

Updates from the Environmental Manager

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If you have any questions, please contact me at (775) 574-0101 x17. Thank you. Mervin Wright Jr., Environmental Manager.

Harmful Algae Blooms (HABs) of Pyramid Lake

- Kameron Morgan, Water Quality Manager



July 24, 2020

You may have noticed a large algae bloom in Pyramid Lake in late June and throughout mid-July. While algae blooms typically occur in Pyramid Lake on an annual basis, the algae bloom this year appeared much earlier and was more extensive than usual. So why do algae blooms occur and why should we care?

July 10 – South of Blockhouse Beach

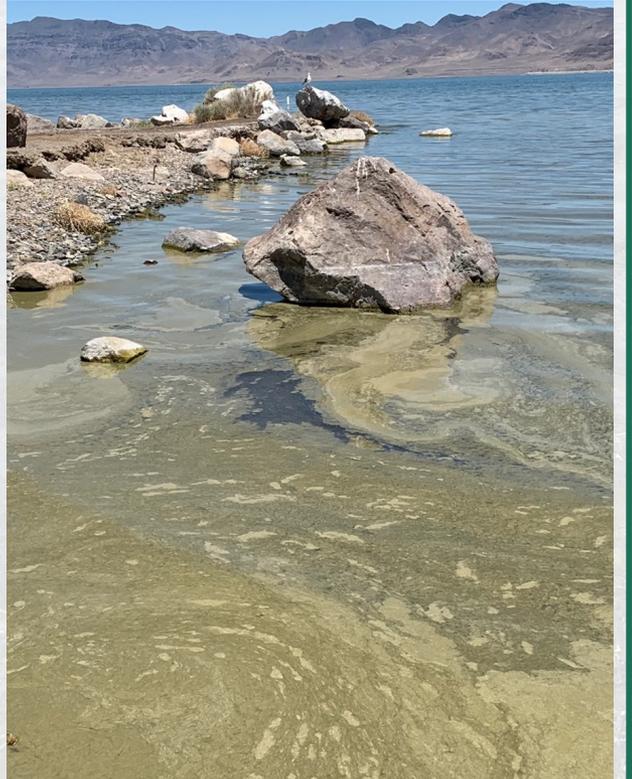


While scientists know many of the factors that contribute to HABs, how those factors come together to produce a bloom is not well understood. HABs occur naturally, but human activities may exasperate their occurrence, intensity, and toxicity. The factors include things like nutrient loading and pollution, food web alteration, introduced non-native species, water flow modification, and climate change all play a role. It is important to point out at this time that not all algae blooms are harmful.

The Pyramid Lake Water Quality Program has been monitoring cyanobacteria blooms over the last four summers to ensure the health and safety of the community and visitors to Pyramid Lake. Beginning in June of each year and through the summer, our staff conduct weekly to bi-weekly visual assessments of whether there is an algae bloom presence at numerous beaches on the lake. When there is a bloom present, staff implement components of the Tribe's Cyanobacteria Response Plan. Staff will collect water samples, these samples are taken to the Tribe's laboratory located in Sutcliffe, and then analyzed for nutrients and whether there are cyanotoxins present using special test strips. If the samples are found to contain toxins, the samples are sent to Bend Genetics in Sacramento, CA, to identify

Algae blooms are a natural phenomenon that occur when conditions are just right – usually sunny days with lots of phosphorus and nitrogen in the water, which causes algae to multiply very rapidly and causes a “bloom.” Pyramid Lake's algae blooms sometimes consist of cyanotoxins that are produced from a free-living photosynthetic bacteria known as cyanobacteria (also called blue-green algae). Numerous species of cyanobacteria are capable of producing toxins including hepatotoxins (liver toxins), neurotoxins (nerve toxins), as well as skin and gastrointestinal irritants. These “Harmful Algae Blooms” (HABs) occur when colonies of algae grow out of control and produce toxic or harmful effects on people, pets, livestock, fish, and wildlife. Human illnesses caused by HABs are rare, but can be very serious and even fatal in extreme cases. HABs-related symptoms include fever, headaches, muscle and joint pain, blisters, stomach cramps, diarrhea, vomiting, ulcers, and allergic reactions.

July 14 – Marina Beach



Harmful Algae Blooms (HABs) of Pyramid Lake

- Kameron Morgan, Water Quality Manager



which toxins are present and more importantly, the concentration of the toxins. Based on this information the Tribe will determine whether to post advisories, or to close the beaches until the toxins subside to safe levels.

So what's up with the July 2020 bloom that had resulted in the indefinite closure of Pyramid Lake's beaches? In late June, staff discovered a bloom that began to occur in the southern region of Pyramid Lake, located near the Truckee River delta. Although the bloom appeared to be low severity, the Water Quality Program collected water quality samples on June 29th, but the samples were negative for cyanotoxins. However, by July 10, the algal bloom produced a thick green surface scum throughout the lake. Samples that were collected at Blockhouse Beach, Marina Beach, Separator Beach and Pelican Point tested positive for cyanotoxins, and were sent to Bend Genetics for further analysis.

The Water Quality Program received the toxin results from the outside laboratory on July 22, which indicated that all of the samples collected exceeded the Tribe's set toxin limit for closing the beaches at 4 micrograms per liter. Once the levels were confirmed, the Pyramid Lake Paiute Tribal Council decided to close the beaches to the community for health and safety until further notice. In accordance with Tribe's Cyanobacteria Response Plan, the Water Quality Program will continue to sample each week until toxin results are below the guideline of level 0.8 micrograms per liter, when the beaches may re-open to the community. While we don't know why the July 2020 bloom was this extensive, the Water Quality Program plans to work with the United States Environmental Protection Agency, and other partners to determine the factors that had led to this bloom event.

If you're interested in finding out more about the July 2020 algal bloom, or cyanobacteria blooms in general, please feel free to contact Kameron Morgan, Water Quality Manager, at (775) 574-0101 ext. 19, or at kmorgan@plpt.nsn.us.

Water Quality Sampling

- Patrick John, Water Quality Technician



Water quality is important to identify impacts to public health and aquatic life such as our *Qui-ui* fish. When community and industrial development affect water quality, it is important to assess the extent of the impact due to population growth. On the Pyramid Lake Reservation, our department collects surface water samples from the Truckee River, mountain streams that surround the lake, and lake samples for algae blooms. These samples are documented and tested within three days; the samples are tested for different nutrients such as phosphorus, nitrogen and nitrate, and ammonia. These tests are done at the Pyramid Lake Fisheries laboratory in Sutcliffe, and portions of each sample are sent to *Wet Lab* in Reno to test for Total Kjeldahl Nitrogen. All of these tests are saved onto an electronic database, and the data can then be interpreted for studies or to show trends; water quality tests indicates surface water health.



Aaron Bill taking WQ reading with sonde

Due to the pandemic and safety concerns for students, our program had to cancel the annual summer youth camp and student outreach activities. During this time, we have made a few changes to follow protocols to combat COVID-19. We all wear masks when we are in close proximity and

practice social distancing. At our desks we have hand sanitizer and disinfecting wipes. We also limit vehicle capacity, and disinfect equipment every time we use them. Our department strives to continue our important work activities. *(See next page)*

Water Quality Sampling

- Patrick John, Water Quality Technician



Aaron Bill taking WQ reading with sonde



Aaron Bill taking Water Quality Samples



Aaron Bill taking Water Quality Samples



Clean Air Act (CAA) Program Updates

- Tanda Roberts, Air Quality Specialist



This year the Pyramid Lake Tribal Air Monitoring Program is focusing on developing a new data management system for data collection at the Wadsworth Air Quality Station.

The Wadsworth Air Quality Station produces data for weather parameters every 5 minutes and particulate matter (PM) every hour. Previously, this data was collected and stored on the Tribal Environmental Exchange (TRES) Network which provided a website and a smartphone application for public viewing. TRES also offered tools that assisted in validating data and helped to create reports that are submitted to the U.S Environmental Protection Agency (EPA) Air Quality System (AQS) on a quarterly basis.

Because of issues beyond our control, the TRES Network was discontinued in January of this year, leaving the department to search for other options to assist in data management needs.

The Institute for Tribal Environmental Professions (ITEP) has assisted with developing a cloud based application called the Quality Review and Exchange System for Tribes (QREST). The QREST is a tool that allows tribal programs to manage and report their air monitoring data similar to the TRES Network. Other functions include, the ability to validate data and also gives tribes the capacity to partner with other tribes providing the necessary Quality Assurance (QA) review of the monitoring data.

Although QREST is in the initial stages of development, data from the Wadsworth Station has been collected and stored on the QREST since the shutdown of TRES. Further development of the system is taking place.

With the wildfire season upon us, it is important to keep in mind the Air Quality Index (IAQ) when planning for outside activity. You can check this daily at — <https://www.airnow.gov> — to review regional information. To check local data log onto — <https://www.qrest.net> — and select Wadsworth NV.

Also important is the quality of air inside your home, as this is the place where people spend most of their time. Effective ways to improve your Indoor Air Quality (IAQ) is to eliminate, reduce, and or mitigate individual sources of pollution. Benefits of good IAQ include fewer allergens, better breathing, and moisture control.

If you are concerned or want to learn more about any of these issues, please contact the PL Tribal Air Monitoring program at (775) 574-0101 ext. 18, or email at troberts@plpt.nsn.us.



Rangeland Program Updates

- Marissa Weaselboy, Rangeland Specialist



Greetings from the Rangeland Program,

I am happy to announce that rangeland assessments have all been conducted! We have assessed over 100 sites all over the reservation in order to calculate AUMs.

Methodology: The Rangeland Program's protocols are informed by the Natural Resource Conservation Service (NRCS). NRCS protocols are part of the Rangeland Program's Standard Operating Procedures that quantifies rangeland health. Aside from assessing rangeland health, plant production is also assessed using the double sampling method that measures desirable forage using dry weight in units of grams. This method utilizes the traditional 9.6 sq. ft. vegetation sampling hoop that is dropped every 10 meters or 33 feet in a transect. Ten plots are observed and measured for palatable plant species with samples taken back to the office to "dry out" and then weighed. This vegetation sample acts as a unit of measurement for the palatable vegetation that is rooted within the sampling hoop. The collected dry weights are put into an equation to get total pounds per acre of available forage to calculate AUMs. Photo points are also taken at the beginning and end of each transect, which usually runs North to South, to qualitatively monitor vegetation.

Update to Rangeland Management Plan: Progress towards the Rangeland Management Plan has been steady. For the month of July, two members of the Cattlemen's Association have been contracted in order to map springs and fence lines to



incorporate into the management plan. The purpose of documenting springs and available water usage would be to assess how they could support grazing in range units. Fence lines are important to maintain in order to prevent cattle from wandering into Reservation boundaries, as well as keeping cattle on one side for management purposes.

Moving forward, new monitoring sites need to be established for short-term monitoring which is a short-term method to conform to a management plan. However, Use Mapping needs to occur first and this

will take collaboration between local cattlemen. Use Mapping is one of the most useful grazing management tools that can "determine locations to establish key areas, identify distribution problems and solutions, develop objectives and grazing plans, locate range improvements, and make adjustments in management plans (33)."

Intern: The Rangeland Program also has had a UNR Pack Intern digitize range assessments, and work on a plant field guide. She has also created a guide that will be sent out to the local cattlemen regarding information on toxic plants to livestock.

Inter-departmental Collaboration: Areas near springs that have riparian grasses and forbs are classified as meadows by the NRCS. Assessments are being completed in these areas as they are important to grazing even if the areas are half an acre in size. The Wetlands Program has been assisting in conducting the California Rapid Assessment Method (CRAM) in order to have a standardized method of assessment Reservation-wide.

Outreach: The Rangeland Specialist has been working with Kier Johnson, Pacific Regional Technical Assistance Specialist/National TA Lead for the Intertribal Agriculture Council, on finding ways to support local cattlemen with their cattle operations and crop producers. Upcoming online workshops will be announced to the Cattlemen's Association.

The Rangeland Specialist is also working with the NRCS to provide more assistance to the PLPT.

For more information, please contact: Marissa Weaselboy, Rangeland Specialist, mweaselboy@plpt.nsn.us (See Next Page)

Rangeland Program Updates

- Marissa Weaselboy, Rangeland Specialist

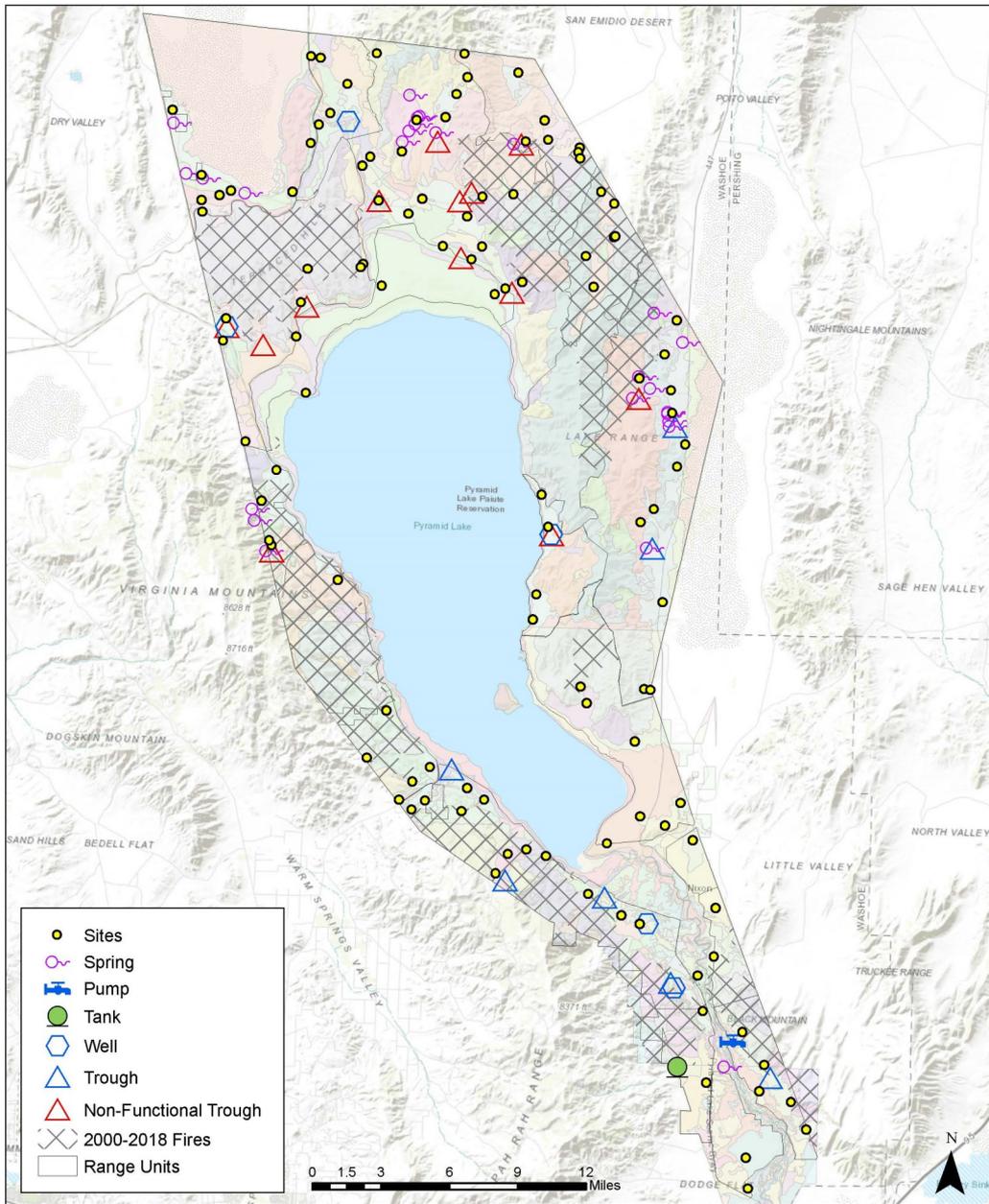


References:

Nevada Rangeland Monitoring Handbook 3rd Edition

Monitoring Manual For Grassland, Shrubland and Savanna Ecosystems Vol. 1: Quickstart'

(Below) Range Inventory Sites Map



Range Inventory Sites
Pyramid Lake Paiute Reservation

Conservation Management: Working to Preserve Native Species

- Emily Hagler, Environmental Specialist



On January 13th, California Bighorn sheep scampered out of livestock trailers, and off into the mountains above Pyramid Lake. Koepa (Wild Sheep), were once abundant throughout the Pyramid Lake region. Supported by state and federal agencies the Tribe is one step closer to the recovery of another native species.

This event made Nevada history as the first reintroduction of bighorn sheep onto Tribal Land in Nevada. The project was originally supported by Tribal Council in mid-2018. After nearly two years of planning, staff, Pyramid Lake High School students,



California Bighorn sheep being released on the Pyramid Lake Paiute Reservation.
Photo credit: Ben Spillman, Reno Gazette Journal

and Council Members gathered in central Nevada, at the base of the Sheep Creek Range, to capture California bighorn sheep. From the break of dawn until the late afternoon 22 bighorn sheep were captured, inspected thoroughly by state veterinarians, ear tagged, and collared with GPS tracking devices.

Why Bighorn Sheep on the Lake Range?

Bighorn sheep once thrived throughout northern Nevada. Over harvesting and disease in the early 1900's killed off herds across the West, including the Lake Range. "*Tribal members have not seen Bighorn sheep in this mountain range for over 100 years,*" says Susann Albright, Tribal Member.

The Lake Range is a unique environment, it's towering peaks provide good quality terrain, ample vegetation and numerous water sources. The Range's location and management provides all the needs for restoring the historic Bighorn sheep population. Environmental conditions, lack of developed roads, and restricted public access made this region ideal.

As a leader in Nevada tribal natural resources conservation, the Pyramid Lake Paiute Tribe is dedicated to managing native wildlife in an ever changing climate. With fire cycles rapidly changing the landscape, this project will improve the ability to preserve numerous wildlife species.

Question/Comments:

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