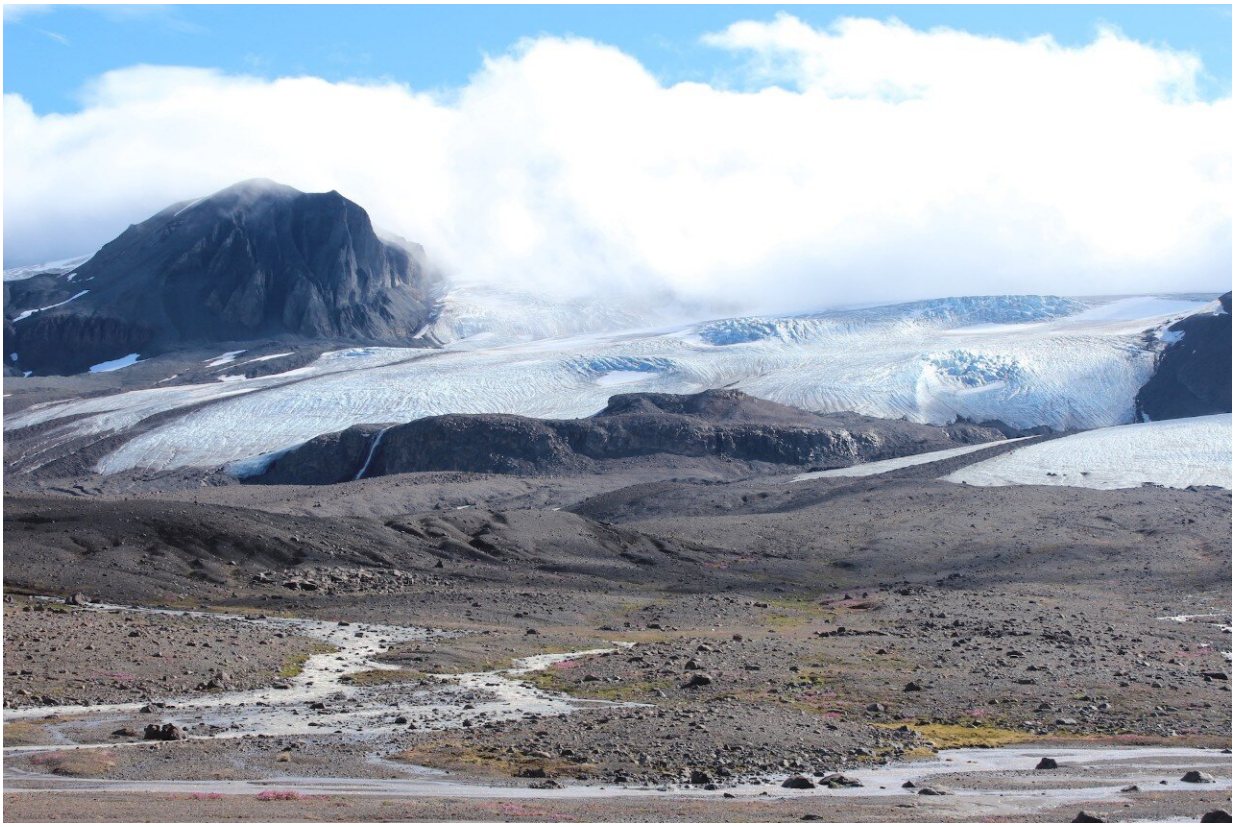
Melting glaciers will challenge some salmon populations and benefit others

March 11 2020



Credit: Simon Fraser University

A new Simon Fraser University-led study looking at the effects that glacier retreat will have on western North American Pacific salmon predicts that while some salmon populations may struggle, others may

benefit.

The research, published today in the journal *BioScience*, examined the multiple ways in which salmon might be affected by climate-change driven glacier retreat over the coming decades. The researchers predict that in southern watersheds the loss of cold glacier meltwater during summer months could lead to low water flows and warmer water temperatures, both challenges for adult and young salmon.

However, in more northern watersheds, glacier retreat may create new salmon habitat.

Eighty-five per cent of major salmon watersheds or regions in western North America currently have at least some glacier coverage. Glaciers in this region are expected to lose up to eighty per cent of their ice volume by the year 2100, with significant implications for salmon habitat availability, water flows, and water temperatures.

SFU Ph.D. candidate Kara Pitman, the study's lead author, says, "In regions where the landscape is still dominated by glaciers, such as in south-central Alaska, massive glaciers are currently peeling back from low-lying valleys, creating new rivers and lakes that young salmon can use as they develop," Pitman says.

"Salmon evolved over millennia in rivers that were dynamic and ever-changing," she says. "If given enough time, salmon are well-adapted to cope with the landscape changes associated with glacier retreat."

Unfortunately, dwindling glacier ice is just one of many sources of rapid change in salmon ecosystems. The authors caution that glacier retreat is adding one more pressure on salmon systems that are already stressed by climate change, habitat destruction, and hatchery practices that erode salmon biodiversity.

SFU professor and co-author Jonathan Moore says this study highlights the need for forward-looking perspectives on salmon conservation and management. "In this era of rapid global change, there is an urgent need to protect and manage for the future of salmon and their ecosystems, not just the present," Moore says.

More information: Kara J Pitman et al, Glacier Retreat and Pacific Salmon, *BioScience* (2020). DOI: 10.1093/biosci/biaa015

Provided by Simon Fraser University