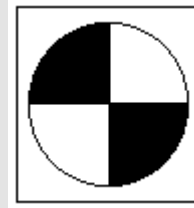


August
2006

Editor:
Roger Edwards

LAKE WISE

A Voice for Quiet Waters



The Oregon Lakes Association Newsletter

Get Ready for 1st Ever Pacific NW Regional Conference!

Conference time will soon be here and what a show has been planned for this year. There are two days of presentations and concurrent sessions so there is no way that you can take in all that is offered. With a choice of speakers however, you can tailor the experience to focus on the subjects of your greatest interest. As a regional meeting, you have the opportunity to see if the lake managers from Washington (the State, not the other place) use a different approach to situations you find troublesome. The breakfasts, lunches, and breaks included in the cost of registration assure there will be ample time to look for common interests with other attendees. Poster sessions and vendor exhibits will provide further insight on lake management. The meeting is being held on Wednesday and Thursday this year so you won't spoil a weekend. The optional field trips on Friday will conclude before the rush hour traffic starts building.

Portland offers all the amenities of a pretty big American city, most of which are within the Fareless Square of the local bus/light rail company. It doesn't look good for the Beavers making the baseball playoffs this year, but the musical "Wicked" has evening performances from Tuesday through Sunday, plus a Saturday matinee. Electronic Data Solutions is doing a training session on their instruments on Tuesday. There are three different dance performances scheduled at the Performing Arts Center, and a choice of live theater is nearly always available. The Symphony is playing Beethoven's 5th piano concerto Saturday evening. Powell's could have that book you have been looking for, and OMSI, the Chinese Garden, Pioneer Square, the Oregon Historical Society, the Zoo, art museum, Crystal Ballroom, and Nordstrom are all nearby.

University Place, the designated Conference hotel, is a short walk from the meeting rooms and quite close to the freeway. If arriving on I-5 from the south, take the City Center, I-405N exit, get in the right lane and exit at the SW 4th Avenue ramp. Those arriving on I-84 should be in the left lanes as the freeway ends so you will go to I-5S to join the crowds coming from Washington. Get in the left lanes so you can take the Beaverton, I-405N ramp after crossing the Willamette River. Then watch closely for the SW 4th Avenue exit to the right. SW 4th Avenue is a one-way street heading north. Get in the right lane and turn right on SW Lincoln. University Place is at 310 SW Lincoln Street. If you miss the turn, take the next right and turn right again on SW 1st Avenue. It will take you back to a traffic light on Lincoln, where another right turn will take you to the hotel. From this direction it will be on the left side of the street. There is a large parking lot at the hotel.

Do make reservations at the hotel as soon as you decide to attend the Conference. A block of rooms for attendees is being held until August 12th. Single and double room rates are both \$69 plus tax. These rates are good through September 17th. Contact the hotel at (503) 221-0140, or on-line at www.uplace.pdx.edu.

The 3rd floor Ballroom at Smith Hall will open at 7:15 am on Wednesday morning to sign-in for the Conference. Bear left from the hotel entrance and follow traffic down 4th Avenue for three blocks to Harrison Street. Turn left onto Harrison and Smith Hall is on the right after four blocks. This will be your last chance to submit an entry for the lake photo contest. At this late date, you should have a print, no larger than 8 x 11, ready for judging in the categories: the beauty of lakes and their inhabitants; problems and management activities; or fun

and recreation. OLA is also looking for representative lake photos for a collection that could be used to enhance the *Atlas of Oregon Lakes*.

You may register for the Conference with the form inserted in this newsletter, on-line at the NALMS website, www.nalms.org; or at the door of the proceedings. Note however that after August 15th, the cost will increase.

Agenda Outline

All activities will take place in the Smith Memorial Union Ballroom (3rd Floor) unless otherwise noted.

Wednesday, September 13th

- 7:30 – 8:30 am Continental Breakfast
 8:00 – 8:30 a.m. Welcome Speakers & Announcements
 8:30 – 10:00 a.m. Plenary Speaker, Dr. John Stockner, presents “Lake Trophic Condition: Striving to achieve nutrient “balance” and “optimal” production for multiple-use in the 21st century”
 10:00 – 10:30 am Break
 10:30 – Noon Session 1-A: Cyanobacteria (Vanport Room)
 Session 1-B: Lake Models #1 (Room 327/328)
 Noon – 1:30 pm Lunch break with presentation by Dr. Douglas Larson: “Tracking the post-eruption recovery of Spirit Lake, Mount St. Helens, Washington, 1980-2005”
 1:30 – 3:00 pm Session 2-A: Macrophytes (Vanport Room)
 Session 2-B: Lake Models #2 (Room 327/328)
 3:00 – 3:30 pm Break
 3:30 – 5:00 pm Session 3-A: Invasive Species (Vanport Room)
 Session 3-B: Lake Surveys (Room 327/328)
 5:00 – 7:00 pm Social Gathering with no-host bar – view poster presentations and vendor exhibits

Thursday, September 14th

- 7:30 – 8:30 am Continental Breakfast
 8:30 – 10:00 a.m. Session 4-A: Lake Treatments #1 (Vanport Room)
 Session 4-B: Lake Classification (Room 327/328)
 10:00 – 10:30 am Break
 10:30 – Noon Session 5-A: Lake Treatments #2 (Vanport Room)
 Session 5-B: Food Webs and Microbials (Room 327/328)
 Noon – 1:30 pm Lunch (box lunches) OLA and WALPA business meetings & Photo Contest Awards
 1:30 – 3:00 pm Session 6-A: Exhibitor Session (Vanport Room)
 Session 6-B: “Stump the Experts” Panel (Room 327/328)
 3:00 – 3:30 pm End of Day Refreshments

Friday, September 15th

Field Trip Options (times include transport to & from field site):

- 8:30 am – 1:30 pm Roslyn Lake & Marmot Dam tour with PGE Fisheries Biologist, Doug Cramer.
 10:00 am – 2:00 pm Oswego Lake tour with Lake Manager, Mark Rosenkranz

--- The complete agenda is posted on the OLA and NALMS websites ---



Pacific States Marine Fisheries Commission

205 SE Spokane Street
 Portland, OR 97202
 (503) 595-3100 phone
 (503) 595-3232 fax
 Website: www.psmfc.org

Formed by Congress more than 50 years ago, the Pacific States Marine Fisheries Commission (PSMFC) helps resource agencies and the fishing industry sustainably manage our valuable Pacific Ocean resources in a five-state region. PSMFC's primary goal is to promote and support policies and actions to conserve, develop, and manage our fishery resources in California, Oregon, Washington, Idaho and Alaska.



Hach Environmental/OTT/Hydrolab

5600 Lindbergh Drive
 Loveland, CO 80539
 800-949-3766 toll-free
 (970) 669-3050 phone
 (970) 461-3921 fax
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Hach Environmental designs, manufactures, and services Hydrolab and OTT instruments. Hydrolab multi-parameter water quality instruments incorporate multiple sensors into a single housing and are used for either unattended monitoring or sampling and profiling. OTT instruments include surface water and groundwater level monitors, precipitation gauges, and complete hydrological and meteorological stations.

We understand that our customers have an extremely important responsibility to protect and manage the world's water resources. Therefore, we strive to create the best technologies and services to provide reliable data that enables customers to make informed water resource decisions.



Portland State University Center for Lakes and Reservoirs

1719 SW 10th Avenue
 SB2 Room 246
 Portland, OR 97201
 (503) 725-3834 phone
 (503) 725-3834 fax
 Website: www.clr.pdx.edu

The Center for Lakes and Reservoirs (CLR) at Portland State University (PSU) was established by the Oregon State legislature to address lake management and invasive aquatic species issues in Oregon. The CLR is in the Environmental Sciences and Resources Department at PSU, which has a major focus on watershed and aquatic ecosystem management. Faculty from other PSU departments and other universities and adjunct faculty from federal agencies (US Fish and Wildlife Service, US Army Corps of Engineers, Smithsonian Institution) collaborate with CLR on research projects and serve on graduate student committees.

Western Regional Panel on Aquatic Nuisance Species

Bettina Proctor – Panel Coordinator
 U.S. Fish and Wildlife Service - Region 6
 PO Box 25486
 Denver Federal Center
 Denver, CO 80225
 (303) 236-4515 phone
 (303) 236-8163 fax
 Website: www.fws.gov/answest/



The Western Regional Panel
 On Aquatic Nuisance Species

The Western Regional Panel on Aquatic Nuisance Species was formed in 1997 to help limit the introduction, spread and impacts of aquatic nuisance species into the Western Region of North America. This panel of public and private entities was formed by a provision in the National Invasive Species Act of 1996 (P.L. 101-636), the amendment to the 1990 Act. The spread of nonindigenous aquatic species is causing significant economic and ecological problems throughout North America. Invasive, non-native species are one of the leading threats to the ecological integrity of forests, grasslands, and waterways. Recognizing the threat to western aquatic ecosystems and water delivery systems caused by nuisance exotics has raised concerns with representatives from State, Provincial, and Federal agencies as well as Private water interests.



Specializing in Field Data Collection

www.elecddata.com

Electronic Data Solutions is an established distributor of field instrumentation, with product lines from In-Situ Water Quality & Level Instrumentation, Juniper Systems Field Computers, Trimble GPS Mapping Systems, ESRI Field Data Software, Laser Technology Rangefinders, and Elecddata Software & Integration Solutions.

These products will be on display at the University Place Hotel on Tuesday, September 12, from 08:00 to 15:00. Discussions, demonstrations, and hands-on opportunities will be available without cost. Registration is encouraged at www.elecddata.com.

What Can Be Done With the Parrot Feather in Loon (Erhart) Lake?

Presenting an overview of efforts to eradicate parrot feather, or *Myriophyllum aquaticum*, from a small lake west of Siltcoos Lake proved to be more difficult than anticipated. The problem however points out a completely different trouble that is also pertinent for *Lake Wise* readers. The small lake in question is west of Hwy 101 and was originally designated as Erhart Lake, conforming to local custom. On the USGS map of the Tahkenitch Creek quadrangle, this same lake is identified as Loon Lake. On the TOPO! CD maps of Oregon produced by National Geographic in conjunction with the USGS, this very same lake is identified as Georgia Lake, although with the recognition that it is also known as Loon Lake. This confusion is ultimately resolved by the Geographic Names Information System, which is the official list of names for US topographical maps, and the National Hydro Database, which assigns a unique identifier to all recognized US water bodies. These authorities identify our small lake with parrot feather as Loon Lake, #1145486, and provide its latitude and

longitude coordinates. Two other nearby lakes to the northeast, but on the east side of Hwy 101 are identified as Erhart Lake, which is the larger of these two, and Georgia Lake, which is the northernmost of the three. This solution does not agree with local custom or available maps, but will hopefully end uncertainty and bickering by the authority it carries. It is comforting to know such a formulary has been devised for questions of this type.

Parrot feather was discovered in Loon Lake during a systematic plant survey of coastal lakes within and adjacent to the Siuslaw National Forest, which was performed by the Center for Lakes and Reservoirs for the US Forest Service. The initial results of this survey were produced in 2004 and they are available on the CLR website, www.clr.pdx.edu. Because this lake had been a popular fishing site before the dense growth of parrot feather made access to clear water bothersome if not impossible, and because the change from open water to near bog had only taken 6-8 years, it was decided to try hand removal as an eradication method. The lake is about 3-5 acres in area and the parrot feather was contiguous around the shallow perimeter. There is no surface outlet to this spring-fed lake so plans were approved to draw down the lake with a siphon. The drawdown was started on July 16, 2004 and had exposed most of the parrot feather by July 27, when the lake level was about 6 feet below full pool. The drawdown had reached 12 feet on August 4 when the siphon stopped working. Hand pulling and various hand tools were tried in an effort that did not produce much satisfaction. Rhizomes were buried 4-6 inches deep in the muddy lake bottom. Tools with tines close together would clog with mud, and wider spaced tines produced windrows in the lake bottom without separating the rhizomes from the mud. Treated areas were noted to have new shoots emerging from broken stems and rhizomes after just a few days. Spraying the plants with pressurized steam also did not prevent new growth from appearing. Faced with a shortage of notable progress, new ideas, and willing workers, the project was terminated on September 24.

Plans are now under way to try additional methods of eradication. The effort is deemed worthwhile because of the experience it provides for working with parrot feather, and because of the risk this invasive nuisance weed poses to other lakes and ponds in the Oregon Dunes National Recreation Area. It is not known how parrot feather was introduced into Loon Lake, but the CLR survey has found other infestations nearby at the mouth of the Siltcoos River. Without a way to kill or control parrot feather, it is sure to spread to new locations. Loon Lake has proved to be a workable site for parrot feather investigations and would offer an inviting place to test methods that show promise in bench scale experiments. Let us hope an effective treatment approach can be discovered there.

Parrot Feather Finding a Home in Oregon

The parrot feather infestation at Loon Lake is not a unique occurrence. Sightings have been documented in at least nine Oregon counties: Benton, Clackamas, Clatsop, Coos, Douglas, Lake, Lane, Lincoln, and Linn. The CLR survey of the Siuslaw region has visited 67 lakes, or duck ponds, with a combined surface area of about 8090 acres. This three year effort has found established patches at six sites; an unnamed Heceta beach lake at the base of the Siuslaw River's north jetty, Woahink Lake, Siltcoos Lagoon, Siltcoos Estuary Ponds, Loon Lake, and Saunders Lake. The likelihood of it spreading further is high due to its ease in reproducing and its resistance to control. Worse still, the very features that create such problems in a natural setting, are often applauded in home aquariums and water gardens. Its low maintenance, full or partial sun exposure, and the shade and protection it gives pond waters and their inhabitants are features that are heralded as well as cursed. It is still available at \$2.99 for a single cutting or \$24.99 for a dozen. Education of the public appears to be the best available approach for controlling parrot feather, as is the case for most noxious invasive species.

What is known about this particular invader? It is an attractive aquatic plant that is native to the Amazon region. It is a perennial plant in the milfoil family whose first known observation in North America dates back to 1890 at Washington, DC. It is a dioecious plant, but even in its home range male plants are rare. Seed production is not a significant form of reproduction. Vegetative fragmentation is all that is needed to produce new starts. The distinctive leaves are pinnately divided and look like coarse, rounded feathers. They are grouped along the stem in whorls, both above and below the water surface. The creeping rhizome produces roots and multiple stems. Rhizomes kept moist over the winter will readily sprout roots and shoots when water temperatures warm in the Spring. The stems are woody enough to be distasteful to grass carp, and strong enough to support growth of a foot above water level. The emergent stem and leaves have a waxy cuticle that resists herbicide sprays that are applied without surfactants. The plant typically dies back to the rhizome in the Fall. It is most successful in waters where there is little or no current.

The lush emergent growth of parrot feather does shade the water where it grows and thereby makes mosquito control more difficult. It also clogs waterways; impeding boat traffic, recreation use, and flows such as those occurring in irrigation canals. It overcomes natural vegetative growth and inhibits algal production by shading and absorbing available nutrients. The change from an algal to a plant community disrupts the established food web and the fauna dependent on those relationships. Legislatures in AL, CT, ME, MA, VT, and WA have recognized these negative impacts and have banned the sale of parrot feather. Sales in other states carry a warning label about not releasing any aquarium or pond species into local waters. Even so, transport from lake to lake has been documented on boat trailers and suspected of birds. Once it is established in a water body, it is not likely to be eradicated. Mechanical removal can make the stand stronger. Herbicides can knock it down but are less effective at knocking it out. Investigations looking at biological controls have yet to find a silver bullet. Distribution maps of the US show it is not yet established in the northern plain states nor in the Rocky Mountain states. This tropical plant is likely daunted by the cold winters there, but cooling an infested pond to a threshold temperature can also be daunting at more temperate areas of the country. Some aquarium owners confess they have had trouble getting the plant started in their model habitats and their failings might provide a clue for a control strategy. It seems certain that parrot feather will be the subject of research and dissertations for some time to come.

Photo Opportunities for the Adventurousome

The lightning strike that ignited the forest fire southwest of Sisters has been designated the Black Crater Fire in reference to the 7251' volcanic peak in the vicinity. The name conjures up a scene from a Conan movie, and now may become even more descriptive if the fire cannot be quickly controlled.

Black Crater Lake is in the crater of the mountain at an elevation of 5312'. The eruption that formed the crater appears to have blown away the east side of the mountain, so the lake is actually at its base in a "C" shaped "crater" beneath a sheer 1120' cliff. The mountaintop still rises another 800' above the top of this cliff. There is not much written about this lake. There is a hiking trail that begins at Windy Point on Hwy 242 that climbs to the mountaintop. But this approach is from the northwest and does not get near to the crater. Maps show the existence of the Whispering Pine Campground on the east side of the mountain and jeep trails that wander closer to the lake. Adventurousome photographers who would plan and execute an expedition to this location could find themselves in a very picturesque setting that is little visited. Photographs, measurements, and

impressions from this excursion would be welcome additions to the on-going effort to better document the lakes of Oregon.

As a practice run for the Black Crater Lake adventure, there is another lake in Douglas County in a similar setting but with an established trail. Indigo Lake is about 20 acres in area, 30' deep, and sets at the base of 7301' Sawtooth Mountain. The lake itself is at 5913' elevation so it is just less than 1400' below the mountaintop. The steep hillsides on three sides of this elongated lake suggest that Sawtooth Mountain might also have a lateral eruption in its past. The trail to the lake begins at the south end of Timpanogas Lake Campground, and is described as 1.5 miles long with a rise of 700'. There are rainbow trout in the lake to provide an additional inducement for the adventuresome.

The interest in gathering documented photos of Oregon lakes is real. The goal of this effort is an internet website that will offer an overview of lakes and reservoirs for anyone with a related question. The *Atlas of Oregon Lakes*, published in 1985, has recently been electronically scanned and is now available on a CD. Much of the lake descriptions in the *Atlas* have retained their pertinence so it is still a very good reference, but it only provides discussions of 202 lakes. A list of recognized water bodies in Oregon is now over 5700 entries long. There is little known about many of these sites other than their name and location (although this information is not clear for some either). Photography is a way almost everyone can contribute to increasing our awareness of the resource lakes and reservoirs provide the state. And as described in the paragraphs above, it can present some enticing excuses to do something useful.

Not for the Squeamish

Imagine walking along the shore of a sluggish stream, a pond, or even a Great Lake and having a little motion draw your attention to what appears to be a writhing tangle of tan to dark brown colored twine. Closer inspection shows you have found one or several live worm-like creatures a millimeter or two in diameter and up to a meter long. Biology books say that such creatures do exist. They are Gordian or horsehair worms, and are grouped in the phylum Nematomorpha, unique animals with a multi-stage, parasitic life history.

While there are some reports of humans being adversely associated with horsehair worms, they are typically parasites of insects and crustaceans and have little public health significance for humans. The adult worms will mate and lay eggs in water or on moist vegetation. The larvae that hatch from the eggs are free living until they are eaten by their primary host. The larva avoids digestion by burrowing into the tissues of its host and then encysting. These hosts are most often aquatic insects; typically mayflies, stoneflies, or caddisflies. There are also reports of the larva encysting on vegetation. The parasitic phase of the life cycle begins when these cysts are eaten. The unlucky diner could be a carnivorous carabid beetle, preying mantis, or dragonfly, or an omnivorous orthopteran. Regardless of the beast they wind up in, the worms excyst and begin absorbing the vital juices of their secondary host. If this particular host does not meet their requirements, they can encyst again and wait for another feeding event. This option is significant because it proves there is some specificity between parasite and host. When their development is complete they will emerge from their host as adults and begin the life cycle anew.

LAKE WISE
The Oregon Lakes Association
Newsletter 2006 #3

PO Box 345
Portland OR 97207-0345

OLA Mission: The Oregon Lakes Association, a non-profit organization founded in 1988, 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.

OLA welcomes submissions of material that furthers our goals of education and thoughtful lake management in Oregon, and is grateful for the corporate support that helps sustain the organization. Corporate members are offered a one-time opportunity to describe their product or service to Lake Wise readers. These descriptions are not endorsements, and opinions appearing in Lake Wise are not OLA policy statements.

Visit our website: www.oregonlakes.org

The adult worms have no functional digestive, excretory, respiratory, or circulatory organs. Their nervous system is limited to a ring of nerves at the esophagus and a ventral nerve cord. Their longitudinal musculature limits their movements to wiggling and coiling. Their only adult function is reproduction. The sexes are separate and each has bilateral gonads along most of the length of their body. Gametes are conducted to a cloaca at the posterior end of the worm. Mating requires a twining behavior and eggs are laid singly or clustered in a gelatinous material that can coat submerged rocks or cling to aquatic foliage in strings up to 91 inches long. They obviously die soon after mating.

As a group, parasites are disgusting animals. They are like thieves who won't go away. But unlike thieves, they seek no joy in their squalid existence. In spite of these meaningless lives, Gordian worms have been around a long time. There is a cockroach with two emerging adult worms embedded in amber that is 15 to 45 million years old. Insects with more than one Gordian worm would increase the chances of a boy worm finding a mate, but this aspect of their natural history is not fully explained. An adult worm 100 cm long with a 0.2 cm diameter has a volume of 3.14 cubic centimeters, which is larger than many grasshoppers. Not all Gordian worms are a meter long, but the number that can fit inside an insect is limited. The emergence of the worms does not seem to be restricted seasonally so it is unclear how enough worms get together at the same spot and time to propagate the species. A really long female full of eggs would certainly provide better odds of this happening. Males would have to be able to fertilize all these eggs so they must be of comparable size. Anatomical differences allow the sexes to be distinguished and females are the larger of the two. Their ability to lay enough eggs to provide a second helping for the local fauna may be a key feature in the strategy to produce a next generation. Here are two larvae for primary hosts, and or two infected primary hosts for the secondary host. Eat hardy and later we'll party.