

# HABs monitoring and response in the Sacramento River Basin

Zachary Gigone

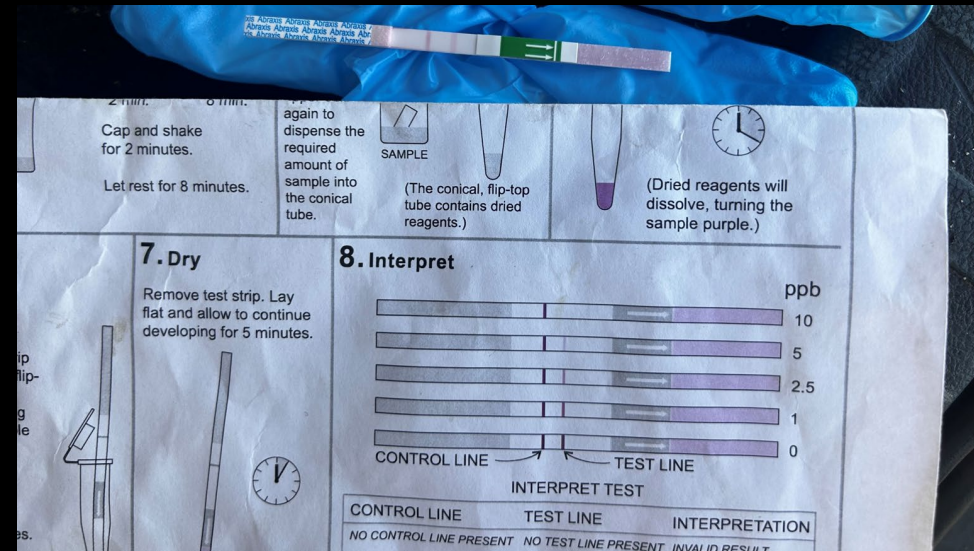
Environmental Scientist | Shingle Springs Band of Miwok Indians

March 12, 2024

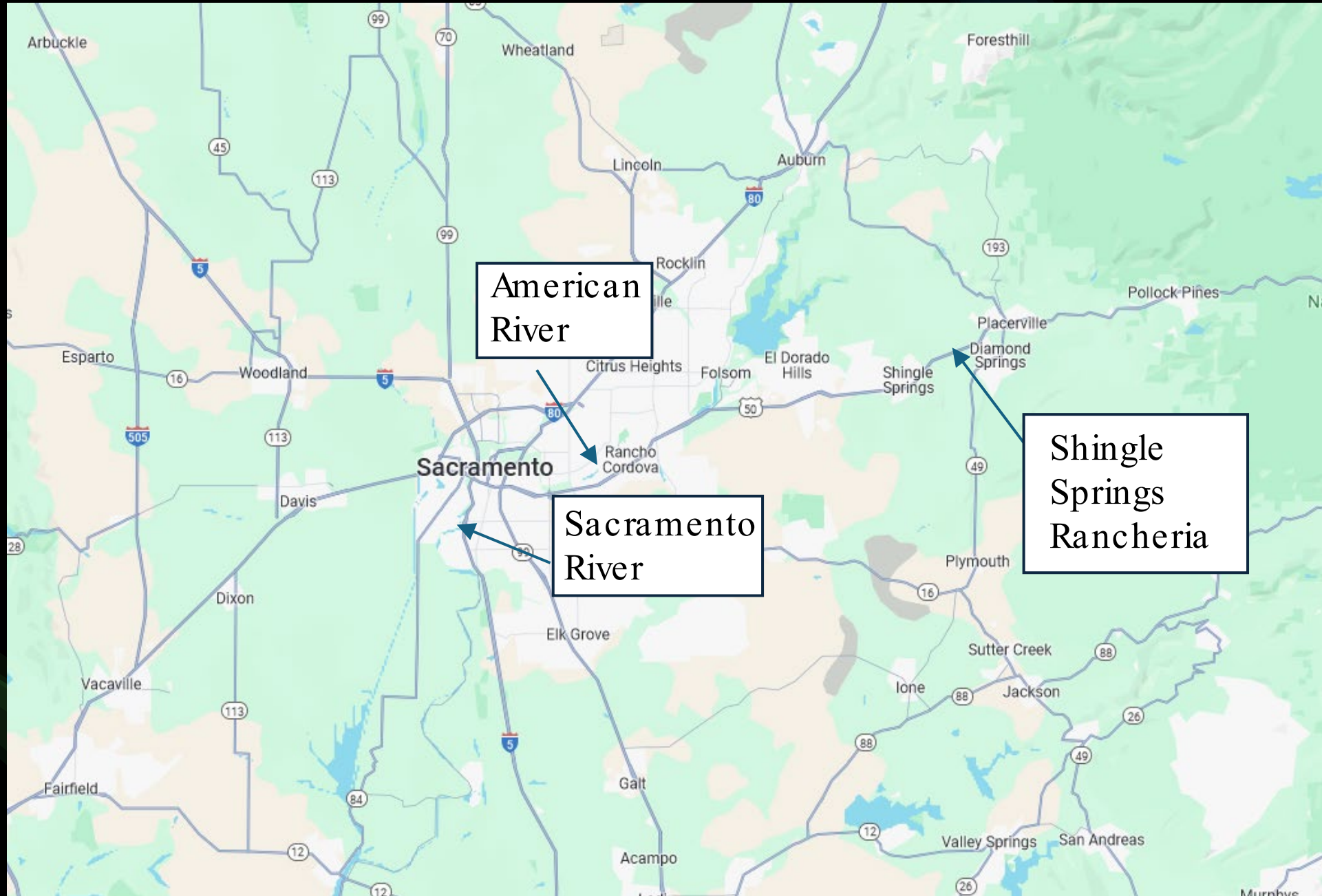
State of the San Francisco Estuary Conference

# Previous Effects

- Habs spotted at several locations on the Sacramento River in 2020 – 2022
- In response to this threat, the tribe began a testing program at culturally significant locations during summer 2023
- Language class cancelled in June 2023

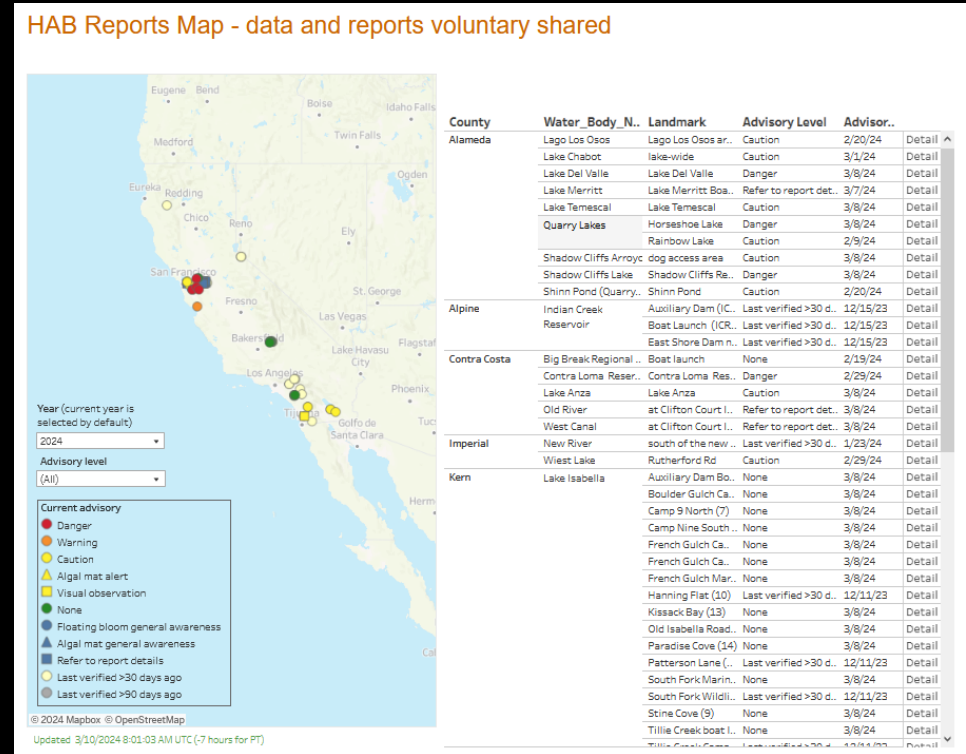


# Study Area



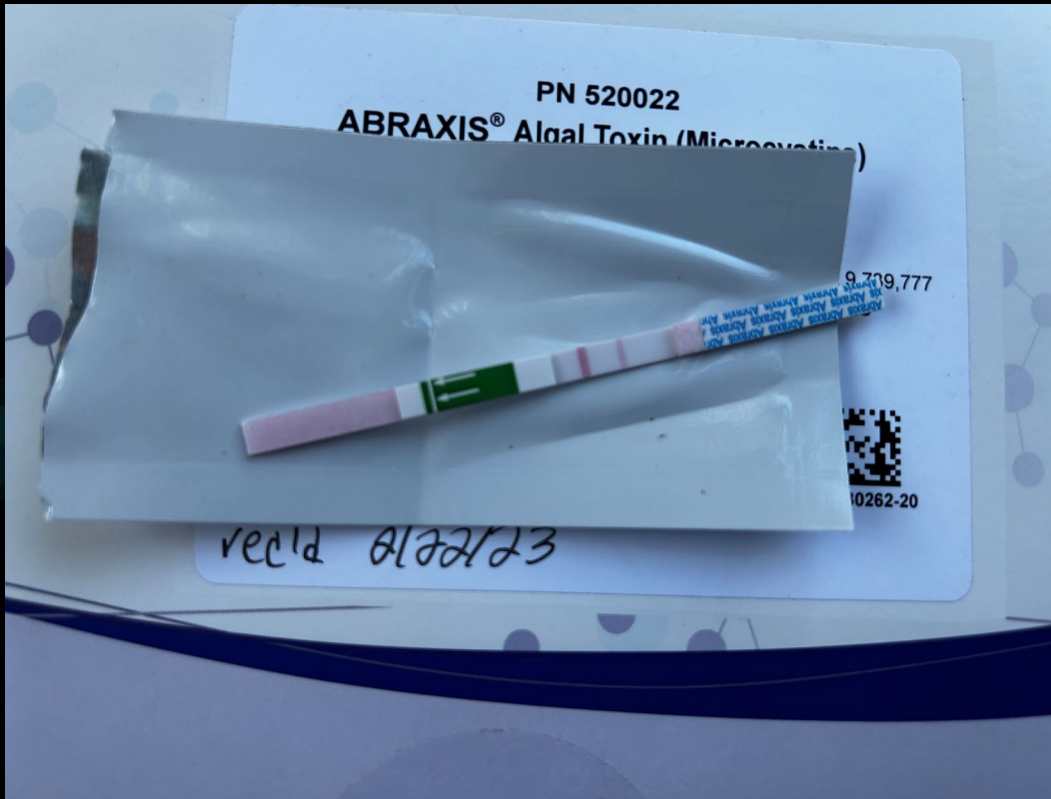
# Creating the tribe's HABs program

- Testing training from Restore the Delta
- Understanding previous bloom locations and timing
- Targeting culturally important locations



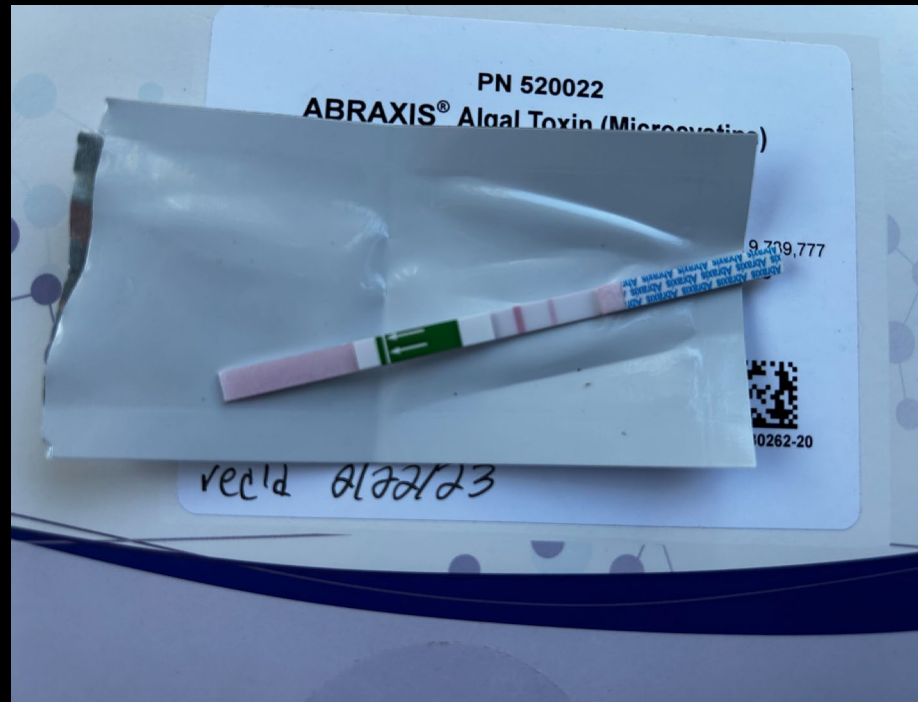
# Testing

- Monthly testing conducted with Abraxis test kits
- 5 locations monitored on Sacramento and lower American Rivers



# Abraxis Test Kits

- Testing for Microcystin



# Response

- Repeat testing when positive results are found
- Warning signs if blooms are suspected or found
- Text notifications for tribal members

## WARNING - ADVERTENCIA

Toxins from algae in this water can harm people and kill animals  
Toxinas de algas en estas aguas pueden causar daño a la gente y matar animales



No swimming.  
Prohibido nadar.



Do not let pets or other animals go into or drink the water, or go near the scum.  
No deje que sus mascotas o animales se metan o beban el agua, o se acerquen a la espuma lamosa.



Stay away from scum, and cloudy or discolored water.  
Manténgase alejado de la espuma lamosa, y agua turbia o descolorida.



Do not eat shellfish from this water.  
No coma mariscos de estas aguas.



Do not use this water for drinking or cooking. Boiling or filtering will not make the water safe.  
No use esta agua para beber o cocinar. Hervir o filtrar el agua no hace que sea segura.



For fish caught here, throw away guts and clean fillets with tap water or bottled water before cooking.  
Al pescado que pesque aquí, quitele los intestinos y tírelos a la basura. Limpie el filete con agua de la llave o embotellada antes de cocinarlo.

Call your doctor or veterinarian if you or your pet get sick after going into the water.  
Lláme a su médico o veterinario si usted o su mascota se enferman después de meterse al agua.  
For more information go to (Para información) : <https://mywaterquality.ca.gov/habs/>  
For local information, contact (Para información local comuníquese con):

## CAUTION - PRECAUCIÓN

Harmful algae may be present in this water.  
Puede haber algas dañinas en estas aguas.



Stay away from algae and scum in the water.  
Aléjese de las algas o espuma lamosa en el agua.



Do not let pets and other animals go into or drink the water, or eat scum on the shore.  
No deje que sus mascotas o animales se metan o beban el agua, o se acerquen a la espuma lamosa.



Keep children away from algae in the water or on the shore.  
Mantenga a los niños alejados de algas en el agua u orilla del agua.



Do not drink this water or use it for cooking.  
No beba de esta agua o use para cocinar.



For fish caught here, throw away guts and clean fillets with tap water or bottled water before cooking.  
Al pescado que pesque aquí, quitele los intestinos y tírelos a la basura. Limpie el filete con agua de la llave o embotellada antes de cocinarlo.



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# Future Expectations – Climate Change and Management

- Water temperature
  - Warmer temperatures
- Flows
  - Reduced snowpack
  - Development increasing impermeable surfaces
- Nutrient runoff



# Tribal Sovereignty and Cultural Considerations

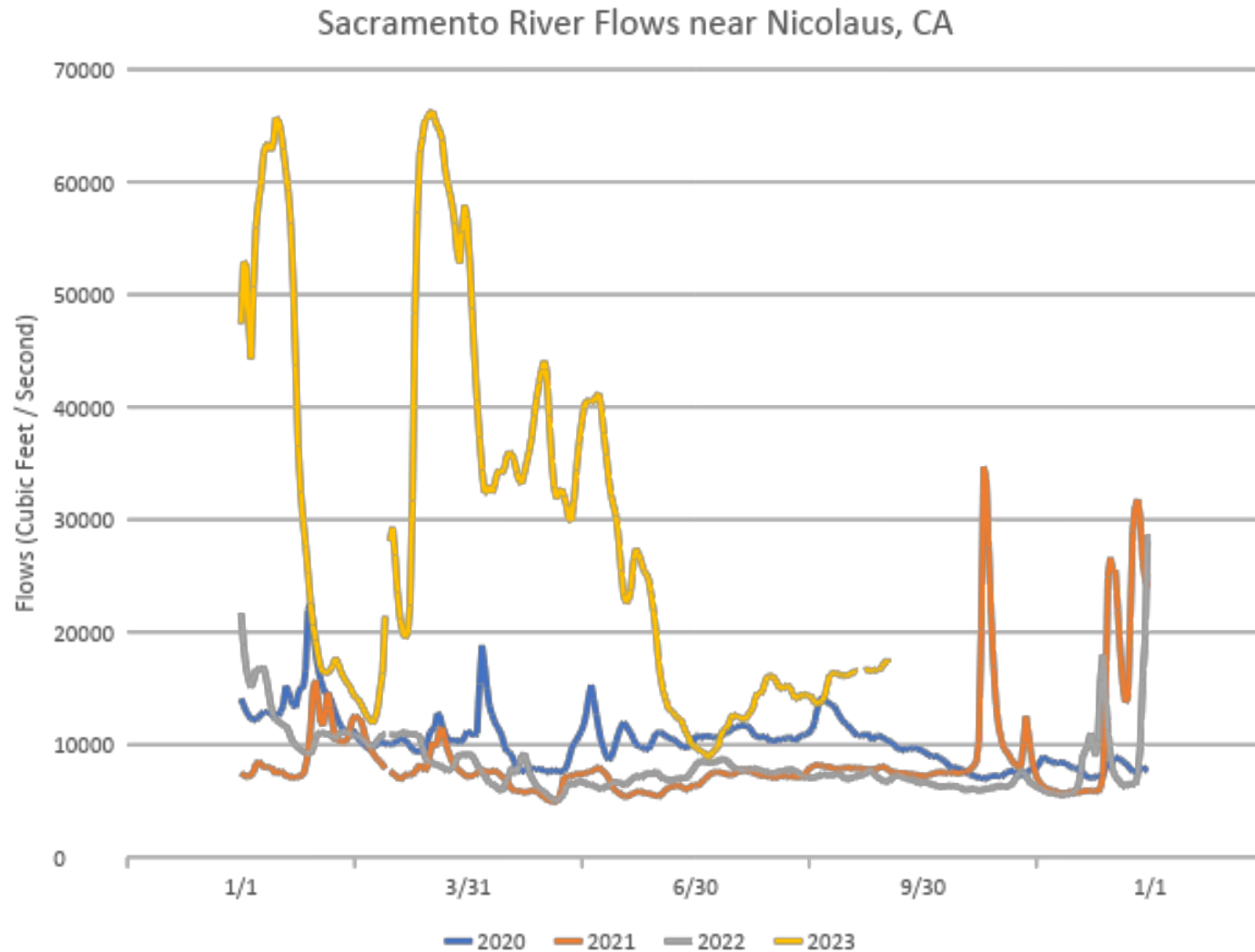
- Tribal control of data
- Cultural sensitivity training
- Culturally important locations



# Effects on Tribal Events and Activities

- Toxin accumulation in fish
- Cancellation of language camp

# Link Between Flows and Blooms

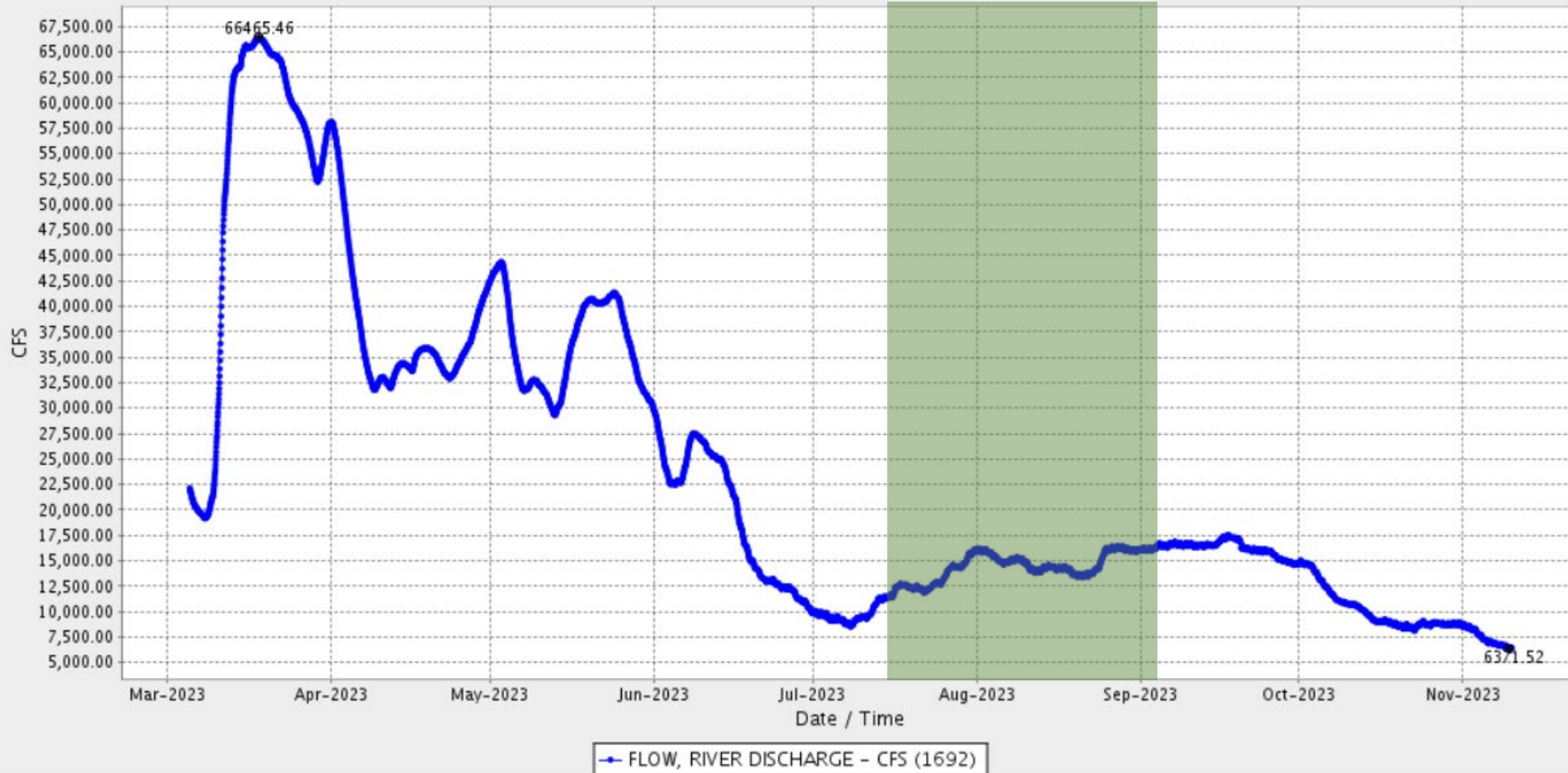


# Sacramento River flows - 2023

## SACRAMENTO RIVER AT VERONA ( VON )

Date from 03/05/2023 00:00 through 11/10/2023 00:00 Duration : 250 days

Max of period : (03/18/2023 06:00, 66465.46) Min of period : (11/09/2023 15:00, 6371.52)

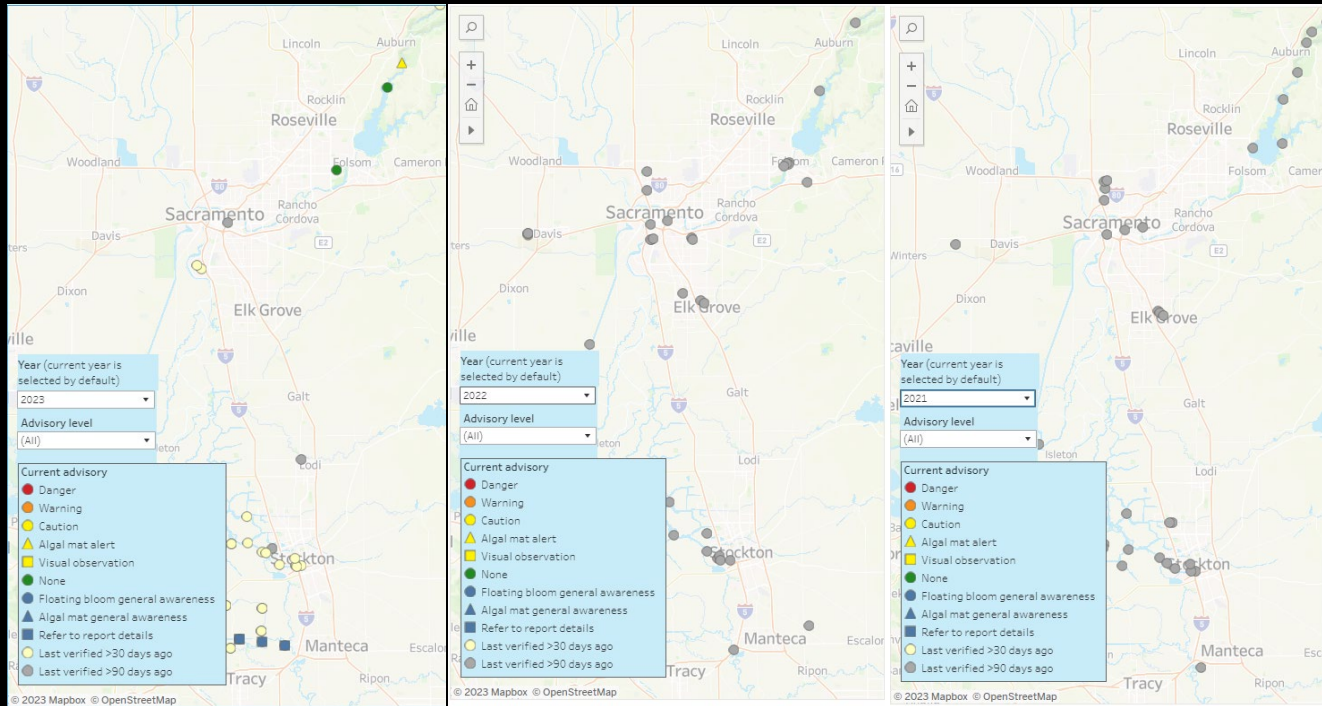


Data from  
California Data  
Exchange Center

# Blooms Seen from 2020 - 2023

Significantly lower number of HABs incidents seen during the high flow season in 2023

Less awareness of HABs issue in 2020 is likely the cause of fewer reports



2023	4 Reports
2022	19 Reports
2021	12 Reports
2020	5 Reports

# Shifting Baseline

- “With ongoing environmental degradation at local, regional, and global scales, people's accepted thresholds for environmental conditions are continually being lowered. In the absence of past information or experience with historical conditions, members of each new generation accept the situation in which they were raised as being normal.”
  - Shifting Baseline Syndrome: Causes, Consequences, and Implications – Masashi Soga and Kevin J Gaston

# Future Plans

- Continued testing
- Expanding locations
- Testing from boat at additional river locations