

WATERLINE

December 2002

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Story ideas welcome

The editor of the *Waterline* is always looking for stories about lake projects, send your idea to Paula Lowe, editor, pmlowe@attbi.com or call 360-491-0109.



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for future reference.

Deceiving the beavers

By Lee First, Lake Management/Sub-Flood Control Zone technician,
Skagit County Public Works, Surface Water Management Division

Lake McMurray's beavers have been building dams, which causes the lake water to rise. Several lakes in Washington have had similar experiences. With the help of county staff, state agencies and "beaver deceivers" the problem of high water is solved.

Description of Lake McMurray

Lake McMurray is a 160-acre lake located nine miles southeast of Mount Vernon, in Skagit County, Washington. It is part of the 2,080 acre Nookachamps watershed, and has a mean depth of 29 feet, and a maximum depth of 52 feet. It has a shoreline length of 13,728 feet, with a surface area of 160 acres. It is a popular lake for recreational fishing and has good water quality. Local residents report fish catching includes yellow perch, large mouth bass, black crappie, and rainbow trout (50,000 stocked annually). The main outlet for Lake McMurray is Lake Creek. It is used by anadromous fish (primarily coho, steelhead, and sea-run cutthroat) and is classified by Washington State Department of Natural Resources as a Type 3 stream.

Management of lake

A 10-year lake management district was formed for the lake in 1999, with the goals of managing aquatic vegetation; monitoring water quality; surveying non-native aquatic vegetation; and providing educational

outreach programs. There are approximately 120 waterfront lots and each is assessed an annual fee to pay for lake management activities.

In 2000, a whole-lake Sonar treatment was undertaken to eradicate Eurasian watermilfoil. No evidence of milfoil has since been observed, although native aquatic vegetation is recolonizing large areas of the littoral zone. Prior to the Sonar treatment, dominant aquatic plants included *Elodea Canadensis* (common waterweed), *Myriophyllum spicatum* (Eurasian watermilfoil), *Nymphaea odorata* (Fragrant waterlily), *Potamogeton foliosus* (Pondweed), *Najas* (Water-nymph) spp. and *Ceratophyllum demersum* (Coontail).

Water rises

In the late fall of 2001, lakeside residents began to notice that lake levels were unusually high, and alerted the Surface Water Management Division of Skagit County Public Works. Staff observed that numerous beaver dams appeared to be causing elevated water levels on Lake Creek, the north outlet of the lake. Staff also observed water draining out of the south end of the lake, as well as recent beaver activity at the south area. Because of the potential impact of high water levels upon septic drain fields, public works staff applied for and received a Hydraulic Project approval to partially remove two beaver dams
continued on page 2

Beaver deceivers *continued from page 1*

with hand tools, and install flow levelers (“beaver deceivers”) through the dams. These are devices which allow water level manipulation without eliminating beaver habitat and ponding. The extensive wetlands at the lake outlet provide excellent coho rearing habitat.

Because water level management was not included as a goal of the lake management district, county drainage utility funds were used to fund the water level management actions. The advisory committee for the lake management district was approached with the goal of adding lake level management to the tasks of the district. The advisors of the district were against this idea because rates would have been raised. The Washington State Department of Fish and Wildlife was also approached to solve the flooding problem. They offered technical assistance, and stressed the fact that the beaver ponds were very beneficial for coho rearing habitat.

The flow levelers were installed in late November during a high-flow event when flooding was imminent. High water levels made installation difficult, but the devices successfully lowered the water level to an acceptable level for most of the winter. The effort to lower water levels was combined with removing and relocating several beavers with live traps. These efforts were successful for several months. Staff continued to monitor the pipe system and water levels during the winter and spring.

In the fall, lakeside residents reported that lake levels remained unseasonably high. Staff observed that the water level at the flow levelers was low, and made several trips to the area to investigate. At the north end of the lake, where the outlet begins, is an area with an extensive log jam, which is the remains of an old mill. It was impossible to investigate this area, as the logs prevented boat access from the lake end, and a series of beaver ponds upstream of the flow levelers were impassible on foot. Public Works surveyors were called in to determine

the elevation of the water surfaces to try to determine where the water was being held back. It was determined that somewhere in the impassible area, either beaver dams or the extensive log jam were causing the elevated water level.

In late summer, two county staff donned wetsuits and explored one-half mile of the wetland complex at the northern lake outlet. Water depths ranged from two to three inches to a maximum of five to six feet. Overall depths inclusive of mud and debris reached a maximum depth of 10 to 12 feet. The exploration involved a combination of swimming, crawling over and under large logs, hopping in between floating mats of vegetation, and pulling oneself along by grabbing water lily plants. There were many coho fry. A few bog plants were present, including *Kalmia microphylla* (bog laurel) and *Drosera rotundifolia* (sundew). There were extensive stands of *Typha latifolia* (cattail) and *Iris pseudacorus* (yellow iris).

The new dam was large. It spanned the channel, which was over 100 feet wide, and was damming water about 14 inches deep. There were two large lodges upstream of the dam and abundant fresh beaver sign.

A system of five water level gauges have been since installed and surveyed, which enable staff to monitor the location of probable beaver activity, and respond accordingly. A maintenance hydraulic permit approval has been obtained which allows staff to remove portions of dams using hand tools only. A pipe leveler system has been installed in the newest dam and sized to lower the water level very slowly, with the hope that the beavers will remain in their habitat and not respond by additional



Installing and coupling rigid pipe in a breached beaver dam. Photos courtesy of Skagit County.



Leveling and adjusting rigid pipe in the breach of the dam to achieve the desired water level.

dam building. The decision was made not to remove any beavers, with the hope that the breeding pair would remain in the area. Because beavers are highly territorial, removing beavers has been shown to increase the fecundity of a breeding pair. Removing the animals would bring only temporary relief. Learning how to manage the water level successfully with the breeding pair in place is the desired goal.

Because the lake outlet is an extensive wetland complex, routine maintenance will be necessary to control water levels so that septic drain fields are not impacted. The newly-installed water level gauges allow staff to monitor water levels and serve as a guide to locate the location of imminent future blockages.

Beaver deceivers control water levels

By Michael Murphy, environmental scientist, King County DNRP

Flooding and damming problems can be countered effectively with well-designed, well-made flow control devices. Skip Lisle, wildlife biologist with the Penobscot Nation in Maine, has devised the "beaver deceiver" flow control device. The King County Department of Natural Resources and Parks recently installed several of these devices with good results.

The beaver deceiver is designed to minimize the sound and feel of flowing water that stimulates beaver damming behavior. Although designs will vary depending on the situation, there are three basic components to the beaver deceiver:

1. A receiver fence that serves to exclude the beaver from the outlet of the pond;
2. a pipe that extends upstream from the receiver fence; and

upstream end of the pipe (so the beavers can not plug it up).

The receiver fence and the round fence act as "filters" by diffusing the incoming water over a large area to prevent the beavers from determining where the water is leaving the system and it prevents them from plugging up the pipe or culvert.

For further information, <http://dnr.metrokc.gov/wlr/Dss/beavers/>



Receiver fence installation

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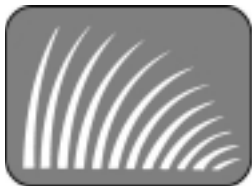


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WALPA Board reaches out

Newsletter

Board members are working with lake associations and local agencies to write *Waterline* articles about individual lakes. One lake will be featured in each issue focusing on the successes and problems of that lake.

Membership

The board is beginning to update the names, addresses, and contacts for all the local lake associations in the state. WALPA wants to increase the involvement of and outreach to lake associations.

Outreach/Communications

The results of WALPA's 2001-2002 Washington Lake User survey will soon be available for publication in the *Waterline* and posting on the web site. The web site has also been updated with other new information and photos. The WALPA informational slide show is also being converted to a PowerPoint presentation, which will be available to any group in the state.

Legislation

A representative of the WALPA Board is involved in the development of a comprehensive monitoring strategy for Washington state. It is still unclear if lakes will become a part of this strategic plan.

Waterline accepts ads

The *Waterline* accepts advertising for lake-related products or services.

For advertising information and rates, call Paula Lowe, 360-491-0109, or e-mail her at pmrlowe@attbi.com.

WALPA Board for 2002-2003

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Centrum offers "Our Water World"

Centrum Arts and Creative Education, located at Fort Worden State Park in Port Townsend, offers "Our Water World" for fifth and sixth graders from April 21 to 25.

Students and their chaperones explore small plants and animals of Puget Sound at the Port Townsend Marine Science Center and around the Centrum campus. They'll use a plankton net to catch hundreds of creatures and examine them in microscopes.

The cost is \$260, which includes room and board, and an application fee. Applications are due by March 10; and fees are due by April 10.

For information, contact Jessica Plumb, 360-385-3102 or e-mail jessica@centrum.org.

Chelan is the place for 2003 conference

By Lee Mellish, conference organizer, WALPA president-elect

WALPA's annual conference is April 3 and 4 in Chelan. The conference planning is nearly complete and the conference promises to be educational and entertaining. The conference will be held at Campbell's Resort on the lake and reservations can be made by calling the hotel at 1-800-553-8225.

The conference sessions are designed with both technical presentations and less technical "user friendly" sessions. There will be something for everyone. Of special interest will be topics regarding international lake studies; lake contaminants; aquatic weeds; TMDL development; lakeside landscaping; watershed activities; legal issues of watershed developments; conservation easements; fish studies; climate and environmental changes effecting lakes; and much more. Suggestions for session topics are still being considered. Contact Lee Mellish at 509-922-9016 ext. 24 or sewerdoc@aol.com.

Workshops for Hydrolab users

A pre-conference workshop on Hydrolab equipment will be presented on Wed., April 4 by T. J. Sisson of Electronic Data Solutions (EDS). He'll conduct the workshop from 8 am to noon on Hydrolab Multiprobe maintenance and calibration. Bring your own Hydrolab equipment. EDS will provide maintenance and calibration supplies. Attendance is limited to 20.

From 1 to 5 pm, T.J. will overview the new Seveno database management software for archiving and graphing water quality data. It also has lake/reservoir trending and reporting options. Other EDS hardware and software solutions for Hydrolab and GPS/GIS applications will also be highlighted.

The workshop and WALPA conference registrations are separate. Register on line for one or both EDS sessions, www.elecdata.com or call 208-324-8006.

Lake Focus on Loon Lake

Compiled by Kurt Marx

Welcome to the first edition of WALPA's Lake Focus. In each issue of the *Waterline*, we will focus on a selected Washington lake to share with our readers the variety and splendor of our state's lakes.

Loon Lake is located in Stevens County, 28 miles north of Spokane off of Highway 395 at the headwaters of the Colville River basin.

Physical characteristics of Loon Lake

Location: T 30 N, R 41 E; latitude 48° 3' 20" and longitude 117° 38' 30"

Altitude: 2381 feet above sea level
Drainage area for the lake is 14.1 square miles.

Lake area: 1100 acres

Lake volume: 52,000 acre-feet

Mean depth: 46 feet; maximum depth is 100 feet.

Shoreline length: 7.9 miles.

Residential: 450 near-shore homes.

Map: USGS - Chewelah, Stevens/Spokane counties, 1930

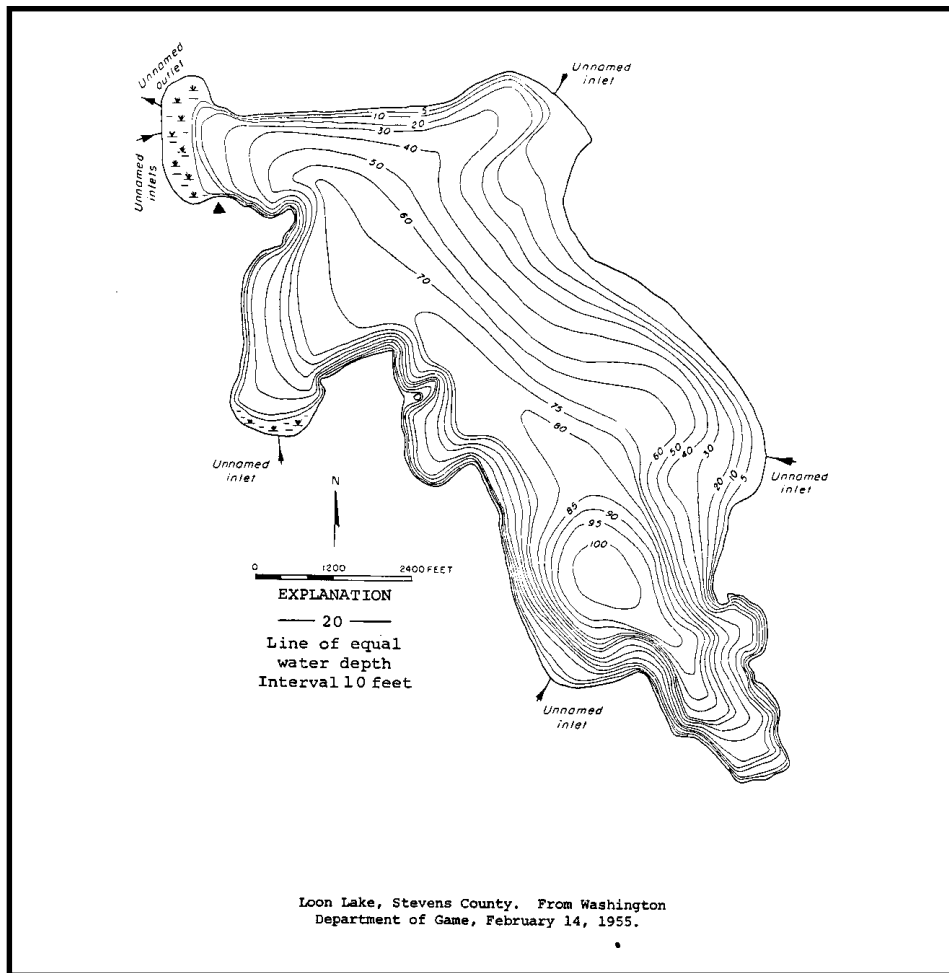
Public access

Loon Lake has one public boat launch, but no public parks. There are two private resorts: Granite Point Park on the east side and Shore Acres Resort on the west side.

Fish

"The state record lake trout (30 lbs, 4 oz.) came out of here back in the 1960s, but Loon is better known now for its kokanee. There are also largemouth and smallmouth bass, brown bullheads, bluegill, a few other warmwater species, plus planted rainbow, eastern brook and brown trout catchables."

Source: www.washingtonlakes.com



Known fish species

Kokanee (*Oncorhynchus nerka*), a.k.a., silver trout (land-locked sockeye salmon), lake trout (*Salvelinus namaycush*) a.k.a., mackinaw rainbow trout (*Oncorhynchus mykiss*), largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), perch (*Perca sp.*), crappie (*Pomoxis sp.*), catfish (*Ictalurus sp.*), bluegill (*Lepomis macrochirus*), and brook trout and brown trout.

Lake associations and citizen groups:

- Loon Lake Property Owners Association
- 18 beach associations

Current lake issues:

Protecting the lake's wetlands and watershed from the pressures of development.

Web information:

www.ohwy.com/wa/1/loonlake.htm
www.washingtonlakes.com/

Sources of information in this article:

- Lakes of Washington, Volume II – Eastern Washington, Ernest E. Wolcott. Third Edition, Olympia, WA. 1973. www.washingtonlakes.com/TopoMaps/LoonLaketopoStevens.htm
- Bill Shawl, Spokane, WA; personal communication
- WALPA board members
- American Fisheries Society publications
- U.S. Geological Survey, Spokane Field Office, Aug. 11, 1998

To suggest a lake to highlight in the next issue, contact Kurt Marx, marx@taylorassoc.net.

Note: WALPA makes no guarantee of the accuracy of this information.

Be on the lookout for invaders

There are many unwelcome visitors that may be their way to the Pacific Northwest. With the many waterbodies in the Northwest, it's important that we educate water users about these invaders. If they spot an invader, they can call the local authorities to inspect.

In the September issue of the *Waterline*, zebra mussels were identified.

Chinese mitten crabs are another invader of great concern. The crab is usually found in Korea and China, but has recently become established in California. The crab has been seen in the Columbia River and it may threaten native species and estuary ecology as well as fish and shrimping operations.

They have dense hairy patches on their white-tipped claws. The shell has four spines on either side and grows to about three inches wide.

Mitten crab sightings should be reported to Scott Smith, Washington State Department of Fish and Wildlife, 360-902-2724.

For further information about

Chinese mitten crabs, zebra mussels and other invasive species, go to www.clr.pdx.edu or www.wsg.washington.edu/outreach/mas/nis/nis.html.

The West Nile Virus is of great concern to many, especially in the Pacific Northwest (mosquitoes are attracted to standing water). For information about the West Nile Virus, to www.metrokc.gov/health/westnile/ and www.metrokc.gov/health/westnile/habitat.htm. For information on King County's response to West Nile virus, go to <http://dnr.metrokc.gov/dnradmin/press/2002/0916wnv.htm>.

For information on invasive weeds, check out, www.invasivespecies.gov/, invader.dbs.umt.edu/, www.wnps.org/eppclet.html.

Thanks to King County Department of Resources and Parks, Water and Land Resources Division, *Downstream News*, Volume 11, Number 2, Fall 2002, for information resource.

Waterline newsletter published quarterly

Waterline deadlines and publication dates for the next two issues:

<u>Deadline</u>	<u>Issue date</u>
February 1	March 1
May 1	June 1

Story ideas are always welcome. Send your ideas to *Waterline* Editor Paula Lowe, pmrlowe@attbi.com or call 360-491-0109.

Be sure to include the topic, suggested writer, contact person with phone number and e-mail address.

WATERLINE is the newsletter of the Washington State Lake Protection Association (WALPA). Send submissions to: Paula Lowe, Expressions, 5202 Rumac St. S.E., Olympia, WA 98513. Articles may be reproduced. Please credit the *Waterline*. For information about the organization call 1-800-607-5498. WALPA is a chapter of the North American Lake Management Society (NALMS).

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