

Aquaculture-related research at the Faculty of Forest Sciences

Uppsala Nov 11 2013
Lo Persson & Carl-Gustaf Thulin

Activities today

- Sustainable management
- Smolt quality
- Sustainable feeds
- Behaviour and ecology
- Breeding programs

History

Future



Fish biology group at Dept. of Wildlife, Fish and Environmental studies

Seniors

- Prof Anders Alanärä
- Prof Eva Brännäs
- Prof Hans Lundqvist
- Prof Carin Magnhagen
- Senior lecturer Kjell Leonardsson
- Associate prof Jan Nilsson
- PhD Francesco Gentili
- Assistant prof Rahmat Naddafi
- PhD Tobias Backström

PhD students

- Hanna Carlberg
- Henrik Jeuthe
- Kajsa Johansson
- Dan-Erik Lindberg
- Mikael Lundin
- Lo Persson

Anadromous fish

Hans Lundqvist, Kjell Leonardsson, Jan Nilsson, Dan-Erik Lindberg

Sustainable management of salmonids

- Production
- Migration
- Stock management



Smolt quality

Lo Persson and Anders Alanärä

SMOLTPRO and Elforsk

- Feed restrictions
- Use of shelter
- Different densities

→ Effects on growth, fin status, migration and sea survival



Effects of salmonids on ecosystem processes

Rahmat Naddafi

How do Atlantic salmon and sea trout affect cycling and spatial translocation of nutrients?



Photo: Bo-Sören Wiklund

Differences in behaviour between individuals and populations

Carin Magnhagen, Gustav Hellström, Martina Heynen

Perch



- More risk-taking in lakes with less predation risk
- Individual differences within populations that affects group composition
- Previous experiences affect behaviour

Behaviour, physiology, and pigmentation in Arctic charr

Tobias Backström, Eva Brännäs, Carin Magnhagen and Jan Nilsson



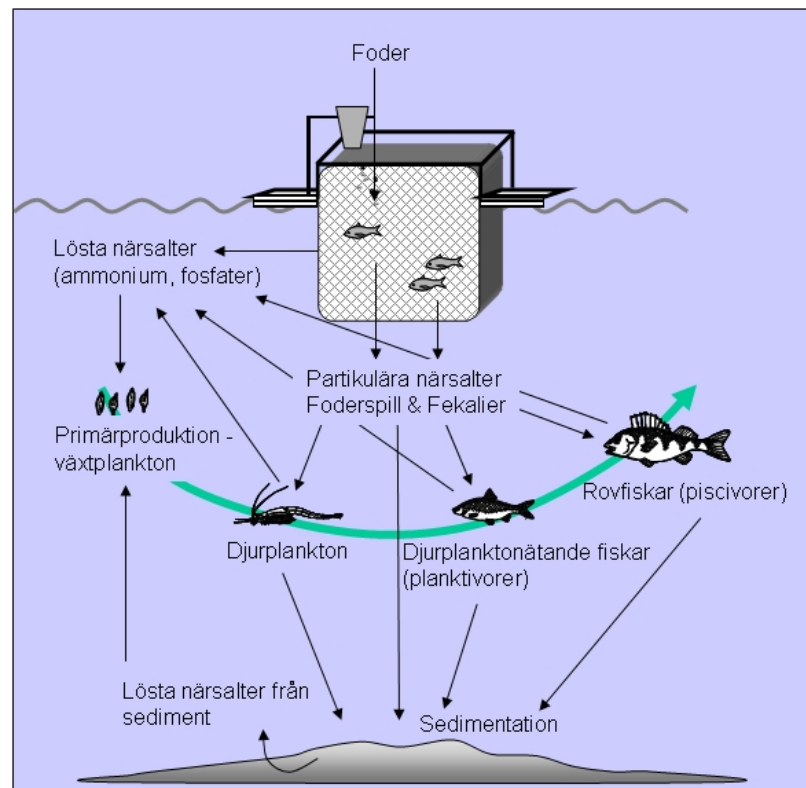
- Physiological stress response is coupled with behaviour and pigmentation
- “Nervous” fish have more light spots

Ecosystem effects of fish farming

Anders Alanärä, Kjell Leonardsson, Rahmat Naddafi, Hanna Carlberg and Tobias Eriksson

Topics:

- Transition of nutrients
- Changes in wild fish communities?
- Genetic and ecological risks?
- Model development
(collaboration with Dept. of Aquatic Sciences and Assessment)

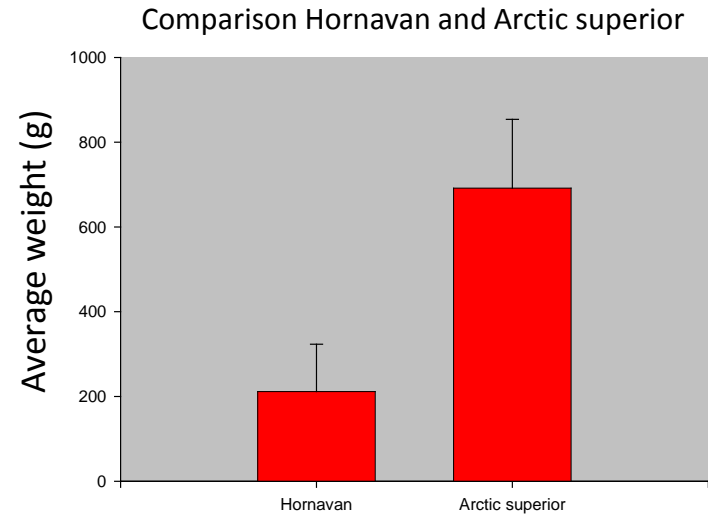


Breeding programs

Jan Nilsson and Eva Brännäs

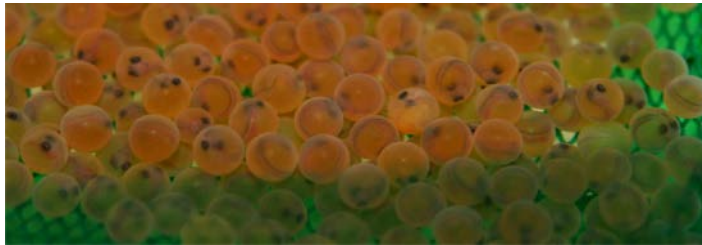
Started in the mid 1980s

- Arctic charr
- Rainbow trout

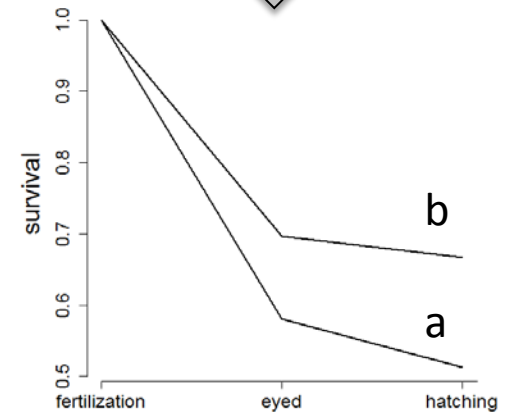
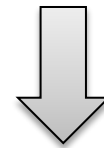
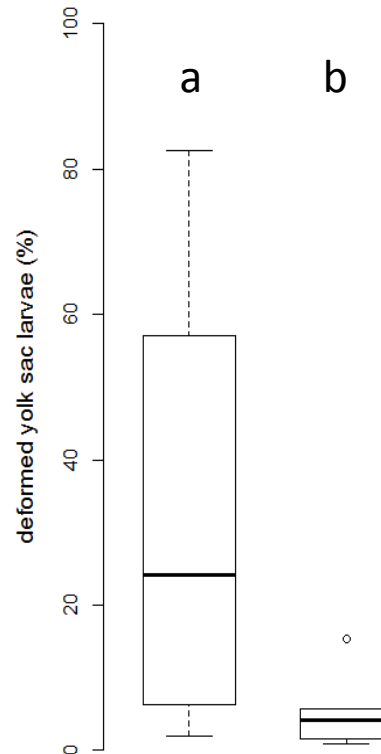
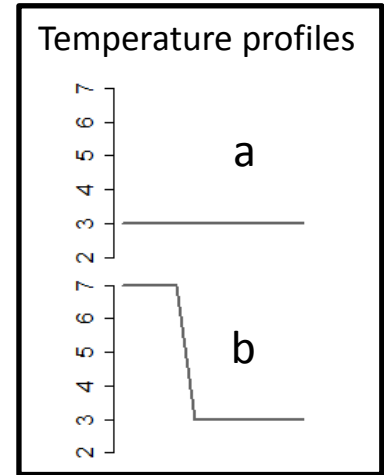


What causes the poor egg viability in farmed Arctic charr?

Henrik Jeuthe, Eva Brännäs and Jan Nilsson



E.g. suboptimal incubation temperature...



Sustainable feeds for Arctic charr

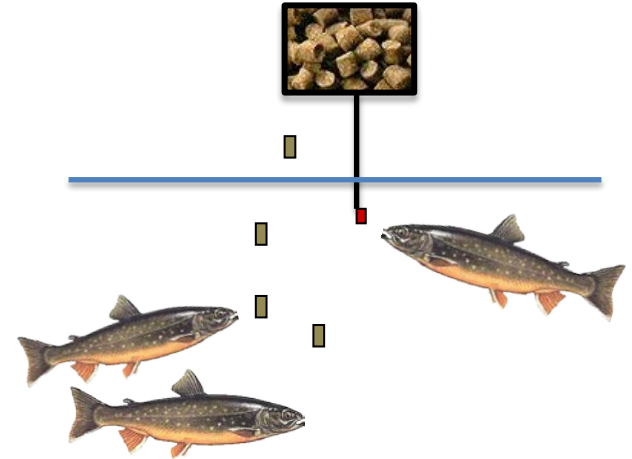
Hanna Carlberg and Eva Brännäs

- Evaluation of Baltic blend (cooperation with Dept. of Animal Nutrition and Management and Dept. of Microbiology)
- Evaluation of Polar feed (Icelandic and Norwegian cooperation)



Biology, seasonality, and feeding behaviour

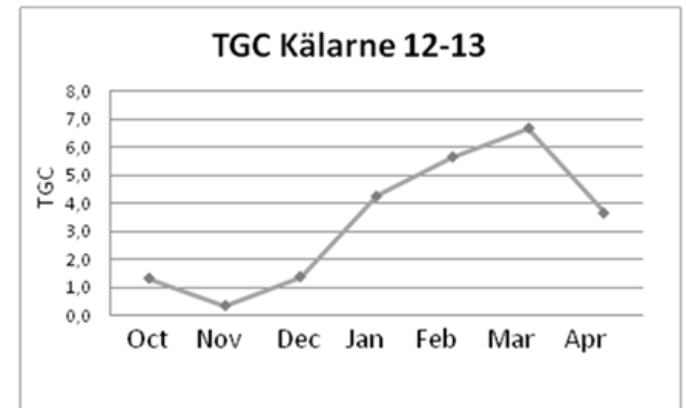
Hanna Carlberg, Eva Brännäs, Anders Alanärä and Jan Nilsson



Seasonality

Temperature dependency

Feeding behavior



Impact of boat noise on coastal fish

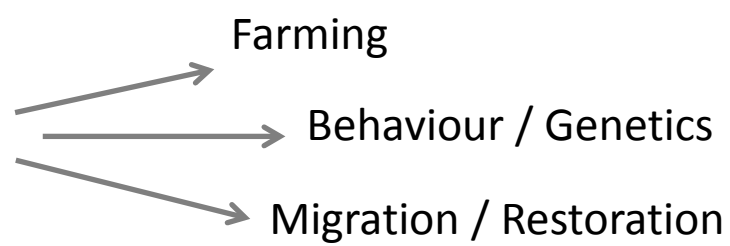
Kajsa Johansson and Carin Magnhagen

Effect on:

- growth rate
- stress
- feeding behaviour



History

- 1986 Lars-Ove Eriksson appointed prof Aquaculture at SLU
- 1987 Dept of Aquaculture
 - Fish Biology & Fish Farming

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graph LR; A[1987 Dept of Aquaculture] --> B[Farming]; A --> C[Behaviour / Genetics]; A --> D[Migration / Restoration];
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The diagram illustrates the structure of the 1987 Department of Aquaculture. It shows a central point from which three arrows branch out to the right, pointing to the following sub-fields: Farming, Behaviour / Genetics, and Migration / Restoration.
- 1990 Lars-Ove's position "permanent" at SLU in Umeå

History

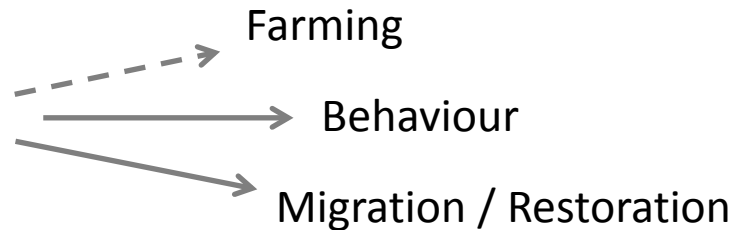
- 2007 Dept. of Wildlife, Fish and Environmental Studies
 - Fish Biology & Genetics
 - Aquaculture
 - Forest Zooecology & Biodiversity
 - Wildlife & Fish Tourism
- 2009 KON-evaluation
 - SLU invest 3 milj SEK/year to strengthen aquaculture research
 - Investment shared over three faculties (S, NL, VH)
 - 2014 last year – next step?

Center for Fish & Wildlife Research (CFW)

- Started 2000
- In 2008, aquaculture work intensified
- In 2009, SLU & GU mission
 - National Aquaculture Conference
 - NKfV in 2011, official in 2012 (www.nkfv.se)
- From 2012, wildfish focus

Tomorrow?

- 2014 Aquaculture → Faculty of Veterinary Medicine and Animal Science
- Dept Wildlife, Fish & Environmental Studies
 - Fish Biology
 - Genetics
 - Monitoring



Thank you!

