



# **Describing and Assessing a Basin-scale Mitigation Program: The Northwest Power and Conservation Council's Fish and Wildlife Program**

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Photo credit: Erik Merrill

# The Northwest Power and Conservation Council

- Formed by the Northwest Power Act (NPA) of 1980
- 8 members; two from each of the four Columbia Basin states, appointed by governors; supported by staff
- Interstate compact agency

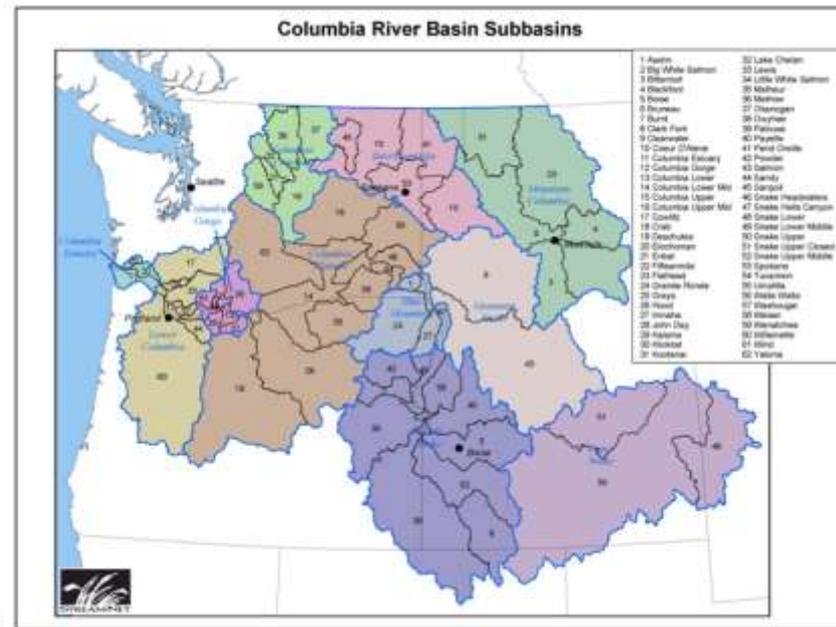
## Council's Responsibilities:

- **Develop a program to protect, mitigate and enhance fish and wildlife affected by hydroelectric facilities in the Columbia River Basin**
- Develop a regional power plan
- Inform and involve the public

# Fish & Wildlife Program



Photo credit: NPCC



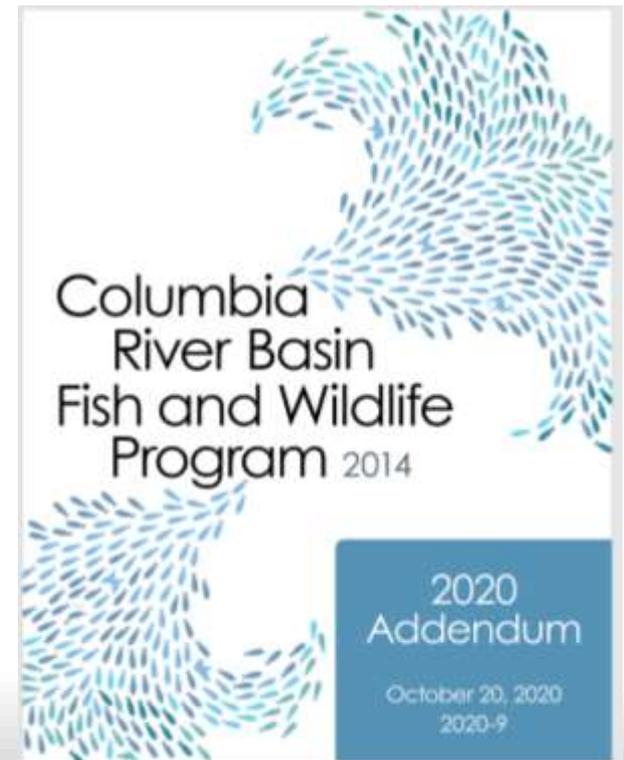
- Protection and mitigation measures at the dams – water management, flows, passage
- Offsite mitigation measures in tributaries and estuary - habitat protection and restoration, artificial production
- Mitigation for **all Fish and Wildlife affected by the hydrosystem** – not just listed species
- 1<sup>st</sup> Program 1982 – 20 Programs/Amendments since then

# Northwest Power Act Legal Responsibilities

- Bonneville: BPA to use its funds to protect and mitigate fish and wildlife affected by hydropower dams consistent with Council's Fish and Wildlife Program [NPA Section 4(h)(10)]
- Bonneville, Corps of Engineers, Bureau of Reclamation, and FERC: Agencies must take into account, to the fullest extent practicable, the program adopted by the Council [NPA Section 4(h)(11)]

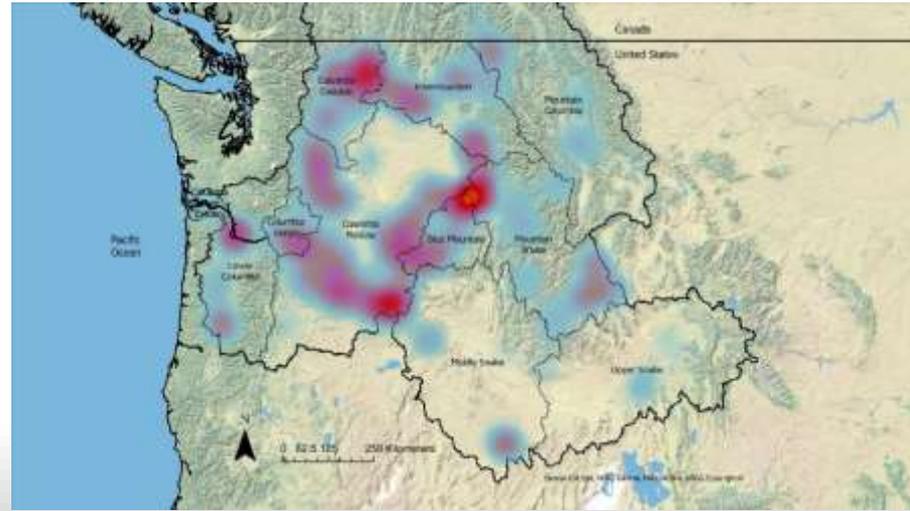
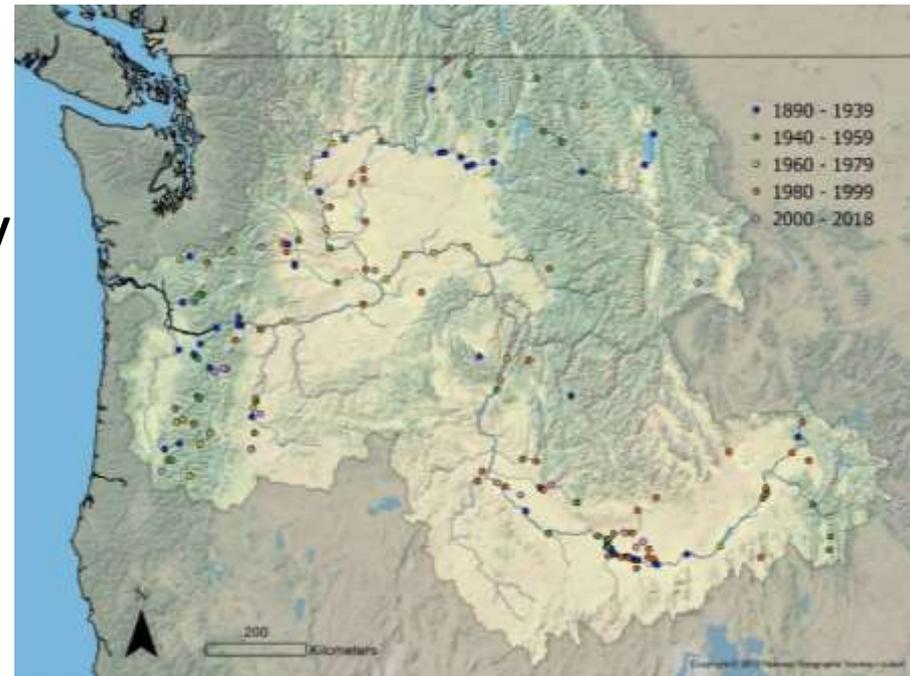
# Evaluating Performance of the Fish and Wildlife Program

- Called for in the Northwest Power Act
- Aspects of performance in every program
- Recent increased focus on understanding outcomes from **40 years of investment across the Columbia Basin**
- Limited precedent for and examples of an assessment of this scale



# Performance Assessment Challenges

- Basin large and geographically and hydrologically complex
- Changes (hydrosystem and land use) vary in space and time
- Impacts differ among species
- Implementation of program has varied across the basin and over time
- Landscape continues to change



# 2014/2020 Program Performance Efforts

- Refined and expanded Program goals and objectives, and reviewed and updates strategies for meeting them
- Worked with fish and wildlife managers to identify indicators to assess current status and trends of strategies
- Compiled data on close to 100 Strategy Performance Indicators (SPIs)
- Built data and metadata into a user-friendly webtool – Program Tracker



## Strategy Performance Indicators

Click arrow to select strategy

- Habitat
- Non-Native and Invasive Species
- Predator Management
- Protected Areas and Hydroelectric Development and Licensing
- Water Quality
- Mainstem Hydrosystem Flow and Passage
- Estuary
- Plume and Nearshore Ocean
- Wildlife Mitigation
- Fish Propagation and Hatchery
- Wild Fish
- Anadromous Fish Mitigation in Blocked Areas
- Resident Fish
- White Sturgeon

# https://projects.nwcouncil.org/ProgramTracker

Strategy

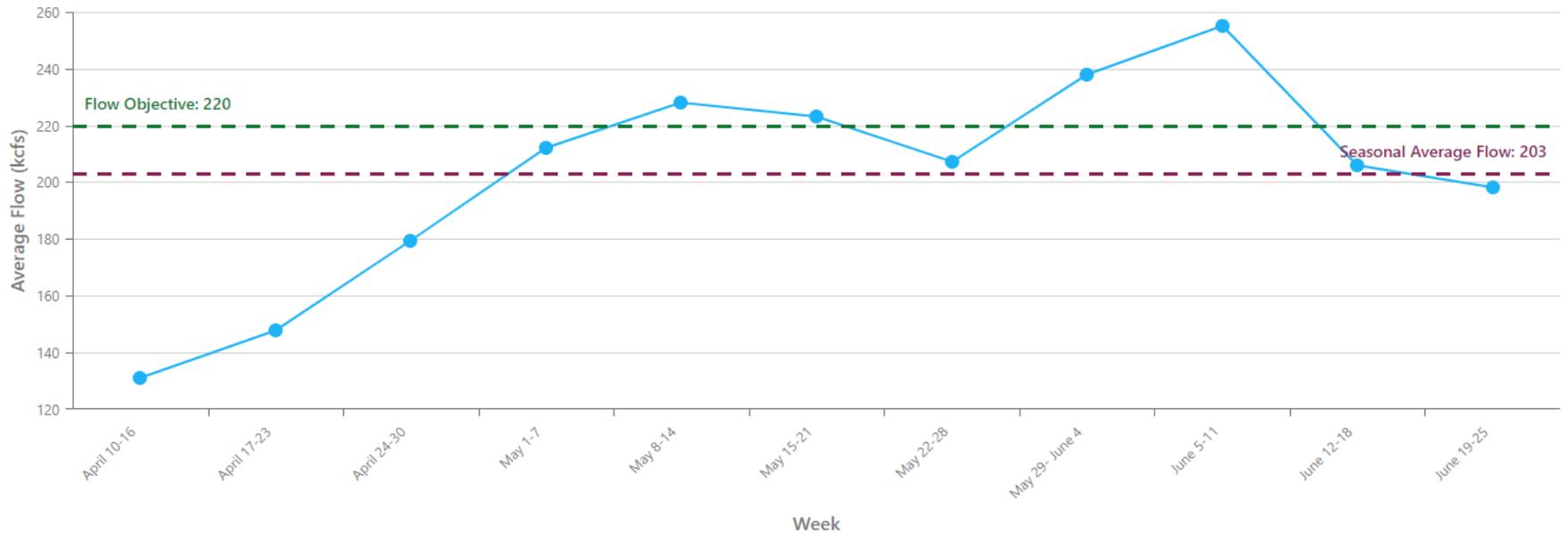
Mainstem Hydrosystem Flow and Passage

- Seasonal flows at specified Columbia and Snake River dams with associated target flows from the BiOp and Water Management Plan. [E3-1 \(Hide Data\)](#)

Dam  Year  Season

## Seasonal Average Flows (kcfs)

McNary - 2021 - Spring



Strategy

Mainstem Hydrosystem Flow and Passage

## Snake River

Species Spring/Summer Chinook

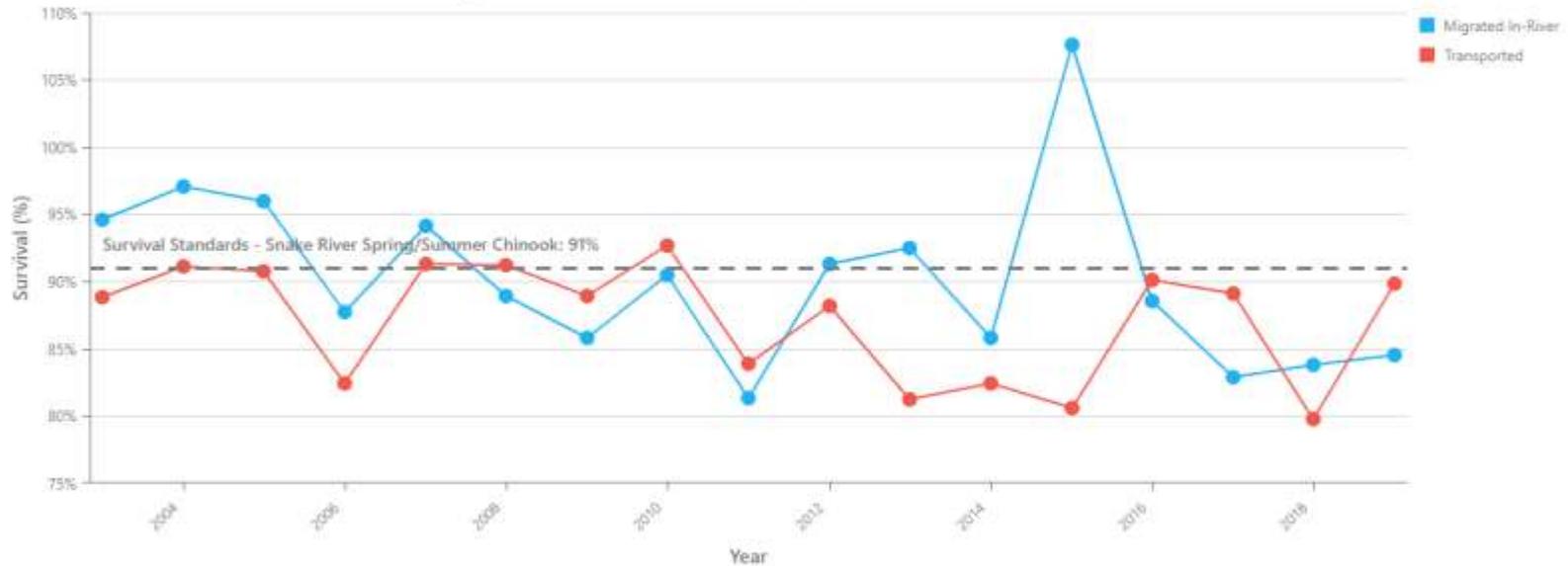
Reach Bonneville Dam to McNary Dam

Outmigration Both

Display Graph

### Adult Reach Survival - Snake River

Spring/Summer Chinook - Wild and Hatchery - BON to MCN- Both



Notes:

Context, Metadata, and Sources

Data as of 12/28/2022

# https://projects.nwcouncil.org/ProgramTracker

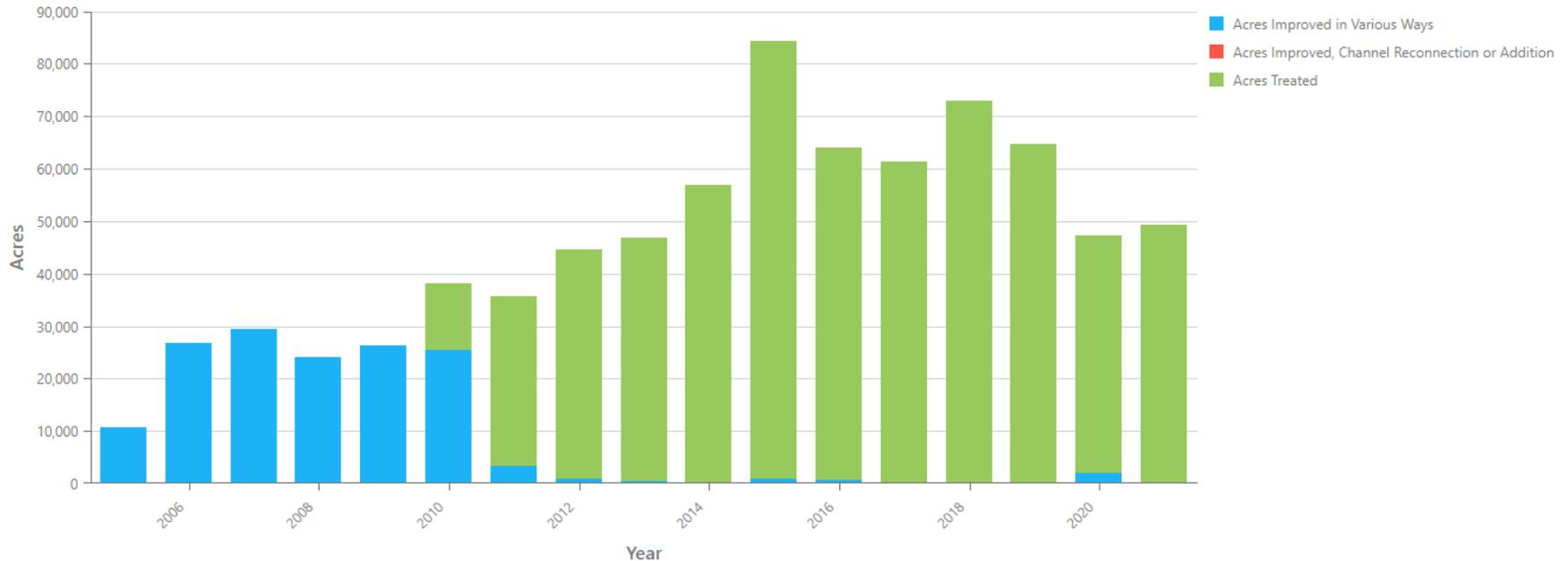
## Strategy Performance Indicators

Strategy

Habitat

- Acres of habitat improved. E1-5 (Hide Data)

### Acres of Habitat Improved



#### Notes:

1. SPI data is generated using Measures 2, 71, and 72 as reported on cbfish.org.

[Context, Metadata, and Sources](#)

Data as of 11/21/2022

# Future Program Performance Efforts

Council is looking at the performance of the Program **across its 40-year history and across the entire Columbia Basin**

- Prior programs organized by different topics or strategies
- Need to crosswalk those programs to the current program to allow for use of SPIs
- Important to consider other sources of information and data to support evaluation of goals and objectives

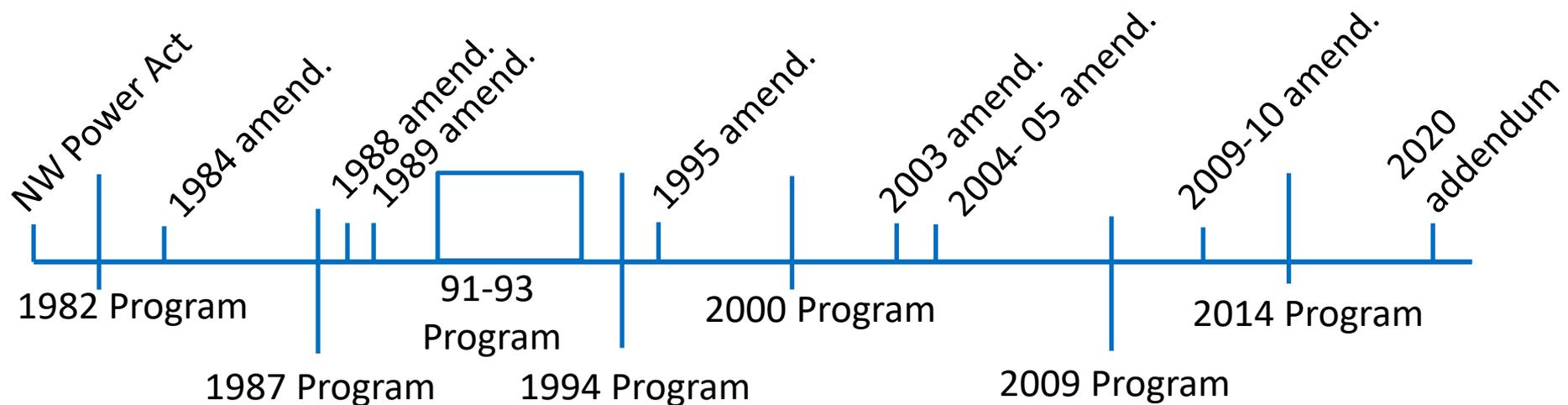
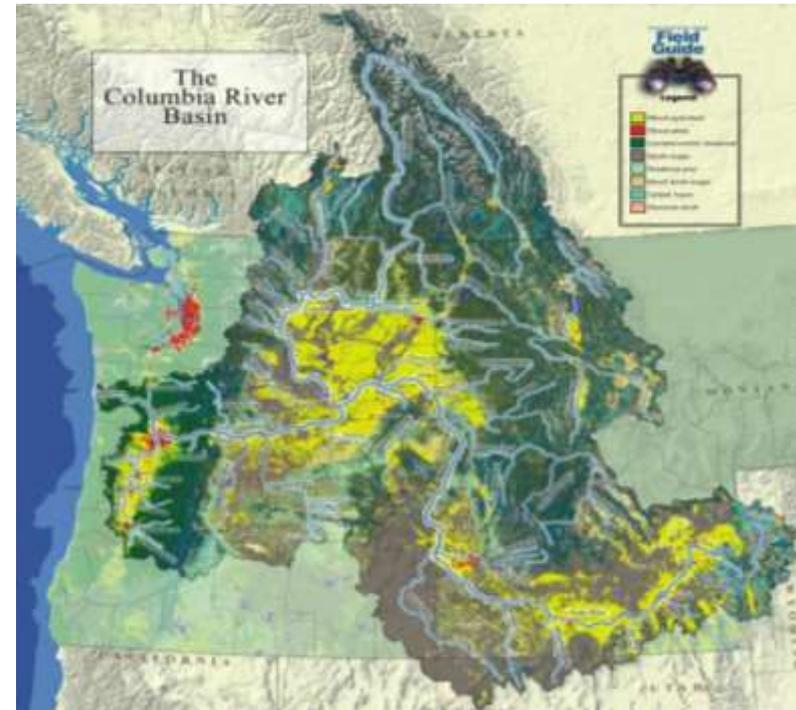
# Program Performance Approach

- Describe what has been called for in each Fish and Wildlife Program (**inputs**)
  - Use common set of categories and themes to characterize programs in consistent way over time
  - Crosswalk past Programs to current Program strategies – to utilize SPIs
- Summarize the work that has been done (**outputs**)
- Assess changes (ecological, biological, other) resulting from/occurring in parallel with implementation (**outcomes**)

# Performance assessment completed in phases

## Phase 1: Retrospective

- Basin and hydrosystem description
- Decadal timelines – external events in relation to each program
- Program strategies and actions – characterized by category and theme
- Forms the basis for Program “inputs”





# Hydrosystem

Category

Juvenile Migration  
(Salmon and  
Steelhead)

Adult Migration  
(Upstream S/S;  
lamprey; sturgeon)

Mainstem  
Spawning and  
Rearing

Reservoir  
rearing  
conditions

Water  
budget/flow

Reservoir  
Management

Structures

Alternative  
Passage  
Routes

Inputs

Seasonal flows

Reservoir Elevations

Outputs

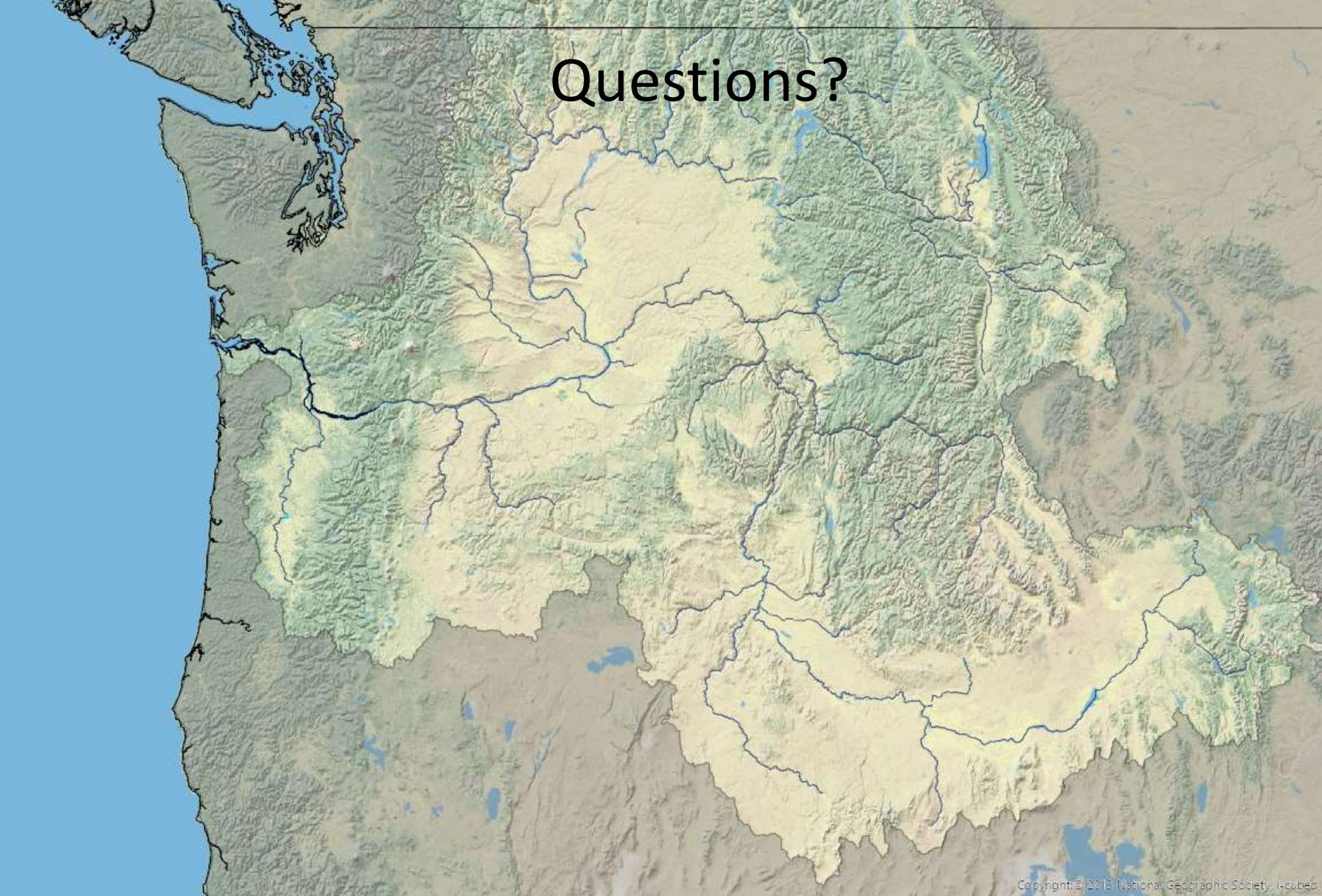
Fish Travel Time, Juvenile and Adult Survival

Outcomes

# Next Steps

- Hydrosystem category assessment: Continue identifying outputs and outcomes
- Remaining categories: Build conceptual models
- For each category evaluate:
  - Physical and biological change over space and time
  - Status and trends of Program strategies (SPIs)
  - Progress toward goals and objectives
- Develop reporting tools, including online, interactive tools
- Identify key policy and technical issues, information gaps

Questions?



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