Section 17

About Little Trout Lake

The 1863 survey map by A.C. Stuntz identifies Little Trout Lake as *Sand Lake*.[1] The 1895 Poole map shows Little Trout Lake as *Little Trout Lake*[2]; the 1896 Rand McNally map, *Sand Lake*[3]; 1903 Map of the Wisconsin River Valley, *Little Trout*[4]; and the 1909 Poole map, *Little Trout*.[5]

Introduction

The *Bear River Watershed Comprehensive Lake Management Plan* includes sections for each of the ten lakes in the watershed. The lakes are in the largest watershed in Lac du Flambeau, within the Reservation's boundaries, associated with high use landings, and have complete data sets required for a lake management plan. The purpose of the plan is to establish the current health of the watershed and lakes and suggest how to maintain or improve their health in the future.

This section includes introductory information about Little Trout Lake, a summary of how uses of the lake have changed over time, data from the community survey, and an assessment of the lake's health based on data for the lake's biology, chemistry, nutrients, habitat, bacteria, lake levels, and aesthetics. This section also includes an action plan to improve or maintain the overall health of Little Trout Lake.

Little Trout Lake is in the Bear River Watershed (Subwatershed HUC12-070500020203) north of White Sand Lake.

The lake is approximately 978 acres and has a maximum depth of 98 feet (Table 17-1). Little Trout Lake is classified as a seepage lake, meaning that it is fed by groundwater, precipitation, and run off and is drained by groundwater. Little Trout has five cranberry marshes surrounding the northeast one-third edge of the lake. The cranberry marshes total about 600 acres and were started in about 1945.

Table 17-1. Basic Data for Little Trout Lake

Morphology	
Acreage (Acres)	978
Maximum Depth (Feet)	98
Mean Depth (Feet)	25
Retention Time (Years)	7.02
Drainage Area (Acres)	2619
Drainage Basin/Lake Area Ratio	2.8
Vegetation	
Survey Data Collected	2012
Number of Native Species	30
Floristic Quality Index	35.91
Simpson's Diversity Index	0.9
Percent Vegetated (%)	56.41
Average Conservatism	6.79
Water Quality	
Trophic State	Mesotrophic
Limiting Nutrient	Phosphorus
Water Acidity (pH)	7.3
Sensitivity of Acid Rain	Low
Watershed to Lake Area Ratio	3:01
Aquatic Invasive Species	Rainbow Smelt Rusty Crayfish Reed Canary Grass

Large pumping structures (Figure 17-1) move water to and from the lake to irrigate and protect the cranberries from frost. The Powell Marsh is on the other two-thirds, and uninhabited.

Little Trout Lake stratifies annually with the hypolimnion reaching dissolved oxygen below 5mg/L. With Secchi readings averaging 10.7 feet, the lake's water clarity is considered to be good.

Figure 17-1. Cranberry Marsh Pump House on the North Shore of Little Trout Lake

Based on Secchi, total phosphorus, and Chlorophyll *a* data, Little Trout Lake is classified as mesotrophic. Mesotrophic lakes generally have medium levels of nutrients and water clarity when compared to other natural lakes.

Little Trout Lake's watershed includes forests (12%), agricultural (12%), wetlands (46%), and water (30%).

There are 2 dwellings within 300 feet of the lake's shoreline. One third of the lake's shoreline is a dike for the cranberry farms with 13 pump houses located along the shoreline. The southern two thirds of the lake is the reservation and uninhabited, mostly being the Powell Marsh.

Little Trout Lake does have a public landing operated by the Lac du Flambeau Tribe. It is located at the end of Little Trout Road.

Brief History of Little Trout Lake

The history of Little Trout Lake, including how uses of the lake have changed over time, parallels the history of the other lakes in the Bear River Watershed as described in Section 3. Unless noted otherwise, the information here is footnoted in Section 3.

For hundreds of years Little Trout Lake was used by indigenous people for subsistence. Virtually every facet of their lives depended on their relationship with the lake and its surrounding habitats for food, medicine, building materials, and transportation.

With the arrival of the Europeans in the early to mid-seventeenth century, Little Trout Lake and the surrounding habitats took on a new use; to help provide the world with furs. Lac du Flambeau became a transportation center for the fur trade and Little Trout Lake had access to the primary canoe routes connecting Lac du Flambeau with lakes and trading centers in all directions. In the early history of Lac du Flambeau, these links were part of a primary canoe route to Lac Vieux Desert.[6]

By 1840 the fur-bearing animals were gone and Little Trout Lake and its surrounding habitats took on another new use; to provide the country with timber and timber products.

By 1913, the trees around Little Trout Lake were gone and most of the surrounding habitats were destroyed. In the early 1900's, however, the logging industry was already being replaced by the service industry, which used Little Trout Lake and its surrounding habitats to meet the recreational needs and demands of tourists and seasonal residents.

As a result of the Dawes Act in 1887, some of the lakefront property on Little Trout Lake was transferred from the Tribe to non-Tribal residents, opening the shorelines to development.

As compared to the other project lakes, Little Trout is unique in that cranberry farms are located at its north end in Manitowish Waters, and the Powell Marsh Wildlife area lies to its west.

Community Survey[7]

Approximately 3,000 households in Lac du Flambeau were invited to participate in a mail survey during the summer of 2012 to provide information for preparing the *Bear River Watershed Comprehensive*

Lake Management Plan. The survey was developed with assistance from the Wisconsin Department of Natural Resources and was approved by the WDNR before it was distributed.

The survey includes questions on topics such as residents' perceptions of the quality of lake water, fishery, and overall environment; residents' familiarity with aquatic invasive species and aquatic plants; residents' perceptions of current and ideal shoreline landscaping; and residents' interests in a variety of workshops. The survey, data tables, and other information related to the survey are in the appendix.

One-third of the questionnaires (996) were returned completed, representing 51 lakes. Of the returned questionnaires, 576 (58%) provide information on the ten lakes in the Bear River watershed and of these, 2 (0.3%) focus on Little Trout Lake.

Tables presenting results of the survey are presented throughout the rest of this section. Care should be taken when interpreting the survey data because in all cases the number of respondents for Little Trout Lake is very low.

Assessing Lake Health

Medical doctors assess human health by examining a patient's blood work, height, weight among numerous other measures (quantitative data) and by considering information like the patient's answers to questions, comments, even body language (qualitative data). Similarly, lake managers assess lake health by examining the lake's oxygen, nitrogen, phosphorus, among other measures (quantitative data) and by considering additional information about the lake like the presence of aquatic invasive species, nuisance aquatic plants, or even presence of trash (qualitative data).

Little Trout Lake Health Report

Assessing the health of Little Trout Lake has included examining qualitative and quantitative data pertinent to the lake's biology, chemistry, nutrients, habitat, bacteria, aesthetics, and fish tissue. These categories are introduced in the next few pages and are addressed at length in the rest of the section.

Table 17-2 shows the categories, their subdivisions (Indicator Assessments), and the ratings that have been applied to them, *Excellent*, *Good*, *Fair*, *Poor*, *Concern* or *Not Assessed* (See Section 10 for details on rating).

Table 17-2. Little Trout Lake Health Report

Category	Indicator Assessment		Overall Status
Biology	Invasive aquatic plant	Excellent	Good
	Invasive fish	Good	
	Invasive invertebrate	Good	
	Invasive wetland plant	Good	
	FQI	Excellent	
Chemistry	Dis. Oxygen (DO)	Good	Excellent
	pH pH	Excellent	
	Temperature	Excellent	
	Ionic Strength	Excellent	
	Sus. Solids (SS)	Excellent	
Nutrients	Phosphorus P	Fair	Good
	Chlorophyll *a*	Excellent	
Habitat	Plants H	Excellent	Good
	Riparian Zone	Fair	
	Littoral Zone	Excellent	
Bacteria	Bacteria	NA	NA
Aesthetics	Oil & Grease	Excellent	Excellent
	Taste & Odor	NA	
	Turb/Color	Excellent	
	Nuisance Plants	Excellent	
	Trash/Debris	Excellent	
Tissue	Spec. Chem. Hg	Concern	Concern
Lake Level	Level	NA	NA

The Biology Category reflects an assessment[8] of the number and magnitude of invasive species. Little Trout Lake has rainbow smelt, rusty crayfish, and reed canary grass. It may also have phragmites along the cranberry farm dikes. At this time, the phragmites have not been positively identified by a botanist and are not listed in the assessment. The floristic quality index[9] is excellent (FQI 35.91), and Little Trout Lake's overall status for the Biology Category is *good*.

The Chemistry Category reflects an assessment[10] of data for dissolved oxygen, pH, temperature, ionic strength, and suspended solids as compared to Water Quality Standards Criteria.[11] Dissolved Oxygen for Little Trout Lake during the summer can reach below 5mg/L, the criteria for cool water fish, so it has a status of *good*. Little Trout Lake's overall status for the Chemistry Category is *excellent*.

The Nutrients Category reflects an assessment[12] of data for Phosphorus and Chlorophyll *a* levels as compared to National Lake Survey (NLS) thresholds[13] for the Upper Midwest ecoregion health conditions and for the upper limit compared to Wisconsin's new water quality standards for a two-story fishery lake.[14] The NLS was a study of Lakes across the United States, and thresholds for good, fair and poor were developed based on the data collected for each ecoregion. Little Trout Lake's overall status for the Nutrients Category is *good* as average total phosphorus is 17.16 µg/L (fair), and Chlorophyll *a* is 4.08 µg/L (excellent).

The Habitat Category reflects an assessment[15] of Little Trout Lake's aquatic plants, riparian zone (shoreline), and littoral zone (shallow water along shoreline). Comparisons are made with ecoregional data and National Lake Survey thresholds.[16] Indicators for Little Trout Lake have a rating of *good*. Little Trout Lake's overall status for the Habitat Category is *good*.

The Bacteria Category reflects an assessment[17] of summer *E. coli* measurements as compared to Water Quality Standards criteria[18] for human health protection. Little Trout Lake's overall status for the Bacteria Category was not assessed.

The Aesthetics Category reflects an assessment of data and information on water quality, color, and turbidity as well as an assessment of reports received by the Tribal Natural Resources Department for Little Trout Lake on the presence of oil, grease, nuisance aquatic plants, and trash/debris. This information is compared to narrative criteria as described the Water Quality in the Water Quality Standards.[19] Little Trout Lake's overall status for the Aesthetics Category is *excellent*.

The Tissue Category reflects an assessment of the amount of mercury in the flesh of fish in Little Trout Lake as compared to the Water Quality Standards.[20] Larger edible fish have more mercury in their flesh than what is protective for human health concerns. Little Trout Lake's overall status for the Tissue Category is of *concern*.

The Lake levels were not assessed for Little Trout Lake, and a condition criteria has not been developed at this time.

Biology Category

Biology is the science of living organisms. The organisms that live together in the lake interact in large part based on their food relationships (Food Web). The food pyramid for lakes (Figure 17-2) shows the proportion of biological production to the yield of large fish.

The organisms are in balance after thousands of years of naturally evolving together within these food relationships. Invasive species, however, are organisms that evolved originally in other locations and when they move into a naturally balanced area disrupt the native organisms' relationships.

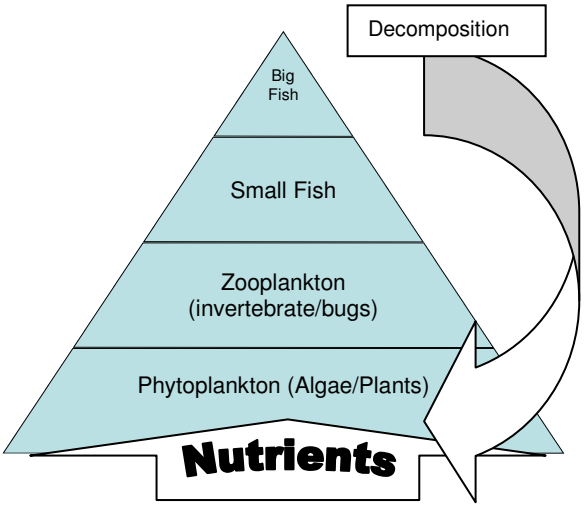

Figure 17-2. Lake Food Pyramid

Invasive species are a great concern. Their introduction can cause changes of native organisms' distribution and abundance and contribute to water quality degradation. The introduction of the invasive aquatic plant, Eurasian water milfoil, can cause the reduction in large game fish as the native insects and small fish have not evolved to eat EWM, causing a loss of food resource for large fish and an overabundance of plant matter.

Little Trout Lake has rainbow smelt, rusty crayfish, and reed canary grass.

To help determine the extent of residents' familiarity with Aquatic Invasive Species (AIS), the community survey asked residents to answer a few questions about AIS. Their responses to some of the questions follow.

Residents were asked if they had heard of AIS before reading about them in the survey. For Little Trout Lake, both (100%) respondents indicated they had prior knowledge of AIS as compared to 171 of 576 (30%) for respondents of the ten lakes in the Bear Watershed, and 300 of 996 (30%) for all respondents from Lac du Flambeau.

Residents having prior knowledge of AIS were shown a list of AIS and then asked which, if any, are currently in the lake. Table 17-3 shows the responses of 2 residents for Little Trout Lake (% Perceived Presence). The table also shows whether the AIS are actually in the lake (Actually Present). For example, 1 out of 2 residents believe there are no AIS in the lake when in fact Little Trout Lake has rainbow smelt. The table also shows there is a general disconnection between residents' perceptions of the presence of AIS and the actual presence of AIS.

Table 17-3. Little Trout Lake - Perceived vs Actual Presence of AIS

AIS	# Respondents	Perceived Presence	Actually Present
Banded Mystery Snail	0	0%	No
Eurasian Water Milfoil	0	0%	No
Rainbow Smelt	1	50%	Yes
Chinese Mystery Snail	0	0%	No
Freshwater Jellyfish	0	0%	No
Rusty Crayfish	0	0%	Yes
Curly-leaf Pondweed	0	0%	No
Purple Loosestrife	0	0%	No
Reed Canary Grass	0	0%	Yes
None of Above	1	50%	

The same 2 respondents were asked to identify what they believe is threatened by AIS. Table 17-4 summarizes the responses for Little Trout Lake, the ten lakes in the Bear River Watershed, and the 51 lakes in the survey. The largest percentages of responses for the Bear River Lakes and All Lakes show that native fish, aquatic plants, and water quality as most threatened. The lowest percentage of responses for all three groups of respondents is for air quality.

Table 17-4. Little Trout Lake - Perceived to be Threatened by Aquatic Invasive Species

	Little Trout Lake		Bear River Lakes		All Lakes	
	# Respondents	%	# Respondents	%	# Respondents	%
Native Fish	1	50%	75 of 171	44%	113 of 302	37%
Air Quality	0	0%	9 of 171	5%	16 of 302	5%
Aquatic Plants	2	100%	60 of 171	35%	92 of 302	31%
Wetlands	1	50%	31 of 171	18%	45 of 302	15%
Shoreline Plants	1	50%	47 of 171	28%	72 of 302	24%
Amphibians	1	50%	33 of 171	19%	48 of 302	16%
Water Quality	1	50%	83 of 171	49%	125 of 302	41%
Crustaceans	1	50%	32 of 171	19%	42 of 302	14%
Other	0	0%	5 of 171	3%	8 of 302	3%
None	0	0%	28 of 171	16%	72 of 302	24%

The same residents were also asked if they are concerned about AIS getting into the lake. Table 17-5 shows that for 2 respondents for Little Trout Lake, 100% indicate *extremely concerned*, 0% *somewhat concerned,* 0% *not too concerned*, 0% *not concerned at all*, and 0% *unsure*. Data for all three reference groups shows respondents have great concern about AIS getting into the lakes.

Table 17-5. Little Trout Lake - Concern about AIS Getting into the Lake

Lake	# Respondents	Extremely	Somewhat	Not Too	Not at All	Unsure
Little Trout Lake	2	100%	0%	0%	0%	0%
Bear River Lakes	170	49%	41%	4%	0%	7%
All Lakes	294	42%	42%	9%	2%	6%

The same residents were asked if they have been taking time to look for AIS in the lake. Table 17-6 shows that for 2 respondents affiliated with Little Trout Lake, 50% indicated *not at all,* 0% *once a season,* 0% *monthly,* 50% *weekly,* and 0% *daily.*

The data for Little Trout Lake is similar to the data for the other lakes and shows that despite concern for AIS, very few residents indicate they spend time looking for AIS regularly.

Table 17-6. Little Trout Lake - Time Spent Checking for AIS During Open Water Season

	Little Trout Lake		Bear River Lakes		All Lakes	
	# Respondents	%	# Respondents	%	# Respondents	%
Not at all	1	50%	66 of 161	41%	114 of 280	41%
Once a Season	0	0%	45 of 161	28%	85 of 280	30%
Once a Month	0	0%	30 of 161	19%	47 of 280	17%
Once a Week	1	50%	12 of 161	8%	21 of 280	8%
Once a Day	0	0%	8 of 161	5%	13 of 280	5%

Chemistry Category

Chemistry is the science of matter and its properties and composition with a particular focus on the properties of chemical bonds. Dissolved oxygen, pH, temperature, ionic strength, and suspended solids each have a particular role in chemical bonding and movement of chemicals within the lake.

Seasonal changes and water temperature of the lake have an impact on the amount of dissolved oxygen in the lake, important for fish respiration and viability (see Section 9, *Understanding Lake Data*).

Dissolved Oxygen in Little Trout Lake (Figure 17-3) during the summer and late winter can reach below 5mg/L, the minimum criteria for cool water fish. Lake whitefish (*Coregonus elupeaformis*), for example, is a cool water fish that is very susceptible to temperature and dissolved oxygen. Little Trout Lake has had occasional die-offs of whitefish in the shallow parts of the lake where the fish were confined.

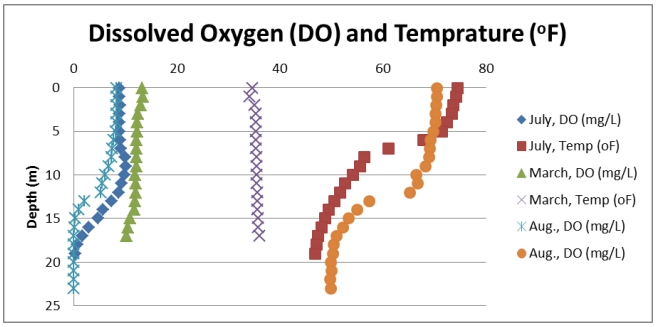

Figure 17-3. Dissolved Oxygen and Temperature Trends at Varying Depths for Little Trout Lake

Conductivity is the ability of water to conduct electricity, an approximation of charged particles such as suspended solids, chloride or calcium that are dissolved in the water. Conductivity for Little Trout Lake varies little seasonally or spatially and is low compared to other lakes in southern Wisconsin (see Section 9, *Understanding Lake Data*).

Calcium for Little Trout Lake as measured in 1990 was on average 3 mg/L, quite low, meaning Little Trout may be less susceptible to infestations of zebra mussels.

pH is the measure of acidity or the negative logarithm of the hydrogen ion concentration (see Section 9, *Understanding Lake Data*). Much of the variation is likely due to whether the measurements were taken off of the bottom sediments or at the surface.

Nutrients Category

Based on Secchi, total phosphorus, and chlorophyll data, Little Trout Lake's trophic state is mesotrophic, meaning it has medium amounts of nutrients to support a productive food web. A productive food web includes a diversity of rooted plants, macro-invertebrates (insects), and healthy fish populations.

Phosphorus and nitrogen are two nutrients that play key roles in limiting the growth of aquatic plants and algae (see Section 9, *Understanding Lake Data*). Of these, phosphorus is most critical to Little Trout Lake.

Phosphorus originates from sources like human and animal wastes, soil erosion, detergents, septic systems and runoff from lawns. Phosphorus is the limiting nutrient for Little Trout Lake, meaning that when the amount of phosphorus increases, the probability of algae growth also increases. Total phosphorus between 10 and 18ug/L is associated with mesotrophic and medium production of biomass (Figure 17-4).

As the amount of algae increases, it is likely that the amount of chlorophyll *a* increases. Chlorophyll *a* is a green pigment present in all plant life and is necessary for photosynthesis. The amount of Chlorophyll *a* is a common measure of water quality. (Figure 17-4)

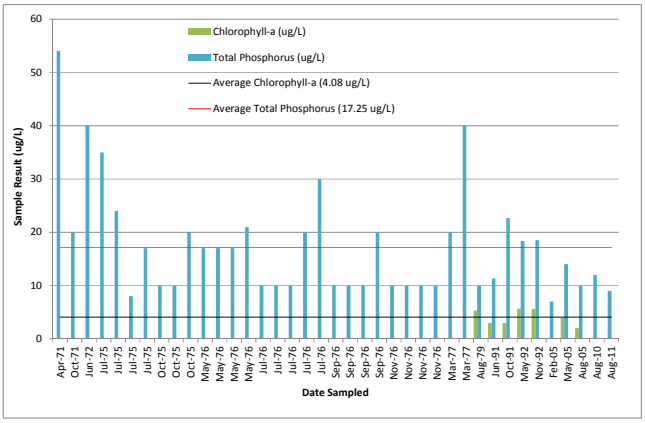

Figure 17-4. Total Phosphorus and Chlorophyll *a* Trends for Little Trout Lake

Data for Secchi Depth, total phosphorus, and Chlorophyll *a* for Little Trout Lake from 1971 until present indicate no significant change in water quality over this time period (Figure 17-5).

Little Trout Lake, however, is adjacent to the cranberry farms in the heart of the Powell Marsh, where the farms are the primary source of total phosphorus (Figure 17-67). The lake's shoreline is almost completely undeveloped other than the farms, and the total phosphorus is quite high.

Future amounts of phosphorus for Little Trout Lake can be anticipated by using a tool (Wisconsin Lake Modeling Suite - WiLMS) designed to predict phosphorus levels based on changes of land use in the watershed (Figure 17-76).

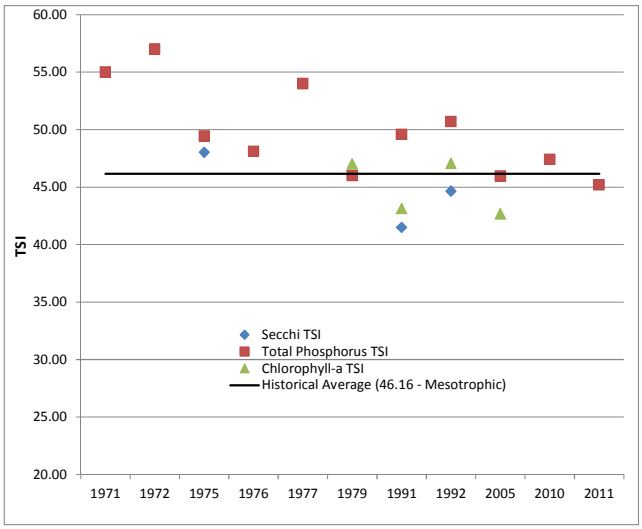

Figure 17-5. Secchi Depth, Total Phosphorus, and Chlorophyll *a* Trends for Little Trout Lake

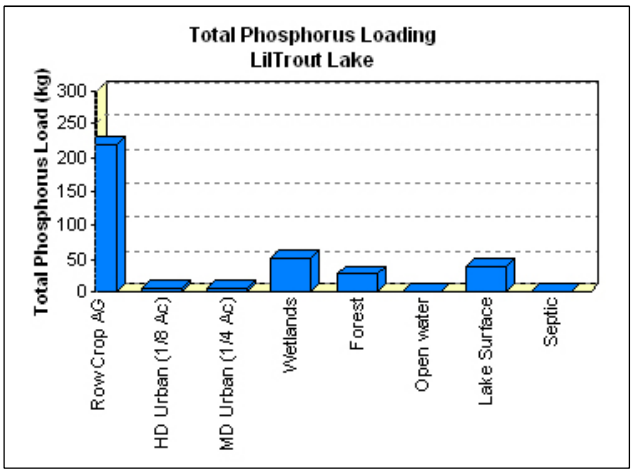

Figure 17-6. Phosphorus Loading by General Area for Little Trout Lake

Use of the WiLMS tool reveals that agricultural (row crop) is the leading source of phosphorus in the watershed. The WiLMS tool did not have specific cranberry farm inputs so the calculated total phosphorus was 20mg/L being higher than actually value of 17 mg/L. Yet WiLMS can still be used as the export coefficient for row crops as defined by WiLMS is similar to that of the cranberry operation if only a bit higher. The forested and wetland areas contribute less total phosphorus as the runoff is slowed and allowed to seep into the ground instead of washing into the lake transporting sediment and phosphorus.

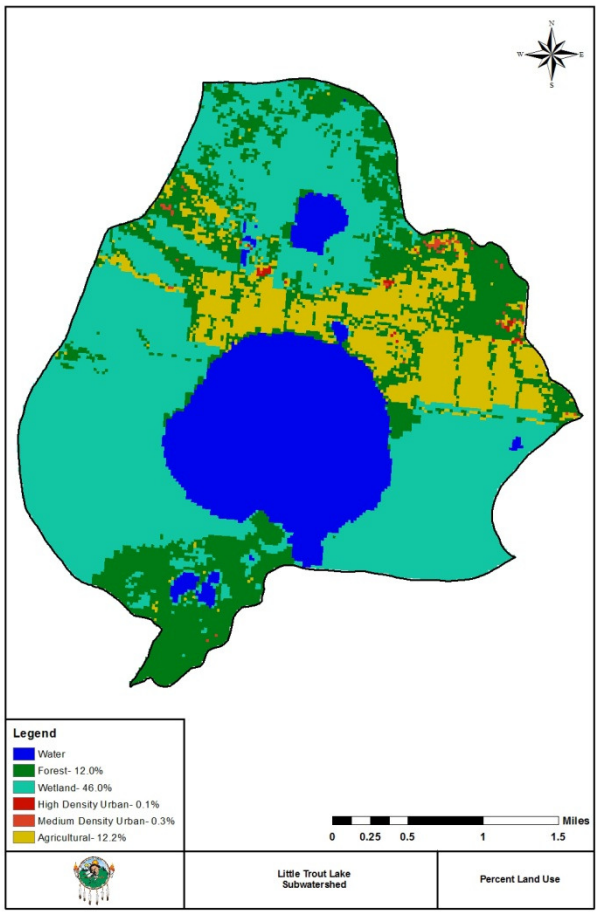

Figure 17-7. Little Trout Lake Land Use, Showing Cranberry Production Areas (Yellow)

The WiLMS tool suggests that changing land use patterns can reduce the amount of total phosphorus. When WiLMS is run for Little Trout Lake without accounting for the cranberry marshes the calculated total phosphorus is 13mg/L. This suggests that if the cranberry operations were removed or Best Management Practices, like tail water control were used, the total phosphorus in little Trout Lake could be reduced, and good or excellent conditions would replace the current fair condition.

Habitat Category

Habitat refers to a specific place that is inhabited by a particular organism. Habitat includes all that the organism needs to live, including physical factors such as soil, temperature, light; and biotic factors, such as the availability of food and shelter from predators. The Habitat category includes substrate

(rock, sand, muck); aquatic plants; riparian zone (shoreline); and littoral zone (shallow water along shoreline).

Substrate is the surface on which an organism grows, and rock, sand, and muck are the primary substrates of a lake. Little Trout Lake's substrate areas are primarily sand, while the north bay of the lake is primarily muck. Substrate often indicates the type of plants that will grow in an area. The diversity of Little Trout Lake's substrate is important to the health of the lake's fishery. (Figure 17-8)

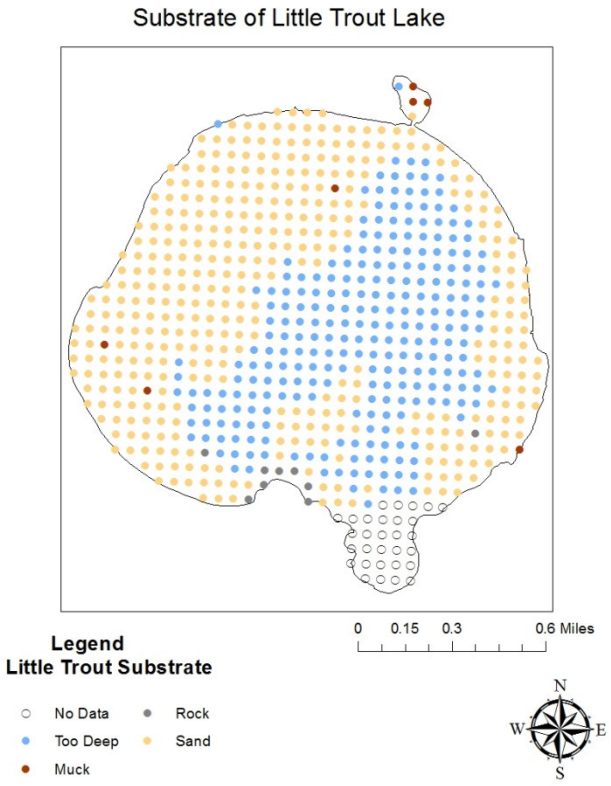

Figure 17-8. Substrate map of Little Trout Lake

Aquatic plants (macrophytes) are plants that grow in the water either submerged (all under water), emergent (sticking out of the water), or floating leaf. The north end of Little Trout Lake has a large area of dense submerged plants with the most predominant being hard-stem bulrush.

The Tribal Natural Resources Department assessed the aquatic plants in Little Trout Lake in 2012 by following the Wisconsin Department of Natural Resources Protocol for conducting an aquatic plant point intercept survey (see Section 8).

Table 17-7 presents the statistics associated with the point intercept survey, and Figure 17-9 shows plant locations and additional data. The table shows that of the 697 sites sampled, vegetation was found at 330 sites and 585 sites were shallower than the maximum depth of plants, 20 feet. The total number of plant species found (Taxonomic Richness - Frequency of Occurrence) was 30 plants, and the Simpson Diversity Index was 0.90. (See Section 8 for detailed explanations of the terms).

- Frequency of occurrence is an estimate of how often a particular plant species is likely to be found within a lake. The estimate is based on an analysis of the data collected during the point intercept survey.
- Simpson's Diversity Index is a measure of how diverse a plant community is in the lake. The index is within a range of 0 to 1. The higher the value, the more diverse the plant community is in a particular lake. Plant diversity is an indicator of the lake's overall resiliency. Generally, a lake with high species diversity is considered to be more stable than a lake with low species diversity because it has a greater ability to withstand environmental fluctuations. A lake with a diverse plant community is better equipped to compete with exotic infestations than is a lake with low diversity.

Table 17-7. 2012 Aquatic Plant Community Statistics, Little Trout Lake, Vilas County, WI

Aquatic Plant Community Statistics	2012
Total sites sampled	697
Total sites with vegetation	330
Total site shallower than max depth of plants	585
Frequency of occurrence at sites shallower than maximum depth of plants	56.41%
Simpson Diversity Index	0.90
Maximum Depth of Plants (Feet)	20
Taxonomic Richness (Number Taxa)	30*

Average Number of Species per Site (sites less than max depth of plant growth)	1.04
Average Number of Species per Site (sites with vegetation)	1.84

* - There were two species sampled that were not identified.

Table 17-8 lists the aquatic plants found in Little Trout Lake and shows the Floristic Quality Index (FQI) for the lake. The FQI is the extent to which a lake's plant community is similar to that of a pristine or undisturbed lake. The higher the floristic quality index, the closer a lake is to an undisturbed system. FQI is used to determine whether a lake's plant community is changing over time. It is also used to determine the extent to which a lake's plant community is similar to other lakes in the same ecoregion. The Floristic Quality Index for Little Trout Lake was 35.91, meaning most of the plants can tolerate moderate disturbances (see Section 8).

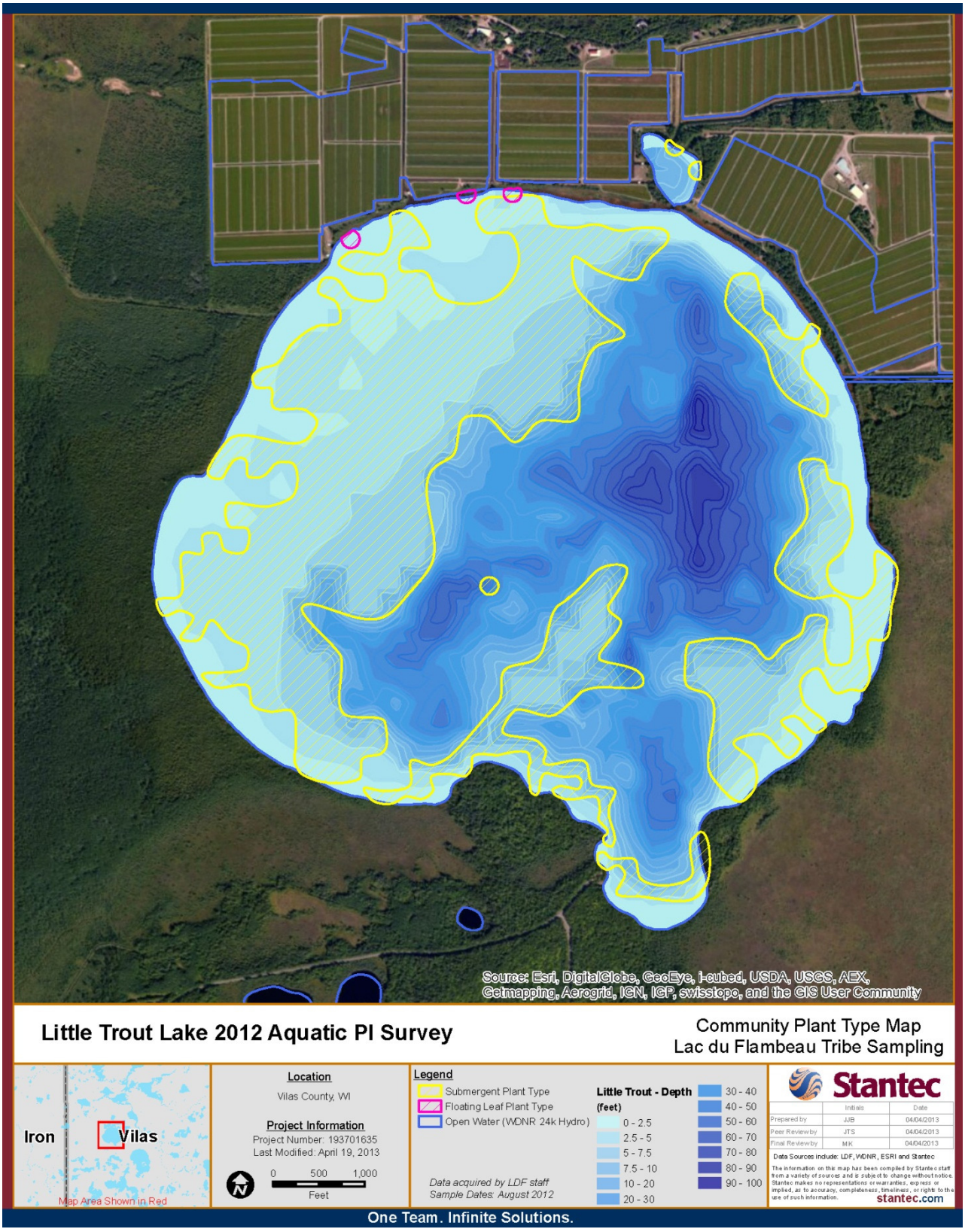

Figure 17-9. Little Trout Lake 2012 Aquatic Point Intercept Survey

Table 17-8. 2012 Floristic Quality Index, Little Trout Lake, Vilas County, WI

Genus	Species	Common Name	Coefficient of Conservatism C
Bidens	*beckii*	Water marigold	8
Brasenia	*schreberi*	Watershield	6
Ceratophyllum	*demersum*	Coontail	3
Chara	*sp.*	Muskgrass	7
Elatine	*minima*	Waterwort	9
Elocharis	*acicularis*	Needle spikerush	5
Elodea	*canadensis*	Common waterweed	3
Isoetes	*sp.*	Quillwort	8
Juncus	*pelocarpus*	Brown-fruited rush	8
Lobelia	*dortmanna*	Water lobelia	10
Myriophyllum	*sibiricum*	Northern water-milfoil	6
Myriophyllum	*tenellum*	Dwarf water-milfoil	10
Najas	*flexilis*	Slender naiad	6
Nitella	*sp.*	Nitella	7
Nymphaea	*odorata*	White water lily	6
Potamogeton	*alpinus*	Alpine pondweed	9
Potamogeton	*amplifolius*	Large-leaf pondweed	7
Potamogeton	*foliosus*	Leafy pondweed	6
Potamogeton	*gramineus*	Variable pondweed	7
Potamogeton	*illinoensis*	Illinois pondweed	6
Potamogeton	*praelongus*	White-stem pondweed	8
Potamogeton	*richardsonii*	Clasping-leaf pondweed	5
Potamogeton	*robbinsii*	Fern pondweed	8
Potamogeton	*strictifolius*	Stiff pondweed	8
Sagittaria	*latifolia*	Common arrowhead	3
Schoenoplectus	*acutus*	Hardstem bulrush	6
Sparganium	*angustifolium*	Narrow-leaved bur-reed	9
Vallisneria	*americana*	Wild celery	6
		Total Species	28
		Mean C	6.79
		Floristic Quality Index (FQI)	**35.91**

Please note: There is no Coefficient of Conservatism for exotic species such as Eurasian Water-Milfoil or for species not identified to the species level (*Sagittaria sp.*).

Coefficient of Conservatism C

0-3 taxa found in wide variety of plant communities and very tolerant of disturbance.

4-6 taxa typically associated with specific plant communities and tolerate moderate disturbance.

7-8 taxa found in narrow range of plant communities and tolerate minor disturbance.

9-10 taxa restricted to a narrow range of synecological conditions, with low tolerance of disturbance.

Littoral Zone Habitat

The littoral zone extends along the shoreline from the water's edge into the water to a depth of about 20 feet for Little Trout Lake. This is the area where most of the aquatic plants grow, providing shelter for fish to reproduce and protect their young. The plants also reduce erosion caused by waves, stabilizing the shoreline.

To help determine the extent of residents' perceptions of aquatic plants, the survey asked residents if their enjoyment of the lakes was impeded by the presence of aquatic plants in the littoral zone. Table 17-9 shows that 0% of 2 residents from Little Trout Lake indicate *never*, 100% *rarely*, 0% sometimes, 0% *often*, and 0% *always*. When comparing the data for Little Trout Lake with the data for the other lakes, it appears that aquatic plants are perceived to have had minimal negative impact.

Table 17-9. Little Trout Lake - Whether Aquatic Plants Impede Enjoyment of the Lake

Lakes	# Respondents	Always	Often	Sometimes	Rarely	Never
		%	%	%	%	%
Little Trout Lake	2	0%	0%	0%	100%	0%
Bear River Lakes	556	3%	4%	16%	44%	33%
All Lakes	957	3%	7%	21%	40%	29%

Residents were asked if they or members of their households have tried to control aquatic plant growth by removing plants from the lake. Table 17-10 shows that 1 respondent for Little Trout Lake indicates *never*.

Residents were also asked if they or members of their household have removed trees that have fallen into Little Tout Lake. Table 17-11 shows that 1 respondents indicates *never*.

Table 17-10. Little Trout Lake - Removal of Aquatic Plants from lake

Lakes	# Respondents	Yearly	Some Years	Never
		%	%	%
Little Trout Lake	1	0%	0%	100%
Bear River Lakes	458	6%	14%	80%
All Lakes	816	8%	18%	74%

Table 17-11. Little Trout Lake - Removal of Fallen Trees from the Lake

Lakes	# Respondents	Yearly	Some Years	Never
		%	%	%
Little Trout Lake	1	0%	0%	100%
Bear River Lakes	456	2%	27%	72%
All Lakes	814	1%	24%	75%

Residents were asked whether there is a need to control aquatic plants for Little Trout Lake. Table 17-12 shows that of 2 respondents 50% indicate *definitely no*, 50% *probably no,* 0% *probably yes,* and 0% *definitely yes*. Zero percent indicate they are *not sure*.

Table 17-12. Little Trout Lake - Whether Aquatic Plant Control is Needed

	Little Trout Lake	Bear River Lakes	All Lakes
	2 Respondents	503 Respondents	868 Respondents
Definitely yes	0%	8%	8%
Probably yes	0%	21%	19%
Probably no	50%	27%	29%
Definitely no	50%	9%	12%
Unsure	0%	35%	32%

Residents were asked what should be done if an aquatic invasive plant is found in the lake. Table 17-13 shows that for 2 respondents for Little Trout Lake, 50% indicate *with chemicals,* 0% *remove*

mechanically, 100% *remove with biological control*, 50% *remove by hand,* 0% *do nothing/no treatment*, and 0% indicate they *need more information*.

Table 17-13. Little Trout Lake - Preferences for Treating/Removing Aquatic Invasive Plants

	Little Trout Lake	Bear River Lakes	All Lakes
	2 Respondents	171 Respondents	302 Respondents
Apply chemicals	50%	18%	15%
Use machines	0%	21%	19%
Bio-control	100%	25%	24%
No treatment	0%	3%	2%
Pull by hand	50%	49%	51%
Need more info.	0%	41%	41%

Riparian Zone Habitat

The Riparian zone is the land area along the shoreline from the water's edge inland. In general this area is where most people access the lake via stairs or paths. It sometimes includes boathouses, storage sheds, homes, lawns, and other structures.

The riparian zone contributes the most nutrients from erosion, fertilizers, septic systems, and general runoff. The area is critical in providing woody habitat for fish and leaf material for invertebrates, like the dragon fly which lives a life cycle requiring both water and land. It is also critical in providing habitat to sustain other animals that rely on the lakes, like song birds, eagles, loons, otter, deer, along with a multitude of other creatures. A poor riparian habitat often results in fewer species and excess nutrients, while a good riparian habitat is replete with abundant wildlife and healthy levels of nutrients.

To help determine the extent of residents' perceptions of the riparian zone, the community survey asked residents to describe the landscape in the 35 foot buffer between the shoreline and their house, and to identify what they believe should be in an ideal landscape for the same area.

Table 17-14 lists several landscape features ordinarily found in riparian zones. Residents were asked to check those features that characterize the current riparian landscape (Current) for their property and then check those features that they believe should be in an ideal riparian landscape (Ideal). The table compares residents' descriptions of the current landscape with their perceptions of an ideal landscape. There were no responses for Little Trout Lake.

Table 17-14. Little Trout Lake - Current Shoreline Landscaping vs Ideal Shoreline Landscaping

	Little Trout Lake		Bear River Lakes		All Lakes	
	0 Respondents		481 Respondents		847 Respondents	
	Current	Ideal	Current	Ideal	Current	Ideal
Mowed grass	0%	0%	45%	30%	41%	28%
Rock terrace	0%	0%	19%	24%	16%	20%
Wild	0%	0%	44%	26%	44%	28%
Native prairie grasses	0%	0%	24%	27%	26%	24%
Wood terrace	0%	0%	4%	9%	5%	9%
Sand beach	0%	0%	25%	31%	26%	33%
Rain garden	0%	0%	2%	6%	2%	4%
Flower gardens	0%	0%	10%	10%	9%	9%
Shrubs	0%	0%	36%	25%	31%	22%
Wild with wood picked up	0%	0%	23%	21%	27%	22%
Trees	0%	0%	70%	50%	66%	47%
Something else	0%	0%	3%	2%	4%	3%
It doesn't matter		0%		7%		7%

Residents were asked if they are interested in learning about landscape designs tailored to help protect the lakes and habitats. Table 17-15 shows no responses for Little Trout Lake.

Table 17-15. Little Trout Lake - Interest in Learning About Landscape Design

	Little Trout Lake	Bear River Lakes	All Lakes
	0 Respondents	443 Respondents	787 Respondents
No interest	0%	4%	4%
Little interest	0%	40%	40%
Some interest	0%	5%	6%
A lot of interest	0%	11%	11%
Don't know	0%	40%	39%

Assessment of Riparian & Littoral Zones

The Habitat Category reflects an assessment of Little Trout Lake's aquatic plants, riparian zone (shoreline), and littoral zone (shallow water along shoreline). Comparisons are made with ecoregional data, National Lake Survey thresholds and WISCALM (Table 10-4).

Riparian cover includes cover-class estimates of large and small diameter tree cover in the >5m high vegetation layer; woody and non-woody vegetation in the mid-layer (0.5 to 5 m); and woody, non-woody, inundated, and barren classes in the ground cover layer (<0.5 m) of the 10 lakeshore plots. Littoral cover index excludes submerged aquatic macrophytes, but increases the weighting of floating and emergent macrophytes.

Table 17-16 compares the thresholds developed by WISCALM for Plants and the National Lake Survey for Riparian Zone and Littoral Zone to the index value were calculated based on the assessment of Little Trout Lake's habitat.

Little Trout Lake's shoreline is different from the other Bear River Assessment Lakes because it has little housing and is dominated by agriculture. The Riparian zone index was influenced by the fact that a third of the lake shoreline is a manmade dike separating the lake from the cranberry operations.

Table 17-16. Index Values for Environmental Assessment Parameters

Indicator Assessment	Index Value	Water Quality Assessment Thresholds			
		Excellent	Good	Fair	Poor
Plants	56.41	Below 79.7%	89.7% - 79.8%	89.8% - 94.8%	100% - 94.9%
Riparian Zone	0.7		>0.8074	0.5906-0.8074	<0.5906
Littoral zone	1.5		>0.7001	0.4156-0.7001	<.4156

Lakeshore habitat is the biggest problem in the nation's lakes; over one-third exhibit poor Shoreline condition. Poor biological health is three times more likely in lakes with poor lakeshore habitat.[21]

To help learn about residents' perceptions on habitat and environmental change, the community survey asked residents if elements of the habitat have been changing over time. Table 17-17 shows the responses for Little Trout Lake, the Bear River watershed project lakes, and the other lakes. The data are very similar for all three response groups. The predominant response is *no change*.

Bacteria Category

Bacteria is assessed based on a measure of the most probable number (MPN) of *E. coli* in 100 milliliters of water. *E. coli* is the abbreviated name of the bacterium in the family *Enterobacteriaceae*, named *Escherichia coli*. The presence of *E. coli* in our intestines is normal. The presence of *E. coli* in swimming areas indicates that other microorganisms (including the ones that could causes illness) that live in the gastrointestinal track could also be present. The water quality criterion to protect human health, 235 MPN, is based on an illness rate of eight per 1,000 swimmers. *E. coli* measurements were not taken for Little Trout Lake as there is no public beach on the lake.

Table 17-17. Little Trout Lake - Perceptions of Environmental Change

	Shorelines	Wetlands	Streams	Air	Forests	Grasslands	All Environment
Little Trout Lake							
#Respondents	2	2	2	2	2	2	2
Improving	0%	0%	0%	0%	0%	0%	0%
No change	100%	100%	100%	100%	50%	100%	50%
Worsening	0%	0%	0%	0%	50%	0%	50%
Don't know	0%	0%	0%	0%	0%	0%	0%
Bear River Lakes							
#Respondents	534	522	513	522	524	513	526
Improving	5%	3%	1%	3%	4%	2%	5%
No change	52%	51%	42%	68%	52%	48%	54%
Worsening	30%	12%	11%	8%	24%	10%	23%
Don't know	13%	34%	46%	22%	20%	40%	18%
All Lakes							
#Respondents	923	901	873	909	910	882	903
Improving	4%	2%	1%	3%	4%	2%	4%
No change	56%	55%	45%	71%	57%	52%	59%
Worsening	28%	12%	9%	5%	20%	7%	19%
Don't know	13%	31%	45%	21%	19%	40%	18%

Generally, the Tribe is responsible for septic systems on property owned by the Tribe, and Vilas County is responsible for septic systems on property on non-Tribal land. Currently, all septic systems under the jurisdiction of Vilas County are on a three-year pumping/inspection schedule.

Residents were asked how often they have their septic tank inspected. Table 17-18 shows that for 2 respondents of Little Trout Lake, 0% indicate they *do not own the property*, 50% *at least every three years*, 0% *no septic tank*, 50% *more than every three years*, and 0% *no inspection*.

Table 17-18. Little Trout Lake - Septic Tank Inspection

	Little Trout Lake	Bear River Lakes	All Lakes
	2 Respondents	**360 Respondents**	**609 Respondents**
Do not own property	0%	7%	4%
At least every 3 years	50%	67%	71%
No tank	0%	9%	6%
More than every 3 years	50%	12%	12%
No inspection	0%	6%	7%

Aesthetics Category

The Aesthetics Category includes data and information on water quality, color, and turbidity. It also reflects an assessment of reports received by the Tribal Natural Resources Department for Little Trout Lake on the presence of oil, grease, nuisance aquatic plants, trash, and debris.

Reports and concerns submitted by residents to the Tribal Natural Resources Department on the turbidity and color of the lake water are not uncommon.

The extent to which lake water appears to be clear or murky is a function of the total amount of solids

that are suspended in the water. Generally, the greater the amount of suspended solids in the water, the murkier it appears.

The major source of turbidity in open water away from shore is typically phytoplankton (algae). Closer to shore, suspended matter also comes from sources such as septic systems, sewage treatment plants, storm runoff, shoreline erosion and lake bottom sediments.

The major effect of turbidity noticed by lake property residents might simply be aesthetic—people do not like to look at dirty water. High levels of turbidity can, however, cause major problems by inhibiting the penetration of light, leading to the suffocation of larvae, damage to fish gills, fish reproduction, and loss of aquatic plants and habitat.

Turbidity or cloudy water can be measured in a variety of ways. A method commonly used in Lac du Flambeau to measure water clarity is to employ a Secchi disk. The 8-inch diameter disk with white and black quadrants is tied to a line and lowered slowly down into the water. The depth at which the white quadrants are no longer visible is taken as a measure of the transparency of the water. This information provides a way to look at changes in water clarity over a long period of time. Secchi data also correlates to total phosphorus and trophic state index data. Figure 17-10 shows that over the past 39 years no significant change in water clarity has occurred for Little Trout Lake.

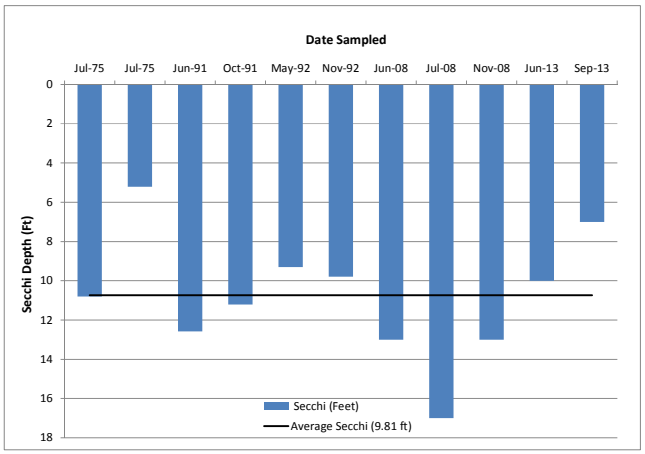

Figure 17-10. Secchi Depth Trends for Little Trout Lake

> The Secchi disk was created by Father Pietro Angelo Secchi in 1865. He was a priest, astronomer, and professor of physics who taught for a time at Georgetown University in Washington, DC.[22]

The color of lake water reflects the type and amount of dissolved organic chemicals it contains. Transparent water with a low accumulation of dissolved materials appears blue and indicates low productivity. Dissolved organic matter, such as humus, peat or decaying plant matter, can produce a yellow or brown color. Some algae produce a reddish or deep yellow color. Water rich in phytoplankton and other algae usually appears green.

In order to learn about residents' perceptions of the lake water quality, the community survey posed a few questions about water quality. Residents were asked to describe the current water quality of Little Trout Lake and whether they believe that quality has been changing. Table 17-19 shows that of 2 respondents for Little Trout Lake, 0% indicate that the current water quality of the lake is *excellent,* 50% *good*, 50% *fair*, 0% *poor,* 0% *very poor*, and 0% are *unsure*.

Table 17-19. Little Trout Lake - Perception of Current Water Quality

Lakes	# Respondents	Excellent %	Good %	Fair %	Poor %	Very Poor %	Unsure %
Little Trout Lake	2	0%	50%	50%	0%	0%	0%
Bear River Lakes	554	38%	49%	7%	3%	0.2%	3%
All Lakes	956	34%	53%	7%	3%	0.1%	3%

Table 17-20 shows that of 2 respondents for Little Trout Lake, 0% indicate that water has been *improving*, 100% *no change*, 0% *worsening*, and 0% are *unsure*. Again, the data for little Trout Lake are reasonably consistent with the data for the other lakes noted in the table.

Table 17-20. Little Trout Lake - Perception of Change in Water Quality

Lakes	# Respondents	Improving	No Change	Worsening	Unsure
		%	%	%	%
Little Trout Lake	2	0%	100%	0%	0%
Bear River Lakes	519	1%	60%	17%	22%
All Lakes	719	2%	62%	16%	20%

Fish Tissue Category & Fishery

The Fish Tissue Category refers to the amount of mercury in fish flesh as compared to Water Quality Standards. Larger edible fish have more mercury in the fish flesh than what is protective for human health concerns. Tribal Water Quality Standards are protective for subsistence fish consumption and the criterion to protect human health is 0.16 PPM.

Anthropogenic (meaning caused by human activity) sources of mercury are mainly from coal fired electric utilities emissions that ultimately enter the lake and watershed via rainwater. The chemistry of Lac du Flambeau Lakes is such that mercury becomes mobilized into the food chain accumulating in larger fish at the top of the food chain. Reductions in mercury emissions on coal fired power plants have helped to reduce mercury in the rain as seen in Figure 17-11. A comparison of 1991 data to 2007 data shows a trend of reduction, yet more than what is protective for human health.

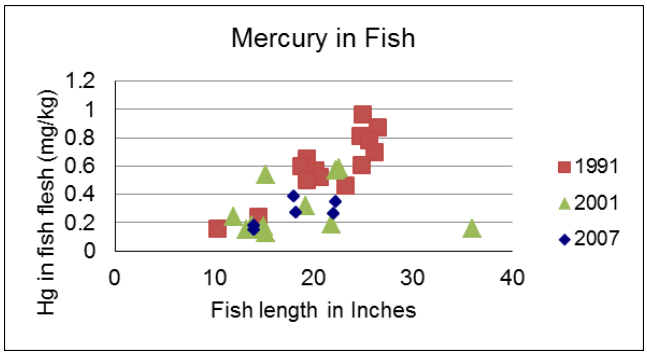

Figure 17-11. Mercury Concentration in Fish Tissue vs Fish Length in Inches

Little Trout Lake's fishery supports both subsistence and sport fishing. The lake's fishery includes panfish such as bluegill and black crappie and gamefish like smallmouth and largemouth bass, northern pike, musky, and walleye.

The Tribal Hatchery has a history of stocking Little Trout Lake with walleye. Table 17-21 shows the numbers of these fish that have been stocked in Little Trout Lake from 2003-2012.

Table 17-21. Number of Fish Stocked During 2003–2012 in Little Trout Lake (982 acres)

Year	Walleye	
	Fry	Fingerlings
2012	1,000,000	8,232
2011	2,500,000	17,640
2010	1,500,000	20,068
2009	1,500,000	35,061
2008	1,500,000	25,272
2007	1,000,000	28,501
2006	1,200,000	29,565
2005	1,500,000	38,700
2004	600,000	48,675
2003	200,000	18,062

In order to determine residents' perceptions on the quality of fishing and whether that quality has been changing, the survey asked residents a few questions about the fishery. Residents were asked if they have fished or speared on Little Trout Lake

within the past ten years. Both respondents (100%) for Little Trout Lake responded affirmatively.

These respondents were then asked to identify the type of fishing they employed. Of those who responded, 100% indicate *open water hook and line fishing*, 0% *ice fishing*, 0% *spearing*, and 0% *netting*.

The residents who have fished or speared within the past ten years were asked to describe the current quality of fishing on the lake, and how, if at all, the quality of fishing on the lake has changed during the past ten years.

Table 17-22 shows that of the 2 Little Trout Lake residents who responded about the current quality of fishing, 0% indicate *excellent*, 100% *good*, 0% *fair*, 0% poor, and 0% *very poor*. Zero percent indicate *unsure*.

Table 17-22. Little Trout Lake - Perceptions of Current Quality of Fishing

	Little Trout Lake	Bear River Lakes	All Lakes
	2 Respondents	397 Respondents	750 Respondents
Excellent	0%	5%	5%
Good	100%	34%	34%
Fair	0%	42%	44%
Poor	0%	13%	11%
Very Poor	0%	4%	4%
Unsure	0%	3%	2%

Regarding whether the quality of fishing has changed during the past ten years, Table 17-23 shows that of 2 Little Trout Lake respondents, 0% indicate fishing has *been improving*, 0% *no change*, 100% *worsening*, and 0% *unsure*.

Table 17-23. Little Trout Lake - Perceptions of Change in Fishing Quality

	Little Trout Lake	Bear River Lakes	All Lakes
	2 Respondents	414 Respondents	750 Respondents
Improving	0%	9%	8%
No Change	0%	28%	31%
Worsening	100%	42%	42%
Unsure	0%	21%	20%

Lake Water Levels

Lake levels fluctuate naturally due to precipitation and evaporation, both of which may vary widely from season to season and year to year. Low levels may cause stressful conditions for fish and increase the number of nuisance aquatic plants. High water levels can boost the amounts of nutrients from runoff of flooded lakeshore soils. Another consequence of fluctuating water levels is shoreline erosion.

Volunteers from Lac du Flambeau have been subjectively observing and noting lake water levels through the WDNR's Citizen Lake Monitoring Network for many years, while in 2012 the Tribal Natural Resources Department began to collect water level data systematically for selected lakes. With assistance from North Lakeland Discovery Center, Vilas County Association of Lakes, and Town Lakes Committee, monitoring equipment was installed and calibrated on sites at Little Crawling Stone Lake, Fence Lake, Flambeau Lake, Ike Walton Lake, Pokegama Lake and White Sand Lake. Little Trout Lake is too remote at this time to monitor lake levels. The lake Levels on Little Trout have been monitored in the past and followed the cranberry pumping schedule.

Other Survey Results for Little Trout Lake

Residents affiliated with Little Trout Lake who responded to the survey in 2012 shared their

perceptions on several topics in addition to those already presented in this section.

Activities & Watercraft

From a list of activities (fishing excluded), residents were asked to identify those in which they most often choose to participate. The activities most often identified include relaxing and enjoying nature (50%), canoeing & kayaking (50%), and birding (50%), None of the above (50%).

From a list of different types of watercraft, residents were asked to identify those which they and members of their household use most often. The watercraft most often identified include motorboats with less than 25 hp (100%), and canoes or kayaks (50%).

Issues of Concern

From a list of 16 concerns, residents affiliated with Little Trout Lake were asked to identify three concerns about the lake that they believe are of most concern. For those who responded, Table 17-24 shows the three issues of greatest concern include *aquatic invasive species* (100%), *loss of fish habitat* (100%), and *degradation of water quality* (100%). The issues of least concern include *noise* (0%), *excessive aquatic plant growth* (0%), *Light pollution* (0%), and *algae bloom* (0%).

Table 17-24. Little Trout Lake - Lake Issues of Most Concern

	Little Trout Lake	Bear River Lakes	All Lakes
	2 Respondents	576 Respondents	1074 Respondents
Algae bloom	0%	17%	16%
Light pollution	0%	10%	8%
Shoreline runoff	50%	14%	12%
Aquatic invasive species	100%	42%	35%
Loss of fish habitat	100%	25%	22%
Water quality degradation	100%	27%	23%
Boat traffic	50%	16%	15%
Loss of shoreline	50%	13%	10%
Septic discharge	0%	18%	15%
Degradation of native aquatic plants	50%	11%	9%
Loss of wildlife habitat	50%	10%	10%
Excessive aquatic plant growth	0%	12%	10%
Noise pollution	0%	6%	6%
Shoreline development	50%	13%	11%
Excessive fishing	50%	12%	10%
Shoreline erosion	50%	18%	10%
Not concerned about any of these	0%	17%	19%

Interest in Attending Workshops

Residents were asked if they have an interest to attend workshops on a variety of topics related to the lakes and habitats. Table 17-25 shows the largest percentages of responses for all three response groups include *identifying AIS* and *identifying aquatic plants*.

Table 17-25. Little Trout Lake - Interest in Attending Workshops

	Little Trout Lake	Bear River Lakes	All Lakes
	2 Respondents	576 Respondents	1074 Respondents
Preventing AIS	0%	13%	11%
Starting a lake association	0%	5%	14%
Controlling Purple Loosestrife	0%	17%	14%
Identifying AIS	100%	42%	38%
Lake Stewardship	0%	13%	11%
Identifying aquatic plants	100%	38%	36%
Limnology	50%	22%	20%
Other	0%	5%	4%
No interest	0%	28%	28%

Town Website

Residents were asked how often, if at all, they check the town's website to get information about the Town

Lakes Committee, such as newsletters, meeting agendas, and information on AIS. Table 17-26 shows that of 2 respondents for Little Trout Lake, 0% indicate *often*, 50% *sometimes*, 0% *rarely,* and 50% *never*.

Accessing Information

Residents were asked where they would most likely go to get information about environmental issues. Table 17-27 shows that both respondents for Little Trout Lake identity the Tribal Natural Resources Department and the Wisconsin Department of Natural Resources.

Table 17-26. Little Trout Lake - Accessing the Town's Website

	Little Trout Lake	Bear River Lakes	All Lakes
	2 Respondents	541 Respondents	938 Respondents
Never	50%	60%	63%
Rarely	0%	26%	23%
Sometimes	50%	14%	12%
Often	0%	1%	1%

Table 17-27. Little Trout Lake - Accessing Sources of Information for AIS

	Little Trout Lake	Bear River Lakes	All Lakes
	2 Respondents	576 Respondents	1074 Respondents
Tribal Natural Resources Department	100%	37%	31%
Town Lakes Committee	0%	21%	18%
Wisconsin DNR	100%	61%	59%
LdF Town Hall	0%	19%	19%
Tribal Main Office	0%	7%	5%
Other	0%	9%	9%

Setting the Pace & Little Trout Lake

In summary, Little Trout Lake has a very healthy ecosystem with many strong qualities. The primary challenge is ensure these attributes do not degrade from their current conditions. At the same time, there is room for improvement, particularly with respect to improving the lake's habitat and phosphorus, monitoring the presence of mercury in fish tissue, and guarding against the arrival of aquatic invasive species. Working with the cranberry association and the cranberry farm to install best management practices like tail water control or shoreline habitat enhancements might benefit the lake.

The following tables, Setting the Pace, constitute a long-term action plan to maintain or improve the overall health of Little Trout Lake. The plan includes six goals with supporting objectives and activities. The goals include:

I. Preserve or Improve Current Water Quality.

II. Prevent Infestations of Aquatic Invasive Species.

III. Control or Reduce the Spread of Aquatic Invasive Species.

IV. Broaden Residents' Understanding of Swimmer's Itch.

V. Reduce User Conflicts.

VI. Strengthen or Increase Collaborations.

Table 17-28. Setting the Pace - Little Trout Lake

Goal I - Preserve or Improve Current Lake Water Quality					
Objective A - Provide residents with opportunities to learn about the current lake water quality and how they can help preserve or improve it.					
			Limitations		
Potential Activities	**Facilitator(s)**	**Evaluation**	**Limitations**	**Cost Estimates**	**Timeframe**
1. Attend CLMN Workshops	Tribe, TLC, Lake Assoc.	# Attendees	Availability of workshops & support of Tribe, Town, Lake Associations	$50 per attendee	Annual
2. Attend CBCW Workshops	Tribe, TLC, Lake Assoc.	# Attendees	Availability of workshops & support of Tribe, Town, Lake Associations	$50 per attendee	Annual
3. Teach at After-School Program	Tribe/TLC	Pre & Post Survey	Support of Tribe & School, availability of volunteers	$35 per volunteer	Annual Spring Term
4. Host Limnology/Ecology Workshops	Tribe/TLC	# Attendees, workshop evaluation	Availability of presenters, # registrants	$100 per attendee	Every 2-3 years
5. Host Lake Steward Workshops	TLC/Tribe	# Attendees, workshop evaluation	Availability of presenters, # registrants, support of partnering organizations	$300 per registrant (based on 50 registrants)	Every 3-4 years
6. Host Landscaping/Shoreline Habitat Workshops	Tribe/TLC	# Attendees, workshop evaluation	Availability of presenters, # registrants, support of Tribe, Town	$100 per attendee	Every 2-3 years
7. Update Webpages	Tribe, TLC, Lake Assoc.	# Clicks	Support of Tribe, Town, Lake Associations	Variable	Ongoing
8. Host Lakes Fest	Tribe	# of Attendees	Support of Tribe, presenters, attendees	$7,000 per Event	Annual

Table 17-29. Setting the Pace - Little Trout Lake

Goal I - Preserve or Improve Current Lake Water Quality					
Objective B - Continue monitoring lake water quality.					
			Limitations		
Potential Activities	**Facilitator(s)**	**Evaluation**	**Limitations**	**Cost Estimates**	**Timeframe**
1. Improve or establish standards for assessing aesthetics	Tribe/WDNR	Implementation of improved/new standards Report Card: Aesthetics	Support of Tribe & WDNR	$30,000 to establish	Ongoing once established
2. Collect data on lake water levels, temperature, chemistry, clarity, nutrients	Tribe/TLC/ Lake Assoc	Data Reports Report Card: Biology, Chemistry, Nutrients	Support of Tribe, WDNR, Volunteers	$20,000	Annual
3. Expand & implement schedule of Point Intercept Surveys	Tribe	WDNR Verification Report Card: Biology, Habitat	Support of Tribe, WDNR	$7,000 average per lake	Ongoing
4. Conduct shoreline sweeps	Tribe/TLC/ Lake Assoc	CLMN Data Sheets Report Card: Biology, Habitat, Aesthetics	Support of Tribe, TLC, Volunteers	$12 per hour, .58 per mile	Annual
5. Conduct individual property sweeps	Tribe/TLC/ Lake Assoc	CLMN Data Sheets Report Card: Biology, Habitat, Aesthetics	Support of Tribe, TLC, Property Owners	$48 per property	12 per season
6. Collect data on bio-accumulative pollutants (fish tissue)	Tribe	Database Report Card: Tissue	Support of Tribe	$20,000	Annual
7. Collect & analyze data on stream flow	Tribe/USGS	Report Card: Flow	Support of Tribe & USGS	$16,000	Annual
8. Expand participation in CLMN	Tribe/TLC/ Lake Assoc.	CLMN Data Sheets Biology, Chemistry, Nutrients	Support of TLC, Lake Associations	$12 per hour, .58 per mile	Ongoing
9. Collect & analyze data on weather/climate	Tribe/ Volunteers	List of sources	Support of Tribe	$10,000	Annual
10. Expand taking core samples from the lakes	Tribe	Reports of data Report Card: Biology, Habitat	Support of Tribe	$50,000-$100,000 for all lakes	One time lake
11. Identify impact of the operation of motor vehicles and motorboats on the lakes	Tribe	Report of study Report Card: Aesthetics	Support of Tribe	$10,000-50,000 per study	To be determined
12. Identify impact of forestry clear-cutting practices on the lakes	Tribe	Report of Study Report Card: Habitat, Nutrients	Support of Tribe	$20,000-70,000	To be determined
14. Consider maintaining/expanding propagation of wild rice	Tribe	To be determined	Support of Tribe Availability of resources	To be determined	To be determined
14. Consider maintaining/expanding propagation of wild rice	Tribe	To be determined	Support of Tribe Availability of resources	To be determined	To be determined
15. Consider monitoring for spiny waterflea	Tribe/TLC/ Lake Assoc	To be determined	Support of Tribe, TLC, Lake Associations	To be determined	To be determined

Table 17-30. Setting the Pace - Little Trout Lake

Goal I - Preserve or Improve Current Lake Water Quality					
Objective C - Minimize impact from development.					
			Limitations		
Potential Activities	**Facilitator(s)**	**Evaluation**	**Limitations**	**Cost Estimates**	**Timeframe**
1. Identify shoreline restoration needs	Tribe	Report of Study Report Card: Habitat, Nutrients	Funding	$10,000 for five lakes	Ongoing
2. Establish shoreline restoration demonstration project	Tribe	Finished project Report Card: Habitat	Funding, Available shoreline	$10,000 per 100 feet of shoreline	2015
3. Restore selected shorelines	Tribe	Finished projects Report Card: Habitat	Land ownership, jurisdictions	$10,000 per 100 feet of shoreline	2015, ongoing
4. Encourage lake home shoreline restorations	Vilas Co/Tribe	Finished projects Report Card: Habitat	Support of Tribe, County, & Landowners	$10,000 per 100 feet of shoreline	Ongoing
5. Install erosion controls bank stabilization	Tribe/Vilas Co	Finished projects Report Card: Habitat	Support of Tribe, Federal funding	$3,000 per erosion site	Ongoing
6. Review & suggest best management practices on all land-disturbing projects	Tribe	Report of study Report Card: Habitat	Support of Tribe, Federal funding	$10,000-$50,000	Annual
7. Review & comment on all storm water projects	Tribe	Reports/documents Report Card: Habitat, Nutrients, Bacteria	Support of Tribe, Federal funding	$10,000-$50,000	Annual
8. Review & comment on all National Pollution Discharge Elimination Permits	Tribe	Reports/documents Report Card: Habitat, Nutrients, Bacteria	Support of Tribe, Federal funding	$10,000-$50,000	Annual
11. Work with Planning and Land Department for future low-impact development initiatives	Tribe	Report Report Card: Habitat, Nutrients, Chemistry	Support of Tribe	Variable	To be determined
12. Review & update water quality standards and shoreline codes	Tribe	Revised documents Report Card: All categories	Support of Tribe, Federal funding	$50,000 per review	Triennial
13. Enforce inspection schedule for all development initiatives	Tribe	Completion reports Report Card: All categories	Support of Tribe, Federal funding	$20,000	Annual
14. Conducting septic inspections	Tribe/Vilas Co	Report of inspections Report Card: Nutrients Bacteria	Support of Tribe, Vilas County	$150 per unit	Ongoing
16. Review & comment on all potential rules or permits regulating mercury emissions	Tribe	Reports/documents Report Card: Fish Tissue	Support of Tribe, Federal funding	$10,000-$50,000	Annual

Table 17-31. Setting the Pace - Little Trout Lake

Goal II - Prevent Infestations of Aquatic Invasive Species					
Objective A - Provide the public with opportunities to learn about Aquatic Invasive Species and how to prevent their introduction.					
			Limitations		
Potential Activities	**Facilitator(s)**	**Evaluation**	**Limitations**	**Cost Estimates**	**Timeframe**
2. Encourage volunteers to attend training sessions provided by the Clean Boats Clean Waters (CBCW) program	TLC/Tribe/ Lake Assoc	Identify number of attendees	Availability of workshops, volunteers, & help from lake associations	$50 per attendee	Annual
3. Periodically offer workshops locally on how to identify and prevent AIS	TLC	Agendas, participant evaluations	Availability of presenters and registrants, & help from lake associations	$35 per attendee	Annual
4. Encourage volunteers to attend training sessions provided by the Citizen Lake Monitoring Network (CLMN)	TLC/Tribe	Identify number of attendees	Availability of workshops, volunteers, & help from lake associations	$50 per attendee	Annual
5. Disseminate information via media, including Town, Tribal, and Lake Association websites	TLC/Tribe/ Lake Assoc	Copies of releases	Availability of writer(s)	Variable	Ongoing
6. Highlight AIS and prevention in documents produced locally, such as newsletters, brochures	TLC/Tribe/ Lake Assoc	Copies of documents	Availability of writers	Volunteers @ $12/hour & .58/mile	Ongoing
7. Highlight AIS prevention at landings through signage & distribution of educational materials	TLC/Tribe Lake Assoc	Periodic review of signage	Availability of new signage & WDNR education materials	Cost of signage, volunteers @ $12/hour, .58/mile, WDNR materials	Ongoing
8. Identify local Key Communicators who will speak about AIS at community events	TLC/Tribe	List of individuals	Availability of communicators	Volunteers @ $12/hour, .58/mile	Annual
9. Ask resorts & select businesses to distribute AIS information	TLC/Lake Associations	List of accepting business	Availability of materials, approval of businesses	Volunteers @ $12/hour, .58/mile, WDNR materials	Annual
10. Continue hosting the Lake Steward Workshop	TLC/Tribe	Participant evaluation	Availability of presenters, # registrants, support of partnering organizations	$300/registrant (based on 50 registrants)	Every 3-4 years

Table 17-32. Setting the Pace - Little Trout Lake

Goal II - Prevent Infestations of Aquatic Invasive Species					
Objective B - Provide the public with opportunities to actively and purposefully look for Aquatic Invasive Species.					
			Limitations		
Potential Activities	**Facilitator(s)**	**Evaluation**	**Limitations**	**Cost Estimates**	**Timeframe**
1. Coordinate TLC/Tribal planning with lake associations' planning	TLC/Tribe Lake Assoc	Partner feedback	Support of TLC, Tribe & lake associations	Volunteers @ $12/hour, .58/mile	Annual
2. Organize and support whole-lake shoreline sweeps	Tribe/TLC/ Lake Assoc	# sweeps, participant feedback Report Card: Biology	Support of TLC, Tribe & Lake Associations	$12/hour, .58/mile, supplies @ $300/lake	Annual
3. Support establishing system of personal property sweeps	TLC/Lake Assoc	# properties, participant feedback Report Card: Biology	Support of TLC & Lake Associations	Volunteers @ $12/hour, .58/mile	Annual
4. Inspect watercraft at landings	Tribe/TLC/ Lake Assoc	# inspectors, # hours inspection Report Card: Biology	Support of TLC, Tribe, Lake Associations, Volunteers, WDNR	$12/hour, .58/mile, supplies @ $200/landing	Annual
5. Coordinate SCUBA diving/ snorkeling sweeps near landings	TLC/Tribe	Log Report Card: Biology	Support of Tribe & volunteers	$500/season	Annual
6. Provide convenient drop-off points on each lake for suspected AIS samples	TLC/Lake Assoc	# participants Report Card: Biology	Support of TLC & lake associations	$100 per lake	Annual
7. Assist Lake Associations with grant applications for hiring watercraft inspectors	TLC	# attendees, workshop evaluation Report Card: Biology	Support of TLC & Lake Associations	$30 per attendee	Annual

Table 17-33. Setting the Pace - Little Trout Lake

Goal III - Control or Reduce the Spread of Aquatic Invasive Species					
Objective A - Provide the public with opportunities to learn about local infestations of Aquatic Invasive Species and how they can help control or reduce their spread.					
			Limitations		
Potential Activities	**Facilitator(s)**	**Evaluation**	**Limitations**	**Cost Estimates**	**Timeframe**
2. Encourage volunteers to attend training sessions provided by the Clean Boats Clean Waters (CBCW) program	TLC/Tribe/ Lake Assoc	# of attendees	Availability of workshops, volunteers, & help from lake associations	$50 per attendee	Annual
3. Offer TLC workshops on how to identify and control or reduce AIS	TLC	Agendas, participant evaluations	Availability of presenters and registrants, & help from lake associations	$30 per attendee	Annual
4. Encourage volunteers to attend training sessions provided by the Citizen Lake Monitoring Network (CLMN)	TLC/Tribe/ Lake Assoc	# of attendees	Availability of workshops, volunteers, & help from lake associations	$50 per attendee	Annual
5. Disseminate information via media, including Town, Tribal, and Lake Association websites	TLC/Tribe/ Lake Assoc	Copies of releases	Availability of writer(s)	Volunteers @ $12/hour, .58/mile	Ongoing
6. Highlight AIS and prevention in documents produced locally, such as newsletters, brochures	TLC/Tribe/ Lake Assoc	Copies of documents	Availability of writers	Volunteers @ $12/hour, .58/mile, printing	Ongoing
7. Highlight AIS control at landings through signage & distribution of educational materials	TLC/Tribe Lake Assoc	Periodic review of signage	Availability of new signage	Cost of signage, volunteers @ $12/hour, .58/mile, WDNR materials	Annual
8. Identify local Key Communicators who will speak about AIS at community events	TLC/Tribe/ Lake Assoc	List of individuals	Availability of communicators	Volunteers @ $12/hour, .58/mile	Annual
9. Ask resorts & select businesses to distribute AIS information	TLC/Tribe/ Lake Assoc	List of accepting businesses	Availability of materials & approval of businesses	Volunteers @ $12/hour, .58/mile	Annual
10. Continue hosting the Lake Steward Workshop	TLC/Tribe	Participant evaluation	Availability of presenters, # registrants, support of partnering organizations	$300 per registrant (based on 50 registrants)	Triennial

Table 17-34. Setting the Pace - Little Trout Lake

Goal III - Control or Reduce the Spread of Aquatic Invasive Species					
Objective B - Reduce the scope of existing infestations of purple loosestrife and minimize the spread of the infestations to new locations.					
			Limitations		
Potential Activities	Facilitator(s)	Evaluation	Limitations	Cost Estimates	Timeframe
3. Continue inter-agency relationships on Purple Loosestrife (Tribe, WDNR, Public School)	TLC/Lake Assoc	Survey agencies	Support of agencies	Variable	Annual
4. Raise & distribute beetles	TLC/Lake Assoc	150 plants & 200,000 beetles Report Card: Biology, Habitat	Support from Tribe, WDNR, school, & availability of volunteers, materials, roots & seed beetles	$3,000-5,000	Annual
5. Host or conduct workshops on Purple Loosestrife	TLC/Lake Assoc	Agendas, participant evaluations	Support of volunteers & other agencies	$30/attendee	Annual
6. Provide residents with information on bio-control	TLC/Lake Assoc	Documents provided	Support of TLC/Tribe/Lake Associations	$1000 printing/supplies	Annual
7. Consider restoring tall native wetland plants to infested areas	Tribe/TLC/ Lake Assoc	Document discussions	Support of TLC/Tribe/Lake Associations, others	To be determined	To be determined

Table 17-35. Setting the Pace - Little Trout Lake

Goal III - Control or Reduce the Spread of Aquatic Invasive Species					
Objective C - Continue monitoring infestations of Rainbow Smelt and Rusty Crayfish.					
			Limitations		
Potential Activities	Facilitator(s)	Evaluation	Limitations	Cost Estimates	Timeframe
1. Publicize history of previous actions to monitor/control infestations	Tribe	Documents	Tribal support	$12/hour, .58/mile	Ongoing
2. Conduct workshop on the fishery, including monitoring smelt and crayfish	Tribe/TLC	Agenda, participant evaluations	Tribal Support	$12/hour, .58/mile	Ongoing
3. Continue monitoring Rainbow Smelt & Rusty Crayfish	Tribe/ Volunteers	Documents Report Card: Biology	Tribal Support, TLC Support	$12/hour, .58/mile	Ongoing

Table 17-36. Setting the Pace - Little Trout Lake

Goal IV - Broaden Residents' Understanding of Swimmer's Itch					
Objective A - Provide residents with a variety of educational experiences and materials on Swimmer's Itch, including alternatives treating it or reducing the probability of contracting it.					
			Limitations		
Potential Activities	**Facilitator(s)**	**Evaluation**	**Limitations**	**Cost Estimates**	**Timeframe**
2. Review current research and literature	Bear River Team	List of items reviewed	Availability of research & literature	$12/hour, .58/mile	Ongoing
3. Contact appropriate professionals and authorities about Swimmers' Itch	Bear River Team	List of individuals/organizations	Availability of professionals	$12/hour, .58/mile	Ongoing
4. Host community-wide workshops	Bear River Team	Agenda & evaluation of participants	# registrants, availability of presenters	$30/attendee	Annual
5. Distribute information in newsletters, bulletins, and PSAs	Bear River Team	Copies of items distributed	Support of partnering agencies	$12/hour, .58/mile	Annual
6. Identify alternatives for treating it or reducing the probability of contracting it	Bear River Team	Summative report	Availability of alternatives	$12/hour, .58/mile	To be determined
7. Conduct or participate in a research study of Swimmer's Itch	Bear River Team	Final research report	Support of partnering agencies	$150,000	To be determined

Table 17-37. Setting the Pace - Little Trout Lake

Goal V - Reduce User Conflicts					
Objective A - Provide the public with opportunities to learn about user conflicts.					
			Limitations		
Potential Activities	**Facilitator(s)**	**Evaluation**	**Limitations**	**Cost Estimates**	**Timeframe**
1. Determine extent of user conflicts	Tribe	Survey	Tribe/TLC/Funding	To be determined	Triennial
2. Develop & distribute education materials on minimizing user conflicts	Tribe, WDNR	Availability of materials, distribution list	Support of Tribe, WDNR, availability of resources	To be determined	Ongoing
3. Host workshop on fishery (size limits, stocking, etc.)	Tribe	# attendees, workshop evaluation	# registrants, support of Tribe, availability of resources	$100/attendee	Quadrennial
4. Joint review of current enforcement (# wardens, incidents, etc.)	Tribe/Town	Report	Support of Tribe & Town	To be determined	To be determined

Table 17-38. Setting the Pace - Little Trout Lake

Goal VI - Strengthen or Increase Collaborations					
Objective A - Encourage participation in educational experiences related to partnerships and collaborations.					
			Limitations		
Potential Activities	**Facilitator(s)**	**Evaluation**	**Limitations**	**Cost Estimates**	**Timeframe**
1. Provide workshop(s) on how to establish a lake association	TLC	# attendees, workshop evaluation	Support of TLC, # registrants	$50/attendee	Biennial
2. Encourage attendance at Lake Leaders Institute	TLC/Tribe/ Lake Assoc	# attendees	Availability of volunteers, resources	$800/attendee	Biennial
3. Encourage attendance at Wisconsin Lakes Conference	TLC/Tribe/ Lake Assoc	# attendees	Availability of volunteers, resources	$800/attendee	Annual
4. Encourage attendance at Vilas County Lakes Association	TLC/Tribe/ Lake Assoc	# attendees	Availability of volunteers, resources	$100/attendee	Annual
5. Encourage attendance at Lakes Fest	Tribe/TLC/ Lake Assoc	# attendees	Support of partnering agencies	$7,000/event	Annual

Table 17-39. Setting the Pace - Little Trout Lake

Goal VI - Strengthen or Increase Collaborations					
Objective B - Provide a variety of ways to share information about watershed and lake planning.					
			Limitations		
Potential Activities	**Facilitator(s)**	**Evaluation**	**Limitations**	**Cost Estimates**	**Timeframe**
3. Disseminate information to lake associations about the Wisconsin Lakes Association, Annual Convention, Leadership Program, & other local, County and State offerings	TLC	Lake association feedback	Support of TLC and lake associations, availability of materials	Volunteers @ $12/hour, .58/mile	Annual
4. Present information at Local, County, State, & National conferences and meetings	Tribe/TLC	Per host agency	Support of Tribe, Town, availability of presenters	Variable	Per host agency

Table 17-40. Setting the Pace - Little Trout Lake

Goal VI - Strengthen or Increase Collaborations					
Objective C - Focus on ways to reach out to individuals and organizations.					
			Limitations		
Potential Activities	**Facilitator(s)**	**Evaluation**	**Limitations**	**Cost Estimates**	**Timeframe**
1. Establish system for contacting new residents	TLC	# residents contacted	Support of TLC	$100/visit	Ongoing
2. Encourage the WDNR to establish a protocol for writing watershed and lake management plans.	Bear River Action Team	Development of protocol	Support of WDNR	TBD	To be determined
3. Revise the current *Rapid Response Plan*	Tribe/TLC	Availability of revised plan	Tribal support	$1,000-$5,000	Quinquennial
4. Consider establishing a watershed plan for the other watersheds in Lac du Flambeau	Tribe/TLC	Additional watershed plans	Positive evaluation of Bear River Watershed plan, support of Tribe & TLC, availability of volunteers and resources	$50,000/ watershed	To be determined
5. Evaluate establishing the position of Invasive Species Coordinator for Lac du Flambeau	Tribe/TLC	Report	Support of Tribe, Town, & Lake Associations	TBD	To be determined
6. Develop an indigenous arts and sciences institute	Tribe/ Universities	# Participants	Support of Tribe and Universities	$4,000,000	To be determined

Notes for Section 17

1. See map in Section 3, Figure 2.
2. *Map of the Famous hunting & fishing grounds embraced in the lake region of Gogebic County, Michigan., and in Iron, Vilas, Forest, & Oneida Counties, WI* (Poole Brothers, 1895). Available at the Vilas County Historical Museum.
3. *Map of Lincoln, Oneida, Vilas Counties.* (Rand, McNally & Company, Chicago, 1896).
4. *Map of Wisconsin River Valley,* (Shepard, E.S., Rhinelander, Wisconsin 1903).
5. *Star Lake Country, Northern Wisconsin,*(Poole Brothers, 1909).
6. James K. Bokern, *History of the Primary Routes of the Six Bands of Chippewa from the Lac du Flambeau District* (Unpublished Masters Thesis, 1987),Chapter IX, 1. Online at: http://www.marshfield.k12.wi.us/socsci/discovery/bokern/default.htm
7. The survey data presented throughout the section is from the *Bear River Watershed Comprehensive Lake Management Plan Survey, Lake-by-lake Comparisons*, June 2012. See Appendix.
8. Quality Assurance Protection Plan (QAPP) , Lac du Flambeau Band of Lake Superior Chippewa Indians, Aquatic Plant habitat Point Intercept Survey of Lakes for Plants 2010.
9. Results of the WISCALM Botanist Review Panel for Aquatic Macrophyte Impairment.
10. Quality Assurance Protection Plan, Lac du Flambeau Band of Lake Superior Chippewa Indians, General Chemistry Assessment of Waters within the Lac du Flambeau Reservation 2012 (QAPP) for General Chemistry.
11. Tribal Water Quality Standards.
12. Quality Assurance Protection Plan, Lac du Flambeau Band of Lake Superior Chippewa Indians, General Chemistry Assessment of Waters within the Lac du Flambeau Reservation 2012 (QAPP) for General Chemistry.
13. National Lakes Assessment: Technical Appendix, Data Analysis Approach; Lakes, Ponds, and Reservoirs January 2010 Pg 10-12.
14. Wisconsin 2012 Consolidated Assessment and Listing Methodology (WIS CLAM) for Clean Water Act Section 305(b), 314, and 303(d) Integrated Reporting, April 2012 http://dnr.wi.gov/topic/surfacewater/documents/FINAL_2012_WisCALM_04-02-12.pdf.
15. Quality Assurance Protection Plan, Lac du Flambeau Band of Lake Superior Chippewa Indians, (QAPP) Shore land Development Habitat 2008.
16. National Lakes Assessment: Technical Appendix, Data Analysis Approach; Lakes, Ponds, and Reservoirs January 2010 Pg 10-12.
17. Quality Assurance Protection Plan, Lac du Flambeau Band of Lake Superior Chippewa Indians, (QAPP) for Beach Monitoring 2008.
18. Tribal Water Quality Standards.
19. Ibid.
20. Quality Assurance Protection Plan, Lac du Flambeau Band of Lake Superior Chippewa Indians, General Chemistry Assessment of Waters within the Lac du Flambeau Reservation 2012 (QAPP) for General Chemistry.
21. National Lake Survey Report.
22. http://www.manresa-sj.org/stamps/1_Secchi.htm.

Table Notes for Section 17

Table 17-3. Perceived vs Actual Presence of AIS. *Bear River Watershed Comprehensive Lake Management Plan Survey* Data from *Bear River Watershed Comprehensive Lake Management Plan Survey, Lake-by-lake Comparisons,* June 2012, Question #26. See Appendix.

Table 17-4. Perceived to be Threatened by AIS. Data from *Bear River Watershed Comprehensive Lake Management Plan Survey, Lake-by-lake Comparisons*, June 2012, Question #27. See Appendix.

Table 17-5. Concern about AIS Getting into the Lake. Data from *Bear River Watershed Comprehensive Lake Management Plan Survey, Lake-by-lake Comparisons*, June 2012, Question #29. See Appendix.

Table 17-6. Time Spent Checking for AIS During Open Water Season. Data from *Bear River Watershed Comprehensive Lake Management Plan Survey, Lake-by-lake Comparisons*, June 2012, Question #28. See Appendix.

Table 17-9. Whether Aquatic Plants Impede Enjoyment of the Lake. Data from *Bear River Watershed Comprehensive Lake Management Plan Survey, Lake-by-lake Comparisons*, June 2012, Question #15. See Appendix.

Table 17-10. Removal of Aquatic Plants from the Lake. Data from *Bear River Watershed Comprehensive Lake Management Plan Survey, Lake-by-lake Comparisons*, June 2012, Question #18. See Appendix.

Table 17-11. Removal of Fallen Trees from the Lake. Data from *Bear River Watershed Comprehensive Lake Management Plan Survey, Lake-by-lake Comparisons*, June 2012, Question #19. See Appendix.

Table 17-12. Whether Aquatic Plant Control is Needed. Data from *Bear River Watershed Comprehensive Lake Management Plan Survey, Lake-by-lake Comparisons*, June 2012, Question #16. See Appendix.

Table 17-13. Preferences for Treating/removing Aquatic Invasive Plants. Data from *Bear River Watershed Comprehensive Lake Management Plan Survey, Lake-by-lake Comparisons*, June 2012, Question #30. See Appendix.

Table 17-14. Current Shoreline Landscaping vs Ideal Shoreline Landscaping. Data from *Bear River Watershed Comprehensive Lake Management Plan Survey, Lake-by-lake Comparisons*, June 2012, Question #20-21. See Appendix.

Figures

Tables

"A Healthy Lake"
Landon Saglin, Grade 2, 2013
Lac du Flambeau Public School