

Sea lice pose extinction threat to wild pink salmon

99% of B.C. stocks may die within four years, U of A team says

Jeff Holubitsky

The Edmonton Journal

Friday, December 14, 2007

EDMONTON - Sea lice could drive British Columbia's wild pink salmon to extinction within four years in some areas unless fish farms change their practices, a major new study led by a University of Alberta fisheries ecologist says.

"This is the first time we've been able to measure the impact of sea lice on wild salmon populations, which turns out to be quite severe," lead author Martin Krkosek said from the U of A's Bamfield

Marine Science Centre on the west coast of Vancouver Island. "It showed that if these sea lice infestations continue, these populations are going to slide away to extinction."

The peer-reviewed study appears today in the prestigious international journal *Science* and adds fuel to a controversial debate over the existence of the open-net fish farms, which wild salmon must pass on their way to the ocean.

The study estimates 99 per cent of pink salmon in the area could be wiped out within four years, Krkosek said, rendering the species "functionally extinct."

The study examined wild salmon populations in a coastal area between Vancouver Island and the mainland, known as the Broughton Archipelago. It is the site of seven wild salmon streams and also of about 20 primarily Norwegian-owned farms each holding between 500,000 to 1.5 million fish. B.C. has about 200 salmon farms and plans are in the works to expand into halibut, cod and sablefish farms.

"The patterns of sea lice infesting juvenile salmon near salmon farms has been documented not only in the Broughton, but in other areas of British Columbia and also in Norway, Ireland, Scotland and Canada," Krkosek said. "But nowhere has it been possible yet to measure the impact on the wild salmon population."

Daniel Pauly, internationally acclaimed head of the University of British Columbia's Fisheries Centre, said the study confirms fears many scientists have had about the presence of the farms.

"The question now is what do you do?" he said from Vancouver. "The B.C. government and the (federal) Department of Fisheries and Oceans will have to take this seriously, otherwise they will not only become the laughing stock of everybody but there will be a serious question about their ethics."

The problem arose in Europe long before it occurred in B.C., where the first fish farm was established in 1989. Pauly said there is no reason to assume the threat to wild salmon in the study area cannot happen elsewhere.

"It is very legitimate to extrapolate this to the entire province," he said. "In fact, this whole mess could have been anticipated by extrapolating from the European experience."

Previous U of A studies confirmed the parasites spread from farmed to wild salmon, and that most juvenile wild pink salmon were not surviving because of the parasites, which eat the young fish and may also transmit other diseases.

The natural-occurring sea lice attack the pinky-sized salmon as they pass within 15 kilometres of fish farms.

Fish farm salmon appear to get the lice from wild salmon returning from the open ocean to spawn. The lice do not affect the quality of meat on adult fish and present no risk to humans.

Krkosek said solutions to the problem include moving fish farms to deeper open water or designing closed pens with pumps and filters that keep the farmed salmon from having contact with the outside water, but they have been criticized by the industry because of cost and practicality.

University of Washington fisheries biologist Ray Hilbourn was not surprised by the study but said salmon farms are not sufficiently widespread to affect the entire coastal salmon population.

The world-class fisheries population expert said governments will probably look at the results of the study in comparison to the economic and unemployment problems caused by shutting down salmon farms.

"I don't think this is a story about the potential collapse of salmon in British Columbia," he said.

"It's the story of net-pen aqua culture on wild fish, and I think it's bigger than salmon because of all the proposals to farm cod, halibut and sablefish."

Mark Lewis, a U of A professor and mathematical ecologist, said the Broughton area has a historical population of about five million salmon, and in areas without salmon farms fewer than five per cent of fish are infected with lice.

"But when fish swim past the salmon farms it is not unusual to find several adult lice per fish," he said. "We found that typically 80 per cent of the fish were being killed (by sea lice) from generation to generation."

Wild salmon have never been successfully re-established in an ecosystem once they are gone, Lewis said. But the good news is that the Broughton population more than doubled in 2003 when most of the fish farms were closed.

While not considered the most valuable of the West Coast varieties -- the distinction is shared by sockeye, chinook and coho -- Krkosek said pink salmon is the most abundant species.

"They are the most important prey for bears and eagles, and other salmon feed voraciously on juvenile pink salmon," he said.

jholubitsky@thejournal.canwest.com

© The Edmonton Journal 2007

CLOSE WINDOW

Copyright © 2007 CanWest Interactive, a division of [CanWest MediaWorks Publications, Inc.](#) All rights reserved.