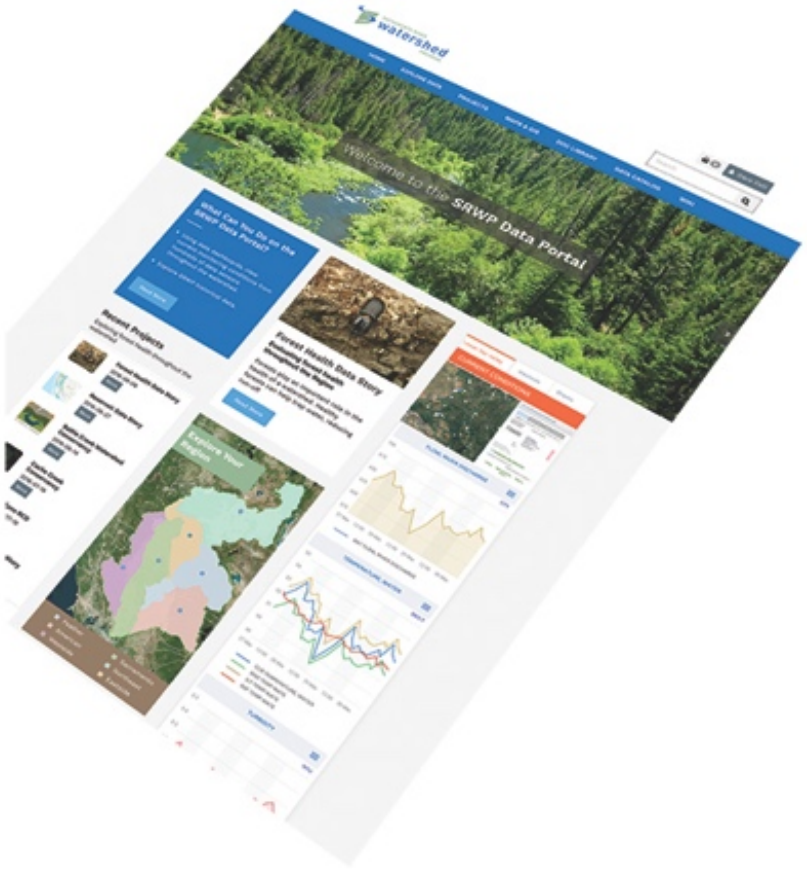
Greater Battle Creek Watershed Working Group

data.sacriver.org

Sacramento River Watershed Program | PO Box 9233 | Chico, CA 95927 | 530.781.2220 | sacriver.org

About SRWP



SACRAMENTO RIVER
watershed
PROGRAM

Breaking Down Silos for improved Scientific Understanding

"Over many years, we have seen a significant investment in agencies and organizations to conduct data management ....

....[but we lack] a business model to sustain the development and maintenanace of data standards, integration points, web services, and data federation to facilitate synthesis across agency and issue boundaries.»

Enhance the Vision for Managing
California's Enviromental Information 2015

A Collaborative Effort

Regional and Statewide Programs

SACRAMENTO SAN JOAQUIN BAY-DELTA

SWRCB MY WATER QUALITY PORTALS

CALIFORNIA ESTUARY PORTAL

SAN JOAQUIN REAL TIME MANAGEMENT

DWR 1641 WATER QUALITY

SACRAMENTO RIVER WATERSHED

Stakeholder

Building on Each Other's Program

Each region's needs are different

Various Stakeholder Requirements
Regional Data
Region Specific Data Analysis
Local Mapping and GIS
Regional Document Libraries

Stakeholder Specific Data Dashboards
Tool for Local Ecosystem Projects
Special Studies
Regulatory Reporting
Web Service Development

Share data and products with other portal's for system wide view

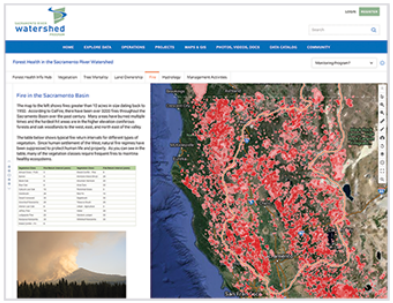
Stakeholder

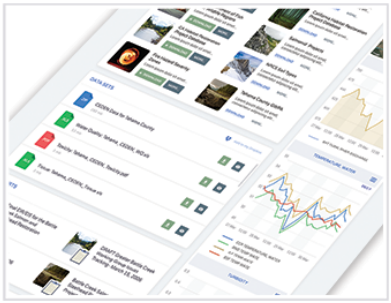
Welcome to the Sacramento River Watershed Data Portal

Sacramento River Watershed Data Portal Features

- Access to current monitoring conditions from hundreds of sensors throughout the watershed.
- Explore historical data and review data stories.
- Access catalogs of current research and reports.
- View, synthesize and download over 150 map layers.
- Dig into important topics including forest health, river water temperature, dam operations and fisheries management.
- Explore data information hubs covering key topics.
- Add and track your own projects.

Data Information Hubs for Key Topics





Data Stories

Explore and Contribute Data to the Sacramento and Central Valley Community

Upload and share your information

View Current Conditions

Real-time data and visualizations from key sensors throughout the region

data.sacriver.org

What is the SRWP Data Portal?

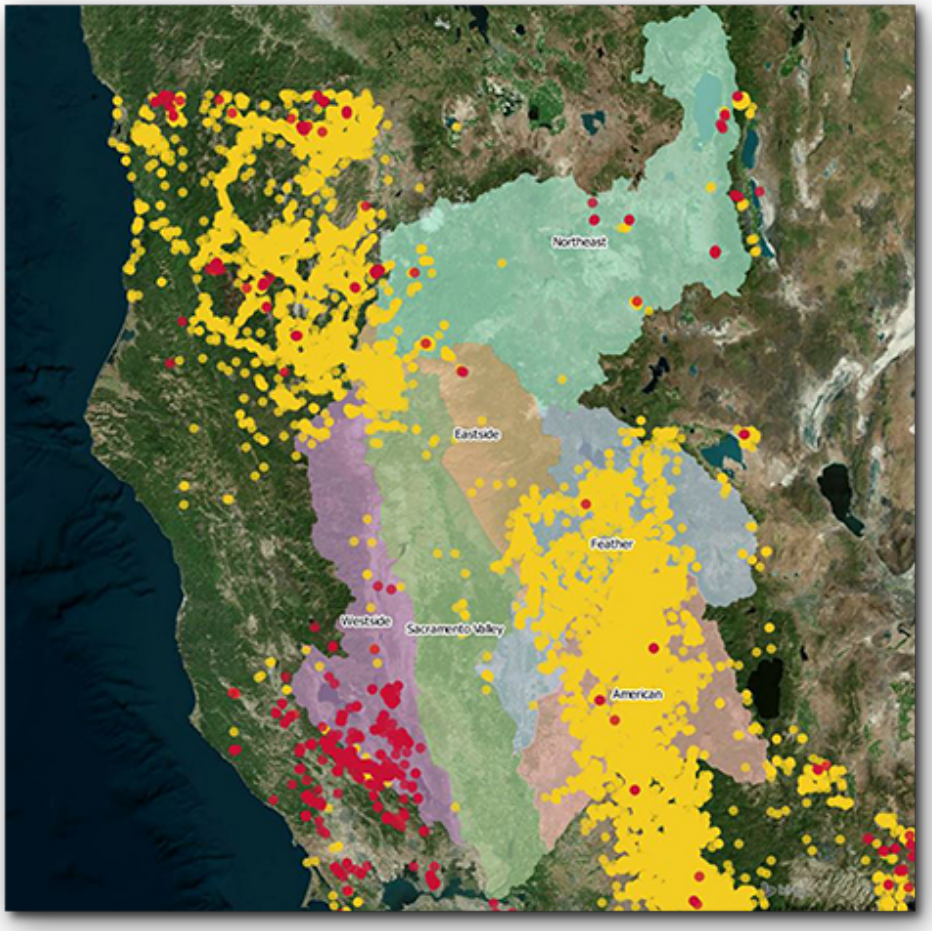
- ✓ Access to current monitoring conditions from hundreds of sensors throughout the watershed.
- ✓ Explore historical data and review data stories.
- ✓ Access catalogs of current research and reports. Upload and share data.
- ✓ View, synthesize and download more than 200 map layers.
- ✓ In-depth analysis of important topics including forest health, water temperature, reservoir operations and fisheries management.
- ✓ Explore data information hubs: Region and topic specific.
- ✓ Add, track and share projects.

Key Data and Available Monitoring Programs

SACRAMENTO RIVER watershed PROGRAM

- Sacramento Watershed Coordinated Monitoring Program (WDL/SWAMP)
- California Data Exchange Center (CDEC)
- Sacramento Coordinated Monitoring Program (CEDEN)
- Irrigated Lands Regulatory Program Monitoring (CEDEN)
- Sacramento River Watershed Program Monitoring (CEDEN)
- DWR/IEP Environmental Monitoring Program (BDL Web Services)
- Fisheries Data (BDL Web Services)

SRWP Data Management and In-Depth Topics



- ✓ Current Monitoring and WQ Conditions (Lower Sac Valley)
- ✓ Region View: Projects, Documents
- ✓ Reservoirs
- ✓ Forest Health and Fire
- ✓ Mercury Mines and Water Quality
- ✓ Water Temperature and Compliance
- ✓ Fish Monitoring
- ✓ Region Focus: Battle Creek, Lower Sac
- ✓ Safe to Swim
- ✓ Nutrients

Data Providers

Data Providers:

Data is aggregated from stakeholders throughout the region:

- ✓ Hydrologic
- ✓ Water Quality
- ✓ Terrestrial
- ✓ Satellite
- ✓ Meteorological
- ✓ Volunteer Sampling

Explore Data

Project Tracking

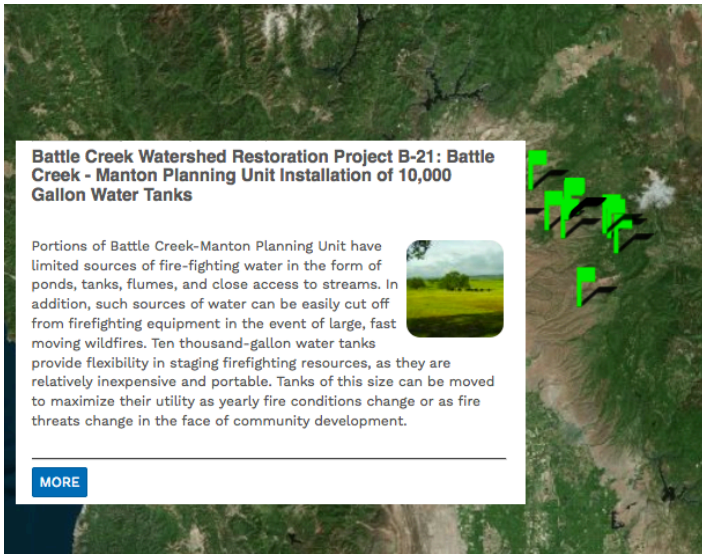
Project B-16 Grays Peak Defensible Fuel Profile Zone

The Almanor Ranger District of the Lassen National Forest is constructing 608 acres of Defensible Fuel Profile Zone (DFPZ). The Grays Peak DFPZ project was split into two timber sales, and two service contracts. In progress project work entails commercial and pre-commercial thinning utilizing mastication equipment in mixed conifer and brush stands. This work complements that completed in connection with the Lassen National Forest's Gray Gulch Service contract.

Defensible Fuel Profile Zone thinning reduced the crown closure, and there are plans to follow-up thinning with mastication and underburning treatments to meet the ladder fuels and sourface fuel objectives. Source: US Forest Service

Source: Tehama East and Tehama West Community Wildfire Protection Plan

More Information: Battle Creek Watershed Conservancy



Battle Creek Restoration Data Dashboard

The Battle Creek Watershed drains an area of approximately 370 square miles on the eastside of the Sacramento River in Shasta and Tehama Counties. The watershed is unique because of its volcanic geology and year-round cold and plentiful streamflow. Battle...

Read More

Specific to SRWP, over 450+ Regional Projects

- Forest Assessment
- Restoration Projects
- Water Projects
- Fisheries
- RCD
- IRWM
- Data Collection
- Data Synthesis
- Mining and Mercury
- Fire
- Recreation
- Administrative
- Monitoring

Data Stories

Data Stories:

Data story templates currently discuss the following topics:

- ✓ Temperature Compliance and Monitoring
- ✓ Safe to Swim
- ✓ Forest Health and Fire
- ✓ Reservoirs
- ✓ Lower Sacramento Valley Current Conditions
- ✓ Mercury and Mining
- ✓ Flow
- ✓ Nutrients

Salmon and Managing Temperature in the Sacramento River

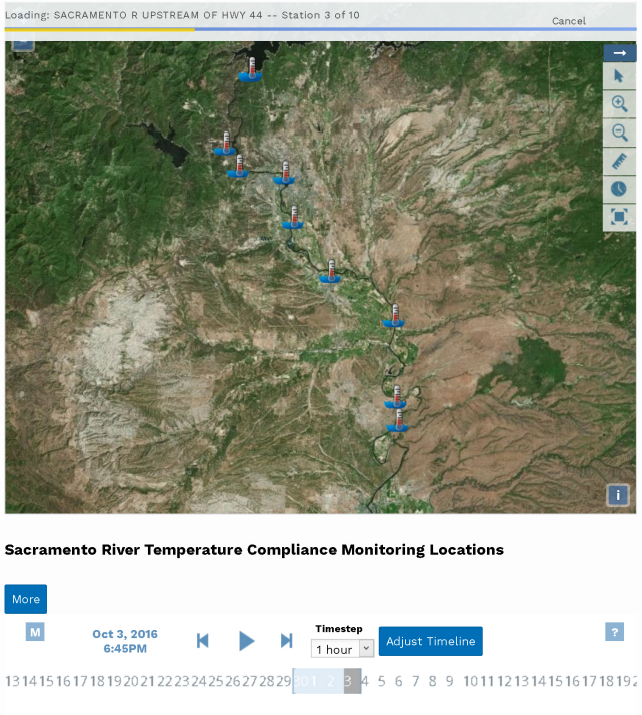
List | Next

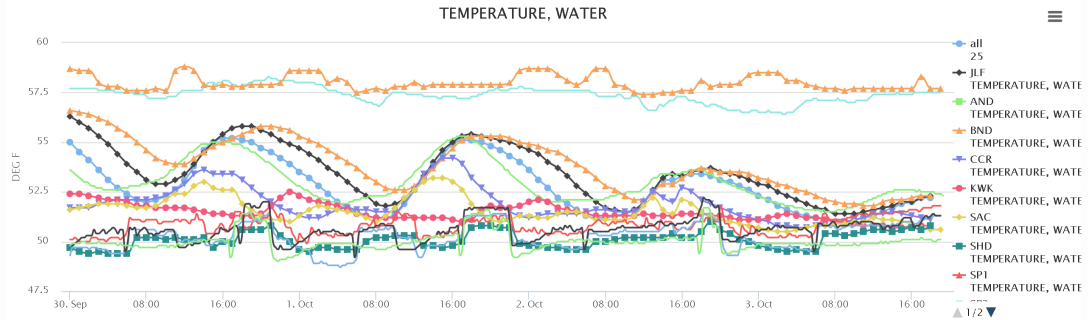
North Sacramento River: 8 Station - Current Conditions | North Sacramento River: 8 Station - 7 Day Daily Average - Daily Mean | Water Temperature Visualizations

Water Temperature

Young salmonids and other fish grow and survive best when water temperatures are below 130C (Moyle, 2002; Bennett, 2005; Nobriga et al., 2008) and migrating adult winter-run chinook salmon do best at water temperatures below 150C (NMFS, 1997). The 7 Daily Average Daily Maximum (7DADM) is used because it is based on multiple measurements per day, provides a good estimate of the average high temperature conditions experienced by fish and other biota, and is thus a conservative measure of warm water conditions. Surface water temperatures are useful because smaller fish (juvenile salmonids and smelt) may seek cover and forage in shallower waters, avoiding deep water where predation risk is higher.

Quick Links





Salmon and Managing Temperature in the Sacramento River

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Action Suite I.2. Shasta Operations

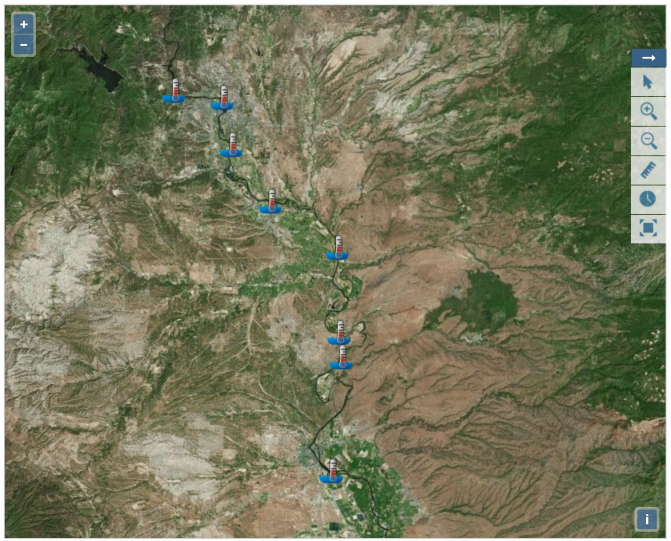
This is an excerpt of the Full Biological and Conference Opinion on the Long-term Operations of the Central Valley Project and State Water Project issued by the National Marine Fisheries Service Southwest Region. To view this and related documents, click here.

Introduction to Shasta Operations:

Maintaining suitable temperatures for egg incubation, fry emergence, and juvenile rearing in the Sacramento River is critically important for survival and recovery of the winter-run ESU. The winter-run ESU has been reduced to a single population, which has been blocked from its historical range above Shasta Dam. Consequently, suitable temperatures and habitat for this population must be maintained downstream of Shasta Dam through management of the cold water pool behind the dam in the summer. Maintaining optimum conditions for this species below Shasta is crucial until additional populations are established in other habitats or this population is restored to its historical range. Spring-run are also affected by temperature management actions from Shasta Reservoir.

The effects analysis in this Opinion highlights the very challenging nature of maintaining an adequate cold water pool in critically dry years, extended dry periods, and under future conditions, which will be affected by increased downstream water demands and climate change. This suite of actions is designed to ensure thatReclamation uses maximum discretion to reduce

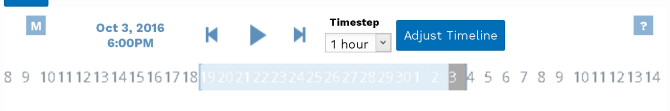
Quick Links

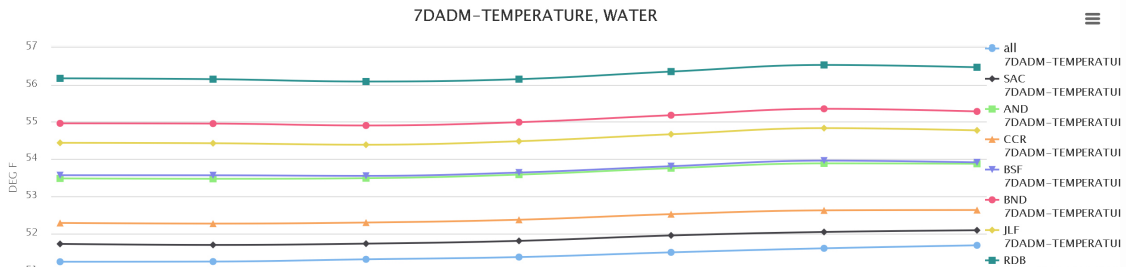


North Sacramento River Water Temperature: 8 Stations 7DADM - Saved Map

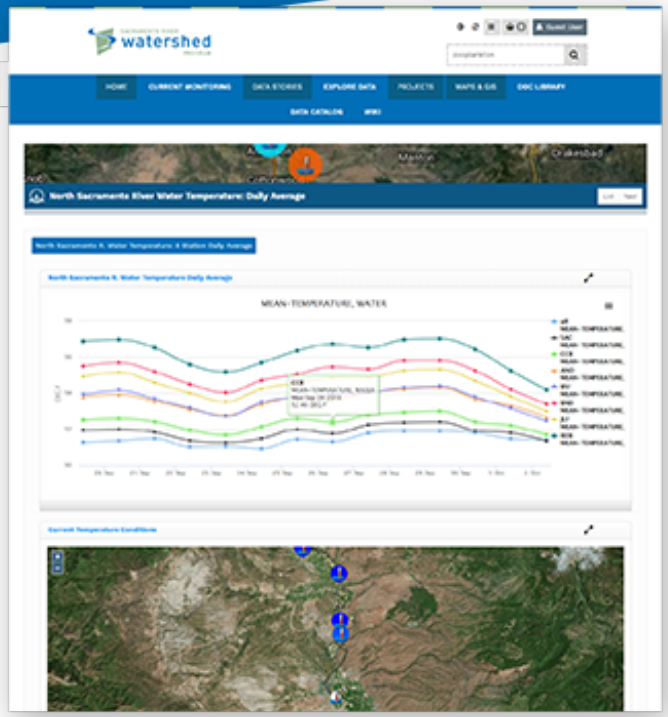
NMFS Biological Opinions were established in 2009 with Reasonable and Prudent Alternatives (RPA) for the long term operations of the CVP and SWP. This RPA outlines temperature management on the Sacramento River.

More





Data Dashboards



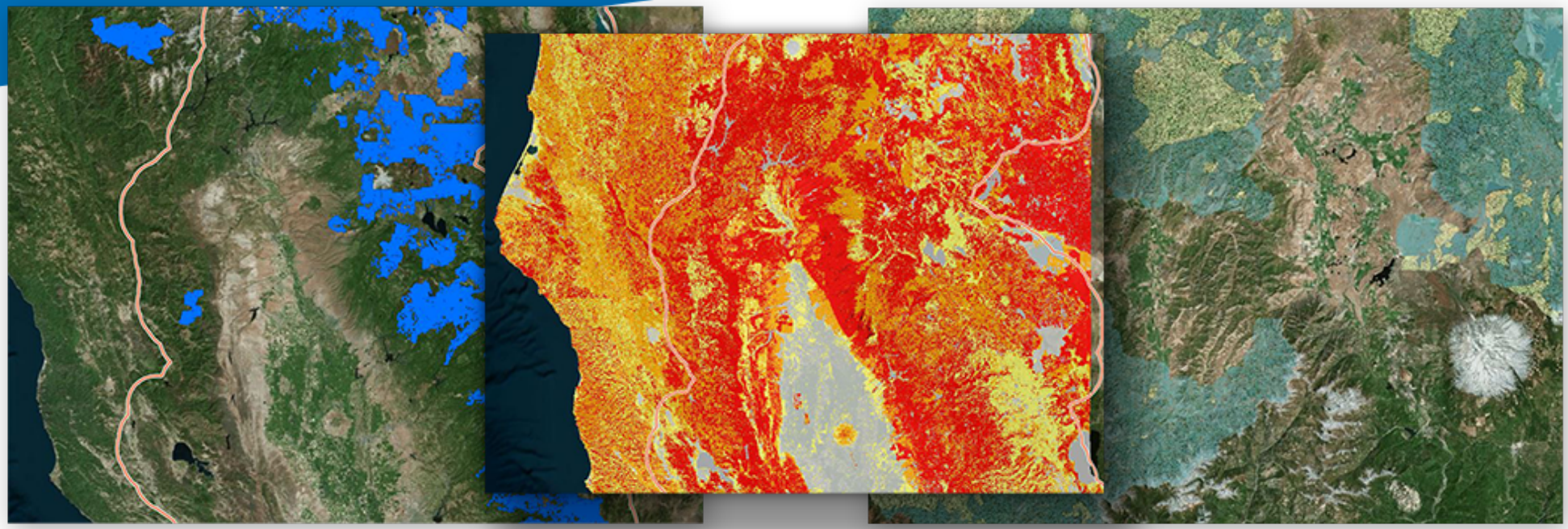
Data Dashboards:

Compilations for easy display and discovery of data:

- ✓ Sacramento River Watershed Coordinated Monitoring Program
- ✓ Fisheries
- ✓ Triggers and Indices
- ✓ Regional Hubs

Spatial Catalog and Maps

Available GIS as Data Layers and Maps



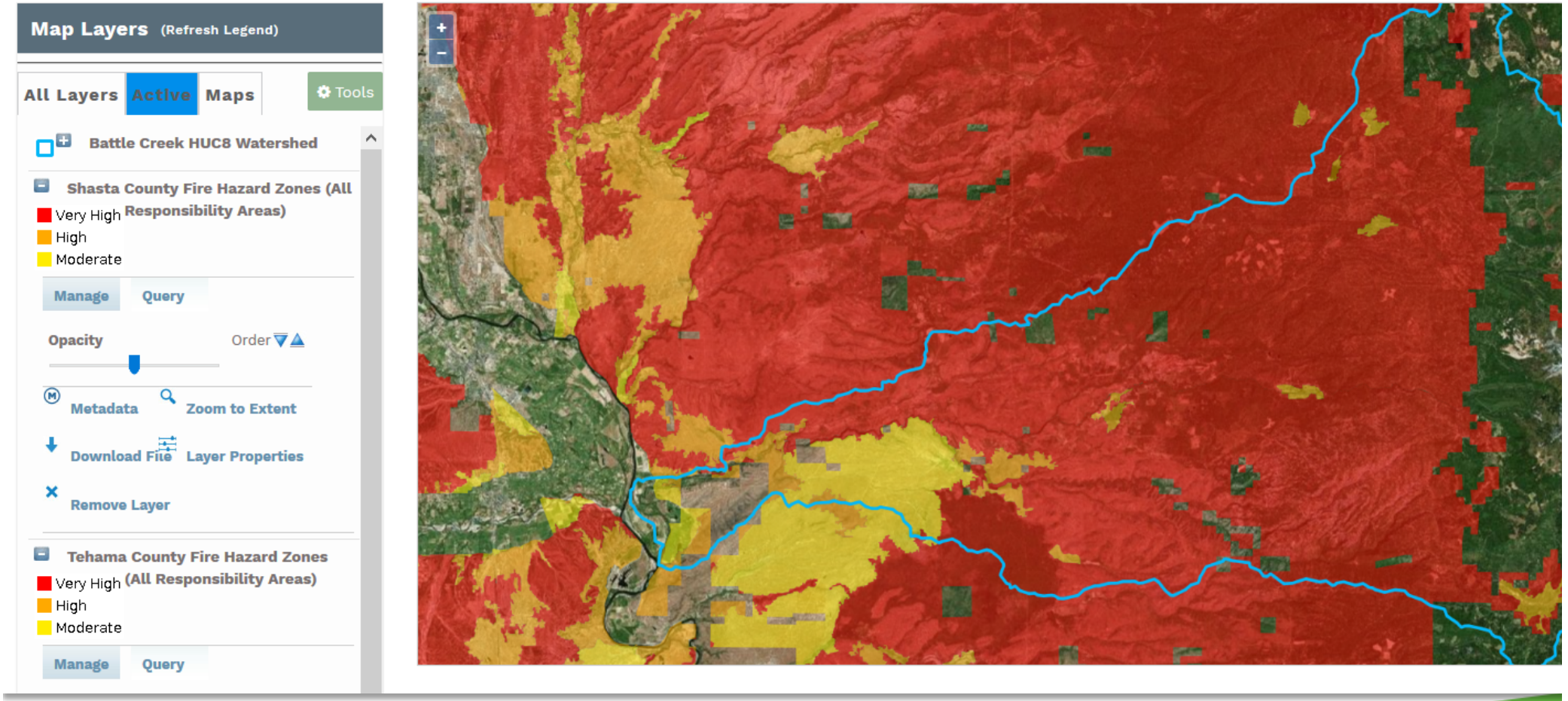
Specific to SRWP, over 200+ California Wide

- Hydrology
- Restoration Projects
- Water Projects
- Fisheries Data
- Geology
- Critical Habitat
- Fire
- Biogeography
- Land use
- Mercury
- Vegetation
- Recreation
- Administrative (Boundaries, Regions, Partners etc)

Data	SRWP/34 North	EPA Watershed Plan Requirement	GBCWWG Issue Tracking	2015 UCD BC Watershed Hydrology and Sediment Assessment	Tehama East and Tehama West Community Wildfire Protection Plan	Battle Creek Restoration Project	Coleman National Fish Hatchery	Landscape Level Assessment	General Watershed Issues
Sediment Studies	x		x	x				x	x
Suspended Sediment			x	x					x
Sediment Source Identification (Areas of Concern)			x	x				x	x
Soils	x	x		x				x	
Geology	x			x				x	
Channels/Channelization	x	x		x				x	x
HUC	x	x						x	
Geomorphology		x		x				x	
Infrastructure				x				x	x
Roads				x				x	x
Unpaved Roads				x				x	x
Land Management	x	x	x	x	x	x		x	x
Land Use	x	x	x	x				x	x
Land Cover	x	x			x			x	
Topography	x	x		x				x	
Wild Fire			x	x	x			x	
Disturbance					x				
Fire Prevention					x				x
Chipper Program					x				
Fuels Reduction					x				
Fuel Breaks					x				
Vegetation Management					x				
FRAP	x				x				
Forest Health	x		x		x			x	x
Fuel Moisture (CDEC)	x				x				
Hydrology	x	x		x				x	
CDEC/NWIS	x								
Hydroelectric Power	x			x					x
Water Quality	x	x		x				x	
Turbidity	x								
Precipitation	x			x					
Snow Gauges	x								
Stream Gauges (Flow, Discharge, Stage)	x								
Source Water Assessment	x	x							
SWAMP	x								
Trespass marijuana cultivation (public and private lands)			x						x
Habitat	x	x	x	x				x	
Fish and Wildlife	x	x				x	x	x	
Benthic macroinvertebrates	x			x					
Species Distribution	x					x	x	x	
Fisheries Data	x		x			x	x		x
Salmon Runs	x		x			x	x	x	
Fish Bearing Streams	x		x	x		x	x		x
Anadromous Fish Monitoring	x		x			x	x	x	x
Fish Passage Improvement									
Climate Data	x	x		x				x	
Demographics/Population		x	x			x		x	x
Recreation									x
BC Sample Site Details for Pilot Project (Forward Tree Farm)								x	x
Monitoring Sites									
Forest Management Plan									
Ponderosa Fire			x	x					x
Data Types								x	
Monitoring (Discrete and Real-Time)	x	x	x	x	x	x	x		x
Special Studies	x		x	x		x	x		x
Aerial Imagery	x		x		x	x			x
Remote Sensing	x		x		x				x
Model Outputs	x		x	x					x
Baseline Data Collection	x	x	x	x	x	x	x		x

Battle Creek Data Inventory

Data Available



Fire Preparedness: Tehama and Shasta County Fire Hazard Map

Battle Creek Data Inventory

Data Available

Map Layers (Refresh Legend)

All Layers | Active | Maps

Water Bodies (2010) [-]

Active Wildfires [-]

Wildfire activity

This service is available to all ArcGIS Online users with organizational accounts. For more information on this service, including the terms of use, visit us online at http://goto.arcgisonline.com/livefeeds/wildfire.

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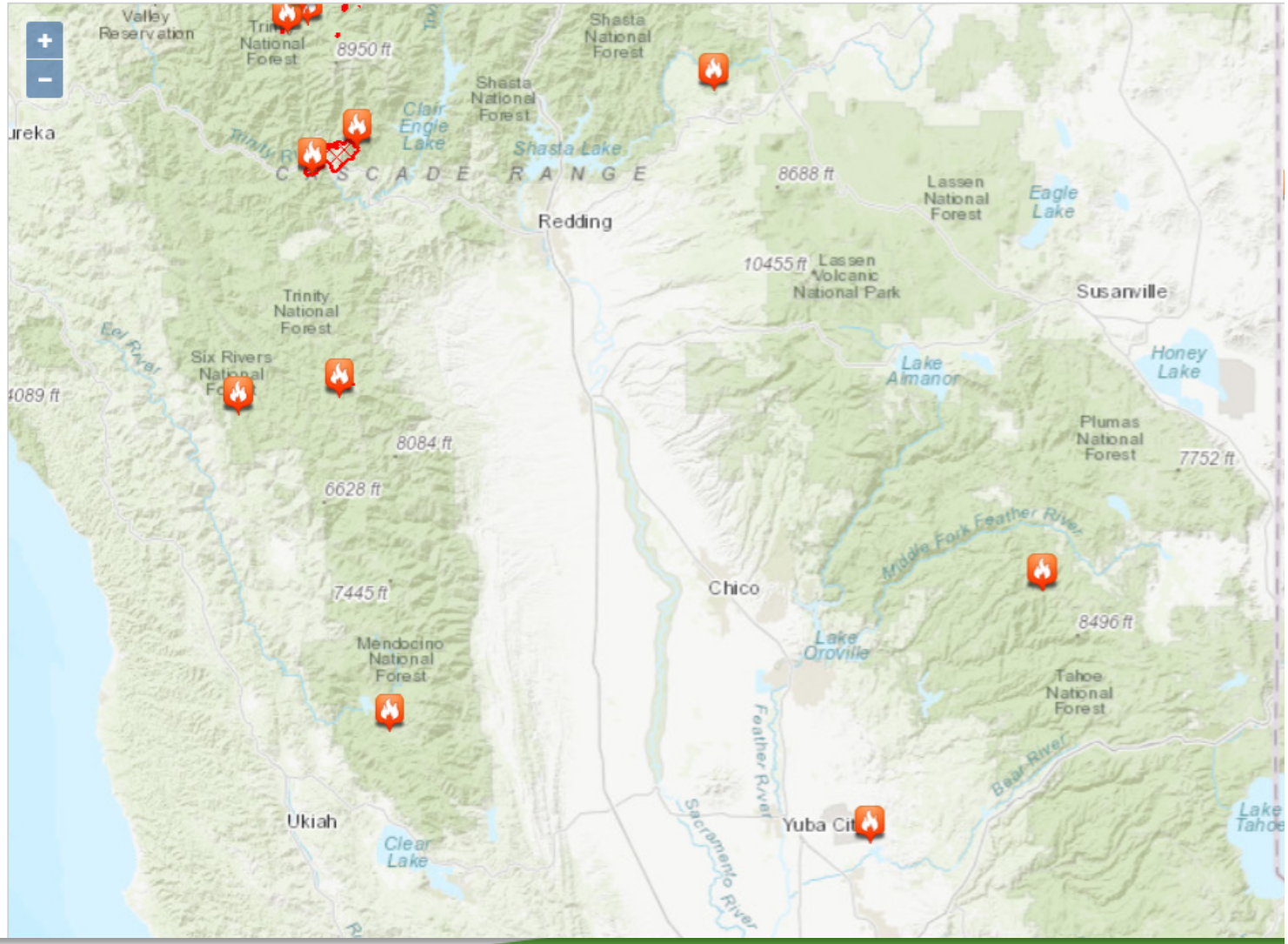
- [x] Active fire report
- [ ] Inactive fire report
- [x] Active perimeter
- [ ] Inactive perimeter

Capabilities: Map,Query,Data

QueryFormats: JSON, AMF

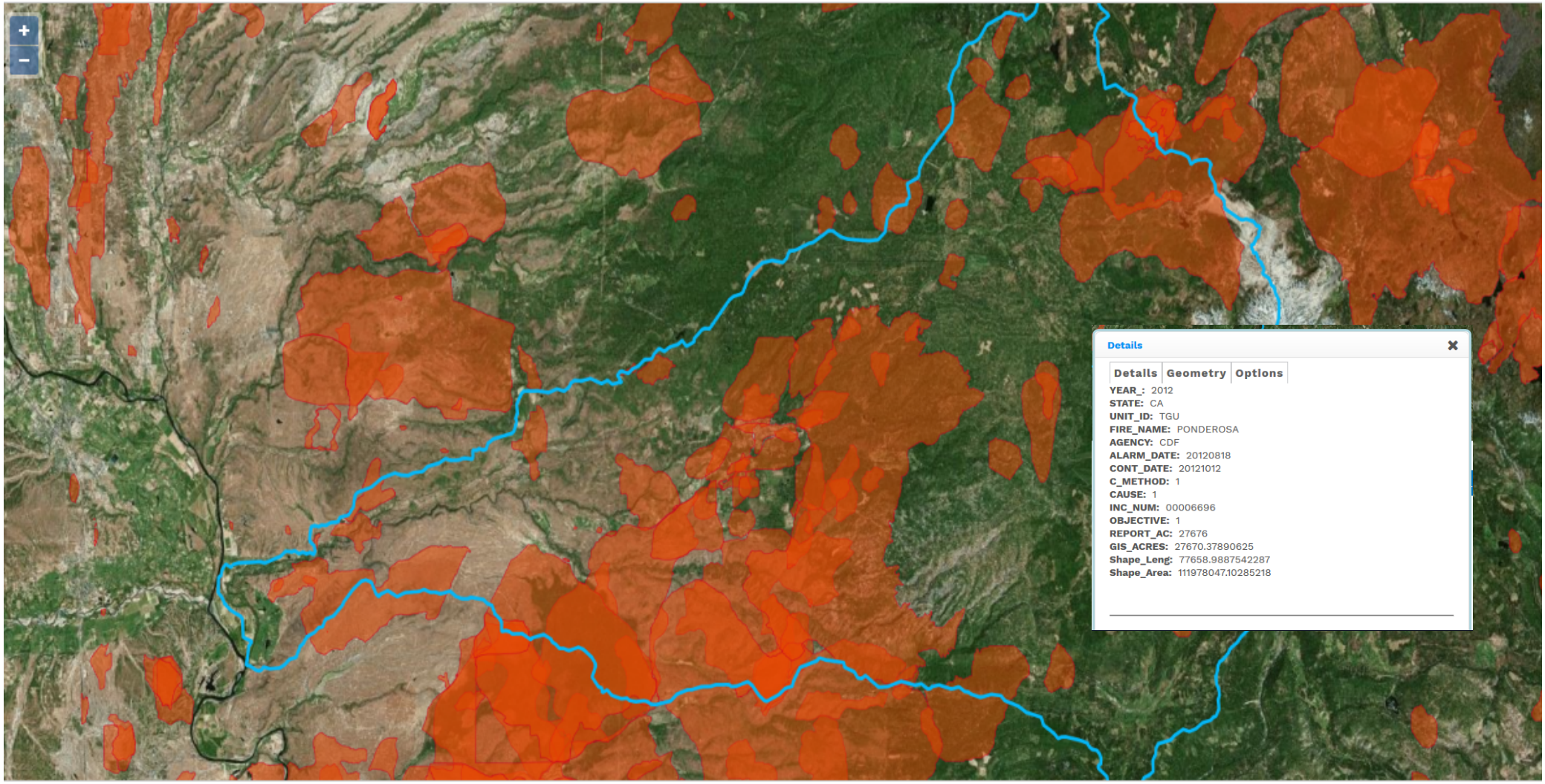
Initial Extent:
-16413589.954945572,
2482999.489211731,
-6431163.579907541,
6749248.657264447



Increased Fire Awareness: Real-time Active Fires and Fire Perimeters

Battle Creek Data Inventory

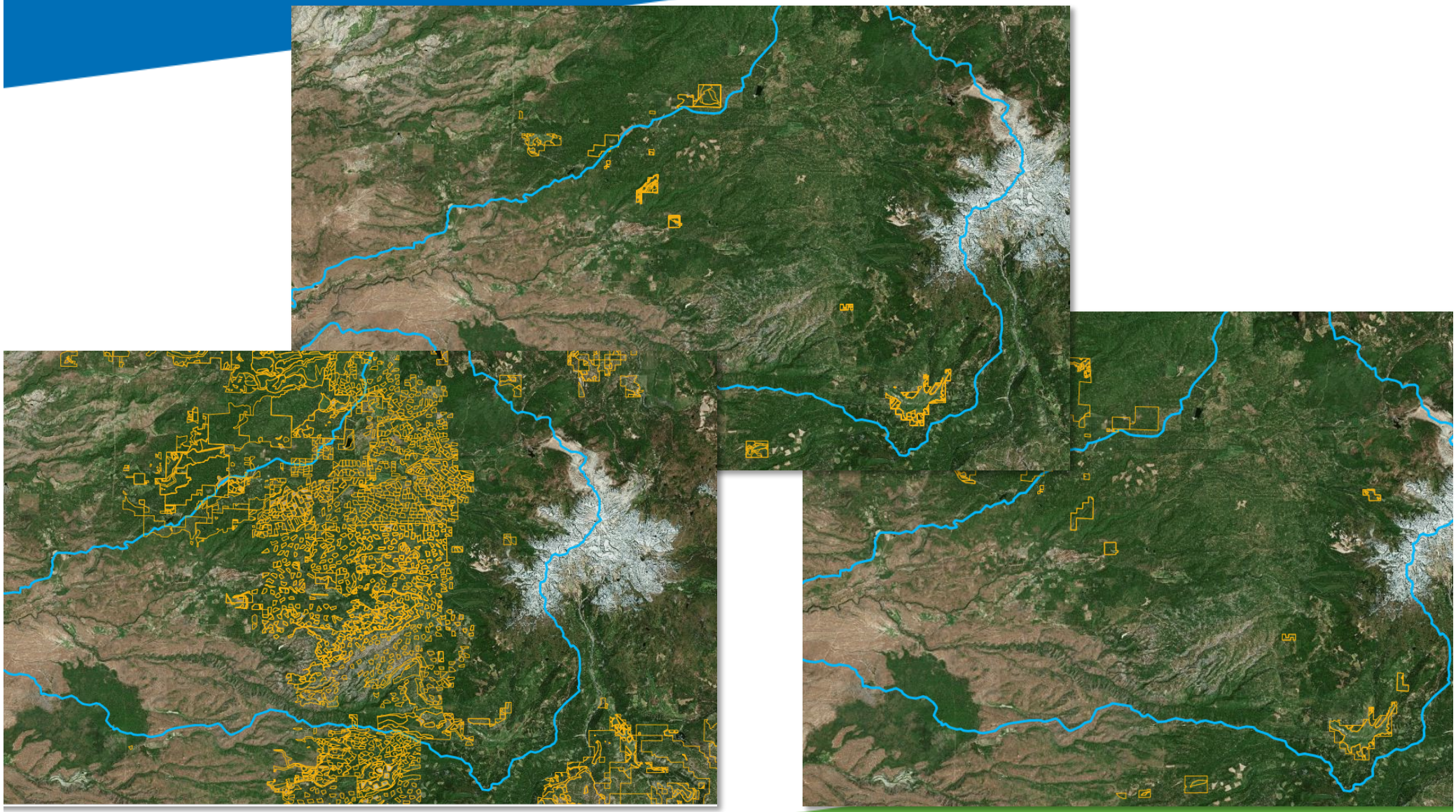
Data Available



Historic Fire Data 1878-2015

Battle Creek Data Inventory

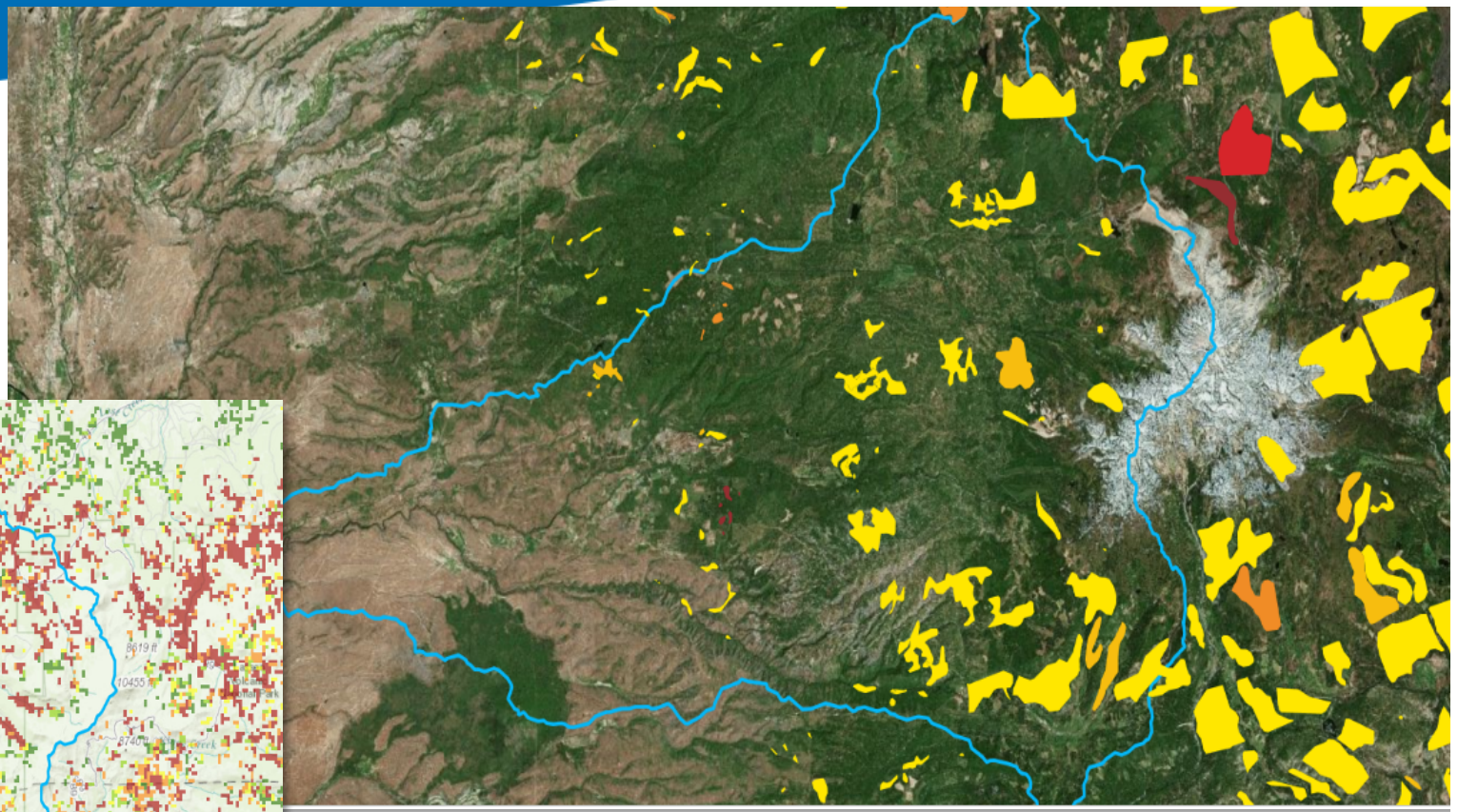
Data Available

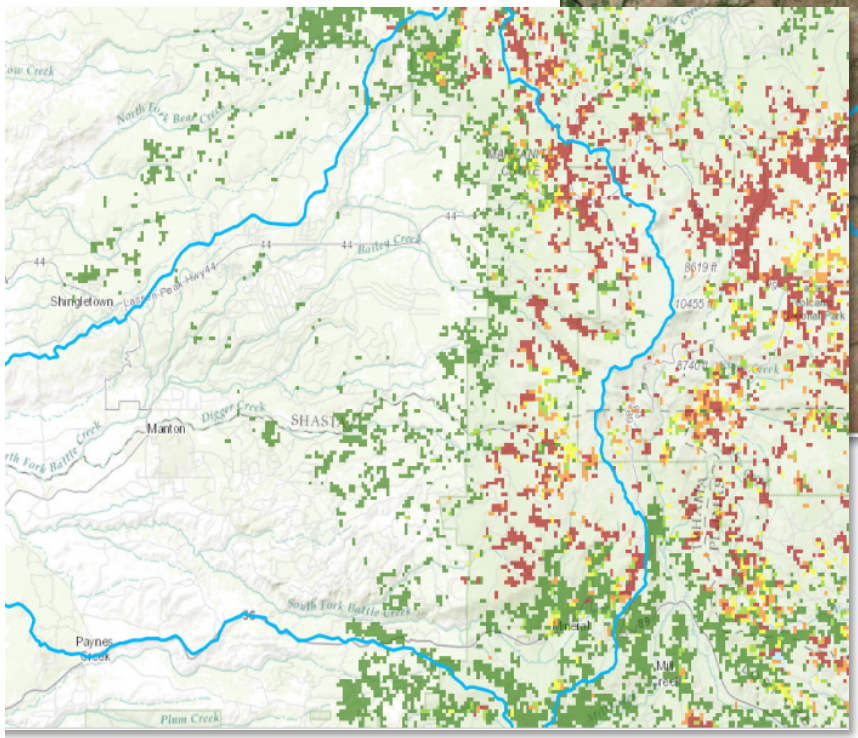


Resource Management: Timber Harvest, Notice of Timber Operations, and Notice of Non-industrial Timber Operations (from left to right)

Battle Creek Data Inventory

Data Available



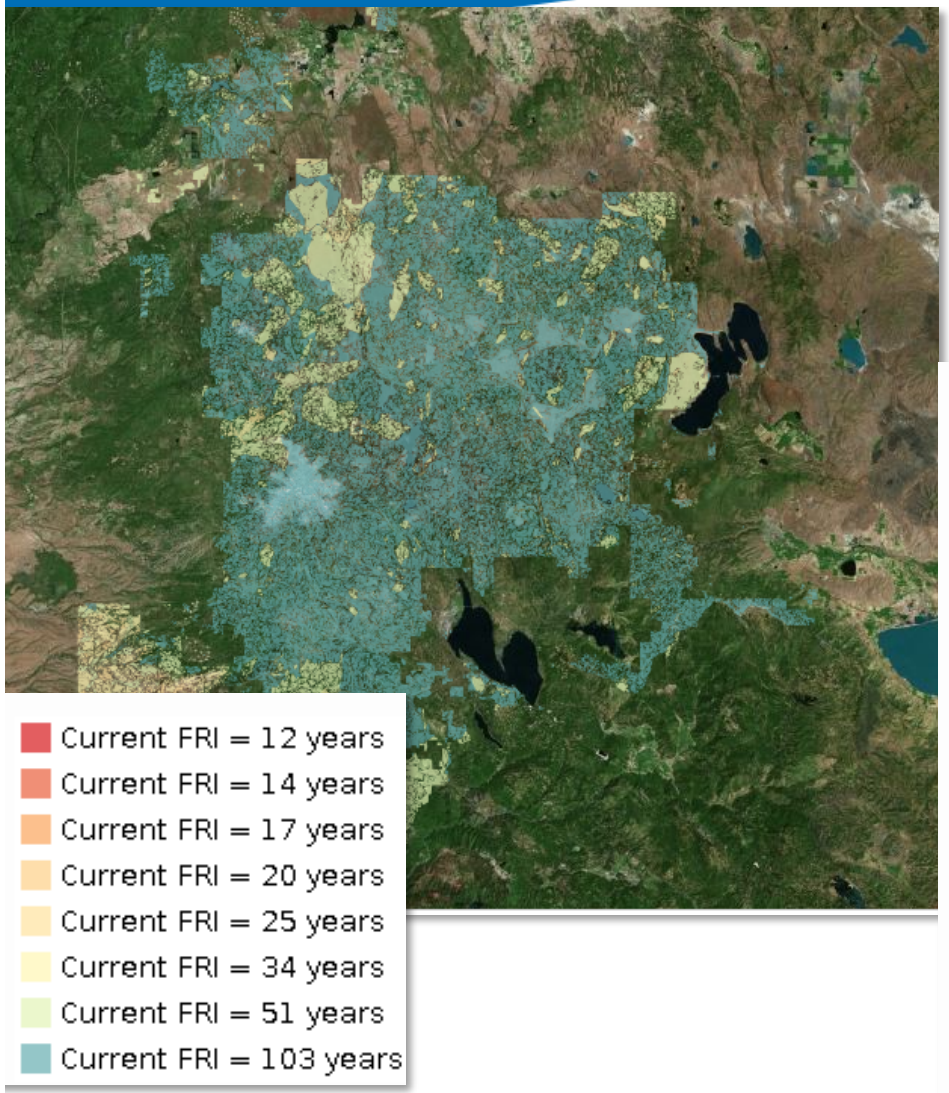


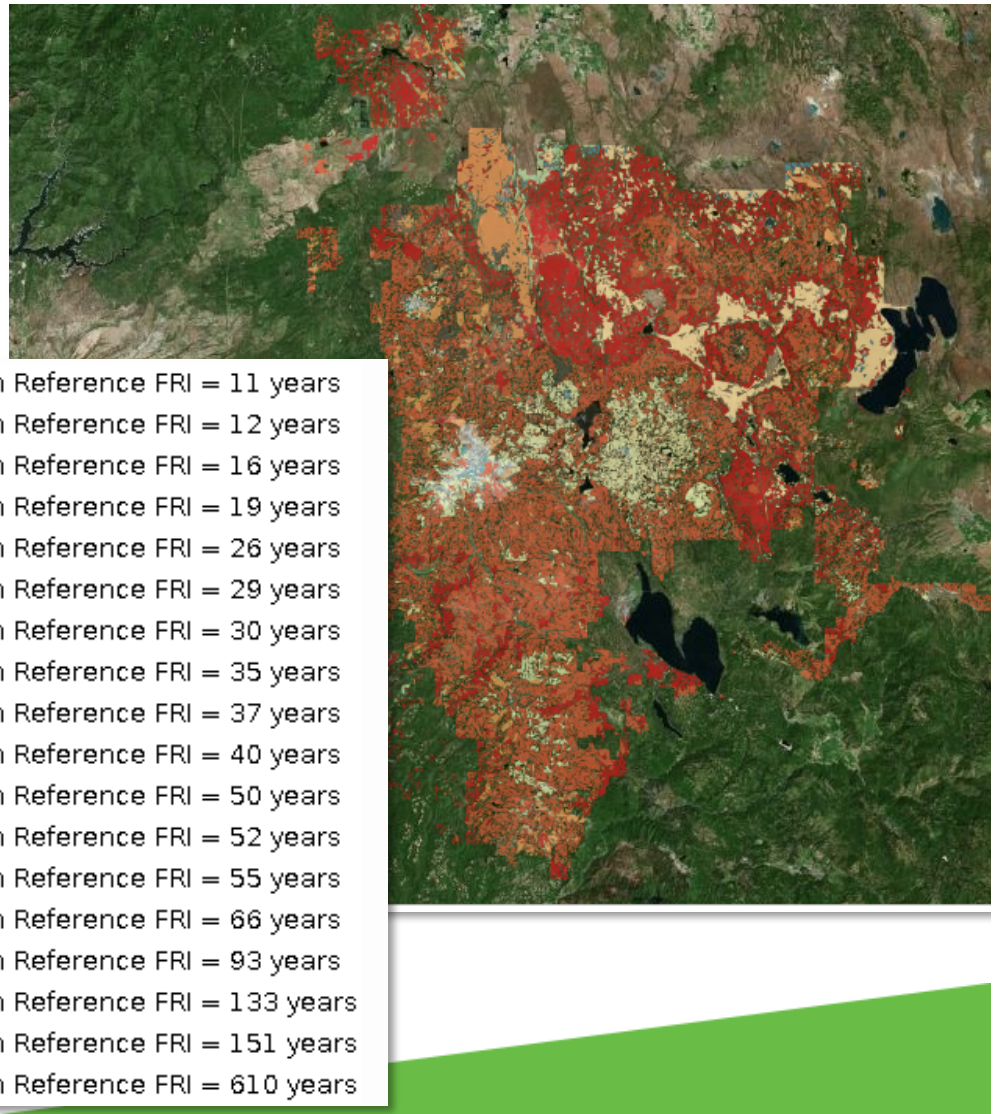
- Background Mortality
- 5-10 Dead Trees Per Acre
- 10-15 Dead Trees Per Acre
- 15-20 Dead Trees Per Acre
- 20-35 Dead Trees Per Acre
- More than 35 Dead Trees Per Acre

Forest Health: Insect and Disease Risk assessment for Mountain Pine Beetle and 2016 U.S. Forest Service Aerial Survey for Tree Mortality

Battle Creek Data Inventory

Data Available



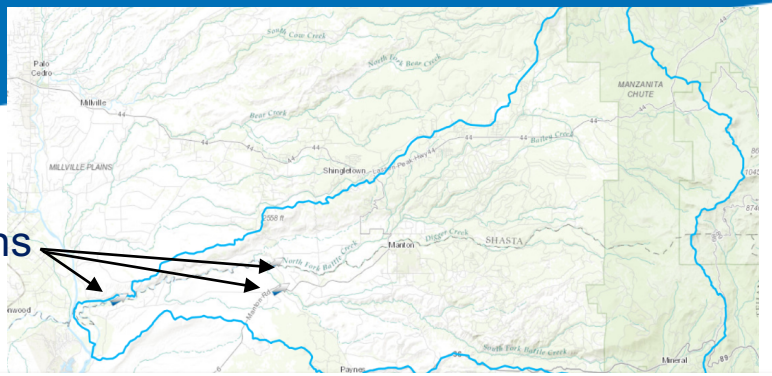


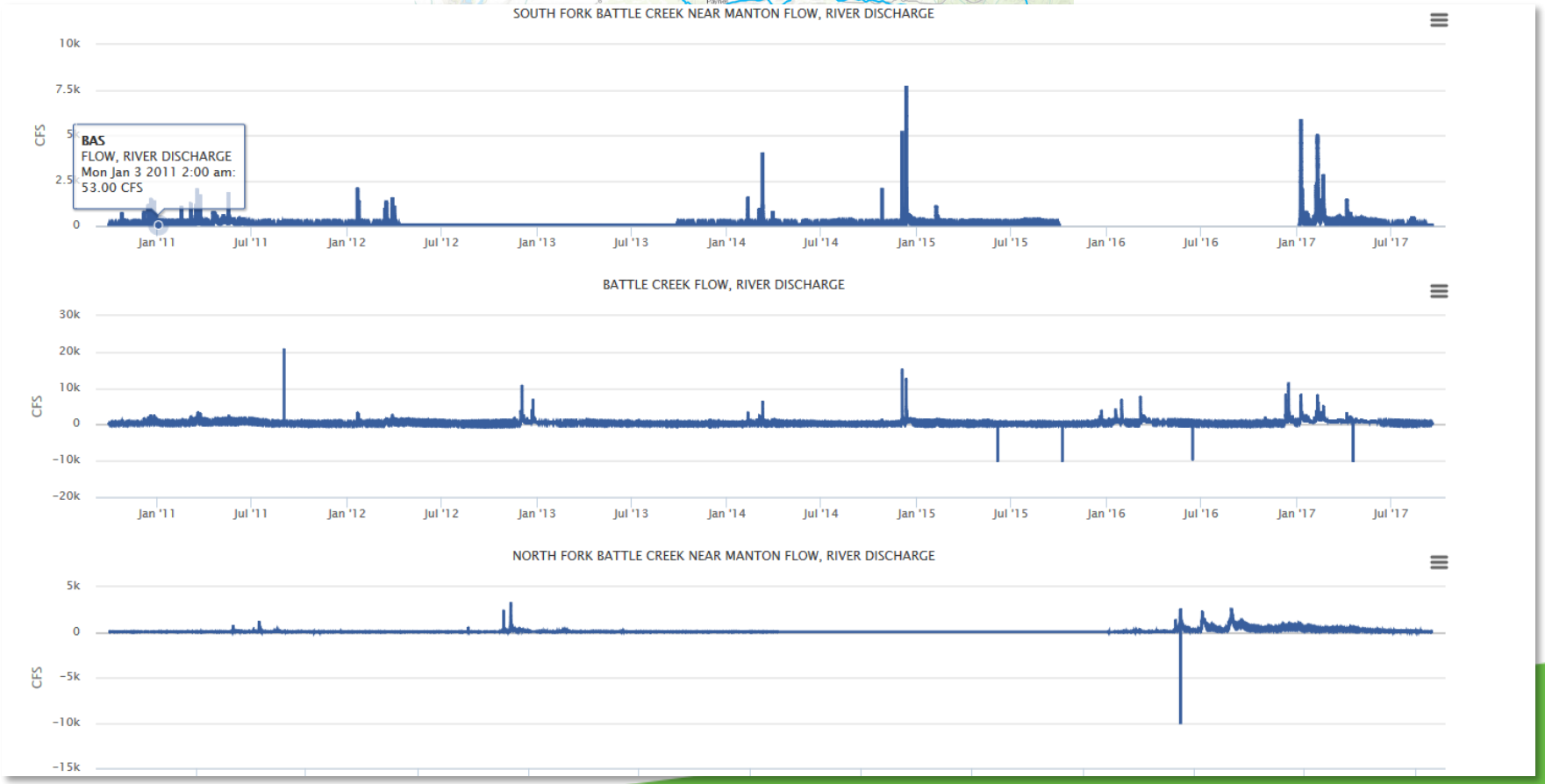
Current Fire Return and Mean Fire Return Interval for Lassen National Forest

Battle Creek Data Inventory

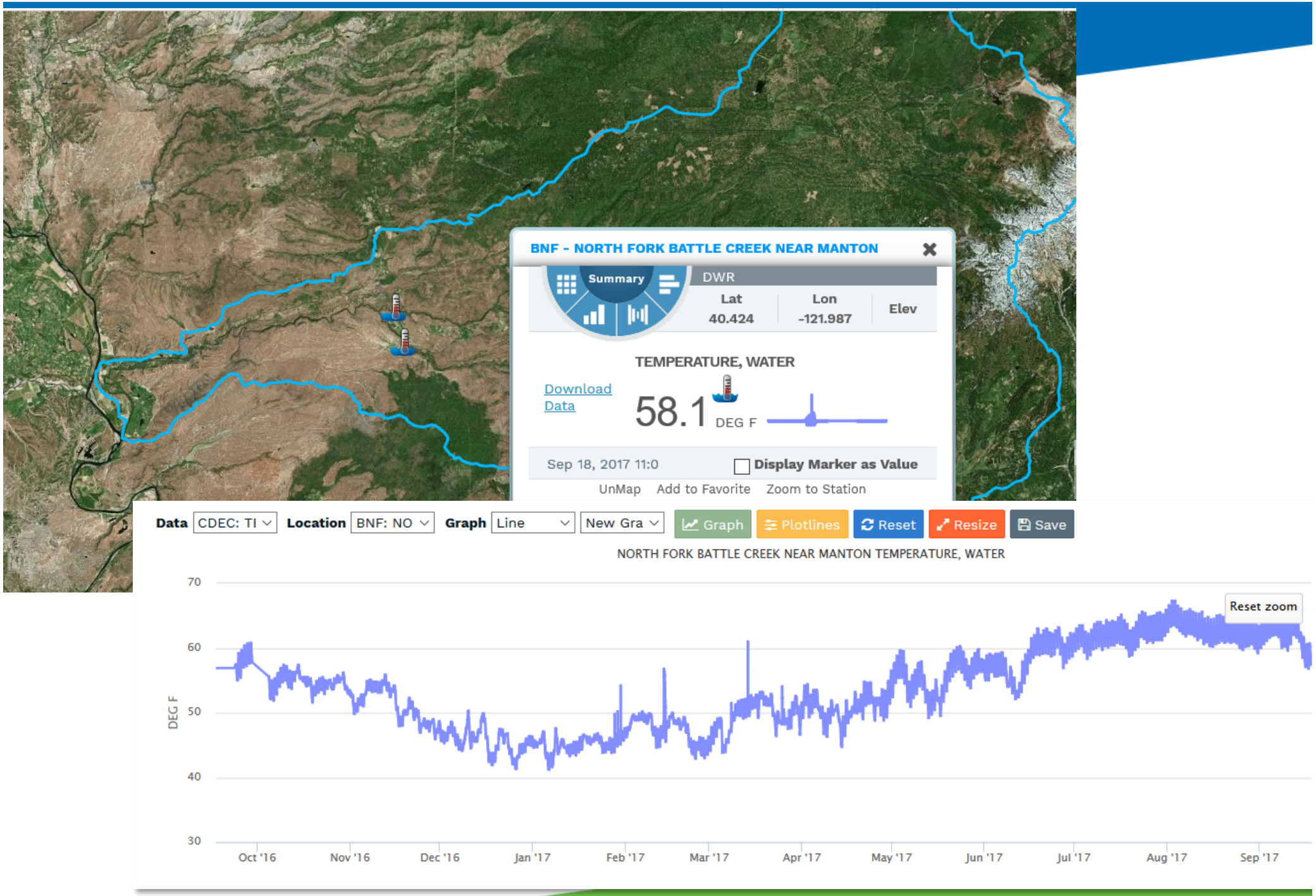
Data Available

Flow Stations





Watershed Conditions Monitoring: Real-time Flow Monitoring in the Battle Creek Watershed

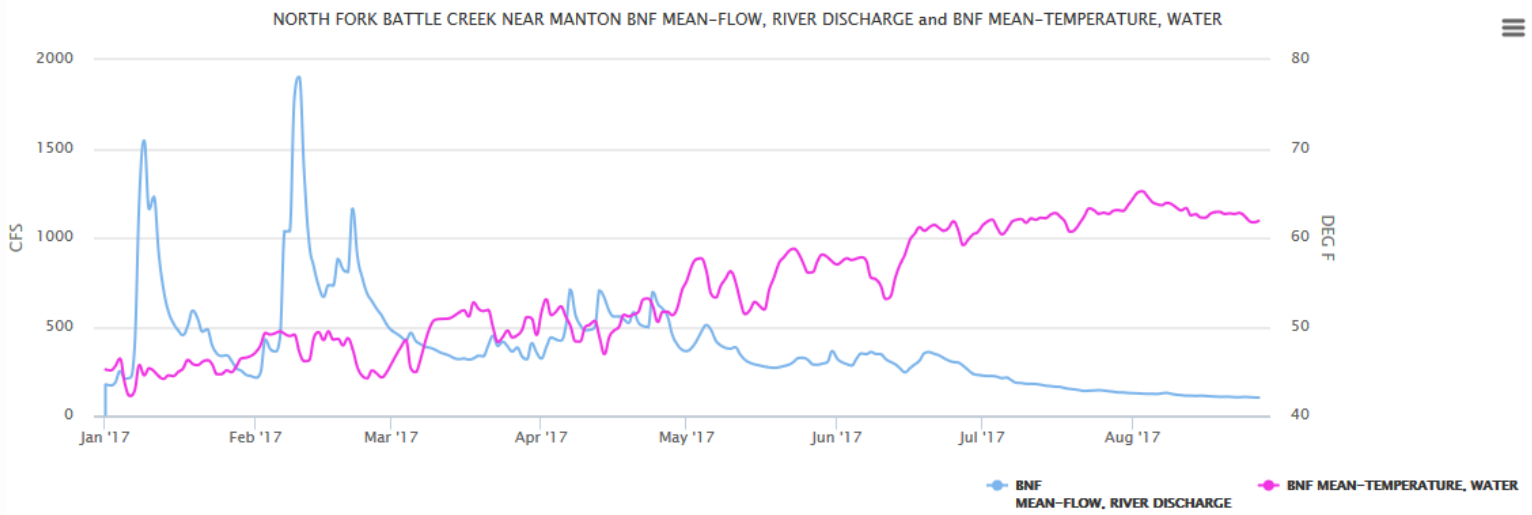


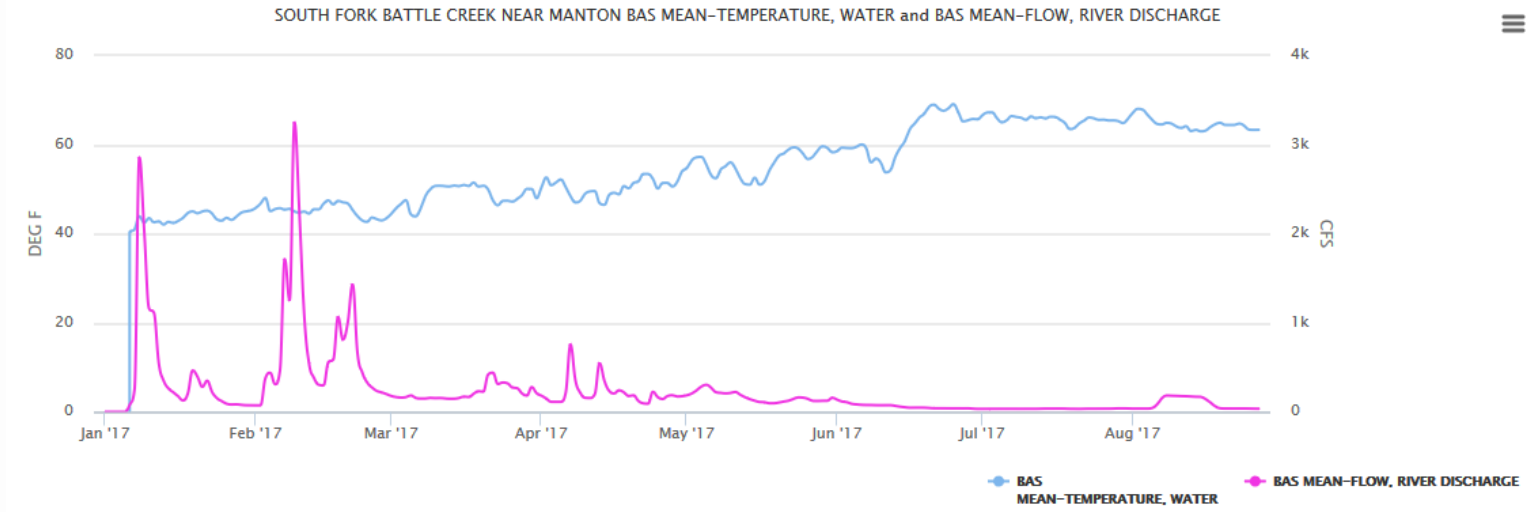
Watershed Conditions Monitoring: Real-Time Water Temperature

Battle Creek Data Inventory

Data Available

Average Flow, River Discharge and Water Temperature at North and South Fork Battle Creek



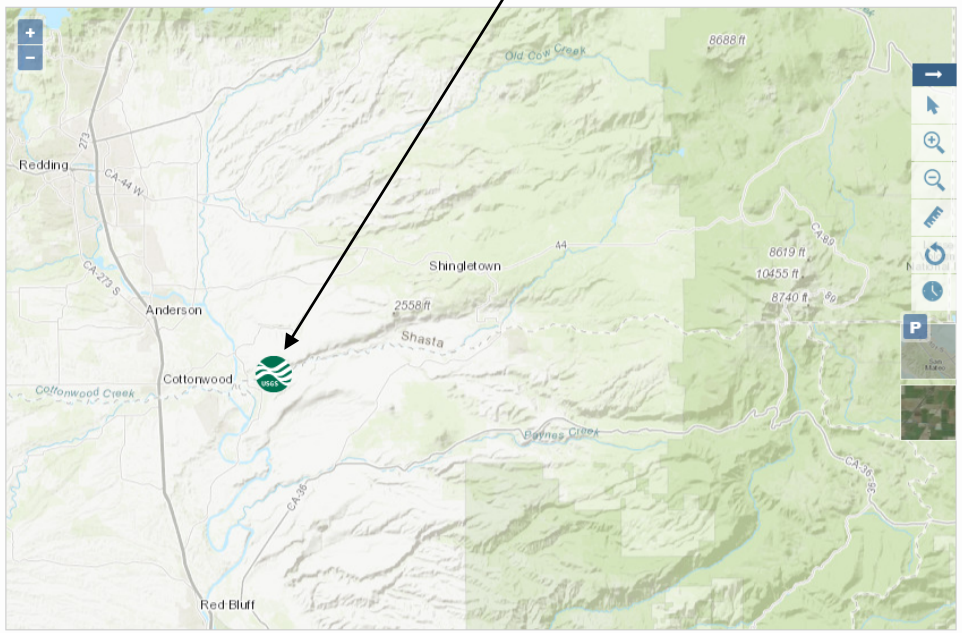


Trend Monitoring: Comparison of Flow and Water Temperature in Battle Creek

Battle Creek Data Inventory

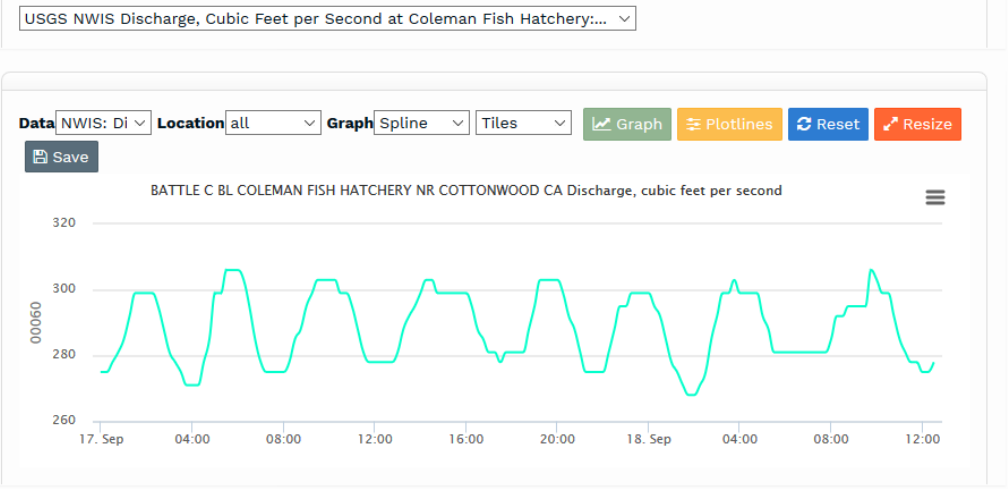
Data Available

USGS Flow Station



USGS NWIS Discharge, Cubic Feet per Second at Coleman Fish Hatchery: 365 Days

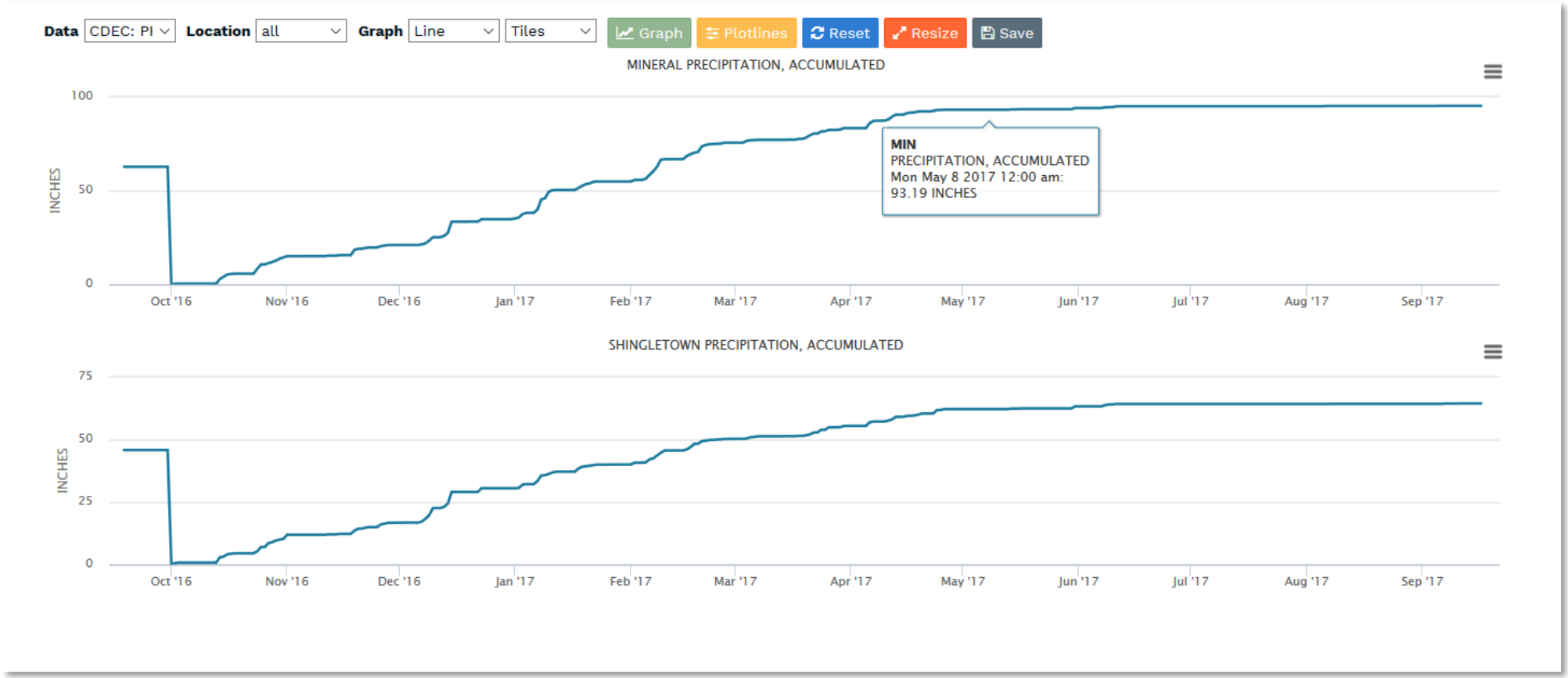
Discharge, cubic feet per second at Battle Creek below Coleman Fish Hatchery near Cottonwood. Data is loaded for 365 days. Source: USGS NWIS



Watershed Monitoring: USGS NWIS Flow Monitoring at Coleman Fish Hatchery

Battle Creek Data Inventory

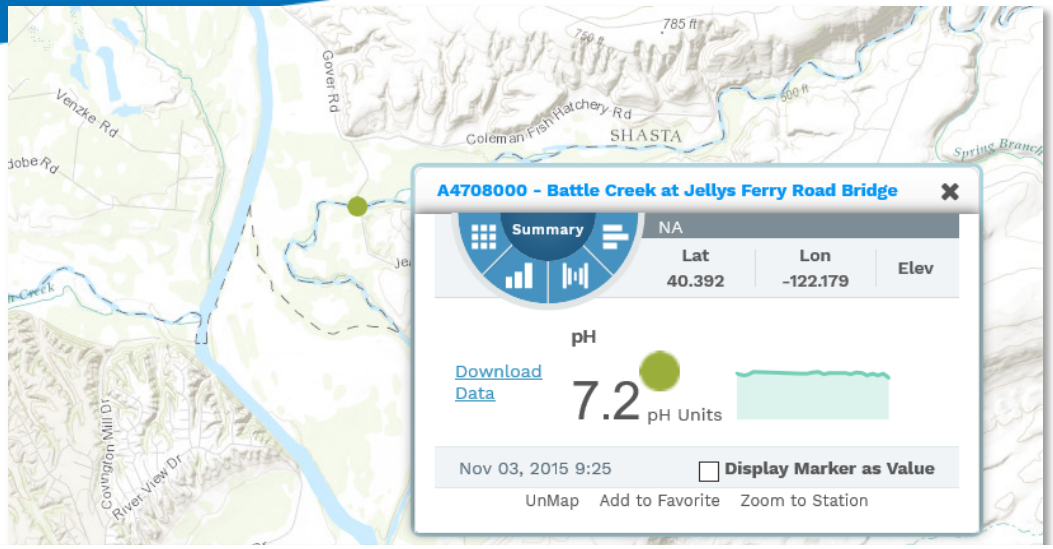
Data Available

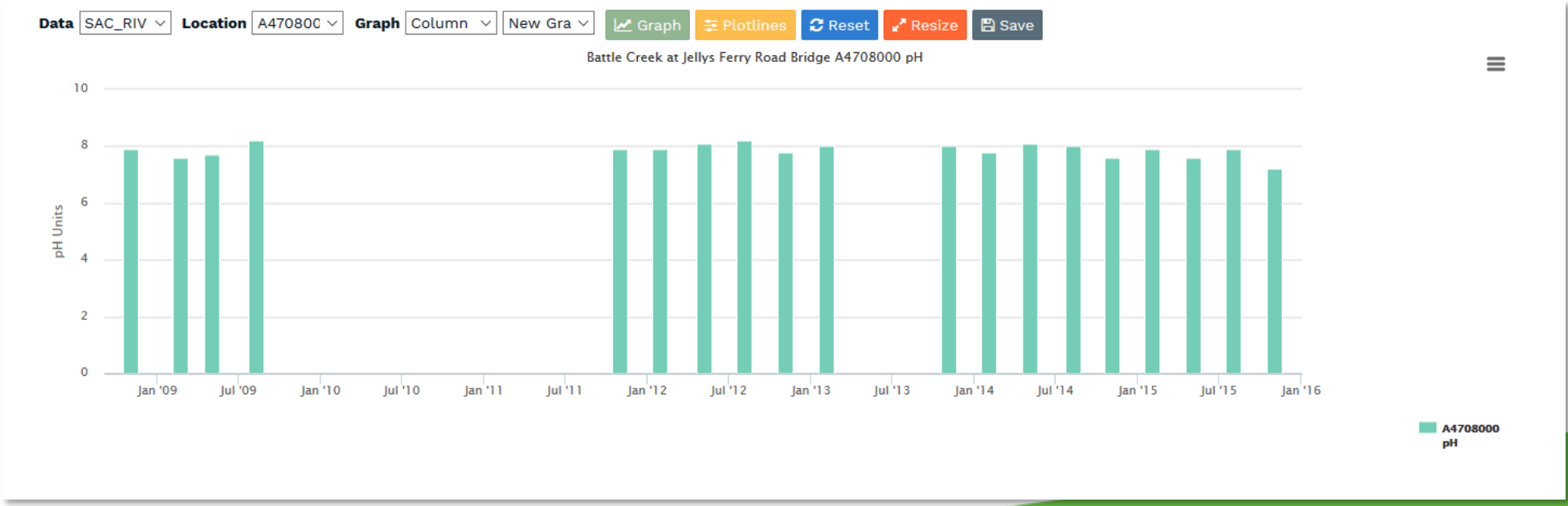


Watershed Conditions Monitoring: Incremental precipitation for past year at Mineral and Shingletown monitoring locations

Battle Creek Data Inventory

Data Available

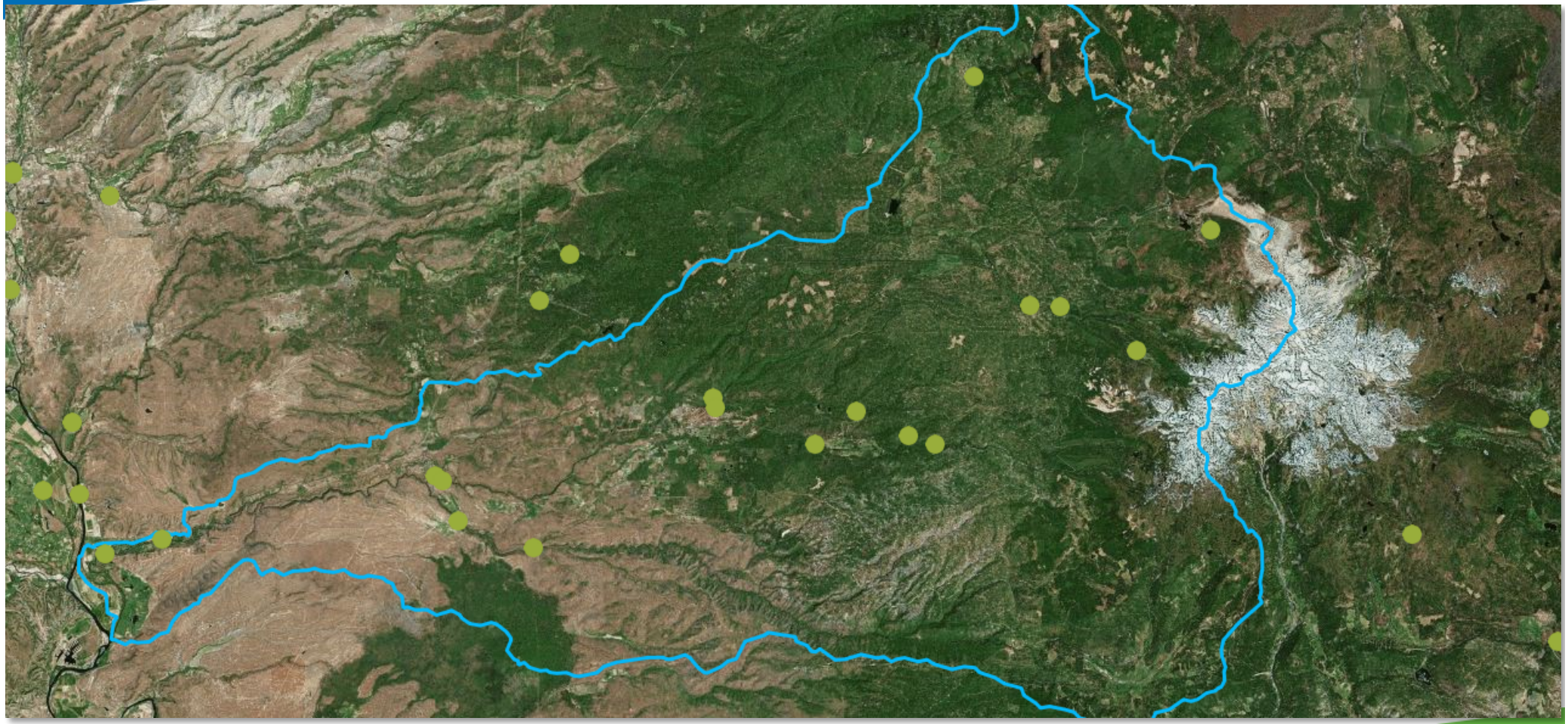




Watershed Conditions Monitoring: Sacramento Coordinated Monitoring Program Discrete Water Quality Sampling

Battle Creek Data Inventory

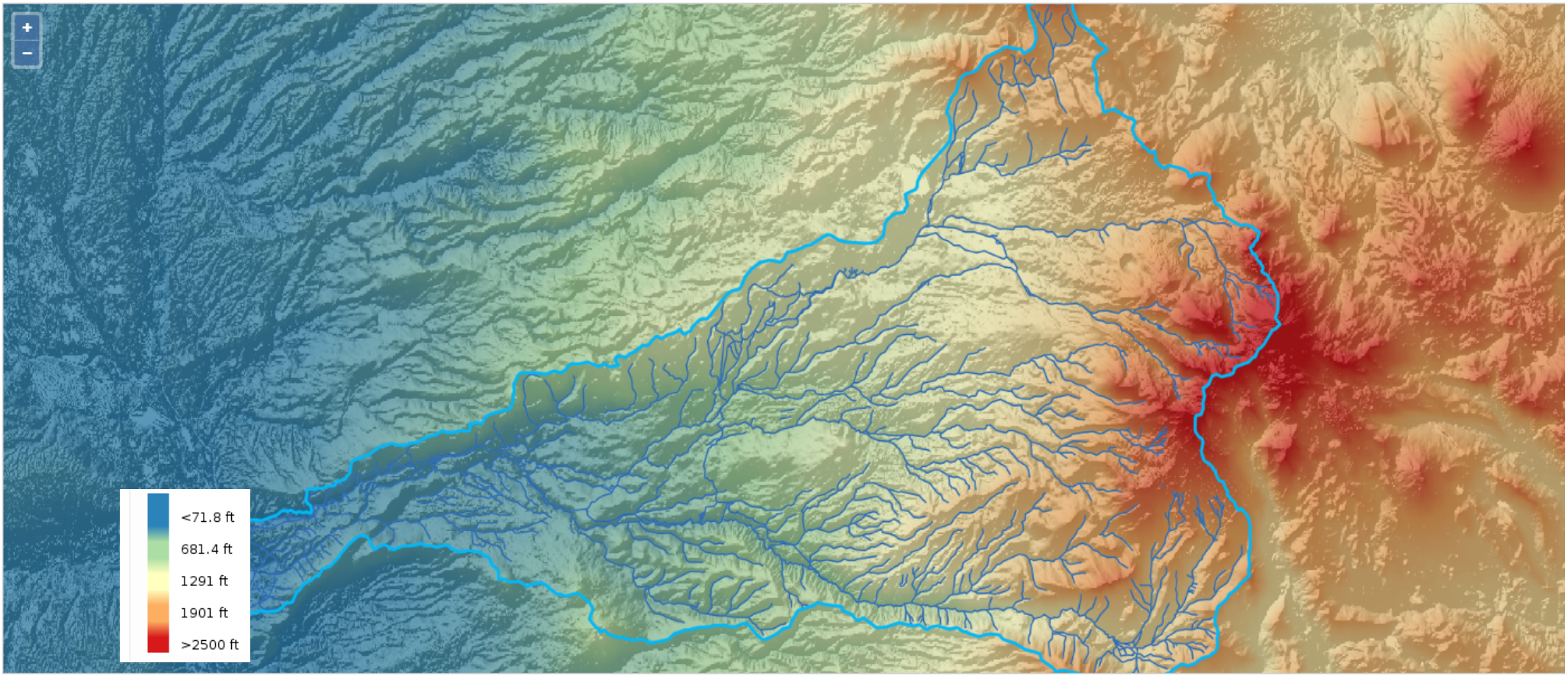
Data Available



Watershed Monitoring: SWAMP monitoring locations within the Battle Creek Watershed

Battle Creek Data Inventory

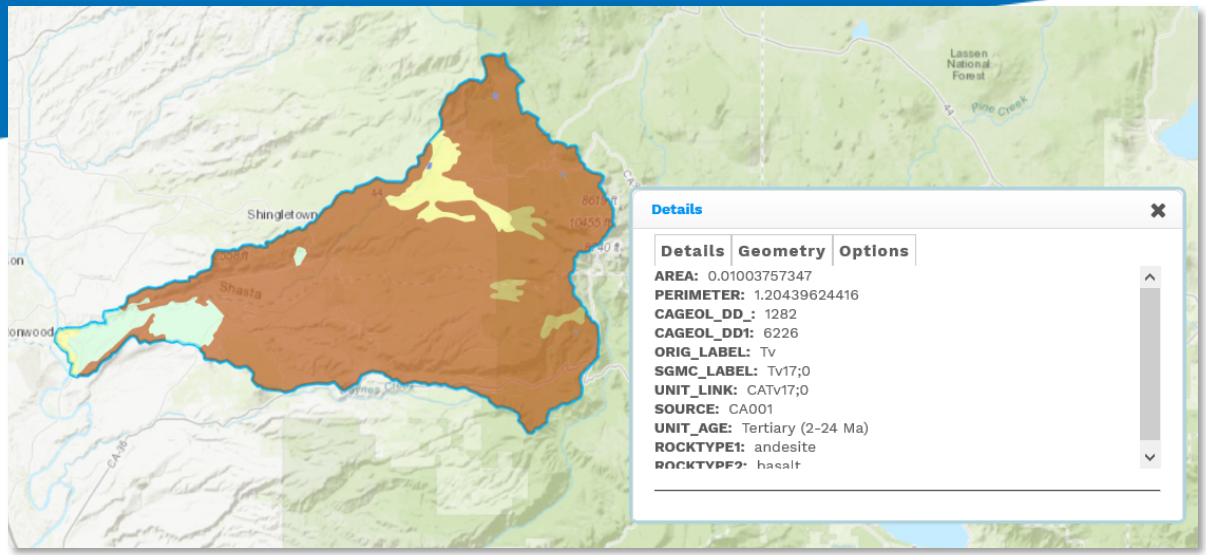
Data Available

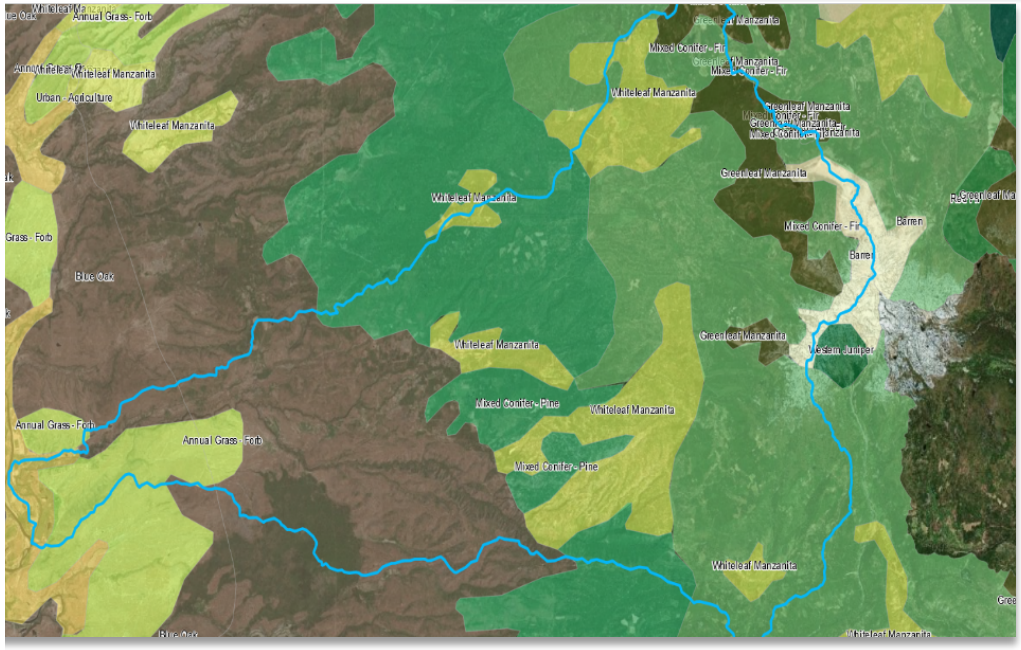


Watershed Management:
DEM and Hillshade for Battle Creek
Mapping of watershed with streams

Battle Creek Data Inventory

Data Available

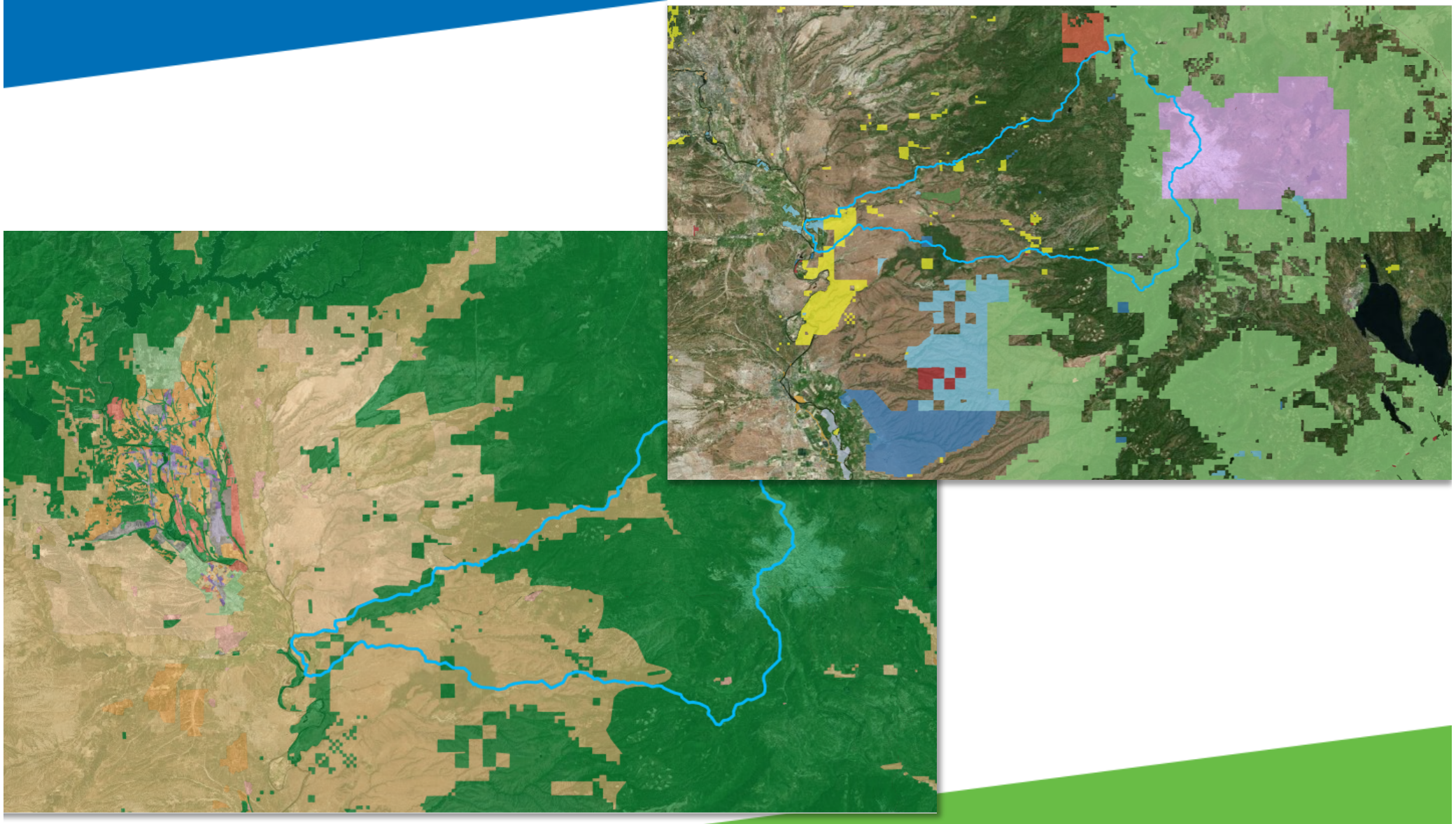




Watershed Management: Soils, Geology, Land Use, Land Ownership,

Battle Creek Data Inventory

Data Available



Watershed Management: Land Use and Land Ownership

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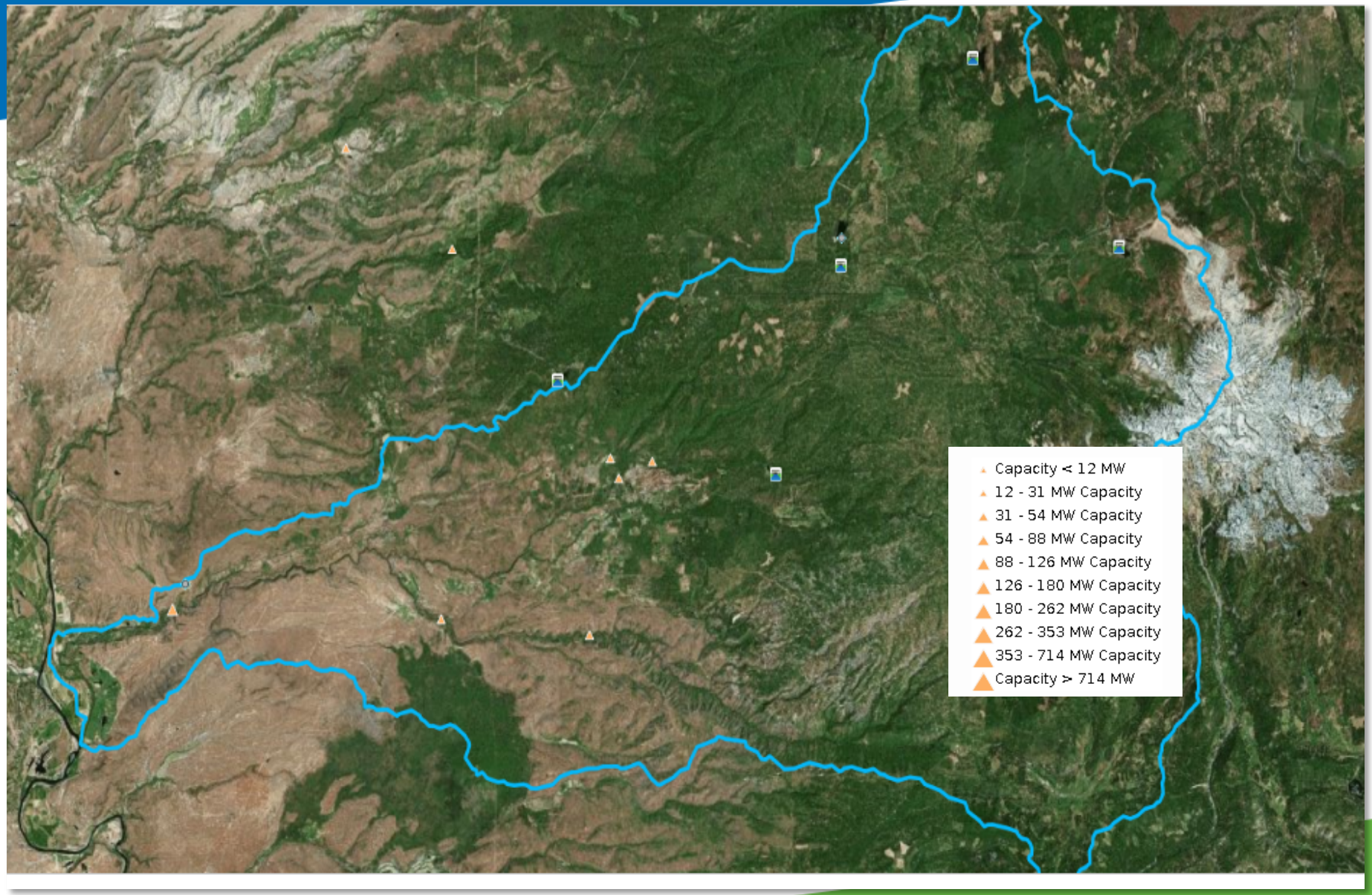
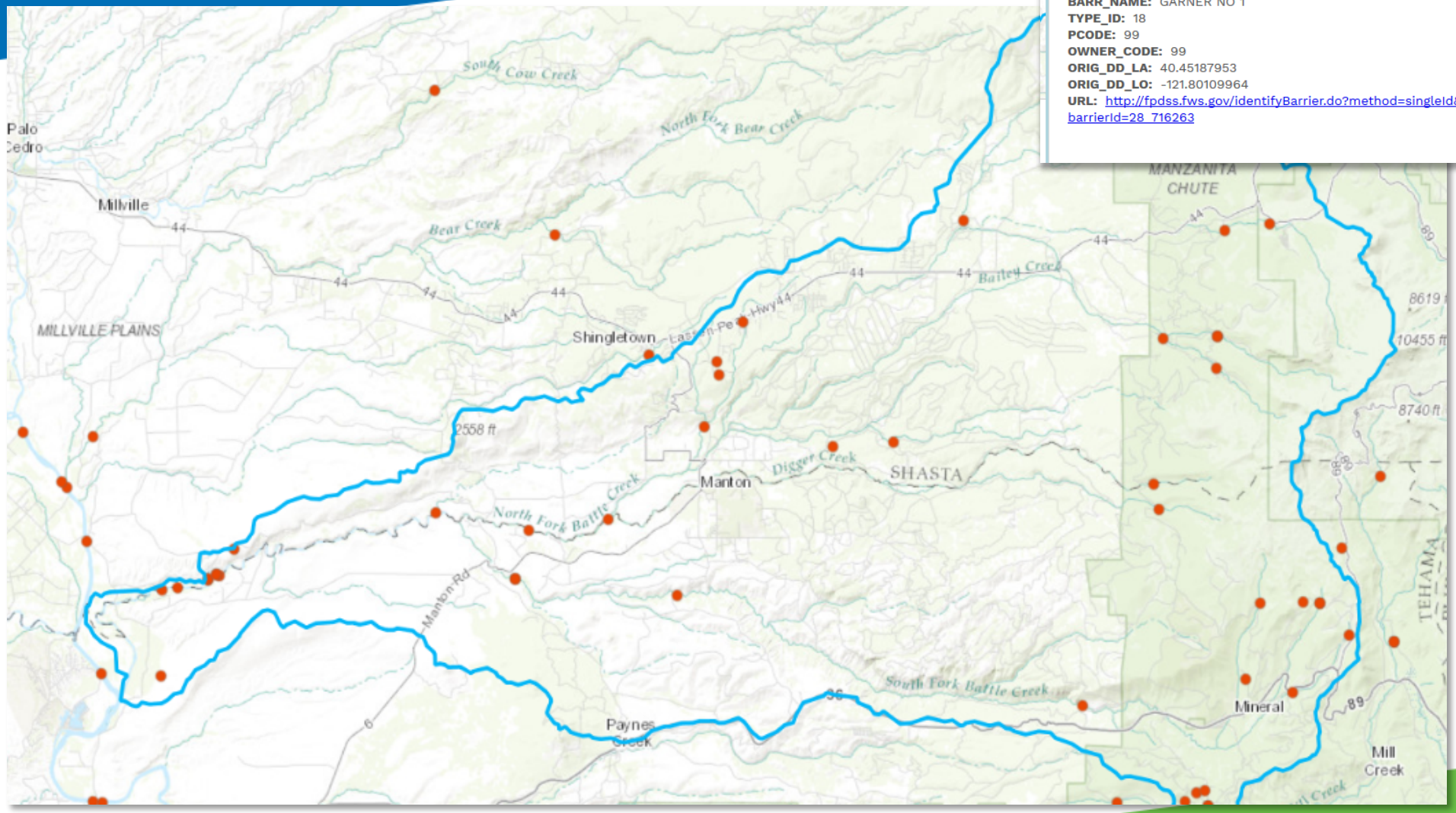
Data Available



Watershed Management: Existing Dams, and Hydroelectric Power Facilities

Battle Creek Data Inventory

Data Available



Watershed Management and Restoration Planning:
Fish Passage Barriers Assessment Database (USFWS)

Red Bluff Diversion Dam

Preliminary data, subject to change. Download the Data.

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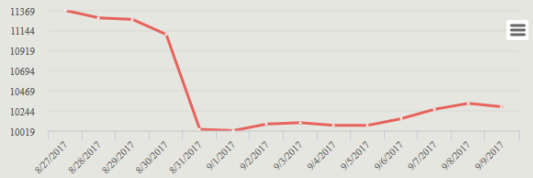
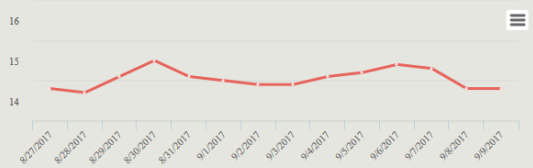
Date	Flows	WaterTemp	WaterTurb	BY17 Winter	BY16Spring	BY16Fall	BY17Late-Fall	BY17RBT
8/27/2017	11368	14.3	4.9	3601	0	73	72	71
8/28/2017	11284	14.2	5.1	3594	0	246	41	41
8/29/2017	11267	14.6	5.1	3495	0	198	76	127
8/30/2017	11098	15	4.7	3423	0	76	0	37
8/31/2017	10033	14.6	5.1	2947	0	75	76	151
9/1/2017	10019	14.5						
9/2/2017	10093	14.4						
9/3/2017	10108	14.4						
9/4/2017	10078	14.6						
9/5/2017	10078	14.7						
9/6/2017	10153	14.9						
9/7/2017	10259	14.8						
9/8/2017	10325	14.3						
9/9/2017	10286	14.3						

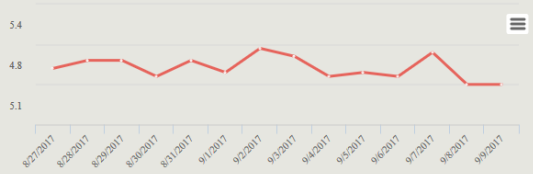
Water Flows



Water Temperature



Water Turbidity



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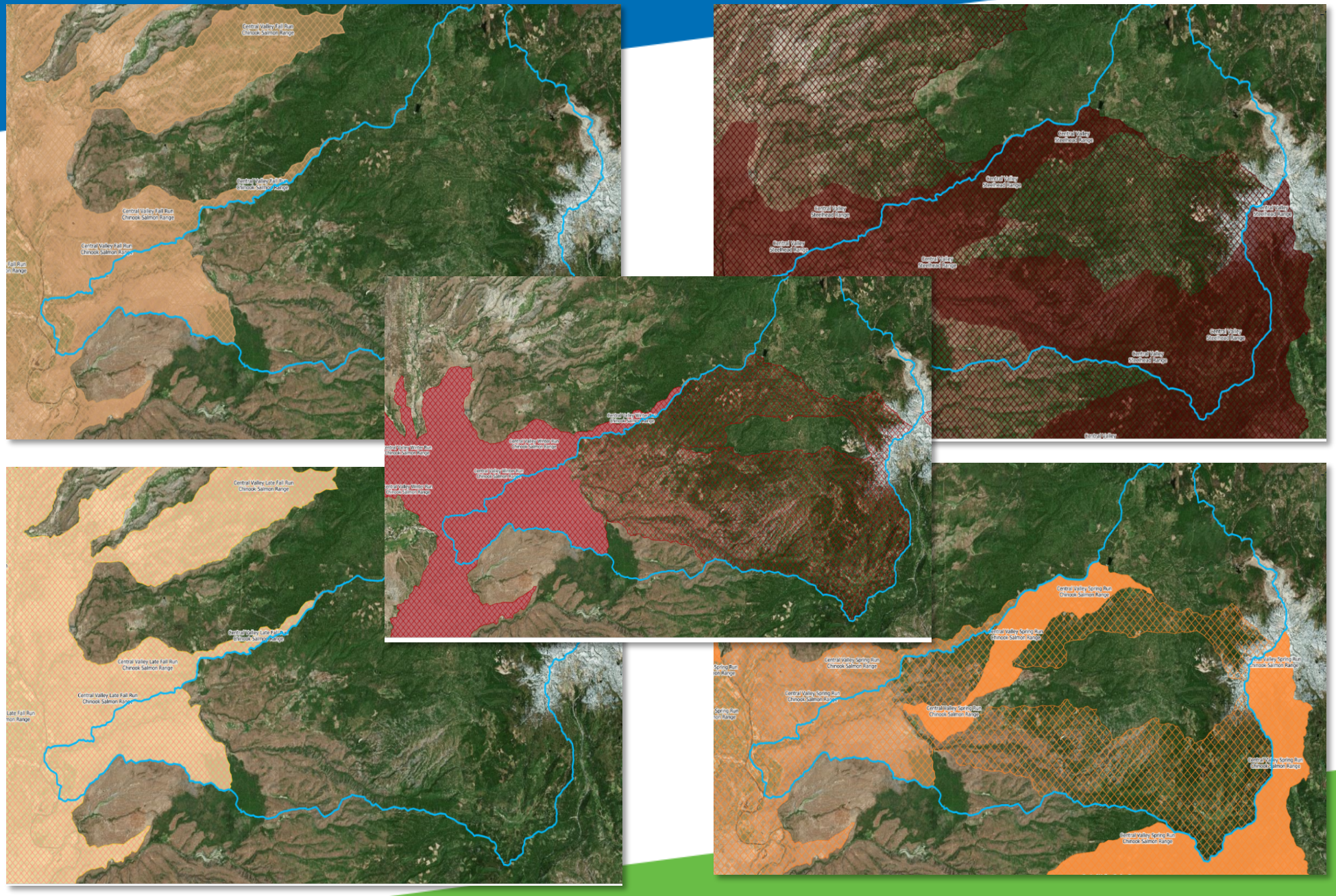
Date	Flows	WaterTemp	WaterTurb	BY17 Winter	BY16Spring	BY16Fall	BY17Late-Fall	BY17RBT
Biweekly Lower 90% Confidence Interval	0	0	0	29119	0	572	93	583
Biweekly Total 2	0	0	0	38646	0	1296	499	1273
Biweekly Upper 90% Confidence Interval	0	0	0	48173	0	2020	905	1963
Brood year Lower 90% Confidence Interval	0	0	0	45398	-257795	-14529877	-7577	-233
Brood Year Total	0	0	0	62145	991691	18609996	21429	8472
Brood year Upper 90% Confidence Interval	0	0	0	78892	2241178	51749872	50434	17177

Fisheries Monitoring: Red Bluff Diversion Dam bi-weekly monitoring summary

Battle Creek Data Inventory

Data Available



Fisheries Monitoring: Current and Historic Ranges

Battle Creek Data Inventory

Data Available