Hatchery-raised salmon too crowded

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Every year, large amounts of hatchery-raised young salmonids are released into Swedish rivers and streams to compensate for losses in natural production. Butthese fish generally survive poorly in the wild. Researchers at the University of Gothenburg have discovered why: the young fish get too crowded at the hatchery.

The Swedish Research Council Formas is now granting 2 million euro to a Swedish/Nordic research project. The goal is to find out how the hatcheries can be made more effective.

Raised fish face problems

Salmonids constitute an important natural resource in Scandinavia. Large

amounts of young salmon , smolts, are therefore released into rivers and streams. However, conventionally raised fish seem to have problems adapting to their natural environment. The reason for this has not been clear, but researchers at the University of Gothenburg have recently been able to show that one key factor is that the young fish do not get their due personal space at the hatcheries.

Increased survival

Sofia Brockmark, researcher at the Department of Zoology, has studied how the hatchery environment can be improved to increase the survival of the released fish. Her thesis, which will be publicly defended on 18 December, shows that young salmon fish that are less crowded in the hatchery manage the transition more successfully.
'The combination of high density and lots of food affects their development. Our experiments show that salmon fish raised in a more spacious environment, meaning it is more similar to nature, are better at adapting to life in rivers and streams,' says Brockmark.

Millions to salmon research

The research will now be developed further in the SMOLTPRO project, which recently received 20 million SEK from the Swedish Research Council Formas. The project is led by Professor Jörgen Johnsson at the Department of Zoology and is coordinated from the University of Gothenburg, and involves researchers from Sweden, Denmark, Norway and Canada.

Natural hatching

The researchers will use full-scale models in the different climate zones in the Baltic Sea, the Kattegat and the North Sea to investigate the

effects of different modifications of the hatchery environment. In addition to experimenting with density, the team is striving to make the hatching environment more natural:
'Today, salmon eggs are put in crates. Our research suggests that the presence of structures on the bottom, such as rocks, stimulates brain development in young salmon,' says Johnsson.

Sustainable practices

An additional hypothesis is that hatchery-raised salmon are fed too much and that their diet is too high in fat. This may make them too fat to be able to adjust successfully. The results of the project will, following a dialogue with several public actors, be used to develop new recommendations on how to make the production of hatchery-raised smolts more ecologically sustainable and ethical. The project is directly linked to the strategic efforts of Formas and the Swedish Government to develop aquaculture practices and attain sustainable management of natural resources.

Source: University of Gothenburg