

LAKE WISE

PORTLAND STATE
UNIVERSITY

May
1997

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



Lake Watch News

by Mark Sytsma

Volunteers in the Lake Watch Program contributed over 600 hours to lake water quality monitoring for the State of Oregon in 1996 – a 50 percent increase over 1995. A report on last year's efforts should be completed and on its way to volunteers soon.

A number of interesting results have been noted in the 1996 data. For example, mean summer Secchi transparency in Clear Lake, the drinking water supply for the Heceta Water District, declined by about 25 percent in 1996 compared to 1995. Turbidity, however, did not increase in 1996.

There is no definitive explanation for the sudden decline in transparency in Clear Lake in 1996. One cause that is under investigation, however, is that a shallower thermocline in 1996 resulted in development of a layer of phytoplankton higher in the water column. Distinct layers of phytoplankton often de-

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**OLA's home on the
WWW**

<http://www.esr.pdx.edu/ola/>

Thompson's Resolution Prophetic

In February Representative Terry Thompson (D, Newport) introduced House Concurrent Resolution 7 (HCR 7). HCR 7 identifies the threat of non-indigenous aquatic organisms to Oregon's water resources, and urges the U.S. Congress to appropriate funds authorized under the National Invasive Species Act (NISA). NISA initiates a voluntary ballast water management program to prevent spread of non-indigenous organisms by ships, authorizes funds for research and management of aquatic non-indigenous species, takes a regional approach to prevention and management of aquatic pests, and calls for a program to prevent the spread of zebra mussels west of the 100th meridian.

NISA is the best chance Oregon has for federal funds for dealing with aquatic non-indigenous organisms. It authorizes, for example, \$1.5 million for aquatic weed management.

HCR 7 was passed by the Oregon House of Representatives and Senate. The signature of the Governor is expected.

Let's hope that Representative Thompson is not as prescient about zebra mussels as he was about green crabs. Green crabs were discovered in Coos Bay a few months after Representative Thompson warned of their eminent arrival in HCR 7. ♦

[See related story below]

Western Regional Panel Meeting in Portland

Portland State University will be the site of the initial meeting of the Western Regional Panel (WRP) called for by the National Invasive Species Act (NISA) on July 8 and 9, 1997. The meeting will be attended by representatives from tribes, 19 western states, four Canadian provinces, Guam, industry, state and federal agencies, and environmental groups.

The PSU meeting will include invited speakers on a number of important exotic species problems in marine and freshwater systems in the West. The

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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.

Big Creek Reservoirs: Susan Gage

Blue Lake : Koren Marthaller

Clear Lake: Elmer Waite

Cullaby Lake: Janette Goolsby

Devils Lake: Barbara Hagerman, Al Rice, Bill and Lorretta Vaughan

Diamond Lake: Ross Roberts, Chris Strahl

Fern Ridge Lake: Clarebeth Loprinzi Kassel, Joseph Kassel, Natasha Okonoji, Richard Locke, Cindy Thieman, James Bruvold, Marnee Comer, Lee Eggers, Randy Wilson

Fishhawk Lake: Jack Jenkins

Garrison Lake: Don Martin

H. Hagg Reservoir: Wally Otto

Hosmer Lake: Chuck Munson

Jubilee Lake: Paul Doucett

Lake of the Woods: Catherine Hayes, Katherine Kelly

Loon Lake: Richard Kaufmann, Steve Kaufmann

Mercer Lake: Ron Boehi

Morgan Lake: Yuji Matsumoto, Melinda McKibben, Dara Decker

Mt. Hood Lakes: Roy Iwai, Matthew Wood (PSU students)

Munsel Lake: Al Burhans, Roy Fisher

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

Odell Lake: John Milandin and family

Penland Lake: Lee Bogle

Siltcoos Lake: Elizabeth and Dean Kelly, Dennis Simmons, Dave and Linda Lauck, Paul Cornett, Ron Salat

Sunset (Neacoxie) Lake: Lee Smith

Tenmile Lake: Dean Anderson, William Emblen

Thornton Lake: Philip McFaden, Henry Pollak, Jack White

Timothy Lake: Jon Honea, Steve Mrazik (PSU students)

Woahink Lake: Bob Anderson

Lake Watch Program Notes continued from page 1

velop in oligotrophic lakes at the thermocline, where they can exploit the higher nutrient concentrations present in the hypolimnion and still experience light intensities adequate for photosynthesis. If the layer was shallower than the Secchi depth it may have influenced transparency and resulted in the lower Secchi reading in 1996. Elmer Waite is the volunteer at Clear Lake.

Mean summer Woahink Lake transparency has been declining at a rate of about 0.5 meters/year since 1993. The decline in transparency has coincided with an increase in the rate of oxygen consumption in the hypolimnion. Oxygen is consumed in the bottom water of stratified lakes by the decomposition of organic materi-

als, mainly phytoplankton cells, that fall down into this zone that doesn't mix with the surface water. If dissolved oxygen concentration drops too low, fish cannot survive and habitat quality is degraded. In addition, chemical changes can occur in the sediment that result in increased nutrient input into the lake that can lead to further degradation of water quality. The recent changes may be part of a long-term, climatically driven cycle in Woahink.

Fall turnover, complete mixing of the lake in the fall as surface water temperature falls, occurred in late August in 1996 and in early October in 1995. This early turnover may have prevented severe problems with dissolved oxygen in Woahink Lake in

1996. If turnover had occurred in October instead of August in 1996, the rate of dissolved oxygen depletion observed in 1996 would have resulted in a concentration in the hypolimnion of around 2 mg/L, the concentration at which sediment chemistry changes and internal nutrient loading occur. The early turnover in 1996 may have prevented a severe phytoplankton bloom in Woahink Lake in the fall of 1996.

Volunteers in the Corps of Engineers, Fern Ridge Lake voluntary monitoring program have identified changes in Fern Ridge water quality over the past 15 years. Compared to 1981, Fern Ridge water transparency is lower and total phosphorus concentrations higher.

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Ask the Lake Doc....

Dear Lake Doc:

I was driving down Highway 101 south of Florence last summer in my new BMW 540i with the windows down and the sunroof wide open. It was a beautiful day on the coast, and the boaters were out *en masse*. I was following a trailered boat that had just left Siltcoos Lake, when a 6-foot long strand of green, slimy gunk covered with creepy-crawly things blew off the boat trailer ahead of me. One end of the stuff plastered itself on my windshield while the other end came through the sunroof and engulfed my leather-wrapped, 6-speed gearshift lever. Bugs and water were splashed all over my Montana leather and burl walnut interior and "Comfort" 16-way power front seats with articulated upper backrest adjustment. My ultimate driving machine was beginning to look and smell like an aquatic botanist's field vehicle. What was that stuff and how can I avoid such unpleasanties in the future?

— Rattled in Reedsport

The Lake Doc Says...

Dear Rattled:

What you have experienced is unfortunately all too common in Oregon. The Lake Doc is amazed that you were able to control your vehicle after such a horrifying experience. It is likely that the handling characteristics of your vehicle saved your life (The Lake Doc will use this argument to convince the Lake Doc's spouse that The Lake Doc should own such a vehicle) The material that so crassly assaulted you while you were blissfully enjoying your driving experience was the noxious aquatic weed Brazilian elodea (*Egeria densa*). Boaters often transport these weeds from lake to lake on their boat. In fact, because these weeds are so dependent upon boaters for their distribution, there is a little known theory in evolutionary biology that Brazilian elodea coevolved with boats. This theory explains the plants lack of vegetative propagules and seeds that are the way other plants are dispersed in the environment. All the Brazilian elodea plants in Oregon, in fact, are males (The Lake Doc will not address here the controversial Sex-linked Noxious Character Theory advanced by The Lake Doc's spouse). Scientists at Portland State University have recently found evidence, using sophisticated Randomized Polymorphic DNA analysis, that all the Brazilian elodea in Oregon is genetically identical – the problems with Brazilian elodea in Oregon are caused by one individual. This individual can be found in nearly every coastal lake with a boat ramp. Although the cloning of sheep has recently made headlines, Brazilian elodea has been doing it in our lakes for a long time.

The Lake Doc's advice to you is that the next time you observe a case of boater/Brazilian elodea co-dependency that you flag down the driver and intervene immediately. Inform the boater that a relationship with this noxious weed is a destructive one for Oregon's lakes, reservoirs, and rivers. Explain to the boater that if the relationship doesn't end that it will inevitably lead to consorting with hydrilla, zebra mussels, and other nasty pests. Alternatively, you can keep the power windows up and the sunroof closed and depend upon your activated charcoal microfilter ventilation system, automatic climate control with separate left/right temperature controls, automatic recirculation control & CFC-free refrigerant, and Multi Information Display incorporating audio & phone controls & premium Onboard Computer for information on the ambient conditions.

— The Lake Doc

Seriously, if you have questions about your lake, write to: The Lake Doc, c/o Oregon Lakes Association, POB 345, Portland, OR 97207-0345.

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P.O. Box 751, Portland, Oregon 97207-0751; telephone: (503)725-4980; email: envir@sbii.sb2.pdx.edu

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

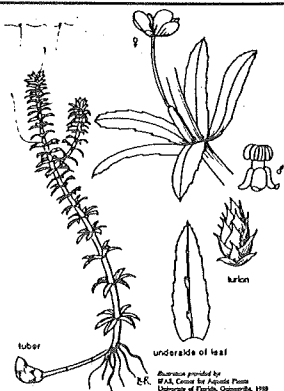
Increased Boat Registration Fees

Registering your boat in Oregon may cost more in the future. The Oregon State Marine Board has recommended a 19 to 43 percent increase in boat registration fees (HB 2117). The fee increase has passed the House and Senate.

The fee increase was justified by the Marine Board by a decrease in federal funding with an increase in the number of boaters and the need for law enforcement, facilities, and boater education efforts.

In many states, boater education efforts conducted by the agency that collects boat registration fees include an effective program for informing boaters about the threat of aquatic pests to the public waterways that all boaters enjoy. Boaters are the primary means of dispersal of many aquatic pests, like aquatic weeds, exotic fish, and zebra mussels.

The Tenmile Lakefront Owners Association attempted to amend the bill to require that some of the funds raised by the fee increase be used for managing the lakes and reservoirs that boaters use (42 percent of freshwater boater use days (1,238,127) in Oregon are on lakes and reservoirs). The attempt was not successful. ♦



If you see this plant, please call the
Hydrilla Hotline:
(503-986-4621)

Aquatic Vegetation Management Planning Project Begins

Portland State and Southern Oregon State Universities are beginning a multi-phase study that will result in a detailed management plan for aquatic weeds in irrigation canals in southern Oregon. Dr. Michael Parker, of SOU, will conduct the field investigations and Dr. Mark Sytsma, of PSU, will prepare the plan. The impetus for the study came from the May 1996 spill of herbicide treated water into Bear Creek, near Ashland, that resulted in a fishkill.

The Talent Irrigation District is interested in finding alternatives to the use of herbicides for control of the aquatic vegetation that blocks flow in their irrigation canals. The study will evaluate a number of potential management options, including the use of mechanical and biological control methods.

Triploid grass carp are notorious aquatic vegetation consumers, and have been used successfully to eradicate vegetation in irrigation systems across the West. Unfortunately, the weed-craving fish doesn't care if the plants are growing in a canal or a natural system, and if they escape or are introduced into natural systems they can eradicate the plants

that are food and habitat for a number of species of fish and wildlife.

Grass carp are prohibited in Oregon, except in Devils Lake, where they were introduced in the mid-80s as an experimental control. By 1994, the fish had eliminated all the vegetation in the lake, waterfowl and warmwater fish populations crashed, and water quality was degraded. On the plus side, the lake is weed-free and recreational use by boaters and skiers has been improved. Preliminary reports indicate that coho salmon populations may have improved in the Devils Lake system, perhaps as a result of the changes in the lake brought on by the grass carp.

The vegetation management plan that will result from the study will consider other non-chemical plant control methods as well, including removal of the sediment that provides the rooting substrate for the weeds and physical removal of plant biomass.

The plan will be completed by January 1998, and the recommended changes in vegetation management in the Talent Irrigation District are expected to be implemented in the summer of 1998. ♦

WRP Meeting continued from page 1

WRP will be organized on the second day. Goals of the WRP will be defined, a draft charter for the organization will be produced, and a work plan for 1998 will be developed. The WRP will coordinate and prioritize activities in the West under NISA. Contact Dr. Mark Sytsma (503-725-3833) for additional information ♦

Lake Watch Program Notes continued from page 2

The monitoring of water quality in Clear Lake and Woahink Lake by Lake Watch volunteers provides the only documentation of these changes. DEQ has cut the Lake Watch Program budget by approximately 62 percent this year. Volunteer efforts are even more important in lean budget years. Keep up the good work. ♦

Know Your Water Rights

Water adjudication, prior appropriation, water transfers, beneficial use, water permits, public interest criteria, reserved water rights, instream flows, groundwater recharge, return flows, and abandonment of a water right – to many western landowners the terminology of water rights is mysterious. To more westerners than might admit, it is virtually meaningless. The complexity of water rights laws and rules makes the language daunting to the average landowner.

A Landowners Guide to Western Water Rights addresses many important questions by examining western water rights from a broad perspective. The book answers questions such as:

- What is a water right? When do you need one? Why should you apply for one?
- Why is the West so preoccupied with water rights?
- What different systems are used to allocate water in the United States?
- What makes the western water rights system special?
- What is a general stream adjudication? In which western states are adjudications being conducted?
- What are reserved water rights? How are they special?

- In what ways are western states' water rights systems similar? How is each one unique?

The book is an easy to read and understand reference tool for landowners and anyone else who needs to understand the fundamentals of water allocation in the western United States.

The guide will help readers know when they need a water right and help them be prepared should a dispute occur. It covers Oregon and 17 other western states.

Available from The Watercourse, POB 170575, Montana State University, Bozeman, MT 59717-0575. 406-994-5392. The cost is \$16.95. ♦

OREGON LAKES ASSOCIATION NEWS

Notes from the OLA President

Andy Schaedel

OLA recently had two board members resign: Jack Jenkins, Director and Stan Geiger, President-Elect. Stan reconsidered his resignation and indicated that he would be willing to continue on the board as a director and has received board approval. Jack indicated time commitments relating to his profession as well as involvement with Fishhawk Lake leaves little quality time to contribute to the OLA. Jack will be missed as he provided a valuable lakefront property owner perspective that is needed on the board.

The OLA Board is looking for members that are willing to serve in a leadership position. The next election is coming up soon and we are looking for members that are interested in serving in any one of the following positions: President, President-elect,

Secretary, or Director. If you have any interest, please contact me (Andy Schaedel - (W) 503-229-6121, (H) 503-246-0952, e-mail: andrew.l.schaedel@state.or.us). I will explain the duties of the positions and respond to any other questions that you may have. The qualities any candidate should have include a sincere interest in protecting and addressing concerns related to Oregon lakes and time to commit to the organization.

At the April 30th Board meeting, the Board discussed the need to reconsider the direction and structure of OLA. We believe that the Goal and Objectives of OLA are sound and that OLA has been successful in its 7 years of existence (formed in 11/90), achieving a number of accomplishments that would have been difficult

for any one agency, institution or lake association to achieve by itself. The primary accomplishments center around the conferences and newsletters that have increased awareness regarding lake management and bring people together. We have made some progress identifying issues (position papers), working with agencies (e.g. forums at meetings and conferences), working with the legislature (e.g. Phosphorus detergent ban, identifying the need for an aquatic weed control program), in making educational materials available (e.g. Lake Resource Library) and in appealing to the science side of us (NW Science issue). Much of this has happened through individual effort at key times and through the collective energy (or collective focus on lakes) that OLA

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A Useful Water Quality Guide

by Richard Petersen

Clean Water: The Citizen's Complete Guide to Water Quality and Water Pollution Control, by Kenneth M. Vigil, P.E., lives up to its title. It is a handy guide to the citizen on one of the most important issues of the day, water quality. The book is well organized. Introductory chapters describe the hydrologic cycle and the natural processes which affect water quality. Chapters 3 and 4 describe the most important sources of water pollution and the means for their prevention. Chapter 5 presents a succinct summary of water quality regulations. The book closes with chapters on the watershed approach, the specific concerns about drinking water, and the need for personal action on the part of citizens. At the end of the book are a handy glossary and an index.

The author is careful to stay with easily understood explanations but without leaving out any important topics. Technical terms are used as necessary, but are well defined and explained as they come up. For readers who want more on the topics raised, a reading list is appended at the end of each chapter. The reading list is a useful device for extending the value of the book. The book avoids unnecessary jargon and explains the main concepts, but the reading list provides a bridge to the more technical literature for those who wish to learn more about a particular topic.

Although the book repeats the old saw that lakes "age" to an inevitable bad end, so-called natural eutrophication, overall it is free from errors and provides a trustworthy source of information for the layman. (In fact, lakes are the product of their climate, shape and the materials coming from their watersheds. Lakes protected

from pollution may become more pristine with time rather than more productive as implied by the "aging" model.) The explanation of technical terminology is deft and provides the reader with a well-focused vocabulary for understanding the important issues.

One of the most attractive features of the book is that it is a guide to action for interested citizens. The author explains the laws that have been passed to protect water quality (and the logic behind the laws) and provides valuable suggestions for individual action where it is needed. For example, the author points out that citizens may contribute to the updating of state water quality standards, required every three years under the federal Clean Water Act. Current programs in Oregon that depend heavily on local direction and participation, e.g., Watershed Health and Salmon Restoration, provide other opportunities for citizen involvement.

The book closes with a final chapter (chapter 8) entitled "Getting Personal about Clean Water". In this chapter, the author explains the various ways in which we can all contribute to the solution of water quality problems. This emphasis on involvement and understanding is perhaps the most attractive feature of this Guide to Water Quality. For anyone looking for a useful explanation of the issues of water quality management in an easily understood format, this book should be of interest.

The book may be ordered from Columbia Cascade Publishing Company, Department P1, P.O. Box 42412, Portland Oregon 97242; 503-234-9375; cocascade@aol.com. \$16.95 + shipping. ♦

Boater Safety Course offered

Boat Owners Association of the United States (BOAT/U.S.) has launched a safety course on the web. The course is a 50-question, self-teaching skills test.

Internet users access the skills test by logging on to the BOAT/U.S. web site, <http://www.boatus.com>. A study guide and glossary of boating terms are provided. If an incorrect answer is chosen, the correct answer is displayed.

Scores are generated automatically and students can take the test as often as necessary to pass. A passing grade will be rewarded with a boating safety certificate, which can be printed as proof of their achievement. ♦

Notes from the OLA
President continued from page 5

offers.

However, there is more that OLA can do. Much of what OLA has accomplished has fallen on a few members. We need to have the involvement of more members who can bring in new blood, ideas and energy into the leadership and activities of the organization. The Board will be exploring ways in which we can best do this and will report back to the membership at the annual meeting this fall. If you have suggestions, please contact me at the numbers listed above. If you are interested in working on the annual meeting for this fall, please contact Stan Geiger ((H) 503-244-9966, (W) 503-274-9000, e-mail: nsgeiger@msn.com) or Bob Storer ((W) 541-994-5330, email: bstorer@wcn.net). ♦

Giving Wood Ducks a Place to Nest

Unlike other waterfowl nesting in the Northwest, wood ducks almost always seek a tree cavity in which to deposit their eggs. The selected nesting tree usually borders a stream or lake, but "woodies" may nest a mile or more from water. The lack of suitable natural nesting sites has led some Citizen Lake Watch volunteers to construct boxes as a substitute in areas used by wood ducks. Of the hundreds already placed in Oregon, wood ducks have used a high percentage. Others are used by owls, squirrels and bees. To achieve nesting success, a 4-inch thick layer of sawdust or wood shavings must be placed on the floor of the box.

The Oregon Department of Fish and Wildlife has prepared the following specifications and recommendations for building a wood duck nesting box, as shown below. Their address is PO Box 59, Portland, Or 97207.

Specifications:

1. Use rough lumber, weathered cedar preferred. Do not paint. If smooth or planed wood is used, tack screen inside box from floor to hole. A rough surface is necessary for ducklings to climb out.
2. Cut an oval hole, 4 inches wide and 3 inches tall, located 4 inches from the top.
3. Bore 2 or 3 - 1/4 inch holes in the bottom for drainage.
4. Extend the back board several inches above and below to facilitate fastening to a tree or pole.

Placement:

The nesting box may be placed in a tree. It should be at least 15 feet above the ground, facing toward the water, but away from prevailing winds, if possible.

A living tree should be chosen, as a dead tree is more likely to be blown down. Turn the nesting box so that its entrance is not obstructed by branches.

If box is placed on a post in the water, it should be above high water danger. High placement also eliminates some danger from ground predators.

Materials:

Rough 1" Lumber, 10' x 10"

Back 30" x 10"

Front 24" x 10"

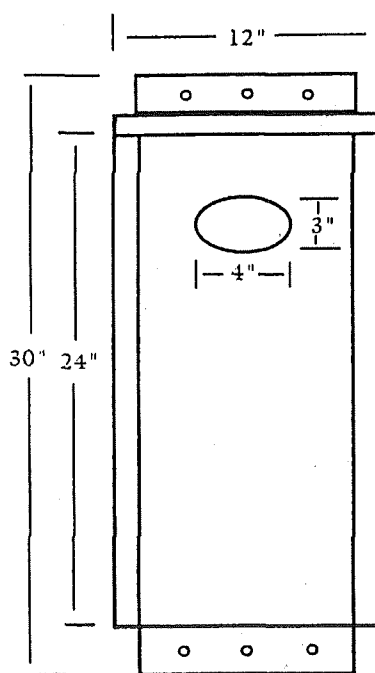
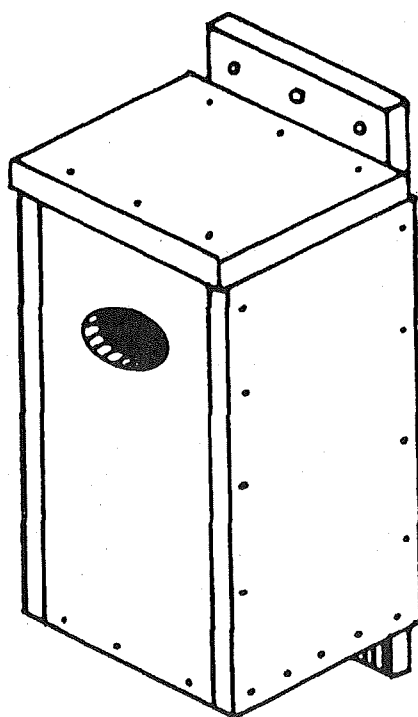
Sides 24" x 10"

Bottom 8" x 10"

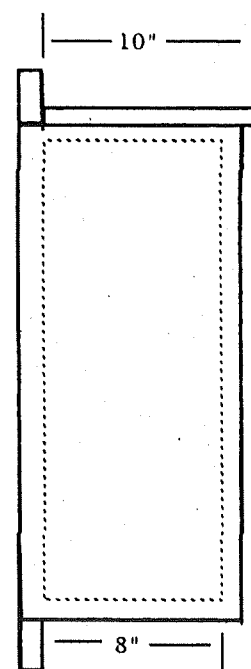
Lid 12" x 10"

Lid Cleat 8" x 10"

Galvanized Nails 29 each 8d –
13 per side and 3 in front
6 each 6d--6 in lid
as needed for mounting



Front View



Side View

Oregon Warm Water Game Fish Records

Bass, Largemouth

weight 11 lb 9.6 oz
length 25.5 inches
girth 21.25 inches
date 4/15/94
location Farm Pond; Butte Falls
angler Randy T Spaur

Bass, Smallmouth

weight 6 lb 14 oz
length 21 inches
girth 18 inches
date 9/15/89
location Columbia River
angler Reuben Klevgaard

Bluegill

weight 2 lb 5.5 oz
length 11.75 inches
girth 14 inches
date 5/12/81
location Farm Pond near Prineville
angler Wayne Elmore

Green Sunfish

weight 0 lb 11 oz
length 10 inches
girth 9.25 inches
date 4/25/91
location Umpqua River near Tyee
angler John L. Baker

Redear Sunfish

weight 1 lb 15.5 oz
length 13 inches
girth 12.75 inches
date 8/1/92
location Reynolds Pond near
Redmond
angler Terence C. Bice

Pumpkinseed Sunfish

weight 0 lb 5.1 oz
length 7.13 inches
girth 7.13 inches
date 6/12/88
location Lake Oswego
angler Jeffrey Crump

Warmouth

weight 1 lb 14.2 oz.
length 11 inches
girth 12.75 inches
date 12/27/75
location Columbia Slough
angler Jess Newell

Crappie, Black

weight 4 lb 0 oz
length 18 inches
girth 15.75 inches
date 5/1/78
location Lost River, Klamath Falls
angler Billy R. Biggs

Crappie, White

weight 4 lb 12 oz
length 18.5 inches
girth 17.75 inches
date 5/22/67
location Gerber Reservoir
angler Jim Duckett

Yellow Perch

weight 2 lb 2 oz
length -
girth -
date 6/5/71
location Brownsmead Slough
angler Ernie Affolter III

Walleye

weight 19 lb 15.3 oz
length 37 inches
girth 21.5 inches
date 2/20/90
location Columbia River up from
John Day Dam
angler Arnold R. Berg

Hybrid White Bass

weight 15 lb 4 oz
length 28.75 inches
girth 22.5 inches
date 1/26/94
location Ana Reservoir
angler Mike Sabin

Bullhead Catfish

weight 3 lb 6 oz
length 20 inches
girth 11.88 inches
date 6/10/86
location Brownlee Reservoir
angler Loretta Fitzgerald

Channel Catfish

weight 36 lb 8 oz
length 38 inches
girth 22 inches
date 9/17/80
location McKay Reservoir
angler Boone Haddock

Flathead Catfish

weight 41 lb 0 oz
length 38.63 inches
girth 34.25 inches
date 8/22/88
location Snake River near
Farewell Bend
angler Edward F. Moyer

White Catfish

weight 15 lb 0 oz
length 30.25 inches
girth -
date 4/22/89
location Tualatin River

As compiled by Oregon Bass & Panfish Club, Inc. Revised May, 1994

LAKES AND RESERVOIRS PROGRAM
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PORTLAND STATE UNIVERSITY
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PORTLAND, OREGON 97207-0751

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Andy Schaedel
ODEQ
10631 SW 64th Drive
Portland, OR 97219