinction of local populations, needs of a sustainable use, national legislation and international conventions regarding the conservation of this valuable living resource, the following statements were acknowledged:

Status of the stocks

- The status of the natural stocks is generally endangered especially in the northern and eastern parts of the Baltic Sea, mostly due to the reduced or degraded freshwater habitats and / or to extensive overexploitation as a by-catch of gillnet fishery for other fish species. However, some sea trout stocks in Denmark and southern Sweden have recovered to a reasonably good state due to extensive long-term enhancement activities, habitat restoration and extensive legislation of water protection and fishing.
- The return from sea trout releases has severely decreased, probably due to partially unknown environmental factors in the sea and also due to the quality of reared smolts.
- The genetic risks of extinction, reduced stock size and interbreeding are obvious both for the natural stocks and consequently also for the hatchery rearing.

Management

- Effective fishing regulations, particularly in sea fishing, are crucial to decrease the harvest to sustainable rates.
- In many rivers, also improvement of the freshwater quality and habitats are necessary for improving the stock status.
- Special enhancement plans are needed for the recovery of the stocks.

Measures needed in fishing regulation:

- Areal and temporal fishing restrictions in the near shore sea areas, at the river mouths and in the rivers
- Measures to decrease fishing effort affecting sea trout should be implemented
- In all gillnet fishing affecting sea trout the minimum mesh sizes should be adjusted in accordance with a minimum landing size of ≥ 50 cm. Primarily the minimum mesh sizes and the landing size should be adjusted into accordance with the maturing size of sea trout.
- Management units and cooperation between the administrators within the Baltic Sea area

Measures needed for improvement of the freshwater environment:

- Improvement or safeguarding of water quality in the rivers and streams
- Improvement or safeguarding of spawning and rearing habitats by limiting sediment load
- Ensuring possibilities for ascending spawners as well as descending smolts and kelts to migrate e.g. by construction of fish ways

- Rehabilitation of degraded river habitats
- The experiences of best practice should be shared

Measures needed for enhancement of the sea trout stocks:

- Management plans for the present sea trout rivers
- Recovery plans for potential sea trout rivers
- Regional joint management plans and measures between neighbouring countries
- Establishment of a Baltic Sea Trout Action Plan

Monitoring and research

- A common genetic survey of the stocks, inventory of the existing data and assessment of the stock status should be carried out in near future.
- Establishment of index rivers including standard monitoring methods is recommended in each sea area/management unit.
- Taggings, estimation of smolt and spawner abundances (including kelts) are needed for monitoring and modelling migrations, harvesting, life history and viability of the stocks.
- Comparisons of genetic and physiological fitness of the natural and reared smolts are necessary for improving the quality and survival of reared smolts.
- Development of methodology for measuring productivity in freshwater environment will be useful for estimation of the potential sea trout production in the Baltic Sea area. The factors affecting survival and productivity of sea trout in the sea environment should be further explored.
- Socio-economic studies on conflicting interests associated with habitat rehabilitation as well as to fisheries should be carried out.
- Conduction of a GIS analysis within the Baltic area with the aim of identification of factors influencing sea trout populations.
- In order to enhance possibilities of cooperation between countries a common list of ongoing and planned research projects in each country should be established.

Baltic Sea Trout Workshop in Kotka, 31. May – 2. June 2006

Program

First day, Wednesday 31st May

Time		Subject	Duration	Notes	Chairman
8.30-11.00		Buss from Helsinki via harbour and airport to Kotka	2 h 30 min		
11.00-12.00		Arrival via hotel (Seurahuone) to the meeting room (Kotkan konserttitalo)	1 h		
12.00-13.00		Lunch	1 h		
13.00-13.30		Opening of the workshop and introduction of participants	10 min + 20 min		Petri Heinimaa
13.30-13.50	Sweden	Country report	20 min	15 min talk + 5 min discussion	
13.50-14.10	Denmark	Country report	20 min	15 min + 5 min	
14.10-14.30	Poland	Country report	20 min	16 min + 5 min	
14.30-14.50	Lithuania	Country report	20 min	15 min + 5 min	
14.50-15.10		Coffee break	20 min		
15.10-15.30	Estonia	Country report	20 min	15 min + 5 min	
15.30-15.50	Russia	Country report	20 min	15 min + 5 min	
15.50-16.10	Finland	Country report	20 min	15 min + 5 min	
16.10-16.30	Åland	Country report	20 min	15 min + 5 min	
16.30-17.00		General discussion	30 min		

Evening program:

18.30- “Ice-breaking“ reception on the Tarmo Ice-breaker offered by Kotka town

Second day, Thursday 1st June

Time		Subject	Duration	Notes	Chairman
8.30-9.30	Nigel Milner	Opening lecture: Status and management of sea trout in North-East Atlantic rivers	1 h	40 min talk + 20 min discussion	Tapani Pakarinen
9.30-10.10	Jan Nilsson	Genetics, biodiversity and stock identification	40 min	30 min + 10 min	
10.10-10.30		Coffee break	20 min		
10.30-11.10	Gorm Rasmussen	Enhancement of sea trout stocks in Denmark	40 min	30 min + 10 min	
11.10-11.35	Hannu Lehtonen	Can research improve the management of sea trout?	25 min	20 min + 5 min	
11.35-12.00	Johan Östergren	Threats to the migration of sea trout in northern Sweden	25 min	20 min + 5 min	
12.00-13.00		Lunch	1 h		

Time		Subject	Duration	Notes	Chairman
13.00-13.25	Eero Jutila	Problems with sea trout by-catches in gill net fishing for whitefish and pikeperch	25 min	20 min + 5 min	Hannu Lehtonen
13.25-13.45	Jonas Dahl	Regulation of sea trout fishing in Sweden	20 min	10 min + 10 min	
13.45-14.10	Tomasz Slusarczyk	Polish fisheries administrator's views on sea trout management	25 min	15 min + 10 min	
14.10-14.30		Coffee break	20 min		
14.30-14.55	Roni Selen	Regulation of sea trout fishing in Finland	25 min	15 min + 10 min	
14.55-15.30	Mikko Koivurinta	Management of sea trout in the Gulf of Finland, the role of regional fisheries administrator	35 min	25 min + 10 min	
15.30-16.30		General discussion	1 h		

Evening program:

17.30-20.00 Excursion to the rapids and fishing places of the Kymijoki River

20.00 - Possibility for dinner at the restaurant Meriniemi

Third day, Friday 2nd June

Time		Subject	Duration	Notes	Chairman
8.30-10.20	Brainstorm/ general discussion	Extinction, enhancement or sustainable use? Challenges to research and management			Nigel Milner
10.20-10.30		Closing of the workshop			
10.30-12.00		Checkout and lunch			
12.15-15.00		Buss from Kotka to Helsinki via airport			

Participants

Name	Institute	Country	
Stig Pedersen	Research	Denmark	DK
Gorm Rasmussen	Research	Denmark	DK
Mart Kangur	Research	Estonia	EE
Martin Kesler	Research	Estonia	EE
Herki Tuus	Administration	Estonia	EE
Ari Haikonen	Research	Finland	FI
Charlotte Haldin	Administration	Finland	FI
Petri Heinimaa	Research	Finland	FI
Erkki Ikonen	Research	Finland	FI
Eero Jutila	Research	Finland	FI
Irma Kallio-Nyberg	Research	Finland	FI
Olof Karlsson	Administration	Finland	FI
Mikko Koivurinta	Administration	Finland	FI
Marja-Liisa Koljonen	Research	Finland	FI
Niko Lehtola	Administration	Finland	FI
Hannu Lehtonen	Research	Finland	FI
Jari Leskinen	Administration	Finland	FI
Mikko Malin	Administration	Finland	FI
Markku Marttinen	Administration	Finland	FI
Kyösti Nousiainen	Administration	Finland	FI
Tapani Pakarinen	Research	Finland	FI
Nina Peuhkuri	Research	Finland	FI
Atso Romakkaniemi	Research	Finland	FI
Matti Salminen	Research	Finland	FI
Ari Saura	Research	Finland	FI
Roni Selen	Administration	Finland	FI
Markus Tapaninen	Administration	Finland	FI
Vytautas Kesminas	Research	Lithuania	LT
Rymantas Kyzis	Research	Lithuania	LT
Egidijus Leliuna	Research	Lithuania	LT
Ryszard Bartel	Research	Poland	PL
Piotr Debowski	Research	Poland	PL
Tomasz Slusarczyk	Administration	Poland	PL
Sergey Michelson	Research	Russia	RU
Sergey Titov	Research	Russia	RU
Jonas Dahl	Research	Sweden	SE
Stefan Larsson	Research	Sweden	SE
Jan Nilsson	Research	Sweden	SE
Johan Östergren	Research	Sweden	SE
Nigel Milner	Research	United Kingdom	UK

