

WHAT DID YOU LOOK FOR?



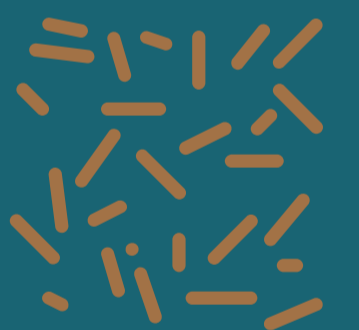
The California Water: Assessment of Toxins for Community Health (Cal-WATCH) program aims to understand whether some communities in Lake County are at risk of using unsafe drinking water.

Between March and December of 2022, Big Valley Rancheria (BVR) collected drinking water samples from homes that did not use water from a public water system and were located on the shore of Clear Lake. In 2022, the project expanded and BVR collected samples from homes that were within 50 feet of creeks in Lake County.

We looked for the following **THREE types of contaminants**

Coliform Bacteria

Coliform bacteria are naturally-occurring organisms found in human and animal feces, soil, and water. We tested for "total coliforms", which include any kind of coliform bacteria, whether harmful to health or not. Fecal coliform is one form of coliform bacteria, and they are found in the gut and feces of humans and animals. Escherichia coli (E. Coli) is a type of coliform that can be harmful to human health. We tested to see if both E. Coli and total coliform were present.



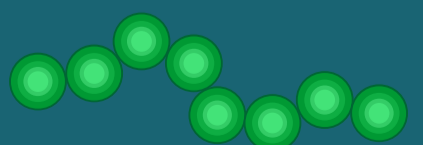
Nitrates

Nitrates are a naturally-occurring compound that can be harmful to humans and should be avoided by infants and pregnant women. Nitrates can come from plants and animals, smoke, industrial or automotive exhaust, fertilizers, and septic tanks. There is a maximum contaminant level (MCL) for nitrates of 10 milligrams per liter in drinking water. If water contains amounts over that amount, there is a risk to human health.



Cyanotoxins/Cyanobacteria

Cyanotoxins are produced by naturally occurring cyanobacteria, often called "harmful algal blooms" or blue-green algae. Ingestion, skin contact, or inhalation of these toxins or cyanobacterial cells can cause human and animal illness.



Individual (non-public) water treatment systems, such as those treating water for just one home, may not keep these toxins out. We tested for cyanotoxins that Big Valley Rancheria found evidence of, during its regular monitoring - microcystin, anatoxin-a, and cylindrospermopsin were those most likely to be identified in Clear Lake or nearby creeks. This year, we also tested for saxitoxin.

WHAT DID YOU FIND?



A total of **46 homes** had their drinking water sampled for both coliform bacteria and nitrates.

- Coliform bacteria were detected in water samples of **15 homes**: 12 homes with wells, 3 homes with intakes.
- Nitrates were detected in water samples of **17 homes**: 17 homes with wells, 0 homes with intakes.

A total of **8 homes** had samples analyzed for cyanotoxins/cyanobacteria at both the finished tap and lake/creek intake. At intakes, cyanotoxins were present in samples of **4 homes**. At tap, cyanotoxins were present in **2 homes**.

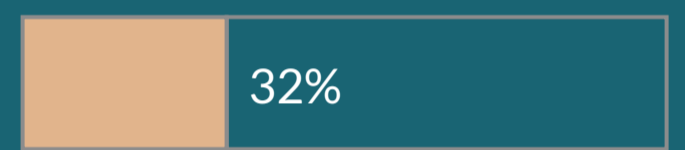
Coliform Bacteria

Even though filtration and water treatment was present, coliform bacteria made its way to finished drinking water at the tap of 15 homes.

In homes where E. Coli was found, the recommendation was to **stop** drinking, cooking, and bathing children with tap water.

The Cal-WATCH team also recommended checking for coliform bacteria **at least twice a year**, even if water treatment systems were working properly.

15 of 46 homes had total coliform present



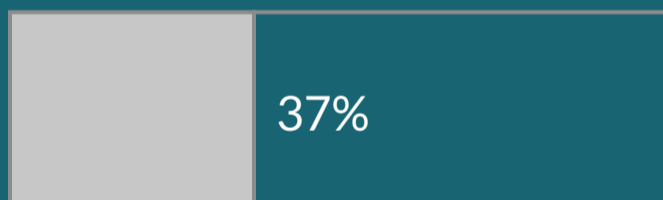
2 of 46 homes had E. Coli present



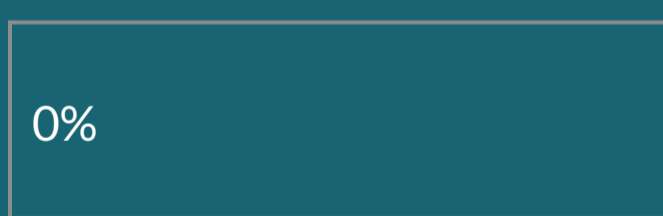
12 of 15 homes where coliform was present in samples came from wells



17 of 46 homes had nitrates present



homes where nitrate levels were above Maximum Contaminant Level



Nitrates

In 2022, nitrates were present in the finished drinking water of 17 homes, all of which had wells. **No homes with intakes had nitrates present.**

Luckily, none of these homes had nitrate levels above the MCL of 10 mg/L (California Safe Drinking Water Law). The maximum concentration of nitrates found in any given sample was 3.7 mg/L.

Where nitrates were present, the Cal-WATCH team recommended testing for nitrates **every three months** to ensure amounts were kept low.

Cyanotoxins/Cyanobacteria

At the tap

- microcystin was detected in **2 samples**.
- The maximum concentration of microcystin at any given sample was 0.77 ug/L, which is above EPA's Drinking Water Health Advisory of 0.3 ug/L.

At the creek/lake intake

- 5 homes also had samples collected at creek/lake intake and microcystin was detected in **4 of these 5 samples**.
- **All 4 samples** were above the EPA drinking water Health Advisory of 0.3 ug/L.

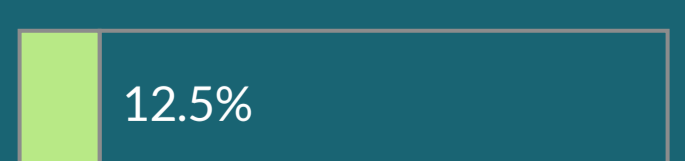
5 of 8 homes sampled had cyanobacteria present



4 of 5 intake samples with microcystin above EPA health advisory



1 of 8 tap samples with microcystin above EPA health advisory



*Cylindrospermopsin, Anatoxin-A, and Saxitoxin were not detected in ANY samples collected.

Where microcystins were present, the cal-WATCH team recommended not drinking or cooking with tap water and to continue monitoring.

SAMPLING RESULTS BY CONTAMINANT, WATER SOURCE, & TREATMENT TYPE

Coliform Bacteria

Wells

Treatment	Number of homes tested	Number of homes with total coliform present	Number of homes with E. Coli present
None	20	7	1
Filter only	7	3	0
Water softener	1	1	0
Filter and UV	3	0	0
Reverse Osmosis	2	1	0
Instantaneous Ozone	2	0	0
Total	35	12	1

Intakes

Treatment	Number of homes tested	Number of homes with total coliform present	Number of homes with E. Coli present
Not maintained	1	0	0
Filter only	4	2	0
Filter and UV	4	0	0
Chlorine	2	1	1
Total	11	3	1

Nitrates

Wells

Treatment	Number of homes tested	Number of homes with Nitrate present	Number of homes with Nitrates above MCL
None	20	9	0
Filter only	7	2	0
Water softener	1	0	0
Filter and UV	3	2	0
Reverse Osmosis	2	2	0
Instantaneous Ozone	2	2	0
Total	35	17	0

Intakes

11 samples that came from creek/lake intakes were also tested from nitrates, however, **NONE** of these samples had nitrates present.

Cyanotoxins/Cyanobacteria

Samples taken at intake

Treatment	Number of homes tested	Number of homes with Microcystin present	Number of homes with Microcystin present > 0.3ug/L
None	0	0	0
Filter only	2	2	2
Filter and UV	2	2	2
Chlorine	1	0	0
Total	5	4	4

Samples taken at tap

Treatment	Number of homes tested	Number of homes with Microcystin present	Number of homes with Microcystin present > 0.3ug/L
None	1	1	0
Filter only	2	1	1
Filter and UV	3	0	0
Chlorine	2	0	0
Total	8	2	1

Resources for Lake County Residents



Treatment and filtration system servicing

Business Name	Contact	Phone #	Services Provided
Lake County Pumps	Matt Thibodeaux	707-972-7808	residential and commercial pumps, water well pumps, filters and water filtration
Stevenson Water Treatment and Distribution	Rick Stevenson	707-987-4488	full service pump, well and water treatment, storage and pressure systems, surface and ground water filtration, chemical injection, reverse osmosis, ozone, water softening, and deionization
Cal-tech pump	Scott Brown	707-987-4488	pump, water treatment, storage tank, well inspection
Jim's pump and repair		707-349-2277	residential and commercial pump-service and repair, water treatment, water well drilling, water well locating
Cramer Enterprises	Eric Cramer	707-349-8575	specializes in water pump service and repair, solar pumps, well tests, custom water system installation, irrigation, water storage and treatment
Larry Herman Drilling	Larry Herman	707-994-4914	water well drilling
Hutton Well Drilling	Jack Hutton	707-275-9727	water well drilling
Weeks Drilling	Chris Thompson	707-823-3184	well drilling, installation of pump systems, filtration systems, local public water systems

Local health departments

Lake County Environmental Health Department
environmentalhealth@lakecountyca.gov OR 707-263-1164
www.lakecountyca.gov/211/Environmental-Health

Lake County Public Health
publichealth@lakecountyca.gov OR 707-262-4280
www.lakecountyca.gov/158/Public-Health

Drinking Water Guides

Guide for Domestic Well Owners
www.epa.gov/privatewells

Certified Residential Drinking Water
Treatment Devices

https://www.waterboards.ca.gov/drinking_water/certificatedevice/watertreatmentdevices.html

Assessment of treatment and filtration systems

California Rural Water Association
Dan Demoss - ddemoss@calruralwater.org

Operational Technical Services
David Sibelman - david@getots.com

Rural Community Assistance Corporation (free well assessment and water quality screening for nitrate)
www.rcac.org/environmental/individual-well-program/
916-447-2854

Additional drinking water testing

Alpha Analytical Laboratories (Ukiah)
707-468-0401
www.alpha-labs.com/

Brelje and Race Laboratories (Santa Rosa)
contact@brlabsinc.com OR 707-544-8807
www.brlabsinc.com

Clear Lake Environmental Research Center - for testing of Coliform Bacteria and E. Coli (Lakeport)
707-850-0650
www.clerc.co

If you have questions or concerns, please contact
Big Valley Band of Pomo Indians Environmental Protection Department

2726 Mission Rancheria Rd, Lakeport, CA 95453
(707) 263-3924 or sryan@big-valley.net