



LAKE WISE

... a voice for quiet waters

NEWSLETTER FROM OREGON LAKES ASSOCIATION

SEPTEMBER 2020

Connie Bozarth, Newsletter Manager

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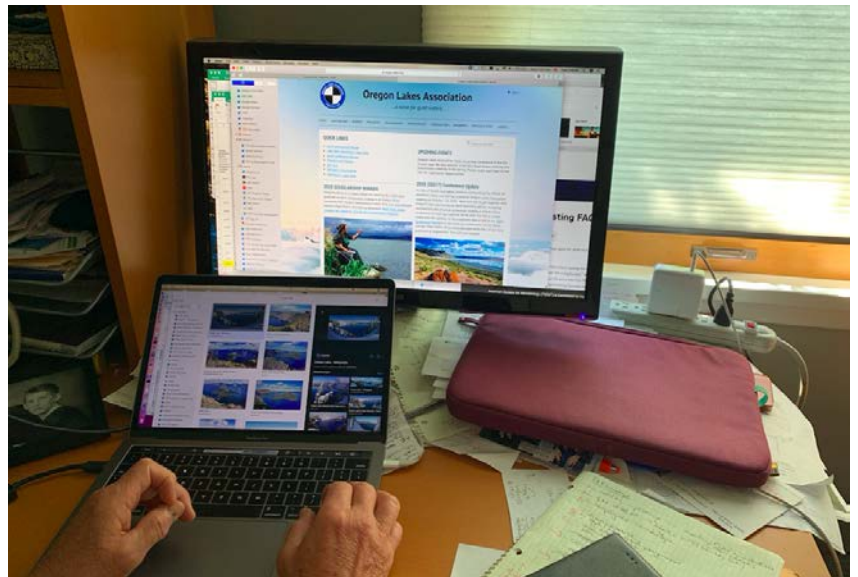
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Why Haven't I Heard Details About a 2020 OLA Conference?!?

Annual Conference of the Oregon Lakes Association (OLA)

Reserve 3:00 – 4:30 Wed, Oct 28, Nov 4 & Nov 11

From the comfort of your home - we will be streaming



Uncertainties about the pandemic have inhibited planning a replacement conference for 2020. However, at this month's board meeting, we committed to virtual conference sessions on 3 separate days in late October and early November. Between 3:00 and 4:30 pm on the Wednesdays noted above, we will hold the equivalent of separate conference sessions. Access will be free ([donations to the scholarship and outreach fund gladly accepted!](#)).

Watch the [OLA website](#) and emails for details. Two of the sessions will focus on cyanobacterial HABs issues, while the third will discuss conservation of lake natural resources.

The dates of our conference sessions fall between the virtual meetings of the Washington State Lake Protection Association (WALPA) ([October 14-16](#)) and the North American Lake Management Society (NALMS) ([November 16-20](#)). You can join part or all of the WALPA conference free.

2020 Oregon Lakes Association (OLA)
Graduate Student Scholarship Recipient
Contributed by Wayne Carmichael, OLA Board Secretary

Congratulations to Lindsay Collart, Oregon State University PhD student and 2020 OLA Scholarship winner, shown below at Upper Klamath Lake in southern Oregon



Lindsay Collart is a 4th year PhD student originally from southeastern Ohio. She earned dual B.Sc. degrees from The Ohio State University in Molecular Genetics and Evolution, plus Ecology and Organismal Biology. In 2013, she began work as a technician at the Ohio State University's Aquatic Ecology Laboratory, where she worked on the ecological effects of harmful algal blooms in Lake Erie and helped develop a method to quantify cyanobacterial toxin concentrations in Lake Erie sport fish.

In 2016, she began work towards a PhD in microbiology at Oregon State University, studying freshwater harmful algal blooms in Oregon Lakes. Her research merges her experience in freshwater cyanobacterial harmful algal blooms with the developing field of volatile organic compounds (VOCs). She is combining information on microbial and chemical ecology using advanced statistical methods and data integration, with the goal to develop a novel monitoring technique of toxin trajectories that is both time and cost efficient. She envisions that this approach could be applied using real time collection of VOCs. Lindsay is currently analyzing data collected from samples of VOCs, the microbial community, and environmental conditions at Upper Klamath Lake during 2018 and 2019.

The scholarship funds will allow Lindsay to supplement her field data with VOCs and genomic information from the cyanobacterial genera, *Aphanizomenon*, *Gloeotrichia*, and *Microcystis* also collected from Upper Klamath Lake.

MAKE A 2020 DONATION TO SCHOLARSHIP FUND

Thus far OLA has provided over \$10,000 in scholarships and travel expenses to the recipients. Please consider donating to the Scholarship and Outreach Fund today, so we can sustain this well into the future. Please consider [making a donation](#) today!

OLA Board of Director Vacancies

Contributed by Theo Dreher, President, OLA, Professor Emeritus
of Microbiology, Oregon State University

Interested in joining the Board of Directors and becoming more active in Oregon Lakes Association?

A number of places on the OLA Board are being vacated this October. If you are interested, or just exploring the idea, of joining the board and becoming more involved, contact Theo Dreher (OLA President, theo.dreher@oregonstate.edu / 541-231-9883) or one of the other board members.

The Board meets by video/telephone conference on the third Thursday (noon) of each month for one hour. Discussion items cover the planning of the annual conference and CyanoHABs Stakeholder meeting, budget status, awarding of the annual graduate student scholarship, website content, fundraising, advocacy for various issues concerning lakes, etc.

OLA is currently active in promoting better understanding and responses to CyanoHABs, and the conservation of dryland lakes, especially Lake Abert. We have had a desire to pursue education towards lead-free lake activities (phasing out lead sinkers), but have not to date had the capacity to organize activities. Board membership is the best way to get involved in these initiatives, or to promote a personal passion you may have concerning lakes.



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Lake Abert

Contributed by Ron Larson, OLA Board Member

Senator Jeff Merkley Introduces Bill to Study Great Basin Salt Lakes, Including Oregon's Lake Abert

In July, U.S. Senators Jeff Merkley (OR), Jacky Rosen (NV), and Mitt Romney (UT) introduced the Saline Lake Ecosystems in the [Great Basin States Program Act of 2020](#). Building upon scientific findings that saline lakes across the West provide interconnected bird habitats, as documented in [Audubon's 2017 Water and Birds in the Arid West report](#), this legislation will establish a program within the U.S. Geological Survey (USGS) to assess and monitor the hydrology of saline lakes in the Great Basin and the migratory birds and other wildlife that depend on them.

Regarding the importance of the legislation, Senator Merkley said “Our lands and waters - including our saline lakes like Lake Abert and Goose Lake - are integral to the futures of countless animals and migratory birds, as well as Oregonians’ quality of life and livelihood. We have to protect these ecosystems, but we can’t do that without sufficient data. This legislation will help us secure the studies and science we need to put long-term plans into action and ensure our saline lakes ecosystem remains healthy for generations to come.”

Saline lakes, such as [Lake Abert](#) in Oregon, the Great Salt Lake in Utah, and others, as well as their water sources, can directly benefit people and their livelihoods in a way that has little negative impact on the ecosystem. For example, at the Great Salt Lake, harvesting brine shrimp “eggs” is a multimillion-dollar business. At Lake Abert, the Oregon Desert Brine Shrimp Company harvested brine shrimp for 30 years until conditions in 2014 made that impossible, as mentioned below. However, some human livelihoods are in conflict with the maintenance of healthy lake ecosystems, at least during times of stress. An example is diversion of lake inflow waters for irrigation, which is significant in the case of Lake Abert. The problems are a result of the over-allocation of water resources, which was made with incomplete knowledge of the extent of water availability and with no allowance for sustaining ecosystems that are dependent on the allocated waters.

Salt lakes provide unparalleled opportunities to see thousands of migrating shorebirds. However, most significantly, saline lakes provide critical breeding, stopover, and feeding sites for millions of migratory birds, something that cannot easily be replaced. The high productivity of invertebrate food in these lakes supports these birds by enabling them to replace fat reserves lost during breeding, and to put on the needed supplies allowing them to migrate many thousands of miles to wintering habitats, in some cases as far away as South America.

There is no other network of aquatic habitats in the Great Basin that meets the needs of millions of shorebirds and other waterbirds. Many of these lakes and wetlands have shrunk 50 to 95 percent over the last 150 years due to water diversions, drought, and a changing climate. Furthermore, in the case of Lake Abert in 2014, salinities reached levels nearly 8-times that of the ocean, with catastrophic effects to the ecosystem. Studies have shown that agricultural water diversions make the Lake Abert ecosystem less likely to survive drought conditions.

Each saline lake and surrounding watershed is a unique ecosystem, but together these lakes function as a critical network for waterbirds as they migrate across the West each spring, summer, and fall. Birds use saline lakes as stopover sites to rest and refuel during spring and fall migration as they traverse the arid West.

Saline lakes provide specialized habitat for globally significant populations of several bird species: most western Snowy Plovers, more than 99 percent of North America’s Eared Grebes, 90 percent of Wilson’s Phalaropes and more than half the global population of American Avocets depend on this network of saline habitats.

Lake Abert, Oregon’s largest saline lake and its only hypersaline lake, provides seasonal habitat for hundreds of thousands of waterbirds, especially shorebirds like the American Avocet, Black-necked Stilt, and Wilson’s Phalarope. More than 80 species of shorebirds and other waterbirds migrate to the lake to feed on the highly abundant brine shrimp and alkali flies. Lake Abert is recognized for its importance as wildlife habitat and its

unique aquatic ecology, and also for its scenic and cultural values. Volunteers from the Oregon Lakes Association and Audubon chapters in the Bend area and Klamath Basin have monitored waterbirds at the lake for the past decade, and have documented precipitous declines in some species when the habitat was impacted by low water levels and high salinities.

Across the globe, alarming stories and photos of drying lakes point to devastating impacts that arise when saline lakes no longer receive needed water inflows. This happened most recently to Lake Abert in 2014 when it shrank to 5% of its historical surface area and became so salty that brine shrimp and alkali flies could no longer live. The lake surface turned red from a bloom of single-celled microorganisms called archaea that can thrive in

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extremely salty habitats.

Water levels are declining in saline lakes across the West, raising public health, economic, and

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environmental concerns. Less water means fewer wetlands and the elimination of vital bird habitat, increased salt content threatening the food supply for birds in the lake, and, in several situations, vast areas of exposed alkali-covered lakebed, creating wind-blown dust that is hazardous to humans and impacts neighboring communities.

Scientific monitoring and assessment of saline lake ecosystems can anticipate changes caused by climate, inform responses, and promote coordinated management of a region-wide network of saline lakes across the Great Basin.

What you can do:

- Send [Senator Merkley](#) a letter thanking him for cosponsoring the bill.
- Send a letter to [Governor Kate Brown](#) asking her to support the legislation.
- Volunteer to help monitor Lake Abert (contact organizations below).
- Support organizations like OLA, [Water Watch of Oregon](#), and the [National Audubon Society](#) and its local chapters that advocate for better management of salt lakes.
- Get informed about how saline lakes are being impacted by climate change and other threats.

For further information see:

[Audubon Society 'Western Water News'](#)

[The Jefferson Exchange \(Jefferson Public Radio\)](#)

Contact: Ron Larson, OLA Board member

Lake Abert 2020 Field Observations: Ron Larson

April 10, 2020. The Chewaucan River is the main source of water for Lake Abert. Analysis of Chewaucan River flows (up to April 1 for water-years 2010-2020) shows Lake Abert is experiencing low inflows in 2020 compared to previous years. Only WY 2010 and 2012 were less or similar in the past decade. Additionally, the mean of the past three years is the lowest since 2010. If WY 2017 had not been exceptionally wet, the lake would be very low today, and probably would equal 2014. (See article in May 2020 LakeWise).

May 4, 2020. Gage readings measuring water depth at Lake Abert can vary due to consistent winds forcing water against a shore. On successive days in early May, reading varied by 0.8 ft. During calm conditions on 1 May, the lake level stood at 4249.1 ft. The lake had declined 0.4 ft from last fall, so winter inflows were so slight that they didn't even offset evaporation losses.

Poison Creek would normally be flowing now, but was reduced to a tiny trickle flowing from the culvert. Crooked Creek was not flowing into the lake, being diverted upstream. However, some water was flowing into the lake from the Chewaucan River, but only very little. Using a drone, XL Spring at the north end of the lake could be seen to contain some, hopefully enough to sustain the isolated and small population of tui chubs through the summer.

The salinity was 7.8% and small brine shrimp were present in seemingly average numbers. Long-legged flies were present in numbers not seen in some time. The birds were present in numbers typical of the spring season. I saw my first Sage Sparrow and a Short-eared Owl at the north end of the lake.

May 27, 2020. The weather was amazing and the lake looked beautiful. However, water levels were only 4248.9 feet, and had dropped 0.2 feet from the 5-1-20 level, and dropped 0.6 feet from levels seen in late winter. Thus, inflows this winter and spring were insufficient to offset evaporative losses, which are not that much during the cool season. Consequently, salinities were up slightly to 8.9%.

The numbers of birds were relatively low, especially Northern Shovelers, which feed on shrimp and fly larvae. This suggests that lake productivity was low and the clear water, and lack of flies and shrimp, suggested this too. I think usually in spring the lake gets a flush of fresh water which results in a bloom of *Ctenocladus* green algae, and perhaps other algae, which stimulates the secondary producers, but apparently that didn't happen this year.



Lake Abert from Abert Rim, July 1 2020. Photo: Ron Larson and Joe Eilers

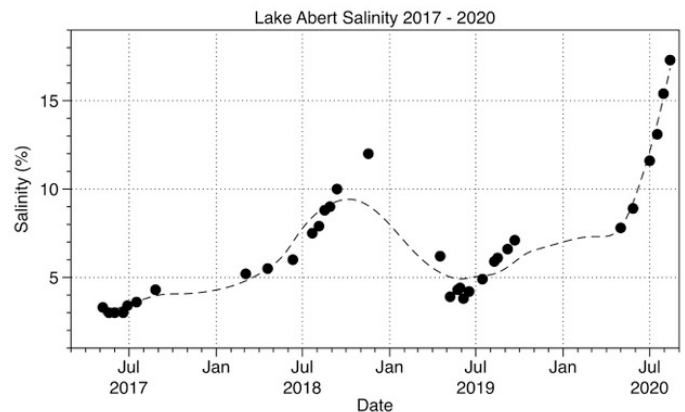
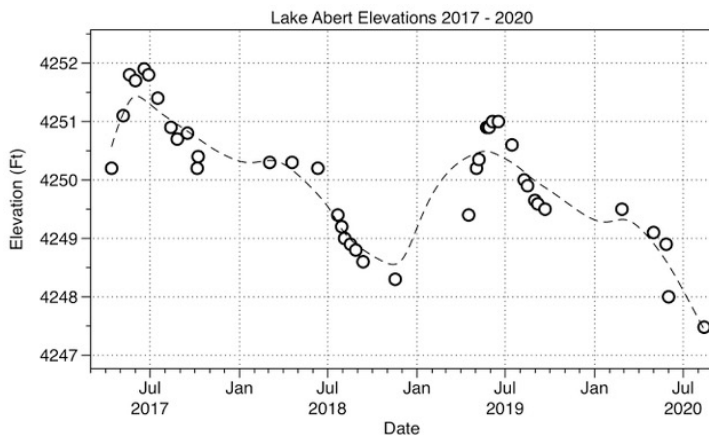
July 1, 2020. The salinity reading was already at 11.6%, having risen from 8.9% on 5-27-20. I couldn't read the elevation gage because mud had accumulated around it, but I could see that lake had receded considerably. However, there were substantial numbers of birds and flies, so that's encouraging.

July 30, 2020. The air temperature was 99 degrees! The lake was noticeably lower than 2 weeks ago. Several large rafts of *Artemia* (brine shrimp) cysts, which float, were visible, suggesting that there has been good *Artemia* production and survival up to the adult stage. This is surprising given that the water was very

clear on 7-1-20, indicating there can't be much food for the shrimp. Salinity readings on 7-17-20 and 7-30-20 were 13.1% and 15.4%, respectively. Now with salinity past the 15% mark, which is thought to cause high stress to even very tolerant brine shrimp, and coupled with the high air temperatures, shrimp and fly larvae will likely start to die, owing to starvation, salinity stress, and low DO. On 7-30-20, there were quite a few gulls and avocets, but no phalaropes, whereas on 7-17-20 there were about 20,000 phalaropes present.

August 13, 2020. The salinity has climbed to 17%, and the dissolved oxygen was only 4 mg/l, but there wasn't any red-colored, dead or dying, *Artemia*, indicators of stressful water conditions. However, the numbers of alkali flies seemed much less than earlier.

There still are quite a few birds using the lake. The following were counted: Avocets, 6,000; Eared Grebes, 7,000; Gulls, 17,000; sandpipers, 2,000; and phalaropes, 8,000. Those numbers might seem high, but in the recent past over 100,000 phalaropes have been counted.



The graphs of the lake elevations and salinity since 2017 show above show that there was almost no inflow to the lake in 2018 and 2020. Based on where the lake is now, if we don't get inflow in 2021, conditions will be much worse next summer.

Oregon Lakes in the News

Contributed by Paul Robertson, Past OLA President and Connie Bozarth, LakeWise manager

Visitor Surge Problematic at Crater Lake



Crater Lake National Park is struggling with visitors illegally entering the caldera and the lake itself this summer, partly due to a 60-70% below normal staffing level (Covid-19 strikes again) while visitor numbers have surged. Listen to the story on OPB or read the links below.

[Crater Lake in Oregon threatened by visitor surge Amid Pandemic](#)
(Las Vegas Review-Journal)

[Visitors illegally enter the caldera at Crater Lake National Park](#) (KOMO News, Seattle)

Lake Billy Chinook- Fire! High Winds! Invasive Weeds!

Lake Billy Chinook is struggling with several issues this summer.

- ✓ The area around the lake is included in the Green Ridge Fire Level 1 pre-evacuation zone ([ktvz NEWS](#)).
- ✓ In mid August, a sudden wind and rain storm resulted in lots of damage to boats on a busy day at the lake ([ktvz NEWS](#)).
- ✓ Eurasian milfoil is tangling swimmers and boaters. However, Michael Crumrine from the Deschutes National Forest is on the job!



Low Water Warning Aired

The Oregon State Marine Board is warning boaters to watch for low water and risk of running aground in many of Oregon's lakes and rivers. KATU reports that officials suggest some waters are 30 feet shallower than August last year. While staying afloat be sure to wear your life jacket and never boat alone.



Boaters on the Columbia River Sunday, July 26 2020 as seen from Marine Drive in Portland - KATU image.

See the '[Alerts and Obstructions](#)' link on the OSMB website for updates on current conditions

Huckleberries Peak in Alpine Lakes Backcountry



Photo: Zach Urness, Statesman Journal

Timing is everything, and getting out in nature in late summer is essential travel. Treat yourself to some hiking and exploring of the Ollalie Lake Scenic Area and pick a few berries at their peak ripeness along the way. This region of Oregon provides many day hikes and overnighiter camping opportunities, but don't take our word for it, get some real insight from Statesman Journal writer and photographer, Zach Urness.

Show Off Your Favorite Lake!

Contributed by Theo Dreher, President, OLA

Would you like to show off your favorite lake to other OLA members with a field trip?

OLA has the goal of holding a lake outing once each year. Some years, that has occurred as a field trip connected to the annual meeting, but we have also organized lake outings at other times.



Please contact Theo Dreher (OLA President, theo.dreher@oregonstate.edu / 541-231-9883) if you would like to host a kayak/canoe outing at a favorite lake of yours. OLA members would be invited to learn about the lake from you or a knowledgeable naturalist you could invite. And all would just have fun being on the water. Any weekend in spring or early summer 2021 would be fine.



Rhododendrons alongside
Hideaway Lake, Mt. Hood NF,
July 2020. Photo: Theo Dreher



Lakes have provided safe solace and
beauty during the COVID-19
pandemic: Jean Lake, Badger Creek
Wilderness, July 2020. Photo: Theo
Dreher





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The Oregon Lakes Association Mission

OLA, a non-profit organization founded in 1990, promotes understanding, protection and thoughtful management of lake and watershed ecosystems in Oregon. Serving entirely through volunteer efforts, the Oregon Lakes Association puts on an annual conference, publishes a tri-annual newsletter, sponsors Harmful Algal Bloom trainings, and works as an advocate for lakes in the legislative arena. For additional information on OLA, write to the address above, or [visit our website](#)

OLA and *Lake Wise* welcome submissions of materials that further our goals of education and thoughtful lake management in Oregon. OLA is grateful for corporate support that helps sustain the organization. Corporate members are offered the opportunity to describe their products and services to *Lake Wise* readers. These descriptions are not OLA endorsements and opinions appearing in *Lake Wise* are not OLA policy statements.

Lake Wise

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