

Lake Steward



The newsletter of the WLR Lake Stewardship program Vol. 4, No. 1 Winter 1997

Controlling aquatic plants

Three lakes creating management plans

Aquatic vegetation is good for lakes — it provides habitat and food for insects, fish, and waterfowl; stabilizes shoreline sediments and prevents erosion; stores nutrients; and produces oxygen. But, there can always be too much of a good thing, particularly aquatic vegetation. Most aquatic plant problems are caused by non-native plants which, once established, tend to crowd out more beneficial native species.

Three King County lakes (Killarney, Twelve, and Wilderness) are addressing long-term aquatic plant management problems by developing grant-funded *integrated aquatic plant management plans* (IAPMP). The IAPMP process aims to design en-

vironmentally sound, cost-effective aquatic plant management plans by involving all of the affected parties.

Lake Killarney

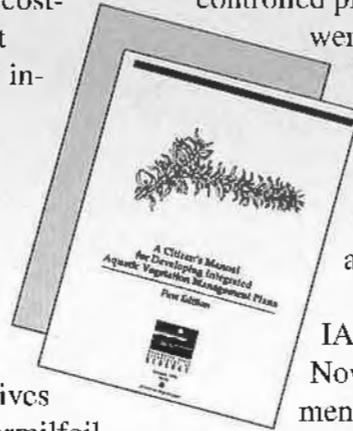
Lake Killarney is a 29 acre lake with an average depth of nine feet. In the past twenty years, non-natives such as Eurasian watermilfoil, white pond lily, yellow iris, and purple loosestrife have limited recreational use of the lake.

The Lake Killarney community has regularly used aquatic herbicides to control plant and algae problems over the past decade. Although this approach has

controlled plant growth, residents were concerned about the long-term impacts of continued herbicide use. They developed an IAPMP to evaluate other management methods.

Killarney's draft IAPMP, completed in November 1996, recommended using sterile grass carp to control underwater plants, limited herbicides to control white pond lily, teaching the public to prevent Eurasian watermilfoil invasion and using volunteers to perform annual plant surveys. Implementation will be community funded and cost up to \$60,100 over ten years.

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Annual aquatic plant management conference

Learn from those that know

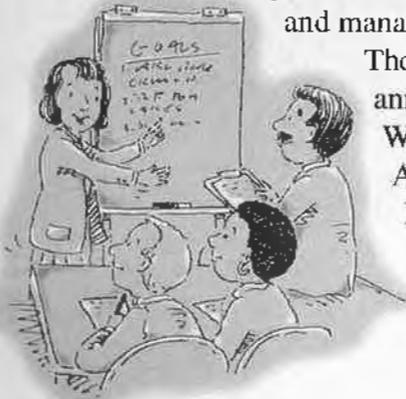
This spring, lake residents will have a wonderful opportunity to listen to and talk with aquatic plant scientists and managers.

The 16th annual Western Aquatic Plant

Management Society conference will be held at the Crowne Plaza in downtown Seattle on March 27 and 28. Plan now to come hear the more than 25 talks that will be given on aquatic plants and the most up-to-date ways of managing their excessive growth.

Talks will focus on aquatic plants and management issues in our region, including a talk about a weevil that eats Eurasian Watermilfoil: a possible new tool

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Level 1 fall data

High water takes hold of County lakes

Heavy rain this fall once again left its mark (no pun intended) on lake levels. Rainfall totals at every lake submitting data in time for this report exceeded the historic average of 383 mm (15.08 in.) measured at SeaTac Airport. Lake monitors reported precipitation levels ranging from a low of 400 mm at Lake Francis to a high of 924 mm at Lake Margaret (Figure 1).

The total rainfall at SeaTac

for this period was 621 mm (24.45 in.) which is 162% of the historic average for the quarter! Furthermore, 11 of the 23 lakes had rainfall totals even higher (Figure 1). So if you think it has been wetter than usual—you are absolutely right!

Lake levels increased on all the lakes. The smallest total change was 31 cm at Lake Marcel while the greatest change was 107 cm at Beaver Lake (Figure 2).

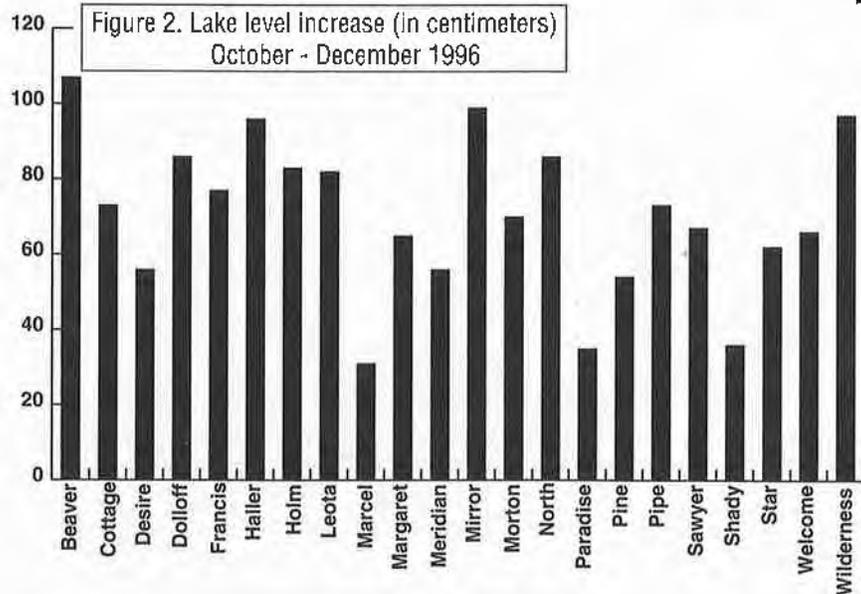
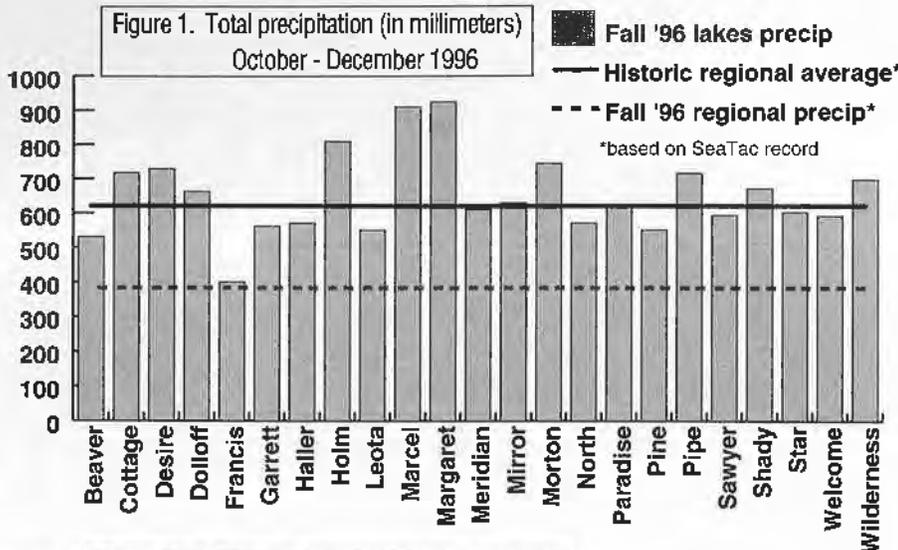
The average increase was 71 cm for the reporting lakes. It's no surprise that many residents reported record high lake levels in both December and January.

Figure 3 summarizes fall Secchi depths (indicating lake clarity) for the past three years. In fall of 1996, Secchi depth averaged four meters or greater at lakes Mirror, Pine, Sawyer, Star, and Wilderness. Lakes with water clarity less than two meters included Beaver, Desire, Dolloff, and Garrett.

Examining water clarity trends for the past three fall quarters shows three apparent patterns: lakes that show little or no change, those with decreasing clarity, and those with increasing clarity. Lakes showing a slight decrease in fall Secchi depth include Beaver, Desire, Killarney, Margaret, and Meridian. A decrease in clarity may reflect the impact of higher amounts of organic matter or suspended sediment coming in with stormwater.

Lakes with increasing fall clarity (Cottage, Francis, Garrett, Mirror, Pine, Sawyer, and Wilderness), on the other hand, may be reflecting a dilution effect caused by large volumes of relatively higher quality water entering the lake as stormwater runoff. Lakes with little or no change in clarity are probably less responsive to changes in stormwater inputs.

Data interpretation again illustrates that each lake is unique and responds differently to re-
(continued on page 3.)





Three lakes manage...

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Lake Twelve

Lake Twelve is 42 acres with an average depth of 10 feet. Non-native species Eurasian watermilfoil and white and pink water lilies cover about 24 acres of the lake, restricting boating, fishing, swimming and shoreline access.

An IAPMP was completed and approved in April 1995 to restore open water access to Lake 12. The plan recommended combining herbicide use, hand removal of plants, and bottom barriers to control Eurasian watermilfoil. Education and ongoing monitoring were also suggested.

In 1996, milfoil control

methods were implemented and lake access improved quickly. In 1997, steps to control water lilies will begin.

Lake Wilderness

Lake Wilderness is 57 acres with an average depth of 21 feet. Eurasian watermilfoil is the primary non-native species impacting the lake, affecting swimming, fishing and boating.

The Lake Wilderness Steering Committee recently weighed possible plant control strategies against protection of recently improved fish passage to the lake. Due this spring, the draft IAPMP will probably recommend a combination of bottom barriers and selective herbicide use. 🌙

Conference...

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to manage this plant!

Registration fees are low—\$40.00 if you register before March 1, or \$50.00 at the door. Registration includes an evening reception where you can meet and talk with the scientists and aquatic plant managers. This is your chance to ask the experts about aquatic plant issues on your lake!

Society members are eager to share their aquatic plant management experiences with the public. If you are interested in attending the conference, or would like more information, please call **Kathy Hamel** at **360-407-6562**, or send e-mail to **kham461@ecy.wa.gov** 🌙

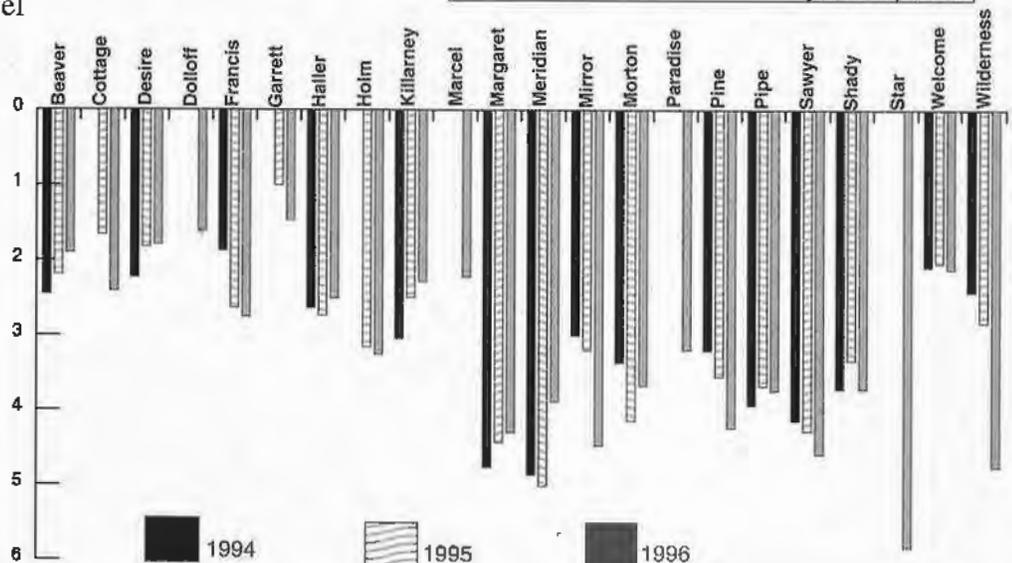
High water takes hold...

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gional weather events. Lake level fluctuated only slightly for some lakes, while others experienced localized flooding. Similarly, changes in lake clarity varied throughout the county.

As we continue to monitor each year, we gain valuable information which helps us better understand the significant factors influencing lake level and water quality. Understanding these factors, in turn, improves decisions made by lake groups and management agencies. 🌙

Figure 3. Mean Secchi depth (in meters) October - December 3 year comparison



Report from the shoreline

Eager Beaver Lake residents did it first

The county's first Lake Management District (LMD) #1 was created by a vote of the Beaver Lake Watershed property owners in August 1995. The special assessment roll and guidelines for Advisory Board nominees were approved, April 1996. The six member advisory board made up of four lakefront and two water-

shed property owners was installed in September 1996.

The Advisory Board has met monthly since September. The board agreed on a comprehensive lake, stream and wetland monitoring work program for the five year LMD and approved funding of this program for the '96-'97 water year.

Sixteen lake and watershed recommendations are included in the Beaver Lake Management Plan. The LMD Advisory Board efforts focus on the following high priority items:

- Construction site inspections and monitoring
- Lake, stream and wetland monitoring
- Community involvement and education
- Stormwater facility monitoring and inspection

This monitoring program, accomplished largely through the efforts of citizen volunteers, includes monthly collection and analysis of lake water samples during the first and last year of the LMD. Characteristics measured are similar to those monitored during the initial Beaver Lake study, so they can easily be compared to evaluate the success of watershed controls and determine the level of lake protection or degradation.

The board is currently evaluating community involvement and education projects. Some "easy to implement" items will be started as soon as possible. LMD #1 anticipates setting the standard for other lake communities seeking to protect their water resources. For more information, contact **Sharon Walton** at 296-8382 or **Al Sauerbrey**, Beaver Lake Community Club President, at 392-3964.

(Thanks to Vicki Giannelli, of the Beaver Lake LMD Advisory Board for contributing this article.)



Wendy Cooke and Al Sauerbrey take monthly water quality samples at Beaver Lake.

Mark your calendar!

The plans are made, the site is picked, the only ingredient missing is you! Existing and new lake monitors are asked to attend our **1997 Annual Lake Monitoring Workshop** to be held at the Lake Wilderness Center in Maple Valley on Saturday, March 1, from 9am to 12.

This is the one chance we have each year to get all our monitors in one room and have some lake centered fun. It's a terrific opportunity to network with other lake volunteers and discuss

unique monitoring issues.

It's also the only chance you'll have to pick up your equipment and update your sampling skills to ensure you are gathering the best data possible.

Just before we say good-bye we'll be going outside for a special lakeside chat with our favorite local limnologist, Sharon Walton, so dress for the weather.

We look forward to seeing you there! Please call **Katy Vanderpool** at 296-8362 with questions. 🐾

Limnology for the layperson

Want more lake info? Read on!

Many lake enthusiasts have eagerly expressed their interest in learning more about lakes. For the willing reader, there is a wealth of information available, ranging from introductory to highly technical.

The list of references below will provide a starting point to improve your understanding of such topics as how lakes function, lake restoration, lake biology, and watershed protection.

Your local library can also

help you find more information. For the visually inclined, look to video format or the Internet. In the meantime, stay tuned to the Lake Steward — we'll bring you more terrific resource listings in the future. 🐸

Booklets

Lakeside Logic: A Guide to Lake Stewardship in King County. 1995. 29 pp. Free from King County Water and Land Resources Division at 206-296-1949.

A Citizen's Guide to Understanding and Monitoring Lakes and Streams. 1991. J. Michaud. 66pp. Free from the Washington State Department of Ecology at 360-407-6300. Excellent starter on the topic of lakes and streams.



Manuals

A Citizen's Manual for Developing Integrated Aquatic Vegetation Management Plans. 1st Edition. 1994. Free from the Washington State Department of Ecology 360-407-6300. A citizen's guide for addressing long-term aquatic plant management needs.

The Lake and Reservoir Restoration Guidance Manual, 2nd Edition, 1990. 326pp. No. EPA-440/4-90-006. Free from the Seattle USEPA office at (206) 553-1200. A good general reference on lake function, restoration, and protection.

Volunteer Lake Monitoring: A Methods Manual. 1991. 121pp. EPA 440/4-91-002. Free from the Seattle USEPA office at (206) 553-1200. A good general reference on lake monitoring.

Books

Wetland Plants of Oregon and Washington. B. J. Guard. 1995. Lone Pine Publishing. 229pp. Available through Flora and Fauna Bookstore (Seattle) and special order from other bookstores. A great aquatic plant guide with color photos.

Restoration and Management of Lakes and Reservoirs, Cooke, Welch, Peterson, and Newroth, 1993. Lewis Publishers. 548pp. Available through the University of Washington Bookstores. Good technical reference on lake restoration.

Limnology. R. G. Wetzel. 2nd Edition, 1982. Saunders College Publishing. 767pp. Available through the University of Washington Bookstores. A good technical reference on lake ecology.

Level 2 monitors tell it like it is

In fall of 1996, we asked Level 2 monitors to complete a survey to finish their season. Of 34 lakes in the Level 2 program, 16 volunteers responded, including those from Lakes Allen, Beaver, Cottage, Dolloff, Frances, Garret, Holm, Killamey, Lucerne, Morton, Pine, Pipe, Ravensdale, Sawyer and Wilderness.

Among praise and high marks, volunteers provided some

excellent constructive comments.

A request for more feedback was the most common response. Comments seemed to cry out "So, beyond a collection of numbers, what does all of this data mean about the health of my lake, and what good is it?" (See pg. 2 data report.)

Volunteers came up with other good ideas, too. When asked how to help volunteers

meet sampling and reporting deadlines, several folks suggested creating reminder stickers for calendars. (*Which are being created as we go to print!*) Others said they would like to receive a phone call reminder.

We are thankful to those who took the time to participate. All in all, the survey generated terrific feedback that will help guide the future of the program. 🐸



Here's your chance to jump in!

King County lake neighbors know that lakes are much more than places for water to collect.

They control flooding, provide habitat for fish and wildlife, and are places for us to swim, boat, fish and relax.

King County Water and Land Resources' Lake Stewardship Program is looking for enthusiastic volunteers to help monitor and study the health of our lakes. Volunteer monitors will record lake level and rainfall daily, and make weekly trips onto the lake to mea-

sure temperature and water clarity (Secchi depth). Monitors collect one winter sample in March and bimonthly water samples May through October.

Qualifications include dedication to your lake, accessibility to the lakeshore and a boat. The following lakes need new or hack-up monitors:

Beaver, Fenwick, Fivemile, Kathleen, Killarney, Lucerne,

McDonald, Meridian, North, Panther, Sawyer, Shadow, Spring, Steel and Twelve.

Please call **Katy Vanderpool** at **296-8362** to get involved in the **Volunteer Lake Stewardship Program**. You will have the opportunity to meet other volunteers and learn the tricks of the trade at a training workshop Saturday, March 1st from 9 a.m. to 12 p.m. ☽



Just in time for gardening season!

March 15, 1997: Native plant workshop at the Tukwila Community Center. Learn about native plant species and how to use them in your yard. Natives are great for your lakefront property! Contact **Eric Maia** at **296-8024** to reserve your spot.



**King County
Department of Natural Resources**

Water and Land Resources Division

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Lake Steward *Winter 1997*

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