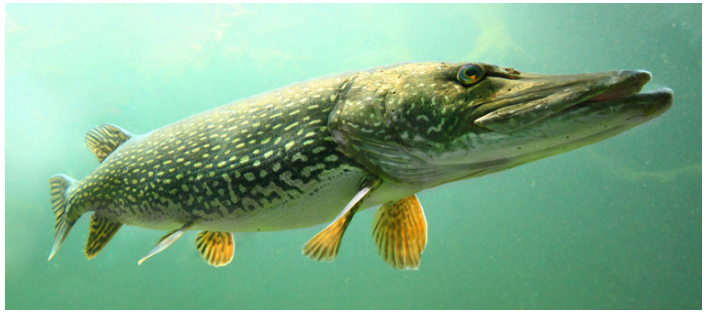
Improved decision making for salmon by understanding the threats of freshwater Aquatic Invasive Species both now and in the future

Conservation and Stewardship



Climate change and Aquatic Invasive Species (AIS) are leading threats to biodiversity globally. In British Columbia (BC), many salmon stocks have been assessed as at-risk by COSEWIC (Committee on the Status of Endangered Wildlife in Canada), but while climate change has been increasingly considered in salmon management and policy, the threat posed by AIS has largely been ignored. Further, stressors like increasing global temperatures are out of the control of regional management while AIS can be managed locally.

By targeting AIS most likely to have the biggest impact on salmon survival or productivity, we can improve salmon recovery by reducing the stress that these invasive species cause. AIS impacts on salmon are well documented in the US Pacific Northwest where, for example, invasive Walleye consume up to 2 million smolts a year in the Columbia River. The expansion of Northern Pike in Alaska has led to the decline of salmon productivity in some regions and all five salmon species have been classified as highly vulnerable to pike invasion in at least part of their Alaskan range.

Habitat alteration can also impact salmon: Schwoerer et al. (2019) estimated the potential for

Pacific Region

Take-aways

- Aquatic Invasive Species (AIS) continue to be introduced and expand their ranges aided by climate change, threatening biodiversity and Pacific salmon survival.
- This risk assessment study targets over 400 invasive species within or approaching five freshwater ecoregions in BC.
- Researchers developed a Non-Indigenous Species Screening Tool (NISST) that allows managers to prioritize the (AIS) threats when creating regulations and salmon recovery plans.

$159 million annual damage to the Alaskan Sockeye salmon industry from one invasive plant species, Elodea. However, the extent and relative impact of freshwater AIS threats to salmon habitat and productivity have yet to be assessed in BC.

Timeline

✓ to March 2024: Apply new SLRA tool on "Master List"; apply rapid screening filters; engage First Nations and other stakeholders; engage other PSSI-funded projects on risks; engage other risk assessment experts; test and refine new SLRA tool; publish paper

🔄 to March 2025: Apply Non-Indigenous Species Screening Tool (NISST) tool on "Master List"; develop additional "Master Lists" for potential freshwater aquatic invasive species

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