

# LAKE WISE

September  
1998

NEWSLETTER OF THE PSU LAKES AND RESERVOIRS PROGRAM  
AND THE OREGON LAKES ASSOCIATION



## Lake Watch News

by Jody Oliver

Lake Watch volunteers have taken full advantage of the sunny days this summer; they have been busily collecting data, making observations, working to make changes, and thoroughly enjoying their lakes. Now, near the end of summer, here's a summary of the 1998 Lake Watch activities.

Many changes in procedures were implemented this summer in accordance with the new QA/QC plan. Volunteers have been very receptive to these changes and have made the transition period a very smooth one. Most volunteers are exceeding the 1 duplication/5 data collections, making our data that much more reliable. Keep up the good work!

This summer we have seen several lakes, which have been in the Lake Watch Program in the past, reenter the program. These lakes include Fairview Lake near Portland and South Twin Lake near Bend. The new volunteers are very excited about

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## Oregon Lakes Association

POB 345, Portland OR 97207  
<http://www.esr.pdx.edu/pub/ola/>

## OLA Annual Conference October 23-24

The Oregon Lakes Association will hold its annual conference on October 23 and 24, 1998, at the beautiful Diamond Lake resort in the southern Oregon Cascades. Our theme this year will be "Problems AND Opportunities in Southern Oregon's Lakes". There will be presentations on Waldo, Diamond, and Klamath Lakes, as well as an update of OLA's Lake Report Card Project, and a session on toxic algae in Oregon lakes. Our keynote speaker will be Senator Veral Tarno, chair of the Senate Natural Resources Committee. An OLA-hosted mixer will be held on Friday evening in conjunction with the OLA Business Meeting. A barbecue is scheduled for Saturday night. The lunch on Saturday will include the presentation of Lake Watch awards and a summary of the 1998 Lake Watch year.

There will be a discount for advanced registration prior to October 15th, so register early! The registration fee includes a 1998-99 membership to OLA, one Saturday lunch, and the conference fee. Personal lodging is not included in this fee, but you can contact the Diamond Lake Resort at 1-800-733-7593 for rooms or cabins at meeting rates. Corporations will provide literature and set up displays. The agenda and registration for the conference are on p. 11, and more details are provided on p. 6. Mark your calendars, and we hope to see you there!

## The Decline of Trout in Diamond Lake: The Battle Against Tui Chub

Adapted from the ODFW website by Susanna Breiling

For much of this century, Diamond Lake has offered some of the most productive trout fishing in Oregon. It is legendary in its ability to grow big fish, and lots of them, in a short time. It is treasured by many Oregonians and visitors as a place where fishing dreams come true. But the dream is dying. An illegal introduction of Tui Chub is directly responsible for all but destroying the fishery which, a decade ago, provided enough trout to draw more than 100,000 angler trips in one year, but fewer than 28,000 in 1997.

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## Lake Watch Volunteers

Citizen Lake Watch depends on dedicated volunteers, who measure basic water quality characteristics in Oregon lakes and reservoirs. Lake Watch provides training to measure water temperature, Secchi transparency, and dissolved oxygen. Volunteers in the Corps of Engineers, Fern Ridge monitoring program perform additional measurements. Volunteers also assist in the early detection of *Hydrilla*. Prospective volunteers may contact Mark Sytsma (503)725-3833 or Michael Parker (541) 552-6796.

Blue Lake: Koren Marthaller

Bradley Lake: Edward and Ruth Ziebell, John Mendonsa

Clear Lake: Elmer Waite

Cullaby Lake: Janette Goolsby

Diamond Lake: James Kerp

Devils Lake: Barbara Hagerman, Al Rice

Emigrant Lake: Christy Sinclair

Fairview Lake: Bettianne Goetz, Jim Graybill

Fern Ridge Lake: Natasha Okonaji, Richard Locke, James Bruvold, Randy Wilson, Todd Yokum

Fern Ridge Lake cont.: Lee Kincaid, Alycia McCord, Clover Wood, Ken Cluck

Garrison Lake: Don Martin

H. Hagg Reservoir: Wally Otto

Howard Prairie Reservoir: Chris Johnston

Hyatt Lake: Mike Hurger

Lake of the Woods: Catherine Hayes, Katherine Wallis

Loon Lake: Richard Kaufmann, Steve Kaufmann

Mercer Lake: Ron Boehi

Munsel Lake: Al Burhans, Roy Fisher

N. Tenmile Lake: Frank Gray, Dan Jordan, John Kelsey

Odell Lake: Vince and Paulette Jesse

Penland Lake: Lee Bogle

Siltcoos Lake: John and Julia Carlson, Paul Cornett, Elizabeth and Dean Kelly, Dave and Linda Lauck

South Twin Lake: Jude Fulghum

Sunset (Neacoxie) Lake: Lee Smith

Tenmile Lake: William Emblen

Thornton Lake: Henry Pollak, Jack White

Woahink Lake: Bob Anderson

### Lake Watch News continued from page 1

Lake Watch and are working hard to learn more about their lakes.

Bettianne Goetz and Jim Graybill at Fairview are collecting data at a combined total of 5 stations on their lake. Jude Fulghum has recently begun collecting data at South Twin Lake and is looking for more lakes in her area to visit; she is working with local resort owners, who are providing access and boats for her to use.

Janette Goolsby at Cullaby Lake noticed a strange substance in her lake during late June; she described the substance as a thick blue-green gel that formed clumps near her sampling site. I collected a sample soon after and returned it to PSU for identification. Dr. Richard Petersen said the sample was very decomposed but appeared to be the tail-end of a blue-green algae bloom, probably *Anabaena*.

Volunteers at Thornton Lake have been working to lessen the weed problems at their lake and their work is appearing to pay off, as the weeds are considerably less abundant than in recent years. With the help of Thornton Lake volunteers, Henry Pollack and Jack White, I recently collected more in-depth data at the lake. The data showed that Thornton is experiencing nearly anoxic conditions at depths below 1.5 m. This is significant because oxygen on the bottom of the lake locks nutrients, such as phosphorus, into the sediment; when the oxygen is gone, such as at Thornton Lake, these nutrients are released.

Volunteers at Devils and Sunset Lakes have also been very busy this summer. I've enjoyed some beautiful weather and great visits with Fran and Al Rice and with Lee Smith. To all the volunteers, I thank you for your

hospitality and look forward to all my visits (especially because they get me out of the office and onto the lakes). As for the lakes not mentioned, we look forward to seeing or hearing from you soon. Happy lake-watching! ♦

### Southern Oregon University Joins Citizen Lake Watch Team

During the summer of 1998, the Oregon Citizen Lake Watch program is being conducted through a collaboration between Portland State (PSU) and Southern Oregon (SOU) Universities. The addition of SOU to the Lake Watch team has allowed greater monitoring of lakes in the southern half of the state. Keri and Brian Thorpe, masters candidates in Environmental Education at SOU, and Michael Parker, associate professor of



## The Battle Against Tui Chub in Diamond Lake



Tui Chub continued from page 1

Tui Chub, a highly competitive and prolific nongame fish native to the Klamath Basin, was found in Diamond Lake in 1992. They were probably introduced by an angler illegally using chub as live bait. Since that time, angler success has declined markedly.

History is repeating itself. Diamond Lake was a source of eggs for many hatchery and fish stocking operations across the west, when Tui Chub were illegally introduced into Diamond Lake in the late 1940s. By 1952 the trout population had crashed. Tui Chub readily outcompeted rainbow trout for food. The Oregon Game Commission decided to rehabilitate the lake by removing all the chub. In 1954 about 1/3 of the lake was drained off and the remaining water was treated with a naturally derived chemical called rotenone. The largest fishery rehabilitation project in history was a success. All the chub were removed with minimal disruption to the environment or other wildlife species, and there was great fishing in Diamond Lake for the next 30 years. That is, until Dave Loomis, a fisheries biologist for the Oregon Department of Fish and Wildlife (ODFW), found Tui Chub in the lake 6 years ago.

The Oregon Fish and Wildlife Commission has directed ODFW staff to restore Diamond Lake to a high-volume trout fishery, and the department believes that rotenone is a proven and practical tool to achieve this goal.

Because the department is seeking Sport Fish Restoration Program Funds administered by the U.S. Fish and Wildlife Service to begin the environmental review process to restore Diamond Lake, the Service has now

taken "lead federal agency role" in the process. The Service, ODFW and U.S. Forest Service will cooperatively develop an Environmental Impact Statement (EIS) to examine all reasonable alternatives to meet Oregon Fish and Wildlife Commission's management objectives for Diamond Lake, including ODFW's preferred option of chemical treatment. The Service expects public scoping to begin this fall when the Notice of Intent to prepare the EIS is published. Because of the expanded review the project will receive, eventual treatment, if approved, would not occur until 2001.

A key objective of the rehabilitation effort is public education. Tui Chub have already been introduced twice into Diamond Lake with devastating results. The aim is to restore the fishery and prevent a repeat of Tui Chub introduction in the future.

### Some of the major issues related to the restoration of the fishery:

◆Diamond Lake is the head of a large river system which is home to several federally protected fish species. Any action taken must not risk the health of the system.

◆Diamond Lake provides important angling opportunity for all anglers and economic benefits across the region.

◆Restoration would help contribute to the local economy, which is an objective of the Umpqua National Forest Plan, and would help enhance or restore recreational opportunity, an objective of the federal Recreational Fishery Resource Conservation Plan.

◆The fishery decline at Diamond Lake has affected more than trout and anglers - it has also impacted Forest Service campgrounds and private facilities which rely on visitors throughout the year and especially during the fishing season.

**Information about the Diamond Lake fishery restoration effort will be discussed at the OLA conference, and is updated regularly on the ODFW web site: [www.dfw.state.or.us](http://www.dfw.state.or.us)** ◆



### ROTENONE

★Rotenone is the most commonly used compound for treating lakes. Diamond Lake was treated with rotenone in 1954 with great success, and it has been used in numerous other lakes and reservoirs in Oregon to remove unwanted fish species and restore traditional fisheries.

★Rotenone is a natural derivative of a South American plant, and is preferred by biologists because it quickly breaks down into harmless components.

★Rotenone makes it impossible for fish to use oxygen by inhibiting a biochemical process at the cellular level.

If you have questions about rotenone or want to read more, go to:

<http://www.dfw.state.or.us/odfwhtml/infocntrfish/diamondlake/rotenone.html/>

## Brazilian Elodea

### Popular Aquarium Plant, Brazilian elodea, Causes Trouble for Lakes

*adapted from Jenifer Parsons, Washington Department of Ecology*

Brazilian elodea, a non-native invasive species, is often sold under the common name Anacharis (that is what its scientific name used to be, now it is referred to by botanists as *Egeria densa*). Brazilian elodea is a popular plant for cool water aquariums. It is easy to grow, will tolerate a wide range of water conditions, and is inexpensive. Unfortunately, it has escaped into Oregon's lakes. Because it is so adaptable and is easily transported on boats, trailers, and fishing gear it has invaded nearly every coastal Oregon lake with public access and many lakes and reservoirs in the Willamette Valley. In each lake where this plant has been found it has greatly altered the underwater environment. Brazilian elodea will grow at a phenomenal rate until it reaches the water surface, forming a nearly impenetrable vegetation mass. It seems to prefer water between 1 and 3 meters deep, however it will grow much deeper if the water clarity is good.

Brazilian elodea is native to southeastern South America (southern Brazil, Uruguay, and north and central Argentina). It has also been introduced to other parts of the United States, New Zealand, Australia, Europe, Japan and Chile, and is considered a major aquatic pest in many of those areas. Brazilian elodea is closely related to other aquatic plants which have become a nuisance in areas outside their native range, such as Hydrilla, Lagarosiphon, and even our native waterweed *Elodea canadensis*.

As can be seen from the drawing, Brazilian elodea has leaves in dense, bushy whorls around the stem, usually with 4 leaves per whorl. (Except where the plant is growing in low light conditions, in which case the leaf whorls may be more spread out along the stem.) The leaves are up to 4 cm

accomplished mainly by stem fragments floating to a new area and putting down roots.

**Despite the value of Brazilian elodea to the aquarium industry, the damage it inflicts on natural ecosystems caused the Oregon Department of Agriculture to include it on the noxious weed list.** Brazilian elodea infestation is responsible for 303-d listing of many lakes and reservoirs in Oregon that, by law,

necessitates development of management plans for the lakes. Unfortunately, management options for Brazilian elodea are limited, especially when the infestation is so widespread. In Washington, which has a smaller infestation than Oregon, an educational campaign is currently under way to notify pet store and nursery owners that this plant is no longer legal to sell. There is a quarantine on Brazilian elodea in Washington, so it is no longer available in pet stores or nurseries, and it is illegal to sell or transport in the state. Washington is encouraging aquarium supply stores to substitute *Elodea canadensis*, a native plant with a similar, though less robust, look. Hopefully this will curtail the spread of this persistent and aggressive plant. But, as always, please remember to clean all plant material from boats and trailers as you leave a lake.

If you have any questions about Brazilian elodea or other aquatic plants, please call **Mark Sytsma** at (503) 725-3833 or email at [sytsmam@pdx.edu](mailto:sytsmam@pdx.edu). ♦

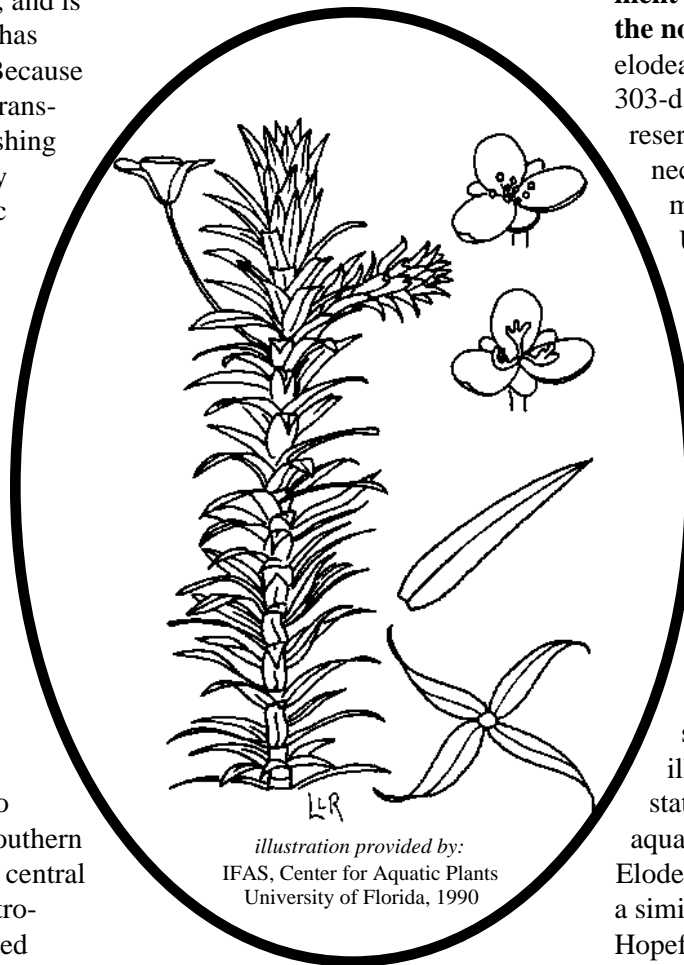


illustration provided by:  
IFAS, Center for Aquatic Plants  
University of Florida, 1990

long with barely visible teeth along the edges. When the vegetation has reached the surface it will produce floating three petaled white flowers which are about 2 cm in diameter. Male and female flowers occur on separate plants, and only the male plants are found outside South America. This means, of course, that no seeds are produced. Spread is

## Brazilian Elodea Continued

### Biocontrol Research Program for Brazilian elodea

by Mark Sytsma

Non-native aquatic plants have invaded lakes, streams, and rivers throughout the Northwest. These noxious plants have degraded water quality, fish habitat, and recreational uses of water resources. *Egeria densa* (Brazilian elodea) is one of the most widespread, abundant, and problematic non-native aquatic plants on the west coast. Dispersed primarily by boaters, the plant has infested nearly every coastal lake with a boat ramp in Oregon and is common in the Willamette Valley and Columbia River side channels. *E. densa* has infested at least 17 waterbodies in Washington, including the Chehalis River, which supports important salmon runs. In California, *E. densa* populations are spreading in the Sacramento/San Joaquin delta.

Management options for such a large and growing infestation are limited. Nascent, pioneer populations may be controlled with herbicides and other traditional management tools, however, these methods can only provide maintenance control of the massive infestation present in some waterbodies in Washington, Oregon, and California. Large scale management of Brazilian elodea with traditional techniques, such as herbicides or harvesting, would be expensive, have limited efficacy, and potential nontarget impacts.

Biocontrol is the most promising option for reduction of *E. densa* populations and problems in the region, but there has been no investi-

gation of biocontrol agents for Brazilian elodea. Mark Sytsma, at Portland State University, has proposed a research effort on biocontrol of Brazilian elodea. The project would result in a description of the plant's growth characteristics, diseases and insects that feed on the plant in the native range, and potential for the use of these organisms to provide control of *E. densa* on the west coast of North America.

The project has received funding support from the Bureau of Land Management, Bureau of Reclamation, and Devils Lake Water Improvement District. State management agencies in Washington, Oregon, and California have indicated a willingness to support the effort and the project will be administered by the Pacific States Marine Fisheries Commission. The project will be conducted by Portland State University in collaboration with the Invasive and Exotic Weed Research Unit of the USDA Agricultural Research Service (USDA/ARS) in Albany, California. The USDA/ARS has an established laboratory in Argentina where the work would be performed.

A successful biocontrol program would permit release of a *E. densa* specific agent that would control the plant. Biocontrol agents must be released with caution. Testing of any insects or pathogens that control *E. densa* in its native range to ensure that they do not damage native plants or introduce diseases is a time-consum-

ing task. Although it is a lengthy process, a successful search would be a great asset in the fight against the invasion of our lakes by non-native aquatic plants. A biocontrol agent for *E. densa* would aid in the restoration of the region's damaged water resources, which is critical to salmon recovery efforts. ♦



#### Key Characteristics of Brazilian Elodea:

- ❖ Bright green underwater plant, sometimes with fragrant white (three-petaled) floating flowers.
- ❖ Leaves arranged in whorls of four to six.
- ❖ Leaves greater than one-half inch long and less than one-quarter inch wide.
- ❖ No tubers attached to the roots in sediment.



If you are concerned or have questions about a particular native or non-native organism in or around your lake, contact Susanna Breiling at (503) 525-0037, or via email at [breiling@worldnet.att.net](mailto:breiling@worldnet.att.net), and we will include information about that organism in one of our next issues.

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Lake Wise is available in alternate format (e.g., large type or braille) by contacting PSU Environmental Sciences and Resources.

# OREGON LAKES ASSOCIATION NEWS

## Notes From The President: OLA Conference

by *Andy Schaedel, OLA President*

**On October 23 and 24 OLA is holding its annual conference at Diamond Lake Lodge.** While a focus this year will be on Lakes in Southern Oregon (given our beautiful location on Diamond Lake), everyone interested in Oregon lakes and reservoirs is encouraged to attend. Anyone with concerns related to aquatic weeds and algal growth in their favorite lake should find it to be an interesting conference.

We are pleased to have **Senator Veral Tarno**, chair of the Senate Natural Resources Committee, as our keynote speaker. This will be a very good opportunity to interact with a legislator on the need for a statewide aquatic weed program; and to see ways that OLA can work with the legislature.

We will have panel presentations and discussions on three interesting nearby lakes - Klamath, Diamond and Waldo. These lakes represent the range of conditions, interests and uses of lakes in Oregon, and work that is going on in all three lakes should be of value to any lake manager,

homeowner or user in Oregon. Klamath Lake has excessive algal growth which has been both of concern for impacts on threatened and endangered fish species that inhabit the lake and of economic benefit to local industries and the community. Diamond Lake is a major recreational lake which is experiencing fishery management problems. Waldo Lake is a pristine lake where the concern is how to best protect the lake.

In addition to this, different lake associations and others will have an opportunity to report on their lakes and any issues or problems that they have encountered. These five minute reports will include Grass Carp rules, exotic species and weeds, recreational issues, the Clean Water Act, OLA's Lake Report Card project, etc. Plus, during lunch on Saturday, the **Citizen Lake Watch Awards** will be presented. If you are interested in helping out, contact Allan Vogel (503-390-4684) or Jim Carpenter (541-885-5450). To see the full meeting agenda, with all the activities planned for Friday night and Saturday, go to page 11.

The Diamond Lake area is a beautiful location for our meeting and there are campsites, rooms and cabins available. The Diamond Lake Resort is offering rooms and cabins at meeting rates (\$50 and \$88/night respectively), so you may want to call them at 1-800-733-7593 to reserve your accommodations. Sunday is free for you to take advantage of the southern Cascades with its excellent opportunities for hiking, fishing and birding.

**I truly believe that this will be a great meeting with many interesting speakers and discussions for everyone. It is a very good opportunity to learn more about what is going on in lakes in Oregon and to meet people with excellent knowledge about lakes.** Throughout this newsletter you can read about issues that will be discussed at the conference: the decline of trout in Diamond Lake, the biocontrol of Brazilian Elodea and the new grass carp rules.

**Mark your calendars for the weekend of 23-24 of October, and I look forward to seeing you all there!** ♦

## Open Space Acquisition in Lincoln City

*from Currents, the newsletter of the Preservation Association of Devils Lake*



The Lincoln City City Council at their August 24, 1998 meeting unanimously approved a resolution to place a bond measure on the November ballot that would give citizens within Lincoln City an opportunity to support acquisition of open spaces. A property tax would be levied to raise up to \$3 million. Approximately 20 properties have been identified that meet the criteria of open spaces, many of them within the Devil's Lake Watershed. Property acquisition must be approved by the Lincoln City City Council after a public hearing. There is a copy of the bond measure that includes a candidate open space list and map at the Driftwood public library. This bond measure is important. Rather than trying to fix a property after it has been logged and developed, one of the best ways to protect Devils Lake and its forested watershed is to acquire land to prevent erosion and hold buffers in place. If you have any questions about the bond measure, or have ideas about how to promote the passage of this measure, please contact Lynn Hermo at 994-2184. ♦

The Oregon Lakes Association is a nonprofit organization dedicated to lake protection and management in Oregon. For additional information on OLA, to get involved, or to obtain a membership application form write to:

**OLA, PO Box 345, Portland, OR 97207**

## Aquatic Plant Scholarship Announcement

The Western Aquatic Plant Management Society (WAPMS) has initiated a scholarship program to support students in their pursuit of a degree in aquatic sciences. WAPMS is a professional and scientific society of western aquatic plant managers and scientists. Members include research scientists, aquatic vegetation managers, agency personnel, and industry interested in all aspects of aquatic plant biology, ecology, and management.

We would appreciate your help in alerting students to this scholarship program. WAPMS will present one \$500-scholarship in 1999. Scholarship funds may be used by the recipient to cover costs associated with education and/or research expenses. Eligible applicants must be enrolled as a full-time undergraduate or graduate

student in an accredited college or university in the western United States. Course work or research in an area related to the biology, ecology, or management of aquatic plants in the West is also required. The guidelines for applying are described below.

All scholarship applicants will receive a one-year membership in WAPMS and a waiver of registration fees for the 1999 meeting in Reno. The scholarship recipient will be invited to make a presentation at the annual meeting in 2000.

### Application Procedure:

1. Applicant must provide a short resume; transcripts of all college/university course work; and a one-page statement of their interests, career goals, and need for the scholarship funds.

2. Two letters of support must also be submitted. One must be from a college or university faculty member familiar with the students abilities, interests, and career goals. Support letters must be sent separately.

3. All application materials must be received by the WAPMS Scholarship Program Chair by November 1, 1998. Announcement of the scholarship winner will be at the WAPMS annual meeting in March 1999.

Please send five copies of all application materials to:

Dr. Mark D. Sytsma  
 WAPMS Scholarship Program  
 Environmental Sciences and Resources  
 Portland State University  
 Portland OR 97207-0751  
 Phone: 503-725-3833  
 email: sytsmam@pdx.edu ♦



## Southern Oregon University Joins Citizen Lake Watch

Lake Watch News continued from page 2

biology, have been coordinating volunteer activities on southern Oregon lakes. Through their efforts several new volunteers have begun monitoring lakes in the Cascades and along the coast of southern Oregon. Lakes added to the Lake Watch program through this collaboration include Diamond, Odell and Bradley lakes, and Howard Prairie, Hyatt, Emigrant, Willow, Agate, Selmac, and Cooper Creek reservoirs. On a monthly basis, SOU is conducting detailed monitoring of Emigrant, Selmac, Willow, Agate and Cooper Creek reservoirs which includes measuring vertical profiles of temperature, dissolved oxygen, and pH, and collecting samples for chlorophyll analysis and algal species identification.

Currently, Keri and Brian are conducting a study comparing the accuracy and repeatability of pH measurements taken with a variety of commercially available test kits and field meters. The purpose of this study is to determine which, if any, of these kits will allow Lake Watch volunteers to inexpensively collect meaningful data on the pH of their lakes. Keri and Brian will be available to discuss results of this study, and details of lake monitoring in southern Oregon, at next month's Oregon Lakes Association meeting at Diamond Lake. ♦



## Lake Event Calendar

### October 20-21

Agriculture and Water Quality in the Pacific Northwest: Understanding Each Other and Working Together for a Better Future. Yakima Convention Center, Yakima, WA. See [http://www.dwatcm.wr.usgs.gov/ccpt/ag\\_wq\\_conf98/](http://www.dwatcm.wr.usgs.gov/ccpt/ag_wq_conf98/)

### October 23-24

OLA holds its Annual Meeting at the Diamond Lake Lodge.

### November 10-13

Annual NALMS (North American Lake Management Society) conference at Banff in Alberta, Canada. Registration must be received by 10/10/98 to take advantage of discounted registration rates. See <http://www.biology.ualberta.ca/alms/1998.htm>

# Water and Population Crisis Looms

*Johns Hopkins School of Public Health Report*

**Nearly half a billion people around the world face water shortages today.** By 2025 the number will explode fivefold to 2.8 billion people — 35% of the world's projected total of 8 billion people — according to a new report from The Johns Hopkins University School of Public Health.

Today 31 countries face chronic freshwater shortages. By the year 2025, 48 countries are expected to face shortages with another 9 countries approaching water stress. Populations continue to grow rapidly. Yet there is no more water on earth now than there was 2,000 years ago, when the population was less than 3% of its current size. Rising demands for water for irrigated agriculture, domestic (municipal) consumption, and industry are forcing stiff competition over the allocation of scarce water resources.

In much of the world polluted water, improper waste disposal, and poor water management cause serious public health problems. Such water-related diseases as malaria, cholera, typhoid, and schistosomiasis harm or

kill millions of people every year. Overuse and pollution of water supplies also are taking a heavy toll on the natural environment and pose increasing risks for many species of life.

**Water is, literally, the source of life on earth. The human body is 70% water. People begin to feel thirst after a loss of only 1% of bodily fluids and risk death if fluid loss nears 10%.** Human beings can survive for only a few days without freshwater. Yet, in a growing number of places people are withdrawing water from rivers, lakes, and underground sources faster than they can be recharged—unsustainably mining what was once a renewable resource.

Caught between finite and increasingly polluted water supplies on one hand and rapidly rising demand from population growth and development on the other, many developing countries face difficult choices. The lack of freshwater is likely to be one of the major factors limiting economic development in the decades to come,

warns the World Bank.

No matter how freshwater is used—whether for agriculture, industry, or municipalities—there is great potential for better conservation and management. Water is wasted nearly everywhere. Until actual scarcity hits, most countries and most people take access to freshwater for granted.

It may already be too late for some water-short countries with rapid population growth to avoid a crisis, but many other countries can avoid the coming crisis if appropriate policies and strategies are formulated and acted on soon. Effective strategies must consider not only managing the water supply better but also managing demand better to help conserve water immediately.

To read more about what we can do to avoid a water crisis and to see an advance of the full John Hopkins report, go to:

<http://www.jhucpp.org/popreport/m14edsum.stm>. ♦

*"As populations grow and water use per person rises, demand for freshwater is soaring. Yet the supply of freshwater is finite and threatened by pollution. To avoid a crisis, many countries must conserve water, pollute less, manage supply and demand, and slow population growth". Population Information Program Report, Johns Hopkins.*



A new aquatic plant field guide, **Through the Looking Glass: A Field Guide to Aquatic Plants**, published by Wisconsin Lakes Partnership and the University of Wisconsin-Extension/Stevens Point, is now available through the NALMS Bookstore (<http://www.nalms.org>) for \$24.95 + shipping.

**Through the Looking Glass** is a comprehensive, easy to understand field guide that contains detailed and

## Books to Swim Into

highly accurate information needed to identify aquatic plants. The 248 page guide contains over 200 original illustrations of North American aquatic plants, and is combined with detailed descriptions, natural history and folklore. It is suited for use by anyone interested in nature or fresh water ecology, from those who need technical information to the person with little understanding of aquatic plants.

Also at the NALMS Bookstore is the third reprint of **Your Lake & You**. This tabloid size, 8-page NALMS publication explains how homeowners can do their part to protect their lake. It is also loaded with descriptions of resource publications.

Copies are available for \$0.35 each plus shipping. ♦





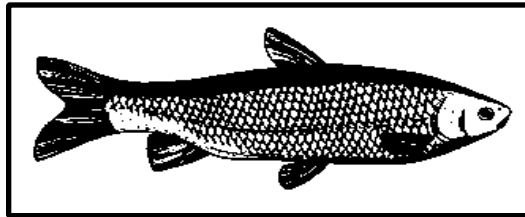
## Grass Carp for Aquatic Weed Eradication

by Mark Sytsma

The Oregon Fish and Wildlife Commission approved a reclassification of grass carp (*Ctenophryngodon idella*) as Controlled, at their July 24 meeting. Under the Wildlife Integrity Rules, the Wildlife Integrity Review Panel evaluated the risk to native fish and wildlife and concluded that, with appropriate controls, grass carp could be used to eradicate aquatic weeds with minimal risk.

The grass carp petition was filed by the Talent Irrigation District (TID) following development of an integrated aquatic vegetation management plan, which evaluated all methods of

controlling aquatic vegetation in irrigation canals. Grass carp are only one component of TID's aquatic vegetation management program.



Under the rules, grass carp can be used only with a permit from Oregon Department of Fish and Wildlife. Only sterile, triploid grass carp may be imported into Oregon, they must be free of parasites, and a grass carp management plan is necessary. Grass

carp will only be permitted in irrigation and drainage canals and private ponds less than 10 acres when complete eradication of vegetation is the management objective. Strict requirements were developed to prevent escape.

At the same Commission meeting, rules for importation of turtles were also adopted. The common mud turtle and musk turtle were classified as Prohibited, other turtles were classified as Non-controlled.

For additional information contact Larry Cooper (503-872-5260 x 5347). ♦

## Think Of Your Lake When You Landscape!

from the *Water Quality Protection Guide* by the Oregon Department of Agriculture

Healthy landscaping and gardens add to the beauty and value of a home. They can also help to keep our lakes and streams clean by allowing rainwater to filter into the soil rather than run off. Improper fertilization of lawns, gardens, and landscaping plants can cause water pollution. Fertilizer materials, including manures and composts, contain nitrogen and phosphorus. When these nutrients wash into lakes and streams they promote algae blooms and aquatic weed growth, which results in lower dissolved oxygen levels in the water, and may release ammonia, which is toxic to fish. When you are planting, fertilizing and taking care of your lawn or garden, take these pointers into account:

\* Avoid planting lawns all the way down to the stream. Leave a vegetated buffer area between the lawn edge and the stream. Buffers help to stabilize the shoreline, filter run off and thus improve water quality.

\* Test your soil to determine nutrient needs for your lawn and garden, helping you to avoid over-application. Contact your county extension office.

\* Apply the appropriate material at the proper time based on your soil test.



\* Use slow-release fertilizers, which provide a lower concentration of nutrients over a longer period of time.

\* Begin your lawn fertilization program in the fall. Fall applications promote deep, healthy root systems and hardy lawns.

\* Sweep all fertilizers, soil, and vegetation off paved surfaces. Fertilizers, soil particles, grass clippings and leaves contain nitrogen and phosphorus which can cause problems if washed through storm sewers or

places near waterways.

For information and assistance: contact your county extension office. ♦

## Backyard Conservation



The free, 28-page color **Backyard Conservation booklet** from the Natural Resources Conservation Service, National Association of Conservation Districts, and Wildlife Habitat Council, will show you and your family how to make your backyard a friendlier place for nature. In it you will learn how to use smaller-scale conservation practices such as composting, tree planting, terracing, water conservation and nutrient or pest management.

For your free copy call 1-800-LANDCARE; or visit the Backyard Conservation website and download it with Acrobat Reader: <http://www.nrcs.usda.gov>. ♦

## The Dangers of Boat Propellers

*From the Centers for Disease Control and Prevention; JAMA, June 17, 1998*

Approximately 78 million persons engage in recreational boating annually in the United States. Propeller-related injuries are only one type of injury that can occur during boating recreation, but a recent study in Texas indicates that boat-propeller-related injuries may be more common than previously reported.

Injuries from the propeller are typically multiple, deep, parallel lacerations that can result in permanent scarring, substantial blood loss, traumatic or surgical amputation, or death. Persons sustaining these injuries can require long periods of hospitalization, recovery and rehabilitation. In 1996, the U.S. Coast Guard reported that 4442 persons were

injured and 709 persons died in boating-related incidents in the U.S.; five of these deaths (0.7%) involved propeller injuries. A total of 171 persons were injured in incidents involving a propeller strike.

The Texas investigation by the Texas Department of Health and the Texas Parks and Wildlife Department, studied boat-propeller-related injuries in four lakes during May 24 - September 1, 1997, the time of year when boating activities are most common. During this time 13 persons sustained boat-propeller-related injuries, and three of these persons died. The most common circumstances surrounding these injuries were (1) getting into or out of the boat (five persons), (2)

participating in a water activity (personal watercraft use or skiing) (four), and (3) falling or being thrown from the boat (four). In all three deaths, the people were not wearing personal flotation devices. Approximately half of the nonfatally injured persons were admitted to the hospital.

This survey did not include all lakes in Texas, and therefore probably underestimates the number of boat-propeller-related injuries and deaths. Boating accidents are more common than we think. Most boat-propeller-related injuries result from operator error, and many of them are preventable. **Remember the safety measures and be careful!** ♦

### Boating Safety Measures

To prevent injuries that occur through contact with boat propellers, the U.S. Coast Guard recommends that boat operators:

- ✦ ensure that every passenger is wearing a personal flotation device.
- ✦ never operate a boat while under the influence of alcohol or drugs.
- ✦ keep the boat clear of marked swimming and diving areas and become familiar with the red and white or blue and white diagonally striped flags signaling that divers are in the area.
- ✦ ensure that passengers are properly seated before getting underway.
- ✦ never start a boat with the engine in gear.
- ✦ designate a passenger who will keep water skier(s) in sight at all times.
- ✦ never allow passengers to ride on a seat back, gunwale, or on the transom or bow.

Additional recommendations and information about boating safety is available from the Office of Boating Safety, U.S. Coast Guard Infoline; telephone (800) 368-5647, or at [www.uscgboating.org](http://www.uscgboating.org).

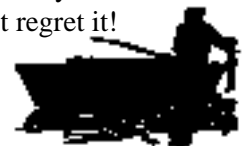
### Boat-Propeller Injuries in Oregon

In early September a boat-propeller-related injury occurred in Oregon. Boat-propeller-related injuries are less frequent in Oregon than in states with warmer water, but every year in Oregon there are 1-2 accidents involving boat propellers.

As in the study above, boat-propeller-related injuries in Oregon are usually a result from operator carelessness. The victim of the accident is usually associated with the boat.

Boat-propeller-related injuries are

severe and often deadly. It is extremely important that the operator of the boat maintain a proper lookout and follow the above safety measures. Be safe, or you might regret it!



# Oregon Lakes Association

Annual Meeting  
 23-24 October 1998  
 Diamond Lake, Oregon

## Problems and Opportunities in Southern Oregon Lakes

### Agenda

Friday, 23 October 1998

7 PM – 9 PM: Registration, Hosted Mixer, and OLA Business Meeting

Saturday, 24 October 1998

- 8:30 AM Welcome, Andy Schaedel, OLA President  
 Greetings from NALMS, Bob Storer, NALMS Region X Director  
 Keynote Address : Senator Veral Tarno,  
 Chair Senate Natural Resources Committee
- 9:00 – 10:30 Toxic Algae in Oregon Lakes  
 Dr. Michele Crayton, Pacific Lutheran University
- 10:30 – 10:45 Break
- 10:45 – 12:15 Klamath: Big Opportunities on Oregon's Largest Lake  
 A panel of perspectives
- 12:15 – 1:30 Lunch and Lake Watch Awards
- 1:30 – 2:30 Management of Diamond Lake: The Return of the Tui Chub  
 Dave Loomis, Oregon Department of Fish and Wildlife
- 2:30 – 3:30 Waldo Lake Status and Protection  
 Dr. Doug Larson  
 TBA, US Fish and Wildlife Service  
 Avis Newell, Oregon Department of Environmental Quality
- 3:30 – 3:45 Break
- 3:45– 4:45 Other Lake Issues: 5-minute Reports on Status and Problems by Lake Associations and Others
- 4:45 – 5:00 Conclusion
- 6:00 – 8:00 Mixer and No-host Barbecue

Contact Diamond Lake Resort,  
 1-800-733-7593  
 for accommodations  
 Meeting Rates:  
 \$50/night for rooms  
 \$88/night for cabins

**Questions?**  
**Contact Jim Carpenter**  
**carp@igc.org**  
**541-885-5450**

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### Registration Form

Early Registration Fee (Prior to 15 October)

Individual Membership: \$35.....	\$ _____	
Family Membership: \$45.....	\$ _____	
Corporate membership: \$75.....	\$ _____	

☞ Registration fee includes 1998-99 membership in OLA, the conference fee, and 1 Saturday lunch.

Late Registration Fee (after 15 October)

Individual Membership: \$45.....	\$ _____	
Family Membership: \$55.....	\$ _____	
Corporate Corporate Membership: \$85.....	\$ _____	

☞ Pre-register!!

Booths/Displays  
 Corporate members are invited to set up a booth or literature display

☞ **Free** with membership and meeting registration

Additional Lunches: \$15 x \_\_\_\_\_ = \_\_\_\_\_ \$ \_\_\_\_\_

☞ Add \$15 for each additional lunch.

Total for Conference.....\$ \_\_\_\_\_

Send registration form and payment to:  
 OLA  
 POB 345  
 Portland, OR 97207

Name:	Phone:
Address:	Email:

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**Do you have any funny anecdotes, poems or ruminations about lakes? Are there concerns about your lake that you would like to see printed in the newsletter? Maybe you would like your lake featured in Lake Wise.**

**If so, please contact Susanna Breiling at (503) 525-0037, or via email: [breiling@worldnet.att.net](mailto:breiling@worldnet.att.net). I would love to hear all your concerns, ideas, suggestions and lake stories! The deadline for the next newsletter is November 20.**

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23-24 October, 1998

***Oregon Lakes Association Annual Meeting***  
**Problems and Opportunities in Southern Oregon Lakes**

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