

Jenks, S., 2019. Pro-active solutions for Atlantic salmon management in Nova Scotia: A roadmap for recovery [graduate project]. Halifax, NS: Dalhousie University.

## Abstract

The Atlantic salmon (*Salmo salar*) is an anadromous fish species native to Nova Scotia that has significant economic, ecological, and cultural value to the people of the province. Atlantic salmon have been in decline throughout the province for over 100 years due to anthropogenic factors such as acid rain, habitat destruction, construction of dams, increasing water temperatures, poor fishery management, introduction of invasive species, and a multitude of unidentified contributing factors causing high mortality at sea. The commercial fishery has been closed for over 20 years, while the recreational fishery is limited to the Northern parts of the province. While Atlantic salmon are still greatly at risk in the province, a recent moratorium on the Greenland commercial fishery which is suspected of being one of the causes of at sea mortality for salmon in the Gulf of St. Lawrence, came into effect and will continue for at minimum 12 years. With one of the barriers to at-sea survivorship rates removed, ensuring that the freshwater and estuarine environments are healthy enough to accommodate an increased influx of spawning adult fish is paramount to rebuilding the Atlantic salmon population in the Gulf of St. Lawrence region in Nova Scotia. Concentrated restoration and conservation efforts in other parts of the province could see improved outcomes for salmon populations as well. The objective of this research was to identify on which rivers managers should focus restoration and conservation efforts, and determine the most successful salmon restoration techniques and practices that should be considered in these rebuilding efforts. To contribute to this objective, a literature review of the key threats is conducted, feasibility of management options is discussed, and the relationships between government, NGOs, volunteer organizations, and scholars as it pertains to salmon conservation and restoration are analyzed. Physical habitat restoration and lime dosing were identified as having the greatest potential for positive impact, while greater cooperation and communication from various salmon organizations and government agencies will be crucial for successful restoration efforts.

*Keywords:* Atlantic salmon; conservation; restoration; collaborative governance; Nova Scotia; acid rain; invasive species; dams.