Interconnected Surface Water and Groundwater Dependent Ecosystem Workplan

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ISW and GDEs Workplan Objectives

- GSP recognized data gaps on the relationship between ISW conditions and GDEs.
  - Action: Prepare Workplan to leverage existing information and identify assessments and monitoring needed to address data gaps
- Workplan describes:
  - Information needed to better understand existing streamflow characteristics and how they relate to GDE health.
  - Data gathered to develop a relationship between groundwater elevation, flow, and habitat for GDEs
  - How the results will be used to refine Sustainable Management Criteria related to the ISW sustainability indicator.


Central California Coastal steelhead

Napa RCD

What are the GDEs?

GDEs:

- Aquatic ecosystems (ISW)
- 12 vegetation communities

Special-status species

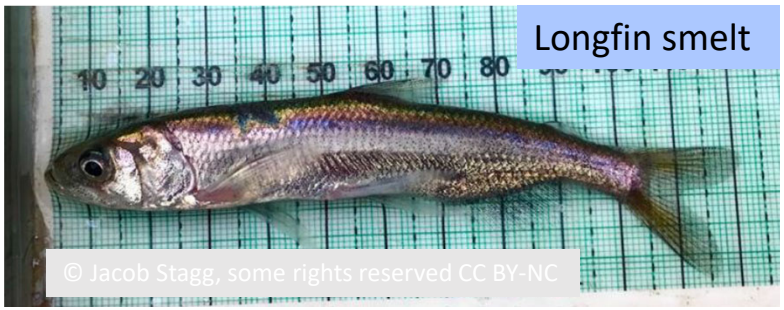
- 3 fish (plus Chinook salmon – *not a special-status species*)
- 5 aquatic wildlife species
- 15 plant species likely or possibly associated with groundwater
- Six terrestrial wildlife species (all birds)


Ryan Peek

Foothill yellow-legged frog


Riparian zones and streams


California freshwater shrimp



Longfin smelt

Saltmarsh common yellowthroat

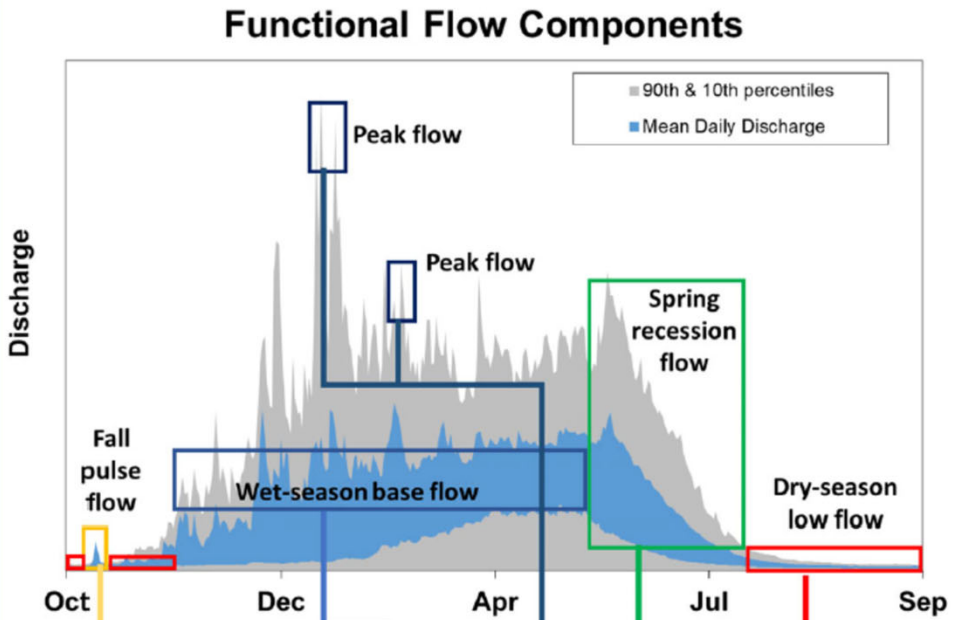

Peter LaTourrette


The watershed nursery

Calistoga Popcornflower

What Does the Workplan include?

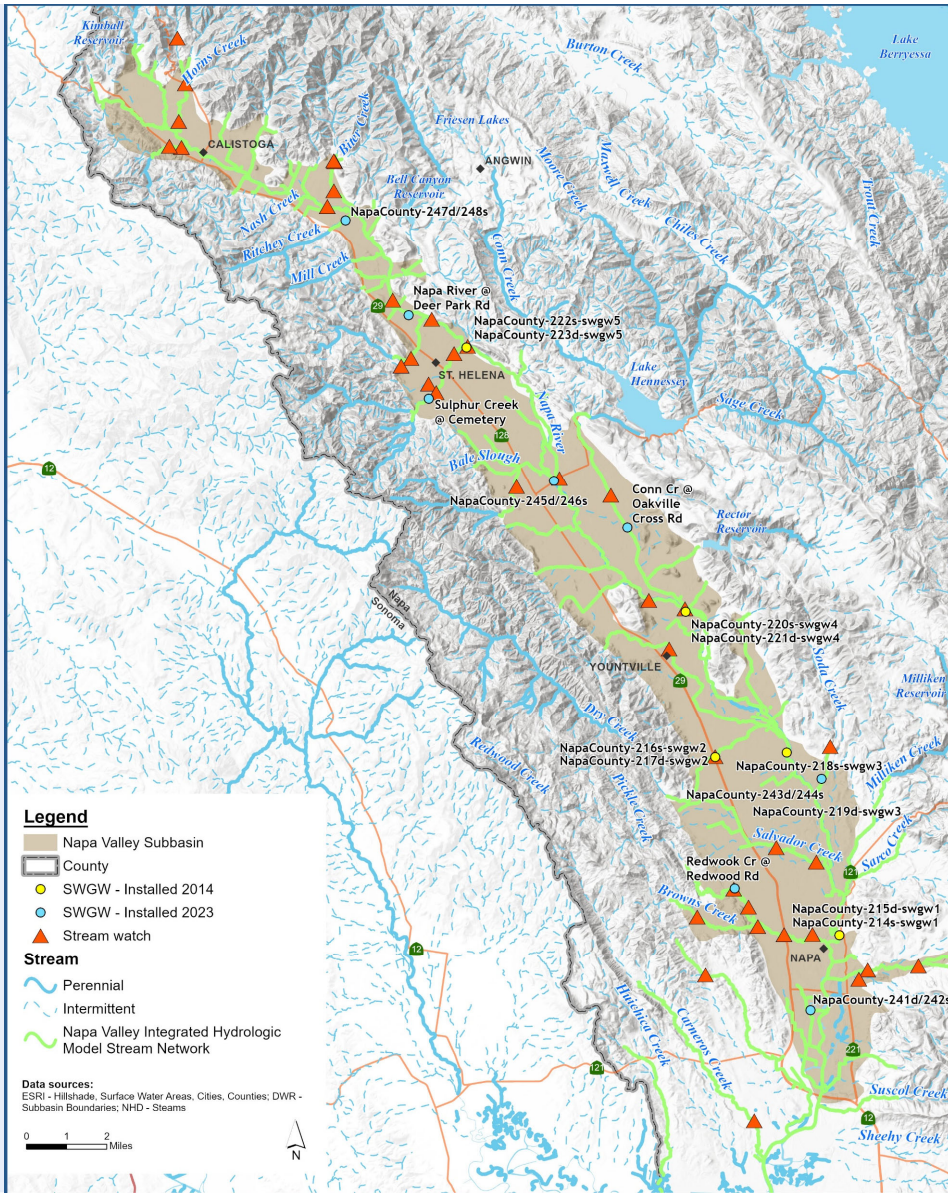
- Monitoring and analysis of shallow groundwater and streamflow
- Modeling of groundwater and surface water using the Napa Valley Integrated Hydrologic Model
- Biological monitoring and analysis at 6 intensive sites throughout the basin
- **California Environmental Flows Framework (CEFF) Assessment** sections A (*Identify ecological flow criteria using natural functional flows) and B (Develop ecological flow criteria for each flow component affected by non-flow factors)*



Flow Characteristics	Functional Flow Components: Fall Pulse	Wet Baseflow	Peak Flow	Spring Recession	Dry Low Flow
Magnitude	X	X	X	X	X
Timing	X	X	X	X	X
Duration		X	X	X	X
Frequency			X		
Rate of Change				X	X

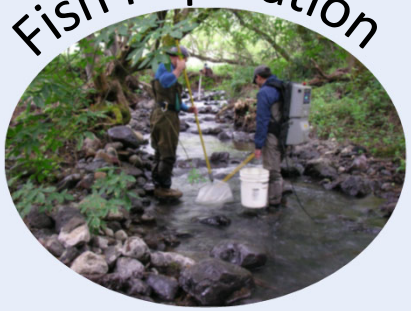
Hydrologic Monitoring Network

- There are **127 wells** in the Subbasin monitoring network
- ISW Network: **30 Monitoring wells**
  - 2014 5 sites with dual-completion wells (10 wells)
  - 2023 installed 8 additional sites (16 wells)
  - 4 other shallow monitoring wells
- **35 Stream Watch** sites
- 2 **USGS gages**
- **Napa Valley Integrated Hydrologic Model**



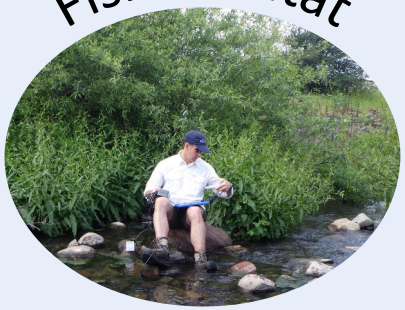
Biologic Surveys at Intensive Survey Sites

Fish Population



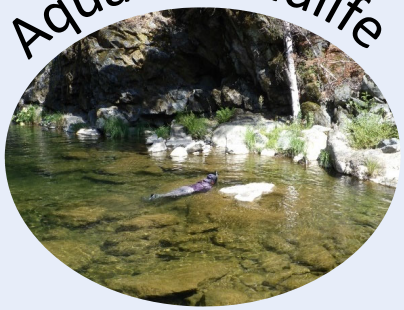
Terrestrial Wildlife (birds)

Fish Habitat

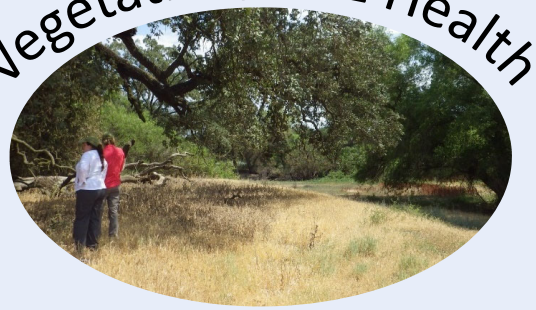


Aquatic Wildlife

Aquatic Wildlife



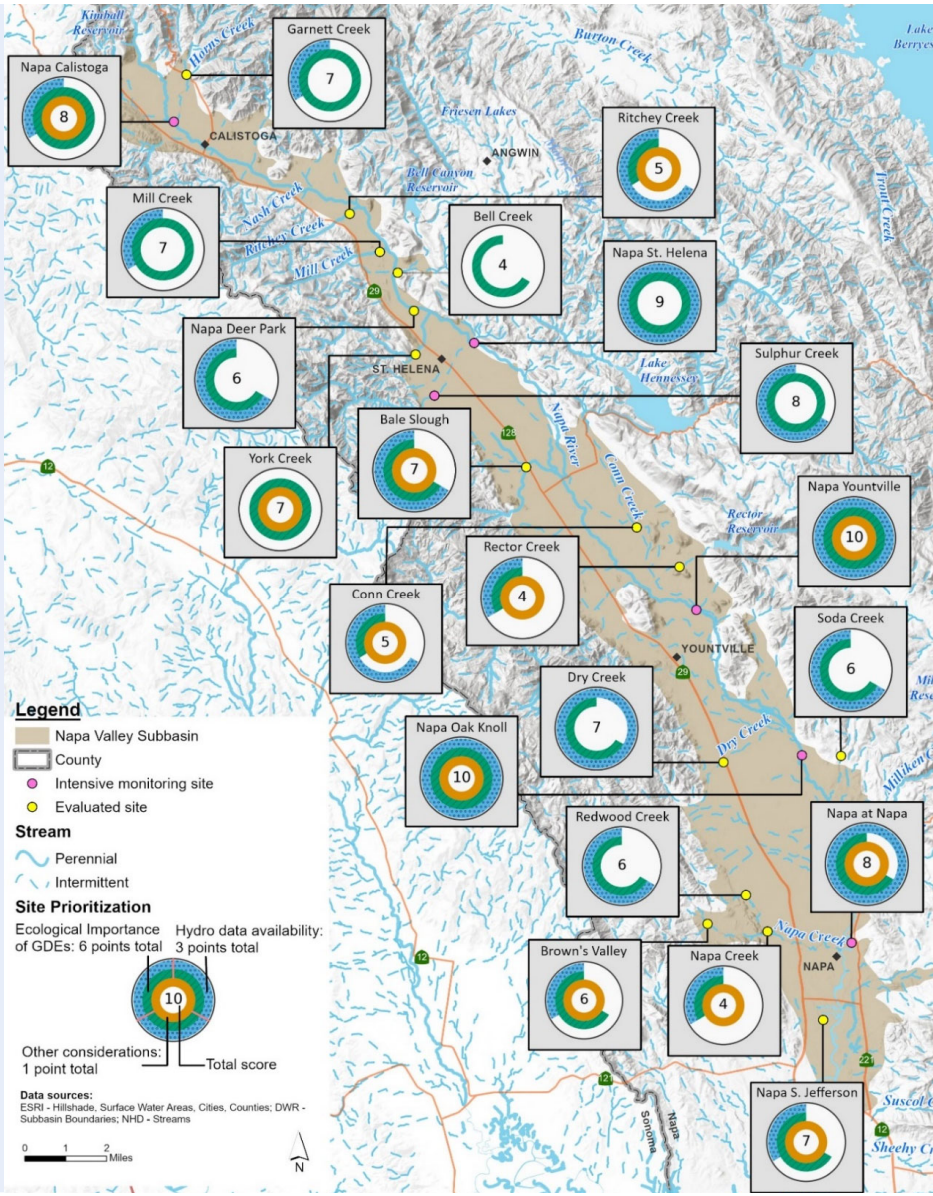
Vegetation/GDE Health



Site Prioritization

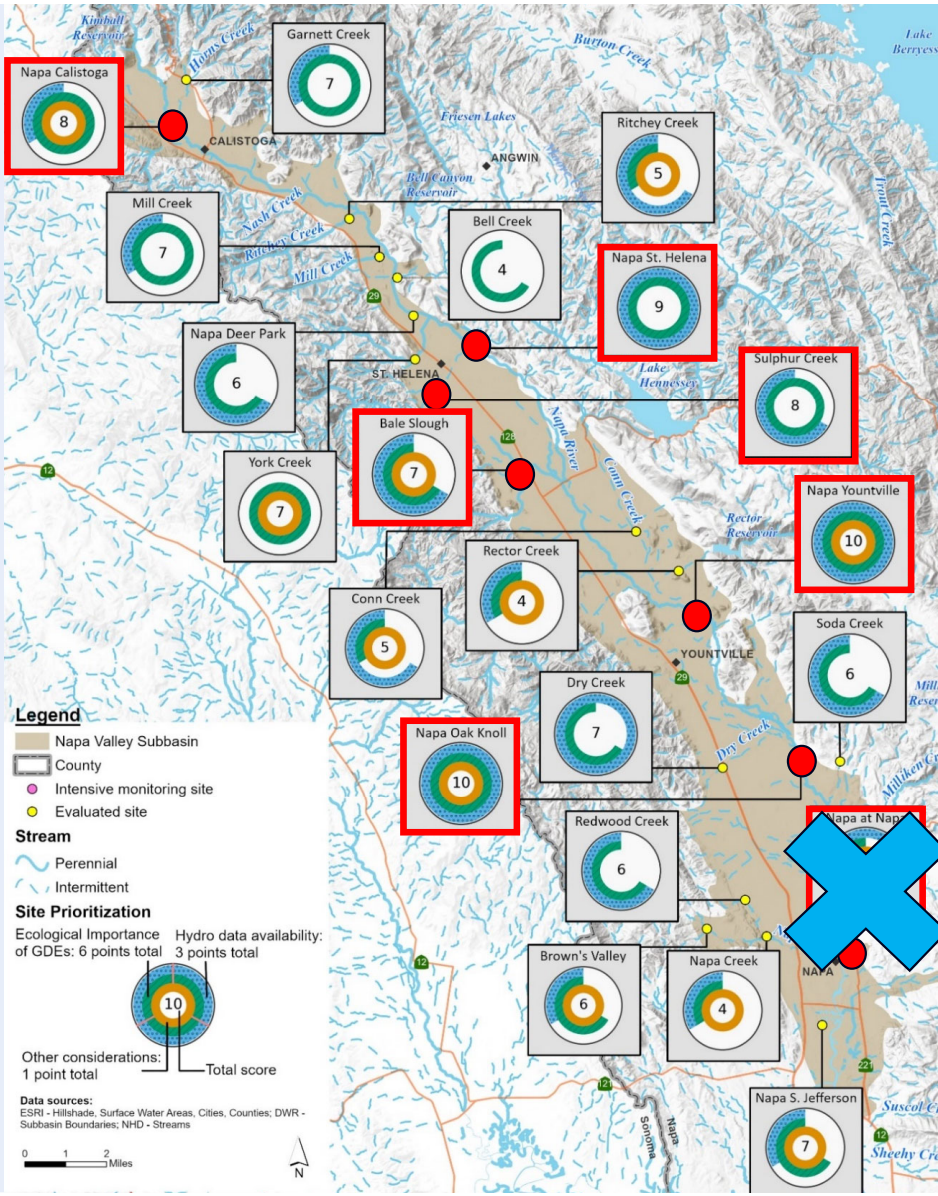
- *Identify 21 potential sites*
- *Prioritize sites based on based on:*

Ecologic importance (0-6 points total)
number of special-status species/lifestages, groundwater importance
Hydrologic data availability (0-3 points total):
Surface water, shallow groundwater, and Stream Watch data
Other Considerations (1 point)
Stream restoration, uniqueness, very important habitat



Prioritization: Hydrologic Data and Ecological Importance

- Based on the scores we identified 6 sites in the draft workplan (Napa near Yountville, Napa near Oak Knoll, Napa near St. Helena, Napa near Napa, Napa near Calistoga, Sulphur Creek)
- Comments from the TAG and others suggested that the score for the Napa at Napa site was too high, we therefore selected **Bale Slough** expanded biological monitoring.
- Redwood Creek and York Creek were identified for future expanded hydrologic and biological monitoring.



Intensive Site Monitoring Schedule

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

CEFF Assessment in 2024 and 2025 and summary in annual reports

Comment types

Comments were categorized as:

- Editorial (typos, grammatical mistakes, graphical issues with figures)
- Technical (clarification of technical information, missing data on figures and in text)
- Implementation (such as unclear methods, methods requiring additional detail, etc.)

About half the comments were editorial and the rest were categorized as Technical and Implementation.

Example comments and topics

- Intensive survey site selection (mainstem versus tributaries)
- Include dissolved oxygen measurement at intensive sites
- Clarify inclusion of fall pulse flows in CEFF analysis
- Over what lengths will we map flow connectivity?
- Clarify implementation of CEFF
- Mapping of intermittent and perennial streams

Summary

- Workplan includes ongoing monitoring and biological surveys at 6 intensive sites and incorporates California Environmental Flows Framework (CEFF) Sections A and B.
- Data will be used to assess usage and habitat of various species and to develop relationships between habitat requirements and groundwater elevation/discharge.
- Workplan will be implemented starting in 2024 with results included in the Five-Year GSP update in 2027.