

Sea Lice in Faroese Salmon Farming

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Faroe Islands



Faroe Islands

18 islands

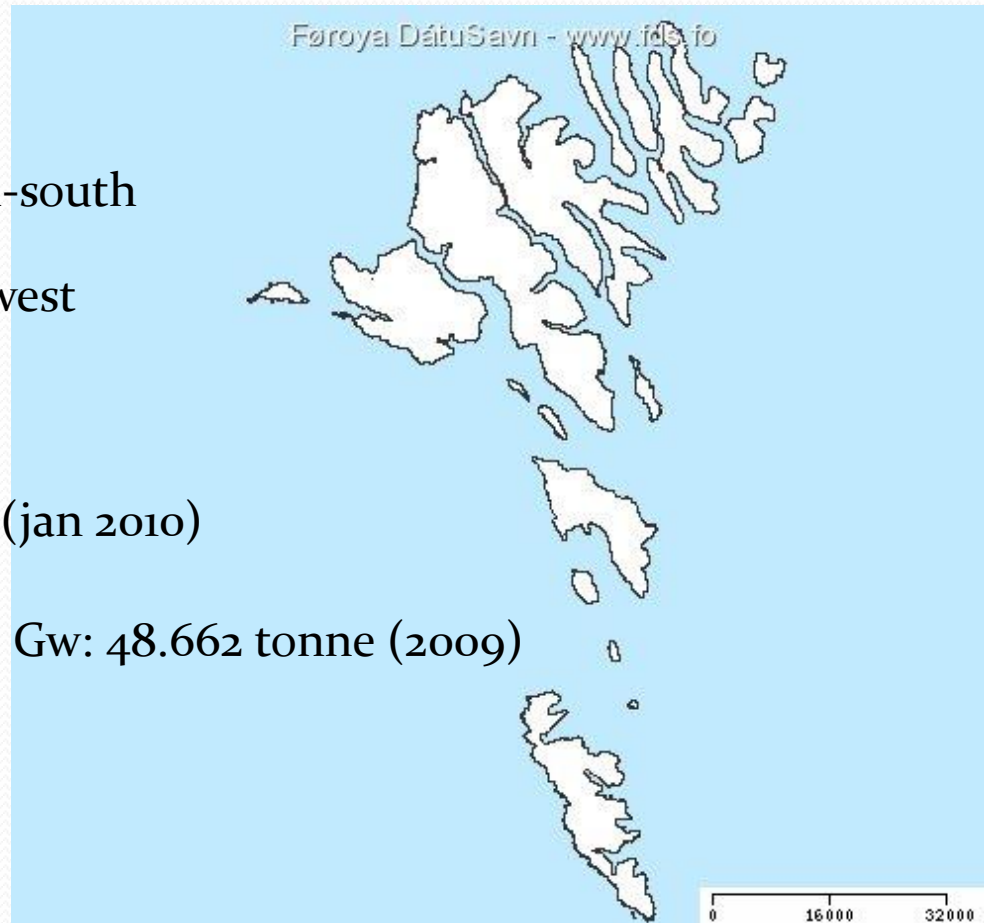
113 km north-south

75 km east-west

1393 km²

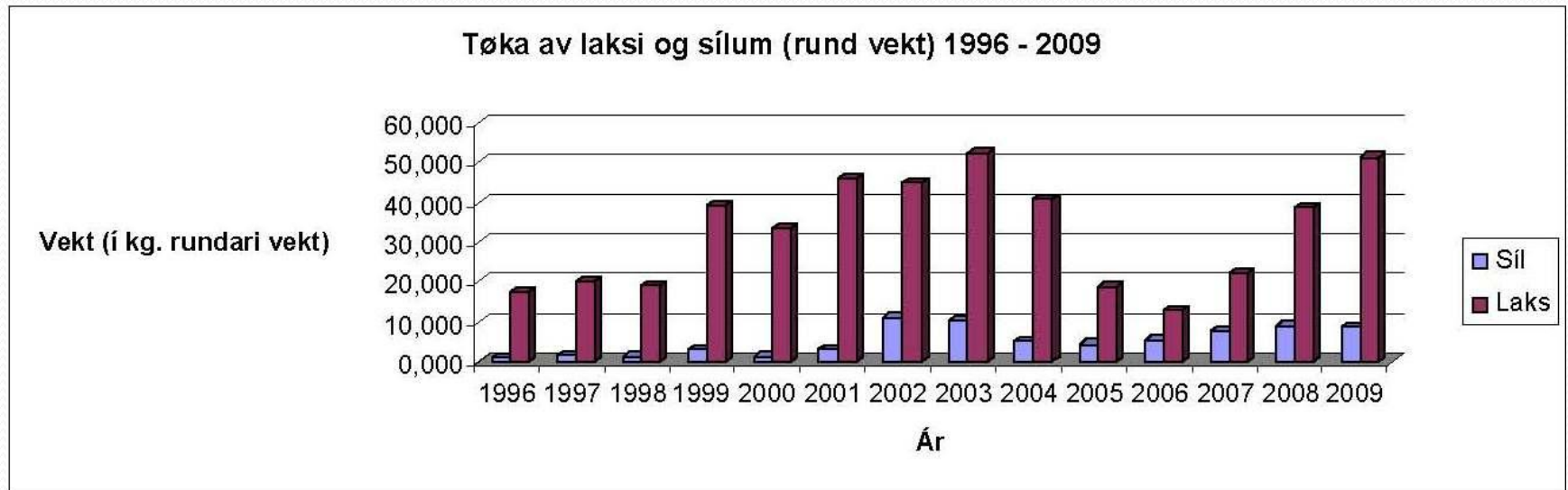
Pop: 48.660 (jan 2010)

Farmed fish, Gw: 48.662 tonne (2009)



Production numbers

Av laks var tikið 51.500 tons og 8.800 tons av sílum - gjørt upp í rundari vekt.



Sealice in the Faroes

- Traditionally most problems with *Caligus elongatus* but in some regions *Lepeophtheirus salmonis* has been troublesome too.
- *Caligus* infestations often seems to be a “come and go” event – even if massive numbers it can suddenly almost disappear without any treatment
- Lack of historical data
 - Systematically work was done in the early 1990'ties when we last had problems with reduced sensitivity

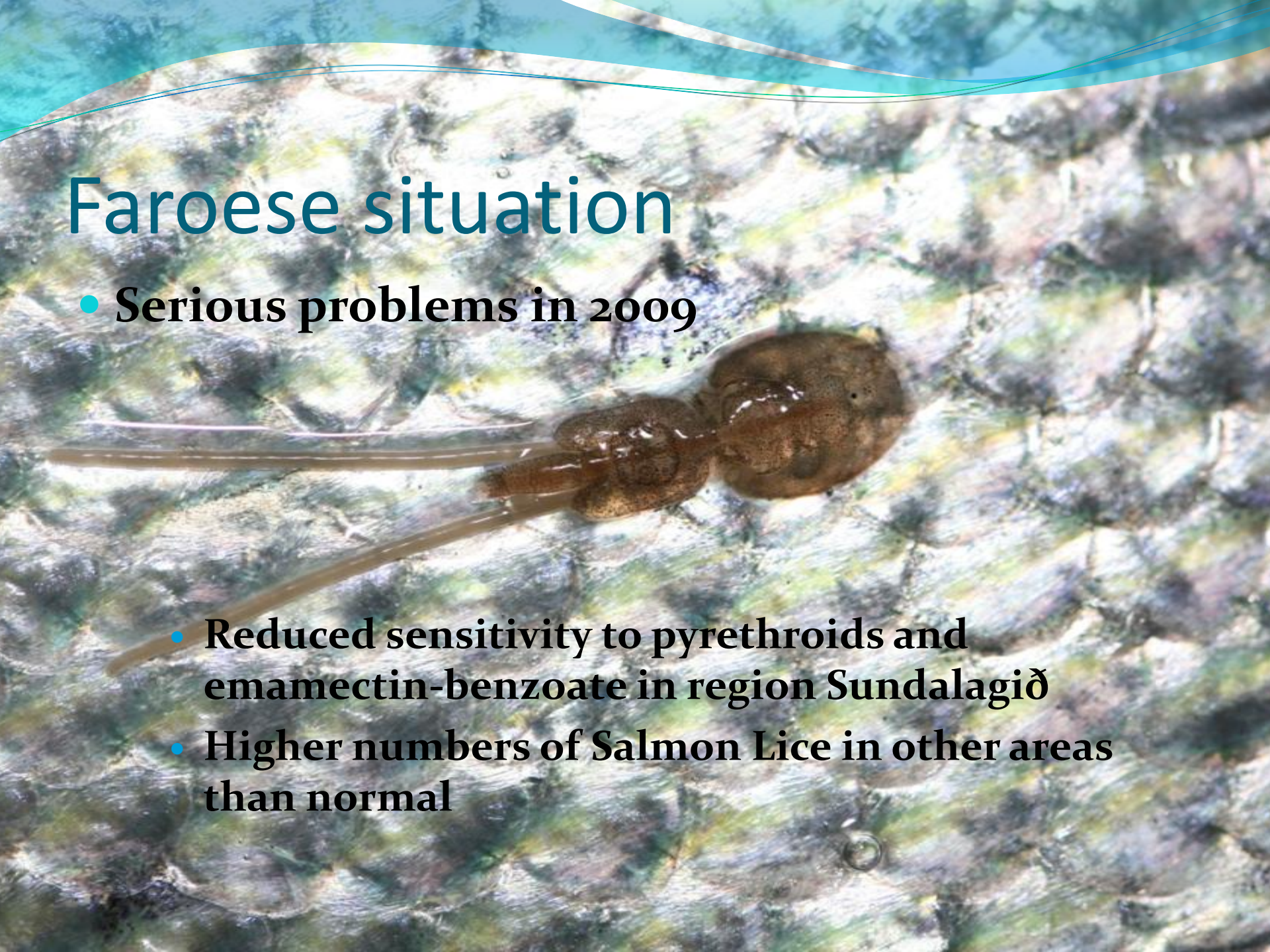


Sealice in the Faroes

- Since 2001 all smolts treated with Slice prior to release in seawater farms
- In many farms one more treatment with Slice around 500 grams
- In a few farms additional treatments later in production with pyrethroids

Faroese situation

- **Serious problems in 2009**
- **Reduced sensitivity to pyrethroids and emamectin-benzoate in region Sundalagið**
- **Higher numbers of Salmon Lice in other areas than normal**



Region Sundalagið



Summer 2009

- Very high number of Leps on several farms in region Sundalagið
 - Several treatments
 - Alphamax
 - Slice
 - Little or no effect of treatment was seen
 - Resulting in more lice in other areas
 - “Old” therapeutics
 - Salmosan treatment – effective
 - but due to heavy infestations rapid need for new treatments
 - **Salmosan treatment = no export to the USA**

“New” compounds

- Hydrogen peroxide
 - Will be used in wellboat-treatment
- Diflubenzurone
 - Being used in one farm now – with salmonlice showing reduced sensitivity against pyrethroids and emamectin

Faroe Island 2010

- **New legislation on sea-lice in force.....**
 - **DO 163 21.12.2009 Surveillance and control of lice on farmed fish**



Faroe Island 2010

- DO 163 21.12.2009 on Surveillance and control of lice on farmed fish
 - First time all farmers are obliged to count and registrate numbers of sealice on a regular base
 - Levels for mandatory treatment (Leps):
 - 2 adult females
 - 10 moveable lice
 - Closed bath treatment from 01.05.2011.....skirts until then
 - Evaluation of all treatments
 - The authorities can demand coordinated treatments

Sea Lice counting and monitoring

- P/F Fiskaaling
 - Contracted to counting sealice in almost all farms
 - Responsible for reporting count results to all involved farms
 - Improve counting and sampling methods



Sensitivity testing

- P/F Fiskaaling
 - Responsible for performing sensitivity tests
 - Reporting all results to all farmers involved in the coordinated countings and sensitivity testings



Sensitivity testing

- Reduced sensitivity
 - Pyrethroids
 - Betamax
 - Alphamax
 - Emamectin-benzoate
 - Slice
- Full sensitivity
 - OP's
 - Salmosan

Research on sealice





Research on sealice

- We are planning a project to give us information on how the salmon lice are spread in the Faroes.
 - “Who infects who” and how is the infection maintained
 - Real-time PCR on water samples – nauplius and copepodits
 - “Ocean” samples
 - Fjord samples
 - Farm samples
 - Compare to licecount-numbers
 - Collaboration with the Faroese current-modelling project

Alternative measures to control...

- Cleanerfish
 - None of the wellknown cleanerfish are found in the Faroes
 - We really want to try this way, but import of a new species which will find its way to freedom.....
 - Importallowance for wrasse has been applied for...
 - The Veterinary authorities seems to be the right address, but...
 - What about “all-female” or triploids wrasse?
- What about lumpfish?
 - Native fishspecies in the Faroes
- Biological – infections etc....



Important issues

- Management !!!
 - No licefactories
 - Open fjords with good exchange of water
 - Wellboat-transport on closed valves and disinfection of transportwater
 - Single yearclass production and fallowing
 - Fallowing of regions
 - Coordinated strategic treatments