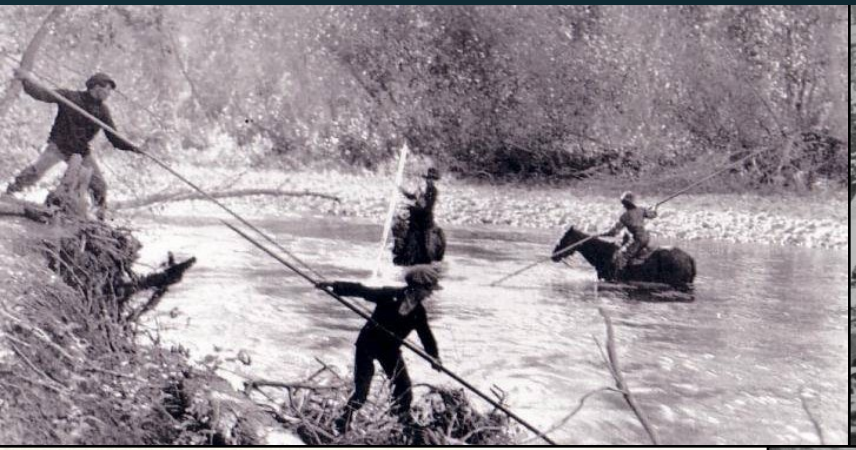
COLUMBIA RIVER TREATY: ANADROMOUS SALMON

A Salmon People



Salmon Ceremonies, UCUT Joint Paper

FISH PASSAGE AND REINTRODUCTION INTO THE U.S. & CANADIAN UPPER COLUMBIA RIVER

An Interim Joint Paper of the U.S. Columbia Basin Tribes and Canadian First Nations

February 14, 2014

SALMON
CEREMONIES

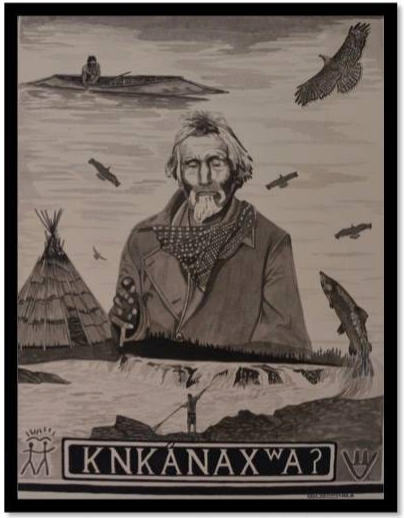
CANOE JOURNEY LANDINGS

Canoe Landings
Kettle Falls WA
snqʷəqʷuX̌tn
June 17, 4:00 pm

Salmon Ceremony
Kettle Falls WA
snq̓ʷəq̓ʷuX̌tn
June 18, 11:00 am

Salmon Ceremony
Castlegar BC
słuxʷqaynəm
June 19, 11:00 am

Community Coordination by
The Colville Confederated Tribes
Okanagan Nation Alliance
The Inchelium Language and Culture Association
and the
Upper Columbia United Tribes



Donated KNKANAXʷA Origional by: Artist Chief Marchand Rice

Honoring our Ancestors & Praying For the Salmon
cpútaʔstm iʔ xaʔxʔitət uɬ cǩaʕxtm iʔ‿ntytyix
MEAL,NAMEGIVINGS AND GIVE-A-WAYS TO FOLLOW

FOR MORE INFORMATION or to make a DONATION:Brandon Finley | ilca.finley@gmail.com (509)722-7057

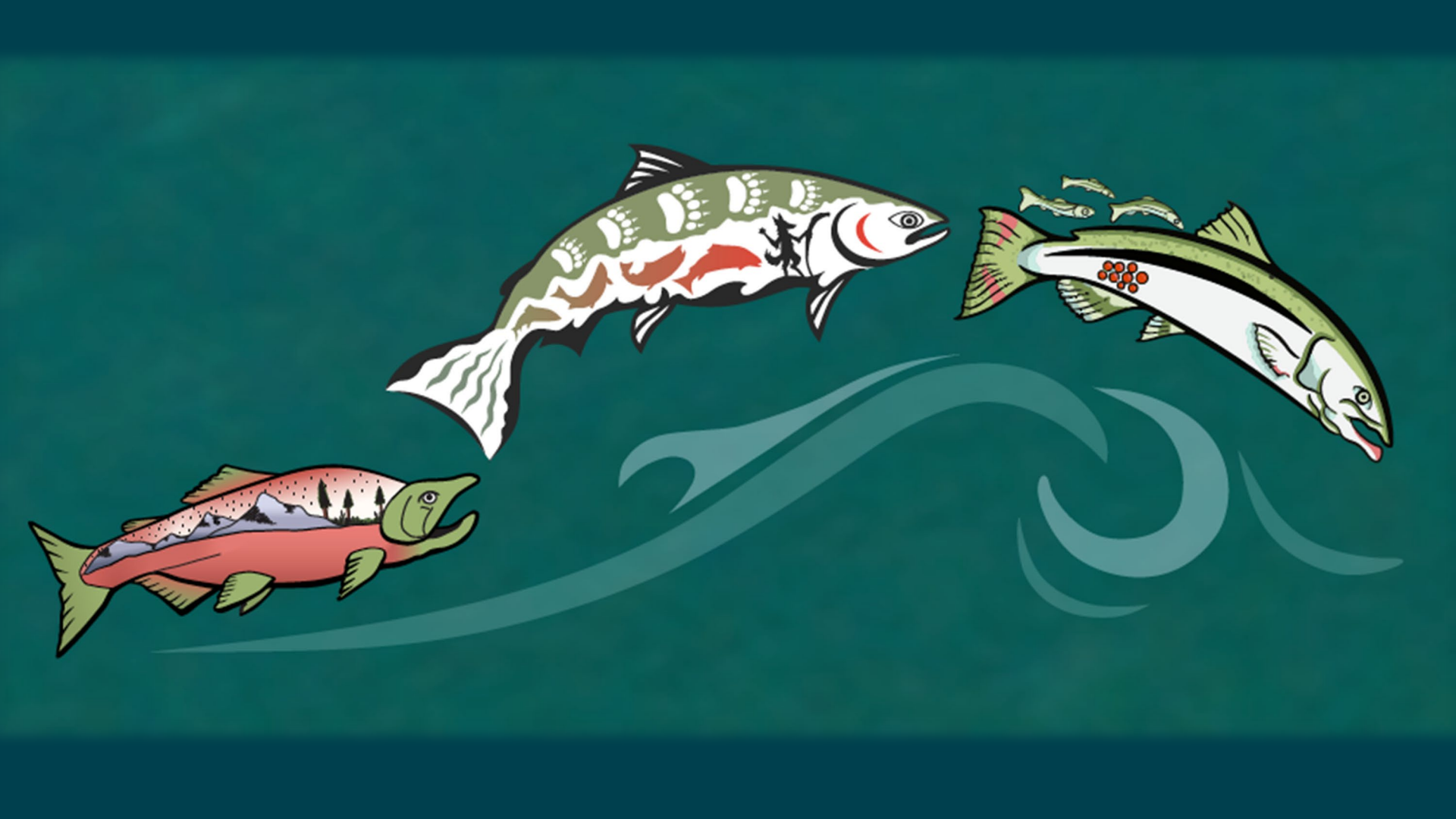
The Columbia River Salmon Reintroduction Initiative

BRINGING *the* SALMON HOME

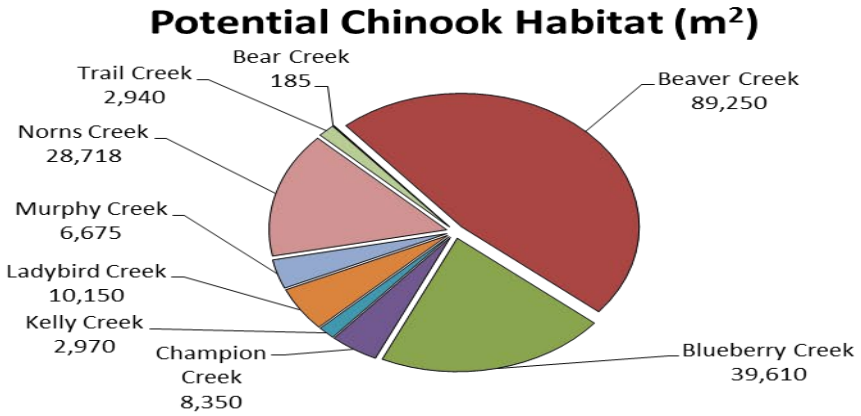
kɬ cp̓əlḱ stiḿ iʔ ntytyix

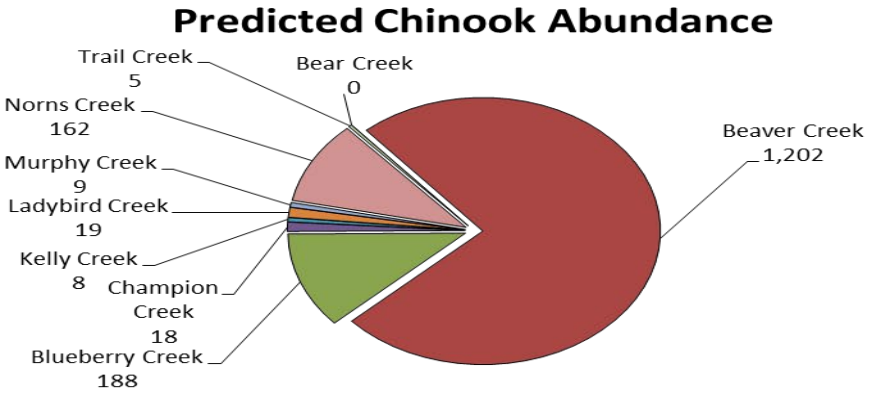
ʔatɬ suʔkiniɬ swaq̓mu

Tspelq’entém re Sqlélten

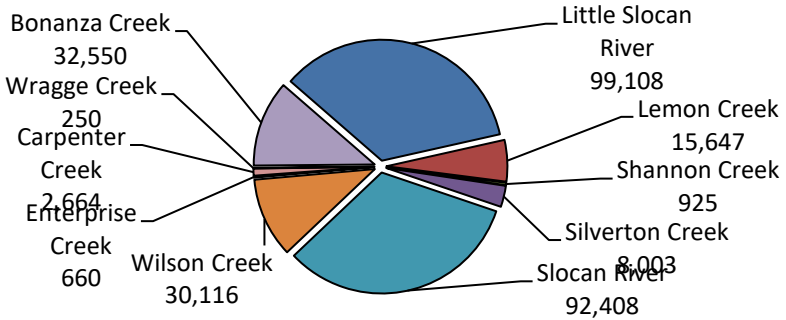


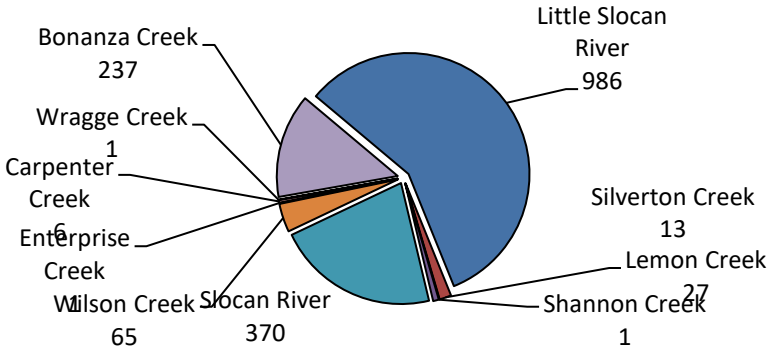
Transboundary Reach





Slocan Watershed





Several Canadian Basin Experiments – Reference

- Skaha-Okanagan Lake Sockeye (1995 +)
- Okanagan River Chinook (Summer/ Spring) (2005 +)
- Columbia Basin Trust Action Plans (Arrow-Kootenay Systems 1990s+)

Columbia Integrated Salmon Life Cycle Model

Objectives:

1. Simulate salmon population dynamics across freshwater and marine life-stages under various scenarios

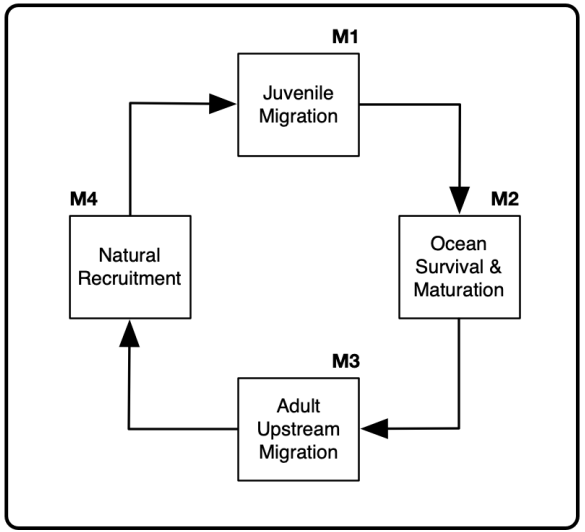
2. Assess potential impacts of management decisions, hydro-regulation effects, and climate change scenarios on population sustainability

Future Study: Columbia Integrated Salmon Life Cycle Model (LCM)

INPUTS

- Water Management
- Fisheries Management
- Land Management
- Environment & Climate Change

MODEL



Module based model implementation

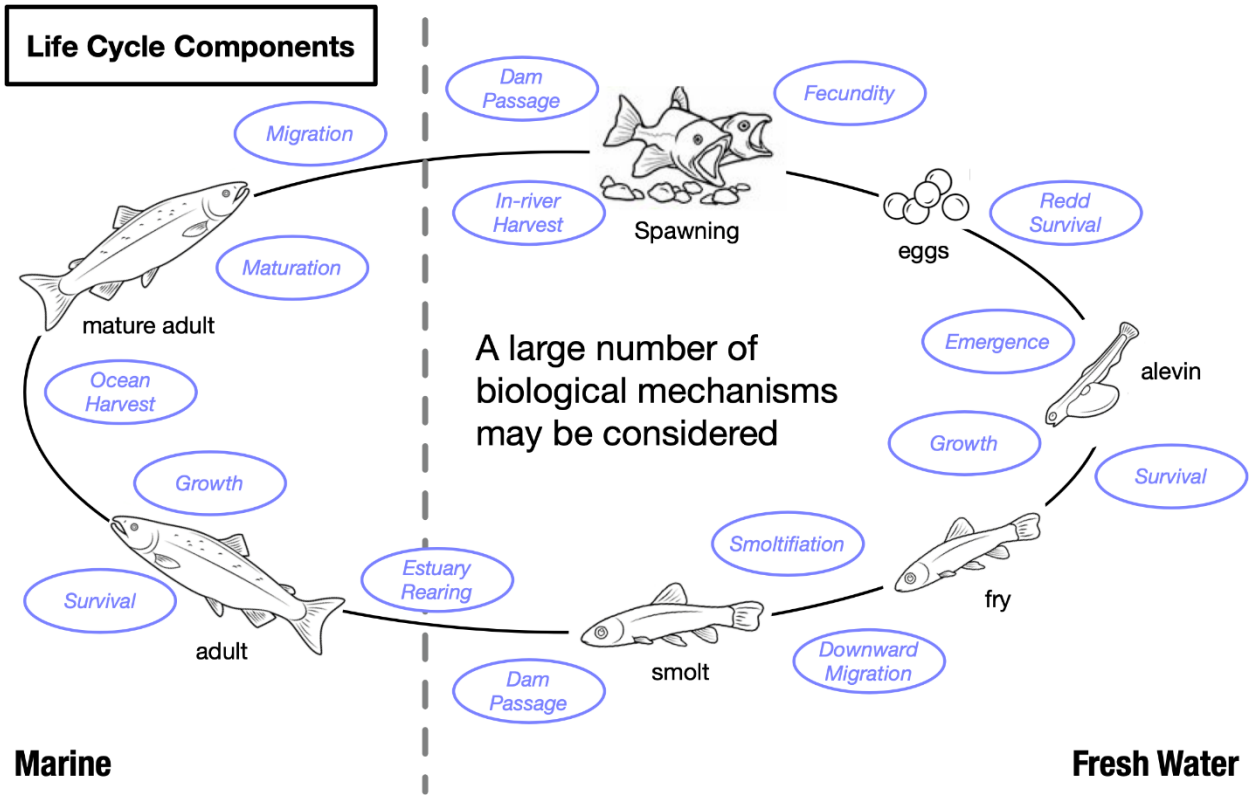
OUTPUTS

Individual Performance Metrics

Cumulative Impacts

ADVISE

Columbia Integrated Salmon Life Cycle Model

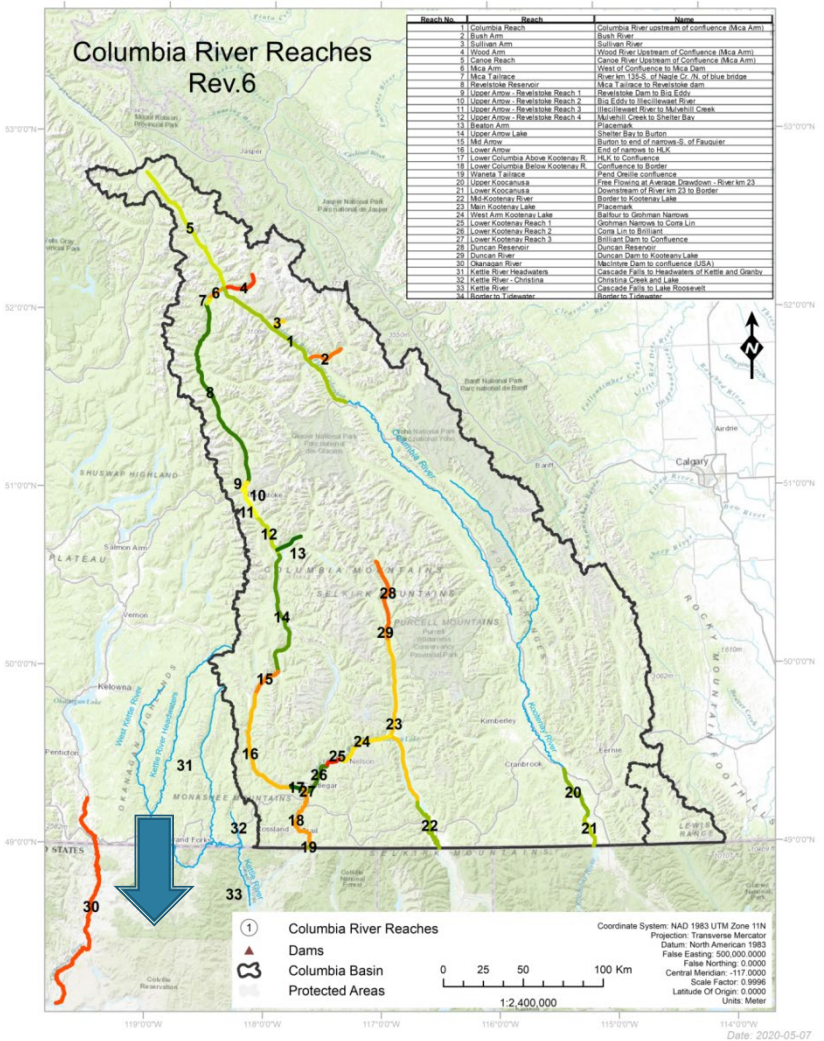


Goal/Objective

- Consider the impact of flow regimes on downstream and upstream movement of anadromous salmon during migration period
- Understand impacts on earlier and later timed migrants
  - e.g., how does shifting flow from June to May effect survival for later timing cohorts
- Determine integrated impact on transit times and survival across all timing cohorts

Which river/ reservoir segments

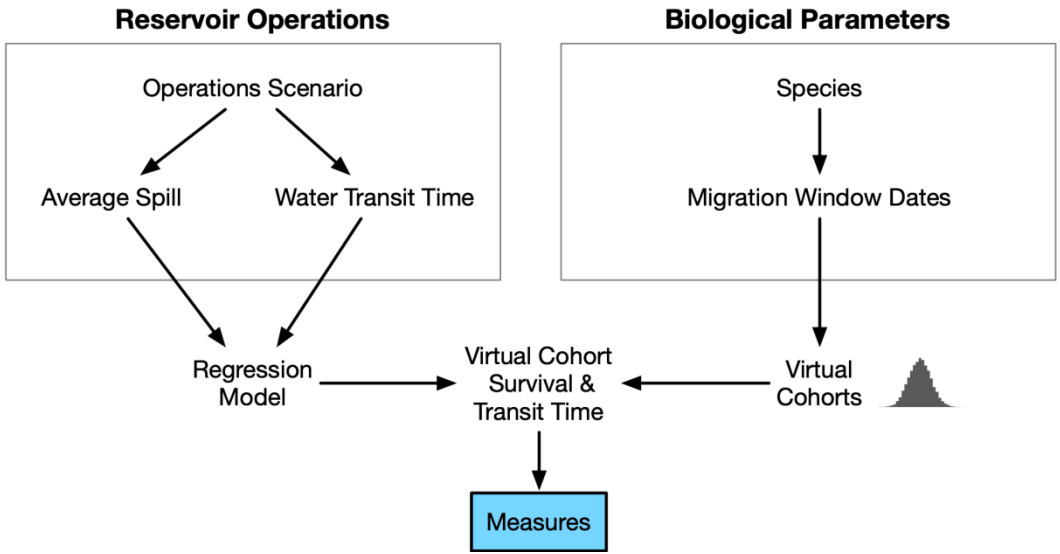
- Survival and movement in US reaches of the Columbia River
- Exit and return to Okanagan basin (under development)



What outputs from Model are determining Performance Outcomes

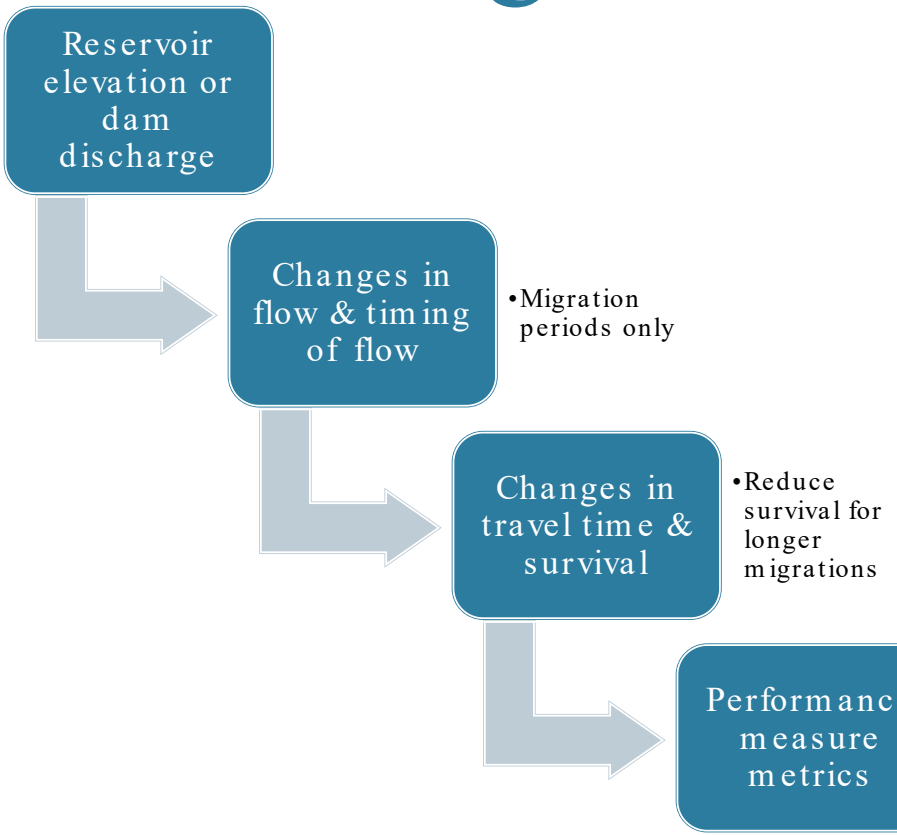
- Success of virtual cohorts tracked with cohorts designed to represent natural migration period and abundances
- Daily flows in the Upper, Mid and Lower Columbia river predict transit times and survival of virtual cohorts.
- Virtual cohort outcomes used to compute timing group outcomes (i.e., early, middle, late) as well as cumulative outcomes (i.e., across all timing groups combined).
- Output comes include transit times and survival (i.e., a success measure) by timing cohort or cumulatively across all groups.

How are the Performance Outcomes determined?



- Virtual cohorts are moved through the system
- Cohorts reflect natural migration window
- Conditions predict cohort transit times + survival
- Cohorts combined for Performance Measures

Logic Pathway



Final Performance Metrics:

- Changes in juvenile and adult in-river migration outcomes
- Comparing changes in travel time by timing groups
- Changes in travel time predict changes in survival