



Lake Steward



The newsletter of the WLR Lake Stewardship program Vol. 7, No. 3 Summer 2000

Summer maintenance and upgrades

Living on the lakeshore: a look at docks

Now that summer is here, many people are spending more time enjoying lakes in King County. Our lakes offer incredibly varied natural habitat comprised of all types of plants and animals—ranging from

tiny aquatic plants to large terrestrial mammals.

Human Habitation

As the county's population climbs above 1.5 million (12th most populous in the U.S.), more

people are moving to outlying areas. As a result, lakeshores are increasingly becoming home for humans, too. Lakeside living has many benefits including backyard swimming, fishing, and boating. One of the most typical ways to access lakes is by dock. Most lakes have private docks, and a few, including Geneva, Pine, and Wilderness have a public access dock as well.

Docks: Friend or Foe?

Much debate has occurred regarding the impacts and benefits associated with dock construction. For example, scientific studies on Lake Washington have shown that certain species of fish prefer to lurk
(continued on page 3)



Well maintained docks bring their own rewards.

King County's new grant program

"Small change" grants

Now it is faster and easier than ever to apply for funding through King County's Watershed Action Grants. A new program called **Small Change for a Big Difference** funds projects up to \$1,000 that support salmon and watershed education, enhancement, protection, and restoration efforts in King County.

To be considered for funding, applicants need only submit a letter of intent and have

any necessary permits obtained prior to starting the project. The new streamlined process allows successful applicants to begin work as soon as two weeks after submitting their request. And applicants may apply for funding anytime during the year—think of a project tonight and apply for it tomorrow!

For more information on grant guidelines, visit <http://dnr.metrokc.gov/wlr/pi/grants.htm> or call **Donna Kalka** at (206) 296-8494. 🐟

What's Inside...

Is your lake being productive?	2
Making the most of Mirror Lake	3
Paradise found at Pipe Lake . .	4
A groundwater primer	5
Lake Stewardship program additions	6
Upcoming events.	6

Lake monitors report

Is your lake being productive?

The productivity scale is one tool we can use to evaluate lake quality. Using a combination of water clarity, algae, and phosphorus data, a single value called the Trophic State Index can be calculated to measure productivity. Lakes that are highly productive usually have murky water, lots of algae, and more phosphorus nutrients. Lakes that are less productive usually have clearer water, little algae, and less phosphorus nutrients. Productivity is not strictly a measure of water quality but rather a measure of the biological activity and nutrient richness of a lake.

Influencing Factors

Factors such as lake depth, shoreline and watershed development, and watershed practices in-

fluence productivity levels. The quality of surface streams and groundwater flowing into a lake may also impact productivity levels.

Ranking Lakes

Shallow lakes like Allen, Dolloff, Panther, and Paradise have shown consistently high productivity over the last three years (Figure 1). Allen and Panther lakes are also wetland-like in function which contributes to their higher productivity values. Lakes Dolloff and Paradise are also heavily influenced by the rich wetlands surrounding them.

In contrast, Angle, Geneva, Lucerne, Meridian, Pine, Pipe, Retreat, and Star lakes have shown lower productivity over the last three years. All of these lakes are fairly deep. Deep lakes may

have a more delayed rise in productivity from incoming nutrients than shallower lakes.

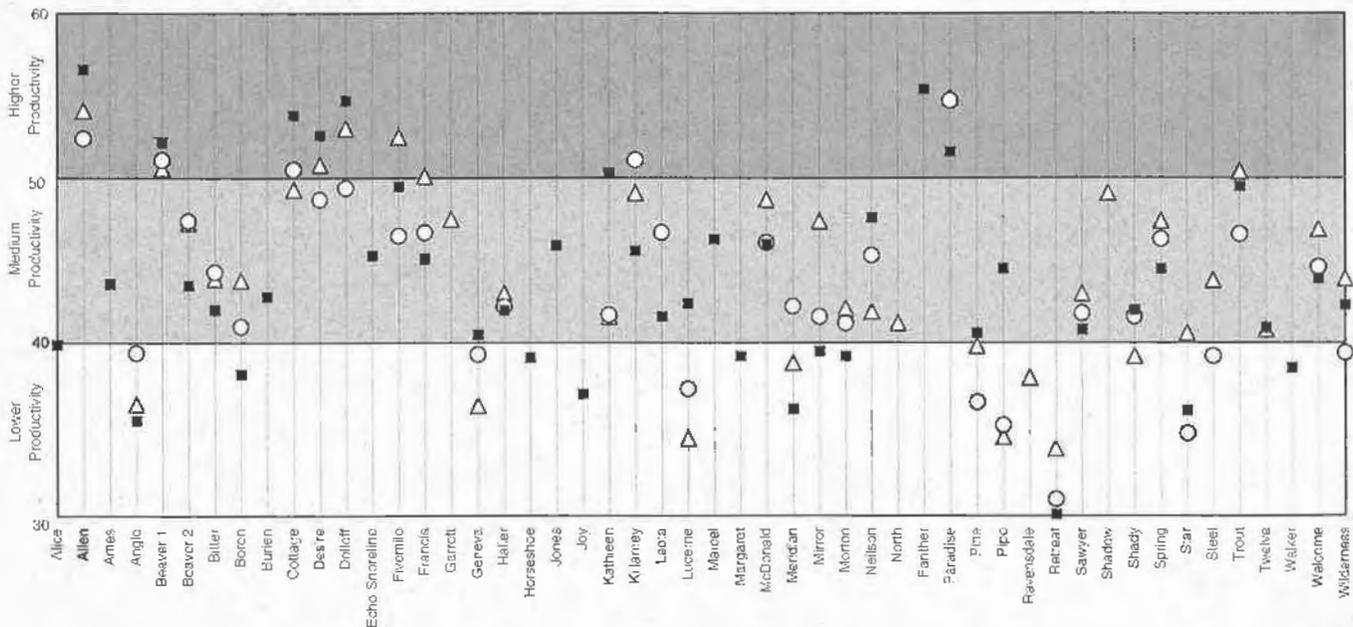
Groundwater Factors

Angle, Lucerne and Pipe lakes receive groundwater as their primary source of water. Groundwater is also a factor for lakes Horseshoe and Joy, which volunteers started sampling in May.

Groundwater can be a major source of flow into and out of lakes. This source may actually help maintain lower lake productivity because groundwater flow usually has lower phosphorus levels than surface flow. Groundwater may also continue to flow into lakes during the summer months when surface flows lessen or stop altogether. 🌙

Figure 1. Lake productivity for the month of May based on the Trophic State Index

△ 1998 ○ 1999 ■ 2000



Lakeside living: docks. . .

(continued from page 1)

in the shade under docks. On a small lake that may be beneficial for bass or other fish we like to catch. But in other lakes, those lurking fish can prey on salmon smolt migrating through the lake to salt water.

In addition to creating artificial habitat—underwater structure and shade—docks can also help prevent erosion and damage to fragile lakeside vegetation by providing a walkway to the water. However, when constructed irresponsibly or cared for improperly, docks can be detrimental to the lake ecosystem. Sometimes dock construction will destroy more vegetation than necessary, leaving the shoreline prone to increased erosion. Docks may also shade over native aquatic

vegetation, or leach toxic chemicals into lakes. Proper care is essential for a healthy lake.

Dock Care

Taking a few simple actions can ease some of the pressures of increased shoreline development. Keep these tips in mind when constructing and/or caring for your dock:

- Reduce dock size or share one with your neighbor.
- Minimize vegetation removal around the dock.
- Deter goose use with ribbon, string, or decoy birds.
- Sweep up goose poop and dispose of it away from the lake.
- Use a drop cloth when using

paint, stain, adhesives, etc. near the water.

- Cut wood for projects over solid ground, especially when building with pressure treated wood.
- Obtain permits before you start building.

For more information about permits, call the **King County Department of Development and Environmental Services** at (206) 296-6640. In addition, information about building near water can be accessed at <http://www.metrokc.gov/ddes/acrobat/cib/10.pdf>. By caring for your dock responsibly, you will improve conditions around the lake for native wildlife. 🐾

Volunteer spotlight

Making the most of Mirror Lake

Bob Roper has been a strong advocate for Mirror Lake in Federal Way. Seven years ago, he became a King County volunteer after working to stop development of a large store within a block of the lake. Then he volunteered to collect temperature and dissolved oxygen profiles for the City of Federal Way. Each quarter Bob sends us color charts of his data, some of which has been used to help resolve flooding issues at Mirror Lake. Bob is also president of the Mirror Lake Residents

Association and writes their newsletter.

Semi-retired after 33 years at Boeing, Bob continues to work part-time, but he also knows how to relax. For several weeks each year Bob and his wife Jackie can be found in exotic South Pacific locales such as Rarotonga in the Cook Islands. Apparently the restaurants are great, and the deep-sea fishing is not bad either.

Thank you Bob for your many years of dedicated service. It is a pleasure to work with you. 🐾



Bob and Jackie Roper relaxing with their dog, Mickie.

Paradise found at Pipe Lake

Rumor has it that Pipe Lake was an open pit coal mine during the late 1920s. However, the true story of Pipe Lake's beginning is still officially unknown. It has been theorized that underground springs flooded the coal mine, eventually forming the lake. Some residents have even noticed intense cold spots while swimming, giving the story of Pipe Lake's origin as a coal mine even more credence.

The 55-acre lake is located within the city limits of both Covington and Maple Valley, but has no public access. What started out as a few summer cabins and camping sites around the lake in the 1930s, is now built up with year round housing and ample roads throughout the area. This private lake is home to several homeowner associations, each with their own community access. Cherokee Bay, located on the southeastern end, is the largest with over 800 households. Other communities include Cedar Down, Aqua Vista, and Autumn Bay.

The geography of the lake is interesting. It is located on the high ground shared by Covington and Maple Valley. The surrounding property feeds runoff from ditches, driveways, and roads directly into the lake at six different locations. Groundwater flows into the lake all year from Cherokee Bay.

The water outflow runs from the large end of Pipe to adjoining

Lake Lucerne and then drops about 50 feet to a roadside ditch on its way to the Witte Road swamp. From the swamp it flows along the Witte Road drainage ditch to Jenkins Creek. At this point water from Pipe Lake joins Soos Creek and finally dumps into the Green River.

There is always something wonderful to see on the lake. Residents enjoy watching a variety of wildlife including river otters, muskrats, and bullfrogs that are easily spotted near shore. Cormorants, bald eagles, and herons feed on the fish in the lake. Many types of waterfowl exist, including beautiful wood ducks paddling about and if the sun is just right, schools

of small fish and fresh water snails are easily seen at the water's edge. Of course, Pipe Lake also has its resident Canada Goose population that increases in early summer to about 100 birds.

Environmentally, Pipe Lake is in fairly good shape now. But residents must continue to be mindful of potential problems. The lake is threatened by invasive plants (hydrilla), as well as problems with the direct runoff of polluted water and the increasing amount of debris being left in the lake. But with continued good stewardship, Pipe Lake will be a paradise for years to come.

Thanks to a nine-year resident of Pipe Lake for this article. 🐾



Pipe Lake supports a variety of wildlife and a peaceful, reflective lifestyle for waterfront residents.

A groundwater primer

We are familiar with the rivers and streams that cross our landscape, carrying water to our lakes, then ultimately to Puget Sound and to the ocean. However, there is another important part of the water cycle that is out of sight and often out of mind: groundwater.

What is it?

Groundwater is the water flowing through, or between soil particles. Imagine a jar full of marbles. Even if the marbles are packed tightly together, room always exists between them. Water flows through similar voids in the soil, carrying more water in sandy layers called aquifers and less in more clayey layers called aquitards (Figure 1).

Water usually enters aquifers from precipitation soaking into the ground surface. During the recharge process, water seeps down until it reaches an aquitard and cannot any go deeper, then moves laterally along the water table. Groundwater usually exits the aquifer into a surface water system (Figure 1). Except after a rainfall, most of the water in a stream has come from groundwater. Fish are very dependent on groundwater to maintain stream flow.

Groundwater and Lakes

As the ice age glaciers in the Puget Sound region retreated, some lakes were formed without inflow and/or outflow stream channels.

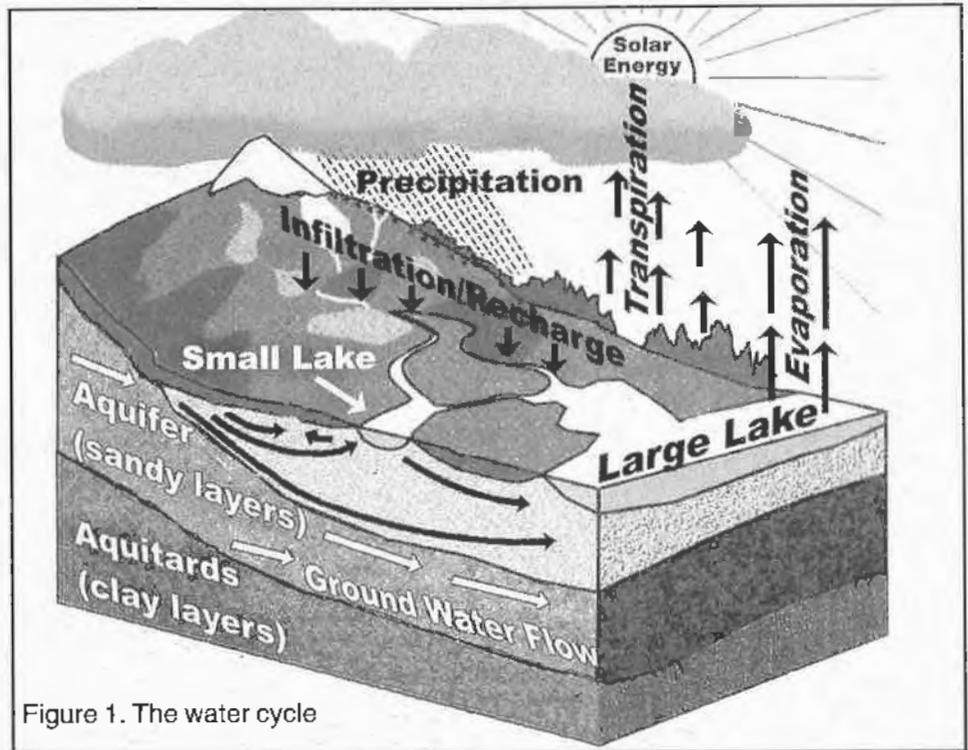


Figure 1. The water cycle

Local lakes that are primarily groundwater fed include Alice, Joy, Leota, McDonald, Pipe, and Spring.

Groundwater flows much more slowly than surface water, usually a fraction of a foot per day, rather than the feet per second in a river. This slow rate can result in gradual but often dramatic rises and falls in closed-depression lakes like Horseshoe Lake. Even in a lake with streams flowing through it, groundwater likely makes up a major part of the inflow and outflow.

Groundwater is often rich in minerals, and in some cases carries pollutants. Groundwater can become polluted from poorly

maintained septic systems, excessive herbicide or pesticide application, or spills of household hazardous materials such as oil or paint thinner.

In most of rural King County, residents get their drinking water from wells. Pollution of groundwater can immediately threaten public health. Because groundwater is out of sight, detecting pollution can be impossible until it shows up in someone's drinking water.

We are all stewards of our groundwater. By promoting recharge and protecting groundwater from pollution, we can ensure quality water in our future for people and fish.

If you have questions about groundwater, please call **Ken Johnson**, at (206) 296-8323.

Lake Stewardship program additions

The Lake Stewardship Program has new educational items to share. New weed identification cards have been developed for water primrose and garden loosestrife. These cards complement an existing eight-card waterweed set and can be used to identify the most common waterweeds of concern.

Also, an interpretive water weed poster and sign have been created. The poster is suitable for community clubs and schools, while signs have been made for posting at boat launches and public parks. To obtain copies of the weedcards or poster, call **Sharon Walton** at (206) 296-8382 or email sharon.walton@metrokc.gov.

The Lake Stewardship program has also added a member to the team. Michael Murphy has taken over for Jessica Anderson who is on maternity leave until next year. Jessica had a healthy baby girl in May. Michael (Murph) has extensive experience working the Division's Public Outreach unit, where he has helped educate County residents on a myriad of environmental issues. **Murph** can be reached at (206) 296-8008. 🐟

Upcoming events

Salmon Watchers Needed

Forget TV. Become a *Salmon Watcher*. The *Salmon Watcher Program* trains volunteers to monitor numbers of salmonids returning to King County Streams. To participate, attend one of four workshops held in August and September. For information, contact **Michael Murphy** at (206) 296-8008 or michael-wlr.murphy@metrokc.gov.

Help King County Habitats

Ongoing programs and one-time events are being offered this fall to help foster healthy habitats. For information about native plant salvages, habitat restoration projects, call **Greg Rabourn** at (206) 296-1923 or email him at greg.rabourn@metrokc.gov.



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