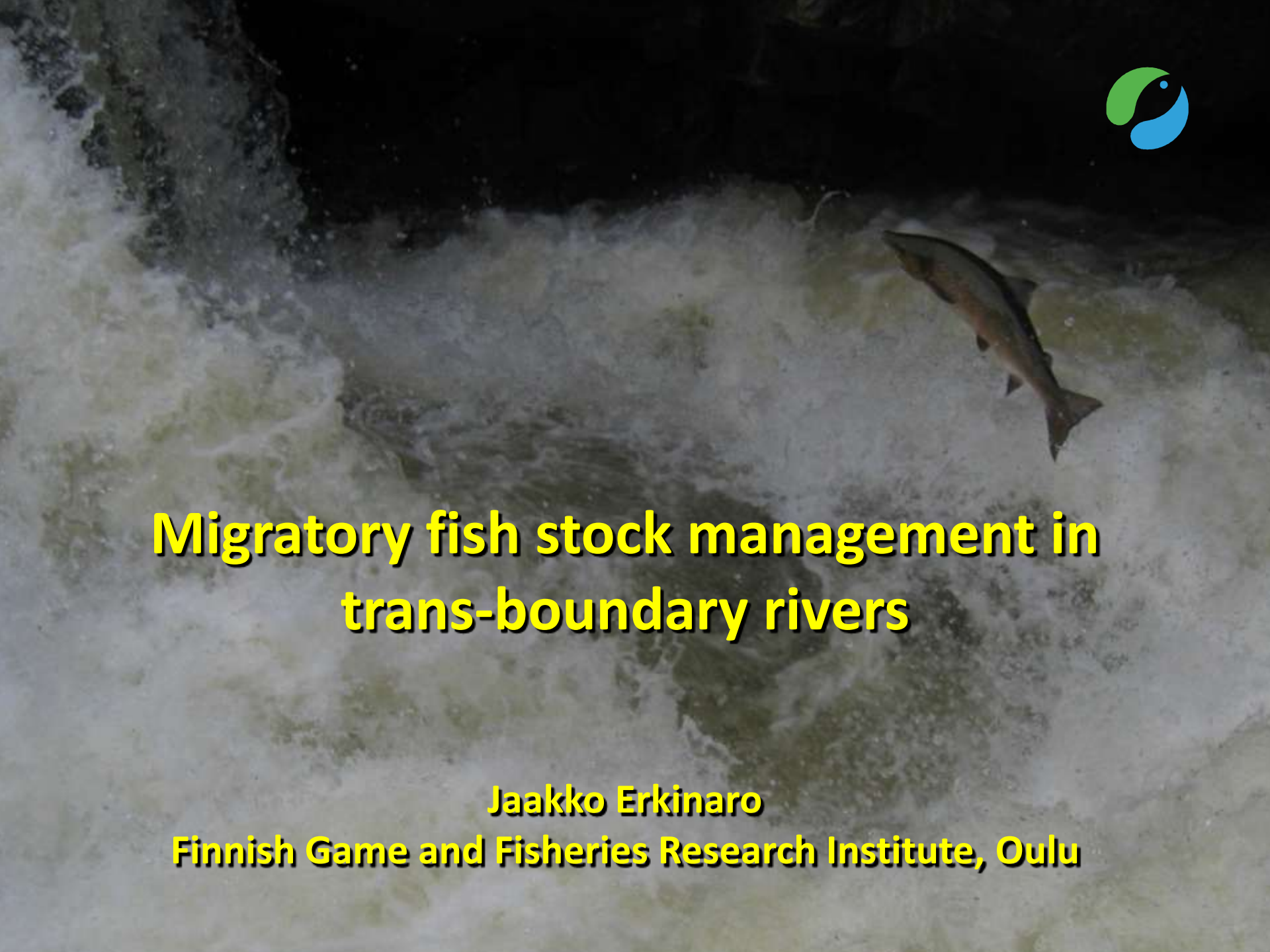
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Migratory fish stock management in trans-boundary rivers

Jaakko Erkinaro
Finnish Game and Fisheries Research Institute, Oulu



Finland shares border river systems with Russia, Norway and Sweden that discharge to the Baltic Sea or into the Atlantic Ocean via White Sea or Barents Sea

Major trans-boundary rivers between northern Finland and neighbouring countries

Fin-Swe: River Tornionjoki/ Torneälven

Fin-Nor: River Teno / Tana

Fin-Rus: River Tuuloma /Tuloma





International salmon stock management

- **Management of fisheries in international waters:**
  International fisheries commissions, European Union
- **Bilateral management of trans-boundary rivers:**
  Bilateral agreements between governments
- **Regional bilateral management**
  Bilateral agreements between regional authorities

Advice from corresponding scientific bodies
International and bilateral advisory groups

International Council for the Exploration of the Sea

- Advisory committee for fisheries management
- Working groups:

WG for **Baltic** salmon and sea trout

WG for **North Atlantic** Salmon

Scientific advice

International Baltic Sea Fishery Commission -2005

European Commission

North Atlantic Salmon Conservation Organization

River Tornionjoki

Finland-Sweden

- Drainage area 40 157 km^2
- Length 520 km
- Most important producer of wild Baltic salmon

- **Management of salmon stocks:**
  - **Bilateral**

    Fin-Swe, border river + estuary
  - **National**

    Finnish authorities, coastal fishery, temporal regulation
  - **International**

    European Union, Baltic Sea fishery, quotas



River Tornionjoki – bilateral management between Finland and Sweden



- First border river agreement 1810 (Sweden & Finland/Russia)

- Current agreement concluded 2010

- Common Finnish-Swedish Border River Commission

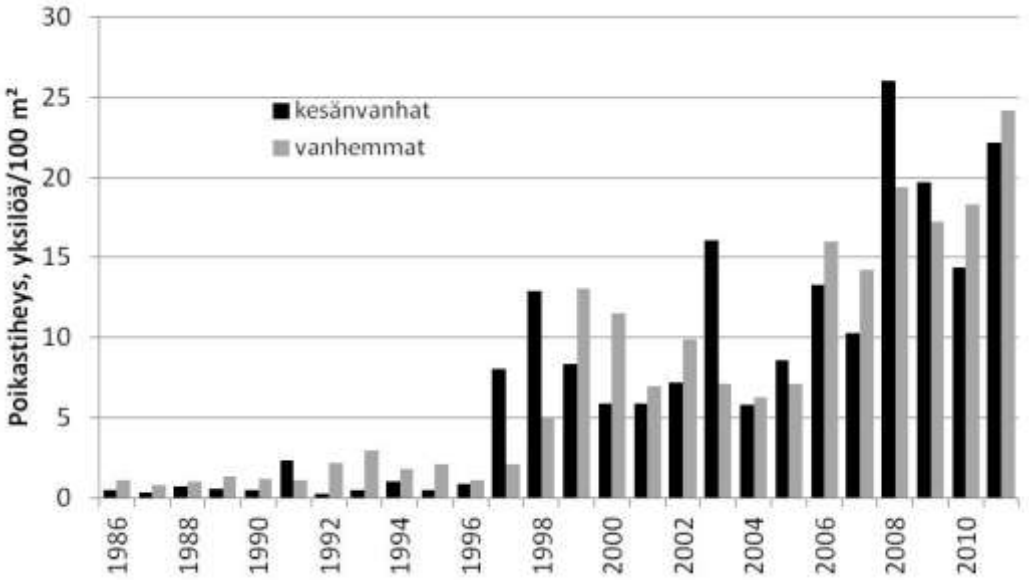
- Yearly assessment of the management by authorities and scientists from Finland and Sweden

Monitoring of the River Tornionjoki salmon populations

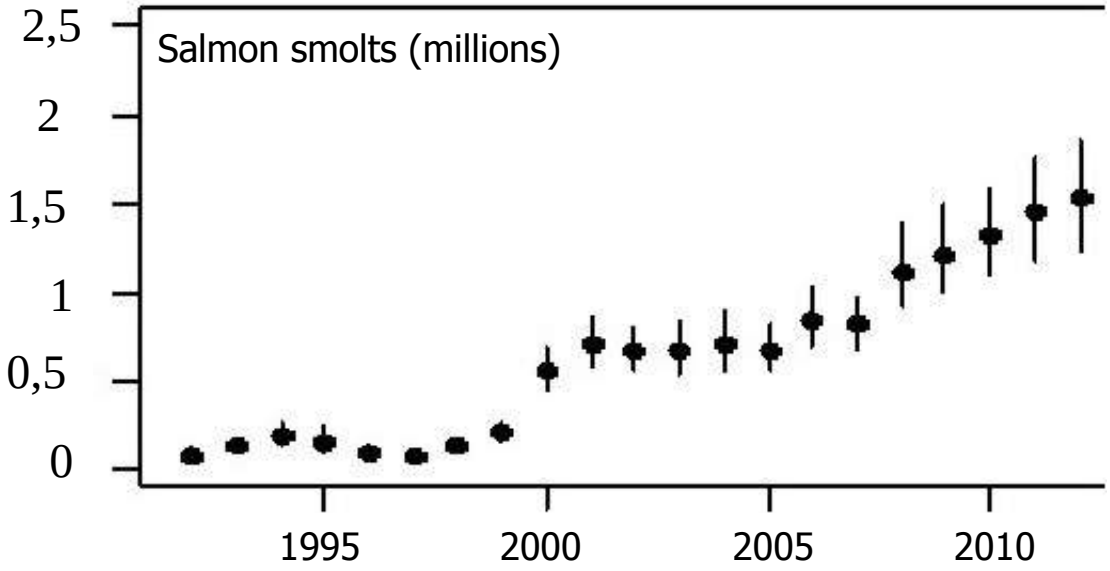
- Juvenile salmon densities 1985 –
- Salmon smolt counts 1987 –
- Counts of ascending salmon (echo sounding, DIDSON) 2009 –
- Catch and fishery statistics
- Catch samples

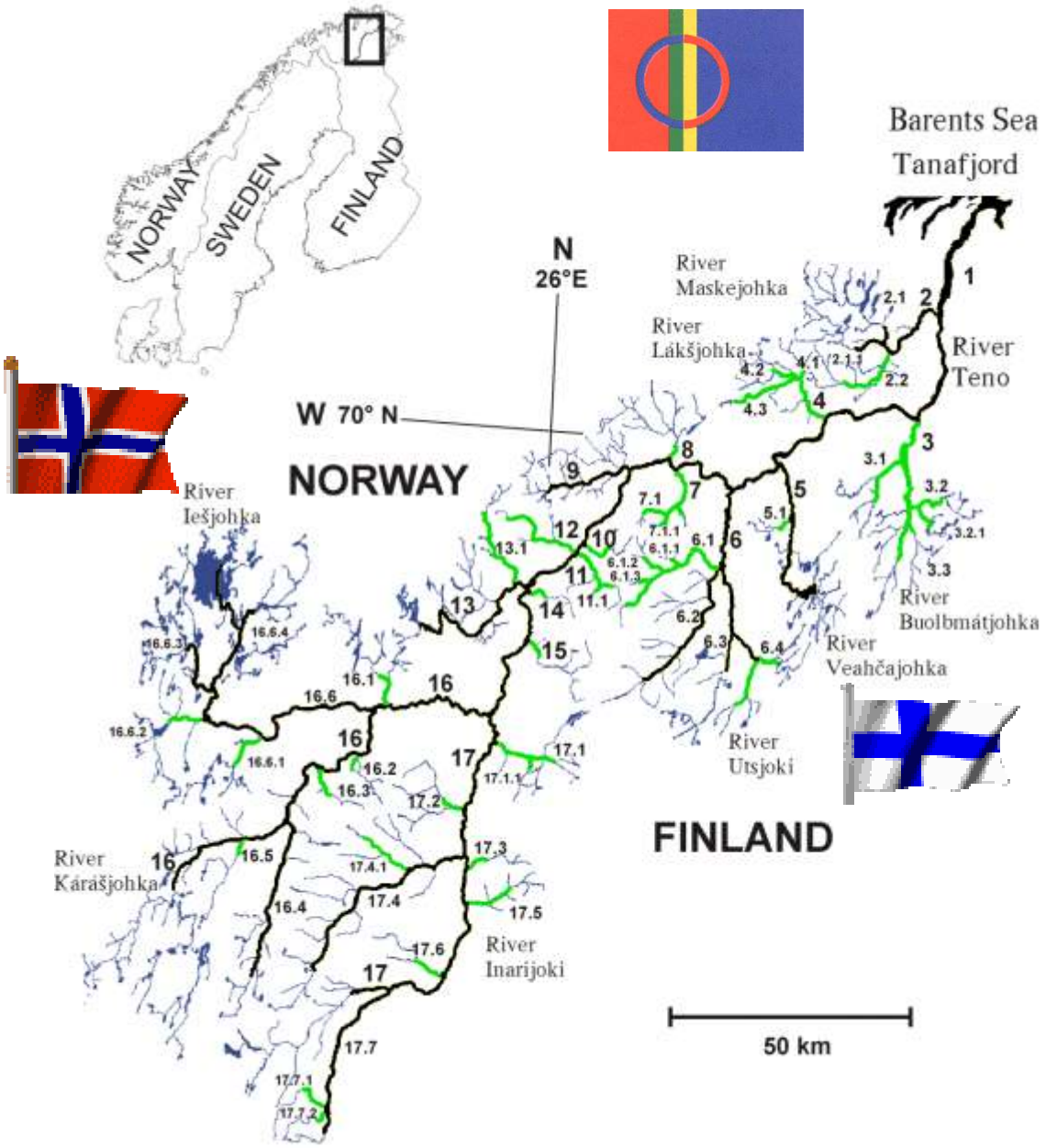
RIVER TORNIONJOKI

Juvenile salmon densities



Salmon smolts





Teno/Tana/Deatnu

Drainage area ~ 16 380 km^2

Mean discharge 170 m^3/s (max. 3000 m^3/s)

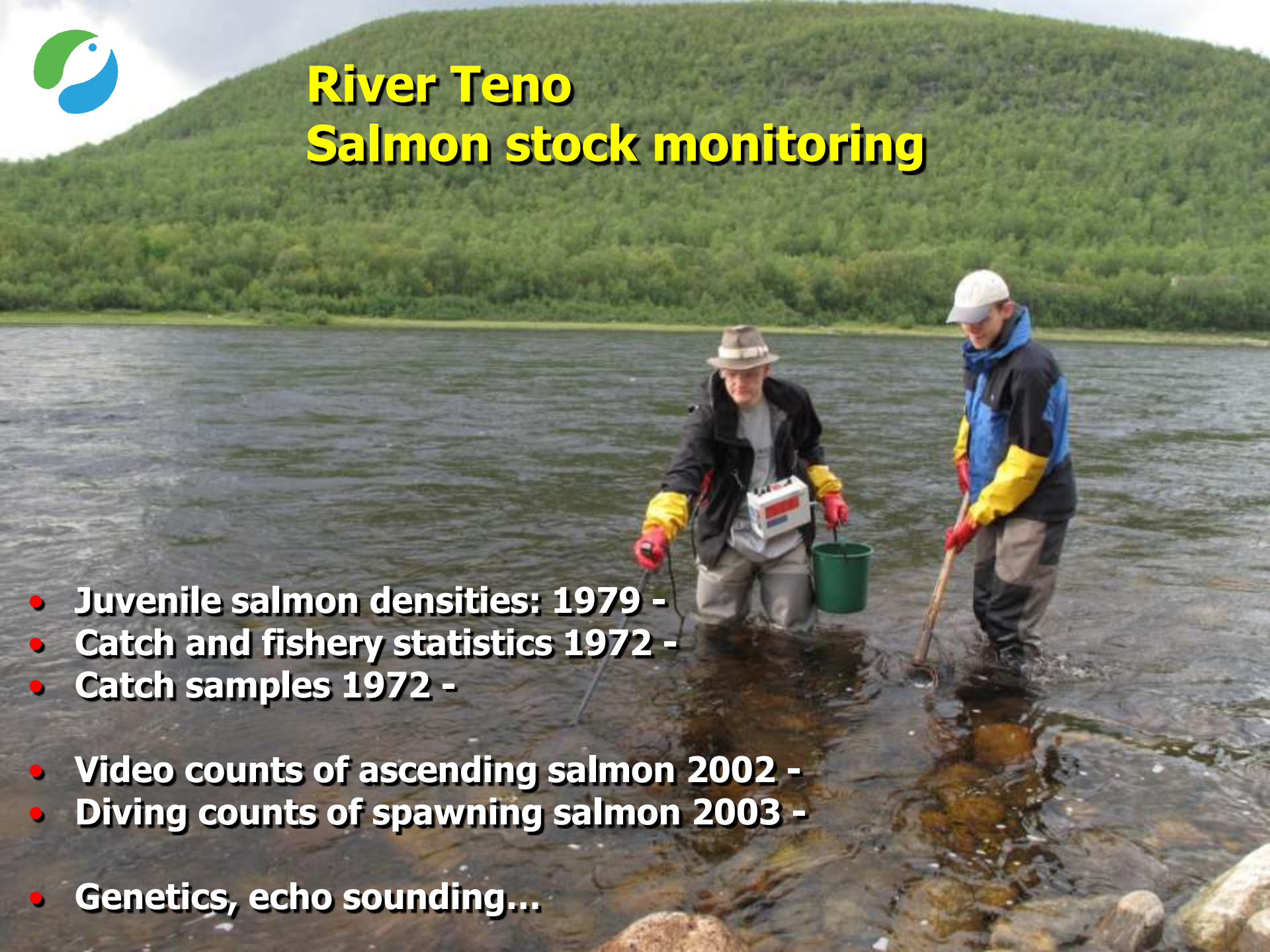
- **1200 km and >30 tributaries available for salmon**

Supports the largest Atlantic salmon population complex in the world

Supports largest diversity of life histories and genetic variation among Atlantic salmon rivers



River Teno
Salmon stock monitoring

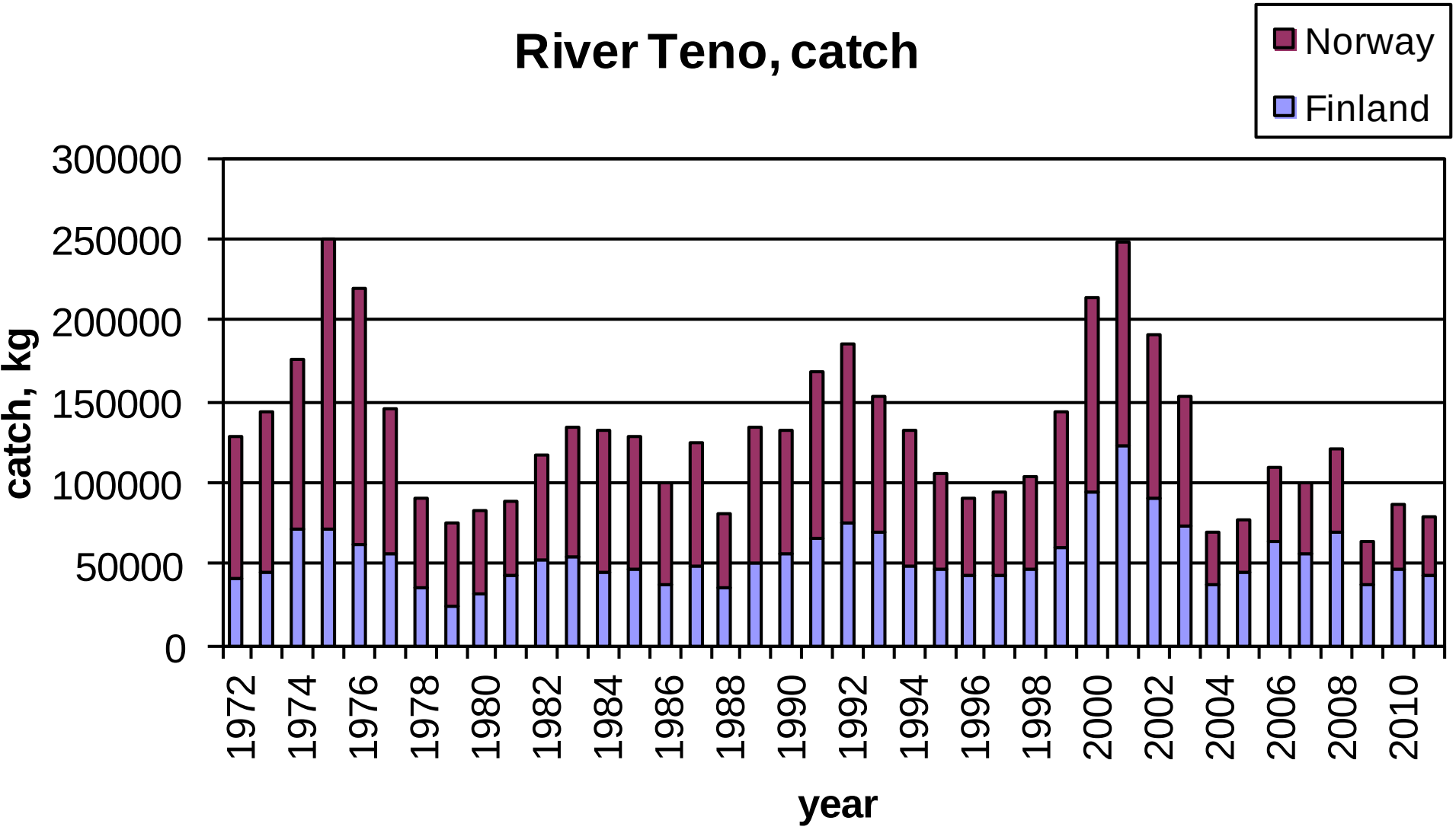


- Juvenile salmon densities: 1979 -
- Catch and fishery statistics 1972 -
- Catch samples 1972 -

- Video counts of ascending salmon 2002 -
- Diving counts of spawning salmon 2003 -

- Genetics, echo sounding…




River Teno, catch
Norway
Finland
300000
250000
200000
150000
100000
50000
0
catch, kg
1972
1974
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
year

Bilateral management of the River Teno salmon fishing

- 1st Teno salmon fishing agreement 1873 between Sweden-Norway and Russia[Finland]
- Current agreement concluded in 1989
- Negotiations between Finland and Norway for renewal of the agreement started in June 2012
- Advice from Finnish-Norwegian scientific expert group

Bilateral management of the River Teno salmon fishing

- Bilateral agreement between governments of Finland and Norway
  - Fishery agreement, principles, fishing rules for local people
  - Amendments require opening the government-level negotiations
- Bilateral fishing rules concluded by regional authorities in Finland and Norway
  - Tourist fishing rules
  - Can be amended on a yearly basis

Border river agreement between Finland and Russia (Soviet Union) 1961

- Not river-specific
- Agreement on a general level:
  - ✓ Discharge regulation
  - ✓ Water quality
  - ✓ Hindrances of fish migration
  - ✓ etc.
- Establishment of a common Finnish-Russian border river commission

River Tuloma, history:

- One of the major Atlantic salmon rivers in NE Europe
- Salmon catches 100+ tons/year
- Russian, Finnish, Skolt Sámi people inhabiting the area



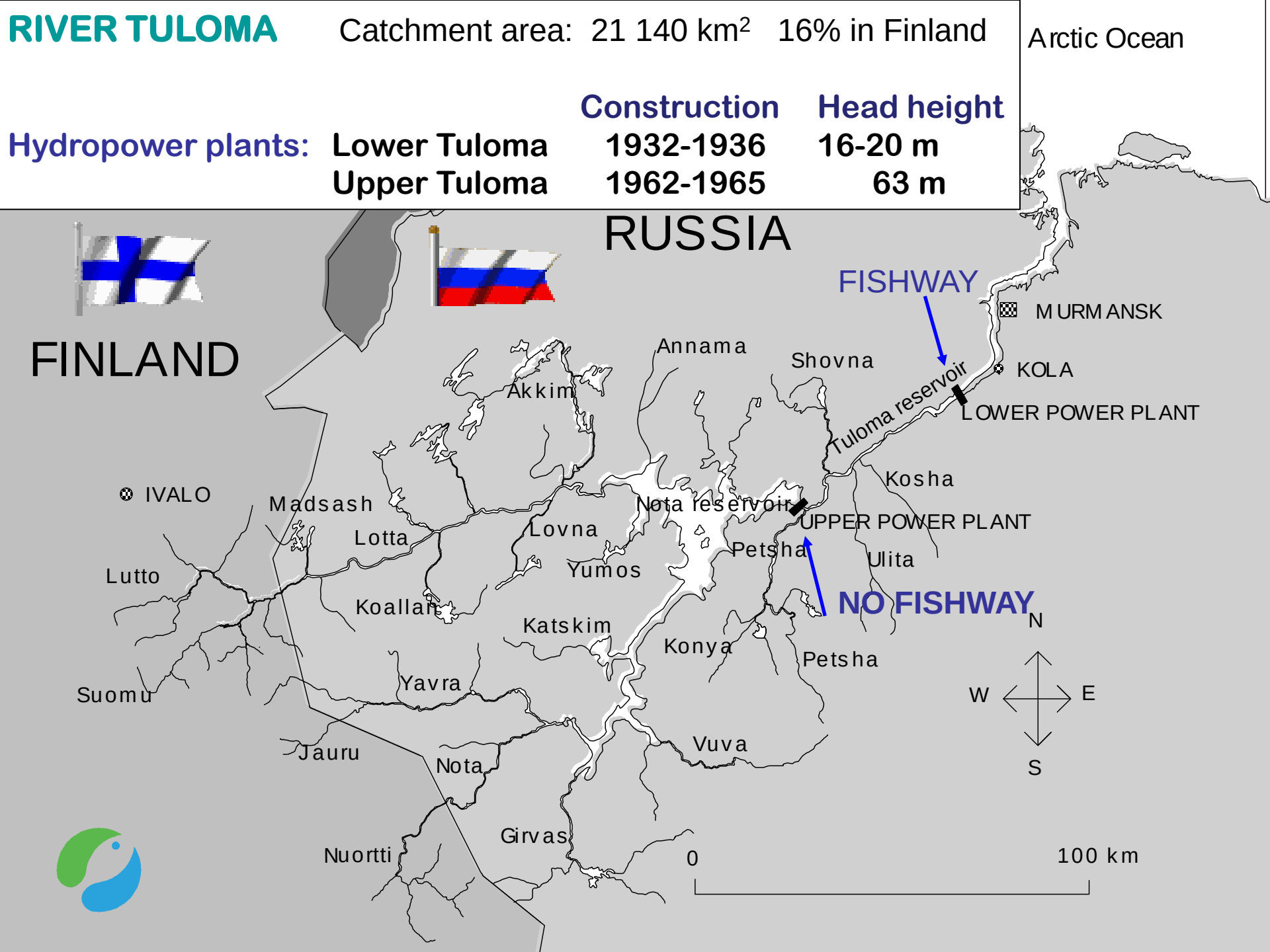
Valok. K. Airaksinen.

Patunaköngäs Tuulomajoessa Venäjän Lapissa. Sitä pidetään Lapin parhaimpana lohikoskena; kolttalappalaiset pyytävät siitä merilohta padolla. Könkäälle on helppo pääsy veneellä.

RIVER TULOMA

Catchment area: 21 140 km^2 16% in Finland

Hydropower plants:	Construction	Head height
Lower Tuloma	1932-1936	16-20 m
Upper Tuloma	1962-1965	63 m



EU projects – River Tuloma

EU Barents Intereg II

- 1998-1999
- Finnish Game and Fisheries Res Inst
- Lapland TE-center
- Inari, Sodankylä, Savukoski
- Murmanrybvod
- Russian Academy of Sciences

EU Tacis Cross Border

- 1999-2000
- Helsinki Consulting Group, FGFRI
- Murmanrybvod, RAS, PINRO
- EnviroCenter,Carnie Consultancy (Scotland)
- Fishtrack Ltd (Ireland)
- Forest and Park Services, Finland



Objectives of the joint EU-funded projects

Ultimate, long term:

- Restore the salmon stocks of the Tuloma River system
- Improve the local economy of the Kola Peninsula through fisheries, sport fishing and tourism activities.

Proximate, short & mid term:

- Estimate juvenile salmonid habitat capacity in the system
- Identify the appropriate methods to overcome the Upper Tuloma dam
- Assess aquaculture capacity in the region and possibilities for transplanting adult fish in order to revive the salmon production in former spawning and nursery grounds
- Complete a common salmonid stock management plan

ENPI CBC Kolarctic Programme 2011-2014

"Sustainable Use of Northern Salmon Resources – Technology and Science at Service" (SUNRAY)

FINLAND
- Finnish Game and Fisheries Research Institute (FGFRI)
- University of Turku (UT)

RUSSIA
- Knipovich Polar Research Institute of Marine Fisheries and Oceanography (PINRO)
- Murmansk Regional Directorate for Fisheries and Conservation of Fish Stocks (Murmanrybvod)

NORWAY
- Institute of Marine Research (IMR)
- Norwegian Institute of Nature Research (NINA)

NOT APPROVED

Proposal submitted in 2011

ENPI CBC Kolarctic



Photo:
P.Orell

Trans-boundary salmon river systems in northern Finland

- The most productive Atlantic salmon river runs between Finland and Norway

- The most productive Baltic salmon river runs between Finland and Sweden

- A major potential Atlantic salmon river runs between Finland and Russia

- **Successful international and bilateral river management is crucial for migratory fish populations**
- **Solid support from common scientific advice is required**


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