



Research leader Leif Magne Sunde (left) with Sintef colleague Gyvind Prestvik

Left: An example of one of the larger tanks Sintef is studying - this one is 18 metres across

Sintef working towards happy, healthy salmon

RESEARCHERS at Sintef Fisheries & Aquaculture are drawing on the Norwegian organisation's expertise obtained from working in the energy industry to develop technical solutions to help provide the best growing

conditions for salmon smolts - all motivated by the fact that "a happy fish is a healthy fish", reports **BERNADETTE TOURNAY**. Beginning in 2004, 'Smolt Production in Large Tanks' is a Sintef pre-study looking at

the new and larger tanks now being used for salmon production. The work, headed by research scientist Dr Leif Magne Sunde, is contributing to the ongoing development of fish welfare technology.

"Small farms are going to be gradually replaced by larger units and smolt tanks are also getting bigger - we think new tanks might be as large as 2000 cubic metres," explains Sunde, who also believes the trend will extend to other

countries and other species. "The reason is to improve the cost-effectiveness of the production system, but we think it could also be possible to give fish better conditions because larger tanks should provide more space per fish."

"Today production has increased but mostly the equipment is the same and under-dimensioned."

One of the project's main tasks is to look at water quality in smolt tanks and ensure that it is identical throughout. Research has shown that different levels of oxygen exist in different parts of the tank, and this can affect both production and fish welfare. The researchers believe this is true for other tank-farmed species.

"Variations in farming conditions stress fish, so they cannot focus on the main things they need to do - survive and grow," points out Sunde.

"If the environment is imbalanced the fish must focus on how it can avoid the disadvantageous part of the tank, and the energy it has available to resist disease is reduced.

"Therefore our aim is to find out how we can make conditions best for each individual, so that the same parameters are operating in every part of the tank."

"This way we think production will improve and be more economic."

The project is also looking at practices commonly used in salmon farming to ensure they contribute to creating healthy conditions for fish.

"One interesting example is the traditional use of super-saturation of oxygen, which might in fact be harmful to fish and at the same time wastes an expensive input factor," adds Sunde.

The team sees its work as particularly timely, as improved water quality and the welfare of farmed fish are two themes which have priority in the EU. Sintef also sees this research as contributing to improving conditions in wellboats so that it will be possible to ensure there is as small a difference as possible between parameter used in the land-rearing stage and when the smolt are put in cages.

The study ends this year, but Sintef hopes it will continue - and hopes to attract finance from national and international partners for studies that could focus on the dynamics of producing salmon and other species in large tanks.

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