



Mark Thompson – Lake Goodwin - with homemade lake level gauge

## Winter Lake Level Readings Yield Interesting Results

As many of you are aware, this past year was quite a year for lake level fluctuations. We went from a wet snowy winter to a hot dry summer. A wide range of lake level shifts were seen across the County. Nina Lake changed over 1.4 feet and Crystal Lake changed 1.9 feet. In the seven lakes area we found Lake Goodwin changed 2.1 feet and Lake Loma at least 2 feet. However, the biggest changes were seen at Sunday Lake and where levels were estimated to have changed 5 feet!

We encourage all of our volunteers to take weekly lake level readings throughout the

winter if possible. Lake levels are one of the most common concerns of lake residents – as high levels can threaten yards and structures and low levels can affect lake access. In addition, the changes in lake level throughout the year are important to understanding the hydrologic cycle of your lake.

If you are interested in tracking lake levels this winter, please call or email us to obtain a form. Forms are also available at [www.lakes.surfacewater.info](http://www.lakes.surfacewater.info) by clicking on “resources for current volunteers”.

## Snohomish County Volunteer Lake Monitors Update

Winter 2010

### Included in this Issue:

- 2009 Monitoring Results
- Your Data Put to Use
- Toxic Algae Monitoring
- Volunteer Spotlight
- Proposed Fertilizer Legislation
- Winter Lake Levels

## 2010 Lake Photo Contest – Calling All Photographers

You now have had one more year to take that great photo of your lake. Maybe you have a great scenic picture, a shot of someone enjoying the lake, or maybe a wildlife picture. If so – you may win the 2010 lake photo contest. To enter send your photo by mail or email to Marisa Burghdoff ([marisa.burghdoff@snoco.org](mailto:marisa.burghdoff@snoco.org)) and be sure to include the following:

- Photographer’s name,
- Lake
- Photo title

Entries can be submitted anytime before the 2010 volunteer training day.



2009 Photo Contest Co-Winner Mark Fussell- Lake Serene Rainbow

# Snohomish County Volunteer Lake Monitors Update Winter 2010

## A Record Year of Data Collection – THANK YOU!!



Nick Martinoli – Wagner



Lisa Mallant - Kayak

Thanks to all of your help, 2009 was a record breaking year for lake monitoring in Snohomish County. Fifty-five volunteers at 34 lakes made over 300 trips to monitor the health of their lakes. We have never had this many volunteers or collected as many water quality and algae samples as we have in 2009. Your commitment to lake monitoring is critical to tracking long term changes in water quality. The work could simply not be done without your time and effort.

We are working to make the new information available to you and interested citizens. All of your data can be seen through our online database. Your updated annual reports are in progress and should be available on the website ([www.lakes.surfacewater.info](http://www.lakes.surfacewater.info)) in February.

## Your Data Put to Work

After a summer of many hours of volunteer monitoring you probably cannot help but question the value of your efforts. Here are our best answers to some of your common questions.

### WHY COLLECT DATA?

Monitoring sets a baseline condition for our lakes so that we can detect long-term changes in water quality. Lakes, in particular, reach a tipping point at which negative water quality trends are difficult to reverse. Early detection of problems can allow for more immediate actions to reverse trends before it is too late, and costly restoration is needed. In the future data may also be important for detecting broader variables such as climate change.

With 18 years of water clarity data, 14 of nutrient data, and 8 of chlorophyll *a* data – Snohomish County has one of the longest running data sets in the state. Although many lakes are showing no significant changes in water quality, we are beginning to detect worsening conditions in some lakes.

### WHO USES THE INFORMATION?

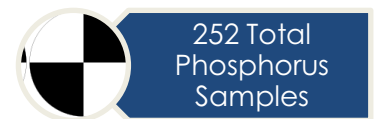
Lakefront citizens are the most frequent end users of your data. We respond to many calls from citizens and give presentations on the water quality of lakes each year with your data. We also estimate about 1,500 visitors each year access the lake web pages that contain your data. Knowing the state of the water quality is usually the first step to taking actions to protect it.

The Department of Ecology also uses your data to decide which lakes should be on a list of “impaired waterbodies” as required by the Clean Water Act. The State then must undertake a study to determine the causes of the problems. The listing also makes the lake more likely to receive funding for restoration or protection actions.

### HOW DOES MONITORING HELP MY LAKE?

Information alone does not necessarily lead to actions to improve water quality. (Continued on page 3)

## 2009 Volunteer Data Collection Statistics



Jim Poyner – Howard



Marv Woolman - Bosworth



Cherie Poyner - Howard



Chuck VanBelle - Ruggs



Dennis Nicholson - Slickney

## Volunteers Critical for Toxic Algae Monitoring 2009

In 2009, volunteers began work on a new toxic algae monitoring program funded by the U.S. Centers for Disease Control (CDC). The project is in partnership with King and Pierce Counties as well as the Department of Health, Department of Ecology, and Seattle University. The grant is large in scope, but our role is to monitor for toxic algae blooms at ten lakes in Snohomish County. The ten lakes are considered high risk for having algal blooms that may be toxic.

For those of you new to the term toxic algae – it refers to a type of algae known as cyanobacteria or blue green algae that may produce toxins. Blue green algae are small photosynthetic bacteria and are a natural component of lakes. In certain conditions they can reproduce rapidly or bloom. Some types of algae produce toxins during blooms. The toxins present a health risk to people or pets who recreate in affected waters.

With the help of three existing volunteers and five new volunteers, we were able to collect bi-weekly water samples from June-October. This was in addition to the standard algae screening samples that everyone collects. Each of the samples was analyzed for two potential toxins, anatoxin-a (a neurotoxin) and microcystin (a liver toxin).

Initial analysis of the 2009 data yielded some interesting results. Four of the 10 lakes (Armstrong, Chain, Lost and Stevens) did not experience major blooms with heavy algal scums. Very low levels of toxin were, however, detected at Armstrong and Lost on one occasion each. Significant algal scums of blue-green algae were found at the remaining 6 target lakes which include: Blackmans, Ketchum, Sunday, Martha N, Loma and Cassidy. Cassidy and Loma did have persistent high toxin levels which exceeded the recreational standards set (Continued on page 3)

## Volunteer Spotlight: Elsie Sorgenfrie

We thought you might like to know a little bit about some of your fellow volunteers. We couldn't think of a better choice to start with than Elsie Sorgenfrie, who has been monitoring for twenty years! Elsie graciously agreed to answer a few questions for us.

### Why did you decide to start water quality monitoring?

My involvement with local Lake Roesiger issues of logging, land use, water conservation/domestic water and lake/fish protection proposals made water monitoring a necessity to understand and evaluate possible lake protection strategies including hypolimnetic aeration techniques. Also, I was retired and had the time to enjoy monitoring and getting to know the lake from the top-down technically.

### What motivates you to continue monitoring?

I have continued monitoring to add accurate, scientific information of Lake Roesiger over time for both the public record and a demonstration of local lake care action. Not to mention my curiosity about what may happen next year and the next and the next

### Is there about Lake Roesiger you would like to share?

Lake Roesiger, like other rural lakes, continues to be vulnerable to dense watershed development. One



Elsie (in middle) with long-time monitoring partners Bob & Joanne Miller

unique feature of Lake Roesiger is the special water quality protections that have been put into place for the PUD district 3. These include septic system grading, scheduled septic tank pumping, and installation of low-flow plumbing fixtures.

### Do you have a good anecdote or monitoring story?

Boats used for monitoring at Lake Roesiger have been paddled, rowed, motored, and towed, but the most unusual paddling power came from two clip boards!



Karen Thompson - Goodwin



Howard Lucus - Ki



Steve Wilson - Ki



Jim Collins - Sunday



Judy & Bud Perry - Sunday

## Your Data Put To Work (cont. from page 1)

However, your data has helped to identify which County lakes are already impaired or are at highest risk for future water quality problems. With this in mind, we applied for a grant with the Department of Ecology to fund lake protection and restoration actions at 10 target lakes in the County. Three of the lakes (Ketchum, Sunday, and Loma) are already classified as impaired. The remaining seven lakes (Flowing, Howard, Ki, Lost, Panther, Shoecraft, and Wagner) are exhibiting one or more trends towards declining water quality. The goal of the project

would be to reduce the inflow of phosphorus into the lakes which is primarily from fertilizers, pet wastes, failing septic systems, erosion, and stormwater runoff. If we obtain the grant, the funds will go towards developing and implementing a social-marketing based outreach campaign to encourage residents to implement lake-friendly behaviors. A special focus of the grant will provide incentives to landowners to restore or protect lake riparian buffers. We won't find out if we receive the grant until late spring or early summer, but we will keep you posted.

## Toxic Algae 2009 (cont. from page 2)

by the State Department of Health. Lake Cassidy, in fact had microcystin levels that were over 1,000 times higher than the standard. Blackmans, Martha N, and Ketchum each had 1 or more sample with very low microcystin levels. Sunday Lake had no toxins detected even though there were persistent bloom conditions. This is surprising because in 2008, the presence of an algal scum was nearly always accompanied by high toxin levels.

This is only the first of three years of data collection. After more years of results, we should gain a better understanding of the toxic algae problem in this region. We may also better understand why blooms and toxin production occur.



Blue-Green Algal Bloom

The project is likely the most comprehensive ongoing freshwater algal toxin monitoring study in the country. It is already receiving attention both regionally and nationwide. This valuable work could not be done without the dedication of our volunteers!

## Bill Proposes a Ban on Phosphorus Containing Fertilizers

The Washington State Lake Protection Association is again working to pass a bill that will ban the application of phosphorus-containing fertilizers for residential turf. Typically in this region, phosphorus is not needed for healthy lawns as the soils are rich in this nutrient. The proposed bill does allow exemptions for landowners who are in the first year of establishing a lawn or when tests show low phosphorus levels. A reduction in phosphorus entering lakes from phosphorus fertilizers could help protect

water quality. Phosphorus is the limiting nutrient in freshwater meaning it is critical for plant and algae growth. Excessive levels of phosphorus can lead to nuisance algal blooms and other water quality problems. For more information on the bill you can visit [www.leg.wa.gov](http://www.leg.wa.gov). For more information on lake-friendly lawn care visit our website at [www.lakes.surfacewater.info](http://www.lakes.surfacewater.info).