Salinas Reservoir
Water Quality Monitoring Report
Water Year 2025 (October 2024 – September 2025)

San Luis Obispo County

Flood Control and

Water Conservation District

Prepared by:

County of San Luis Obispo

Department of Public Works

Water Quality Division

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System Information

Owner of Reservoir:	U.S. Army Corps of Engineers (US ACE), Los Angeles District
Dam Operator/Management:	San Luis Obispo County
System Name:	Salinas Reservoir (Santa Margarita Lake)
Survey Period:	October 1, 2024, through September 30, 2025
Name of Agency and Address:	County of San Luis Obispo Department of Public Works County Government Center, Room 206 San Luis Obispo, CA 93408
Name of Watersheds:	Salinas Watershed
Infrastructure:	2 floating snorkel intakes 15 Feet apart (Both are manually adjustable)
Lake Capacity:	26,000 acre feet
Watershed Capacity	112 Square feet
Location:	San Luis Obispo County
Name(s) of water treatment plant using the watershed as a source:	San Luis Obispo City Water Treatment Plant

Terms, Acronyms, and Abbreviations

2° MCL	Secondary Maximum Contaminant Level
AF	Acre Foot
C	Centigrade
CCL	Contaminant Candidate List
City	City of San Luis Obispo
CCRWQCB	Central Coast Regional Water Quality Control Board
Cr	Chromium
County	County of San Luis Obispo
WQL	County of San Luis Obispo Water Quality Lab
DSAC	Dam Safety Action Classification
DLR	Detection Limit for the purposes of Reporting
DSOD	Division of Safety of Dams
ELAP	Environmental Laboratory Accreditation Program
EPA	United States Environmental Protection Agency
Ft	Foot/Feet
In	Inch
IRRMP	Interim Risk Reduction Measure Plan
MCL	Maximum Contaminant Level
MGD	Million Gallons per Day
mg/L	milligrams per liter
MPN	Most Probable Number
MTBE	methyl tertiary-butyl ether
MPN/100mL	Most Probable Number of Colonies per 100 mL
NTU	Nephelometric Turbidity Unit
SALR	Salinas Reservoir
SLO	San Luis Obispo
SOCs	Synthetic Organic Compounds
SQRA	Semi-Quantitative Risk Assessment
SWRCB	State Water Resources Control Board
TON	Threshold Odor Number
μg/L	micrograms per liter
μmhos/cm	micromhos per centimeter
URS	URS Corporation
US ACE	United States Army Corps of Engineers
VOCs	Volatile Organic Compounds
WTP	Water Treatment Plant
WY	Water Year

Watershed/Reservoir Checklist

Category	Significant	Not Significant	Comments
I. GENERAL			
A. Changes in available water quantity?	X		Lake elevation change
B. Construction of water diversion or reservoir projects.		X	
C. Relocation of intakes		X	
II. CONTAMINANT SOURCES			
A. Wastewater Treatment at Lopez Lake			
1. Treatment plant effluent discharges		X	
2. Storage, transport, treatment, disposal to land		X	
3. Residential septic systems		X	
B. Reclaimed Water		X	
C. Urban Areas		X	
D. Agricultural Crop Land Use		X	
E. Pesticide/Herbicide Use		X	
F. Grazing Animals		X	
G. Concentrated Animal Facilities (feedlots, etc)		X	
H. Wild Animal Populations		X	
I. Mines			
1. Active		X	
2. Inactive		X	
J. Disposal Facilities at Lopez Lake			
1. Solid waste		X	
2. Hazardous waste		X	
K. Logging		X	
L. Recreation			
M. Unauthorized Activity			
1. Illegal dumping		X	
2. Underground storage tank leaks		X	
N. Groundwater Discharges			
1. Natural discharge		X	
2. Gas, oil, geothermal wells		X	
O. Seawater Intrusion		X	
P. Geologic Hazards			
1. Landslides		X	
2. Earthquakes		X	
3. Floods	X		Lake elevation change
Q. Fires	X		Gifford Fire
III. GROWTH			
A. Population/General Urban Area Increase		X	
B. Land Use Changes		X	
C. Industrial Use Increase		X	
IV. WATER QUALITY			
A. Changes in Raw Water Quality		X	
B. Difficulty meeting drinking water standards		X	

Summary

This report has been prepared for the U.S. Army Corps of Engineers (USACE), Los Angeles District, to summarize water quality monitoring and operations of the Salinas Reservoir (SALR) by the County of San Luis Obispo. It covers Water Year 2025 (WY 2025), spanning October 1, 2024, through September 30, 2025. The report evaluates watershed conditions, potential contamination sources, and overall water quality to help ensure a safe and reliable drinking water supply.

Water quality parameters during WY 2025 remained consistent with historical conditions. Compared to WY 2024, no significant changes were observed aside from increased water clarity during the spring and summer months and lower total algal counts throughout the year. Precipitation at SALR totaled 14.53 inches, below the annual average, and the Salinas Dam spillway was not utilized, unlike the previous two water years.

On August 1, 2025, the Gifford Fire ignited in southeastern San Luis Obispo County and burned approximately 131,614 acres, including 16.21% of the SALR watershed, before being fully contained on September 28, 2025. Monitoring of post-fire impacts on water quality is ongoing through Water Year 2026.

A bathymetric survey completed in 2025, using depth data collected in 2023 when the reservoir was at full capacity, indicated a capacity loss of 1,590 acre-feet over the past 32 years. Additional details are provided in the Bathymetric Survey section.

In October 2024, a new invasive species, golden mussels (*Limnoperna fortunei*), was identified in North America for the first time in the San Joaquin Delta. These mussels pose a significant threat to ecosystems, water conveyance systems, infrastructure, and water quality. Despite efforts to contain their spread, they have been detected in State Water Project infrastructure as far south as Lake Palmdale.

The County continues to implement preventative measures to reduce the risk of introduction into SALR, including public education, boat inspections, and quarantine procedures. Trained field inspectors conduct monthly monitoring, and any suspicious organisms are reported to the County's Water Quality Division and the California Department of Fish and Wildlife for further investigation. In addition, monthly plankton tows began in 2025 and are analyzed for genetic indicators of invasive mussels.

Introduction and Purpose

The San Luis Obispo County Flood Control and Water Conservation District owns and operates the SALR water supply system as part of a broader project designed to provide reliable water storage and delivery for municipal and operational needs, in coordination with the USACE.

In 1988, the County entered into a supplemental agreement to its operational lease with the USACE, Southern Pacific Division, Los Angeles District, under Lease No. DACW09-173-. Following this agreement, the County established a monitoring program in accordance with guidelines published by the Central Coast Regional Water Quality Control Board in the Water Quality Control Plan for the Central Coast Basin.

The purpose of this sanitary survey is to describe the physical and hydrogeological characteristics of the watershed, summarize source water quality data, and identify existing activities or potential sources of contamination that could affect the Salinas Reservoir. It also documents any significant changes since the previous survey, reviews current watershed management and control practices, evaluates the system's ability to meet surface water treatment requirements, and provides recommendations for any necessary corrective actions.

Water quality objectives for the designated beneficial uses are established in the Regional Water Quality Control Board's Water Quality Control Plan for the Central Coast Basin and in the California Administrative Code, Title 22.

Watershed Physical and Hydrogeological Description

Physical Setting

SALR, also known as Santa Margarita Lake, is located in San Luis Obispo County, California, approximately nine miles southeast of the community of Santa Margarita. Formed by the construction of Salinas Dam in 1941, the reservoir serves as a primary surface water supply for the City of San Luis Obispo.

The reservoir has a storage capacity of approximately 22,320 acre-feet and a surface area of about 790 acres. The reservoir is formed by a 135-foot-high concrete arch dam. Water is withdrawn through an adjustable intake structure that enables operators to select depths with optimal water quality, a key advantage during periods of thermal stratification or algal blooms.

When reservoir levels exceed approximately 1,267 feet, water is conveyed by gravity to the Santa Margarita booster pumping station; below this elevation, pumping is required. From there, water is transported through pipelines and the Cuesta Tunnel to the City.

Topography and Geology

The SALR watershed encompasses approximately 112 square miles and is characterized by steep, rugged terrain typical of the southern Coast Ranges. Elevations range from the reservoir surface to surrounding ridgelines exceeding 2,000 feet.

The geology of the watershed consists primarily of sedimentary and metamorphic rock formations, including shale, sandstone, and fractured rock units. These formations are moderately erodible and contribute to sediment transport into the reservoir. Over time, natural erosion and sediment deposition have reduced the reservoir's storage capacity.

Soils in the watershed are generally shallow and prone to erosion, particularly in areas impacted by grazing, wildfire, or storm events.

Hydrological Profile

SALR is part of the upper Salinas River watershed and is fed primarily by the Salinas River and its major tributaries: Alamo Creek, Salsipuedes Creek, and Toro Creek. These tributaries deliver seasonal runoff to the reservoir, with flows typically peaking during winter storm events.

The reservoir shows seasonal stratification during warmer months and mixes during cooler periods. This thermal layering can affect dissolved oxygen levels and nutrient distribution, which in turn influence algal growth and overall water quality. Outflows from the reservoir are controlled through managed releases and withdrawals for municipal supply.

Precipitation and Inflows

The watershed experiences a Mediterranean climate, with cool, wet winters and hot, dry summers. The majority of annual precipitation occurs between November and March, with minimal rainfall during the summer months.

Average annual precipitation in the watershed typically ranges from approximately 20 to 30 inches, although this can vary significantly between years. In drier years, precipitation may fall well below average, resulting in reduced inflows and lower reservoir levels. Conversely, wet years can generate substantial inflows and, in some cases, spillway releases.

Inflows to SALR are highly seasonal and driven by storm events, with little to no inflow during extended dry periods.

Potential Sources of Contamination

Land Use

Land use activities within the watershed of Salinas Reservoir can influence water quality by introducing pollutants through runoff and erosion. Agricultural operations may contribute nutrients such as nitrogen and phosphorus from fertilizers, while grazing activities can introduce bacteria and increase sediment loads. Rural residential development and roadways can add contaminants, including oils, metals, and septic system discharges. During storm events, these pollutants can be transported into tributaries and ultimately the reservoir, potentially affecting drinking water quality and increasing treatment requirements.

Precipitation Impacts and Water Storage

Previous reports indicated that drought conditions tended to increase concentrations of metals, algae, and inorganics in the reservoir. During the heavy rains in 2023, which resulted in a dam spill, water quality parameters spiked, likely due to runoff and the geological composition of the surrounding hillsides. Table 1 summarizes total rainfall over the past year, which fell below normal averages for SALR.

Table 1: Total Precipitation: October 2024- September 2025

Total Precipitation: October 2024- September 2025	
Year	**Total Precipitation (inches)**
October	0
November	2.16
December	0.73
January	0.52
February	7.52
March	3.31
April	0.51
May	0
June	0
July	0
August	0
September	0
Total	**14.75**

During this water year, total rainfall closely corresponded with lake elevation. As shown in Figure 1, increases in rainfall were consistent with rises in lake elevation. The graph also confirms that SLAR did not reach spillway elevation during this water year.

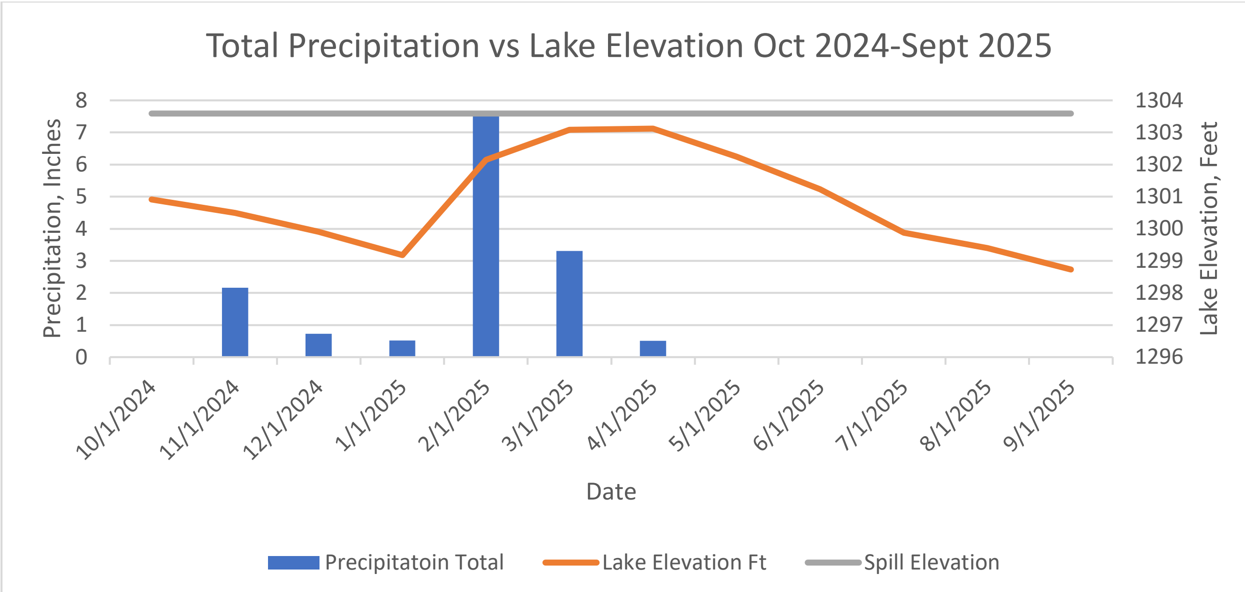

Figure 1: Total Precipitation vs Lake Elevation Oct 2024-Sept 2025

Wastewater/Restroom Facilities

SALR is equipped with three restrooms and two potable restroom facilities located in the parking areas near the boat dock, providing essential sanitary services for recreational users. The proper operation and maintenance of these facilities are critical for protecting water quality, as failures such as leaks, overflows, or spills could introduce nutrients, bacteria, and other contaminants into the surrounding environment and ultimately the lake. However, no line leaks or spills were reported during the October 2024 through September 2025 reporting period, indicating that these facilities were effectively managed and did not pose a risk to the reservoir's water quality during this time.

Recreation

Recreation at SALR includes boating, fishing, and picnicking, attracting both locals and visitors throughout the year (See Figure 2 below). While these activities provide important community and recreational benefits, they can also influence water quality by introducing nutrients, sediments, and potential microbial contaminants into the lake. However, it is important to note that Salinas Reservoir is not considered a "body contact" water under the Surface Water Treatment Rule, meaning that direct human contact with the water is limited, and recreational activities are managed to minimize impacts on drinking water quality.

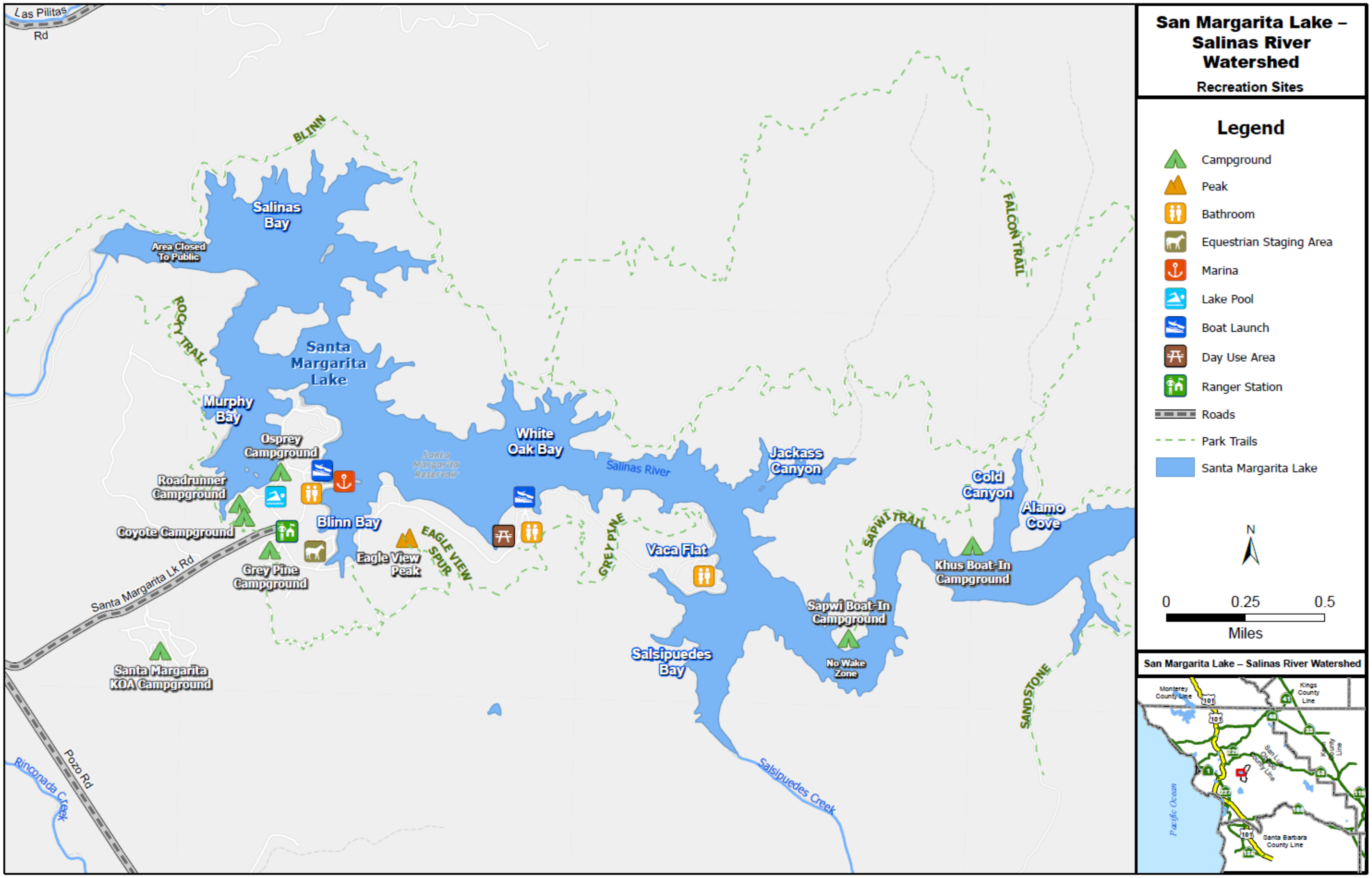

Figure 2: SALR Recreation Map

Hazards

Fault Hazards – Impacts to Watersheds

Geologic fault hazards, including seismic events and fault displacement, can adversely affect watershed function by altering both natural geomorphic processes and engineered infrastructure. Ground shaking and surface rupture may destabilize slopes, increasing the likelihood of landslides, accelerated erosion, and elevated sediment loading to streams and reservoirs. These processes can degrade water quality, increase turbidity, and negatively impact aquatic habitat and channel stability.

Fault activity may also disrupt groundwater systems by modifying subsurface flow paths, damaging aquifer formations, or altering the location and discharge rates of springs. Seismic events can further compromise water infrastructure, including pipelines, dams, intake structures, and treatment facilities, increasing the potential for contamination, service disruptions, and reduced system reliability.

Overall, geologic fault hazards present both short-term and long-term risks to watershed stability, surface and groundwater quality, and the consistent delivery of potable water. A fault hazard map is provided in Appendix A.

Landslide Hazards – Impacts to Watersheds

Landslides can affect watersheds by washing soil, rocks, and debris into creeks, rivers, and reservoirs. This can make the water muddy, reduce water quality, and harm fish and other aquatic life. Sediment from landslides can also fill in reservoirs over time, reducing their ability to store water.

Landslides may block or change the path of streams, which can increase the risk of flooding in nearby areas. They can also damage water system facilities, such as pipelines and access roads, making it harder to deliver safe and reliable water.

Landslides are most likely to occur after heavy rain, earthquakes, or when hillsides are disturbed, and they remain an ongoing natural hazard in steep watershed areas. A landslide hazard map is provided in Appendix A.

Flood Hazards

Flood hazards at Salinas Dam primarily arise during periods of intense rainfall and high inflow from the surrounding watershed, which can rapidly increase reservoir levels and place stress on dam infrastructure. If inflows approach or exceed the reservoir's storage capacity, controlled releases through the spillway are required to prevent overtopping, which could pose downstream flooding risks along the Salinas River channel. Additionally, sudden releases, whether for flood control or emergency management, may impact downstream areas by increasing flow velocities and water levels. Effective reservoir operations, continuous monitoring, and coordination with regulatory agencies are essential to minimize flood risks and protect downstream communities and infrastructure.

Any spillway release or uncontrolled discharge at Salinas Dam must be promptly reported to the USACE in accordance with the terms of the facility's operational lease and federal oversight requirements. Timely notification ensures that the USACE is aware of reservoir conditions, can assess potential downstream impacts, and coordinate any necessary flood control or public safety measures. Reporting typically includes details such as the timing and duration of the spill, estimated flow rates, reservoir elevation, and any observed or anticipated impacts downstream. Consistent communication with the USACE is critical for maintaining compliance and supporting effective flood risk management. A flood hazard map is provided in Appendix A.

Fire Hazards – Gifford Fire

Wildfire represents a significant hazard for SALR, especially under conditions of prolonged drought, elevated temperatures, low humidity, and abundant fuel. Severe wildfires can burn away plants and the top layers of soil, which changes how water and sediment move across steep hillsides. When vegetation is gone, there's nothing to slow down rainfall or hold the soil in place. As a result, the ground becomes more likely to erode and increases the probability of sediment entering streams and dangerous debris flows during storms.

The Gifford Fire burned 131,614 acres, including about 16% of the SALR Watershed, between August 1 and September 28, 2025. San Luis Obispo Parks and Public Works Operations staff took proactive measures to protect water quality by conducting watershed inspections following the first rainfall after the fire. Park Rangers, Water Utilities, and the Water Quality Division were closely monitoring the reservoir conditions to observe any impacts from the burned areas. Its effects on water quality in the Salinas River are still being monitored into Water Year 2026. See Figure 3 below.

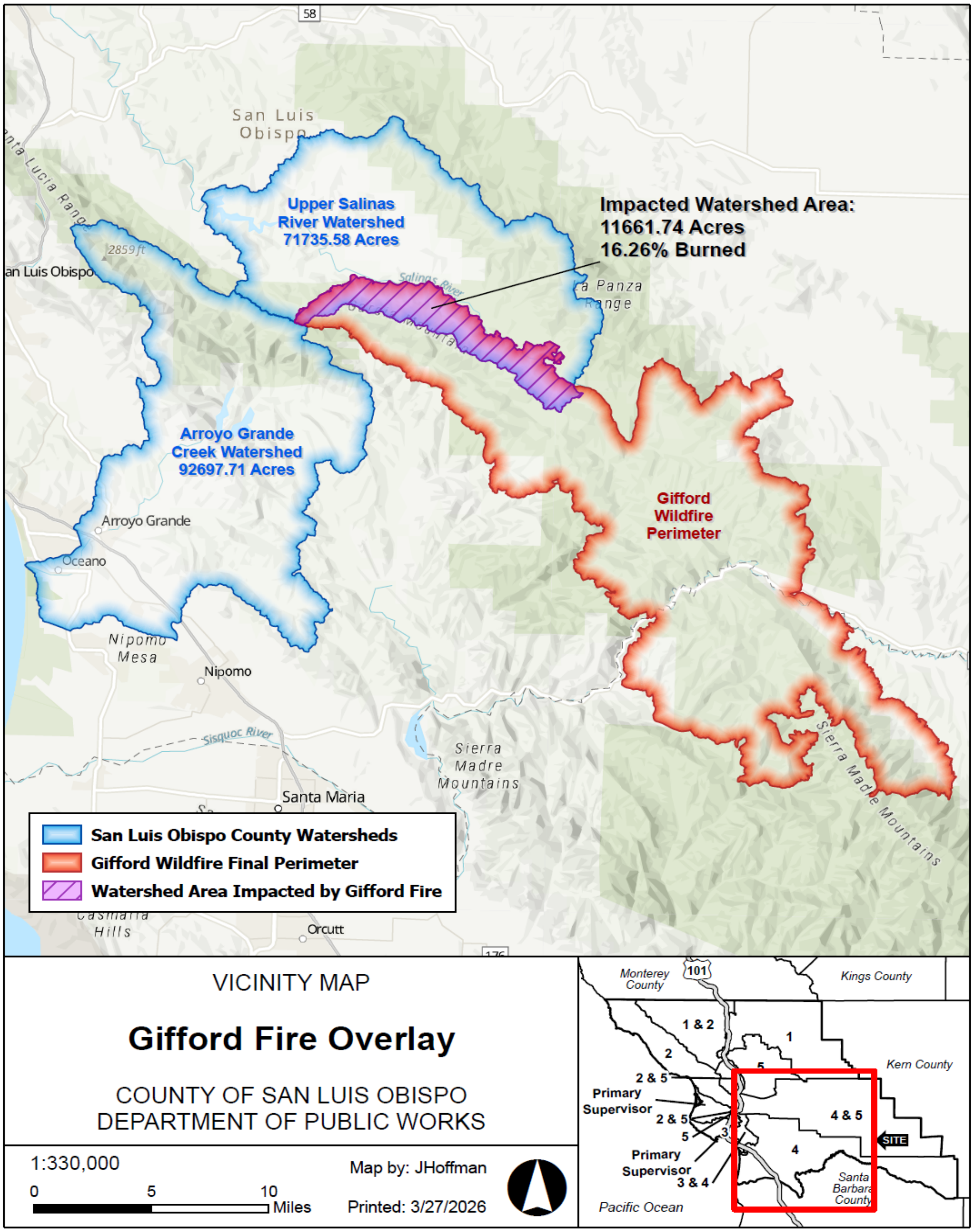

Figure 3: Gifford Fire Burn Area Map

Agricultural and Grazing

Agricultural activities and livestock grazing within the SALR watershed can influence water quality by contributing nutrients, sediments, and microbial contaminants to surface waters. Runoff from irrigated lands or grazed areas may carry nitrogen and phosphorus, which can promote algal growth, as well as pathogens associated with animal waste. Grazing can also reduce vegetative cover and increase soil disturbance, leading to higher erosion rates and sediment transport into tributaries and the reservoir.

Under the Surface Water Treatment Rule, such activities are important considerations because they can introduce microbial contaminants, including Giardia and viruses, into source waters. As a result, monitoring land use practices and watershed conditions is critical for protecting source water quality and ensuring that treatment processes remain effective in providing safe drinking water. See land use map in Appendix A.

Water Quality Assessment

Sampling at the reservoir, its tributaries, and release points is conducted based on the use of SALR as a municipal water supply for the City. The County has established a routine monitoring program that includes organic, inorganic, general mineral, nutrient, bacteriological, and physical analyses at key locations throughout the system.

Sampling locations include the restricted area near the intake structure, three publicly accessible reservoir sites (Eagle, Shoemaker, and Point), four inflows (Salinas River, Toro Creek, Alamo Creek, and Salsipuedes Creek), and one downstream, V-Notch. V-Notch represents water discharged downstream to the Salinas River. Because inflows are seasonal, tributary data may not be available during all sampling events.

To evaluate overall reservoir conditions and ensure the highest quality water is delivered to the City, the County, in coordination with the City, conducts monthly monitoring at the intake structure. Parameters include limnology, iron, manganese, algae, odor, turbidity, temperature, dissolved oxygen, pH, and visibility. These data are used to track seasonal changes, identify lake turnover, and support operational decisions that optimize source water quality.

Quarterly sampling is conducted at the intake, reservoir releases, and any flowing tributaries. These samples are analyzed for coliform bacteria, general minerals, and nutrients, including nitrate, nitrite, total Kjeldahl nitrogen, and phosphate. Quarterly events also include inspections of tributaries and the surrounding watershed.

Annual sampling is conducted in May for trace metals and cyanide at the intake and tributaries. Metals such as aluminum, arsenic, copper, iron, manganese, and zinc are monitored more frequently at additional watershed locations. When present, these metals are typically associated with natural erosion of geologic materials.

In addition, raw water is analyzed for volatile organic compounds (VOCs) every three years. The most recent sample, collected in December 2024, showed no detections. The next sampling event is scheduled for 2027. USEPA has also identified perchlorate as a contaminant of concern under the Safe Drinking Water Act.

Water Quality Monitoring

A summary of the SALR water quality monitoring schedule and GPS coordinates are provided in Table 2 and 3, and sampling locations are shown in Figure 4.

Table 2: Summary of Water Quality Monitoring for SALR

Constituent	Raw Water Intakes	Intake in Use	Reservoir Releases: V-Notch	Tributaries: Salinas River, Alamo Creek, Salsipuedes Creek, Toro Creek
Temperature	M	M	Q	Q
Dissolved Oxygen	M	M	-----	-----
Visibility	M	M	-----	-----
pH	M	M	Q	Q
Algae	M	M	-----	-----
Turbidity	M	M	-----	-----
Odor	M	M	-----	-----
Iron	-----	M	Q	Q
Manganese	-----	M	Q	Q
Nitrate, Nitrite	-----	Q	Q	Q
Nitrogen Compounds	-----	Q	Q	Q
Total Phosphate	-----	Q	Q	Q
Bacteriological	-----	Q	Q	Q
General Minerals	-----	Q	Q	Q
Trace Metals and Cyanide	-----	A	A	A
Perchlorate	-----	A	-----	-----
Volatile Organic Compounds	-----	3Y	-----	-----

Monitoring Frequency Key:
M Monthly
Q Quarterly
A Annually
3Y Every three years (analyzed in Dec. 2024)

Table 3 : Sampling Sites GPS Coordiantes

Sample Locations	Latitude	Longitude
Alamo	35.33027	-120.440092
Eagle	35.33147	-120.489391
Point	35.33752	-120.495657
Salinas River	35.31899	-120.422219
SALR Intake	35.33763	-120.502309
Salsipuedas Creek	35.31858	-120.468277
Shoemaker	35.33721	-120.486988
Toro	35.32217	-120.422899
V-Notch	35.33486	-120.504418

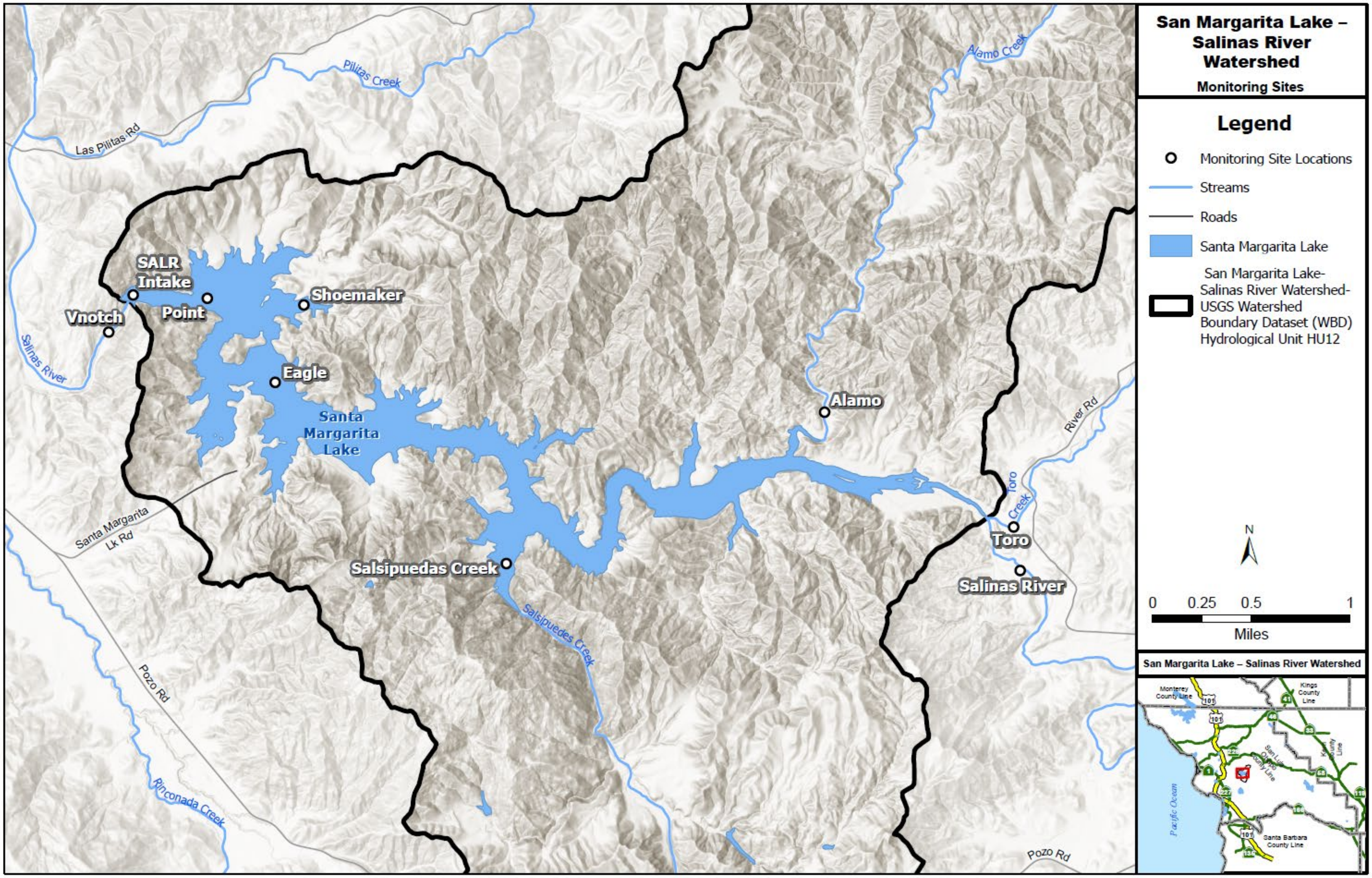

Figure 4: SALR Watershed and Lake sampling map

Limnological

Limnology is the study of the chemical, physical, atmospheric, and biological characteristics of freshwater systems. The County uses limnological data to monitor seasonal changes in water quality, identify causes of odors or particulate matter, and guide operational decisions such as algaecide application and intake selection at SALR. Desired water quality conditions include adequate dissolved oxygen, pH between 6.5 and 8.5, low algal growth, minimal odor and turbidity, low bacterial levels, and low concentrations of iron, manganese, and other contaminants.

Limnological monitoring is conducted monthly, providing consistent data on reservoir conditions and allowing routine inspection of the dam intake area. Historical data indicate that during cooler months (November through April), temperature profiles are relatively uniform across intake depths. In contrast, during spring and summer, thermal stratification develops as surface waters warm and become less dense. This results in the formation of three distinct layers: the epilimnion (warm, oxygen-rich surface layer), the hypolimnion (colder, oxygen-deficient bottom layer), and the thermocline, which separates them. At SALR, the thermocline typically occurs between 15 and 30 feet below the surface and is characterized by a rapid decline in temperature, dissolved oxygen, and pH. For reference, see Tables 4-6 below.

Table 4: Temperature (C⁰) Profile at SALR intake

Depth (ft)	2	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80
10/23/24	19.2	19.2	19.1	18.5	18.4	17.9	11.0	11.6	11.5	11.5	11.5	11.4	11.3	11.4	11.4	11.3	11.3
11/20/24	13.1	13.1	13.1	13.1	13.1	13.0	13.0	13.0	13.0	13.0	11.8	11.7	11.6	11.6	11.6	11.6	11.6
12/18/24	11.5	11.4	11.2	11.2	11.2	11.2	11.2	11.2	11.1	11.1	11.2	11.2	11.2	11.2	11.2	11.2	11.2
1/29/25	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
2/26/25	14.3	14.0	13.7	12.6	11.9	11.6	11.3	11.1	10.9	10.8	10.8	10.7	10.7	10.7	10.7	10.7	10.7
3/26/25	17.3	16.9	16.3	15.2	14.3	13.0	12.3	11.5	11.1	11.0	11.0	10.9	10.9	10.9	10.9	10.9	10.9
4/16/25	18.9	18.9	18.8	17.5	15.3	13.3	12.1	11.6	11.3	11.2	11.1	11.1	11.1	11.1	11.0	11.0	11.0
5/21/25	21.7	21.6	21.4	20.4	18.3	14.1	12.3	11.9	11.7	11.5	11.4	11.4	11.3	11.3	11.2	11.2	11.2
6/18/25	24.4	24.3	24.6	24.5	24.1	19.4	13.6	12.7	12.2	11.9	11.6	11.5	11.4	11.4	11.3	11.3	11.3
7/30/25	24.8	24.7	24.6	24.6	23.5	18.4	14.2	13.2	12.5	12.1	11.8	11.7	11.6	11.5	11.5	11.5	11.5
8/20/25	24.8	24.7	24.6	24.5	24.1	19.4	14.7	12.9	11.9	11.3	11.1	11.1	11.0	10.9	10.1	10.1	10.1
9/17/25	24.2	24.1	23.9	23.4	21.8	18.4	14.9	12.5	11.0	11.1	11.1	11.0	10.9	10.8	10.8	10.7	10.7

Table 5: Dissolved Oxygen (mg/L) Profile at SALR intake

Depth (ft)	2	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80
10/23/24	7.2	6.8	6.7	5.8	4.2	3.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
11/20/24	4.1	4.1	4.1	3.9	4.0	4.1	4.0	3.9	3.8	3.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0
12/18/24	7.8	7.0	4.0	3.9	4.0	4.0	3.9	3.9	3.9	3.9	4.0	4.0	4.0	4.1	4.2	4.1	4.1
1/29/25	8.1	8.0	7.8	7.8	7.6	7.5	7.8	7.5	7.5	7.5	7.9	7.4	7.8	7.7	7.8	7.5	7.4
2/26/25	8.7	8.6	8.3	7.8	6.8	6.3	6.3	6.2	5.3	4.7	4.4	4.2	3.9	3.8	3.7	3.8	3.8
3/26/25	9.6	9.7	9.7	9.9	9.9	7.6	6.0	3.3	2.6	2.1	1.6	1.5	1.4	1.3	1.3	1.3	1.3
4/16/25	8.8	8.8	8.1	8.2	6.8	4.4	2.8	2.0	1.5	1.2	0.8	0.7	0.6	0.3	0.3	0.1	0.1
5/21/25	8.0	7.8	7.7	7.4	4.3	2.9	0.5	0.4	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1
6/18/25	7.5	7.8	7.3	7.2	3.9	0.6	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7/30/25	6.6	6.8	6.4	6.2	1.3	0.3	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8/20/25	7.7	7.8	8.0	7.3	5.7	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9/17/25	7.8	7.5	7.3	6.2	4.3	1.0	0.7	0.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 6: pH Profile at SALR intake

Depth (ft)	2	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80
10/23/24	8.41	8.39	8.18	7.90	7.74	7.64	7.25	7.28	7.29	7.28	7.31	7.32	7.28	7.30	7.31	7.32	7.34
11/20/24	7.64	7.61	7.59	7.58	7.60	7.59	7.59	7.58	7.57	7.59	7.45	7.29	7.28	7.28	7.27	7.31	7.27
12/18/24	7.52	7.48	7.40	7.40	7.40	7.40	7.40	7.40	7.39	7.40	7.46	7.46	7.48	7.50	7.53	7.50	7.50
1/29/25	7.95	7.93	7.90	7.91	7.91	7.90	7.92	7.91	7.90	7.93	7.90	7.93	7.92	7.91	7.91	7.91	7.86
2/26/25	8.09	8.09	8.07	8.04	7.93	7.87	7.83	7.80	7.75	7.69	7.66	7.64	7.62	7.62	7.63	7.63	7.60
3/26/25	8.51	8.52	8.54	8.51	8.29	7.97	7.93	7.53	7.50	7.46	7.44	7.43	7.42	7.42	7.45	7.41	7.38
4/16/25	8.45	8.46	8.44	8.31	7.97	7.67	7.63	7.55	7.44	7.47	7.44	7.40	7.40	7.40	7.40	7.38	7.39
5/21/25	8.45	8.45	8.44	8.32	8.20	7.44	7.42	7.40	7.36	7.35	7.34	7.26	7.33	7.34	7.36	7.34	7.33
6/18/25	8.43	8.42	8.41	8.42	7.66	7.37	7.32	7.35	7.32	7.34	7.34	7.63	7.42	7.38	7.37	7.37	7.37
7/30/25	8.46	8.41	8.41	8.40	7.62	7.42	7.42	7.39	7.40	7.40	7.40	7.42	7.40	7.43	7.43	7.44	7.42
8/20/25	8.59	8.59	8.59	8.58	8.39	7.55	7.43	7.38	7.48	7.42	7.42	7.43	7.43	7.42	7.43	7.44	7.46
9/17/25	8.47	8.46	8.46	8.23	8.10	7.37	7.35	7.35	7.37	7.40	7.39	7.40	7.38	7.34	7.34	7.35	7.35

Water supplied to the City Water Treatment Plant is drawn from the epilimnion, typically between 10 and 15 feet below the surface, where water quality is optimal. In contrast, water released to the Salinas River originates from the hypolimnion. Although this water is lower in dissolved oxygen, it becomes naturally aerated as it flows downstream over the rocky channel.

Water clarity, an important indicator of lake health, is measured using a Secchi disk and can be influenced by algae, sediment, turbidity, and water color. In WY25, visibility ranged from 5 to 25 feet, with an average of 13.3 feet—an improvement compared to 7.5 feet in WY24.

Nitrogen and Total Phosphate Nutrients

Human activities in watersheds may result in excessive plant nutrients (phosphorus and nitrogen compounds) entering a water body. Potential sources of these plant nutrients include runoff from fertilizer application and decaying organic matter. Nutrients can also be absorbed onto sediments that are transported into the water body.

Phosphorus and nitrogen compounds are monitored in water bodies to assess nutrient loading. Nitrogen and phosphorus levels are monitored to determine nutrient loading and to minimize algal growth. The United States Environmental Protection Agency (USEPA) recommends total phosphorus levels in lakes and reservoirs be below 0.025 mg/L (EPA Quality Criteria for Water 1986) and drinking water nitrate levels below 10 mg/L. Nutrient levels remained low at the intake throughout the water year, with nitrate levels below 400 ug/L for every month sampled and Total Kjeldahl Nitrogen (TKN) at a maximum of 1.1 mg/L in February, which coincides with peak runoff from the watershed. Total phosphate levels at the dam intake ranged from non-detect to 280 µg/L.

Summaries of nitrogen and total phosphate data are found in the Appendix C.

Algae

Elevated levels of nitrogen and phosphorus in surface waters can stimulate rapid algal growth, increasing turbidity and reducing water clarity. As algae die and decompose, dissolved oxygen levels decline, which can stress or harm aquatic life. This process, known as eutrophication, may lead to fish kills, clogged filters and pipelines, and taste and odor issues in drinking water. Rapid increases in algae are referred to as algal blooms, which can vary in duration from days to months depending on nutrient availability, temperature, and sunlight.

The WQL monitors and identifies seven major algal groups: cyanobacteria (blue-green algae), cryptomonads, diatoms, dinoflagellates, flagellates, golden algae, and green algae. Identification at the genus level helps assess their potential impacts on water quality. Common taxa observed in SALR include *Raphidiopsis raciborskii* (formerly *Cylindrospermopsis raciborskii*), *Oscillatoria*, as well as various cryptomonads and diatoms.

Algae concentrations vary annually and typically increase during the warmer summer and fall months. In WY 2025, total algae counts at the intake peaked in August at 2,900 cells/mL, including 2,700 cells/mL of blue-green algae. The lowest count occurred in July at 75 cells/mL, which is atypical compared to historical trends. Overall, total algae levels at the intake were lower in WY 2025 than in WY 2024, likely due to comparatively cooler summer temperatures.

Table 7: Alage Counts at SALR intake

Classification (cells/mL)	10/23/24	11/20/24	12/18/24	1/29/25	2/26/25	3/26/25	4/16/25	5/21/25	6/18/25	7/30/25	8/20/25	9/17/25
Chlorophyta - Green	200	0	120	33	120	84	410	18	170	0	0	0
Chromophyta - Diatoms	80	54	24	36	0	9	0	90	6	6	78	0
Chrysophyta - Golden	0	0	0	0	0	42	0	0	0	0	96	380
Cryptophyta - Cryptomonads	0	0	180	27	15	66	320	41	35	0	0	0
Cyanophyta - Blue-green	200	230	15	90	210	0	300	0	700	60	2700	540
Euglenophyta - Flagellates	0	0	0	0	6	9	0	0	0	0	0	0
Pyrrophyta - Dinoflagellates	6	6	0	0	0	0	0	0	0	9	60	24
Total Algae Count	490	290	340	190	350	210	1000	150	930	75	2900	940

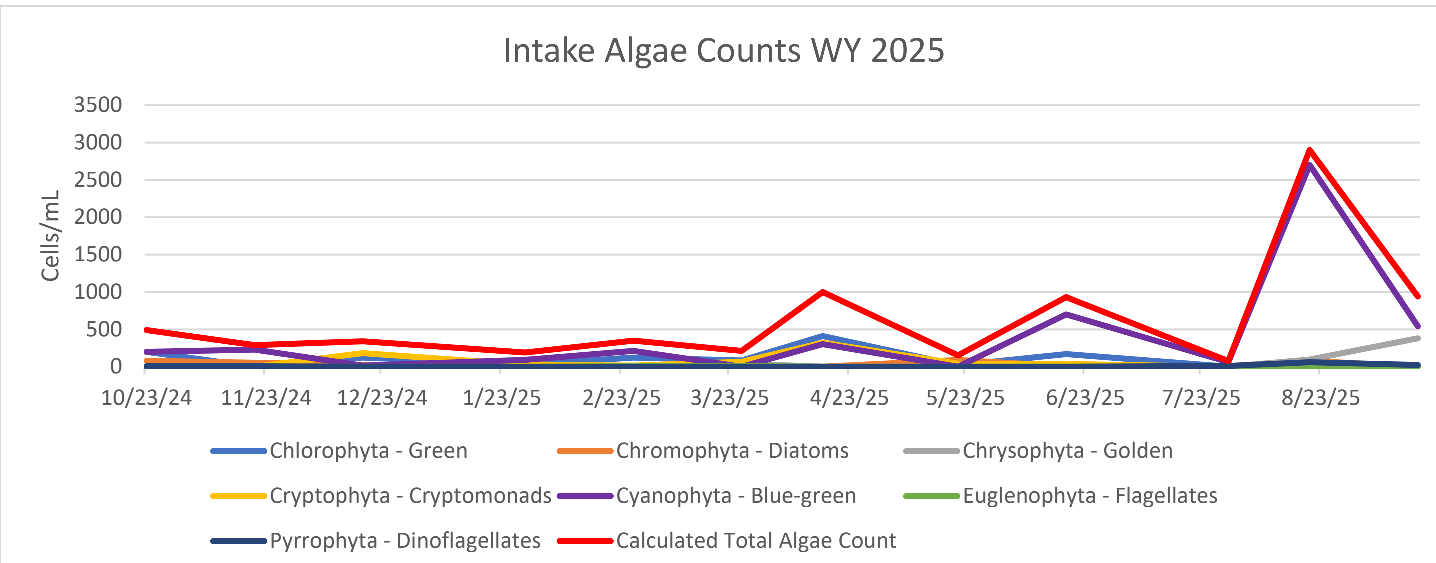

Figure 5: Algae Counts at Intake

Odor and Turbidity

Odor and turbidity testing at the SALR intake are important operational tools for evaluating the aesthetic quality of source water and identifying the presence of compounds associated with algal activity, suspended particles, organic matter, or other naturally occurring conditions. Routine assessments help detect changes in water quality that may not be immediately evident through standard analytical parameters alone.

This testing is critical for guiding intake selection, as water quality can vary significantly with depth due to thermal stratification and biological activity. By monitoring odor and turbidity at different depths, operators can adjust the intake elevation to draw from the zone with the most favorable water quality, typically where odor, taste, and suspended solids are minimized. This proactive approach helps ensure that the highest quality raw water is delivered to the treatment plant, improving treatment efficiency and maintaining overall drinking water quality. Table 8 below describes the different odor types that are present in SALR.

Table 8: Odor Type Table

Odor Type	Sub Odor	Odor Identifier	Associated with
C		Chemical	Such as odor due to industrial wastes or chemical treatment
	Cs	Sulfuretted	Odor of hydrogen sulfide
D		Disagreeable	Pronounced unpleasant odors
	Df	Fishy	Such as odor of *Uroglenopsis* or *Dinobryon*
E		Earthy	Such as odor of damp earth
	Ep	Peaty	Such as odor of peat
G		Grassy	Such as odor of crushed earth
M		Musty	Such as odor of decomposing straw

In previous years, hydrogen sulfide was typically noted in the hypolimnion and below due to anaerobic decomposition. Due to this consistent characteristic, odor and turbidity below the hypolimnion (40 to >50 feet) may not be included in data analysis demonstrate the representative odor and turbidity quality of the reservoir. At 30 feet, which was the depth near the hypolimnion and still above the thermocline, odors ranged from 2.0 to 4.0 TON. Results are shown in Table 9.

Table 9: Odor Results throughout SALR Lake Profile

Date	Intake 2'		Intake 10'		Intake 20'		Intake 30'		Intake 40'		Intake 50'	
	Odor (TON)	Odor Type	Odor (TON)	Odor Type	Odor (TON)	Odor Type	Odor (TON)	Odor Type	Odor (TON)	Odor Type	Odor (TON)	Odor Type
10/23/2024	3.0	Ep	3.0	Ep	3.0	Ep	4	Ep	100	Cs	100	Cs
11/20/2024	4.0	D	4.0	D	2.0	D	2.0	D	1	D	1	G
12/18/2024	2.0	Df	2.0	Df	2.0	M	2.0	M	2.0	M	2.0	Df
1/29/2025	5.0	Df	4.0	Df	4.5	Df	4.0	Df	3.0	Df	3.0	Df
2/26/2025	3.0	E	4.0	E	2.5	E	3.0	E	3.0	E	2.0	E
3/26/2025	2.5	G	2.5	Df	3.0	Df	2.5	Df	3.0	Df	3.0	Df
4/16/2025	2.5	E	2.2	E	2.5	E	2.2	E	2.0	E	2.5	Df
5/21/2025	4.0	G	4.0	G	3.0	G	3.0	G	3.0	G	2.0	G
6/18/2025	4.0	Df	4.0	Df	4.0	E	3.0	Df	3.0	Df	3.5	Df
7/30/2025	6.0	Ep	4.0	Ep	3.0	Ep	2.0	Ep	2.0	Ep	2.0	Ep
8/20/2025	4.0	Ep	3.0	Ep	2.0	E	2.0	E	2.0	E	2.0	E
9/17/2025	3.0	M	2.0	E	2.0	E	2.0	E	2.0	Cs	2.0	Cs

Odors at the "intake in use" ranged from 2.0 TON in December 2024 to 7.0 TON in May 2025. Odors in the intake water were described mainly as "grassy" throughout the year with occasional detection of "peaty," and "fishy." Turbidity ranged from 0.6 to 3.2 NTU in the "intake in use". Odor and turbidity data can be seen below in Figure 6.

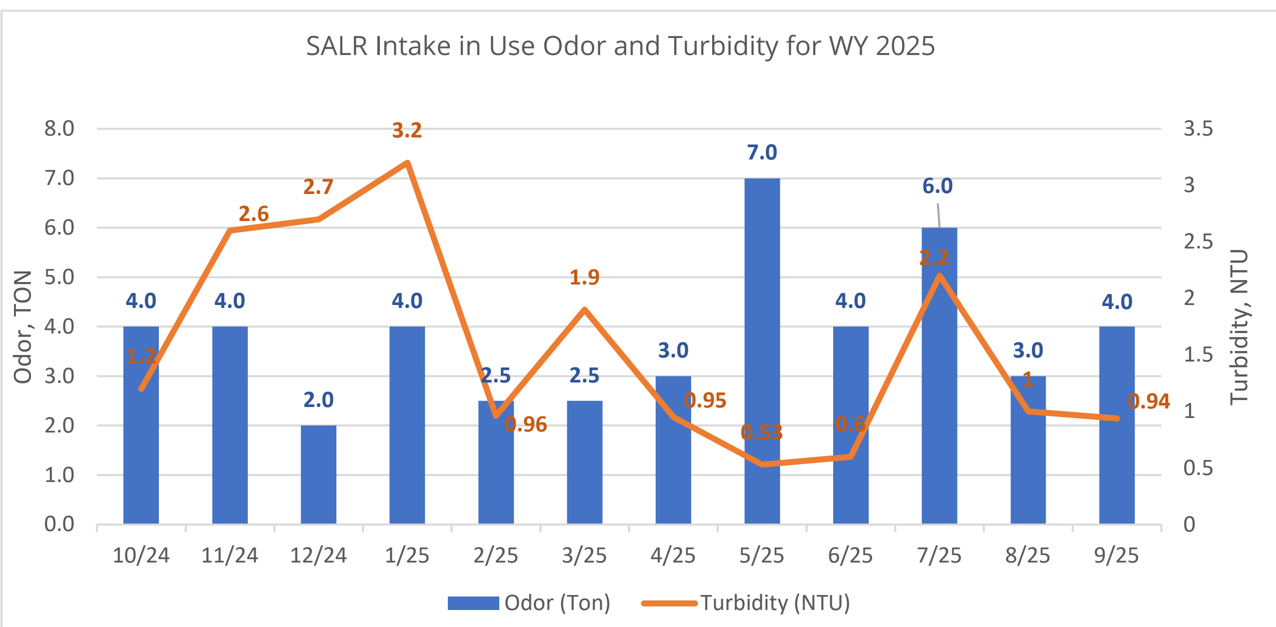

Figure 6: SALR Intake in Use Turbidity and Odor

Coliforms

Coliform (in particular, *Escherichia coli*) bacteria levels are routinely monitored as they are an indicator of potential pathogens in the watershed. Quarterly samples were taken from the active intake, tributaries, and reservoir releases. For comparison, Table 10 shows recreational exceedances based on the "California Health and Safety Code Department's draft "Guidance for Freshwater Recreational Areas."

Table 10 : Bacteriological Exceedance Levels

Parameter	Single Sample (MPN/100 mL)	30-day Average (MPN/100 mL)
Total coliform	10,000	1,000
Fecal coliform	400	200
E. coli	235	126
Enterococcus	61	33

Total coliform and E. coli levels (MPN/100 mL) were measured quarterly at three watershed sites and at the SALR intake during WY 2025. The highest total coliform concentrations occurred in August 2025, with Toro Creek approaching 13,000 MPN/100 mL, the Salinas River reaching about 4,400 MPN/100 mL, and the V-Notch peaking near 9,000 MPN/100 mL, while the SALR intake consistently showed very low or negligible detections. *E. coli* followed a similar seasonal pattern, with peak values observed in Salinas River at approximately 1000 MPN/100 mL in November 2024, while the SALR intake remained consistently below detection or at minimal levels. Across all sites, both total coliform and E. coli were lowest in February 2025, indicating clear seasonal variability in microbial activity. These trends are illustrated in Figure 7 and summarized in Table 11 below, which also show that despite elevated watershed levels, the source water delivered to the City remained unaffected.

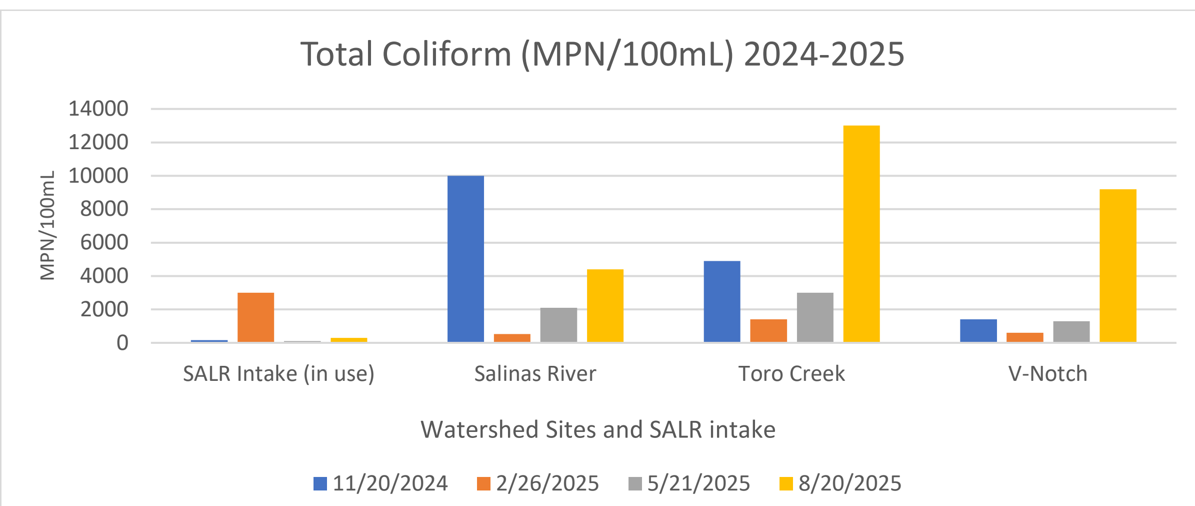

Figure 7: SALR Total Coliform Levels

Table 11: Bacteriological data WY 2024-2025

Sample Site	Date Collected	Total Coliform (MPN/100mL)	*Escherichia coli* (MPN/100mL)
SALR Intake	11/20/24	170	5.2
	2/26/25	3000	< 1
	5/21/25	98	2
	8/20/25	290	3
Salinas River	11/20/24	10000	980
	2/26/25	520	27
	5/21/25	2100	40
	8/20/25	4400	22
Toro Creek	11/6/24	4900	100
	2/11/25	1400	130
	5/20/25	3000	150
	8/11/25	13000	120
V-Notch	11/6/24	1400	2
	2/11/25	610	< 1
	5/20/25	1300	8
	8/11/25	9200	2

Drinking water systems using surface water must follow the Long-Term 2 Enhanced Surface Water Treatment Rule, which reduces disease risk from Cryptosporidium and other microorganisms by targeting high-risk sources. It requires sampling for *E. coli* or Cryptosporidium. As a permitted system treating SALR water, the City must comply, while the County conducts bacteriological tests to monitor general water quality.

Iron and Manganese

To evaluate seasonal trends during WY 2025, reservoir samples collected monthly at the intake were analyzed for iron and manganese. Observed increases in both constituents corresponded with periods of rainfall and rising reservoir levels, suggesting that inflows and watershed runoff contributed to elevated concentrations. Manganese levels ranged from 6.54 to 423 µg/L, while iron concentrations ranged from <20 to 81.3 µg/L. See Table 12 and Figure 8 for results.

Table 12: SALR Intake Iron and Manganese Data WY 2024-2025

Month Collected	Manganese (µg/L)	Iron (µg/L)
Primary MCL	50	300
10/23/2024	13.8	< 20.0
11/20/2024	423	58.8
11/20/2024	416	57.1
12/18/2024	228	46.2
1/29/2025	130	39
2/26/2025	21.2	34
3/26/2025	74.9	81.3
4/16/2025	55.3	60.4
5/21/2025	38.7	27
6/18/2025	40.7	30
7/30/2025	40.6	< 20.0
8/20/2025	8.64	< 20.0
9/17/2025	6.54	< 20.0

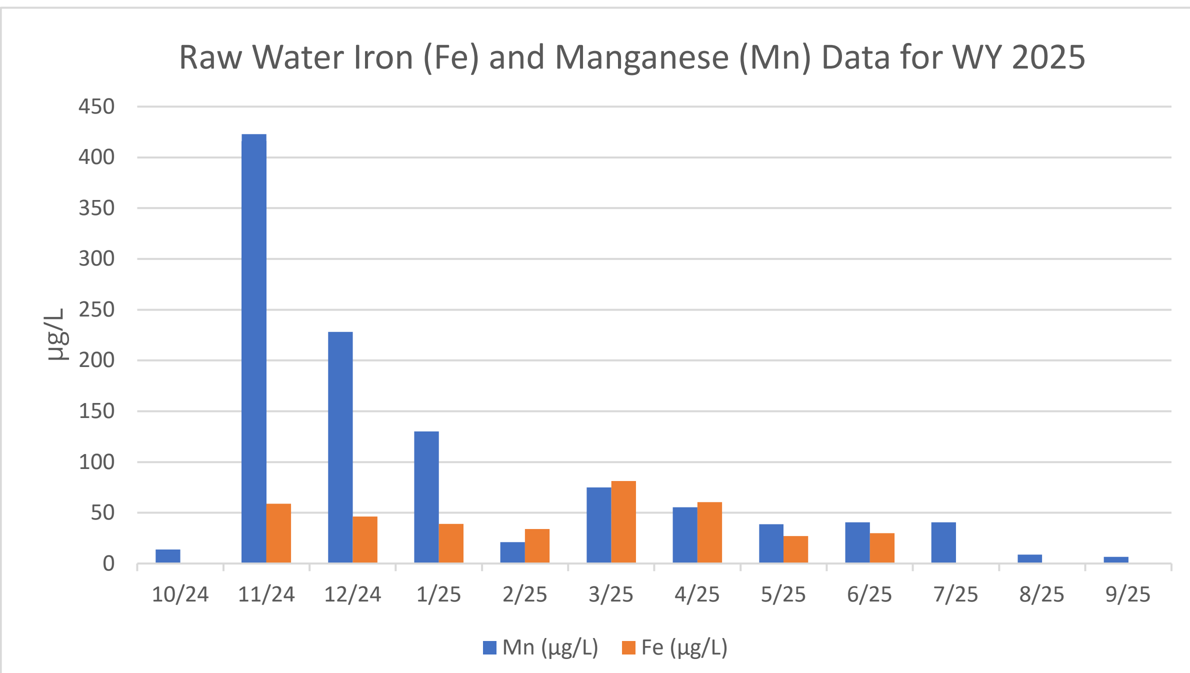

Figure 8: SALR Intake in Use Iron and Manganese

Iron and manganese were monitored from the SALR tributaries and reservoir releases quarterly. The V-Notch sample site is representative of water being released to the Salinas River downstream from the reservoir. Typically, this water is released from the hypolimnion, which often has higher levels of iron and manganese. In WY 2025, iron concentration at the V-notch ranged from 43.3 to 77.9 µg/L and manganese ranged from 59.3 to 185 µg/L.

General Mineral, Trace Metals and Cyanide

During WY 2025, the Intake and other monitoring locations were sampled once for general minerals, cyanide, and Title 22 trace metals; a complete list of analyses is provided in the Appendix. The Intake site was selected as a representative point within the reservoir to assess trace metal contributions from major tributaries.

Results from cyanide and Title 22 trace metal sampling showed that concentrations at the Intake ranged from < 1.0 to 1.2 µg/L for arsenic, 33.2 to 39.6 µg/L for barium, and <20.0 to 23.4 µg/L for aluminum, while all other Title 22 metals were below detection limits. Data can be found in Appendix D.

Volatile Organic Compounds

The latest Volatile Organic Compounds (VOCs) were collected in December of 2024. No VOCs were detectedVOC monitoring remains on a 3-year sampling schedule.

Per-and Polyfluoroalkyl Substances (PFAS)

PFAS are a group of chemicals produced and used for commercial and industrial purposes as well as emergency fire response. They are resistant to degradation and do not break down in the environment. On March 14, 2023, the US EPA announced proposed national primary drinking water maximum contaminant levels for six PFAS: PFOA and PFOS as individual contaminants, and PFHxS, PFNA, PFBS, and GenX as a PFAS mixture.[1] At this time, California has established nonregulatory, health-based advisory levels for PFOA, PFOS, PFBS, and PFHxS. PFAS analysis has not been performed at the reservoir at this time.

Lake Management Programs and Operations

Creek/Watershed Inspections

During quarterly sampling events, County staff visually inspected the tributaries and reservoir releases for water flow, clarity, wildlife, and bank erosion. An inspection checklist was completed for each location by Water Quality staff and photos were taken to help document observations. In WY 2025, the inspections did not note any negative findings. Bald and Golden eagles were sighted as well as other birds and waterfowl, deer, bear tracks, and various insects. The creeks, when flowing, remained free of garbage, and showed little visual evidence of adverse human and/or domestic animal activity.

[1] https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/pfas.html

The area surrounding the reservoir intake structure is off-limits to fishing, hiking, boating, equestrian activity, animal grazing, and other human activities. See Appendix F for an example field checklist.

Invasive Mussel Prevention Program

Quagga and zebra mussels are invasive freshwater bivalves native to the Black and Caspian Seas. Using strong byssal threads, they attach to hard surfaces such as boats, docks, water intake structures, and delivery systems. They reproduce rapidly, producing millions of offspring each year, and can cause significant damage to infrastructure, recreation, and local ecosystems. Since their discovery in the Great Lakes in the 1980s, these mussels have spread to 29 U.S. states, including Arizona, Nevada, Colorado, and California.

Golden mussels (*Limnoperna fortunei*) were first detected in California in 2024, marking a significant new invasive species threat to the state's waterways. Likely introduced through ballast water or contaminated equipment, golden mussels pose serious risks because they reproduce rapidly, form dense colonies, and readily attach to infrastructure such as water intake pipes, pumps, and treatment facilities, leading to operational and economic impacts. Unlike zebra or quagga mussels, golden mussels can tolerate a wider range of temperatures, lower calcium concentrations, and poorer water quality, allowing them to spread into waters previously considered low risk for other invasive mussels. Their high adaptability and fast growth increase the potential for ecological disruption, including competition with native species and altered nutrient cycling, making early detection and management critical for California's water resources.

To help **PREVENT** the spread of invasive mussels to the County of San Luis Obispo's reservoirs, officials at lakes Nacimiento, Lopez, and SALR (Santa Margarita) expect all boaters to comply with a **"CLEAN, DRAIN, DRY"** program. All watercraft must be **"CLEAN, DRAIN, and DRY"** upon arrival at any local lakes.

Monitoring for invasive mussels began in June 2008 and continues year-round. Park Rangers and trained staff inspect vessels for signs of infestation. In addition, staff conduct monthly monitoring of submerged substrates placed at marinas, fishing docks, and log booms to detect early colonization. Preventing the introduction of invasive mussels protects lake infrastructure, public access, the environment, and the local economy. The County of San Luis Obispo maintains a State-approved mussel prevention program.

To find out more about mussel prevention and how to help stop the spread, please visit the following link: https://www.usgs.gov/ecosystems/invasive-species-program/maps

For the most updated map of infested California lakes, scan the QR code below:

Quagga and Zebra Information

Golden Mussel Information

No suspicious organisms or evidence of their existence in the reservoir or watershed has been observed since monitoring began.

Algal Toxins

Cyanobacteria, other freshwater algae, and their toxins are on the USEPA's Contaminant Candidate List. The Contaminant Candidate List (CCL) is a list of contaminants that are currently not subject to any proposed or promulgated national primary drinking water regulations, but are known or anticipated to occur in public water systems. Contaminants listed on the CCL may require future regulation under the Safe Drinking Water Act (SDWA).For more information, please go to the EPA's website at https://www.epa.gov/ccl/contaminant-candidate-list-4-ccl-4-0.2.

Cyanotoxins, from certain types of blue-green algae, in high concentrations have been known to cause illness, paralysis and even death in livestock and wildlife. Algae which have been known to produce toxins, such as Aphanizomenon, Anabaena, Microcystis, and Oscillatoria were found at SALR during certain times of the year. The County has the ability to treat algae at SALR using copper sulfate and/or PAK®27 (a blue-green algaecide from Peroxide Solutions) before it becomes a problem. The California Water Quality Control Board regulates aquatic pesticide application for SALR under a general NPDES permit. This permit regulates the frequency, application amount, and aquatic pesticide used for algae treatment.

The County routinely monitors algae levels. When a blue green algae bloom greater than 2000 cells/mL is detected at SALR sampling and testing for algal toxins is performed. This testing is conducted in the surface water at a depth of approximately 3 feet and at SALR intake in use.

Based on cyanotoxin testing results and or visual indicators confirming the presence of Harmful Algal Blooms, the State requires each body of water to post an advisory level, CAUTION, WARNING or DANGER (Figure 9).

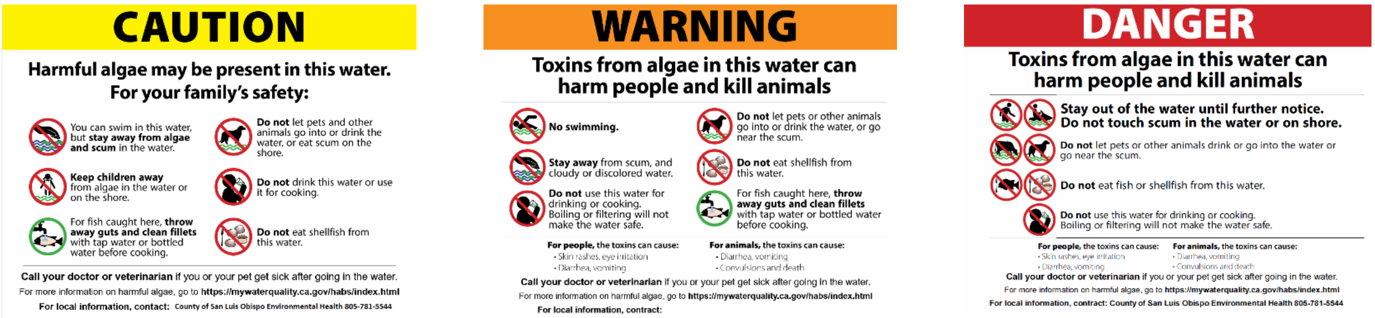

Figure 9: Algal Bloom and Toxin Signage

Operations

Operational priorities include monitoring for invasive species, addressing watershed influences such as wildfire and grazing, and maintaining compliance with regulatory requirements and water quality objectives.

The primary purpose of the SALR Project is to supply water to the City's WTP, and this report outlines the policies governing water storage and release. When visible surface flow occurs in the Salinas River between the dam and its confluence with the Nacimiento River, water is retained in the reservoir except during spillway conditions. For much of the year, however, no visible surface flow occurs, requiring total inflow to be released downstream. Daily inflow is estimated using changes in reservoir elevation along with precipitation, evaporation, diversions, and releases.

During WY 2024, approximately 1,015 acre-feet (330.9 million gallons) of water were delivered to the City's WTP, 1,316 acre-feet were released to the Salinas River, and about 32,355 acre-feet spilled over the spillway.

Overall, water quality remains suitable for its designated beneficial uses. The monitoring program continues to provide sufficient data to guide intake depth selection and confirm water quality, with no significant changes anticipated for WY 2025. All operational data are provided in the Appendix G.

Annual Updates

This WY brought changes to the reservoir, including a noticeable rise in water levels, a fire within watershed boundaries, and a new bathymetric survey providing updated depth and contour measurements. Despite these changes, overall water quality remained largely consistent, showing no significant variation from previous monitoring periods.

Bathymetric Survey

Following the construction of Salinas Dam in 1942, the original capacity and volume tables for Salinas Reservoir were developed using aerial photography by Fairchild Surveys, Inc. and later updated in 1991 by North Coast Engineering (NCE) using photogrammetry from Golden State Aerial Surveys. In 2023, the San Luis Obispo County Flood Control and Water Conservation District commissioned Reese Water and Land Surveying to produce a new reservoir model integrating bathymetric survey data with USGS LiDAR to provide full elevation coverage up to 1326 feet.

The original 1941 capacity curves for Salinas Reservoir did not account for storage below the lowest dam intake elevation of 1222.85 feet. Although later surveys identified the true reservoir floor at 1199.2 feet, this additional depth contributes little to overall capacity since pumping ceases below the intake level.

The findings of the report indicate SALR has lost 1,522 acre-ft since 1991 with a relative mean siltation rate of 0.19% per year. Thus, the revised total calculated capacity of SALR is 22,320 acre-ft. Comparative analysis indicates that SALR experiences roughly twice the relative siltation rate of Lopez Reservoir, despite similar annual sediment deposition volumes. This difference is attributed to variations in watershed size, geology, reservoir geometry, and climate, with Salinas' broad, shallow morphology and warmer conditions promoting greater organic accumulation and self-siltation. Figure 10 illustrates trends in capacity reductions.

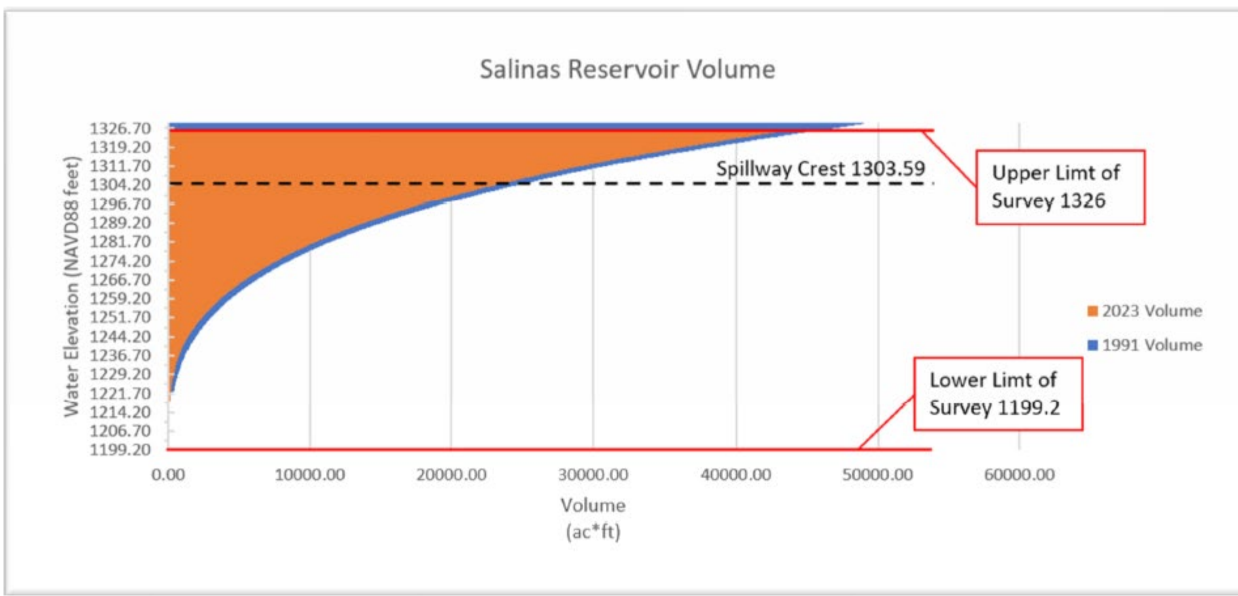

Figure 10: Cumulative Reservoir Capacity (Reese, 2024)

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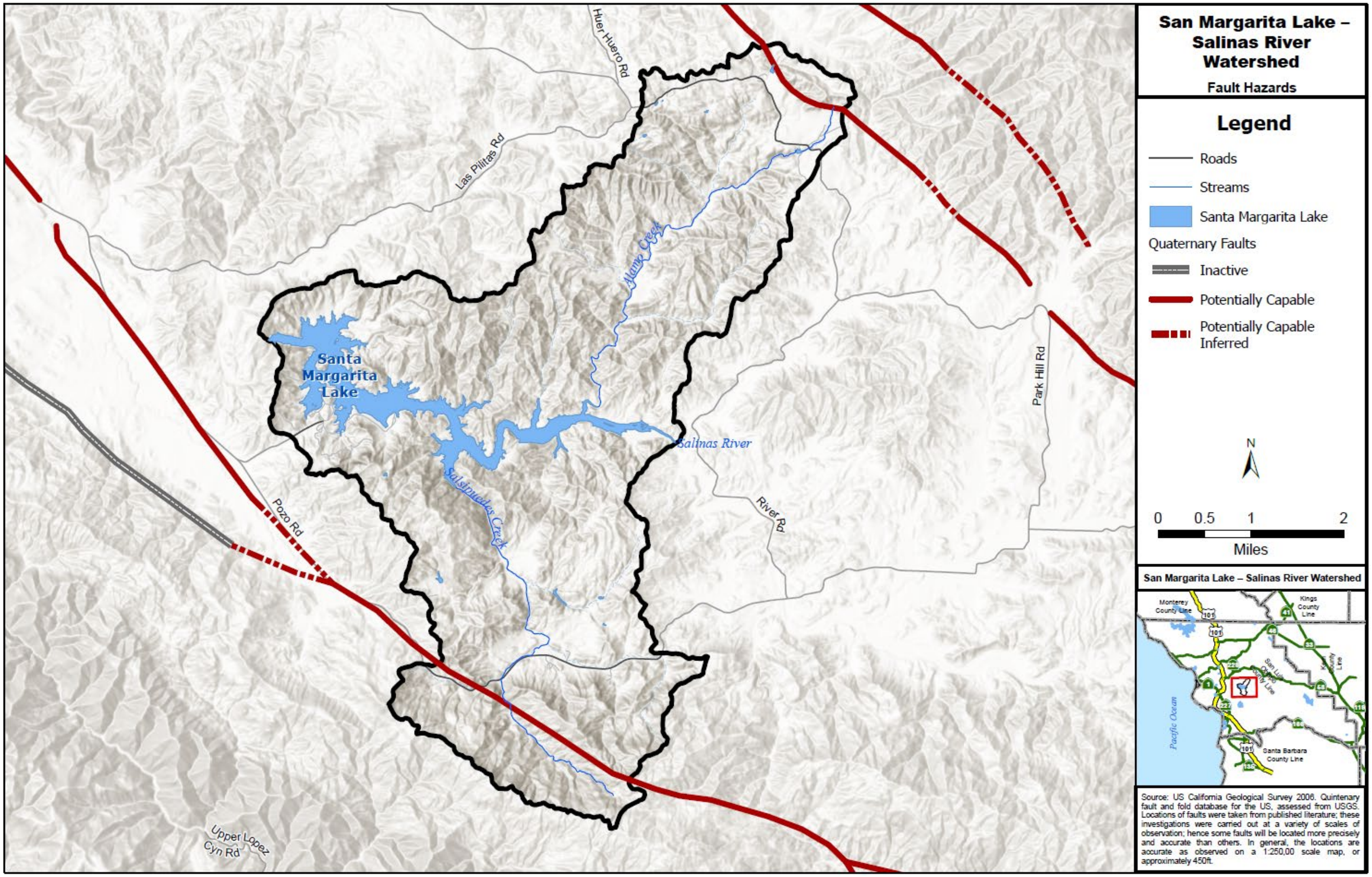
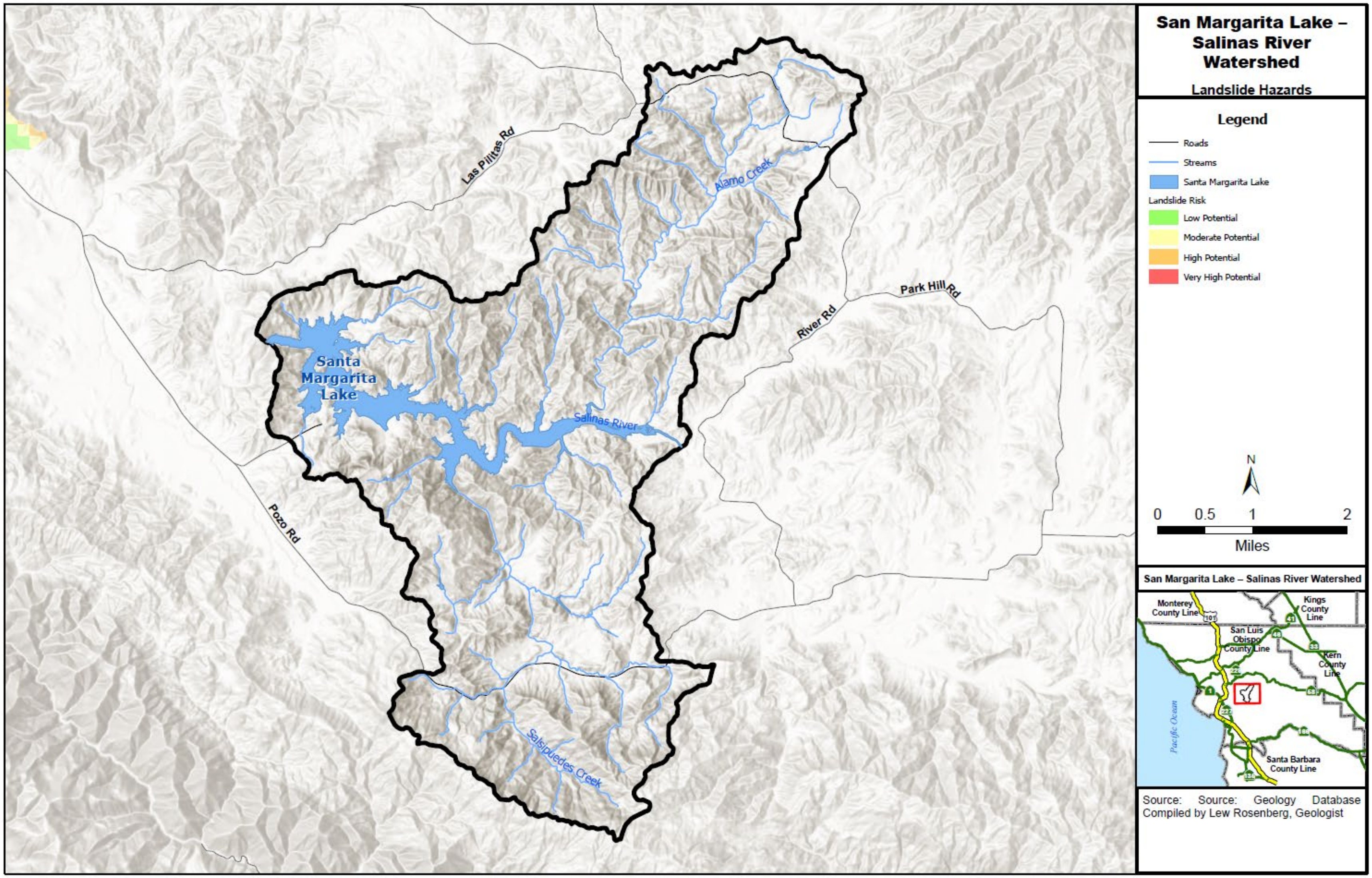
Appendix A: Hazards and Land use Maps

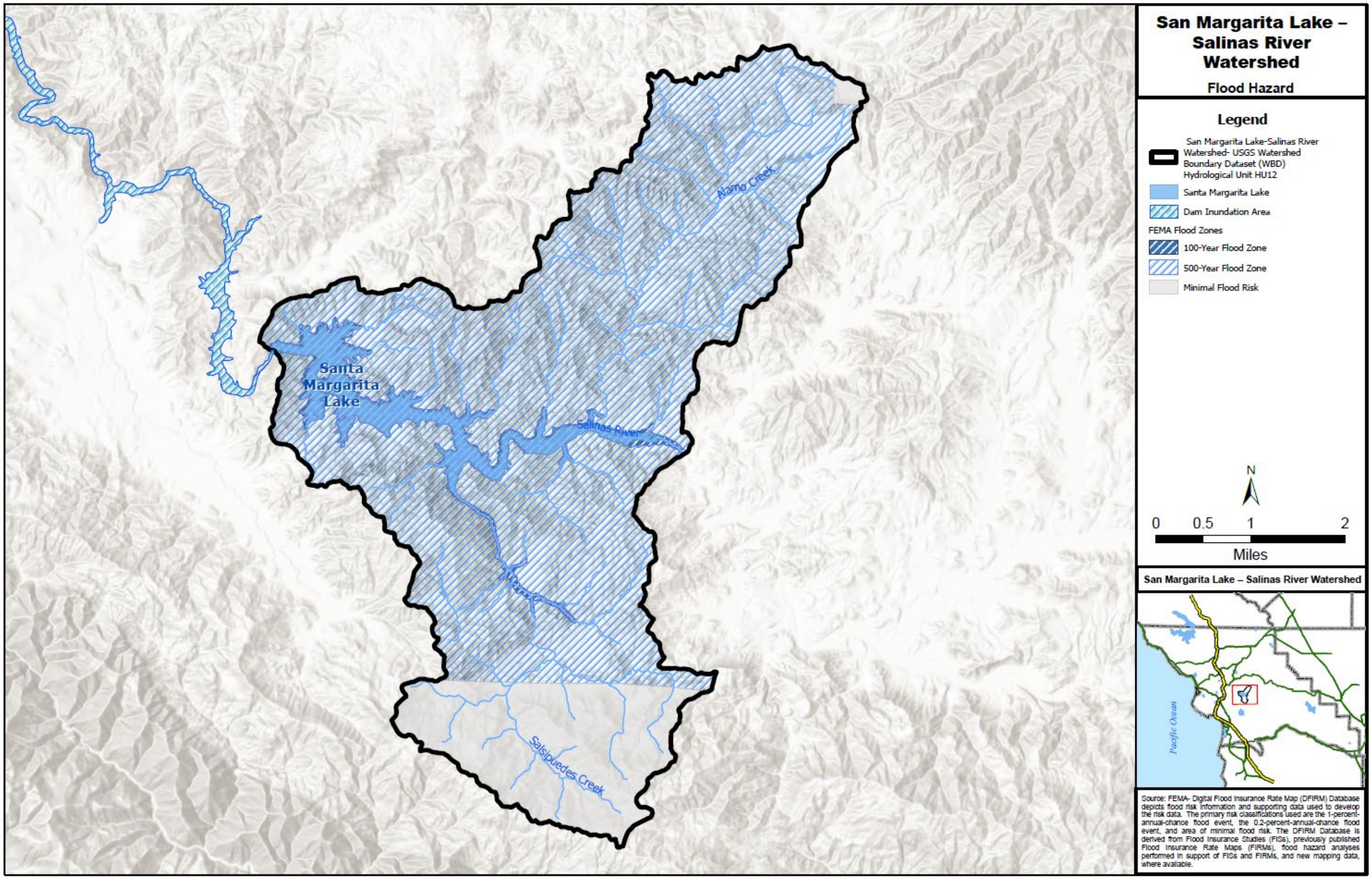
Fault Hazard Map



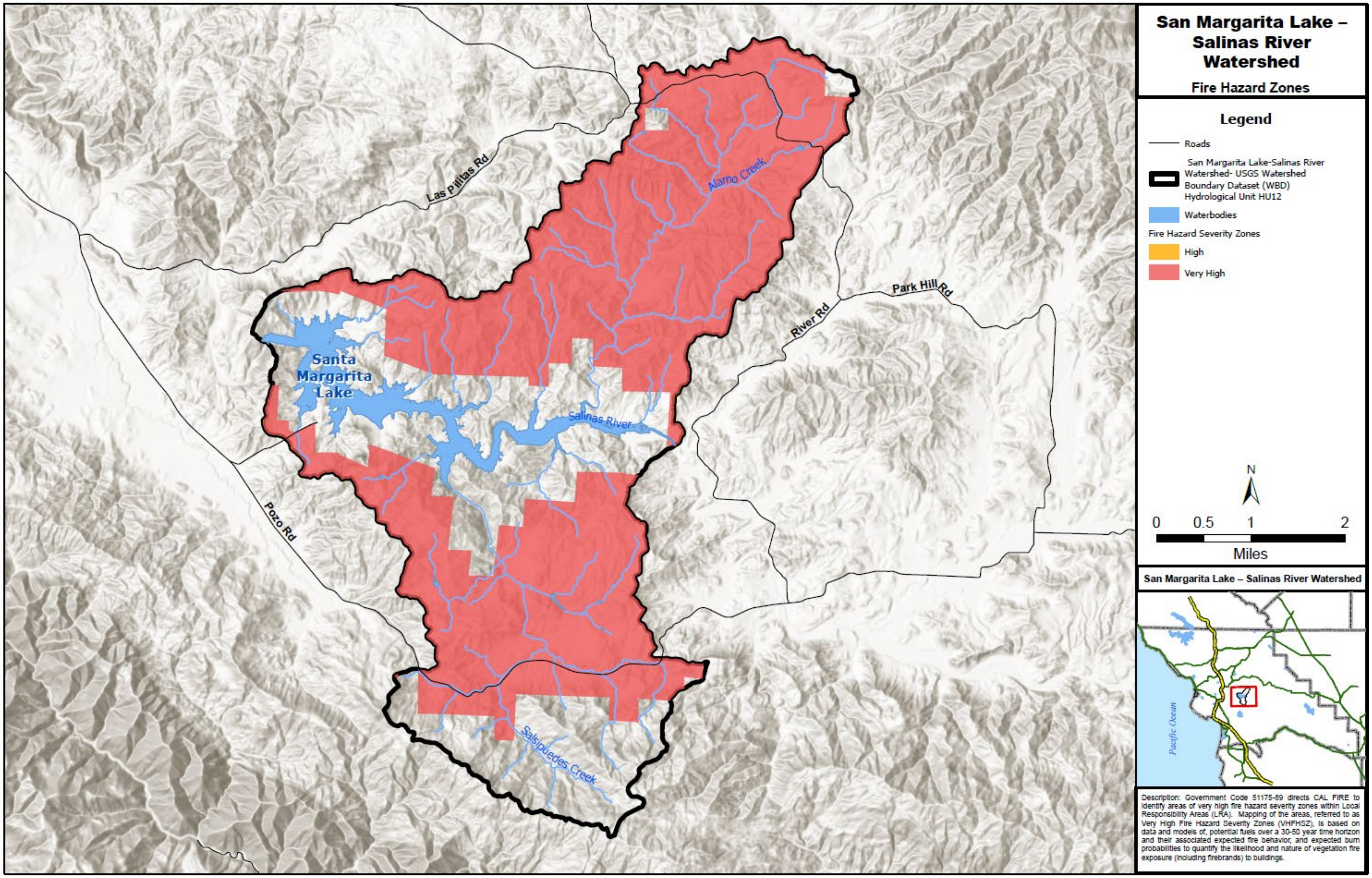
Landslide Hazard Map



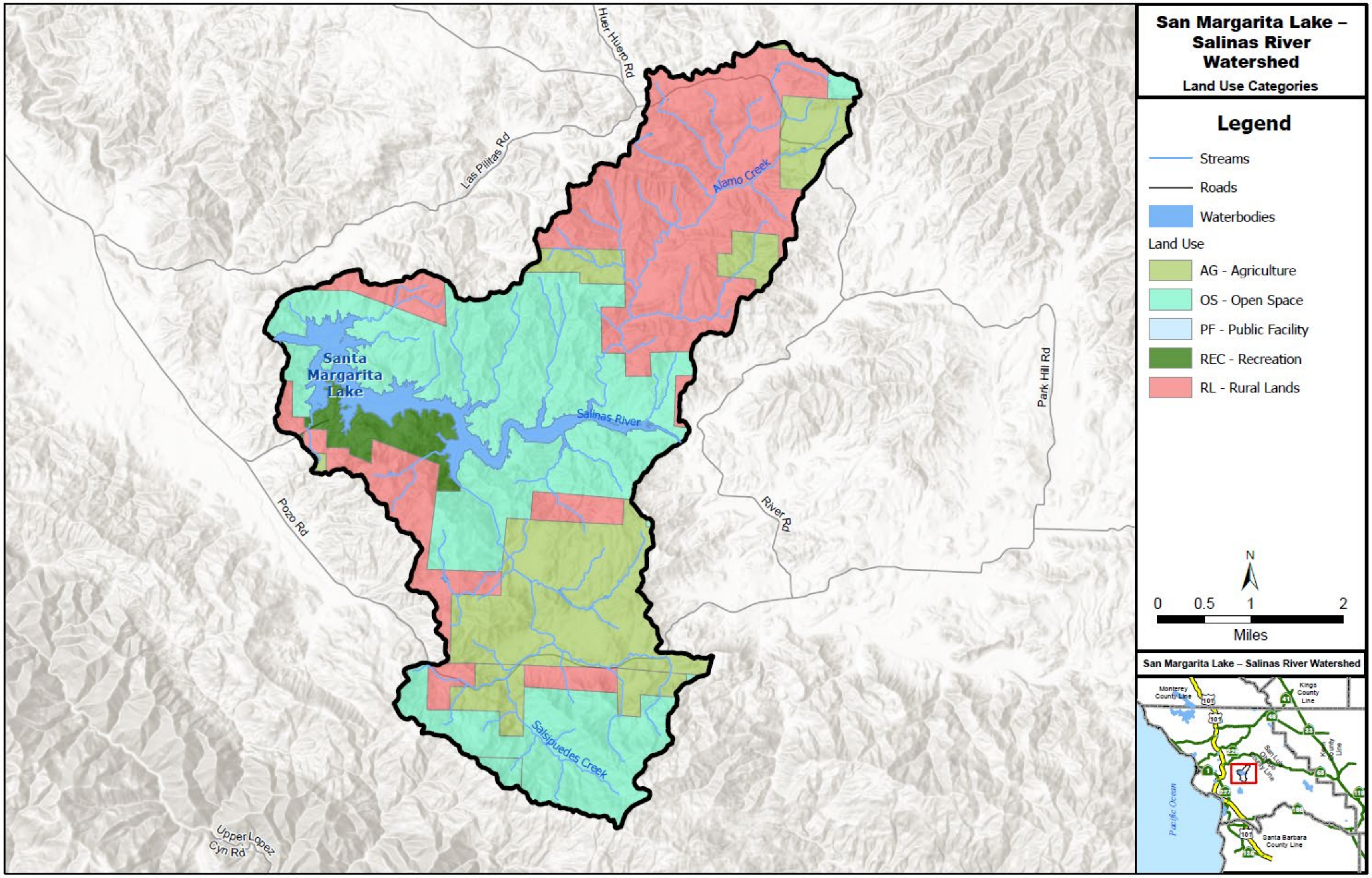
Flood Hazard Map



Fire Hazard Map

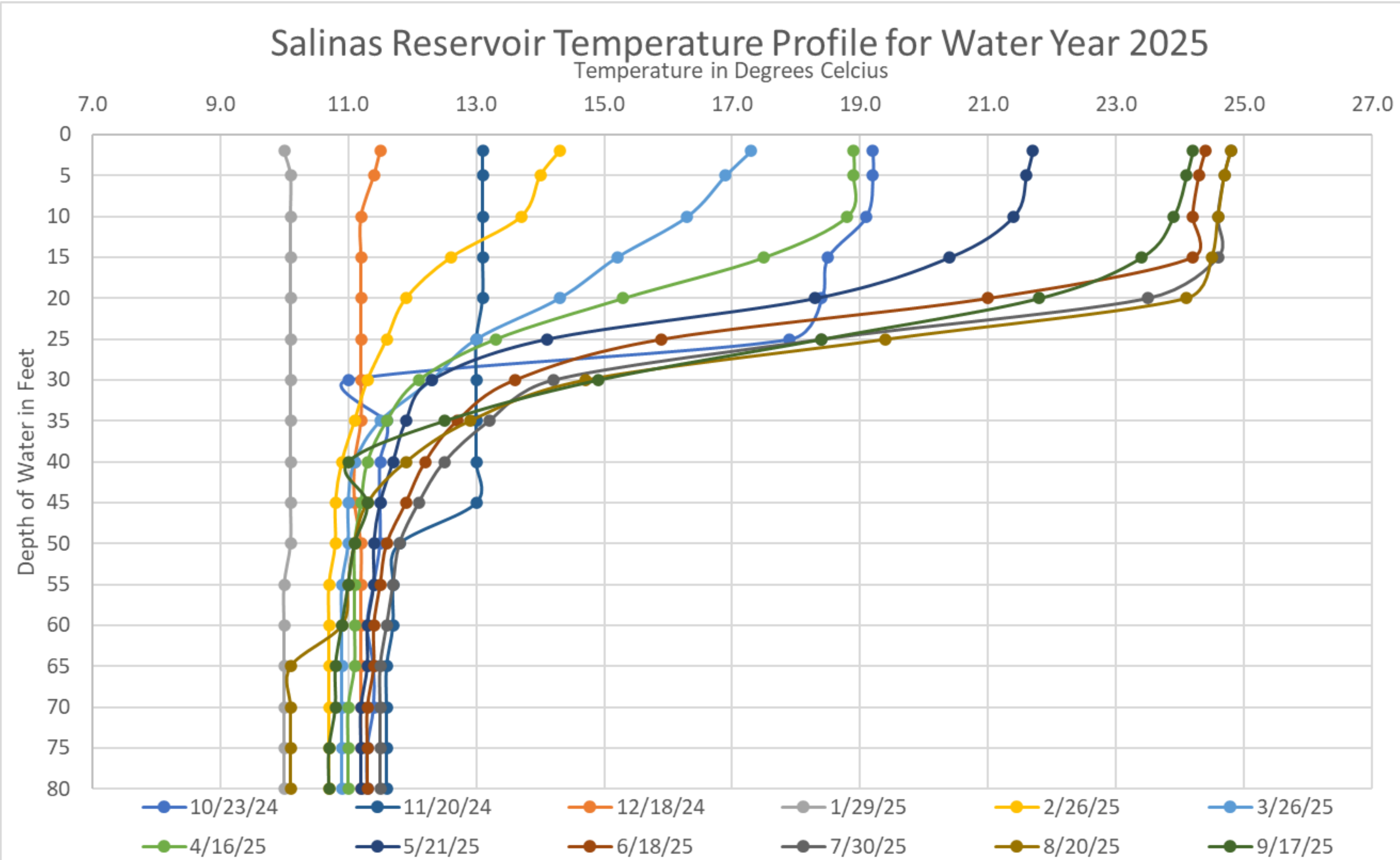


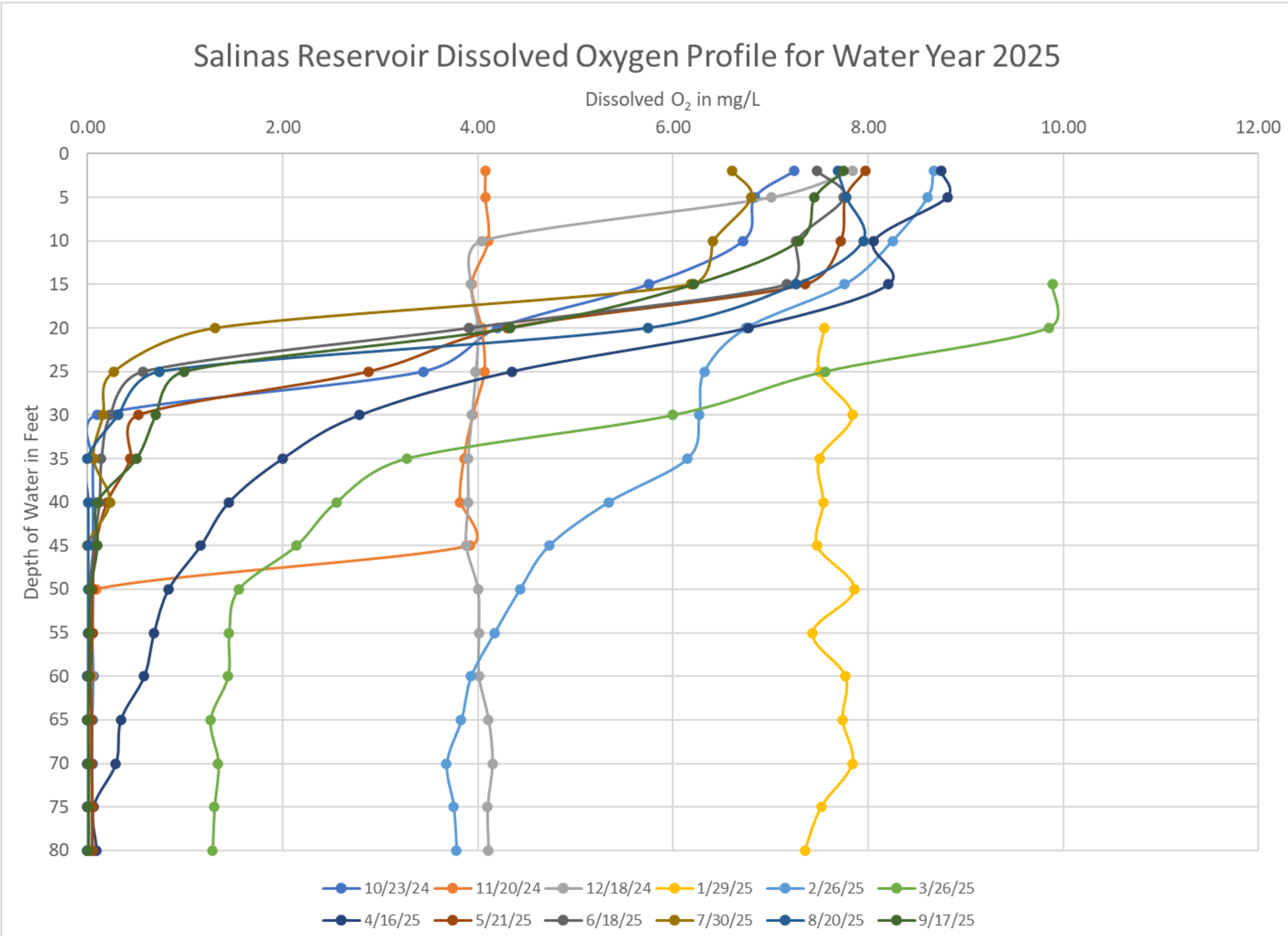
Land Use Map

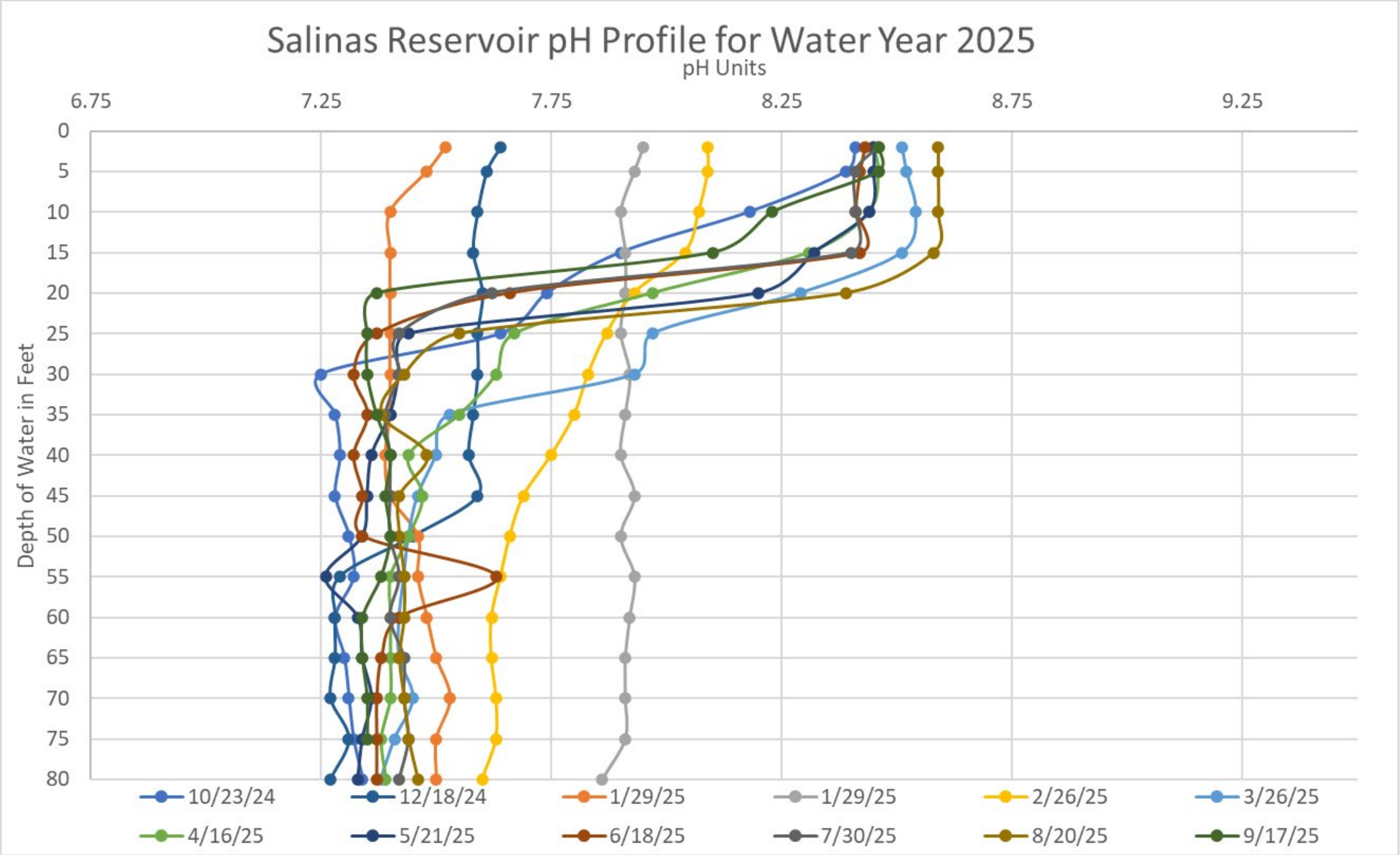

San Margarita Lake – Salinas River Watershed
Land Use Categories
Legend
Streams
Roads
Waterbodies
Land Use
AG - Agriculture
OS - Open Space
PF - Public Facility
REC - Recreation
RL - Rural Lands
N
0
0.5
1
2
Miles
San Margarita Lake – Salinas River Watershed
Santa Margarita Lake
Salinas River
Alamo Creek
Salsipuedes Creek
Huer Huero Rd
Las Pilitas Rd
Pozo Rd
River Rd
Park Hill Rd
Upper Lopez Cyn Rd
Pacific Ocean

Appendix B: Limnology Data

Temperature, DO and pH Profile at Intake Graphs




Salinas Reservoir Dissolved Oxygen Profile for Water Year 2025
Dissolved O_2 in mg/L
0.00
2.00
4.00
6.00
8.00
10.00
12.00
Depth of Water in Feet
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
10/23/24
11/20/24
12/18/24
1/29/25
2/26/25
3/26/25
4/16/25
5/21/25
6/18/25
7/30/25
8/20/25
9/17/25


Salinas Reservoir pH Profile for Water Year 2025
pH Units
6.75
7.25
7.75
8.25
8.75
9.25
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
Depth of Water in Feet
10/23/24
12/18/24
1/29/25
1/29/25
2/26/25
3/26/25
4/16/25
5/21/25
6/18/25
7/30/25
8/20/25
9/17/25

Appendix *C:* Nitrogen and Phosphate Nutrients

Date	Nitrate as N (mg/L)	Nitrite as N (mg/L)	Nitrate + Nitrite as N (mg/L)	TKN (mg/L)	Total Nitrogen (mg/L)	Total Phosphate as P (mg/L)
MCL	**10**	**1**	**10**	**-----**	**-----**	**-----**
Intake/Raw Water Nutrients						
11/20/2024	< 0.40	< 0.40	< 0.2	0.3	< 1.0	0.025
2/26/2025	< 0.40	< 0.40	< 0.2	1.1	1.2	0.28
5/21/2025	< 0.40	< 0.40	< 0.2	0.34	< 1.0	<0.023
8/20/2025	< 0.40	< 0.40	< 0.2	0.46	< 1.0	< 0.023
Salinas River						
11/20/2024	< 0.40	< 0.40	< 0.2	0.18	< 1.0	0.034
2/26/2025	< 0.40	< 0.40	< 0.2	0.11	< 1.0	< 0.023
5/21/2025	< 0.40	< 0.40	< 0.2	< 0.10	< 1.0	< 0.023
8/20/2025	< 0.40	< 0.40	< 0.2	0.56	< 1.0	0.064
Toro Creek						
11/20/2024	0.76	< 0.40	0.8	< 0.10	< 1.0	0.091
2/26/2025	1.1	< 0.40	1.1	0.22	1.3	0.056
5/21/2025	0.47	< 0.40	0.5	0.12	< 1.0	0.055
8/20/2025	0.45	< 0.40	0.5	0.25	< 1.0	0.17
V-Notch						
11/20/2024	< 0.40	< 0.40	< 0.2	0.21	< 1.0	< 0.023
2/26/2025	< 0.40	< 0.40	< 0.2	0.5	< 1.0	< 0.023
5/21/2025	< 0.40	< 0.40	< 0.2	0.35	< 1.0	< 0.023
8/20/2025	< 0.40	< 0.40	< 0.2	0.44	< 1.0	< 0.023

Appendix D: Metals and General Mineral Data

Metals

Constituent (Results in ug/L)	Aluminum	Arsenic	Barium	Boron	Iron	Manganese
Primary MCL (ug/L)	**1000**	**10**	**1000**	**----**	**-----**	**-----**
Secondary MCL (ug/L)	**200**	**-----**	**-----**	**1000**	**300**	**50**
Salinas River						
11/6/24	< 20.0	`	-----	91.1	574	342
2/11/25	< 20.0	-----	-----	78.3	163	49.6
5/20/25	< 20.0	< 1.0	43.2	82.9	279	87.6
8/11/25	< 20.0	-----	-----	107	388	249
Toro Creek						
11/6/24	26.0	-----	-----	59.0	300	44.4
2/11/25	< 20.0	-----	-----	62.9	178	36.8
5/20/25	< 20.0	< 1.0	25.7	65.7	137	29.2
8/11/25	278	-----	-----	70.6	1870	122
SALR Intake						
10/23/24	-----	-----	-----	-----	< 20.0	13.8
11/20/24	< 16	1.2	39.6	58.6	58.8	423
12/18/24	-----	-----	-----	-----	46.2	228
1/29/25	-----	-----	-----	-----	39	130
2/26/25	23.4	< 1.0	33.6	57.9	34	21.2
3/26/25	-----	-----	-----	-----	81.3	74.9
4/16/25	-----	-----	-----	-----	60.4	55.3
5/21/25	< 20.0	< 1.0	33.2	59.5	27	38.7
6/18/25	-----	-----	-----	-----	30	40.7
7/30/25	-----	-----	-----	-----	< 20.0	40.6
8/20/25	< 20.0	1.1	32.5	68.6	< 20.0	8.64
9/17/25	-----	-----	-----	-----	< 20.0	6.54
V-Notch						
11/6/24	< 20.0	-----	-----	60.2	64.5	60.6
2/11/25	< 20.0	-----	-----	60.4	43.3	109
5/20/25	< 20.0	< 1.0	32.6	57.8	45.0	59.3
8/11/25	< 20.0	-----	-----	110	77.9	185

General Mineral

	Aggressive Index	Alkalinity as CaCO3	Calcium	Chloride	Electrical Conductivity	Fluoride	Hardness as CaCO3	Langelier Index	Magnesium	pH	pH-Field	Potassium	Sodium	Sulfate	Total Dissolved Solids	Temperature
Primary MCL					**1600**											
Secondary MCL				**250**		**2**				**6.5-8.5**				**250**	**500**	
Date	**Units**	**mg/L**	**mg/L**	**mg/L**	**umhos/cm**	**mg/L**	**mg/L**	**Units**	**mg/L**	**SU**	**SU**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**°C**
Salinas River																
11/6/24	12.4	194	69.7	24.9	810	0.35	341	0.240	40.5	6.86	7.87	1.35	49.2	190	540	12.0
2/11/25	12.1	154	54.5	21.9	670	0.35	263	-0.210	30.8	8.45	7.76	1.01	40.5	150	450	11.0
5/20/25	11.8	158	55.6	20.6	660	0.43	271	-0.300	32.1	7.92	7.44	< 1.00	41.3	150	440	15.5
8/11/25	11.9	193	62.4	24.0	750	0.38	310	-0.140	37.4	7.17	7.41	1.24	46.5	170	480	17.2
Toro Creek																
11/6/24	11.9	118	39.2	19.5	460	0.44	171	-0.200	17.7	7.34	7.84	1.16	33.2	71	290	13.8
2/11/25	11.9	118	40.6	21.4	490	0.44	177	-0.320	18.4	8.38	7.85	1.23	33.6	81	340	12.7
5/20/25	12.0	126	41.9	20.7	490	0.50	185	-0.049	19.6	7.83	7.91	< 1.00	35.3	78	300	14.9
8/11/25	12.0	128	40	20.6	480	0.41	177	-0.042	18.9	7.31	7.88	1.02	34.8	75	340	16.1
SALR Intake																
11/20/24	11.8	120	40.7	14.0	460	0.26	195	-0.320	22.8	7.70	7.62	2.59	25.3	88	310	13.2
2/26/25	12.2	122	41.8	13.4	670	0.25	199	0.090	22.9	7.45	8.12	2.07	25.7	91	440	13.9
5/21/25	12.3	124	40.5	13.3	480	0.24	200	0.330	23.2	8.15	8.20	2.11	28.3	85	320	18.3
8/20/25	12.7	134	42.3	14.6	500	0.26	205	0.860	25.2	8.34	8.58	2.04	28.0	94	320	24.5
V-Notch																
11/6/24	12.4	123	43.8	13.1	490	0.27	213	0.250	25.1	7.36	8.25	1.84	27.5	100	300	12.2
2/11/25	12.4	126	42.5	13.4	480	0.24	202	0.180	23.3	8.29	8.28	2.26	25.3	92	330	9.5
5/20/25	12.4	122	41.9	13.5	480	0.28	200	0.470	23.2	7.81	8.34	2.07	25.3	90	330	18.3
8/11/25	13.1	156	45.1	17.4	570	0.35	226	1.1	27.4	7.55	8.81	2.73	35.7	100	360	21.3

Some additional constituents monitored at our source water but did not detect above State reporting limits: antimony, beryllium, cadmium, chromium, copper, cyanide, lead, mercury, MBAS, nickel, perchlorate, selenium, silver, thallium, VOC, and zinc.

Note- Both Alamo and Salispuedas Creek were dry during October 2024- September 2025.

Appendix F: Creek and Watershed Inspection Form

Creek/Watershed Inspection checklist

Date: ____________ **Time:** ____________

GPS coordinates: **N:** ____________ **W:** ____________

Site/Location: **SALINAS RESERVOIR –**

Picture/Photo documentation? **Yes / No (Remember to archive images)**

Investigator(s): ____________

Routing to:

System Chemist		
Water Quality Manager	Faith Zenker	

Inspection items are listed below. Check the appropriate box to match observations.

I. In-stream characteristics

1. Water Flow: Present conditions: ____________

☐ in channel ☐ flooding over banks ☐ dry/pooling ☐ no flow

Presence of naturally occurring organic material in stream:

Logs or large woody debris: ☐ None ☐ occasional ☐ plentiful

Leaves, twigs, root mats, etc. ☐ None ☐ occasional ☐ plentiful

2. Water odor: ☐ no water present

☐ natural/none ☐ gasoline

☐ sewage ☐ chlorine

☐ rotten egg ☐ chemical

☐ other ____________

3. Water Surface: ☐ no water present

☐ clear ☐ natural oily sheen

☐ foamy ☐ oily sheen (petroleum)

☐ other ____________

4. Water clarity: check all that apply (best determined by viewing water in a clear container)

☐ turbid - suspended matter in water ☐ sediment ☐ blue/green algae

☐ tannic - clear water naturally stained orange/brownish due to organic acids in water

☐ no staining / no suspended matter ☐ other (chemical discharges, dyes)

Notes on water clarity:

____

____

____

____

5. Stream bed: check all that apply

☐ stream bed can be seen ☐ sediment buildup ☐ blue/green algae growth

☐ stream bed can not be seen ☐ other types of growths

Notes on stream bed observations:

____

6. Bank erosion:

How vegetated are the banks, looking up and down stream, for the length of your reach (circle a percentage)?

Vegetated banks — Bare/Eroded Banks

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0%

What visual criteria did you use to assess the percentage above (check all that apply)?

☐ sediment ☐ obvious loss of soil ☐ soil covered with vegetation

☐ steep slopes (banks are U shaped) ☐ gentle slopes

☐ exposed roots ☐ no exposed roots

II. Visual Biological Survey

1. Wildlife in or around the stream: ☐ no wildlife observed

☐ amphibians ☐ waterfowl ☐ birds ☐ reptiles ☐ crustaceans

☐ domesticated / farm animals (indicate type below) ☐ insect life

Notes on wildlife:

2. Fish in the stream:

☐ none present ☐ yes, but rare ☐ yes, abundant

If present, estimate size

☐ small (1 - 2") ☐ medium (3 - 6") ☐ large (7" and above)

3. Dumping (any)

☐ none present ☐ yes, but rare ☐ yes, abundant

If dumping is present, indicate type

☐ construction material ☐ appliances ☐ other

Notes on dumping:

Additional Observations and comments:

YES	NO	Inspection item
		Sampling?

If yes, complete second page of this form which contains the Sampling checklist.

Creek/Watershed Sampling checklist

If sampling, collect for the following:
Remember to check only the items applicable to your specific site

Constituents	**Type of sample**	**Units**	**Field Reading**
Flow volume	estimate	gal/d	
Flow rate	estimate	gal/m	
pH	grab	pH units	
Temperature	grab	° C	
Dissolved oxygen	grab	mg/L	
Total chlorine residual	grab	mg/L	

Constituents below require samples to be collected.

Constituents	**Type of sample**	**Collected**	**In-house / contract lab?**
General Mineral	Grab 1LPR, 1LN		**In-house / contract lab**
TPO4-P	Grab 250mL SR		**In-house / contract lab**
TKN	Grab 250mL SR		**In-house / contract lab**
Aluminum	N		**Contract lab**
MPN-MUG-MD2	BR		**In-house**
Total suspended solids	grab		**In-house**
Settleable solids	grab		**In-house**
Total dissolved solids	grab		**In-house**
Oil and grease	grab		**Contract lab**
Color	grab		**In-house**
Turbidity	grab		**In-house**
Acute toxicity	grab		**Contract lab**
Other as specified	grab		**In-house / contract lab**

List other requested analyses:

Appendix G: Summary Operational Report 10/1/2024 to 9/30/2025

Summary Salinas Reservoir Operational Report 10/1/24 to 9/30/25												
Month/Yr	Capacity Change (AF)	Pipeline Diversion (MG)	Pipeline Diversion (AF)	Downstream Release (AF)	Spillway Discharge (AF)	Total Discharge (AF)	Pan Reading (inch)	Lake Evaporation (AF)	Precipitation (inches)	Precipitation (AF)	Daily Outflow (AF)	Inflow (AF)
Oct-24	-373	3.49	10.71	138.31	0.00	149.02	6.51	316.68	0.00	0.00	465.71	92.71
Nov-24	-221.4	98.86	303.39	111.6	0.00	414.99	2.69	112.35	2.16	117.21	410.13	188.73
Dec-24	-523.2	126.36	387.8	483.58	0.00	871.37	2.20	77.83	0.73	41.30	907.9	384.7
Jan-25	-346	141.54	434.37	223.18	0.00	657.55	2.34	77.56	0.52	29.79	705.32	359.32
Feb-25	2021.4	118.29	363.01	271.2	0.00	634.21	2.30	80.66	7.52	410.66	304.2	2325.6
Mar-25	695.2	127.14	390.18	27.27	0.00	417.45	3.63	140.63	3.31	194.41	363.68	1058.88
Apr-25	-134.7	128.4	394.05	14.14	0.00	408.19	6.57	267.98	0.51	14.22	661.96	527.26
May-25	-747.5	104.73	321.4	278.47	0.00	699.87	8.70	364.73	0.00	0.00	1064.6	317.1
Jun-25	-750.5	89.95	276.04	109.65	0.00	385.69	10.59	451.03	0.00	2.87	833.85	83.35
Jul-25	-619.5	52.5	161.13	13.86	0.00	174.99	10.48	459.19	0.00	0.56	633.62	14.12
Aug-25	-516.3	26.13	80.19	3.21	0.00	83.4	10.16	464.62	0.00	0.00	548.02	31.72
Sep-25	-316	2.65	8.14	3.11	0.00	11.25	7.07	320.64	0.00	3.21	349.31	12
Totals	**-1831.5**	**1020.04**	**3130.41**	**1677.58**	**0**	**4907.98**	**73.24**	**3133.9**	**14.75**	**814.23**	**7248.3**	**5395.49**