Klamath Basin Collaborative Monitoring Plan Workshop

for a post-dam era

June 24 - 25, 2025
Ashland Hills Hotel
Ashland Oregon

Bogus Creek, CA (Leonard 2025)

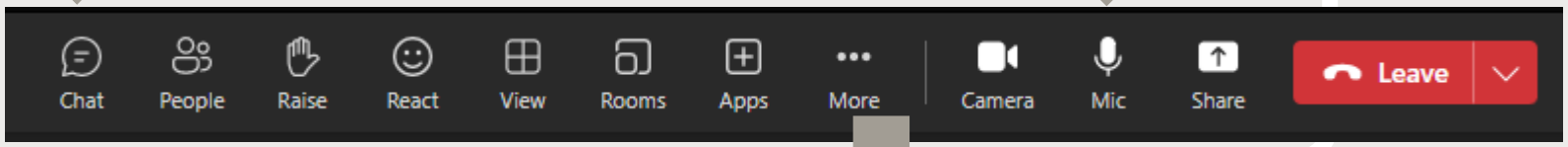
Use the meeting chat if you need assistance.

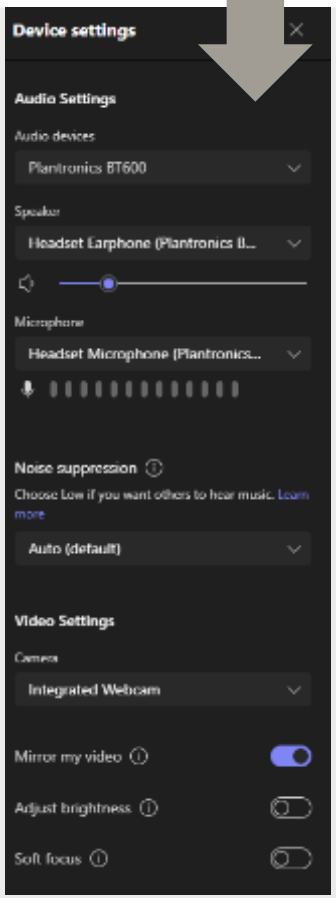
Chats can be seen by all participants.

Please mute yourself when not speaking.

Use *6 to mute phone audio.

Use the microphone icon on the control bar to mute computer audio.





Virtual participants:

Please leave web cameras on to facilitate discussion

Please use the chat to introduce yourself (name and affiliation)

In-person participants:

Please sign in on sheet

Please grab a name tag

If you are having problems with audio/video, check your device settings.

Logistics

- Day 1: June 24; 9:00am – 3:00pm
- Day 2: June 25; 9:00am – 12:00pm
- Hybrid Meeting
- Lunch (11:45 – 1:15)

Lost River and Tule Lake (USFWS 2011)

Steering Committee

- Eric Reiland, BOR
- Eric Peterson, BOR
- Morgan Knechtle, CDFW
- Domenic Guidice, CDFW
- Rosemary Romero, CDFW
- Dave Herring, NP
- Karl Seitz, Hoopa Tribe
- Justin Alvarez, Hoopa Tribe
- Alex Corum, Karuk Tribe
- Randy Turner, KBMP
- Alta Harris, Klamath Tribe
- Shahnie Rich, Klamath Tribe
- Tommy Williams, NOAA
- Nate Bickford, Oregon Tech
- Stephanie Quinn-Davidson, Ridges to Riffles
- Betsy Stapleton, SRWC
- Steve Gough, USFWS
- Jacob Krause, USGS
- Summer Burdick, USGS
- Sarah Beesley, Yurok
- Jimmy Faukner, Yurok
- Mike Belchik, Yurok

Agenda

Welcome, Introductions and Agenda	9:00 - 9:30
Update on Monitoring Activity Cataloging	9:30 – 10:30
Break	10:30 – 10:45
Workgroup Exercise	10:45 – 11:45
Lunch	11:45 – 1:15
Discuss Exercise Results	1:15 – 1:45
Presentation on Trinity River Monitoring Review	1:45 – 2:15
Conservation Efforts Database Update	2:15 – 2:45
Plans for Day 2	2:45 – 3:00
No Host Social and Dinner at Caldera Brewery	**5:00 – 7:00 pm**

Timeline
Process, Outcomes and Products

Initiation

Jan-Apr 2025

- Convene planning committee
- Identify presenters for needed topics

1st Workshop

May 14-15, 2025

- Initiate gap discussion and prioritization
- Approach for 5-yr monitoring strategy
- Form Technical Steering Committee

Tech SC Tasks

May 15 – June 20

- List shared management and research questions
- Criteria to prioritize/sequence for next 5 yrs funding scenarios

2nd Workshop

June 24-25, 2025

- Refine shared list questions
- Refine criteria
- Confirm approach to develop 2026-2027 list of priority monitoring

List of Priority Monitoring for 2026-2027 Funding

July-Sept 2025

- Finalized list of Klamath Basin monitoring (existing/new) to prioritize for 2026-2027 funding

Federal Fiscal Year Recommendations

Oct 1, 2025 *(tentative)*

- Submit agreed-to recommended prioritized monitoring list to funding agencies

Tech SC Tasks

Sept 2025 Oct 2026

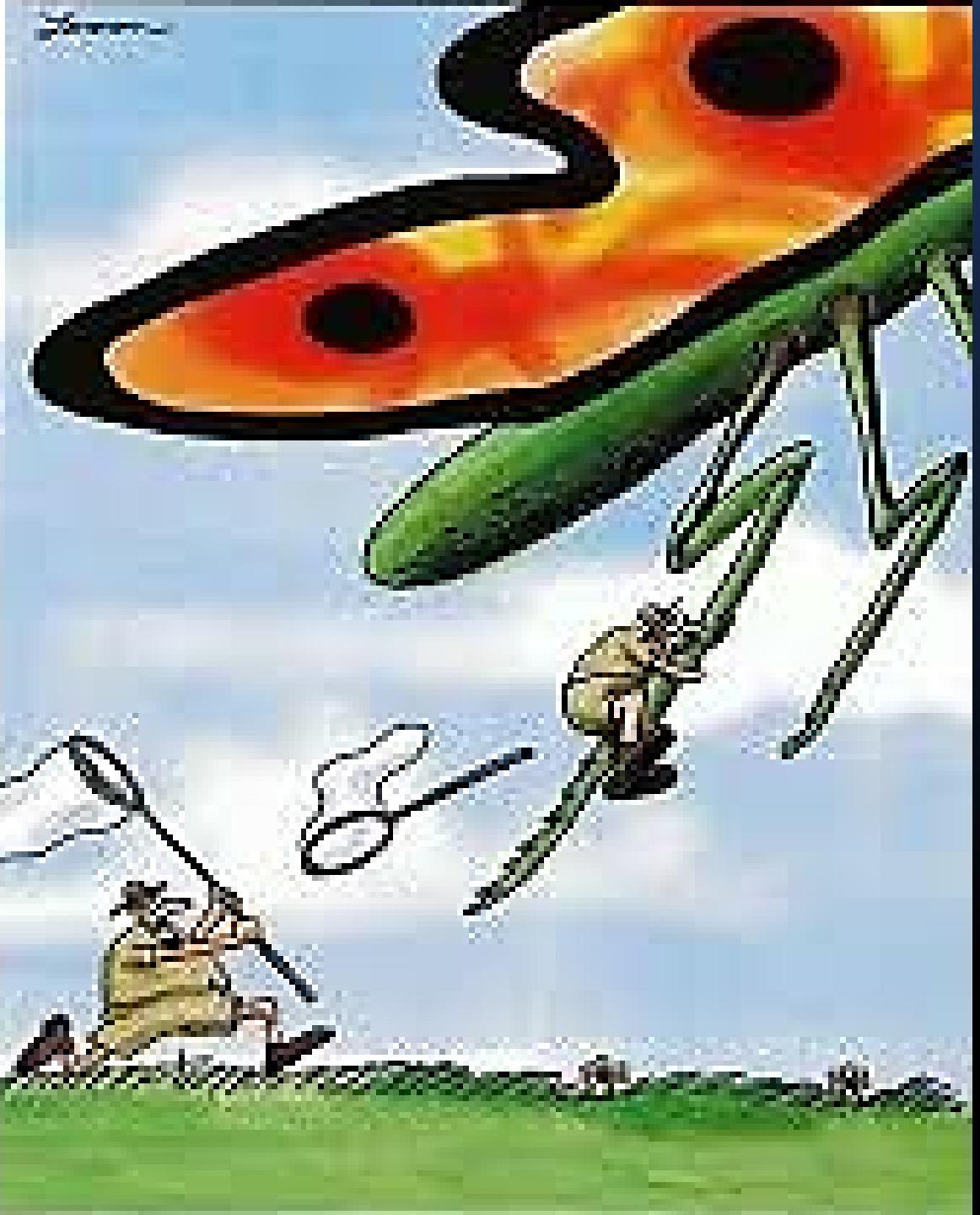
- Provide content for strategy
- Consider most informative timing for a Science Symposium
- PSMFC assist with compilation and product development

Klamath Basin Collaborative 5yr Plan

Oct 2026

- Produce 5-yr Plan
- Approach to continue this collaborative forum 2025-2030 to implement and revise 5-yr Plan

Monitoring Activity Cataloging Update



Klamath Fish Monitoring

- Compile existing info
- Monitoring metadata
- Bibliography/Library
- Summary document
- Inform prioritization

Fish Monitoring Activity Matrix

Area	Location	Spawner/Redd/ Carcass Survey	Adult Weir Video/Trap	Adult Snorkel/Dive Survey	Adult Sonar	Adult dam Passage	Adult Hatchery Trap	Telemetry	Juvenile Migrant Trap	Juvenile Collection misc.	Juvenile Snorkel Survey	PIT Tag Array	Juvenile Hatchery Releases
Lower-Mid Klamath	Mainstem	USFWS			Cal Trout				USFWS (2)				
									KTDNR (2)				
									YTFP				
	L. Klamath tributaries			YTFP					YTFP		SRRC	YTFP	
	Salmon R.	CDFW		SRRC					KTDR	KTDNR	SRWC		
	Scott R.	CDFW	CDFW						CDFW	SRWC	CDFW	SRWC	
	Shasta R.	CDFW	CDFW						CDFW		YTFP	SRWC	
	Mid. Klamath tributaries	CDFW		USFS								KTDNR	
	Bogus Cr.	CDFW	CDFW						CDFW			SRWC	
	Iron Gate Hatchery						CDFW						CDFW
Upper Klamath	Mainstem CA	USFWS			CDFW			CalTrt	CDFW		CDFW		
	Mainstem OR												
	Scotch/Camp Cr.	CDFW							CDFW		CDFW		
	Jenny Cr.	CDFW	CDFW						CDFW		CDFW		
	Fall Cr.	CDFW					CDFW		CDFW		CDFW		CDFW
	Shovel Cr.	CDFW	CDFW						CDFW		CDFW	CDFW	
	Spencer Cr.												
	Other tributaries	CDFW									CDFW		
Trinity	Mainstem Lower	USFWS	CDFW						USFWS				
	Mainstem Upper		CDFW						HVTF				
	Lower Tributaries								HVTF				
	Upper Tributaries	YTFP											
	Trinity Hatchery						CDFW						CDFW
Klamath Headwaters	Keno Dam												
	Lake Ewauna											USGS	
	Mainstem Keno-Link R.							USGS					
	Link River Dam											USGS	
	Upper Klamath Lake							USGS					USFWS
	Williamson R.											USGS	ODFW
	Sprague R.											USGS	ODFW
	Wood R.											USGS	ODFW
	Other tributaries												

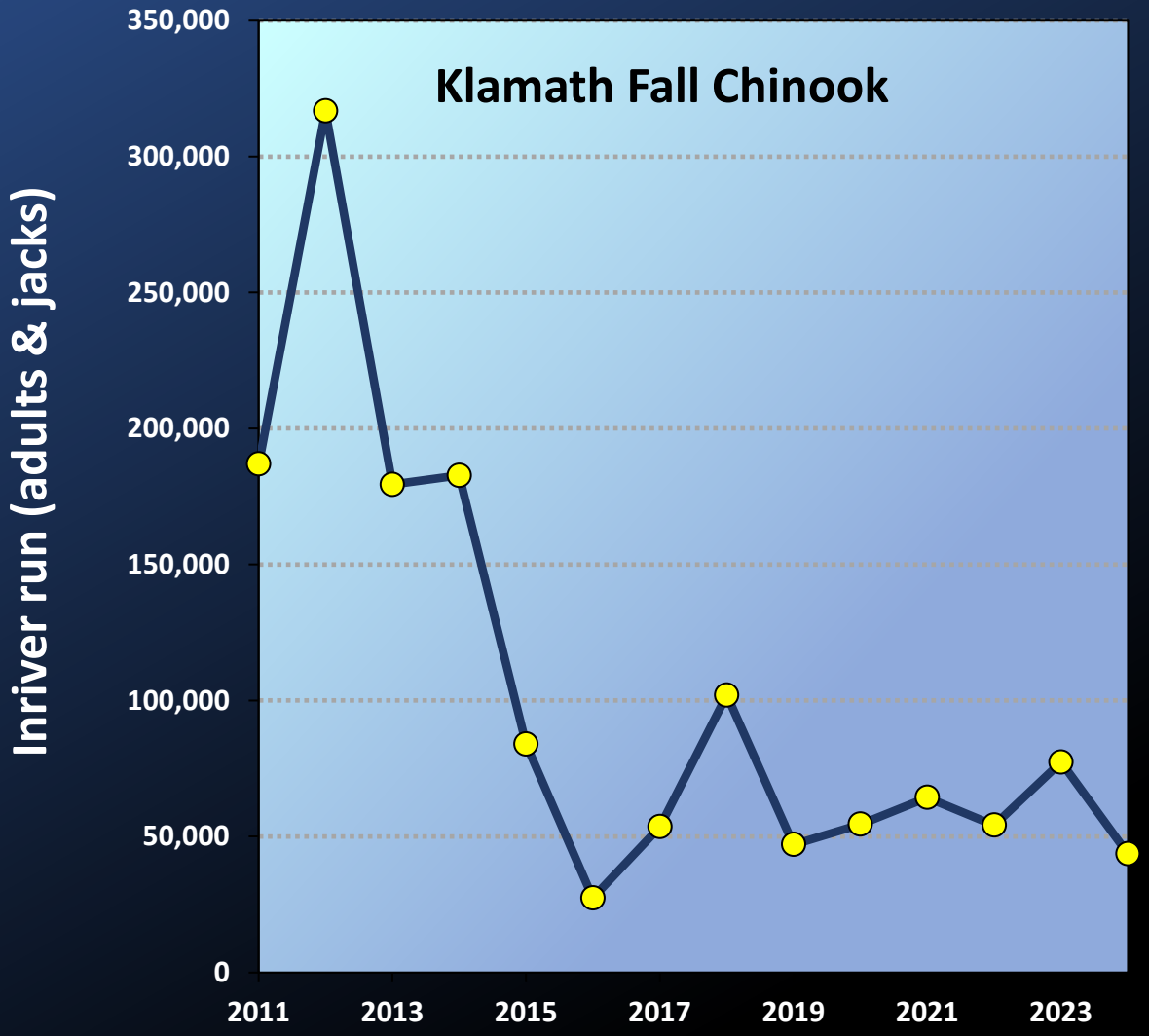
Salmon, Steelhead, Suckers

Ongoing Proposed/In progress

Why Monitor?

General Fish Status & Trends	ESA Listing & Recovery	Fishery Management
Hatchery Effectiveness	Dam Removal Response	Dam Passage Effectiveness
Water Management & Mitigation	Habitat Restoration Effectiveness	Factors & Processes

1. General Fish Status & Trends



Are wild fish numbers stable, increasing or decreasing under current conditions?

- **Estimates or indices of abundance**
- **Age, size, survival etc.**

Table 5. **Spawner, redd and/or carcass survey locations for monitoring of anadromous salmonids in the Klamath Basin.**

	Location	Species	Years		Months	Lead	Funding
Lower-Mid Klamath	Mainstem Wingate Bar to Shasta R	CHF	1993	Pres.	Oct-Nov	USFWS	?
	Mainstem Shasta R to Iron Gate	CHF	1993	Pres.	Oct-Nov	USFWS	?
	Salmon River	CHF, COH	1978	Pres.	Oct-Dec	CDFW	?
	Salmon River	CHS, STH	2000	Pres.	?	?	?
	Scott River	CHF, COH	1978	Pres.	Oct-Dec	CDFW	?
	Shasta River	CHF, COH	1978	Pres.	Oct-Dec	CDFW	?
	Tributaries other	CHF, COH	1978	Pres.	Oct-Nov	CDFW	?
	Bogus Creek	CHF, COH	1978	Pres.	Oct-Jan	CDFW	?
Upper Klamath[1]	Mainstem Iron Gate to OR border	CHF, COH	2024	Pres.	Oct-Dec	USFWS	?
	Scotch/Camp Creeks	CHF, COH, STH	2024	Pres.	Oct-Apr	CDFW	?
	Jenny Creek	CHF, COH, STH	2024	Pres.	Oct-Apr	CDFW	?
	Fall Creek	CHF, COH, STH	2024	Pres.	Oct-Apr	CDFW	?
	Shovel Creek	CHF, COH, STH	2024	Pres.	Oct-Apr	CDFW	?
	Other tributaries	CHF, COH, STH	2024	Pres.	Oct-Apr	CDFW	?
	Mainstem OR border to Keno Dam	CHF, COH	Proposed		TBD	TBD	TBD
	Spencer Creek	CHF, COH, STH	Proposed		TBD	TBD	TBD
Trinity	Mainstem Mouth to Lewiston Dam	CHF	1978	Pres.	Aug-Dec	USFWS	?
	Tributaries	COH	2014	Pres.	?	YTFP?	?
	Tributaries	STH	2000	Pres.	Mar-May	YTFP?	?
	South Fork Hyampton Reach	CHF	?	Pres.	?	?	?
	Hayfork Creek (South Fork)	STH	?	Pres.	?	?	?

[1] *Dam removal reach between Iron Gate Dam site and Keno Dam.*

[2] *CHF = Fall Chinook, CHS = Spring Chinook, COH = Coho, STH = Steelhead*

2. ESA Listing & Recovery


Lost River sucker (C'waam)


Shortnose sucker (Koptu)


Coho Salmon

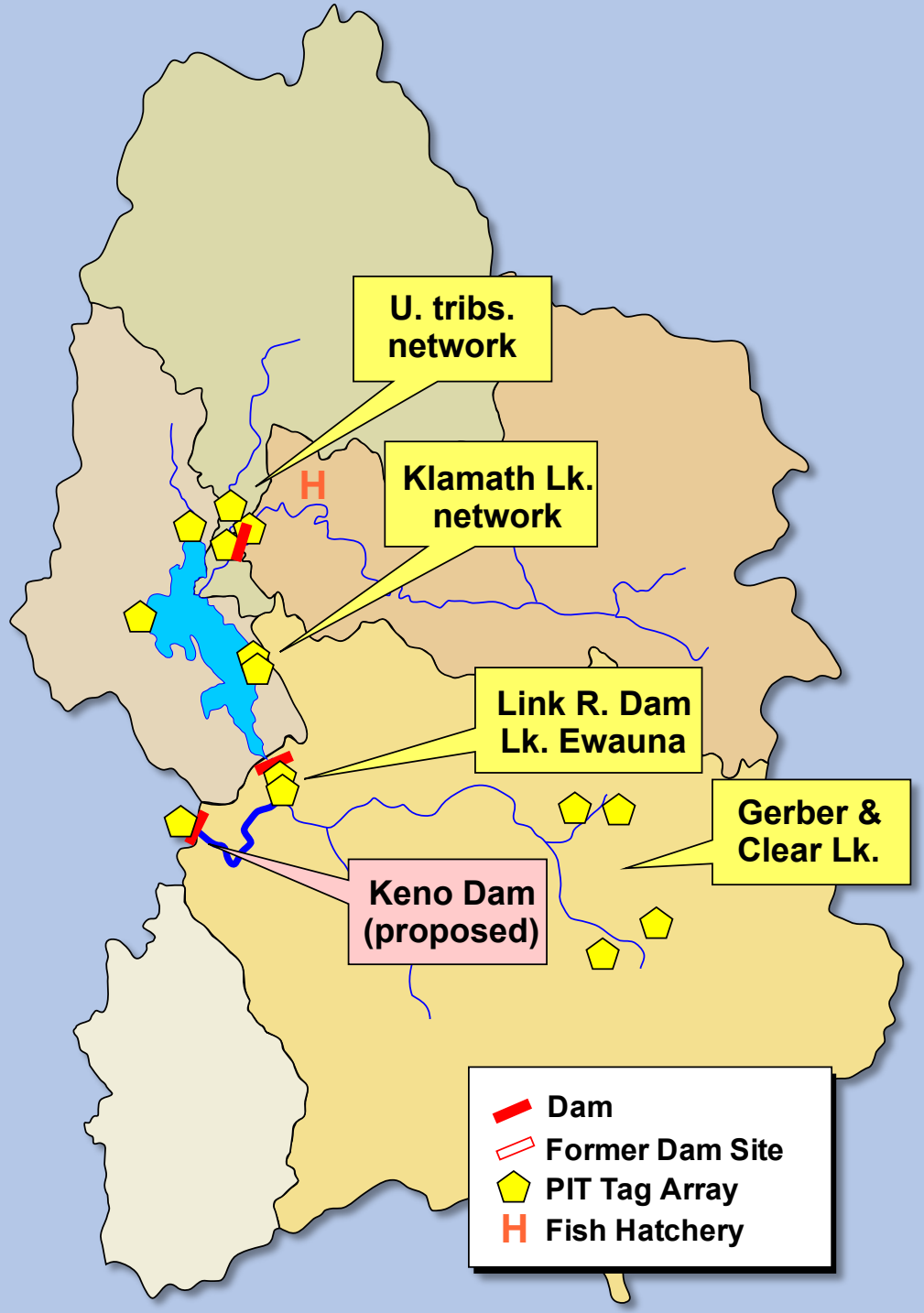
Is the species threatened or endangered with extinction?

- **Viable Population Parameters (abundance, productivity, distribution, diversity)**
- **Listing Factors / Threats (habitat, overutilization, disease, regulation, other)**


USGS
Cabela's
USGS


UNITED STATES OF AMERICA
ONE DIME

PIT Tagging


U. tribs. network
Klamath Lk. network
H
Link R. Dam
Lk. Ewauna
Gerber & Clear Lk.
Keno Dam (proposed)
Dam
Former Dam Site
PIT Tag Array
H Fish Hatchery

3. Fishery Management

How many salmon are available for harvest & how many were harvested?

- **Fall Chinook (& Coho)**
- **Run reconstructions (age, H:W)**
- **Hatchery coded wire tags**
- **Run size forecasts**
- **Ocean & freshwater fisheries**

KLAMATH RIVER FALL CHINOOK

(JULY, 2019)

**SALMON REBUILDING PLAN,
ENVIRONMENTAL ASSESSMENT*,
MAGNUSON-STEVENS FISHERY CONSERVATION AND
MANAGEMENT ACT ANALYSIS*,
REGULATORY IMPACT REVIEW*, AND
INITIAL REGULATORY FLEXIBILITY ANALYSIS***

REGULATORY IDENTIFIER NUMBER 0648-BI04

PLEASE NOTE: THE PORTION O
SALMON REBUILDING PLAN ARE
NOTED IN THOSE SECTIONS.

THIS IS AN INTEGRATED DOCUM
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INCOMPLETE PORTIONS WILL BE
SERVICE, AND MADE AVAILAB
NOTICE-AND COMMENT RULEMA

Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, OR 97220-1384
(503) 820-2280
www.pcouncil.org

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A report of the Pacific Fishery Management Council
Award Number NA15NMF4410016.

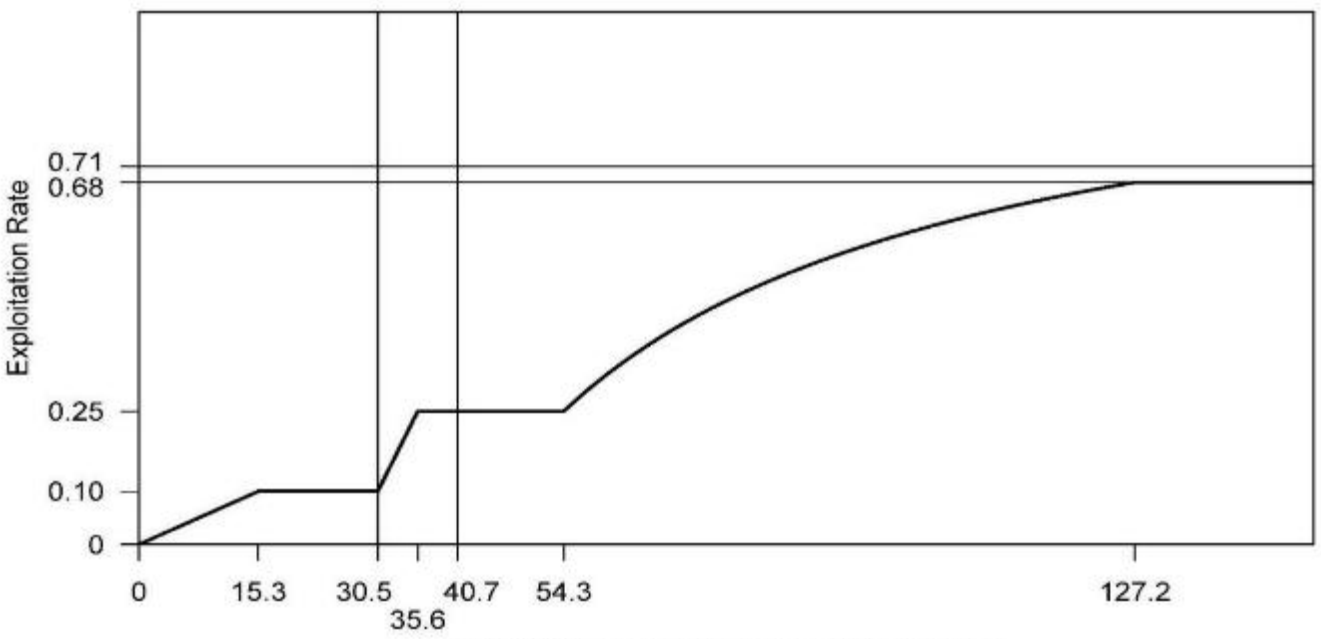
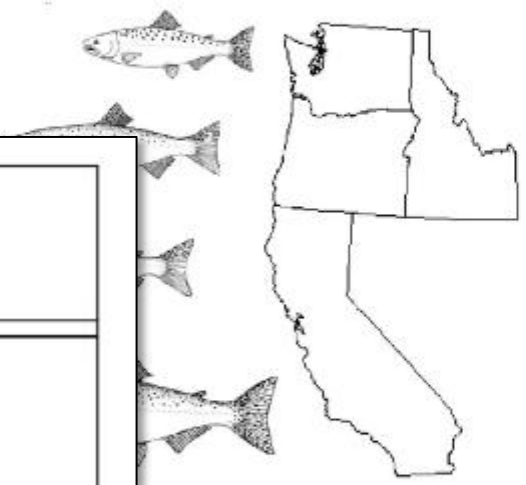


Figure 2.2.4.a. Klamath River fall Chinook control rule. Potential spawner abundance is the predicted natural-area adult spawners in the absence of fisheries. See the salmon FMP, Section 3.3.6, for control rule details.

PRESEASON REPORT I

STOCK ABUNDANCE ANALYSIS AND ENVIRONMENTAL ASSESSMENT PART 1 FOR 2025 OCEAN SALMON FISHERY REGULATIONS

REGULATION IDENTIFIER NUMBER 0648-BN19



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MARCH 2025

4. Hatchery Effectiveness

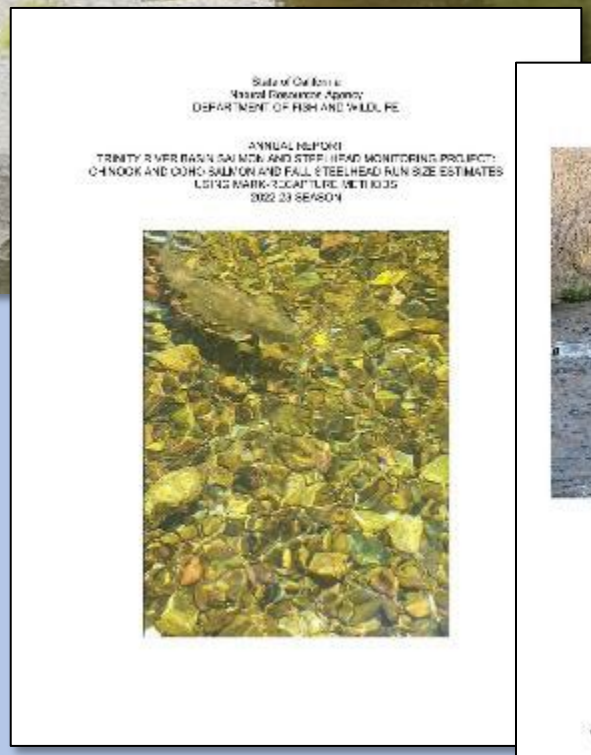

Trinity River Hatchery

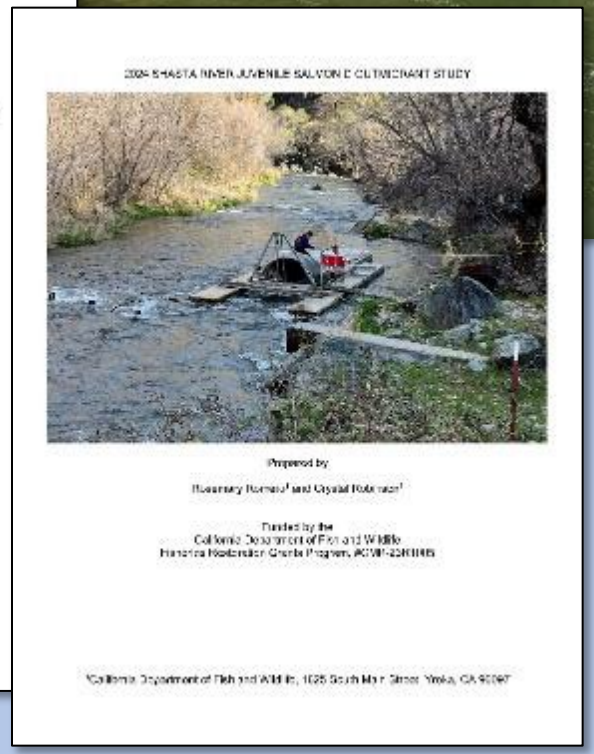

Fall Creek Hatchery

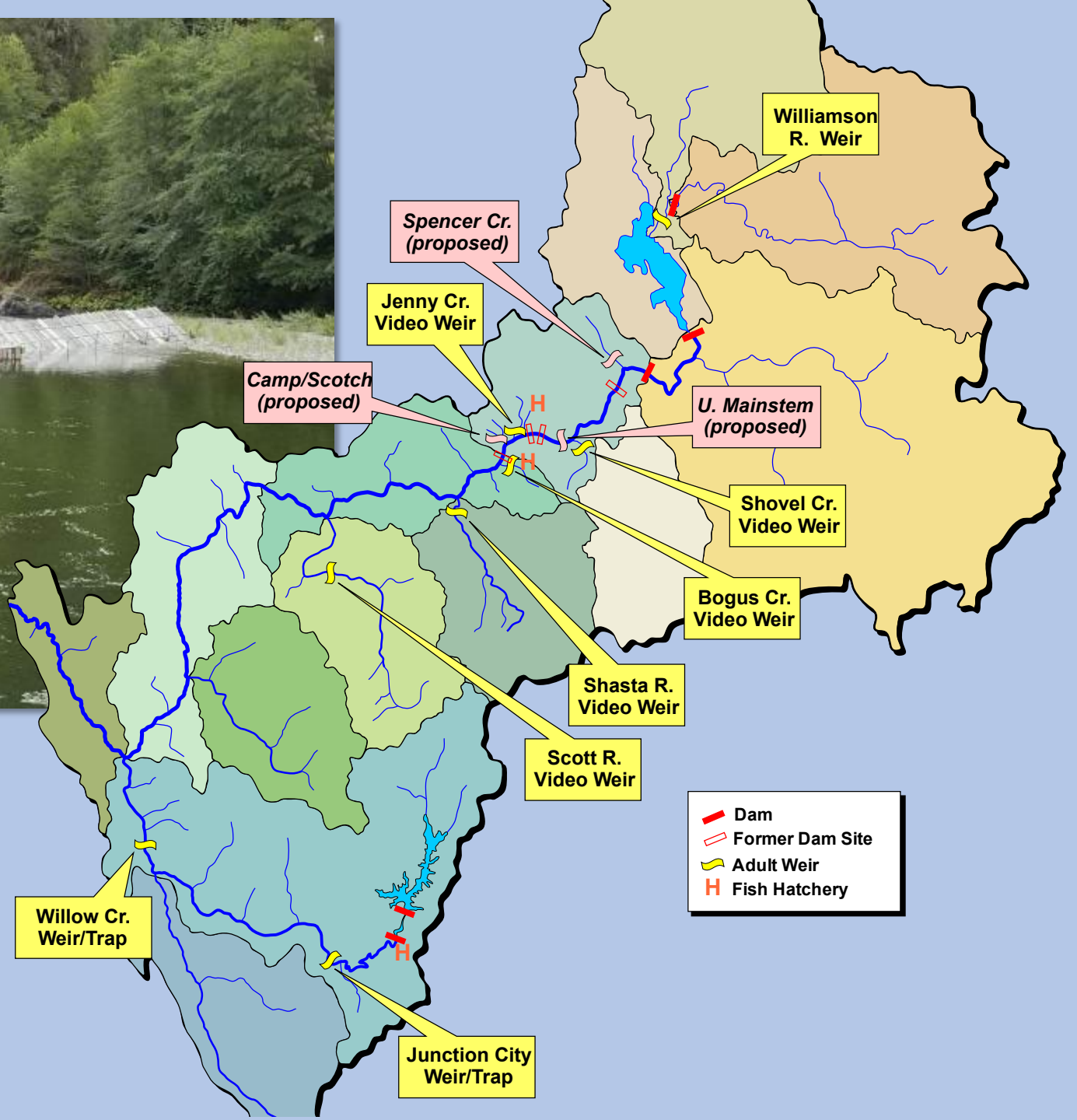
Are hatchery returns consistent with goals?

- Mitigation & restoration
- Spring & Fall Chinook, Coho, Steelhead
- Juvenile production
- Adult returns
- Fishery contributions
- pHOS & PNI

Adult Weirs






Williamson R. Weir
Spencer Cr. (proposed)
Jenny Cr. Video Weir
Camp/Scotch (proposed)
U. Mainstem (proposed)
H
H
Shovel Cr. Video Weir
Bogus Cr. Video Weir
Shasta R. Video Weir
Scott R. Video Weir
Willow Cr. Weir/Trap
H
Junction City Weir/Trap
Dam
Former Dam Site
Adult Weir
H Fish Hatchery

5. Dam Removal Response

How effective is volitional repopulation and what levels of production can be achieved?

- **Salmon, steelhead, lamprey**
- **Distribution, abundance, productivity, ages, pHOS**

Adult Sonar

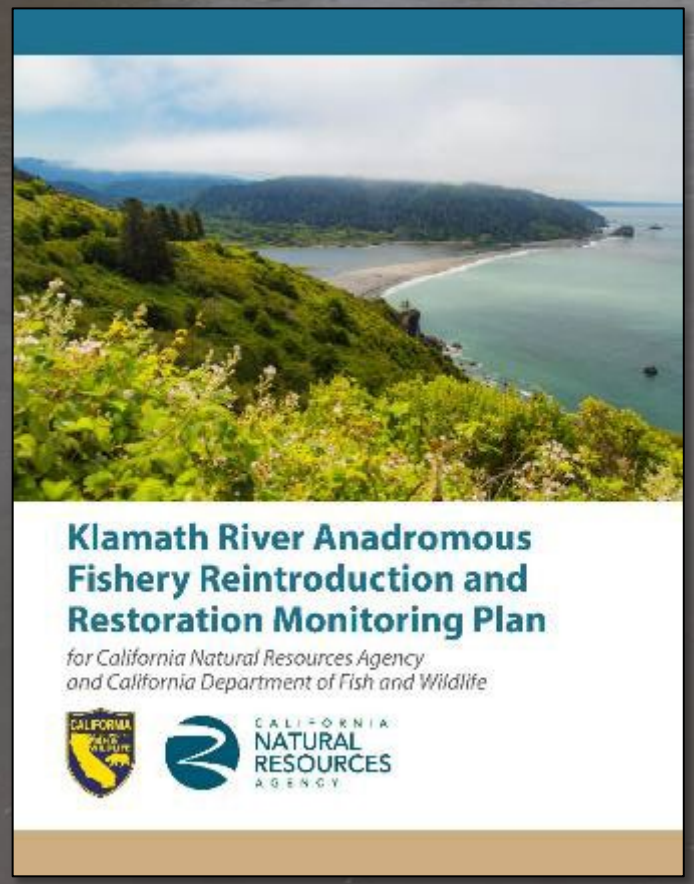


Table 8. Sonar for monitoring of anadromous salmonid adults in the Klamath Basin (current and proposed).

Location	Species[1]	Years		Months	Lead	Funding
Mainstem < Iron Gate	CHS, CHF, COH, STH	2024	Pres.	?	CalTrout	?
Mainstem > Fall Creek	CHS, CHF, COH, STH	Potential		Jul-Jan	CDFW	?
Mainstem < Frain Ranch Reach	CHS, CHF, COH, STH	Proposed		TBD	TBD	TBD

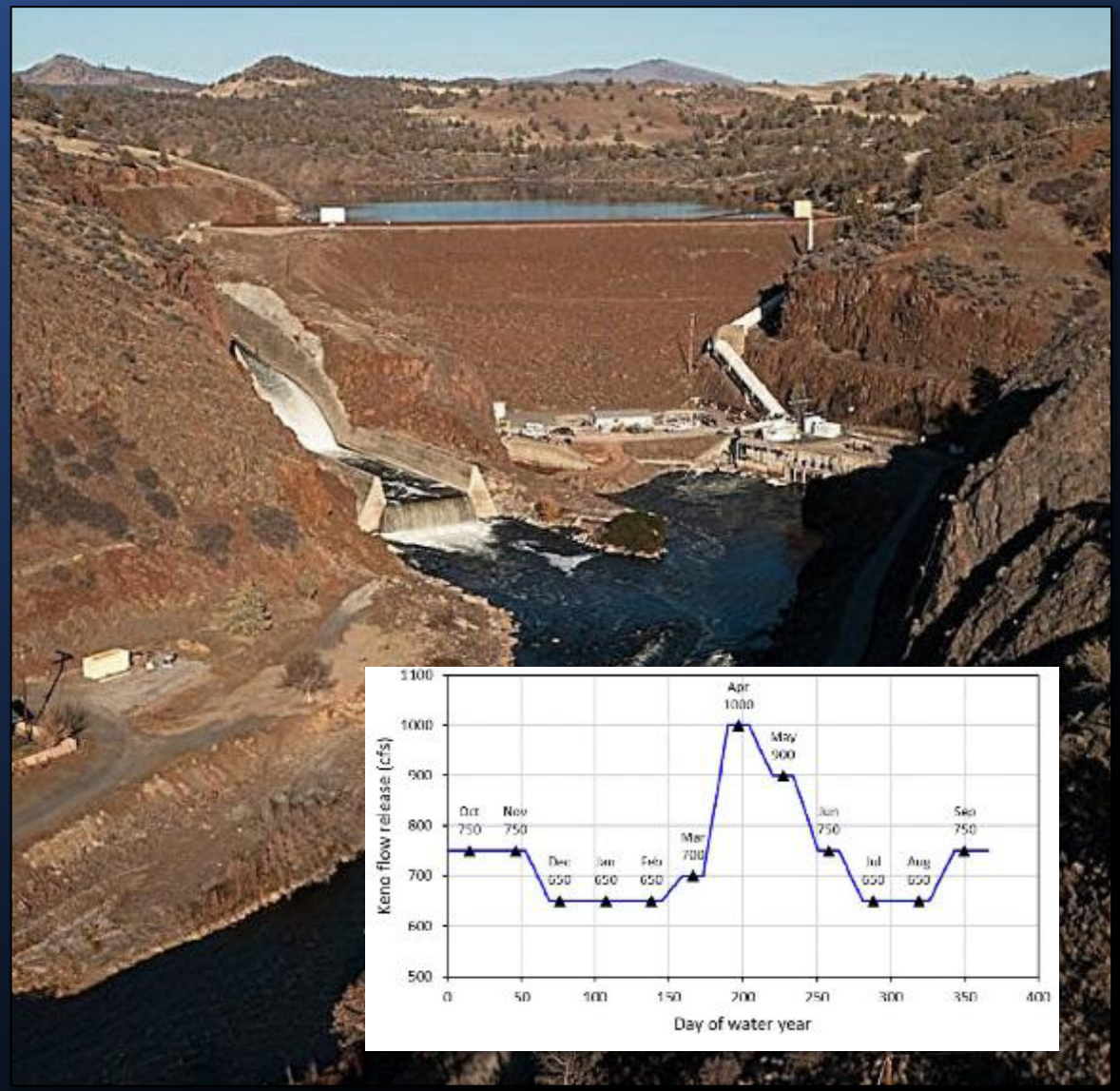
[1] CHF = Fall Chinook, CHS = Spring Chinook, COH = Coho, STH = Steelhead.

6. Dam Passage Effectiveness

Do facilities effectively pass salmon & steelhead?

- **Link River & Keno Dams**
- **Ladder counts, delay, mortality**

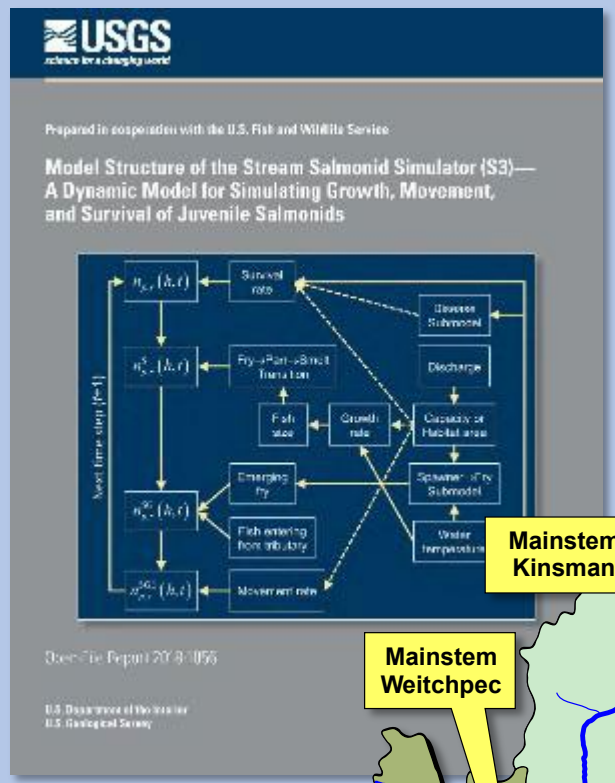
7. Water Management & Mitigation



How do flow management & operations affect fish?

- **Instream flows, water budget, work windows, etc.**
- **Temperature & fish health interactions**
- **Fish population & production modeling**

Outmigrant Traps



8. Habitat Restoration Effectiveness

Beaver Dam analog (French Creek)

Off-channel pond (Seiad Creek)

What habitat is limiting & has restoration increased fish production?

- **Coho (in particular)**
- **Juvenile habitat use**
- **Distribution & movements**
- **Growth & survival**
- **Net production**

Snorkel Surveys

CDFW in-river snorkel surveys, CDFW Photo.

Table 10. Juvenile snorkel survey locations for monitoring of anadromous salmonids in the Klamath Basin.

	Location	Species	Years		Months	Lead	Funding
Lower-Mid Klamath	Salmon River	CHS, CHF, COH, STH	?	?	?	SRRC	?
	Scott River	CHF, COH, STH	2024	?	Jun-Sep	SRWC	CDFW
	Shasta River	CHF, COH, STH	?		May-Aug	CDFW	Various
	Mid. Klamath Tribs.	COH	2011	Pres.	Mar-Dec	YTFP	?
Upper Klamath[1]	Mainstem	CHF, COH, STH	Planned		Jul-Sep	CDFW	CDFW
	Scotch/Camp Creeks	CHF, COH, STH	Planned		Jul-Sep	CDFW	CDFW
	Fall Creek	CHF, COH, STH	2024	Pres.	Jul-Sep	CDFW	CDFW
	Jenny Creek	CHF, COH, STH	2024	Pres.	Jul-Sep	CDFW	CDFW
	Shovel Creek	CHF, COH, STH	2024	Pres.	Jul-Sep	CDFW	CDFW
	Other tributaries	CHF, COH, STH	Planned		Jul-Sep	CDFW	CDFW
Trinity	Upper tributaries	COH	?	?	?	YTFP	?
	South Fork tributaries	COH	?	?	?	WCHC	?

PIT Tags

9. Factors & Processes

Watershed Functional Process Hierarchy

IFRMP

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BREAK

BACK IN 15 MINUTES

Over 16 suckers gather on the graveled river bottom. Photo courtesy of Jason Ching/University of Washington (USFWS).

Workgroup Exercise

BACK AT 1:15

LUNCH

Livestock grazing in riparian zone, Upper Klamath Basin, OR (USFWS 2013)

Lunch Options

Within 5 min Drive from Ashland Hills Hotel

- In Hotel – Luna Cafe
- Wild Goose Café and Bar (10 min walk)– 2365 Ashland St, Ashland, OR
- Tacos El Valle Food Truck (10 min walk) – 2366 Ashland St, Ashland, OR
- Xerxes Mediterranean Grill (5 min Drive) – 1729 Siskiyou Blvd, Ashland, OR
- Sammich (5 min Drive) – 424 Bridge St, Ashland, OR
- Sawaddee Thai & Asian Cuisine (5 min Drive) – 1634 Ashland St, Ashland, OR

Workgroup Exercise Results

Discussion

Trinity River Monitoring Review

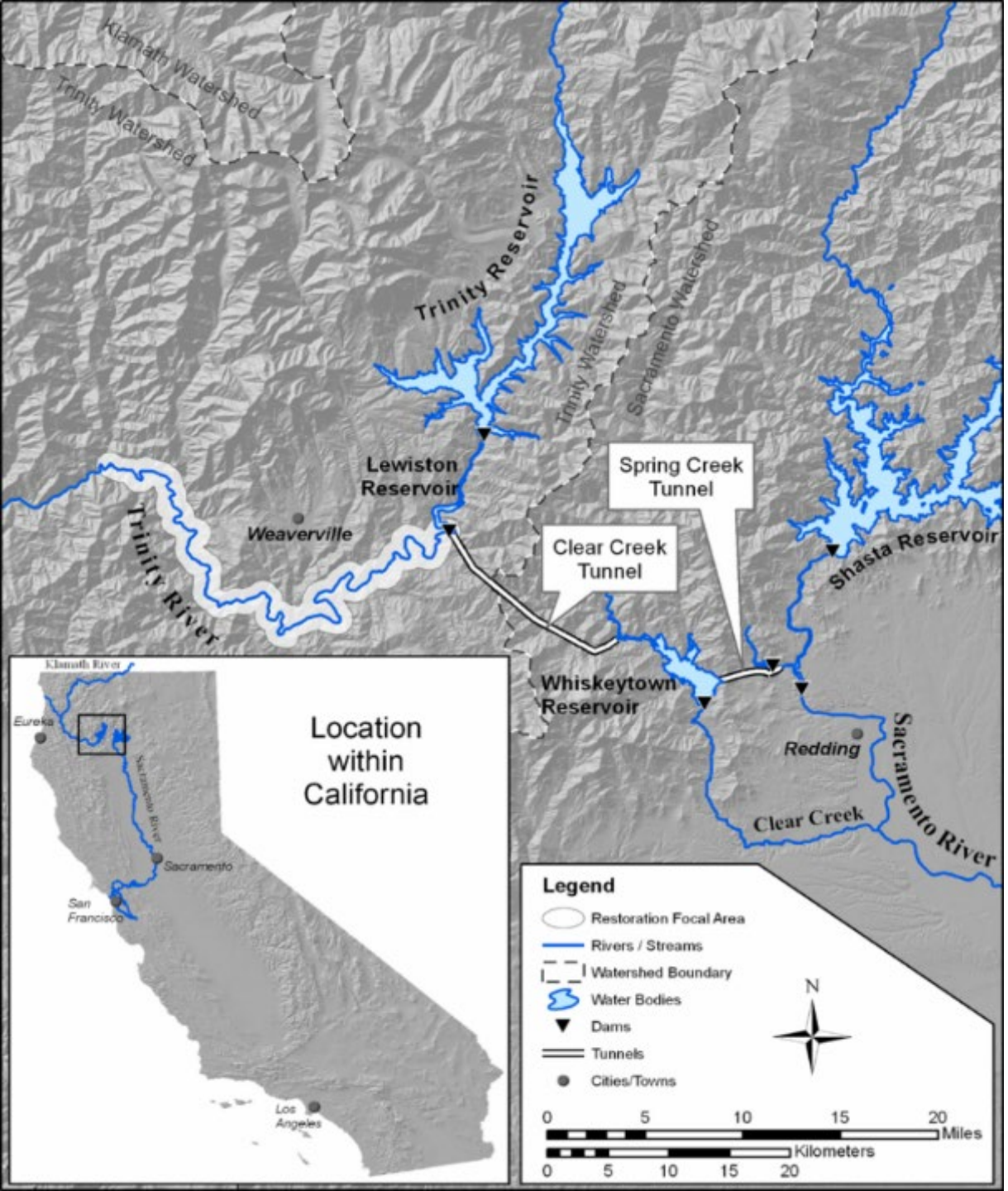
Eric Peterson, BOR

Trinity River Monitoring and Modeling Reviews

Trinity River Restoration Program
Eric Peterson Ph.D.
Science Coordinator

Outline – toward more efficient monitoring

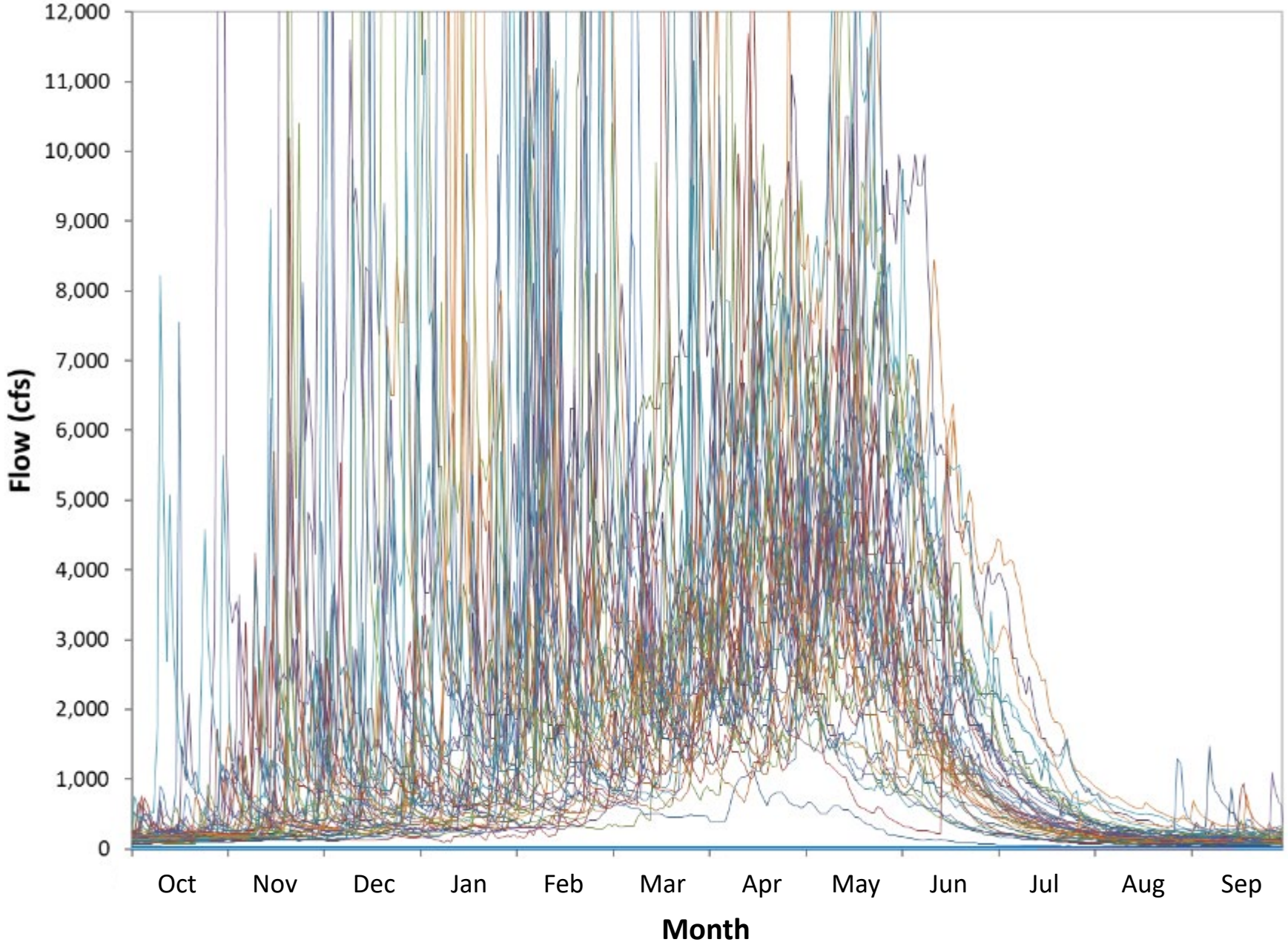
- This is our solution, not your solution, but may contain ideas
- Our solution comes from our perspective, so
  - Start with context and history
  - Formation of TRRP
  - The management tools we are assessing, adapting
- Status of where we are at
- How we are reviewing our monitoring


Klamath Watershed
Trinity Watershed
Trinity Reservoir
Trinity Watershed
Sacramento Watershed
Lewiston Reservoir
Spring Creek Tunnel
Weaverville
Clear Creek Tunnel
Trinity River
Shasta Reservoir
Whiskeytown Reservoir
Redding
Sacramento River
Clear Creek
Location within California
Klamath River
Eureka
Sacramento River
Sacramento
San Francisco
Los Angeles
Legend
Restoration Focal Area
Rivers / Streams
Watershed Boundary
Water Bodies
Dams
Tunnels
Cities/Towns
N
0 5 10 15 20
Miles
Kilometers
0 5 10 15 20


CV
TR

Water Years
1912-1960
(overlapping)

Before the dams



Water Year
1961

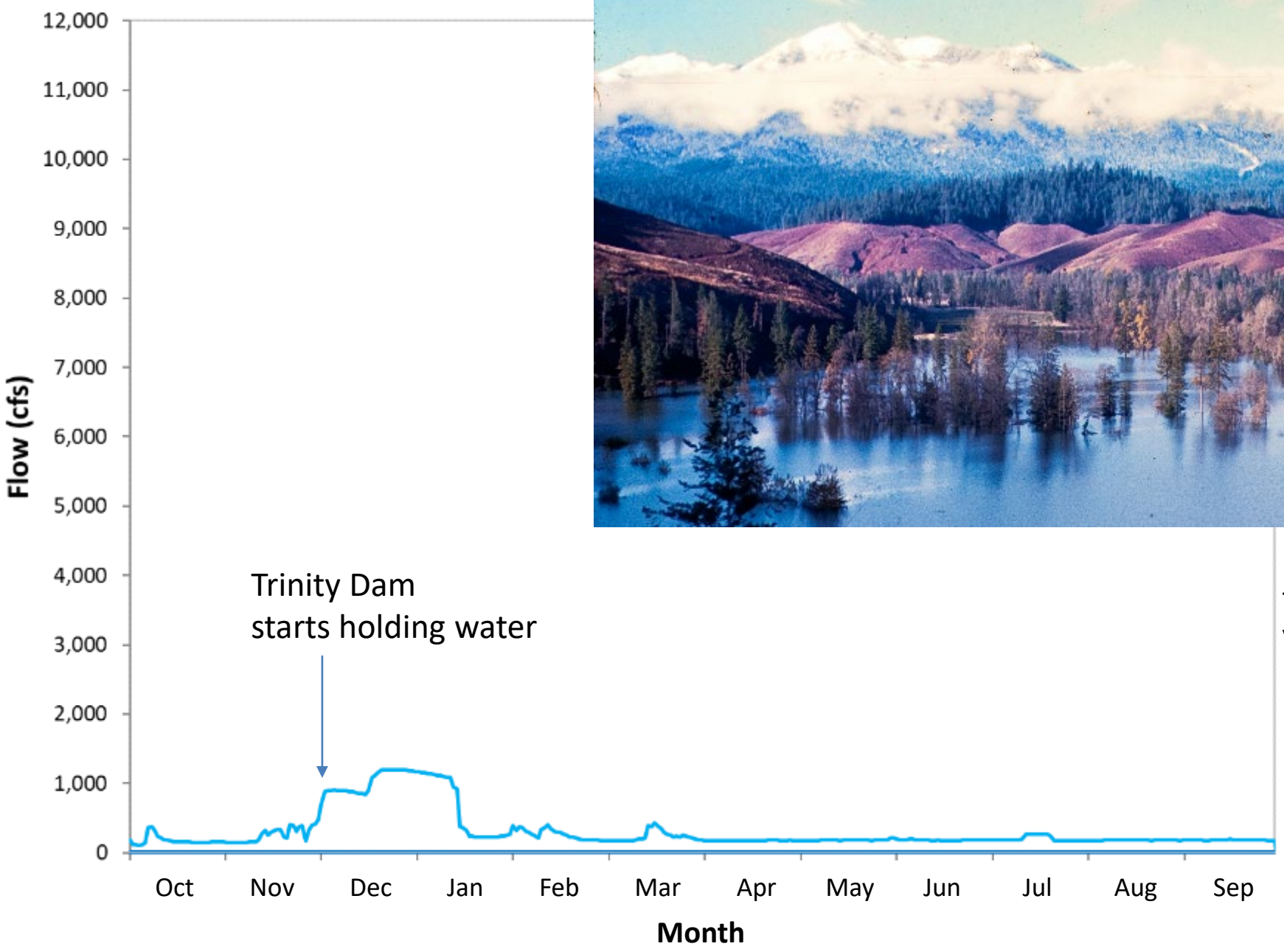


Photo of Trinity Lake filling, courtesy of the Van Matre family

Trinity River at Douglas City, about 20 miles below the dams

1960
200 cfs

2023
450 cfs

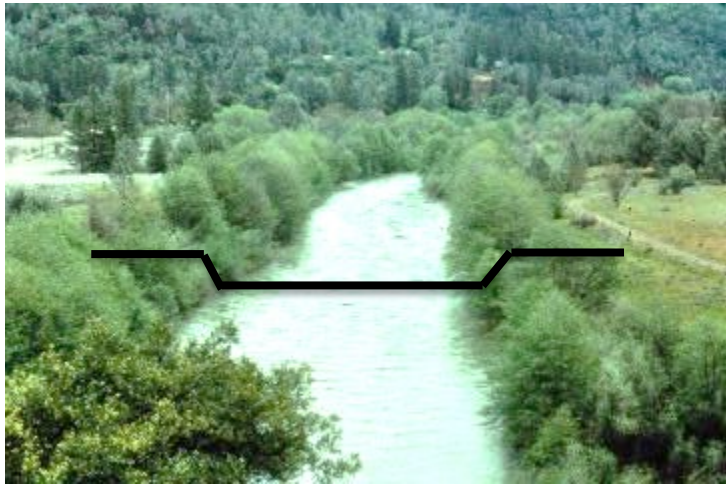
Change to **function**
leads to change in form

Vegetation Encroachment
+ Sediment Deposition

=> Narrow trapezoidal channel…

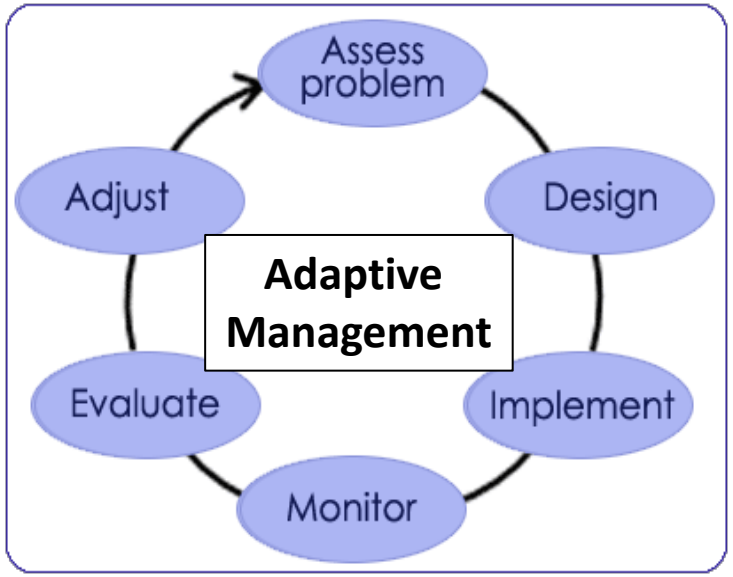
expected slow and shallow became <u>fast and deep</u>

Unintended Consequences



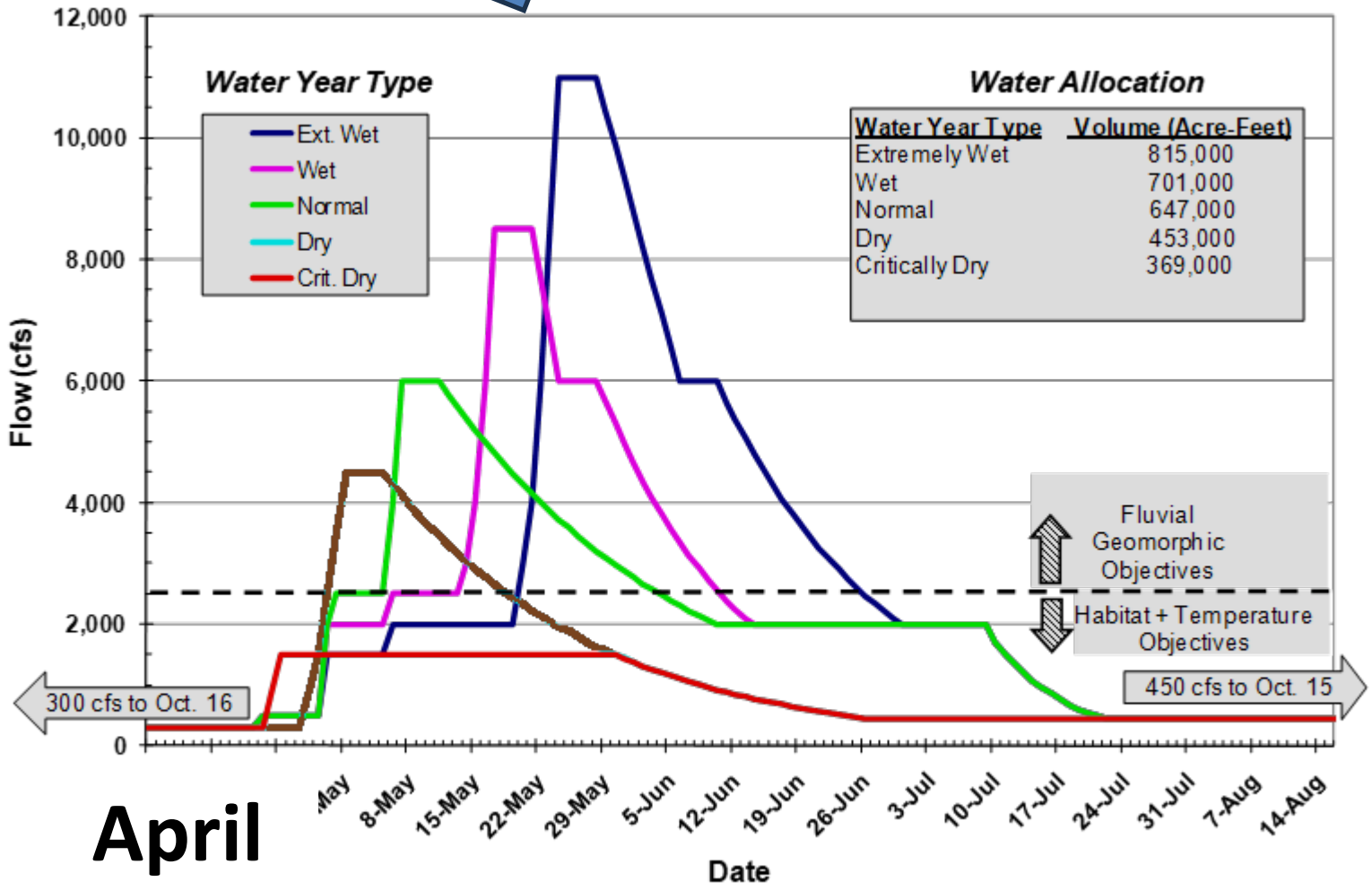
Our Ingredients

Our Recipe



Trinity River Flow Evaluation Studies and 2000 Record of Decision (ROD)

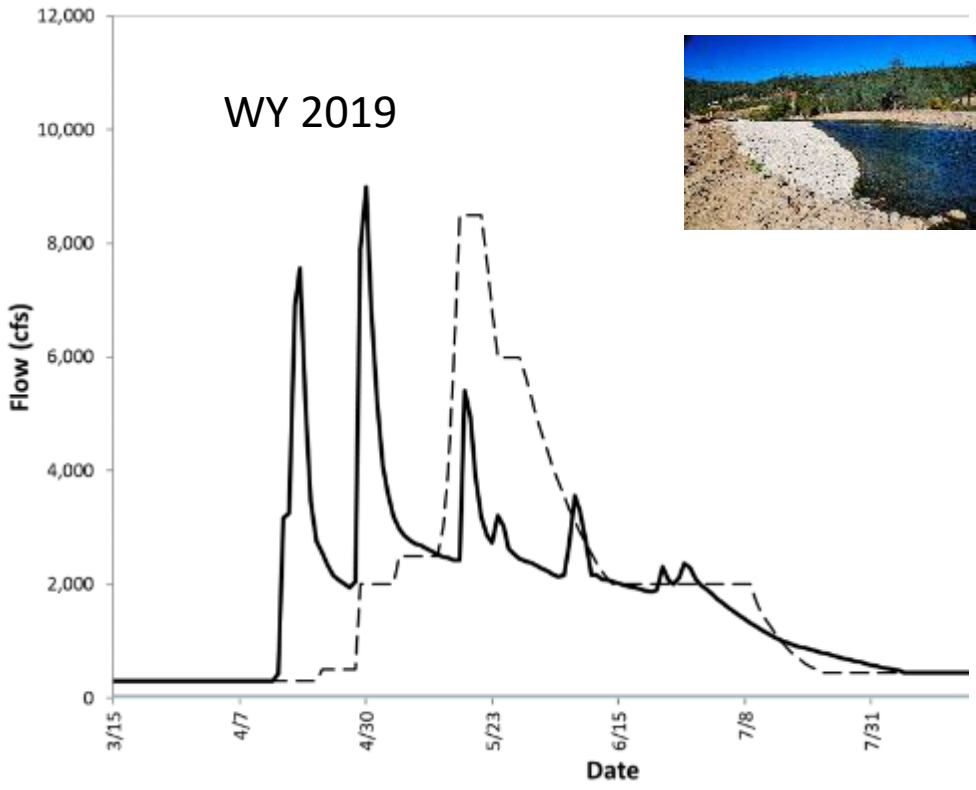
River Flow Releases, Channel Rehabilitation, Sediment Augmentation, Watershed Restoration



April

Adaptive Management:

"recommend possible adjustments to the annual flow schedule"



History, in many cases different from the Klamath

- 1990s Trinity River Flow Evaluation Study
- 1999 TRFES Final Report
- 2000 EIS and ROD -> Adaptive Management under the Trinity Management Council
- Several iterations of how to strategize our monitoring
  - Adapting to “Adaptive Management”
- Current:
  - Objectives and Targets Document
  - Science Plan

Objectives and Targets

- Living document (several revised or new targets in process)
- Program Goal Statement
  - Objectives
    - Targets (with links to management actions)

Objective	Target	Management	Monitoring	Modeling (forecasting management action)
A	A.1		Screw Trap	S3 Production
B	B.1		Weir	[Limiting Factors Analysis?]
	B.2		Redd Surveys	[Limiting Factors Analysis?]
C	C.1		Sonar Bathymetry	0SRH2D Shear Stress

Objectives and Targets – Specific Example

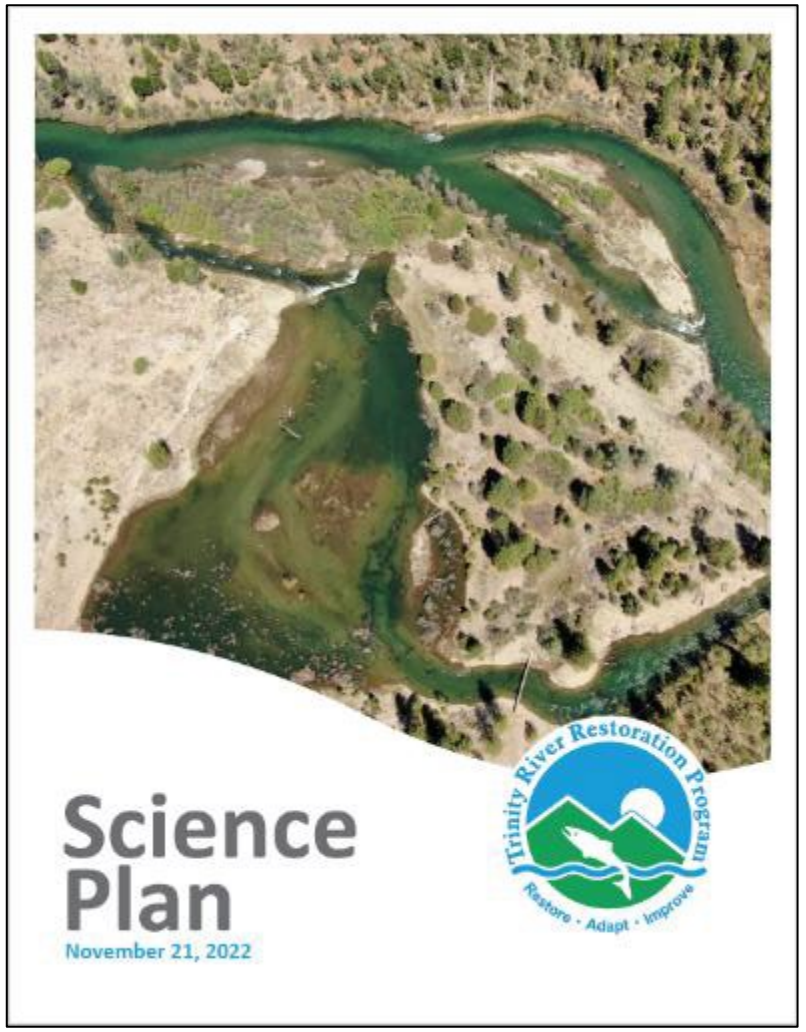
Objective	Target	Management Action	Monitoring Activities	Modeling/DSS Activites
Fish 13: Provide thermal regimes to promote spawning success of spring and fall Chinook Salmon	See screen-clip of Table 3 (to right), plus 2024 added, "Lewiston Dam temperature target of < 56 °F from July 1-September 14"	Flow management	Stream gaging	RBM-10
Fish 14: Minimize competition and predation by hatchery smolts on wild fry and juveniles	Target remains undefined	Flow management	Stream gaging	SRH-2D, Capacity

Objectives and Targets – Specific Example

Objective	Target	Management Action	Monitoring Activities	Modeling/DSS Activites
Physical 1: Increase topographic variability of active channel as measured by R*	R^* targets are applied at the reach scale dependent on local geomorphic controls.	Global: Flow management	Stream gaging, 5 Year topgraphic/bathemetric survey with escape cover, vegetation, and roughness	SRH-2D
	Target values of R^* has not yet been defined but can be determined by adopting a value representative of reaches that are deemed to be satisfactorily complex.		Stream gaging, 5 Year topgraphic/bathemetric survey with escape cover, vegetation, and roughness	SRH-2D
	Increases in R^* generally indicate an increase in channel complexity.	Reach Scale: Channel rehabilitation, gravel augmentation.	Stream gaging, 5 Year topgraphic/bathemetric survey with escape cover, vegetation, and roughness	SRH-2D

Science Plan

- A programmatic guide for the future.
- Formally approved by our
  Trinity Management Council



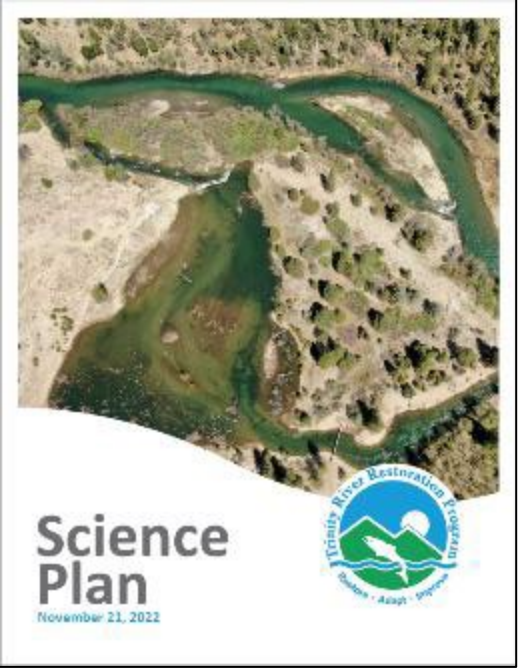


Figure 6. Sequencing and expected duration of tasks to resolve key uncertainties. The darker shade of grey indicates greater uncertainty.

Task	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Implement Active AM of flows											
Limiting factors assessment											
Implement core activities (monitoring, modeling, analysis)											
Review of Phase 2 channel rehabilitation sites											
Review of long -term monitoring activities											
New tasks emerging from SP process											
Program review to determine whether ROD actions are sufficient to achieve goals											

"need to know"
versus
"nice to know"

Monitoring and (DSS) Modeling Reviews

- Began fall of 2024
- Expanded to include modeling
- Enumerated 28 topics:
  - Regular monitoring activities as split out in our budget
    - E.g. “outmigrant monitoring” as opposed to reviewing individual screw traps
  - Regularly used models in DSS of our adaptive management actions
  - Additional regular data streams
- Established rubric on how to monitor
  - Simple overview
  - Recommend changes
  - Can recommend deep-dive by external contractor
- Split out reviews to our regular Work Groups
- When complete, our Science Advisory Board will review

Topic List

- Annual:
  - Streamgaging
  - Temperature Monitoring (beyond gages)
  - Aerial Photography
  - As-Built of channel site (aerials + topo)
  - Sediment Transport (hydrophones)
  - LWD Survey (channel sites)

  - Juvenile outmigration
  - Spawner run size estimation
  - Chinook CWT
  - Scale/Age Analysis
  - Redd/Carcass Distribution
  - Lower Klamath Harvest
  - Lower Trinity Harvest
  - Sport Harvest

- 5-year:
  - Terrain (40 miles, terrestrial + bathy)
  - SRH2D Flow Modeling
  - Detrended DEM (height above river, depth)
  - Grain-size mapping
  - Active bar mapping
  - Riparian Vegetation Mapping

- Modeling:
  - Juvenile Abundance (S3)
  - Temperature (RBM10)
  - Bedload transport estimation
  - TARGETS: Riparian response to hydrograph, cottonwood initiation
  - FYFAM: Foothill Yellowlegged Frog populations

Monitoring and Modeling Review Form

This form was drafted toward reviewing core monitoring activities, but may be applicable / modifiable for other purposes.

Subject	
Monitoring or DSS Model[1]?	
Reviewer(s)	
Date	

Specify relevance to management actions	
Flow	
Channel Rehabilitation	
Gravel Augmentation	
Wood Augmentation	
Watershed Restoration	
Other	

Narratively describe how this project is useful to the program:

List interactions between modeling and monitoring. For modeling activities, which monitoring data sources are needed for development or calibration? For monitoring activities, which models are supported?

List relevant TRRP objectives and targets and how this project informs them:

Reporting, data delivery, availability in TRRP repository. Include timing of delivery cycles and specify the most recently completed report and data package.

Summarize methods and geography (e.g. sampling design)

Recommendations on change.

Conservation Efforts Database Update

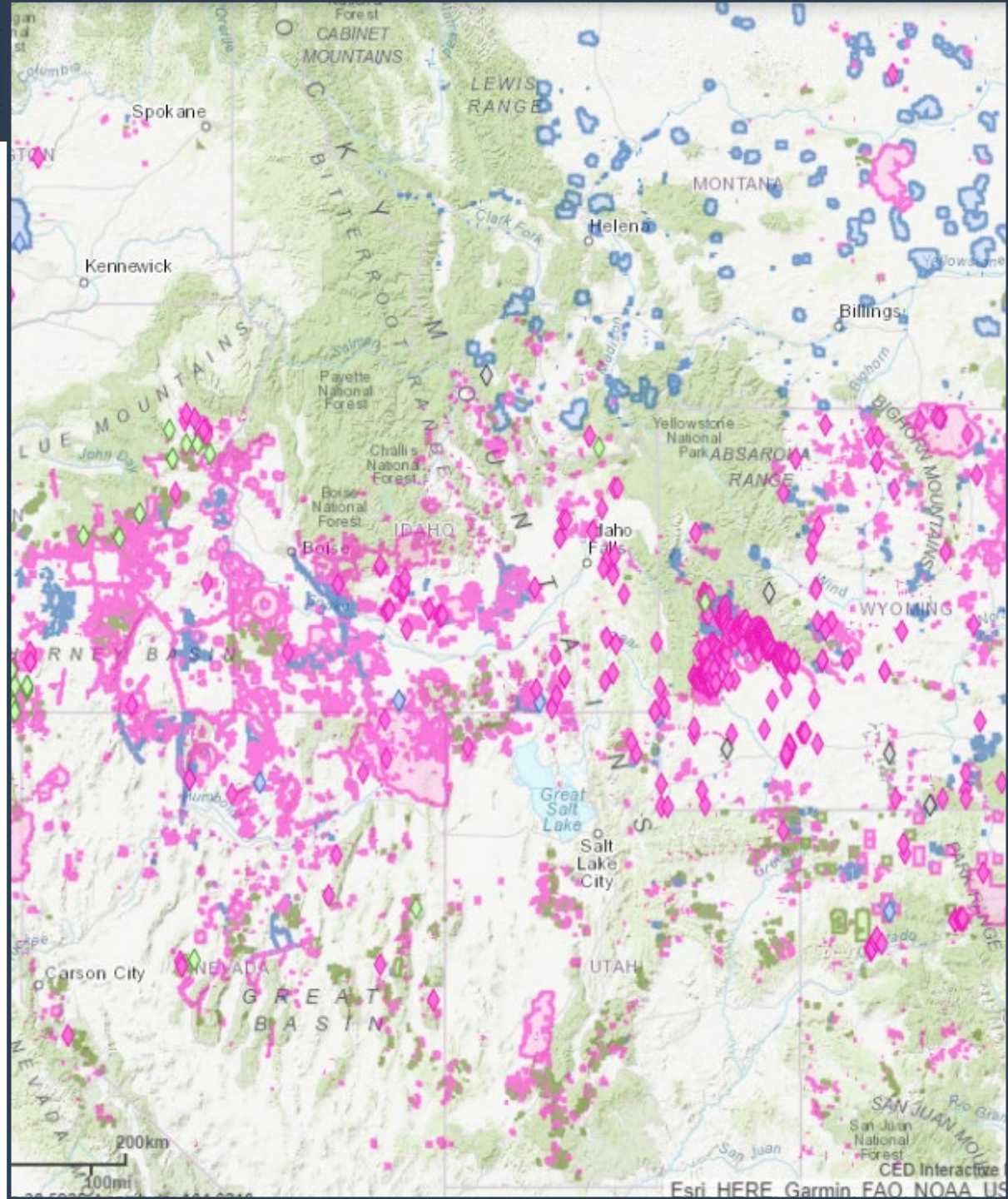
Matt Baun, Lief Wiechman

Conservation Efforts Database | USFWS | USGS

CONSERVATION EFFORTS DATABASE:

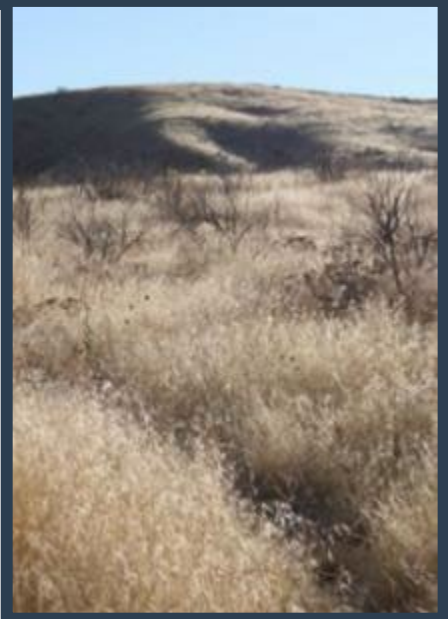
Implementation Monitoring and Effectiveness in the Klamath Basin

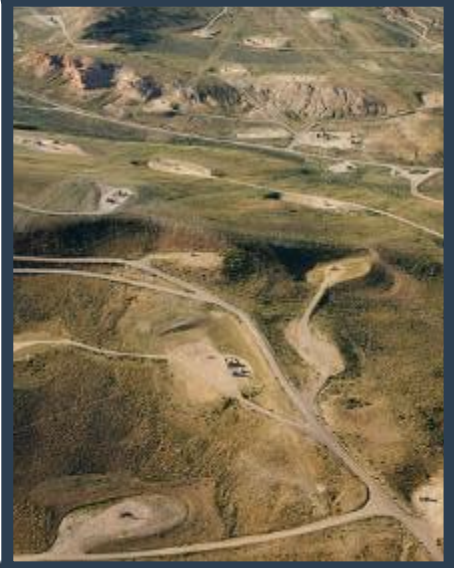
June 24, 2025



PROBLEM STATEMENT

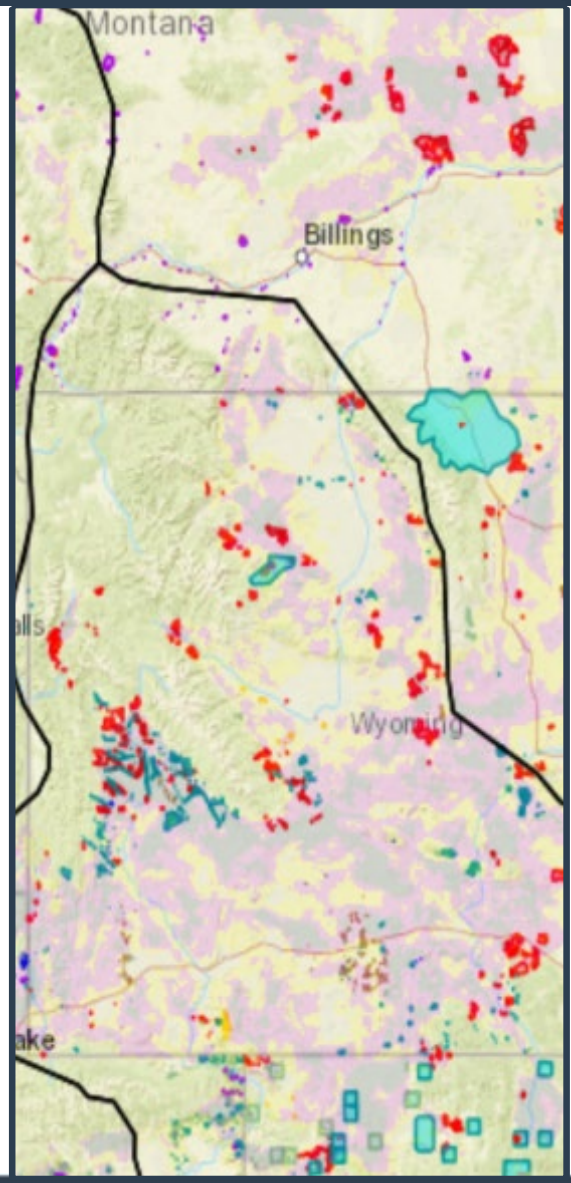
- Threats are the focus of conservation
  - Threat intensity and extent are thoroughly documented
- Conservation actions address threats
  - Actions and their effectiveness are often poorly documented






PURPOSE

- The CED is a web-based geospatial database and reporting tool **designed to collect spatially-explicit, spatially-obscured, and non-spatial information** about the actions that aim to address, reduce, or remove the threats to driving habitat loss and degradation.
- **Collect demographic, genetic, and habitat data, and summarize that information** for evaluation of effectiveness.
- The data collected can be used in **adaptive management, project planning, implementation monitoring, outcome evaluation, and status assessments.**



CAPTURING EFFECTIVENESS

- Resource of interest
  - Impact to resource
- Action to improve resource or address impact
- Related information to assess outcomes
  - Objective, method, location, etc.

CAPTURING EFFECTIVENESS

Aligned with Klamath Basin Goals

1. Basic Project Tracking Information

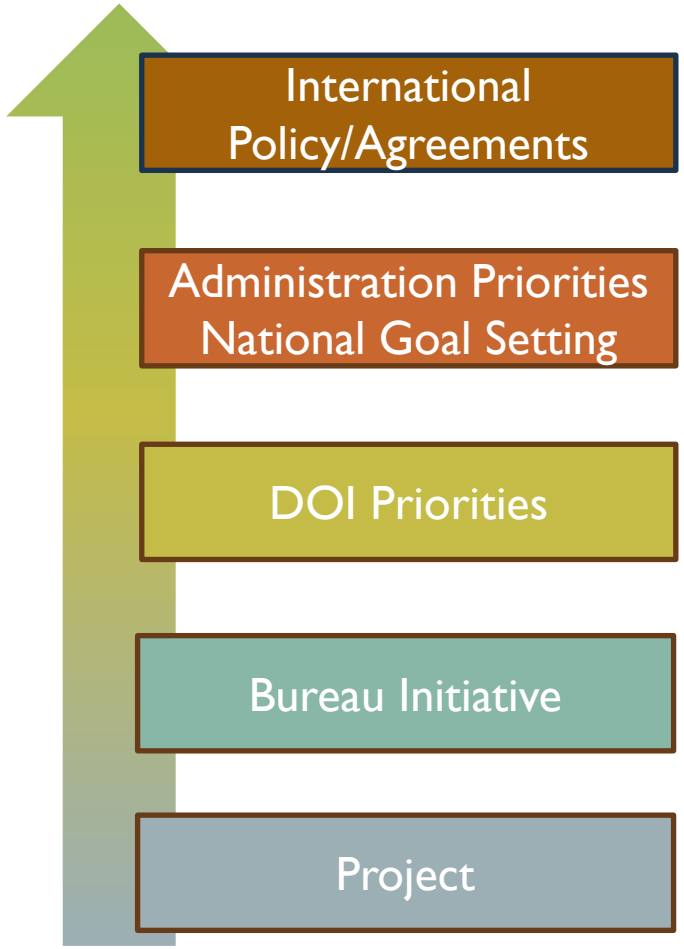
2. Project-level Implementation Measures
Best practices for project implementation

3. Project-level Output Measures
What a project will "produce" by **Type**
- Vegetation Management
- Wildlife Management
- Hazards Reduction
- Etc.

Unit
- Acres
- Miles
- Etc.

4. Outcomes
- Tier from SER Topline Indicators
- Develop Collaboratively with Bureaus
- The point of this work

CAPTURING EVIDENCE – Fire Example



---------- Example Indicators/Measures (for illustrative purposes only) ----------

SER: Trends in ecosystem degradation causes

Reduce Ecosystem Degradation

% of baseline acres infested with target invasive plant species that are under control

Fire Resilience

% of landscape acres where fire management actions have helped achieve desired conditions

% reduction in firefighting hours

Reduce Fire Frequency and Intensity

fuels reduction projects

% reduction LandFire fuels

Reduce Burn Probability Sagebrush

fuels reduction projects

acres fuels managed

% reduction in fire return over x years

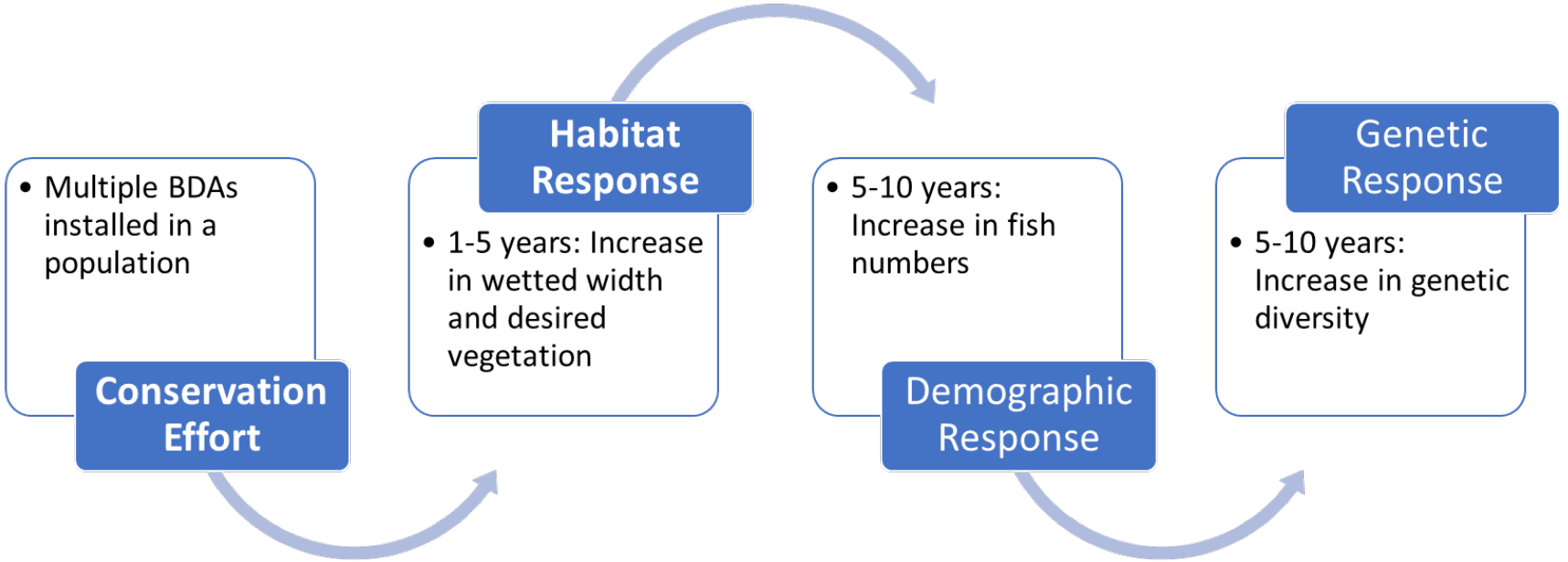
Fuels Reduction Location X

acres invasives managed

acres remaining weed free

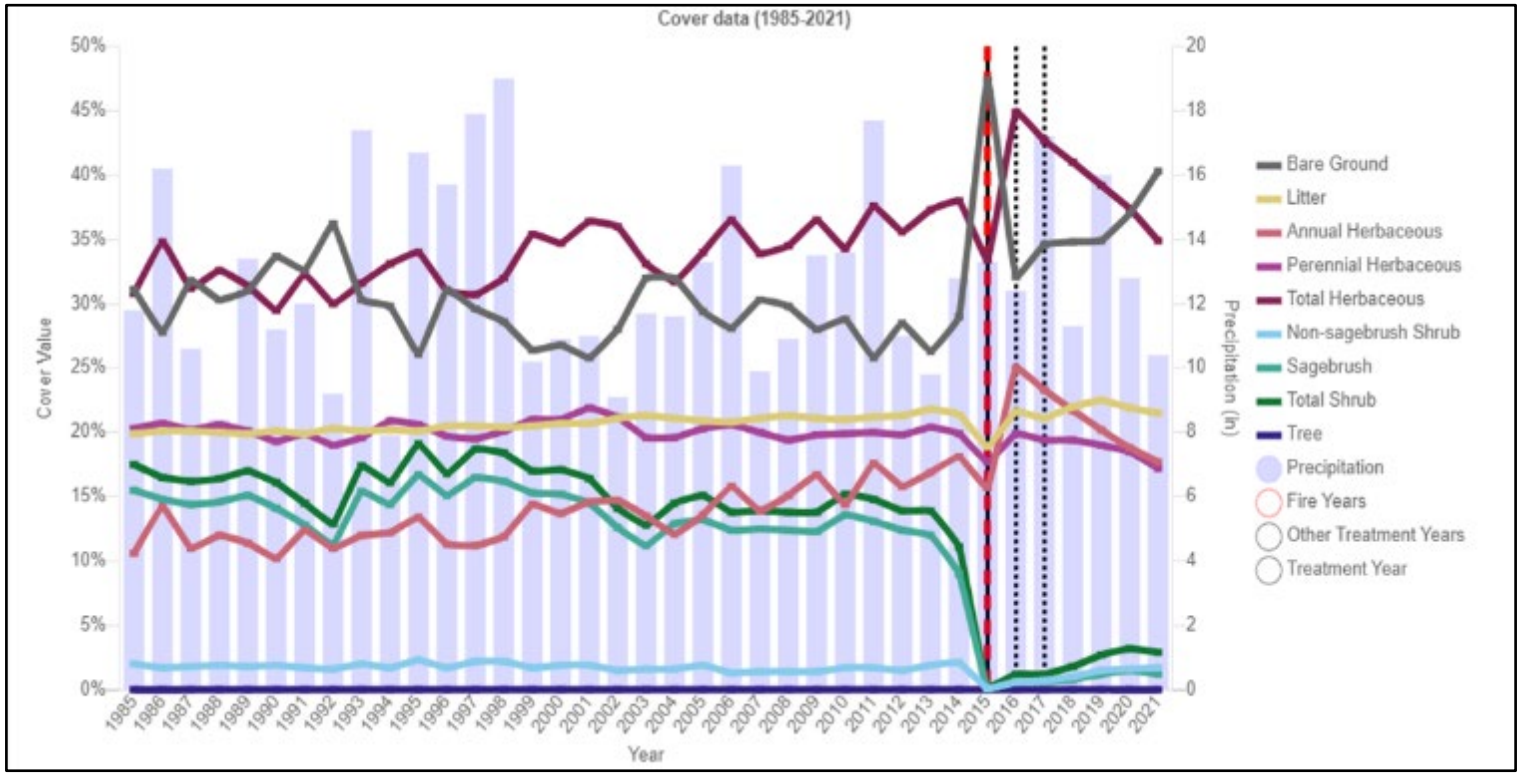
CAPTURING EFFECTIVENESS

- The CED captures information from data providers on the effectiveness (or expected effectiveness) based on action type and implementation supported by peer-reviewed science.
- Evaluation of restoration outcomes conducted outside the CED, with data attributes to inform the evaluation.



CAPTURING EFFECTIVENESS

- Utilizing remote sensed data and habitat condition data to quantify changes in habitat condition.
- Once models are developed, results can be integrated into the CED and summarized by SRUs
- Several examples of this in sagebrush biome currently



Example: Changes in vegetation components before and after disturbance (fire). These updates are in progress and expected to be completed in 2025-26.

CED MODULE DEVELOPMENT PROCESS

- New phased approach
  - Phase 1: Pilot in Upper Klamath
  - Phase 2: Expand to Lower Klamath
- Stakeholder Engagement
  - Development of a requirements doc
  - Identifying existing databases/datasets
- Development of a Reporting Units
  - Ecologically significant
  - Nested
  - Addresses PII
- Implementation Monitoring
  - Methods and approaches
- Effectiveness Monitoring
  - Analysis and Multi-scale metrics
- Leverage Existing Module Development

CED MODULE DEVELOPMENT PROCESS

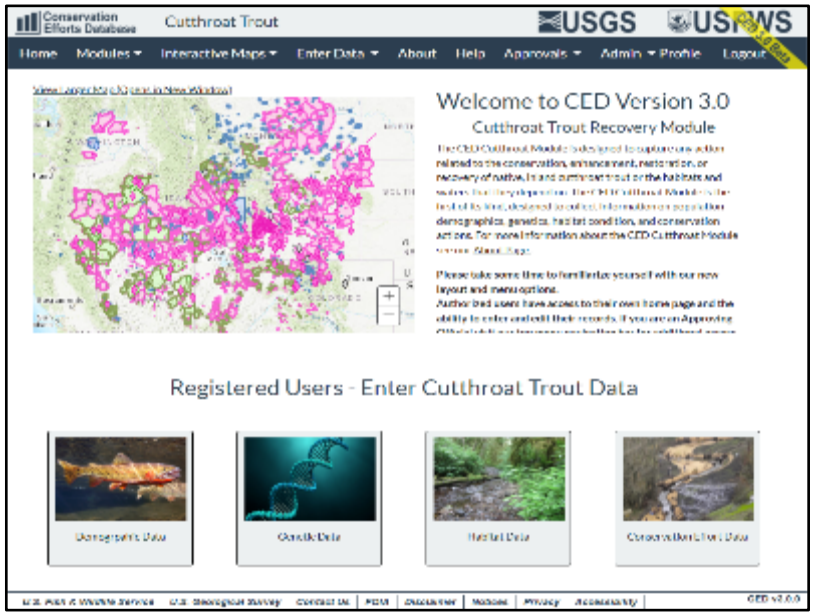
- WHO
  - State, Federal, Tribal, NGOs
- WHAT
  - We need expertise from data managers, biologists and resource managers, practitioners, and other land stewards
- HOW
  - Communicating with broad stakeholder team
  - Developing a Core Database Team
  - Identifying Sub-teams to tackle discrete topics
- WHEN
  - Quarterly, Monthly, Bi-Weekly (dependent on group)
  - Speed of development hinges on engagement; Estimated completion OCT 2026
- WHERE
  - Largely virtual meetings
  - Will aim to leverage existing coordination efforts

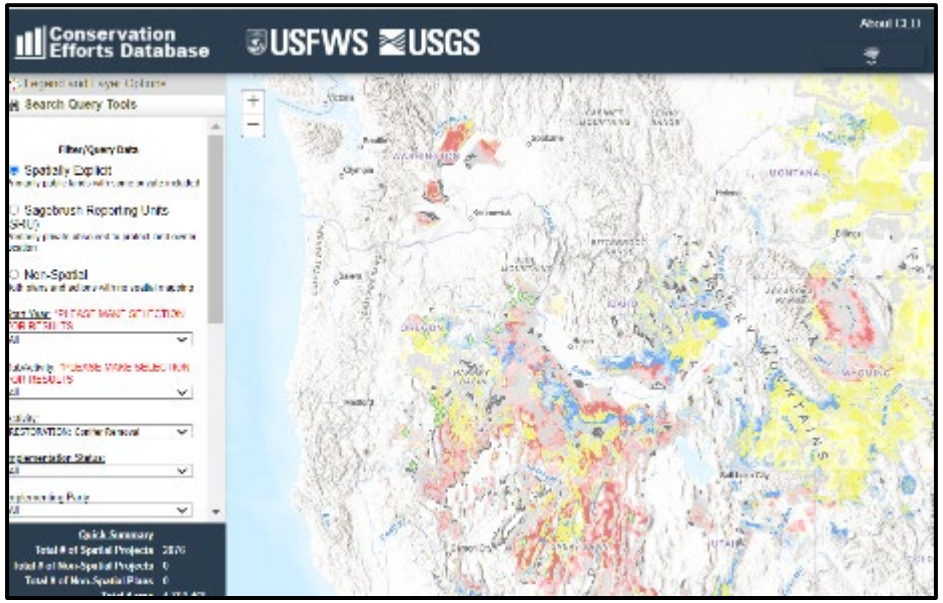
Questions

www.conservationefforts.org

STAKEHOLDERS and DATA PROVIDERS

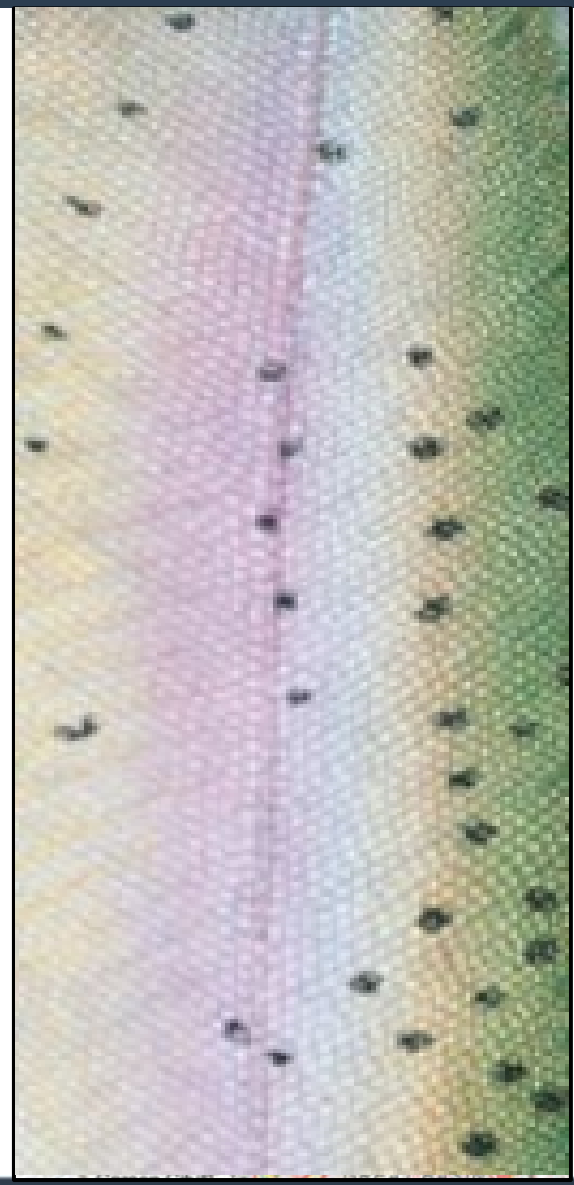
- Development is partner driven
  - Interagency stakeholder working groups for each module
  - Determine level of data access and summarization
  - Multiple levels of access



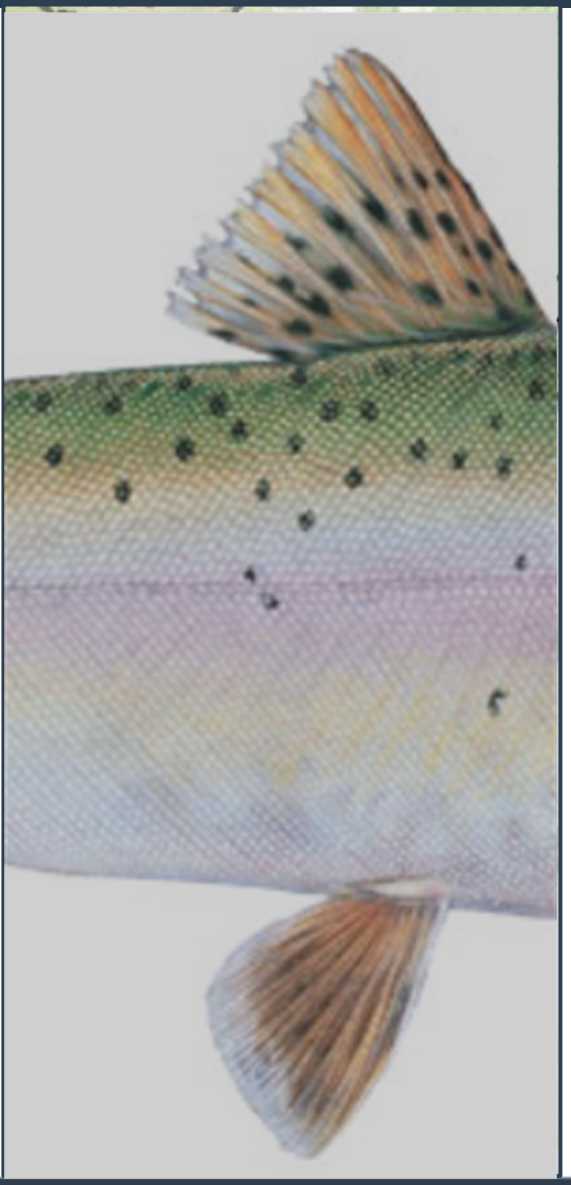


TENETS of the CED

- Easy to use
  - Designed to integrate with existing databases and web-based decision support tools
- Secure
  - Agencies/organizations establish “approving officials” to determine who can enter and edit data in the CED on their behalf
- Transparent
  - Public facing; options for data summarization and display
  - Interactive map displays all spatial data to public users
- Science-based
  - Utilizes known responses to threats and/or conservation actions

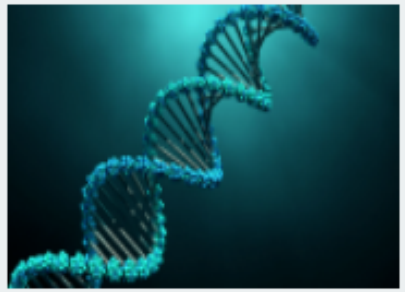


CED: SUBTEAM EXAMPLES



Subteams identify and refine CED development details

Demographic Data



Genetic Data

Habitat Data

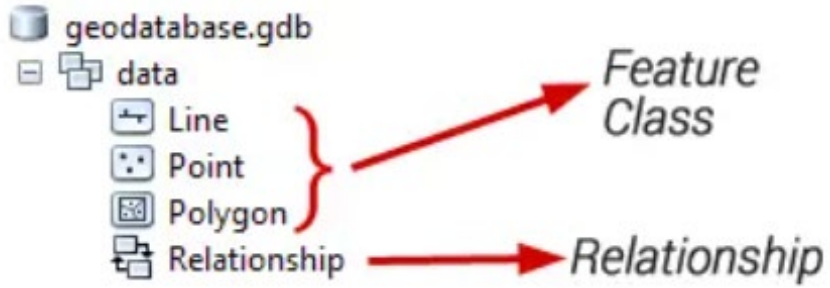
Conservation Effort Data

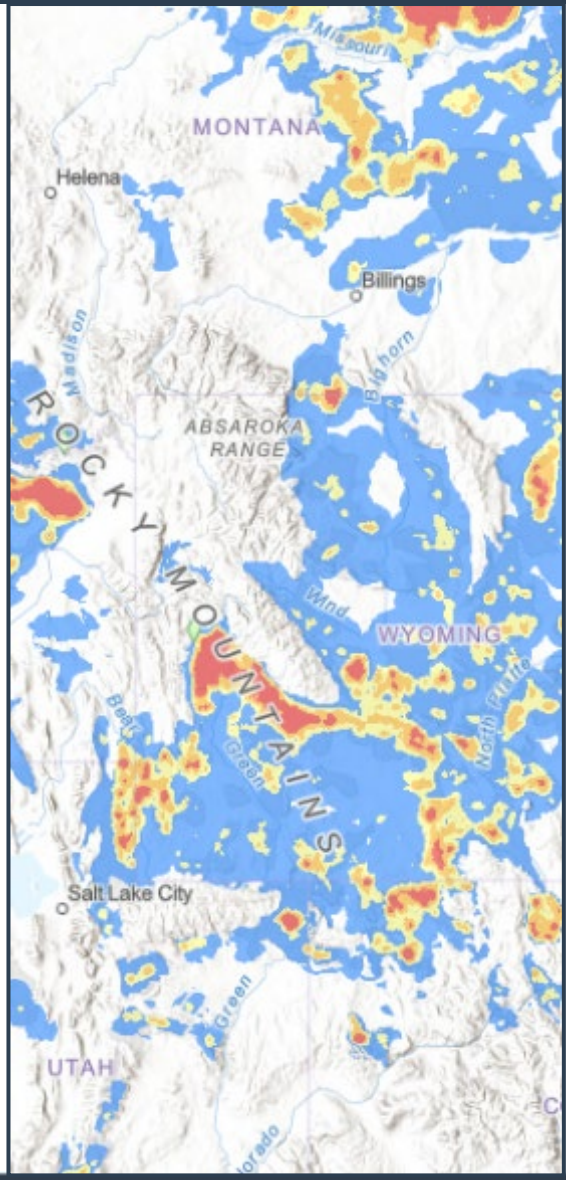
CED DATA ORGANIZATION

- Four primary data components
  - Population Demographics
  - Genetics
  - Habitat Condition
  - Conservation and Recovery Actions
- Focused on project- or treatment-level data collection
- Nested ‘Activities’ and ‘Subactivities’
  - Protection
    - Acquisitions and Easements (Permanent and Term)
  - Restoration
    - Habitat Improvements (plantings, seedings, riparian)
    - Exclusionary Fencing
    - Post-disturbance Restoration (flood, fire, energy, etc.)

DATA MANAGEMENT and COLLECTION

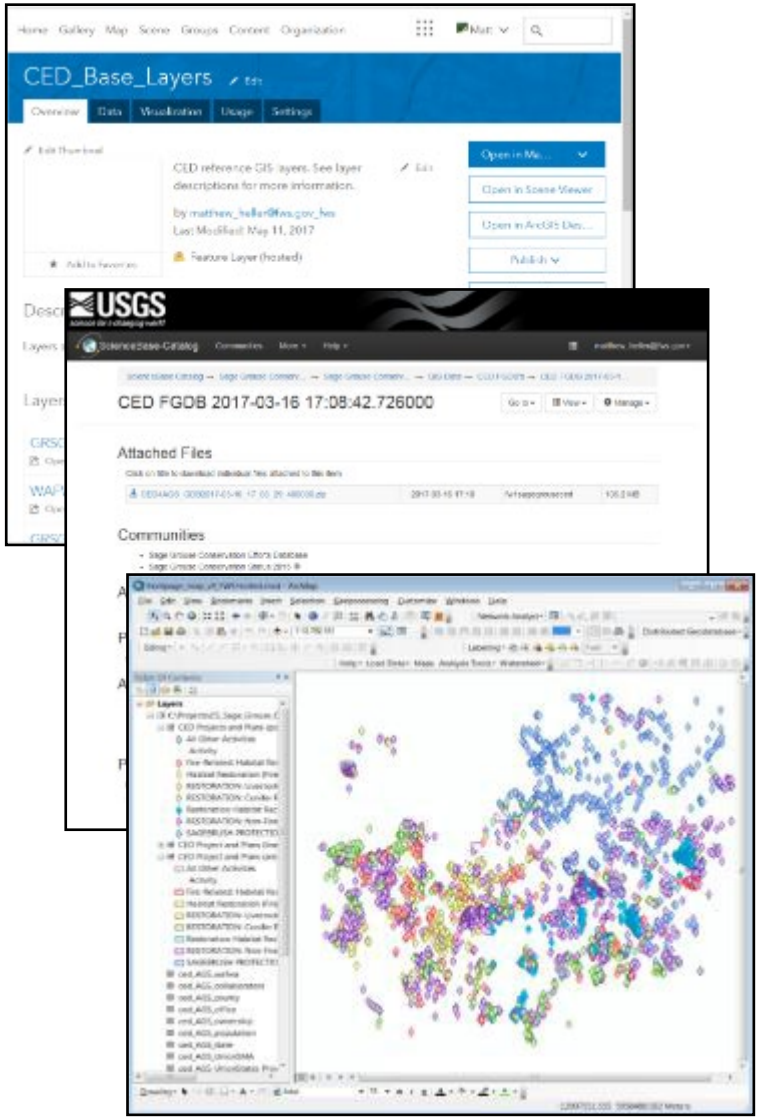
- The CED allows for single record or batch upload
  - **Single Record Collection:** Supports those without dedicated GIS experts to provide information, or those users with relatively few records
  - **Batch Upload:** Developed a 'Batch Upload' tool to help migrate large amounts of data from existing databases
    - Reducing staff time, auto-populates fields, error check





COMPATIBILITY and INTEROPERABILITY

- The CED aims to work seamlessly with other decision support tools
  - Geospatial Web Service Technology
    - Secure CED or Partner Website/Desktop Usage
    - ArcGIS Online, Industry Standard Geospatial Web Service Technology, for serving GIS (Geographic Information System)
  - Geospatial File-Based Downloadable Data
    - LC MAP/Sciencebase Repository for Downloadable Desktop Usage
    - Password Protected to Control Downloadable File Access
    - File Geodatabase Industry Standard Technology to Contain Spatial and non-Spatial data
  - Can work with Web Feature Service and Web Map Service to display datasets that provide context
  - Can explore options to integrate and utilize APIs
    - Develop crosswalks for ingestion and display



CED: CUTR SPATIAL FRAMEWORK – DATA COLLECTION

The CED collects data in 3 primary formats (Spatial, Tabular, and Field Reports).

Nested Hierarchy…

Fine Scale

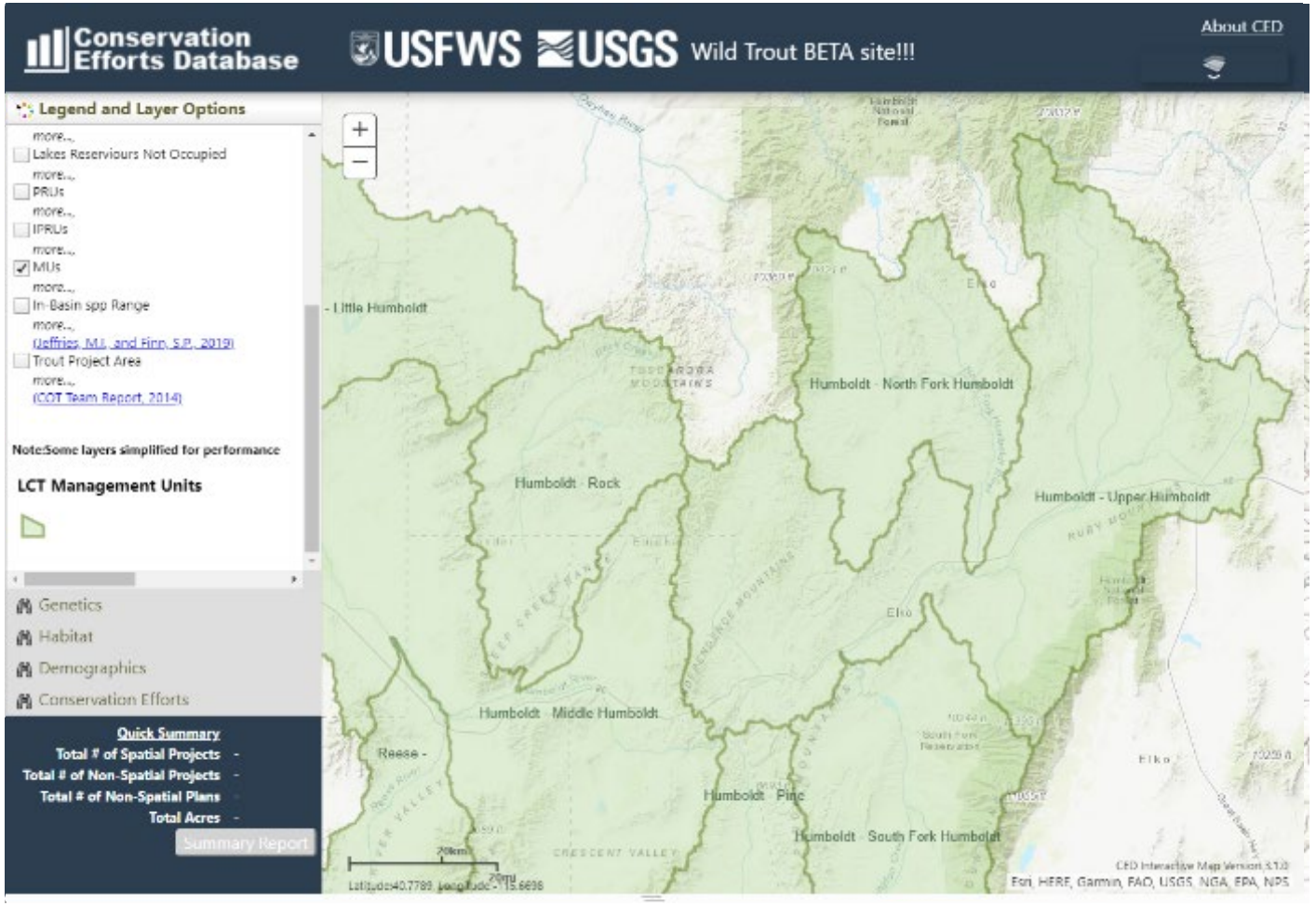
- Sample sites (point)
- 50m, 100m, 500m Transects/Reaches (line)
- Streams/Populations (line):
- Lakes/Reservoirs/Populations (poly)

Spatial Reporting Unit framework layers

- Population Reporting Units (poly)
- Inter-Connected Populations (line)
- Inter-Connected Reporting Unit (poly)

Broad Scale framework layers

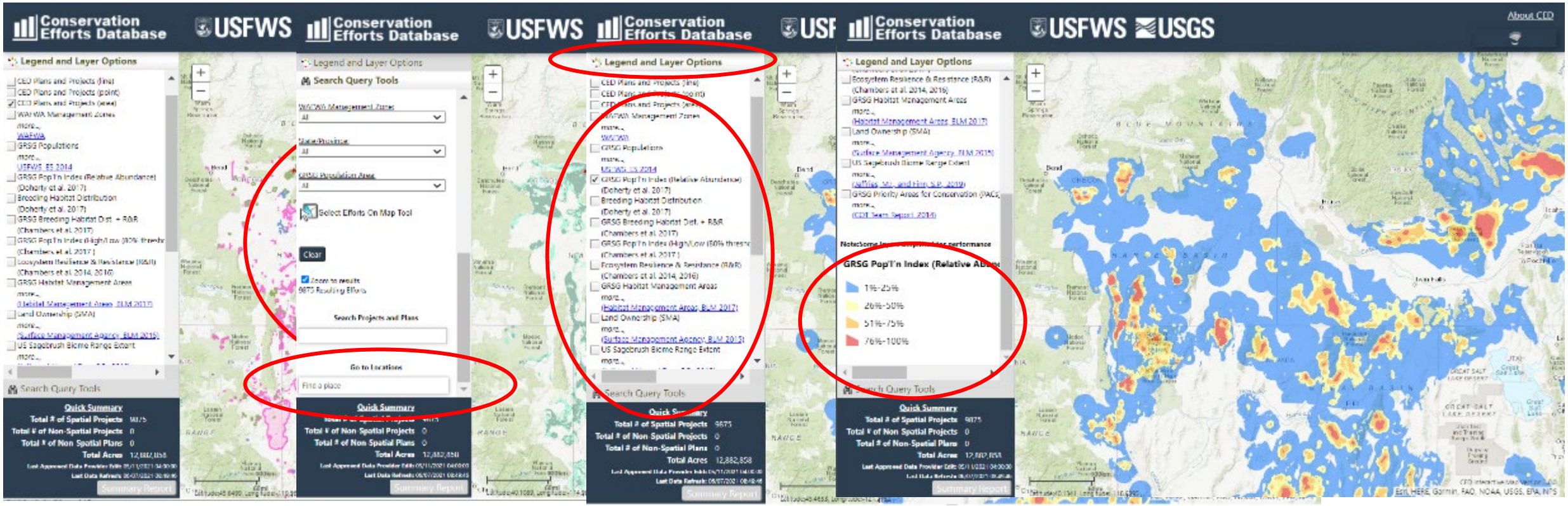
- Management Units/River Basin (poly)
- In-Basin Species Range (poly)
- LCT CED Project Area (poly)



MH

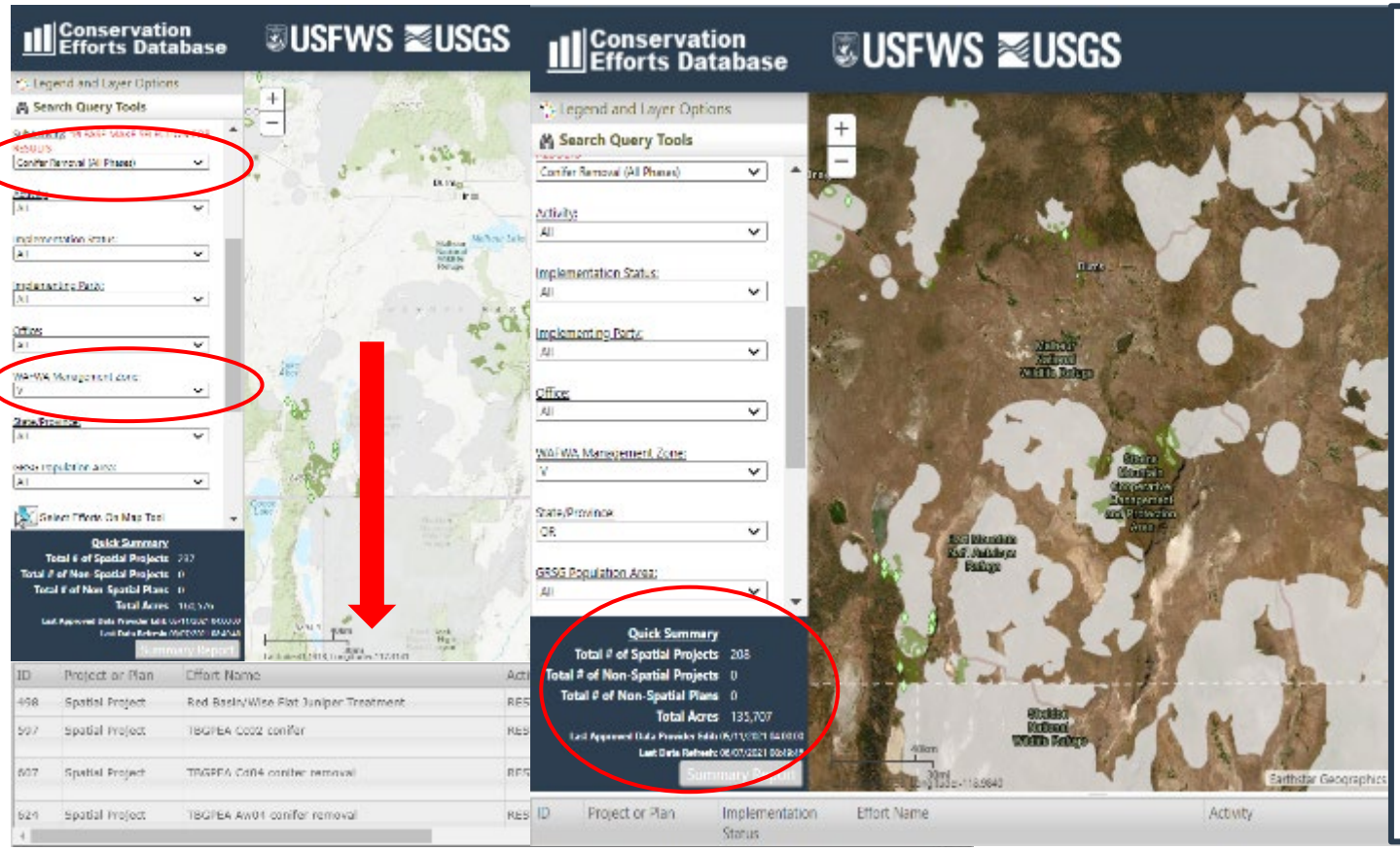
QUERIES and REPORTING FEATURES

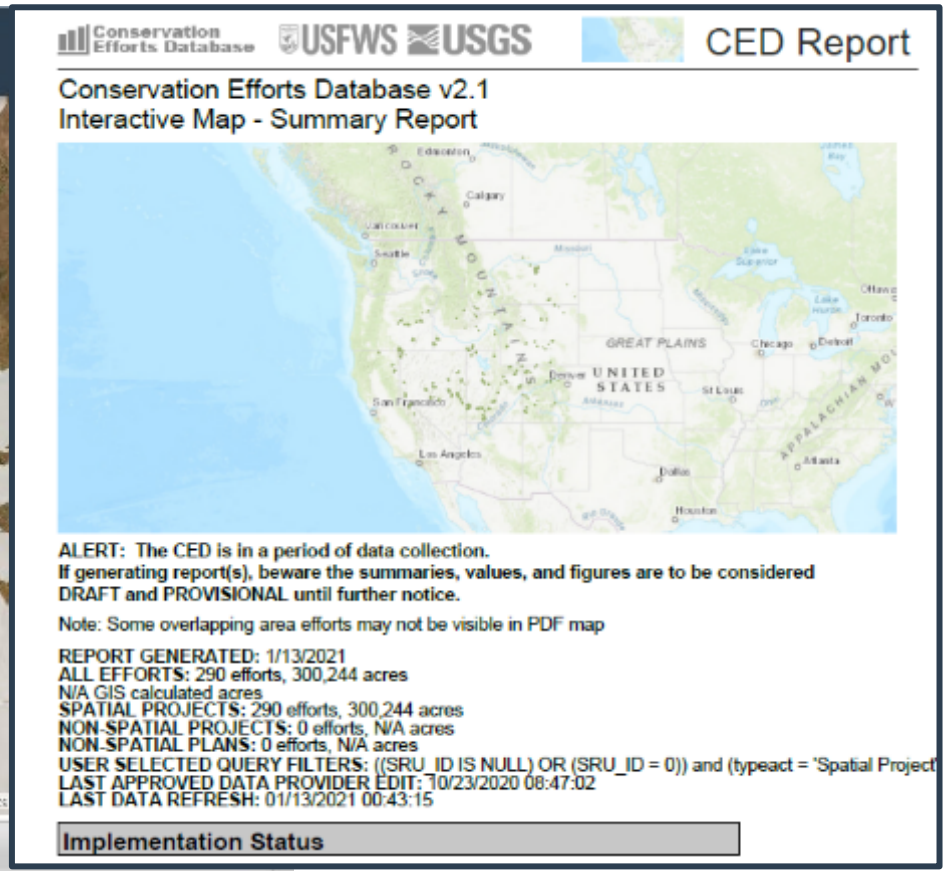
- Reporting features and options include



QUERIES and REPORTING FEATURES

- Customizable Queries, Quick Summary Report live Linked to Query Selections, Full Downloadable Summary Reports





DISCUSSION

www.conservationefforts.org

Plans for Day 2

Day 2 – June 25th

- Half Day (9am start, Adjourn at 12pm)
- Reflections on Day 1
- Scenario Planning Exercise
- Next Steps
- Closing Remarks

Adjourn

Reconvene tomorrow at 9:00

A landscape featuring a river and forested hills. Photo courtesy of NOAA. (USFWS)