

Hybrid salmon discovered by scientists on Vancouver Island

Fish found in Cowichan River have genes of both coho and chinook salmon

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Second-generation hybrid salmon, with genes from both coho and chinook salmon, have an uneven scale arrangement that researchers say is an abnormality associated with hybrid fish. (Submitted/Will Duguid)

Two salmon researchers say a surprising discovery has been made on Vancouver Island.

Andres Araujo, a biologist at the Department of Fisheries and Oceans, and Will Duguid, a PhD biology student at the University of Victoria, recently found fish in the Cowichan River, north of Victoria, B.C., that have the genes of both coho and chinook salmon.

Tissue samples revealed the fish are second-generation hybrids, meaning they are the spawn of hybrids.

The hybrid fish, according to Araujo and Duguid, are a rare find in Canada and are likely the result of drought in the Cowichan watershed, which has impacted when and where coho and chinook spawn.

"For a hybrid to exist we need overlapping spawning grounds and timing," said Araujo, noting that chinook usually spawn in September and October, whereas coho traditionally spawn toward the end of October until December. He said when summer droughts extend into fall it can push chinook spawning season back into when coho are also starting to spawn.



Will Duguid, left, and Andres Araujo say drought likely caused coho and chinook spawning seasons to overlap. (Adam van der Zwan/CBC)

Duguid said there are some fish that routinely generate hybrids — such as rainbow trout and cutthroat trout — but not wild salmon.

"Apparently, it rarely occurred in the past and there has never been documentation of hybridization into the second generation," said Duguid.

He said a member of the Cowichan Tribes spotted the first hybrid in the river during an adult fish tagging study being done in partnership between the First Nation and the province.

Duguid said the hybrid fish can sometimes be identified by their abnormal scale arrangement, which is not patterned evenly on either side of their lateral line.

"This is indicative of the fact there may be other abnormalities that we can't see," said Duguid.

He said the hybrids are also identifiable by the degree of spotting on their tails, the shape of their anal fins and the morphology and colouration of their mouths.



A member of the Cowichan Tribes spotted the first adult hybrid, similar to the one shown here, while tagging fish for conservation purposes. (Adam van der Zwan/CBC News)

The duo said human activity, such as forestry practices and climate change, are also changing the landscape of the Cowichan River region and also likely played a role in causing the hybridization.

- [Lake water to be pumped into Cowichan River as severe drought threatens town's water supply](#)
- [Sockeye returns plunge in B.C., official calls 2019 'extremely challenging'](#)

"You are seeing a biological response to potentially an anthropogenic, or human-caused, forcing," said Duguid.

Araujo said it is too soon to know if the chinook-coho hybrids are part of an evolutionary process. The hybrid fish have not yet been named.

With files from Adam van der Zwan