LAKE WISE

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NEWSLETTER FROM OREGON LAKES ASSOCIATION

DECEMBER 2020

Connie Bozarth, Newsletter Manager

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Oregon Lakes 2020 Conference Continues

Annual Conference of the Oregon Lakes Association Extends into 2021
Date TBD-Watch the Website

With the success of our recent online conference sessions, we are planning additional sessions early in 2021. Be on the lookout for announcements after the New Year. Likely Topics:

INVASIVE SPECIES
CYANOHABS

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2020 OLA Conference Report

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

As with other professional societies and family groups unable to travel for visits, OLA turned to the Zoom platform for remote conference sessions in October and November. Although in-person conferences allow more discussion and contact, our three sessions went very well and attracted 50-70 participants. We were fortunate that sponsors also saw this format as providing worthwhile exposure: check the ads in this issue to see who is sponsoring OLA's pro-lake activities.

CyanoHABs sessions

On October 28 and November 10, we enjoyed two sessions focused on CyanoHABs, organized by Dan Sobota and Theo Dreher. The first session focused on the use of remote sensing to monitor HABs and on the use of these and other data for predicting blooms. Brian Fulfrost (OR-DEQ) and Amalia Handler (US-EPA) described work reliant on data from the Cyanobacteria Assessment Network (CyAN) made available by EPA. Data collected by the European Sentinel 3A & B satellites provides a Cyanobacteria Index value that quantifies cyanoHAB presence in a 300m x 300m "pixel" of surface water every 2-3 days. The Sentinel satellites carry spectrometers that detect a spectral band specific to phycocyanin to help distinguish cyanobacterial from other chlorophyll-containing blooms. About 65 lakes in Oregon are large enough to be monitored with these instruments.

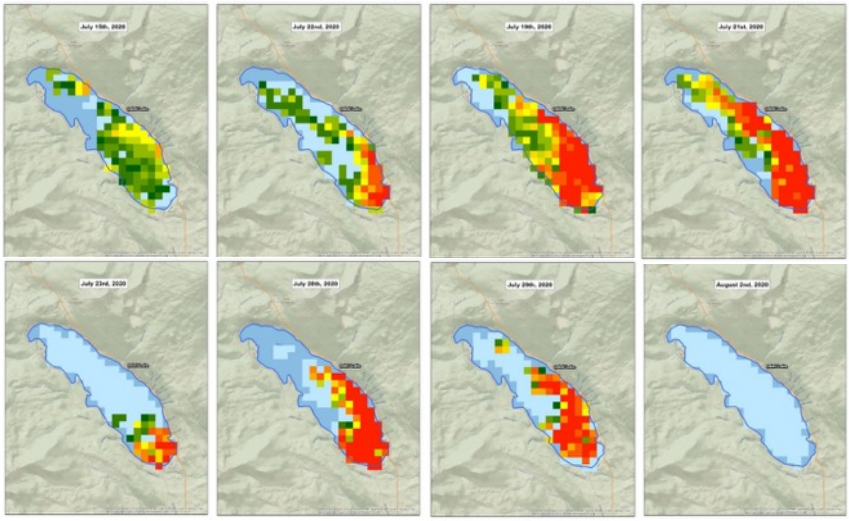


Fig. 1 Time series of cyanobacteria cell count estimates (cells/mL) for Odell Lake from EPA CyAN project (July 15 - Aug 2, 2020). Image: Dan Sobota

Brian's DEQ group has studied upper Deschutes watershed lakes (e.g., Odell, Crane Prairie), validating remote detections with simultaneous in situ sampling of selected lakes. During the 2020 season, they compiled weekly email reports that alerted the Oregon Health Authority to emerging blooms that may develop into public health risks if those blooms were shown to be toxic. The group is working on a webpage to display historical and current satellite imagery of cyanoHABs.

Amalia and her EPA group in Corvallis have linked the CyAN data for lakes across the US to the results of EPA's National Lake Assessments (NLA) program, which every five years statistically samples lakes once during the summer for analysis of physico-chemical parameters. In the recent surveys, this has included cyanotoxin analyses. The remote sensing dataset included information from MERIS (2008-2011) and Sentinel (2017- present) satellites. Although the NLA lakes are sampled on predetermined dates that may not correspond to cyanoHABs, there was a positive correlation between measures of cyanoHAB activity in the CyAN and NLA data. This allows the intersection of cyanoHAB productivity with physico-chemical parameters to be studied in a large set of lakes.

Nick Tufillaro (OSU) also reported the use of remote sensing, in this case data from the Sentinel-2 satellite, which has a higher resolution (10 m pixels), expanding imaging to more lakes and to narrow reaches of lakes and reservoirs. Sentinel-2 does not distinguish phycocyanin, so detected blooms may be composed of other

phytoplankton. However, summer observations are likely to reflect cyanoHABs, since they dominate blooms in many Oregon lakes and reservoirs during the summer. Nick is hoping to integrate images into the online Atlas of Oregon Lakes.

Fig 1. Cyanobacteria bloom in Odell Lake, July 21, 2020 (Photo by Sam Doak).

James Watson (OSU and The Prediction Lab) is using Bayesian Model Averaging to produce models for predicting cyanoHABs in Detroit Reservoir, using as input any and all data from water sampling to meteorology. The goal has been to provide on a daily basis 3-day, 7-day and 14-day predictions of cyanoHAB status (https://detroitlake.thepredictionlab.com/home), allowing the City of Salem to plan their needs for the treatment of drinking water. The goal is to extend this prediction service to other lakes across the US.

The second cyanoHABs session focused on genetics and physiology. Tim Otten (Bend Genetics) summarized the results of 3 years analyzing samples from several lakes scattered across California. This monitoring has included Q-PCR analysis for cyanotoxin genes alongside direct toxin analysis by ELISA. Q-PCR assays for the four major cyanotoxins can be performed for about half the cost of a suite of toxin analyses, and results from the two types of assay are strongly correlated. The higher sensitivity of Q-PCR offers advantages as blooms develop and Tim sees a role for Q-PCR in a tiered monitoring approach. Anatoxin-a and microcystin were the most common toxins or toxin genes seen, present in 25-40% of samples. Cylindrospermopsin and saxitoxin were seen less frequently. Similar trends can be seen in the long-term dataset of toxin analyses in Washington lakes. Among benthic samples, anatoxin-a producers were very abundant.

Lara Jansen, PSU PhD student and OLA scholarship recipient, described her studies on Cascade montane lakes. She has sampled lakes >10 ha with maximum depths above 3 m. Some lakes that are quite remote are susceptible to cyanoHABs, while others haven't experienced HABs. Lara is quantifying phytoplankton and zooplankton and is considering factors such as physico-chemical characteristics and fish stocking in looking for factors that predispose to cyanoHABs. She hopes to understand why some lakes such as Middle Erma Bell suffer intense HABs while nearby Lower Erma Bell does not.

Kevin Bladon (Forestry, OSU) discussed the effects of wildfire on stream characteristics. Studies have shown that flow rates, turbidity and levels of N, P and C all rise after fires, and some of these effects (esp.

elevated P in runoff) can remain over more than a decade. Hot fires fuse minerals in the uppermost soil layer, causing lower infiltration of rainfall and higher runoff. There is some evidence that these effects can be modified by management, such as salvage logging to leave substantial felled timber or "subsoiling" to mechanically break up the fused surface layer. The recent wildfires surrounding reservoirs in the Cascade foothills are sure to alter hydrology and substantially increase the risks of cyanoHABs.

Lindsay Collart, OSU PhD student and 2020 OLA scholarship recipient, described her innovative studies looking at volatile organic compound (VOC) release from phytoplankton communities present in Upper Klamath Lake and adjacent Agency Lake. VOC's are flushed out of water samples by bubbling with a stream of gas, followed by measurement in a specialized mass spectrometer, which analyzes the mass of protonated compounds. VOC's include compounds that are likely used for inter-organism signaling, or perhaps are metabolic byproducts, and include the taste-and-odor compound geosmin, which is produced by some cyanobacteria. Lindsay has found strong differences in VOC's associated with diatom and cyanoHAB communities and is looking more closely at VOC's associated with unialgal cultures of the main cyanobacteria in the UKL/Agency Lake system: AFA, *Microcystis, Dolichospermum* and *Gloeotrichia*.

Conservation of Oregon Lakes session

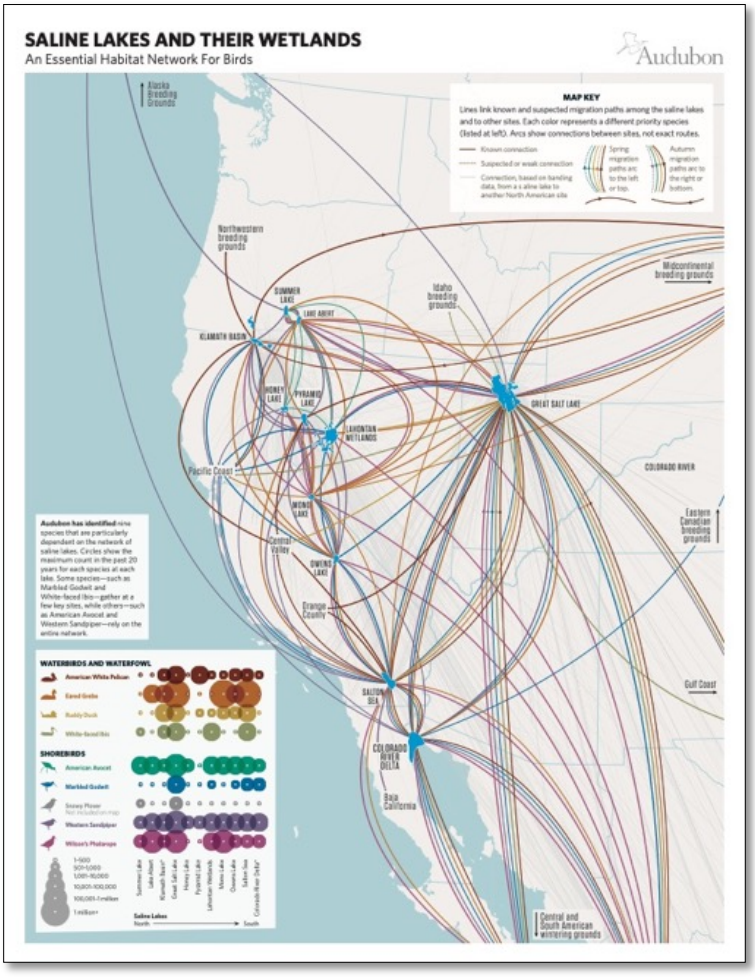
On 4 November, after emerging signals that we will be led by a US President whose priorities will be far more favorable to the environment, we heard from three speakers about the options for conserving Oregon's lake resources.

Andy Kerr (The Larch Company), a long-time conservation activist who was influential in adopting protected Northern Spotted Owl populations as a lever in protecting Pacific NW old-growth forests, spoke about his recent advocacy for streams and lakes. Andy has worked closely with Senator Wyden's office in compiling nominations from Oregon to the National Wild & Scenic Rivers system. Wyden is a strong believer in the power of the W&SR Act (1968) to protect the watery parts of our environment; the definition of "rivers and streams" is loose, and can include lakes (interpretations have to date included only small lakes). Among the lakes included in stream segments that Senator Wyden's office appear to have agreed to include in upcoming legislation are Lost, Tannin, Bigelow and Baby Foot Lakes in the Siskiyou/Rogue region, Helen Lake in the Mt. Hood NF, Clackamas Lake, and Lava Lake and Little Lava Lake (Deschutes NF). Unfortunately, Lake Abert, which OLA nominated, has been considered too large to include in the W&SR proposals. Although National Monument additions have recently been rescinded, Andy believes that designation of lands for explicitly stated conservation purposes by Act of Congress remains a powerful way for long term protection of lands and lakes.

Lisa Brown (staff attorney with WaterWatch of Oregon) outlined options for using state government designations for protecting lakes. An important component is the 1987 Instream Water Right Act, the first of its kind in the western US and which allows allocation of water for the benefit of ecosystem health. While such water rights are subordinate to previously granted rights, they do prevent further allocations that would divert water from streams and any downstream lakes. The Oregon agencies with authority for protecting water in lakes are OR Parks and Recreation Dept (OPRD), OR-DEQ, ODFW and OR Water Resources Dept (OWRD). OPRD administers the State Scenic Waterway Act, which now includes Waldo Lake and over 20 river segments. This designation protects from resource and water extraction and triggers an instream water allocation. ODEQ can allocate Outstanding Water Resource Waters designation, which Lisa considers the highest level of state protection. Such protection for Waldo and Crater Lakes is currently under consideration, with OLA board members Andy Schaedel and Rich Miller serving on the DEQ advisory committee. OWRD is the agency that manages instream water rights, which are most commonly applied to streams, but can also apply to lakes. The water rights are in support of public uses, which include recreation, ecosystem conservation, pollution abatement and navigation. So far, the only lake with instream rights is Borax Lake (Alvord Desert), home to the endemic Borax Lake chub. The rights call for maintenance of a specific surface water elevation, and this protection has allowed the chub population to recover and be delisted as an endangered species. Instream water rights can be established through application by ODFW, OPRD and ODEQ or by transfer of existing water rights. New applications need to be supported by studies that justify the water allocation. OWRD also

administers Basin Program Rules, which apply to the 20 basins in the state. Basin Program Rules can set restrictions on uses of watersheds, and recently were used to protect the Smith River watershed. While agencies can initiate the protections listed above, petitions from outside government are often the triggers that lead to action. In Lisa's view, Oregon has excellent laws that can be used to protect lakes and waterways, and advocacy groups like OLA should seek to utilize those. Several of the programs mentioned above have been under-utilized.

Marcelle Shoop, National Audubon Society, spoke about the Saline Lakes Program she directs, and its involvement in developing the recent Saline Lake Ecosystems in the Great Basin States Program Act of 2020, sponsored by Senator Merkley and co-sponsored by other senators from Utah and Nevada as well as Senator Wyden. Audubon's philosophy in working to protect natural resources on which birds depend is to seek to compromise human and ecosystem needs, and they have worked hard to obtain bipartisan support for the Saline Lakes Act. The chief components of the Great Basin saline lakes system are Summer and Abert Lakes (OR); Pyramid Lake and Lahontan Wetlands (NV); Honey, Mono and Owens Lakes (CA) and Great Salt Lake (UT), connecting with the Salton Sea (CA). These wetlands provide irreplaceable habitat in supporting shorebirds that migrate between these lakes and in some cases use them as stopovers on migrations between the Arctic and South America. North American eared grebes, Wilson's phalaropes and American avocets are among the most significant users of these lakes. Water diversions and climate change are the main factors that threaten desiccation of these lakes. The Saline Lakes Act allocates $5M/yr for 5 years to USGS for a study of the hydrological status of the saline lakes system and their relationship to wildlife, particularly birds. Research could be conducted by USGS or, in part, by others through a grants program, with the aim of obtaining data that can be used to craft the best long-term protections for the saline lakes system. It is hoped that the bill will be authorized by Congress and then lead to the acquisition of much-needed data and publicity that can be used in working for protection of lakes such as Lake Abert, a high priority for OLA.



For an interactive version of this map, visit "In the Arid West, Protecting Oases Vital to Birds Requires Creative Solutions"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Meet the New OLA Board Members

Joe Eilers

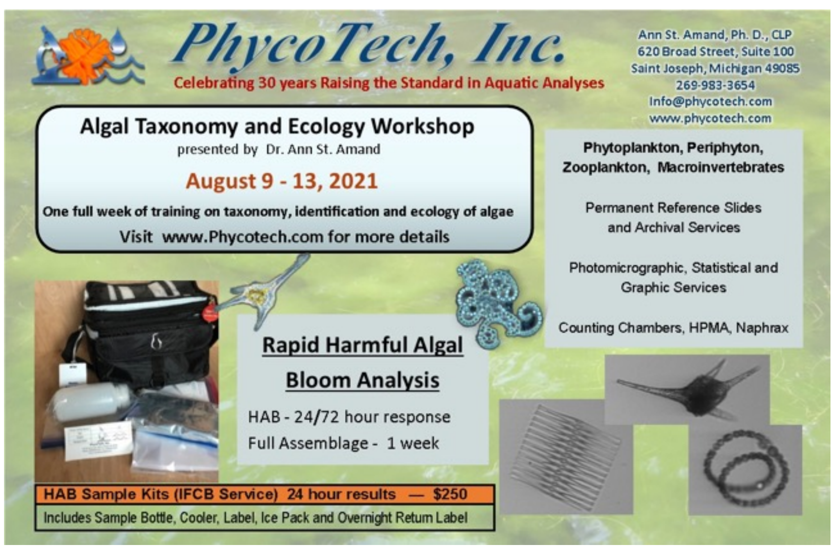
Joe is a professional limnologist and paleolimnologist who has studied Oregon lakes for several decades. He is owner of MaxDepth Aquatics, Bend, and was co-founder of E&S Environmental Chemistry in Corvallis. He was a founding member of OLA and OLA president in 1991. In returning to the board, Joe would like to devote energy to advocacy for lakes, including Lake Abert, and contribute to a renewed focus on lakes at ODEQ.

Lara Jansen

Lara Jansen: Lara is our current student board member and is serving as OLA Secretary. She is a Ph.D. student in the Earth, Environment and Society program at Portland State University, studying mountain lake cyanoHABs in Oregon. She is the 2019 OLA Scholarship recipient. On the board, she would like to cultivate student involvement in OLA and in limnology as a profession, and advocate for Oregon lakes. Lara has always loved the outdoors, starting with nature education programs in her youth to working on field research in varied landscapes from the Sierra Nevada backcountry to the subtropical swamps of Florida. Outside of research, she enjoys hiking, backpacking and kayaking within the Pacific Northwest and beyond.

Desiree Tullos

Desiree is a Professor in the Department of Biological and Ecological Engineering, in the College of Agricultural Sciences at OSU. Her specialty is stream engineering, and for the last couple of years she has been studying possible solutions to mitigating the cyanoHABs in Ross Island Lagoon on the Willamette River. On the board, she is interested in advocacy for statewide cyanoHABs monitoring and building OLA community. Desiree has always felt strong connection to water bodies and is seen in picture below during an open water swim on Triangle Lake (green swim buoy).



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Life and Death of a Lake: Lake Chemult, Southcentral Oregon

Contributed by Ron Larson, OLA Board Member

Canada Geese flying over Wocus Bay (digital art by Ron Larson)

Lakes are often thought of as permanent landscape features, just like mountains. However, they are actually very short lived, at least on a geological timescale. A good example of this is Lake Chemult in southcentral Oregon. You might not have heard of this lake and that's because it no longer exists, and in fact, it was just recently discovered by Portland State University geologists Michael Cummings and Jeffery Conaway.

Exactly when Lake Chemult formed is unclear, but like many lakes east of the Cascades in Oregon, Lake Chemult was formed by Basin and Range Faulting creating a lake basin in the down-faulted block(s) in what is now known as Klamath Marsh, a National Wildlife Refuge (Figure 1).

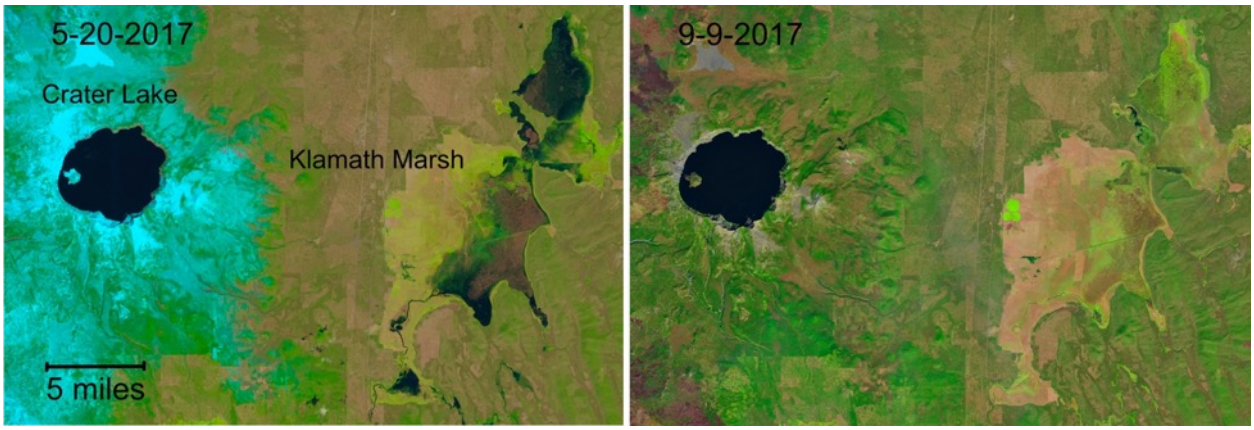

Fig. 1. Two Landsat images of Crater Lake and Klamath Marsh. Left: 5-20-17, showing water covering about one-half of the marsh. Right: 9-9-17, showing that most of the water has evaporated.

Apparently, following the eruption of Mt. Mazama approximately 7,000 years ago, the lake reached its highest elevation. Being located less than 15 miles from Mt. Mazama, Lake Chemult was covered by 10 to 20 feet of hot ash and pumice. Cummings and Conaway discovered, through a variety of evidence, that Lake Chemult grew in size to over 200 square miles, being twice the size of Upper Klamath Lake, our largest lake, and was nearly 100 feet deep after the eruption because pumice formed a thick dam near the lake's southern outlet. Eventually, rising water levels caused the dam to suddenly break, sending a wall of a water cascading down the Williamson River. The force of the rushing torrent, estimated to flow at over 400,000 cubic-feet per

second, which is about as large as the record discharge for the Willamette River, plucked large blocks of rock from the river's canyon and carried the boulders, with the largest being over 20 feet in length and weighing many tons, nearly 4-miles downstream, where they can be seen today near National Forest Road 9730 north of Chiloquin (Figure 2).

Fig. 2. A pool scoured out by high flows and boulders left in the Williamson River following the break of the pumice dam on Lake Chemult approximately 7,000 years ago. (Photo by Ron Larson).

After the pumice dam broke and Lake Chemult drained, it filled with the ash and pumice, reducing the area of open water. That set the stage for a large marsh to develop over the following millennia. Sometime during that period, the Klamath Indians came to the marsh, building permanent and seasonal settlements from which they hunted, fished, and collected the edible seed of the yellow water lily, they called "wocus" (Figure 3). In the 1890s, Frederick Coville, a Smithsonian ethnobotanist, came to the Klamath Basin to study the use of plants by the tribe, and in August 1902 he spent a week at the Klamath Marsh, specifically to study the harvesting and processing of wocus seeds. The pods were gathered in large quantities in late summer by women. Coville estimated at that time that wocus covered nearly 10,000 acres of open water.

Fig. 3. Wocus (*Nymphaea polysepala*) flowers and seed pod (Coville 1902 and the Hunt Institute).

In 1920,

the famous Western photographer Edward Curtis went to the Klamath Marsh to photograph Klamath women gathering wocus (Figure 4).

Fig. 4. A photograph by Edward Curtis – "Gathering Wocus." Klamath Marsh ca. 1920. Source: North American Indian, Vol. 13.

Lake Chemult is now gone and open water in the marsh is primarily confined to three small areas located near the south end of the marsh – Wocus Bay, Little Wocus Bay, and Soloman Flat, with a total surface area of approximately 1,000 acres. However, even these open-water areas are sometimes dry by fall or even late summer (Figure 1). Furthermore, a variety of climatological and hydrological evidence suggests that Klamath Marsh is threatened to become even drier owing to climate change and water diversions from the upper Williamson River (Figure 5).

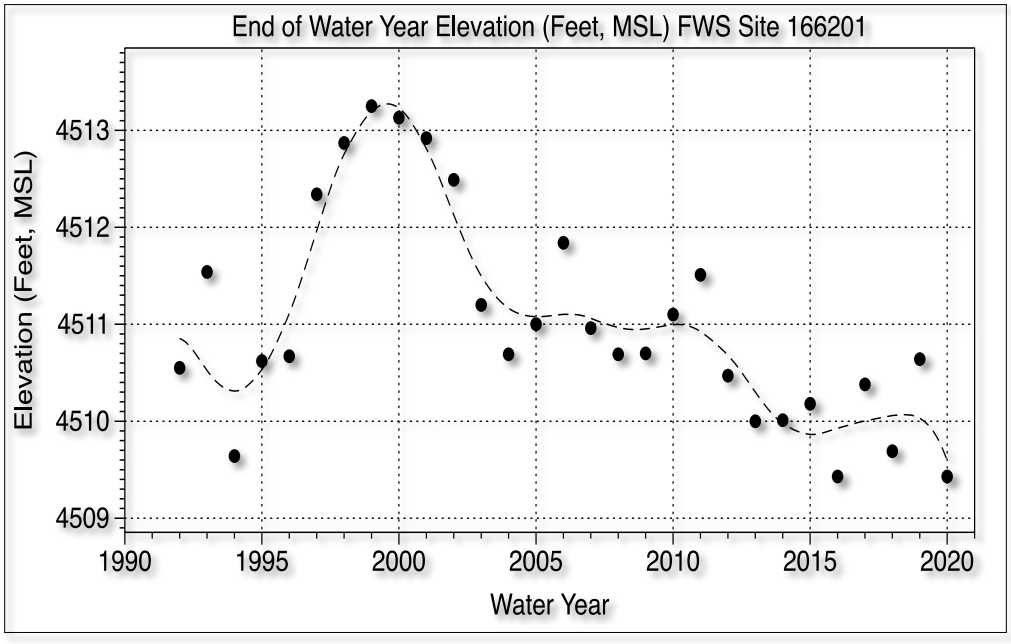

Fig.5A. Scatter plot and smoothed curve showing a downward trend of water levels at a water-level gage located in Klamath Marsh along the Silver Lake Highway (Source: Data from US Fish and Wildlife Service).

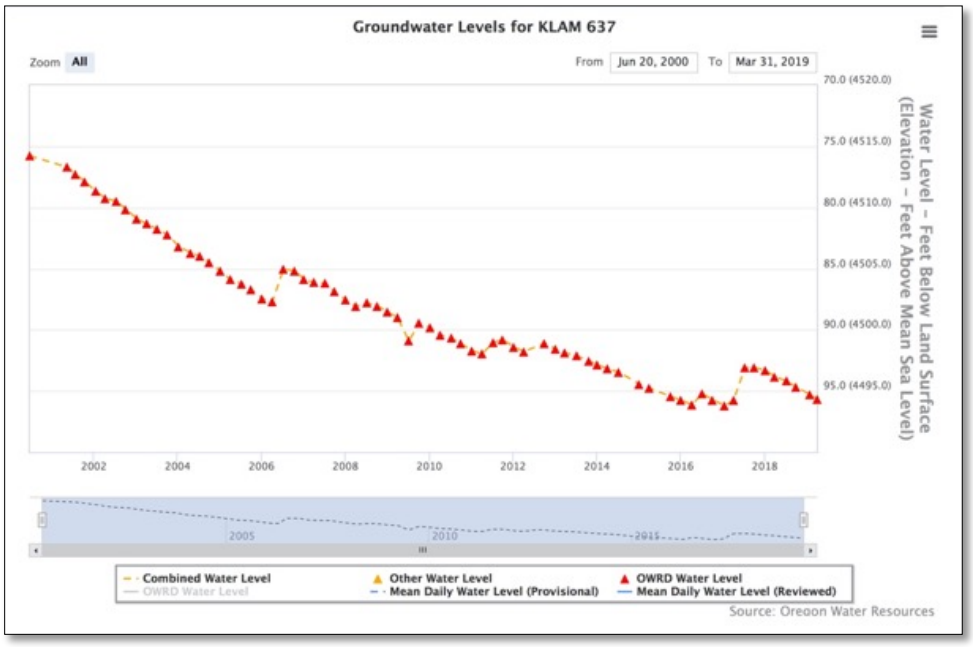

Fig.5B. Downward trend in ground water in a well located near the Klamath Marsh (Source: Oregon Department of Water Resources).

The future of Klamath Marsh as a major wetland seems imperiled. Not only that, but if the open water areas decrease further it poses a risk to wocus, a plant of considerable cultural significance to the Klamath Tribes. Other wetland-dependent species could also be jeopardized by desiccation of the marsh, including the Oregon Spotted Frog (Figure 6), a federally-threatened species, and the Yellow Rail (Figure 7), a small, secretive wetland bird that only nests in flooded sedge meadows. The marsh provides breeding habitat for most of the western population of the bird. After dark in June and July, the clicking calls of the breeding males, sounding like rocks being hit together can be heard across the wet sedge meadows.

Fig 6. A male Oregon spotted frog rests at the water's surface next to an egg mass. Wood River Wetlands, 3-28-2018. (Photo by Ron Larson).

Fig. 7. This male Yellow Rail was photographed at Klamath Marsh in July 2020. (Photo by Ron Larson).

Lake Chemult shows us how varied is the rich history of Oregon's lakes. Now, because of climate change and unsustainable use of water, our valuable natural legacy of fresh water habitats is under increasing pressure and needs our attention if they are to be used and enjoyed by future generations.

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The Origins of OLA

Contributed by Andy Schaedel, Treasurer and Founding Member, OLA

The Oregon Lakes Association has just completed its 30th year and is in a strong position to continue for another 30 years. Did you ever wonder how the Oregon Lakes Association (OLA) got its start? This article will hopefully give you a little background on OLA's origins.

Clean Lakes Program: A good share of OLA's roots go back to Section 314 of the Federal Water Pollution Control Act Amendments of 1972 (P.L 92-500 or the Clean Water Act). This section was drafted and introduced by Senators Walter Mondale (D-Minn) and Quenton Burdick (D-NDak). It set forth the principal administrative and technical requirements associated with developing a national program to enhance the quality of lakes. Section 314 required a State to survey its publicly owned lakes and report the results to the Environmental Protection Agency (EPA). After establishing an understanding of lake problems, States were to define the pollutant loading problems of their lakes, develop plans to control the source of pollution, and then implement both watershed and in-lake measures to improve lake quality. The U.S. Environmental Protection Agency (EPA) was to develop and implement a program of financial assistance to carry out the provisions of the program.

In January 1980, EPA awarded a $100,000 grant to Oregon Department of Environmental Quality (DEQ) to survey and classify its lakes according to their water quality status. This grant led to the development of the Atlas of Oregon Lakes by Portland State University (PSU), which was used, in part, to fulfill the requirement of classifying Oregon Lakes. The Atlas compiled detailed information on the physical, chemical, biological characteristics for 202 Oregon lakes and their watershed.

In the late 1987's, DEQ convened a Clean Lakes Work Group consisting of members of states, tribes, NALMS, EPA and others to develop further Clean Lakes Program Guidance. The 1987 guidance for the Clear Lakes Program authorized EPA to issue lake water quality assessments grants to help states meet their reporting requirements and to enhance their lake monitoring capabilities. Oregon applied for and received another $100,000 grant in FY1989. Under this grant, DEQ initiated a Citizen Lake Monitoring Program, ran a Challenge Grant Program for lake studies and sponsored a series of workshops to bring together a variety of people working on or interested in Oregon lakes to discuss lake issues. The thinking behind this grant was to get people more involved in the monitoring and management of Oregon lakes.

Clean Lake Workshops and the Birth of OLA: DEQ held two Clean Lake workshops on the PSU campus on July 12, 1989 and April 10, 1990. Forty and 75 participants respectively from various backgrounds attended the workshops (see list of workshop participants below).

A variety of topics were presented to seed brainstorming sessions about the needs and functions for an Oregon lake program. Common concerns/interests included (not in priority order):

- A need for a state supported lake management program;
- A stronger aquatic weed/nutrient control program;
- Better protection of high quality waters;
- Expanded volunteer monitoring program of lakes;
- Development of lake water quality standards;
- Development of regional or lake specific management plans;
- Stronger assistance to lake associations.
- A statewide lake organization

Given that a large number and variety of organizations were involved in managing activities that can affect lake water quality, it quite became apparent that one of the first steps needed would be the creation of state chapter of NALMS, similar to the Washington State Lake Protection Association.

During 1989 and 1990, a work group consisting of at least 11 members (and I apologize if I omitted anyone) worked on developing a set of by-laws and other paperwork needed to form OLA. Monthly meetings were held in Salem in a conference room at the Department of Forestry – a central location for people coming from Bend, Corvallis, Lincoln City and Portland. The work group included: Larry Caton, John Collins, Angela Ehelebe, Joe Eilers, Stan Geiger, Dave Humphrey, Del Isham, Richard Pedersen, Andy Schaedel, Dave Smith, Ela Whelan. Many of the concerns listed above were identified as OLA objectives in the OLA by-laws.

The Oregon Lakes Association officially was formed at its first annual conference held during the Devils Lake Grass Carp Days on 9/8/90. OLA became an official chapter of the North American Lakes Management Society (NALMS) in November 1990.

For those history buffs, here is a compilation of OLA presidents and OLA Conference sites (in alphabetical order). OLA has had 15 different presidents, many doing multiple terms, during its first 30 years. Over the 30 years, OLA has had conferences throughout the state and has had only one year (2002) when it did not have a conference. This year's conference was a virtual conference due to the COVID pandemic.

OLA Presidents 1990-2020

President	Years
Campbell, Lori	2003 - 2004
Carpenter, Jim	2001
Dreher, Theo	2017 - 2022
Edwards, Roger	2008 - 2009
Eilers, Joe	1992
Graybill, Jim	2002
Pedersen, Richard	1994
Robertson, Paul	2015 -2016
Rosenkranz, Mark	2005 - 2007
Schaedel, Andy	1990 – 1991; 1997 – 2000; 2012
Systma, Mark	1995
Wall, Bill	1996
Whelan, Ela	1993
Wille, Stephen	2013 - 2014
Williams, Karen	2010 - 2011

OLA Conference Sites

Location	Year
Ashland	1999
Astoria	2014
Bend	2004, 2019
Crater Lake	2012
Corvallis	2010
Diamond Lake	1992, 1998, 2007
Eugene	1993, 2005
Florence	1991, 1997, 2017
Klamath Falls	2000, 2015
Lakeside	2003
Lincoln City	1990, 1996, 2009
Portland	1995, 2001, 2006, 2011, 2018
Seaside	1994
The Dalles	2016
Vancouver, WA	2013
Wallowa Lake	2008
Virtual Conference (COVID)	2020

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Waldo and Crater Lakes on Track For Designation As Outstanding Resource Waters of Oregon

Contributed by Rich Miller and Andy Schaedel, Board Members, OLA

Waldo Lake, one of the candidates for designation as Outstanding Resource Waters (Photo by Rich Miller).

During the spring of 2019, the Environmental Quality Commission (EQC) and the Oregon Department of Environmental Quality (DEQ) received a petition from the Northwest Environmental Defense Center on behalf of several other organizations to officially designate Waldo Lake as an Outstanding Resource Water (ORW). This little used designation is one component of Oregon's Antidegradation Policy (OAR § 340.041.0004.8, 2017[1]). In fact, Curry County's North Fork Smith River, tributaries, and wetlands are our only officially designated Outstanding Resource Waters. Outstanding Resource Waters are high quality waters that constitute an outstanding state resource due to their extraordinary water quality or ecological values, or where special protection is needed to maintain critical habitat areas.

At the request of the EQC, DEQ initiated the ORW rulemaking process for Waldo Lake and added Crater Lake to the petition. DEQ, with the help of an advisory committee (including two Oregon Lakes Association Board Members) drafted proposed rules and submitted the rules for public comment. Briefly, the proposed rules "prohibit new or increased permitted discharges and state that other activities must not degrade the current existing water quality. Limited duration activities to respond to emergencies and public welfare, and for long term benefits, such as restoration or enhancement activities, are allowed." DEQ accepted public comment through August 28, 2020 on whether to initiate rulemaking proceedings or deny the petition. Over 300

comments of support were received. DEQ responded to comments, made changes to the rule language, and drafted a summary report for EQC staff.

EQC plans to meet in January to adopt or deny the petition for designation of Waldo and Crater Lake as Outstanding Resource Waters. For the latest information about the petition, visit the DEQs Outstanding Resource Waters page

[1]Oregon Administrative Rule (OAR) 340.041.0004.8. 2017. Outstanding Resource Waters Policy https://secure.sos.state.or.us/oard/viewSingleRule.action?ruleVrsnRsn=68675
[2]U.S. Environmental Protection Agency, 2010. National Aquatic Resource Surveys. National Lakes Assessment 2007 (data and metadata files). Available from U.S. EPA website: http://www.epa.gov/national-aquatic-resource-surveys/data-national-aquatic-resource-surveys.
[3]Lahontan Regional Water Quality Control Board (Lahontan), Nevada Division of Environmental Protection (NDEP), 2010. Final Lake Tahoe Total Maximum Daily Load Report Lahontan Water Board, South Lake Tahoe. Carson City, NV: California, and Nevada Division of Environmental Protection http://www.waterboards.ca.gov/rwqcb6/water_issues/programs/tmdl/lake_tahoe/index.shtml

Oregon Lakes in the News

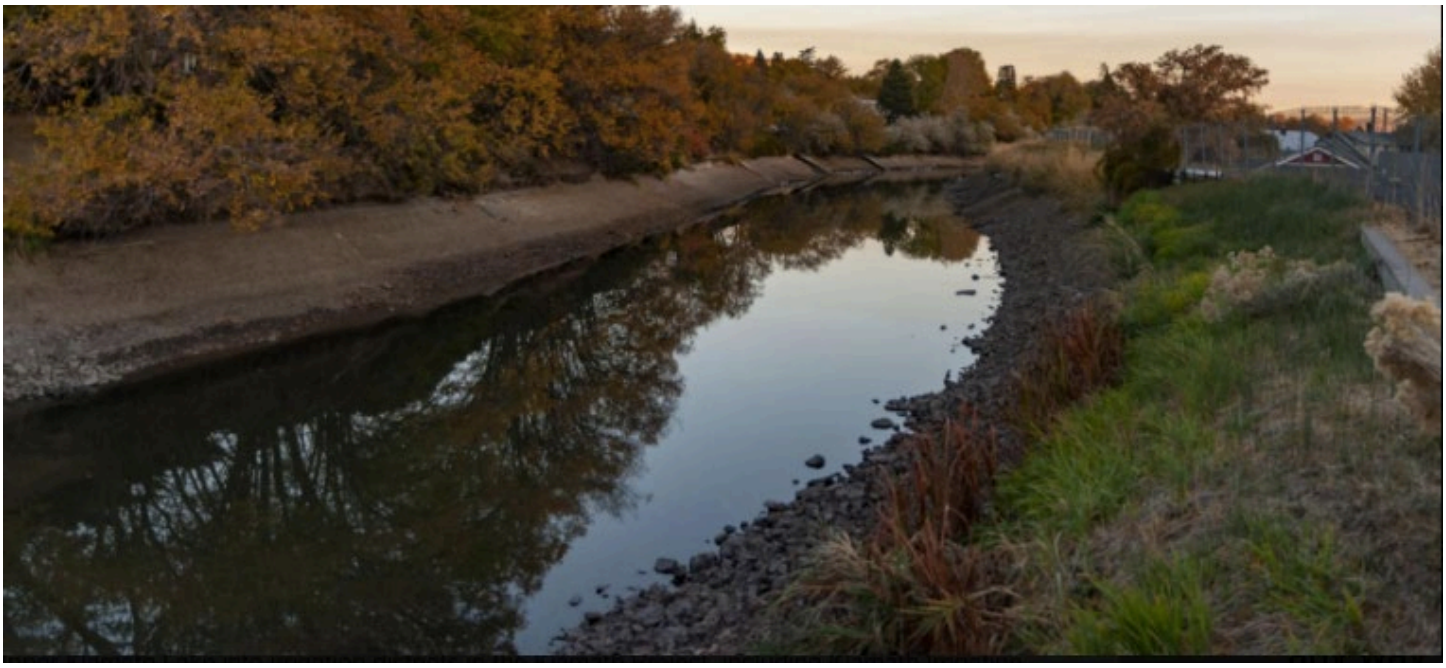
Contributed by Connie Bozarth, LakeWise Newsletter Manager

News of Klamath River Dam Removal Makes the BBC

Image credit: Dave Meurer, BBC

The BBC (British Broadcasting Corporation) recently featured the Klamath River Dam removal project in the "Future Planet" section. 'The Rebirth of a River' article refers to the dam removal as World Precedent. Click on the photo above to read the article

Water Distribution from Upper Klamath Lake in the Courts



Water rights to use the stored water in Upper Klamath Lake were the topic of a court case ruled upon in August. The judge ordered the Oregon Water Resources Dept to "immediately stop the distribution, use and/or release of stored water from the UKL without determining that the distribution, use and/or release is for a permitted purpose by users with existing water rights of record or determined claims to use the stored water in the UKL." Who has rights to the water? Who controls the distribution? Click the photo to find out (or at least identify the players).

Maybe that Upper Klamath Lake Water Isn't So Great…

Upper Klamath Lake remains under a Recreational Use Advisory due to concentrations of microcystin well above the advisory threshold—in some areas by more then 10-fold.

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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.

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