RAS for Large Smolt Design and Development

AKVA Group Land Based

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•) Why is it interesting?

(X) AKVA group RAS technology

Challenges by scaling the RAS

Cases



TECHNOLOGY



Large smolt - Making the most of recirculation



- The life cycle length is reduced by 3 to 4 months
- Time in open farms reduced by 6 to 7 months
- Reduce the impact from parasites and diseases in the sea











RAS technology

Liter of added water required pr. kg of feed RAS with Fixed Bed 300 L / kg feed RAS with Fixed Bed + 100 L / kg feed Plate separator & De-nitrification RAS with Fixed Bed + 30 L / kg feed ZWC technology



Challenges by scaling the system

1. Bigger fish on land = big footprint

 Many biofilters = Often cleaning of biofilters

 Oxygenating the big water flow to exchange the fish tank volume 2 times pr. hour



AKVA Module for Post Smolt

- 4 x 2000 m3 fish tanks
- 500.000 kg @500g
- 62 kg/m3 fish stock density
- 8000 kg feed/day
- 15.500 m3/h flow
- 15 ppt Salinity
- 15 mgCO2/l
- 300 liter makeup water/kg feed





Solution to the big footprint

Placing the degassing on top of the biofilter! Reduce the footprint by 30% for the RAS module









Solution to cleaning the biofilter : Hybrid biofilter

- Hybrid biofilter system to allow for the continuous cleaning of the biomedia.
- Fixed bed to allow for micro particle retention and improve water quality.





Solution to oxygenating the big flow

- Divide the flow in two:
 - Main flow pumped back to the fish tanks using propeller pumps at a low pressure
 - 2. High pressure oxygen cones





Tytlandsvik AQUA

System in Operation

- 3 x Post Smolt system
- Size 1000 grams
- Total 25.500 kg Feed/day
- Total Volumen; 24.000m³
- 4.500.000 Smolt @1000g / year
- Target; Total Fresh water consumption in operation = 42,5m3/h or 12 l/s





Tytlandsvik AQUA





Svaberget

- New system under construction
- All system designed and build by AKVA
 - Hatchery, Start feeding, Smolt
 - 2 x Post Smolt system
- Post Smolt size 500 g.
- Total 15.000 kg Feed/day
- Total volumen; 13.700m³
- 7.500.000 @500g / year
- Total Fresh water consumption in operation = 25 m3/h or 7 l/s







Svaberget





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- New system under construction
- All system designed by AKVA
 - AUX systems: Intake water, Heating/cooling system, Feeding system
 - Hatchery, Start feeding, Parr and Smolt
- 2 x Post Smolt system
 - Total 13,000 kg Feed/day
 - 6.600.000 @400g/year
 - Total Fresh water consumption in operation =
 25 m3/h or 7 l/s







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Questions?



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