**Klamath Basin Monitoring Workshop**

**May 14 -15, 2025**

**Ashland Springs Hotel, Ashland OR**

**Workshop Goal** - Provide an overview of current monitoring activities and discuss priorities for a 5-year collaborative monitoring plan.

 **Workshop Objectives**:

* Share information on ongoing monitoring activities;
* Exchange perspectives on the need to collaboratively develop a strategy that will document necessary monitoring activities (existing and new);
* Discuss development of a 5-year monitoring strategy and whether the IFRMP Framework can be leveraged;
* Explore frameworks to identify new work and set priorities for funding;
* Provide updates on funding status and options to fund monitoring work;
* Support ongoing coordination among practitioners over the next 5-years; and
* Identify participants to serve on Technical Steering Committee.

**ACTION ITEM**

* It was suggested to have USFWS present the USFWS fish data systems to the KBFC in the near future
* Conservation Effort Database to try to keep track of the restoration projects happening in the Basin. (this might be the same as above)
1. Welcome, Introductory Remarks and Agenda
2. Presentations on Existing Fish Monitoring Activity
	1. Existing Inventories – IFRMP, KBFC and KBMP – *Baun, Faukner, Turner*

IFRMP: The IFRMP has roots in the K.Basin Restoration Agreement (KBRA) and its recommendations for regular science and adaptive management symposia and establishing a monitoring coordination group. Within the IFRMP are recommendations, including convening regular science and adaptive management symposia and establishing a monitoring coordination group to prioritize monitoring objectives and coordinate data aggregation and reporting.

KBFC: Klamath Basin Fisheries Collaborative's efforts to facilitate access to fisheries pit tag data and associated metadata, build a network of collaborators, and advance research to inform fisheries management and restoration actions.

KBMP: Klamath Basin Monitoring Program (KBMP), emphasizing the importance of metadata collection, the challenges of incomplete responses, and the goal of populating a monitoring location map and spreadsheet.

* 1. Upper Klamath Basin – *Krause, Ramirez*

Jacob Krause: monitoring efforts for endangered suckers in the Upper Klamath Basin, including long-term monitoring, pit tag arrays, acoustic telemetry, and juvenile sampling.

Ben Ramirez: fish monitoring efforts in the Upper Klamath Basin, including adult spawning surveys, juvenile fish monitoring, and bull trout monitoring.

1. Presentations on Existing Fish Monitoring Activity
	1. Mid-Klamath River – *Soto*

Toz Soto: monitoring efforts in the Mid Klamath region, including water quality monitoring, adult salmonid monitoring, juvenile fish monitoring, and habitat restoration project monitoring.

* 1. Shasta, Scott and Salmon Rivers – *Robinson, Stapleton, Schaefer, Cressey*

Crystal Robinson: discussed the monitoring efforts in the Shasta River, including adult salmonid monitoring, juvenile salmonid monitoring, snorkel surveys, and juvenile tagging studies. Explore the use of EDNA sampling to identify potential areas for coho juvenile dive efforts in the Shasta River. Install and operate a Rotary screw trap in Jenny Creek to monitor juvenile fish outmigration.

Betsy Stapelton & Sarah Schaefer: presented the monitoring efforts in the Scott River, including adult and juvenile fish monitoring, water monitoring, and physical process monitoring.

Lyra Cressey: provided an overview of the monitoring efforts in the Salmon River, including adult and juvenile fish monitoring, water monitoring, and restoration project monitoring. Continue the lamprey assessment project to identify distribution and species presence in the Salmon River

1. Presentations on Existing Fish Monitoring Activity – 1:15 – 2:00 (45 min)
	1. Lower Klamath River – *Belchik*

Mike Belchik: major projects in the Lower Klamath, such as juvenile migration screw trapping, environmental DNA monitoring, physical surveys, thermal refugia monitoring, and acoustic tag monitoring of green sturgeon. They emphasized the importance of these projects in understanding fish populations and their health. Disease monitoring efforts, particularly during the fall run, and the juvenile migration screw trap deployment from March to July. He highlighted the partnership with US Fish and Wildlife Arcata Office for these projects. Highlighted collaborative studies with UC Davis and the Hoopa tribe on invertebrate gap removal post-dam removal monitoring. They also discussed adult salmonid disease monitoring as an early warning system to prevent fish kills. Provided an overview of the Yurok Tribal Fisheries Program, including coho surveys, Beaver Dam analog PIT tag antennas, out migrant trap monitoring, and spawner surveys. He emphasized the importance of these activities in assessing fish populations and their health. He discussed the harvest monitoring division's role in monitoring the Yurok tribe's harvest, including net counts, scale samples, and genetic analysis of tissue samples. They highlighted the collaboration with UC Santa Cruz for genetic analysis and the development of a new database to manage these projects.

* 1. Trinity and South Trinity Rivers – Karl Seitz

**Karl Seitz:** He described the monitoring activities at the Trinity River Hatchery, including adult and juvenile salmon identification, enumeration, and tagging. They also mentioned the collection of bio data and genetic samples for future analysis. Trinity River Tributary Surveys: Various monitoring projects in the Trinity River tributaries, such as red carpet surveys, juvenile snorkel surveys, and post-restoration monitoring. They emphasized the importance of these activities in understanding fish populations and their health. They are monitoring activities at the Junction City Weir and Pear Tree Gulch screw trap, including adult salmon identification, enumeration, and tagging. They also discussed the collection of bio data and monitoring of fish health. There is also monitoring projects in the South Fork Trinity River, including adult snorkel surveys, juvenile dive monitoring, and temperature and flow monitoring. They highlighted the importance of these activities in assessing fish populations and their health. Monitoring activities at the Willow Creek Weir, including adult salmon identification, enumeration, and tagging. They also mentioned the collection of bio data and monitoring of fish health. Lower Trinity River Tributary Surveys and screw trap: monitoring projects in the lower Trinity River tributaries, including red marker surveys and thermal refugia monitoring. The monitoring activities at the lower Trinity River screw trap, including fish identification, enumeration, and bio data collection. They also discussed the monitoring of fish health and migration rates. Tribal Harvest Surveys: interviews with tribal anglers and the estimation of tribal harvest by fishery type. They also mentioned the collection of bio data and monitoring of fish health. Sucker Hatchery Monitoring: rearing and release of coho salmon. They emphasized the importance of these activities in understanding fish populations and their health. EDNA Disease Monitoring: includes water sampling for pathogens in the South Fork Trinity River. They highlighted the importance of this project in understanding fish health and preventing disease outbreaks.

1. Group Discussion Regarding Existing Activity – 2:00 – 3:30 (90 min)
	1. Survey results- see documents in [“Handouts” on the IFRMP website](https://ifrmp.org/wp-content/uploads/2025/05/Handouts-May14-15-Workshop-web.pdf)
	2. Questions regarding existing programs
		* Are there important gaps not covered by the existing programs?
		* Are there opportunities for efficiencies?
		* Are there alternative techniques or approaches we should be considering?
	3. Are there frameworks we should consider to identify new work and set priorities for funding?

Broke out into smaller groups for discussion and came back at as a larger group to discuss main points:

Better data sharing coordination: There are a lot of individual and collaborative data sets, but knowing where they are and what they are collecting would be useful. A web-based location to access these datasets across the basin would improve access and availability. USFWS has a dataset with juvenile monitoring data systems that can be integrated with the KBFC PITtag dataset.

Meeting Consolidation: Reduce the number of redundant meetings by coordinating with other agencies to streamline communication and collaboration efforts.

Flow Needs Research: Initiate research to understand the flow needs to support healthy and harvestable salmon populations under different conditions.

Spring Run Monitoring: Enhance monitoring systems to capture data on spring run Chinook migration timing and behaviors.

Private Land Access: Address private land access issues to ensure comprehensive data collection for monitoring projects.

Upper Basin Communication: Implement rapid communication methods for real-time reporting of fish movement and migration timing in the upper basin.

AI Integration: Explore the use of AI for interpreting sonar images, video weirs, scale reading, and genetics to improve efficiency.

Invasive Species Monitoring: Establish a consistent monitoring program for invasive species to prevent potential impacts on the ecosystem.

**Day 2 – May 15 – 9:00am – 12:00pm**

1. Welcome and Agenda
2. Reflections on Day 1

Everyone in the room shared their thoughts on day one. Some key takeaways were emphasizing the importance of considering suckers alongside salmon. They discussed the need for explicit statements about the responsibility towards suckers and the broad monitoring of acquired resources throughout the basin. Some barriers mentioned included funding, personnel, and communication. They emphasized the importance of collaboration and addressing barriers that may not be immediately apparent. Supporting AB63, which deals with emergency drought-related curtailments in the Scott and Shasta rivers was mentioned. They explained the need for a flow regime to support recovery and the role of state departments and water boards. Crosswalking plans for reintroduction and monitoring with the IFRMP to develop a synthesis document that clearly outlines monitoring and data used for harvest forecasts and tribal trust was brought up.

1. Priorities Exercise

This exercise asked participants to allocate resources to five categories: fish population, watershed inputs, habitat, Fluvial Geomorphic Processes, and biological interactions. The results showed a spread with a slight preference for fish population. (Results can be found in the Klamath Monitoring SharePoint folder with PSMFC)

1. Break
2. Discuss Exercise Results

Data Sharing Discussion:

BOR: Data is summarized in annual reports for BiOps. Not serving up the actual data collected. Flow West is contracted through BOR to support The Science Collaborative Effort to make the data useable for modeling and have been doing some work to synthesize data in the basin and making all this public in GitHub.

CDFW: Compile data with coordinators, then publish preliminary data in weekly reports, and final data us published in annual reports at the end of the season. These reports are available upon request. The actual data is also available upon request. There has been an effort to collect and publish data (2000-2022) on the public website.

Hoopa Tribe: Data is summarized in annual reports for various projects and submitted to the project planners. Data is shared with project collaborators for reports and meetings. Some data is stored in databases but they are working with Flow West to modernize their databases, such as their harvest data.

Catana Foundation: Interested in supporting data collection and sharing within the Basin

Karuk Tribe: Data for some projects with partners go directly to them, like the Mainstem Redd survey data go directly to USFWS. PITtag data and water quality data is stored in their internal database with the intention of the PITtag data to be uploaded into KBFC. They are really bogged down with cleaning and uploading data. A lot of data is summarized in annual reports.

Kerns and West:

KBMP: Store metadata about water quality. Also store annual reports and information about other datasets on the website.

North Coast Water Quality:

National Park Service: PITtag data is in the KBFC datasystem

NOAA SWSC: They are on the regulatory side of things and don’t collect fisheries or water quality data, but they do have a permits database.

NOAA Science Center: Collaborative projects where data is collected with Cal Trout and others for Sonar data, and ODFW for fish tagging. Other data sets are available on the EDI data Portal

NOAA Restoration Center: collecting data for a thermal study of what temps fish are holding in that are tagged at a sonar site and above with a grad student. Working with ODFW on fish passage upstream and downstream of Keno Dam. Didn’t mention where the data is being stored. Can flollow up with Bob Pagliuco.

ODFW: Maintain a lot of data on internal databases. Much of the data is publish with peer reviewed papers. The PITtag data will eventually go into the KBFC data system, but it is also housed in the USGS data system since they are utilizing their PIT arrays to track their fish. Data outside of the USGS PIT arrays would go into mthe KBFC system. Produce reports for allocations for Fall Run Chinook in the Upper Basin. Their data is available upon request since it is a public agency but there are times where there is a compensation needed to get the data.

Oregon State: collect and maintain data to support fish disease risk primarily in the Shasta. Everything they do is collaborative but data is stored on OSU platforms. Some of their data is very context specific so it is provided to people who need it. Annual reports and raw data are shared with partners like BOR and NOAA.

Pacific Watershed Associates: Data is stored on their servers and shared with partner agencies at the end of the project.

QVIR: send metadata to KBMP. Submit water quality data into Aquarius. Data provided in annual reports to funders and partners. HABs data goes to North Coast Regional Water Quality Control Board.

Real Time Research: provide data services, working on avian predation of PITtagged Suckers. Didn’t mention where the data is housed.

RES: Data collected for projects are governed by the series of management plans and created in collaboration with tribes, and agencies. Relevant data is published with the BiOp report. Collecting real time water quliaty data from 9 differetn SOMS operated by the tribes. Some data is available on their website such as temperature monitoring data that goes to USFS. Some data can be available upon request.

SRWC: Major reports with data in them are available on their website. PITtag data is in the KBFC database. A lot of other data is stored in Excel sheets and dealing with it has been daunting.

USFWS: Talked about a Conservation Effort Database to try to keep track of the restoration prjects happening in the Basin. USGS was a partner. Wants 30 mins on June meeting to talk about this effort. Capture outmigration adult monitoring data, habitat survey and modeling. Population Monitoring, Publish in season monitoring updates on the website for both juvenile and adult salmon monitoring. Publish reports on fish health. Working with Real Time research on a Climate Based Fish Monitoring Data System. Also working with RTR on a Sucker data system which can hopefully integrate into KBFC. A water temperature data system called Whiskey, but that is internal but on the verge of being public.

USGS: Collect physical capture data that is stored internally at the Klamath Falls field station. They push data out to the collaborators on specific projects. Working to move data into KBFC. Some data is in publish reports and papers.

Yurok: Collect a lot of different data and it is housed in different formats. Can be made available upon request. Some data is being collected in partnership with federal agencies, out migration and spawning surveys go to USFWS and incorporated into their database. There is some data that is confidential that comes from the elders and interviews.

1. Monitoring Plan Formulation
	1. Schedule and Steering Committee formation
	2. Discuss development of a 5-year monitoring strategy and whether the IFRMP Framework can be leveraged
	3. Approach to support ongoing coordination
	4. among practitioners over the next 5-years
	5. **Second workshop (June 24-25)**
2. Closing Remarks
3. Adjourn
4. Technical Steering Committee Meeting

The steering committee set up bi-weekly meetings, every other Monday at 3pm, however, the first meeting will be on Tues May 27 at 2pm because of the Memorial Day holiday. The Steering Committee will help develop the agendas for the upcoming meetings, also developing criteria for prioritization, working on the June workshop, and producing a five-year plan.

List of Steering Committee members:

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| --- | --- | --- |
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