Project information

Project title

Anadromous Arctic char in Northern-Norway – migration, habitat use and effects of climate change (Climate impact on anadromous salmonids)

Year

2012/2013

Project leader

Guttorm N. Christensen, ApN

Participants

- Guttorm N. Christensen, Akvaplan-niva (Project leader)
- Kate Hawley, NIVA
- Carolyn Rosten, NIVA
- Audun Rikardsen, Univeristy of Tromsø / NINA
- Geir Bornø, Veterinary Institute (Leader WP 2)
- Marta Alarcon, Veterinary Institute
- Tor Atle Mo, Veterinary Institute
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Flagship

Fjord and coast, Theme: Physical-biological coupling - Oceanography and habitat use by predators and their prey

Funding Source

The Fram Centre, The County of Finnmark, internal funding from Akvaplan-Niva and the Norwegian Veterinary Institute

Summary of Results

The main objectives in this study are:

**WP 1:**

- Increase knowledge about migration and habitat use of anadromous char by using acoustic tags
- Improve the knowledge of why the anadromous Arctic char populations in Northern Norway have decreased over the last years
- Investigate the effect of climate change on anadromous Arctic char
- Mapping of spawning areas in Storvatn
- Improve the management of anadromous Arctic char

A total of 60 anadromous Arctic char are tagged with acoustic tags. The loggers (VR2-reveivers) were deployed in the sea in May and retrived in October (Figure 1). The sites where the VR2 receivers were deployed is based upon results from last year. Loggers were also deployed in areas where there might be an expand in industrial activity the coming years. An expand in the use of coastal areas close to Hammerfest is connected to gas and oil activity (Melkøya), increased harbour areas and possible new airport. Data from the receivers in Lake Storvatn and from the marine environment was downloaded in October 2012 and are now being processed. The preliminary results indicated that the Arctic char from Storvatn mainly use the shallow coastal areas close to Hammerfest. Few fish are migrating more than 20 km from the watercourse.

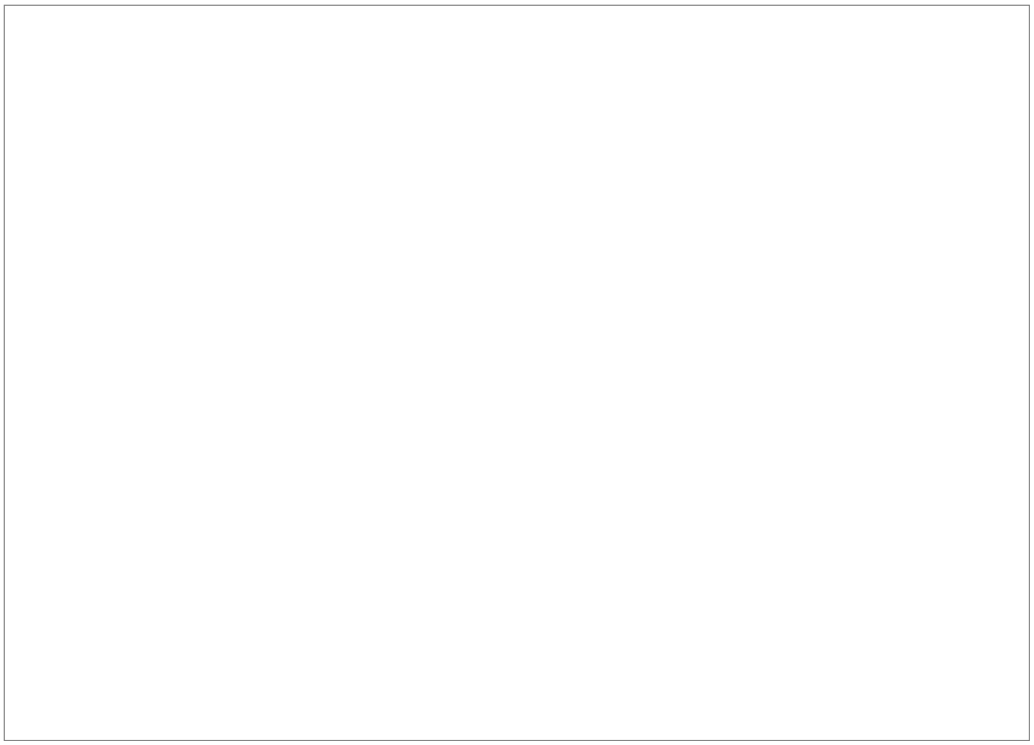
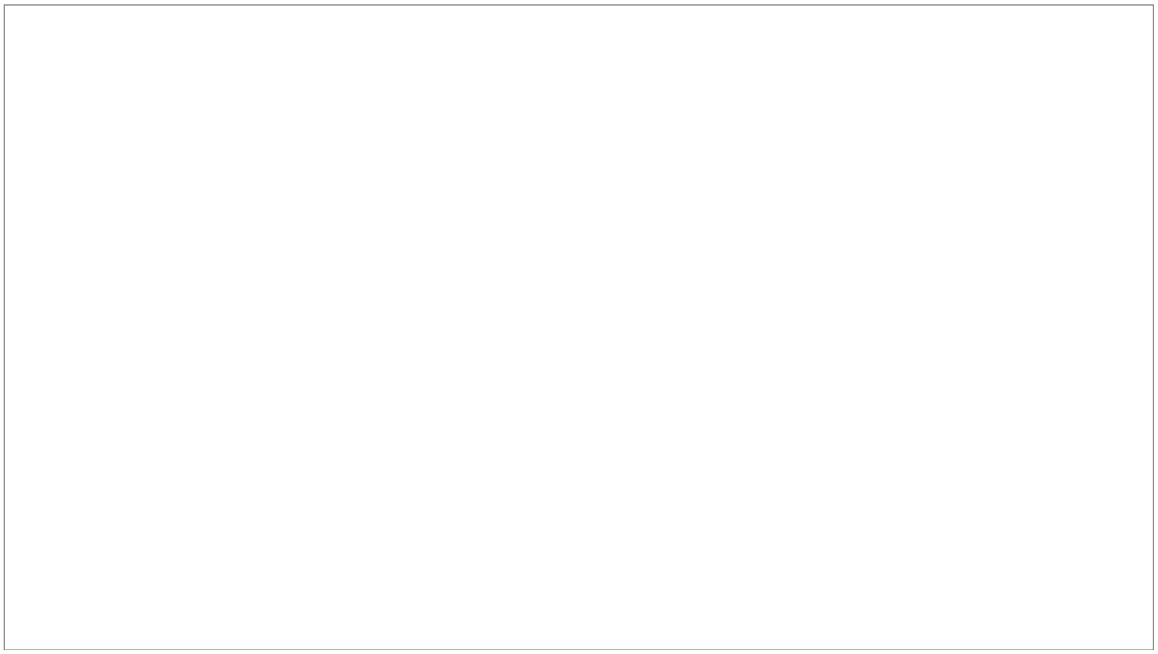


Figure 1. Localization of the 23 VR2 receivers that registred the movement of 60 anadromous Arctic char from May to October 2012.

**WP 2:**

- Diagnostics of ecto-, endoparasites and viruses in anadromous Arctic char at several sites with different impact from human activity and different climate.

Anadromous Arctic char and sea trout were collected at three different sites (Balsfjord, Malangen and Kvænangen) during three different periods June, early July and late July. 26 anadromous Arctic char and 14 sea trout was dissected. The plan was to only collect Arctic char for sampling but the sea trout was also sampled since the material in the catch was very good. The collected material is now beeing analysed at the Veterinary Institutes laboratory in Harstad and Oslo.



Sampling ecto-, endoparasites and viruses in anadromous trout (sea trout) from Balsfjord 2012.

Published Results/Planned Publications

No publications so far. 1st publication will be submitted spring 2013.

Communicated Results

- **Workshop in Hammerfest, June 2012**
- **Presentation given to The County of Finnmark, April 2012**
- **4 projects meetings during 2012**
- **Article in the local newspaper "Hammerfestingen" August 2010.**
- **Article on Forskning.no - http://www.forskning.no/artikler/2012/februar/313990**

Interdisciplinary Cooperation

**No Inter-diciplinary cooperation so far.**

Budget in accordance to results

The funding from the Fram Centre made it possible to continue another year with tracking of the anadromous Arctic char in Storvatn. The funding also made it possible to carry out diagnostics of ecto-, endoparasites and viruses in anadromous Arctic char and anadromous trout (sea trout) at 3 different sites in Troms County. WP 1 will continue for one more year. The tags that are used in this project will last until autumn 2013. The funding from the Fram Centre made it possible to also get funding from industrial partners in the Hammerfest area. WP 2 will continue in 2013 by looking at new areas with different impact from human activity and different climate characteristics.

Could results from the project be subject for any commercial utilization

No

Conclusions

A) The anadromous Arctic char population in Lake Storvatn has changed dramatically over the last years and there is also a general decline in anadromous Arctic char populations in Northern Norway. This project will give important knowledge to understand why the population in Storvatn has changed dramatically during recent years but also information that can be used to better understand the general decline in anadromous Arctic char populations in Northern Norway.

The research activity in this project has resulted in an increased engagement and awareness among politicians, management and local people about the valuable lake system they have in the middle of their own city, Hammerfest.

Human activity related aquaculture in coastal areas are increasing in Northern Norway. The results from WP 2 where fish are collected from areas with little impact from aquaculture will be of importance as reference for future work.

B) The use of acoustic tags is a well know method. However in close cooperation with the producers we are testing new aspects of this method. This is one of the first times such a detailed study of the behavior of anadromous Arctic char in freshwater has been carried out.