Lake Management Plan for Bear Lake, Forest County, Wisconsin

June 2013

Prepared by: Turyk, N, R. Bell, N. Feiten, H. Templar

Center for Watershed Science and Education
College of Natural Resources
University of Wisconsin-Stevens Point

Acknowledgements

Many people were involved with this project and shared their time, insight, and funds. We appreciate their efforts and are grateful for their participation. We were honored to work with the dedicated volunteers and UW-Stevens Point students that collected samples in good and poor weather and Jenny Henkel, Dave Muench, and Sally Lewis for initiating this project and helping to coordinate this effort.

Our partners include:

- Bear Lake Shores Association
- Town of Blackwell
- US Forest Service (USFS)
- Forest County Land Conservation Dept.
- Wisconsin Dept. Natural Resources
- University of Wisconsin-Stevens Point

Abstract

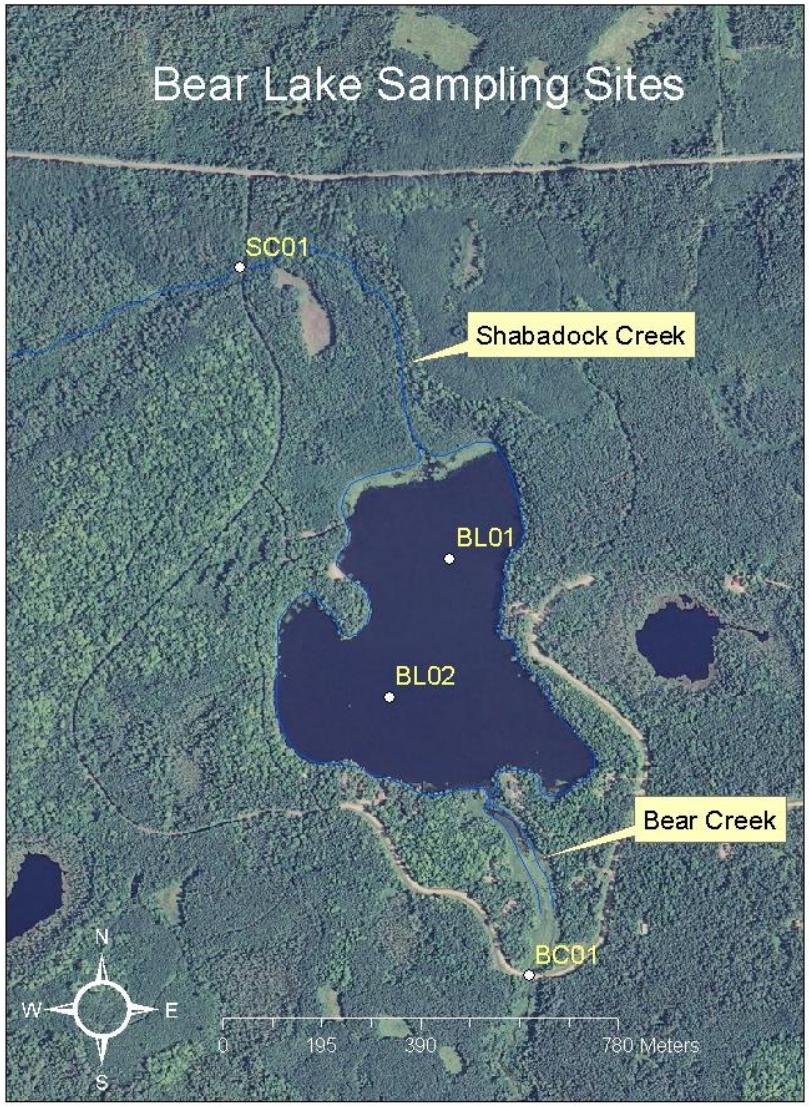
A health advisory was posted for Bear Lake in Forest County, Wisconsin by the United States Forest Service (USFS) for blue-green algae, which exceeded the World Health Organization's health standards. Since 2006, lake water had high concentrations of phosphorus (P), which likely contributed to the excess blue-green algae growth in Bear Lake. Drivers of the blue-green algal growth were unclear because the watershed is located on primarily undisturbed National Forest land. The abundance of aquatic plants was minimal, likely due to the rusty crayfish, an invasive species that has become profuse in Bear Lake. In addition, shoreland development had occurred in recent years.

During this two-year study; biological, physical, and chemical properties were evaluated in the groundwater, inflow/outflow streams and Bear Lake. Blue-green algal growth in Bear Lake appears to be a result of a combination of factors. Sources of phosphorus to Bear Lake include Shabadock Creek, surface runoff, groundwater, and internal loading. Water entering Bear Lake from Shabadock Creek delivers the greatest amount of phosphorus; however, the phosphorus concentrations in the creek are typical for a watershed that is comprised of forests and wetlands. Phosphorus inputs from sediment contact with anoxic water occurs when the lake is stratified; however, since Bear Lake remains stratified throughout the summer this should be of little consequence to algal growth in the upper part of the water column. Some of the groundwater entering Bear Lake appears to be influenced by cultural sources such as septic systems. The newer septic systems that are located near areas of groundwater inflow will likely contribute phosphorus to the lake as the systems age. Shoreland runoff was not assessed, but where open soil exists, soil (with phosphorus) can erode and runoff the landscape into the lake.

Rusty crayfish appear to be having a large impact on the phosphorus and algal dynamics in Bear Lake. Because the rusty crayfish are removing most of the aquatic plants in Bear Lake, the phosphorus that would have be tied up in plant tissue is available for use by algae. To compound matters, rusty crayfish preferentially feed on green algae, leaving more blue-green algae to prosper. This can result in greater and more frequent blue-green algae blooms.

Warmer temperatures and dry conditions existed prior to the start of this study. These conditions may have also played a role in the intense blue-green algal blooms that were observed and led to this study.

This study was a partnership between the members of the Bear Lake Shores Association, the Town of Blackwell, the Wisconsin Department of Natural Resources (WDNR), US Forest Service (USFS), Forest County Land Conservation Department, and the University of Wisconsin - Stevens Point's Center for Watershed Science and Education (CWSE). The *Algal and Water Quality Assessment and Strategic Plan for Bear Lake, Forest County, Wisconsin*, developed by the CWSE can be referenced for more information.



Bear Lake is a 68 acre drainage lake with a maximum depth of 26 feet.

Water enters Bear Lake through Shabadock Creek (its inflow stream) and groundwater. Water exits through Bear Creek (its outflow stream).

In recent years, health advisories were posted for Bear Lake by the USFS for blue-green algae, which exceeded the World Health Organization's health standards. The lake is located in a relatively undeveloped watershed; therefore, the causes of the blue-green algae growth were initially unclear.

Figure 1. Map showing Bear Lake's inflow and outflow streams, and sampling sites.

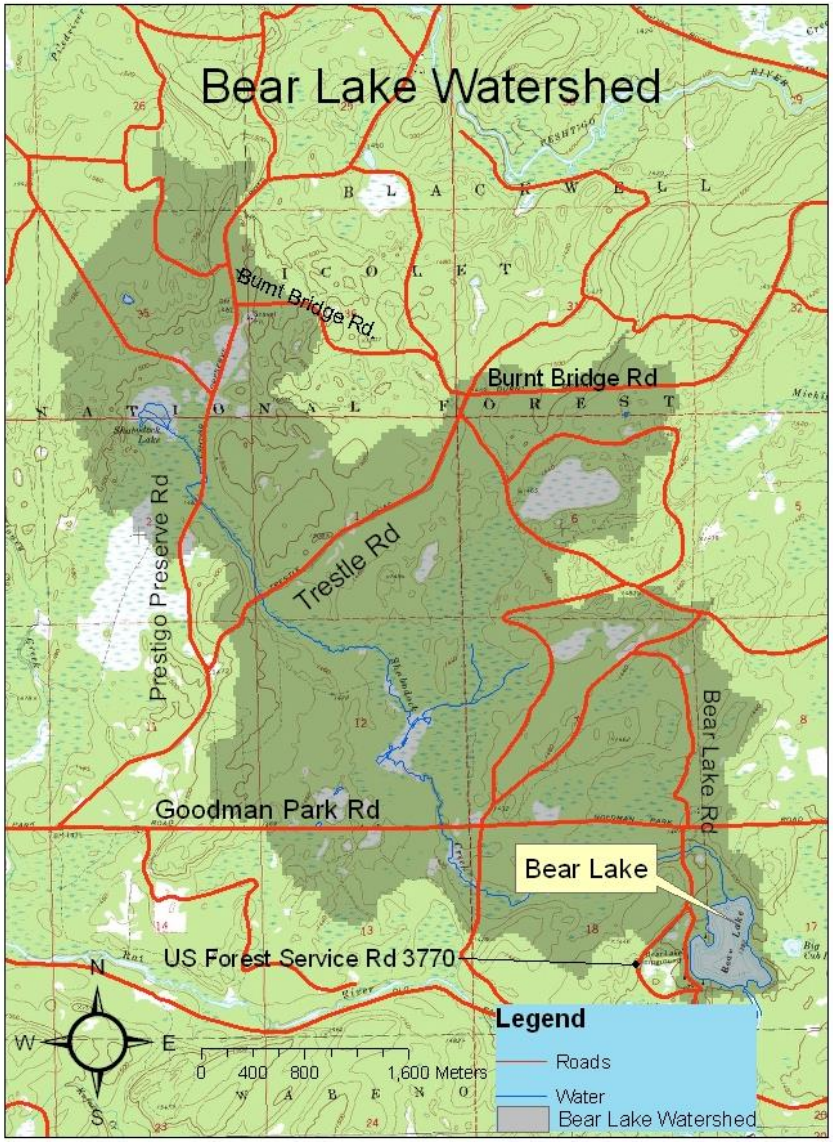


Figure 2. Bear Lake surface watershed.

A watershed is the area of land that drains to a lake.

Land cover and land management practices occurring in a watershed can affect the water quality in a lake. These characteristics also play a large role in how water moves across the landscape and how much water soaks into the ground (for long term storage) or quickly runs off the land.

The primary land cover in the watershed is forest and wetlands. Bear Lake is primarily located within the Nicolet National Forest, with some private land adjacent to its shore.

A 27-site US Forest Service campground exists on the western shore and seven private homes exist on the southern and eastern shores. In general, the land closest to the lake has the greatest immediate impact on water quality.

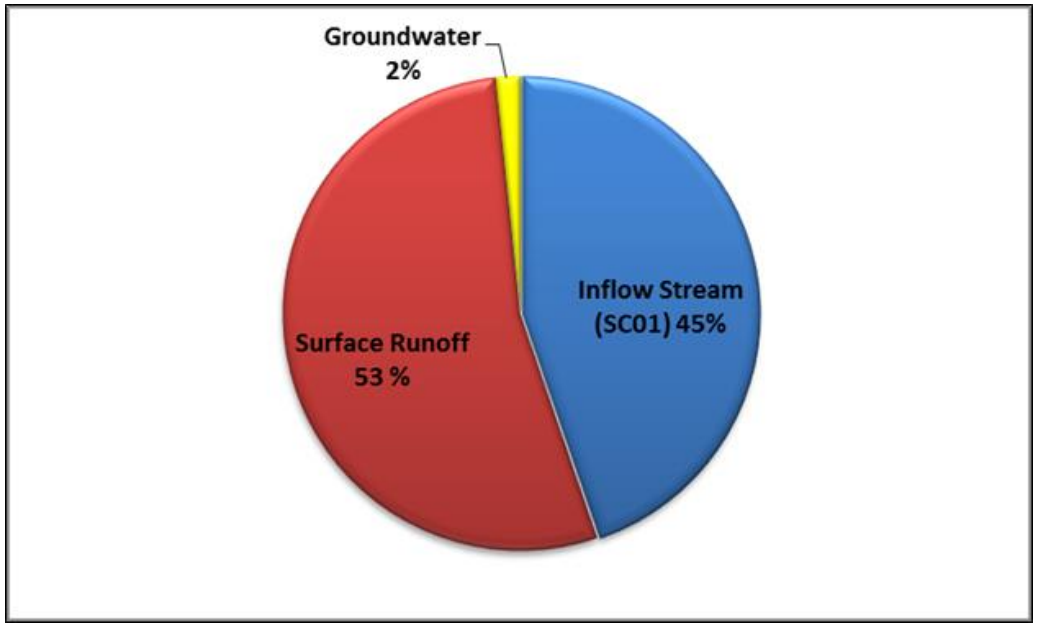


Figure 3. Estimated water budget for Bear Lake.

Understanding how water moves to and from a lake is critical in determining how to reduce nutrient inputs (primarily phosphorus and nitrogen) which will be necessary to reduce blue-green algae blooms in Bear Lake.

The amount of water and rate of water flowing into and out of the lake can greatly affect the amount of time water stays in a lake, which in turn affects its water quality, and the amount of algae and aquatic plants found in a lake.

A water budget was calculated from flow measurements taken from the inflow stream, and outflow stream. A little more than 50% of the water was estimated to be entering the lake by surface runoff. About 45% of the water was measured to be entering through the inflow stream, Shabadock Creek. The smallest portion, about 2% of water entering Bear Lake, is estimated to be coming from groundwater inflow. The majority of water in Bear Lake leaves through the outflow stream, Bear Creek.

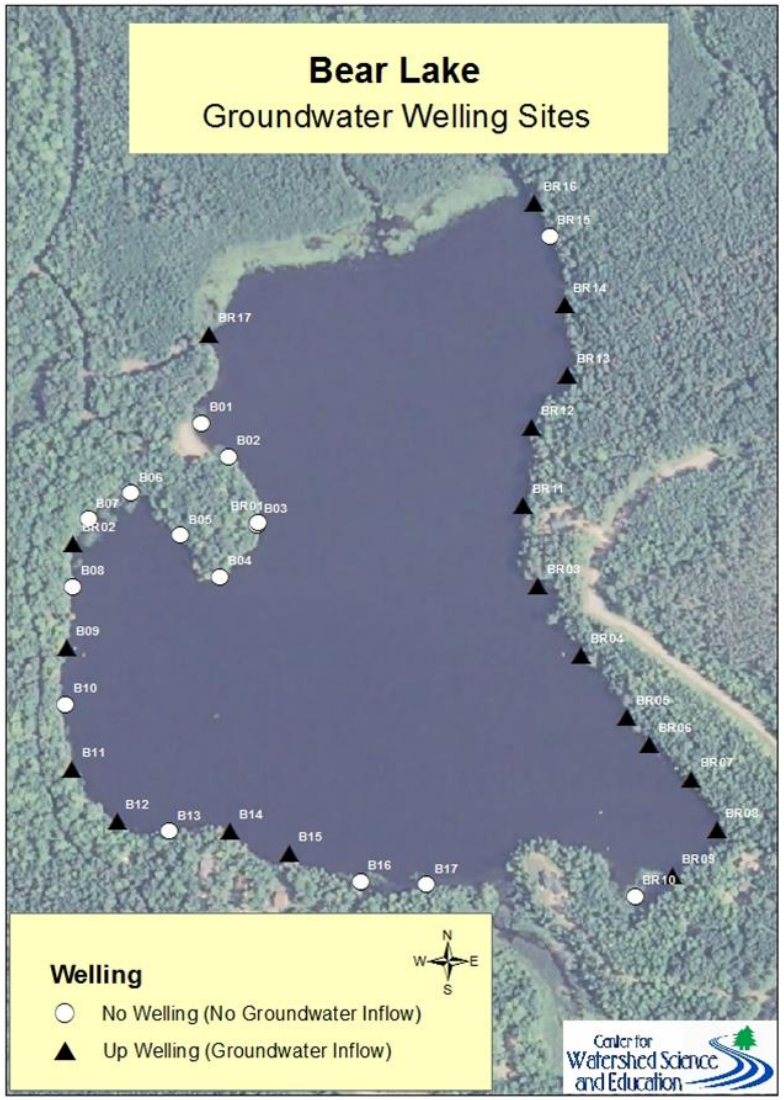


Figure 4. Areas of groundwater inflow and outflow in Bear Lake.

Groundwater supplies water to Bear Lake throughout the year, but is an especially important source of water during dry periods and while the lake is covered with ice. Groundwater inflow sites were found primarily on the eastern and western shores. No groundwater outflow sites were identified in the survey.

The quality of groundwater is affected by the local geology, soil, and land management practices. It can carry essential minerals and nutrients along with pollutants.

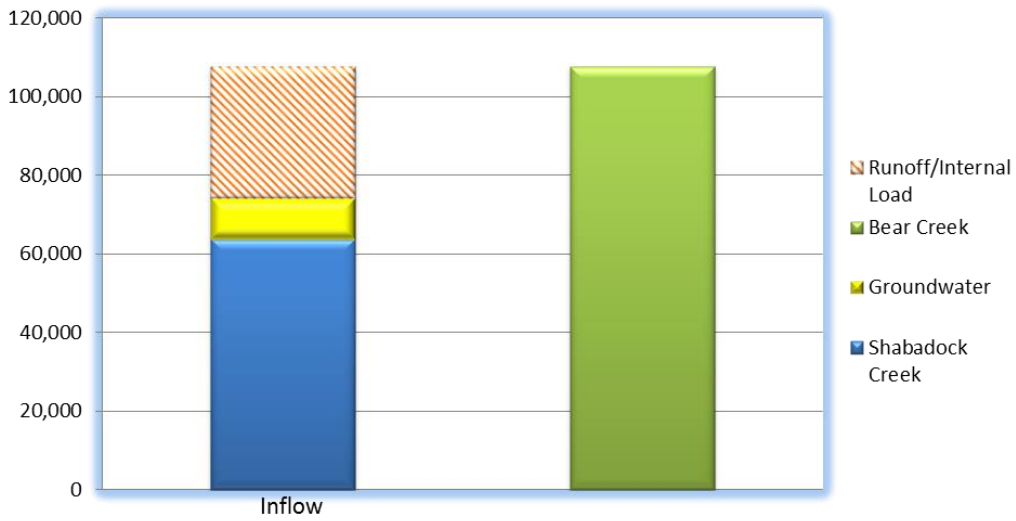
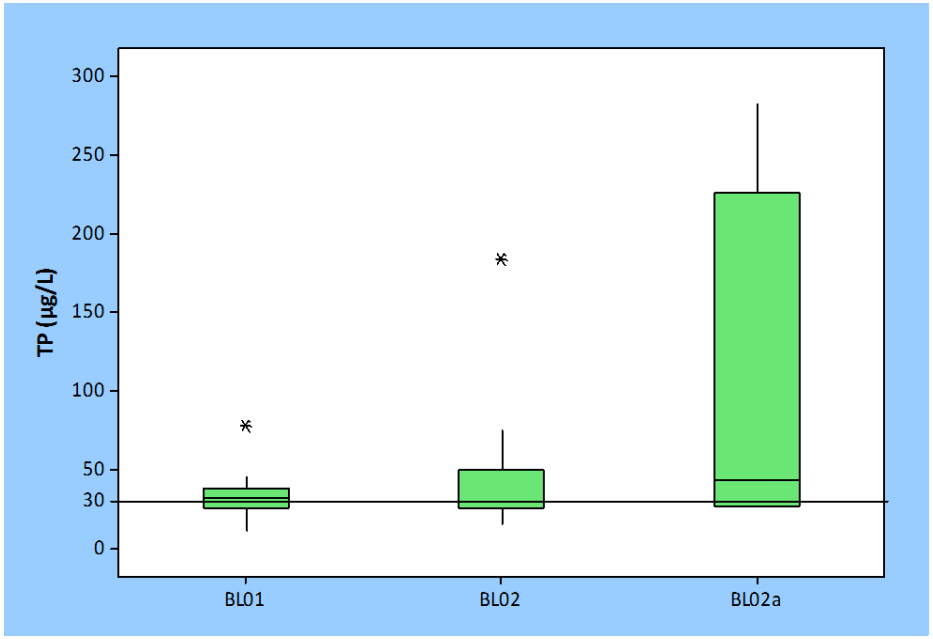


Figure 5. Estimated annual phosphorus budget (kg) for Bear Lake.

Phosphorus (P) is entering Bear Lake from Shabadock Creek, near shore runoff, and groundwater. Internal loading from the lake sediments is also contributing phosphorus to Bear Lake.

Nutrients are the primary fuel for algae and aquatic plant growth in lakes. As an essential nutrient, phosphorus is present naturally throughout the watershed in soil, plants, and animals. It is transferred to the lake by the erosion of soil and runoff from sources such as animal waste, fertilizers, septic system effluent, and wetlands.



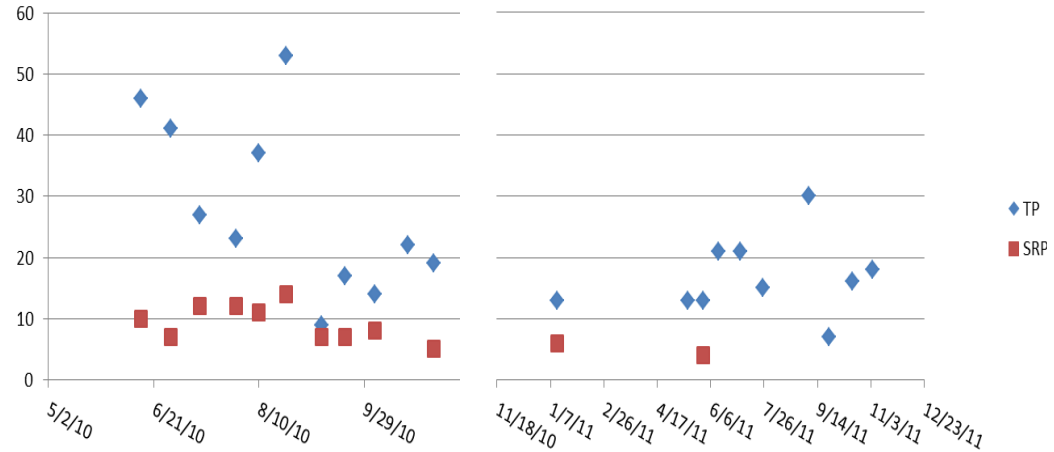
The DNR phosphorus standard in deep drainage lakes like Bear Lake is 30 µg/L (WDNR 2010).

In Bear Lake, the median total phosphorus (TP) concentrations were near 30 µg/L during 2010 and 2011. BL01 and BL02 slightly exceeded this threshold with medians of 30 and 29 µg/l respectively.

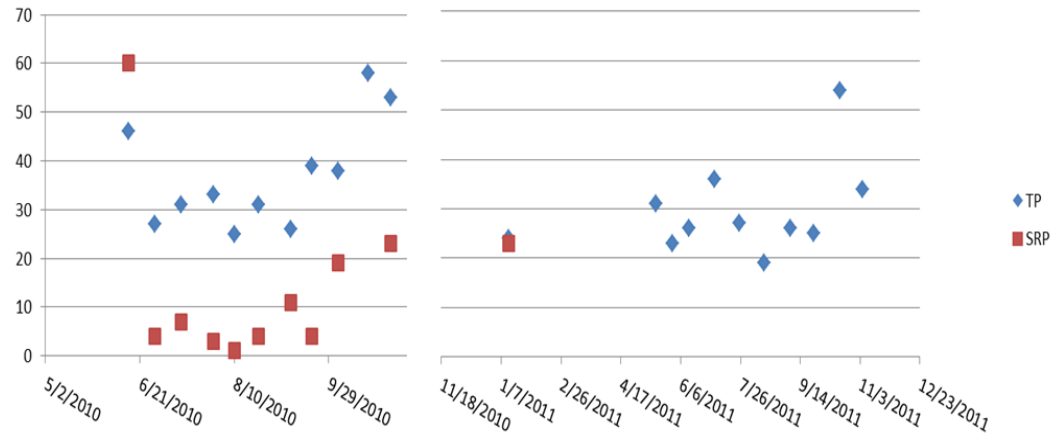
BL02a exhibited a higher median TP concentration of 40 µg/L but is not held to the phosphorus standard because it was collected from the bottom of the lake.

Figure 6. Boxplot of total phosphorus (TP) concentrations in the north deep hole (BL01, 2010 only), south deep hole (BL02, 2010 and 2011), and bottom waters of the south deep hole site (BL02a, 2010 only).

Shabadock Creek



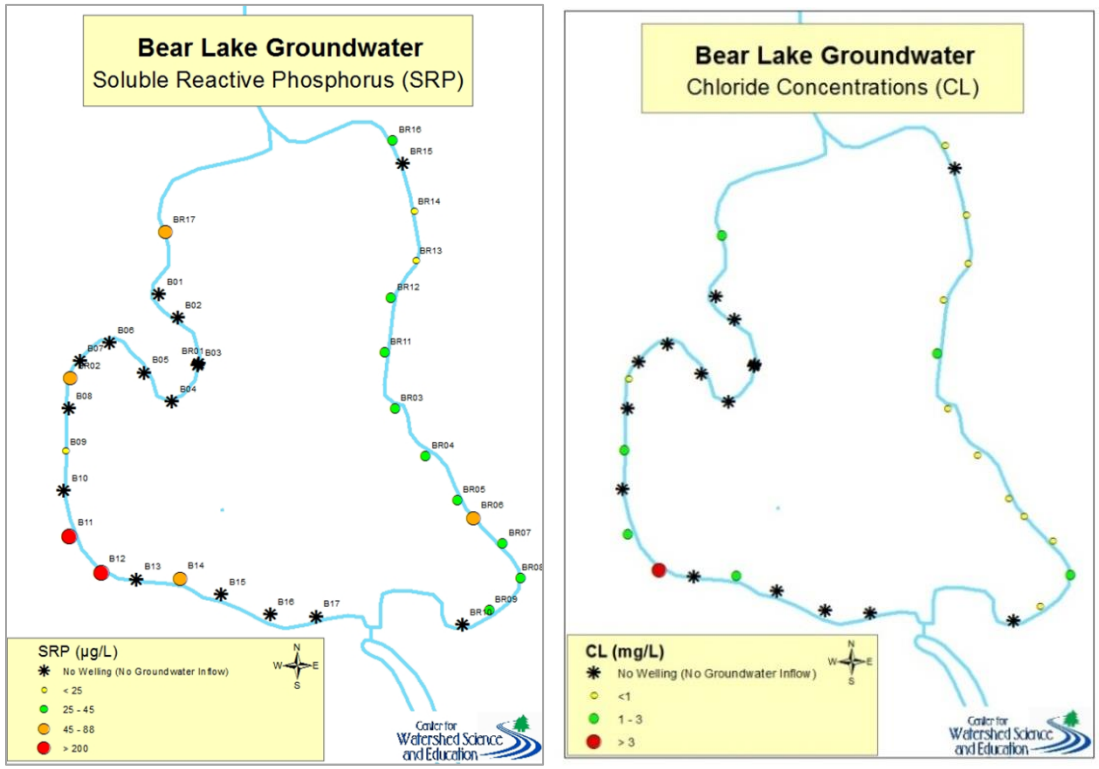
Bear Creek



The median total phosphorus (TP) concentrations in both the inflow (Shabadock Creek-SC01) and the outflow (Bear Creek-BC01) were below the phosphorus standard of 75 µg/L for wadable streams in Wisconsin (WDNR 2010).

During the 2010-11 study, the median concentrations were 21 µg/L in SC01 and 31 µg/L in BC01.

Figure 7. Phosphorus concentrations in samples collected from Shabadock and Bear Creeks.



Analysis of groundwater samples showed phosphorus concentrations ranging from 19 to 560 µg/L. The six sites with phosphorus concentrations greater than 45 µg/L were located near areas of development around Bear Lake.

Locations with elevated phosphorus concentrations are close to the locations of campground privies, indicating that they may be a source of phosphorus entering the lake through groundwater.

Figure 8. Concentrations of soluble reactive phosphorus and chloride in groundwater samples collected from upwelling sites at Bear Lake.

Chlorophyll a is related to algal concentrations; therefore, it varies seasonally and from year-to-year depending on the growing conditions for algae. Chlorophyll a is a substance produced by algae and when measured gives an idea of relative abundance of algal species within the lake (including blue-green algae).

*Median chlorophyll a (Chlor a) concentrations were 11 µg/L, the threshold necessary to classify the lake as eutrophic (Shaw et al. 2002). For both years, BL02 had a median concentration of 11.5 µg/L, slightly above the threshold (*Figure 9*).*

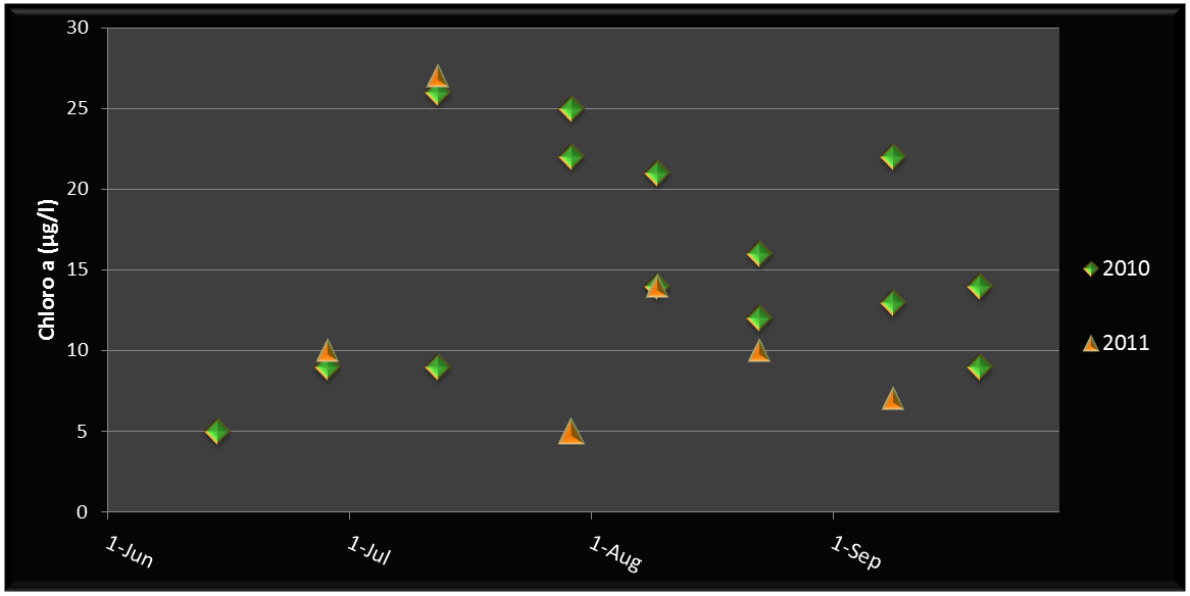


Figure 9. Chlorophyll *a* concentrations in the north deep hole (2010) and the south deep hole (2010 and 2011).

Blue-green algae blooms occurred in summer and fall 2012.

In each sample period, blue-green algae taxa were in the top five of most common taxa counted, and in 50% of the sampling periods, they were the most common phylum. Oscillatoria (filamentous) and Woronichinia (sheathed colony) were the most common blue-green algae taxa. Blue-green algae exhibited co-dominance with green algae.

Problem blue-green algae had elevated populations during mid-July and October. Fall blooms could be associated with the mixing of lake water and release of phosphorus, along with other nutrients from internal loading, into the upper water column.

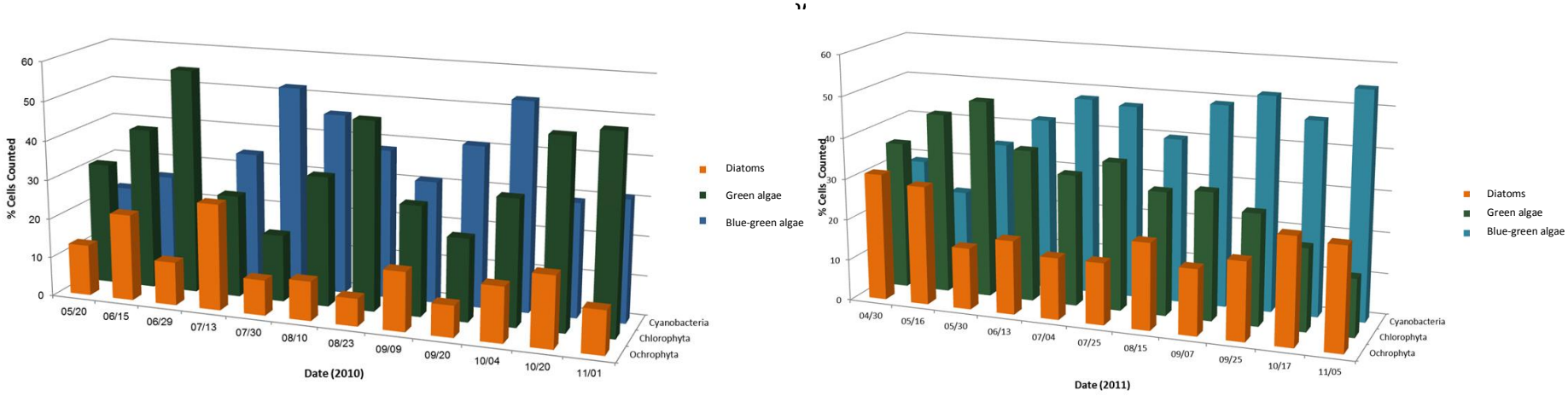


Figure 10. Percentage of three most common algae types present in samples collected during May-November 2010 and April-November 2011.

The non-native and invasive rusty crayfish (Orconectes rusticus) resides in Bear Lake, and the population may have a profound impact on the ecosystem and particularly the aquatic plant community.

The crayfish destroy native aquatic plant populations when feeding, resulting in more phosphorus available for use by algae.

Rusty crayfish also preferentially feed on green algae species and do not often feed on blue-green species, often leading to increased blue-green algae populations (Dorn and Wojdak, 2002).

Figure 11. Photo of rusty crayfish in a shallow area of Bear Lake, summer 2010.

Study Conclusions and Recommendations

Blue-green algal growth in Bear Lake appears to be a result of a combination of factors. Sources of phosphorus to Bear Lake include Shabadock Creek, surface runoff, groundwater, and internal loading.

Water entering Bear Lake from Shabadock Creek delivers the greatest amount of phosphorus; however, the phosphorus concentrations are typical for a watershed that is comprised of forests and wetlands.

Phosphorus inputs from sediment contact with anoxic water occurs, but unless water in Bear Lake mixes during the summer this should be of little consequence to algal growth in the upper part of the water column.

Some of the groundwater entering Bear Lake appears to be influenced by cultural sources such as septic systems. The newer septic systems that are located near areas of groundwater inflow will likely contribute phosphorus to the lake as the systems age. Shoreland runoff was not assessed, but where bare soil exists, soil (along with phosphorus) can erode and runoff the landscape into the lake.

Rusty crayfish appear to be having a large impact on the phosphorus and algal dynamics in Bear Lake. Because the rusty crayfish are removing most of the aquatic plants in Bear Lake, the phosphorus that would have been tied up in plant tissue is available for use by algae. To compound matters, rusty crayfish preferentially feed on green algae, leaving more blue-green algae to prosper. This can result in greater and more frequent blue-green algae blooms.

Warmer temperatures and dry conditions existed prior to the start of this study. These conditions may have also played a role in the intensity of blue-green algal blooms that were observed and led to this study.

Since the Bear Lake watershed has limited cultural impacts to the lake, only a handful of options are available to reduce the magnitude and frequency of blue-green algal blooms in Bear Lake.

1. Make efforts to control additional phosphorus inputs to Bear Lake by minimizing soil disturbance, setting back septic systems, controlling runoff from roofs and other impervious surfaces, and minimizing the disturbance of natural shoreland vegetation.
2. Reduce the rusty crayfish population through trapping and/or bio-manipulation.
3. Put measures into place to prevent the introduction of other non-native aquatic plants and animals. These measures should include prevention and early detection.
4. Continue monitoring the water quality in Bear Lake to ensure data are available to determine if efforts are resulting in improvements or if re-direction of efforts is warranted.

Lake Management Plan

The purpose of this lake management plan is to provide guidance to protect current conditions that are desirable, address existing problems, and prevent future problems to the Bear Lake ecosystem. This plan was developed by a group of citizens, the US Forest Service, and the Town of Blackwell in April 2012.

Our vision for the management of Bear Lake is that it will have excellent water quality and wildlife habitat that is in balance and harmony with human activity on the lakes.

Water Quality

Most people interpret the water quality in a lake by visuals such as how murky it is, how much algae or aquatic plants they see, or through sense of smell if odors are present. Managing water quality involves taking measurements in the lake and collecting samples for analysis. Interpreting the results involves looking at what is happening in a lake as well as what is happening on the landscape.

Our Vision:

Bear Lake will have clear and healthy water with minimal algal blooms, and no toxic algal blooms.

Goal 1: To prevent degraded water quality in Bear Lake, total phosphorus (TP) concentrations will be at or below 30 µg/L. We know we have achieved this when there are three consecutive summers with median TP concentrations in at least three water samples/summer that are below 30 µg/L.

Objectives 1: Inflowing stream water and lake water will be monitored for phosphorus, chlorophyll a, temperature, and dissolved oxygen.

Action	Lead person/group	Start/end dates	Resources
1.1 Monitor lake water quality for water clarity (Secchi), total phosphorus, and chlorophyll a during the summer.	Dave Muench - Bear Lake Shores	On-going	WDNR's CLMN program
1.2 Monitor temperature and dissolved oxygen throughout the lake's water column and throughout the year. Watch for mixing of water column following summer storms (uniform temperature from top to bottom).	Dave Muench - Bear Lake Shores	On-going	WDNR's CLMN program
1.3 Monitor lake water quality for TP during spring/fall overturn.	Dave Muench - Bear Lake Shores	On-going	WDNR's CLMN program

*All data will be reported to WDNR's citizen lake monitoring program

Watershed Land Use

A surface watershed is the land area where runoff from precipitation drains to water bodies. Surface watersheds with large amounts of steeply sloped land, stream inflows to the lake, and a large percent of impervious surface (buildings, roads, compacted soil) deliver additional surface runoff by averting infiltration into the soil and by funneling water directly to the lake. The watershed map for Bear Lake is on page 11 of this document.

Our Vision:

Land use in Bear Lake's watershed will have a minimal impact on the quality of Bear Lake.

Goal 2: Watershed landowners, USFS staff, and citizens who recreate in the Bear Lake watershed will understand and implement practices to minimize land use impacts on Bear Lake's water quality.

Objectives 2.1: Land owners in the watershed and lake users will be informed about and urged to implement good land management practices. Initial efforts will focus on lot owners in Bear Lake Shores development, the USFS, and visitors to the campground. Over time, efforts may expand to owners of parcels in the watershed, especially near Shabadock Lake and Creek.

Actions	Lead person/group	Start/end dates	Resources
2.1.1 Provide information about minimizing runoff from impervious surfaces and locating septic drainfields to minimize phosphorus inputs to Bear Lake.			UWEX Lakes, Forest County Land Conservation Dept.
2.1.2 Install a demonstration site (possibly a rain garden at town hall).			Forest Co. Land Conservation Dept. and Town of Blackwell
2.1.3 Monitor deeded access point (used for picnics, fishing, and boating) to minimize soil compaction and erosion.	Dave Muench - Bear Lake Shores	Beginning 2013	
2.1.4 Forestry practices should be conducted in a manner that reduces runoff to Shabadock Creek and Bear Lake.			UWFS, Forest Co. Forester, brochures for landowners
2.1.5 Erosion control practices should be employed when soil is open for activities such as construction.	Bear Lake Shores		Forest Co. Land Conservation Dept.

Objectives 2.2: USFS will use management options that minimize impacts to the Shabadock Creek and Bear Lake.

Actions	Lead person/group	Start/end dates	Resources
2.2.1 Encourage USFS to install boardwalks in heavily used areas and when possible remediate compacted soils near shore within the campground.	Bear Lake Shores		USFS
2.2.2 Forestry practices should be conducted in a manner that reduces runoff to Shabadock Creek and Bear Lake.			USFS
2.2.3 New septic systems that discharge to groundwater should be sited away from the lake.			USFS
2.2.4 Provide information to campers and boaters to minimize their impacts on the lake (trampling near shore plants, bathing in lake).	Dave Muench Bear Lake Shores	Beginning 2013	USFS, UWEX Lakes

Shorelands

Shorelands play an important role in a lakes ecosystem. Many creatures rely on shorelands for all or part of their life cycles as a source of food, a place to sleep, cover from predators, and to raise their young. Shoreland vegetation helps prevent shoreline erosion by slowing runoff washing into the lake. Native shoreland plants help filter pollutants entering the lake, and use nutrients that might otherwise be consumed by algae and aquatic plants. In addition, natural shorelines can also help to muffle noise from watercraft, and preserve privacy and natural scenic beauty. Vegetated shorelines are comprised of three different types of vegetation; trees, shrubs, and forbs.

Our Vision:

All homes on Bear Lake and Shabadock Creek and the USFS campground will practice good shoreline techniques, such as maintaining a native vegetative buffer at least 35 feet inland from the OHW and not use fertilizers.

Goal 3: Native shoreland vegetation will be in place to help maintain good water quality and provide healthy habitat.

Objectives 3: All landowners will be knowledgeable about good shoreland management and will use this information to make good decisions.

Actions	Lead person/group	Start/end dates	Resources
3.1 USFS and other shoreland property owners will minimize erosion from shorelands through appropriate design of trails.	Dave Muench - Bear Lake Shores	Summer 2013	
3.2 Landowners will receive information about the state and Forest County shoreland zoning ordinances. Bear Lakes Shores Board will provide handouts at annual meetings and will provide materials to new landowners.	Dave Muench - Bear Lake Shores	Summer 2013	Forest County UWEX Lakes
3.3 Bear Lakes Shores Board will inform and remind landowners to take measures to protect shorelands when disturbance of protective vegetative cover occurs to ensure that erosion controls are properly installed and maintained.	Dave Muench - Bear Lake Shores	Annually	
3.4 Bear Lakes Shores Board will inform landowners about landscaping, land use, and household practices that promote excellent water quality at Bear Lake (i.e. design and placement of shoreline docks and water access stairs, ground cover, etc.).	Dave Muench - Bear Lake Shores	Summer 2013 Annually	UWEX Lakes

Aquatic Plants and Aquatic Invasive Species

A healthy aquatic plant community is comprised of a healthy diversity of native plant species. Aquatic plants play many important roles in aquatic ecosystems including providing habitat for aquatic and semi-aquatic organisms; food for fish, waterfowl, and other animals; use of nutrients that would otherwise be used by algae; and modifying/cooling water temperatures on hot days.

Our Vision:

Bear Lake will have a healthy, stable, and native aquatic plant community. Bear Lake's rusty crayfish population will be put in check to restore a balanced ecosystem. Invasive species present in Bear Lake will be controlled and new invasive species will be prevented or quickly eliminated.

Goal 4: Restore the aquatic plant community in Bear Lake.

Objectives 4: Reduce the numbers of rusty crayfish to where they are not significantly impacting the abundance of aquatic plants in Bear Lake.

Actions	Lead person/group	Start/end dates	Resources
4.1 Explore bio-manipulation of the fish community by enhancing habitat for smallmouth bass to reduce the number of rusty crayfish.	Dave Muench - Bear Lake Shores		WDNR Fisheries Biologist
4.2 Replace the road culvert at Bear Lake Road in a way that will allow fish passage from the Rat River into Bear Lake and will allow lake levels to fluctuate to improve the emergent vegetation (bulrush, etc.) to diversify the plant population and improve fishery habitat especially for fry.			WDNR Fisheries Biologist
4.3 Continue our assault on rusty crayfish by trapping rusty crayfish at a magnitude that will reduce the population of rusty crayfish.	Jeff Schadrie and Dave Muench - Bear Lake Shores	Ongoing	
4.4 Conduct annual aquatic plant surveys to measure success and/or need to adjust approach.	Sally Lewis - Bear Lake Shores	Late June/early July Annually	WDNR – Aquatic Plant Biologist/CLMN coordinator (Sandy Wickman)
4.5 Encourage fishermen to catch and release all bass.			

Goal 5: New aquatic invasive species will not become established in Bear Lake, Shabadock Creek, or Bear Creek.

Objectives 5: Measures will be taken to prevent new aquatic invasive species from entering Bear Lake and quickly identifying and eradicating new species before they become established.

Action	Lead person/group	Start/end dates	Resources
5.1 Disseminate information at the USFS campground through boat launch signs.			USFS
5.2 Partner with local car washes to encourage washing boats between lakes and streams.	Bear Lake Shores		
5.3 Learn about the WDNR's Clean Boats Clean Waters program.	Bear Lake Shores		WDNR
5.4 Citizens learn to identify native and non-native plant species and monitor Bear Lake.	Bear Lake Shores	Ongoing	WDNR
5.5 Request the use of USFS mobile boat washing station.	Bear Lake Shores		USFS
5.6 Advertise good practices such as washing boats at local restaurants and taverns.	Bear Lake Shores		UWEX Lakes Forest Co Lake Association

In-Lake Habitat

Natural habitat is essential for both aquatic and terrestrial organisms. These areas are critical space for individual and population growth, cover or shelter, nourishment, and breeding or spawning. Even downed branches and logs are used by turtles to sun. Maintaining this habitat is important for healthy populations of aquatic organisms and wildlife. Critical habitat surveys are commonly conducted to guide the best placement of docks and other shoreline access while minimizing negative impacts to in-lake habitat.

Our Vision:

The habitat in Bear Lake that is used by aquatic and terrestrial animals will be healthy and maintained. Docks and shoreline access will be in the best locations to reduce impacts to lake and aquatic organism health.

Goal 6: In-lake habitat that is critical for a healthy aquatic ecosystem will remain intact.

Objectives 6: Take measures to assess the critical habitat of Bear Lake, make improvements where needed, and maintain what is good.

Actions	Lead person/group	Start/end dates	Resources
6.1 Request a critical habitat survey to guide appropriate placement of docks and other shoreland access.			WDNR , USFS and/or work with consultant
6.2 Inform landowners and campers/ fishers about the importance of protecting beds of aquatic plants.			

Fisheries

Healthy lake ecosystems are valuable natural resources for all. A sustainable fishery is a sign of the health of the ecosystem. A fish survey conducted in 2010 showed that there was little change in the fishery since the previous survey conducted 12 years earlier. Bear Lake continues to have a fairly balanced fishery, with largemouth bass as the primary game fish species and bluegill as the primary panfish species. Also present are northern pike, walleye, crappie, perch, and rock bass.

Our Vision:

Bear Lake will hold a healthy and balanced fishery for enjoyment, as well as lake health. The fishery will not be degraded by over-fishing or excessive algal problems.

Goal 7: Bear Lake will have a healthy fishery that is sustainably managed.

Objectives 7: Size of fish and distribution of fish species will reflect a healthy population.

Actions	Lead person/group	Start/end dates	Resources
7.1 Survey the fishery every 3 years.		2013	WDNR Fisheries Biologist
7.2 Allow the passage of fish between the Rat River and Bear Lake.			
7.3 Encourage fishermen to catch and release all bass.			

Recreation

Bear Lake users enjoy a variety of recreational activities. The primary activities enjoyed by lake users are canoeing, kayaking, camping, hiking, swimming, fishing, enjoying wildlife, and enjoying the solitude. Currently, few user conflicts exist.

Our Vision:

Bear Lake will be a relaxing, tranquil, and quiet place to enjoy the abundant wildlife, canoeing, kayaking, camping, hiking, swimming, and fishing.

Goal 8: Provide a variety of recreational opportunities for citizens and tourists.

Objectives 8: Measures will be taken to manage recreational opportunities such as the campground, boat launch and beach.

Action	Lead person/group	Start/end dates	Resources
8.1 Coordinate with USFS to manage the boat launch, campground, and beach in accordance with the visions, goals, and objectives of this plan.	Bear Lake Shores		USFS
8.2 Continue Town ordinance for no gasoline motors on Bear Lake.	Town of Blackwell		

Communication/Organization

Many of the goals outlined in this plan are focused on disseminating information to lake and watershed residents and lake users, ultimately to help them make informed decisions that will result in a healthy ecosystem in Bear Lake that can be enjoyed by many people. There is no single best way to distribute information to those that enjoy and/or affect the lake, so the planning committee has identified a variety of options to communicate with one another and in the community. Working together on common values will help to achieve the goals that have been outlined in this plan.

Our Vision:

The Bear Lake community will consist of respectful lake-users who maintain a quiet and serene environment. It will have congenial neighbors and campers who want to keep Bear Lake a great place to live and recreate. The Bear Lake community will partner with other lake stewards to share enjoyment of the lake and to solve the problems that arise.

Goals 9: Community efforts to monitor and maintain the quality of Bear Lake will be well organized and effective.

Objectives 9: The Green Team group within Bear Lake Shores Association and other partners in the Bear Lake community will organize and provide information to community members and lake-users that will maintain and improve the quality of Bear Lake.

Action	Lead person/group	Start/end dates	Resources
9.1 Welcome packets.	Bear Lake Shores		
9.2 Participate with Forest Co Lake Association.	Bear Lake Shores	Ongoing	
9.3 Explore partnership with Potawatomi.	Bear Lake Shores		
9.4 Develop website for Bear Lake Association (or just for Bear Lake to include all users). Add blog to share experiences/observations.	Bear Lake Shores		
9.5 Signage (composite or individual) about health warnings, invasive species, no gasoline motor, etc.			USFS
9.6 Communicate with model lake associations.	Bear Lake Shores		UWEX Lakes WDNR