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Invasive pike thriving on salmon, other species in Alaska

Dan Joling / Associated Press Jan 24, 2013



Adam Sepulveda

This April 2011 photo released by the U.S. Geological Survey shows an Alaska Fish and Game technician as she poses with an invasive northern pike taken from Alexander Creek in the Susitna Basin of south-central Alaska. A federal and state study says northern pike that gobble up salmon fingerlings in Alaska streams can thrive long after that valuable species has been decimated. The study concludes that nonnative pike prefer juvenile salmon but will turn to other native fish when salmon are less abundant. (AP Photo/U.S. Geological Survey, Adam Sepulveda)

ANCHORAGE, Alaska - A federal and state study of two Alaska salmon streams indicates that nonnative northern pike can eat significant numbers of salmon smolt and will thrive on other species even when the salmon population declines.

The study by the U.S. Geological Survey and the Alaska Department of Fish and Game suggests that invasive pike and native salmon can co-exist in streams and rivers if their habitat does not overlap, but where they do, salmon recovery may depend on suppressing pike.

Northern pike were illegally introduced to southcentral Alaska in the 1950s. The study looked at two tributaries of the Susitna River: the Deshka River, which continues to have a sustainable salmon fishery, including chinook salmon, and Alexander Creek, where pike are believed to have caused the decline in chinook, chum, silver and sockeye salmon, plus rainbow trout and grayling, leading to fishing restrictions.

Salmon hatch and spend about a year in fresh water before migrating to the ocean. Juveniles in fresh water have no natural defense against toothy, voracious pike, which ambush fingerlings in slow-moving water.

Lead study author Adam Sepulveda of the USGS in Bozeman, Mont., said salmon were found to be the preferred prey for pike.

"We sampled 274 pike in a stream where salmon are still abundant, and we found over 600 salmon in the stomachs of these pike," he said in the announcement of the study. "Several of the pike had greater than 20 juvenile salmon in their stomachs."

The researchers found salmonids, including grayling, trout and whitefish, in 140 of the 274 pike stomachs sampled in the Deshka. Small pike ate more juvenile salmon than larger pike.

Salmon were pike's major prey in the Deshka and the lower reaches of Alexander Creek. In the middle and upper reaches of Alexander Creek, where salmon are rare, pike turned to slimy sculpins and Arctic lamprey, leading the authors to conclude that pike may push other species to low abundance or wipe them out.

Chinook salmon continue to meet or approach state return goals in the Deshka despite pike. That also happens in the Wood River Lake system flowing into Bristol Bay. Researchers attributed that to minimal habitat shared by juvenile salmon and pike. Chinook salmon rear in the middle and upper sections of the Deshka where the water is deep and relatively fast-moving. Spawning and rearing habitat for pike is primarily sloughs in the lower section.

Alexander Creek is the opposite with far more of the slow water that pike prefer.

"There's no place for those salmon to get away and avoid them," said state biologist Kristine Dunker, a co-author of the study.

Pike have long been suspected as the reason for low salmon numbers there, she said, and the department conducts an annual pike suppression effort in May during spawning. The authors said suppressing pike in systems where habitat is not limiting may be essential for salmon and other native fish to recover.

The authors acknowledge that pike suppression would be difficult for Susitna drainages. The Susitna Basin is remote and covers 20,077 square miles.

"Moreover, pike occur in the main stem of the Susitna River and reinvasion is likely," the study said. "Thus, managers must identify strategies to reduce the negative effects of pike on salmon populations."

The study was published in the January issue of Ecology of Freshwater Fish.