



Assessing Groundwater Dependent Ecosystems and Interconnected Surface Water in the Napa Valley Subbasin

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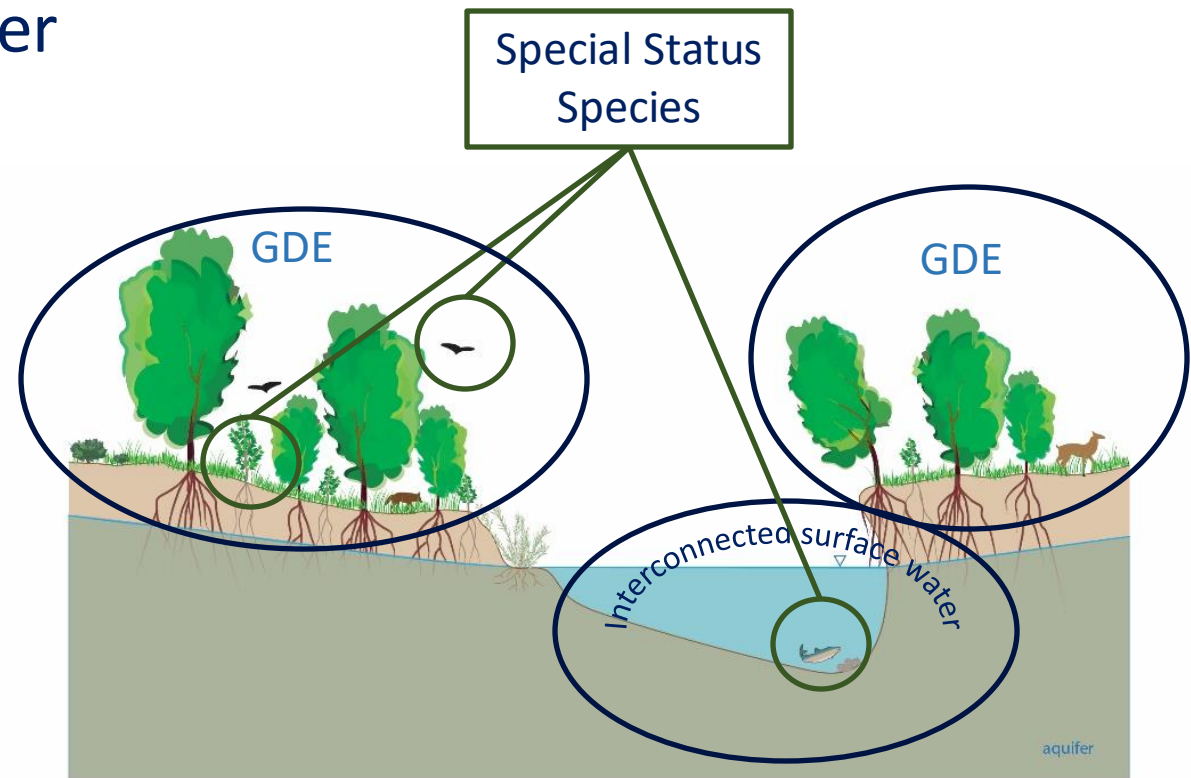


Groundwater Dependent Ecosystems (GDEs)

DWR defines GDEs as ecological communities or species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface for some of their water needs.

GDEs occur in:

- *Seeps and springs*
- *Groundwater-dependent wetlands*
- *Riparian ecosystems*
- *Streams connected to groundwater*



ISW and GDEs Workplan released March 2024

Link to Workplans



Executive Summary for the Workplan is provided in Spanish.



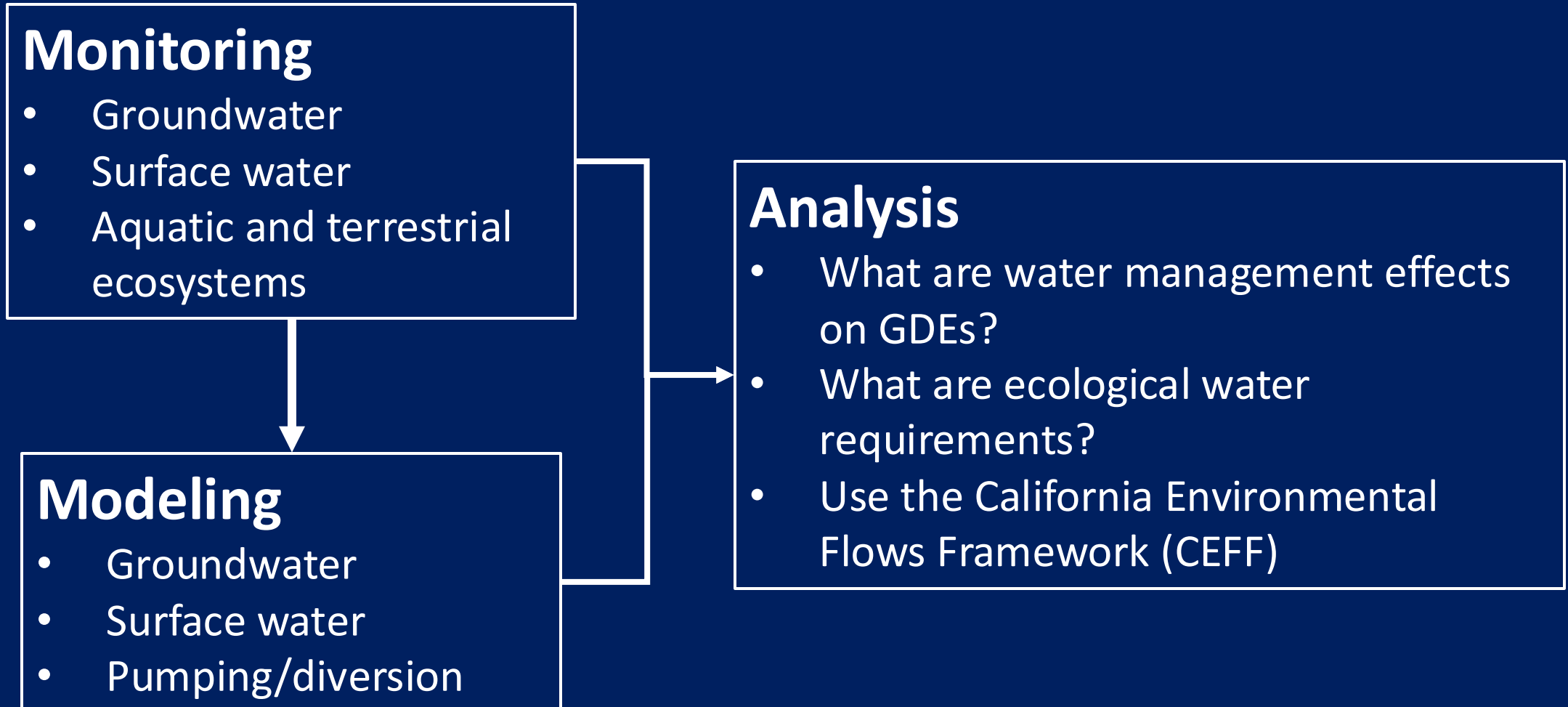
Interconnected Surface
Water and Groundwater
Dependent Ecosystems
Workplan: Napa Valley
Subbasin



MARCH 2024

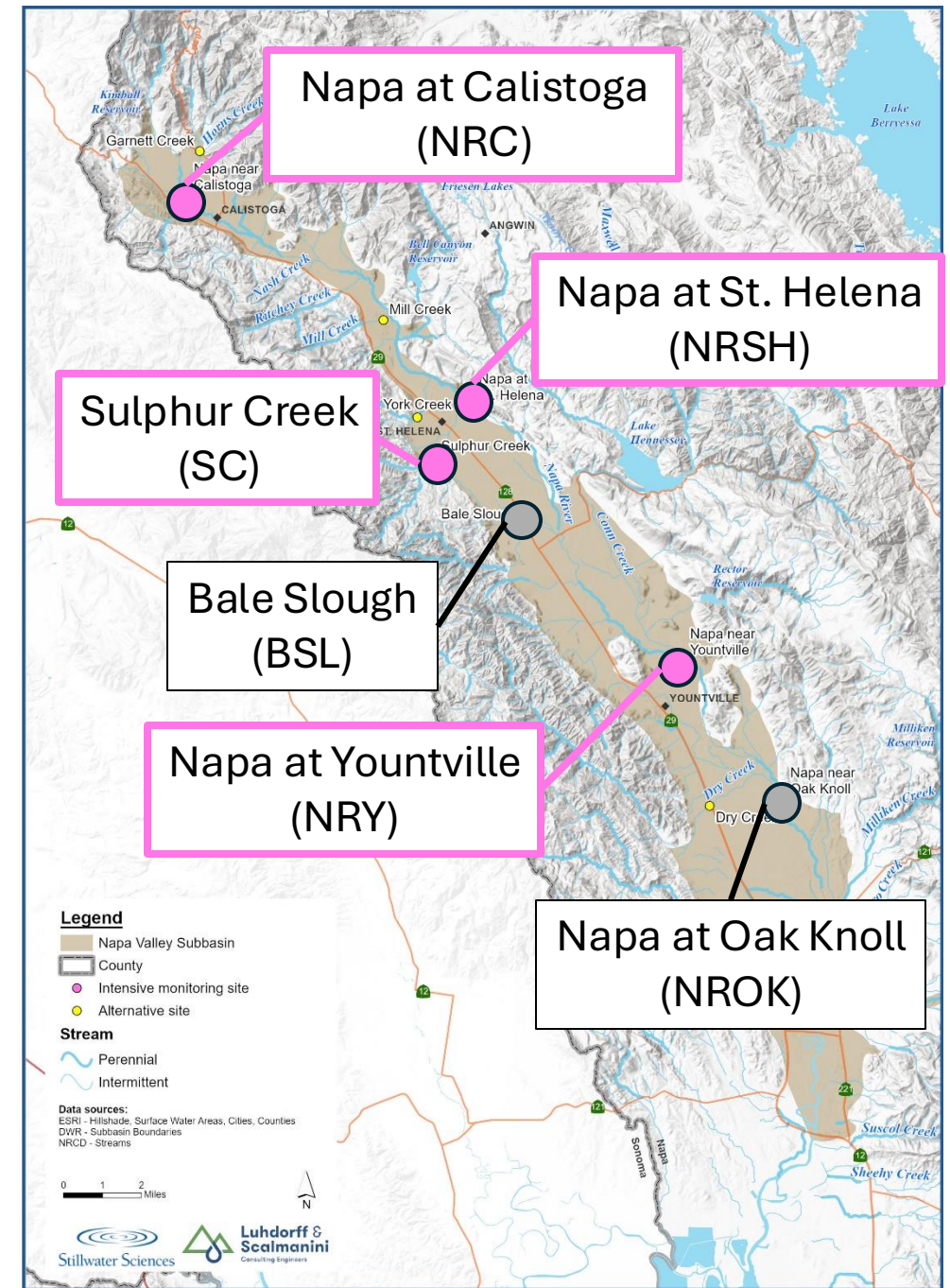


Workplan Implementation





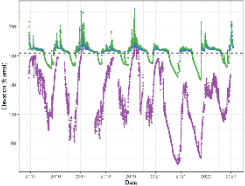



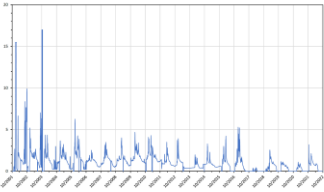









ISW and GDEs Workplan Implementation

- The Workplan identified six intensive survey sites
- Sites selected based on biological importance (number of special status species/lifestage), and the length of hydrologic record.
- Initial surveys were conducted at 4 of the 6 sites.



Hydrologic monitoring

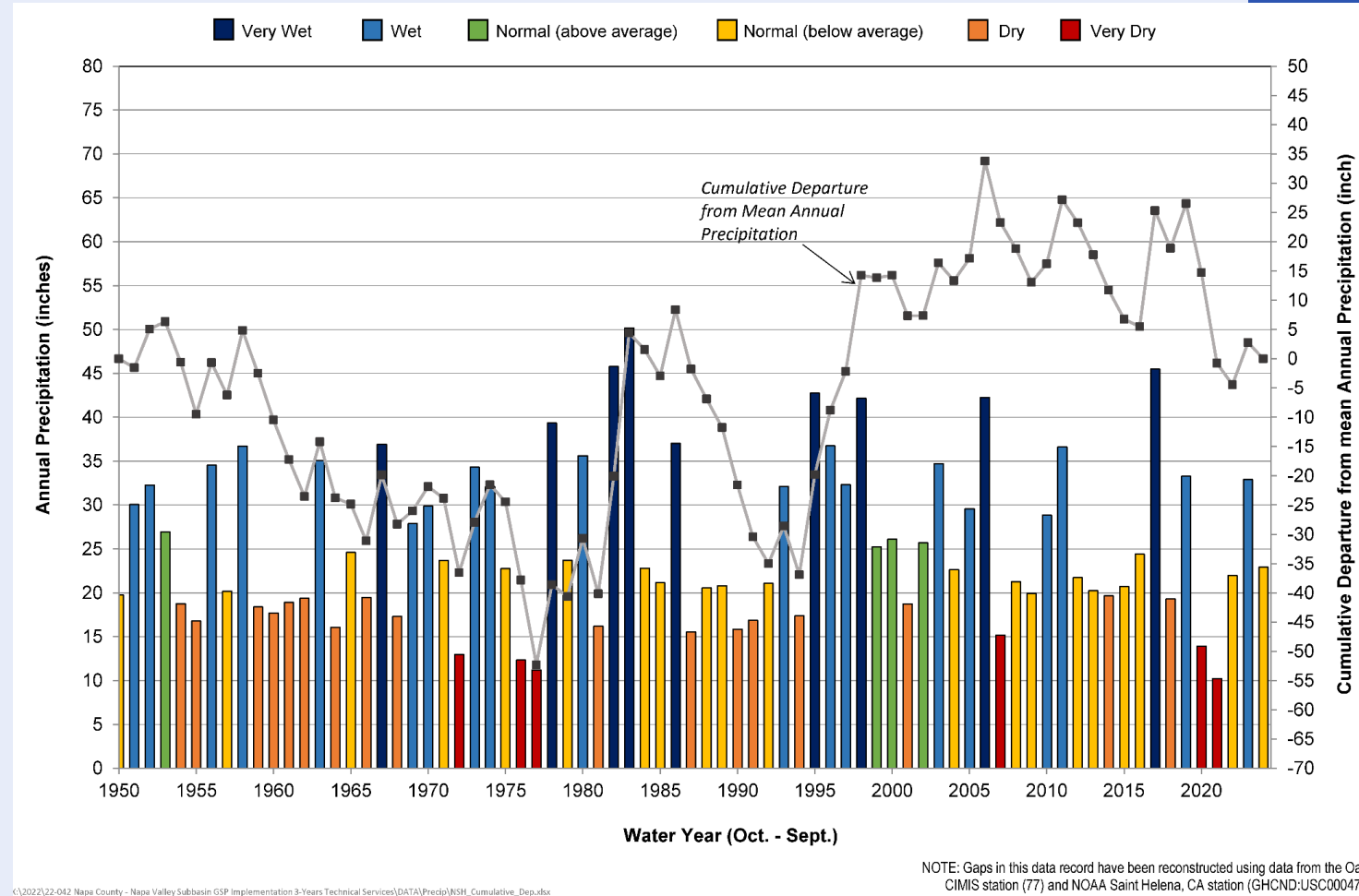
		2024	2025	2026	2027
	Stream Watch				GSP Update January 2027
	Shallow Groundwater Monitoring				
	Surface stage				
	Flow Connectivity				

New Monitoring

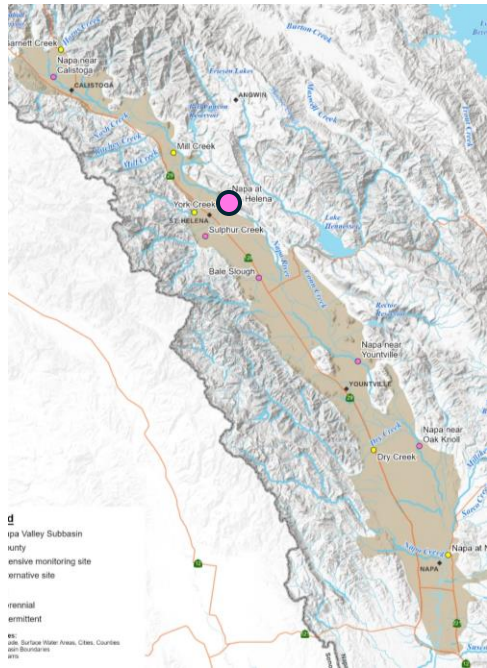
		2024	2025	2026	2027
	Fish and Fish Habitat				GSP Update January 2027
	Aquatic Wildlife			Optional (Flood, Drought)	
	Plants				
	Terrestrial Wildlife (Birds)				

2024 Climate Summary

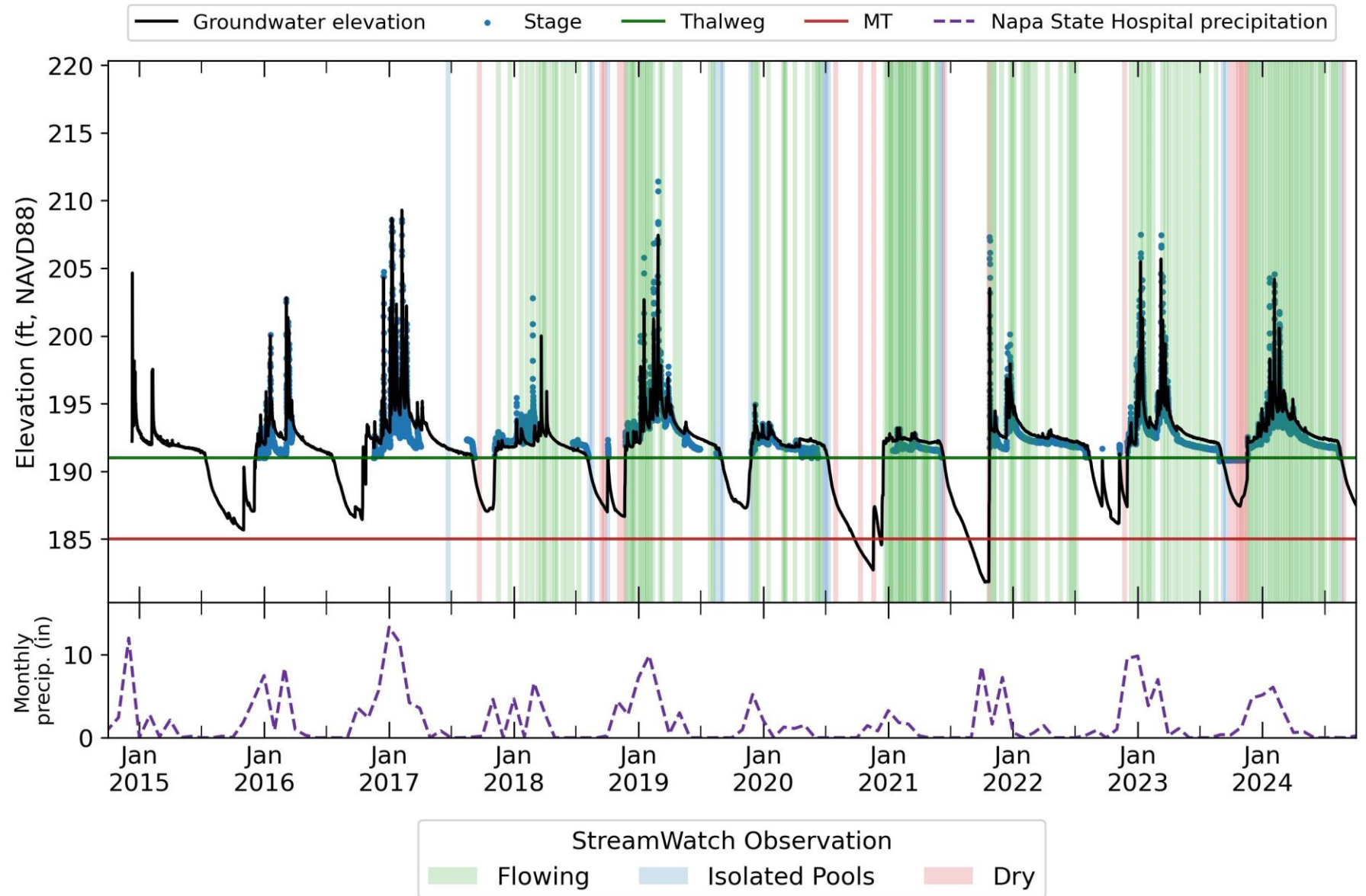
- 2024 had below normal (89% of average) precipitation.
- Summer 2024 was very warm, particularly in July when minimum and maximum daily temperatures were high relative to the historical record.
- Calistoga, St. Helena, and Oakville experienced 35, 35, and 12 days (respectively) above 100 degrees Fahrenheit, much higher than average.
- These conditions are likely to lead to higher stream temperature and low dissolved oxygen.



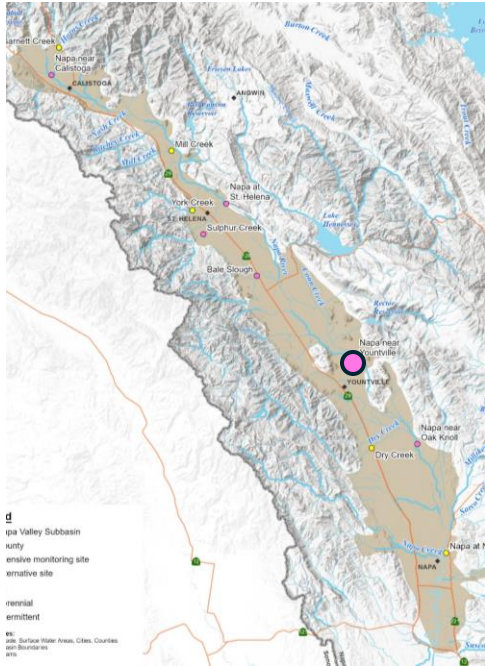
Napa at St. Helena Hydrology



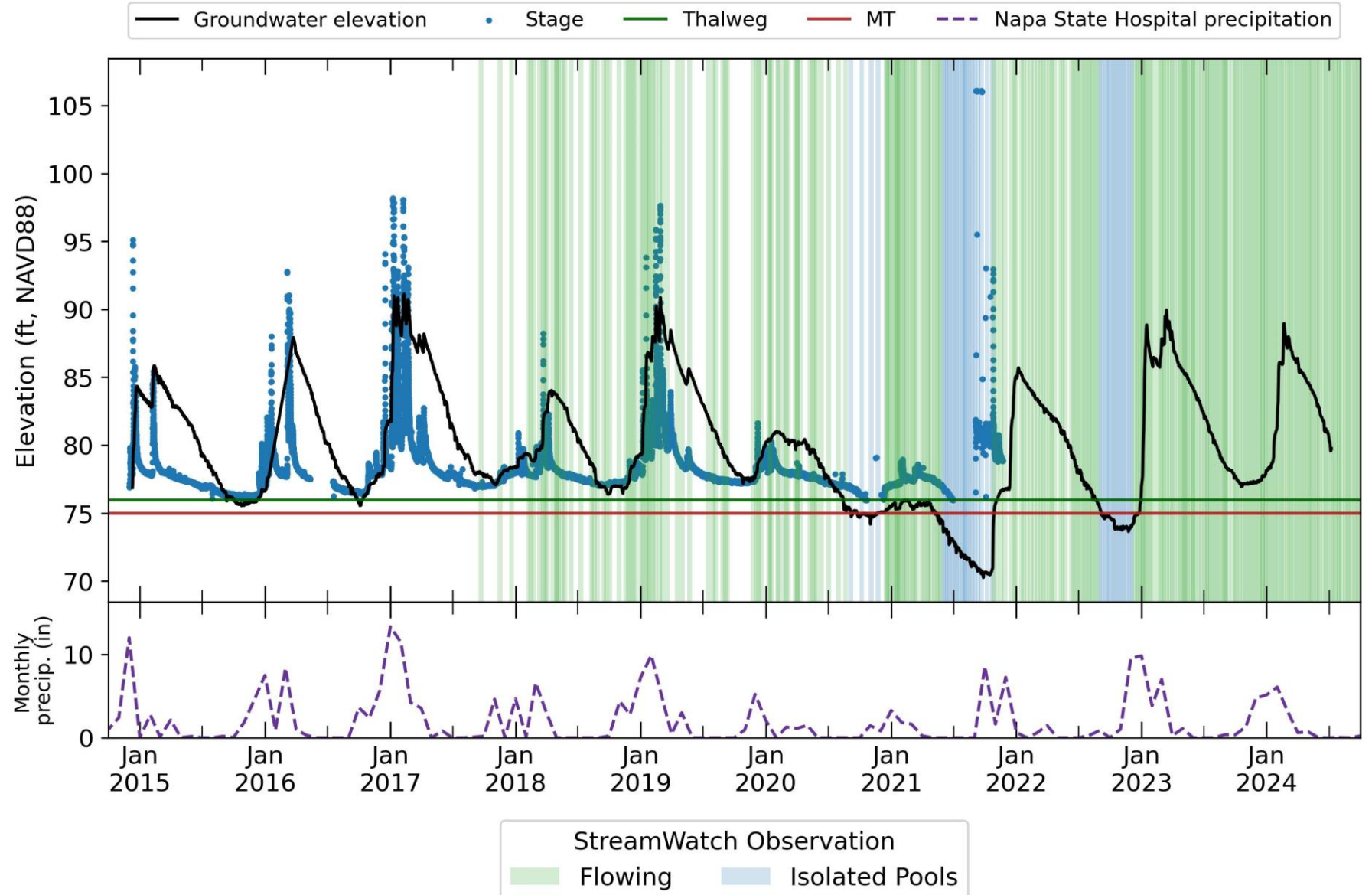
NapaCounty-222s (depth = 40 ft, screened from 25 to 35 ft)
StreamWatch Site 2: Napa R at Pope St



Napa at Yountville Hydrology

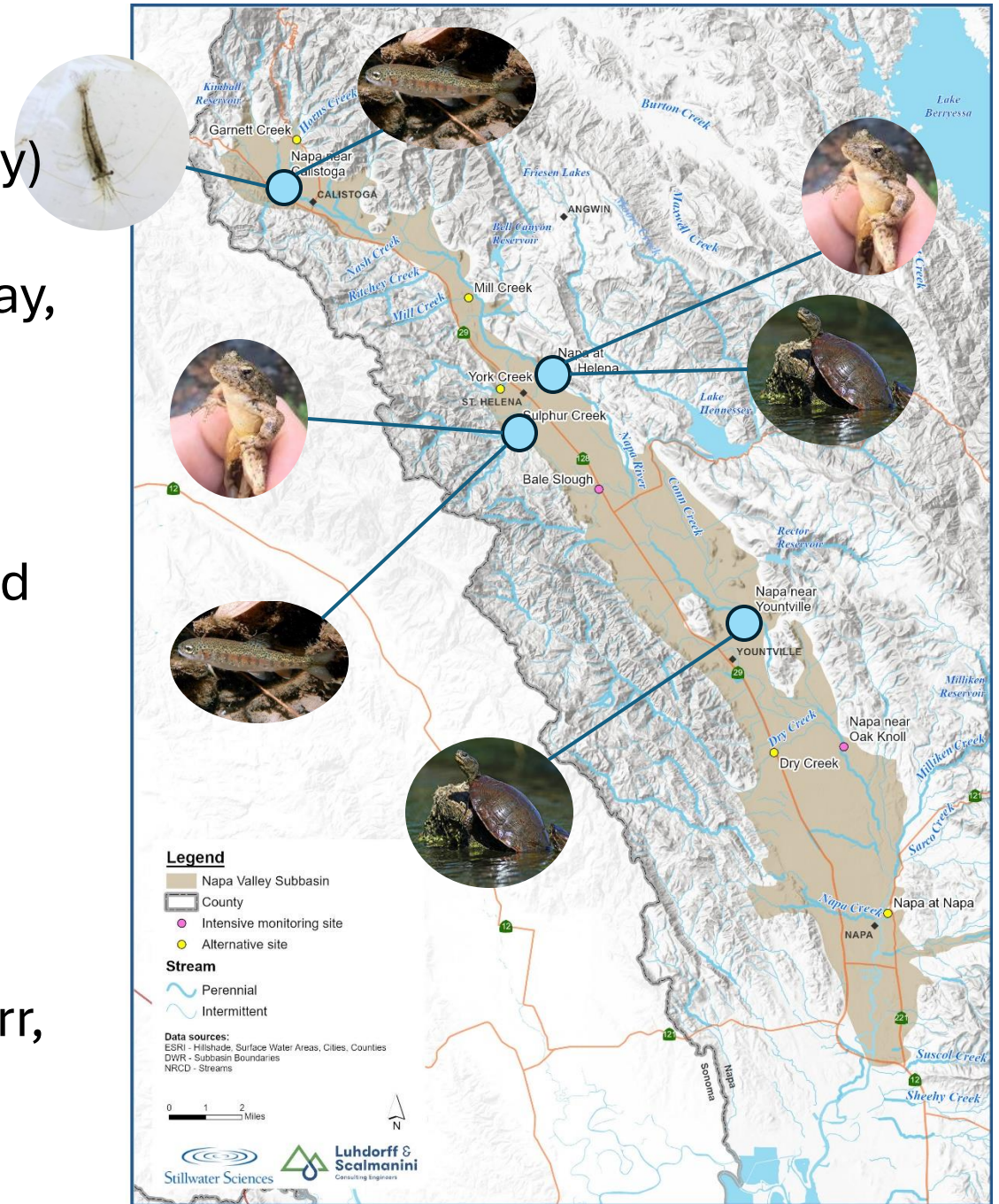


NapaCounty-220s (depth = 45 ft, screened from 25 to 40 ft)
StreamWatch Site 1: Napa R at Yountville Eco-Reserve



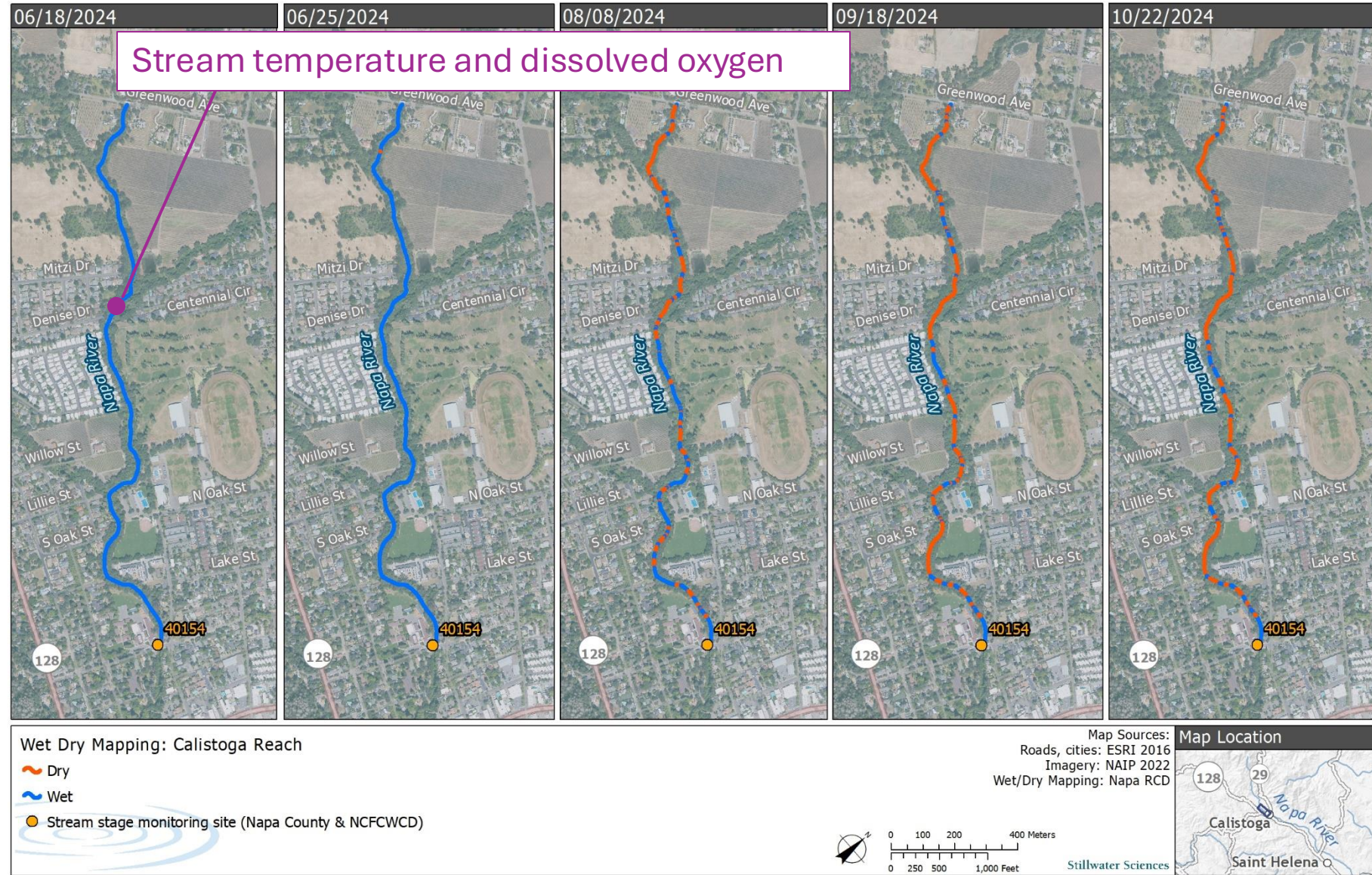
Biological surveys: Results

- **Napa River at Calistoga:** Steelhead fry (July) and California Freshwater Shrimp (~110) (August), no special status herptofauna (May, July).
- **Napa River at St. Helena:** Foothill yellow-legged frog eggs (May) and eDNA (July), Northwestern pond turtle (May), 1 steelhead fry (June)
- **Napa River at Yountville:** Northwestern pond turtle, Visual (May) and eDNA (July), 1 steelhead fry (July)
- **Sulphur Creek:** Foothill yellow legged frog tadpoles and adult (May). Steelhead fry, parr, and adults (June). All fish were observed in the upstream perennial reach

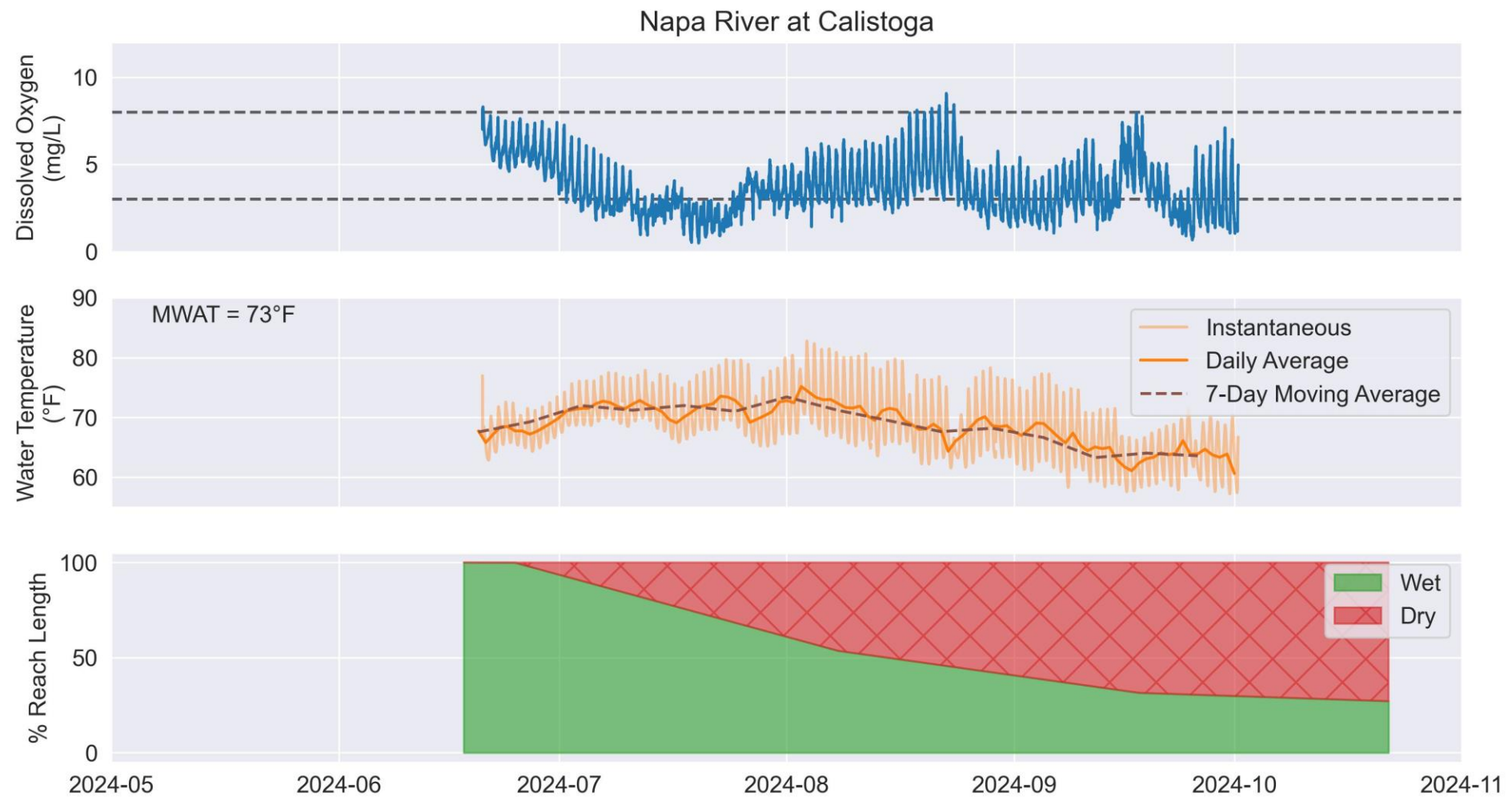


Habitat Conditions

- Monthly maps of flow connectivity over ~ 1 mile at each site
- 15-minute stream temperature
- 15-minute dissolved oxygen

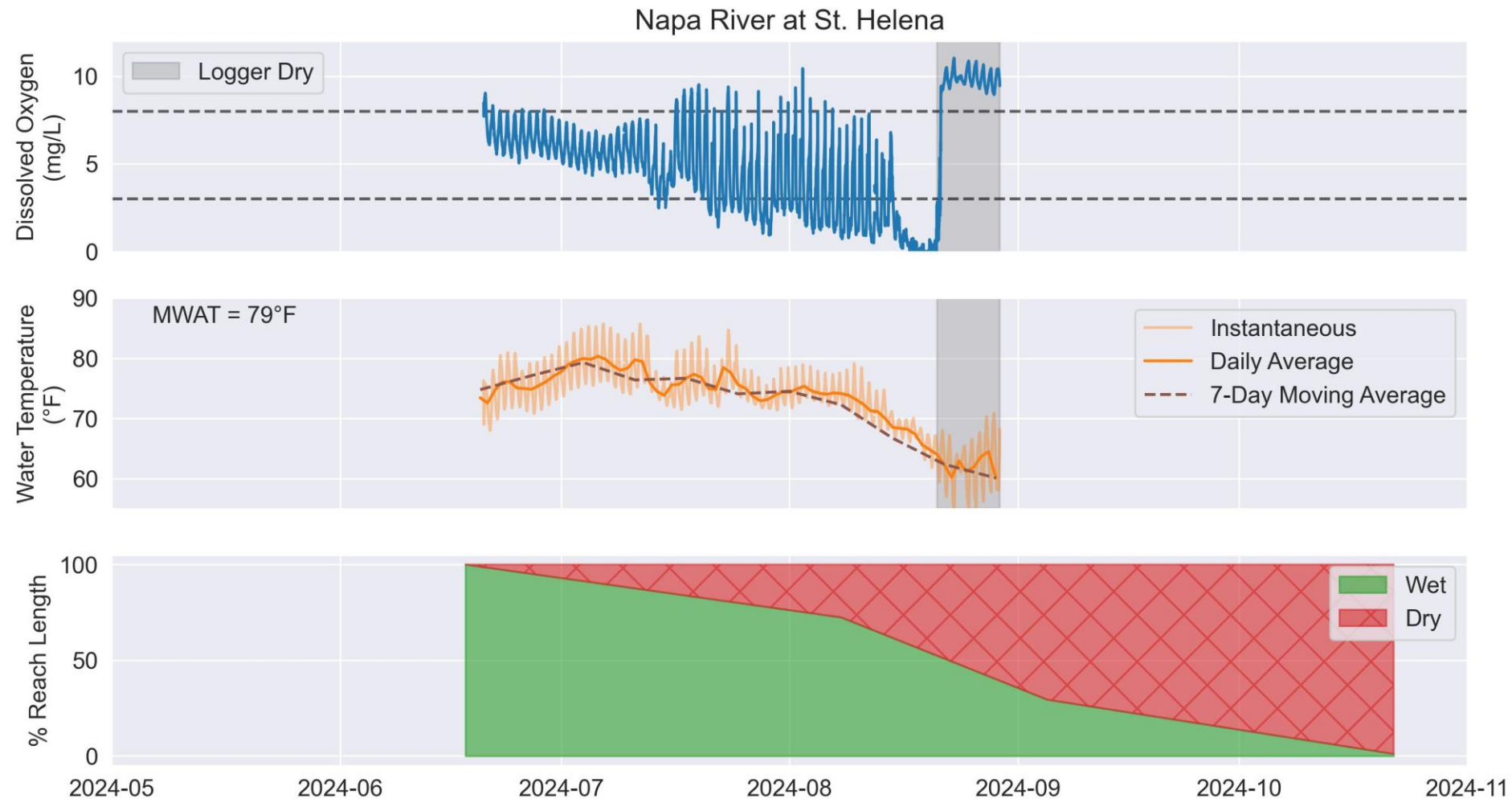


Calistoga Habitat



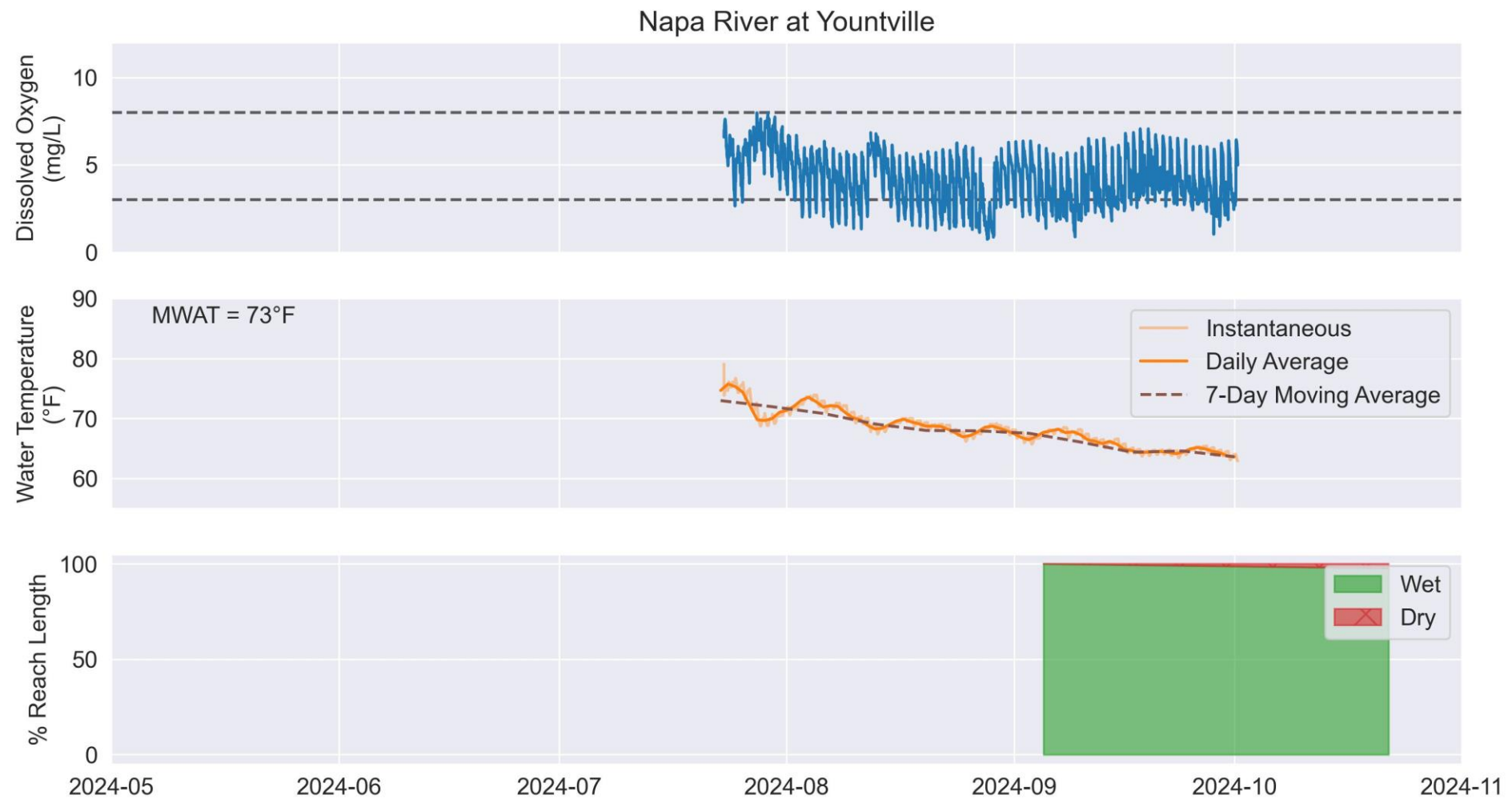
- Low dissolved oxygen
- Stressful stream temperatures
- Transition to isolated pools in July

St Helena Habitat



- Low dissolved oxygen
- Very stressful stream temperatures
- Over 1 mile of stream dry by October sturveys

Yountville Habitat



- Temperature and DO measured starting in late July
- Low dissolved oxygen
- Stressful stream temperatures at end of July
- Flowing

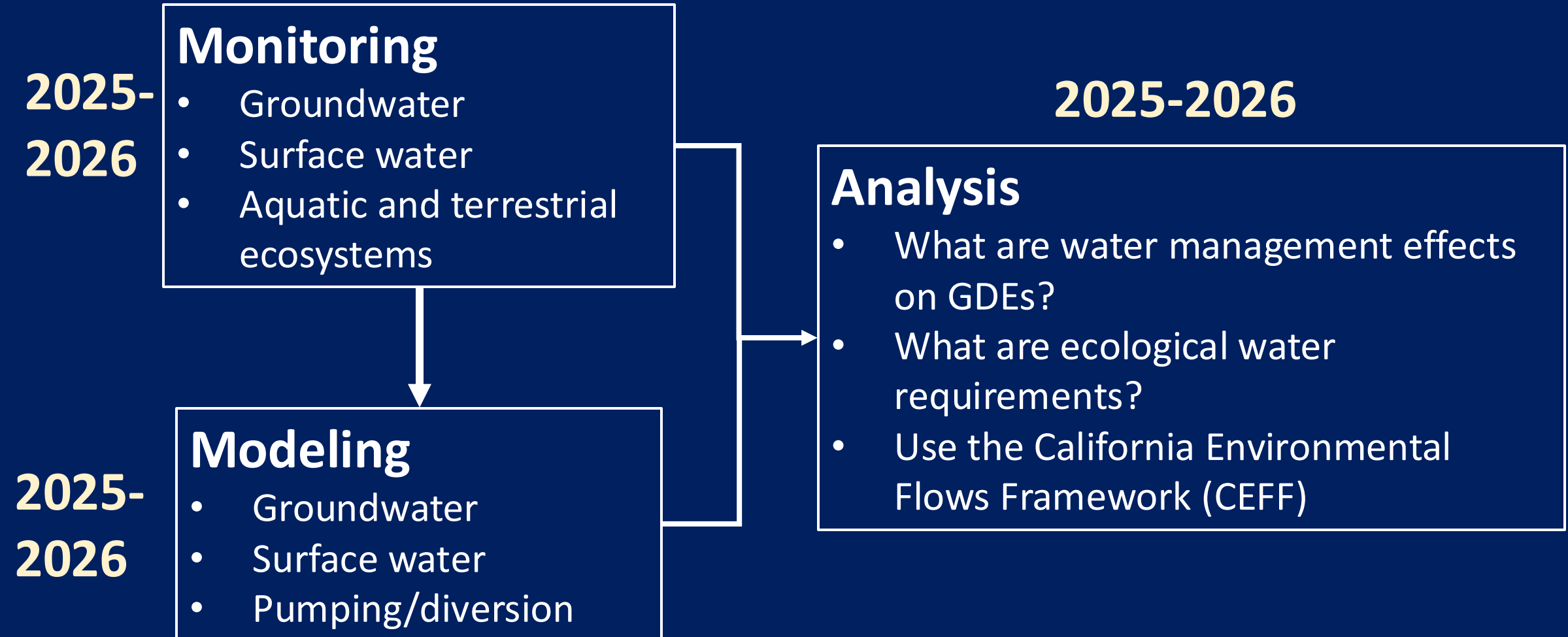
Summary



- 2024 had below average precipitation and high summer air temperatures
- The Napa at Calistoga and St. Helena transitioning to isolated pools in (Calistoga), or completely dried (Napa at St. Helena) in July. Napa River at Yountville was flowing for almost all of its length throughout the year
- Stream temperature and dissolved oxygen were stressful for salmonids during summer at all sites.
- Foothill yellow-legged frogs were present at Napa in St. Helena and Sulphur Creek
- Northwestern pond turtle were present in Sulphur Creek and Napa River at St. Helena
- Steelhead fry were present in Calistoga and upper reaches of Sulphur Creek



Workplan Implementation





Thank you!!



Stillwater Sciences



**Luhdorff &
Scalmanini**
Consulting Engineers

