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Fish Farms Tied in Study to Imperiling Wild Salmon

By [CORNELIA DEAN](#)

Fisheries experts have known for some time that farm-raised salmon can be vulnerable to infestations of parasites called sea lice, but there has been disagreement about the extent to which the parasites spread to wild fish, especially in the waters off British Columbia and the Pacific Northwest.

Now Canadian researchers suggest that fish farms are such prodigious producers of parasites that juvenile fish become very heavily infested just by swimming near them. In fact, their model suggests, the young fish are so heavily affected that they may turn into secondary sources of infestation for other wild fish out at sea.

The new findings, by Martin Krkosek and Mark A. Lewis of the University of Alberta and John P. Volpe, a former colleague there who is now at the University of Victoria, British Columbia, are described in the current issue of *Proceedings of the Royal Society B*, a British journal.

They add more fuel to the intense debate over the wisdom of turning to aquaculture to replace stocks of wild fish, many of which have crashed in recent decades under the pressure of commercial and even recreational fishing.

In fact, the researchers said their findings were so startling that they suggested that the parasite problem occurred wherever wild fish shared the ocean with fish farms.

Asked about the new work, the British Columbia Salmon Farmers Association referred questions to Prof. Scott McKinley, a fisheries expert at the University of British Columbia, who said the correlation that the researchers reported was not evidence of cause-and-effect. To demonstrate that, Professor McKinley said, "they would have to show that the lice that are on the fish originated on the farms."

Sea lice live in salt water, and juvenile wild salmon first encounter them when they swim down river to the sea. The parasites bite fish to feed on their blood, creating open lesions that can disturb the fishes' osmotic balance with sea water.

With the advent of fish farms, anchored cages that function as underwater feedlots for hatchery-bred salmon, the juvenile fish encounter unusually large numbers of parasites, the authors of the new report say.

They did their fieldwork in April and May 2003, when they trapped about 5,500 juvenile pink and chum salmon swimming in a long, thin fjord in British Columbia that is also home to two salmon farms. Each fish was examined by hand for parasites. The scientists said they concluded that the fish were free of parasites until they neared the farms but that by the time they passed them and headed out to sea they could be so infested they ended up spreading parasitic contagion as they went.

Dr. McKinley said this evidence was not enough to convict the fish farms. But Daniel Pauly, another fisheries researcher at the University of British Columbia, said evidence so far was consistent with the hypothesis that wild fish near fish farms were affected by sea lice.

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