

Fish Creek Partnership

A project of the
CHEQUAMEGON BAY
CBAP
AREA PARTNERSHIP

people working for cleaner water

Fall 2016

THE FLOOD STORM OF 2016

How did Fish Creek & Chequamegon Bay Fare?



- ◀ *MODIS satellite image of the Apostle Islands and Chequamegon Bay region from July 16, 2016, showing sediment plumes resulting from floodwaters primarily from Fish Creek (in Chequamegon Bay) and the Bad River (plume to the east).*

Figure 1

The storms that erupted across north central Minnesota and northwest Wisconsin on the evening of July 11, 2016, will not soon be forgotten. Our hearts and thoughts go out to those who lost loved ones, homes, crops, and so much more to the flood waters that plagued our region for days and weeks after the rain stopped falling.

Much has been written about the damage to personal property and infrastructure caused by the flood of 2016. In this article, we'll examine how the floods affected the Fish Creek

watershed and Chequamegon Bay. Anyone driving around Chequamegon Bay following the July 11 storm has seen first-hand the red water that so vividly displays the issue of excess sedimentation. This remains our greatest water quality challenge in the Chequamegon Bay region.

What is perhaps even more striking, is to follow the daily "MODIS" satellite imagery for Lake Superior to see how the sediment plumes in the western arm of Lake Superior and the Chequamegon Bay region are moved

around by the wind and currents in the big lake (visit: <https://coastwatch.glerl.noaa.gov/modis/modis.php?region=s>).

On July 16, a MODIS image zoomed into the Chequamegon Bay region clearly shows the extent of the sediment plumes in Chequamegon Bay (Figure 1). Much of this sediment comes from Fish Creek, as well as the mouth of the Bad River.

However, the highest rainfall

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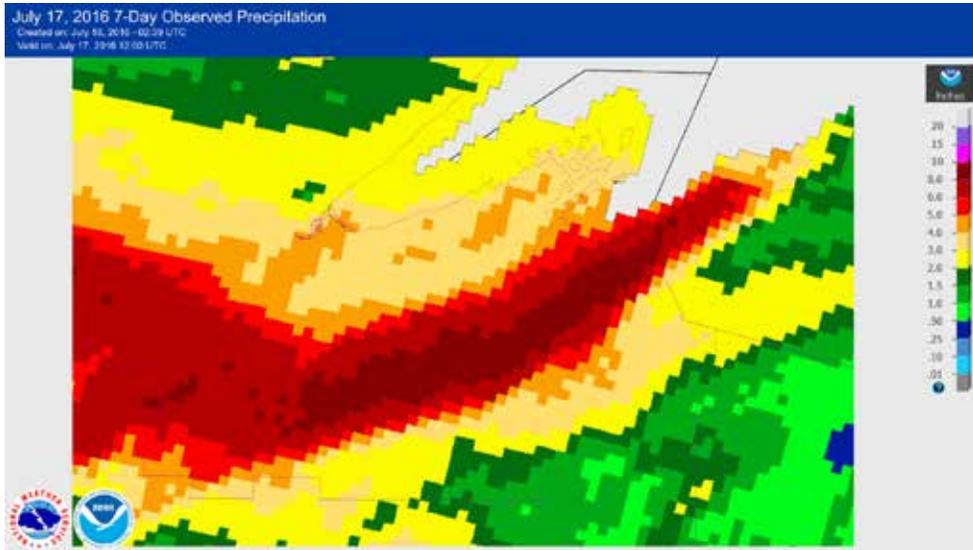


Figure 2 ▲ 7-day precipitation map for northwest Wisconsin and the Chequamegon Bay region.

totals were concentrated in the Bad River watershed to the south of Ashland (Figure 2). Most areas of the Bayfield peninsula and the Fish Creek watershed were spared the worst rains. As a result, the damage to infrastructure in the Fish Creek watershed was small compared to the catastrophic damage seen in the Bad River watershed.

Northland College researchers maintain stream gages on both the north and south fork of Fish Creek. South Fish Creek rose about 7.5 feet following the storm event, and North Fish Creek rose about nine feet. Anyone driving by either stream on July 12 would surely have been impressed by the magnitude of the flood waters. However, based on historical records available from North Fish Creek back to 1989, the flood from the July 11 storm was approximately a “ten-year” flood in this watershed. A ten-year flood means the probability of a flood of this magnitude occurs approximately once every ten years. This was certainly a

large flood, but not nearly as large as what could potentially occur in Fish Creek—and not as large as what did occur in the neighboring Bad River watershed, just a few miles away.

Researchers will continue to monitor and evaluate the effects of the 2016 flood as time goes on. No one expected just how intense this particular summer storm would be on July 11. But what we can start to expect is that storms like this will become more common in our region. How we prepare and manage for these types of events will become even more important in the months and years to come.

Chequamegon Bay Area Partnership Coordinator

Valerie Damstra
715-682-1326
vdamstra@northland.edu
northland.edu/cbap

CBAP PARTNERS

- Ashland County Land and Water Conservation Department
- Bad River Band of Lake Superior Chippewa
- Bad River Watershed Association
- Bayfield County Land and Water Conservation Department
- Bayfield Regional Conservancy
- City of Ashland, City of Bayfield
- Iron County Land and Water Conservation Department
- Northland College (sponsoring organization)
- Northwoods Cooperative Weed Management Area
- Red Cliff Band of Lake Superior Chippewa
- Sigurd Olson Environmental Institute (coordinating partner)
- U.S. Fish & Wildlife Service
- U.S. Forest Service
- University of Wisconsin Extension-Basin Education
- Wild Rivers chapter of Trout Unlimited
- Wisconsin Department of Natural Resources

The Fish Creek Partnership is a project of the Chequamegon Bay Area Partnership, which is coordinated through the Sigurd Olson Environmental Institute at Northland College. This newsletter is paid for by support from the Great Lakes Commission under the authorization of the Great Lakes Restoration Initiative.





"Milfoil Man" makes an appearance at a recent Invasive Species ID Day. Eurasian watermilfoil is one of the invasive species that appears in some local lakes.

INVASIVE SPECIES IDENTIFICATION DAYS

What Plants & Critters are in Your Yard?

BY ADAM HAECKER, *Northwoods Cooperative Weed Management Area Coordinator*, and ANDY TEAL, *Bayfield County Aquatic Invasive Species Coordinator*

Ever wonder what those plants or other critters are your yard? Are they supposed to be there? Should they stay or should you get rid of them?

To help attract the attention of the public to invasive species, and to get people to bring in suspect plants and critters for identification, the Invasive Species Identification (ID) Day was born. The public event began in Oneida County in 2015, and eventually "spread" to our local area. Local Invasive Species ID Days are hosted by the Northwoods Cooperative Weed Management Area (NCWMA), the U.S. Forest Service, and other local partners and

take place at the Northern Great Lakes Visitors Center in Ashland.

Susan Nelson, an interpretive services specialist with the U.S. Forest Service, and Anna Carlson, a talented regional artist, collaborate with invasive species experts to develop and achieve the goals of education and awareness of invasive species. Over 100,000 visitors come to the Visitors Center during the summer months, making it a prime location to spread the message about this topic.

Invasive Species ID Days are hosted once per month from May-October. During this timeframe a wide variety of people are traveling through the area who can learn about invasives. This also provides a snapshot of the different plant communities throughout the growing season. To

keep the monthly events interesting and fresh, and to fulfill the objectives, each event has a recognizable, yet unique theme. There is always something new to see and learn. "Our hope is that each and every Invasive Species ID Day will help educate the public, and provide them with the know-how in preventing aquatic and terrestrial invasive species from entering our waterways and landscapes. This knowledge is so important in a delicate environment such as Chequamegon Bay and Fish Creek," says Adam Haecker, NCWMA coordinator.

Upcoming Invasive Species ID Days for the season are September 14, 2016, from 1-4 p.m. and October 12, 2016, from 11 a.m.-2 p.m. at the Northern Great Lakes Visitor Center. Stop by with your questions and bring your plants to ID. There will be interesting facts, fascinating activities, wacky costumes, and a whole lot of fun! Learn more at northwoodscwma.org or bayfieldcounty.org/906/Invasive-Species.



Join us for the “Learn About Your Land” Workshop Series!

Woodland landowners who want to learn more about how to manage their land to improve their woods, wildlife, or water should plan to attend the Learn About Your Land workshop series. The series will run on Thursday evenings, 6–8 p.m., September 22 through October 20, 2016, on the Northland College campus.

The workshop series features five different classes on a variety of topics important to landowners. Topics include making your land attractive to wildlife, options for forest management, wild edibles you can find on your land, and resources available for woodland landowners. All of the classes are led by state and

local forestry and natural resource experts.

Landowners can register for individual classes or entire workshop series. Individual classes are \$20 per class and the workshop series is \$80 for all five classes. All classes include instruction, class materials, and a light evening meal.

You can register online and find more information at northland.edu/learnaboutyourland. The workshop series is hosted in partnership with University of Wisconsin-Extension, My Lake Superior Northwoods, the Chequamegon Bay Area Partnership, and the Northland College Sigurd Olson Environmental Institute.

northland.edu/learnaboutyourland

Session 1:

SEPTEMBER 22

Learn About Your Land

Discover the history of the Lake Superior basin. Learn about your land and how it fits in the regional landscape, including surrounding plant communities, water resources, and soils. See computer resources that you can use to map your land. Go home with a map/aerial photo of your land.

Session 2:

SEPTEMBER 29

Making Your Woodland Attractive to Wildlife

What elements do wildlife need to thrive in your woods? This class covers general woodland techniques for improving habitat. Activities covered include: providing large mature trees for nut and acorn production and roosting, leaving den trees, periodic thinning for browse and nesting, providing

brushy areas for cover, and retaining shoreline vegetation and woody debris to promote healthy aquatic habitat. Explore how your actions can benefit wildlife.

Session 3:

OCTOBER 6

Options for Forest Management

The Lake Superior basin has an interesting variety of forest types ranging from boreal forest, to sand barrens, to balsam fir/birch woods. What type of forest stand do you have? Are you looking at maintaining or changing the composition? How will climate change affect your choice of trees for planting? What invasive species are affecting your woods? Explore the variety of forest management options and their outcomes.

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Session 4:

OCTOBER 13

Goods from Your Woods

Ever wonder what useful products you can produce or gather from your woods? Join us in an overview of such woodland products as maple syrup, mushrooms, firewood, nuts, berries, and herbs. We will discuss some considerations for collecting each and resources to get started.

Session 5:

OCTOBER 20

Resources for Woodland Owners

Introduces the people, programs, and organizations that can help you with your woodland. Learn about sources of cost-share funds for tree planting and other activities, Wisconsin's Managed Forest Law program, conservation set-aside payment programs, permanent land protection inter-generational transfer workshops, and landowner associations and organizations that can support your woodland activities.



Instream Phosphorus Concentrations:
Chequamegon Bay Tributaries (2014 and 2015)

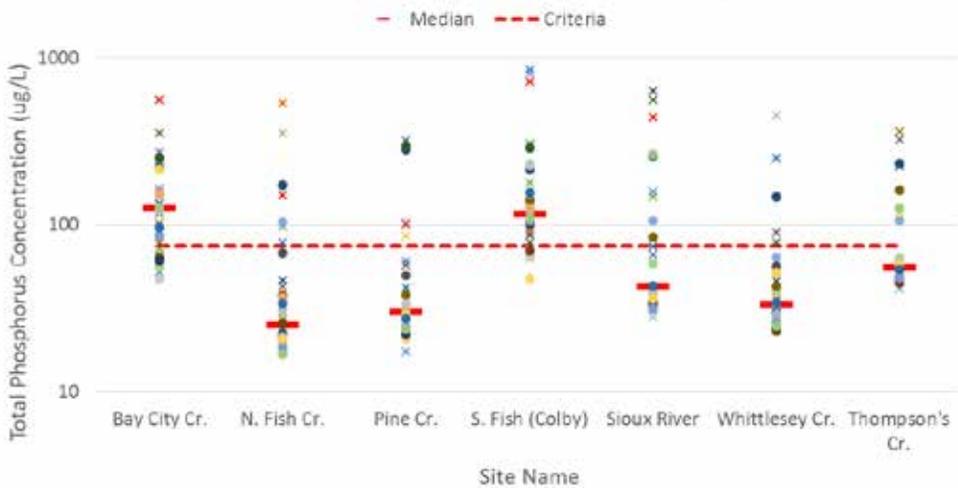


Figure 1 ▲ 2014 and 2015 total phosphorus results from stream sites around Chequamegon Bay that are monitored by Northland College.

Phosphorus in the Fish Creek Watershed

The health and cleanliness of our waterways is on the forefront of everyone’s minds. Northland College researchers began collecting water quality data in 2014 and are leading the way in learning more about the current health of the waters of Fish Creek in Chequamegon Bay. As part of its research, the College maintains twelve continuous flow monitoring stations on tributaries around Chequamegon Bay. Researchers also collect water chemistry data from eleven sites within Chequamegon Bay every two weeks from spring through fall.

While there are a variety of goals to the ongoing research, one of the main goals is to determine if there are any current water quality concerns in the Chequamegon Bay and its tributaries. If there are concerns, what are they, where are they coming from, and what can be done about them?

One of the nutrients identified as abundant in the Fish Creek watershed is phosphorus. Phosphorus is an essential nutrient for plant growth. However, too much phosphorus in aquatic systems can lead to water quality problems such as algae blooms. Algae blooms can lead to a host of other problems including fish kills, toxins that can make water unsafe to swim in or drink, odors and other issues affecting the aesthetic enjoyment of water bodies, and loss in property value.

As a result, limiting the amount of phosphorus entering streams and lakes from human activities (e.g. human and animal waste, fertilizer, etc.) is critical to maintaining healthy water bodies. The State of Wisconsin regulates the amount of phosphorus that enters Wisconsin water bodies. Streams, like those in the Fish Creek watershed, are not to consistently exceed a level

of seventy-five micrograms per liter of total phosphorus per liter of water. Once a water body consistently exceeds this criteria, it is placed on the state’s “impaired waters” list and efforts typically begin to eventually reduce the existing sources of phosphorus and prevent new sources of phosphorus. The impaired waters list is tied to the federal Clean Water Act.

Total phosphorus data was collected from several stream sites around Chequamegon Bay in 2014 and 2015 (Figure 1). The dashed red line represents the State of Wisconsin’s phosphorus criteria. The red rectangles at each site indicate the median total phosphorus concentration. Two sites sampled that stand out are Bay City Creek in Ashland and South Fish Creek at Colby Road. Both of these streams consistently exceeded the state’s water quality criteria for total phosphorus in samples collected in 2014 and 2015.

Because these sites have revealed elevated phosphorus levels, and exceeded the state criteria for phosphorus, both Bay City Creek and South Fish Creek have been added to the draft 2016 impaired waters list for Wisconsin. The listing could have implications for any new proposed activities that could potentially increase the amount of phosphorus running into these streams.

Despite any new proposed activities that may or may not occur in the Fish Creek watershed, it is evident that current phosphorus levels are high in the watershed and need to be addressed. Attention will be directed next to looking more specifically at what the sources of phosphorus are and what can be done. Researchers will continue work with local partners like the Chequamegon Bay Area Partnership and private landowners to identify solutions to reduce phosphorus, and prevent more phosphorus from entering the streams.



City of Ashland Forms the Source Water Protection Committee

The City of Ashland recently announced the formation of its Source Water Protection Committee. The committee is charged with identifying and developing strategies to protect the city's drinking water source. These strategies will be used to develop a Source Water Protection Plan for the Chequamegon Bay and the City of Ashland.

The City of Ashland's source of drinking water is surface water from the Bay. Due to the vulnerable nature of surface water, most drinking

water systems utilizing surface water have a high level of susceptibility to contamination. One of the best ways to ensure safe drinking water and minimize treatment costs is to develop a local program designed to protect the source of drinking water against potential contamination.

Ashland's source water area includes over 200 square miles, and includes the lands drained by Bono Creek, Boyd Creek, Fish Creek, Bay City Creek, and many unnamed tributaries to Chequamegon Bay.

It said that Ashland's source water is impacted by the source area water and is "highly susceptible to contamination due to the confined nature of Chequamegon Bay and erodible soils and land uses in the source water area."

Increased interest in protecting the health of the water has prompted city officials to move forward with the formation of this committee to create a protection plan. The city relies solely on Chequamegon Bay to provide drinking water for its more than 9,000 consumers, businesses, educational institutions, and tourists.

The Wisconsin Department of Natural Resources (WDNR) published a report in 2003 titled the "Source Water Assessment of the Ashland Water Utility." The primary purpose of this assessment is to determine the relative susceptibility of Ashland's source of drinking water to contaminants. That report also included a recommendation that source water protection should begin with the formation of a team made up of local, regional, and state members to more completely assess the impacts to source water and implement best management practices to prevent source water contamination.

"We are excited to bring together an exceptional group of decision makers and local experts in water resources, water protection, and land management to put together this plan," said Raymond Hyde, former director of public works. The city will also receive assistance from the Wisconsin Rural Water Association to develop the protection plan.

The Source Water Protection Committee will be working over the next year to compile the baseline data, evaluate land uses, and develop its recommendations. A draft plan is expected in late 2017.

Future of the Great Lakes Restoration Initiative



Northland College

Alvord Theatre

Friday, September 30

7-8:30 pm

The Northland College Burke Center for Freshwater Innovation will lead a panel discussion on "The Future of the Great Lakes Restoration Initiative," moderated by Peter Annin, co-director of the Burke Center, with special guest panelist Cameron Davis, senior advisor to the administrator of the U.S. Environmental Protection Agency. Davis has served as the Obama administration's liaison to Capitol Hill and coordinated the work of eleven federal departments under the Great Lakes Restoration Initiative.

Other panelists include: Katherine Buckner, president of the Council of Great Lakes Industries, Todd Ambts, campaign director of the Healing our Waters Coalition, Mic Isham, chairman of the Lac Courte Oreilles Band of Lake Superior Chippewa and chairman of the Great Lakes Indian Fish and Wildlife Commission, all of whom represent a diverse group of stakeholders from the environmental advocacy community, industry, and tribes.

The discussion will start with a brief overview of the GLRI program and history by Burke Center Co-director Randy Lehr. This event is free and open to the public.

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CHEQUAMEGON BAY
CBAP
AREA PARTNERSHIP
1411 Ellis Ave
Ashland, WI 54806
(715) 682-1326