

# Lake Ballinger Fact Sheet

**Revision Date: June 15, 2011**

As a result of flooding events in August 2004, the City of Mountlake Terrace was contacted by several Edmonds residents on Lake Ballinger concerned about the high water level on the lake. In an effort to address this issue and others that were raised during discussions, the following “Lake Ballinger Fact Sheet” along with a chronological list of developments was prepared and distributed to lake residents. Information regarding the level of the lake, storm water inflow to the lake, water quality of the lake, and the ongoing efforts of the City of Mountlake Terrace, the City of Edmonds, and several other adjacent agencies to address these issues is included in this fact sheet. The fact sheet is periodically updated as new information becomes available.

## **Lake Ballinger Fact Sheet:**

Watershed Area:	Shoreline 22%, Snohomish County 9%, Mountlake Terrace 23%, Edmonds 25%, Lynnwood 21%
Size:	107 acres (including the island) – 72 acres in Mountlake Terrace and 35 acres in Edmonds
Depth:	Deepest depth is approximately 35 feet
Private Ownership:	Three lots in Mountlake Terrace, 49 in Edmonds, Nile Temple Property
Public Ownership:	Lake Ballinger Golf Course, Lake Ballinger Swimming Beach and Dock
Drainage Basins:	Hall Creek – 66 percent of inflow Echo Lake, Aurora Village – 16 percent of inflow Non-specific areas adjacent to the lake – 18 percent of inflow

## **Lake Ballinger Events:**

- 1942 - Lake Level Established by Court Order
  - o Authorized installation of a lake outflow weir on McAleer Creek
  - o Authorized formation of a tax district to pay for maintenance and operation of the weir
- 1954 - Mountlake Terrace Incorporates
- Mid 1960's - Nile Temple filled in an area north of the existing creek site and raised the roadbed area near the first culvert downstream on McAleer Creek effectively creating a higher roadbed and effectively raising the high overflow level of the lake during large storm events. Prior to this work, high water levels that exceeded the height of the weir flowed around the roadbed and culvert at a lower high overflow elevation.

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- Early 1970's - Staff notices and takes reports from residents about Lake Ballinger water quality issues.
- 1972 - Department of Ecology (DOE) study finds that Lake Ballinger has the poorest water quality of 34 lakes surveyed in the Puget Sound area.
- 1973 - First Lake Ballinger Report compiled by consultant to begin background assessment of water quality.
- 1974 - Second Lake Ballinger Report prepared as part of the Lakeview Drive Road Construction Project indicating ongoing nutrient issues with the lake causing algae blooms.
- Mid 1970's - Resident Bob Boye begins to release Chinook fry to the lake and helps to develop the Salmon in the Classroom program with the Department of Fish and Wildlife.
- 1976 - Interlocal agreement with Edmonds, King County and Mountlake Terrace to study Lake Ballinger in more detail through King County Metro project.
- 1977 - King County Metro study published with recommendations for improvements to Lake Ballinger.
- 1978 - Mountlake Terrace receives a grant from DOE and EPA to improve water quality.
- 1979 - Mountlake Terrace contracts with Kramer Chin & Mayo to design water quality improvements.
- 1980 - Construction begins on water quality improvements to Hall Creek (bank restoration and two instream sedimentation ponds) and McAleer Creek (bank improvements, removal of accumulated sediment in creek channel and construction of a new weir at the original site on Nile Temple property).
- 1982 - Mountlake Terrace coordinates the readjudication process to reset the level of Lake Ballinger to reduce flooding and drainage impacts due to storm events and to allow operation of new water quality piping system in the lake.
- 1982 - Work is completed on installation of a Hypolimnetic Injection System to transport oxygen rich water from Hall Creek to the bottom of the lake and remove oxygen-depleted water from the bottom of the lake to an outlet at the weir on McAleer Creek.
- Mid 1980's - Several pump failures at the Ballinger Sanitary Sewer Pump Station result in

sewer spills to McAleer Creek and Lake Ballinger.

- 1985 - Mountlake Terrace hires a water quality specialist, sets up a water quality lab and begins monitoring efforts in the Lake Ballinger Basin.
- 1987 - The State of Washington begins efforts to coordinate water quality and stormwater runoff issues in Puget Sound through stormwater management and resource protection by forming a Puget Sound Water Quality Authority.
- 1987 - Mountlake Terrace adopts a new stormwater code for development and water quality control.
- 1991 - Mountlake Terrace implements a project to treat the lake with alum to help reduce nutrient levels through an Ecology Water Quality grant.
- 1991 - New sanitary sewer pump station installed by King County Metro to replace the old City operated Lake Ballinger Pump Station.
- 1992 - Third Lake Ballinger Water quality report published which indicates that the water quality improvements installed in the 1980's are continuing to provide interim treatment and protection, but that continued basin-wide stormwater management is needed to prevent additional degradation of the lake.
- 1993 - Water quality specialist leaves city employment along with the lab technician – water quality lab is dismantled - water quality program is reduced to minimum level for necessary maintenance and complaint response.
- 1993 - Total Maximum Daily Load (TMDL) listing for excess phosphorous is developed by Ecology as part of the water quality plan published in the 1985 final grant report for Lake Ballinger by Kramer, Chin, and Mayo.
- 1995 - Nile Temple Golf Course remodel making an 18-hole course from the original nine-hole course.
- 1996 - State forms the Puget Sound Water Quality Action Team within the Puget Sound Water Quality Authority to review and update management efforts to protect and restore the Sound, and to coordinate with local agencies.
- 1996-7 New Years Day - Major snow storm and subsequent rainfall, raises lake level to an elevation of 283.5 feet, six feet above normal winter elevation – several structures on the south

side of the lake are flooded – the sanitary sewer trunk line on the west side of the lake overflows into the water over a period of several days.

- Spring 1997 - City of Mountlake Terrace and City of Edmonds staff meet with impacted homeowners to discuss possible mitigation measures – the meeting took place at the home of Mr. John Greenwold – no conclusions were reached as remedies would all likely involve the Nile Temple - Nile goes on record as opposing the lowering of the lake and would require compensation for any disrupted play as a result of any work accomplished on Nile property related to the lake level.
- 1999 - Ballinger Recreation, Inc completes Lake Ballinger Golf Course rehabilitation.
- 1999 October - Chinook Salmon are listed as a threatened species in several locations in Washington State, including Puget Sound and Lake Washington.
- 2000 January - Mountlake Terrace forms a separate Storm Water Utility separate from the Water and Sewer Utilities to provide dedicated funding to storm water management activities.
- 2000 - Puget Sound Water Quality Management Plan encourages adoption of more stringent regional stormwater requirements.
- 2001 May - City adopts the 2001 DOE Stormwater Management Manual for Western Washington for all new development proposals.
- 2003 October - Lake Ballinger resident Bob Boye reports the presence of a 15-pound Chinook salmon near his neighbors dock – Bob believes this the first returning salmon he has seen from one of his hatchery releases.
- 2004 August - Two major summer storms cause localized flooding and a higher than normal lake level.
- 2005 January – Meeting between City of Mountlake Terrace, City of Edmonds and the Lake Ballinger Community Association. Periodic meetings are held between staff members of each City and the Lake Ballinger Community Association.
- 2005 September - City of Mountlake Terrace enters into an agreement with Tyrone and Carole Hardy to run the Ballinger Lakes Golf Course.
- 2005 Fall - Heavy rainfall results in a higher than normal lake level.

- 2006 January - Heavy rainfall again results in a higher than normal lake level – 279.4.
- 2006 December – Heavy rainfall results in lake level of 279.5.
- 2007 June – Representatives from Mountlake Terrace, Lynnwood, Shoreline, Edmonds, Lake Forest Park and the Lake Ballinger Community Association meet to discuss water quantity and water quality issues in the Lake Ballinger Basin. Each jurisdiction and the Lake Ballinger Community Association agree to pursue a watershed plan.
- 2007 November – Testing is performed for the first time to identify specific species of algae present in a bloom on the lake. Toxic blue-green algae are present but the toxin level is below the level of concern according to the Snohomish Health District.
- 2007 December - Heavy rainfall is experienced in the Lake Ballinger Basin. 5.6 inches of rain falls in a 36-hour period between 6:00 am Sunday morning December 2<sup>nd</sup> and 6:00 pm Monday December 3<sup>rd</sup> at the Mountlake Terrace Public Works Facility. Streets are flooded in many low-lying areas of the basin with multiple street closures. At least three homes are flooded on Lake Ballinger and six properties are flooded on Hall Creek between Lake Ballinger and 220<sup>th</sup> St. SW. Lake Ballinger Reaches an elevation of 280.6, the second highest level since recording began in 1981. Sewage flows into the lake from at least one location on the Edmonds side and from two locations on Hall Creek in Mountlake Terrace.
- 2008 March – State Legislature authorizes \$200,000 to study surface water and ground water impacts to the level of Lake Ballinger.
- 2008 August – Lake Ballinger/McAleer Creek Forum Interlocal Agreement prepared to develop a Strategic Action Plan for the watershed.
- 2008 November – Lake Level Study by Edmonds, Mountlake Terrace and Shoreline completed and presented to Lake Ballinger/McAleer Creek Forum.
- 2008 November – A public meeting is held at the Ballinger Lakes Golf Course for input into the development of the Strategic Action Plan.
- 2009 May – A second public meeting is held at the Ballinger Lakes Golf Course for final input into the Strategic Action Plan.
- 2009 July – The Strategic Action Plan is accepted by the Forum.
- 2010 January – A Capital Improvement Program is adopted by the Forum.

- 2010 September – A renewed interlocal agreement is implemented with Edmonds, Lake Forest Park, Mountlake Terrace and Snohomish County participating.
- 2011 January – The Johnston Group is hired by the Forum to lobby for federal and state funding to assist with implementation of the Capital Improvement Program developed from the Strategic Action Plan.

**Issues raised by Lake Ballinger residents (at the January 2005 meeting):**

1. **Taxing district for weir maintenance.** The 1942 order and the 1982 adjudication provided a funding mechanism for the state and subsequently the City to maintain and operate the weir. The yearly assessment provides funds for the City to inspect, operate and maintain the weir and the McAleer Creek channel from the lake to the I-5 culvert crossing. The assessment is based on actual time spent by City staff the previous year to inspect and remove debris from the weir on McAleer Creek and to raise and lower the lake level. This assessment is collected and held by Snohomish County until a statement of yearly costs is received from the City. Upon release by the County, these funds are placed into the City Stormwater Utility Fund to reimburse actual expenses.
2. **Level of lake.** The 1942 Superior Court order set the minimum level of Lake Ballinger at 276.5 feet, with a maximum of 278.5 feet. The Director of Hydraulics for the State of Washington was identified to control and maintain the weir. The 1982 adjudication changed this level slightly and approved a new weir structure to replace the failing structure installed in the 1940's. The lake levels adhered to since 1982 are as follows:

a. April 1 to June 15	277.0
b. June 15 to September 15	277.5
c. September 15 to October 31	277.0
d. October 31 to April 1	276.8

The court order also limits the discharge from the lake to no more than 60 cubic feet per second. This is slightly less than the maximum amount of water that can flow through the culverts on Nile Temple property and under Interstate 5. The maximum level of the lake is also not to exceed 278.5 more than once in any five-year period.

3. **Nuisance Animals.** The two major nuisance animals impacting Lake Ballinger are beavers and geese.
  - a. **Beavers.** Beaver naturally make their way up McAleer Creek from Lake Washington

and have, on occasion, damned McAleer Creek and created a nuisance for property owners on the lake by destroying small trees and shrubs. The City has a program in place to remove and relocate nuisance animals as needed.

- b. **Geese.** Geese have been present on the lake in large numbers since the early 1980's. As I am sure all the residents are aware of, geese droppings have been a major inconvenience on grass and lawns and are the major source of high fecal coliform counts in the past at the Lake Ballinger Swimming Beach. A variety of control methods have been used with limited success. The City currently has a contract with the Washington State Department of Agriculture to perform egg addling where nests can be found on City property around the lake. This procedure inhibits hatching by application of an oil film to the eggs. Combined with efforts of property owners around the lake to harass offending birds, the number of geese using the lake on a permanent basis appears to have dropped significantly.

#### 4. Water Quality.

- a. **General Water Quality.** Lake Ballinger is an urban lake with urban runoff problems. Petroleum products from road runoff, nutrients from fertilizers and high fecal coliform levels from domestic pets, animals and birds are the biggest contributors to the water quality problems in Lake Ballinger. The most cost effective method of pollution and nutrient control is at the source. The City has a comprehensive stormwater program that helps to address water quality through street sweeping, illicit discharge identification, spill response and stormwater facility inspections for commercial and multifamily sites.
- b. **Algae Blooms.** Algae blooms are caused by an excess of nutrients in the lake. Algae proliferate, die, and sink to the bottom of the lake. The process of decomposition removes oxygen from the lower reaches of the lake and makes it difficult for aquatic organisms to survive. The southern end of Hood Canal has been identified with the same lack of oxygen, primarily due to the nutrient issues from development runoff and failing septic tanks in the area. The Hypolimnetic piping system serves to help counter this effect by raising the oxygen content of water at the bottom of the lake. Mountlake Terrace participates in the Department of Ecology blue/green algae identification program. To date, blue/green algae has not been identified at a concentration that is harmful to people or pets.
- c. **Swimmer's Itch.** The Snohomish Health District monitors this issue and will post public swimming beaches in the event of an outbreak.

#### 5. Water Quantity.

The issue of the amount of water reaching Lake Ballinger during storm events has been the overriding issue of concern with resident in recent years. While all jurisdictions in the Lake

Ballinger Basin have implemented more stringent stormwater detention standards in recent years, new development continues to add additional impervious surface area to the drainage basin every year. As a result of rainfall events that are occurring with increased intensity and duration, residents on Lake Ballinger can expect to see rapidly rising lake levels during future storm events.

Public education and information is perhaps the most important element of the City of Mountlake Terrace stormwater program. Contacts with residents and sharing of information through fact sheets like this document are very much a part of the solution to water quality and quantity issues on the lake. Residents have a voice in this effort and can be very effective. This fact sheet and chronology of events regarding Lake Ballinger is intended to help to educate and inform residents about storm water issues related to Lake Ballinger. If you have any questions or have additional information to add to this document, please feel free to contact Stormwater Program Manager Mike Shaw at Mountlake Terrace Public Works, 425-670-8264 ext. 5105.