

Clear Lake Hitch Emergency Item #4

*Division of Water Rights
State Water Resources Control Board*



State Water Board Meeting | August 2, 2023



Clear Lake Hitch - *chi*

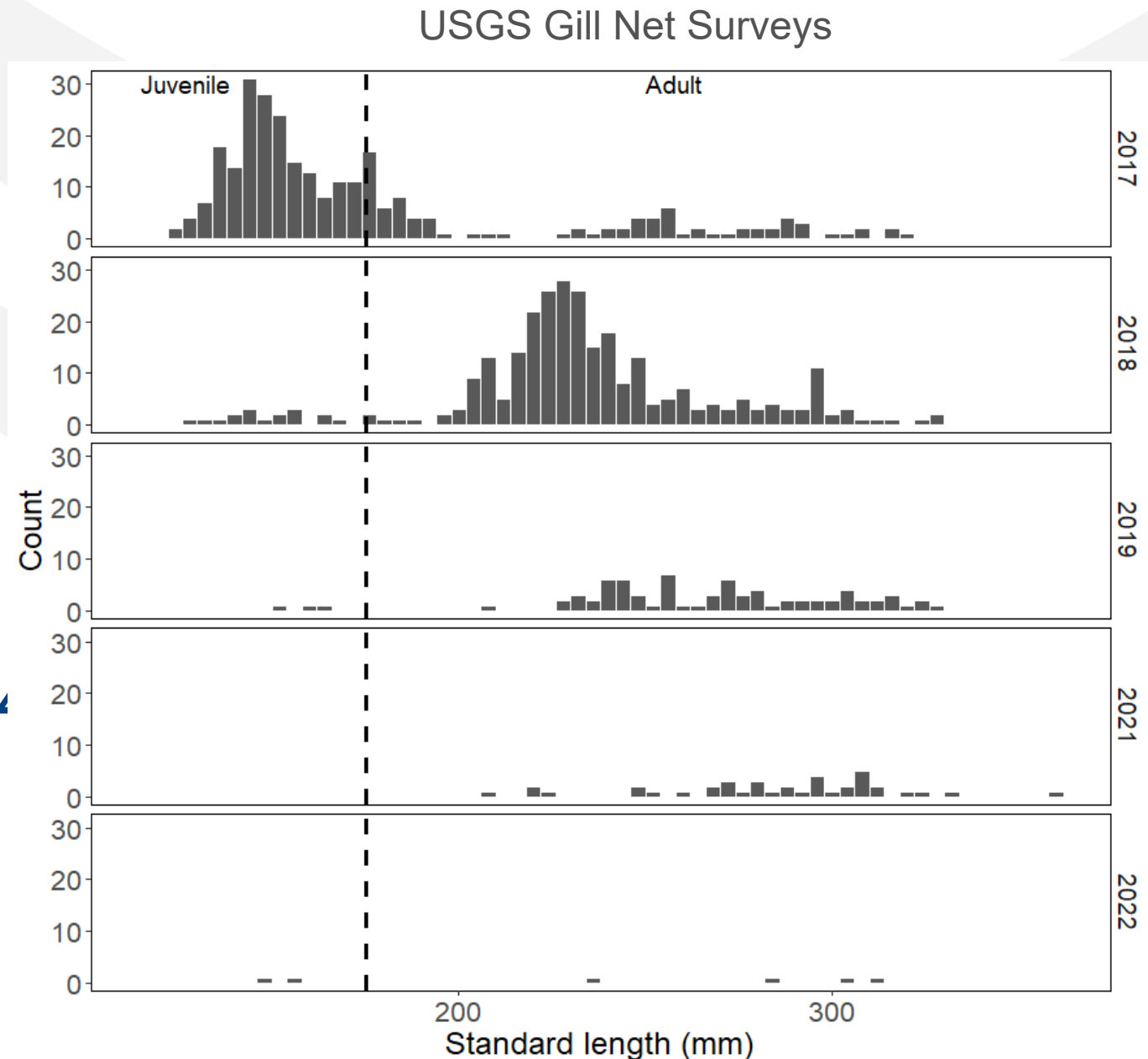
- **Large minnow**
(14 inches long, weighs a pound, six-year lifespan)
- **Found only in Clear Lake**
(and its tributary creeks)
- **Culturally & ecologically important**
(to local Tribes and the lake's food chain)
- **Spawns and rears in the Spring**
(juveniles need minimum 2-3 weeks to hatch & migrate to lake)
- **Once likely numbered in the millions?**

Hitch Run 1870s



Population Decline

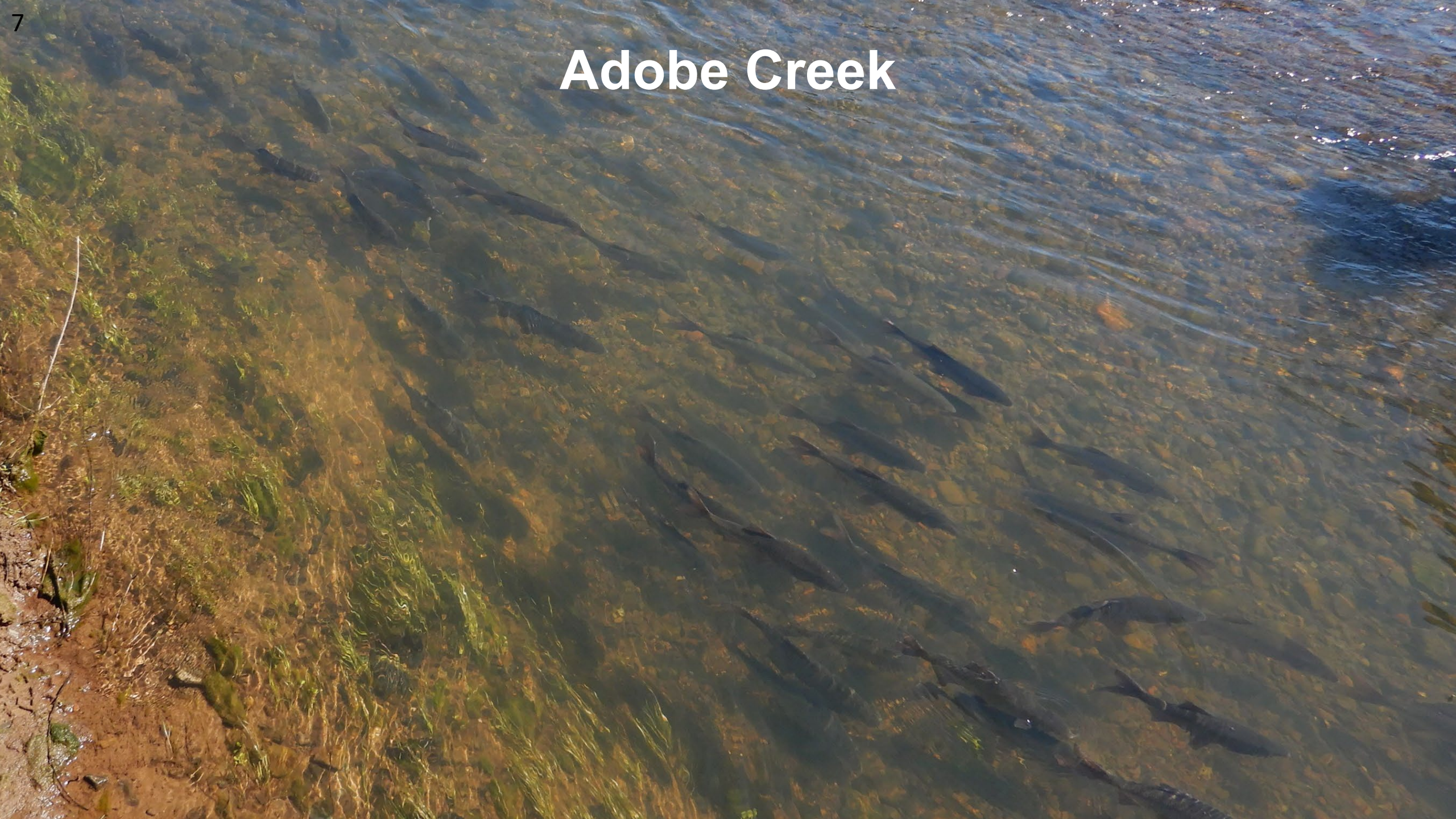
- Observed for decades
- Tribal cultural knowledge
- Concerned citizens in 2004
- Federal listing request in 2012
- CDFW & Tribes begin rescues in 2014
- CA designated threatened in 2014
- Juveniles plummet after 2017



Potential factors impacting hatch spawning

- **Insufficient flow volumes**
(Drought impacts, Surface diversions, Losing streams)
- **Habitat degradation and reduction**
(Mining, Land use changes, Levee development/flood control)
- **Passage barriers**
(Culverts, Stream bed alterations, Dams, Overgrown vegetation)
- **Predation & competition with invasive species**
(Bass, Carp)
- **Pollution**
(Mercury, Harmful Algal Blooms)

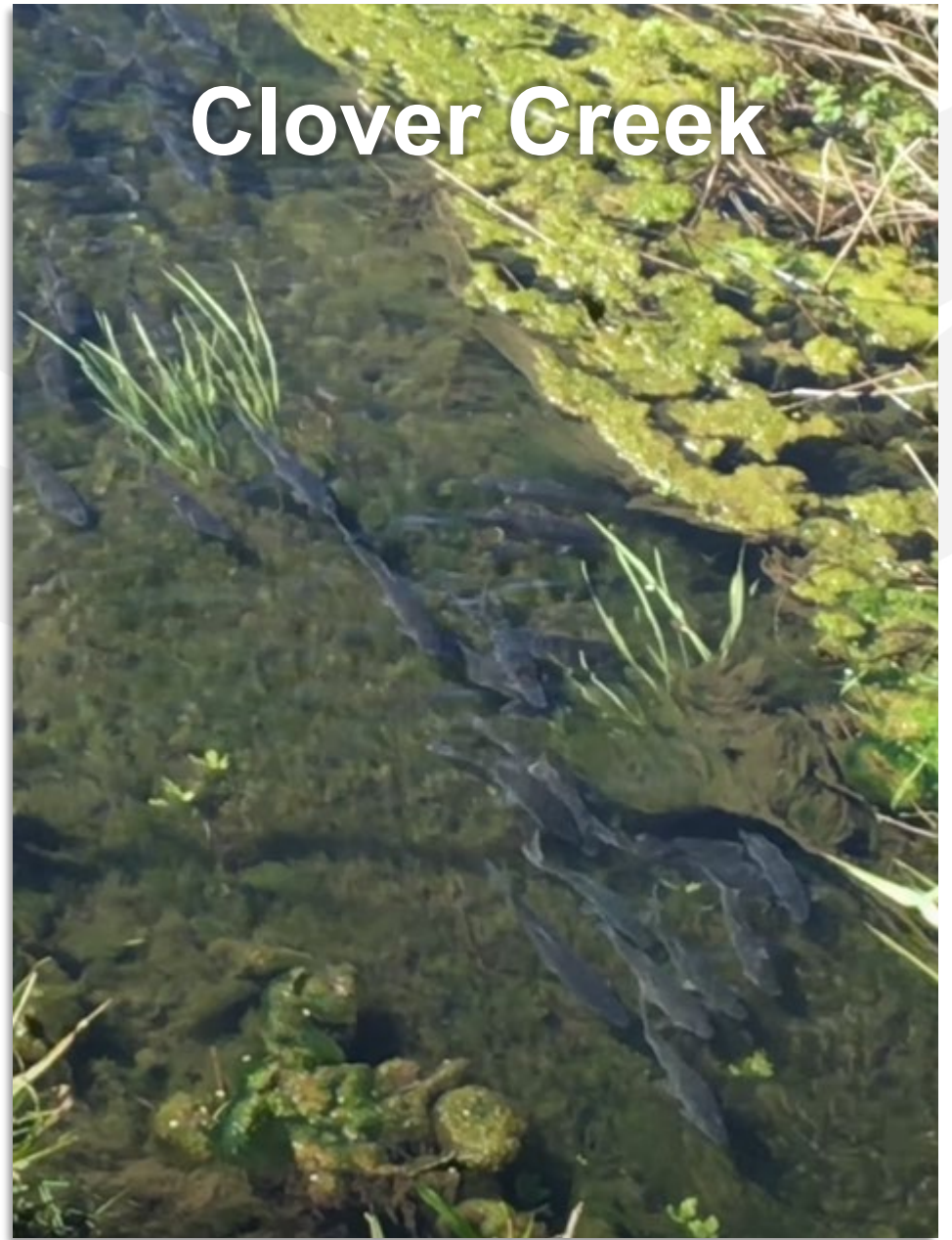
Adobe Creek



Manning Creek



Clover Creek



Cole Creek Flooding



Historic Floodplain



Kelsey Creek



Disconnected Clear Lake Creeks





Larva



Fry



Juvenile



Adult

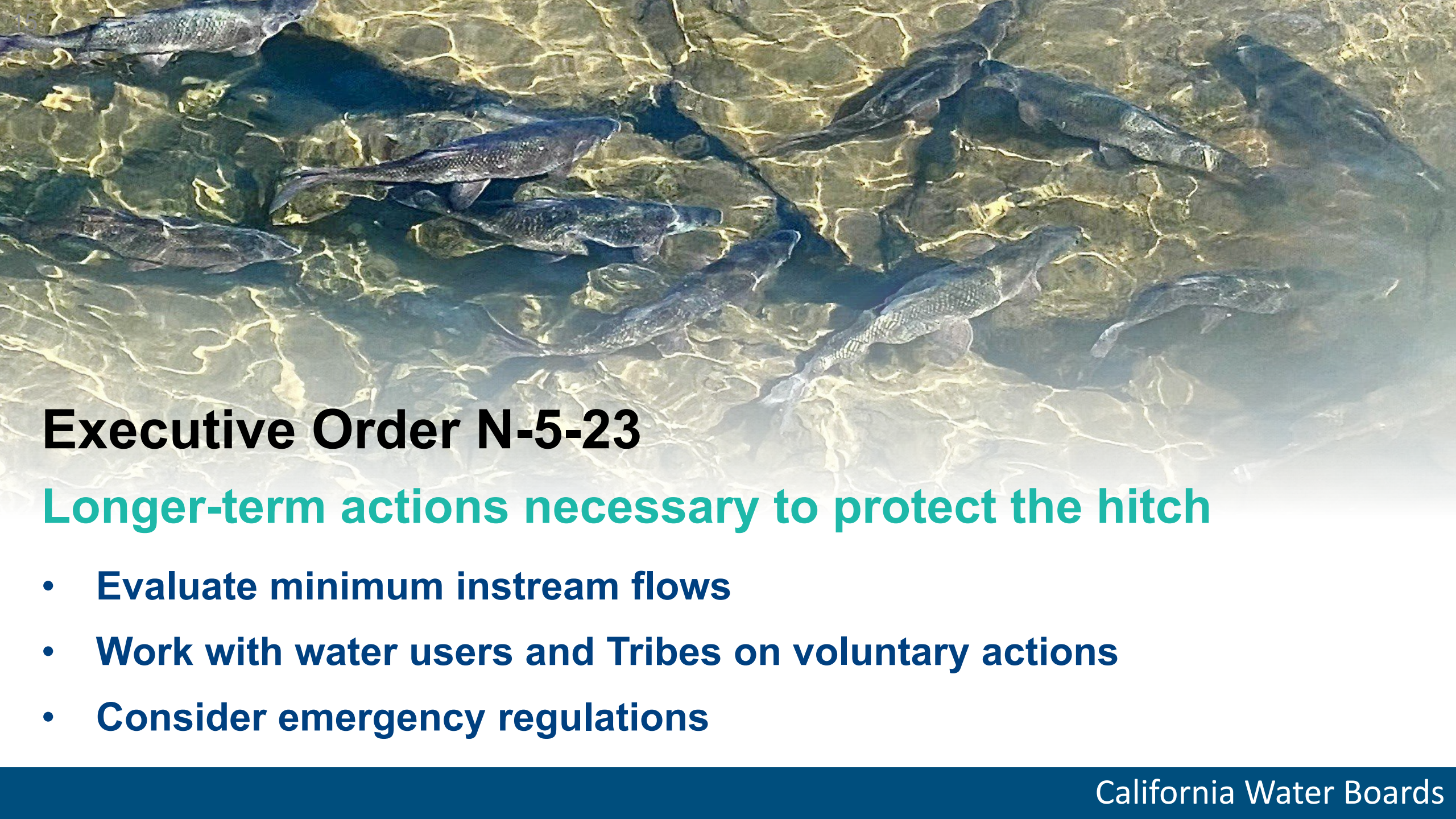
Hitch Rescues in Big Valley

- **23,000+ hitch saved between March 13 & July 14**
 - 328 adults
 - 177 juveniles
 - **23,056 fry**
- **60+ rescues**
- **7 creeks**
- **3% mortality**



July 21, 2023 Fish Rescue with Water Boards Staff



A photograph of several fish, likely trout or salmon, swimming in clear, shallow water over a rocky riverbed. The fish are silvery with dark spots and are moving in various directions. The water is very clear, allowing the rocky bottom to be seen. The lighting is bright, creating reflections on the water's surface.

Executive Order N-5-23

Longer-term actions necessary to protect the hitch

- **Evaluate minimum instream flows**
- **Work with water users and Tribes on voluntary actions**
- **Consider emergency regulations**

Coordination & Engagement

JAN/FEB

Listening Sessions
Voluntary Actions Letter
Gage Installation

MAY

Barrier Removal Planning Visit
Board Member Site Tour

MAR

Information Item
Enforcement Begins

JUN

Robinson Rancheria Shigom Nature Day
USGS Gill Net Survey

APR

Diversion Measurement Workshop
Weekly stream gaging began

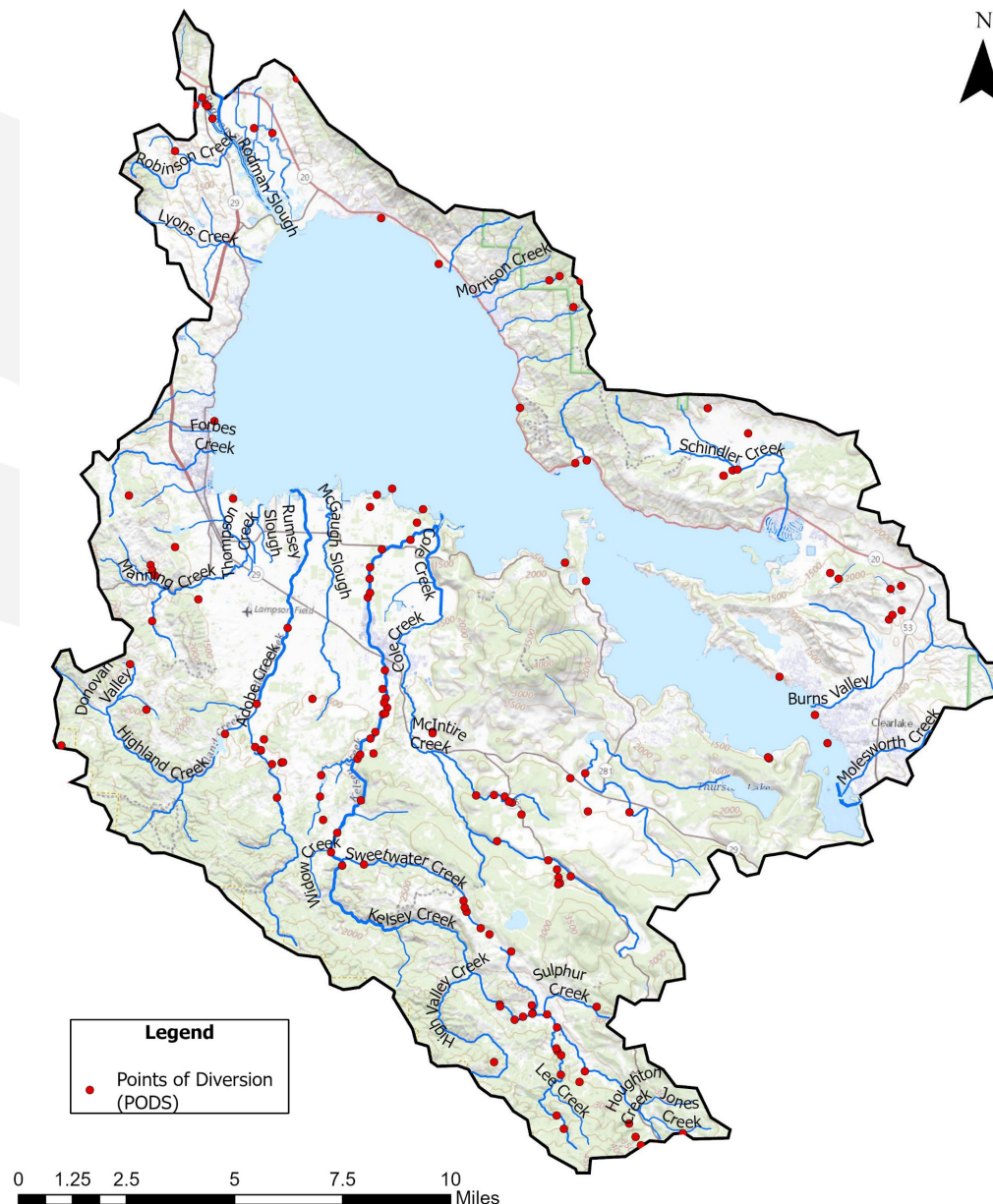
JUL

EJ Roundtable & Tribal Coordinators
Big Valley Rancheria Tule Boat Festival

Ongoing: State agency coordination, government-to-government coordination with Tribes, engagement with agricultural community

Surface Water Diversions

- ~225 surface water rights
- Yolo County FC & WCD Pre-1914 Right: 398,000 acre-feet (AF)
 - Primarily taking water from the lake
- Water Rights (Non-Yolo): ~12,000 AF
- **2019 Reported Use (Non-Yolo): 4,305 AF**
- Agriculture is the largest water user
- Groundwater is primary source for agriculture



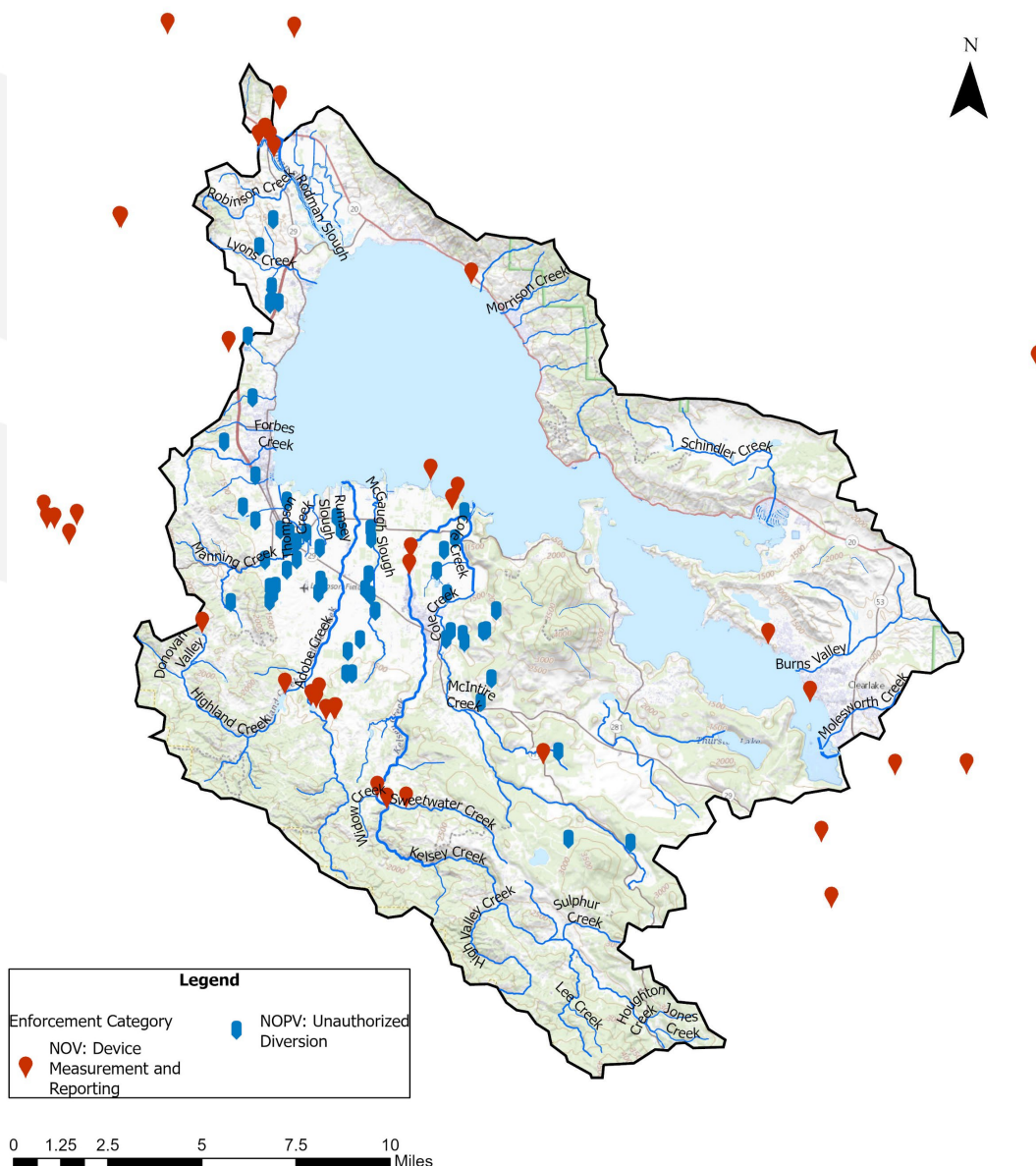
Water Rights Enforcement

Diversion Measurement Regulations

- Issued 46 Notices of Violation
 - Represents >90% of all diversions by volume
 - High response rate
 - Continuing investigations, outreach, and education
- Technical Assistance

Reservoir Analysis

- Issued 61 Notices of Potential Violation
 - Majority have responded and provided supplemental information
 - Several applications submitted for water right registrations
- Additional investigations underway



Preliminary Data Analysis

Groundwater pumping may be impacting creek flows, but we need data to understand the magnitude and timing of potential impacts.

Current Data Sets

- **Tribal Environmental Departments:** Continuous groundwater and surface water monitoring in select portions of Adobe and Kelsey Creeks.
- **Groundwater Sustainability Agency:** Seasonal and monthly groundwater levels in Big Valley.
- **Community Members:** Hitch observations and frost protection timing.
- **State and Federal Agencies:** Past studies, geology, and stream gaging.
- **Division of Water Rights:** 2023 Adobe Creek stream gaging.

Preliminary Data Analysis

Groundwater pumping may be impacting creek flows, but we need data to understand the magnitude and timing of potential impacts.

Data Challenges

- 1. Well locations are unknown:** The number, location, and production depth of wells is unknown, making it difficult to evaluate impacts and manage groundwater.
- 2. Groundwater level fluctuations are substantial:** There is evidence of seasonal and short-duration, widespread groundwater drops, but long-term continuous groundwater monitoring for the entire basin is needed to assess localized groundwater changes.
- 3. Groundwater-surface water relationship is unclear:** Depleted groundwater may be connected to increased flashiness and premature drying, but most groundwater monitoring is monthly (at-best) and there is too little stream gage data to understand the problem well.
- 4. Detailed subsurface and pump-test data are not available:** Accurate stream flows are challenging to model, especially for critical low-flows. Pump test data and well logs are needed.

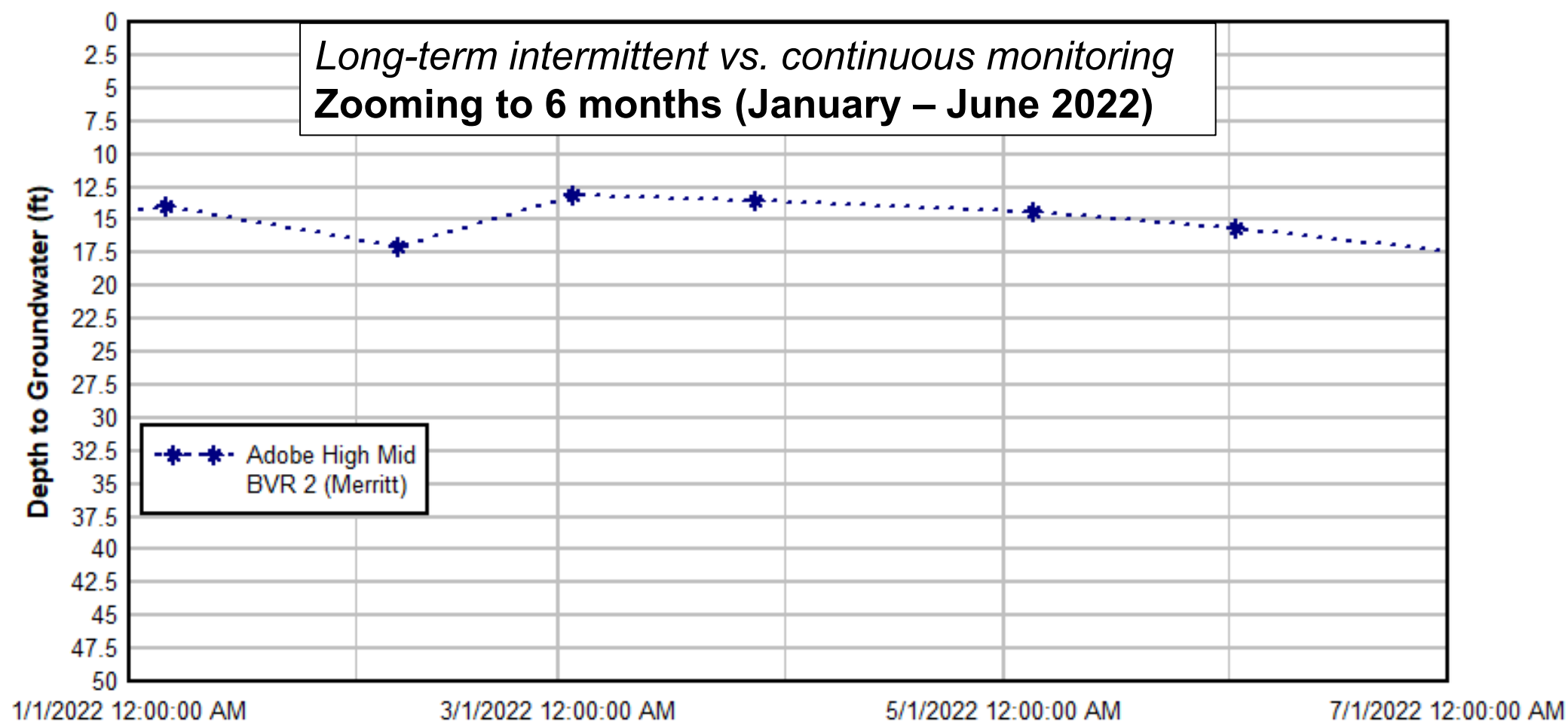
Data Gap: Groundwater Monitoring Frequency

Selected Data

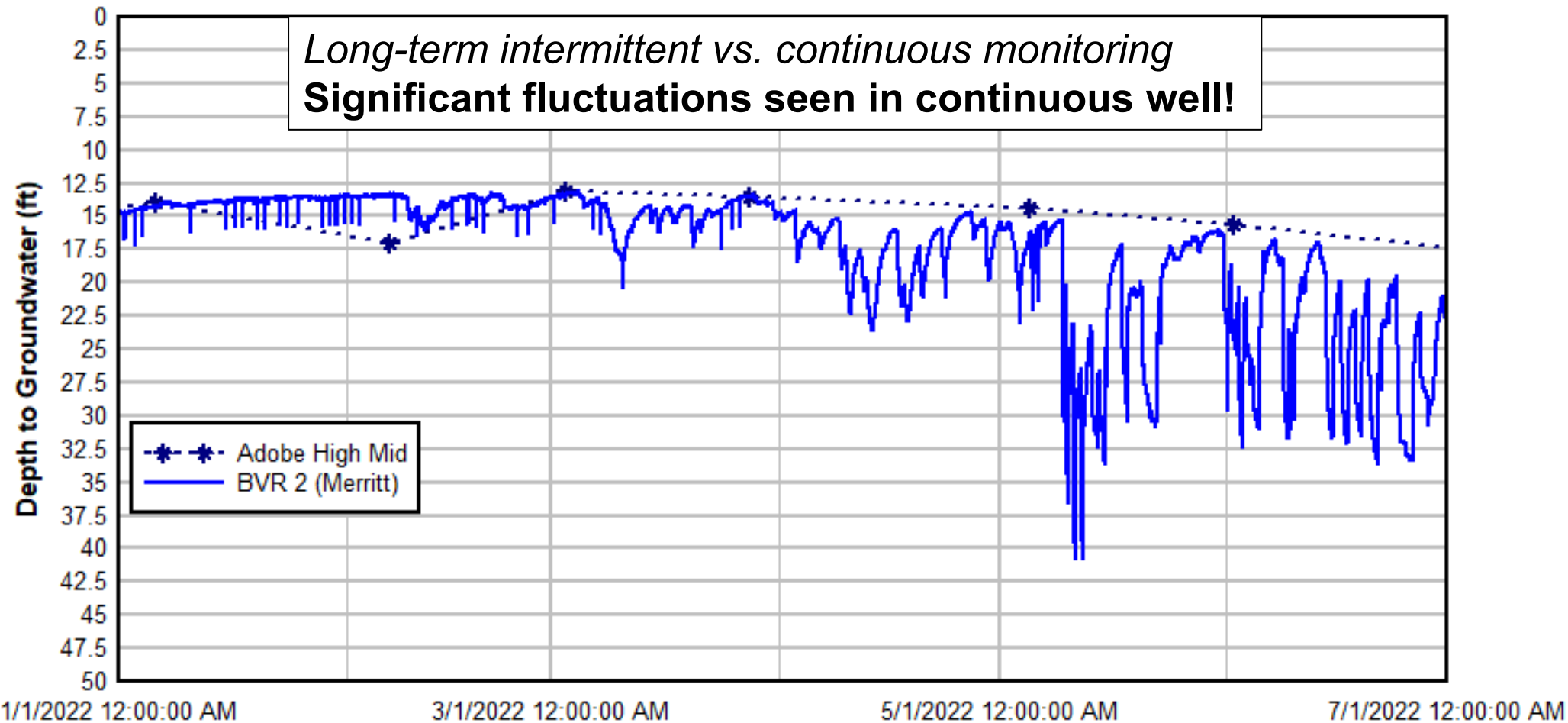
- County long-term well (monthly sampling)
- **Big Valley Rancheria monitoring well (continuous sampling)**



Data Gap: Groundwater Monitoring Frequency



Data Gap: Groundwater Monitoring Frequency



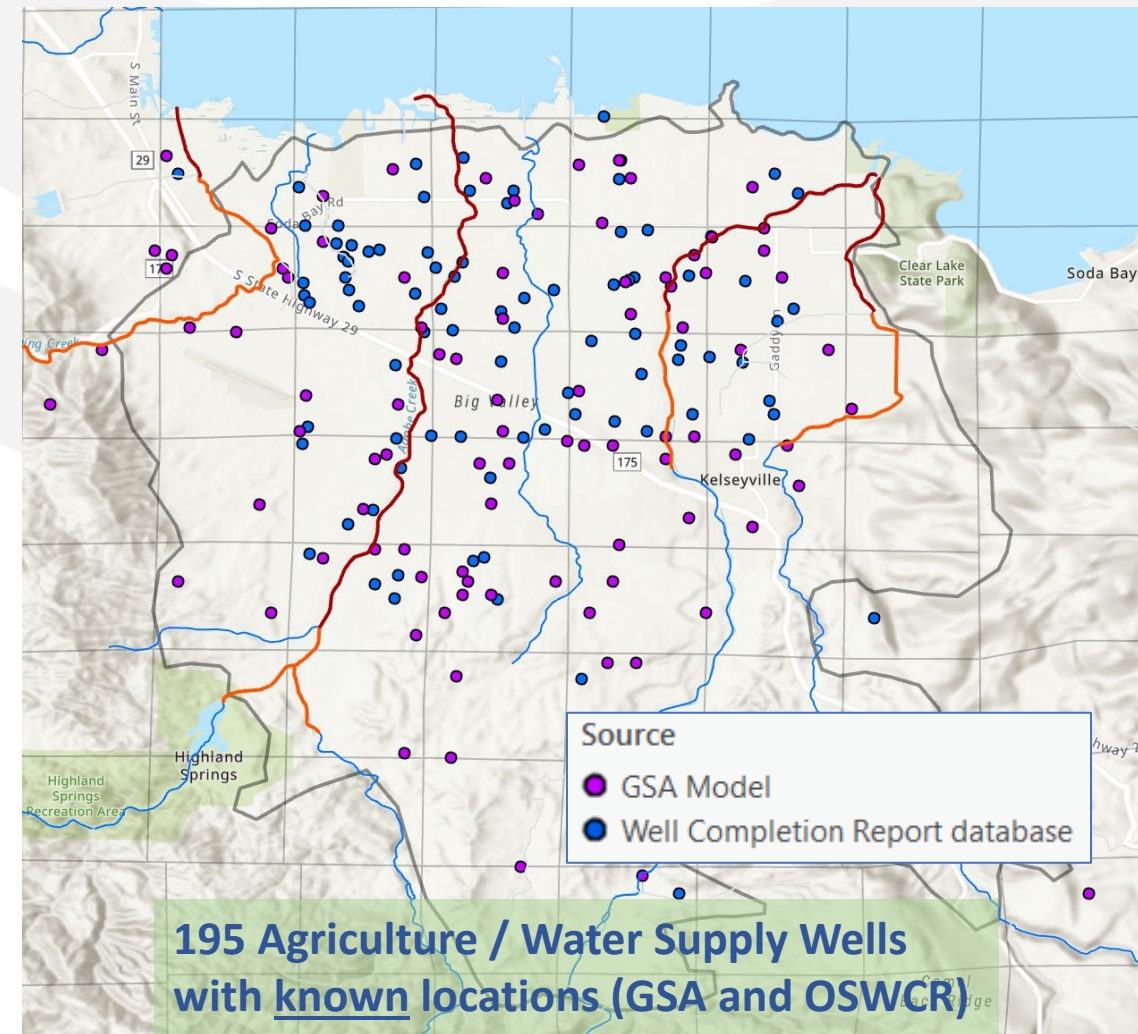
Data Gap: Groundwater Wells in Big Valley

Number of wells

- 600 permitted ag wells
- 2-3 times as many unpermitted?
- 850 ag parcels
- 850-1,800 ag wells?

Available Data

- “Location” of 200 well known
- Depth of 200 may be known
- Pumping rate & times are not known



Filling the Gaps

1. Tribal Environmental Departments

Groundwater & Surface Water Monitoring

2. Agricultural Community

Groundwater & Surface Water Monitoring

3. Division of Water Rights:

- Continued Coordination, Engagement & Enforcement
- Voluntary Data Sharing
- Groundwater-Surface Water Interactions Study
- Emergency Regulation and Information Order

Clear Lake Ereg & Info Order Timeline

