2011 Barber Lake Septic Survey

Barber Lake
Town of Winter
Sawyer County, Wisconsin

Sawyer County Sanitarian----------Eric Wellauer
Sawyer County Zoning and Conservation Technician----------Jay Kozlowski
Zoning and Sanitation Intern----------Joel Murray

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Background on Intern

The Sawyer County Zoning and Conservation Department Intern is Joel Murray. Joel was chosen for this internship because of the excellent job he did on Nelson Lake Septic Survey in 2010. Joel's advanced knowledge in soils and waste management as well as a recommendation from Dr. Aga Razvi, a professor at the University of Wisconsin-Stevens Point, made him the top applicant. Joel graduated from the University of Wisconsin-Stevens Point in May 2011. Joel obtained a Bachelor of Science Degree in Soils and Waste Resources-Waste Management. Joel has shown interest in learning more about soils and waste management every day, and hopes after graduation to find a job that relates to his passion in this field.

To Barber Lake Property Owners:

As you may know, the Winter Lakes Alliance is recommending an on-site septic system inspection of all properties on Barber Lake to ensure compliance with the Sawyer County Private System Ordinance and Department of Commerce, Chapter 83. Several Sawyer County lakes have already finished inspections and Nelson Lake is currently undertaking their inspection.

Household water and wastes have nutrients that, if leached into the lake, encourage bacteria and plant growth in the lake. A properly functioning on-site wastewater treatment system filters out these harmful agents. All property owners should be stewards of the lake and we must individually and collectively assure all septic systems are functioning properly and code compliant.

If approved by the property owners and county funding is available, the Sawyer County Zoning and Conservation Department will contract with a college intern to conduct the survey under the supervision of the County Sanitarian/ Soil Morphologist. **There will be <u>no cost</u> to the property owner for this inspection.**

<u>Please</u> vote on this issue by September 30, 2010, returning the ballot at the bottom of the page in the addressed envelope provided. Your prompt response would be appreciated.

If you would like more information prior to voting contact one of the following:

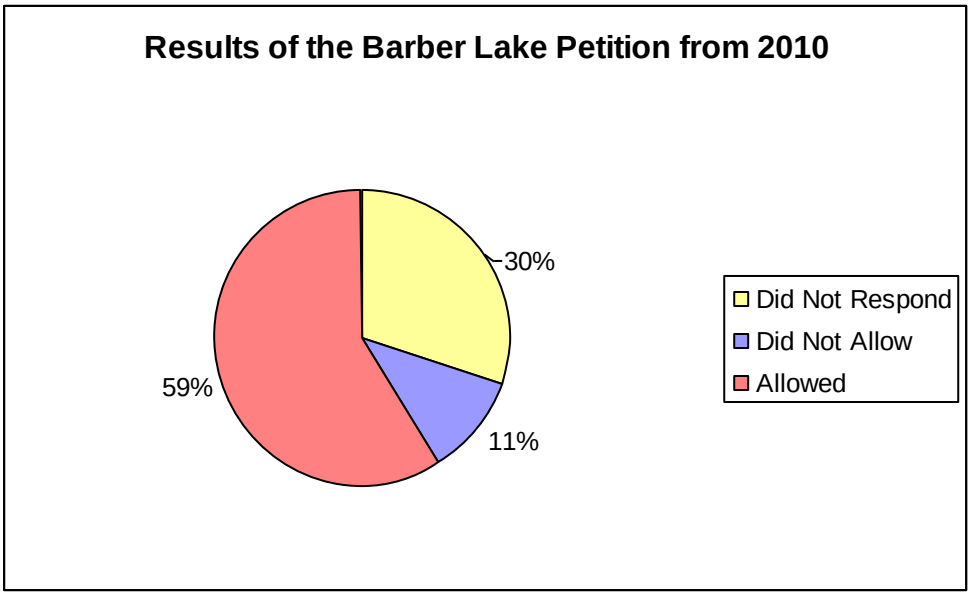
Eric Wellauer, County Sanitarian 715-634-8288
Jim Genrich, Winter Lakes Alliance 715-266-6011

We thank you in advance for your cooperation.

Jim Genrich

President, Winter Lakes Alliance

The Winter Lakes Alliance circulated the petition to all the Barber Lake Property owners asking if they approve or disapprove of a septic system survey to occur. After the association gets over 51% approval from the property owners, The Zoning and Conservation Committee procures money from the County Board to fund the project. The Winter Lakes Alliance received 59% in favor of the septic system survey.



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General Outline of the Lake Septic Sewer Survey ~ Sawyer County

1. The County gets the lakeshore owners approval list.
2. The lake association will be placed on the waiting list. Depending on funding and the availability of college interns, it may be 1-3 years before the survey is conducted.
3. The Zoning Committee procures money from the County Board to fund the project. If the County Board only approves partial funding, the lake association must pay the balance, or get a grant from other resources.
4. If funding is approved, the Zoning Office will notify Northland College in Ashland, or UW-Stevens Point for a summer intern student.
5. The County and the college will sign a contract agreement to hire a college intern for a period of 12 weeks. The survey is conducted from approximately June 1 through September 1.
6. The student intern will be supervised by the County Sanitarian.
7. The intern will research all previous sanitary permits and soil tests that have been conducted on each lakeshore property.
8. The student intern will be supervised and field trained by the County Sanitarian, Eric Wellauer, WI License #695616 and/or County Zoning & Sanitation Technician, Jay Kozlowski, WI License #1093859.

9. The County Sanitarian and/or Zoning & Sanitation Technician and/or intern will inspect each existing septic sewer around the lake. Hands-on field training will be conducted for 3-4 weeks. Once the County staff feels confident that the intern has all the required knowledge of inspection procedures, the intern will conduct the inspections on their own.
10. The field inspection starts with an informal interview with the homeowner (if present). The intern will ask the homeowner to respond to a few questions about the sewer, any sewer problems, bad odors, sewage on the ground, pumping cycle, year round or seasonal usage, garbage disposal, etc.
11. The inspector will locate the sewer system and draw a layout or plot plan showing the location of the home, outbuildings, septic tank, sewer system, well and location of the lakeshore. Measurements will be taken from the home to septic tank, home to septic vent, distance to well and distance to the lake.
12. The inspector may set up a contractor's transit to measure the field elevations of the ground by the sewer, the bottom of the sewer, and record the Ordinary High Water Mark (OHWM) of the lake. Measuring the vertical difference from the bottom of the sewer system (system elevation) to the OHWM gives an indication that the sewer is not code compliant. Current state code requires 36" vertical separation from the bottom of the sewer to a restrictive factor. A restrictive factor may be soil mottling, saturated soils, ground water, and/or bedrock.
13. If in an area of potential high ground water and poor soils, a 3" diameter soil auger will be used to bore a hole adjacent to the sewer. The inspector will bore a hole to a depth of 3' below the system elevation. The inspector will record any restrictive factors present to see whether the system meets state code.
14. The survey does not include septic tank inspections. We do not have the time, staff, or funds to inspect septic tanks. However, if a lakeshore owner wants to contact a septic tank pumper, we are more than glad to be on-site for pumping and inspection of the septic tank. A word of caution on old steel septic tanks: It is our experience that steel septic tanks start rusting out at about 15 years old. Old tanks will pinhole out and the steel baffles deteriorate and/or fall off.

15. If a failed sewer is noted, the County Sanitarian will visit the site with the intern to confirm the failure. The County will issue an "Order for Correction" to the homeowner. The homeowner will have one (1) year to replace the failed system. If we encounter a severe failure, sewage on the ground, sewage close to the lakeshore, or sewage causing a general health hazard we can issue a 30-60 day order for correction.
16. If our observations indicate a failed system, the homeowner has the right to have a private sewage inspector inspect the system at their own expense. The private licensed qualified inspector (Master plumber, soil tester, POWTS inspector) will charge approximately $150-$300 to conduct a thorough test.
17. After all the field work is completed, the intern will tabulate all the passing and failing sewers. The intern will also write a written report of the sewer survey prior to the completion of the 12 week project.
18. The lake association will receive copies of the written report.
19. The County Sanitarian will continue to do the follow-up work until the project is complete. This may take 1-2 years for final completion.
20. If the homeowner does not replace the failed sewer, the county will issue a "Second Order for Correction". If the homeowner does not comply after the second notification, the County will issue a citation for failure to replace the failing system.
21. Sawyer County administers the "Wisconsin Private Onsite Wastewater Treatment System Replacement or Rehabilitation Financial Assistance Program." This is also known as the Wisconsin Fund. Resident homeowners that qualify may be eligible for this grant that can reimburse costs for approximately 50% of the replacement sewer system.
22. The Lake Septic Sewer Surveys are very worthwhile projects in our Northwood's lake setting. It requires the cooperation from the lake association, a dedicated staff at the Zoning office, and an energetic college intern to complete the project. The ultimate goal is to check for failed septic sewer systems on or near our lakeshores. Properly functioning code complying sewer systems will cleanse the sewage for re-entry into the ecosystem. It is very important to protect our

environment, the groundwater we drink, and the lake waters that provide us with beauty, serenity, and recreation.

Lake Septic Sewer Survey

Lake Association Responsibilities

1. Lake association must petition all lakeshore property owners for approval of the septic survey.
2. Must get 51% of the lakeshore owner's approval. It is best to get at least 60% approval. The higher percentage of approval the less negative attitude there is towards the sewer inspectors.
3. For those lakeshore owners that did not respond it is best to send a second notice letter.
4. Submit the approval list to the Sawyer County Sanitarian.
5. The lake association's name will be placed on the lakes priority waiting list. Depending on funding and the availability of college interns, the project may not be conducted for 1-3 years.
6. The County has funded the lake survey in the past. The County has paid for intern's salary, mileage and office supplies. Due to future tighter budgets, the Zoning Committee and the County Board may request cost sharing with the Lake Association.

Purpose of Survey and General Lake Data

Barber and South Barber Lake is located in sections: 2, 3, and 10 of Township 39 North, Range 5 West. Barber Lake is a drainage lake that covers over 238 acres in area. The maximum depth of the lake is 21 feet with a mean depth of 9 feet. The lake primarily lies in the East Central part of Sawyer County in the Town of Winter. The lake is located approximately 6 miles Northeast of Winter, Wisconsin. There are several fish species present in Barber Lake, including: Northern Pike, Muskellunge, Walleye, Large Mouth Bass, and Panfish. There is one public boat landing located on the North end of Barber Lake.

The Barber Lake area is an example of the fine natural resources residents and visitors to Sawyer County appreciate and enjoy. It is our responsibility to use the land and water in an acceptable manner and to protect our valuable resources. By conducting the septic sewer survey on the properties surrounding Barber Lake, we are taking an active role in this protection. The cooperation of the property owners with the help of the lake association has helped the greater lake community for years to come.

The Winter Lakes Alliance is interested in maintaining or improving the groundwater and lake water quality and clarity of Barber Lake. Lake water quality is degraded by many factors including, but not limited to: agricultural runoff, lawn fertilizers, pesticides, herbicides, soil erosion and sedimentation runoff, and failing septic systems. The Winter Lakes Alliance would like to ensure that all septic systems are in code compliance with the Sawyer County Sanitation Ordinance and Department of Commerce Chapter 83 (Private Sewage Code).

General Overview

Over 25 million homes nationwide dispose of domestic wastewater through onsite sewer systems. Approximately 700,000 of the private onsite wastewater treatment systems (POWTS) are in located in Wisconsin alone. Maintaining POWTS properly helps protect the health of your family, your community, and the environment. This is because household wastewater may contain bacteria, viruses, household chemicals, and nutrients such as nitrogen and phosphorus. A failed septic system can contribute to the pollution of the groundwater, the local rivers and lakes, and the shorelines that are used for commercial and recreational activities by the community.

Soil treats the wastewater effluent by acting as a filter, trapping the viruses, bacteria, and nutrients in its pores or on the soil pedons themselves. Some of the chemical constituents are absorbed and used by plants, while the remainder moves through the soil. There are only certain types of soil that can purify sewage effluent. If the soil pores are too large or too small, the wastewater effluent will either percolate too rapidly or too slowly. Insufficiently treated effluent may cause groundwater contamination and could cause health hazards if people or animals contact the effluent.

Department of Commerce Chapter 83, Wisconsin Administrative Code, defines what is needed for a soil and site to be suitable for a POWTS. Some of these requirements include: 1) A three-foot separation between the bottom of the soil absorption system and groundwater, seasonal high groundwater, or bedrock. A two-foot separation is allowed on POWTS installed prior to December 1, 1969; 2) Soil conditions not well suited for the treatment and disposal of wastewater; 3) Slopes greater than 25 percent are not suited for POWTS. Following the codes made by the Department of Commerce will help in preventing further groundwater contamination and will help protect the public health and welfare of all.

Prior to installing a sewer system, the state requires a licensed soil tester to conduct a soil test to check the suitability of soils for a sewer system. Old soil tests used to be referred to as “PERT” or “PERC” tests. PERC stands for percolation tests and these were antiquated and somewhat unreliable. The soil horizons were not taken into

consideration. The State of Wisconsin changed from the old "PERC" tests to soil morphology testing on July 1, 1994. Soil morphology testing is much more detailed and more accurately describes the soil texture, soil horizons, soil structure, soil consistency, and soil mottles for the suitability of septic systems. Soil mottles are spots, blotches or streaks of different shades of color mix together with the dominate soil matrix color. Mottles are bright yellowish-red (high chroma) to dull grayish-brown (low chroma). Mottles act as a morphological indicator of seasonal soil saturation, soil wetness or poor aeration. This is a restrictive factor that sewer systems may not be put into because it adversely affects the operation of a private sewage system. There must be a minimum of a 3 foot vertical separation before any limiting factors (2 foot vertical separation required for systems installed prior to December 1, 1969).

Types of Public Onsite Wastewater Treatment Systems (POWTS)

POWTS technology has advanced through the years and so has the treatment of domestic household waste. Some of the types of systems currently being installed under the regulations of the Department of Commerce include privies, holding tanks, conventional gravity systems, conventional lift systems, in-ground pressure distribution systems and mounds.

There are two basic types of privies. One is an open pit privy, which simply is a hole dug in the ground under a privy. An open pit privy requires a soil boring to prove that soils are suitable for waste. The second type of privy is a sealed vault privy. A sealed vault privy requires a minimum storage capacity of a 200 gallon watertight container to hold all waste and must be pumped by a licensed waste hauler when full. Other types of privies also include portable restroom units and a variety of different composting and incinerating toilets. Privies are for minimal and occasional usage and can be installed when a dwelling does not have pressurized water or plumbing fixtures. If a dwelling has pressurized water or plumbing fixtures, a code complying POWTS system must be installed.

A holding tank is another type of system. A holding tank is a watertight receptacle for the collection and holding of wastewater. The minimum size holding tank for up to a 3 bedroom house is a 2,000 gallon capacity tank. When the tank is

full, a waste hauler must be contacted to pump and dispose of the effluent either by land-spreading or at a municipal wastewater treatment plant. When soils and/or topography become limiting factors, a holding tank may be the only viable system. Except for privies and holding tanks, all other systems include an important component called a septic tank. A septic tank is a water treatment device defined by the Department of Commerce as a device which renders inactive or removes microbiological, particulate, inorganic or radioactive contaminates from water which passes through the device or the water supply system downstream of the device.

Downstream of the septic tank is another component of a POWTS, the Soil Absorption System (SAS) or also called a cell. Cells can not be wider than 6 feet. Most cells are designed to be long and narrow, to utilize a larger soil area for treatment, including the native soil of the sidewalls of each cell. There are several different types of media used for SAS. Some examples are washed and screened rock, washed and screened sand, gravel-less leeching chamber units and other artificial media.

The most common POWTS is a conventional gravity flow system. This system includes a septic tank and a SAS. The SAS is located at a lower elevation than the outlet of the septic tank and the effluent flows via gravity to the cell(s).

A conventional lift system is similar to that of the gravity flow system, but the cells are located at an elevation above the outlet of the septic tank. A separate chamber is required to house a pump to dose the effluent to a high point and then the effluent flows to the cell(s) via gravity. This chamber can be in combination with the septic tank or a separate pump tank.

An in-ground pressure distribution system is also a lift system that utilizes the shallowest natural soil possible which is 36 inches. It includes a septic tank, a pump chamber or pump tank, and a pressurized dosed cell.

If 36 inches of natural suitable soil are not available, washed and screened sand is needed to construct a mound. Mounds require a large area and a level site. A mound system also includes a septic tank, pump chamber or pump tank, and a pressurized dosed cell.

Some types of SAS, still present and in use today, once considered acceptable, but are no longer being installed due to state code changes include drywells, cesspools and conventional septic beds.

Drywells, also called seepage pits, were once commonly installed as a way of treating effluent leaving the septic tank. Drywells were constructed out of concrete blocks, bricks, fieldstones, or rocks and composed in a 4 – 6 foot diameter cylindrical shape and up to 8 feet in depth. Most were installed 5 – 15 feet in the ground. Because of this deep construction technique, not only was it dangerous to install drywells, but many were installed in or slightly above ground water resulting in untreated effluent entering the ground water. If a drywell was installed in groundwater, the system would very seldom fail or back up into a house, because the groundwater would flush the system out. The untreated effluent would then travel through the ground water to the water we drink and to surface waters of lakes, rivers and streams. Present code requires a minimum separation distance of 3' between the bottom of the infiltrative surface of a system and a limiting factor such as groundwater.

Cesspools are defined by Department of Commerce Chapter 81 as an excavation which receives domestic wastewater by means of a drain system without pretreatment of the wastewater and retains the organic matter and solids permitting the liquids to seep from the excavation. Some cesspools were constructed in such a manner that they did not have a cover and were exposed to the ground surface. This type of system does not utilize a septic tank and poses a serious health threat. The use of a cesspool as a POWTS is prohibited, including any cesspool existing prior to July 1, 2000.

The life span of a particular POWTS depends on water usage, household habits and other criteria. One way to improve effluent quality is to install an Aerobic Treatment Unit (ATU). An ATU introduces oxygen into the treatment tank to improve effluent quality before entering the SAS. An ATU can be installed to rejuvenate a failing SAS, and can also allow for downsizing of the installation of a new SAS, if area or soils are a limiting factor. An ATU is also required to be installed in eating establishments and other commercial businesses which have high

strength waste. As technology continues to improve, new types of private onsite wastewater treatment components and systems will better protect public health and the waters of the state.

The Lake Survey

The Sawyer County Zoning and Conservation Department, with cooperation from area lake associations, have been conducting septic sewer surveys for approximately 30 years. The most recent lake surveys include: Spider Lake 1991-1992, Teal & Ghost Lake 1993, Lac Court Oreilles 1994, Lost Land Lake & Blueberry Lake 1995, Big and Little Round Lake 1998-1999, Tiger Cat Flowage 2001-2002, Windigo Lake 2006, Grindstone Lake 2007, Lake Chetac 2008, and Nelson Lake 2010.

Sawyer County does not conduct septic sewer surveys every year. It depends on whether a lake association is ready for the survey, as well as if the County Board has approved funds for lake surveys.

The lake association must initiate the lake survey. In 2010**,** The Winter Lakes Alliance contacted the Zoning and Conservation Office to inquire about a future lake survey. Between 2010 and 2011 the association mailed petitions and permission slips to the lakeshore owners to conduct the survey. By the year 2011, the Winter Lakes Alliance had 59% of the lakeshore property owner's approval. The Winter Lakes Alliance contacted the Zoning and Conservation Office to have its name put on the lake survey priority list.

The survey was started in May of 2011, and continued through August 2011. Prior to starting the actual field work, the student intern researched the property information from the county files. If sanitary permits and soil tests were on file, copies were made for reference while doing the field work. These packets that the intern compiled better served him for knowing more information about the property before even stepping on to it. After all the research was completed, which was about 3 weeks, the actual field work was started. The starting point for the survey was chosen at the southwest part of Barber Lake on West Barber Road and continued clockwise ending on Burlum Road. For the next week the field work was conducted

by the County Sanitarian, the Zoning & Sanitation Technician, and the summer student intern together. After the intern got a grasp on how to do the survey he continued to work by himself for the next 6 weeks. The County Sanitarian or Sanitarian Technician would occasionally help the intern on difficult sites where the system type was unknown and also to verify failures. The last few weeks of the survey were used to wrap up the results and to go back on any inconclusive sites and to finalize the report.

Field Inspection Techniques

The County Sanitarian, Zoning & Sanitation Technician, and Summer Intern research department permits/reports and make copies of any/all previous sanitary permits and soil tests for properties involved in the septic survey. This information is used on each onsite property inspection. The previous sewer inspection sheet and plot plan are used to locate the sewer system. Setback measurements are taken from the home, septic tank, septic system, well, and the lake and are verified with previous inspection reports.

Upon arriving at each property, the inspectors introduce themselves if the homeowner is present, and explain the purpose of the visit involving the lake survey. Questions such as; if the owner's usage is year round or seasonal, the number of household members, the number of bedrooms, age of the system, the type of system, and if they pump on the required 3 year cycle are asked. If the homeowner is not present, the field work is conducted and an informational sheet is left on the door as to the time and date of the inspection, results, and additional comments.

The inspection proceeds by locating the system vent (if present), and removing the inspection/vent cap. The inspector drops a small rock into the vent to check for ponding effluent. If there is any doubt of the system elevation and/or a high groundwater situation, the system is investigated in more detail. If water is present, the depth, time and date are recorded. Effluent ponding in the system may indicate an older mature system that has developed a clogging mat. If a clogging mat is present, effluent cannot move down through the native soil, causing water to build up in the system. If there is a large amount of effluent (5-10 inches) and a thick black tar-like

clogging mat is present, the system is aging and may be near failure. If ponding effluent is found on the ground, around the system or around the vent, it is a failed system. If an unusual amount of effluent is found ponded in a newer system, the inspectors will question the homeowner about daily usage. For example, the family household may have recently taken many showers/ baths or laundry, which would result in a large amount of household water discharge, thus causing the ponding. In this example, we may discover that the ponding is a false indicator of failure. Another false indicator of ponding may be our inspection taking place after several days of heavy rainfall, resulting in ponding.

Another method of inspection involves taking elevations of the sewer system, and comparing the elevation to the Ordinary High Water Mark (OHWM) of the lake. A surveyor's transit is set up to calculate the ground elevation by the system, at or near the bottom of the system and at the OHWM. OHWM is typically the same elevation as groundwater but can be higher or lower then the OHWM because of cohesion and adhesion in the soil.

The State of Wisconsin private sewage code, Department of Commerce Chapter 83, requires at least 36 inches of suitable unrestricted soil under all systems put in after December 1, 1969. Having 36 inches of natural or native soils will treat the sewage effluent enough to re-enter the groundwater.

While calculating the difference between the systems elevation to the ordinary high water mark there needs to be 3 feet of separation for systems put in after December 1, 1969. If the differential is greater than 3 feet, that is good. If the separation distance is around 3 feet or less, other testing methods are used to verify passing or failing the system. If the bottom of the system elevation is at the lake elevation or below, it is in most cases a failure and requires more field work using a soil auger boring.

The final method of inspection involves a soil auger boring adjacent to the system. A 3 inch diameter hand soil auger is used to bore a hole to a depth of 36 inches below the system and record the soil restrictions if present. Any soil restrictions are noted, such as soil mottles, saturated soils, groundwater and/or

bedrock. If soil restrictions are within 36 inches below the system, the system fails and must be replaced by a code complying system.

Failing Systems

When the inspector encounters a failed system, they will record all information and state the reasons for failure. Causes of failure may be a variety of reasons such as: ponding sewage on the ground, a collapsed septic tank or drywell, sewage water flowing towards the lake or a well, sewer system located in groundwater, or a sewer system that does not have 36" of suitable soils below the system.

If the homeowner is present, the inspectors will discuss the reasons for failure with them. The Zoning Office will send the owner an "Order for Correction" to replace the failing sewer system. State Code requires the owner to replace the system with a code complying system within one (1) year of the date of failure.

Should the homeowner disagree with the determination of failure, they have the right to hire a licensed person to dispute the findings. A qualified licensed person will be a master plumber, master plumber restricted, a POWTS inspector and/or a certified soil morphologist. If the homeowner does not replace the failing sewer system within the one year deadline, the Zoning Office can issue a non-compliance citation. Currently, the citation fee for non-compliance is $753.00.

Definition of Failure

When homeowners are asked how their sewer system is working, common responses vary: "the system is working fine", "we've never experienced a back-up or sewage on the ground", or "we've never had a failure". Another common excuse is, "we only use the cabin a couple of times a year." State code does not rely of amount of usage. The County Sanitarians relies on the State of Wisconsin Department of Commerce's definition of failure, Chapter 81.01 (92):

"Failing private onsite wastewater treatment system" has the meaning specified under s. 145.245 (4), Stats. Note: Section 145.245 (4) reads:

"Failing private sewage system" means a private sewage system which causes or results in any of the following conditions:

The discharge of sewage into surface water or groundwater.

The introduction of sewage into zones of saturation which adversely affects the operation of a private sewage system.

The discharge of sewage to a drain tile or into zones of bedrock.

The discharge of sewage to the surface of the ground.

The failure to accept sewage discharges and backup of sewage into the structure served by the private sewage system.

Wisconsin Fund

The Wisconsin Fund Grant Program, established in 1978, is a program that provides financial assistance to property owners with a failing septic system to help protect the public health, safety, and the waters of the state. Most counties in Wisconsin, including Sawyer County, participate in this program. Not every property owner in the county is eligible to receive the grant and filling out the application does not guarantee the homeowner will receive assistance. There are a number of requirements that must be met.

1) Your permanent residence must be in the state participating in the program and must be occupied by the owner 51% of the year.

2) Your system must be considered failing by code.

3) The private sewage system serving your principal residence or small commercial establishment was constructed prior to July 1, 1978.

4) Family income of all owners of the primary residence is less than $45,000 or the gross revenue of the small commercial establishment is less than $362,500.

Failing septic systems are divided into three categories:

Category 1 failures are those that fail by discharging sewage to the surface water, groundwater, bedrock, or into zones of seasonally saturated soils. These are considered the highest priority.

Category 2 systems are those that fail by discharging sewage to the surface of the ground.

Category 3 failures are those that fail by causing the backup of sewage into the residency or business served.

The State of Wisconsin has budgeted approximately $3 million dollars annually for the grant program. The homeowners grant is approximately 50% of the system cost, and not to exceed 60% of the total system cost. The maximum grant for a small commercial business is $7,000. Monies received through the Wisconsin Fund Grant are a reimbursement to the homeowner. It can take over a year to receive a reimbursement check.

2011 Barber Lake Septic Survey Results

Pass/Fail (See Graph 1)

There were a total of 91 systems on Barber Lake. Of the 91 systems, 72 passed inspection, 6 systems failed inspection, 2 systems were inconclusive, and 6 had other issues for "order for correction". 6 systems could not be inspected because the homeowner denied the inspection to occur. Of the 6 failing systems, 3 were old drywells, 2 were conventional bed systems, and 1 was classified as other.

Age of systems (See Graph 2)

During the survey we encountered 1 system that were classified as an unknown age, but which was likely constructed before 1970. A total of 10 known systems were constructed prior to 1970. A majority of these older systems are of the drywell type which were installed 30-50 years ago. These are existing systems but are no longer allowed in the private sewage code. 7 septic systems were inspected that were constructed between 1971 and 1979, the majority of which were of the conventional bed type with steel septic tanks. 19 septic systems were inspected that were constructed between 1980 and 1989, the majority of which were of the conventional bed type with steel or concrete septic tanks. 48 septic systems were inspected that were constructed from 1990 to present, the majority of these systems were either mound, conventional or holding tanks with concrete septic tanks.

While the time and resources are unavailable to inspect septic tanks during the course of the survey, it should be noted that it is probable that many of the steel tanks installed before 1990 are pin holed and failing. If the steel tank was observed to be in poor shape a failure should be suspected. It is recommended that the homeowner have the tank pumped and inspected by a licensed septic pumper.

Types of Systems (See Graph 3)

Of the total systems inspected, 65 (76%) were of the conventional type. 7 (8%) drywells were inspected, with 4 of those drywells passing inspection, generally due to elevation, and no visible signs of failure such as effluent on the ground or a collapsed

tank. These drywells were installed 30-50 years ago, and are most probably undersized by today's standards. There was 1 (1%) mound system and 12 (14%) holding tanks located in low lying areas with soils inadequate for in ground systems.

Reasons for failure (See Graph 4)

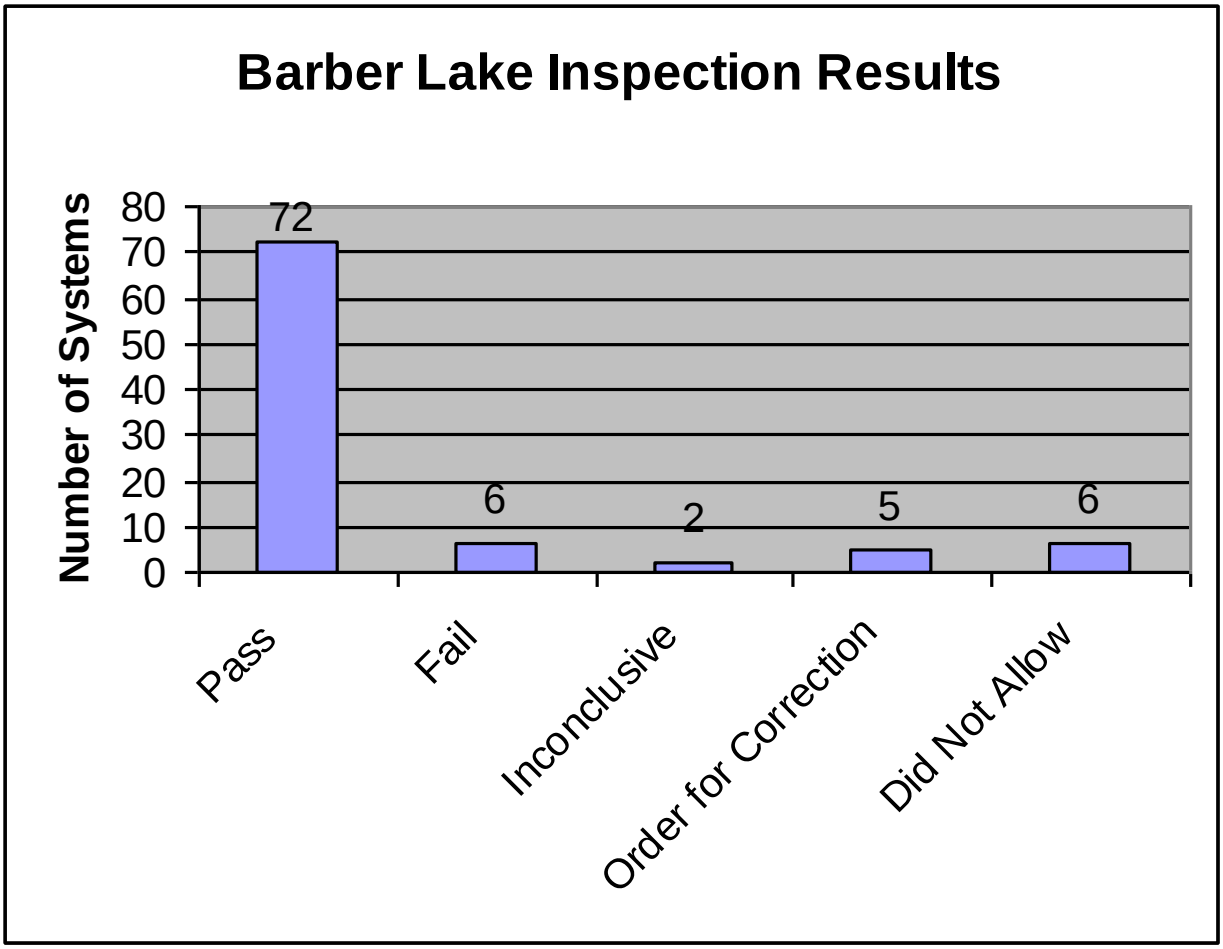
A total of 6 systems failed inspection. Of those, 3 were drywells near or in groundwater. 2 systems were conventional bed systems which failed to meet code based upon their proximity to soil restrictions, and/or groundwater. The other failed system was an unknown type with system elevation near or in groundwater.

Many homeowners were surprised to learn that their septic systems were failing, because they "never had a problem with them." Unfortunately, though superficially functioning, these failing systems are/were not treating the sewage before reaching groundwater.

Total Number of Systems

Results	Number of systems	Percentage
Pass	72	79%
Fail	6	7%
Inconclusive	2	2%
Order for Correction	5	5%
Did Not Allow	6	7%
Total	91	100%

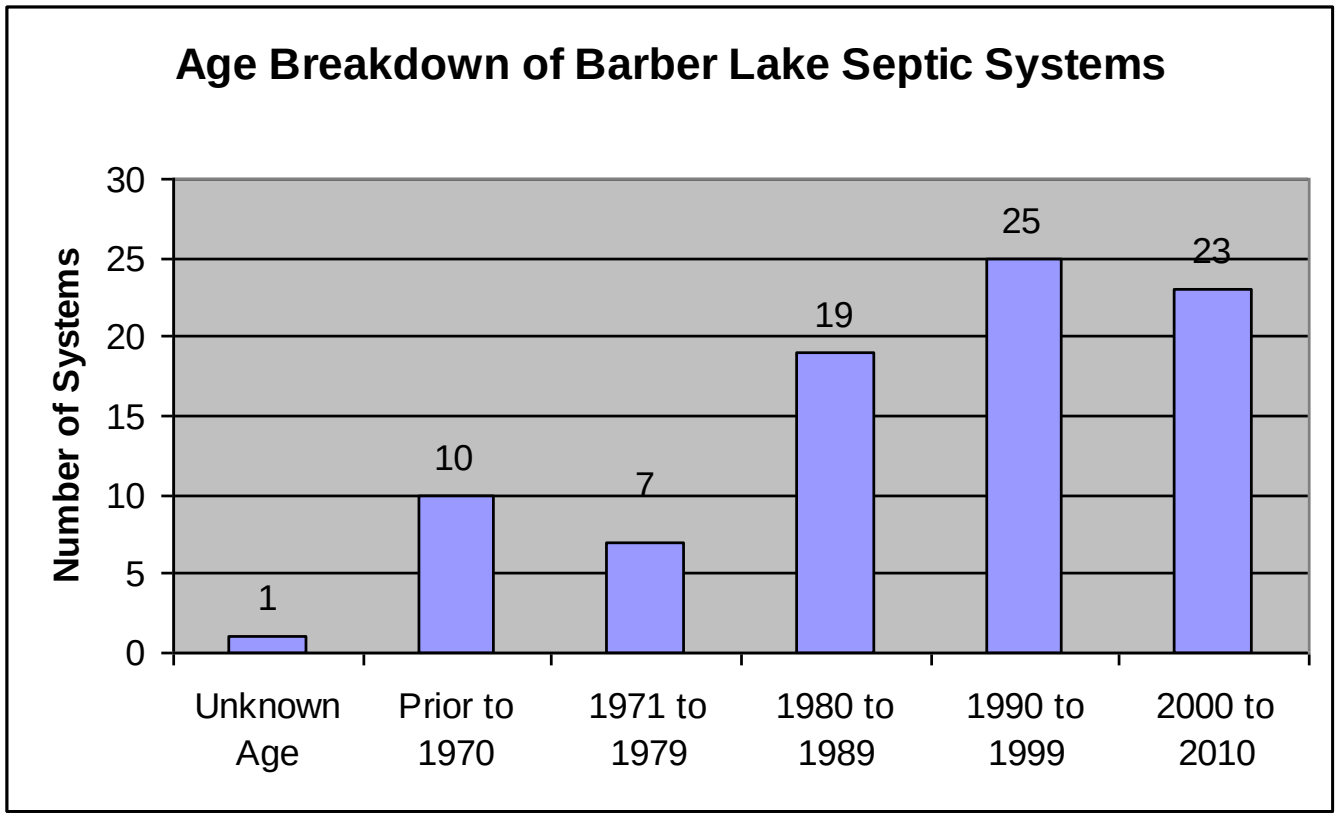
Graph 1



Age of Systems

Year Range	Number of Systems	Percentage
Unknown Age	1	1%
Prior to 1970	10	12%
1971 to 1979	7	8%
1980 to 1989	19	22%
1990 to 1999	25	29%
2000 to 2010	23	27%
Total	85	100%

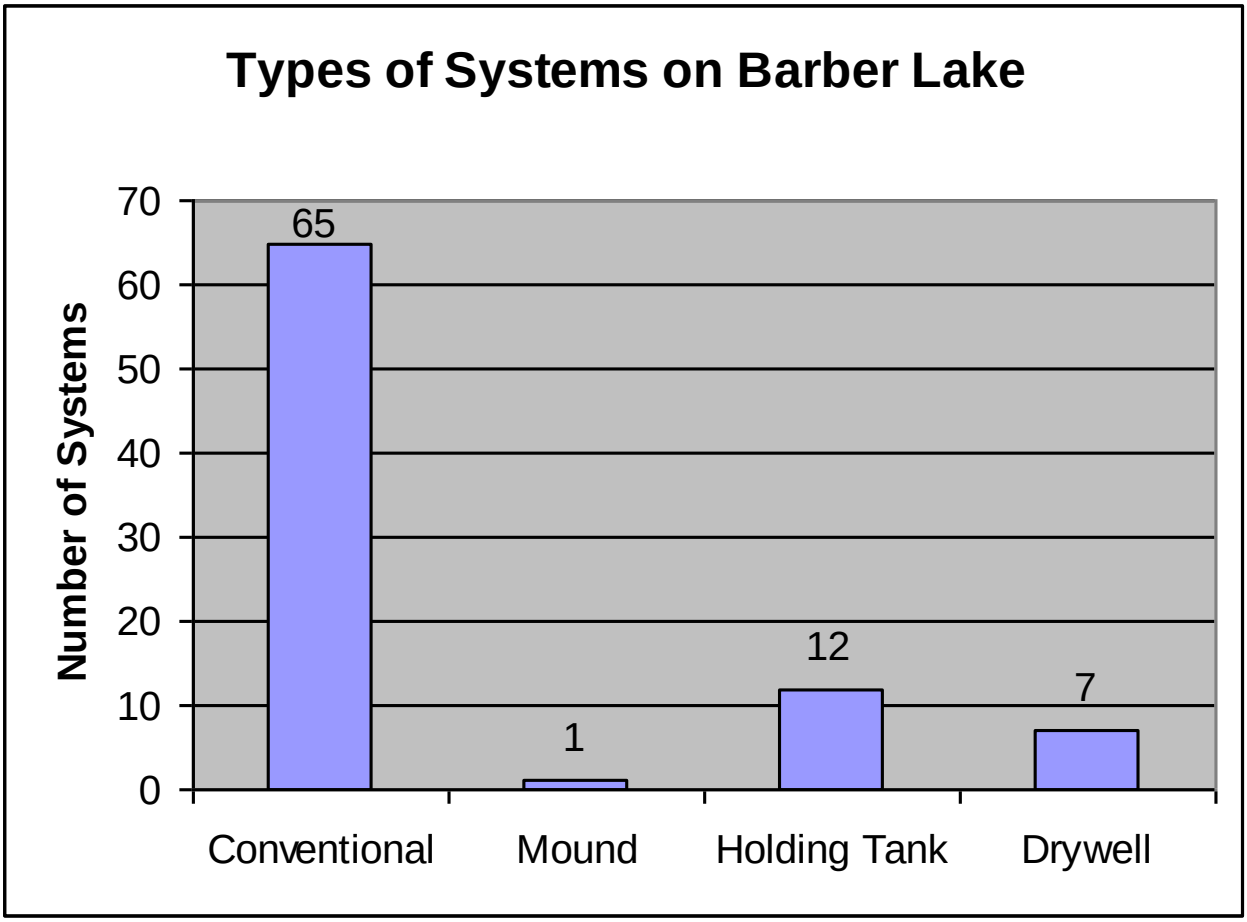
Graph 2



Types of Systems

Types of Systems	Number of Systems	Percentage
Conventional	65	76%
Mound	1	1%
Holding Tank	12	14%
Drywell	7	8%
Total	85	100%

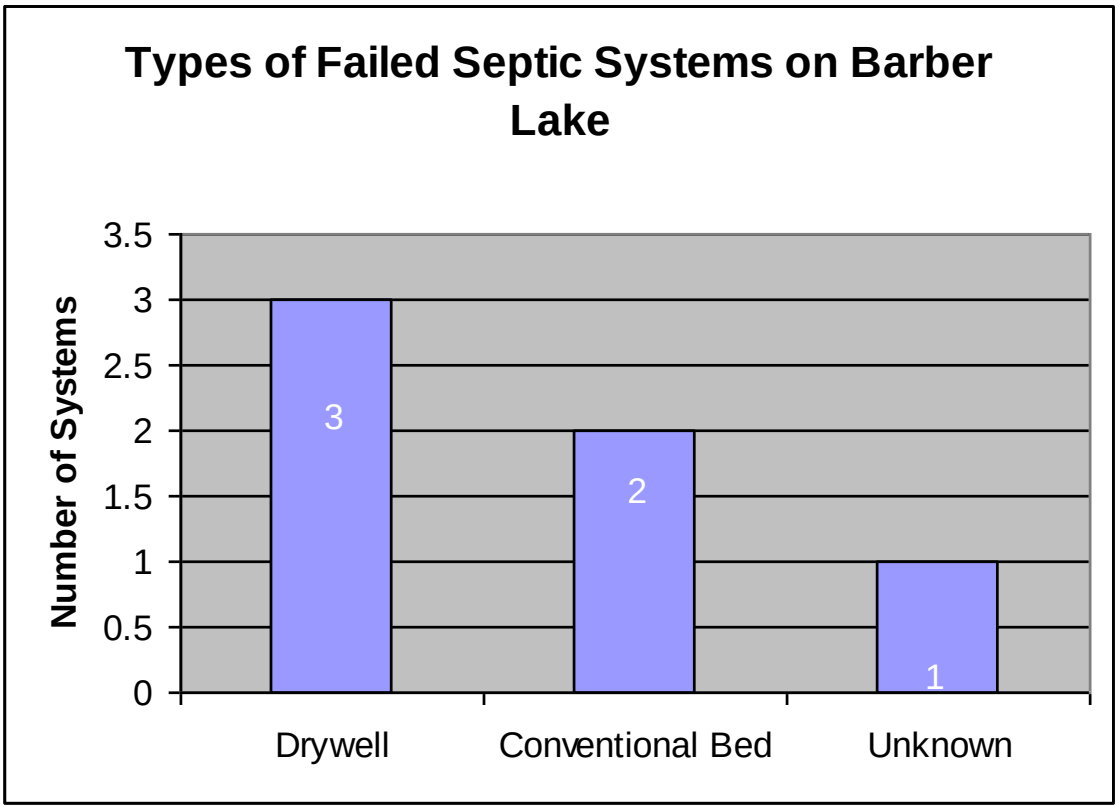
Graph 3



Failure Statistics

System Type	Number of Systems	Percentage
Drywell	3	50%
Conventional Bed	2	33%
Unknown	1	17%
Total	6	100%

Graph 4



Closing Remarks

Now that the survey has been completed there are still a couple of items that are of concern. The two items that stand out are; the properties that did not allow inspection, and the inconclusive systems. Systems were marked inconclusive because of the age of the system and not being able to get through on soil borings to prove failure due to rocks. Unable to locate a vent to identify the bottom of the system is another reason for being marked inconclusive. The property owners that did not allow inspection should reconsider and allow inspection by contacting the Zoning and Conservation Department. It would be advised that the property owners that did not allow inspection, have there systems inspected by a certified soil tester to verify that the current system is appropriately sized for the number of bedrooms and is code complying. When the soil tester is there, they could perform a full soil morphology test for an alternate site. If a soil test is preformed and filed with the county this soil test never expires, so when the original system is ready to be replaced, there is one less step that has to be taken. The investments made to the properties around Barber Lake are an investment to the future of Barber Lake and the waters we use for drinking and recreation.

Thank you

I would like to personally thank Eric Wellauer, Sawyer County Sanitarian and Jay Kozlowski, Sawyer County Zoning & Sanitation Technician, for their good humor, patience, and teaching ability while working with me on the Barber Lake Septic Survey. I would also like to thank the staff at the Sawyer County Zoning Office who have been very helpful as well as a committed and hard-working group of individuals.

The homeowners on Barber Lake were overwhelmingly kind, supportive, and genuinely interested in the survey and concern for the health of Barber Lake. Without their support and cooperation the septic survey could not have occurred.

Finally I would like to thank the past and present members of the Winter Lakes Alliance, including, Jim Genrich, Tom High, Tienne Linden, Judy Schaefer and all other members. This association deserves special thanks for their commitment and contributions to this project and to the water quality of Barber Lake.

Many Thanks,
Joel Murray
2011 Sawyer County Zoning and Conservation Summer Intern

Passing Systems	
Bergman, Mark & Bach-Yen	Labinski, Allen & Rebecca
Biller, Robert & Sharron	LeMonds, Bryan & Jamee
Caraballo Etal, Mary	Lenarchich, Frank & Diane
Cecil, Jill	Linden Trust, Tienne
Cheatle, Daniel & Sherri	Marchi, Keith
Clark, Gregory & Lisa	Mattison, Aaron & Heather
Clark, Steven & Alice	Mcguire, Patrick & Roxanne
Clasen, Kathie	Meglic, Charles & Joan
Douglas, Lawrence & Jody	Meglic, Mark & Sherri
Eck, Rebecca	Mussehl, Donald & Frances
Eddy Etal, Randall	Nord Etal, Richard
Ericksen, Eric	Oneil, Ross
Ferries, Ruth	Ramlet, Thomas & Tammy
Fisher, Robert & Mary Ellen	Rankin, Robert
Frogner Trust, Lee	Rivay, Douglas & Cheryl
Funk, Vincent & Marcie	Rogers Etal, Patrick & Deborah
Genrich, James	Rosenbrock, Kenneth & Pamela
Glitto, Angelo & Mary	Ryan, Michael & Sarah
Gordon, James & JoAnn	Schultz, Stephen & Mildred
Handy, Hal & Diane	Simono, Phillip & Zita
Hanlon, Sen & Francis	Simplified Living LLC
Hasselquist, Ricky & Mary	Topp, John & Janet
Heidtbrink, Dwayne & Margaret	Torgerson Etal, Tod
Heinemann, Mark & Marian	Torgerson, Orville
Horne, Frederick	Tracy, Harold
Howe, Peter	Varsik Family Trust
Hulbert, Clarence & Barbara	Vega Etal, Domingo
Janega, Raymond & Patricia	Wallace, Leroy & Judy
Jannush, Clarence & Shelby	Watson, David & Kathleen
Jobin, Roger & Barbara	Wheeler, Margaret
Keller, David & Mary	Williams, Jackie
Kester, Roger & Patricia	Wilson, Roy & Keith
King, Steven & Mary	Wold Trust
Kornely, Lorriane	Wolf Etal, Michael & Meredith
Kruizenga Etal, Douglas	Wolff, Richard & Linda
Krzciuk, Chester & Sherrie	Zopp, Adam
72 Passing Systems	

Failing Systems	
Anderson, Loretta	**5945W Lee Rd.**
(Conventional) Soil mottles from 12-36"	
Eirshcele, Patrick & Deborah	**5786W Korn. Rd.**
(Drywell) In Groundwater, -2.11' Separation between bottom of system and OHWM (2' Needed)	
Kochalka, John & Susan	**5829W Lee Rd.**
(Conventional) 2.45' Separation between bottom of system and OHWM, Saturated at 45" (3' Needed)	
Kornely, Lorraine	**7049N County Hwy B**
(Drywell) In Groundwater, -3.09' Separation between bottom of system and OHWM (2' Needed)	
Kruizenga Etal, Douglas	**5670W Jajewski Rd.**
(Drywell) 22' from OHWM (50' Needed)	
Nolan, Dave	**5823W Lee Rd.**
(Unknown) 0.42' Separation between bottom of system and OHWM (3' Needed)	
6 Failing Systems	

Inconclusive Systems	
Hornof, James & Joel	**7069N Fender Rd.**
Old system, unable to find field	
Snider, Irvin	**6891N Pike Haven Rd.**
Old system, unable to find field	
2 Inconclusive Systems	

Did Not Allow Inspection	
Kjaer, Harold	6649N Benson Rd.
Kriesel, Brian & Rebecca	7022N Malm Rd.
Ruegger, Gladys	7150N Malm Rd.
Schroeder, Mark & Bonnie	5915W Lee Rd.
Van Wormer Etal, Gary	6679N Benson Rd.
Wozney Etal, Steven	5767W Korn Rd.
6 Did Not Allow Inspection	

Order for Correction	
Elizabeth Getson Trust	**7012N Malm Rd.**
Effluent Level below baffle and Chains and Locks Need to be installed	
Roesner, Russell & Rita	**5619W Horne Rd.**
Non code complying lid	
Voight, William & Kathleen	**7075N Fender Rd.**
Graywater Line	
Amborn Etal, Bruce	**5956W Burlum Rd.**
Graywater Line	
Kaskin Etal, Gordon & Betty	**5950W Burlum Rd.**
Graywater Line	
5 Order for Corrections	