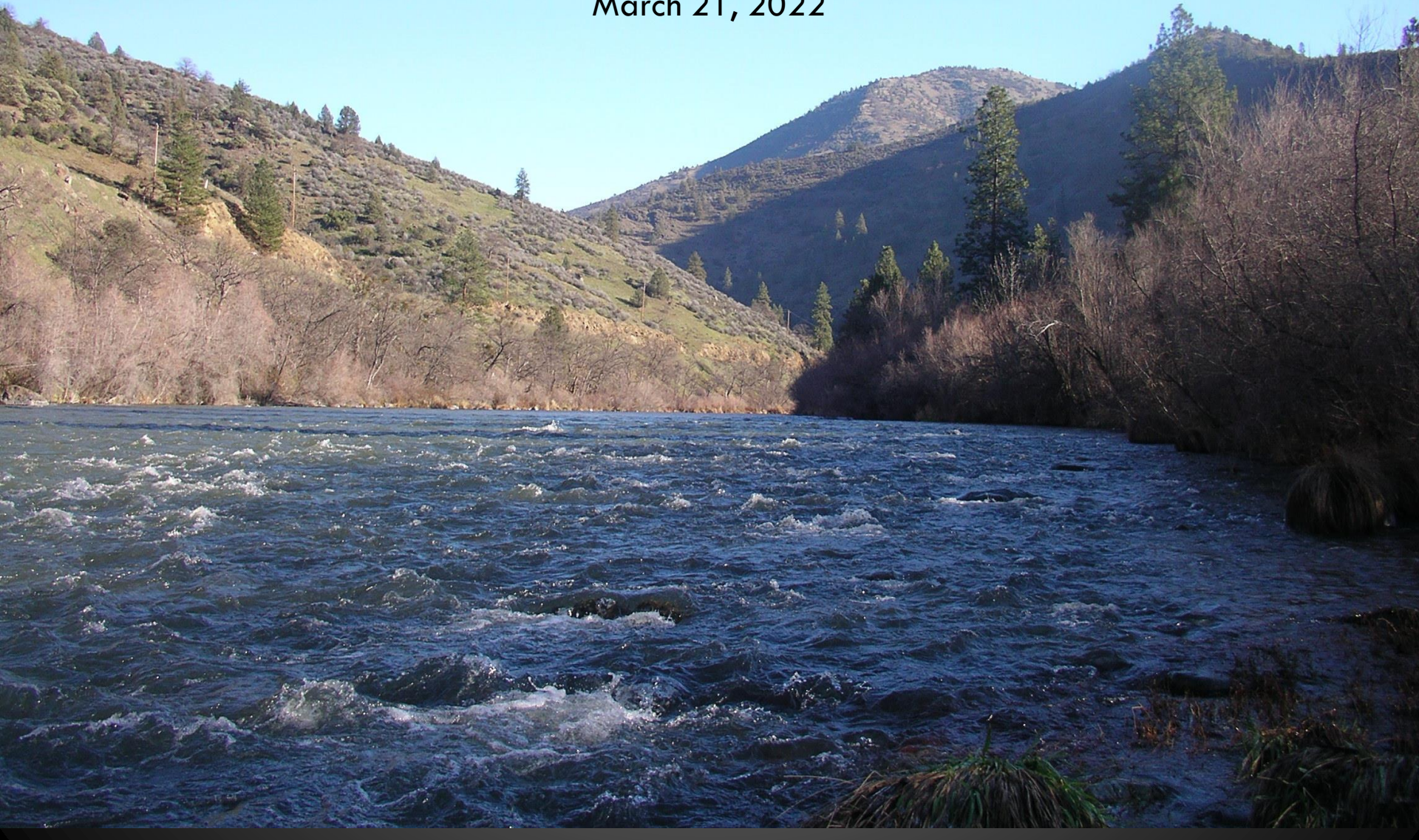


# Klamath Basin: Integrated Fisheries Restoration and Monitoring Plan

March 21, 2022



# IFRMP Background

- Latest Iteration of the IFRMP posted last month and is available at [IFRMP.net](http://IFRMP.net).

The IFRMP aims to provide an answer to the basic question:

- Given all that we know, which watershed restoration actions will provide the broadest possible benefits to native fish species, both within each sub-basin and throughout the Basin?
- To answer this question, the Service directed PSMFC to engage with Klamath Basin experts, practitioners, natural resource managers, and other interested participants from a wide range of organizations.

# National Academies of Science

2008 National Research Council report on State of Klamath Basin Fisheries

- Restoration being done “by bits and pieces.”
- “Need for a ‘big picture’ perspective encompassing the entire basin and its many components.”
- “Agencies, researchers, decision makers, and stakeholders together [should] define basin-wide science needs and priorities

# IFRMP is 500+ pages...In a nutshell...

- A science-based approach to identifying the top 10 to 20 restoration actions that would advance the restoration of fish in each of the major watersheds of the Basin (e.g., UKL, Williamson, Sprague, Scott, Shasta, Upper Klamath River, Lower Klamath River, Trinity, SF Trinity, etc.)
- A science-based approach to identifying the major monitoring actions that will help determine whether or not restoration actions are working.
- A shorter summary version exists! IFRMP “Restoration Action Agenda for 2023-2024.
- RAA can be updated every two-years or so to guide implementation and incorporate new ideas/info.



## KRRC Definite Plan

Outlines steps for the surrender and decommissioning of the four Lower Klamath dams consistent with the KHSA, as well as near-term monitoring mitigation of the direct impacts of dam removal works in immediate footprint of former dam within 2 years of dam removal. The IFRMP complements this plan by addressing long-term restoration and monitoring actions at broader geographic scales.



## KHSA Interim Measures

A component of the amended KHSA that outlines interim restoration measures to be carried out in the lead-up to removing or providing passage through mainstem dams. The IFRMP mined interim measures reports to identify actions (included in key action tables) and gain insights into prioritization.

## Regional Restoration Plans (e.g., UKBWAP)

Smaller-scale restoration planning processes are already completed or underway in some parts of the Klamath Basin (e.g., the Upper Klamath Basin Action Plan). The IFRMP consulted these plans where available to ensure goals, objectives, and recommended actions aligned.

## Klamath Basin Integrated Fisheries Restoration and Monitoring Plan (IFRMP)

A unifying framework for planning the restoration and recovery of native fish species from the headwaters to the Pacific Ocean, while improving flows, water quality, habitat and ecosystem processes. Does not replace other existing restoration or recovery plans, but rather brings them all into alignment under a single overarching set of goals and objectives that have been designed to achieve functional watershed recovery at a whole-basin scale.



Past efforts among Basin stakeholders yielded concrete recommendations (e.g., in Barry et al. 2010) which were consulted and carried forward into the IFRMP as appropriate.



## Species Recovery Plans

Outline range-wide measures necessary for recovery of threatened or endangered species. The IFRMP mined recovery plans to extract objectives (feeding into our Goals and Objectives) and priority actions (incorporated into key restoration action tables).



## Regional Reintroduction Plans

Establish plans for reintroduction of anadromous fish to the Oregon and California areas of the basin. The IFRMP refers and defers to initial strategic plans and their follow up implementation plans and is working directly with ODFW and CDFW / CNRA to integrate existing monitoring plans for these efforts into the IFRMP monitoring framework.



- Goal of the IFRMP is not to "one-up" other plans in the Basin but to "integrate" them
- "Adaptive Management" approach will allow new ideas, updated plans, new plans, etc. through time

# Key Take Aways From the IFRMP

- Identifies over 150 proposed restoration project concepts by subbasin
- Recommendations for closing important basin-wide gaps in monitoring
- Cost estimates for these restoration and monitoring priorities
- Recommendations for ongoing Plan implementation and adaptively updating above products.

# Example: Lower Klamath River

## Priority Project Concepts (2023-2024)

**Lower Klamath River 11** - Install BDAs in key tributaries in the Lower Klamath to promote increased base flows and provide improved rearing habitats

---

**Lower Klamath River 10** - Install LWD to increase floodplain connectivity and provide cover for spawning and rearing fish in key Lower Klamath River tributaries

---

**Lower Klamath River 6** - Increase habitat connectivity and enhance floodplain habitats in key Lower Klamath River streams

---

**Lower Klamath River 15** – Seek opportunities to conduct thinning of forest stands and cultural and prescribed burns to restore historic prairie habitats within key Lower Klamath River tributary watersheds

---



# Monitoring

- **IFRMP also identifies some monitoring ‘gaps’...**
  - Need for improved standardization of data collection and data storage
  - Need for basin-wide approaches to support system-wide assessments of multiple Core Performance Indicators (e.g., eDNA, repeat LiDAR over time)
  - Need for event driven monitoring (i.e., real-time data) to understand the relationship between significant precipitation events and CPIs.

# IFRMP Recommendations...

- Fed/State Funding agencies should consider linking fisheries related RFPs to IFRMP/RAA Priorities
- FWS should continue to fund IFRMP Website, prioritization tool, and consider developing a restoration project tracking atlas
- Feds/States should utilize IFRMP website as a communication tool or a “one-stop stop-shop” for Klamath fisheries funding opportunities.
- There is a need to better articulate how Adaptive Mgt can inform IFRMP implementation into the future

# IFRMP Recommendations

- Sponsor/support regular science symposia in order to inform Adaptive Mgt as it relates to IFRMP implementation
- Create a monitoring coordination group to work toward standardizing data collection and assessments (e.g., eDNA)
- Basin stakeholders should determine if IFRMP implementation requires an organizational structure (e.g., governance structure) or will something less formal be sufficient

# **The US Fish and Wildlife Service...**

Owes a debt of gratitude to more than one hundred scientists, restoration practitioners, and other participants from across the Klamath Basin who contributed many hundreds of hours between 2016 and 2022 to the development and review of this Plan.

They shared their data, references, and professional judgement through correspondence, interviews, workshops, surveys, and numerous peer-review cycles of the plan document itself.

**Thank you!**

**Questions/Comments...**

# Reserves

# Watershed Functional Process Hierarchy

# Core Performance Progress Towards D

## 1 Fish Populations

Survival, growth, reproduction, diversity, distribution



1  
2  
3



## 2 Biological Interactions

Predation, competition, non-native species, disease mortality



1  
2  
3



## 3 Habitat

Instream habitat, water quality, food webs, fish passage, physical mortality



1  
2  
3



## Fluvial Geomorphic Processes

Channel and floodplain dynamics, interconnectivity, sediment transport & recruitment



1  
2  
3



## Watershed Inputs

Environmental flows, external sediment, nutrient, and pollutant inputs



1  
2  
3

