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May 9, 2023

MEMORANDUM

TO: Council Members

FROM: Kris Homel, Leslie Bach, and Patty O'Toole

SUBJECT: Program Performance: Overview of Approach and Description of Program Retrospective

BACKGROUND:

Presenters: Kris Homel, Leslie Bach, and Patty O'Toole

Summary: Council staff will present a status update on assessing the performance of the Council's Fish and Wildlife Program. The update will focus on an overview of the approach to assessing performance and a description of the Program Retrospective. The Program Retrospective describes development of various programs over time in relation to internal Council and external regional events. This description is facilitated by using a common set of terms to categorize each program, which can be cross walked to the current 2014 program strategies and associated strategy performance indicators. The full presentation on the Program Retrospective was delivered to the Fish and Wildlife Committee in August and September over the course of four hours. For the Council meeting, the presentation will focus on the phases of the performance assessment, the rationale for developing a retrospective, the format and content of the retrospective, and some key examples.

Relevance: Beginning with the Power Act and the first program in 1982, every fish and wildlife program has included references to aspects of program

performance. The 2009 and 2014 programs expanded on performance with an emphasis on understanding the outcomes from the investment in fish and wildlife mitigation. The 2020 program addendum addresses program performance through (1) reorganizing and compiling the goals and objectives of the program, which serve as benchmarks for performance, and (2) developing strategy performance indicators.

Workplan: Item 2.1: Program Performance- complete Program Retrospective

Background: The Northwest Power and Conservation Council's Fish and Wildlife Program represents a 40-year effort to mitigate for the effects of the hydropower system on fish and wildlife in the Columbia Basin. The scope 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. The Program is developed by drawing on regional expertise on how best to mitigate for the construction and operation of the hydrosystem. Consequently, there is an expectation that complete implementation of prescribed actions through investment in mitigation will contribute to and achieve established objectives and goals.

It is important to note that implementation of the Fish and Wildlife program occurs against a changing backdrop. Even as substantial effort is applied to mitigate for the impacts of the hydrosystem, other human impacts and natural disturbances in the basin produce environmental degradation that can negatively affect ecosystem function or fish and wildlife populations. Likewise, ongoing mitigation or restoration work associated with other regional efforts can positively affect the ecosystem. Accomplishments of the program must be understood and interpreted in the context of these changing environmental conditions.

To understand what kind of progress has been made, we developed a retrospective describing the history of the program (1980-2020) as a way to develop a common understanding that feeds into a more detailed assessment of program performance. This retrospective summarizes the background of the program, including the legal framework and co-occurring events that precipitated the formation of the Council and the Council's Fish and Wildlife programs. It further describes how programs were developed over time in relation to regional events and draws on a common set of terms to categorize the measures or strategies described in each program. The terms used to categorize programs crosswalk to 2014 strategies and strategy performance indicators (SPIs), such that datasets on outcomes can be linked to the work that was called for in each program over time.

The full presentation on the Program Retrospective was delivered to the Fish and Wildlife Committee in August and September over the course of four hours. For the Council meeting, the presentation will focus on the

phases of the performance assessment, the rationale for developing a retrospective, the format and content of the retrospective, and some key examples.


An understanding of history and context are key to future assessments of performance because they set the boundaries on the kinds of work that have been called for, where that work occurred, and when the work was implemented. This translates into a more refined understanding of when outcomes from that work might be observable. In this presentation we will describe the general approach to phases 2 – 5 of the assessment, which cover the following categories: hydrosystem; habitat; artificial production; and program adaptive management. In each of these phases, we will describe the types of actions and projects that have been implemented over time at the scale of the Columbia River Basin/ Fish and Wildlife Program and at the geographic scale of ecological provinces. We will draw on datasets assembled for the strategy performance indicators as well as other information to characterize relationships between what was called for, what was implemented, and what kinds of changes have occurred.

More Info:

The full presentations on the Program Retrospective were delivered to the Fish and Wildlife Committee in August and September. The powerpoint presentations are available here:

August: https://www.nwcouncil.org/fs/17876/2022_08_f1.pdf

September: https://www.nwcouncil.org/fs/18031/2022_09_f2.pdf



Program Performance: Overview of Approach and Description of Program Retrospective

Kris Homel, Leslie Bach, and Patty O'Toole

Power Act definition of mitigation responsibility

1. Mitigation responsibility includes all hydroelectric facilities in the U.S. portion of the Columbia Basin regardless of ownership (federal, non-federal [e.g., PUDs or other local entities and regulated by FERC]), location, size, or minimum power generation **[4(h)(1)(A); 4(h)(2)(A)]**
2. Mitigation is achieved through a combination of onsite actions and offsite mitigation **[4(h)(1)(A); 4(h)(6)(E); 4(h)(8)(A)]**
3. The Fish and Wildlife Program must treat the “river and its tributaries as a system” **[4(h)(1)(A)]**
4. BPA to use its fund and authorities to protect, mitigate, and enhance fish and wildlife in a manner consistent with the Council’s program **[4(h)(1)(A)]**
5. BPA and federal action agencies must take into account Council’s program in decision making “to the fullest extent practicable” while treating fish and wildlife equitably with other authorized purposes of the dams **[4(h)(11)(A)]**

Components of mitigation

Goal

(e.g., 5 million salmon and steelhead)



In-kind, in-place (e.g., hydrosystem modifications)

Replacement
(e.g., artificial propagation)

Key point: program is responsible for protection and mitigation for all species affected by hydrosystem, regardless of whether they are ESA-listed

Offsite
(e.g., tributary habitat restoration)

Program development

Key development roles:

- Recommendations for measures and objectives provided to Council, especially from federal and state fish and wildlife agencies and Columbia Basin tribes
- Council organizes into principles and strategies that treat basin as a system
- Public review
- Council adoption

Program implementation

Key implementation roles:

- Requirements (of action agencies- BPA, COE, BOR, FERC)
- Projects (funded by BPA)
- Other actions (by Council)

Defining program from implementation roles:

- Measures requiring actions from action agencies
 - hydrosystem operations [COE and BOR]
 - relicensing considerations and protections [FERC]
- Council actions
- Measures implemented as projects
- Bi-Op actions
- COE Actions including CRFM, Dam Facility O&M

Fish and Wildlife Program: background

Described in 20 comprehensive or minor program amendments and addendums

Key points:

- program not static over time
- substantial advances and development of comprehensive strategies

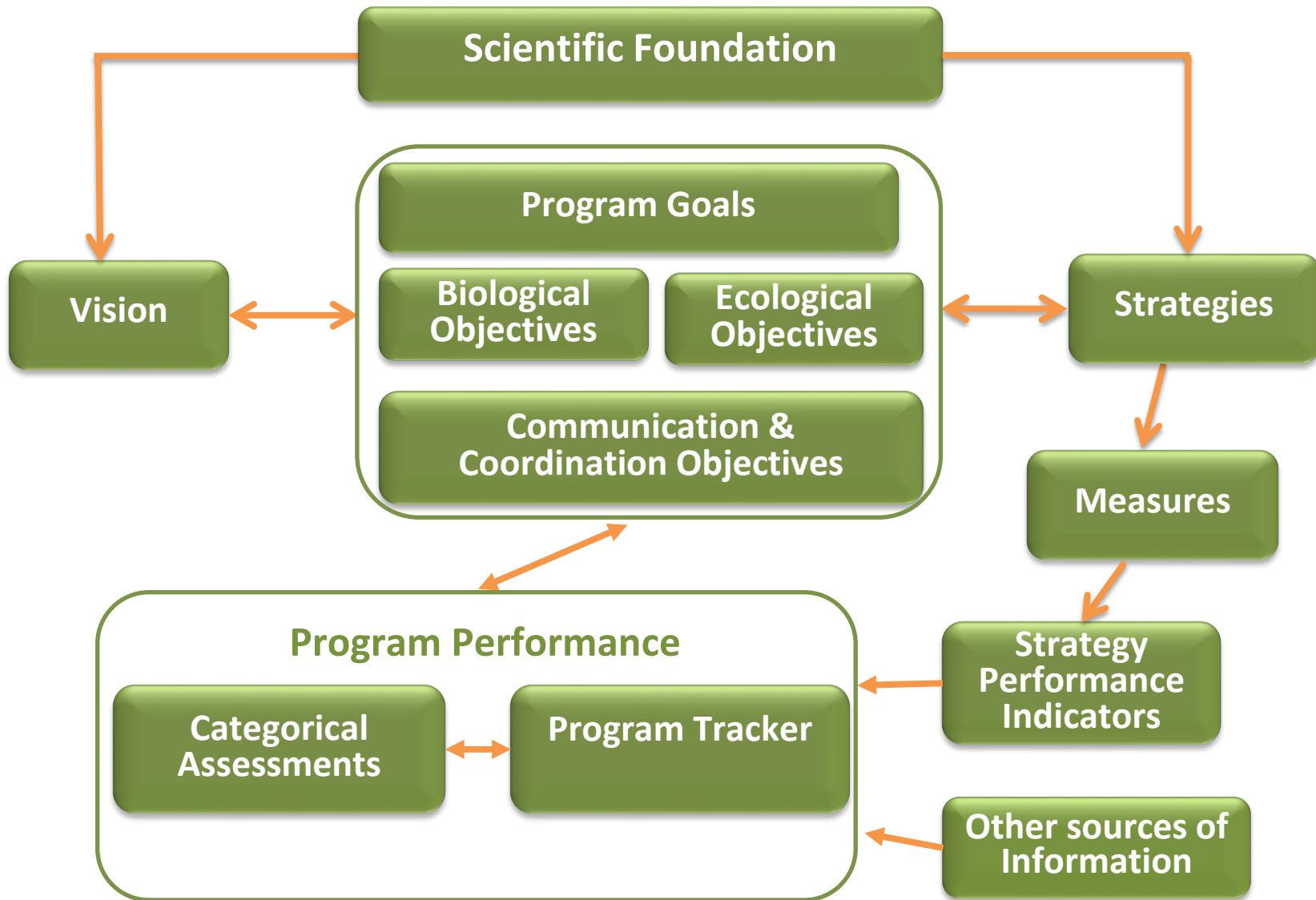


Focus on performance

- Called for in the Northwest Power Act
 - “the Council shall submit annually a detailed report to [Congress] ... The report shall describe ... the effectiveness of the fish and wildlife program ...” **4(h)(12)(A)**
- Aspects of performance in every program
 - 1982- “Having goals allows ... evaluation of the progress of the program ... clearly identifying the results that are expected will substantially increase the likelihood of success.”
 - 1994- “The Council is committed to ... monitoring and evaluating progress ... Rebuilding targets and performance standards are [an] explicit means of measuring progress... the program framework ... will act as a yardstick for evaluating the performance of the program.
- Recent increased focus toward understanding outcomes from 40 years of investment
- 2020 Addendum – tools for assessing current program performance

Fish and Wildlife Program

Program Performance and Adaptive Management



Initial efforts on Program performance

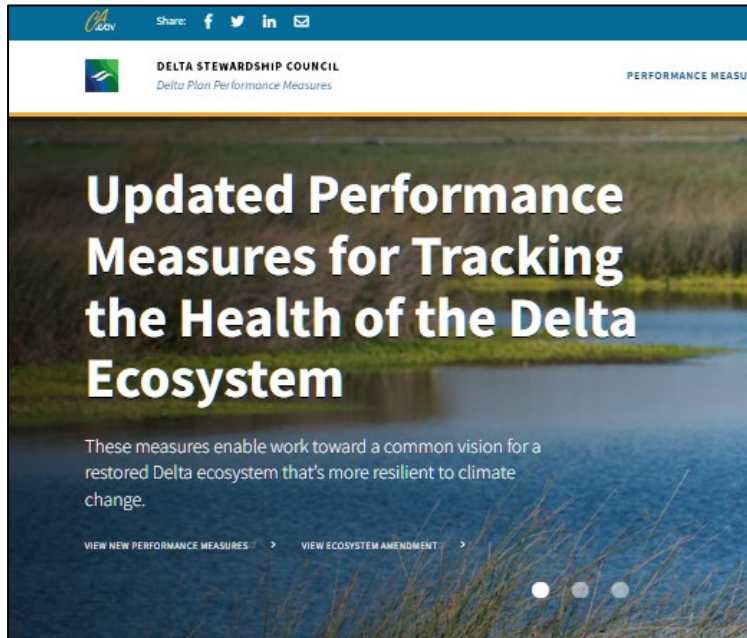
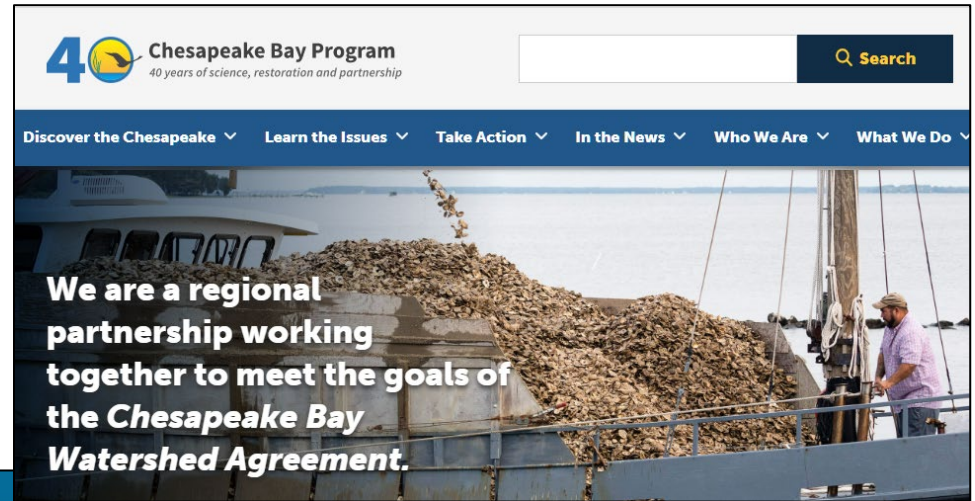
SPIs/ Program Tracker are resources for region to:

- Assess effectiveness of strategies in 2014/ 2020 program
- Track progress toward goals and objectives
- Support next program amendment
- Use as reporting tool
- Support research needs

Brings many physical and biological datasets into one easily accessible website:

<https://projects.nwcouncil.org/ProgramTracker>

How have others approached performance evaluations?



Comprehensive Everglades Restoration Plan (CERP)

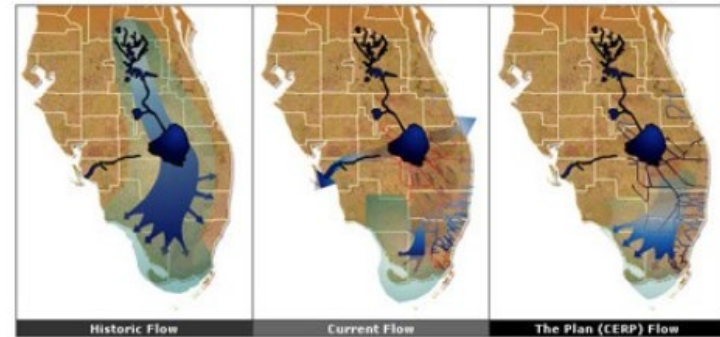


Image Courtesy of EvergladesPlan.org

This website provides access to performance measures information and data.

Defining performance

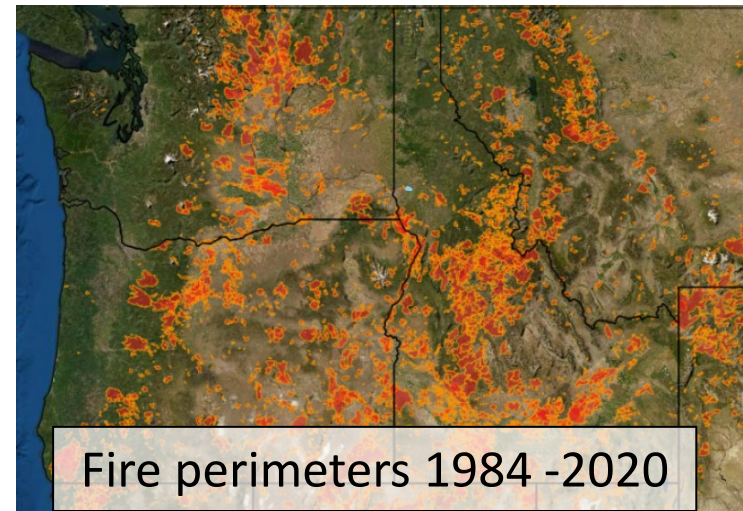
- Generally, performance = results (or progress) relative to expectations (or benchmarks)
- Examples of expectations/ benchmarks:
 - Goals
 - Objectives
 - Program priorities
 - Desired outcomes (e.g., improved ecosystem function)

Scale of performance assessment

- Program performance assessment:
 - Program is collective set of measures and strategies over 40 years throughout Basin
 - Evaluated in reference to program goals and objectives (adopted into the program)
 - Considers greater range and scale of complexity than projects do
- Project review (ongoing effort):
 - Project(s) may implement one or many measures
 - Projects operate for discrete period of time at discrete location
 - Projects evaluated in reference to project-scale objectives by managers and ISRP

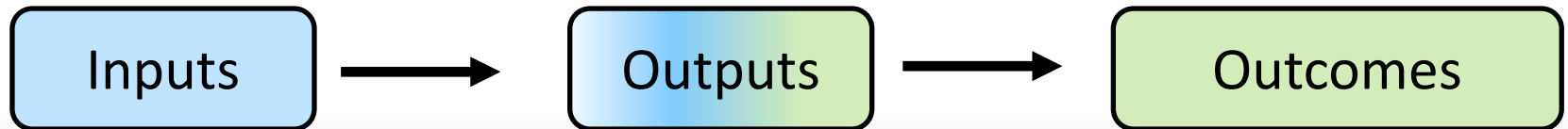
Complexity in performance assessment

- Basin large and geographically and hydrologically complex
- Effects of hydrosystem and land use vary
- Landscape continues to change
- People and values continue to change
- Program varied over time
- Implementation of program has varied geographically and over time



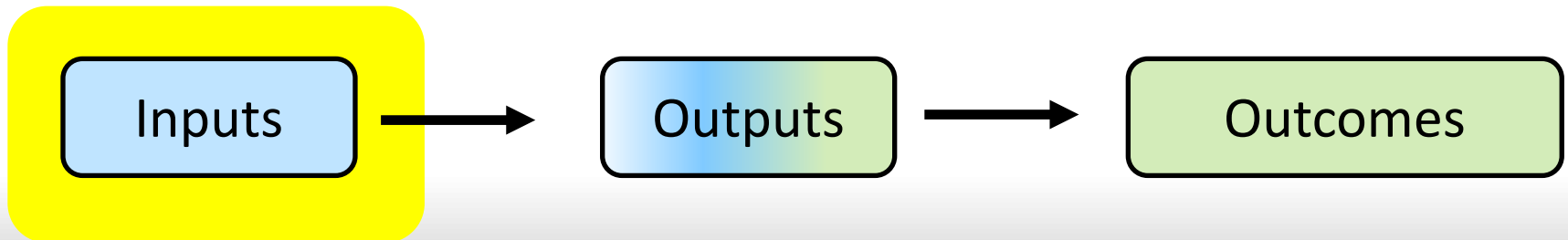
Performance: steps

1. Describe what has been called for in each program (inputs)
2. Summarize the work that has been done to implement programs (outputs)
3. Assess ecological changes resulting from/ occurring in parallel with implementation (outcomes)
4. Do so in relation to established benchmarks (goals and objectives or other program priorities)



Assembling inputs

1. Reviewed all programs/ amendments/ addendums
2. Identified measures
3. Looked at different ways measures organized
 - by life stage or strategy
4. Developed way to organize consistently across programs



Hydrosystem

- Water management
- Passage
- Water quality

Habitat

- Restoration
- Protection
- Wildlife
- Non-native and invasive species
- Predator management

Artificial production

- Facility construction
- Artificial production

Program adaptive management

- Regional planning
- Harvest recommendations
- Regional coordination
- RM&E and reporting
- Data management
- Science review
- Public engagement

Performance assessment completed in phases

Phase 1: Retrospective (identify major inputs)

- Development of the Basin
 - Hydropower
 - Other land and resource uses
 - Effects on fish and wildlife
- Northwest Power Act
- Program history and context by decade
 - Timeline of regional and program events
 - Key topics by category and theme
 - Examples

Phases 2 – 5: Categorical assessment (connect inputs, outputs, outcomes, benchmarks)

- Hydrosystem
- Habitat
- Artificial production
- Program adaptive management

Performance assessment completed in phases

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1970 - 1989

| | | |
|------------------------------------|------|--|
| | 1971 | National Environmental Policy Act |
| | 1972 | Clean Water Act Marine Mammal Protection Act |
| | 1973 | Endangered Species Act |
| | 1976 | <i>U.S. v. Oregon</i> Magnuson-Stevens Fishery Conservation and Management Act Lower Snake River Fish and Wildlife Compensation Plan Columbia River Salmon and Steelhead Summit |
| | 1978 | Public utilities Regulatory Policies Act |
| Northwest Power Act | 1980 | Mid-Columbia FERC settlement |
| Council formed | 1981 | |
| 1st program | 1982 | Salmon and Steelhead Conservation and Enhancement Act |
| Fish and Wildlife Committee formed | | |
| Amend 1982 program | 1984 | |
| | 1985 | Pacific Salmon Treaty ratified |
| 2nd program | 1987 | |
| Amend 1987 program | 1988 | Vernita Bar Agreement Snake River Coho Salmon considered extirpated, but never officially listed under ESA |
| Amend 1987 program | 1989 | Fish Spill MOA Formation of the Columbia Basin Fish and Wildlife Authority |

Program development- 1980s

| Year | Description |
|-------------|---------------------------------------|
| 1982 | 1st Program |
| <i>1984</i> | <i>Minor amendment</i> |
| 1987 | 2nd Program |
| <i>1988</i> | <i>Protected Area Rules amendment</i> |
| <i>1989</i> | <i>Wildlife Rules amendment</i> |

Program development- 1980s

Examples:

Hydrosystem category

- Flow: Water budget

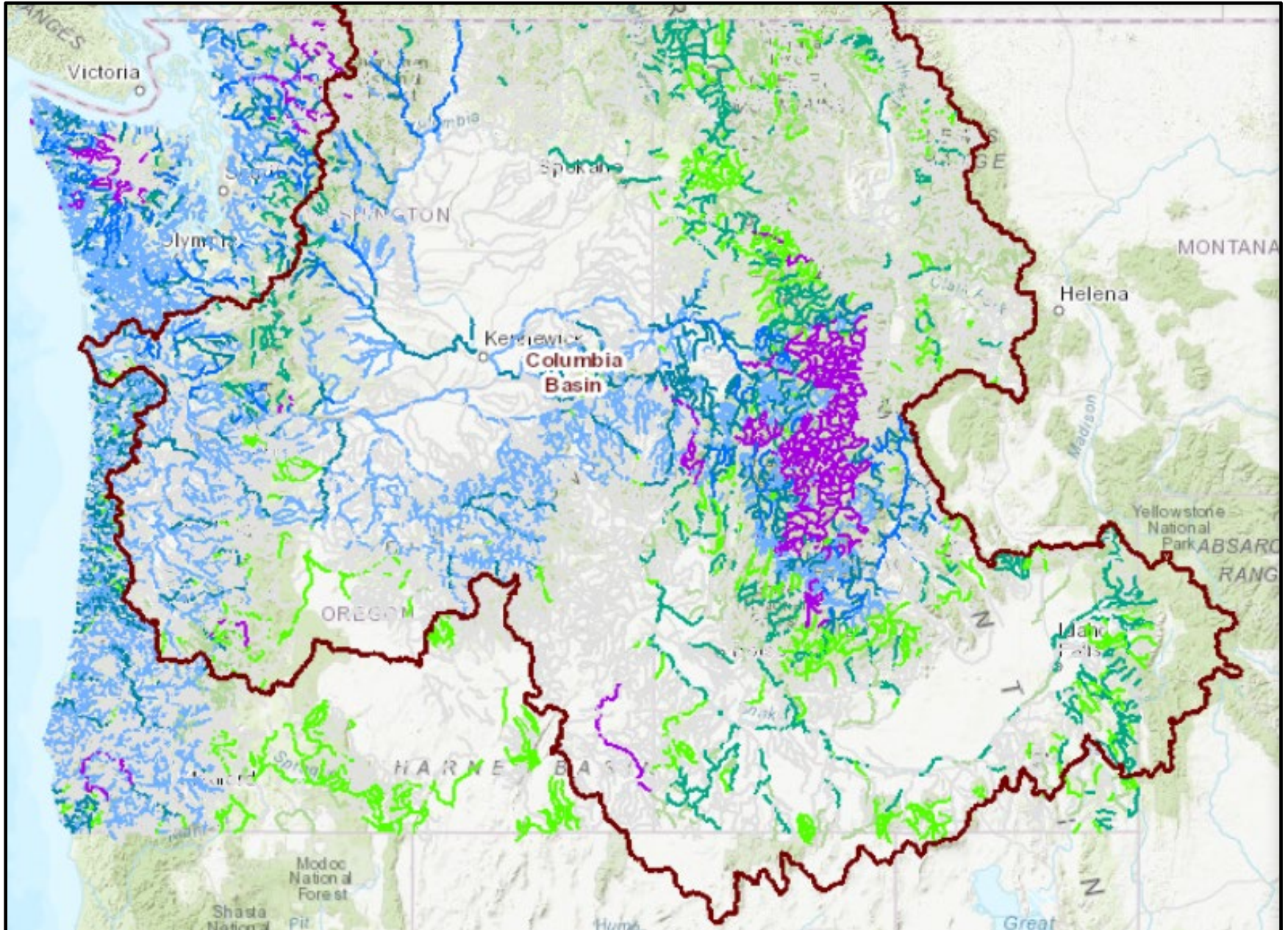
Habitat category

- Protection: Protected Areas designated, and rules adopted in 1988

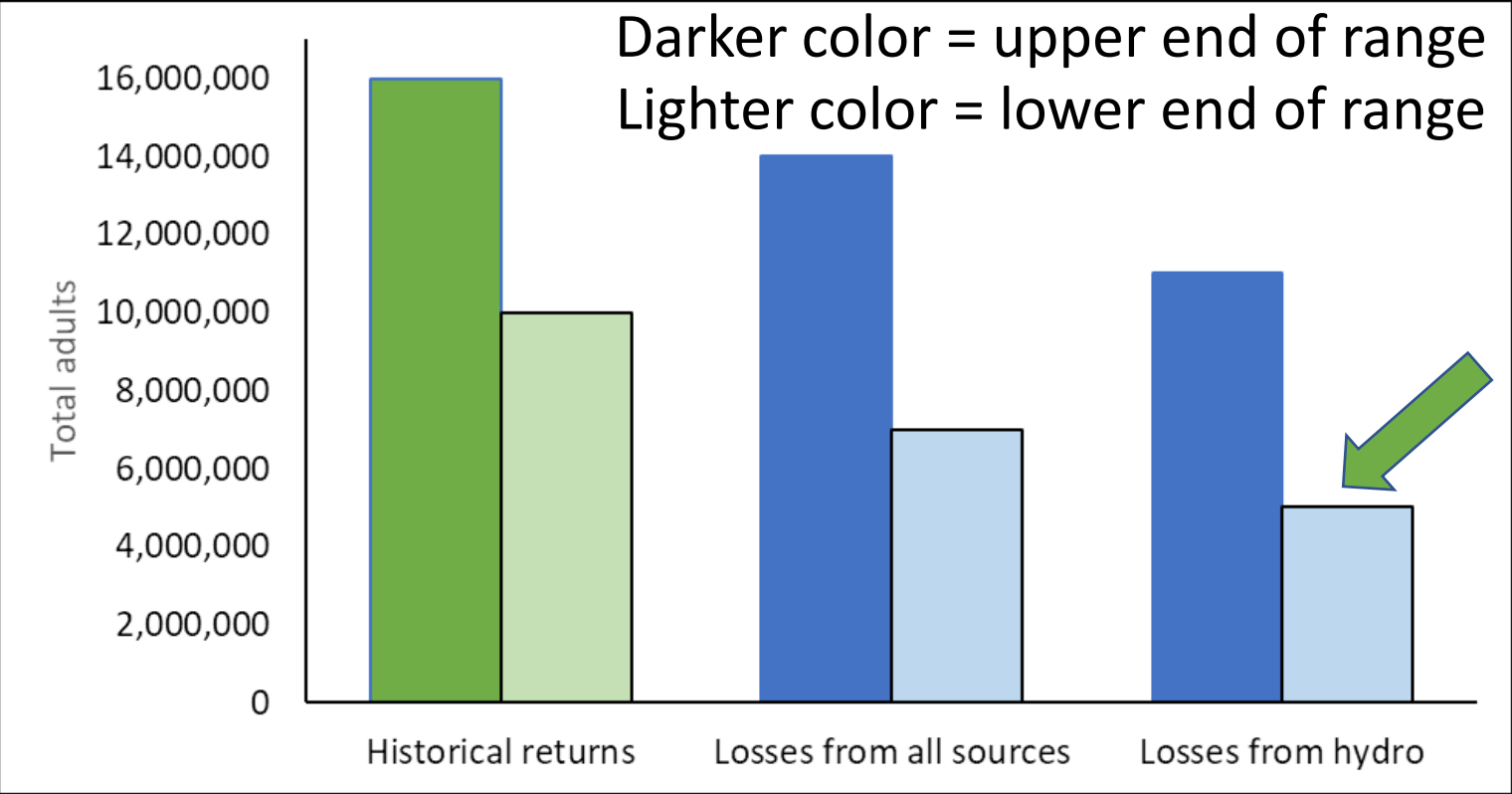
Program adaptive management category

- Regional planning: loss assessments; interim double-the-run goal established

Protected Areas



Salmon and steelhead losses and goal



Goal: 5 million salmon and steelhead

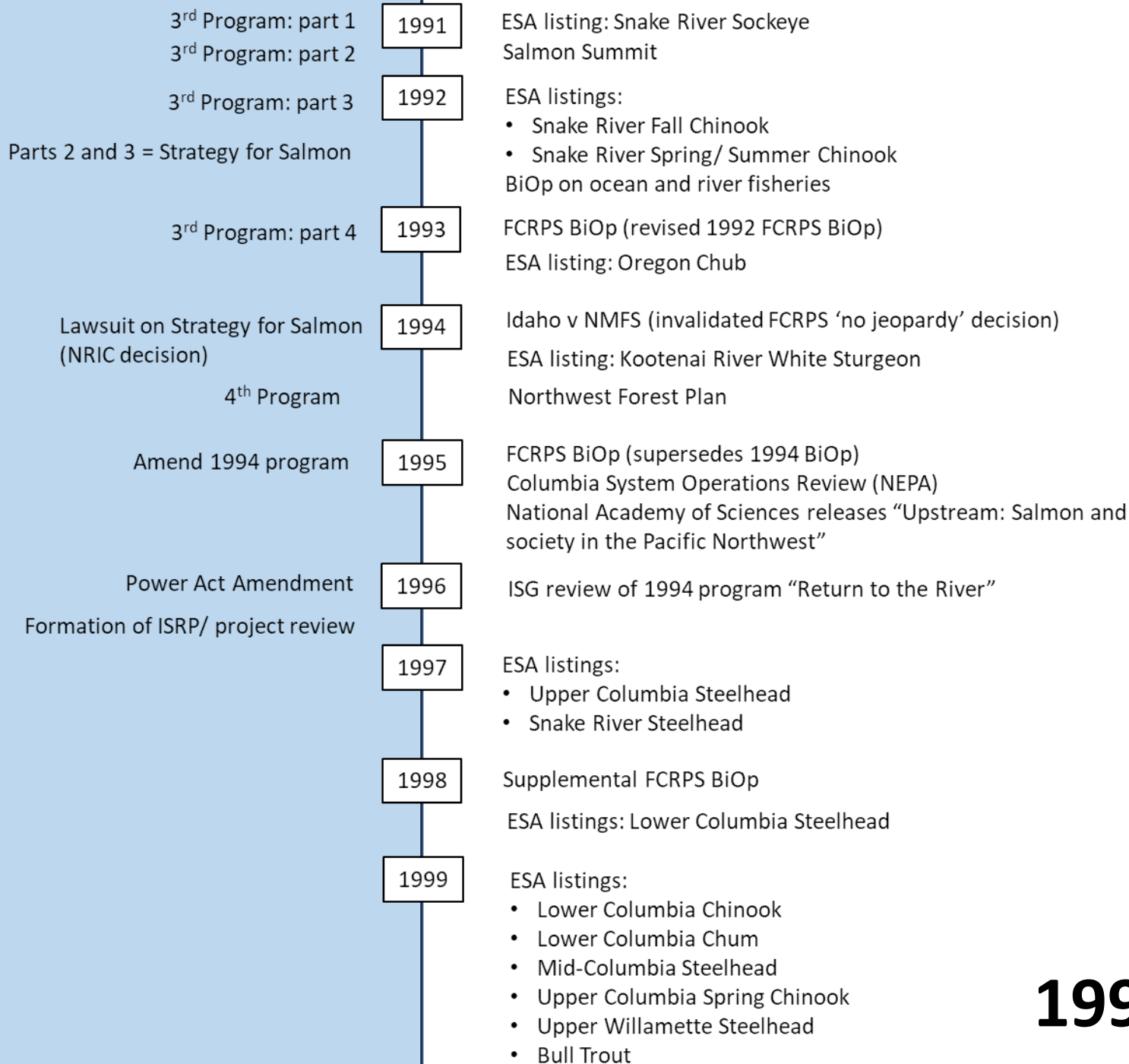
Estimates of the range of historical returns and losses from NPPC 1986

* Other estimates of historical returns range from ~6 million (ISAB 2015) to 35 million (BPA 1984)

Program development- 1980s

Other key topics and accomplishments

- Program's flow, reservoir and passage measures are to be considered hard constraint on hydrosystem operations and on power planning
- Emphasis on boosting weak stocks to prevent ESA-listing
- First programs set road map for next 40 years
- Broad regional collaboration (created a table that engaged all fish and wildlife managers)
- First programs also ambitious and pioneered new approaches and technology
- Tremendous regional investment of time and expertise into programs and associated analyses

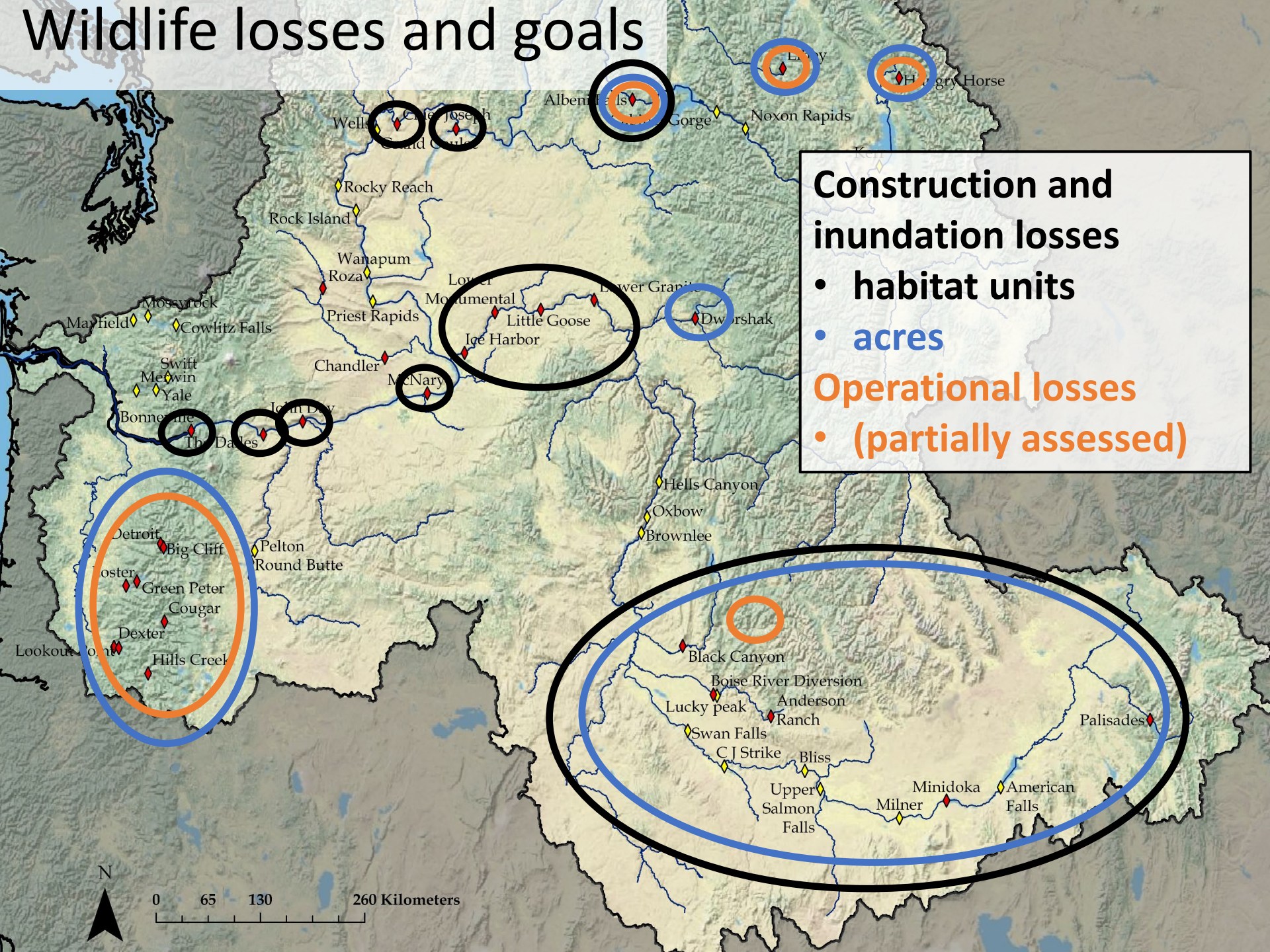


1990 - 1999

Program development- 1990s

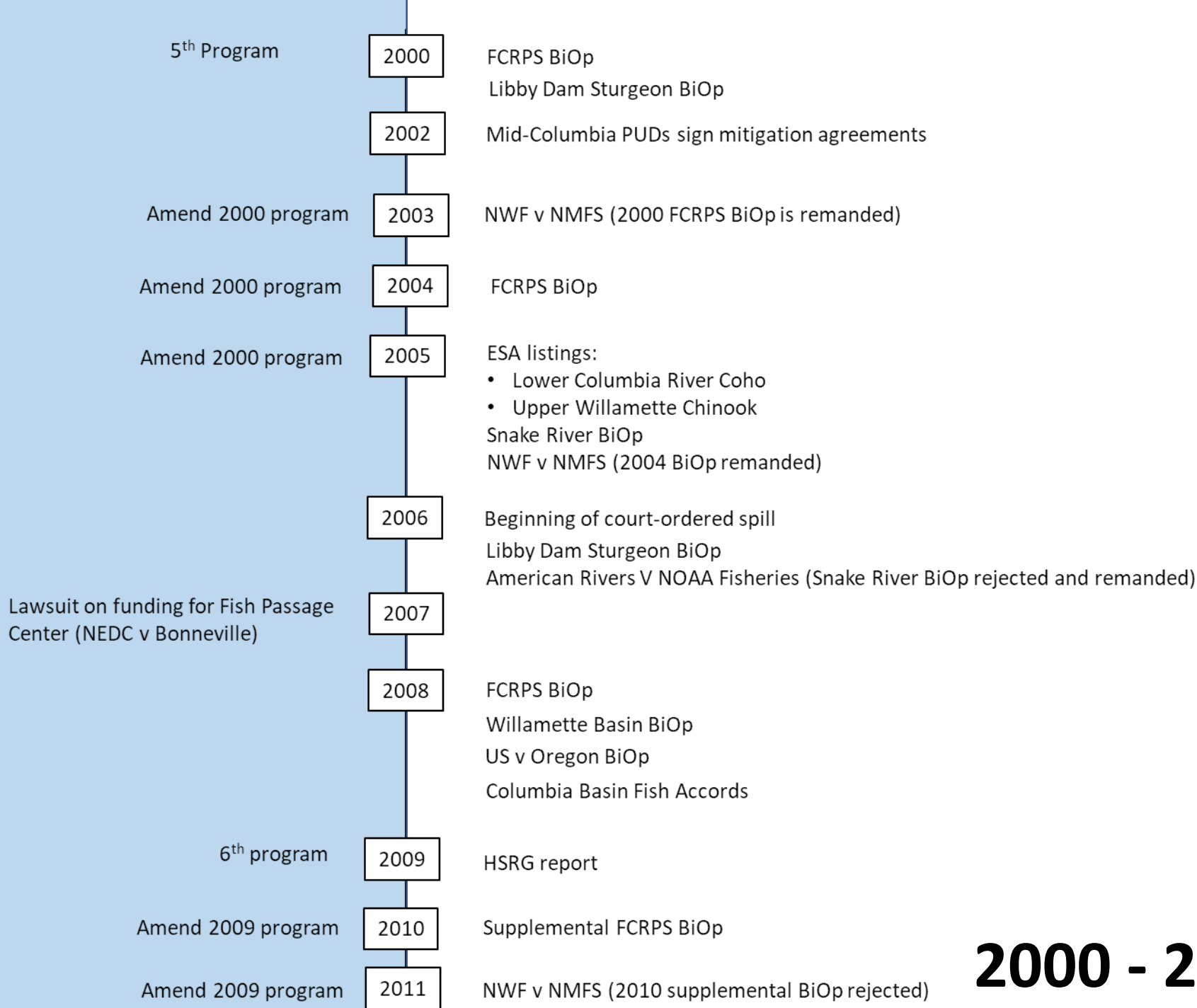
| Year | Description |
|-------------|---|
| 1991-1993 | 3rd Program Part 1: Highest priority production and habitat actions Part 2: Mainstem survival and harvest Part 3: System integration Part 4: Resident fish and wildlife |
| 1994 | 4th Program |
| <i>1995</i> | <i>Resident fish and wildlife amendment</i> |

Wildlife losses and goals



0 65 130 260 Kilometers



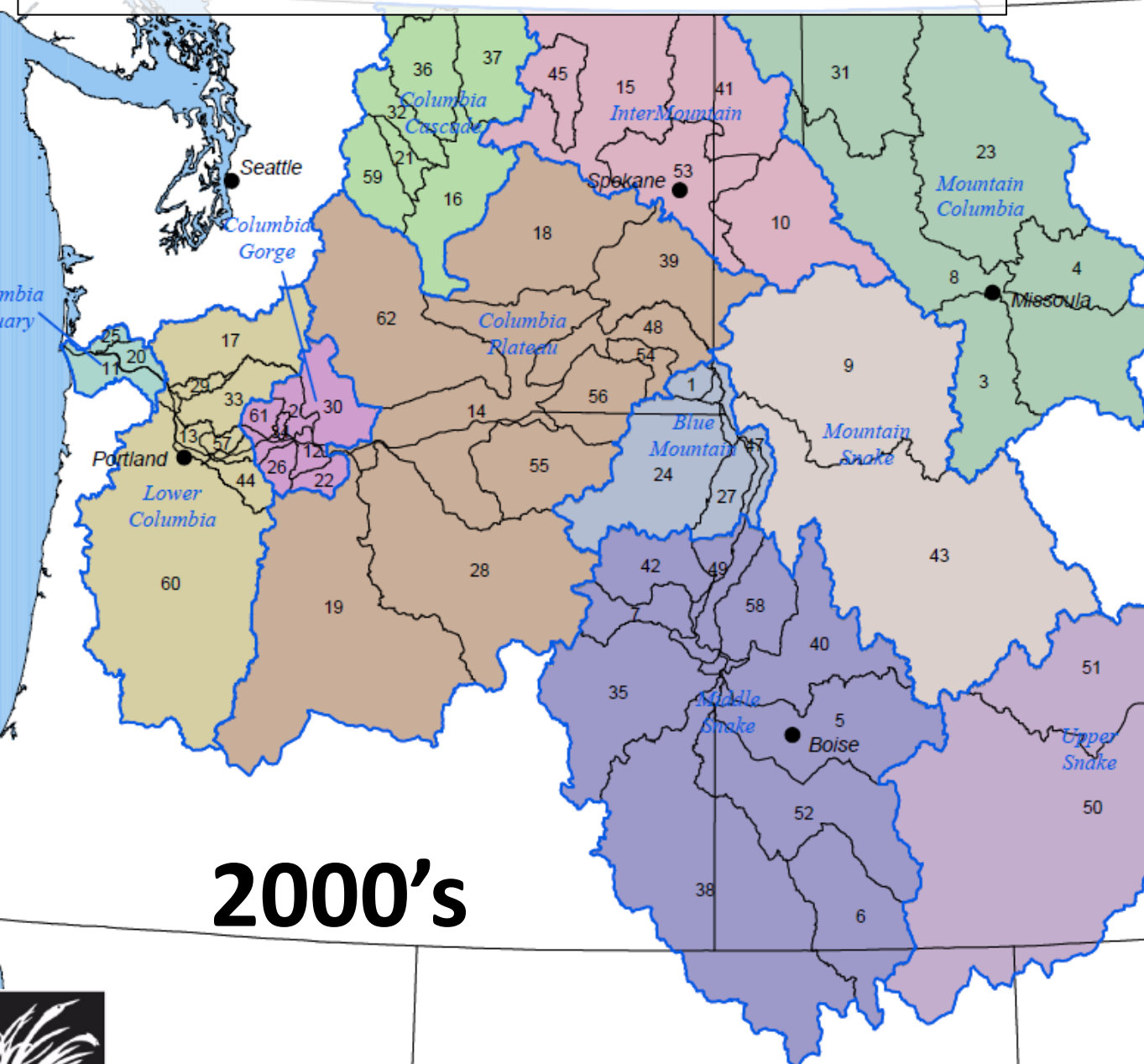


2000 - 2011

Program development- 2000s

| Year | Description |
|-------------|-------------------------------------|
| 2000 | 5th Program |
| <i>2003</i> | <i>Mainstem amendments</i> |
| <i>2004</i> | <i>Adopt plans for 23 subbasins</i> |
| <i>2005</i> | <i>Adopt plans for 34 subbasins</i> |
| 2009 | 6 th Program |
| <i>2010</i> | <i>Adopt 1 subbasin plan</i> |
| <i>2011</i> | <i>Adopt 1 subbasin plan</i> |

Adopted plans for 59 subbasins



- | | |
|-----------------------|------------------------|
| 1 Asotin | 32 Lake Chelan |
| 2 Big White Salmon | 33 Lewis |
| 3 Bitterroot | 34 Little White Salmon |
| 4 Blackfoot | 35 Malheur |
| 5 Boise | 36 Methow |
| 6 Bruneau | 37 Okanogan |
| 7 Burnt | 38 Owyhee |
| 8 Clark Fork | 39 Palouse |
| 9 Clearwater | 40 Payette |
| 10 Coeur D'Alene | 41 Pend Oreille |
| 11 Columbia Estuary | 42 Powder |
| 12 Columbia Gorge | 43 Salmon |
| 13 Columbia Lower | 44 Sandy |
| 14 Columbia Lower Mid | 45 Sanpoil |
| 15 Columbia Upper | 46 Snake Headwaters |
| 16 Columbia Upper Mid | 47 Snake Hells Canyon |
| 17 Cowlitz | 48 Snake Lower |
| 18 Crab | 49 Snake Lower Middle |
| 19 Deschutes | 50 Snake Upper |
| 20 Elochoman | 51 Snake Upper Closed |
| 21 Entiat | 52 Snake Upper Middle |
| 22 Fifteenmile | 53 Spokane |
| 23 Flathead | 54 Tucannon |
| 24 Grande Ronde | 55 Umatilla |
| 25 Grays | 56 Walla Walla |
| 26 Hood | 57 Washougal |
| 27 Imnaha | 58 Weiser |
| 28 John Day | 59 Wenatchee |
| 29 Kalama | 60 Willamette |
| 30 Klickitat | 61 Wind |
| 31 Kootenai | 62 Yakima |

2000's



Program development- 2010s

| Year | Description |
|-------------|--|
| 2014 | 7 th Program |
| 2020 | <i>Part 1 addendum: Goals, objectives, and strategy performance indicators</i> |
| 2020 | <i>Part 2 addendum: Near-term priorities</i> |

Next steps:

- Retrospective documented
- Longer presentation delivered to Committee in August and September- slides available on Council website
- Transitioning into Categorical Assessment, beginning with Hydrosystem category