Lake Nepessing
Lapeer County, T07N/R09E/14
Flint River Watershed

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Environment

Lake Nepessing is a 414 acre lake located in Elba Township of Lapeer County 3 miles southwest of the City of Lapeer (Figure 1). The lake lies within the boundaries of the Flint River watershed and Farmers Creek sub-watershed. An unnamed ephemeral inlet flows into Lake Nepessing on the southwest shore and an unnamed outlet on the southeast shore flows to Farmers Creek. A metal stand pipe control structure on the outlet maintains Lake Nepessing's water level at a fixed elevation. A legal lake elevation has been determined at 831.7 ft. above mean sea level.

Public access to Lake Nepessing is available at a DNR boat access site off Hunt Road on the north shore. The Lake Nepessing boat access site is gravel with concrete launch pads and accommodates 16 medium sized boats. Lake Nepessing is the largest inland lake in Lapeer County and is popular for fishing and all other types of boat recreation.

The geography surrounding Lake Nepessing is characterized by gently sloping ground moraine interspersed with outwash channels and numerous end-moraine ridges. Undulating topography forms alternating well-drained rises and poorly drained depressions of variable soils. Soils on the raised moraines generally consist of medium texture sand and loam while depressions are dominated by organic peat soil. Groundwater inflow is moderate resulting in a cluster of lakes and forested wetlands in the immediate area surrounding Lake Nepessing.

Lake Nepessing is a warm water, medium size, and shallow lake having mesotrophic characteristics. The lake has an average depth of 10 ft. and reaches a maximum depth of 25 feet (Figure 2). Eighty-four percent of the Lake Nepessing surface acreage is 10 ft. deep or less. The shoreline is moderately developed with 157 dwellings with an estimated dwelling density of 39/mile. An estimated 50% of the shoreline is artificially armored with sea wall.

Limnological parameters of Lake Nepessing were measured in August 2011. Temperature, oxygen, and pH profiles indicate warmwater thermal characteristics in the epilimnion, mid-summer thermocline development between 17-22 feet, and fish limiting oxygen concentrations (<3 mg/l) at depths greater than 16 ft. depth (Table 1). pH values ranged from 7.3 in the lower water column to 8.6 at the surface and alkalinity was 128 mg/l. Measurements of secchi disk (9 ft.), total phosphorus (0.04 mg/l), and chlorophyll-a (0.004 mg/l) yielded a Trophic Status Index (TSI) of 48 on a scale of 0-100. A TSI of 48 is consistent with mesotrophic lake classification but nearing eutrophic classification. Mesotrophic lakes generally have intermediate nutrient levels, moderate water clarity, relatively abundant aquatic vegetation, and support diverse biological communities. For Lake Nepessing, individual measurements of total phosphorus and chlorophyll-a are above the 75th percentile for the state and indicate elevated nutrients. Overall, limnological parameters measured in Lake Nepessing are consistent with past measurements and indicate a fertile lake environment.

The overall fertility of Lake Nepessing along with its relatively shallow average depth make it well suited for aquatic vegetation. Aquatic vegetation is the dominant form of fish cover and occurs in abundance during the peak growing period. Cursory observations made in May, 2011 indicated high abundance of Eurasian milfoil, coontail, and curlyleaf pondweed. Chara and naiad (sp.) were also observed in abundance. Water lily is found sporadically along the shoreline and emergent cattails are common to the south shore, particularly the outlet area. Herbicidal control of nuisance vegetation has occurred almost annually since 1990.

History

The fish community of Lake Nepessing has been regularly monitored by DNR, Fisheries Division. Lake Nepessing has consistently maintained a good angling reputation for largemouth bass. Historical fisheries management focused on population manipulations to improve bluegill size structure and to remove undesirable fish species. Bluegill had exhibited "stunting" tendencies as early as 1958. In 1965, a fish reclamation using the fish toxicant rotenone was conducted to eliminate the large population of small panfish and undesirable carp that had populated the lake. Beginning in 1966, tiger muskellunge were stocked as a predator species with hopes they would achieve trophy size status for Lake Nepessing anglers. In addition, a spearing ban was placed on Lake Nepessing to further protect tiger muskellunge and northern pike from over harvest.

During the 1970's and into the 1980's, Lake Nepessing reverted back to stunted panfish status. In 1986, a combined manual removal and fish reclamation using the selective fish toxicant antimycin were conducted to again try to improve a stunted bluegill population. However, improvements in growth and size structure were short lived. Tiger muskellunge continued to be stocked semi-annually until 1989 when hatchery production ceased and fish were no longer available. Despite what was considered a statewide failure, tiger muskellunge seemingly did better in Lake Nepessing than in other waters around the state. The esocid spearing ban remained in effect but is slated to be removed in 2013. Zebra mussels were first reported in the early 1990's and continue to persist.

Walleye stocking in Lake Nepessing began in 1986 and continues on a regular schedule (Table 2). Surveys specifically targeting walleye were conducted in 1990, 1993, and 1999 and each yielded sufficient catches to validate continued stocking. In 1993, a population estimate suggested an adult density of 1 walleye/acre. Current walleye stocking is prescribed at a rate of 50 spring fingerlings/acre on an alternate year schedule.

Recent fish community surveys indicated the presence of 27 fish species in Lake Nepessing (Table 3). In a 1999 survey, bluegill averaging 6.5 inches dominated the trap net catch. Bowfin were found in high abundance. Black crappie, carp, largemouth bass, northern pike, walleye, and white suckers were found in common occurrence. Overall, the fish community was considered to be in a satisfactory state and typical of warm water fish communities in the region. The last recorded tiger muskellunge was captured in 1999 and the species is now believed extirpated. In 2007 and 2009, master angler redear sunfish were reported from Lake Nepessing. These were the first reports of redear sunfish which are believed to have been inadvertently introduced with the fall fingerling walleyes in 1999. Redear sunfish were commonly mixed with the fathead minnow forage used to raise fall fingerling walleye. In 2011, a local angler harvested a 12.6 inch and 2.15 lb. pumpkinseed sunfish establishing a new state record for the species.

Current Status

In May 2011, Fisheries Division conducted a fisheries survey using trap net, large and small mesh fyke nets, gill net, seine, and electrofishing gear. The use of multiple gear types helps to present a generalized picture of the fish community. Large mesh trap and fyke nets are used to capture larger (>3 inches) fish species that inhabit the littoral zone or that move inshore at night. Small mesh fyke nets and seines are used to capture small fish (<3 inches) that regularly inhabit the near shore zone. Gill nets sample fishes that occupy offshore waters and are particularly effective at capturing perch and northern pike. Night electrofishing is best at capturing species and life stages that inhabit the littoral zone or that move inshore at night.

A total of 5,329 fish representing 20 species were collected in the 2011 survey (Table 4). Based on numbers of individuals, large mesh trap and fyke nets accounted for 63% of the catch. Small mesh fyke nets and seining accounted for 13% of the catch and electrofishing and gill nets accounted for 6% and 1% of the catch, respectively. Bluegill were the most abundant species collected comprising 59% of the total catch followed by redear sunfish (29%) and pumpkinseed sunfish (4%). All other species individually comprised 1% or less of the total catch (Table 4).

A total of 1,814 bluegill averaging 5.0 inches were collected with trap and large mesh fyke nets, 1,144 bluegill averaging 3.8 inches were collected with small mesh fyke nets and by seine, 201 bluegill averaging 4.3 inches were collected electrofishing, and 8 bluegill averaging 4.8 inches were collected with gill nets. Bluegill size range for the total catch was 1-7 inches (Tables 4, 5). Twelve percent of the bluegill collected with trap and large mesh fyke nets met or exceeded the acceptable harvest size of 6 inches. Growth analysis indicated bluegill were growing below state average having a mean growth index of -1.1 (Table 6). Growth suppression appeared at an early age (1 year) and continued throughout all age classes. Age frequency indicated 5 year classes in the catch (Table 6). Seventy-nine percent of the catch was determined to be 4 or 5 years in age. Bluegill appeared to survive up to 5 years.

A total of 1,131 redear sunfish averaging 6.0 inches were collected with trap and large mesh fyke nets, 386 redear sunfish averaging 4.0 inches were collected with small mesh fyke nets and by seining, 14 redear sunfish averaging 5.6 inches were collected electrofishing, and 16 redear sunfish averaging 5.8 inches were collected with gill nets. Redear sunfish size range for the total catch was 2-10 inches (Tables 4, 5). Forty-six percent of the trap net and large mesh fyke net catch met or exceeded the acceptable harvest size of 6 inches. Growth analysis indicated redear sunfish were growing below state average having a mean growth index of -2.2 (Table 6). Growth suppression appeared at an early age (3 years) and continued throughout all age classes. Age frequency indicated 4 year classes in the catch (Table 6). Ninety-five percent of the redear sunfish catch were determined to be between 2 and 5 years of age. Redear sunfish appeared to survive up to 6 years.

A total of 136 pumpkinseeds averaging 5.8 inches were collected with trap net and large mesh fyke nets, 45 pumpkinseeds averaging 4.2 inches were collected with small mesh fyke nets and by seining, 10 pumpkinseeds averaging 5.1 inches were collected electrofishing, and 2 pumpkinseeds averaging 5.0 inches were collected with gill nets. Pumpkinseed size range for the total catch was 3-8 inches (Tables 4, 5). Forty-seven percent of the trap net and large mesh fyke net catch met or exceeded the acceptable harvest size of 6 inches. Growth analysis indicates pumpkinseeds were growing near state average having a mean growth index of -0.2 (Table 6). Age frequency indicated 5 year classes in the

catch (Table 6). Fifty-five percent of the pumpkinseed catch were determined to be 3 or 4 years of age. Pumpkinseed appeared to survive up to 6 years.

A total of 6 largemouth bass averaging 9.0 inches were collected with trap nets and large mesh fyke nets, 13 largemouth bass averaging 3.9 inches were collected with small mesh fyke nets and by seining, 31 largemouth bass averaging 8.3 inches were collected electrofishing, and 3 largemouth bass averaging 12.2 inches were collected with gill nets. Largemouth bass size range for the total catch was 2-17 inches (Tables 4, 5). Eight percent of the total largemouth bass catch met or exceeded the minimum harvest size of 14 inches. Growth analysis indicated largemouth bass were growing below state average having a mean growth index of -1.4 (Table 6). Growth suppression appeared at an early age (1 year) and continued throughout all age classes. Age frequency indicated 8 year classes in the catch (Table 6). Eighty-seven percent of the largemouth bass catch were determined to be between 1 and 4 years of age. Largemouth bass appeared to survive up to 8-9 years of age.

A total of 52 rock bass averaging 7.7 inches were collected with trap nets and large mesh fyke nets, 6 rock bass averaging 3.7 inches were collected with small mesh fyke nets and by seining, and one 9.5 inch rock bass was collected electrofishing. Rock bass size range for the total catch was 1-11 inches (Tables 4, 5). Seventy-nine percent of the rock bass collected with trap nets and large mesh fyke nets met or exceeded the acceptable harvest size of 6 inches. Age and growth analysis was not performed on this species.

A total of 2 yellow perch averaging 6.0 inches were collected with trap nets and large mesh fyke nets, 24 yellow perch averaging 5.5 inches were collected with small mesh fyke nets and by seining, 25 yellow perch averaging 5.4 inches were collected electrofishing, and 6 yellow perch averaging 6.5 inches were collected with gill nets. Yellow perch size range of the total catch was 3-7 inches (Tables 4, 5). Five percent of the total yellow perch catch met or exceeded the acceptable harvest size of 7 inches. Growth analysis indicated yellow perch were growing below state average having a mean growth index of -1.7 (Table 6). Growth suppression appeared after 1 year and continued with all other age classes. Age frequency indicated 6 year classes in the catch (Table 6). Seventy-four percent of the yellow perch catch were 2 or 3 years of age. Yellow perch appeared to survive up to 4 years.

Other sportfish collected in low abundance included 40 brown bullheads averaging 11.5 inches, 39 yellow bullheads averaging 10.4 inches, 13 hybrid sunfish averaging 6.0 inches, 7 black crappie averaging 7.5 inches, 5 northern pike averaging 23.1 inches, 2 channel catfish averaging 17.5 inches, and 3 walleye averaging 17.8 inches (Tables 4, 5). Non-sportfish collected included 78 warmouth averaging 5.7 inches, 38 carp averaging 26.4 inches, and 7 bowfin averaging 22.6 inches (Table 4). All other fish species were collected in low abundance.

Analysis and Discussion

In southern Michigan warmwater lakes, bluegill are one of the most abundant fish species present and play a key role in community structure and overall sportfishing quality (Schneider 1981). Schneider (1990) suggests indices of bluegill characteristics can be used to classify populations. The "Schneider Index" uses size scores of length frequency and relates them to a quantitative ranking system ranging from "very poor" to "superior". Using the Schneider Index to classify bluegill captured in trap nests, Lake Nepessing scored 2.5 for a "poor" rank (Table 7). This poor rank is a decline from the 1999 survey but is consistent with 1984, 1989, and other historical surveys (Table 7). The improved size

structure observed in 1999 is an oddity and may be reflective of catch bias due to early April sampling in colder water temperatures.

A number of factors affect bluegill size structure including habitat conditions, fish abundance, availability of food at all life stages, recruitment, mortality, and predator abundance. Bluegill stunting commonly occurs when there is an undesirable balance among rates of recruitment of young (too high), natural mortality of young (too low), and high fishing mortality of adults (Schneider and Lockwood 1997). For Lake Nepessing, the large littoral zone densely occupied by aquatic macrophytes allows bluegill to avoid predation resulting in overabundance and high recruitment of young. Overabundance increases competition for limited food and ultimately leads to suppressed growth. Mortality rates appear to be very low for young bluegill but high for adults resulting in peak longevity of only 5 years. High adult mortality is from a combination of natural causes and angler harvest. Overall, the bluegill size structure exhibits stunted tendencies and the opportunity for anglers to catch fish > 7 inches is low.

Redear sunfish have been introduced into several southern Michigan lakes with a primary goal of offering "trophy size" panfish to anglers (Towns 2003). Their preferred food differs from bluegill in that snails are an important component. Redear sunfish are known to achieve a larger size than bluegill and have been reported to be more difficult to catch allowing for reduced angler mortality. Despite being inadvertently introduced, a self sustaining population has developed in Lake Nepessing. The results of the 2011 survey shows that, despite suppressed growth, the redear sunfish size structure is greatly improved compared to bluegill. A total of 133 redear sunfish captured were > 7 inches (Table 5). Applying the Schneider Index to redear sunfish yields a size score of 4.75 and a "good" ranking. The capture of 29 redear sunfish in the 10 inch size group indicates trophy size panfish are available to anglers (Table 5). A consequence of redear sunfish establishment in Lake Nepessing has been what appears to be an increase in panfish hybridization. Thirteen hybrid sunfish averaging 6.0 inches were noted in the 2011 catch (Table 4). Fisheries Division personnel noted hybrid characteristics consistent with redear-pumpkinseed-warmouth-green sunfish crosses. Redear did not appear to have impacted the abundance or growth of other sunfish species. Overall, Lake Nepessing redear sunfish provide for a good recreational fishery.

Other panfish in Lake Nepessing appear in lower abundance but still provide for additional recreational opportunities. Pumpinseeds in the 6-7 inch range are relatively common, as are rock bass in the 6-9 inch size range (Table 5). Although not considered a sportfish, warmouth in the 6-7 inch range were found in appreciable numbers. Black crappie in the 7-9 inch size range were present but poorly represented in the 2011 catch. Previous surveys showed slightly higher abundance of black crappie but these surveys were conducted in cooler temperatures and the poor catch observed in 2011 may be reflective of the seasonal timing of the survey.

Lake Nepessing has been noted for its largemouth bass fishery and has been the location for a number of bass angling tournaments. Relative abundance, size range, growth, and age distribution found in 2011 were comparable to previous surveys and indicate a self sustaining population which supports a satisfactory recreational fishery. Although only 4 of the 53 largemouth bass collected in 2011 were > 14 inches (Table 5), Fisheries Division receives a fair number of angler reports of bass in the 3-5 lbs. weight class. The presence of multiple year classes and the tendency for bass anglers to practice catch/release methods preserves large fish for multiple recapture and assures a highly desirable fishery.

Northern pike were found in relatively low abundance in 2011 (Tables 4, 5). Previous surveys in 1990 and 1999 also indicated relatively low abundance. In the April, 1990 survey, 18 northern pike averaging 25.6 inches were collected in 24 net lifts. In the April, 1999 survey, 8 northern pike averaging 25.9 inches were captured in 12 net lifts. Lake Nepessing appears to support a marginal northern pike fishery with the occasional opportunity to harvest fish > 24 inches.

Walleye stocking in Lake Nepessing has met with mixed results. Spring fingerling stocking rates have ranged from 30-280 fish/acre (Table 2). Fall fingerling stocking has ranged from 3-12 fish/acre but stocking only occurred in select years (Table 2). Multiple surveys targeting walleye have attempted to evaluate these various stocking regimes. A 1990 survey captured 21 walleye averaging 17.6 inches in 24 nets lifts. This catch gave good indication of stocking survival but could not distinguish the individual contributions of spring or fall fingerlings. A 1993 survey captured 107 walleye averaging 19.6 inches in 32 net lifts. For this survey, the 1988 year class was best represented corresponding to spring fingerling stocking at 31 fish/acre. Night electrofishing surveys evaluating survival of stocked fish to the fall season were conducted in 1996, 1997, and 1998. The results of the 1996 and 1997 surveys found poor survival of spring fingerlings which were stocked at 120 fish/acre. This prompted an accelerated stocking of 280 spring fingerlings/acre in 1998 and the fall survey found 91 young of the year indicating improved survival of stocked fish. An April 1999 netting survey targeting walleye collected only 9 walleye averaging 23.9 inches in 12 net lifts. No walleye under 5 years of age were collected. These results indicated overwinter survival of spring fingerlings stocked in 1998 was poor and Lake Nepessing was supporting a marginal walleye fishery at best. Given the mixed results of the various stocking strategies implemented for Lake Nepessing, 2003 management recommendations settled on stocking 50 spring fingerlings/acre on an alternate year schedule.

The low abundance of walleye found in 2011 is consistent with the 1999 survey and indicates a marginal fishery. Walleye are not expected to reproduce in Lake Nepessing and the fishery is dependent on stocking. Despite their low abundance, walleye are very popular with Lake Nepessing anglers and the opportunity for an occasional catch is the basis for continued stocking.

Although yellow perch appear in appreciable numbers in Lake Nepessing, their poor growth and early age mortality are not conducive to a viable sport fishery. Past surveys, as well as the 2011 survey, indicate few yellow perch live long enough to achieve harvestable size. Viable yellow perch sport fisheries in inland lakes do not occur in this region of the state. This is attributed to most lakes having only marginal cool water habitat, high abundance of competing fish species, limited food resources, and high abundance of predator species targeting them as forage.

Carp, bowfin, and bullhead (sp.) provide additional angling opportunities on Lake Nepessing. Each of these species is found in moderate abundance and reach appreciable size.

Management Direction

Presently, Lake Nepessing supports satisfactory recreational angling opportunities for largemouth bass, redear sunfish, pumpkinseed, rock bass, warmouth, carp, bowfin, and bullhead species. No fisheries management recommendations are directed toward them.

Stunted bluegill populations are a common occurrence in southern Michigan lakes and corrective remedies are not readily available. Past efforts to manipulate bluegill abundance in Lake Nepessing resulted in only short term benefit. Increasing the predator base via walleye stocking has met with some success in some inland lakes (Schneider and Lockwood 1997). However, efforts to establish a significant walleye population (3 adults/acre) in Lake Nepessing have not been successful under various stocking regimes, and it is unlikely improvements in the bluegill size structure will occur as a result. Natural reproduction of walleye in Lake Nepessing does not occur and the fishery is dependent upon stocking. Management recommendations are to continue to stock spring fingerling walleye for the purpose of providing a highly desirable sportfish for anglers. Recommendations are to continue spring fingerling walleye stocking at a rate of 50 fish/acre on an alternate year schedule.

Future surveys on Lake Nepessing should include efforts to better evaluate northern pike. The scheduled removal of the esocid spearing ban may affect the current fishery and should be of concern.

References

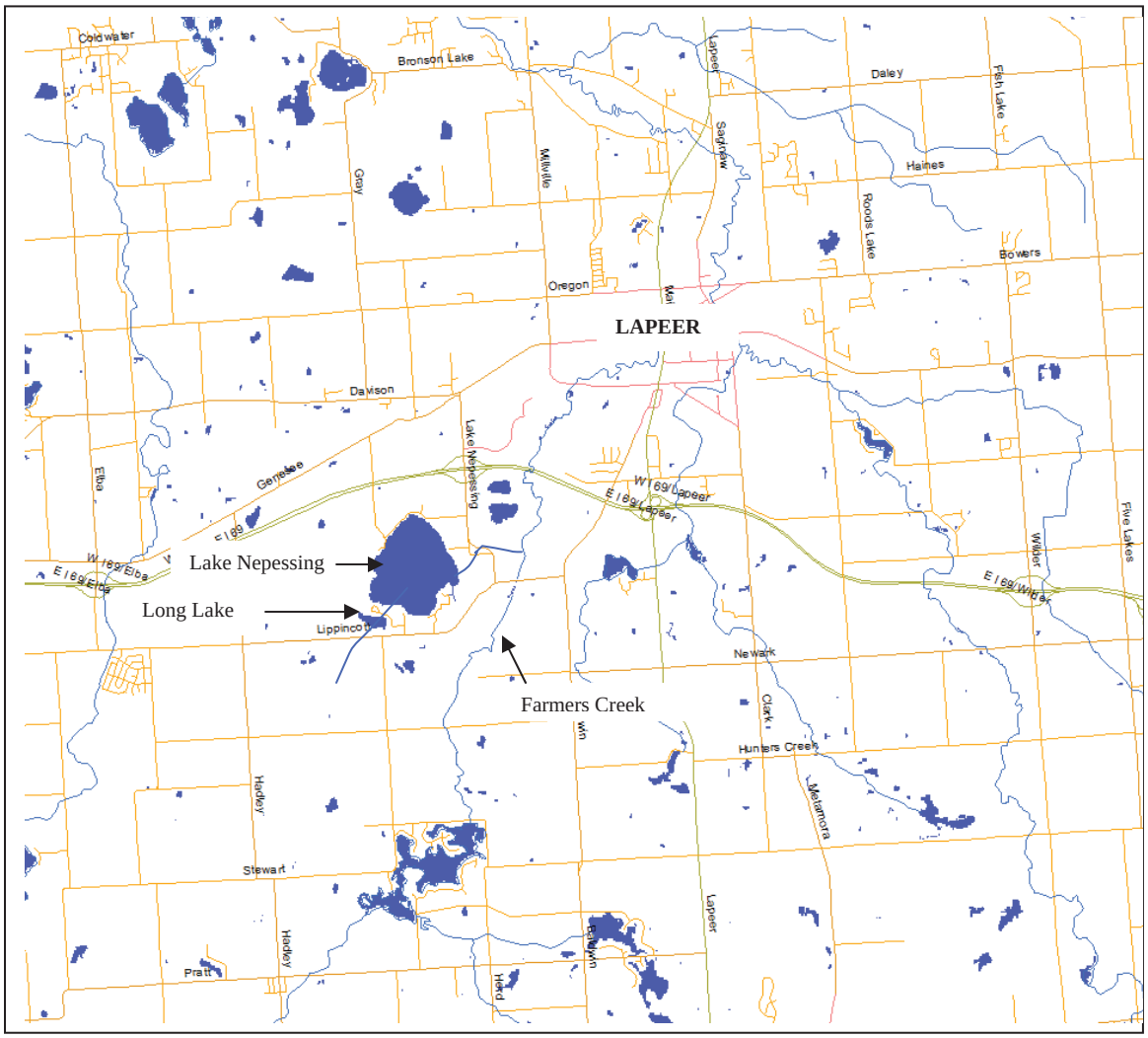
Schneider, J.C. 1981. Fish communities in warmwater lakes. Michigan Department of Natural Resources, Fisheries Division, Fisheries Technical Report 1890, Ann Arbor, Michigan.

Schneider, J.C. 1990. Classifying bluegill populations from lake survey data. Michigan Department of Natural Resources, Fisheries Division, Technical Report 90-10, Ann Arbor, Michigan.

Schneider, J.C. 1997. Experimental management of stunted bluegill lakes. Michigan Department of Natural Resources, Fisheries Division, Research Report 2040, Ann Arbor, Michigan.

Towns, G.L. 2003. Redear sunfish management in Michigan. Michigan Department of Natural Resources, Fisheries Division, Technical Report 2003-3, Ann Arbor, Michigan.

Figure 1. Location of Lake Nepessing, Lapeer County.



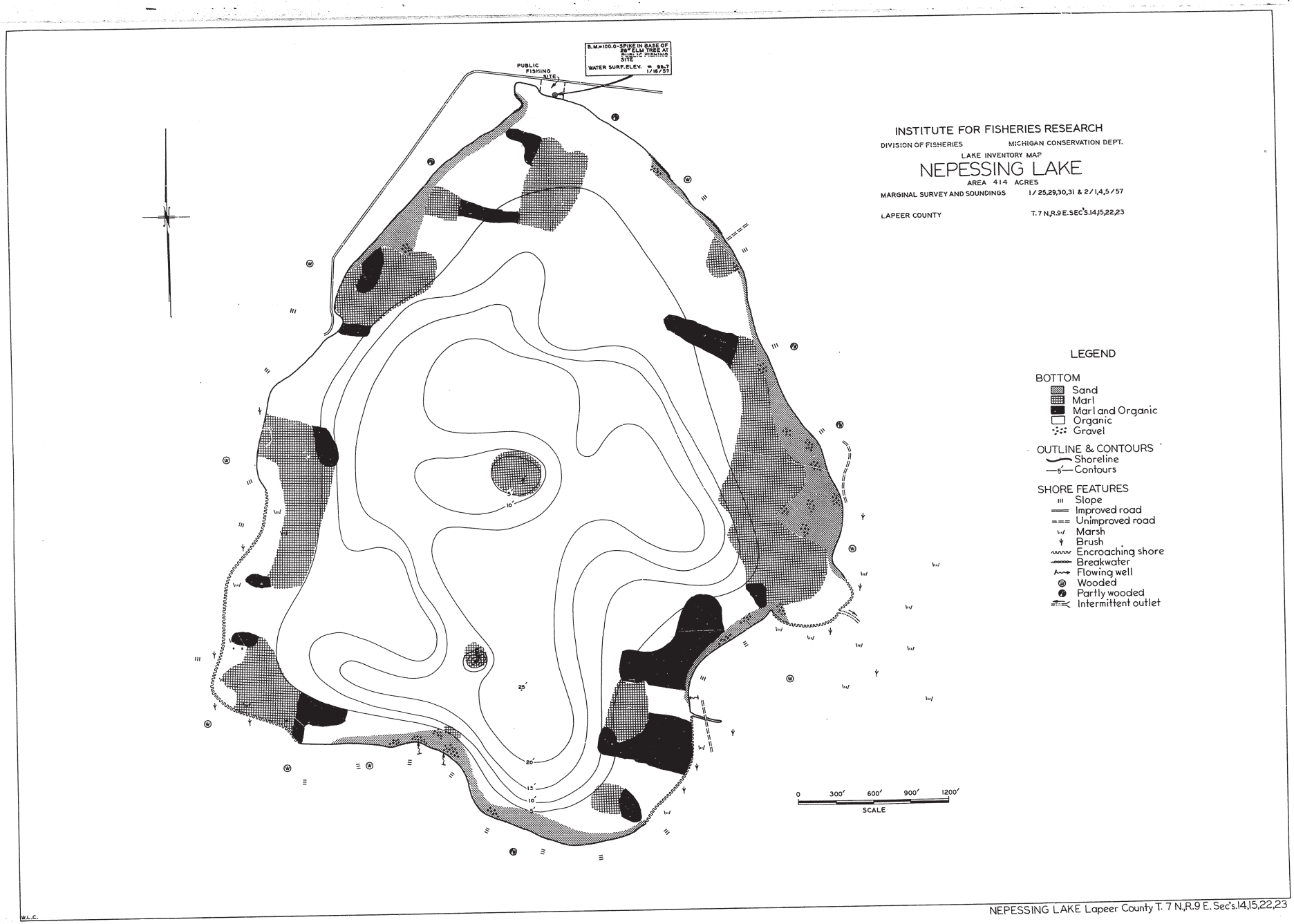


Figure 2. Hydrographic map of Lake Nepessing, Lapeer County.

Table 1. Temperature, oxygen, and pH profiles of Lake Nepessing. Data collected August 10, 2011 (Shaded area = thermocline).

Depth (ft.)	Temperature (F)	Oxygen (ppm)	pH
0	79	9.0	8.6
1	79	9.0	8.6
2	79	9.0	8.6
3	79	9.0	8.6
4	79	9.0	8.6
5	79	9.0	8.6
6	79	9.0	8.6
7	79	9.0	8.6
8	79	9.0	8.6
9	79	9.0	8.6
10	79	9.0	8.6
11	79	9.0	8.6
12	79	9.0	8.6
13	79	9.0	8.6
14	78	8.2	8.5
15	78	7.5	8.3
16	77	4.8	7.9
17	75	2.4	7.8
18	72	0.8	7.5
19	69	0.5	7.4
20	67	0.4	7.4
21	66	0.6	7.4
22	64	0.6	7.3
23	62	0.4	7.3
24	62	0.5	7.3
25	60	1.0	7.4

Table 2. Walleye stocking in Lake Nepessing (sf=spring fingerling, ff=fall fingerling).

Year	Number		Size (in.)	#/acre
1986	36,640	sf	2.0	89
1987	2,860	ff	3.8	7
1988	13,028	sf	1.9	31
1990	12,197	sf	2.2	29
	1,320	ff	8.6	3
1992	20,000	sf	1.5	48
1993	1,660	ff	4.6	4
1996	51,430	sf	1.7	124
1997	48,914	sf	1.6	118
	9,000	sf	3.8	22
1998	116,133	sf	2.4	281
1999	4,952	ff	3.9	12
	888	sf	1.7	2
2000	110,688	sf	1.8	267
2003	24,635	sf	1.5	59
2004	25,635	sf	2.0	62
2006	21,602	sf	1.8	52
2008	17,175	sf	1.4	41
2010	22,443	sf	1.8	54

Table 3. List of fishes in Lake Nepessing, Lapeer County.

Bowfins	**Mudminnows**
Bowfin	Central mudminnow
Carps & minnows	**Silversides**
Blacknose shiner	Brook silverside
Bluntnose minnow	**Sunfishes**
Common carp	Black crappie
Emerald shiner	Bluegill
Golden shiner	Green sunfish
Suckers	Hybrid sunfish
Lake chubsucker	Largemouth bass
White Sucker	Pumpkinseed
Bullhead catfishes	Redear sunfish
Bullhead, black	Rock bass
Bullhead, brown	Warmouth
Bullhead, yellow	**Perches**
Channel catfish	Walleye
Pikes	Yellow perch
Grass pickerel	
Northern pike	

Table 4. Total catch (all gear) from Lake Nepessing, Lapeer County, June, 2011.

Common name	Number	Percent by number	Length range (inches)	Weight (lbs.)	Percent by weight	Percent legal size	Average size (inches)
Black crappie	7	<1	6-8	1.62	<1	71	7.5
Blacknose shiner	1	<1	2	-	<1	-	2.5
Bluegill	3167	59	1-7	220.8	21	7	4.5
Bluntnose minnow	3	<1	2	-	<1	-	2.5
Bowfin	17	<1	14-26	73.1	7	-	22.6
Brown bullhead	40	<1	8-13	29.3	3	100	11.5
Central mudminnow	2	<1	2-3	-	<1	-	3.0
Channel catfish	2	<1	14-20	3.6	<1	100	17.5
Common carp	38	<1	14-36	362	35	-	26.4
Emerald shiner	1	<1	4	-	<1	-	4.5
Green sunfish	4	<1	3-5	0.3	<1	0	4.8
Hybrid sunfish	13	<1	4-9	2.5	<1	31	6.0
Largemouth bass	53	1	2-17	21.3	2	8	7.5
Northern pike	5	<1	20-26	13.9	1	40	23.1
Pumpkinseed	193	4	3-8	27.2	3	35	5.3
Redear sunfish	1547	29	2-10	210.9	20	34	5.5
Rock bass	59	1	1-11	21.9	2	71	7.3
Walleye	3	<1	7-25	8.4	<1	67	17.8
Warmouth	78	1	2-8	14.1	1	51	5.7
Yellow bullhead	39	<1	4-13	22.6	2	97	10.4
Yellow perch	57	1	3-7	4.2	<1	5	5.6

Table 5. Length frequency of selected sportfish from the total catch, Lake Nepessing, 2011.

	Species							
Inch group	**Bluegill**	**Redear sunfish**	**Pumpkinseed**	**Black crappie**	**Largemouth bass**	**Northern pike**	**Rock bass**	**Yellow perch**
0								
1	29						1	
2	118	7			2		1	
3	720	228	37		6		2	4
4	1428	360	43		8		6	5
5	646	424	46		9		7	35
6	207	395	54	2	3		10	10
7	19	70	12	3	4		10	3
8		16	1	2	7		6	
9		18			3		8	
10		29			1		6	
11					1		2	
12					5			
13								
14					1			
15					1			
16								
17					2			
18								
19								
20						1		
21						1		
22						1		
23								
24						1		
25								
26						1		
Total	3167	1547	193	7	53	5	59	57

Table 6. Age and growth data from selected sportfish, Lake Nepessing, May, 2011.

Species/Age	No. aged	Length range (in.)	State avg. length (in.)	Weighted mean length (in.)	Weighted age frequency (%)	Mean growth index*
Black crappie						-
Age IV	4	7.4-8.0	8.6	7.6	80.0	
Age V	1	8.0-8.0	9.4	8.0	20.0	
Bluegill						-1.1
Age I	12	1.3-1.9	1.8	1.5	0.9	
Age II	9	2.5-2.9	3.8	2.7	3.4	
Age III	8	2.8-3.7	5.0	3.5	16.4	
Age IV	13	3.8-5.0	5.9	4.3	49.9	
Age V	29	4.7-7.6	6.7	5.7	30.3	
Largemouth bass						-1.4
Age I	8	2.7-3.5	4.2	3.1	13.2	
Age II	18	3.9-6.2	7.1	5.0	35.9	
Age III	12	6.3-8.8	9.4	8.0	22.6	
Age IV	8	8.8-12.1	11.6	10.6	15.1	
Age V	3	11.8-12.3	13.2	12.1	5.7	
Age VII	1	14.2-14.2	16.3	14.2	1.9	
Age VIII	2	15.2-17.3	17.4	16.3	3.8	
Age IX	1	17.7-17.7	18.3	17.7	1.9	
Northern pike						-
Age III	1	21.5-21.5	20.8	21.5	20.0	
Age IV	3	20.8-24.5	23.4	22.5	40.0	
Age V	1	22.5-22.5	25.5	22.5	20.0	
Age VII	1	26.1-26.1	29.3	26.1	20.0	
Pumpkinseed						-0.2
Age II	6	3.2-3.6	3.8	3.4	12.8	
Age III	10	3.4-5.5	4.9	4.5	25.7	
Age IV	9	4.2-6.8	5.6	5.6	30.2	
Age V	7	5.6-8.4	6.2	6.4	18.9	
Age VI	4	6.0-6.8	6.6	6.4	12.4	
Redear sunfish						-2.2
Age III	13	3.6-7.4	6.2	5.1	23.0	
Age IV	34	3.6-10.3	7.6	5.0	41.9	
Age V	28	5.3-10.4	8.7	6.3	30.9	
Age VI	8	6.2-10.9	9.6	7.2	4.2	
Walleye						
Age 1	1	7.7-7.7	7.1	7.7	33.3	
Age X	1	20.2-20.2	23.1	20.2	33.3	
Age XI	1	25.4-25.4		25.4	33.3	
Yellow perch						-1.7
Age 1	3	3.8-4.2	3.3	3.9	6.4	
Age II	1	3.8-3.8	5.2	3.8	2.3	
Age III	3	4.7-5.8	6.5	5.5	12.9	
Age IV	16	4.6-7.4	7.5	5.8	71.3	
Age V	1	6.2-6.2	8.5	6.2	4.4	
Age VI	1	7.8-7.8	9.4	7.8	2.6	

*****Mean growth index is the average deviation from the state average length at age.

Table 7. Lake Nepessing bluegill size structure ranking using trap net data and the Schneider Index (Schneider 1990). Index score is in parenthesis.

Sample date	5/16/84	9/13/89	4/12/99	6/1/11
Sample size	1480	307	334	243
Average length (inches)	5.6 (3)	5.5 (3)	6.5 (5)	5.4 (2)
% ≥ 6 inches	17 (2)	26 (3)	66 (4)	27 (3)
% ≥ 7 inches	4 (2)	4 (2)	39 (5)	5 (3)
% ≥ 8 inches	0.2 (2)	0 (2)	5 (5)	0 (2)
Growth index	-1.0	-0.6	-0.7	-1.1
Schneider Index	2.25	2.50	4.75	2.50
Rank[1]	Poor	Poor	Sat./Good	Poor

[1]Rank: 1 = Very poor, 2 = Poor, 3 = Acceptable, 4=Satisfactory, 5 = Good, 6 = Excellent, 7 = Superior