

PGOLID On-site Waste Treatment System Status

Introduction and History

The Pelican Group of Lakes Improvement District (PGOLID) has been vigilant in monitoring septic system records for the lakes. In 2003, as part of the original Lake Management Plan, Blue Water Science conducted an Otter Tail County Individual Waste Treatment System record survey for the PGOLID lakes. In 2006, PGOLID conducted a voluntary survey and waste treatment screening project. In addition, in 2007-2009, Otter Tail County conducted mandatory waste treatment system inspections for systems over 20 years old.

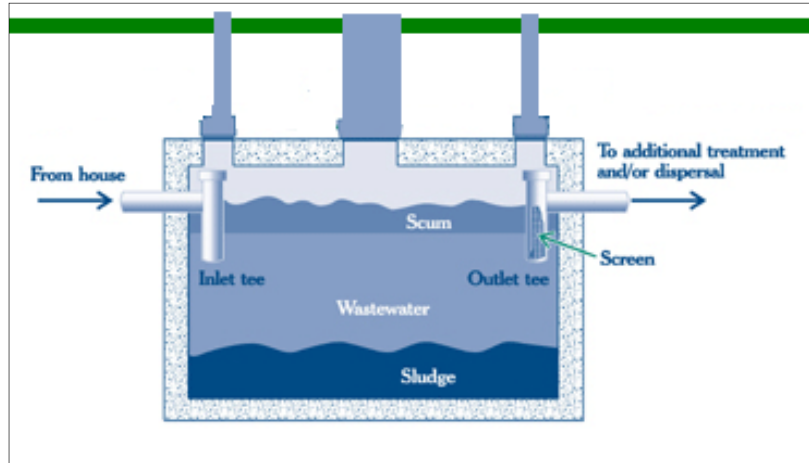


Figure 1. Basic septic tank.

These studies showed that although the majority of PGOLID individual waste treatment systems are working properly, property owners are not always maintaining them correctly. After the 2006 survey, an educational campaign was launched for PGOLID property owners to try and improve their waste treatment system maintenance.

In the summer of 2012, the PGOLID Water Resource Coordinator went to the Otter Tail County Land and Resource Department in Fergus Falls, MN to re-examine the property files for PGOLID residents. These files were reviewed for the following parameters:

- Property identification number
- Name of property owner(s)
- Address of property
- System type (septic system or holding tank)
- Year of last inspection

The 2012 data was then compared to the 2003 data to see if there have been improvements in the overall status of the septic systems in PGOLID in the past 10 years.

Summary

System Type

A septic system treats waste in a drainfield, while a holding tank just holds the waste until it is pumped out. Septic systems are a very good way to treat waste when properly maintained. Holding tanks are common in areas where there is not sufficient surface area or distance from the water table to install a drainfield.

In 2012, 68% of PGOLID waste treatment systems were septic systems, while 31% were holding tanks (Figure 2, Table 1). In 2003, 69% of waste treatment systems were septic systems and 30% were holding tanks (Table 1). Therefore, the type of systems in PGOLID have not changed much over the last 10 years. This can be expected since the areas that have holding tanks will never be suitable for a septic system and drainfield.

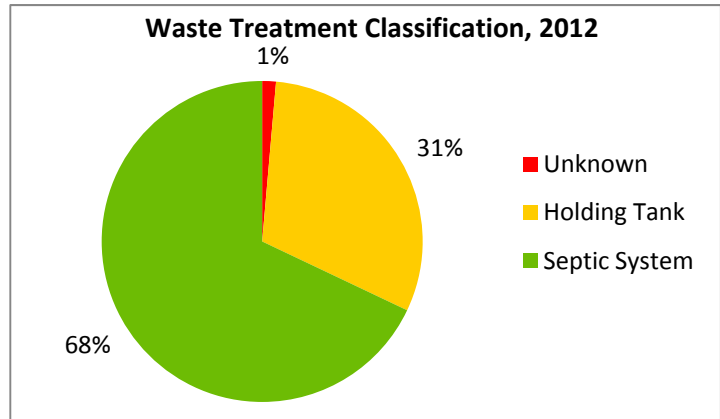


Figure 2. Waste treatment systems in PGOLID, 2012.

Table 1. Comparison of system types between 2003 and 2012 surveys.

	2003 Count	2003 Percent	2012 Count	2012 Percent
Septic Systems	661	69%	738	68%
Holding Tanks	289	30%	333	31%
Other	2	1%	15	1%

Each lake varies in the number of septic systems versus holding tanks (Figure 3). Bass Lake has only septic systems. Fish Lake has the highest percentage of holding tanks, while Pelican Lake has the highest number of holding tanks.

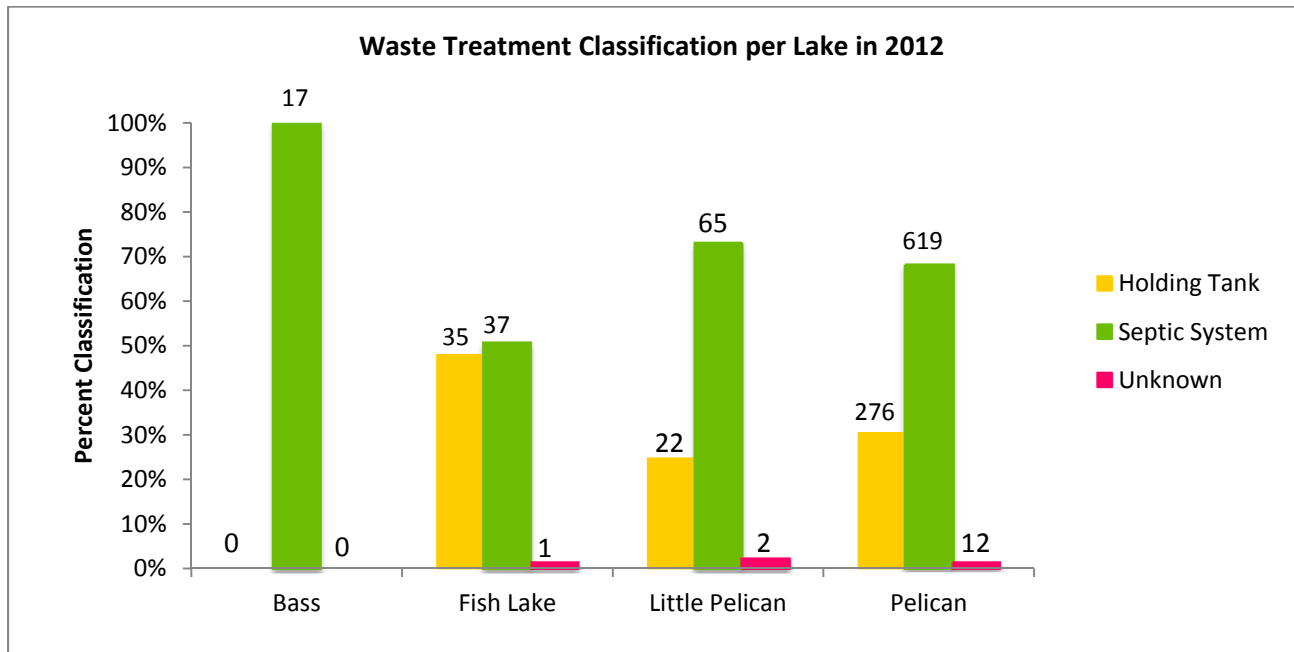


Figure 3. Waste treatment classification per lake in 2012.

On-site Wastewater Treatment Systems

Pelican, Little Pelican, Bass, and Fish Lakes
Otter Tail County, 2012

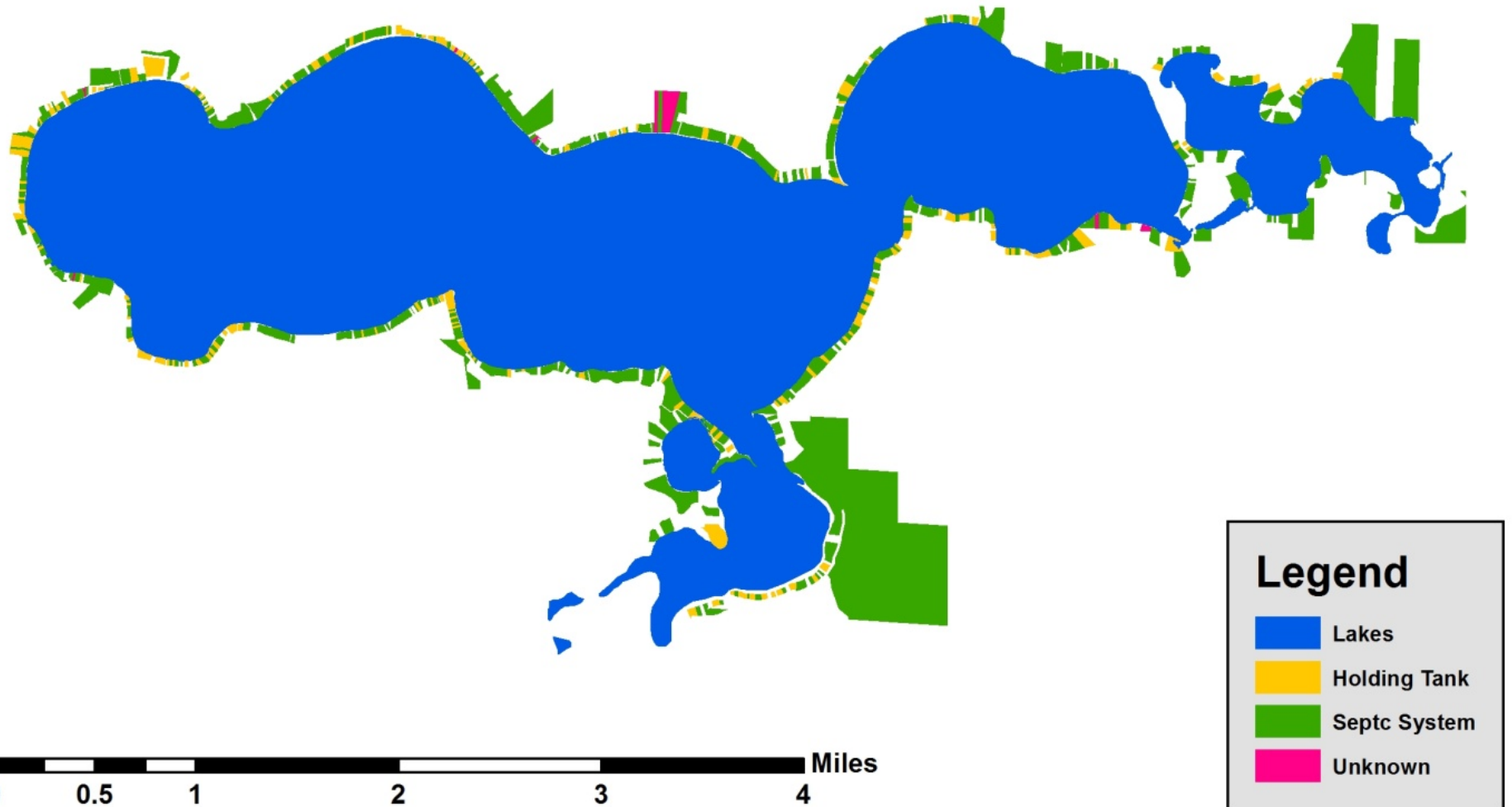


Figure 4. Location of waste treatment system types in PGOLID, 2012.

System Age

Septic systems can last 30 years or more when properly maintained. For all the lakes, the majority of the systems are newer than 30 years old (Table 2, Figure 5). All of Bass Lake's systems are newer than 1991, which is most likely because development on Bass Lake has occurred since then (Figure 5).

Most of the systems in Pelican Lake are older than 20 years (62%) (Table 3). This is most likely because the development on Pelican Lake occurred more than 20 years ago, and many properties have stayed within families and not been sold.

Table 2. Waste treatment systems in PGOLID lakes that are over 30 years old.

Lake	% systems less than 30 yrs old	% systems over 30 yrs old
Pelican	92%	8%
Little Pelican	91%	9%
Bass	100%	0%
Fish	93%	7%

Table 3. Waste treatment systems in PGOLID lakes that are over 20 years old.

Lake	% systems less than 20 yrs old	% systems over 20 yrs old
Pelican	38%	62%
Little Pelican	72%	28%
Bass	100%	0%
Fish	51%	49%

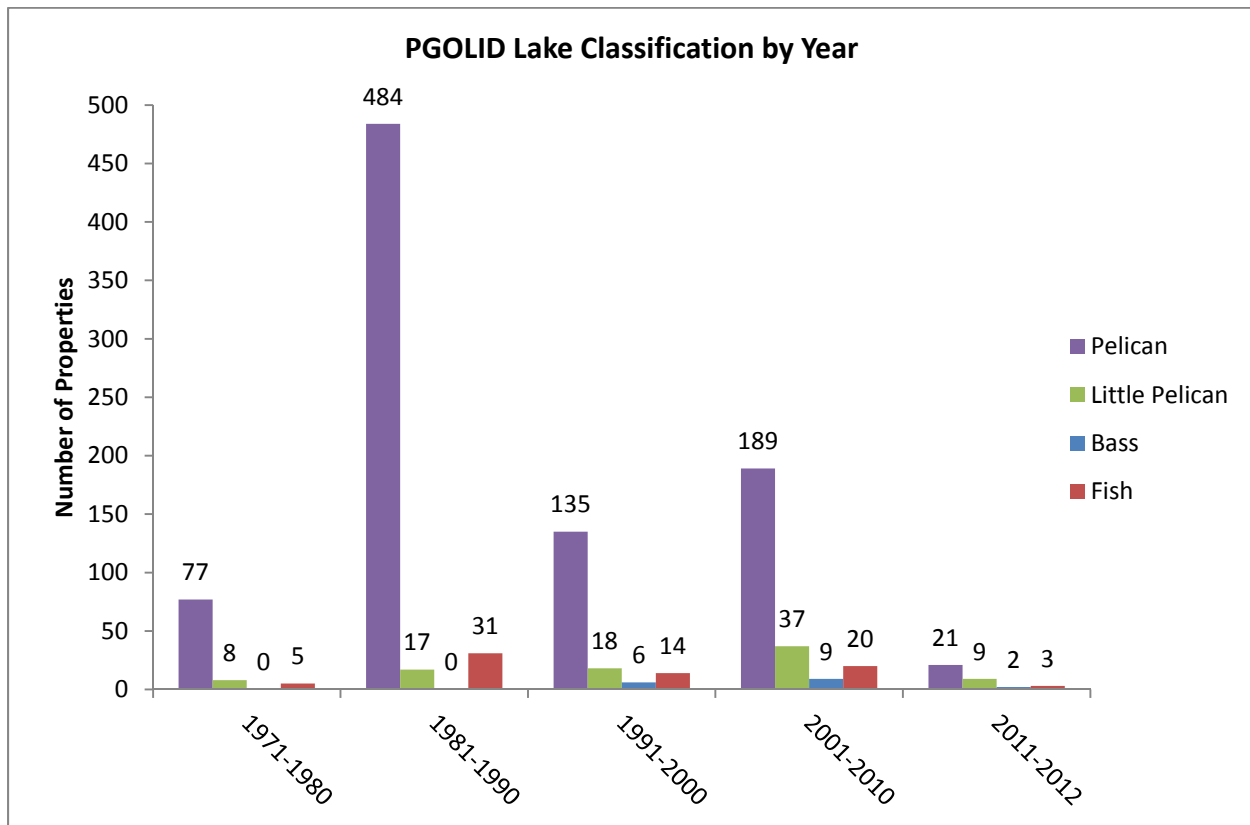


Figure 5. PGOLID waste treatment system ages.

System Age Comparison from 2003 - 2012

The status of PGOLID waste treatment systems has improved overall since the 2003 records survey. Many of the systems from the 1970s have been updated in the last few years. In 2003, there were 209 systems in the PGOLID lakes that were installed in the 1970s. In 2012, there are 90 systems that were installed in the 1970s, and 290 systems that were installed since 2000 (Table 4).

The 2012 survey also showed that there were still a lot of systems from the 1980s (532). These 90 systems from the 1970s and 532 systems from the 1980s (622 total, 57% overall), should be the first target for education and/or a follow-up project.

The total numbers of systems show where the most development has occurred in PGOLID in since 2003 (Table 4). Bass and Little Pelican Lakes show the most development in the past decade. This is most likely because those were the areas with the most open lots. Overall for PGOLID there are 140 more systems in 2012 than there were in 2003.

Table 4. System age comparison from 2003-2012.

Bass	2003	2012
1970-1980	0	0
1981-1990	2	0
1991-2000	6	6
2001-2010	1	9
2011-2012	0	2
Total	9	17
Fish	2003	2012
1970-1980	17	5
1981-1990	34	31
1991-2000	15	14
2001-2010	3	20
2011-2012	0	3
Total	69	73
Little Pelican	2003	2012
1970-1980	18	8
1981-1990	10	17
1991-2000	8	18
2001-2010	2	37
2011-2012	0	9
Total	38	89
Pelican	2003	2012
1970-1980	174	77
1981-1990	464	484
1991-2000	159	135
2001-2010	32	189
2011-2012	0	21
Total	829	906
Overall PGOLID Total	945	1085

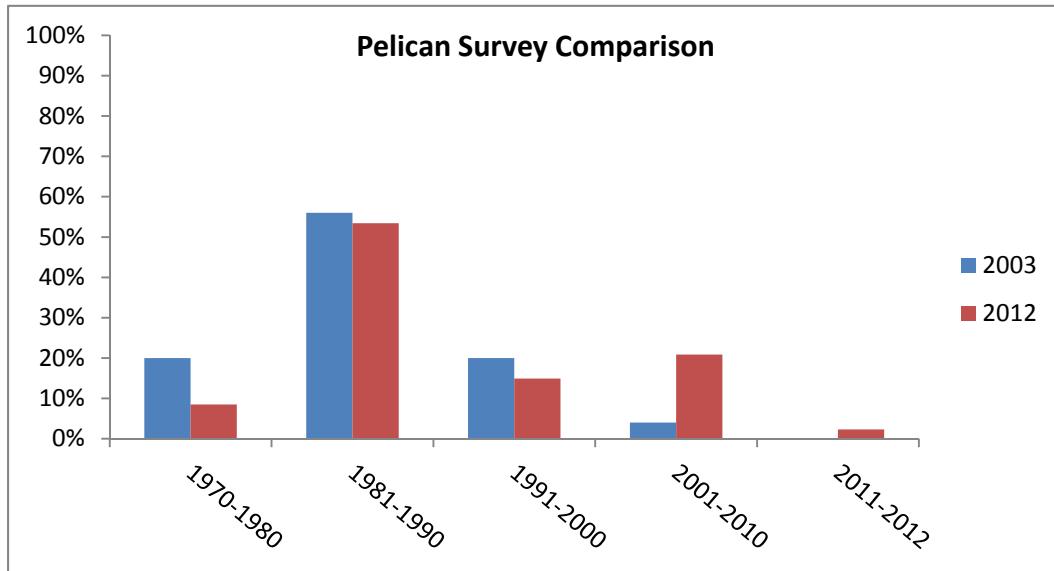


Figure 6. Pelican Lake survey comparison from 2003-2012.

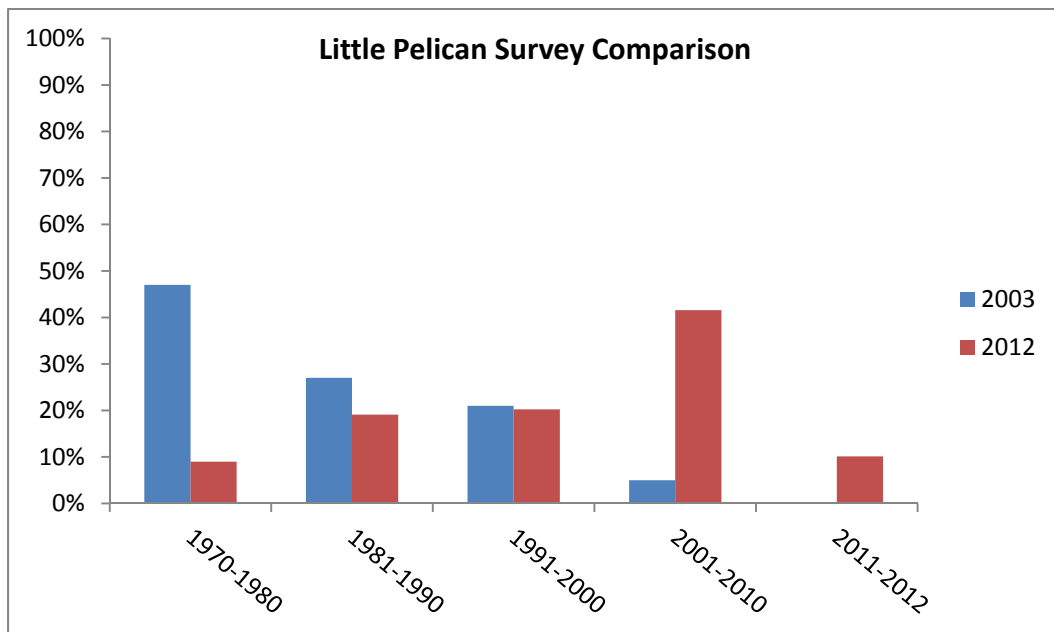


Figure 7. Little Pelican Lake survey comparison from 2003-2012.

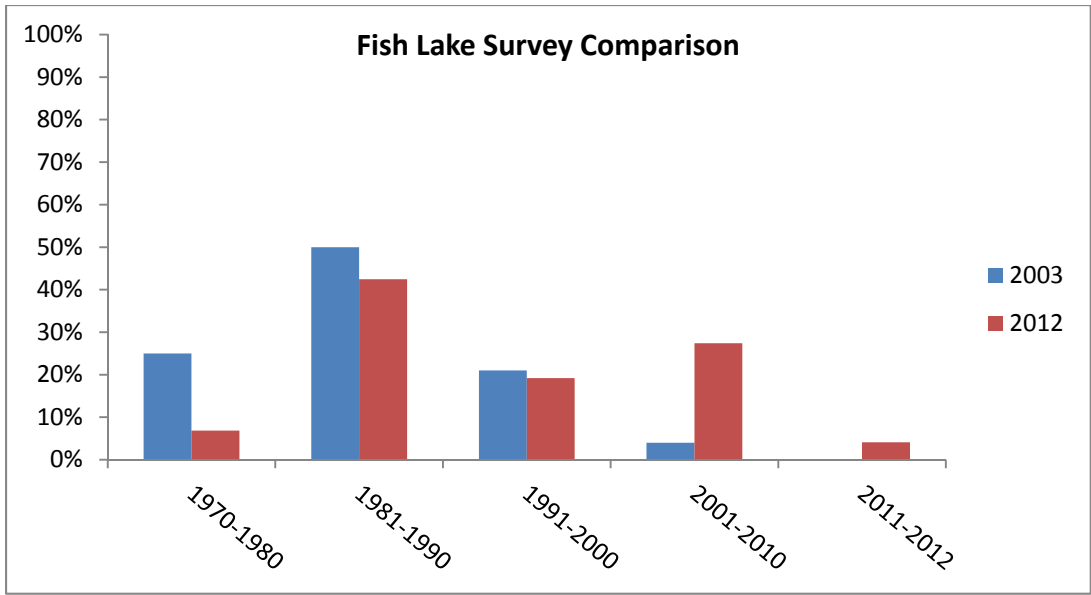


Figure 8. Fish Lake survey comparison from 2003-2012.

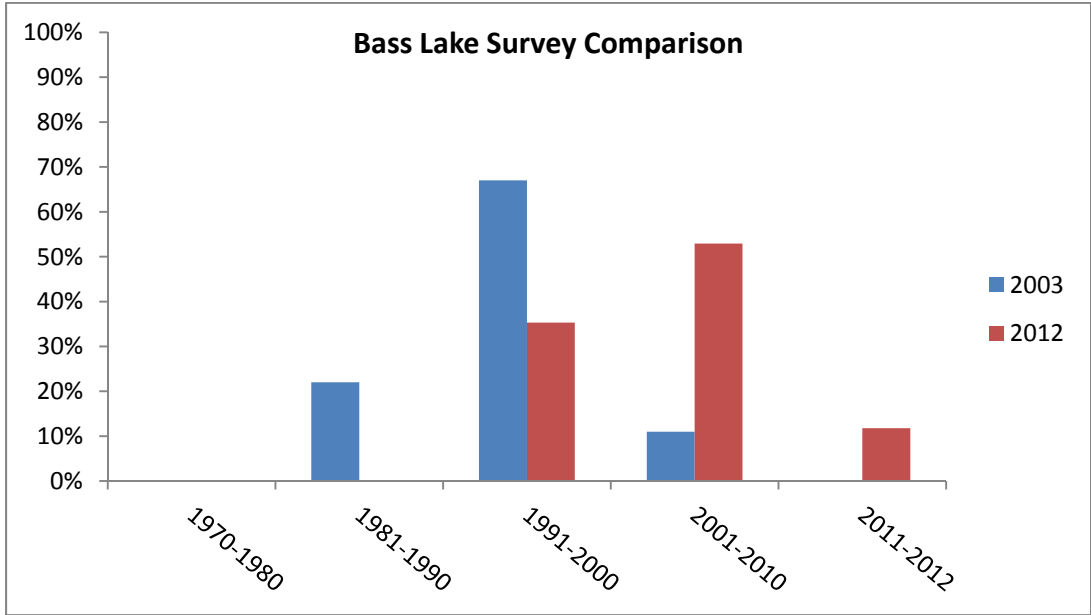


Figure 9. Bass Lake survey comparison from 2003-2012.

On-site Wastewater Treatment Systems

Pelican, Little Pelican, Bass, and Fish Lakes

Otter Tail County, 2012

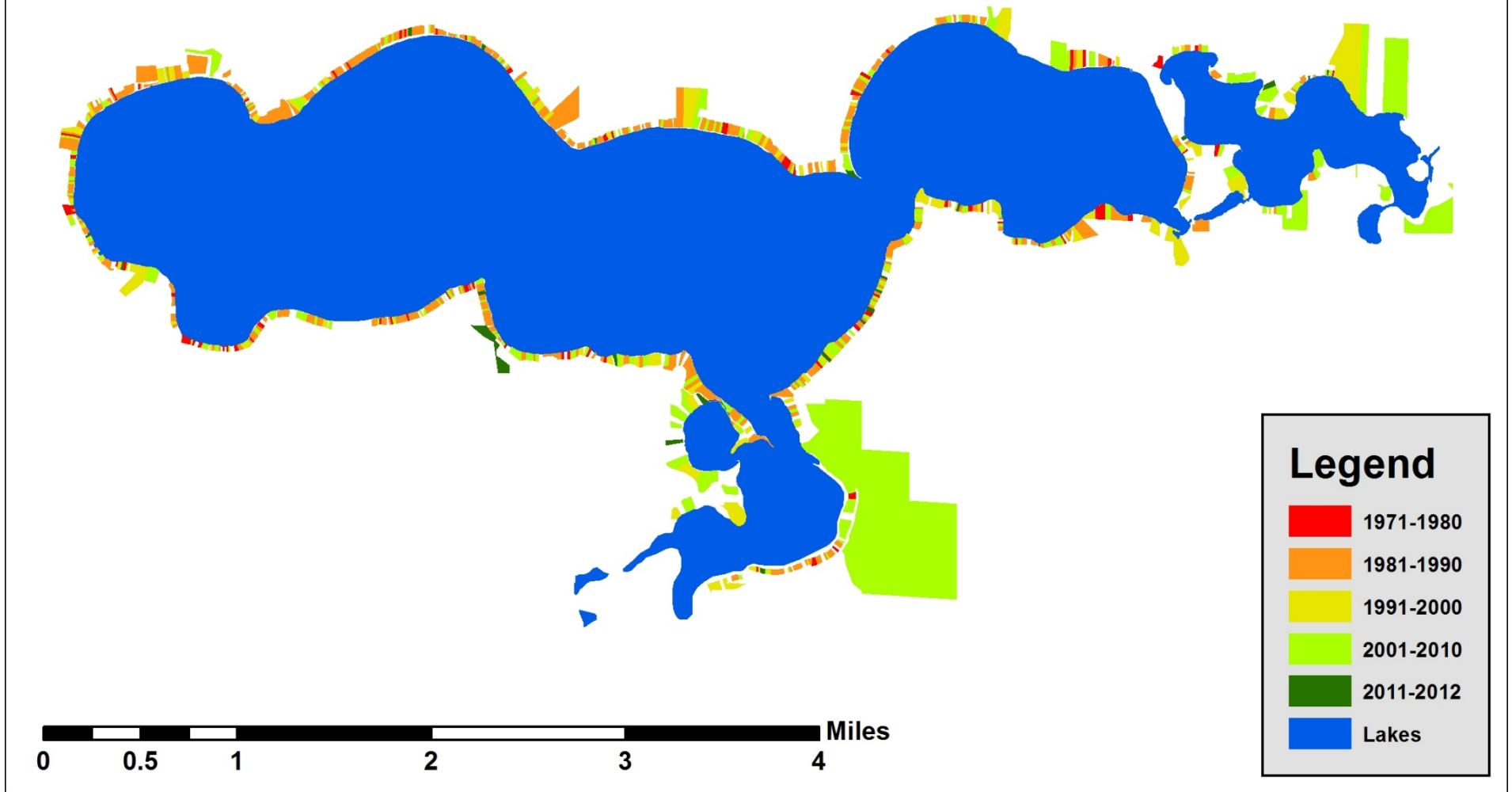


Figure 10. Location and age of PGOLID waste treatment systems.

Next Steps

Even though a septic system can last 30 years, most people do not properly maintain them, which decreases the life expectancy of the system. A properly maintained septic system should be pumped at least every three years, and a holding tank should be pumped whenever it is full (numerous times per year). If property owners are not pumping their systems, then the waste could be leaching into the ground. In addition, septic system drainfields need to be kept clear and porous to be able to treat the waste. When drainfields are driven over and built upon, they cannot work properly anymore.

There are a few project options for the PGOLID Board to consider as a follow up to this report.

1. An anonymous voluntary survey sent out to home owners asking them about how they maintain their system, while educating them on the proper maintenance. This survey could be set up as an online survey sent out through email to save mailing costs. PLPOA has a fairly extensive email list for their E-communications.
2. A letter to everyone with systems older than 20 years (622 property owners) informing them of their system's age, and recommending they conduct an inspection.