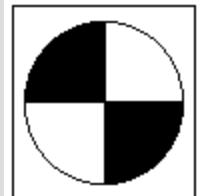


August 2007

Editor:  
Roger Edwards

# LAKE WISE

## A Voice for Quiet Waters



The Oregon Lakes Association Newsletter

### It's OLA Conference Time!

There are many attractions for holding the annual Conference at Diamond Lake. One of the least important is its generally central location, which makes it equally inconvenient for everyone. You pretty much have to drive there to get there, but there is an opportunity within this necessity. The OLA Conference is still a month away and is scheduled on a Friday and Saturday. There is plenty of time before September 21-22 to route a scenic side trip for the drive home if you make plans now to stay over an extra night. Departing on Sunday morning provides ample time for the trip home regardless of the direction you are traveling. At the very least you should consider a different route than the one that got you there.

The briefest glance at a map presents an array of possibilities. Follow Lake Creek down from Diamond Lake to Lemolo Lake. Pause on Hwy 138 at Stump Lake to see how the Clearwater River joins Lemolo Lake and Toketee Reservoir in the North Umpqua Power Project. The discussion about Crater Lake at the Conference could offer a new perspective for the lake, even if you have been there since the lodge was rebuilt. Turn off Hwy 97 north of Chemult and see if you can find any sign of lamprey at Miller Lake. Have you ever seen the obsidian flow between Paulina and East Lakes? Hwy 58 goes right by Odel Lake, but a short detour provides a look at Crescent Lake too. Head off to the southwest on Hwy 230 and drive along the length of Lost Creek Lake and continue on down the Rogue River. There is likely a place close to home that you have been meaning to visit for sometime too. For example, the St. Louis Ponds are a 55 acre maze of seven artificial ponds, immediately west of I-5, and just south of the Woodburn exit.

A Sunday morning at Diamond Lake is not a bad way to begin the week either. The opportunities for boating, biking, hiking, and fishing attract many visitors who wouldn't dream of gathering there to just talk about the lake. But a look at the Conference agenda printed below, suggests there will be numerous interesting discussions on Saturday. The Lodge's Mt. Thielsen room is a pleasant place to gain insight on these current lake management concerns. Do plan too, to attend the business meeting on Friday evening. These sessions are always informal and are meant to offer members a chance to address OLA issues. If you want to meet people who share your interest in lakes, why wait until Saturday? There is a Conference registration form enclosed to make it simple for you to let us know you're coming. Attending the Conference renews your OLA membership as well. You still must reserve a room at the Lodge, but do consider the extra night first. Contact the Diamond Lake Lodge reservation desk at (800) 733-7593. Visit the OLA website at [www.oregonlakes.org](http://www.oregonlakes.org) for additional Conference details.

**2007 Annual Meeting Agenda\* of the  
Oregon Lakes Association  
At Diamond Lake Lodge**

<b>Friday Sept. 21</b>	<i>Mt. Thielsen Dining Room</i>
7:00 – 9:00 pm	Board of Directors Meeting (Open to all Members) <i>Agenda: New officer elections, Priorities for 2008, Treasurers report</i>

<b>Saturday Sept. 22</b>	<i>Mt. Thielsen Conference Room</i>
8:00 am	Registration
8:00 – 8:30	Continental Breakfast ( <i>provided</i> )
8:30 – 8:40	<i>Welcome Remarks</i>
	<b>Mark Rosenkranz</b> , OLA President, Lake Oswego Corp.
8:40 – 8:50	<i>North American Lake Management Society (NALMS) Update</i>
	<b>Jean Jacoby</b> , PNW NALMS Director, Seattle University, Department of Civil & Environmental Engineering Chair

**Session I**

8:50 – 9:10	<i>Overview of Department of Environmental Quality Activity (DEQ) on Oregon Lakes</i>
	<b>Andrew Schaadel</b> , DEQ, Basin Planning
9:10 – 9:30	<i>Upper Klamath Lake: State Ownership and Authorization Requirements</i>
	<b>Jennie Bricker</b> , Stoel Rives LLP
9:30 – 9:50	<i>Lake of the Woods – Monitoring and Data Management</i>
	<b>Jesse Ford</b> , OSU, Department of Fisheries & Wildlife
9:50 – 10:10	<i>Crater Lake – Ongoing Limnological Program</i>
	<b>Scott Girdner</b> , National Park Service, Crater Lake National Park Biologist
10:10 – 10:30	<i>Watersheds and drinking water (tentative title)</i>
	<b>Jacqueline Fern</b> , DEQ, Drinking Water Protection

**10:30 – 10:50 Break – Refreshments and Posters (Sponsored by Stoel Rives)**

**Session II**

10:50 – 11:10	<i>Overview of Aquatic Invasive species</i>
	<b>Toni Pennington</b> , Robyn Draheim, and Mark Sytsma, PSU, Center for Lakes & Reservoirs
11:10 – 11:30	<i>Aquatic Invasive species &amp; the Oregon Wildlife Integrity Rules (tentative title)</i>
	<b>James Gores</b> , ODFW, Invasive Species and Wildlife Integrity Coordinator
11:30 – 11:50	<i>A calcium-based Risk Assessment for Zebra Mussel and Quagga Mussel (Dreissena spp.) Invasion</i>
	<b>Thom Whittier</b> , OSU, Department of Fisheries & Wildlife
11:50 – 12:10	<i>Efforts to Stop the Spread of Aquatic Nuisance Species</i>
	<b>Randy Henry</b> , Oregon State Marine Board, Policy & Planning Coordinator

**12:10 – 1:10 Lunch (Sponsored by Stoel Rives)**

**Session III**

1:10 – 1:30	<i>Klamath Lake Algae (tentative title)</i>
	<b>John Rueter</b> , PSU, Environmental Sciences & Resources Program Chair

- 1:30 – 1:50 *Integration of models and instrumentation to measure the photosynthetic rate of Aphanizomenon flos-aquae from Upper Klamath Lake, Oregon*  
**Kit Rouhe**, John Rueter and Rich Miller PSU, Environmental Sciences & Resources Program
- 1:50 – 2:10 *Diamond Lake – Blue-green Algae Monitoring and Public Health Protection*  
**Al Johnson**, US Forest Service, Hydrologist, Willamette NF and Umpqua NF
- 2:10 – 2:30 *Diamond Lake Restoration Project*  
**David Loomis**, ODFW, District Fish Biologist

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**2:30 – 2:50 Break – Refreshments and Posters**

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**Session IV**

- 2:50 – 3:10 *Diamond Lake Restoration Project – Rotenone Application*  
**Holly Truemper**, ODFW, Diamond Lake Restoration Biologist
- 3:10 – 3:30 *Tui Chub Management Without Rotenone – Can it Succeed?*  
**Ian Reid<sup>1</sup> and Jeff von Kienast<sup>2</sup>**, US Forest Service, <sup>1</sup>Wild Rivers Ranger District Fisheries Biologist, <sup>2</sup>High Cascades Ranger District Fisheries Biologist
- 3:30 – 3:50 *Diamond Lake Restoration Project – Biomass Removal*  
**Mari Brick**, ODFW, Diamond Lake Restoration Biologist
- 3:50 – 4:10 *Diamond Lake Restoration Project – Monitoring Results*  
**Joe Eilers**, Max Depth Aquatics, Inc.
- 4:10 – 4:30 Open Discussion and Concluding Remarks

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\*Agenda is subject to change.

## Owyhee Dam Celebrates 75 Years

Water has no opinion on patriotism. But when the speeches were done at the commemorative ceremony last July 14<sup>th</sup>, the water that spewed from Owyhee Dam's outlet valves was red, white, and blue. It was an appropriate gesture. The crowd and dignitaries on hand for the event had made a point to pay tribute to an engineering feat that has largely set the tone for life in the region ever since it was completed 75 years ago. The Owyhee Dam project still serves as an excellent example of how federal tax dollars can be leveraged, and is exactly what Congress had in mind when they established the Bureau of Reclamation in 1902.

The Ontario area became attractive to settlers in the 1880's after a rail line and stock yards were built there. The level fields and warm weather were optimal for agriculture, and the limitation of just 10 annual inches of rain could be offset by irrigation from the nearby Snake, Malheur, Owyhee, and Payette Rivers. By the early 1900's over 6000 acres of cropland had irrigation from private companies. This acreage continued to increase in subsequent years, but not at the rate seen in Idaho, where irrigation water from Bureau of Reclamation projects was showing the potential of farmlands there. It was 1926 before a Reclamation plan for construction of the Owyhee Dam won approval of Congress and President Coolidge.

The plan approved called for a single dam to provide both storage and diversion. The dam would be 417' high, making it the tallest in the world. Its heavy concrete arch design was innovative in the 1920's and dams constructed in this format received close scrutiny. Before D.C. Henney's arch design was selected for the 726' Hoover Dam, he had demonstrated the combination of sheer weight and a pressure deflecting arch was capable of withstanding the pressure of impounded water in 1929 at the 200' dam forming Reservoir 1 in Portland's Bull Run

Watershed. The Owyhee construction proved 1 inch pipes spaced at 4 foot intervals could carry enough ambient stream water through the curing concrete to dissipate the heat generated as the concrete hardened. The floating, 60' diameter "Glory Hole" spillway was also an unusual design feature. The dedication ceremony was held on July 17, 1932.

The changes brought about by the Owyhee Project came quickly. The population of Ontario had doubled by 1940 to reach 3551. Nyssa and Vale also saw significant growth. The reservoir that formed behind the dam stretched 52 miles in remote, steep walled canyons, and even now has only two roads providing access; the best of which is a two lane road with a one way tunnel, following the Owyhee River upstream from Nyssa to the dam, the museum at its base, and the state park just beyond. The reservoir has a total storage capacity of 1,120,000 acre feet and an active capacity of 715,200 acre feet. Of all of Oregon's reservoirs, only Brownlee Reservoir on the Snake River and Lake Wallula behind the McNary Dam on the Columbia are larger. It provides full irrigation to 105,000 acres and supplements the irrigation on an additional 13,000 acres. Water is diverted just upstream of the dam by a tunnel carved 3.5 miles to the northeast that ends at Tunnel Canyon. There the water is divided between the North and South Canals. The distribution system delivering water to the fields has 172 miles of canals, 543 miles of laterals, 9 pumping stations, and 227 miles of drains.

Crops irrigated by water of the Owyhee Project include barley, oats, sorghum, wheat, alfalfa, beans, peppermint, spearmint, sugar beets, sweet corn, potatoes, onions, and more. The *Atlas of Oregon* lists the 1998 value of gross farm and ranch sales from Malheur County as \$175.1 million, which ranks 8<sup>th</sup> among Oregon's 36 counties behind Marion, Clackamas, Umatilla, Linn, Washington, Yamhill, and Morrow. Additional value of the Owyhee Project is recognized by the Bureau of Reclamation's estimate that the flood control capability provided by the dam has saved the region \$33 million in damages from 1950 to 1998.

The 75<sup>th</sup> anniversary celebration at Owyhee Dam was organized by the Owyhee Irrigation District and the South Board of Control. While there is a great success story to recount in this history, the sponsors made "Looking Back, Looking Forward" the theme of their festivities in recognition that the future is uncertain. Power generation and fish passage were not the issues in the 1920's that they are today. Starting now to consider how this facility can meet the challenges ahead is the best way to ensure its 150<sup>th</sup> year celebration will be equally grand.

### Roslyn Lake – Enjoy it while you can!

By Andrew Schaedel, Water Quality Division, ODEQ

While the Owyhee Dam is celebrating 75 years of existence, a different type of celebration was occurring in the Sandy River Basin – the Decommissioning of Portland General Electric's (PGE) Bull Run Project. This work will occur over a three year period with the Marmot Dam on the Sandy River being removed in 2007, the Little Sandy Dam being removed in 2008 and other project facilities removed by 2009. Removing the two dams will make both the Sandy and Little Sandy free-flowing rivers again and benefit three federally listed threatened fish species: winter steelhead, spring Chinook salmon, and coho salmon. Additionally, PGE is in the process of donating 1,500 acres of its land in the Sandy River Basin for preservation and recreation, part of a planned 9,000-acre natural resource and recreation area. Unfortunately, for lake lovers, Roslyn Lake will also be drained with the land restored to its original contours and replanted.

The removal plan, officially called "decommissioning," was authored by a unique collaboration of 23 diverse organizations, including environmental organizations, state and federal natural resource agencies, local

governments, and businesses that unanimously supported the decommissioning effort. I had the opportunity to participate in this process as one of the Department of Environmental Quality's representatives. I was excited to attend a recent celebration where more than 4,000 pounds of explosives blew the top of the Marmot Dam. Much of my excitement stems from the knowledge that the water temperatures in the Sandy and Little Sandy Rivers will be cooler in the summer for the fish as their flows will not be diverted by the dams. PGE will transfer its hydroelectric water rights for the project to the State of Oregon, ensuring the water will remain in-stream for the benefit of aquatic resources and public recreation.

However, as a limnologist by training and at heart, part of me is saddened by the fact that Roslyn Lake will be going. Roslyn Lake was constructed as the forebay to the powerhouse that is located along the Bull Run River (and hence the project name) and water from the Sandy and Little Sandy are diverted to it. PGE constructed a recreation facility on the lake, Roslyn Lake Park, which has been a popular day-use facility used by approximately 10,000 people each year. However, with the removal of the dams, the associated water rights revert to the state for in-stream benefits.

As a member of the decommissioning process, I am well aware that PGE tried hard to find a way to preserve the lake and park. PGE considered an alternative that would have used the Portland Water Bureau's adjacent conduits as a source of fresh water for the lake. The lake, as it is entirely manmade, is currently fed by the box flume from the Little Sandy Dam. As these structures are being removed, the lake would quickly become stagnant and unusable without another source of water. However, the City determined that it could not supply water to Roslyn Lake, meaning that there was no conceivable source of fresh water other than direct rainfall which is not sufficient to sustain the lake.

PGE spent more than a year studying options for the future of the park and offered to donate the land for public recreation. PGE prepared park designs for potential new owners to consider, with input from a community committee. Without a water source to keep Roslyn Lake intact, recreation providers were not interested in accepting PGE's offer to donate the park. PGE then focused on donating 1,500 acres of project land upstream from Roslyn Lake for habitat and public recreation. No final decisions have been made about the ultimate use of the Roslyn Lake land. However, because that land couldn't go to public use, PGE will likely sell it. In that event, the proceeds will help offset the costs of dam removal, which go into PGE's rates.

So, if you get a chance, head out to Roslyn Lake soon as it will be open through the 2007 summer season but will be drained and restored as it once was in 2008. For more information about the project, go to:

[http://www.portlandgeneral.com/community\\_and\\_env/hydropower\\_and\\_fish/sandy/dam\\_removal.asp?bhcP=1](http://www.portlandgeneral.com/community_and_env/hydropower_and_fish/sandy/dam_removal.asp?bhcP=1)

## **Dragonflies and Damselflies are Related Lake Dwellers**

Even if you are not looking for them, lakeshore visitors have a good chance to see dragonflies flitting about the water's edge. Of all the ten orders of insects with an aquatic phase, dragonflies, or Odonata are most associated with the quiet waters of lakes, ponds, and wetlands. Their larvae are predators that rely on a doubly articulated mouthpart appendage to snatch prey from the water. This appendage, the labium, works best where water currents are not moving prey downstream during the attack.

Adult odonates are large insects with a distinctive body design, and can be attractively colored. These characteristics have made the Odonata almost as well studied as butterflies. Taxonomists are attracted to well-studied groups of any creature and they have the Odonata classified in two suborders of seven and four families, and over 400 species in North America. The name “Odonata” is similar to “orthodontist” and indeed, the Greek root of both terms refers to teeth. Dragonflies chew their meals. The suborders are Anisoptera, which translates to unequal wing, and Zygoptera or paired wing. Odonates all have two pairs of independently operated wings that allow them to hover and fly backwards as well as forward. In the Anisoptera, or dragonflies, the forewing is narrower at the base than the hindwing. In Zygoptera, or damselflies, the front and rear wings are equal in shape and size. The position of the wings when the insects are perched can also differentiate these two suborders; dragonflies hold their wings horizontally to the side and damselflies fold their wings vertically over their back. Damselflies have a fluttering flight and dragonflies are strong, direct fliers. Both hunt for prey on the wing and so have large compound eyes. The eyes of dragonflies may touch on the top of their head, but if not, the distance between them is less than the eye's diameter. The eyes of damselflies have a wider separation.

The life cycles of both dragonflies and damselflies last a few years, all of which except the final 4-6 weeks is in a larval state. They emerge in the summer, likely in response to warming water temperatures. The brief time as adults is spent hunting and mating. When they fly in tandem, they are engaged in the latter activity. The appearance of the males and females differ in some species so tandem flights are a good opportunity to match these pairs. The male is in the forward position and holds the head of the female with claspers on his tail. Mating occurs when she arches the end of her abdomen forward to contact his second abdominal segment, where he has previously deposited his sperm. Tandem flight continues in some species as the female deposits the fertilized eggs in strings at the water surface. Eggs can also be laid on or in emergent vegetation. The presence of an ovipositor on the ventral end of the abdomen is another way to identify females in some species.

Identification to species is as difficult with the Odonata as it is in any other class of organisms. In this case, it often requires examination of the veins in the membranous wings. The casual observer may be as much interested in the number of species inhabiting a particular lake, the sequence of their emergence, and their reappearance year after year in as their precise identification. This information can be obtained by noting key characteristics of individuals encountered, and then sorting and comparing these observations. Binoculars can be useful in this pursuit. These insects are most active on calm, sunny days so the chance to view them at rest increases on cool cloudy days.

The color, diameter, and shape of the abdomen are important features for identification. The flash of color is often what draws attention to dragon- and damselflies in flight. Brightly colored abdomens with multi-colored patterns are common. The thorax can be a different color than the abdomen, and eye color can also provide a distinguishing characteristic. The diameter of the abdomen ranges from the very slender damselflies to those dragonflies with an abdomen as thick as their thorax. The shape can be uniform, tapered, bulbous, or distinctly clubbed. The wings can be transparent or have dark or colored markings. The perching position can be parallel or oblique to the substrate. There is also a perpendicular, orobelisking perch posture that is thought to be a cooling, or warming behavior that somehow optimizes exposure to the sun. Some species are more comfortable in flight than others and so noting whether they are observed flying or perched can be useful.

Further information is available at your local library or bookstore. General texts about insects will not have as many descriptions of specific damsel- and dragonflies as one that only discusses Odonata. Where there is a choice about geographical focus, the text that looks closest to your region is often the best.

## Hot Lake is Warming Up

Long after he had written *A History of New York from the Beginning of the World to the End of the Dutch Dynasty*, *Rip Van Winkle*, and *The Legend of Sleepy Hollow*, Washington Irving accepted a commission from John Jacob Astor to write a history of the failed attempt to establish an American fur trading business at the mouth of the Columbia River in the early 1810's. The work was published in 1836 under the title, *Astoria, or Anecdotes of an Enterprise Beyond the Rocky Mountains*. He was given access to Astor's correspondence and papers pertinent to the venture and interviewed many of the central figures, including Astor himself. Included among these resources was the journal of Robert Stewart, who led a party of stakeholders on an overland trip back to St. Louis after the War of 1812 had doomed the project. Irving recounts the August 12, 1812 entry of this journal thusly, "In traversing this [Grande Ronde] plain, they passed, close to the skirts of the hills, a great pool of water, three hundred yards in circumference, fed by a sulphur spring, about ten feet in diameter, boiling up in one corner. The vapor from this pool was extremely noisome, and tainted the air for a considerable distance. The place was much frequented by elk, which were found in considerable numbers in the adjacent mountains, and their horns, shed in the springtime, were strewed in every direction around the pond."

Few of Oregon's lakes have this early and apt of a description in the literature. But for the elk antlers, a substantial brick building, and an old sign that proclaims the place to be HOT LAKE, the pond appears much the same today as described by Irving. It is located on Hwy 203 between La Grande and Union at the base of Craig Mountain. Sulfurous waters about 200° F. still gurgle from the ground in one corner and form clouds of vapor in the cool air. It is a shallow, flat bottomed pond that has water lilies and fish abounding at its far end where the water is only warm.

Hot Lake has long served as an attraction for people in the region. It was known to the several Indian bands of the Blue Mountains and Umatilla Plateau. It had a tradition of neutrality that allowed the wounded and infirm of the different tribes to share the curative powers of the warmth and mineral baths there. Trappers and miners of the American frontier also enjoyed these comforts and Hot Lake became an established stop on the route to the Pacific Coast. A trading post was set up to accommodate these visitors. The first wooden structure was built in 1864 and the Union Pacific Railroad came through in 1884. The three storey, 105 room, brick hotel and hospital was completed in 1908. The Hot Lake spa, resort, and medical center continued to grow and was attracting over a hundred new guests per day during its peak. A fire in 1934 destroyed the entire enterprise save for the fire sprinkler equipped hotel. During the ensuing years, the damaged building passed through several owners but remained in the grip of deterioration.

In 2003, the family of David and Lee Manuel purchased the property and began an impressive restoration process. They moved their museum, sculpture studio, and bronze foundry to the site from Joseph OR, and continue their efforts to recapture the excitement that was once so common on the shores of this simple geological feature. Their plans are ambitious but they recognize they are engaged in a process rather than a project. Just as their museum grew from Native American artifacts to include military memorabilia and pioneer items, the restoration will progress from a bed & breakfast, to full hotel, with restaurant, spa and salon, and wagon and fire truck display. Their collection of historical relics serves both as a public attraction and as a reference to ensure the details of their statues are authentic. Visitors are welcome now and they are close to when they will be receiving overnight guests. The rooms may not have the hot spring water piped to corner sinks as in former times, but in the showroom exhibiting their work, the Manuels have already brought elk back to Hot Lake.

**LAKE WISE**  
**The Oregon Lakes Association**  
**Newsletter 2007 #3**

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**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](http://www.oregonlakes.org)

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### **Wallowa Lake's Terminal Moraine to be a State Park**

A long simmering debate about private property rights was resolved recently when an agreement was announced that the Marr Ranch lands at the north end of Wallowa Lake would be sold to the Oregon Parks and Recreation Department. The deal that was finally concluded in early August proved to be a good example of free enterprise principles at work. The seller was convinced to sign off his deed for a sale price the buyer agreed to pay to assure distasteful development plans did not proceed. There were elements of eminent domain, land use planning, and Measure 37 issues mixed up in the tale, but in the end it is just a contract between a willing buyer and seller.

The K&B Family Limited Partnership purchased the 68 acre plot on the open market. The land was zoned Urban Growth-Residential and was located within the urban growth zone of Joseph OR, although a portion of it was in a Scenic Resource Overlay Zone. Following their original intentions, the K&B family's proposal to build a 72 lot, residential subdivision on the plot was submitted and approved by Wallowa County in the early 1990's. That plan was halted when in 1997, the US National Park Service made an eminent domain purchase of 8 acres in the plot that were adjacent to the gravesite of Old Chief Joseph. A scaled down residential development plan was again approved by Wallowa County in 2004 but was returned to them for reconsideration by both the Land Use Board of Appeals and the Oregon Court of Appeals. Measure 37 was passed in 2005 and soon afterward the K&B family made a Measure 37 claim based on the approval of their first development plan. Very few large Measure 37 claims have been finalized to date, so a \$4.1 million sales offer proved acceptable to the K&B family. OPRD will use \$3.2 million of its lottery funded acquisition budget in the deal, and the balance will come from the Oregon State Parks Trust, a non-profit fund raising organization that is passing on \$300,000 donations from the Nez Perce, the Confederated Tribes of the Umatilla Indian Reservation, and the Colville Reservation. Plans on how to develop the new park will be made public in the coming year.