



BIODIVERSITY: Fish Farms Pushing Wild Salmon to Extinction

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BROOKLIN, Canada, Dec 14 (IPS) - Vast populations of pink salmon on Canada's west coast will be extinct in four years due to infestations of parasites from open ocean salmon farms, scientists reported Friday in the prestigious journal Science.

Canadian officials seem likely to let the wild salmon go extinct, if past inaction is any indicator, Alexandra Morton, the study's co-author and director of the Salmon Coast Field Station in Broughton, British Columbia, told IPS.

The Science study shows that infestations of sea lice have killed more than 80 percent of the annual pink salmon returns in British Columbia's Broughton Archipelago, 300 kms north of the city of Vancouver, over the past four years. In another four years, there will be no more pinks if the infestations continue.

"If nothing changes, we are going to lose these fish," said lead author Martin Krkosek, a fisheries ecologist from the University of Alberta.

Previous studies in the region have proven that sea lice from fish farms can infect and kill juvenile wild salmon. However, this is the first study to examine the population-level effects on the wild salmon stocks.

"It shows there is a real danger to wild populations from the impact of farms," said Ray Hilborn, a fisheries biologist from the University of Washington who was not involved in the study.

There was so much evidence in the study that "it is pretty persuasive that salmon populations affected by farms are rapidly declining," Hilborn said in a statement.

The study also raises serious concerns about large-scale proposals for net pen aquaculture of other species and the potential for pathogen transfer to wild populations.

"This paper is really about a lot more than salmon, it is about the impacts of net pen aquaculture on wild fish," Hilborn said. "It certainly raises serious concerns about proposed aquaculture for other species such as cod, halibut and sablefish."

Despite a number of studies by Morton and others, the impact of more than 100 large salmon aquaculture operations along the British Columbia (BC) coastline has been bitterly disputed for the last decade. BC is the world's fourth-largest farmed salmon producer, netting more than 300 million dollars in annual sales, mainly to the United States.

The farmed fish are non-native Atlantic salmon, which are prone to infestations of sea lice -- small parasites that feed on the skin and mucous membranes -- which are not generally found in high numbers, except at fish farms, where a million fish can be impounded.

Adult pink or pacific salmon live in the open ocean but fight their way up BC's many mountain rivers and streams to lay their eggs in the spring and fall before dying. Not long after hatching, these juvenile fish, only a few centimetres in size, make their way back downstream to river mouths and inlets, where they encounter salmon farms and underwater clouds of sea lice.

"It's heart-breaking to see these amazing little fish ripped and torn by the lice," said Morton, who lives and works in the Broughton Archipelago where 20 large farms are located. Some farms have more than a million fish.

"Pink salmon are one of the world's last abundant wild food sources, we ought to be treating them like a natural treasure," she said.

Salmon also play an important role in the west coast ecosystem. They spend two years feeding in the open ocean, and then return to their natal streams and rivers to spawn and die. Many species, including eagles, bears and wolves, feed on the dying or dead salmon. They also bring large quantities of salmon carcasses into forests, which decay, enriching the

soil and feed many plants, including the region's mighty red cedars and sitka spruce trees.

Salmon nutrients have been found inside the leaves at the top of 2,000-year-old trees.

Despite an outbreak of sea lice that decimated wild fish in 2001, the commercial salmon farming industry convinced BC officials to lift a moratorium on construction of new open ocean fish farms in 2002. The industry is looking further north to the pristine Skeena River area, BC's last big river with wild salmon, Morton said.

The BC Salmon Farmers Association -- an industry trade group -- questions the findings of the Science study, suggesting that the declines are part of a normal fluctuation in population size that occurred even before the first salmon farms in 1987. It also notes that farms have an effective pesticide called SLICE to control sea lice. Government-appointed aquaculture veterinarians have found low numbers of lice on farmed salmon -- less than three live lice per adult fish.

But it only takes one louse to kill a juvenile pink since they don't have fish scales yet, noted Morton. And since female lice can release a billion larvae into the sea, there are more than enough to latch on to passing fish.

She also questions the use of SLICE, a potent neurotoxin, because of its potential impacts on the ocean ecosystem. There have also been hectares of water turning orange-red due to toxic algae blooms around the farms.

The solution is to put salmon aquaculture into a closed system so the industry will properly deal with its wastes rather than dumping them into the sea, Morton said.

"It's an unsustainable and unstable industry as it stands currently," she said.

Jay Ritchlin, a marine conservation specialist at the environmental group David Suzuki Foundation, says this study makes it "clear that governments must take immediate precautionary action to stop open net-cage salmon farming from harming wild salmon".

It is time to shift the industry into closed systems, Ritchlin said in a statement.

After years of denial, even a May 2007 BC government report recommended a move towards closed containment within five years.

"If industry says it's too expensive to move the fish farms or contain them, they are actually saying the natural system must continue to pay the price," said Daniel Pauly, director of the University of British Columbia's Fisheries Centre, who was not involved with the study.

"They are, as economists would say, externalising the costs of fish farming on the wild salmon and the public," he said in a statement.

Morton believes that despite all the evidence the public and the ecosystem will continue to pay a high price for salmon farming.

The public will probably have to boycott farmed salmon and force BC politicians out of office to save the pink salmon from extinction, she said, adding that, "It's sad we have to go to such lengths."

(END/2007)