# *Whale Rock Reservoir*

# *County Service Area (CSA) 10 - Cayucos*

# *Watershed Sanitary Survey*
# *Five-Year Update (2021-2025)*

Prepared By:
County of San Luis Obispo
Department of Public Works
Water Quality Division

San Luis Obispo CSA 10 – Cayucos

Whale Rock Reservoir

PWSID: 4010025

March 2026

**County of San Luis Obispo**
**Department of Public Works**

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# Watershed Sanitary Survey
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# Contents

## Table of Tables



## Table of Figures



## Table of Appendices

# SYSTEM INFORMATION

**SWRCB-DDW System No.:** 4010025
**System Name:** San Luis Obispo CSA 10 – Cayucos Water Treatment Plant

**Survey Period:** January 1, 2020, through December 31, 2025

## PREPARER INFORMATION

**Name of Agency and Address:**
County of San Luis Obispo
Department of Public Works
Water Quality Division
County Government Center, Room 206
San Luis Obispo, CA 93408

## SYSTEM INFORMATION

**Name of Watershed:** Old Creek Watershed (Whale Rock Reservoir)
**Total Watershed Area:** 13,000 acres
**Reservoir Capacity:** 38,967 acre-ft
**Weir Crest:** 216'
**Storage Tanks:** 0.25 Million Gallon Baffled Clearwell Tank
**Intake Elevations:**
Intake 1 190'
Intake 2 160'
Intake 3 130'
Intake 4 100'
Intake 5 70'

**Name(s) of water treatment plant using the watershed as a source:**
County Service Area 10 - Cayucos Water Treatment Plant
City of San Luis Obispo Water Treatment Plant
California Men's Colony Water Treatment Plant

# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| CAWO | Cayucos Area Water Organization |
| CBMWC | Cayucos Beach Mutual Water Company |
| CE | Counting error |
| Cfs | Cubic feet per second |
| CFU/mL | Colony forming units per milliliter. |
| City | City of San Luis Obispo |
| County | County of San Luis Obispo |
| CSA10 | County Service Area 10 |
| CSA10A | County Service Area - Cayucos Distribution |
| CT | Concentration times time |
| CWTP | Cayucos Water Treatment Plant |
| D/DBP | Disinfectants and disinfection byproducts |
| DBP | Disinfection byproducts |
| DLR | Detection Level for Purposes of Reporting |
| *E. coli* | Escherichia coli |
| ERP | Emergency Response Plan |
| Gal | Gallon |
| GrossA | Gross alpha radioactivity |
| *HAA* | Haloacetic acids |
| HPC | Heterotrophic plate count |
| LI-C | Langelier Index |
| LT2ESWTR | Long Term 2 Enhanced Surface Water Treatment Rule |
| MBAS | Methylene blue active substances (surfactants) |
| MCL | Maximum contaminant level |
| MG | Million Gallon |
| mg/L | Milligrams per liter |
| MIB | 2-methylisoborneal |
| MPN | Most probable number |
| MPN/100mL | Most probable number per 100 milliliters |
| MRMWC | Morro Rock Mutual Water Company |
| n | Number of samples |
| NTU | Nephelometric turbidity unit |
| °C | Degrees centigrade |
| pCi/L | pico Curies per liter |
| pH | pH measured in the lab. |
| pH-Field | pH measured in the field. |
| Ra228 | Radium 228 |
| SOC | Synthetic organic compounds |
| SWRCB-DDW | State Water Resources Control Board – Division of Drinking Water |
| SWTR | Surface Water Treatment Rule |
| TDS | Total dissolved solids |
| Temp | Temperature |
| *THM* | Trihalomethanes |
| TOC | Total organic carbon |
| TON | Threshold odor number |
| ug/L | Micrograms per liter |
| umhos/cm | Micromhos per centimeter |
| VOC | Volatile organic compound |
| WRC | Whale Rock Commission |

# WATERSHED SURVEY CHECKLIST

| Category | Significant | Not Significant | Comments |
|---|---|---|---|
| I. GENERAL | | | |
| A. Changes in available water quantity? | | X | |
| B. Construction of water diversion or reservoir projects. | | X | |
| C. Relocation of intakes | | X | |
| II. CONTAMINANT SOURCES | | | |
| A. Wastewater Treatment | | X | |
| 1. Treatment plant effluent discharges | | X | |
| 2. Storage, transport, treatment, disposal to land | | X | |
| 3. Residential septic systems | | X | ~30 residential septic tanks |
| B. Reclaimed Water | | X | |
| C. Urban Areas | | X | |
| D. Agricultural Crop Land Use | | X | |
| E. Pesticide/Herbicide Use | | X | |
| F. Grazing Animals | X | | Cattle grazing two miles upstream. |
| G. Concentrated Animal Facilities (feedlots, etc.) | | X | |
| H. Wild Animal Populations | | X | |
| I. Mines | | X | |
| 1. Active | | X | |
| 2. Inactive | | X | |
| J. Disposal Facilities | | X | |
| 1. Solid waste | | X | |
| 2. Hazardous waste | | X | |
| K. Logging | | X | |
| L. Recreation | | X | |
| Reservoir body contact | | X | |
| Reservoir body contact | | X | |
| M. Unauthorized Activity | | X | |
| 1. Illegal dumping | | X | |
| 2. Underground storage tank leaks | | X | |
| N. Traffic Accidents/Spills | | X | |
| 1. Transportation corridors (Lake) | | X | |
| 2. History of accidents/spills | | X | |
| O. Groundwater Discharges | | X | |
| 1. Natural discharge | | X | |
| 2. Gas, oil, geothermal wells | | X | |
| P. Seawater Intrusion | | X | |
| Q. Geologic Hazards | | X | |
| 1. Landslides | | X | |
| 2. Earthquakes | | X | |
| 3. Floods | | X | |
| R. Fires | | X | |
| 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

The Whale Rock Reservoir watershed continues to maintain high water quality. The absence of industrial activities, restricted public access, and limited land use contribute to the integrity and reliability of the reservoir as a safe drinking water source.

To strengthen watershed management, expanded monitoring is recommended for the primary tributaries to Whale Rock Reservoir, Cottontail and Old Creek. Additional data are needed to better characterize potential changes to source water quality over time. Implementing a regular sampling program will require coordination with the City of San Luis Obispo (City) and local landowners.

Climate variability presents an increasing challenge, particularly prolonged drought followed by high precipitation storm events that can introduce significant runoff and degrade influent water to the San Luis Obispo County Service Area 10 (CSA 10) - Cayucos Water Treatment Plant (CWTP). Proactive planning is necessary to address these fluctuations and maintain treatment reliability. In addition, evaluating active and standby groundwater wells for expanded use would improve system resilience during drought and emergencies, helping ensure a consistent and dependable drinking water supply.

## INTRODUCTION AND PURPOSE

Surface water (lakes, reservoirs, rivers, and groundwater under the influence of surface water) can contain contaminants that pose risks to drinking water consumers. In response to the 1996 Safe Drinking Water Act amendments, the federal government and the State of California established regulations to reduce these risks, including the requirement to complete a watershed sanitary survey at least every five years (California Code of Regulations, Title 22, Chapter 17, Article 7).

This Watershed Sanitary Survey covers the Whale Rock Reservoir watershed. This reservoir is used as source water for the CWTP and the City. Information contained in this survey was collected by obtaining water quality and field survey data from the last five years, January 2021 through December 2025. The initial survey was completed in January 1996. This is the sixth 5-year update to the original survey.

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

water treatment requirements, and provides recommendations for any necessary corrective actions. The survey also supports long-term watershed management and planning.

# WATERSHED PHYSICAL AND HYDROGEOLOGICAL DESCRIPTIONS

## Whale Rock Reservoir Watershed

The Whale Rock Reservoir (see Figure 1) is located on Old Creek Road, about half a mile east of Cayucos. The State Department of Water Resources began planning, designing, and constructing the Whale Rock Dam in 1958, completing it in 1961 to supply water to the City, the California Men's Colony, and California Polytechnic State University, San Luis Obispo. Together, these three agencies form the Whale Rock Commission.

In 1996, downstream water rights were granted to the Cayucos Area Water Organization (CAWO), which includes the San Luis Obispo County Service Area 10A (CSA 10A) - Cayucos, Cayucos Beach Mutual Water Association (CBMWA), Morro Rock Mutual Water Company (MRMWC), and the Cayucos-Morro Bay Cemetery District. CSA 10 built the CWTP in 1997 and continues to operate it for CAWO participants.

The reservoir is part of the Old Creek Watershed, which spans approximately 13,000 acres (20.6 square miles) within the Santa Lucia Range and the County's Planning Area (NOAA, 2013; SLO County, 2021). The watershed is physically bisected by the Whale Rock Dam, creating two distinct hydrological environments.

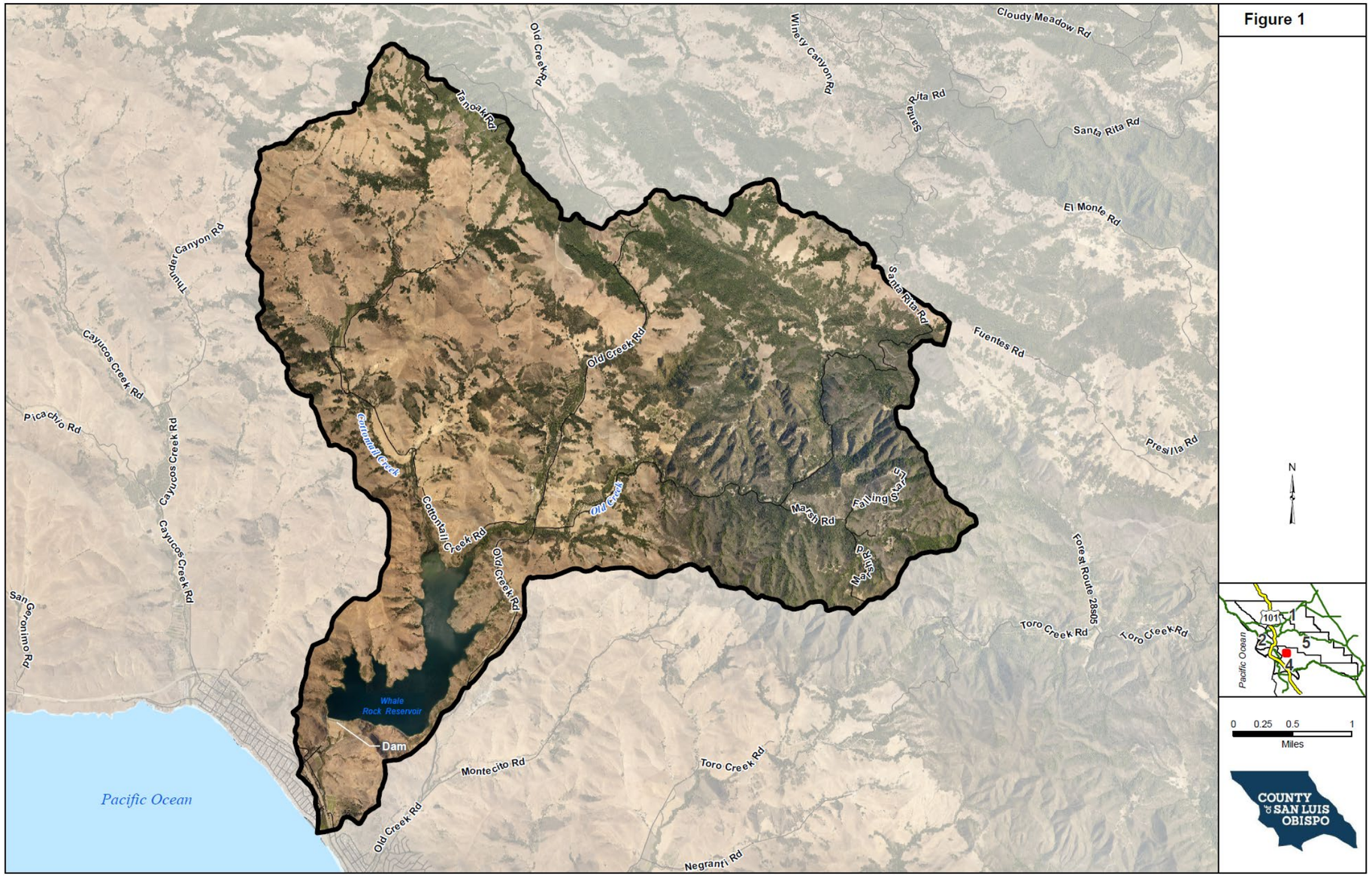


*Figure 1: Whale Rock Reservoir Watershed)*

## Above the Dam (The Catchment Area)

The area above the dam serves as the primary collection basin. The headwaters rise in the upper elevations approximately 5 miles northeast of the dam. Old Creek and its unnamed tributaries drain the east half of the watershed, while Cottontail Creek (see Figure 2) drains the west half.

*Figure 2: Cottontail Creek entering Whale Rock Reservoir*

The reservoir has a maximum storage capacity of 38,967 acre-feet and a maximum surface area of 650 acres (USACE, 2018). While storage is vast, the "safe yield" - the amount reliably available during multi-year droughts - is significantly lower, estimated at 2,000 to 3,000 acre-feet per year (Whale Rock Commission, 2024).

- **Topography and Geology:** The terrain is dominated by steep slopes reaching 2,000 feet. The underlying Franciscan Complex features "low infiltrative" soil (Fairbanks, 1904; USGS, 2003), creating a "flashy" hydrological response where heavy rains result in rapid surface runoff (CEMAR, n.d.).
- **Access:** The land surrounding the reservoir is owned by the State and operated by the City under the WRC. Public access is limited to fishing and hiking; boating and body contact are prohibited.

The CWTP draws water via a dedicated pipeline from a multi-port intake structure. This structure consists of five intake ports at 30-foot vertical intervals, allowing operators to select water from different depths to optimize for the best water quality.

## Below the Dam (CWTP)

Below the earthen dam and its concrete spillway, Old Creek flows approximately one mile to the Pacific Ocean. In addition to the Whale Rock Reservoir, the CWTP has the option of utilizing four additional wells. The wells are located adjacent to Old Creek below the Whale Rock Reservoir dam in the southwest end of the watershed.

- **Hydrogeology and Wells:** The area below the dam features alluvial deposits (gravel and silt). CAWO maintains four wells in this alluvium. Because of high permeability and sanitary seals, three wells are considered "under the influence of surface water," meaning their quality is linked to creek underflow and reservoir releases (USGS, 1985; SLO County, 2021).

- **Precipitation and Inflow Summary:** The long-term average annual rainfall at the Dam is approximately 16.0 to 19.0 inches (SLO County Public Works, 2024). Inflow is generated by Old Creek and Cottontail Creek, with a historic long-term average annual inflow of 5,000 to 7,000 acre-feet.

  The mean annual rainfall at the reservoir during the period of this survey was 19.12 inches. Monthly precipitation data for 2021 to 2025 can be found below (see Table 1).

*Table 1: Precipitation Totals*

| Whale Rock Reservoir Precipitation 2021 - 2025 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average Precipitation from Cayucos Creek Gauge and Whale Rock Dam Station (Inches) | | | | | | | | | | | | | |
| **Year** | **Jan** | **Feb** | **March** | **April** | **May** | **June** | **July** | **Aug** | **Sept** | **Oct** | **Nov** | **Dec** | **Total** |
| 2021 | 6.17 | 0.18 | 1.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.43 | 0.00 | 7.91 | 16.81 |
| 2022 | 0.36 | 0.03 | 1.40 | 0.51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.76 | 0.03 | 0.99 | 7.47 | 11.55 |
| 2023 | 8.47 | 3.49 | 9.06 | 0.00 | 0.00 | 0.05 | 0.00 | 0.15 | 0.17 | 0.10 | 2.75 | 4.18 | 28.42 |
| 2024 | 4.27 | 6.80 | 3.80 | 2.02 | 0.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.12 | 1.19 | 21.35 |
| 2025 | 0.56 | 4.42 | 3.92 | 0.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.46 | 1.54 | 3.94 | 2.26 | 17.48 |
| **Monthly Averages** | 3.97 | 2.98 | 3.86 | 0.58 | 0.03 | 0.01 | 0.00 | 0.03 | 0.28 | 0.62 | 2.16 | 4.60 | 19.12 |

During major storms, the watershed can produce massive short-term inflows, such as the historic peak of 4,600 cubic feet per second in 1973 (SLO County Public Works, 2014). Most recently, the reservoir reached 100% capacity following the significant rains of the 2022-2023 and 2023-2024 water years, resulting in spillway discharge for the first time in nearly two decades.

# POTENTIAL SOURCES OF CONTAMINATION IN THE WATERSHED

## Land Use

The County of San Luis Obispo Department of Planning and Building has designated several lands uses within the watershed. These include agriculture, grazing, multi-use public land, and large lot rural residential. Approximately 85% of the land in the watershed is privately owned while the remaining 15% is publicly owned. Approximately 67% of the watershed has been designated "Agriculture" (predominantly grazing), 21% as "Rural Lands", and the remaining 9% as "Open Space" or "Recreational". Field observations of the watershed confirmed that most of the watershed is agricultural land Appendix A.

| Land Use Category | Approximate Acreage | Notes |
|---|---|---|
| Agriculture | 8769 | Rangeland, vineyards, orchards, and row crops |
| Developed | 15.5 | Residential, commercial, and public facilities (primarily Cayucos area) |
| Open Space | 923 | Coastal areas and lands around the reservoir |
| Rural Lands | 2695 | Low-density rural residential / ranchette areas |
| Recreation | 243 | Beaches, parks, campground areas |

## Wild Animal Population

Wildlife in the area consists of deer, muskrat, coyote, resident and migratory birds, and various small animals. Feral pigs, bears and bald eagles have also been sighted but their presence has not been shown to affect water quality.

## Earthquakes

According to the United States Geological Survey, the watershed region is crossed by many active and potentially active earthquake faults as shown in Appendix B. Faults to the vicinity, such as the San Andreas Rift Zone on the east to the Hosgri and Santa Lucia Banks faults to the west, can cause severe ground motion within the watershed. Potential impacts to the watershed include damage to the water supply system.

## Watershed Activities

Fishing, hiking, and picnicking are limited to a designated area on the southeast shoreline. A mountain biking track was also created in this area between 2021-2025. Reservoir non-body contact activities consist of limited shoreline fishing. Fishing access is available along approximately 5000 feet of the southeast shoreline adjacent to Old Creek Road. No boating or other water activities are permitted at the reservoir.

## Wastewater - Septic Systems and Public Restrooms

Approximately 30 residential septic systems are located within the watershed. Impacts from these septic systems are expected to be minor. There are no commercial or industrial septic systems within the Whale Rock watershed. Portable chemical toilets are located along the public trails in the accessible fishing and hiking area. Public restrooms remain on the eastern shore at the former fish-cleaning area, but they are no longer operational.

## Floods

Flood hazards exist for Old Creek, Cottontail Creek, and their tributaries during significant precipitation events. Floodplains occur in both steep, narrow stream channels and in flatter watershed areas where channels widen. Flooding can increase turbidity, suspended solids, chemical contamination, and disrupt raw water delivery. A failure of the Whale Rock Reservoir Dam could inundate the CWTP as shown in the maps in Appendix C, impairing its ability to produce potable water from primary and secondary sources. Due to its coastal location, the plant is also vulnerable to severe tsunami events.

## Fires

Fires can negatively impact water supplies by introducing suspended solids, organic compounds, and firefighting chemicals such as retardants. The California Department of Forestry has designated the foothill and flatland areas as “high” fire-hazard zones and the surrounding mountains as “very high” hazard zones, as shown in Appendix D. No significant wildfires occurred in the Whale Rock Watershed or nearby areas from 2021-2025.

## Landslides

There is the potential for landslides and debris flows in the watershed. The potential is greatest in areas where the surface slopes exceed 25% or where geologic conditions such as locally sheared or weathered rocks, excessively steep slopes, or interbeds of clay, shale, or mudstone exist (see Appendix E).

## Inactive Mines

Inactive mines identified in the 1993 Regional Water Quality Control Board report "Surface Water Degradation by Inactive Metal Mines in Northwest San Luis Obispo County" include Maninni Nickel Property (nickel), Middlemast Ranch Deposit (chromium), Prodigal Son (copper), Zerfing Ranch Deposit (chromium) and Prospect Mine (commodity unknown). None of the mines were identified as potential polluters.

## Grazing Animals

Cattle grazing occurs throughout the watershed (see Figure 3). However, fencing prevents direct access to the reservoir. Most grazing areas are further separated from the reservoir by public and private roads. Cattle grazing can significantly contribute to coliform levels; however, while total coliform levels are sometimes elevated seasonally, *Escherichia coli (E. coli)* levels in raw water have generally remained low. Higher rainfall correlates with increased coliform bacteria levels. See the Bacteriology section for further discussion.

*Figure 3: Cattle grazing within the watershed.*

## Transportation Corridors

Transportation corridors in the Whale Rock watershed consist of several improved and unimproved County roads. The major roads include Old Creek Road, Santa Rita Road, and Cottontail Creek Road. During extreme precipitation events, severe erosion can occur in portions of these roads (see Figure 4). These roads are not considered primary routes for carrying hazardous materials. There are no railroad tracks present within the watershed.

*Figure 4: Landslide on Old Creek Road*

## Pesticide/Herbicide Use

Pesticide and herbicide usage in the watershed is required to be reported to the County of San Luis Obispo Agriculture Commissioner's Office. An annual summary of this usage can be seen in Table 2**.** On average, approximately 7.5% of the watershed was treated each year between 2021-2025. Figure 5 illustrates the areas and categories of land use that have been affected by pesticide and herbicide use. The impact of these chemicals on tributary water quality has not been fully evaluated; however, no pesticides or herbicides have been detected by the County in the Whale Rock Reservoir itself.

*Table 2: Summary of Pesticide Usage 2021-2025*

| **Summary of All Pesticide Usage 2021-2025** | | | | |
|---|---|---|---|---|
| **Year** | **Treated Area (Acre)** | **Treated Amount (Gallons)** | **Treated Amount (Ounces)** | **Treated Amount (Pounds)** |
| 2021 | 854 | 375 | 243 | 206 |
| 2022 | 2079 | 455 | 476 | 1718 |
| 2023 | 574 | 413 | 451 | 180 |
| 2024 | 888 | 565 | 275 | 243 |
| 2025 | 491 | 530 | 369 | 95 |
| Average | 977 | 468 | 363 | 488 |
| Total | 4886 | 2338 | 1814 | 2442 |

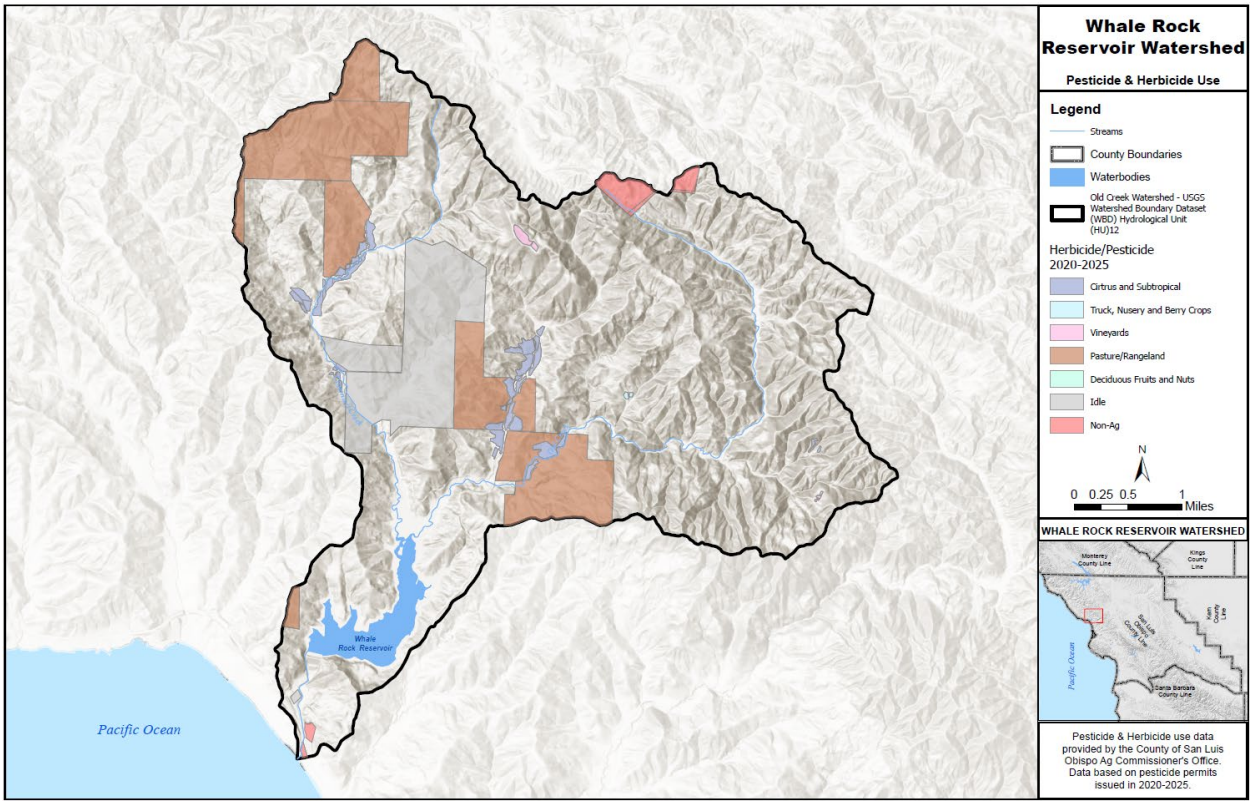


*Figure 5: Pesticide and Herbicide Usage*

# WATER QUALITY ASSESSMENT

## Constituents of Concern

**Microbiology and Turbidity** - Microbiological contaminants such as bacteria, viruses, and protozoa in drinking water can cause illnesses and are heavily monitored to protect public health. Rain events can cause significant increases in turbidity which not only contribute to higher bacteria levels but can hinder the treatment process. The County continuously monitors turbidity and chlorine contact time, in addition to bacteriological sampling. These results are submitted to DDW as part of the County's monthly water quality reports.

**Metals -** The County monitors metals such as iron, aluminum, manganese, selenium and mercury in the surface, well, and treated water because they can accumulate in source water, sediments, and aquatic life, posing risks to both human health and ecosystems. Sources of metals include natural mineral deposits, mining runoff, and atmospheric deposition. These metals can cause toxicity and negatively affect water quality. The County completed Lead

Service Line Inventory in 2024 and conducts ongoing monitoring of lead and copper in the Cayucos Distribution System.

**Algae -** Algae in a watershed and lake can significantly impact water quality and ecosystem health. Excessive algal growth, especially during nutrient-rich conditions, can alter the physical characteristics of the water, causing green or brown discoloration, unpleasant odors, and increased turbidity, which reduces light penetration and affects aquatic life. Of particular concern are Harmful Algal Blooms (HABs), which produce toxins that threaten human health, wildlife, and livestock. HABs can disrupt recreational use, damage water treatment processes, and cause long-term ecological imbalances, making their prevention, monitoring, and management critical for maintaining safe and clean water supplies.

**Organics -** Natural organic matter (measured as total organic carbon, TOC) in the water can react with disinfectants like chlorine during treatment to form disinfection byproducts, including trihalomethanes and haloacetic acids, which pose long-term health risks. In addition, herbicides and pesticides can be introduced to the reservoir water from agricultural runoff. These combined issues make careful monitoring, watershed management, and treatment processes essential to ensure safe drinking water.

## Water Quality Monitoring Program

The following sample matrix summarizes suggested sampling for Whale Rock Watershed and CWTP (see Table 3).

*Table 3: Water Quality Monitoring Matrix*

| Site | Bacteriological | Physical | Limnology | Algal Toxins | General Mineral | Fe & Mn | Inorganic | Nutrients | 1,2,3-TCP | VOC | SOC | TOC | Gross Alpha |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Intakes** | ----- | M | M | AN | ----- | M | --- | ----- | --- | ---- | --- | --- | --- |
| **Raw (Plant Influent)** | W | W | W | AN | Q | M | 3Y | Q | 3Y | 3Y | 9Y | BM | 3Y |
| **Delivered** | W | W | --- | ----- | ----- | M | 3Y | ----- | --- | --- | --- | BM | --- |
| **Active Wells** | M/Q | A | --- | ----- | A | --- | 3Y | ----- | 3Y | 6y | 9Y | --- | 9Y |

W = Weekly sampling; BM = Bimonthly (2x month) sampling; M = Monthly sampling; Q = Quarterly sampling; A = Annual sampling; AN – As Needed; 3Y – Every three years; 9Y – Every nine years

## Limnology

The CSA 10 routinely monitors Whale Rock Reservoir and uses the limnological data to assess seasonal variability in water quality, determine the cause of objectionable odors or particulate matter, and evaluate algal blooms. The data is also used to select the optimal intake for delivery to the water treatment plants.

Desirable water quality has adequate dissolved oxygen, pH in the range of 6.5 to 8.5, low algae, low odor and turbidity, low bacteria, low iron, and low manganese, and is free of contamination. Reservoir samples are analyzed for algae, dissolved oxygen, pH, temperature, odor, turbidity, iron, and manganese. Data collected from this survey period can be found in **Appendix F**, **Appendix G**, and **Appendix H** .

Data from the reservoir profile shows water temperature during the cooler months (December through April) is relatively uniform throughout the reservoir intake depths. Thermal stratification develops in the reservoir when the surface water begins to warm and decreases in density during the spring and summer months. During the summer months, a warmer, oxygen-rich layer (epilimnion) develops at the top of the reservoir. A colder, oxygen-deficient layer (hypolimnion) can be found at the lower depths of the reservoir. The layer of water that separates these two zones is the thermocline. Water from the epilimnion is generally preferred for delivery to water treatment plants.

For much of the study period, samples were collected by CSA 10 with the assistance of the City once per month at each of the intake elevations. During the five years covered by this

survey, the thermocline fluctuated between 25 to 50 feet, coinciding with intakes 2 and 3. These were most often used intakes during the survey period, based on the available limnology data.

Algae counts are a significant factor in selecting the active intake. Accurate enumeration and species identification of algae has helped with more informed treatment adjustments as well as the early detection of HABs. Algae count summaries for Whale Rock Reservoir can be seen in Table 4.

*Table 4: Algae Summary*

| Whale Rock Reservoir Algae Summary Table (Cells/mL) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Site** | | **Blue-greens** | **Cryptomonads** | **Diatoms** | **Dinoflagellates** | **Flagellates** | **Golden** | **Greens** | **Total Algae Counts** |
| **Surface** | Minimum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Maximum | 5400 | 120 | 200 | 58 | 5 | 120 | 200 | 5400 |
| | Average | 151 | 18 | 9 | 2 | 0 | 4 | 23 | 219 |
| | Median | 0 | 5 | 0 | 0 | 0 | 0 | 6 | 70 |
| | Count | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| **Lake Intake 1** | Minimum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| | Maximum | 5500 | 170 | 400 | 18 | 9 | 170 | 160 | 5500 |
| | Average | 173 | 19 | 14 | 1 | 0 | 4 | 18 | 256 |
| | Median | 0 | 7 | 0 | 0 | 0 | 0 | 3 | 62 |
| | Count | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 |
| **Lake Intake 2** | Minimum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| | Maximum | 620 | 100 | 760 | 23 | 15 | 60 | 160 | 760 |
| | Average | 67 | 17 | 24 | 1 | 0 | 3 | 21 | 139 |
| | Median | 0 | 6 | 0 | 0 | 0 | 0 | 6 | 67 |
| | Count | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 73 |
| **Lake Intake 3** | Minimum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| | Maximum | 470 | 300 | 490 | 9 | 5 | 0 | 120 | 590 |
| | Average | 39 | 12 | 18 | 1 | 0 | 0 | 16 | 95 |
| | Median | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 40 |
| | Count | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 73 |
| **Lake Intake 4** | Minimum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Maximum | 700 | 240 | 400 | 20 | 160 | 45 | 530 | 1300 |
| | Average | 37 | 9 | 12 | 1 | 2 | 1 | 24 | 99 |
| | Median | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| | Count | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 |

## Bacteriology

Raw and treated water bacteriological data for the reservoir and wells supplying the CWTP is summarized in Table 5. Delivered water data has been included to demonstrate the water treatment plant's ability to adequately disinfect the raw water.

*Table 5: Bacteriological Data Summary*

| Site | | Total Coliforms (MPN/100 mL) | *E. coli* (MPN/100 mL) |
|---|---|---|---|
| **Whale Rock Raw** | Minimum | < 1 | < 1 |
| | Maximum | 4600 | 190 |
| | Average | 304 | 5 |
| | Median | 130 | 1 |
| | Count | 260 | 260 |
| **Delivered Water** | Min | Absent | Absent |
| | Max | Absent | Absent |
| | Ave | Absent | Absent |
| | Med | Absent | Absent |
| | Count | 261 | 261 |
| **Whale Rock Well- CAWO Raw** | Minimum | < 1 | < 1 |
| | Maximum | 410 | < 1 |
| | Average | 18 | < 1 |
| | Median | 0 | < 1 |
| | Count | 22 | 22 |
| **MRMW Well 03** | Minimum | < 1 | < 1 |
| | Maximum | < 1 | < 1 |
| | Average | < 1 | < 1 |
| | Median | < 1 | < 1 |
| | Count | 4 | 4 |

Bacteriological data collected from 2021-2025 indicates that current treatment adequately filters and disinfects source water. Periods of high rain can elevate coliform levels and may be attributed to runoff from grazing activities.

## Iron and Manganese

Iron and manganese are monitored weekly from the raw and delivered water. At certain times during the year, both iron and/or manganese levels exceed drinking water secondary maximum contaminant levels (MCL) in the untreated water. Levels above the MCL can cause staining of fixtures and clothing and are aesthetically unacceptable to consumers. The CWTP has been successful in treating raw water to acceptable levels (See Table 6).

*Table 6: Iron and Manganese Data Summary*

| Iron and Manganese Summary Table (ug/L) | | | |
|---|---|---|---|
| **Site** | | **Iron** | **Manganese** |
| **Whale Rock Raw** | Minimum | < 20 | < 5.0 |
| | Maximum | 1120 | 141 |
| | Average | 40 | 13 |
| | Median | 28 | 21 |
| | Count | 150 | 147 |
| **Delivered Water** | Minimum | < 20 | < 5.0 |
| | Maximum | 44 | < 5.0 |
| | Average | < 20 | < 5.0 |
| | Median | 28 | < 5.0 |
| | Count | 150 | 145 |

## Selenium

In February of 2021, selenium in the CAWO Well was measured at 62 µg/L in a required quarterly sample. The 50 µg/L MCL for Selenium is based off a running annual average (RAA). The County voluntarily conducts monthly selenium monitoring on the CAWO Well to ensure the RAA remains under the MCL. Selenium concentration is trending downward since the monthly sampling has initiated. See Table 7 for selenium data summary.

*Table 7: Selenium Data Summary*

| Selenium Summary Table (ug/L) | | |
|---|---|---|
| **Site** | | **Selenium** |
| **CAWO Well** | Minimum | 38 |
| | Maximum | 62 |
| | Average | 46 |
| | Median | 45 |
| | Count | 18 |

## General Physical

Odor, turbidity, and apparent color tests are routinely conducted on both raw and treated drinking water. Monitoring raw water allows staff to identify naturally occurring conditions that may affect taste, odor, clarity, or overall consumer perception before treatment. Testing treated (delivered) water confirms that the treatment processes are functioning properly and that finished water meets quality expectations for customers.

When the CWTP was first placed into service, detectable levels of 2-methylisoborneal (MIB) in the raw water caused occasional taste and odor complaints. Hydrogen sulfide odors were also present at certain times of the year. The installation of two granular activated carbon (GAC) filters in June 2006 improved these conditions by effectively removing taste- and odor-causing compounds. While the "musty" odor associated with MIB is now rarely detected in raw water, continued routine physical monitoring remains essential to identify seasonal changes, verify treatment performance, and maintain consistent, high-quality delivered water. Table 8 summarizes general physical data.

*Table 8: Physical Data Summary*

| Physical Summary Table | | | | |
|---|---|---|---|---|
| **Site** | | **Odor (TON)** | **Apparent Color (CU)** | **Turbidity (NTU)** |
| **Whale Rock Raw** | Minimum | 1.0 | 1 | 0.082 |
| | Maximum | 5.0 | 47 | 37.0 |
| | Average | 2.2 | 6 | 1.66 |
| | Median | 2.0 | 5 | 1.10 |
| | Count | 258 | 205 | 258 |
| **Delivered Water** | Minimum | 1.0 | < 1 | 0.050 |
| | Maximum | 2.5 | 2 | 0.420 |
| | Average | 0.4 | < 1 | 0.093 |
| | Median | 1.0 | 1 | 0.080 |
| | Count | 258 | 203 | 258 |
| **CAWO Well Raw** | Minimum | 1.0 | 1 | 0.088 |
| | Maximum | 1.2 | 1 | 0.190 |
| | Average | 0.7 | 1 | 0.137 |
| | Median | 1.1 | 1 | 0.135 |
| | Count | 3 | 5 | 4 |

## General Mineral

General mineral constituents are general water quality indicators. If there is a change in these indicators this may indicate industrial, agricultural, or grazing runoff issues in the watershed. General mineral data are collected once per year from the Whale Rock Reservoir and the CWTP Treated Water. The constituents in the raw and treated waters meet all the applicable treated water MCLs. Table 9 summarizes some general mineral data.

*Table 9: General Mineral Data Summary*

| General Minerals 2021-2025 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total Alkalinity as $CaCO_3$ | Calcium | Aggressive Index | Calculated Langelier Index | Chloride | Electrical Conductivity | Fluoride | Magnesium | Nitrate as N | Sodium | Sulfate | Total Dissolved Solids | Total Hardness as CaCO3 |
| | mg/L | mg/L | | | mg/L | uS/cm | mg/L | mg/L | ug/L | mg/L | mg/L | mg/L | mg/L |
| **MCLs** | | | | | **500** | **1600** | | | **10000** | | **500** | **1000** | |
| **Whale Rock Reservoir Raw Water** | | | | | | | | | | | | | |
| 5/4/21 | 229 | 46.9 | 13.2 | 1.18 | 26.0 | 689 | 0.260 | 44.4 | 0.18 | 37.8 | 92 | 390 | 300 |
| 5/3/22 | 219 | 44.5 | 12.6 | 0.54 | 26.0 | 695 | 0.330 | 46.0 | < 0.40 | 38.0 | 91 | 450 | 300 |
| 5/1/23 | 198 | 48.5 | 12.4 | 0.20 | 22.0 | 630 | 0.400 | 39.9 | 0.53 | 32.8 | 82 | 380 | 285 |
| 5/7/24 | 209 | 49.0 | 12.5 | 0.47 | 22.0 | 630 | 0.240 | 37.0 | < 0.400 | 30.0 | 86 | 380 | 270 |
| 5/6/25 | 216 | 51.1 | 12.6 | 0.45 | 22.6 | 630 | 0.310 | 42.8 | < 0.40 | 35.8 | 83 | 380 | 304 |
| **Cayucos WTP Treated Water** | | | | | | | | | | | | | |
| 5/4/21 | 228 | 45.8 | 12.8 | 0.82 | 29.0 | 703 | 0.310 | 43.7 | < 0.10 | 40.7 | 90 | 400 | 294 |
| 5/3/22 | 225 | 43.9 | 12.6 | 0.53 | 31.0 | 697 | 0.340 | 45.6 | < 0.40 | 41.4 | 91 | 440 | 297 |
| 5/1/23 | 199 | 48.8 | 12.2 | 0.03 | 26.0 | 620 | 0.300 | 39.1 | 0.51 | 36.1 | 80 | 400 | 283 |
| 5/7/24 | 207 | 49.0 | 12.3 | 0.20 | 26.0 | 650 | 0.240 | 37.0 | < 0.400 | 34.0 | 85 | 390 | 270 |
| 5/6/25 | 214 | 46.5 | 12.4 | 0.30 | 26.9 | 640 | 0.340 | 39.5 | < 0.40 | 37.0 | 91 | 400 | 279 |
| **Whale Rock Well (1989) - CAWO** | | | | | | | | | | | | | |
| 5/4/21 | 339 | 63.4 | 12.6 | 0.56 | 47.0 | 866 | 0.210 | 51.3 | 0.47 | 50.7 | 36 | 480 | 370 |
| 5/3/22 | 332 | 65.1 | 12.7 | 0.72 | 47.0 | 856 | 0.340 | 52.4 | 0.78 | 52.2 | 40 | 520 | 378 |
| 5/23/23 | 288 | 69.9 | 12.2 | 0.15 | 50.0 | 900 | 0.330 | 52.8 | 0.76 | 50.9 | 43 | 510 | 392 |
| 5/7/24 | 344 | 66.0 | 12.4 | 0.40 | 53.0 | 900 | 0.270 | 52.0 | 1.2 | 49.0 | 41 | 520 | 380 |
| 5/6/25 | 347 | 66.4 | 12.5 | 0.46 | 56.1 | 870 | 0.330 | 52.7 | 0.73 | 52.1 | 41 | 520 | 383 |
| **Cayucos Delivered Water** | | | | | | | | | | | | | |
| 5/4/21 | 232 | 46.9 | 13.0 | 0.87 | 30.0 | 708 | 0.290 | 44.1 | < 0.10 | 40.5 | 91 | 410 | 299 |
| 5/3/22 | 218 | 44.2 | 12.5 | 0.40 | 31.0 | 716 | 0.330 | 46.1 | < 0.40 | 41.5 | 88 | 430 | 300 |
| 5/1/23 | 197 | 49.7 | 12.3 | 0.20 | 27.0 | 640 | 0.290 | 39.6 | 0.5 | 35.8 | 80 | 390 | 287 |
| 5/7/24 | 204 | 49.0 | 12.4 | 0.28 | 26.0 | 660 | 0.250 | 37.0 | < 0.400 | 34.0 | 86 | 410 | 280 |
| 5/6/25 | 215 | 47.5 | 12.3 | 0.18 | 27.4 | 650 | 0.320 | 39.8 | < 0.40 | 36.8 | 93 | 410 | 282 |

## Metals

The CSA 10 conducts analyses for Title 22 metals at the Whale Rock Reservoir raw and Cayucos Water Treatment Plant treated waters once per year. All Title 22 metals monitored in the raw and treated waters met the applicable treated water MCLs. Table 10 summarizes results of metals that were detected during the monitoring period.

*Table 10: Metal/Inorganic Data Summary*

| Metals 2021-2025 | | | | |
|---|---|---|---|---|
| Date | Aluminum (ug/L) | Arsenic (ug/L) | Barium (ug/L) | Chromium (ug/L) |
| **MCL** | **1000** | **10** | **1000** | **50** |
| **Whale Rock Reservoir Raw Water** | | | | |
| 5/4/21 | 32.3 | 2.8 | 81.8 | < 10.0 |
| 5/3/22 | < 20.0 | 2.5 | 77.2 | < 10.0 |
| 5/1/23 | 54.1 | 2.3 | 69.8 | < 10.0 |
| 10/29/24 | 35.0 | 2.2 | 69.0 | 0.13 |
| 5/6/25 | 28.3 | 2.5 | 69.2 | < 0.90 |
| **CWTP Treated Water** | | | | |
| 5/4/21 | 135 | 2.9 | 73.3 | < 10.0 |
| 5/3/22 | 112 | 2.3 | 76.9 | < 10.0 |
| 5/1/23 | 66.9 | 1.9 | 63.2 | < 1.00 |
| 5/7/24 | --- | --- | --- | --- |
| 5/6/25 | 82 | 2.4 | 69.8 | < 0.90 |
| **CAWO Well** | | | | |
| 5/4/21 | < 20.0 | 1.5 | 113 | < 10.0 |
| 5/3/22 | --- | --- | --- | --- |
| 5/1/23 | --- | --- | --- | --- |
| 5/7/24 | < 20.0 | 2.2 | 120 | 1.1 |
| 5/6/25 | --- | --- | --- | --- |

## Total Organic Carbon (TOC)

TOCs were collected frequently from the GAC filters' raw and effluent waters. TOCs are monitored to assess formation potential of and the ability of the GAC filters to remove the precursors to disinfectant by-products (DBPs), such as Trihalomethanes (THMs) and Haloacetic Acids (HAA5). According to the US EPA, "Several DBPs have been linked to cancer in laboratory animals and are therefore regulated. Naturally occurring carbon compounds are not hazardous by themselves, but combined with a disinfectant they produce byproducts, which pose a health concern. THMs, one class of DBPs, are formed from the interaction of TOC, naturally occurring bromide, and chlorine." During the survey period,

both the TOC and DBP levels remained low and stable. TOC removal efficiency averaged 35% between the two filter vessels. Table 11 summarizes TOC data.

*Table 11: Total Organic Carbon Data Summary*

| Date | Plant Influent TOC (mg/L) | Vessel A Effluent TOC (mg/L) | Vessel B Effluent TOC (mg/L) |
|---|---|---|---|
| Minimum | 0.8 | < 0.30 | < 0.20 |
| Maximum | 4.9 | 3.9 | 3.7 |
| Average | 3.8 | 2.5 | 2.4 |
| Median | 3.8 | 2.6 | 2.6 |
| Count | 106 | 106 | 106 |

## Stage 1 and Stage 2 Disinfectant/Disinfection Byproduct Rules

To ensure compliance with the Stage 1 Disinfectant/Disinfection Byproduct Rule) CWTP utilizes two 20,000-pound GAC filters (see Figure 6). The GAC filters provide TOC reduction and taste and odor control. CWTP monitors TTHMs and HAA5 quarterly for delivered water.

*Figure 6: Granular Activated Carbon Filters*

Compliance with the Stage 2 DBPR is based on TTHM and HAA5 locational running annual averages (LRAA) calculated at each monitoring site. All samples met the MCL requirements.

Quarterly monitoring is required and ongoing. DBP trends are shown in the following graph, Figure 7.

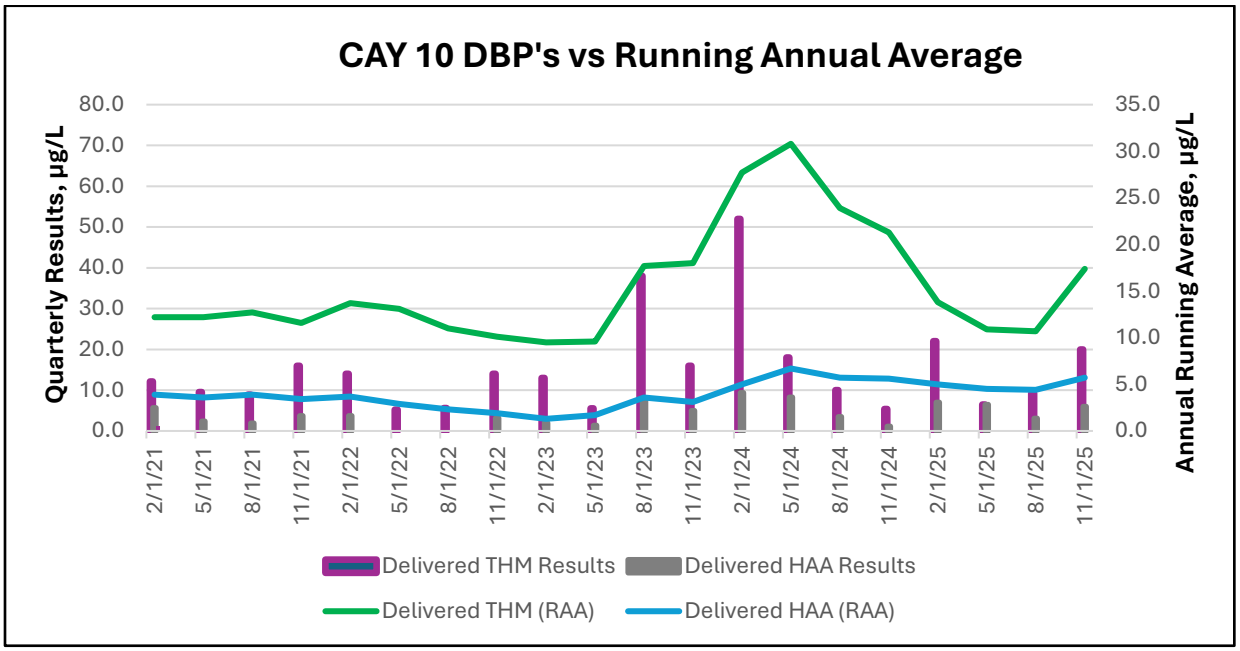


*Figure 7: 2021 - 2025 TTHM/HAA5 Quarterly Results vs Running Annual Average*

## Additional Analyses

Asbestos: Asbestos is required every nine years on surface waters. Asbestos was not detected in the sample collected in 2025.

Cyanide: Cyanide is analyzed yearly from the Whale Rock Reservoir. No cyanide was detected during the 2021-2025 sanitary survey update.

Radioactivity Monitoring for Gross Alpha and Radium 228: To comply with the RWQCB radioactivity monitoring requirements, four quarters of gross alpha and radium 228 were collected in the previous survey periods. These showed raw water and groundwater levels below the MCL for drinking water and monitoring was reduced to every 3 years.

Volatile Organic Chemicals (VOC): Samples for VOCs are required to be collected every three years from the Whale Rock Reservoir Raw water. Samples were collected in 2022. No VOCs were detected.

Synthetic Organic Chemicals (SOC): 1,2,3-TCP is a new SOC constituent that is required to be collected every three years for Whale Rock Reservoir Raw water. Samples were collected in 2022. No SOCs were found.

Perchlorate: Four samples were collected from the Whale Rock Reservoir raw water for perchlorate during this 5-year watershed update. Perchlorate was not detected in any samples.

# WATERSHED CONTROL AND LAKE MANAGEMENT PRACTICES

## Invasive Mussel Prevention

The discovery of quagga mussels (*Dreissena bugenisis*), zebra mussels (*Dreissena polymorpha*) and later Golden mussels (*Limnoperna fortunei*) in California waterways has prompted the County of San Luis Obispo to establish a monitoring and prevention program for freshwater mussels. The presence of these mussels would present an economic and water quality threat to the beneficial uses established for the Whale Rock Reservoir. The County of San Luis Obispo Public Works and the City have implemented an invasive mussel monitoring program at Whale Rock Reservoir.

Since all boats (except County and City boats) are prohibited on the Whale Rock Reservoir, there is less of a chance for a mussel infestation at this reservoir. The boat(s) used for inspection and water collection are dedicated to the Whale Rock Reservoir and are not used in other waterways. All sampling equipment entering the reservoir is dedicated to the Whale Rock Reservoir as well.

Despite the low risk of infestation, a lake monitoring site was established at the boat dock near the Whale Rock dam. An artificial substrate for the mussel's attachment and growth was deployed at the monitoring location. The substrate and other infrastructure are inspected once per month for mussel growth. If mussel growth is suspected, a sample will be collected for examination at the County of San Luis Obispo Water Quality Lab. If the presence of mussels is tentatively confirmed, the California Department of Fish and Game will be contacted for further investigation. Mussels have not been detected in the Whale Rock Reservoir.

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

No evidence of invasive mussels in the reservoir or watershed has been observed since the monitoring began.

## Algae and Algal Toxins

Cyanotoxins produced from certain blue-green algae pose a threat to human and animal health. Large algae blooms can potentially release high levels of cyanotoxins that have been known to cause illness, paralysis and even death when consumed by other organisms. Based on cyanotoxin testing results and/or visual indicators confirming the presence of harmful algal blooms (HAB), the State requires each body of water to post an advisory level, CAUTION, WARNING, or DANGER (see Figure 8).

Algae that can produce toxins, such as *Aphanizomenon*, *Anabaena*, *Microcystis*, and *Oscillatoria* have been found in low numbers at Whale Rock Reservoir. The County performs algal toxin screens when elevated levels of blue-green algae are present. Monthly samples at surface and each intake depth are analyzed for the presence of harmful algae. In June of 2024, a trace amount (0.5 ng/L) of microcystin was detected at the Intake 1 depth. This amount was well below the recommended notification levels set forth by the State of California. No other samples analyzed between 2021 and 2025 had detections of cyanotoxins. Monitoring of the reservoir for both blue-green algae and cyanotoxins is ongoing.

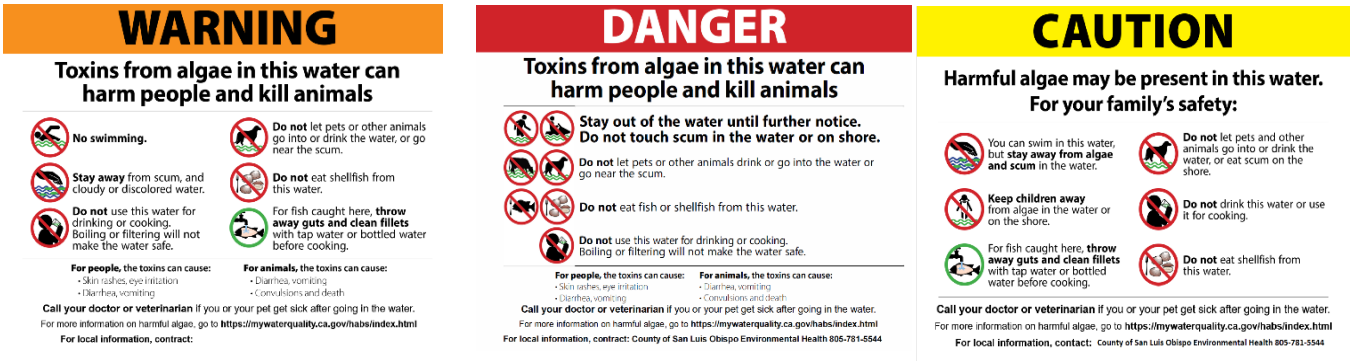


*Figure 8: Algal Toxin Signage*

The U.S. Environmental Protection Agency (EPA) has issued non-enforceable health advisories for cyanotoxins in drinking water, including microcystin-LR (0.3 µg/L for children; 1.6 µg/L for adults) and cylindrospermopsin (0.7 µg/L for children; 3.0 µg/L for adults) (EPA, 2015). In California, the California State Water Resources Control Board has established an enforceable maximum contaminant level (MCL) of 1.0 µg/L for microcystin-LR and a notification level of 0.7 µg/L for cylindrospermopsin, requiring monitoring, public notification, and treatment when levels warrant action (SWRCB, 2024). Conventional surface water treatment processes—such as coagulation, filtration, activated carbon adsorption, and oxidation—are recognized as effective barriers for cyanotoxin control (EPA, 2015).

Future regulatory development is expected to proceed through the EPA's Contaminant Candidate List (CCL) process, which identifies unregulated contaminants that may require national standards under the Safe Drinking Water Act (EPA, 2023). Cyanotoxins have been included in prior CCL cycles, and continued occurrence data collection may support regulatory determinations and potential federal MCLs. At the state level, California continues to evaluate harmful algal bloom impacts and emerging contaminant data, which could result in expanded monitoring requirements or additional health-based standards as scientific understanding advances (SWRCB, 2024).

The State has an interactive map showing which sites were tested for HABs. To get to the map, please use the following link:

https://mywaterquality.ca.gov/habs/where/freshwater_events.html

Additional information on HABs can be found at the links below:

https://mywaterquality.ca.gov/habs/resources/faqs_for_hab_signs.html
https://fhab.sfei.org/

## Security of Watershed and Treatment Facilities

Security of the Whale Rock Reservoir watershed and the CWTP is maintained through a combination of restricted public access, physical security infrastructure, and emergency preparedness planning. An Emergency Response Plan (ERP), last updated in January 2021, outlines procedures for responding to potential disasters and security threats within the service area. The ERP addresses hazards including earthquakes, wildland fire, winter storms and flooding, extended power outages, water contamination, structural damage (including explosive devices), sabotage, and workplace violence. These elements align with emergency planning and security expectations under the federal Safe Drinking Water Act, including requirements established by the America's Water Infrastructure Act of 2020 for risk assessment and emergency response planning.

Watershed security is strengthened by the reservoir's limited accessibility and land use controls. Public access at Whale Rock Reservoir is restricted to designated shoreline areas on the southeastern shore for hiking and shore-based fishing only; body contact and boating are prohibited. Posted signage clearly communicates these restrictions. Most of the surrounding watershed land is State or privately owned and consists primarily of large-lot residential properties and small agricultural uses. The reservoir's remote location and controlled access significantly reduce the likelihood of intentional contamination or other security threats.

At the treatment facility, layered security measures are in place. The CWTP is equipped with a SCADA (Supervisory Control and Data Acquisition) system and a private security system that monitors and manages plant operations. Alarm conditions automatically notify on-call operators and, when appropriate, local fire or law enforcement agencies. The facility is fully fenced, gated, and monitored by a 24-hour CCTV camera system covering all operational areas. Together, these measures provide comprehensive physical and operational security for both the watershed and treatment facilities.

### Management Practices

**Source Protection & Monitoring**

- Comprehensive water quality monitoring program for Whale Rock Reservoir and CWTP.
- Grazing limited to 250ft away from the maximum shoreline of the reservoir.
- Aquatic Invasive Mussel Monitoring and Prevention Program in place.
- County Agricultural Commissioner regulates pesticide use within the watershed.

**Access Control & Security**

- Controlled public access; limited to one area on the southeastern shore.
- Intake protected by exclusion zone with buoys.
- Water Treatment Plant fenced, posted, and closed to public access.
- Active lake patrols enforce state and local boating regulations.
- Emergency response plan established for contamination events.

**Infrastructure Protection**

- No wastewater effluent discharges permitted.
- 24-hour operator availability.

**Recreation & Facility Controls**

- No body contact with water.
- No floating sewage-discharge facilities permitted.

## SYSTEM COMPLIANCE WITH NEW AND FUTURE REGULATIONS

### Surface Water Treatment Rule

Surface water treatment requirements under the U.S. Environmental Protection Agency's (EPA) Surface Water Treatment Rule (SWTR) and the Safe Drinking Water Act ensure that public water systems using surface water or groundwater under the influence of surface water provide multiple barriers against microbial contamination. Required processes include coagulation, flocculation, sedimentation, filtration, and disinfection, aimed at reducing pathogens such as Giardia, Cryptosporidium, and viruses. Systems must also

monitor turbidity, microbial indicators, and disinfectant residuals to confirm treatment effectiveness. Enhanced requirements, including the Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR), address higher-risk waters and sensitive populations by requiring additional pathogen removal based on source water quality (EPA, 1989; EPA, 2006).

In California, the State Water Resources Control Board, Division of Drinking Water (SWRCB-DDW) enforces both federal surface water treatment rules and additional state-specific requirements. Systems must monitor microbial indicators, turbidity, and disinfection byproducts, and maintain operational standards to ensure compliance. Periodic sanitary surveys and source water assessments evaluate watershed protection, treatment performance, and potential contamination risks, ensuring public health protection and adherence to both federal and state standards

CSA 10 has maintained full compliance with LT2ESWTR and continues to adhere to state and federal requirements.

## Per- and polyfluoroalkyl substances (PFAS) Information

Per- and polyfluoroalkyl substances (PFAS), including perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS), are persistent man-made chemicals used in products that resist heat, oil, and water. Because they do not readily break down, PFAS can migrate through soil, contaminate groundwater, and bioaccumulate in fish, wildlife, and humans. Studies have linked certain PFAS to increased cholesterol, low infant birth weight, immune system effects, thyroid disruption, and some cancers. In April 2024, the U.S. Environmental Protection Agency finalized enforceable national drinking water standards (Maximum Contaminant Levels) for several PFAS, including PFOA and PFOS at 4 ng/L (ppt), with monitoring and compliance requirements phased in over the next several years (See Table 12).

In California, notification and response levels remain in effect while additional state-specific regulations are developed. Notification levels are precautionary, health-based advisory levels. Response levels are higher concentrations at which water systems are recommended to remove a source from service, provide treatment, or issue public notification. All California public water systems will be required to monitor for PFAS by 2027, with earlier testing required for systems considered at risk. As of 2026, the County is monitoring Whale Rock Reservoir raw water, CAWO Well, MRMW Well 03 (active) and CBMW Well 01 (standby) for PFAS on a quarterly basis. No detections have been observed as of February 2026.

*Table 12: PFAS Detection Limit Summary*

| Analyte | Notification Level, ng/L | Response Level, ng/L (running four quarter average) |
|---|---|---|
| **PFOA** (Perfluorooctanoic acid) | 4.0 | 10 |
| **PFOS** (Perfluorooctane sulfonic acid) | 4.0 | 40 |
| **PFHxS** (Perfluorohexane sulfonic | 3.0 | 10 |
| **PFHxA** (Perfluorohexanoic acid) | 1,000 | 10,000 |
| **PFBS** (Perfluorobutane sulfonic acid) | 500 | 5,000 |

More information on PFAS can be found at:

https://www.waterboards.ca.gov/water_issues/programs/pfas/

### Unregulated Contaminant Monitoring Rule (UCMR)

The Unregulated Contaminant Monitoring Rule (UCMR), administered by the U.S. Environmental Protection Agency, requires public water systems to monitor for contaminants that do not yet have established MCLs (EPA, 2023a). Data generated through UCMR cycles provide nationwide occurrence information that supports health assessments and regulatory determinations under the Safe Drinking Water Act. This structured monitoring approach serves as the primary mechanism for identifying contaminants that may warrant future federal drinking water standards.

Recent UCMR monitoring has included lithium to better understand its prevalence in drinking water supplies (EPA, 2023a). Although no federal or California MCL currently exists for lithium, monitoring data will inform future health risk evaluations. Lithium is used therapeutically at controlled doses for bipolar disorder, but long-term exposure to elevated levels in drinking water may affect kidney and thyroid function (EPA, 2023a). Depending on nationwide occurrence and health risk findings, future regulatory actions could include health advisories, notification levels, or eventual establishment of enforceable MCLs.

To find more information on potential contaminants, please visit the site below:

https://www.epa.gov/ccl/draft-contaminant-candidate-list-6-ccl-6

## SANITARY SURVEY UPDATE

### Summary of Findings

This watershed sanitary survey update covers January 2021 through December 2025. No significant changes to land use or watershed conditions occurred during this period, and reservoir water quality remains consistent with historical trends. The watershed continues to consist primarily of sparsely populated private property designated for grazing and limited agricultural use. Current zoning makes substantial land use changes unlikely, contributing to

generally predictable water quality forecasts. However, because much of the watershed is privately owned, expanding monitoring efforts remains challenging. Limited data are available for Cottontail Creek and Old Creek, the primary tributaries to the reservoir. Expanded monitoring at these locations would require coordination with the City and private landowners. Additional data would enhance the identification of contaminant sources and provide early warnings of changes in water quality.

Regional climate patterns along California's Central Coast, extended drought followed by intense rainfall, continue to influence watershed conditions. Runoff and associated sediment remain the primary water quality concern, affecting turbidity, total organic carbon (TOC), and nutrient and bacterial levels. Grazing activities present a potential source of Giardia and *E. coli*; however, no sustained turbidity or algal issues have been observed, indicating that existing cattle management measures are effective. Although total coliform levels occasionally increase following major storm events or during warmer weather, *E. coli* levels have remained low under the County's weekly microbial monitoring program. Warmer summer conditions may increase the potential for elevated algae counts or harmful algal bloom events, but none have been observed during this reporting period.

Whale Rock Reservoir reached full capacity in 2023. The most recent bathymetric survey for Whale Rock Reservoir was completed in 2014. Updated bathymetric data would support long-term resource management planning and sedimentation assessment.

The CWTP and distribution system continue to operate in compliance with state and federal drinking water regulations, with no major operational issues during the study period. GAC filtration continues to effectively reduce TOC and control disinfection by-product formation (TTHMs and HAA5), while also maintaining taste and odor control. No taste or odor complaints were reported during this period, and no major system upgrades are currently scheduled or recommended.

## Groundwater Wells 2025 Update

In late 2025, a new permit amendment was submitted and subsequently approved by the Water Board to reclassify MRMW Well 03 as active in conjunction with the already active CAWO Well. This allows the CWTP to be fed exclusively from groundwater if Whale Rock water is not available, increasing the water system's resilience. It also gives the plant the option to blend groundwater with reservoir raw water, potentially reducing influent TOC and GAC change-outs. Sampling requirements have been updated for MRMW Well 03 to comply with State regulations in addition to scheduled auxiliary well sampling to monitor saltwater intrusion.

## Sanitary Survey Recommendations

**Recommendation 1- Expand Tributary Monitoring**

Water quality data is lacking on the main inlets to the Whale Rock Reservoir, Cottontail and Old Creek. Coordination with the City and landowners in the area is needed to create a regular sampling schedule for the creeks; with physical, bacteriological, nutrient, and organic analyses recommended.

**Recommendation 2 – Drought Impacts**

Climate change should be considered when planning mitigation strategies for significant fluctuations in water supply and quality. For example, major storm events following extended periods of extreme drought can result in large volumes of low-quality runoff entering the CWTP. Proactive planning is essential to maintain reliable treatment performance and water quality.

**Recommendation 3 – Expanded Groundwater Well Use**

The active and standby wells should be evaluated for expanded use by CWTP. This would increase the water system's resilience to drought and allow CSA 10 to continue to deliver drinking water in the event of an emergency.

# CONCLUSIONS

Evaluation of the watershed analytical data shows that the condition of the watershed remains very good and the treatment processes at the CWTP are sufficient to comply with current regulations.

Huge fluctuations between drought and heavy rainfall are a reality in California. However, the Whale Rock Watershed remains stable and resilient. Water quality in the reservoir was consistently high, especially compared with other reservoirs in the County during the same period, and supplies were reliable. The changing climate will likely be the biggest threat to the watershed in the foreseeable future.

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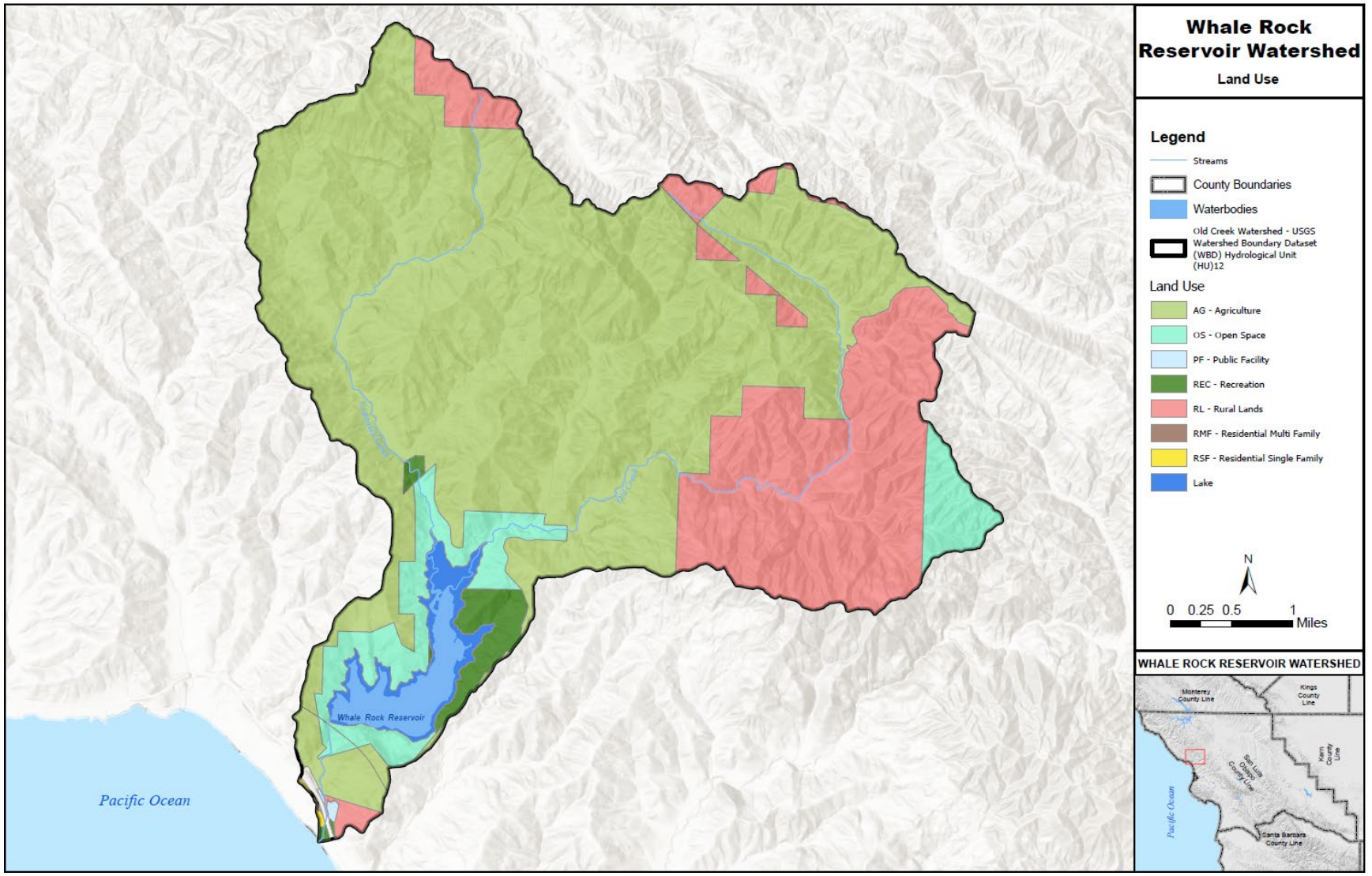
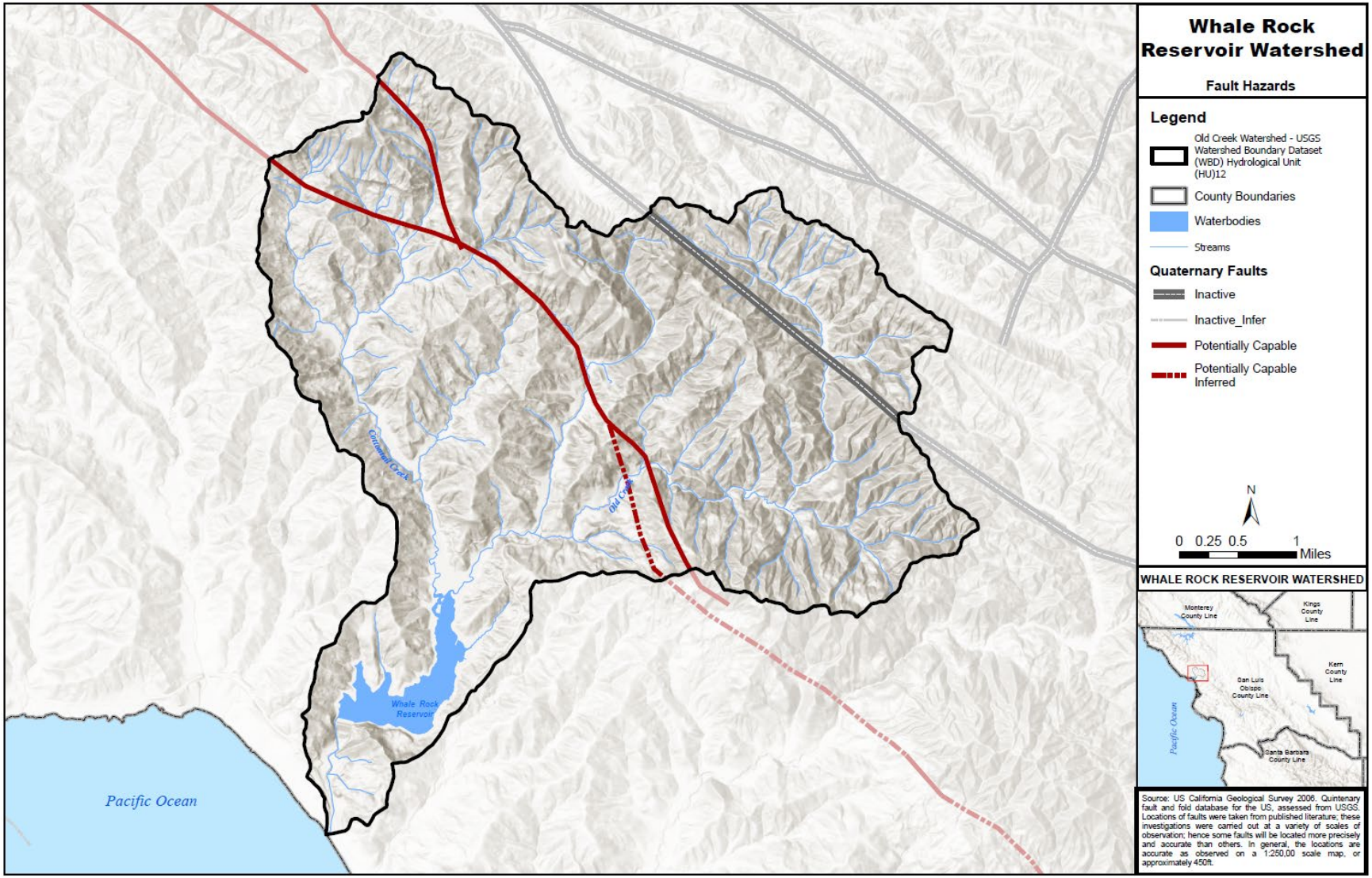
*Appendix A: Watershed Land Use Category Map*

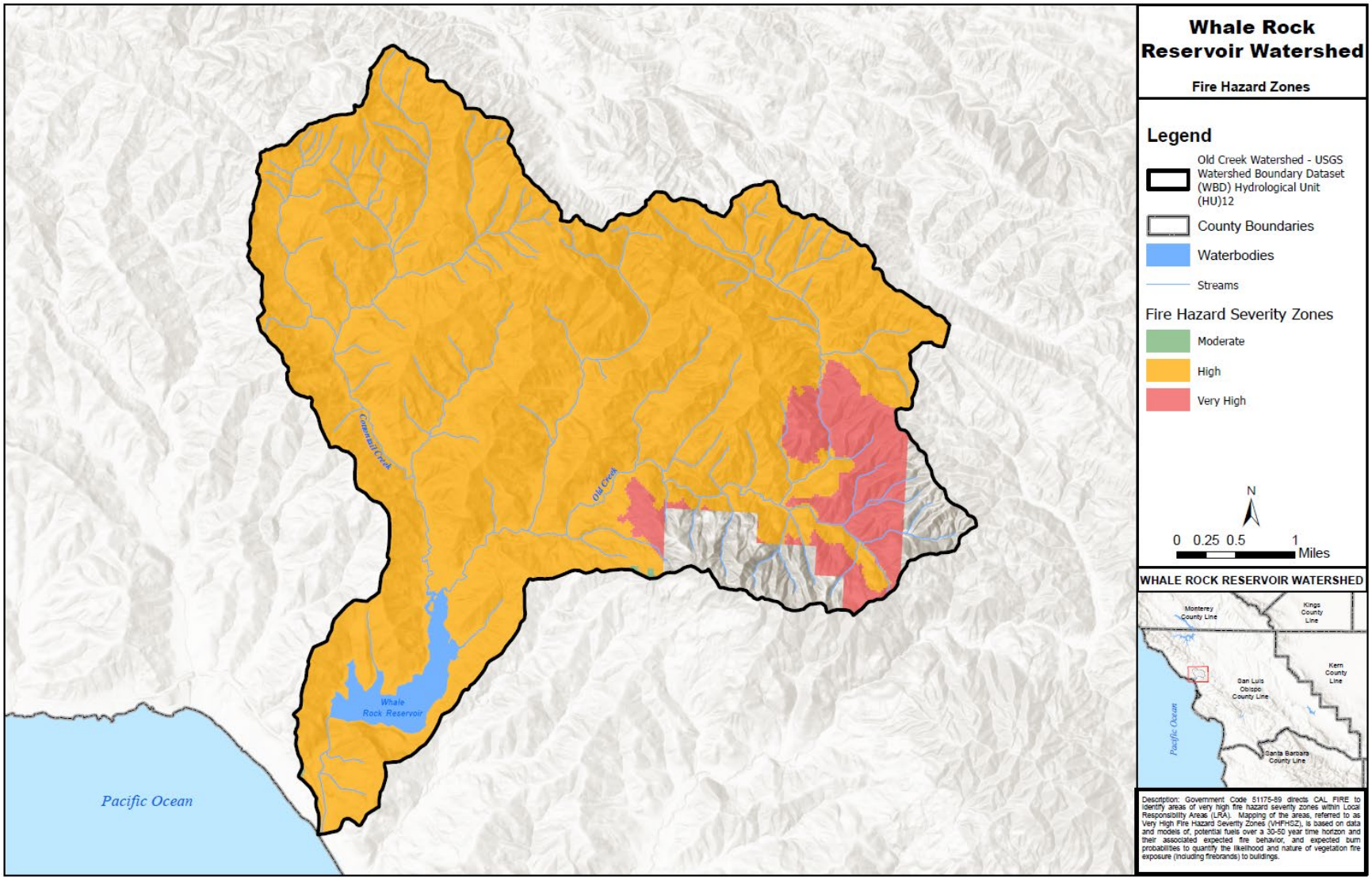


*Appendix B: Fault Hazards*

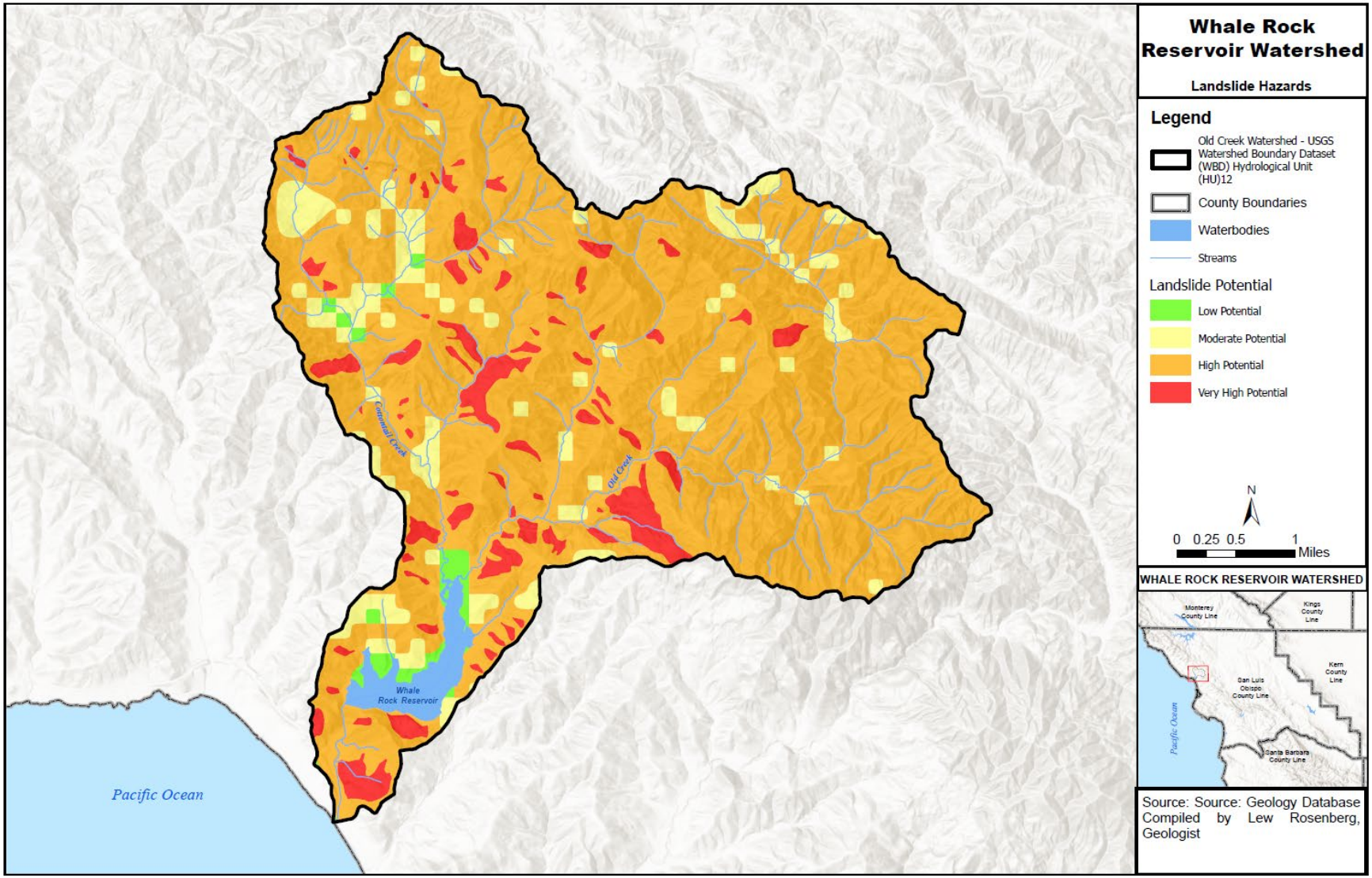


*Appendix C: Watershed Planning Area Flood Map*

*Appendix D: Cayucos Planning Area Fire Hazards Map*



*Appendix E: Watershed Planning Area Landslide Hazards Map*



*Appendix F: Whale Rock Limnology - Temperature Profile*

| Whale Rock Reservoir Temperature Profile, ºC versus Depth, Feet | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Date** | **2'** | **5'** | **10'** | **15'** | **20'** | **25'** | **30'** | **35'** | **40'** | **45'** | **50'** | **55'** | **60'** | **65'** | **70'** | **75'** | **80'** | **85'** | **90'** | **95'** | **100'** |
| 4/27/2021 | 16.6 | 16.5 | 16.4 | 16.4 | 16.3 | 16.3 | 16.3 | 16.2 | 14.7 | 13.3 | 13.0 | 12.8 | 12.7 | 12.6 | 12.5 | 12.5 | 12.4 | 12.4 | 12.4 | 12.3 | 12.3 |
| 5/11/2021 | 19.2 | 19.2 | 19.2 | 19.2 | 19.2 | 18.5 | 16.9 | 16.4 | 14.8 | 14.2 | 13.7 | 13.2 | 12.9 | 12.7 | 12.7 | 12.6 | 12.5 | 12.5 | 12.5 | 12.4 | 12.4 |
| 5/25/2021 | 19.3 | 19.0 | 18.9 | 18.9 | 18.8 | 18.8 | 18.7 | 16.4 | 15.0 | 14.2 | 13.5 | 13.2 | 12.9 | 12.8 | 12.7 | 12.6 | 12.6 | 12.5 | 12.5 | 12.5 | 12.5 |
| 6/8/2021 | 20.2 | 20.2 | 20.0 | 20.0 | 20.0 | 19.9 | 19.9 | 17.8 | 15.4 | 14.4 | 13.9 | 13.4 | 13.0 | 12.9 | 12.7 | 12.7 | 12.6 | 12.6 | 12.6 | 12.6 | 12.6 |
| 6/22/2021 | 21.7 | 21.7 | 21.6 | 21.5 | 21.5 | 21.5 | 21.1 | 20.0 | 16.4 | 15.2 | 14.5 | 13.7 | 13.4 | 13.1 | 12.9 | 12.7 | 12.7 | 12.7 | 12.6 | 12.6 | 12.6 |
| 7/14/2021 | 22.8 | 22.9 | 22.9 | 22.9 | 22.9 | 22.9 | 22.9 | 21.8 | 17.9 | 16.4 | 15.0 | 14.4 | 13.5 | 13.2 | 13.0 | 12.9 | 12.8 | 12.7 | 12.7 | 12.7 | 12.6 |
| 8/10/2021 | 23.0 | 23.0 | 23.0 | 22.9 | 22.9 | 22.9 | 22.9 | 22.9 | 20.2 | 16.8 | 15.5 | 14.4 | 13.7 | 13.2 | 13.0 | 12.9 | 12.8 | 12.8 | 12.7 | 12.7 | 12.7 |
| 9/14/2021 | 22.5 | 22.5 | 22.6 | 22.6 | 22.6 | 22.6 | 22.6 | 22.6 | 18.0 | 17.4 | 16.1 | 15.8 | 14.1 | 13.6 | 13.2 | 13.0 | 12.9 | 12.8 | 12.8 | 12.8 | 12.7 |
| 10/26/2021 | 17.7 | 17.7 | 17.7 | 17.7 | 17.7 | 17.7 | 17.7 | 17.7 | 17.7 | 17.6 | 17.6 | 17.6 | 14.3 | 13.5 | 13.3 | 13.1 | 13.0 | 12.9 | 12.9 | 12.8 | 12.8 |
| 11/16/2021 | 16.4 | 16.4 | 16.3 | 16.3 | 16.3 | 16.3 | 16.3 | 16.3 | 16.3 | 16.3 | 16.1 | 16.1 | 16.1 | 16.0 | 15.9 | 15.9 | 15.6 | 13.1 | 13.0 | 12.9 | 12.9 |
| 12/21/2021 | 12.7 | 12.7 | 12.7 | 12.6 | 12.6 | 12.6 | 12.6 | 12.6 | 12.6 | 12.6 | 12.6 | 12.6 | 12.6 | 12.6 | 12.6 | 12.6 | 12.6 | 12.5 | 12.5 | 12.5 | 12.5 |
| 1/25/2022 | 12.0 | 11.9 | 11.9 | 11.9 | 11.9 | 11.9 | 11.9 | 11.9 | 11.8 | 11.8 | 11.8 | 11.8 | 11.8 | 11.8 | 11.8 | 11.8 | 11.8 | 11.7 | 11.7 | 11.7 | 11.7 |
| 2/15/2022 | 12.6 | 12.6 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.4 | 12.0 | 11.9 | 11.8 | 11.8 | 11.8 | 11.8 | 11.7 | 11.7 | 11.7 | 11.7 | 11.7 | 11.7 |
| 3/8/2022 | 13.0 | 12.8 | 12.7 | 12.4 | 12.4 | 12.4 | 12.4 | 12.3 | 12.3 | 12.3 | 12.3 | 12.3 | 12.3 | 12.3 | 12.2 | 12.2 | 12.2 | 12.1 | 12.1 | 12.1 | NA |
| 4/12/2022 | 16.6 | 16.6 | 16.5 | 16.3 | 16.2 | 16.2 | 16.1 | 16.0 | 14.2 | 13.8 | 13.2 | 12.9 | 12.7 | 12.6 | 12.6 | 12.5 | 12.5 | 12.4 | 12.4 | 12.4 | 12.4 |
| 5/10/2022 | 18.3 | 18.3 | 18.3 | 18.3 | 18.3 | 18.2 | 18.2 | 16.4 | 14.4 | 13.8 | 13.3 | 13.0 | 12.9 | 12.8 | 12.7 | 12.7 | 12.7 | 12.6 | 12.6 | 12.6 | 12.6 |
| 6/2/2022 | 20.6 | 20.5 | 20.4 | 20.3 | 20.3 | 20.3 | 19.9 | 16.7 | 15.4 | 14.4 | 13.9 | 13.9 | 13.3 | 13.1 | 12.9 | 12.8 | 12.8 | 12.8 | 12.7 | 12.7 | 12.7 |
| 6/28/2022 | 22.4 | 22.3 | 22.3 | 22.1 | 22.1 | 22.1 | 21.4 | 17.7 | 16.0 | 14.8 | 14.2 | 13.7 | 13.4 | 13.1 | 13.0 | 12.9 | 12.8 | 12.8 | 12.8 | 12.8 | 12.7 |
| 7/27/2022 | 22.6 | 22.6 | 22.6 | 22.6 | 22.6 | 22.5 | 22.5 | 19.8 | 16.9 | 15.2 | 14.4 | 13.6 | 13.3 | 13.1 | 13.1 | 13.0 | 12.9 | 12.9 | 12.9 | 12.8 | 12.8 |
| 8/23/2022 | 23.0 | 23.0 | 23.0 | 23.0 | 22.9 | 22.9 | 22.8 | 21.5 | 18.4 | 16.0 | 14.9 | 14.0 | 13.6 | 13.3 | 13.1 | 13.0 | 13.0 | 13.0 | 12.9 | 12.9 | 12.9 |
| 9/27/2022 | 21.8 | 21.9 | 21.9 | 21.8 | 21.8 | 21.8 | 21.8 | 21.8 | 21.0 | 16.5 | 15.0 | 14.1 | 13.6 | 13.4 | 13.2 | 13.1 | 13.0 | 13.0 | 13.0 | 12.9 | 12.9 |
| 10/12/2022 | 20.8 | 20.8 | 20.8 | 20.8 | 20.8 | 20.8 | 20.8 | 20.8 | 20.8 | 17.6 | 16.4 | 16.2 | 14.3 | 13.6 | 13.3 | 13.2 | 13.1 | 13.0 | 13.0 | 13.0 | 12.9 |
| 10/25/2022 | 19.3 | 19.3 | 19.3 | 19.3 | 19.2 | 19.2 | 19.2 | 19.2 | 19.2 | 19.1 | 15.6 | 14.0 | 13.6 | 13.3 | 13.2 | 13.1 | 13.0 | 13.0 | 13.0 | 12.9 | 12.9 |
| 11/30/2022 | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 |

| Whale Rock Reservoir Temperature Profile, ºC versus Depth, Feet | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 2' | 5' | 10' | 15' | 20' | 25' | 30' | 35' | 40' | 45' | 50' | 55' | 60' | 65' | 70' | 75' | 80' | 85' | 90' | 95' | 100' |
| 12/20/2022 | 12.4 | 12.0 | 12.0 | 11.9 | 11.9 | 11.9 | 11.9 | 11.9 | 11.9 | 11.9 | 11.9 | 11.9 | 11.9 | 11.9 | 11.8 | 11.8 | 11.8 | 11.8 | 11.8 | 11.8 | 11.8 |
| 2/14/2023 | 11.7 | 11.6 | 11.6 | 11.6 | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 | 11.4 | 11.4 | 11.4 | 11.4 | 11.4 | 11.4 | 11.4 |
| 3/28/2023 | 13.4 | 12.8 | 12.8 | 12.8 | 12.7 | 12.7 | 12.7 | 12.6 | 12.3 | 12.0 | 11.9 | 11.7 | 11.6 | 11.5 | 11.5 | 11.4 | 11.4 | 11.4 | 11.4 | 11.4 | 11.3 |
| 4/11/2023 | 15.6 | 15.6 | 15.3 | 15.2 | 15.2 | 15.2 | 15.2 | 14.3 | 13.7 | 13.1 | 12.5 | 12.0 | 11.9 | 11.8 | 11.7 | 11.6 | 11.6 | 11.6 | 11.5 | 11.5 | 11.5 |
| 4/25/2023 | 17.9 | 17.7 | 17.6 | 17.5 | 17.2 | 16.0 | 14.5 | 13.7 | 13.0 | 12.6 | 12.4 | 12.2 | 12.1 | 12.0 | 11.9 | 11.9 | 11.8 | 11.8 | 11.8 | 11.8 | 11.8 |
| 5/23/2023 | 20.0 | 20.0 | 20.1 | 19.1 | 18.2 | 16.3 | 15.2 | 14.1 | 13.6 | 13.2 | 12.9 | 12.5 | 12.8 | 12.1 | 12.0 | 11.9 | 11.9 | 11.8 | 11.8 | 11.8 | 11.8 |
| 6/13/2023 | 19.9 | 19.7 | 19.6 | 19.6 | 19.3 | 17.2 | 14.9 | 14.0 | 13.5 | 13.3 | 13.0 | 12.6 | 12.3 | 12.1 | 12.1 | 11.9 | 11.9 | 11.8 | 11.8 | 11.8 | 11.8 |
| 6/27/2023 | 20.9 | 20.9 | 20.8 | 20.7 | 20.7 | 18.0 | 15.3 | 14.2 | 13.7 | 13.3 | 12.9 | 12.5 | 12.2 | 12.1 | 12.0 | 12.0 | 11.9 | 11.9 | 11.9 | 11.9 | 11.9 |
| 7/11/2023 | 21.9 | 21.8 | 21.8 | 21.8 | 21.7 | 19.7 | 16.8 | 14.6 | 13.9 | 13.4 | 13.0 | 12.8 | 12.3 | 12.2 | 12.0 | 12.0 | 12.0 | 11.9 | 11.9 | 11.9 | 11.9 |
| 7/25/2023 | 23.2 | 23.3 | 23.2 | 23.1 | 23.0 | 20.0 | 15.8 | 14.3 | 13.6 | 13.1 | 12.9 | 12.6 | 12.3 | 12.1 | 12.0 | 12.0 | 12.0 | 12.0 | 11.9 | 11.9 | 11.9 |
| 8/15/2023 | 23.3 | 23.2 | 23.1 | 23.0 | 23.0 | 21.3 | 16.9 | 15.1 | 14.2 | 13.6 | 13.2 | 12.7 | 12.4 | 12.3 | 12.1 | 12.1 | 12.0 | 12.0 | 12.0 | 12.0 | 11.9 |
| 8/29/2023 | 23.5 | 23.5 | 23.3 | 23.3 | 23.0 | 22.6 | 18.2 | 15.7 | 14.4 | 13.8 | 13.2 | 12.7 | 12.4 | 12.2 | 12.1 | 12.1 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| 9/12/2023 | 22.5 | 22.5 | 22.3 | 22.3 | 22.3 | 22.2 | 20.8 | 15.6 | 14.3 | 13.6 | 13.2 | 12.7 | 12.5 | 12.3 | 12.2 | 12.1 | 12.1 | 12.0 | 12.0 | 12.0 | 12.0 |
| 9/26/2023 | 20.9 | 20.9 | 20.8 | 20.8 | 20.8 | 20.8 | 20.7 | 19.7 | 14.7 | 13.9 | 13.1 | 12.7 | 12.4 | 12.3 | 12.1 | 12.1 | 12.1 | 12.0 | 12.0 | 12.0 | 12.0 |
| 10/10/2023 | 20.3 | 20.3 | 20.2 | 20.2 | 20.2 | 20.2 | 20.1 | 20.1 | 15.4 | 13.8 | 13.3 | 12.8 | 12.5 | 12.4 | 12.3 | 12.2 | 12.1 | 12.1 | 12.1 | 12.1 | 12.0 |
| 10/25/2023 | 19.4 | 19.4 | 19.4 | 19.4 | 19.4 | 19.4 | 19.4 | 19.4 | 18.6 | 16.3 | 14.6 | 13.2 | 12.8 | 12.5 | 12.4 | 12.3 | 12.3 | 12.2 | 12.2 | 12.2 | 12.1 |
| 11/14/2023 | 15.7 | 15.5 | 15.5 | 15.4 | 15.4 | 15.4 | 15.4 | 15.4 | 15.4 | 15.4 | 15.1 | 14.7 | 13.2 | 12.5 | 12.3 | 12.3 | 12.2 | 12.2 | 12.1 | 12.1 | 12.1 |
| 12/12/2023 | 12.8 | 12.8 | 12.8 | 12.8 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.6 | 12.6 |
| 1/10/2024 | 12.4 | 12.5 | 12.5 | 12.4 | 12.4 | 12.2 | 12.2 | 12.2 | 12.2 | 12.2 | 12.2 | 12.2 | 12.2 | 12.2 | 12.2 | 12.1 | 12.2 | 12.2 | 12.2 | 12.2 | 12.1 |
| 1/23/2024 | 12.7 | 12.6 | 12.6 | 12.5 | 12.5 | 12.5 | 12.4 | 12.4 | 12.3 | 12.2 | 12.1 | 12.1 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| 2/13/2024 | 12.9 | 12.8 | 12.7 | 12.4 | 12.4 | 12.4 | 12.4 | 12.4 | 12.4 | 12.4 | 12.4 | 12.3 | 12.4 | 12.9 | 12.3 | 12.3 | 12.3 | 12.3 | 12.3 | 12.3 | 12.3 |
| 2/27/2024 | 13.7 | 13.7 | 13.6 | 13.6 | 13.6 | 13.6 | 13.5 | 13.5 | 13.3 | 13.2 | 13.1 | 13.0 | 12.9 | 12.8 | 12.7 | 12.7 | 12.7 | 12.6 | 12.5 | 12.5 | 12.5 |
| 3/12/2024 | 14.2 | 14.2 | 14.2 | 14.1 | 14.1 | 14.1 | 14.1 | 14.1 | 13.7 | 13.5 | 13.2 | 13.1 | 12.9 | 12.8 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.6 | 12.6 |
| 3/26/2024 | 16.0 | 15.7 | 15.7 | 15.6 | 15.6 | 15.6 | 14.5 | 13.7 | 13.5 | 13.2 | 13.1 | 13.0 | 12.8 | 12.8 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 |
| 4/23/2024 | 17.3 | 17.3 | 17.2 | 17.1 | 16.8 | 15.9 | 15.6 | 15.1 | 14.3 | 14.0 | 13.8 | 13.5 | 13.3 | 13.1 | 13.0 | 12.9 | 12.9 | 12.9 | 12.8 | 12.8 | 12.8 |
| 5/14/2024 | 19.1 | 19.0 | 19.0 | 19.0 | 18.6 | 17.2 | 15.8 | 15.2 | 14.7 | 14.3 | 13.9 | 13.7 | 13.5 | 13.3 | 13.1 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 |
| 5/30/2024 | 20.0 | 20.0 | 20.0 | 20.0 | 19.9 | 18.6 | 17.1 | 15.4 | 14.8 | 14.5 | 14.2 | 14.0 | 13.6 | 13.4 | 13.2 | 13.2 | 13.1 | 13.1 | 13.0 | 13.0 | 13.0 |

| Whale Rock Reservoir Temperature Profile, ºC versus Depth, Feet | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Date** | **2'** | **5'** | **10'** | **15'** | **20'** | **25'** | **30'** | **35'** | **40'** | **45'** | **50'** | **55'** | **60'** | **65'** | **70'** | **75'** | **80'** | **85'** | **90'** | **95'** | **100'** |
| 6/11/2024 | 20.9 | 21.0 | 20.9 | 20.9 | 20.9 | 19.6 | 16.9 | 15.5 | 15.0 | 14.8 | 14.2 | 13.8 | 13.5 | 13.0 | 13.2 | 13.1 | 13.1 | 13.0 | 13.0 | 13.0 | 13.0 |
| 6/25/2024 | 22.2 | 22.2 | 22.1 | 22.0 | 18.5 | 16.0 | 15.4 | 15.4 | 15.2 | 15.2 | 13.2 | 13.1 | 13.2 | 13.4 | 13.2 | 13.2 | 13.2 | 13.1 | 13.0 | 13.0 | 13.0 |
| 7/9/2024 | 23.0 | 23.0 | 23.0 | 22.9 | 22.9 | 22.7 | 17.9 | 16.1 | 15.2 | 14.8 | 14.2 | 13.9 | 13.7 | 13.5 | 13.3 | 13.2 | 13.1 | 13.1 | 13.1 | 13.0 | 13.0 |
| 7/23/2024 | 23.1 | 23.1 | 23.0 | 22.8 | 22.8 | 22.7 | 20.5 | 19.7 | 15.3 | 14.8 | 14.4 | 14.0 | 13.6 | 13.3 | 13.2 | 13.1 | 13.1 | 13.1 | 13.1 | 13.0 | 13.0 |
| 8/13/2024 | 22.7 | 22.8 | 22.7 | 22.7 | 22.7 | 22.7 | 22.1 | 18.1 | 15.6 | 15.0 | 15.0 | 14.8 | 14.4 | 14.3 | 14.2 | 14.1 | 13.8 | 13.3 | 13.2 | 13.1 | 13.1 |
| 8/27/2024 | 22.4 | 22.4 | 22.4 | 22.4 | 22.4 | 22.4 | 22.2 | 19.6 | 16.0 | 15.1 | 14.5 | 13.8 | 13.6 | 13.5 | 13.3 | 13.2 | 13.1 | 13.1 | 13.1 | 13.1 | 13.0 |
| 9/10/2024 | 22.4 | 22.5 | 22.5 | 22.5 | 22.5 | 22.5 | 22.5 | 20.1 | 16.2 | 15.2 | 14.6 | 14.1 | 13.8 | 13.6 | 13.4 | 13.3 | 13.2 | 13.1 | 13.1 | 13.1 | 13.1 |
| 9/24/2024 | 21.1 | 21.2 | 21.1 | 21.1 | 21.0 | 21.0 | 21.0 | 18.4 | 16.2 | 14.5 | 14.1 | 13.7 | 13.4 | 13.3 | 13.2 | 13.1 | 13.1 | 12.9 | 12.9 | 13.1 | 13.0 |
| 10/8/2024 | 21.1 | 21.2 | 21.2 | 21.2 | 21.1 | 21.1 | 21.1 | 20.8 | 19.7 | 15.4 | 14.9 | 14.3 | 13.9 | 13.6 | 13.5 | 13.4 | 13.3 | 13.2 | 13.1 | 13.1 | 13.1 |
| 10/22/2024 | 19.5 | 19.5 | 19.5 | 19.5 | 19.5 | 19.5 | 19.5 | 19.5 | 19.5 | 19.4 | 14.9 | 14.3 | 13.8 | 13.5 | 13.4 | 13.3 | 13.2 | 13.2 | 13.1 | 13.1 | 13.1 |
| 11/12/2024 | 16.1 | 16.1 | 16.1 | 16.1 | 16.1 | 16.1 | 16.0 | 16.0 | 16.0 | 16.0 | 16.0 | 15.2 | 13.9 | 13.5 | 13.4 | 13.3 | 13.3 | 13.2 | 13.2 | 13.2 | 13.2 |
| 12/10/2024 | 13.5 | 13.4 | 13.4 | 13.4 | 13.4 | 13.3 | 13.2 | 13.4 | 13.3 | 13.4 | 13.4 | 13.4 | 13.4 | 13.4 | 13.4 | 13.4 | 13.3 | 13.4 | 13.4 | 13.4 | 13.4 |
| 1/15/2025 | 11.9 | 11.8 | 11.8 | 11.8 | 11.8 | 11.8 | 11.8 | 11.8 | 11.8 | 11.8 | 11.8 | 11.8 | 11.8 | 11.8 | 11.8 | 11.8 | 11.8 | 11.8 | 11.8 | 11.8 | 11.8 |
| 2/11/2025 | 12.1 | 11.6 | 11.6 | 11.6 | 11.6 | 11.6 | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 |
| 3/11/2025 | 13.5 | 13.4 | 13.4 | 13.4 | 13.4 | 13.4 | 13.3 | 13.2 | 13.2 | 13.1 | 12.7 | 12.4 | 12.2 | 12.1 | 12.1 | 12.0 | 12.0 | 11.9 | 11.9 | 11.9 | 11.9 |
| 4/15/2025 | 17.5 | 17.5 | 17.4 | 17.4 | 17.4 | 16.4 | 15.5 | 14.7 | 14.3 | 13.7 | 13.4 | 13.2 | 13.0 | 12.8 | 12.7 | 12.6 | 12.6 | 12.5 | 12.5 | 12.5 | 12.4 |
| 4/29/2025 | 17.8 | 17.7 | 17.6 | 17.5 | 17.4 | 17.4 | 16.9 | 14.9 | 14.6 | 13.9 | 13.6 | 13.2 | 12.9 | 12.8 | 12.7 | 12.7 | 12.6 | 12.5 | 12.5 | 12.5 | 12.5 |
| 5/13/2025 | 19.5 | 19.5 | 19.4 | 19.3 | 19.1 | 18.2 | 16.7 | 15.1 | 14.5 | 13.9 | 13.8 | 13.3 | 13.1 | 12.9 | 12.8 | 12.8 | 12.7 | 12.7 | 12.7 | 12.7 | 12.6 |
| 6/10/2025 | 20.9 | 20.9 | 20.9 | 20.9 | 20.9 | 20.9 | 17.7 | 17.4 | 17.2 | 15.0 | 14.1 | 13.7 | 13.4 | 13.0 | 12.9 | 12.8 | 12.8 | 12.7 | 12.7 | 12.7 | 12.6 |
| 7/8/2025 | 22.2 | 22.2 | 22.1 | 22.1 | 22.1 | 22.0 | 19.5 | 16.5 | 16.5 | 15.2 | 15.2 | 13.8 | 13.5 | 13.0 | 13.0 | 12.8 | 12.4 | 12.4 | 12.5 | 12.5 | 12.5 |
| 8/12/2025 | 22.7 | 22.7 | 22.7 | 22.7 | 22.7 | 22.7 | 22.7 | 22.7 | 18.5 | 16.0 | 15.0 | 14.3 | 13.6 | 13.3 | 13.1 | 12.9 | 12.9 | NA | NA | NA | NA |
| 9/9/2025 | 23.2 | 23.2 | 23.2 | 23.1 | 23.1 | 23.1 | 22.2 | 21.5 | 20.3 | 16.8 | 15.6 | 14.5 | 14.0 | 13.5 | 13.4 | 13.0 | 12.9 | 12.9 | 12.8 | 12.8 | 12.8 |
| 10/22/2025 | 19.2 | 19.2 | 19.2 | 19.1 | 19.1 | 19.1 | 19.1 | 19.1 | 19.1 | 19.1 | 17.9 | 14.5 | 13.7 | 13.4 | 13.2 | 13.0 | 13.0 | 12.9 | 12.9 | 12.8 | 12.8 |
| 11/18/2025 | 17.1 | 17.0 | 17.0 | 17.0 | 17.0 | 17.0 | 17.0 | 17.0 | 17.0 | 17.0 | 17.0 | 16.9 | 16.9 | 15.2 | 13.7 | 13.3 | 13.2 | 13.1 | 13.0 | 12.9 | 12.9 |
| 12/9/2025 | 13.9 | 13.8 | 13.7 | 13.7 | 13.7 | 13.6 | 13.6 | 13.6 | 13.6 | 13.6 | 13.6 | 13.6 | 13.6 | 13.6 | 13.6 | 13.6 | 13.6 | 13.5 | 13.5 | 13.5 | 13.5 |
| **Summary Whale Rock Reservoir Temperature Profile, ºC versus Depth, Feet** | | | | | | | | | | | | | | | | | | | | | |
| ***Depth*** | **2'** | **5'** | **10'** | **15'** | **20'** | **25'** | **30'** | **35'** | **40'** | **45'** | **50'** | **55'** | **60'** | **65'** | **70'** | **75'** | **80'** | **85'** | **90'** | **95'** | **100'** |
| Average | 18.4 | 18.4 | 18.3 | 18.3 | 18.2 | 17.8 | 17.1 | 16.2 | 15.2 | 14.4 | 13.8 | 13.4 | 13.1 | 12.9 | 12.7 | 12.7 | 12.6 | 12.5 | 12.5 | 12.5 | 12.5 |

| Whale Rock Reservoir Temperature Profile, ºC versus Depth, Feet | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Date** | **2'** | **5'** | **10'** | **15'** | **20'** | **25'** | **30'** | **35'** | **40'** | **45'** | **50'** | **55'** | **60'** | **65'** | **70'** | **75'** | **80'** | **85'** | **90'** | **95'** | **100'** |
| Minimum | 11.7 | 11.6 | 11.6 | 11.6 | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 | 11.4 | 11.4 | 11.4 | 11.4 | 11.4 | 11.4 | 11.3 |
| Maximum | 23.5 | 23.5 | 23.3 | 23.3 | 23.1 | 23.1 | 22.9 | 22.9 | 21.0 | 19.4 | 17.9 | 17.6 | 16.9 | 16.0 | 15.9 | 15.9 | 15.6 | 13.5 | 13.5 | 13.5 | 13.5 |
| n | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 75 | 75 | 75 | 74 |

*Appendix G: Whale Rock Reservoir Limnology - Dissolved Oxygen Profile*

| Whale Rock Reservoir Dissolved Oxygen, mg/L versus Depth, Feet | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Date** | **2'** | **5'** | **10'** | **15'** | **20'** | **25'** | **30'** | **35'** | **40'** | **45'** | **50'** | **55'** | **60'** | **65'** | **70'** | **75'** | **80'** | **85'** | **90'** | **95'** | **100'** |
| 4/27/2021 | 10.8 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 9.9 | 9.9 | 8.9 | 8.5 | 8.1 | 7.8 | 7.7 | 7.6 | 7.5 | 7.5 | 7.4 | 7.2 | 7.1 | 7.1 | 7.0 |
| 5/11/2021 | 9.1 | 9.1 | 9.1 | 9.3 | 9.3 | 9.6 | 9.8 | 9.4 | 8.9 | 8.4 | 7.7 | 7.5 | 6.9 | 6.8 | 6.6 | 6.4 | 6.5 | 6.3 | 6.2 | 6.1 | 6.0 |
| 5/25/2021 | 9.9 | 9.9 | 9.7 | 9.8 | 9.9 | 9.7 | 9.5 | 9.5 | 8.7 | 8.4 | 8.0 | 7.8 | 7.2 | 6.9 | 6.8 | 6.4 | 6.3 | 6.2 | 6.1 | 6.0 | 5.8 |
| 6/8/2021 | 10.4 | 10.3 | 10.4 | 10.3 | 10.1 | 10.1 | 10.1 | 9.9 | 9.1 | 8.7 | 8.0 | 7.6 | 7.3 | 6.8 | 6.2 | 6.1 | 5.9 | 5.8 | 5.5 | 5.4 | 5.2 |
| 6/22/2021 | 9.4 | 9.5 | 9.4 | 9.5 | 9.4 | 9.4 | 9.4 | 9.4 | 9.1 | 8.6 | 7.9 | 7.1 | 6.7 | 6.3 | 6.0 | 5.6 | 5.5 | 5.2 | 4.9 | 4.8 | 4.4 |
| 7/14/2021 | 7.7 | 7.9 | 8.0 | 8.0 | 7.4 | 7.8 | 7.9 | 7.9 | 6.9 | 6.4 | 5.8 | 5.3 | 4.8 | 4.1 | 3.8 | 3.4 | 3.0 | 2.7 | 2.7 | 2.6 | 2.4 |
| 8/10/2021 | 6.6 | 5.3 | 4.5 | 4.1 | 3.9 | 3.9 | 3.9 | 4.0 | 4.1 | 4.3 | 3.9 | 3.5 | 3.1 | 2.5 | 2.4 | 2.1 | 2.0 | 1.8 | 1.8 | 1.7 | 1.6 |
| 9/14/2021 | 8.6 | 8.6 | 8.6 | 8.6 | 8.6 | 8.6 | 8.6 | 8.6 | 3.8 | 3.2 | 2.9 | 2.0 | 1.4 | 1.0 | 0.8 | 0.7 | 0.6 | 0.5 | 0.4 | 0.4 | 0.3 |
| 10/26/2021 | 8.6 | 8.5 | 8.6 | 8.5 | 8.4 | 8.5 | 8.6 | 8.5 | 8.7 | 8.6 | 8.4 | 8.4 | 0.4 | 0.4 | 0.3 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 |
| 11/16/2021 | 8.8 | 8.7 | 8.6 | 8.6 | 8.5 | 8.6 | 8.6 | 8.4 | 8.4 | 8.3 | 8.0 | 8.0 | 7.9 | 8.0 | 7.6 | 7.4 | 6.5 | 0.7 | 0.5 | 0.3 | 0.3 |
| 12/21/2021 | 10.0 | 9.9 | 9.8 | 9.8 | 9.8 | 9.8 | 9.8 | 9.8 | 9.6 | 9.5 | 9.4 | 9.5 | 9.7 | 9.5 | 9.5 | 9.4 | 9.3 | 9.2 | 9.1 | 9.2 | 9.3 |
| 1/25/2022 | 11.9 | 11.2 | 11.2 | 11.1 | 11.0 | 10.9 | 10.9 | 10.4 | 10.8 | 10.9 | 10.9 | 10.9 | 10.9 | 10.8 | 10.8 | 10.8 | 10.6 | 10.6 | 10.5 | 10.5 | 10.5 |
| 2/15/2022 | 11.2 | 11.1 | 11.1 | 11.1 | 11.0 | 10.8 | 10.8 | 10.9 | 10.9 | 10.8 | 10.8 | 10.8 | 10.9 | 10.8 | 10.8 | 10.6 | 10.6 | 10.4 | 10.5 | 10.4 | 10.4 |
| 3/8/2022 | 10.9 | 10.7 | 10.6 | 10.4 | 10.7 | 10.6 | 10.3 | 10.4 | 10.6 | 10.6 | 10.5 | 10.6 | 10.6 | 10.4 | 10.2 | 10.2 | 9.9 | 10.0 | 9.8 | 9.9 | ---- |
| 4/12/2022 | 10.2 | 10.2 | 10.1 | 10.1 | 10.1 | 10.1 | 10.1 | 9.9 | 9.4 | 9.0 | 8.8 | 8.8 | 8.8 | 8.2 | 8.6 | 8.5 | 8.4 | 8.3 | 8.3 | 8.3 | 8.3 |
| 5/10/2022 | 9.1 | 9.1 | 9.1 | 8.7 | 8.8 | 8.5 | 8.6 | 8.1 | 8.0 | 7.6 | 7.4 | 7.1 | 7.1 | 7.0 | 6.7 | 6.7 | 6.6 | 6.7 | 6.5 | 6.5 | 6.5 |
| 6/2/2022 | 8.9 | 9.0 | 8.9 | 9.0 | 8.9 | 9.1 | 9.2 | 8.0 | 7.8 | 7.5 | 7.3 | 7.0 | 6.7 | 6.2 | 6.3 | 6.2 | 6.0 | 5.9 | 5.9 | 5.9 | 5.8 |
| 6/28/2022 | 9.4 | 9.6 | 9.6 | 9.5 | 9.5 | 9.5 | 9.0 | 7.6 | 6.4 | 5.7 | 5.2 | 5.0 | 4.9 | 4.9 | 4.7 | 4.7 | 4.5 | 4.2 | 4.1 | 4.0 | 4.0 |
| 7/27/2022 | 8.7 | 9.0 | 8.9 | 9.0 | 8.9 | 8.9 | 8.7 | 6.6 | 5.3 | 4.7 | 2.8 | 3.0 | 2.9 | 2.8 | 2.7 | 2.7 | 2.3 | 2.3 | 2.2 | 1.9 | 1.9 |
| 8/23/2022 | 8.0 | 8.0 | 8.1 | 8.1 | 8.0 | 7.8 | 7.8 | 4.7 | 3.5 | 3.0 | 2.7 | 2.5 | 2.3 | 1.9 | 1.8 | 1.5 | 1.3 | 1.2 | 1.0 | 0.8 | 0.6 |
| 9/27/2022 | 8.6 | 7.9 | 7.9 | 7.8 | 7.9 | 7.9 | 7.8 | 7.7 | 5.7 | 4.4 | 3.9 | 3.0 | 2.5 | 2.1 | 1.8 | 1.5 | 1.3 | 1.1 | 1.0 | 0.9 | 0.8 |
| 10/12/2022 | 7.8 | 7.7 | 7.7 | 7.7 | 7.8 | 7.5 | 7.7 | 7.8 | 7.7 | 3.1 | 2.1 | 2.0 | 1.0 | 1.1 | 1.0 | 0.9 | 0.8 | 0.7 | 0.7 | 0.6 | 0.6 |
| 10/25/2022 | 9.0 | 8.8 | 8.7 | 8.7 | 8.7 | 8.8 | 8.7 | 8.7 | 8.6 | 8.5 | 3.7 | 2.0 | 1.3 | 1.0 | 0.9 | 0.8 | 0.7 | 0.6 | 0.5 | 0.5 | 0.4 |
| 11/30/2022 | 9.1 | 8.6 | 8.5 | 8.3 | 8.3 | 8.3 | 8.3 | 8.3 | 8.3 | 8.3 | 8.3 | 8.3 | 8.1 | 8.1 | 8.1 | 8.3 | 8.3 | 8.1 | 8.3 | 8.2 | 8.2 |
| 12/20/2022 | 11.0 | 11.0 | 11.1 | 11.0 | 11.1 | 11.0 | 10.8 | 10.9 | 9.1 | 9.4 | 9.6 | 9.8 | 9.9 | 9.8 | 10.1 | 10.1 | 10.3 | 10.3 | 10.2 | 10.3 | 10.2 |

| Whale Rock Reservoir Dissolved Oxygen, mg/L versus Depth, Feet | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Date** | **2'** | **5'** | **10'** | **15'** | **20'** | **25'** | **30'** | **35'** | **40'** | **45'** | **50'** | **55'** | **60'** | **65'** | **70'** | **75'** | **80'** | **85'** | **90'** | **95'** | **100'** |
| 2/14/2023 | 9.8 | 10.0 | 10.0 | 9.7 | 9.8 | 9.8 | 9.8 | 9.8 | 9.8 | 9.9 | 9.8 | 9.7 | 9.5 | 9.3 | 9.5 | 9.4 | 9.2 | 9.1 | 9.2 | 9.2 | 9.2 |
| 3/28/2023 | 9.9 | 9.4 | 9.4 | 9.5 | 9.5 | 9.3 | 9.3 | 9.5 | 9.3 | 9.3 | 9.3 | 9.3 | 9.2 | 9.3 | 9.1 | 9.2 | 9.3 | 9.3 | 9.3 | 9.2 | 9.0 |
| 4/11/2023 | 10.0 | 10.0 | 10.1 | 10.1 | 10.1 | 10.2 | 10.1 | 10.1 | 10.0 | 10.0 | 9.8 | 9.6 | 9.6 | 9.5 | 9.5 | 9.4 | 9.4 | 9.4 | 9.3 | 9.2 | 9.3 |
| 4/25/2023 | 10.6 | 10.5 | 10.6 | 10.5 | 10.2 | 8.6 | 8.4 | 8.3 | 8.3 | 8.2 | 8.3 | 7.9 | 7.9 | 7.9 | 7.9 | 7.8 | 7.8 | 7.8 | 7.7 | 7.7 | 7.8 |
| 5/23/2023 | 9.1 | 9.0 | 8.8 | 8.6 | 7.6 | 6.5 | 6.6 | 7.0 | 6.8 | 7.3 | 7.3 | 7.3 | 7.2 | 7.3 | 7.4 | 7.5 | 7.5 | 7.5 | 7.3 | 7.3 | 7.3 |
| 6/13/2023 | 9.4 | 9.2 | 9.2 | 9.0 | 8.6 | 6.6 | 5.7 | 6.2 | 6.5 | 6.5 | 6.6 | 6.9 | 7.0 | 7.1 | 7.1 | 7.0 | 7.1 | 7.0 | 6.9 | 6.8 | 6.8 |
| 6/27/2023 | 8.4 | 8.4 | 8.4 | 8.5 | 8.4 | 5.0 | 4.9 | 5.1 | 5.3 | 5.5 | 5.8 | 6.1 | 6.2 | 6.4 | 6.3 | 6.3 | 6.3 | 6.0 | 5.9 | 5.8 | 5.8 |
| 7/11/2023 | 9.9 | 9.5 | 9.6 | 9.8 | 9.8 | 4.5 | 2.3 | 3.2 | 3.8 | 4.3 | 4.7 | 5.0 | 5.5 | 5.8 | 5.9 | 5.8 | 5.8 | 5.8 | 5.5 | 5.5 | 5.6 |
| 7/25/2023 | 9.8 | 9.9 | 10.1 | 10.2 | 10.2 | 3.1 | 2.2 | 3.0 | 3.6 | 4.2 | 4.6 | 4.9 | 5.2 | 5.3 | 5.2 | 5.2 | 5.1 | 5.2 | 5.0 | 4.7 | 4.7 |
| 8/15/2023 | 7.8 | 7.9 | 7.9 | 8.1 | 7.7 | 1.6 | 1.0 | 0.6 | 1.2 | 1.9 | 2.6 | 3.3 | 3.5 | 3.8 | 4.0 | 4.0 | 4.0 | 3.8 | 3.8 | 3.4 | 3.7 |
| 8/29/2023 | 7.6 | 7.6 | 7.5 | 7.2 | 6.7 | 5.7 | 0.9 | 0.6 | 0.7 | 1.1 | 2.0 | 2.6 | 2.8 | 3.0 | 2.9 | 3.2 | 2.7 | 2.6 | 2.2 | 2.0 | 1.9 |
| 9/12/2023 | 9.1 | 9.0 | 8.8 | 8.5 | 8.8 | 8.7 | 3.2 | 2.0 | 1.4 | 1.6 | 2.4 | 2.8 | 3.2 | 3.5 | 3.2 | 3.4 | 2.6 | 2.1 | 1.9 | 1.7 | 1.5 |
| 9/26/2023 | 8.4 | 8.2 | 8.2 | 8.2 | 8.1 | 8.1 | 8.0 | 5.9 | 2.9 | 2.2 | 2.7 | 2.8 | 2.8 | 2.7 | 2.7 | 2.6 | 2.2 | 1.8 | 1.5 | 1.3 | 1.2 |
| 10/10/2023 | 8.2 | 8.1 | 7.8 | 7.7 | 7.9 | 7.9 | 7.9 | 7.6 | 3.2 | 2.6 | 2.4 | 2.5 | 2.5 | 2.3 | 2.1 | 1.9 | 1.5 | 1.2 | 1.0 | 1.0 | 0.8 |
| 10/25/2023 | 8.8 | 8.7 | 8.6 | 8.6 | 8.5 | 8.5 | 8.5 | 8.4 | 7.0 | 2.3 | 2.1 | 2.0 | 2.2 | 2.0 | 1.9 | 1.8 | 1.8 | 1.6 | 1.5 | 1.2 | 1.2 |
| 11/14/2023 | 8.3 | 8.3 | 8.4 | 8.7 | 8.7 | 8.7 | 8.5 | 8.5 | 8.8 | 8.6 | 8.1 | 7.5 | 2.8 | 1.8 | 1.4 | 1.2 | 1.1 | 1.0 | 0.9 | 0.8 | 0.7 |
| 12/12/2023 | 14.0 | 13.9 | 12.8 | 12.1 | 10.9 | 10.1 | 9.7 | 9.7 | 9.5 | 9.4 | 9.4 | 9.4 | 9.0 | 9.2 | 9.2 | 9.1 | 9.0 | 8.9 | 9.0 | 8.9 | 8.8 |
| 1/10/2024 | 9.4 | 9.3 | 9.3 | 9.3 | 9.3 | 9.4 | 9.3 | 9.4 | 9.3 | 9.2 | 9.3 | 9.3 | 9.2 | 9.2 | 9.1 | 9.2 | 9.2 | 9.2 | 9.3 | 9.2 | 9.2 |
| 1/23/2024 | 10.1 | 10.0 | 10.0 | 10.2 | 10.2 | 10.2 | 10.0 | 10.0 | 9.8 | 9.9 | 9.7 | 9.7 | 9.7 | 9.0 | 9.2 | 9.1 | 9.2 | 9.4 | 9.4 | 9.3 | 9.3 |
| 2/13/2024 | 10.6 | 10.4 | 10.3 | 10.4 | 10.3 | 10.2 | 10.4 | 10.5 | 10.3 | 10.3 | 10.3 | 10.4 | 10.4 | 10.4 | 10.4 | 10.4 | 10.4 | 10.5 | 10.3 | 10.4 | 10.3 |
| 2/27/2024 | 9.2 | 9.3 | 9.1 | 9.1 | 9.1 | 9.1 | 9.0 | 9.0 | 8.9 | 8.8 | 8.7 | 8.7 | 8.5 | 8.5 | 8.4 | 8.3 | 8.3 | 8.2 | 8.2 | 8.1 | 8.0 |
| 3/12/2024 | 10.1 | 10.0 | 9.6 | 9.7 | 9.7 | 9.6 | 9.5 | 9.4 | 8.5 | 8.2 | 8.0 | 7.2 | 7.9 | 7.5 | 7.4 | 7.6 | 7.6 | 7.4 | 7.0 | 7.4 | 7.6 |
| 3/26/2024 | 9.7 | 9.7 | 9.6 | 9.5 | 9.5 | 9.6 | 9.2 | 8.8 | 8.7 | 8.6 | 8.5 | 8.3 | 8.2 | 8.0 | 7.8 | 7.4 | 7.4 | 7.4 | 7.3 | 7.2 | 7.2 |
| 4/23/2024 | 10.1 | 9.7 | 9.7 | 9.6 | 9.9 | 8.5 | 8.2 | 7.8 | 7.1 | 6.5 | 6.5 | 6.4 | 6.6 | 6.4 | 6.3 | 6.3 | 6.2 | 6.1 | 6.1 | 6.0 | 5.8 |
| 5/14/2024 | 9.3 | 9.7 | 9.6 | 9.6 | 9.8 | 8.2 | 7.2 | 6.6 | 6.4 | 5.3 | 6.4 | 6.2 | 6.0 | 5.8 | 5.7 | 5.6 | 5.6 | 5.6 | 5.4 | 5.4 | 5.4 |
| 5/30/2024 | 9.1 | 9.1 | 9.0 | 9.0 | 9.2 | 9.1 | 7.5 | 5.8 | 5.8 | 5.8 | 5.6 | 5.5 | 5.5 | 5.5 | 5.4 | 5.2 | 5.3 | 5.1 | 5.0 | 4.7 | 4.6 |
| 6/11/2024 | 9.8 | 9.8 | 10.0 | 9.9 | 9.9 | 9.2 | 6.9 | 5.0 | 4.9 | 4.8 | 5.0 | 4.9 | 5.0 | 5.1 | 5.0 | 5.0 | 4.9 | 4.8 | 4.8 | 4.6 | 4.3 |

| Whale Rock Reservoir Dissolved Oxygen, mg/L versus Depth, Feet | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Date** | **2'** | **5'** | **10'** | **15'** | **20'** | **25'** | **30'** | **35'** | **40'** | **45'** | **50'** | **55'** | **60'** | **65'** | **70'** | **75'** | **80'** | **85'** | **90'** | **95'** | **100'** |
| 6/25/2024 | 9.7 | 8.8 | 8.7 | 8.6 | 8.8 | 3.7 | 3.8 | 3.8 | 3.8 | 3.5 | 3.6 | 3.7 | 3.6 | 3.9 | 3.9 | 4.0 | 4.1 | 4.0 | 3.9 | 3.6 | 3.4 |
| 7/9/2024 | 8.8 | 8.8 | 8.3 | 8.2 | 8.5 | 8.7 | 4.0 | 1.5 | 2.1 | 2.4 | 2.8 | 3.0 | 3.1 | 3.2 | 3.1 | 3.1 | 3.1 | 2.9 | 2.7 | 2.5 | 2.5 |
| 7/23/2024 | 8.6 | 8.4 | 8.6 | 8.3 | 8.0 | 8.5 | 8.5 | 7.7 | 2.1 | 2.0 | 2.1 | 2.3 | 2.4 | 2.7 | 2.6 | 2.6 | 2.5 | 2.5 | 1.9 | 1.7 | 1.5 |
| 8/13/2024 | 8.4 | 8.1 | 8.2 | 7.9 | 8.0 | 8.0 | 6.8 | 2.5 | 1.2 | 1.1 | 1.2 | 1.3 | 1.3 | 1.4 | 1.5 | 1.8 | 1.8 | 1.9 | 2.0 | 1.8 | 1.8 |
| 8/27/2024 | 8.0 | 7.6 | 7.7 | 7.8 | 7.7 | 7.8 | 7.0 | 2.2 | 0.6 | 0.5 | 0.7 | 1.2 | 1.3 | 1.3 | 1.3 | 1.5 | 1.2 | 1.1 | 0.9 | 0.7 | 0.6 |
| 9/10/2024 | 7.6 | 7.6 | 7.5 | 7.4 | 7.6 | 7.5 | 7.5 | 2.2 | 1.0 | 0.7 | 0.5 | 0.6 | 2.0 | 1.0 | 0.9 | 0.0 | 0.0 | 0.6 | 0.4 | 0.4 | 0.3 |
| 9/24/2024 | 8.1 | 7.8 | 7.7 | 7.6 | 7.5 | 7.4 | 7.4 | 4.8 | 0.6 | 0.4 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 10/8/2024 | 7.7 | 7.7 | 7.7 | 7.5 | 7.5 | 7.4 | 7.2 | 6.7 | 3.7 | 0.7 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 10/22/2024 | 7.9 | 7.8 | 7.9 | 7.8 | 7.8 | 7.8 | 7.8 | 7.8 | 7.4 | 5.3 | 0.7 | 0.4 | 0.3 | 0.3 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 11/12/2024 | 7.7 | 7.5 | 7.5 | 7.4 | 7.4 | 7.3 | 7.3 | 7.2 | 7.2 | 7.2 | 7.1 | 0.6 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 |
| 12/10/2024 | 8.0 | 7.6 | 7.6 | 7.5 | 7.6 | 7.2 | 7.2 | 7.2 | 7.3 | 7.3 | 7.3 | 7.3 | 7.2 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | 7.2 | 7.2 | 7.2 |
| 1/15/2025 | 14.2 | 12.7 | 10.2 | 10.2 | 10.2 | 10.2 | 10.0 | 10.1 | 10.0 | 9.9 | 9.8 | 9.7 | 9.8 | 9.9 | 10.1 | 10.2 | 10.2 | 10.2 | 10.3 | 10.4 | 10.4 |
| 2/11/2025 | 10.7 | 10.4 | 10.2 | 10.6 | 10.4 | 10.3 | 10.2 | 10.3 | 10.2 | 10.3 | 9.9 | 10.1 | 10.0 | 9.9 | 9.8 | 10.0 | 9.6 | 9.5 | 9.7 | 9.9 | 9.9 |
| 3/11/2025 | 10.2 | 9.7 | 9.6 | 9.5 | 9.2 | 9.3 | 9.6 | 9.5 | 9.4 | 9.2 | 9.3 | 8.9 | 8.7 | 8.6 | 8.6 | 8.3 | 8.3 | 8.3 | 8.1 | 7.7 | 8.0 |
| 4/15/2025 | 7.9 | 9.2 | 9.0 | 8.8 | 9.0 | 9.1 | 8.4 | 8.7 | 8.4 | 8.1 | 7.6 | 7.4 | 7.5 | 7.3 | 7.1 | 6.9 | 7.0 | 6.9 | 6.9 | 6.7 | 6.9 |
| 4/29/2025 | 10.5 | 10.4 | 10.2 | 9.4 | 9.9 | 9.8 | 9.9 | 9.2 | 8.8 | 8.4 | 7.6 | 7.7 | 7.4 | 7.1 | 7.0 | 7.1 | 6.8 | 6.5 | 6.6 | 6.4 | 6.5 |
| 5/13/2025 | 8.8 | 8.6 | 8.6 | 8.5 | 8.5 | 8.5 | 8.5 | 8.4 | 8.2 | 8.2 | 6.9 | 6.9 | 6.8 | 6.6 | 6.5 | 6.3 | 6.3 | 6.2 | 6.0 | 6.0 | 5.9 |
| 6/10/2025 | 8.7 | 8.7 | 8.6 | 8.5 | 8.6 | 8.6 | 7.4 | 6.9 | 6.9 | 6.1 | 6.0 | 5.5 | 5.5 | 5.4 | 5.4 | 5.4 | 5.1 | 5.0 | 4.8 | 4.4 | 4.4 |
| 7/8/2025 | 8.5 | 8.3 | 8.3 | 8.2 | 8.2 | 7.9 | 6.7 | 6.5 | 6.1 | 5.0 | 4.5 | 4.4 | 4.2 | 3.8 | 3.7 | 3.6 | 3.5 | 3.4 | 2.9 | 2.9 | 2.9 |
| 8/12/2025 | 9.1 | 8.7 | 8.2 | 7.9 | 7.6 | 7.3 | 7.8 | 7.6 | 5.9 | 4.1 | 3.0 | 2.6 | 2.5 | 2.3 | 2.3 | 2.1 | 1.9 | ---- | ---- | ---- | ---- |
| 9/9/2025 | 9.0 | 8.5 | 8.2 | 7.8 | 7.7 | 7.6 | 7.1 | 6.5 | 6.3 | 4.2 | 2.8 | 2.0 | 1.6 | 1.3 | 1.2 | 1.3 | 1.2 | 1.1 | 1.0 | 0.8 | 0.8 |
| 10/22/2025 | 8.3 | 7.9 | 7.5 | 7.5 | 7.7 | 7.6 | 7.4 | 7.4 | 7.5 | 7.3 | 3.7 | 0.8 | 0.6 | 0.5 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 11/18/2025 | 8.7 | 8.4 | 8.1 | 8.0 | 8.0 | 8.1 | 7.9 | 7.9 | 7.9 | 7.8 | 7.7 | 7.9 | 7.4 | 1.5 | 0.8 | 0.7 | 0.5 | 0.5 | 0.5 | 0.4 | 0.4 |
| 12/9/2025 | 9.6 | 9.3 | 9.2 | 9.1 | 9.1 | 9.1 | 9.0 | 9.0 | 8.9 | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | 8.7 | 8.3 | 8.0 | 7.9 |
| **Summary Whale Rock Reservoir Dissolved Oxygen, mg/L versus Depth, Feet** | | | | | | | | | | | | | | | | | | | | | |
| ***Depth*** | **2'** | **5'** | **10'** | **15'** | **20'** | **25'** | **30'** | **35'** | **40'** | **45'** | **50'** | **55'** | **60'** | **65'** | **70'** | **75'** | **80'** | **85'** | **90'** | **95'** | **100'** |
| Average | 9.3 | 9.1 | 9.0 | 8.9 | 8.9 | 8.4 | 7.9 | 7.4 | 6.8 | 6.4 | 6.1 | 5.9 | 5.6 | 5.4 | 5.3 | 5.3 | 5.2 | 5.0 | 4.9 | 4.8 | 4.7 |

| Whale Rock Reservoir Dissolved Oxygen, mg/L versus Depth, Feet | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Date** | **2'** | **5'** | **10'** | **15'** | **20'** | **25'** | **30'** | **35'** | **40'** | **45'** | **50'** | **55'** | **60'** | **65'** | **70'** | **75'** | **80'** | **85'** | **90'** | **95'** | **100'** |
| Minimum | 6.6 | 5.3 | 4.5 | 4.1 | 3.9 | 1.6 | 0.9 | 0.6 | 0.6 | 0.4 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 |
| Maximum | 14.2 | 13.9 | 12.8 | 12.1 | 11.1 | 11.0 | 10.9 | 10.9 | 10.9 | 10.9 | 10.9 | 10.9 | 10.9 | 10.8 | 10.8 | 10.8 | 10.6 | 10.6 | 10.5 | 10.5 | 10.5 |
| Total # | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 75 | 75 | 75 | 74 |

*Appendix H: Whale Rock Reservoir Limnology - pH and Turbidity*

| | pH | | | | | Turb | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Date** | Surface | Intake #1 | Intake #2 | Intake #3 | Intake #4 | Intake #1 | Intake #2 | Intake #3 | Intake #4 |
| 4/27/2021 | 8.62 | 8.62 | 8.44 | 8.34 | 8.28 | 0.92 | 0.92 | 2.20 | 2.20 |
| 5/11/2021 | 8.59 | 8.60 | 8.36 | 8.22 | 8.16 | 0.63 | 0.73 | 1.60 | 2.80 |
| 5/25/2021 | 8.62 | 8.62 | 8.36 | 8.22 | 8.16 | 1.00 | 1.40 | 1.60 | 4.00 |
| 6/8/2021 | 8.56 | 8.57 | 8.29 | 8.11 | 8.07 | 1.10 | 1.20 | 1.40 | 4.80 |
| 6/22/2021 | 8.55 | 8.55 | 8.30 | 8.06 | 8.00 | 0.83 | 1.10 | 2.30 | 3.90 |
| 7/14/2021 | 8.62 | 8.62 | 8.34 | 8.00 | 7.95 | 1.10 | 0.76 | 0.84 | 2.60 |
| 7/27/2021 | 8.50 | 8.48 | 8.35 | 7.93 | 7.96 | 0.72 | 0.63 | 1.10 | 2.30 |
| 8/10/2021 | 8.38 | 8.38 | 8.05 | 7.72 | 7.67 | 0.43 | 0.64 | 1.10 | 1.40 |
| 9/14/2021 | 7.88 | 7.76 | 7.93 | 7.77 | 7.74 | 0.36 | 0.32 | 0.62 | 0.84 |
| 10/26/2021 | 8.42 | 8.56 | 8.46 | 7.72 | 7.53 | 0.75 | 0.64 | 0.64 | 0.47 |
| 11/16/2021 | 8.45 | 8.46 | 8.48 | 8.42 | 7.54 | 1.20 | 1.10 | 1.50 | 0.92 |
| 12/21/2021 | 8.57 | 8.57 | 8.55 | 8.56 | 8.56 | 1.50 | 1.40 | 1.50 | 2.50 |
| 1/25/2022 | 8.49 | 8.51 | 8.55 | 8.55 | 8.55 | 1.70 | 1.50 | 1.70 | 2.40 |
| 2/15/2022 | 8.62 | 8.61 | 8.62 | 8.57 | 8.56 | 0.92 | 0.90 | 1.10 | 1.30 |
| 3/8/2022 | 8.63 | 8.72 | 8.68 | 8.64 | 8.64 | 1.60 | 0.90 | 1.30 | 1.50 |
| 4/12/2022 | 8.56 | 8.69 | 8.52 | 8.45 | 8.42 | 1.10 | 1.60 | 1.90 | 1.80 |
| 6/2/2022 | 8.66 | 8.70 | 8.40 | 8.30 | 8.20 | 1.40 | 1.20 | 1.90 | 3.40 |
| 6/28/2022 | 8.65 | 8.66 | 8.14 | 8.07 | 8.03 | 1.20 | 1.80 | 1.80 | 2.90 |
| 7/27/2022 | 8.78 | 8.78 | 7.95 | 7.96 | 7.91 | 1.10 | 1.00 | 1.00 | 2.10 |
| 8/23/2022 | 8.83 | 8.83 | 8.12 | 7.87 | 7.85 | 0.89 | 0.75 | 0.63 | 0.55 |
| 9/27/2022 | 8.73 | 8.73 | 8.73 | 7.81 | 7.8 | 0.58 | 0.68 | 1.10 | 1.20 |
| 10/12/2022 | 8.69 | 8.69 | 8.69 | 7.8 | 7.78 | 0.48 | 0.51 | 0.63 | 1.10 |
| 10/25/2022 | 8.76 | 8.71 | 8.71 | 7.8 | 7.79 | 0.69 | 0.84 | 1.40 | 0.70 |
| 11/30/2022 | 8.59 | 8.48 | 8.47 | 8.46 | 8.47 | 1.30 | 1.10 | 1.20 | 1.20 |
| 12/20/2022 | 8.63 | 8.63 | 8.6 | 8.6 | 8.58 | 3.20 | 3.90 | 3.60 | 1.40 |

| | pH | | | | | Turb | | | |
|---|---|---|---|---|---|---|---|---|---|
| Date | Surface | Intake #1 | Intake #2 | Intake #3 | Intake #4 | Intake #1 | Intake #2 | Intake #3 | Intake #4 |
| 2/14/2023 | 8.56 | 8.54 | 8.54 | 8.52 | NA | 1.90 | 2.20 | 2.50 | NA |
| 3/28/2023 | 8.39 | 8.33 | 8.34 | 8.36 | NA | 4.60 | 5.10 | 4.90 | 5.00 |
| 4/11/2023 | 8.43 | 8.4 | 8.25 | 8.27 | 8.56 | 2.30 | 3.00 | 4.00 | 4.30 |
| 4/25/2023 | 8.79 | 8.51 | 8.29 | 8.32 | 8.64 | 1.70 | 2.60 | 3.20 | 3.50 |
| 5/23/2023 | 8.73 | 8.15 | 8.17 | 8.22 | 8.81 | 1.10 | 1.90 | 1.60 | 1.70 |
| 6/13/2023 | 8.51 | 7.92 | 7.97 | 7.99 | 8.02 | 0.93 | 1.10 | 1.20 | 1.60 |
| 6/27/2023 | 8.66 | 7.98 | 8.07 | 8.1 | 8.27 | 0.78 | 0.96 | 1.60 | 1.70 |
| 7/11/2023 | 8.86 | 8 | 8.03 | 8.1 | 8.15 | 6.60 | 2.70 | 2.80 | 2.70 |
| 7/25/2023 | 8.75 | 7.83 | 7.98 | 8.01 | 8.02 | 2.70 | 1.70 | 4.00 | 4.80 |
| 8/29/2023 | 8.54 | 8.31 | 7.85 | 7.8 | 7.9 | 1.10 | 0.58 | 0.95 | 1.30 |
| 9/12/2023 | 8.63 | 8.56 | 7.83 | 7.76 | 7.5 | 0.80 | 0.92 | 1.40 | 1.30 |
| 9/26/2023 | 8.59 | 8.6 | 7.81 | 7.75 | 7.95 | 0.79 | 0.87 | 1.60 | 2.30 |
| 10/10/2023 | 8.58 | 8.58 | 7.71 | 7.73 | 7.85 | 0.90 | 0.77 | 1.40 | 1.10 |
| 10/25/2023 | 8.57 | 8.56 | 7.66 | 7.68 | 7.93 | 0.85 | 0.58 | 1.40 | 1.70 |
| 11/14/2023 | 8.44 | 8.43 | 8.2 | 7.66 | 7.78 | 2.30 | 1.80 | 1.80 | 0.56 |
| 12/12/2023 | 8.25 | 8.21 | 8.18 | 8.16 | 8.14 | 1.40 | 1.10 | 1.70 | 1.70 |
| 1/10/2024 | 8.34 | 8.32 | 8.3 | 8.34 | 8.45 | 0.86 | 0.94 | 1.20 | 1.40 |
| 1/23/2024 | 8.56 | 8.48 | 8.40 | 8.40 | 8.46 | 1.20 | 1.50 | 1.00 | 1.60 |
| 2/13/2024 | 8.46 | 8.45 | 8.44 | 8.42 | 8.43 | 2.40 | 2.50 | 2.00 | 2.20 |
| 2/27/2024 | 8.56 | 8.50 | 8.42 | 8.39 | 8.46 | 3.20 | 3.40 | 2.80 | 2.50 |
| 3/12/2024 | 8.57 | 8.53 | 8.34 | 8.33 | 8.59 | 1.00 | 1.40 | 1.40 | 1.50 |
| 3/26/2024 | 8.26 | 8.25 | 7.91 | 7.85 | 7.90 | 1.50 | 1.20 | 1.10 | 1.60 |
| 4/23/2024 | 8.76 | 8.57 | 8.15 | 8.10 | 8.21 | 1.30 | 1.20 | 1.30 | 1.40 |
| 5/14/2024 | 8.88 | 8.60 | 8.18 | 8.08 | 8.29 | 5.80 | 1.60 | 0.81 | 1.30 |
| 5/30/2024 | 8.60 | 8.44 | 7.98 | 7.92 | 8.15 | 2.20 | 1.80 | 1.40 | 2.20 |
| 6/11/2024 | 8.68 | 8.54 | 8.02 | 7.96 | 8.06 | 2.40 | 1.80 | 1.10 | 2.00 |

| | pH | | | | | Turb | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Date** | Surface | Intake #1 | Intake #2 | Intake #3 | Intake #4 | Intake #1 | Intake #2 | Intake #3 | Intake #4 |
| 6/25/2024 | 8.60 | 8.00 | 8.00 | 7.98 | 8.06 | 1.80 | 2.20 | 2.60 | 2.10 |
| 7/9/2024 | 8.66 | 8.60 | 7.96 | 7.91 | 8.12 | 2.30 | 2.50 | 3.00 | 3.50 |
| 7/23/2024 | 8.66 | 8.66 | 7.94 | 7.90 | 7.97 | 2.40 | 2.60 | 2.70 | 2.30 |
| 8/13/2024 | 8.69 | 8.65 | 7.88 | 7.86 | 7.88 | 2.80 | 2.80 | 1.70 | 2.10 |
| 8/27/2024 | 8.59 | 8.59 | 7.79 | 7.74 | 8.09 | 1.30 | 2.40 | 2.90 | 1.40 |
| 9/10/2024 | 8.61 | 8.61 | 7.77 | 7.71 | 8.11 | 0.62 | 0.62 | 0.66 | 0.58 |
| 9/24/2024 | 8.48 | 8.50 | 7.69 | 7.62 | 8.70 | 0.68 | 0.60 | 0.63 | 0.60 |
| 10/8/2024 | 8.57 | 8.58 | 7.76 | 7.69 | 8.09 | 0.70 | 0.86 | 0.87 | 0.40 |
| 10/22/2024 | 8.62 | 8.62 | 7.83 | 7.75 | 8.03 | 0.88 | 0.84 | 0.56 | 0.89 |
| 11/12/2024 | 8.60 | 8.71 | 8.73 | 7.98 | 8.24 | 0.84 | 0.97 | 1.00 | 0.99 |
| 12/10/2024 | 8.30 | 8.13 | 8.06 | 8.02 | 7.99 | 0.99 | 0.89 | 0.87 | 0.89 |
| 1/15/2025 | 8.54 | 8.75 | 8.72 | 8.79 | 8.78 | 0.77 | 0.82 | 1.20 | 0.98 |
| 2/11/2025 | 8.62 | 8.62 | 8.65 | 8.58 | 8.58 | 0.78 | 0.96 | 0.92 | 0.98 |
| 3/11/2025 | 8.53 | 8.53 | 8.47 | 8.39 | 8.46 | 0.82 | 1.40 | 1.80 | 8.80 |
| 4/15/2025 | 8.69 | 8.70 | 8.50 | 8.41 | 8.59 | 0.63 | 0.82 | 0.61 | 0.74 |
| 4/29/2025 | 8.68 | 8.62 | 8.33 | 8.26 | 8.56 | 1.40 | 0.95 | 0.82 | 1.30 |
| 5/13/2025 | 8.57 | 8.56 | 8.22 | 8.19 | 8.13 | 0.63 | 0.65 | 1.00 | 1.30 |
| 6/10/2025 | 8.63 | 8.63 | 8.19 | 8.15 | 8.10 | 0.49 | 0.93 | 0.79 | 0.99 |
| 7/8/2025 | 8.64 | 8.63 | 8.20 | 8.11 | 8.19 | 1.40 | 1.40 | 1.70 | 1.60 |
| 8/12/2025 | 8.60 | 8.62 | 7.98 | 7.89 | 8.22 | 0.61 | 0.81 | 0.90 | 1.00 |
| 9/9/2025 | 8.56 | 8.56 | 7.86 | 7.91 | 7.92 | 1.00 | 1.10 | 0.80 | 1.40 |
| 10/22/2025 | 8.56 | 8.56 | 8.17 | 7.76 | 7.85 | 0.94 | 0.83 | 1.90 | 2.00 |
| 11/18/2025 | 8.56 | 8.51 | 8.49 | 7.80 | 8.16 | 0.98 | 3.00 | 1.70 | 1.30 |
| 12/9/2025 | 8.72 | 8.40 | 8.39 | 8.39 | 8.22 | 1.10 | 1.20 | 0.98 | 1.60 |

| ***Summary*** | pH | | | | | Turbidity | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Surface | Intake #1 | Intake #2 | Intake #3 | Intake #4 | Intake #1 | Intake #2 | Intake #3 | Intake #4 |
| Average | 8.58 | 8.50 | 8.22 | 8.09 | 8.16 | 1.42 | 1.40 | 1.58 | 1.93 |
| Minimum | 7.88 | 7.76 | 7.66 | 7.62 | 7.50 | 0.36 | 0.32 | 0.56 | 0.40 |
| Maximum | 8.88 | 8.83 | 8.73 | 8.79 | 8.81 | 6.60 | 5.10 | 4.90 | 8.80 |
| n | 75 | 75 | 75 | 75 | 73 | 75 | 75 | 75 | 74 |