Kolarctic salmon

The border areas between Norway, Russia and Finland have unique natural qualities and natural resources. The Atlantic salmon is a symbol of healthy and vital ecosystems and is of significant economic and cultural importance, both through commercial and recreational fishing.

The *Kolarctic salmon* project was a unique venture between scientists, managers and commercial fishermen from Northern Norway, Finland, Northwest Russia and the White Sea area, aiming at providing a better knowledge-base for the countries salmon management.

Through joint effort, we gathered a unique bio-specimen sample along the North-Norwegian coast and in Russian Barents and White Sea areas, generating the most comprehensive ecological and genetic data sets for Atlantic salmon until now.

Overall, the project results provide opportunities for developing a knowledge-based and adaptive salmon management. We hope it will contribute to develop a future sustainable exploitation of the northernmost Atlantic salmon populations in Europe.

Key findings

"Merging modern science with traditional knowledge to improve the future management of the Atlantic salmon in the Barents region"

Kolarctic
ENPI CBC | CROSS-BORDER COOPERATION

KOLARCTIC SALMON
2011 - 2013

Key findings

1 **We found the salmons' home-river**

We created a unique gene map of the northern salmon stocks, with comprehensive information on the salmon rivers and the different salmon stocks in the area, including their genetic diversity. This allowed us to estimate the river and region of origin of each individual salmon caught at sea.

2 **We mapped the salmons' migration patterns**

We developed a stock-specific migratory model to describe the spatial and temporal migratory patterns for chosen salmon stocks in the Barents region. Outer coastal regions have a higher stock diversity and a lower percentage of local stocks than the inner fjord regions.

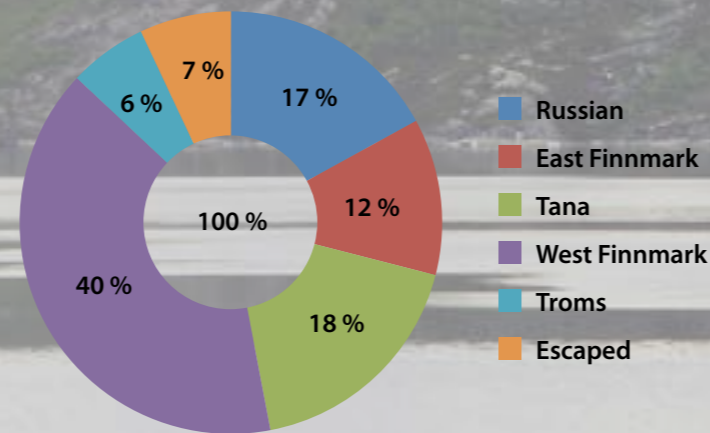**3** **We identified salmon stocks exploited in Northern Norway**

We gathered information and examined the stock composition of the mixed-stock fisheries catches in Northern Norway.

**4** **We estimated the proportions of farmed salmon in Norwegian coastal fishery**

We found that escaped farmed salmon occurred in the coastal fishery catches of Northern Norway throughout the summer from early May to the end of September.

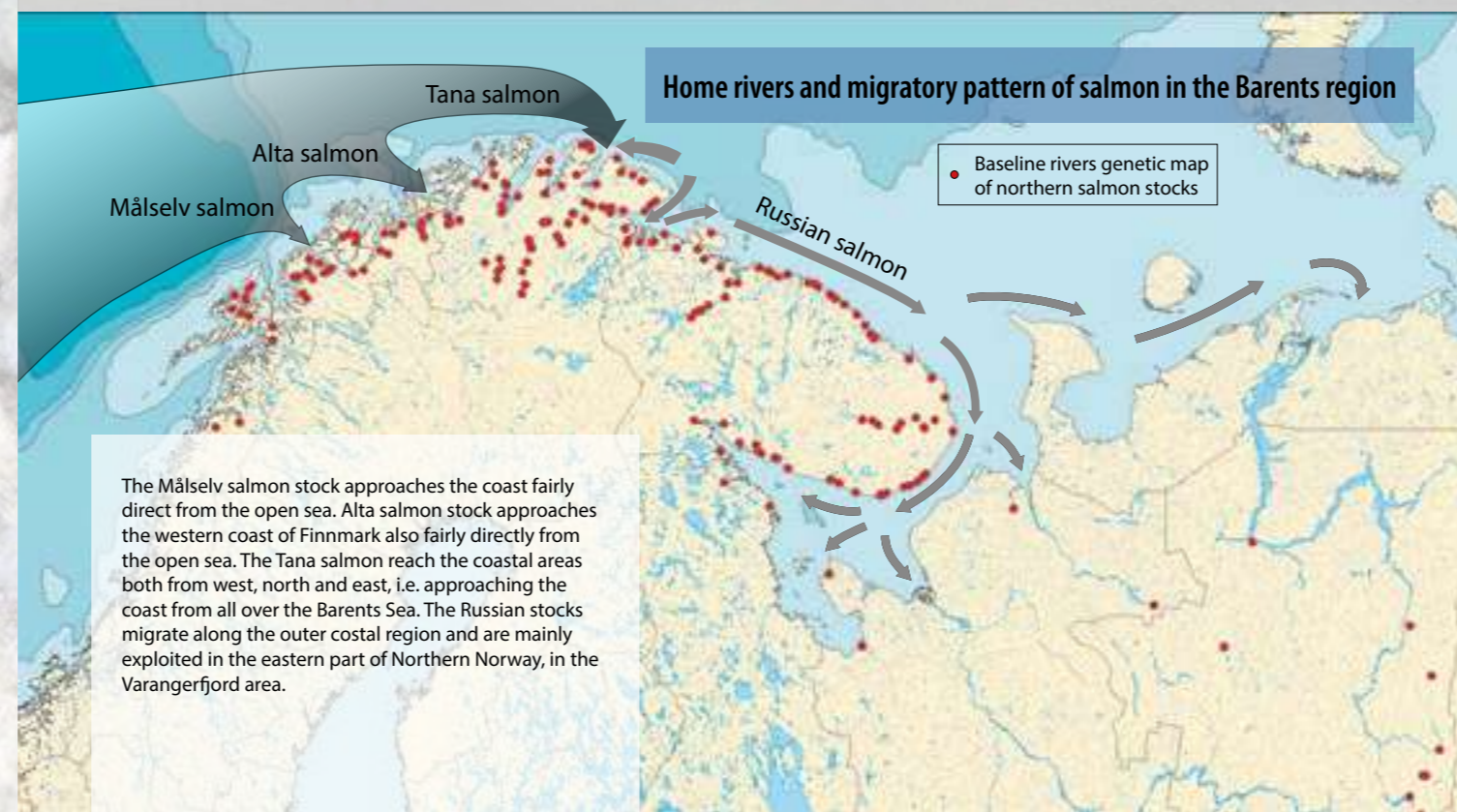**5** **We reached a mutual understanding of our rich fishing traditions**

The project facilitated a more active communication, dialogue and contact between the countries management, research, fisheries associations and local fishermen. Through mutual visits and meetings, we reached a better understanding of the rich fishing traditions, coastal and Sami culture of the area.

Origin of salmon caught in Finnmark 2011-2012
Number of salmon caught, N= 49 974

- Russian — 17 %
- East Finnmark — 12 %
- Tana — 18 %
- West Finnmark — 40 %
- Troms — 6 %
- Escaped — 7 %

100 %
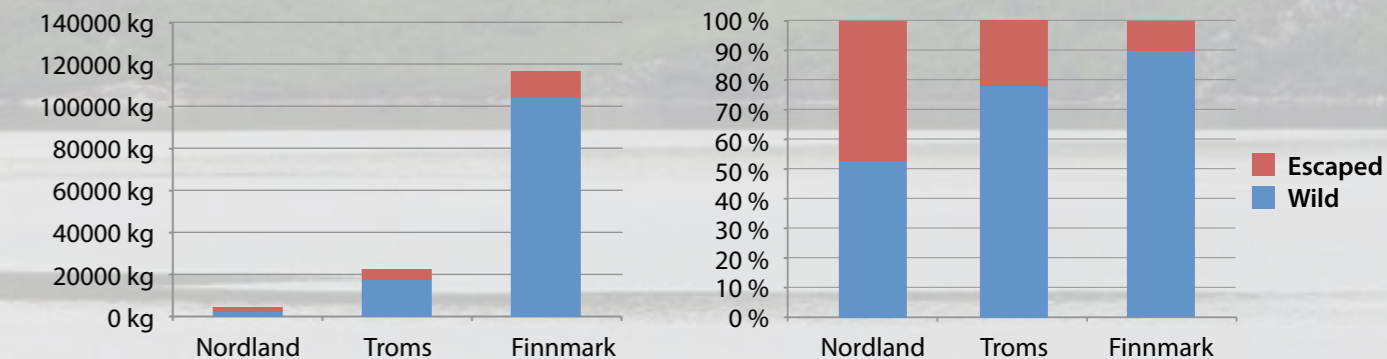
Proportions of wild and escaped salmon in weight 2011 in Northern Norway

- Escaped
- Wild

(Nordland, Troms, Finnmark)

Challenges with a mixed-stock fishery, can it be solved?

Mixed-stock fisheries are defined as fisheries exploiting a significant number of salmon from two or more river stocks. In a mixed stock, one stock could be at full reproductive capacity, while other stocks are below Conservation Limits. This creates a challenge for management, particularly in coastal waters or on the high seas, because it is impossible for the fisheries to target only the stock at full reproductive capacity. Rational management of mixed-stock fisheries requires knowledge of which stocks that are exploited in the fishery and the status of each of those stocks.

The *Kolarctic salmon* project offers the countries management authorities with unique possibility and reliable basic information and tools for development of future adaptive management regimes.

Home rivers and migratory pattern of salmon in the Barents region

Tana salmon
Alta salmon
Målselv salmon
Russian salmon

• Baseline rivers genetic map of northern salmon stocks

The Målselv salmon stock approaches the coast fairly direct from the open sea. Alta salmon stock approaches the western coast of Finnmark also fairly directly from the open sea. The Tana salmon reach the coastal areas both from west, north and east, i.e. approaching the coast from all over the Barents Sea. The Russian stocks migrate along the outer costal region and are mainly exploited in the eastern part of Northern Norway, in the Varangerfjord area.