

**Jeffery C. Allen**  
Chair  
Idaho

**Ed Schriever**  
Idaho

**Doug Grob**  
Montana

**Mike Milburn**  
Montana



# Northwest Power and Conservation Council

**KC Golden**  
Vice Chair  
Washington

**Thomas L (Les) Purce**  
Washington

**Ginny Burdick**  
Oregon

**Louie Pitt, Jr.**  
Oregon

December 3, 2024

## MEMORANDUM

**TO: Council Members**

**FROM: Kris Homel and Mark Fritsch**

**SUBJECT: Fish and Wildlife Program performance: habitat categorical assessment-continued**

## BACKGROUND:

**Presenter:** Kris Homel and Mark Fritsch

**Summary:** In November, staff presented excerpts from the third categorical assessment focused on implementation of the Columbia River Basin Fish and Wildlife Program's (Program) habitat measures. That presentation covered habitat restoration, wildlife mitigation, predator management, and non-native and invasive species. For December, staff will continue this presentation, focusing on the last topic area - habitat protection. We will describe Program strategies, measures, and implementation status using data in the Strategy Performance Indicators, along with other sources. The implementation examples will emphasize discussion points rather than technical details. We will conclude with a discussion of Program-scale observations from these examples. This assessment, along with recent categorical assessments on the hydrosystem and artificial production, provides critical information to the Council and region on the implementation and performance of the Program in anticipation of the upcoming Program amendment.

**Relevance:** Beginning with the first Program in 1982, every Fish and Wildlife Program has included references to aspects of Program performance. The 2020 Program addendum addresses Program performance through (1) reorganizing and compiling Program goals and objectives and (2) developing strategy performance indicators. Council staff are assessing Program performance through three complementary efforts: the first is the [Program Retrospective](#) (presentations in 2022 and 2023), the second is assessments of implementation by major category of work (Categorical Assessments; presentations in September, October, and November 2024), and the third is an evaluation of progress toward reaching Program Goals and Objectives

**Workplan:** Item 4.2 Program Performance- Habitat Categorical Assessment

**Background:** The Northwest Power and Conservation Council's Columbia River Basin Fish and Wildlife Program represents a 40-year effort to mitigate the effects of the hydropower system on fish and wildlife in the Columbia Basin. The scope of and investment in this Program make it one of the largest fish and wildlife mitigation efforts in the world and a significant part of the tapestry of mitigation efforts in the Columbia Basin. There is limited precedent for assessing the performance of a program of this size. Given this scale, we developed an overall approach to manage the volume and complexity of information.

The performance assessment includes three complementary efforts- the Program Retrospective, assessments of Program implementation by major category of work (Categorical Assessments), and an evaluation of progress toward Program Goals and Objectives.

In 2024, staff released a retrospective of the Northwest Power and Conservation Council's Fish and Wildlife Program that included a one-time review of the Program's history and key events. This historical context provided information on why different elements have been included in the Program over time, as well as when, where, and what kind of changes were expected to occur. In preparing this retrospective, we went through a detailed process to assemble the full set of measures called for across 40 years of Programs. These were organized by topic to determine how the Program has changed over time and when different topics came to prominence, along with identifying major topics in each Program. Staff presented on excerpts from the retrospective in 2022 and 2023.

The categorical assessments provide more detailed information on implementation of the major topics identified in the retrospective. These are organized according to four main *categories* in the Program: hydrosystem, artificial production, habitat, and program adaptive management. In 2024, we are presenting a summary of the first three categories. In each assessment, we describe (1) what was called for in the Program, (2) what was implemented, and (3) how implementation compares to available benchmarks. These assessments

incorporate content from existing summaries (e.g., the Program Tracker with Strategy Performance Indicators (SPIs), published research or reports, and dashboards on particular topics) and also include new summaries from a variety of information sources. Strategy Performance Indicators are updated annually (and some SPIs are updated in real-time) on Program Tracker, and categorical assessments will be updated prior to Program amendments, approximately every five years.

The third piece of program performance is evaluating progress toward the goals and objectives described in the 2020 Addendum. The status and trends of these goals and objectives will be presented in December 2024 and will be available on the Council's expanded Program Tracker web tool at that time. Evaluating progress relies on multiple sources of data, including the SPIs. Goals and objectives will be updated annually on Program Tracker.

The habitat assessment is broad and covers the implementation of measures across five topic areas: habitat restoration, habitat protection, wildlife, non-native and invasive species, and predator management. In this inaugural habitat categorical assessment, over 500 Program measures were reviewed. Staff met with individual regional managers who were topical experts on these actions to better understand the context around implementation. Those discussions led to the development of key topics for the region to consider. This presentation is a continuation from November, where we described examples including restoring habitat quantity and quality, adaptation of project work for climate change, implementation and status of wildlife mitigation, review of efforts to control invasive species, and predator management targeting birds, sea lions, and fish. For December, we will focus on habitat protection examples, including acquisition of fish lands, Protected Areas, and Screens. Implementation of these actions will be described at a high level and we will conclude with a discussion of Program-scale observations from these examples.

Staff will release supplementary documentation on the habitat assessment prior to the call for recommendations to amend the Fish and Wildlife Program. The staff considers this work to be iterative and welcomes feedback even as this particular category of work wraps up for 2024 in order to assess implementation of other categories before the start of the amendment process. In future years, assessments will build off the framework developed this year and will include additional measures, expanded documentation, and further opportunities for feedback.

Collectively, the retrospective, categorical assessments, and status and trends assessment will provide critical information to the Council and region on the Fish and Wildlife Program and serve as an educational resource leading up to the next Program amendment.

More Info: November 2024 Council presentation on the Habitat categorical assessment available here:

[https://www.nwcouncil.org/fs/18967/2024\\_11\\_1.pdf](https://www.nwcouncil.org/fs/18967/2024_11_1.pdf)  
<https://vimeo.com/1029755107#t=0m57s>

October 2024 Council presentation on the Artificial Production categorical assessment available here:

[https://www.nwcouncil.org/f/18942/2024\\_10\\_1.pdf](https://www.nwcouncil.org/f/18942/2024_10_1.pdf)  
<https://vimeo.com/1018001208#t=8m17s>

September 2024 and October 2023 Council presentations on the Hydrosystem categorical assessment available here:

2024: [https://www.nwcouncil.org/f/18487/2023\\_10\\_f4.pdf](https://www.nwcouncil.org/f/18487/2023_10_f4.pdf)  
2024: <https://vimeo.com/874878458#t=143m59s>  
2023: [https://www.nwcouncil.org/fs/18487/2023\\_10\\_f4.pdf](https://www.nwcouncil.org/fs/18487/2023_10_f4.pdf)  
2023: <https://vimeo.com/874878458#t=143m59s>

Fish and Wildlife Committee (2022) and Council (2023) presentations on Program Retrospective available here:

August 2022: [https://www.nwcouncil.org/fs/17876/2022\\_08\\_f1.pdf](https://www.nwcouncil.org/fs/17876/2022_08_f1.pdf)  
September 2022: [https://www.nwcouncil.org/fs/18031/2022\\_09\\_f2.pdf](https://www.nwcouncil.org/fs/18031/2022_09_f2.pdf)  
May 2023: [https://www.nwcouncil.org/fs/18305/2023\\_05\\_1.pdf](https://www.nwcouncil.org/fs/18305/2023_05_1.pdf)

The retrospective is available on the Council's website here:  
<https://www.nwcouncil.org/fs/18802/retrospective.pdf>

# Program Performance: Habitat Categorical Assessment -Continued from November

Kris Homel

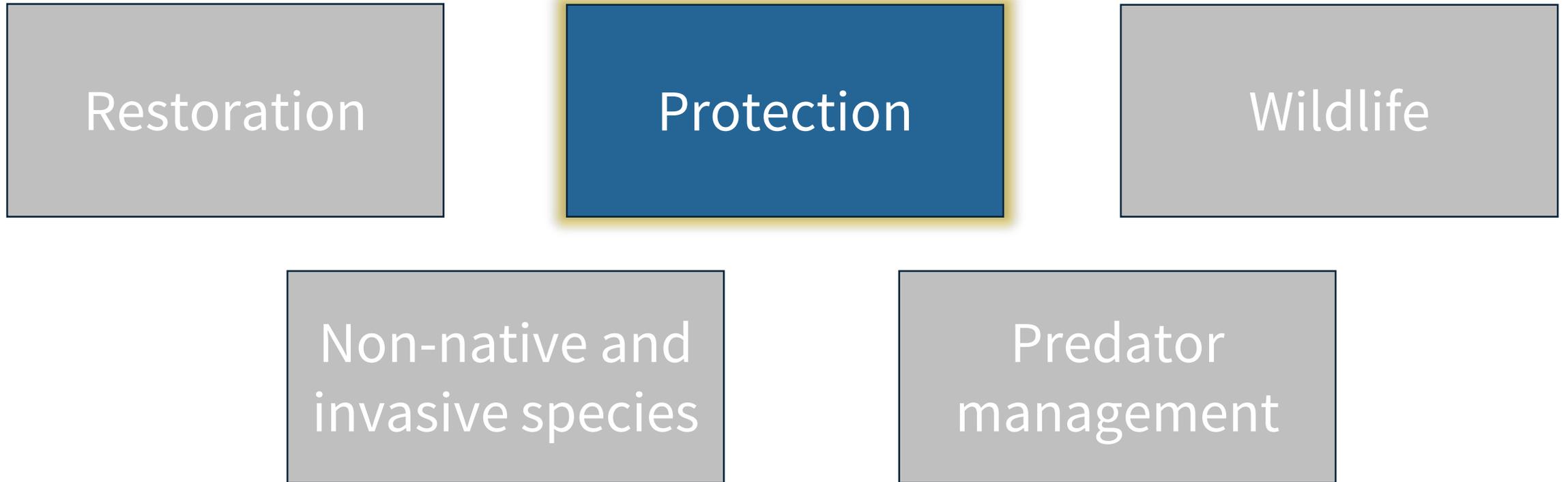
with special guest

Mark Fritsch



Northwest **Power** and  
Conservation Council

# Habitat Categorical Assessment



What was called for  
in Programs over 40  
years?



What actions  
were  
implemented?



How does  
implementation  
compare to  
benchmarks?

# Protection

- Protected areas
- Screens
- Fish lands
- Discussion



Photo of dead fish in unscreened irrigation diversion in Idaho, provided by IDFG

## Program strategies (not covered in prior assessments)

### **Protected areas and hydroelectric development**

- Protect fish and wildlife from the adverse effects of future hydroelectric project construction and operations. As part of this strategy, the Council supports protecting streams and wildlife habitats from any hydroelectric development where the Council believes such development would have unacceptable risks to fish and wildlife.

### **Maintenance of Fish and Wildlife Program investments**

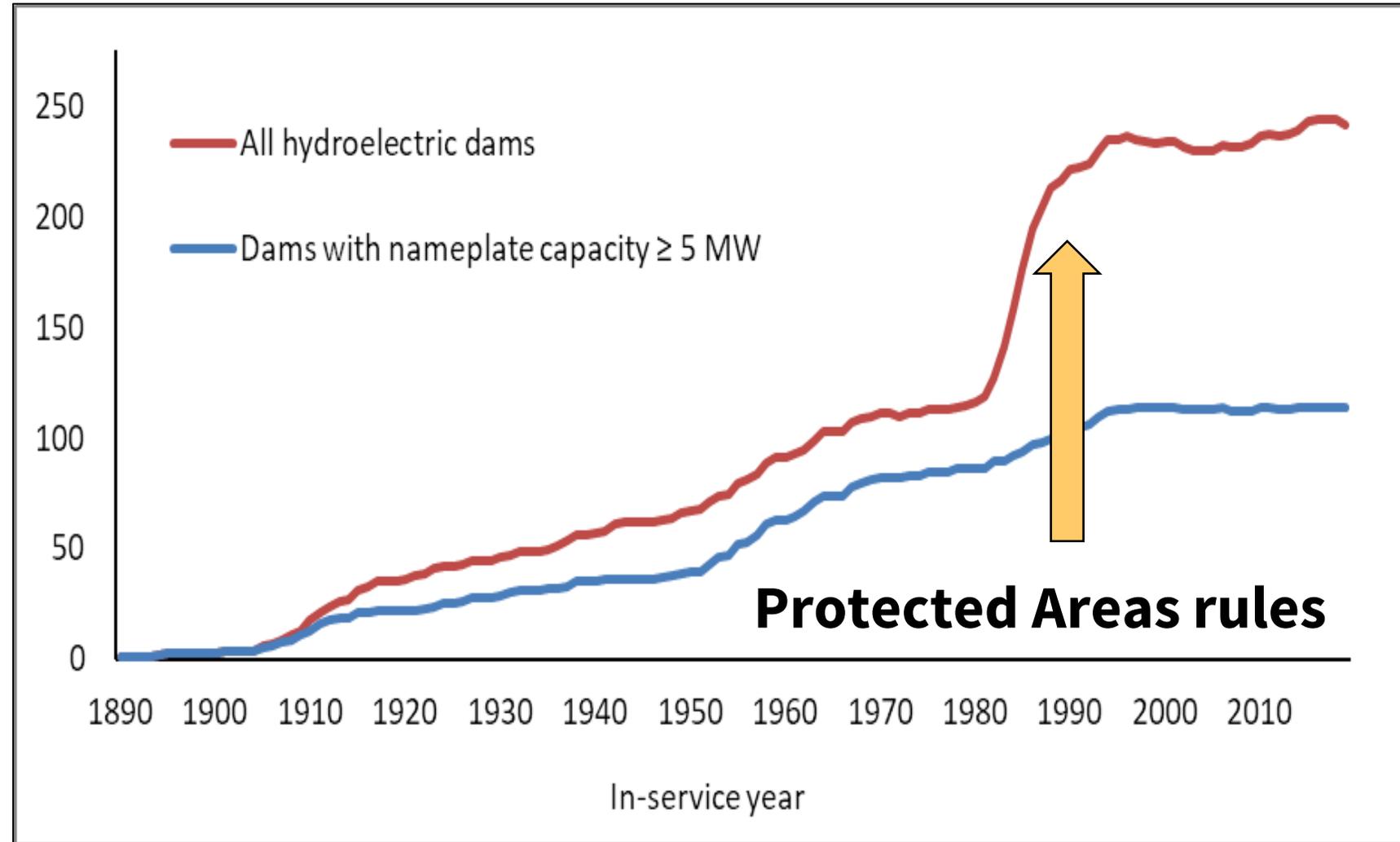
- The Council has determined adequate and dependable operation and maintenance support is needed to ensure ongoing proper functioning of past infrastructure investments by Bonneville and the action agencies intended to benefit fish and wildlife in the Columbia River Basin.

# Protection measures over time- protected areas

<b>Decade</b>	<b>Protected Areas</b>
1980s	<ul style="list-style-type: none"><li>• Council will designate stream reaches and wildlife habitat areas which shall be protected from further hydroelectric development</li><li>• Protected Areas rules in 1988 amendment</li></ul>
1990s	<ul style="list-style-type: none"><li>• BPA: Do not acquire power from hydroelectric projects located in protected areas</li><li>• FERC and all other federal agencies responsible for managing, operating, or regulating federal or non-federal hydroelectric facilities located on the Columbia River or its tributaries are required to take protected area designations into account to the fullest extent practicable at all relevant stages of decision-making processes</li></ul>
2000s	<ul style="list-style-type: none"><li>• Same; also principles of “build from strength/ strongholds”</li></ul>
2010s	<ul style="list-style-type: none"><li>• Same</li></ul>

# Protected areas

- Public Utilities Regulatory Policy Act
- Rapid development of small hydro
- Concerns with transmission/ fish and wildlife effects
- Utilities and managers support protection
- The Council takes the lead
- Designation of protected areas

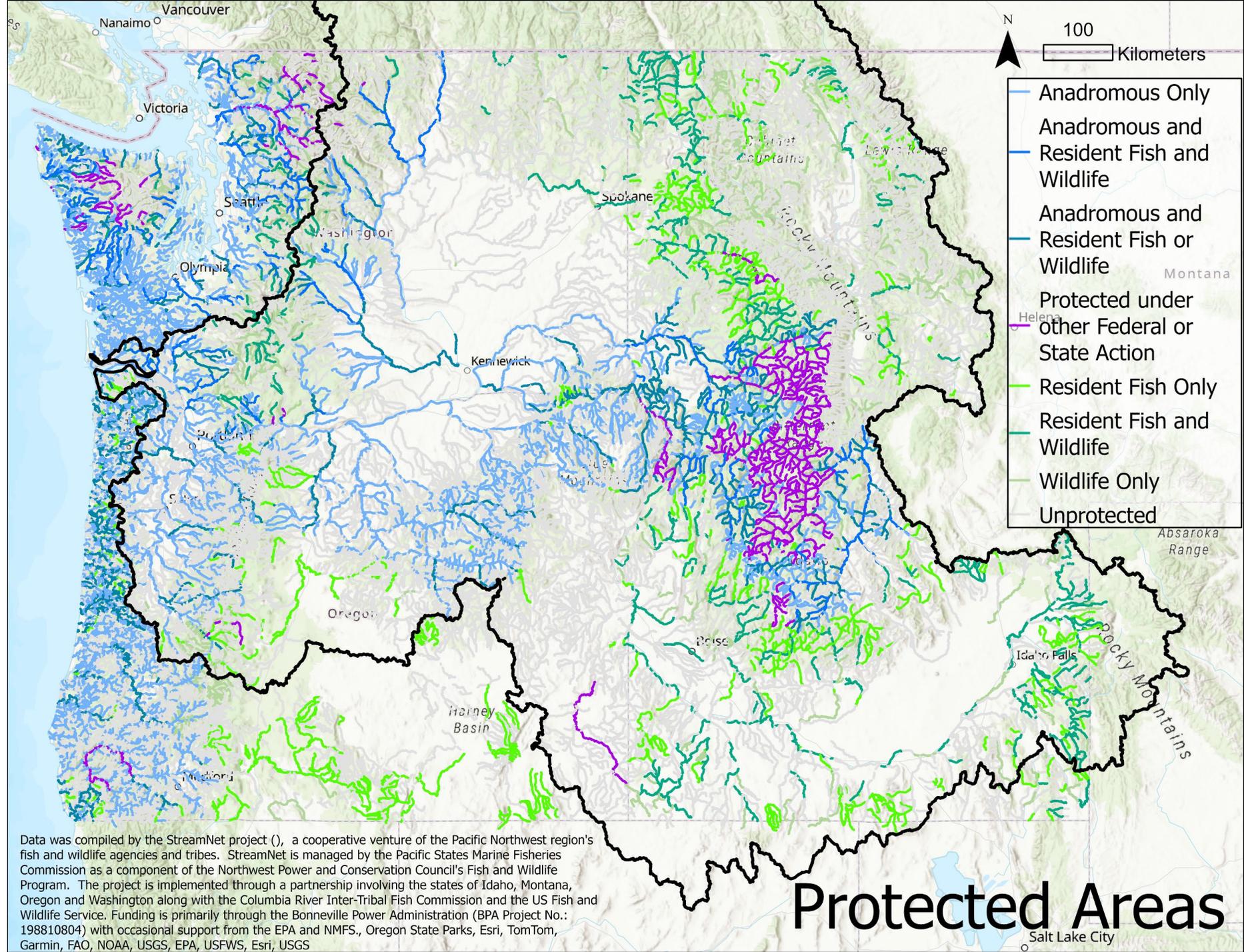


# Protected areas

Licenses granted by FERC in protected areas since 1988:

0

Strategy Performance Indicator: C4-3



# Protection measures over time- screens

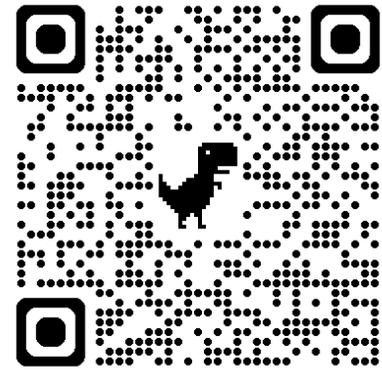
<b>Decade</b>	<b>Screens</b>
1980s	<ul style="list-style-type: none"><li>• Design and construct screen improvements in Yakima Basin</li></ul>
1990s	<ul style="list-style-type: none"><li>• Large expansion in this part of Program</li><li>• Require, design and install fish screens on diversions</li><li>• Develop prioritized list of tributary screening ...improvements for stream diversions in Columbia Basin affecting salmon and steelhead</li></ul>
2000s	<ul style="list-style-type: none"><li>• Projects listed in Subbasin Plans</li></ul>
2010s	<ul style="list-style-type: none"><li>• Same</li><li>• Install appropriate and effective juvenile lamprey screening for tributary water diversions</li><li>• Maintain Fish and Wildlife Program investments (FSOC; O&amp;M)</li><li>• Asset Management Strategic Plan</li></ul>

# Screens - history

- Mitchell Act funding supports early screening programs but by late 1980s/90s, insufficient to cover O&M and additional screening needs
- 1990s- ESA-listings and BPA starts funding screen shop construction; advancements in technology and design around screens
- Fish Screen Oversight Committee develops screen inventory and prioritized list in need of non-recurring maintenance



Fish Screen  
Story Map

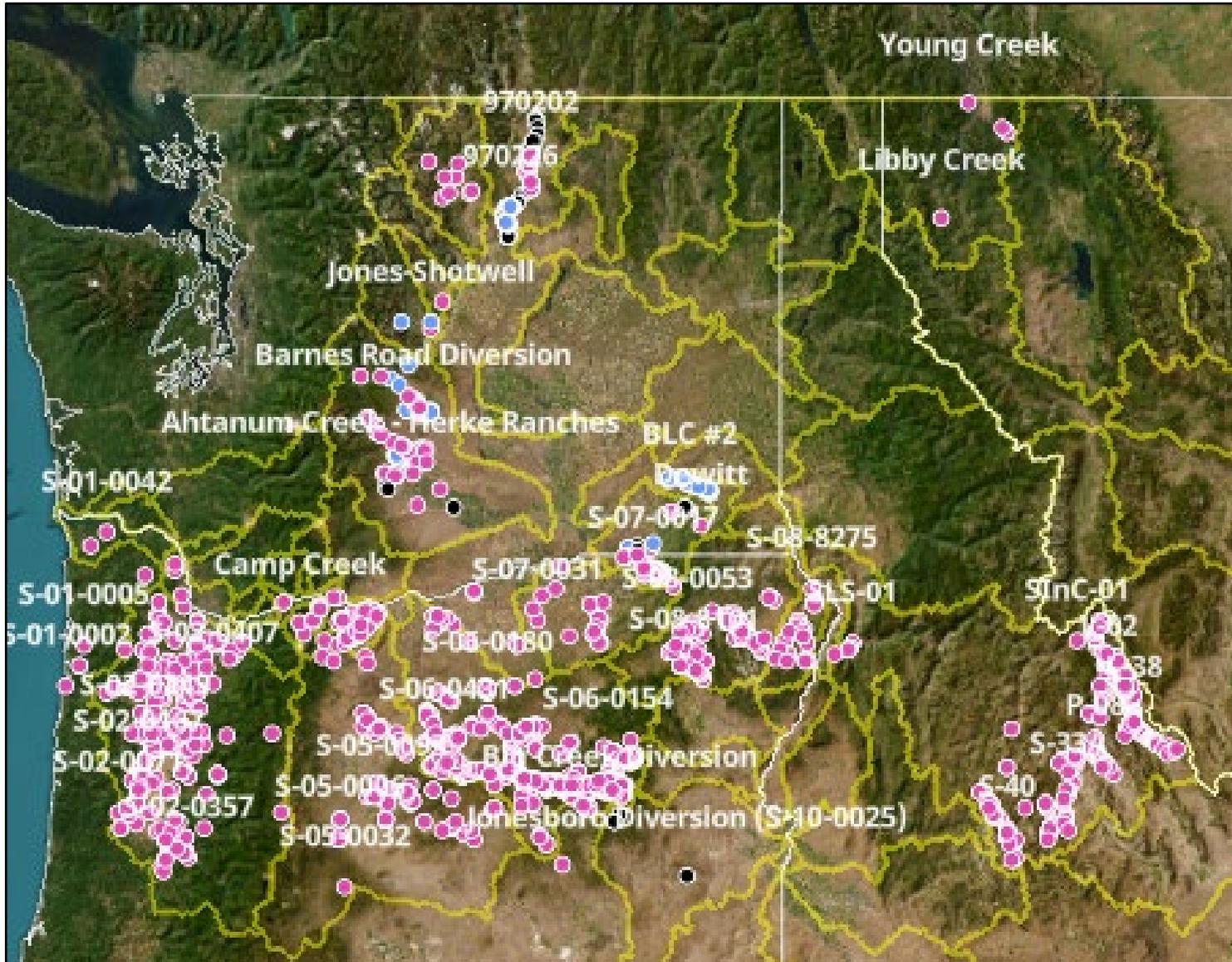
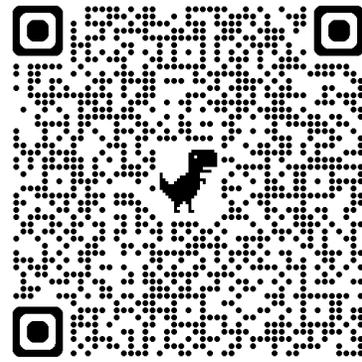


Unscreened  
irrigation ditches  
can entrain fish-  
photo: IDFG



# Screens - implementation

Fish Screen Tracker

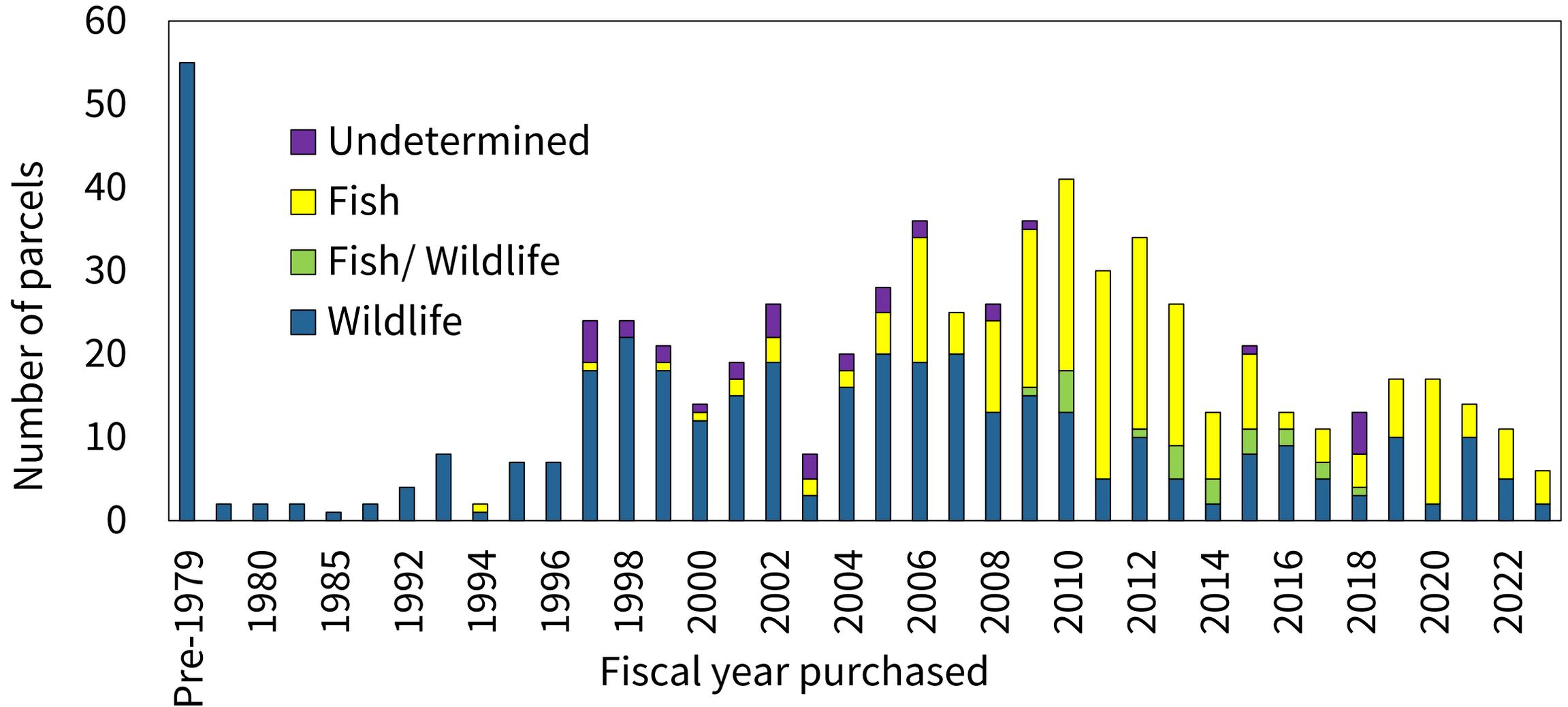


- 16 projects
- Oregon, Washington, and Idaho operate the five screen shops in the basin where fabrication occurs
- 1864 screens associated with Council Program
  - Data on Fish Screen Tracker
- Range of screen designs used
- O&M Strategic Plan

# Protection measures over time- fish lands

<b>Decade</b>	<b>Fish Lands</b>
1980s	<ul style="list-style-type: none"><li>• NA</li></ul>
1990s	<ul style="list-style-type: none"><li>• Develop programs for land exchanges to protect high quality riparian habitat</li><li>• Provide funding for acquisition and management of conservation easements</li><li>• Emphasis on salmon and steelhead</li></ul>
2000s	<ul style="list-style-type: none"><li>• Projects listed in Subbasin Plans</li></ul>
2010s	<ul style="list-style-type: none"><li>• Maintain Fish and Wildlife Program investments (O&amp;M)</li><li>• When possible, develop settlement agreements for resident fish based on habitat acquisitions<ul style="list-style-type: none"><li>• Include management plan ...adequate to sustain credited habitat values for life of project; include sufficient funding for O&amp;M ...to demonstrate substantial likelihood of achieving and sustaining mitigation objectives</li></ul></li><li>• When possible, protect riparian habitat that benefits fish and wildlife; protect high-quality native habitat and species of special concern, including ESA-listed</li></ul>

# Acquisition of parcels for fish and wildlife over time



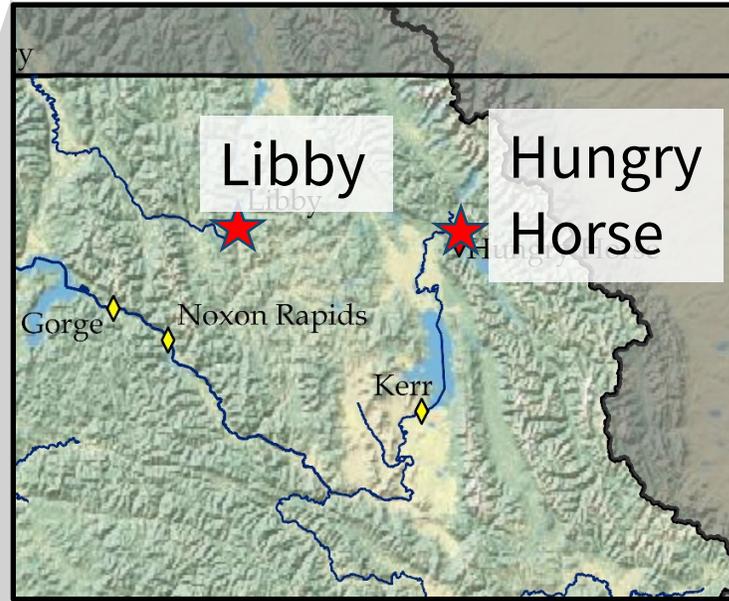
# Fish lands protected as part of mitigation agreements

## Libby Dam

- Inundated 239.8 km

## Hungry Horse Dam

- Inundated 115.3 km and blocked access to 526.9 km



## Losses included:

- Westslope Cutthroat Trout
- Rainbow Trout
- Bull Trout
- Mountain Whitefish
- Kokanee Salmon
- Sturgeon

## Goals:

- Libby- by 2028 protect or restore 175.4 km of Kootenai River and 64.4 km of tributaries, make accessible 96.6 km of previously blocked streams
- Hungry Horse- by 2024, restore and protect 721 km of habitat in flathead river watershed equivalent to habitat blocked and inundated



# Habitat protection discussion

## Protected areas

- Very successful
- Tracking the whole process- application through license- is challenging

## Screens

- Research shows screening very effective (and cost-effective) tool to prevent entrainment mortality of wild and hatchery fish
- Screens requires maintenance
  - Combination of screen tenders and private property owners, range of maintenance schedules
  - Screen maintenance program keeps screens running longer and functioning as designed
- Ongoing need for O&M funding- are budgets adequate to cover recurring maintenance to ensure goals and objectives of the investments are accomplished?

# Habitat protection discussion

## **Fish lands**

- Settlement agreements exist for Libby and Hungry Horse Dams- opportunity to settle remaining resident fish losses?
- Issues identified for wildlife lands are also relevant for fish lands:
  - Are data on all purchased lands available in CBFish?
  - Are land management plans approved and implemented?
  - Have any conservation issues been reported?
  - Is funding sufficient to maintain conservation values?



# Questions?