



HEALFISH =

**Healthy fish stocks – indicator of
successful river basin
management**

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**NOSTRA Forum and workshop 1 - 4 October 2013 Helsinki-
Tallinn**

**Themes: Coast and Hinterland Economy (Workshop +
Forum)**



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Central Baltic INTERREG IV A Programme 2007-2013

- Central Baltic INTERREG IV A Programme 2007-2013 is a European territorial co-operation programme funding cross-border projects in the central Baltic Sea area consisting of parts of Estonia, Finland (incl. Åland), Latvia and Sweden. The Programme aims at funding projects with altogether 96 MEUR from the European Regional Development Fund before the end of 2013, with a focus on environment, economic growth as well as attractive and dynamic societies.
- <http://www.centralbaltic.eu/>



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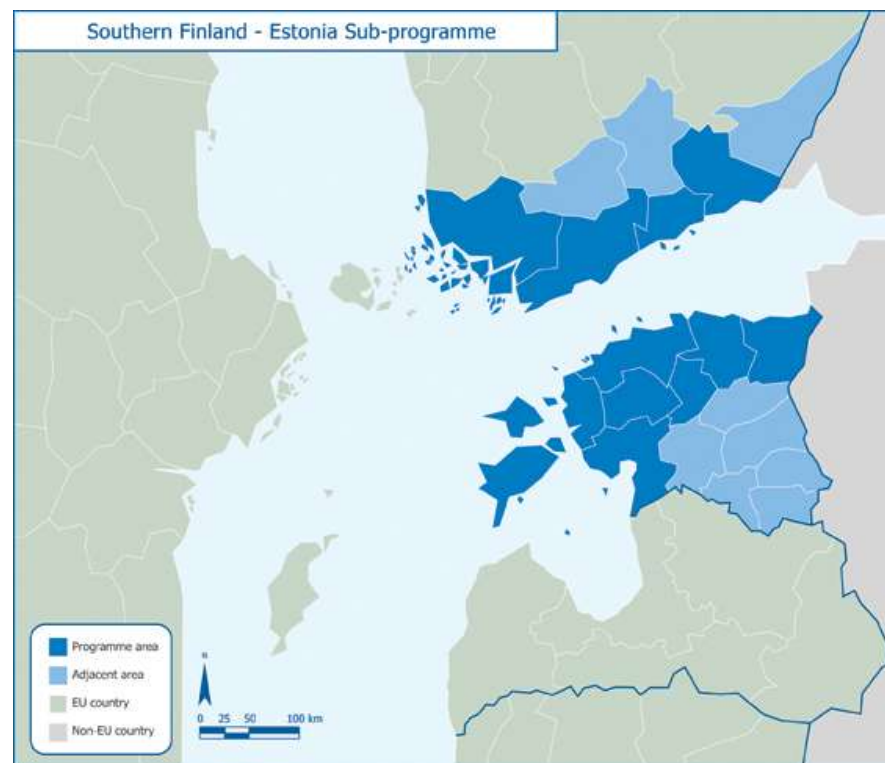
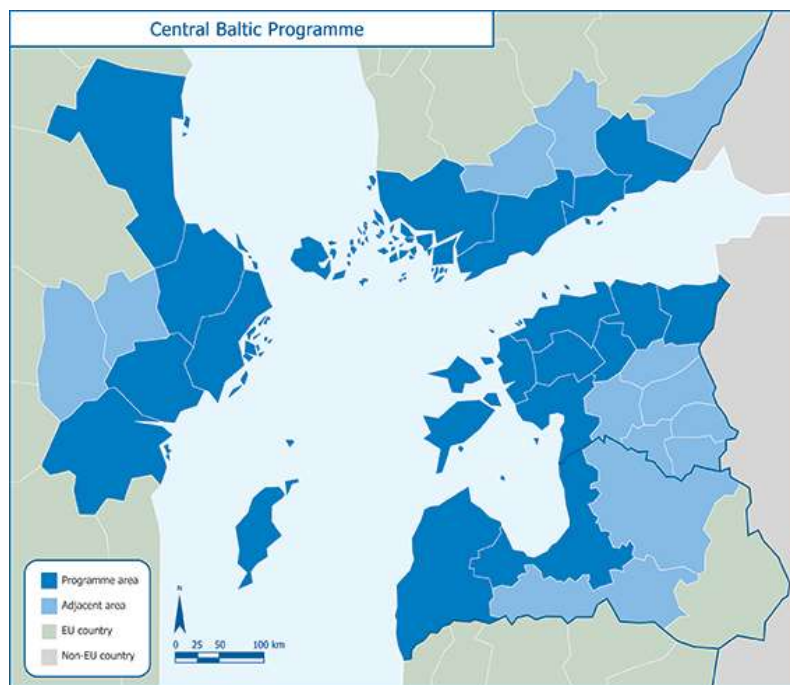


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Programm area



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- The 3rd call for proposals of the Central Baltic Programme was in September 2009
- 38 applications were sent, 19 of them approved. One of them was HEALFISH project
- Lead partner in the application was TE-center for Uusimaa – now ELY-center for Uusimaa
- Total budget: 1 367 710 €
(Share of Finnish partners 804 597 €, Estonian 563 113 €)
- Duration of the project is 3 years, till 31.5.2013



Project partners and their roles

- **Finnish:**
- **Centre for Economic Development, Transport and the Environment (ELY-center) for Uusimaa** (Lead Partner, project management, financial management, reporting and coordination, river restoration of Koskenkylä and Ingarskila rivers).
- **ELY-center for Southeastern Finland** (restoration work in the Vaalimaa river, trainings)
- **ELY-center for Southwestern Finland** (restoration of rapids in the Hitola river, trainings)
- **Finnish Game and Fisheries Research Institute** (genetic analysis of brown trout stocks, fish studies, sample collection)



- **Finnish Environment Institute** (environmental river engineering, natural type by-passes, planning a fish friendly draining maintenance)
- **Pro Vantaanjoki society** (financial manager for the project, fish studies in Finnish index-rivers)
- **Estonian:**
- **Estonian Marine Institute** (fish studies, GIS, assessing losses of fish due to dams (beaver and man made) recommendations for mitigation etc.)
- **Estonian University of Life Sciences** (sample collection of and DNA analysis of salmon and sea trout in Estonian rivers)

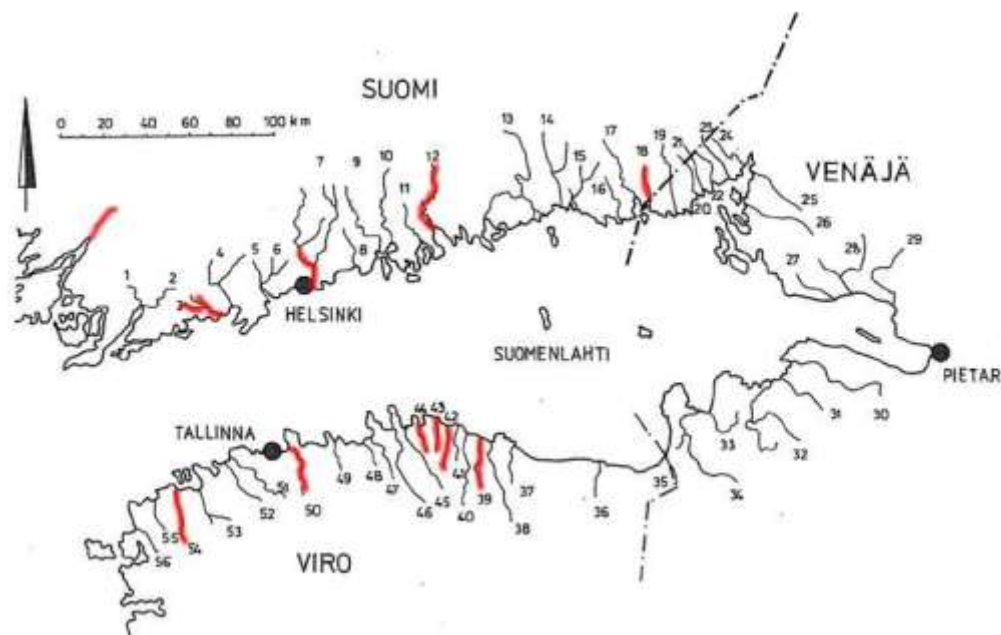


The aim of the project in a nut shell

- Healthy, self sustaining migratory salmonid (trout and salmon) stocks and lampreys are excellent indicators of good condition of river environment. A good salmonid river must be free of obstacles for migration. There must be enough spawning and nursery areas and they must be free of silt and other suspended solids.
- The aim of the project was to spread the best practices of river catchment management and river restoration in both countries by concrete actions in chosen pilot rivers
- The overall goal was to create an up-dated management plan for salmonid stocks and lamprey in the Gulf of Finland.



Index Rivers of the Project



- In Finland: Uskelanjoki(0), Ingarskilanjoki(3), Vantaanjoki(7), Koskenkylänjoki(12) and Vaalimaanjoki(18)
- In Estonia: Pirita(50), Võsu(44), Mustoja(42), Altoja(43), Toolse(39) and Vihterpalu(54)



Activities

- Activities contained training of personnel -both experts of planning the measures as well as those, who will carry out actual construction work "learning by doing".
- Up-to-date information of the genetic status of the most important and widely spread salmonid fish -trout DNA samples was collected and analysed.
- Enhancing the condition of the pilot rivers and their salmonid stocks. Project obtained know-how and practices that can be multiplied in other rivers in the region.



Project consisted on 5 work packages:

One for management one for communication and three for the actual work of the project.

- WP 1 Project Management
- WP 2 DNA research
- WP 3 Fish studies
- WP 4 river restorations, natural drainage
- WP 5 communication and seminars.



WP2 - Genetics

The goals:

- To resolve phylogenetic structure and potential colonization routes of brown trout stocks in watersheds draining into the Gulf of Finland and near by areas.
- To measure level of genetic differentiation and levels of genetic diversity in brown trout and Atlantic salmon stocks.
- To create a management plan for whole area, to maximize the maintenance of genetic resources, by utilizing the available genetic resources and potential breeding areas.
- To create a comparison (baseline) data for analyzing the origin of brown trout catches and to analyze some catches for their source of stock origin.





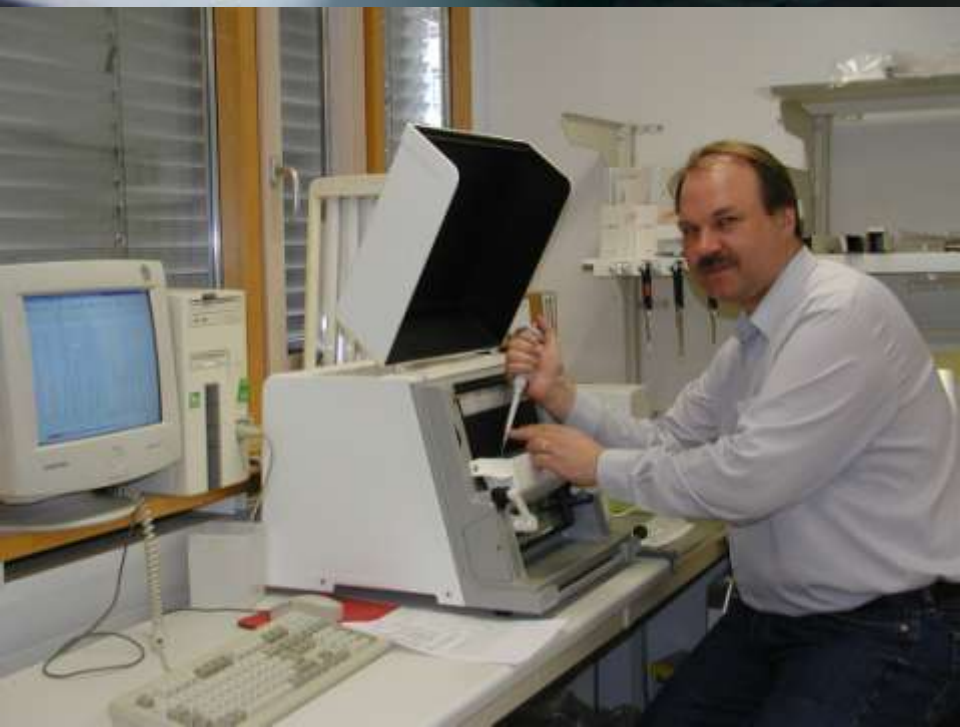
Work includes

- Organizing of samplings, and analyzing of 3000 fish in all.
- Standardizing of Finnish and Estonian DNA-microsatellite laboratory methods for 15 gene loci.
- Statistical analysis of pooled data sets and previously sampled stocks in Finland and Russia in phylogeny and diversity analysis.
- Analyzing of stock proportion estimates and individual assignments of stock origin of catch fishes.
- Forming a common view for proposed management units and for most valuable target stocks for conservation and enhancement projects.



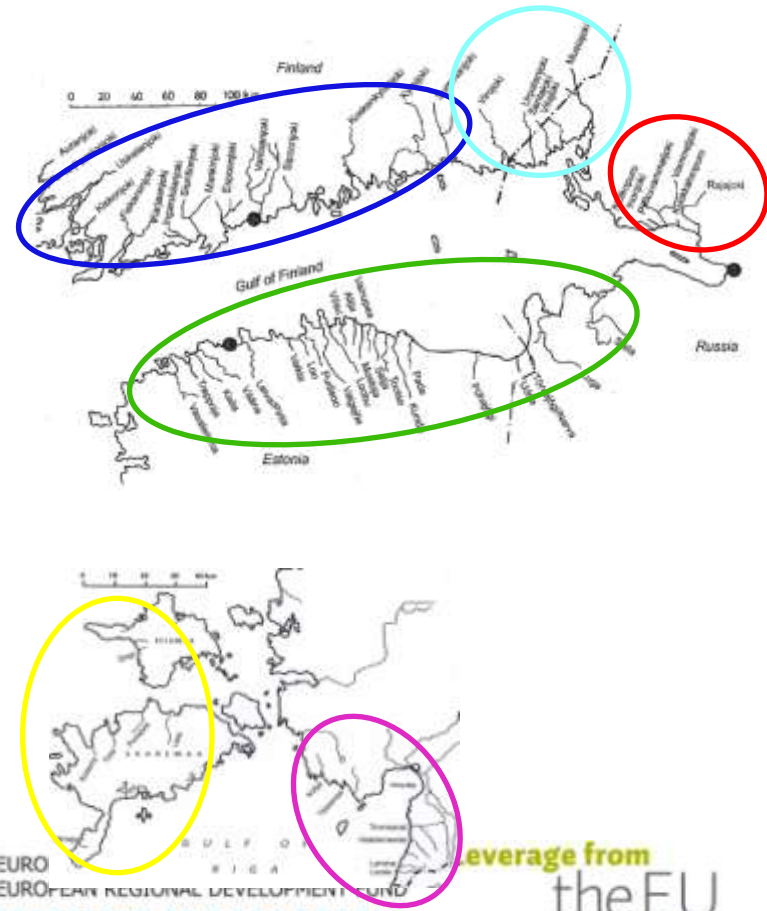
RESULTS

- Material of trout stocks collected
- Dendrogramms were compiled => that makes analysis of catches possible
- Tracking of exported to Finland Danish stocks was carried out





Genetic similarity of sea trout populations: NJ dendrogram (Nei's D_a distance)





WP3 – Fish studies

The goals:

- Gather data about trout stocks before and after river and drainage area restoration
- Estimating present and potential trout smolt production for 5 rivers based on electro fishing results, river mapping (including GIS) and smolt trapping.
- Combining different actions (restoration and genetics) together
- Giving management unit proposals and recommendations for further actions.



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Work included

- **Smolt trapping** in rivers Ingarskilanjoki, Vantaanjoki and one Estonia river Toolse River or Vihterpalu.
- **Electro fishing** in rivers Vaalimaanjoki, Hitolajoki, Koskenkylänjoki, Vihterpalu River system and in other selected rivers.
- **Habitat inventory studies** in rivers Vaalimaanjoki, Vantaanjoki, Koskenkylänjoki, Hitolanjoki, Ingaskilanjoki, Toolse River, Vihterpalu, Vösu Brook, Mustoja, Altoja .
- **Trout egg survival study** in rivers Vaalimaanjoki, Hitolanjoki, Vantaanjoki and Ingarskilanjoki.
- **Acoustic telemetry studies** of lamprey migration in river Toolse (beaver dams present).
- **Overview of literature and unpublished data** on fish species composition in rivers falling in the Gulf of Finland.



Results

- Collecting of material for management plan and Atlas have been started e.g. mapping data
- A new "Radio Fish" study, radiotelemetry of River Kymijoki was carried out during two summers and autumns.



Map of trout rivers of Gulf of Finland



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Smolt trapping in the River Ingarskila with a screw trap



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Radiotracking of salmon in the River Kymijoki



Radiotracking transmitter inserted into stomach of salmon

Tracking of salmon below the dam



Project Fish Run



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WP4 – Restoration and drainage

The goals:

- To help migration of fish from the Baltic Sea to their reproductions areas in the rivers in Estonia and Finland
- To increase the area for natural reproduction in main rivers and tributaries
- To asses and mitigate the impacts from the drainage basins for water quality and fish reproduction
- To distribute the know-how of restorations in rivers and their catchment area to all partners



Results

- Planned restorations in Finnish and Estonian target rivers were carried out and habitat of trout enhanced
- In Estonian target Rivers in the Pirita River a new type of spawning ground created, bypasses to two dams planned in two sites.
- Restoration training "learning by doing" carried out in Finnish and Estonian rivers carried out
- New type of agricultural drainage conducted



Rapid Reinikkalankoski before and after







Restoration of the Longinoja Creek

Vaskjala dam in the Pirita River



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Restoratio training in Angerjaoja Creek





Work includes

- Action plans for index-rivers to develop new methods to execute river and water policies which prevent old mistakes
- Fish passages construction and beaver dam removal to widen migration routes and to create new habitats for fish
- Restoration of rapids and spawning sites to increase natural reproduction
- Enhancement of river and brook sections dredged for land drainage by fish friendly maintenance planning
- Updating plans for constructed wetlands
- Restoration of urban brooks for fish reproduction and urban environment
- Trainings, consultations and hands-on experience



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Expected results

- Collaboration network established between Finland and Estonia (and Russia)
- Rivers, streams and their catchment areas are better taken into account in agriculture, forestry and urban development.
- Data on genetic origin of the populations helps to develop management and conservation plans of migratory fish stocks => growth of stocks
- Increased environmental awareness and support for the collaboration network of the decision making officials and politicians.
- Successful protection of migrating fish species will improve not only the Gulf of Finland but the whole basin of Baltic Sea => multiplying effect



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Information on the neighbouring project (ENPI programm)



ELY Centre for South Eastern Finland
Game and Fisheries Research Institute
Forestry Centre for SE Finland
Fisheries Centre for Southern Karelia
Wish water owner communities
Land owners
NGO Myötävirtaan ry
The Finnish Border Guard
Vyborg Regional Administration
Neva-Ladoga Basin Water Directorate
GosNIORKH
Baltic Fund for Nature
NW Russia Fisheries Administration
Nature Conservation Committee of
Leningrad Oblast
Students



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