

# OREGON LAKE WATCH



May 1991

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## 1990 CITIZEN LAKE WATCH PROGRAM

Scientific Resources, Inc. (SRI) has completed the collation and analysis of data collected as part of the 1990 *Citizens Lake Watch* (CLW) program for selected Oregon lakes as part of the Clean Lakes Challenge Grant sponsored by the Oregon Department of Environmental Quality (DEQ). The purpose of the program was to both continue and expand the collection of basic base-line water quality data on the lakes of Oregon so that any apparent long-term trends or changes in lake quality over time could be identified.

Monitoring data was received from sixteen volunteers who collected specific lake water quality data over the summer of 1990. Data was received from a total of five coastal lakes, seven Cascade lakes, Wallowa Lake in northeast Oregon, and Lake Oswego in the Willamette Valley. Many of those same volunteers will continue to monitor "their" lakes over the summer of 1991.

SRI wishes to sincerely thank all those persons who volunteered their valuable time to this important project. With over 6000 named lakes in the state, no one agency or interested group can generate the amount of lake data needed to make informed lake management decisions. It is our hope that you enjoyed the opportunity to contribute and to learn.

Many thanks to:

Glenda Flanik	Cullaby Lake
Jack & Helen Adams	Munsel Lake
Norman Dain	Mercer Lake
Joe Bakkenson	Sunset Lake
R. & C. Schmitt	Triangle Lake
Ernie Jacks	Triangle Lake
Bob Anderson	Woahink Lake
Gary Lovegren	Blue Lake
David Hamilton	Diamond Lake
John Hofferd	East Lake
Maxwell Peel	Hosmer Lake

Joan Frazee	Lava Lake
John Milandin	Odell Lake
Rick Petersen	Suttle Lake
Grover Reed	Timothy Lake
Chris Kern	Lake Oswego
Bob Barstad	Wallowa Lake

Thanks also to the following volunteers who did not submit any data, but indeed were enthusiastic and interested:

Ray Gates	Floras Lake
Remy Boots	Floras Lake
Fred McMillen	Garrison Lake
Marilyn Miller	Siltcoos Lake
Warren Stafford	Siltcoos Lake
Martin Tjomsland	Cultus Lake
Leroy Hackbart	Elk Lake
Bill Sisson	South Twin Lake
Dawn Kori-Bumpass	Timothy Lake

## Continuing the CLW program

DEQ is soliciting the assistance of additional CLW volunteers and the continuing participation of existing volunteers to continue the CLW program. If you or someone you know is interested, please contact Ms. Elizabeth Dimmick, Water Quality Division, DEQ at (503) 229-6305 or 1-800-452-4011.

## Data Uses and Project Perspectives

A number of volunteers expressed the concern that this was simply another effort to collect more data that would just be filed and not used. Not so! In conducting the historic comparisons, we discovered that the information for some lakes strongly suggests significant changes over time. This type of information is extremely valuable to decision makers, providing concrete evidence of changes in water quality conditions. There were other benefits received from the program. Volunteers generally live for extended periods of the year at their lakes. They contributed much knowledge about their lakes and the

lake watershed. This is the kind of knowledge others cannot learn in a single visit or a single season. In addition, volunteers learned to view and observe their lakes in a different way from taking the monitoring measurements through time.

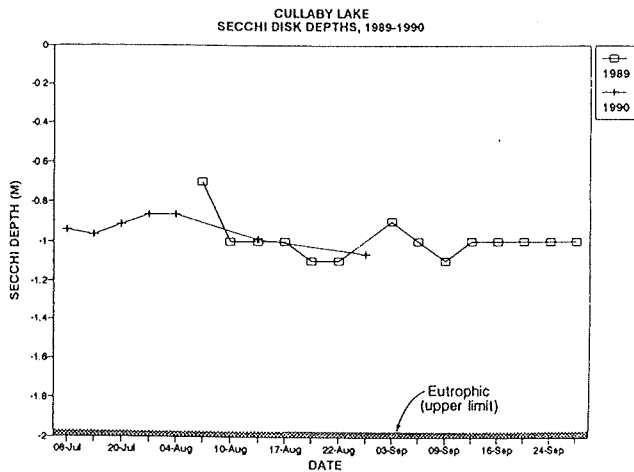
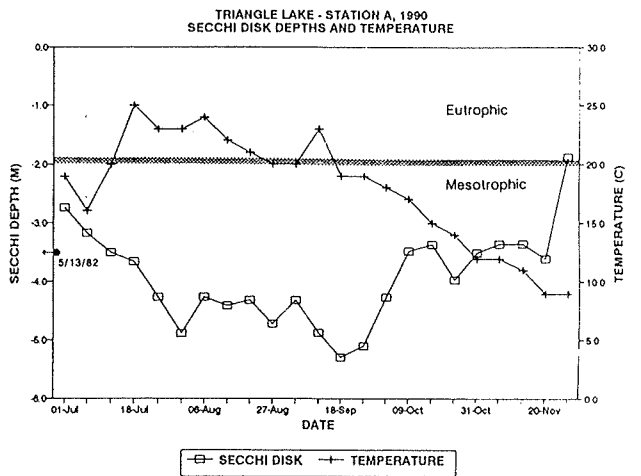
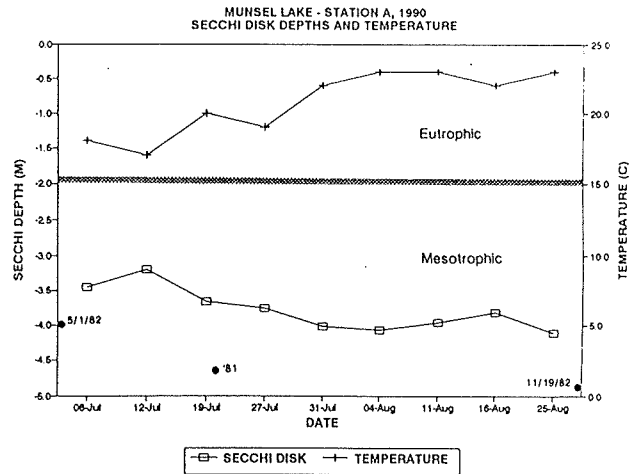
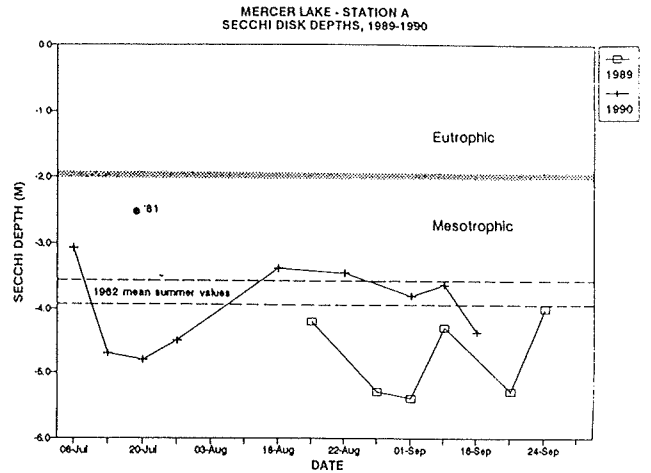
**1990 CLW Data Summary**

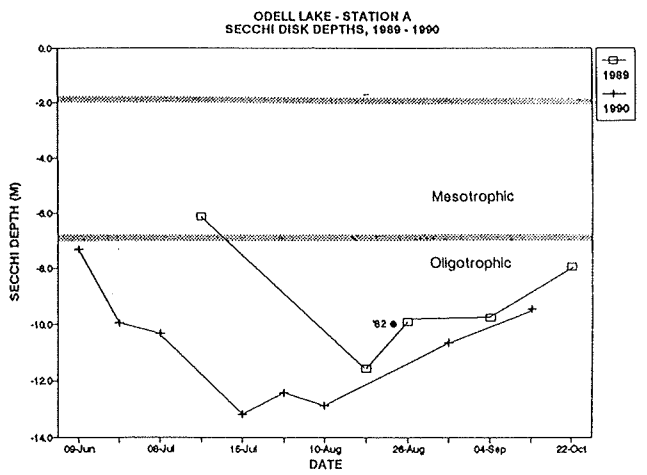
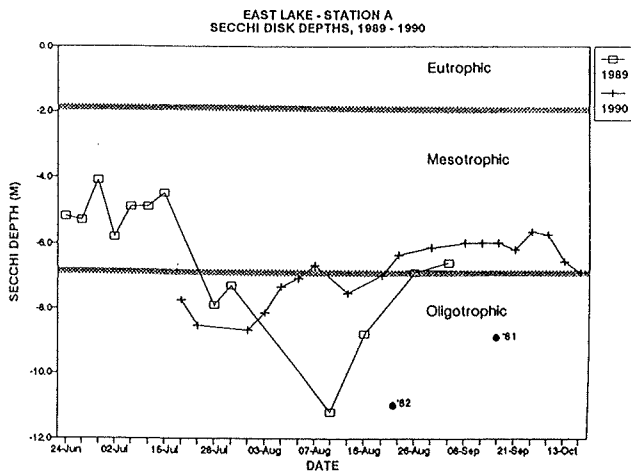
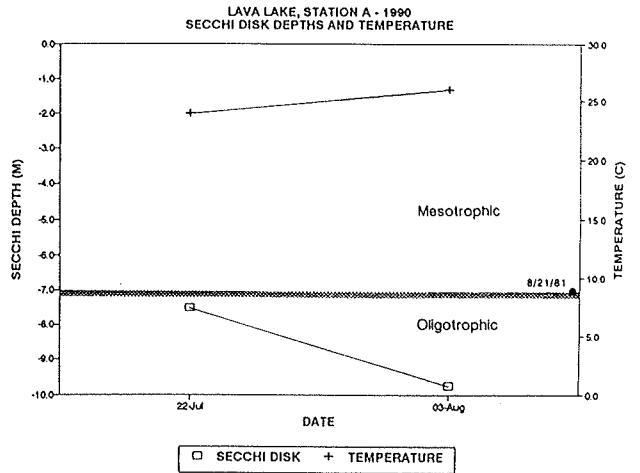
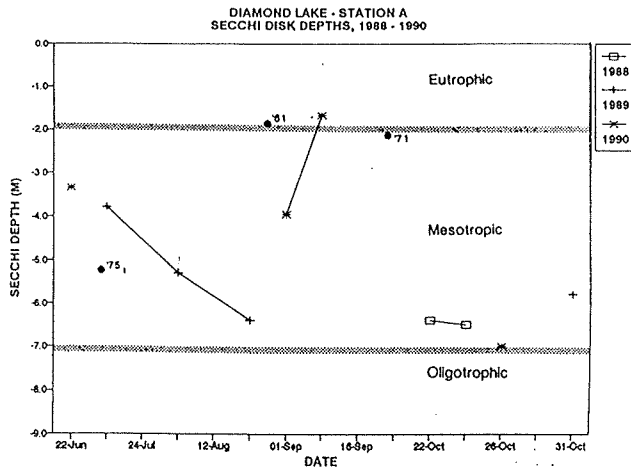
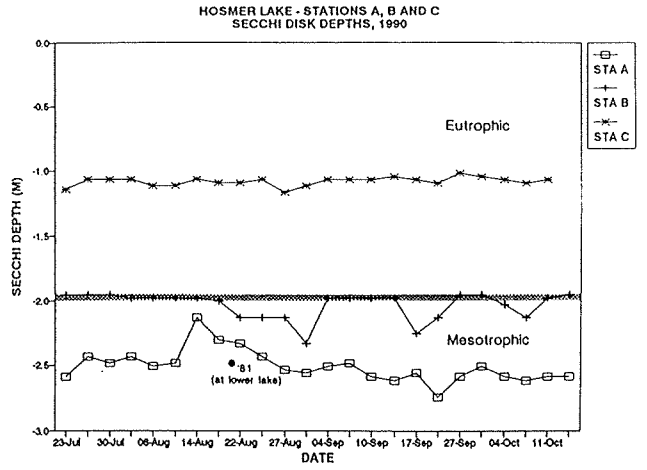
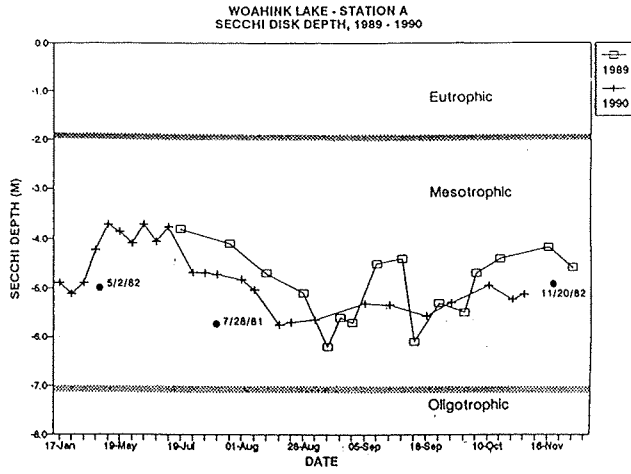
SRI has collated all data collected, and we have graphed lake transparency and temperature data over time to show changes in those measures. The data were compared to all available historic values, including 1988 and 1989 CLW data, so that an assessment could be made regarding any long-term changes.

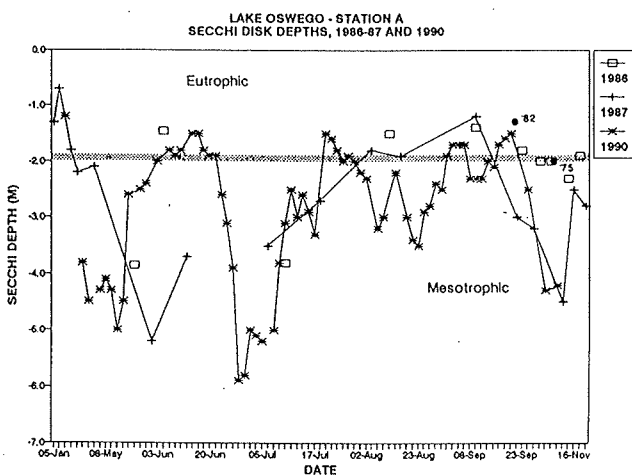
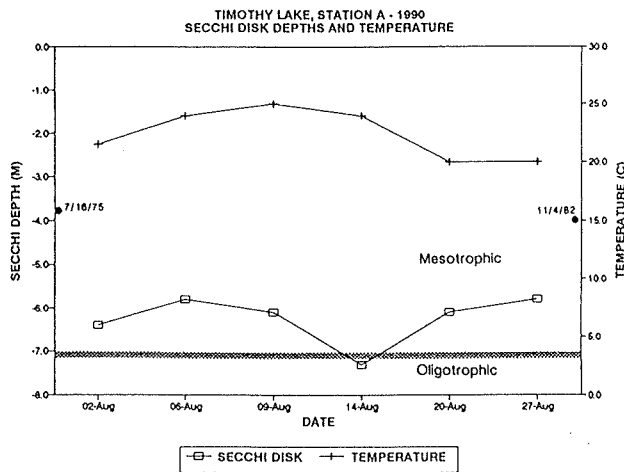
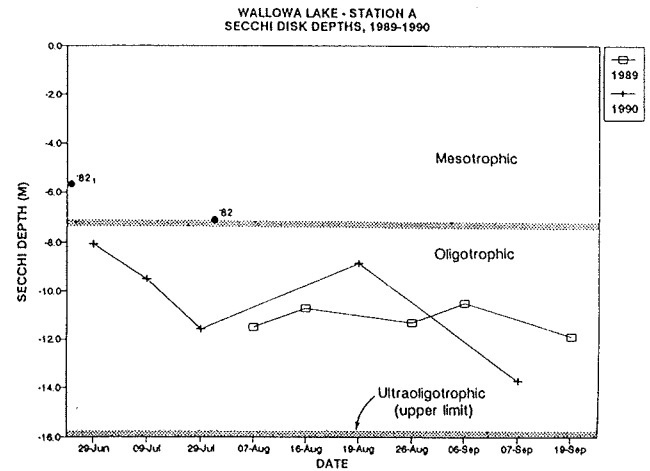
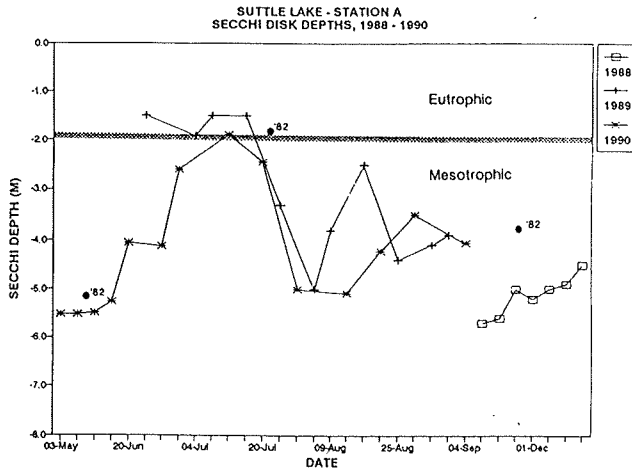
The following graphs are a selection of the most interesting data for the lakes monitored in 1990. The information presented includes secchi depth and in some cases water surface temperature. Many of the figures include past data and visual comparisons can be made to 1990.

Secchi disk measurements reflect the transparency of the lake water. Transparency is, in turn, a general measure or function of a lakes productivity. Empirical studies suggest, for example, that transparency is directly correlated with the amount of chlorophyll-a in lake water. Chlorophyll-a is produced by plants (including algae) growing in a lake. Transparency is also strongly correlated to a lakes trophic state index.

The vertical graph axis on the left represents water depths from 0-feet (the surface) on down to whatever depth includes the deepest secchi disk reading (the maximum depths shown on the graphs do not necessarily represent the maximum depth of the lake). So, the lower the secchi depth lines descend, the greater the transparency was.







As you can see, transparency varies over the course of a season. Some of the variation is attributable to lake turnover when, for instance in the spring, ice on a lake melts sending the colder, more dense surface water downward and is replaced by the relatively warmer deeper (hypolimnetic) water. Lake turnover also occurs in the fall when colder air temperatures cool the lake's surface, this water again becoming more dense than the hypolimnion, the surface water descends displacing deeper water which, in a relative sense, rises and the lake "turns over".

The mixing caused by lake turnover often has the effect of making the water more transparent because surface algae and other debris are carried downward or are at least mixed with a greater volume of water. On the other hand, and depending on the lake's depth, volume, and bottom configuration, lake turnover can cause short-term increases in phytoplankton productivity as nutrients that have settled-out to deeper strata are "welled up" to the photic zone where they can be utilized most efficiently. Under these conditions lake turnover can cause a decreased transparency.

Events and activities in the watershed or on the lake can also influence lake transparency. Activities such as logging, road building, residential development involving land clearing and/or excavation where insufficient erosion control practices are used can cause the addition of sediments (transported most often as suspended particulates) to the lake causing a murky color and an associated decrease in transparency. Algal blooms in spring and summer months can drastically affect transparency, causing the milky-green color so often mistaken for "polluted" water.

## OREGON LAKES ASSOCIATION NOTES

The *Oregon Lakes Association* (OLA) currently has 68 members. OLA is proud of its growth in their first year but they know that there are many more in Oregon who share interest in the state's lakes. To date, OLA members include recreationists, property owners, public agencies and non-profit organizations, local lake associations, academicians, and environmental consultants.

The OLA Board is issuing a challenge (The OLA CHallenge - sounds like a taste test doesn't it!) for the recruitment of the most members between May and September. Prizes (including an autographed edition of the *Atlas of Oregon Lakes*) will be given to those who recruit the greatest number of new OLA members. Additional membership forms have been enclosed with this newsletter. Simply handout the forms to friends, neighbors (if they are other than your friends!), co-workers and colleagues who share an interest in lakes. To help OLA identify prize winners, please note your name in the upper right-hand corner of each form handed out. Prize winners will be announced at the annual OLA meeting in Florence on September 21.

To help in the recruitment, tell potential members about what OLA has been doing during its first year. The following are some highlights:

1. OLA has sponsored legislation that would prohibit the sale in the state of laundry detergents which contain phosphorous (HB3321). A total of 4 bills that would essentially accomplish the same goal have been introduced (HB2985, HB 3321, HB3331, and SB915). Only SB915 has had a hearing at which OLA Director Dell Isham gave testimony. OLA has adopted a resolution of support for this legislation and has written letters of support to members of the Senate Agricultural and Natural Resources Committee. The OLA Board encourages its members to find out more about this legislation and send letters of support to their representatives.

2. OLA is currently putting together a "Directory of Lake Resources". This will be a directory that will list State, Federal, consulting, and university resources that have responsibility, expertise, and/or interest in lake management. It will also contain a list of OLA membership that will be updated annually and sent out when members join or renew their memberships. The directory is expected to be available this fall at the annual meeting. Anyone interested in working on the directory should contact Andy Schaedel (229-6121).

3. OLA has scheduled its annual meeting for Saturday September 21, 1991 at Driftwood Shores in Florence. The focus of the meeting will be Clean Lakes Program activities and issues of concern on Oregon coastal lakes. The OLA business meeting is scheduled for Friday night at which time new officers will be elected. The conference, which will include a lunch and poster sessions, will begin at 8:30 and will end at 4:30 on Saturday. A final program is being developed and will be available soon. Those who are interested in participating and/or helping out should contact Joe Eilers at 758-5777. A U.S. Environmental Protection Agency grant is being pursued to help support the meeting.

4. DEQ has asked OLA to review and make recommendations for improving the Citizens Lake Watch Program. Anyone interested in working with a technical group to review the program should contact Dr. Richard Petersen at 725-4241.

5. OLA is starting to gather information of other State Lake Management Programs and will examine the need and support for an Oregon Lake Management Program. Ela Whelan will coordinate this effort. Anyone interested in this activity should contact Ela at 684-9097.

6. Anyone interested in serving as an OLA officer or NALMS officer (including Regional Director) should contact Andy Schaedel (229-6121).

7. OLA Director David Smith from Lincoln City has been contacting individuals who live on coastal lakes to encourage their involvement in OLA. David is starting to gather information on developing Lake Associations and what homeowners can do to protect their lakes. Anyone who is interested in this project should contact David at 479-5541.

Those who want to express your interests in a practical way for better Oregon lakes should pitch in and join OLA. For membership information call the Secretary, Stan Geiger. The price is right. The number in Lake Oswego is (503) 245-4068. If you are interested in joining send dues and information to: Oregon Lakes Association, P.O. Box 586, Portland, OR 97207.

## EDITOR'S NOTES

I have had the pleasure over the past year to work with those volunteers that took the time to participate in the Citizens Lake Watch Program. That is just exactly who they are - citizens who watch and learn from their lakes. They are lakeshore homeowners, resort owners and operators, campground hosts, business owners, and other

watershed residents. The most outstanding experience of coordinating the volunteer efforts was to learn from these people. About changes over time in their lakes - about how the lake used to be, about perceived mis-management practices on the lake or in the watershed, and about how the lake "works".

I subscribe to the belief that to really effectively plan and manage for high quality lake systems (and I do mean systems, as lakes are functionally tied to their contributing watersheds) we must first understand how each lake system works, what level of quality is attainable, and that significant corrective changes only can happen through cooperation. This goal of understanding and cooperation demands not only the participation of individuals, but of communities. Like so many other natural resources, we Oregonians have, to a degree, taken for granted the quality of our lakes - the beauty of their surroundings, their clear water, the fish within them! In recent memory, however, we can point to specific examples of the degradation of those lake qualities we enjoy so much. But we have also seen the improvement through concerted, organized action in restoring lakes (e.g., Devils Lake, Lake Oswego, Blue Lake in Portland, and Smith/Bybee Lake).

I personally encourage you to do what you can to become involved in making a difference. Joining OLA is a good start. Become a Lake Watch volunteer, prepare and send to OLA a write-up about your lake - its history, its characteristics, its moods! A wise person once said "we can't do everything. But we can do something". I agree.

-- Randall Jones

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