



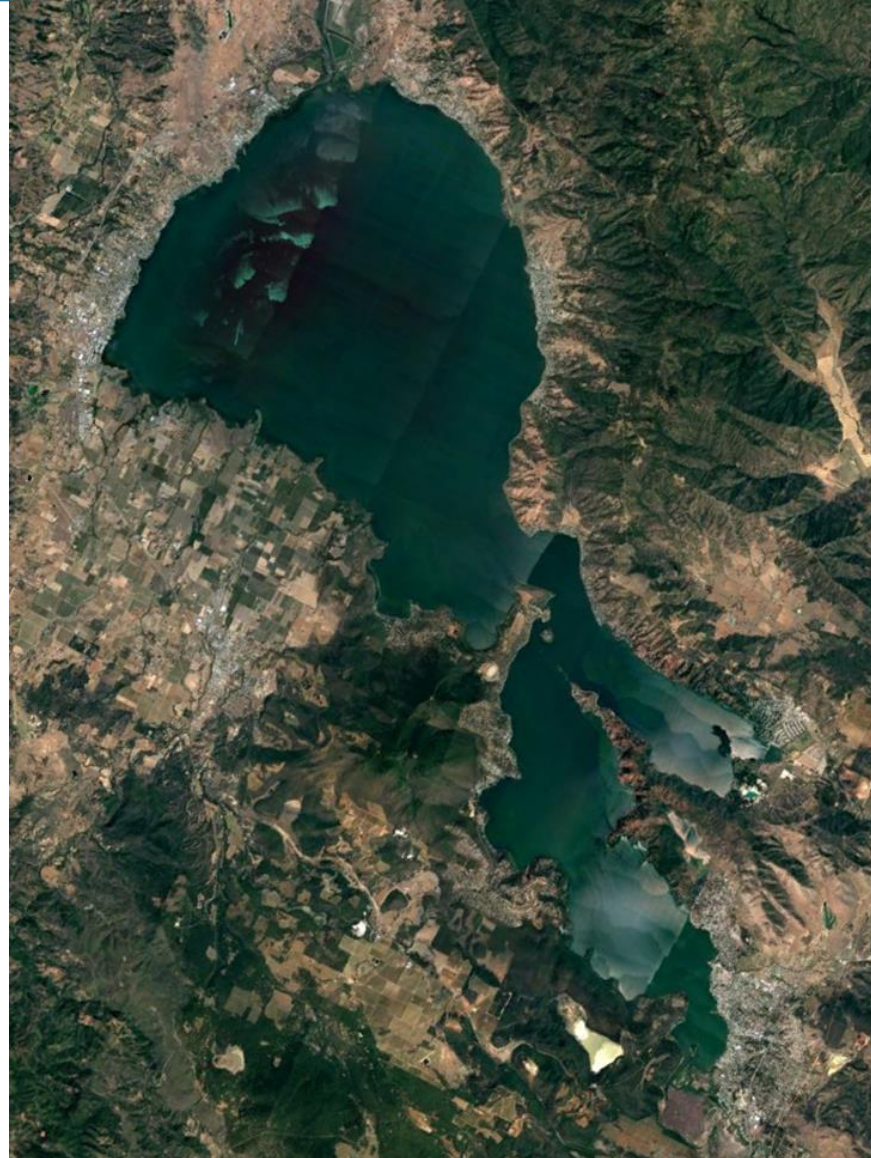
CLEAR LAKE HITCH UPDATE

Presented by: Felipe La Luz

*California Department of Fish and Wildlife
Lake County Board of Supervisors Meeting
February 11th, 2025*

Overview

- CDFW Monitoring Results
- 2024 Clear Lake Hitch Summit
- Updates to the Conservation Strategy



Map Data ©2022 Google

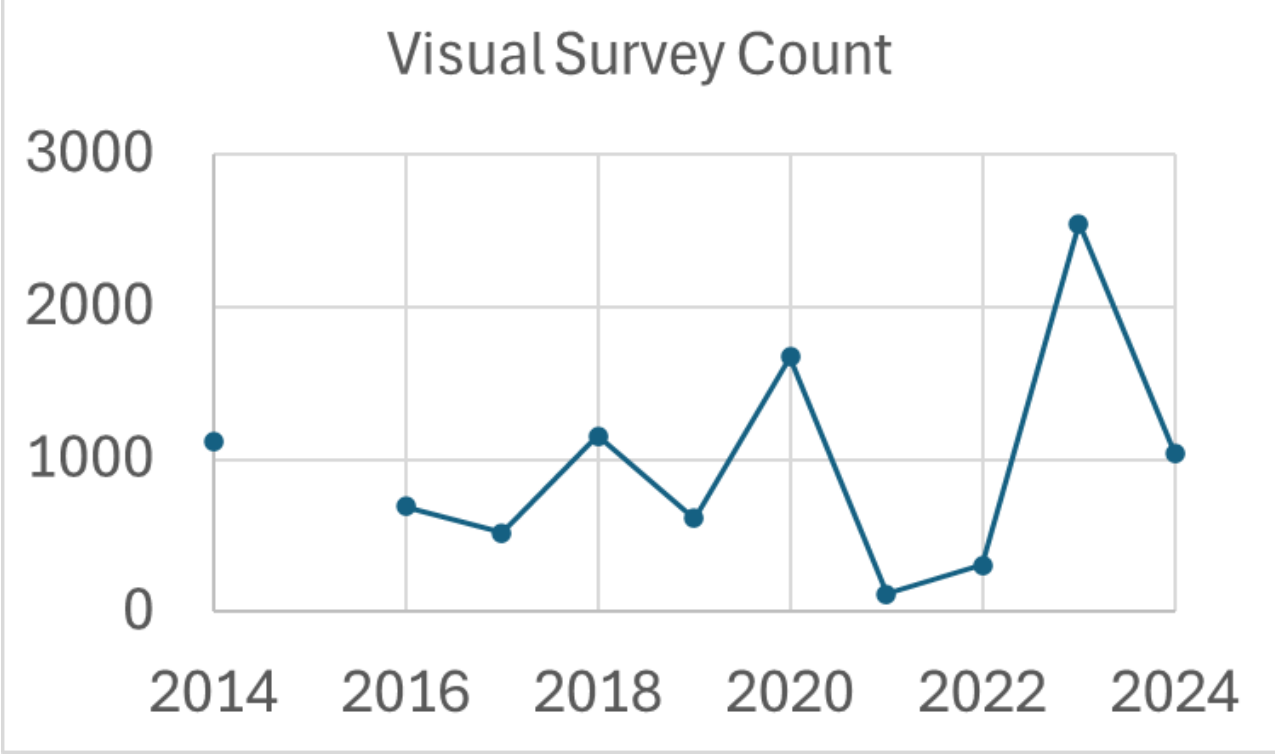
CDFW Surveys

- Not absolute population counts
- Count juveniles and adults hatched in previous years
- Surveys started after listed as threatened under CESA

Survey	Visual Survey	E-Fishing
Region	Big Valley Tributaries	Clear Lake Shallow Water (3 meters)
Season	Spring	Spring
Start Year	2014	2019
Method	Visual Count at 21 Fixed Locations	E-fishing at 4 Fixed Transect

Visual Survey

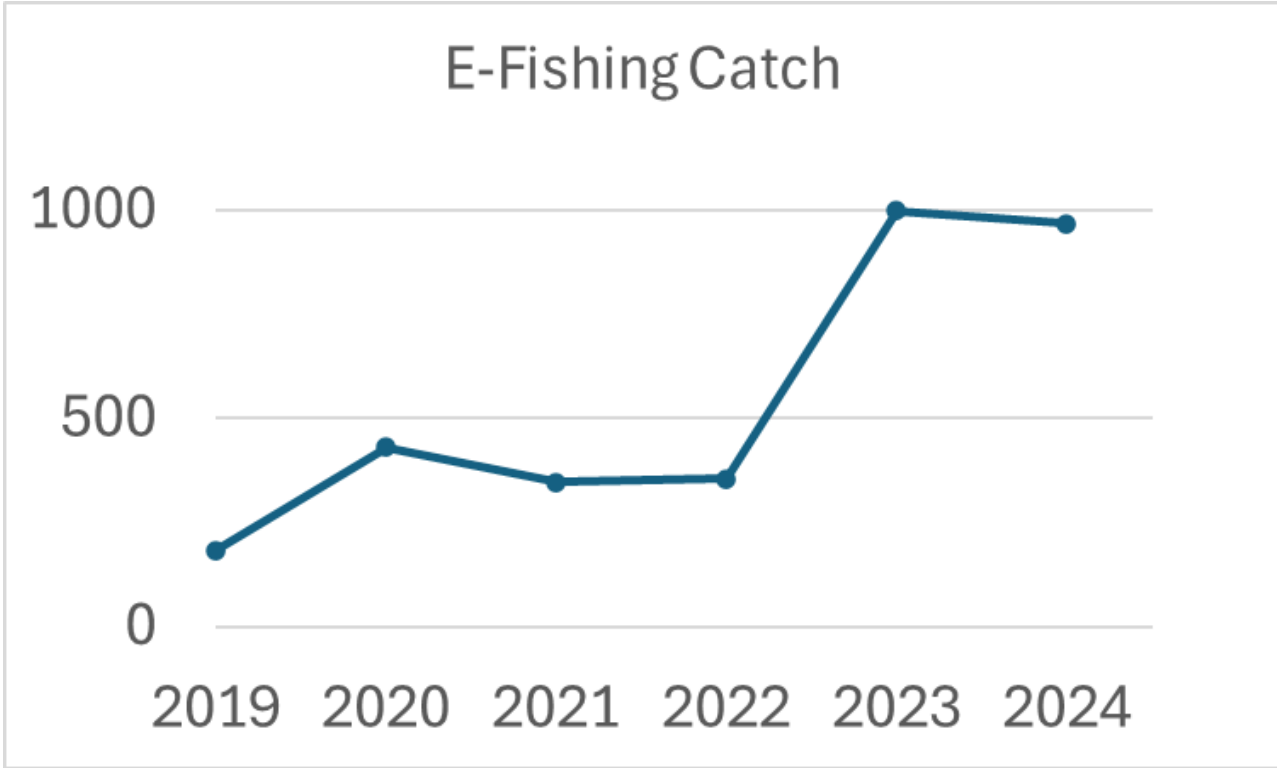
- Number of tributaries occupied varies with hydrology
- Increased detections in 2023 are fish hatched in or before 2022



Year	2014	2016	2017	2018	2019	2020	2021	2022	2023	2024
# of tributaries	2	3	5	3	5	1	1	2	5	4
# of CLH	1,119	693	517	1,153	612	1,672	120	306	2,548	1,042

Relative Population Estimate

- Mark Recapture
 - SM = Schnabel Method
 - SEM = Schumacher-Eschmeyer Method
- Upper and Lower 95% Confidence Intervals
- NA = Unable to calculate



Year	SM	SEM	SM Lower	SM Upper	SEM Lower	SEM Upper	Catch	Recapture
2020	12,770	15,195	5,713	32,411	4,738	NA	426	5
2021	24,784	16,126	7,414	139,628	4,773	NA	346	2
2022	25,983	45,849	7,772	146,380	1,3021	NA	355	2
2023	393,750	1,289,481	73,971	7,720,588	282,618	NA	999	1
2024	NA	NA	NA	NA	NA	NA	969	0

Draft Population Target

Survey	Criteria	2023	2024
Visual Survey	> 8,360	2,548 	1,042 
Relative Pop. Est.	> 75,000	SM = 393,750 SEM = 1,289,481 	SM = NA SEM = NA 
General Fish Survey	5 th most abundant	2 nd 	Not Conducted

- Described in Draft Conservation Strategy
- Based on Three CDFW Surveys
 - Visual Survey
 - Relative Population Estimate
 - General Fish Survey
- All three criteria to be met for 6 consecutive years
- Criteria have not been met

Task Force and Summit

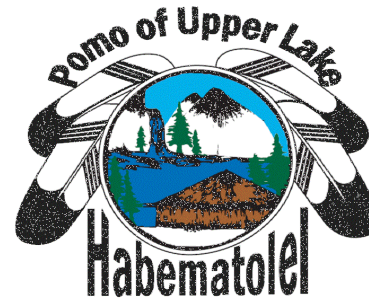
Task Force

- Originated from Gov – Gov consultation August 2022
- Convened September 2022
- Six of seven **Sovereign Nations** in the region participate
- 15 local, state, and federal agencies invited by Tribes
- Coordinate projects, share data, improve communication



Leadership Summits

- 2022 – Big Valley Band of Pomo Indians
- 2023 – Robinson Rancheria Pomo Indians of California
- 2024 – Habematolel Pomo of Upper Lake

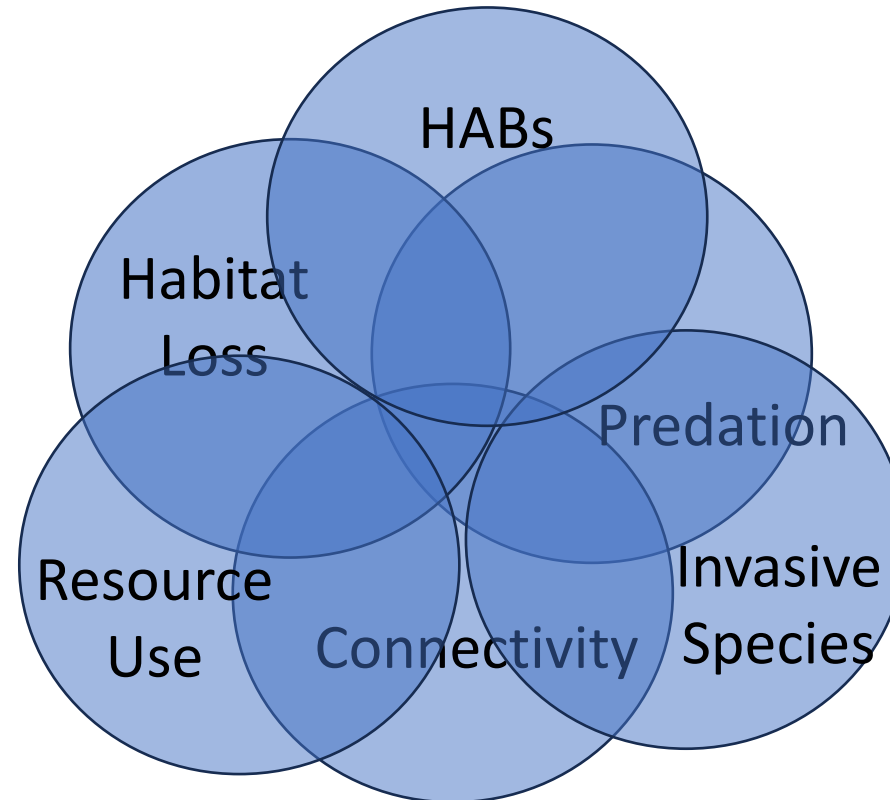


**Bringing together Tribal and Agency
Leadership to find collaborative and equitable
solutions**

Governance

- Co-Management
 - Co-Management Workshop
 - AB 1284 – Co-Management Agreements
 - SB 310 – Cultural Burns
- Memorialize Task Force
 - Sync calendar to natural and other rhythms
 - Priority projects list for 2027 funding cycle
- Streamlining funding and permitting processes
- Education:
 - Tribal Sovereignty
 - Jurisdictions and responsibilities

- Finalize Conservation Strategy
 - Meetings resumed in January



Conservation Strategy

Conservation Strategy

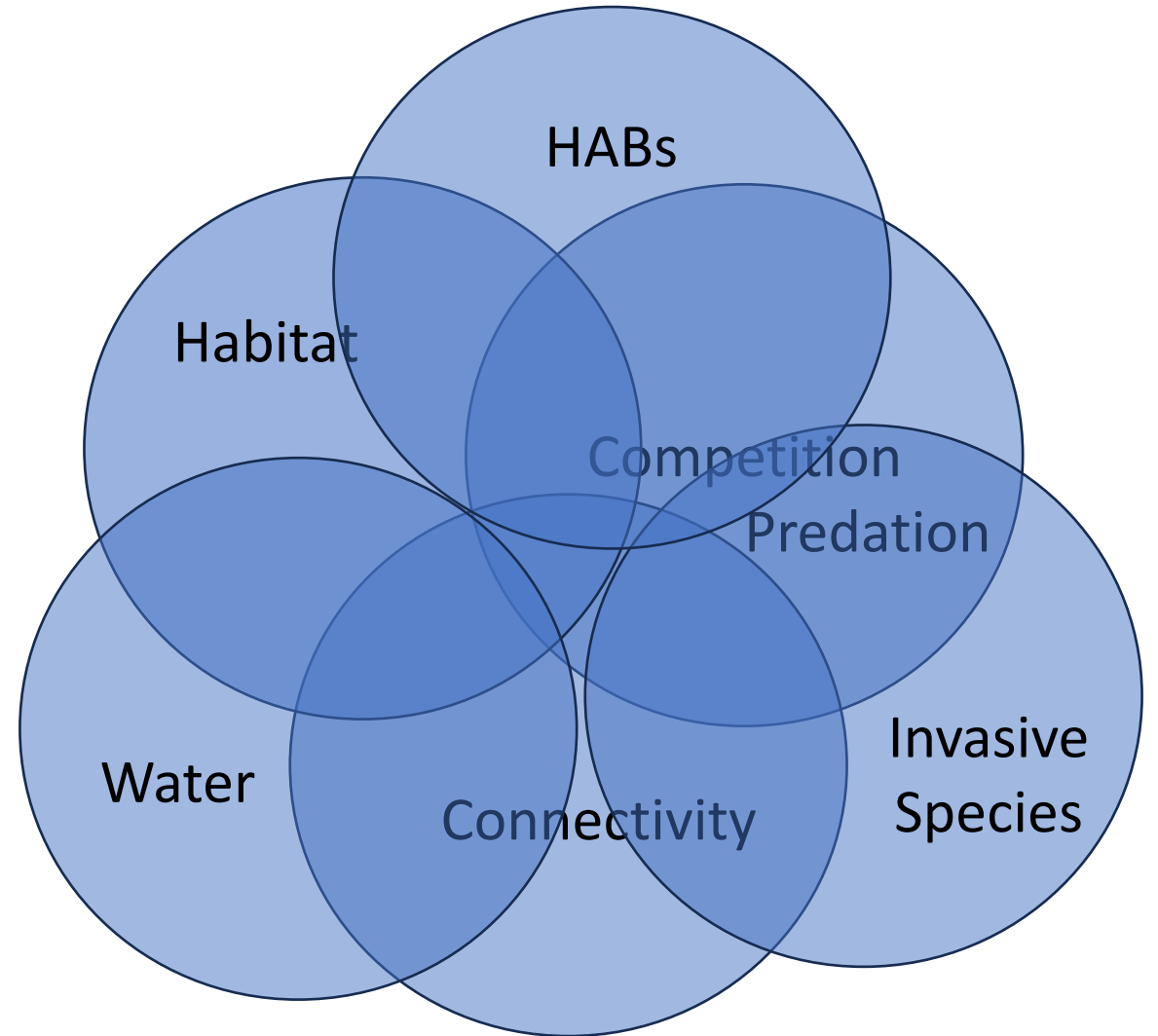
- Started in 2017
- May 2024 Draft–
Recommended major revisions
- Community Document
 - Allows for flexibility
 - No set authors list
 - No established process
- Two processes to consider
 - State Recovery Plan (CDFW)
 - Guidance document in development
 - Federal Recovery Plan (NOAA-NMFS, FWS)
 - NMFS Recovery Planning Handbook
 - <https://www.fisheries.noaa.gov/resource/document/nmfs-recovery-planning-handbook-version-10>

Conservation Strategy for the Clear Lake Hitch (*Lavinia exilicauda chi*)



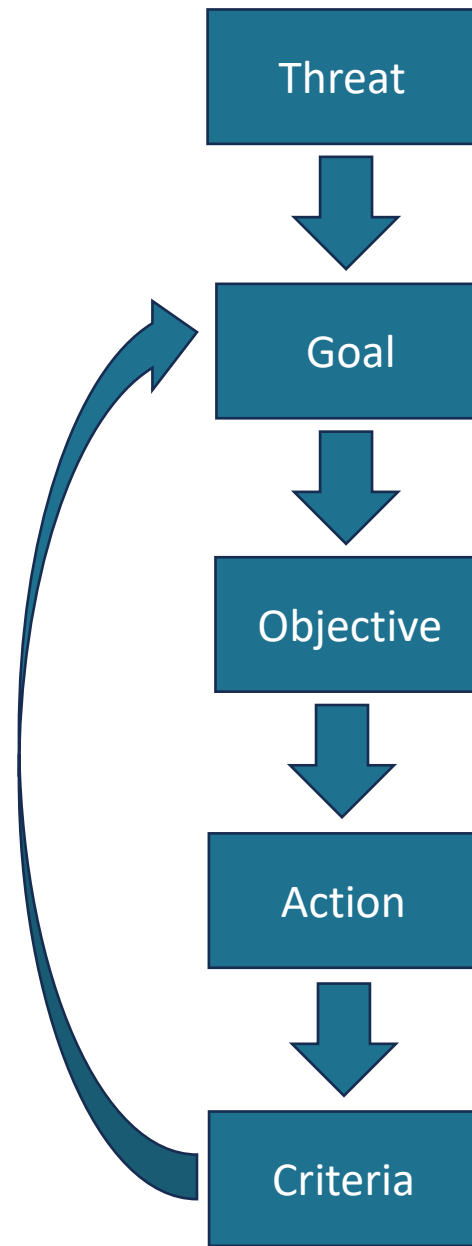
Issues to resolve

- Organization and readability
 - Logical reading order/fragmented concepts, ideas, and recommendations
 - Needs Linkage between Threats, Goals, Objectives, Criteria and Actions
 - Clear, concise language
- Missing Sections
 - Continued collaboration
 - Criteria – Performance measures
 - Timeline update, review, and report out
- Need a transparent and structured process to complete and update



Process

- Restarted monthly meetings lead by CDFW
- Develop clearly structured outline
 - Draft outline under review by agencies and Tribes
 - Need stakeholder input (Farm Bureau, Ag Committee, Land Trust, and others)
- Populate outline with information from current draft and complete missing sections
 - In progress – CDFW staff
- Write sections based on outline
- Resolve prior comments
- Final review, editing, and citations
- Sign and implement



Scientific Assessment

- Biology, status, threats, and other information

Recovery Strategy

- Goals linked to threats
 - General
- Objectives – Conditions needed to achieve goal
 - Adaptable

Implementation Strategy

- Specific actions based on objectives
- Criteria – Performance measure or target

Thank you



- Felipe La Luz - felipe.laluz@wildlife.ca.gov
- CDFW Instream Flow Study – Email: instreamflow@wildlife.ca.gov
 - Website: <https://wildlife.ca.gov/Conservation/Watersheds/Instream-Flow/Studies/Clear-Lake-Watershed-Studies>
- CDFW Permitting Questions – R2Info@wildlife.ca.gov
 - Lake and Streambed Alteration, streambed maintenance
- General Non-Game Fish Questions – Native.Fishes@wildlife.ca.gov

Status of Clear Lake Hitch

Fred Feyrer and Matt Young

California Water Science Center

U.S. Geological Survey

Lake County Board of Supervisors Meeting, February 11, 2025



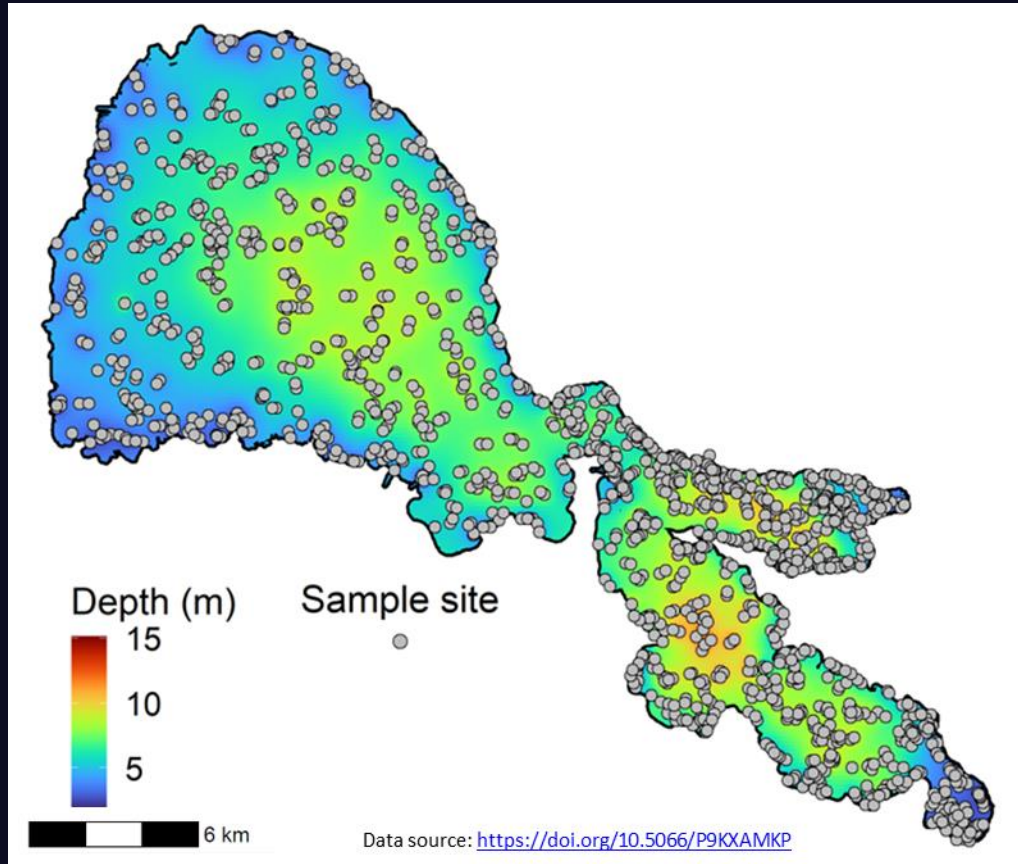
Population Monitoring in Clear Lake 2017 - Present

What are the status and trends of the Clear Lake Hitch population?

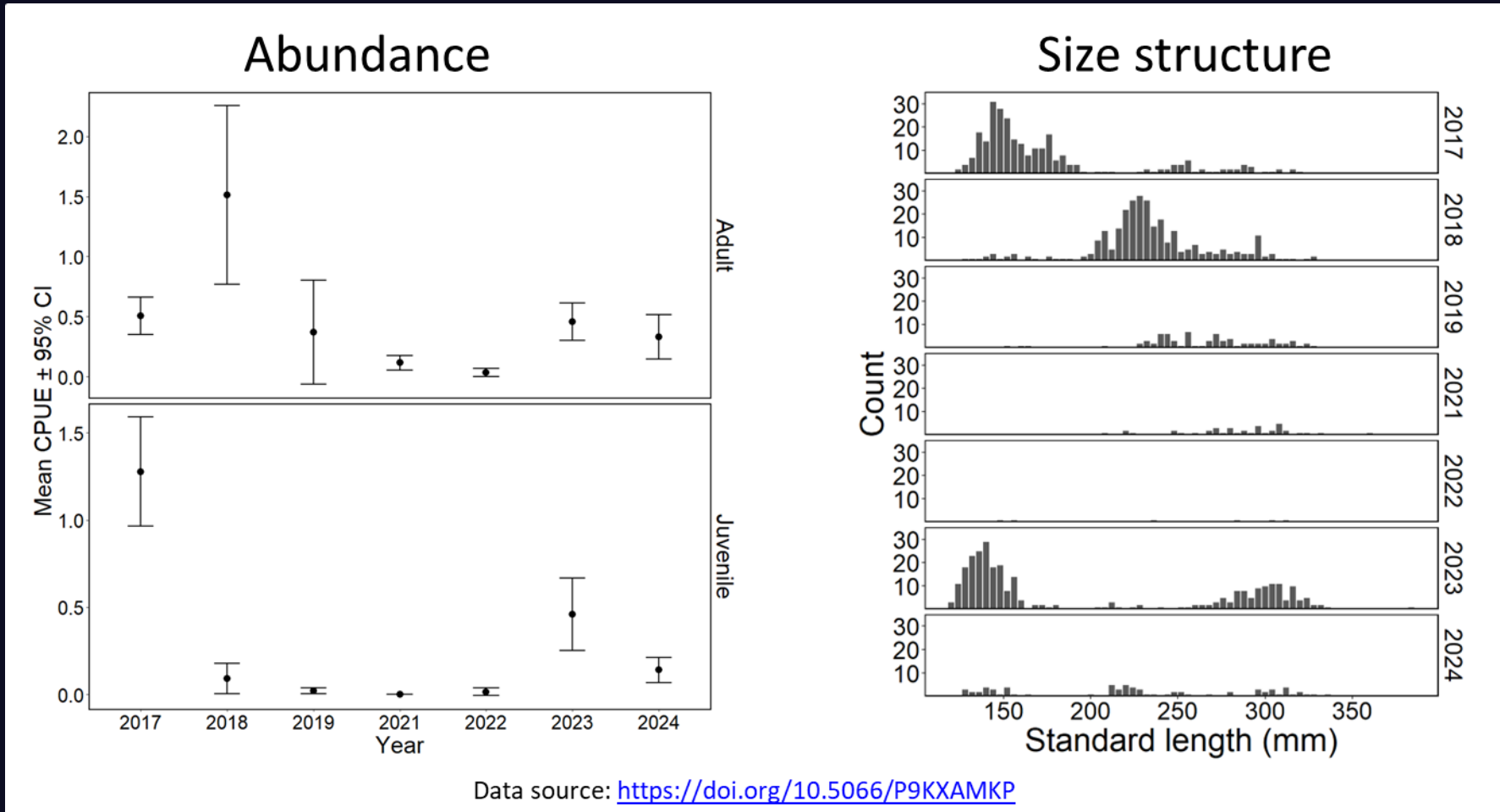


Funding provided by U.S Fish and Wildlife Service and U.S. Geological Survey

Population Monitoring in Clear Lake 2017 - Present



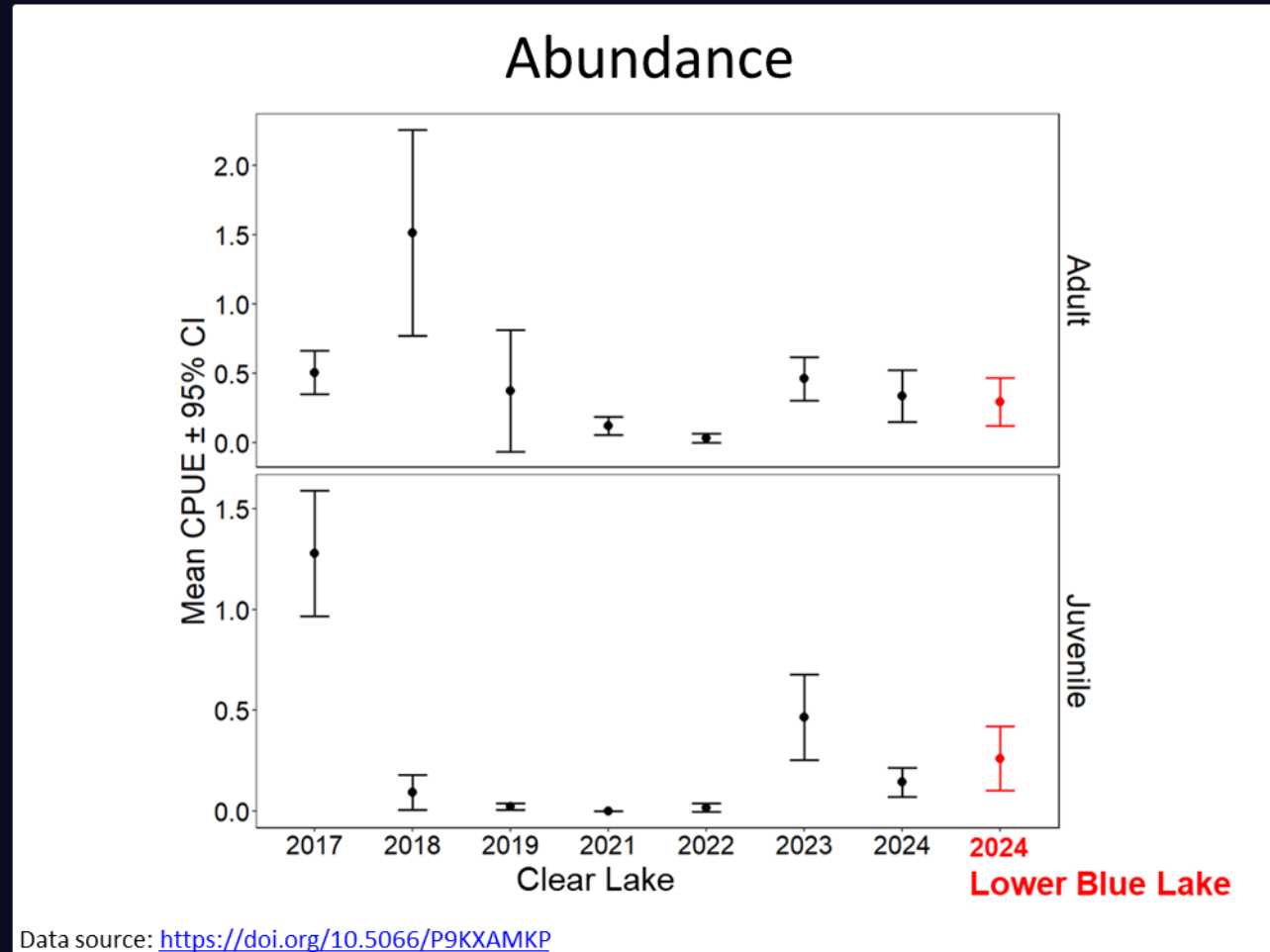
Population Monitoring in Clear Lake 2017 - Present



Lower Blue Lake Survey October 2024



Lower Blue Lake Survey October 2024



Next Steps

- 2025 Clear Lake Survey (June).
- Clear Lake Hitch population connectivity to watershed (otolith and stream studies).
- Collaborative data summary and synthesis.
- Clear Lake Hitch (and other biota) response to management actions (Collaborative BRC proposal).

Contacts

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Matt Young: mjyoung@usgs.gov



Clear Lake Hitch Update



Lake County Board of Supervisors Meeting

Presented by: Chris Childers 02/11/2025

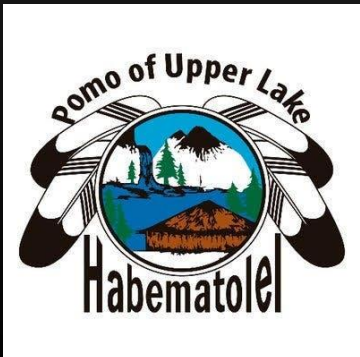


Timeline

- ▶ 2014 - Clear Lake hitch Listed as threatened under CA Endangered Species Act
- ▶ 2021-2022 - Local call for action in response to low spawner observation counts
- ▶ 2023 - BOS declared a Proclamation of the Existence of a Local Emergency due to drought, habitat loss, and potential extinction of Clear Lake hitch
- ▶ 2024 - BOS renewed the Proclamation
- ▶ 2025 - USFWS proposed to list the hitch as threatened subject to a 60-day comment period



Multi-Agency Collaboration



Multi-Agency Collaboration

- ▶ Involved in multi-agency reoccurring meetings
 - ▶ Clear Lake Hitch Task Force
 - ▶ Clear Lake Hitch Conservation Strategy Writers
 - ▶ Hitch Data Synthesis
 - ▶ Kelsey Creek Fish Passage Project
 - ▶ Cole Creek Advisory Collaborative
 - ▶ Attended 2024 Clear Lake Hitch Summit



Multi-Agency Collaboration

- ▶ Adult and Juvenile hitch rescues with tribes
- ▶ Electrofishing surveys with CDFW
- ▶ USGS in lake gill net survey
- ▶ Partner with HPUL for Hitch Tagging Study

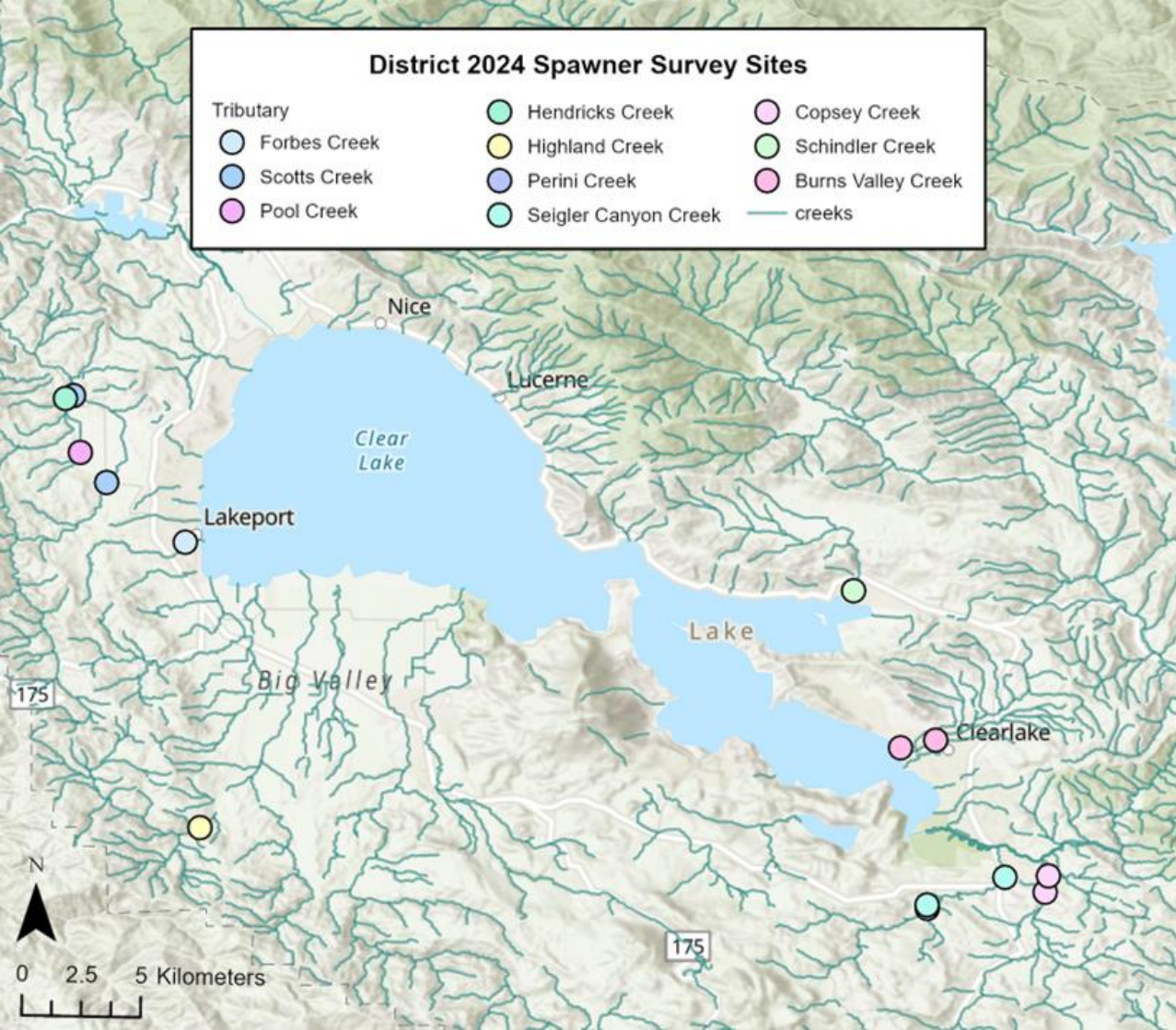


2024 Accomplishments

- ▶ Successfully completed first year of hitch spawner observations
- ▶ Development of a Community Science Hitch Spawner Observation Survey
- ▶ Collaboration with CDFW and CCC's for debris / soft barrier removal in the creeks
- ▶ Implementation and training of Riparian Rapid Assessment method (RipRam)
- ▶ Created hitch educational materials and staffed booths at outreach events
- ▶ Partner and collaborate with regional tribes on carp management, tule planting, and creek / shoreline restoration
- ▶ Planned and organized the Clear Lake Integrated Science Symposium



DISTRICT 2024 Spawner Survey



- ▶ First year of spawner data collection will be compared with future years of data to determine the relative number of hitch migrating up the creeks to spawn
- ▶ Currently finishing the 2024 report, will be available on our website soon!

Table 1. Global Positioning System (GPS) coordinates in decimal degrees of sites visited for visual surveys.

Site	Site Name	Tributary	Latitude	Longitude
1	FOR_01	Forbes Creek	39.04032	-122.91948
2	SCO_01	Scotts Creek	39.09561	-122.96169
3	SCO_02		39.06285	-122.94915
4	POO_01	Pool Creek	39.07416	-122.95910
5	HEN_01	Hendricks Creek	39.09457	-122.96476
6	HIG_01	Highland Creek	38.93246	-122.91392
7	PER_01	Perini Creek	38.90197	-122.63931
8	SEI_01	Seigler Canyon Creek	38.91376	-122.61001
9	SEI_02		38.90325	-122.63938
10	COP_01	Copsey Creek	38.91426	-122.59354
11	COP_02		38.90795	-122.59494
12	BUR_01	Burns Valley Creek	38.96261	-122.64950
13	BUR_02		38.96547	-122.63622
14	SCH_01	Schindler Creek	39.02187	-122.66712

DISTRICT 2024 Spawner Survey

- ▶ 23 adult hitch observed in 2024
 - ▶ Creeks: Copsey, Hendricks, Forbes
- ▶ 2000 juvenile hitch observed in 2024
 - ▶ Creek: Burns Valley

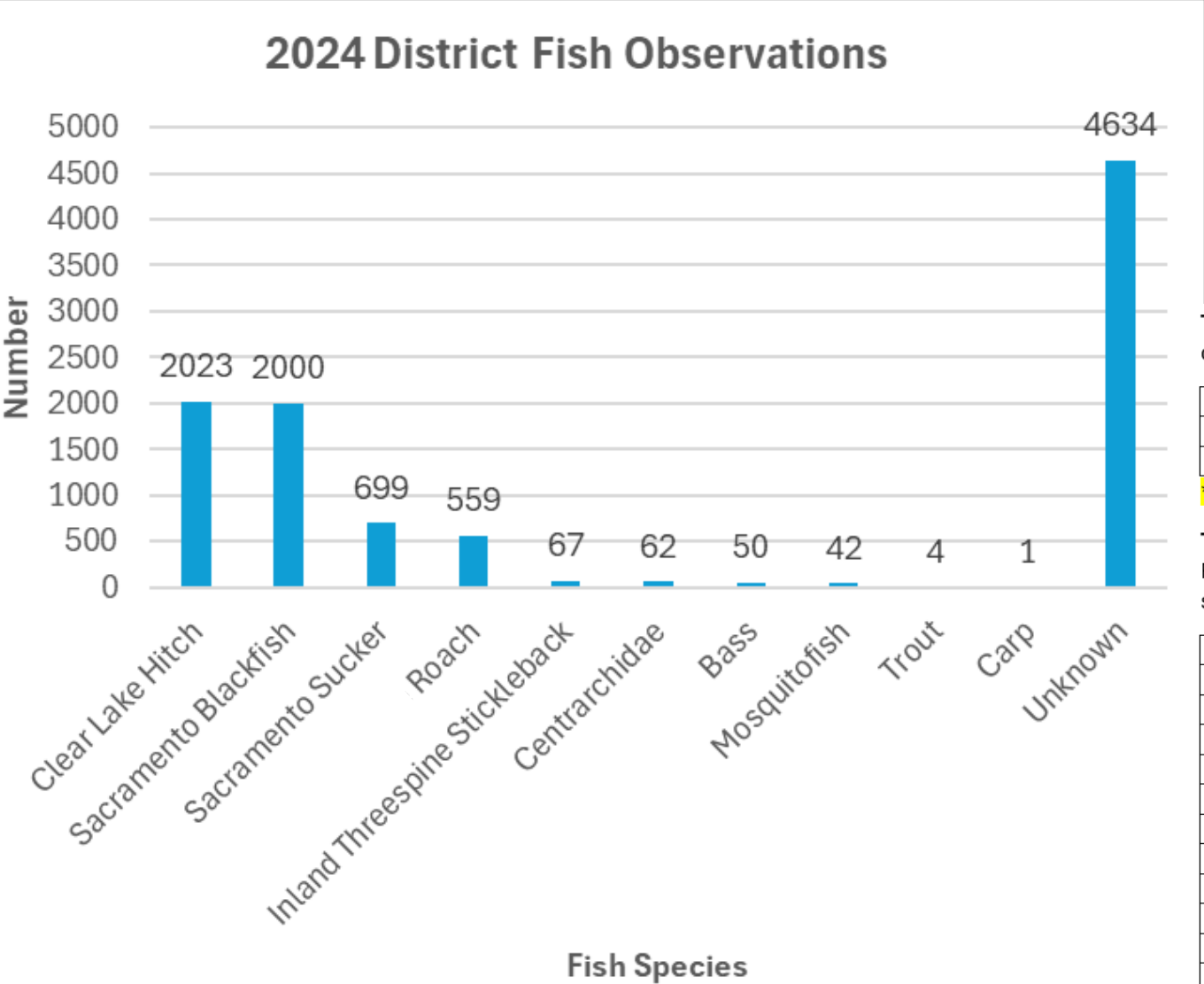


Table 2. Clear Lake hitch visual survey counts from Burns Valley, Copsey, Forbes, and Hendricks creeks from 2024.

CLH Life Stage	Count
Juvenile	2000
Adult	23

*This table reflects the first year of data collection and will be compared to each consecutive year.

Table 3. Visual survey total fish counts from Burns Valley, Copsey, Forbes, Hendricks, Highlands, Perini, Pool, Schindler, Scotts, and Seigler Canyon creeks from 2024. Larvae and fry that were too small to identify were recorded as “Unknown.”

Species	Count
Clear Lake Hitch	2023
Sacramento Blackfish	2000
Sacramento Sucker	699
Clear Lake Roach	559
Inland Threespine Stickleback	67
Centrarchidae	62
Bass	50
Mosquitofish	42
Trout	4
Carp	1
Unknown	4634

*This table reflects the first year of data collection and will be compared to each consecutive year.

Goals for 2025

- ▶ Launch Community Science Hitch Spawner Observation Survey
- ▶ Complete second year of District Spawner Observations
- ▶ Continue building partnerships with tribes and agencies
- ▶ Community outreach event participation
- ▶ Make Progress on the Kelsey Creek Fish Ladder Project
- ▶ Help manage and execute grants for habitat restoration projects
- ▶ Provide local support for hitch studies and fish rescues
- ▶ Make progress on Cole Creek restoration planning
- ▶ Continue assisting agencies with research projects related to Clear Lake hitch



Hitch Related Grants

Name	Type	Start	End	Amount	Source / agency
NEIEN Data Grant Phase II*,**	WQ Monitoring, Data Collection	2024	2026	\$ 455,000.00	Fed- HPUL - Robinson/ US -EPA
BRC- Limno Sampling	WQ Monitoring	2022	2025	\$ 100,000.00	State - CNRA / BRC
CalTrans** Clover Creek Diversion Restoration	Creek Restoration	2024	2027	\$ 256,000.00	State - CalTrans Mitigation
<i>CalTrans** Cole Creek Sediment Removal</i>	<i>Creek Restoration</i>	2025	2028	\$ 350,000.00	<i>USFWS End of year Funds</i>
Primrose Alliance Grant**	Lake Restoration	2023	2025	\$ 350,000.00	State - DPR or BRC/State CNRA
Blue Ribbon AIS Tule Restoration	Lake Restoration	2024	2027	\$ 150,000.00	State-CNRA
WCB Hitch Habitat Planning for Scotts Creek, Tule Lake, and Adobe Creek*,**	Restoration Planning	2024	2027	\$ 1,733,000.00	Wildlife Conservation Board
Mike Thompson - Big Valley Groundwater Recharge	WQ Monitoring, Creek Restoration, Groundwater Recharge	2024	2028	\$ 500,000.00	Congressional Funds - Admin NRCS
CDWR CalSIPS Stream Gage Program - Clover Crk.	WQ Monitoring	2025	2027	\$ 67,000.00	CDWR
<i>Clear Lake Management Plan Development</i>	<i>Planning</i>	2025	2028	\$ 168,000.00	<i>State - CNRA / BRC</i>
<i>Limnological Sampling (CLAMP)</i>	<i>WQ Monitoring</i>	2025	2028	\$ 452,718.00	<i>State - CNRA / BRC</i>
<i>Enhanceing natural shorelines Clear Lake</i>	<i>Lake Restoration</i>	2025	2028	\$ 755,091.00	<i>State - CNRA / BRC</i>
<i>Clear Lake Minitoring Plan Phase II</i>	<i>Hitch Monitoring</i>	2025	2026	\$ 8,720.00	<i>State - CDFW</i>
				\$ 5,345,529.00	

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Water Resources



Welcome to the official webpage for the Lake County Water Resources Department. The Lake County Water Resources Department works to restore, conserve, and advocate as stewards of Lake County's watersheds. Lake County hosts the largest natural lake in California and the oldest lake in North America, Clear Lake.

To promote both an environmentally and economically sustainable watershed, the Water Resources Department is tasked with:

- Aquatic Plant Management
- Aids to Navigation
- Groundwater Monitoring
- Flood Management
- Lakebed Management
- Highland Springs Recreation Area

Contact Us

Upadhyay Pawan
Water Resource Director
[More Information](#)

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- [Water Resources Department on Facebook](#)

Questions / Comments

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LAKE COUNTY
WATERSHED
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