

PACIFIC SALMON COMMISSION
JOINT TRANSBOUNDARY TECHNICAL COMMITTEE
TRANSBOUNDARY PANEL STRATEGIC SALMON PLAN
REPORT TCTR (19)-4

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ACRONYMS

ADF&G	Alaska Department of Fish and Game
ASL	Age, sex, length
BEG	Biological Escapement Goal
CV	Coefficient of Variation
CWT	Coded Wire Tag
DFO	Department of Fisheries and Oceans, Canada
GIS	Geographic Information System
GSI	Genetic Stock Identification
ID	Identification
PIT	Passive Integrated Transponder
PST	Pacific Salmon Treaty
SEPP	Stikine Enhancement Production Plan
TEPP	Taku Enhancement Production Plan
TTC	Transboundary Technical Committee

Introduction

The *Transboundary Panel Strategic Salmon Plan* (Plan) was developed by the Transboundary Panel of the Pacific Salmon Commission to provide strategic guidance for addressing priority information needs/data gaps related to salmon stock assessment, enhancement, or habitat restoration in the transboundary Alsek, Taku and Stikine rivers (Figure 1). The Plan was first developed and implemented for the 2009 to 2018 period, followed by review and updating to maintain relevance for the 2019 to 2028 period.

The bilateral Transboundary Panel is chartered to provide information and make recommendations on Annex IV, Chapter 1 of the Pacific Salmon Treaty (PST) for stocks of salmon originating in the Alsek, Taku, and Stikine Rivers.¹ The Transboundary Technical Committee (TTC) assists the Panel to achieve objectives outlined in Chapter 1.

Plan Purpose

The *Transboundary Panel Strategic Salmon Plan* identifies projects, programs or actions that are important to advancing and achieving the obligations set out within Transboundary Rivers Agreement (Annex IV, Chapter 1) for the period 2019–2028,² or that are likely to conserve salmon and benefit salmon management on the transboundary rivers.

The Transboundary Panel anticipates that the Plan will also be considered by the Alaska Department of Fish and Game (ADF&G), the Fisheries and Oceans, Canada (DFO) and others in the allocation of resources to meet priority needs relevant to transboundary salmon stocks. The Plan is also intended to communicate priority themes pertaining to Transboundary salmon monitoring, enhancement and research to the Pacific Salmon Commission's Northern Fund Committee.

The plan includes goals and objectives relevant to salmon stock assessment, habitat restoration, enhancement and research on the Alsek, Taku and Stikine rivers.

¹ The Transboundary Panel was established in Attachment A of the June 30, 1999 Pacific Salmon Treaty Agreement and authorized by Congress on December 15, 2000.

² Pacific Salmon Treaty, Annex IV, Chapter 1, Transboundary Rivers, 2019-2028.

Goals

The goals of the plan are:

- Goal 1: SALMON MANAGEMENT – Maintain and improve the information base to support coordinated or cooperative management of the fisheries on transboundary stocks to implement the Transboundary Rivers Agreement for 2019–2028.
- Goal 2: SALMON ENHANCEMENT – Without compromising wild stocks, enhance salmon production where appropriate opportunities exist to generate returns that will contribute to fisheries and/or support stock rebuilding.
- Goal 3: SALMON HABITAT – Maintain, restore, develop and/or enhance salmon habitat to sustain the long-term productivity of transboundary salmon stocks.
- Goal 4: SALMON RESEARCH – Advance research into biology, ecology and productivity of transboundary salmon stocks.

These goals will be accomplished through the cooperative and coordinated efforts of the agencies and other entities that have the authority, obligation and/or expertise to conserve and manage transboundary river salmon, in the context of the Transboundary Rivers Agreement. This plan supports coordination with stakeholders and users of the resources, including the collection and application of traditional ecological knowledge in cooperation with the First Nations.



Figure 1. The Transboundary Panel has responsibility for salmon originating in the Alsek, Taku, and Stikine river systems.

Goal 1 Salmon Management

Goal 1: Maintain and improve the information base to support management of the fisheries on transboundary stocks, to implement the Transboundary Rivers Agreement for 2009-2018.

Objective 1.1

Continue cooperative salmon management that contributes to implementation of the Transboundary Rivers Agreement.

Action Area	Actions/Projects
Salmon Management	Continue Annual Management Plan.
	Continue Annual Catch and Escapement Report.
	Facilitate Improved Data Sharing / Availability

Objective 1.2

Continue to utilize and develop genetic stock identification (GSI) to increase knowledge and improve management of Transboundary Rivers salmon stocks.

Action Area	Actions / Projects
Utilize Genetic Stock Identification	Continue to identify and fill priority genetic baseline data gaps.
	Refine GSI sample analysis methods
	Continue to employ and expand the use of GSI to inform fishery management actions.

Objective 1.3

Continue to develop and implement abundance-based management⁶ regimes for the following stocks:⁷

- **Alsek River Chinook salmon**
- **Alsek River sockeye salmon**
- **Stikine River coho salmon**

ALSEK RIVER CHINOOK SALMON

Action Area	Actions/Projects
Escapement Objectives	Periodic review of escapement goals.
Preseason Forecasting	Improve preseason forecast
Inseason Abundance Estimate	Develop an inseason drainage wide abundance assessment program: a. Consider a non-lethal test fishery sampling program to collect GSI and ASL samples to enable run reconstruction. b. Consider reimplementation of inriver mark-recapture program. c. Consider feasibility of using sonar or other technology to enumerate fish passage in the lower river.
Stock Assessment	Continue Klukshu River abundance assessment program. Consider reimplementation of wild stock coded-wire-tag (CWT) program. Investigate salmon size and age trends on the Blanchard and Klukshu Rivers. Continue aerial surveys. Implement First Nations fisheries monitoring and continue Canadian sport fisheries catch monitoring; monitoring includes numbers harvested and collection of biological data.

ALSEK RIVER SOCKEYE SALMON

Action Area	Actions/Projects
Escapement Objectives	Periodic review of escapement goals. Includes drainage wide escapement goal and Klukshu River goal, with early and late run targets.
	Improve annual forecasting.
Stock Assessment	Continuation of abundance assessment programs at Klukshu River and Village Creek.
	Develop and implement an inseason drainage wide abundance assessment program: a. Consider an inriver mark-recapture program. b. Consider feasibility of using sonar or other technology to enumerate fish passage in the lower river
	Refine GSI abundance program.
	Continue aerial surveys.
	Continue Dry Bay commercial catch monitoring and collection of biological data.
	Implement First Nations fisheries monitoring and continue Canadian sport fisheries catch monitoring; monitoring includes numbers harvested and collection of biological data.

STIKINE RIVER COHO SALMON

Action Area	Actions/Projects
Escapement Objectives	Develop a biological escapement goal.
Preseason Forecasting	Develop a preseason forecast.
Abundance Estimates	Develop and implement an annual abundance assessment program. Develop and implement an inseason abundance assessment program.
Stock Assessment	Continue aerial surveys. Continue smolt CWT program.
Catch Monitoring	Continue CWT recovery program in all fisheries.

Objective 1.4

Continue to implement and refine abundance-based management regimes for the following stocks:⁹

- **Stikine River Chinook salmon**
- **Stikine River sockeye salmon**
- **Taku River Chinook salmon**
- **Taku River sockeye salmon**
- **Taku River coho salmon**

STIKINE RIVER CHINOOK SALMON

Action Area	Actions/Projects
Escapement Objectives	Periodic review of Stikine River Chinook salmon escapement goal.
Preseason Forecasting	Continue existing preseason forecasting program.
Abundance Estimates	Review inseason assessment programs and explore possible new approaches to improve reliability.
Stock Assessment	Assessment of Tahltan River salmon stock(s). Continue aerial surveys. Continue Little Tahltan weir and investigate factors that may be influencing productivity and long-term health of Little Tahltan Chinook salmon.
Catch Monitoring	Continue CWT program for catch monitoring and inseason stock identification. Continue GSI program for postseason stock identification in District 108 fisheries.

STIKINE RIVER SOCKEYE SALMON

Action Area	Actions/Projects
Escapement Objectives	Review and update Tahltan Lake sockeye salmon escapement goal.
	Review mainstem Stikine River sockeye salmon escapement goal.
Preseason Forecasting	Continue existing preseason forecasting program.
Abundance estimates	Continue to review and develop the Stikine Sockeye Management Models. Review postseason abundance estimate methodology.
Stock Assessment	Continue with adult and smolt assessment programs and explore development and implementation of new programs as required. Review current stock assessment program.
Catch Monitoring	Continue stock ID program through egg diameters, thermal marked otoliths, ASL, and GSI.

TAKU RIVER CHINOOK SALMON

Action Area	Actions/Projects
Escapement Objectives	Periodic review of Taku River Chinook salmon escapement goal.
Preseason Forecasting	Review existing preseason forecasting program and explore refinements over time.
Abundance Estimates	Review existing inseason abundance assessment program and explore refinement over time.
Catch Monitoring	Continue CWT program for catch monitoring and inseason stock identification. Continue GSI program for postseason stock identification in District 111 fisheries.

TAKU RIVER SOCKEYE SALMON

Action Area	Actions/Projects
Escapement Objectives	Review and refine Taku River sockeye salmon escapement goal.
Preseason Forecasting	Develop and improve preseason forecast for Taku River enhanced and wild sockeye salmon.
Abundance Estimates	Review existing inseason abundance assessment program and explore refinement over time.
Stock Assessment	Review stock assessment program (including run reconstruction) and explore refinement over time.
Catch Monitoring	Continue inseason stock ID using thermal marked otoliths, ASL, and GSI.

TAKU RIVER COHO SALMON

Action Area	Actions/Projects
Escapement Objectives	Periodic review of Taku River coho salmon escapement goal.
Preseason Forecasting	Review and refine preseason forecast methodology.
Abundance Estimates	Review and refine inseason abundance assessment program and explore refinement over time.
Stock Assessment	Review stock assessment program (including run reconstruction) and explore refinement over time.
Catch Monitoring	Continue CWT program.

Goal 2 Salmon Enhancement

Goal 2: Without compromising wild stocks, enhance salmon production where appropriate opportunities exist to generate returns that will contribute to fisheries and/or stock rebuilding.

Objective 2.1

Implement provision of the Transboundary Rivers Agreement for enhancement of Stikine and Taku river sockeye salmon stocks, to meet an annual production target of 100,000 enhanced sockeye salmon in each river system.¹¹

STIKINE RIVER SOCKEYE SALMON

Actions/Projects

Complete yearly Stikine Enhancement Production Plan (SEPP) for the duration of the Annex.

Review existing enhancement programs and explore new enhancement opportunities.

TAKU RIVER SOCKEYE SALMON

Actions/Projects

Complete yearly Taku Enhancement Production Plan (TEPP) for the duration of the Annex.

Review existing enhancement programs and explore new enhancement opportunities

ALSEK RIVER SOCKEYE SALMON

Actions/Projects

Explore opportunities for salmon stock restoration or enhancement in the upper Alsek River watershed.

Goal 3 Salmon Habitat

Goal 3: Maintain, restore and/or enhance salmon habitat for the long-term productivity of transboundary salmon stocks.

Objective 3.1

Identify, assess and catalog essential salmon habitat, including assessment of feasibility for habitat restoration or rehabilitation where appropriate.

River	Actions/Projects
All Transboundary River Systems	Assess constraints to fish migration and consider the potential to augment salmon distribution and production in the drainage through barrier removal.
Taku River	Update and refine existing GIS database and maps, including results from radio telemetry studies (all salmon species).
Stikine River	Update and refine existing GIS database and maps including results from radio telemetry studies (all salmon species).
Alsek River	Develop distribution and habitat utilization atlas for Chinook, sockeye, and coho salmon in the Alsek River.

Objective 3.2

Undertake appropriate projects to maintain, improve, or restore salmon habitat or fish access to habitat on the transboundary rivers.

River	Actions/Projects
All Transboundary River Systems	Implement improvements to fish passage, spawning and rearing, as appropriate, on the transboundary rivers. Implement continuous water quality/chemistry monitoring.

Goal 4 Salmon Research

Goal 4: Advance research into biology, ecology and productivity of transboundary salmon stocks.

Objective 4.1

Further the understanding of Transboundary River salmon biology

Actions/Projects
Explore competition and predator/prey relationships for TBR stocks within the marine and freshwater environment.
Explore the effects of variable climatic conditions that influence the production of TBR wild and enhanced salmon stocks in both the marine and freshwater environments.
Explore marine survival in the early life history stages of TBR stocks.
Explore changes in population structure (age, sex, fecundity, etc.) and their effects on productivity.
Explore live handling and post release survival rates.
Facilitate presenting, sharing, and flow of information.
Investigate coho salmon stock status and interactions between coho salmon and other salmon species.
Investigate disease or parasite conditions potentially effecting Transboundary Rivers salmon stocks.
Investigate relationships and interactions between enhanced and wild salmon.

Plan Implementation and Updates

The Transboundary Panel has stated that it is important to retain flexibility in determining which actions or projects should be pursued to achieve the goals of the *Transboundary Panel Strategic Salmon Plan*. The Panel recommends the following points be considered in plan implementation:

- Actions or projects needed to address an obligation of the Transboundary Rivers Agreement
- Social and economic importance of the stock
- Stock status
- Cost-benefit of the action or project
- Feasibility of the action or project

The Transboundary Panel intends that the Plan will be employed for the 2019 to 2028 Chapter 1 annex period.