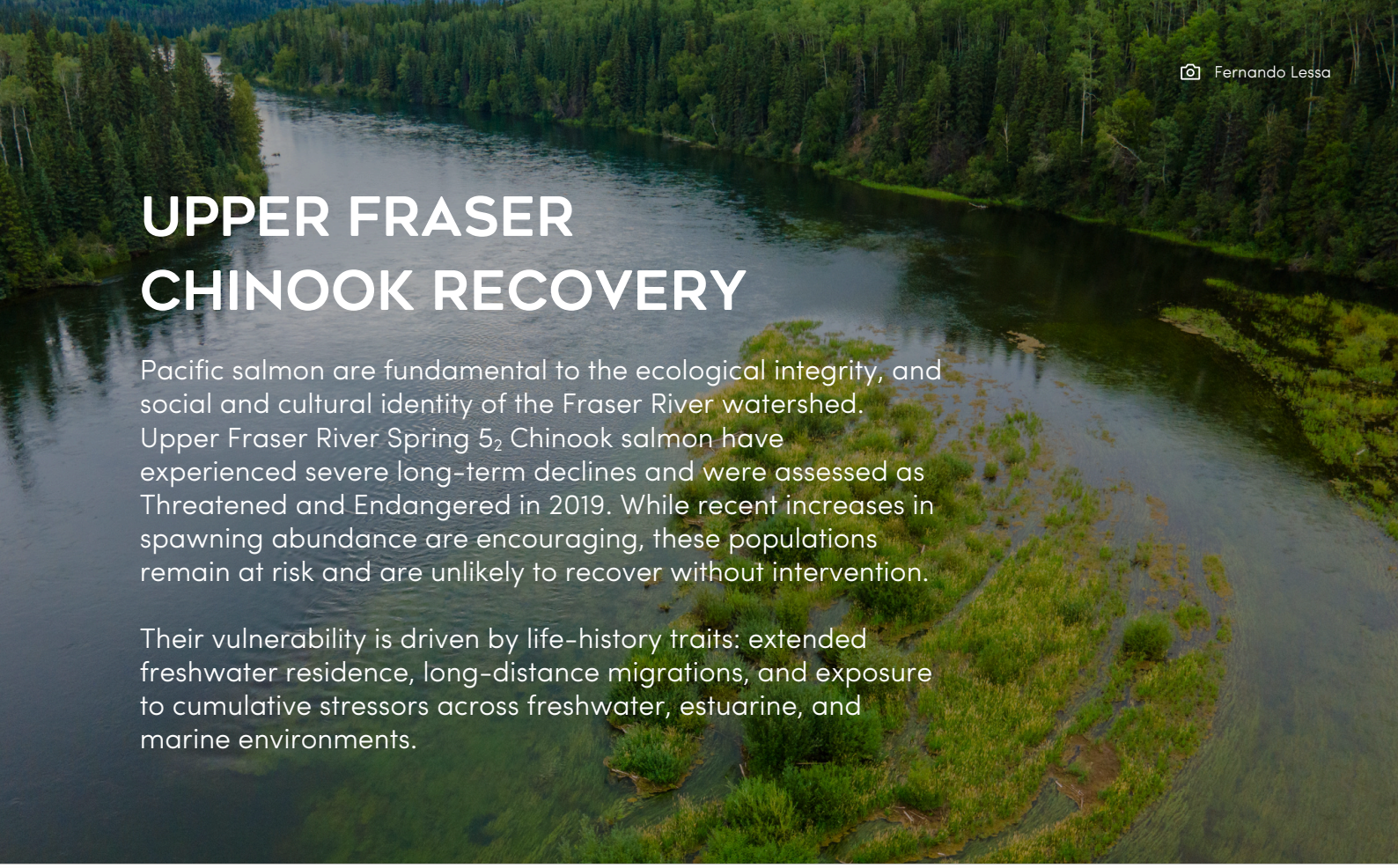


UPPER FRASER CHINOOK RECOVERY

Pacific salmon are fundamental to the ecological integrity, and social and cultural identity of the Fraser River watershed. Upper Fraser River Spring 5_2 Chinook salmon have experienced severe long-term declines and were assessed as Threatened and Endangered in 2019. While recent increases in spawning abundance are encouraging, these populations remain at risk and are unlikely to recover without intervention.

Their vulnerability is driven by life-history traits: extended freshwater residence, long-distance migrations, and exposure to cumulative stressors across freshwater, estuarine, and marine environments.

THE NEED

Recovery cannot be achieved through isolated actions.

IT REQUIRES:

- Cross-jurisdictional collaboration (Indigenous Nations, governments, NGOs, and partners)
- Coordinated, life-cycle-based action
- Transparent, evidence-based decision-making

Without this, efforts risk being fragmented, or ineffective.

PACIFIC SALMON FOUNDATION

UFFCA

THE PROCESS

Led by the Pacific Salmon Foundation and the Upper Fraser Fisheries Conservation Alliance, this work addressed three questions:

1. What is the current status of these populations and their environments?
2. What factors are driving declines and limiting recovery?
3. What actions are most likely to stabilize and rebuild populations?

A life-cycle framework integrating western science, Indigenous Knowledge and local knowledge was developed through a comprehensive knowledge review, life-cycle sensitivity analysis, structured threat assessment, and action prioritization.

KEY FINDINGS

Decline is driven by multiple interacting threats across the full lifecycle, there is no 'smoking gun' or single bottleneck.

TOP THREATS INCLUDE:

TIER 1 ★ ★ ★
Marine competition (hatchery-origin pink and chum)

TIER 2 ★ ★
Low flows and elevated water temperatures in freshwater

TIER 3 ★
Disease and pathogens, marine prey availability, estuarine and marine predation, and fisheries

Freshwater productivity is critical, strongly influencing population output, yet many high-impact threats occur in the marine environment. These threats operate over large spatial scales, affect substantial portions of the population, and can vary substantially between years.

TAKEAWAY

There is no single solution to recovering Upper Fraser Spring 5_2 Chinook Salmon.

RECOVERY PRIORITIES ARE:

- Immediate, feasible actions to stabilize populations
- Long-term interventions to increase abundance
- Improved data and adaptive management

This framework provides a practical, adaptable pathway to support recovery under uncertainty.

RECOMMENDATIONS

Recovery requires a multi-pronged approach: implement feasible actions now while advancing more complex interventions and addressing key knowledge gaps.

A. REVERSE POPULATION DECLINE

- Expand conservation hatchery supplementation
- Reduce marine survival constraints (international hatchery production, finfish aquaculture)
- Targeted habitat restoration

B. PREVENT FURTHER DECLINE

- Establish coordinated governance and engagement frameworks
- Strengthen freshwater resilience (flow, temperature, habitat protection, hydrology)
- Improve monitoring and response to climate-driven stressors

C. PRIORITY RESEARCH

- Develop a publicly accessible life-cycle model to integrate data and evaluate recovery actions
- Fill knowledge gaps around marine conditions, predation and competition, pathogens and disease, fisheries impacts, and freshwater hydrology.

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