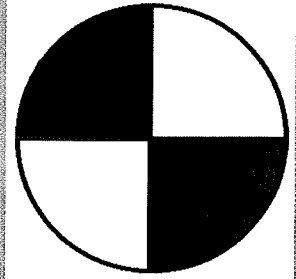


June 2004

LAKE WISE

A Voice for Quiet Waters



The Oregon Lakes Association Newsletter

O L A ANNUAL MEETING

Phoenix In in Bend, OR

September 25, 2004

President's Perspective

Lori Campbell, Lincoln City:

The 17th Annual National Conference on Enhancing the States' Lakes Management Programs was held in Chicago this April. The Environmental Protection Agency in cooperation with NALMS sponsored the meeting. Individuals from both statewide lake management associations and lake program managers participated. Director Joe Eilers was the OLA representative attending this important conference.

Plans are being made to celebrate Lakes Awareness Month in July. The NALMS promoted Lake Awareness Month, now in its fifth year, offers an excellent opportunity to highlight our lakes through various activities. To draw attention to the value and importance of lakes and reservoirs, OLA and the North American Lake Management Society will be again promoting Lakes Awareness Month. The event will be celebrated throughout the United States and Canada and coincides with the Great American Secchi Dip-In. The Dip-in, sponsored by NALMS and the U.S. Environmental Protection Agency, organizes citizen volunteers to measure water transparency with a simple device called a Secchi disk. Plan on attending a Lakes Awareness Month celebration this summer.

In Lincoln City, Devils Lake water quality monitoring shows high nutrients and chlorophyll. The Devils Lake Water Improvement District, charged with

managing for water quality, takes a multi-task approach to improving lake conditions. The District is involved in educational activities that includes a community newsletter, promoting native gardening and planting projects in the watershed, and works with lake awareness programs with schools. The District also coordinates with a local watershed group on volunteer events and water quality monitoring. The District in coordination with members of the watershed council and the community is currently planning events for Lakes Awareness Month including local presentations, watershed activities and participation by officials in the Secchi Dip-In.

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An Updated Atlas of Oregon Lakes

Richard Lycan Portland State University:

The original Atlas of Oregon Lakes was published in 1985 by Oregon State University Press. From 1985 to 2001 approximately 7,000 copies of the atlas were sold, in hard and soft cover editions, but it now is out of print. The work was funded with money from the Federal Clean Lakes program that was intended to provide state by state inventories of lake water quality. A considerable amount of field data collection was accomplished to fill gaps and provide more current information. Surveys were carried out to produce new depth maps for many lakes. The intended audience included scientists interested in lakes, public officials with responsibilities for lakes, sportsmen who use lakes and the public who simply value lakes for conservation or aesthetic reasons. It likely is not a coincidence that several of the principals were from the upper Midwest, born in the lands of lakes. The limits of print publication meant that a finite number of lakes could be presented. The obvious lakes like Crater Lake were included but to give regional representation some seldom visited arid lands reservoirs also were included. Only a representative sample of the numerous gems in the Cascade and Wallowa mountains could be included.

We don't have clear evidence of who the users of the Atlas were. It did get a fair amount of publicity in the outdoor sports media, including a recommendation in *Outdoor Life*. Anecdotal information suggests that many copies were bought by sportsmen. The narrative provided for each lake was written in a way such that the general information came first and the technical detail was in the ending paragraphs. The information on location, access, the depth maps, and the photographs all would have been of interest to sportsmen. Because it was published by a university press it would have been purchased by libraries across the country providing access to the general public and to specialists. We have anecdotal information to the effect that planners and other public officials whose responsibilities involved lakes in some way made use of the

volume. One factor that may have limited the sales of the publication was that large sporting goods vendors insisted on larger wholesale discounts than the OSU Press could provide.

We believe that the Atlas of Oregon Lakes is a somewhat unique publication. Other states carried out the same type of lake inventories that Oregon did under the Clean Lakes program but we are not aware of a similar publication resulting from those efforts. The University of Alberta and the Alberta government did produce a similar Atlas of Alberta Lakes during the 1980's and credit the Oregon lakes atlas as their inspiration. Many states do make lake depth maps available to the public, now over the internet. These maps do not include the accompanying photos, data, and narrative that the Oregon atlas did but the depth maps often are larger and more detailed than those in the Oregon atlas. A number of commercial sources also provide depth maps for the public, for example those of the New England area published by DeLorme. Many fishermen now use digital depth maps in conjunction with their GPS systems and vendors of these products now cover many large inland lakes.

If a new Oregon Lakes Atlas were to be produced there are number of improvements that could be included, for example:

- More detailed depth maps could be presented. The use of GPS for determining the location of a depth sounding permits the production of more accurate depth maps. Many of the maps in the 1985 atlas were generated from a rubber raft and triangulation of shoreline landmarks. The effort required to map lakes is somewhat reduced although just getting there and running transects takes time.
- More current physical, chemical, and biological data can be presented. After 20 years more current information is available. Also better instrumentation and measures allow for more accurate or more appropriate measures.
- More photo imagery could be presented of the

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Atlas update (cont.)

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lakes and their watersheds. In 1985 satellite imagery was expensive and of limited resolution. Today all of Oregon is covered by multiple layers of satellite imagery, much of which can be obtained free from the internet. In addition land elevations and the line-work of maps also is available electronically making the creation of maps much less time consuming and expensive.

- The 1985 atlas was done at the early stages of computerized data management. The text was written on a word processor and some of the graphs were drawn using a computer and a plotter. Today GIS tools can be used to more efficiently manage the information about lakes and their watersheds and to link directly to the graphic images used in an atlas. This results in lower production costs and lower cost means more ground can be covered or presentations can be richer. The use of computer based graphic design tools would greatly reduce the time and cost of producing a new lakes atlas.

The 1985 atlas included an introductory chapter on limnology and lake water quality. We suspect that most users of the atlas purchased it for the detailed pages on lakes but hope that the introductory material served to educate some. The scope of this chapter could be expanded to cover a variety of issues including chemical contamination of lakes, introduced species, ownership, and human use of lakes. There might be a market for a separate book on Oregon lakes dealing with management issues that would be a more narrative product and less an atlas.

The PSU Center for Lakes and Reservoirs has put an electronic version of a lakes atlas on line for some of the central coast lakes. This format for presentation has a number of advantages:

- Data and maps for lakes can be made available to the public as research is completed, rather than having to wait for a book size batch.
- Lakes can be updated as newer information becomes available. The web pages can be linked to databases.
- Data can be downloaded to the user's computer

making it available to be transformed into other applications

- Page size and count limits do not limit the publication of data as in the case of print publication.
- The use of color is free whereas it remains an extra cost for print publication
- Users can find and access the data quickly and find it through the use of search engines.

There are some advantages to more traditional print publication as well:

- Some persons simply want hard copy. It may be more efficient to buy a book than to print many pages.
- Book sales outlets provide a mechanism to recover revenue.
- Book or other hard copy may be more easily used on the lake.
- Recognition to the authors may be greater for print publication

Book and electronic publication can coexist but it requires some planning to do both simultaneously. The recent very popular Atlas of Oregon, University of Oregon Press, is available in print, CD ROM, and partially in on-line form. It is the thinking of the authors of this volume that the various modes of publication are more complementary than competitive.

The 64,000 dollar question is what might it cost to produce an atlas that included a substantial number of lakes, say as many the 202 in the 1985 Atlas. The 1985 Atlas was done based on a \$100,000 grant but including the contributed time the cost might have been twice that. I was told that the cost of producing the Atlas of Alberta Lakes was over \$500,000. The cost for producing lake by lake pages would be somewhat greater if it was designed for print publication than for internet distribution. Print publication would require higher quality maps and photos in order to appeal to the potential buyer although publication quality pages also could be delivered on line to the viewer but would

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Respect your Lake

Roger Edwards, Portland

How does a community show its respect for a lake? This question is frequently the subject of heated debate in lakeside communities. The proximity of the two indicates the community founders recognized the benefits of locating there. But these benefits went to the founders and were likely at the lake's expense. With time, the relationship would grow more respectful because poor stewardship is a direct path to intolerable conditions. Remediation efforts come close on the heels of widespread public disgust. It follows then that good stewardship is one element of respect.

Communities are attracted to a lakeshore because of the competitive advantages to be found there. Passive defense, water supply for homes and gardens, a possible power source, food availability, transportation, moderating temperature extremes, and aesthetic beauty are among the attractions of a lake location. The communities that utilize these features draw more envy than criticism so enhancing public good must be included as an acceptable part of respect.

The ill will and finger pointing that surface in the wake of poor decisions defines another aspect of respect. It must address the long term.

What of cultural heritage? This question is not specific to lakes but regardless, the issue should be addressed in the proportion that the event, person, or item continues to be relevant in the community. Could an event, person, or item be so profound that a lake should remain untouched forever? The protection given Crater Lake comes close to this extreme. Even so, there are roads, a new lodge, boat rides, and intense scrutiny there. While these amenities are limited, they are equally available to all. It seems we can add public access to our list of tributes.

Retaining public access to the shore of a lake is a key feature of community respect. Without this free access, it is hard to maintain an active link be-

tween lake and community because the opportunity for a lake experience is too strictly defined. Consider the example of the Oregon coast and its open beach law. If ocean access were only available for a fee, would people still eagerly drive a hundred miles or more to enjoy the surf and sand?

There are some other very good reasons to keep lakeshores public. Lake levels fluctuate seasonally and from year to year. Limiting lake front developments minimizes property losses from flooding and disappointments that come from drawdowns. When the lake perimeter is publicly owned, it becomes simpler to keep a proper and adequate riparian habitat in place around the lake. Such a buffer zone is also added protection from upland septic systems and could even accommodate the placement of gravity flow, interceptor sewer lines when conditions warrant. The issue of private dock design and maintenance does not come up when the shoreline is public, but the greater demand for space at centrally located docking facilities helps to keep these docks in first rate condition.

The Oregon Lakes Association cannot issue a condemnation on permitting lake view property to be sold. OLA members know all too well the great value of these vistas. We understand too that these properties are a tangible asset, and that they will always have eager buyers. We watch with interest as the commissioners in Wallowa County and elsewhere consider this issue and seek to find the balance that makes sense for them.

Atlas update (cont.)

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require more band width to transmit. In general, the result of better tools for gathering and organizing data and for preparing documents has resulted in better products more than it has resulted in lower costs. Some costs, such as those for thinking, conferring, and writing have not declined over time.

Bureau of Reclamation Lakes in Oregon

Roger Edwards, Portland

There are 27 reservoirs or lakes in Oregon that are under the jurisdiction of the Bureau of Reclamation. Most of these are reservoirs they created to fulfill their Congressional mandate to "reclaim" western lands for human use. Reclamation is an unusual federal bureau in that it is not part of a hierarchy; it is a direct extension of Congressional will. It was authorized in 1902 as the western states sought public works projects like those enjoyed in the rest of the country. Water was a limiting factor for farming and settlements in the arid west. Capturing snowmelt and winter runoff was considered to be a way this restriction could be overcome, but the financial backing and engineering skills to produce these improvements were not readily available. The US Reclamation Service was established to fill this need and was initially made a part of the US Geological Survey. To ensure the projects would encourage new settlers to establish family farms, safeguards to prevent speculation in the area to be irrigated were included in the original legislation. The costs of its construction projects were to be repaid through the sale of the water impounded. By 1907, when the organization was made an independent Bureau within the Dept. of Interior, there were about 30 projects underway. Some of the projects in these early years were not unqualified successes because the availability of irrigation water does not compensate for other considerations such as soil fertility, choice of crops, irrigation practices, or the like, making recovering construction costs problematic. There were some adjustments, and the agency was renamed the Bureau of Reclamation in 1923. In 1928 it was awarded the responsibility of building Hoover Dam. This and the Depression era projects to follow set the tone for Reclamation projects in the 35 years after World War II.

The 1976 failure of the Teton Dam in Idaho brought unwelcome attention to Reclamation. This collapse, coupled with growing environmental concerns, led to a major reorganization of the Bureau.

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The 1976 failure of the Teton Dam in Idaho brought unwelcome attention to Reclamation. This collapse, coupled with growing environmental concerns, led to a major reorganization of the Bureau. Emphasis was shifted from construction to the operation and maintenance of projects. Safety inspection

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Bureau of Reclamation Lakes (cont.)

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tions of dams were a key element of the new focus. The emphasis now placed on operation and management brought a 1992 requirement for Resource Management Plans to guide the operation of those projects where resource allocation or multiple uses raised a question of management direction. The RMP is a ten year forecast that solicits public concerns, addresses all environmental compliance requirements, and seeks to balance issues of resource development, recreation, and the protection of national and cultural resources.

The RMP's that have been produced to date are comprehensive documents providing detailed information about project lakes and reservoirs. As such they are highly useful references. They describe the interactions of agencies with overlapping jurisdictions and offer the hope that there will be coordination between agencies when needed. They discuss some contingencies that may arise and suggest how these problems might be resolved. The Plans are available at local libraries and Reclamation offices. The Prineville Reservoir and Henry Hagg Lake RMP's are also on the web at www.usbr.gov/pn. This website also contains substantial background information about all the different projects.

The Reclamation lakes and reservoirs still awaiting an RMP present an opportunity for future public input. OLA members with specific concerns should organize your thoughts. Over the years, Reclamation has inherited numerous dams constructed by irrigation districts or other entities. In the recent discussions about rebuilding the dam on Wallowa Lake, Congress directed that Reclamation be a part of that process. While the plan for this action is not yet finalized, it is a demonstration that it is pertinent for all OLA members to know something about the Bureau of Reclamation.

Bureau of Reclamation Lakes and Reservoirs in Oregon

	Project Complete	RMP Completion Date
Crooked River Projects		
Ochoco Reservoir	1949	
Prineville Reservoir	1961	Aug-03
Deschutes River Projects		
Crane Prairie Reservoir	1940	
Crescent Lake	1956	
Haystack Reservoir	1950	
Lake Billy Chinook	1964	
Lake Simtustus	1958	
Wickiup Reservoir	1949	
Eastern Oregon Projects		
Beulah Reservoir	1935	after 2005
Bully Creek Reservoir	1963	after 2005
Phillips Reservoir	1968	after 2005
Thief Valley Reservoir	1932	after 2005
Unity Reservoir	1939	after 2005
Warm Springs Reservoir	1919	after 2005
Klamath Project		
Gerber Reservoir	1925	
Lost River Reservoir	1912	
Owyhee Projects		
Lake Owyhee	1932	Apr-94
Rogue River Basin Projects		
Agate Reservoir	1966	Sep-00
Emigrant Lake	1960	Sep-95
Fish Lake	1915	
Fourmile Lake	1922	
Howard Prairie Lake	1958	
Hyatt Reservoir	1923	
Keene Creek Reservoir	1959	
Tualatin River Projects		
Henry Hagg Lake	1974	Feb-04
Umatilla River Projects		
Cold Springs Reservoir	1908	
McKay Reservoir	1927	

Update on Diamond Lake Water Quality Restoration Effort

Sherri L Chambers

Recent confirmation that exposure to anatoxin-a during a swim in an algae-filled pond caused the death of a 17-year-old Wisconsin boy poignantly accentuates the need to expedite addressing the declining water quality at Diamond Lake. The cyanobacteria, *Anabaena flos-aqua*, that produced the neurotoxins responsible for the first, confirmed death due to algal toxins in this country, is also the species producing potentially harmful algae blooms at Diamond Lake. The multi-agency Diamond Lake Work Group is well aware of the human health risks posed by toxic algae blooms. They have worked collaboratively for approximately two years to develop, evaluate, and implement feasible restoration solutions for the lake.

In April 2003, the Forest Service published a Notice of Intent to prepare an Environmental Impact Statement (EIS) for the Diamond Lake Restoration Project. The Oregon Departments of Fish and Wildlife (ODFW) and Environmental Quality (ODEQ) joined as Cooperating Agencies in the EIS process, and a suite of other state, federal and county agencies are providing technical expertise and recommendations for the project.

A draft EIS (DEIS) for the Diamond Lake project is scheduled for public comment beginning in late March 2004. The DEIS focuses on the dual objectives of improved water quality and an improved recreational fishery. Although periodic cyanobacteria blooms are a natural part of the lake's ecosystem, the current overpopulation of tui chub is considered the primary factor responsible for shifting the lake's ecology toward severe annual blooms. These blooms caused closure of the lake for the past three summers. Project limnologists conclude that the huge tui chub population has exerted a negative influence on the lake in two ways. One is by contributing large quantities of nutrients as waste products which support extensive primary production. The other is by "cropping" large zooplankton species that traditionally helped maintain a biological control on the lake's cyanobacteria.

Approximately 30 options for restoring Diamond Lake were explored and considered during the past year. Four alternatives are analyzed in detail in the DEIS including:

- **Alternative 1**, no action;
- **Alternative 2**, a rotenone treatment followed by a put-, grow-, and take-fish-stocking strategy using primarily fingerling trout;
- **Alternative 3**, a rotenone treatment followed by a put-and-take fishery using larger-sized fish (designed to minimize the potential impacts of the recreational fishery on water quality);
- **Alternative 4**, mechanical, commercial tui chub harvest in combination with a fish-stocking strategy using large, predacious fish (designed to minimize the potential impacts of a rotenone treatment on non-target species).

All action alternatives have a predacious fish-stocking component and appropriate fish-stocking levels would be determined based on biological indices and ODEQ's pending TMDL allocations for all of these alternatives. Jim Caplan, forest supervisor for the Umpqua National Forest, identified Alternative 3 as the preferred alternative for publication in the DEIS.

Dr. Mark Sytsma, director of the Portland State University Center for Lakes and Reservoirs, will lead a panel of independent, lake experts in a science consistency review of the DEIS. Results of the review will be used to enhance the quality of the scientific analysis in the final EIS scheduled for completion in late May.

The DEIS and supporting specialists' reports are posted on the Umpqua National Forest website http://www.fs.fed.us/r6/umpqua/rec/w_quality/index.shtml

A CD of the DEIS can be obtained by contacting the North Umpqua Ranger District at 541/496-3532.



The Oregon Lakes Association Newsletter

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OLA Mission: The Oregon Lakes Association, a nonprofit organization founded in 1988, promotes understanding, protection, and thoughtful management of lake and watershed ecosystems in Oregon. For additional information on OLA, to get involved, or to obtain a membership application write to: OLA, PO Box 345, Portland, OR 97207-0345

We are also on the web in color! www.oregonlakes.org

Opinions of those who contributed to articles in this Newsletter are judged by the Oregon Lakes Association Board Editorial Committee (S. Geiger-Chair, Mark Sytsma, and R. Edwards) to be typical of the diversity of opinions of those who have a scientific, economic and political interest in the lakes of Oregon. Comments praising or disparaging articles in this newsletter are welcome and representative comments will be considered for presentation in the next issue of *Lake Wise*. Advertisement in *Lake Wise* does not constitute OLA endorsement.

Lori Campbell (*President's Perspective*) Lori is Manager of the Devils Lake Water Improvement District, Lincoln City, Oregon. She is beginning her stint as President of OLA.

Dick Lycan (*An Updated Atlas of Oregon Lakes*) Dick is Professor Emeritus of Geology and Urban Studies at Portland State University.

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Roger Edwards (*Respect Your Lake, Bureau of Reclamation Lakes and Reservoirs in Oregon*) Roger, current Secretary of OLA, monitored the water quality of the City of Portland Bull Run Reservoir for the past 27 years.

Sheri Chambers (*Update on Diamond Lake Water Quality Restoration Efforts*) Sheri is the project leader for the restoration of Diamond Lake

THE ENTIRE H	OREGON INVASIVE SPECIES
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