Eagle Lake Grazing and Water Quality

A Newsletter from the Lahontan Regional Water Quality Control Board Issue No. 4, January 2023

Welcome

The Lahontan Regional Water Quality Control Board developed this newsletter to communicate our efforts to protect water quality in Eagle Lake. For more information visit our webpage.

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2022 Grazing Management Plans and Inspections

Lakefront property managers and owners, who maintain livestock on their land, are required to submit annual grazing plans to the Water Board by May 15 before the start of grazing operations each year. For the third year, the Water Board has received adequate plans. Federal land managers submit Annual Operation Instructions (AOI) for each allotment while private property owners submit Rangeland Water Quality Management Plans each season. The grazing management plans should demonstrate an overall reduction of animal waste to the shore of Eagle Lake through application of management techniques. For 2022, the U.S. Forest Service, Lassen National Forest, the Bureau of Land Management, Five-Dot Ranch, Mapes Ranch and McClelland Ranch all submitted compliant plans. In general, grazing was reduced again this season compared to 2021.

Eagle Lake 2018 fall

The Water Board received one complaint/inquiry from a concerned citizen seeking information about livestock operations adjacent to Eagle Lake that were potentially not following guidance contained in the submitted grazing management plans. The complainant had concerns regarding ~80 cattle that were in contact with Eagle Lake in the Lassen National Forest, South Eagle Lake Allotment. The Lassen National Forest continues to seek alternative water sources for the South Allotment.

Overall, complaints and reports of cattle in unauthorized areas and in contact with Eagle Lake were fewer this season than last season and past seasons.

HAB Monitoring at Eagle Lake

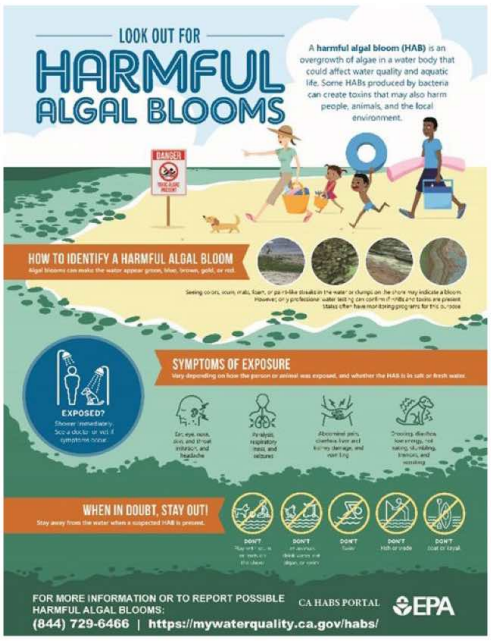
Eagle Lake was sampled for harmful algal blooms (HABs) prior to Memorial Day, Independence Day, Labor Day, and during a regular monitoring event at Merrill Campground and Christie Day Use area. Cyanobacteria toxins were found in the samples collected in June, July, and August at low levels. A caution advisory was put in place several times during the season due to the visual indication of a harmful algal bloom and due to the low levels of HAB toxins detected in water samples. If you suspect Eagle Lake is experiencing a HAB check the State Incident Report Map, and if no information is displayed on it for Eagle Lake report the bloom through the Bloom Report Form.

Merrill Campground June 2022

Christie Day Use June 2022

Merrill Campground August 2022

What are Harmful Algal Blooms (HABs) and How to Visually Identify Them



Cyanobacteria are small microbes or bacteria that live in nearly every habitat on land and in the water. At times they may release toxins that are harmful to humans and animals, and in these cases they are commonly referred to as harmful algal blooms or HABs. Cyanobacteria have existed for billions of years as essential components of freshwater ecosystems and form the foundation of most aquatic food chains. When environmental conditions favor the growth of HABs and algae, such as warm temperatures and low or stagnant water flows, and excessive nutrient inputs, they can multiply very rapidly creating nuisance blooms. Some HABs can produce toxins that can harm pets, wildlife, or people that come into contact with them. Not all HABs produce toxins, but those that do may cause health issues and even death. In California, harmful algal blooms are most common during the warm weather months between late May through October, but they can occur all year.

Photos show the difference between potentially non harmful algae (right) and harmful algae (left) while performing the gloved hand test.

Current research suggests that a warming climate is contributing to an increase in HAB growth, so it is important to be aware of what they look like and what steps to take when you encounter them. Sometimes the bloom is easily visible, forming a "scum" or discoloration on the water surface (planktonic bloom). Other times, it is less visible, floating beneath the surface or on the bottom of a water body (benthic bloom). Blooms can appear green, blue, yellow, red, or brown. Several guidance documents are available to help identify algae and HABs (Fact Sheet & Visual Guide). Typically, harmful algae will not have a structure causing it to easily break apart or be hard to pick up where non-harmful algae will have a structure with long hair like filaments. There are several field tests you can perform to determine if the algae have a structure known as the stick test or the gloved hand test. You can find out how to perform these tests on the HAB wiki Field Test Webpage. You cannot tell if toxins are present in the HAB by visually looking at the bloom, so it is important to follow healthy water habits when you encounter a bloom.

Eagle Lake Beneficial Uses

Abbreviation	Description
AGR	Agricultural supply
BIOL	Preservation of Biological Habitats of Special Significance
COLD	Cold Fresh Water Habitat
COMM	Ocean Commercial and Sport Fishing
GWR	Ground Water Recharge
MIGR	Migration of Aquatic Organisms
MUN	Municipal and Domestic Supply
NAV	Navigation
RARE	Rare, Threatened, or Endangered Species
REC-1	Water Contact Recreation
REC-2	Non-Contact Water Recreation
SPWN	Spawning, Reproduction, and Development
WILD	Wildlife Habitat

Definitions of beneficial uses can be viewed here.

Integrated Report

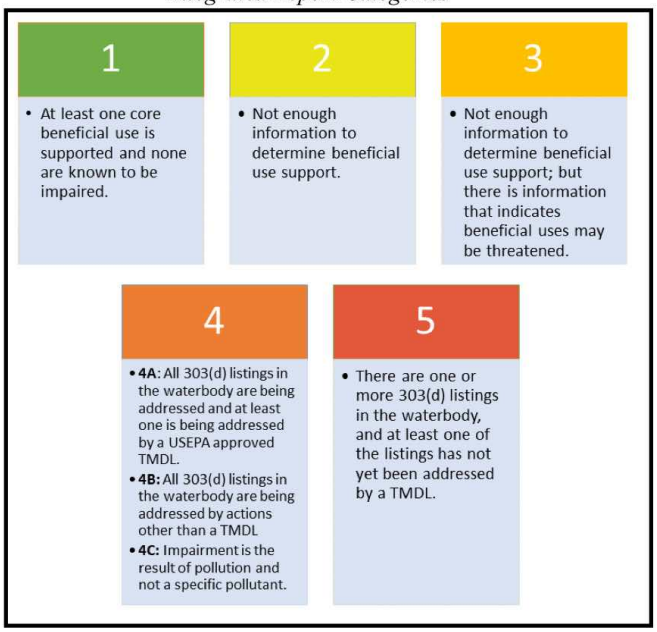
Click the above image to access the interactive Integrated Report Map.

Clean Water Act (CWA) Section 303(d) requires states to identify waterbodies that do not meet water quality standards. Waterbodies which do not meet water quality standards are placed on the CWA Section 303(d) List of Water Quality Limited Segments (also known as the list of impaired waterbodies, or the 303(d) list). Decisions to place waterbodies on the 303(d) list are governed by the Water Quality Control Policy for developing California's Clean Water Act Section 303(d) List. U.S. EPA must approve the 303(d) list before it is considered final.

The 303(d) list identifies the pollutant(s) or stressor(s) causing impairment(s) and establishes a schedule for developing a water quality restoration plan to restore and maintain water quality for the protection of beneficial uses. Beneficial uses are essentially the uses of that specific waterbody that are necessary for the survival or wellbeing of man, plants, and wildlife. Eagle Lake's beneficial uses are listed in the lefthand sidebar. Of those designated for Eagle Lake, only the COLD beneficial use is impaired due to the pollutants Nitrogen and Phosphorus exceeding their water quality thresholds.

CWA section 305(b) requires States to prepare and submit to USEPA a report on the overall water quality conditions for all navigable water bodies in the State. California develops an Integrated Report which satisfies the requirements of CWA Sections 303(d) and 305(b).

Integrated Report Categories



The most recent Integrated Report cycle for the Lahontan Region was the 2018 Integrated Report. Staff have begun initial work on the current Integrated Report cycle, which is due to U.S. EPA in Spring 2026 and includes a public process. Staff will assess water quality data submitted to CEDEN through October 2022 against the applicable water quality standards for Eagle Lake, and all surface waters in the Lahontan Region, to determine their attainment.

To learn more about the Integrated Report evaluation process, please visit the State Water Board's Surface Water Quality Assessment website.

Partner Update

By Paul Divine, District Fisheries Biologist, California Department of Fish and Wildlife (CDFW)

During the fishing season this year (which is 05/28/22 – 02/28/23) most anglers were more successful in the spring when the fishing was more consistent. However, if fishing this winter continues to improve, the end of the season could be fantastic. In February 2022, anglers experienced the best fishing of the season. Angler creel data for the season is not complete as the season is not over. Fish growth rates appear to be similar to last year, with fish growing 1.5 to 2.0 pounds per year. Average fish size may be slightly larger this season, with the largest fish observed being over 5 pounds and some angler reports of fish exceeding 6 pounds.

2022 Spawning Efforts: Due to drought conditions and insufficient tributary stream flow, trout were captured via electrofishing in the lake for the third year in a row. However, Pine Creek did flow for a short period in late March and early April and only 100 trout were captured in the fish trap/egg collection station. Trout were captured for egg collection and fertilization for the artificial spawning and hatchery rearing program. CDFW captured and released over 1,700 adult trout after spawning 380 pairs, collecting an estimated 1,035,000 fertilized eggs. Once these eggs hatch, some of the trout will be reared for one year and released into Eagle Lake. In 2022, approximately 160,000 trout were released into the lake.

Eagle Lake 2022 summer

2022 Water Quality Monitoring Results

Monthly sampling has continued since 2019 at up to five in-lake stations. The locations sampled correspond with historic Department of Water Resources (DWR) water quality monitoring sites. Due to low lake levels, the routine sample locations in the North Basin and Middle Basins are difficult to access so an alternate site in the Middle Basin near Delta Bay has been sampled for the past two years. Eagle Lake has been evaluated since the 1990 Integrated Report Cycle and is listed as impaired for Nitrogen and Phosphorus. Currently monitoring efforts test for water quality parameters including Total Nitrogen, Phosphorus, water temperature, and dissolved oxygen. The monitoring crew also records general observations such as weather conditions, animal presence, and the waters status (color and odor). All the information gets added to the California Environmental Data Exchange Network (CEDEN) which is a public facing platform that stores water quality data. Finalized results of this year's monitoring will be publicly available once the data passes the rigorous quality control required for posting on the CEDEN. However, some general data trends can be reported: the total nitrogen and total phosphorus concentrations remained relatively consistent from 2020 through 2022. The 2022 levels measured for both analytes remain above the established water quality objectives for Eagle Lake at all sampling locations during the sampling period. Staff's evaluation of results from the monitoring data gathered since 2019 will determine if additional pollutants are impairing water quality at Eagle Lake, which may result in Eagle Lake being listed for additional pollutants on the 303(d) List.

Managing Water Quality on Grazed Lands

In September 2015, the State Water Resources Control Board adopted Resolution No. 2015-0062. At that public meeting, the State Water Board instructed staff to engage with the University of California to update tools and documents related to grazing best management practices and water quality. In accordance with this instruction, the State Water Board is developing a non-regulatory document titled "Managing Water Quality on Grazed Lands" formerly referred to as the "Statewide Grazing Guidance". The purpose of this document is to promote effective grazing management practices through a non-regulatory approach, educate on potential impacts to water quality from grazing, update the 1995 Rangeland Water Quality Management Plan (RWQMP), and provide the grazing community tools to assist in compliance with the Regional Water Boards' actions on grazing.

In 2021, State Board coordinated robust stakeholder meetings with three diverse groups (academic and government, livestock industry, and environmental sectors) to better inform the updated RWQMP. Since then, State Board staff completed the draft guidance document. Its public release is anticipated for spring/summer of 2023. For more information see the California Grazing Water Quality Guidance webpage.