



LAKE WISE

A Voice for Quiet Waters

Quarterly newsletter from Oregon Lakes Association

Winter Edition

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Missed the conference or need a refresher? Read all about the Astoria conference and Lake Cullaby trip.

Willamette HABS Event—September 2014

The Willamette River suffered a Harmful Algal Bloom last year which triggered an advisory for the first time since 2004. Read all about the event.

OLA Scholarship for 2015

Now in its fourth year, the scholarship program continues and is open for applications.

Harmful Algae Blooms (HABS) Corner

Catch up on the other conferences and sessions on HABS and Cyanotoxins as well as the Toxic Algae and Health Advisories for January 2015.

Please mark your calendars for our

2015 Annual Meeting!

The mission of the OLA, established in 1990, is to promote awareness of and protection to the lakes and watershed ecosystems in Oregon. In keeping with that mission, on October 2 and 3, our 2015 annual meeting will be held at southern Oregon's Upper Klamath Lake, the largest lake in Oregon. There will be a special topic on Friday night and all day oral, poster and vendor presentations on Saturday. We have reserved a lakeside location at the Klamath Lake Yacht Club (see kycsail.us/). Please keep an eye on our website www.oregonlakes.org as we post details for registration, program, lodging options and special events.

Other Events:

HABS Stakeholders Meeting: Also please consider signing up for the Harmful Algal Bloom Stakeholders Meeting on February 27, 2015 from 1:00-5:00 at Oregon State University. This event is being put on by OLA with support from OSU and cooperation from Oregon Health Authority. It is a good opportunity to learn about HABS programs in the state and to network. Click the link to learn more and to secure your free registration. Space is filling up fast, so don't delay.

HABS Technical Workshop: OLA is also helping put on a workshop on HABS complete with laboratory time, again at Oregon State University. The workshop will be held on March 25, 2015 from 9:30-3. Cost is \$25 for members and \$40 for non-members. Space is again limited, so click the link to reserve your spot today!

Finally - If you are not already a member, please consider [joining OLA](#), Oregon's only "Voice for Quiet Waters".



OLA 2014 Annual Meeting Summary

Contributed by Wayne Carmichael, Member OLA Board of Directors

The 2014 Annual Oregon Lakes Association Conference

covered three days,

with the main program being held Saturday October 11 at the Columbia River Maritime Museum in Astoria Oregon. The theme of this year's conference was "Lakes of the Clatsop Plains: Past, Present, and Future". In addition to topics on these important North Coast Lakes, other topic areas included:

- Harmful algal blooms
- Aquatic invasive species
- Volunteer lake monitoring
- Lake and watershed management

Friday Night Public Lecture.

In front of about 90 attendees at the Rogue Ale's Public House on Pier 39, the conference kicked off with a free talk, **"The Next North Coast Tsunami: Impacts on Coastal Communities, Watersheds and Lakes"**, presented by Tom Horning of Horning Geosciences. Horning, a lifelong Seaside resident and geologist, has studied coastal geology and tsunamis. His talk included computer simulations of predicted tsunami impacts on the North Coast. Horning has been profiled in the recently published book, The Next Tsunami, by Bonnie Henderson. This book details Horning growing up during the last tsunami event in 1964 and what he has studied since that time.



The Astoria Column built in 1926. The tower was built with financing by the Great Northern Railway and Vincent Astor, the great-grandson of John Jacob Astor, in commemoration of the city's role in the family's business history.

Saturday Program Summary.

The conference continued all day Saturday at the Columbia River Maritime Museum in front of 58 attendees. Sixteen guest speakers gave presentations in four sessions — Clatsop Plains Lakes and Lake Hydrology; Water Quality/Phytoplankton Ecology; Harmful Algal Bloom Physiology; and Invasive Species. In addition there were six poster and four vendor displays.

Session 1: Clatsop Plains Lakes and Lake Hydrology: This session began with Tom Horning's talk, "Geology of the Clatsop Plains and Formation of Lakes," which covered the history of the Clatsop Plains, (the storm-flattened delta of the Columbia River formed 5,000 years ago). Other speakers in this session were Mark Sytsma of Portland State University, presenting "An Overview of Clatsop Plains Water Quality and Aquatic Plants"; Emilie Blevins and Allison Aldous from The Nature Conservancy presenting "Hydroecology of Sand Dune Wetlands and Lakes on the Oregon Coast"; and Joe Eilers with MaxDepth Aquatics and Ron Larson from USFWS speaking about "What Happened to Lake Abert?"

Session 2: Water Quality/Phytoplankton Ecology, began with an "Overview of the Water Quality Impacts of the U.S. Army Corps of Engineers' Reservoirs in Oregon" by Daniel Turner, U.S. Army Corps of Engineers; followed by "Potential Statewide Fish Consumption Advisory for Bass in Oregon" from Dave Farrer, Oregon Health Authority; "Mitigation and Prevention of Harmful Cyanobacterial Blooms: the Role of Plant Humics" from Susan Theis and Allen Milligan, Oregon State University; and lastly "Long-term Phytoplankton Dynamics in Upper Klamath Lake with Considerations of Trophic Structure and Climate Change" by Nadia Gillett, Yangdong Pan, John Rueter, Angela Strecker, Debbie Blackmore, Heejun Chang, and Gene Foster, Portland State University.

Session 3: Harmful Algal Bloom Physiology was begun by Angela Strecker¹, Rich Miller¹, Mark

Sytsma¹, and Joe Eilers². [¹Portland State University, ²MaxDepth Aquatics Inc.] Their topic was: "Multiple Stressors in Mountain Lakes: Implications of Fish Stocking for Plankton Communities and Harmful Algal Blooms"; This was followed by: "Molecular Characterization of a Toxic *Anabaena* Bloom in Anderson Lake, WA" presented by OLA's 2014 scholarship winner Nathan Brown and co-authored by Ryan Mueller, Joan Hardy, and Theo Dreher, Oregon State University; "Pairing Physicochemical Data with Metagenomic Community Analysis to Better Understand Cyanobacterial Harmful Algal Bloom Drivers in Three Geographically Distinct Drinking Water Reservoirs (Oregon, Kansas and Texas)" from Timothy G. Otten and Theo W. Dreher, Oregon State University; and finally "Toxicogenic Potential of *Anabaena* Blooms in Oregon" from Theo Dreher, Department of Microbiology, Oregon State University.

Session 4: Invasive Species, began with "Return of the Oregon Lake Watch Program" by Rich Miller, Angela Strecker, Vanessa Morgan, and Brian Steves, Portland State University; "The Response of Zooplankton taxa in Lakes of Different Fish Stocking Histories to Atmospheric Nitrogen Deposition Simulations in Montane Lakes" from Jeff Brittain, who is OLA's 2013 Scholarship winner, and Angela Strecker, Portland State University; "Invasive Mussel Monitoring in the Columbia River Basin — Past, Present, and Future" from Stephen M. Bollens¹, G. Rollwagen-Bollens¹, T. Counihan², J. Hardiman², J. Zimmerman¹, W. Hassett¹ and J. Emerson¹. [¹Washington State University, ²USGS]; The last presentation for this year's meeting was "Early Detection Monitoring for Zebra and Quagga Mussels in Oregon Waterways in 2014: Challenges, Opportunities, and Next Steps" by Steven Wells and Mark Sytsma, Portland State University



Poster Topics

Poster topics included: **"A Proposed Classification of Oregon Lakes and Respective Nutrient Criteria"** by Jacqueline Brenner, Oregon State University; **"Aquatic Invasive Species Education: An Interdisciplinary Approach for Federally Managed Waterways"** from Mona Derby, US Forest Service; **"The 2014 Harmful Algae Bloom Season; Bloom Trends; Outreach Efforts and Future Activities"** presented by David Farrer, Rebecca Hillwig and Marina Counter, Oregon Health Authority; **"Cullaby Lake Floating Wetland Islands"** from citizen volunteer Gail Galen, Skipanon Water Control District; **"Watershed Councils of the North Oregon Coast"** by Jesse Jones and Melyssa Graeper, North Coast Watershed Association & Necanicum Watershed Council; **"The Effects of Anthropogenic Stressors on Mercury Concentrations and Ecological Processes in Freshwater Zooplankton"** presented by Meredith Jordan and Angela Strecker of Portland State University.

Abstracts of all oral and poster presentations can be downloaded from:

www.oregonlakes.org/2014_Astoria_Conference

This in the Archive of the Members Section of the website (Log in required).

Vendor displays included Beagle Bioproducts, Inc., Max Depth Aquatic Services, Inc., SePRO and YSI-A Xylem Brand.

"OLA greatly appreciates their support for our annual meeting expenses."



Photo: Oral Presentations in the Kern Room of the Columbia River Maritime Museum.

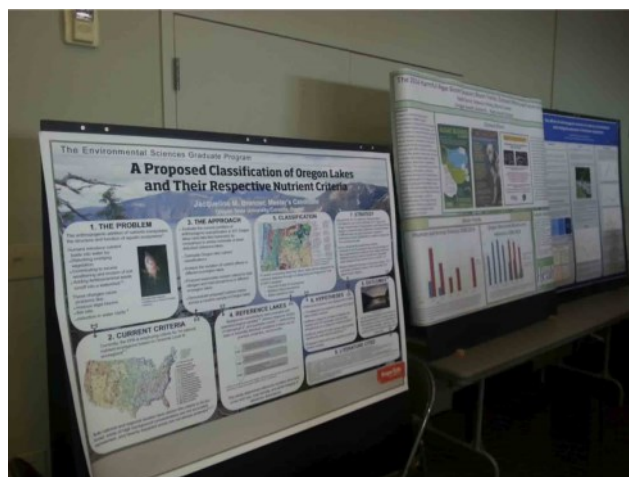


Photo: Poster Presentations.

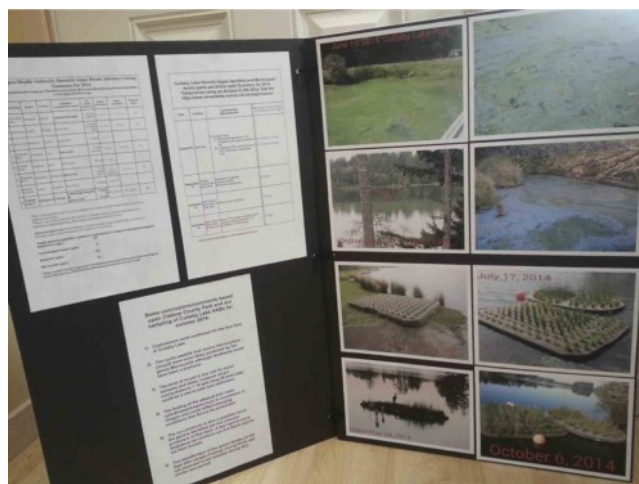


Photo: Cullaby Lake Property Owner, Gail Galen poster explaining "floating islands" planted with aquatic plants to remove excess nutrients and help mitigate harmful algae.

2014 OLA Scholarship Winner.

Since 2012, OLA has provided a \$1,000 scholarship for an Oregon student. To support the scholarship fund a raffle was held at this year's meeting. Twenty-three Oregon business and individual donors contributed goods and services that brought in over \$800 for future scholarship funding. We are very appreciative of their support.

OLA's 2014 scholarship award was presented to Nathan Brown, a PhD. student at Oregon State University. Nathan received a B.Sc. in Microbiology and B.A. in International Studies at Oregon State University in 2008. During undergraduate studies he became interested in bacterial genetics, particularly bacteriophage genetics and bacteriophage therapy. While studying cyanobacteria in Dr. Theo Dreher's lab, two bacteriophages that infect species of *Cyanobium* were isolated from the Klamath River System.

Following additional academic pursuits he ended up back in Dr. Theo Dreher's laboratory at Oregon State University to complete a Ph.D. degree by continuing work begun earlier on freshwater cyanobacterial bacteriophages. While his research focus has shifted over the past two years, he is currently isolating and characterizing *Anabaena* strains from hazardous algal blooms in local Oregon and Washington Lakes.

Our sincere congratulations go to Nathan!

Sunday Kayak Outing. Sunday November 12 saw 19 kayakers spend the morning on Cullaby Lake, the largest of the Clatsop Plains dune lakes. Kayakers brought their own craft or used craft provided by National Park Service at Ft Clatsop. Naturalists Carla Cole of the NPS, Tessa Scheller, Skipanon Watershed Council and Gail Galen, resident of Cullaby Lake led the group on a 3 hour tour of Lake Cullaby's biota.



Photo: Wayne Carmichael, OLA Board of Directors congratulates Nathan Brown (right), OLA's 2014 Scholarship winner. For more information on OLA's scholarship program visit:

www.oregonlakes.org/Scholarship



Photo: OLA Annual Meeting Attendees view floating island project on Cullaby Lake. These artificial islands are managed by local lake resident Gail Galen. They are designed as a pilot project to remove excess nutrients from the lake and begin the process of mitigating for harmful algae blooms and other consequences of nutrient enrichment especially nitrogen and phosphorus.

Willamette HABs Event – September 2014

Contributed by Doug Drake

Lower Willamette Basin Coordinator, ODEQ

The Oregon Health Authority issued a health advisory for harmful algal bloom on September 16th, 2014 for the Willamette River for the reach from Ross Island to Sauvie Island. Not since 2004 has there been a HABs advisory in the Willamette River.

The algal species responsible for the bloom was determined to be *Mycrocystis aeruginosa*, the same as the earlier bloom. It is not confirmed, but it appears that the bloom originates in the Ross Island lagoon-Holgate Slough (channel east of Ross Island) area. The advisory was initially based on cell counts of more than 2 million cells/ml which exceeds the threshold of 40,000 cells/ml. Once the advisory was issued, multiple partners (Oregon DEQ, City of Portland BES, Willamette Riverkeepers) monitored the status of the bloom and then resampled for both cyanotoxin and cell count at the end of September. Both



the toxin and cell counts (<600 cells/ml) were low enough to lift the advisory on October 2nd.

This HABs event in the Willamette was likely precipitated by a combination of factors; low rainfall year leading to very low river levels, warmer than average water temperatures (see graph) and a potential “seed source” (Kurt Carpenter, US Geological Survey - pers. com.) in the Ross Island reach.



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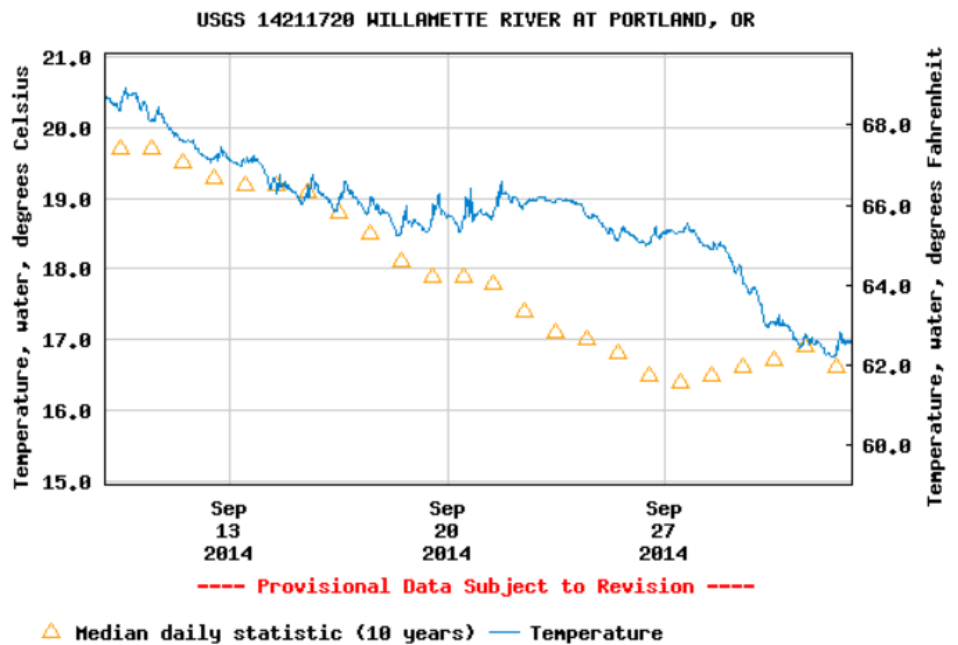
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USGS provisional temperature data from the Willamette River at Morrison Bridge site for September 9, 2014 to October 2, 2014. Note: the bloom began during the period that the temperatures departed from the long term average (early September).

Since not all water bodies or sections of a river are monitored for blue-green algae, Oregon health officials advise people who use Oregon waters for recreation to always be alert for signs of algae blooms. People and their pets should avoid contact if the water is foamy, scummy, thick like paint, pea-green, blue-green or brownish red in color, or if a thick mat of algae with an unpleasant odor is visible in the water.



For health information, to report human or pet illnesses due to blooms, or to ask questions about a news release, contact the Oregon Health Authority at 971-673-0400. Also contact the Oregon Public Health toll-free information line at 1-877-290-6767 or visit the Harmful Algae Blooms website at www.healthoregon.org/hab and select “Algae Bloom Advisories,” for information regarding advisories issued or lifted for the season.

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Oregon Lakes Association (OLA) Scholarship Announcement

The Oregon Lakes Association, as part of its scholarship and outreach commitment, is pleased to announce the availability of a \$1000 academic scholarship. Interested applicants should be enrolled (or will be enrolled by the time the award is accepted) in an Oregon college or university graduate program in a field related to the study of Oregon lakes, ponds or reservoirs and their watersheds. An applicant may also be enrolled in a graduate college or university graduate program outside of Oregon if the study project will involve Oregon lakes, ponds, or reservoirs.

- Please send your biography (two page limit) plus a statement of research interests and explain: your career goals, intended use of scholarship funds, and why your research is of importance to the field of limnology and/or watershed management (one-page limit). In addition please request two letters of reference (teacher, academic advisor, community leader, or someone who knows you well).
- Send all of these materials **Attn: OLA Scholarship Committee, Oregon Lakes Association, PO Box 345, Portland OR 97207**, or to **Wayne Carmichael** at wayne.carmichael@wright.edu.
- The award will be based on quality of research, its significance to the field of environmental science, particularly limnology and hydrology, and relevance to the applicant's interest and career goals.
- Application deadline is May 1, 2015.
- Award will be announced by June 8, 2015.
- The successful applicant will also be awarded a one-year membership in OLA, an invitation to attend our annual meeting with up to \$200 in travel expenses along with a waiver of the conference fee, in order for OLA to present your award. In addition, OLA encourages the scholarship recipient to present results of their lakes project at an OLA future annual meeting.

See our website with more background on this award at: www.oregonlakes.org/Scholarship

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The Harmful Algae Blooms (HABs) Corner

HABs News January 2015 From the Office of Science and Technology
Office of Water, U.S. EPA

Conferences and Sessions on HABs and Cyanotoxins

February: HABS Stakeholder Meeting. February 27, 2015, 1-5pm. Oregon State University

March: HABS Technical Workshop. March 25, 2015, 9:30—3. Oregon State University.

April: Global Solutions to Regional Problems: Collecting Global Expertise to Address the Problem of Harmful Algal Blooms: Workshop at Bowling Green State University on April 13-14, 2015. FMI— contact: George S. Bullerjahn atbullerj@bgsu.edu or Robert Michael McKay atrmckay@bgsu.edu Department of Biological Sciences, Bowling Green State University, OH.

U.S. Algal Toxin Conference: April 28-30, 2015. Hosted by Akron Global Water Alliance (AGWA) and Netherlands Water Alliance. FMI -Visit: www.agwaevent.net/

May: **Scientific Symposium on Harmful Algal Blooms and Climate Change**: Held 19-22 May 2015 in Gothenburg, Sweden. Sponsored by the IOC UNESCO, GEOHAB and the SMHI - University of Gothenburg, Sweden. Prepare for registration and submission of abstracts in early 2015 . FMI — contact: Bengt.Karlson@smhi.se

IAGLR's 58th Annual Conference: New Views

New Tools: Held May 25 to 29, 2015 in Burlington, Vermont. FMI— visit: iaglr.org/iaglr2015/

June: AWWA Annual Conference and Exposition - Uniting the World of Water: June 7-10, 2015, Anaheim, California. FMI— www.awwa.org/conferences-education/conferences/annual-conference.aspx

November: 8th Symposium on Harmful Algae in the U.S: November 15-19, 2015 in Long Beach, California. This is the eighth in a series of biannual meetings intended to provide a forum for scientific exchange and technical communication on all aspects of HAB research in the United States. Details as available www.whoi.edu/habsymposia/

Toxic Algae and Health Advisories – January 2015
Kansas- Chisholm Creek Park Lake (North), Memorial Park Lake (Veteran's Lake), Jewell State Fishing Lake Oregon– Lost Creek Lake.

FMI— please visit the CyanoHABs website at: www2.epa.gov/nutrient-policy-data/cyanohabs

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Lake Wise

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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. For additional information on OLA, write to the address above, or visit our website. www.oregonlakes.org

OLA and Lake Wise welcomes 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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