MINNESOTA DEPARTMENT OF NATURAL RESOURCES

SECTION OF FISHERIES

LAKE MINNETONKA
FISHERIES Special Assessment--2010

June 14 to July 2, 2010

Part of Federal Aid Project: F-29-R(P)-21

Compiled by:

B.J. Bauer, FISHERIES SPECIALIST
WEST METRO FISHERIES MANAGEMENT AREA

MINNESOTA DEPARTMENT OF NATURAL RESOURCES

Section OF FISHERIES

FISHERIES POPULATION ASSESSMENT

Survey Date: June 14-July 2, 2010
Date Mapped: 1949
Map I.D.No.: B-0122

Lake Identification and Location

Name: **LAKE MINNETONKA**
Bay/Basin Station No.: 1-37
D.O.W. Watershed
(2)No.: **27-0133** (3)No.: 20
Management Meandered:
Area: 314 (4) Yes
(5)County(ies): Hennepin & Carver
Twnshp: 116,117N Range:22,23,24W
Section: Various
(6) Nearest Town: The cities of Minnetonka, Wayzata, Woodland, Orono, Tonka Bay, Spring Park, Minnetonka Beach, Greenwood, Excelsior, Deephaven, Shorewood, Victoria, Mound,and Minnetrista border the lake.

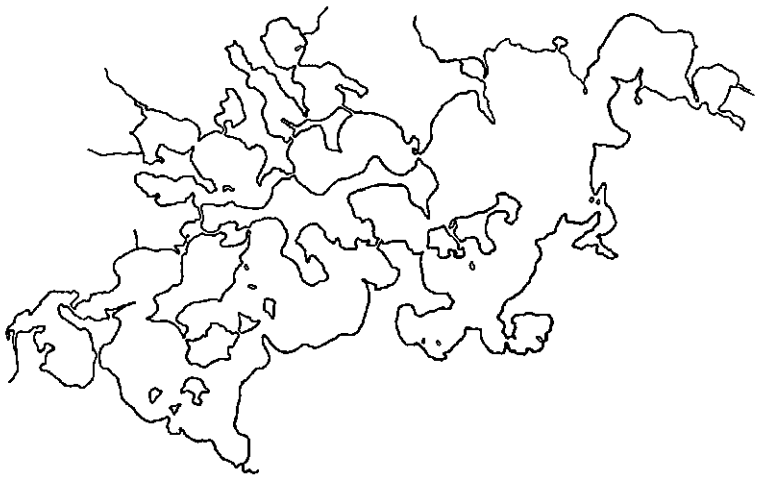

Figure 2: *Outline map of Lake Minnetonka*

(7) Accessibility:
(a) Designated Public Access (Location and Ownership): See table of access sites.
(b) Other access Areas: See table of access sites.

(8) Reason for Survey/Requested by:
Daryl Ellison, West Metro Area Fisheries Supervisor, requested survey to update lake file information. B.J. Bauer, Kristan Maccaroni and Rob Dodd completed the field collections. B.J. Bauer completed the survey report.

(9) Previous investigations, Surveys, and Dates: Fish Population Assessment 1992,1982,1970,2007,2009,2010
Lake Survey 1997,1987,1977, 1949 Special Assessments 1998-2006,2008
Ice-Out TN Assessment1997,1995,1992,1990,1987 Creel Census1996, 1975
Lake Survey (Halsteds Bay) 1955 Lake Survey (Lower Lake) 1953
Game Lake Surveys:
Crystal Bay Marsh 1972,1949 Grays Bay Marsh 1972, 1949
Fagerness-Shadywood Marsh 1972,1949 French Lake Marsh 1972,1949
Seton Lake Marsh 1972,1949 Carsons Bay Marsh 1972,1949
Tanager (Mud) Lake Marsh 1978,1949 South Mound Marsh 1972,1949
Enchanted Island Marsh 1972,194 Ferndale (Orono) Marsh 1978,1949
Six Mile Creek Marsh 1972,1949 Libbs Lake 1972
Winter Ice-House Census 2003-1975,1967-1961,1958,1953,1952

Lake and Drainage Basin Characteristics and Use

(10)Lake Area: 14,004 acres[1] (Planimetered from 1949 map in 1990) D.O.W. 14,310 acres
(11)Maximum Depth: 113 ft. Schupp's Lake Type: 22

(12)Littoral Acres: 5,849 acres[1] Percent Littoral: 41.77

(13)Length of Shoreline: 106.12 miles[2] Greatest length: 13.33 mile(s)

[1]Acreages planimetered from 1949 sounding map by the DNR Aquatic Plant Management program in 1990. That data is used in this assessment so that standardized area is used in various fisheries management programs.

[2] Length of shoreline does not include channel or dredged harbor shoreline distances. Islands are included in the total.

DISCUSSION

The 2010 Lake Minnetonka (27-0133-00) special assessment was conducted June 14th through July 3rd. Annual sampling began in 1997 following a 20-year period when the fish community was sampled every five years. Sampling in Lake Minnetonka is divided between aggregations of basins that differ in their habitat and water chemistry (Figure 1). The Northwest Bays are most fertile, as they are the first recipients of the majority of surface runoff from the watershed. The Upper Lakes are intermediate in fertility, while the Lower Lakes are least fertile (Figure 2).

Since 1997, special assessments have been conducted to assess trends in growth, condition, relative abundance, reproduction, and size structure of northern pike, walleye, and yellow perch. In order to effectively sample the aforementioned species, twenty-four experimental gillnets were set at 12 historic locations (24 hr sets; 2 net sets at each location with approximately 7-9 days between net sets (Table 1, Figure 3)). The 2010 gillnet assessment revealed a diverse fish community (17 species) dominated (based on lbs/gillnet) by northern pike (27.1 lbs/net), bluegill (14.1 lbs/net), and walleye (9.2 lbs/net) (Table 4).

Water Quality

Water quality trends (Table 2) in Lake Minnetonka indicate a positive change in average Secchi depth (Table 3) and anoxic depth (< 2 ppm DO; Table 3) over time. The trends in Secchi depth for all three basins are significantly positive (Linear Regression: Lower Lakes: $P = 0.006$; Upper Lakes: $P = 0.001$; Northwest Bays: $P = 0.024$, Figure 4), with the Lower Lakes showing the greatest improvement as evidenced by the highest slope. The same relationship is also true of historical anoxic depths in Lake Minnetonka (Linear Regression: Lower Lakes: $P = 0.007$; Upper Lakes: $P = 0.007$; Northwest Bays: $P = 0.037$, Figure 5).

Walleye

Lake Minnetonka is stocked with 6,446 pounds of fingerling walleye in even-numbered years. This equates to 1.1 lbs/littoral acre. Starting in the fall of 2010, walleye were and will continue to be stocked into all three basins of the lake. For more than 30 years, previous management limited walleye stocking locations to the Upper Lake and Lower Lake basins. Despite extensive stocking (Table 5), walleye abundance, as indicated by gillnet catch per unit effort, has remained at low levels (Tables 4, 6, 7). The 2010 catch of 2.9 fish/net is the lowest observed since 2006 and is below the previous 39-year average of 3.9 fish/net (Figure 6). Since 1970, 19 surveys have been conducted on Lake Minnetonka; of these, 12 had walleye catch rates below the first quartile (4.0 fish/net) for Class 22 lakes, including 2010. A comparison of northern pike and walleye catch rates suggests an inverse relationship (Figure 7). For example, the

historically second lowest walleye catch rate (1.5 fish/net) occurred in 2005, three years after the historically second highest northern pike catch rate (17.7 fish/net). The high northern pike catch rate in 2002 represents a large population of northern pike in Lake Minnetonka that could have preyed upon the walleye fingerlings stocked in that year. Since walleye are recruited to gillnets by age-3, this predation was evident three years later (2005) when they were large enough to be sampled. This relationship is also evident 1999 through 2001.

On an entire lake basis, walleye abundance is lower than previous years; however, catch rates differed by basin (Table 7). In Upper Lakes, there was an increase of one walleye per net (3.3/ gill net) from 2009 (2.3/gill net). In both Lower Lakes and the Northwest Bays there was a decrease in the number of walleye per net. In Lower lakes catch dropped from 4.3/gill net in 2009 to 3.5 /gill net in 2010. The difference in the Northwest Bays was a decrease in 2 walleye per net from 3.5/gill net in 2009 to 1.5 per gill net in 2010.

Walleye mean weight (3.16 lbs) was similar to 2009 and the highest observed since 1977 (3.27 lbs) (Table 8). Walleye mean weight in 2010 exceeded the third quartile, when compared to other Class 22 lakes (Table 4), and this has been the case 31 out of the past 33 years (Table 8). Mean weight was highest in the Northwest Bays (4.14 lbs, Table 24), followed by the Upper Lakes (3.38 lbs, Table 19), and the Lower Lakes (2.74 lbs, Table 29). The general trend over time has been for the largest walleyes to be located in the Northwest Bays, followed by Upper Lakes, then Lower Lakes. This is assumed to be related to the productivity of the basins. Historically, the condition of walleye in Lake Minnetonka has been good. Walleye relative weight has remained below the value of 100. A relative weight value of 100 indicates the 75^{th} percentile condition or plumpness (above average condition) for the species. In 2010, walleye relative weight (90) was near the average of the previous 13 years (92) (Table 18). There was no significant relationship with relative weight and fish length (Linear Regression: $df = 63$; $t = 0.89$; $P = 0.37$).

Walleye averaged 19.9 inches and ranged from 9.3 to 28.5 inches (Table 9). Similar to mean weight, mean length was highest within the Northwest Bays (22.2 inches, Table 27), followed by Upper Lakes (20.1 inches, Table 22), then Lower Lakes (19.1 inches, Table 32). Historically, size structure indices have revealed Lake Minnetonka's walleye population consists of larger individuals, and this was again observed in 2010 (N=70, Proportional Size Distribution (PSD) = 97, Relative Size Distribution-Preferred (RSD-P) = 51, Table 17). PSD was highest within the Northwest Bays (100), and Upper Lakes (100) followed by the Lower Lakes (94). The largest individual captured was an age-11, 28.5 inch, 9.5 pound female.

Aging walleyes using otoliths allowed year-class inferences to be made (Tables 10, 13, 16). Consistent with previous assessments, walleye natural reproduction is limited. In 2010, 11 out of 70 (15.7%) walleye originated from a non-stocked year-class (Table 5). This was an increase from 2009, where only 5.2 % were determined to be naturally reproduced. Similar to 2009, naturally produced fish

from the 2005 and 1999 year classes were present providing more evidence that some natural recruitment occurred in those years. Past assessments have documented natural recruitment from the 2003 and 1997 year-classes, as was the case again in 2010. The stocked 2004 and 2006 year-classes continue to be strong contributing to 55% of the walleye catch. However, the abundance of walleye in the 2004 year class was not as high as seen in previous years.

In 2009, a catch curve analysis estimated walleye total annual mortality at 27.5% (Figure 8) Ages 3, 5, and 7-9 were used to calculate the catch curve. Total annual mortality was derived from the slope of a linear regression of the number of fish sampled in each age class. Constant recruitment is one of the major assumptions in catch curve analysis; however, since the walleye population in Lake Minnetonka is dependent upon stocking in alternate years this assumption is violated. To address this problem, the gillnet age frequency data was adjusted to accommodate for the number of walleyes stocked in each age class. For example, 22 walleyes were captured from the 2006 year-class when 125,337 fish were stocked. The gillnet catch of 22 age-3 walleyes was divided by 125,337 (number stocked in that year). The resulting value was then entered into the catch curve analysis for the number of age-3 walleyes sampled.

Walleye growth in Lake Minnetonka was similar to other lakes in the West Metro management area and historic walleye growth in Lake Minnetonka. Walleye reached an average length of 13.5 inches by age 3 and 19.6 inches by age 6 (Table 13). Comparing basins, walleye grew fastest in the Northwest Bays (Tables 10, 28), followed by Lower lakes (Tables 10, 33), then Upper lakes (Table 10, Table 23).

Northern Pike

Consistent with recent assessments, northern pike were relatively high in abundance in 2010 (Table 4). The 2010 northern pike catch rate of 6.9 fish/net fell below the third quartile for the second time since 1987, the first was 2009 (Table 6). Northern pike gill net catch has decreased every year since the historical high of 17.7/ net in 2002 (Table 7). Northern pike catch rates in the Lower Lakes (7.8 fish/net, Table 29) exceeded catch rates in both the Northwest Bays (6.3 fish/net, Table 24) and Upper Lakes (6.1 fish/net, Table 19). Possibly due to decreasing abundance, mean northern pike length and weight in 2010 were the highest in recent history (Table 8). Mean weight (3.94 lbs) remained above the third quartile for class 22 lakes (Table 4). Sampled northern pike averaged 25.4 inches (range: 17.8-34.8, Table 9). Northern pike mean length was similar in all three basins (Northwest Bays = 25.5 inches, Table 27; Upper Lakes = 25.9 inches, Table 22; Lower Lakes = 25.0 inches, Table 32). Relative weight (92) was fair and near the historic average (88, Table 18). The largest individual captured was an age-7, 34.8 inch, 13.23 pound female.

Size structure indices revealed a balanced, quality pike population (PSD=85; RSD-P=22) with the best size structure found in the Northwest Bays (PSD=95) (Table 17). Size structure for the lake as a whole was the highest observed in history. The current northern pike population in Lake Minnetonka may offer

anglers the best chance at catching northern pike over 24 inches in the West Metro management area. The northern pike population lacks small "hammer handle" northern pike with most of the fish sampled between 20 and 29 inches (Table 9). Growth rates were near West Metro management area lake averages for the first four years and below average thereafter (Tables 11, 14, 16). On average, northern pike in Lake Minnetonka reach 20 inches by age 3 and 30 inches by age 8 (Table 14). Eight year-classes were sampled with the oldest individual age-9 (Table 16). In 2009, a catch curve analysis estimated northern pike total annual mortality at 36.1% (Figure 8). Ages 3-8 were used to calculate the catch curve.

Yellow Perch

Yellow perch relative abundance (17.3 fish/net) was near the median level (17.1 fish/net) for class 22 lakes (Table 4). The trend since 2000 has been for increasing yellow perch gillnet catch, with the 2010 catch setting a historical high (Table 7). Consistent with previous assessments, perch abundance was highest in the Northwest Bays (30.5/net) and lowest in the Lower Lakes (6.1/net). In the Upper Lakes, catch (21.5/net) was the highest since 1998 and three times higher than the 2009 assessment (Table 7).

Size structure indices (PSD = 3, Table 17) revealed a population consisting of small individuals (mean length = 6.6 inches, Table 9). Yellow perch size structure has been historically small in Lake Minnetonka with an average PSD of 3 since 1992 (Table 17). Yellow perch relative weight (90) was fair in 2010, similar to 2009, but low compared to a high of 102 in 2003 (Table 18). Relative weight decreased significantly with length (Linear Regression: (df = 102; t = -7.296; $P < 0.001$) indicating a resource bottleneck may be occurring for larger, older individuals. Similar to 2009, six year-classes were sampled in Lake Minnetonka with the oldest individual captured age-7 (Table 16). The 2004 year class that remained strong in the 3 previous assessments represented only 11% of the catch in 2010. The 2007 and 2006 year classes comprised 73% of the catch. Yellow perch growth in Lake Minnetonka was slower on average than other lakes in the West Metro management area (Table 15). Comparing basins, yellow perch grew fastest in the Northwest Bays until age 6 (Table 12, Table 28), then age 7 and 8 yellow perch grew fastest in the Lower Lakes (Table 12, Table 33). In 2009, a catch curve analysis estimated yellow perch total annual mortality at 46.5% (Figure 8). Ages 3-7 were used to calculate the catch curve.

Muskellunge

Muskellunge were not targeted during this assessment, but their population remains strong. Fish exceeding 50 inches and approaching 40 pounds are caught in Lake Minnetonka every year. Survival of stocked fingerling muskellunge is assumed to be very low due to the high abundance of largemouth bass and northern pike. Advanced fingerlings and yearlings have been used in recent years to try and improve the survival rate of stocked fish. A research study is currently taking place in Lake Minnetonka investigating the survival of stocked fingerling and yearling muskellunge. Stocked fish were tagged in 2008 and 2009

and will again be tagged in 2011. These fish were tagged with an external spaghetti-type tag near the dorsal fin. These tags are yellow in color and include a six-digit number. Angler reports of captured tagged muskellunge are essential to the success of this project. If you catch a tagged muskellunge please record the tag number and length of fish and report the catch via phone, email or the Tagged Fish Reporting page within the MNDNR website. Please DO NOT remove the tag. Please contact the West Metro Fisheries Office with questions. Practicing CPR (Catch, Photo, and Release) is essential to maintaining the trophy muskellunge fishery found in Lake Minnetonka.

Other Fish

Bluegill and black crappie are abundant in Lake Minnetonka; however, gill nets are not reliable indicators of their relative abundance (Table 4). Natural reproduction and high recruitment of these species will ensure quality angling opportunities.

The largemouth bass fishery in Lake Minnetonka has a reputation for quality fishing. Numerous bass tournaments are held on the lake every year. A nighttime electrofishing assessment was performed during May 2008 targeting largemouth bass. The sandy shorelines and abundant docks and marinas of Lake Minnetonka make sampling challenging. Two hundred four largemouth bass were sampled with an average length and weight of 13.5 inches and 1.5 lbs. Forty-eight percent of the largemouth bass exceeded 14 inches, and 13% exceeded 3.0 lbs. Largemouth bass were largest on average in the Lower Lakes (14.1 inches, 1.9 lbs), followed by the Northwest Bays (13.3 inches, 1.5 lbs) and Upper Lakes (12.9 inches, 1.3 lbs). Catch rates expressed as number caught per hour were also highest in the Lower Lakes (86/hr), followed by the Northwest Bays (72/hr) and Upper Lakes (60/hr). These catch rates are above average for area lakes. Another largemouth assessment is scheduled for spring 2011.

Black bullhead, bowfin (dogfish), common carp, green sunfish, hybrid sunfish, pumpkinseed sunfish, rock bass, white sucker, and yellow bullhead were also captured in low numbers during the 2010 assessment (Table 4). Rock bass were only captured in the Lower Lakes. Smallmouth bass are found in Lake Minnetonka, but their numbers remain low.

Invasive Species

Eurasian water milfoil and curly leaf pondweed are found in high abundance throughout the lake and in 2010 zebra mussels and flowering rush were found to be present for the first time. Lake Minnetonka receives heavy recreational use so the potential for the spread of invasive species into and out of the lake is high. Anglers and boaters should take the precautions necessary to prevent the further spread of all invasive species.

The shoreline and watershed of Lake Minnetonka is highly developed and puts stress on the lake's

aquatic habitat and ecosystem integrity. Large docks, boating platforms, and man-made beaches have the potential to destroy vital habitat for fish and wildlife. Environmentally friendly development practices, such as shoreline buffer strips of natural vegetation, are necessary to maintain the current water quality of Lake Minnetonka. Shoreline development, invasive species, and the fish diseases Viral Hemorrhagic Septicemia (VHS) and Largemouth Bass Virus should be a concern to all Minnesotans who enjoy lake recreation.

Status of the Fishery

The 2010 Lake Minnetonka (27-0133-00) special assessment was conducted June 14th through July 3rd. Annual sampling began in 1997 following a 20-year period when the fish community was sampled every five years. Sampling in Lake Minnetonka is divided between aggregations of basins that differ in their habitat and water chemistry. The Northwest Bays are most fertile, as they are the first recipients of the majority of surface runoff from the watershed. The Upper Lakes are intermediate in fertility, while the Lower Lakes are least fertile.

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Water Quality

Water quality trends in Lake Minnetonka indicate a positive change in average Secchi depth and anoxic depth (< 2 ppm Dissolved Oxygen) over time. The trends in Secchi depth for all three basins are significantly positive, with the Lower Lakes showing the greatest improvement. The same relationship is also true of historical anoxic depths.

Walleye

Lake Minnetonka is stocked with 6,446 pounds of fingerling walleye in even-numbered years. This equates to 1.1 lbs/littoral acre. Starting in the fall of 2010, walleye were and will continue to be stocked into all three basins of the lake. For more than 30 years, previous management limited walleye stocking locations to the Upper Lake and Lower Lake basins. Despite extensive fingerling stocking effort, walleye abundance, as indicated by gill net catch per unit effort, has remained at low levels . The 2010 catch of 2.9 fish/net is the lowest observed since 2006 and is below the previous 39-year average of 3.9 fish/net. Since 1970, 19 surveys have been conducted on Lake Minnetonka; of these, 12 had walleye catch rates below 4.0 fish/net. A comparison of northern pike and walleye catch rates suggest the two may be inversely related . For example, the historically second lowest walleye catch rate (1.5 fish/net) occurred in 2005, three years after the historically second highest northern pike catch rate (17.7 fish/net). The high northern pike catch rate in 2002 represents a large population of northern pike in Lake Minnetonka that could have preyed upon

the walleye fingerlings stocked in that year. Since walleye are recruited to gillnets by age-3, this predation was evident three years later (2005) when they were large enough to be sampled. This relationship is also evident 1999 through 2001.

On an entire lake basis, walleye abundance is lower than previous years; however, catch rates differed by basin. In Upper Lakes, there was an increase of one walleye per net (3.3/ gill net) from 2009 (2.3/gill net). In both Lower Lakes and the Northwest Bays there was a decrease in the number of walleye per net. In Lower lakes catch dropped from 4.3/gill net in 2009 to 3.5 /gill net in 2010. The difference in the Northwest Bays was a decrease in 2 walleye per net from 3.5/gill net in 2009 to 1.5 per gill net in 2010.

Walleye mean weight (3.16 lbs) was similar to 2009 and the highest observed since 1977 (3.27 lbs). Walleye mean weight in 2010 was high when compared to other similar lakes, and this has been the case 31 out of the past 33 years. Mean weight was highest in the Northwest Bays (4.14 lbs), followed by the Upper Lakes (3.38 lbs), and the Lower Lakes (2.74 lbs). The general trend over time has been for the largest walleyes to be located in the Northwest Bays, followed by Upper Lakes, then Lower Lakes. This is assumed to be related to the productivity of the basins. Historically, the condition of walleye in Lake Minnetonka has been good. Walleye relative weight has remained below the value of 100. A relative weight value of 100 indicates the 75th percentile condition or plumpness (above average condition) for the species. In 2010, walleye relative weight (90) was near the average of the previous 13 years (92). There was no significant relationship with relative weight and fish length.

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Aging walleyes using otoliths allowed year-class inferences to be made. Consistent with previous assessments, walleye natural reproduction is limited. In 2010, 11 out of 70 (15.7%) walleye originated from a non-stocked year-class. This was an increase from 2009, where only 5.2 % were determined to be naturally reproduced. Similar to 2009, naturally produced fish from the 2005 and 1999 year classes were present providing more evidence that some natural recruitment occurred in those years. Past assessments have documented natural recruitment from the 2003 and 1997 year-classes, as was the case again in 2010. The stocked 2004 and 2006 year-classes continue to be strong contributing to 55% of the walleye catch. However, the abundance of walleye in the 2004 year class was not as high as seen in previous years.

In 2009, a catch curve analysis estimated walleye total annual mortality at 27.5%. Ages 3, 5, and 7-9 were used to calculate the catch curve. Total annual mortality was derived from the slope of a linear

regression of the number of fish sampled in each age class. Constant recruitment is one of the major assumptions in catch curve analysis; however, since the walleye population in Lake Minnetonka is dependent upon stocking in alternate years this assumption is violated. To address this problem, the gillnet age frequency data was adjusted to accommodate for the number of walleyes stocked in each age class. For example, 22 walleyes were captured from the 2006 year-class when 125,337 fish were stocked. The gillnet catch of 22 age-3 walleyes was divided by 125,337 (number stocked in that year). The resulting value was then entered into the catch curve analysis for the number of age-3 walleyes sampled.

Walleye growth in Lake Minnetonka was similar to other lakes in the West Metro management area and historic walleye growth in Lake Minnetonka. Walleye reached an average length of 13.5 inches by age 3 and 19.6 inches by age 6. Comparing basins, walleye grew fastest in the Northwest Bays , followed by Lower Lakes, then Upper Lakes .

Northern Pike

Consistent with recent assessments, northern pike were relatively high in abundance (6.9 fish/net) in 2010 compared with other similar lakes. However, northern pike gill net catch has decreased every year since the historical high of 17.7/ net in 2002. Northern pike catch rates in the Lower Lakes (7.8 fish/net) exceeded catch rates in both the Northwest Bays (6.3 fish/net) and Upper Lakes (6.1 fish/net). Possibly due to decreasing abundance, mean northern pike length and weight in 2010 was the highest in recent history. Sampled northern pike averaged 25.4 inches (range: 17.8-34.8 inches) and 3.9 lbs. Northern pike mean length was similar in all three basins (Northwest Bays = 25.5 inches; Upper Lakes = 25.9 inches; Lower Lakes = 25.0 inches). Relative weight (92) was fair and near the historic average (88). The largest individual captured was an age-7, 34.8 inch, 13.23 pound female.

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Yellow Perch

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Size structure indices revealed a population consisting of small individuals (mean length = 6.6 inches). Yellow perch size structure has been historically small in Lake Minnetonka. Yellow perch relative weight (90) was fair in 2010, similar to 2009, but low compared to a high of 102 in 2003. Relative weight decreased significantly with length indicating a resource bottleneck may be occurring for larger, older individuals. Similar to 2009, six year-classes were sampled in Lake Minnetonka with the oldest individual captured age-7. The 2004 year class that remained strong in the 3 previous assessments represented only 11% of the catch in 2010. The 2007 and 2006 year classes comprised 73% of the catch. Yellow perch growth in Lake Minnetonka was slower on average than other lakes in the West Metro management area. Comparing basins, yellow perch grew fastest in the Northwest Bays until age 6, then age 7 and 8 yellow perch grew fastest in the Lower Lakes. In 2009, a catch curve analysis estimated yellow perch total annual mortality at 46.5%. Ages 3-7 were used to calculate the catch curve.

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Other Fish

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bass tournaments are held on the lake every year. A nighttime electrofishing assessment was performed during May 2008 targeting largemouth bass. The sandy shorelines and abundant docks and marinas of Lake Minnetonka make sampling challenging. Two hundred four largemouth bass were sampled with an average length and weight of 13.5 inches and 1.5 lbs. Forty-eight percent of the largemouth bass exceeded 14 inches, and 13% exceeded 3.0 lbs. Largemouth bass were largest on average in the Lower Lakes (14.1 inches, 1.9 lbs), followed by the Northwest Bays (13.3 inches, 1.5 lbs) and Upper Lakes (12.9 inches, 1.3 lbs). Catch rates expressed as number caught per hour were also highest in the Lower Lakes (86/hr), followed by the Northwest Bays (72/hr) and Upper Lakes (60/hr). These catch rates are above average for area lakes. Another largemouth assessment is scheduled for spring 2011.

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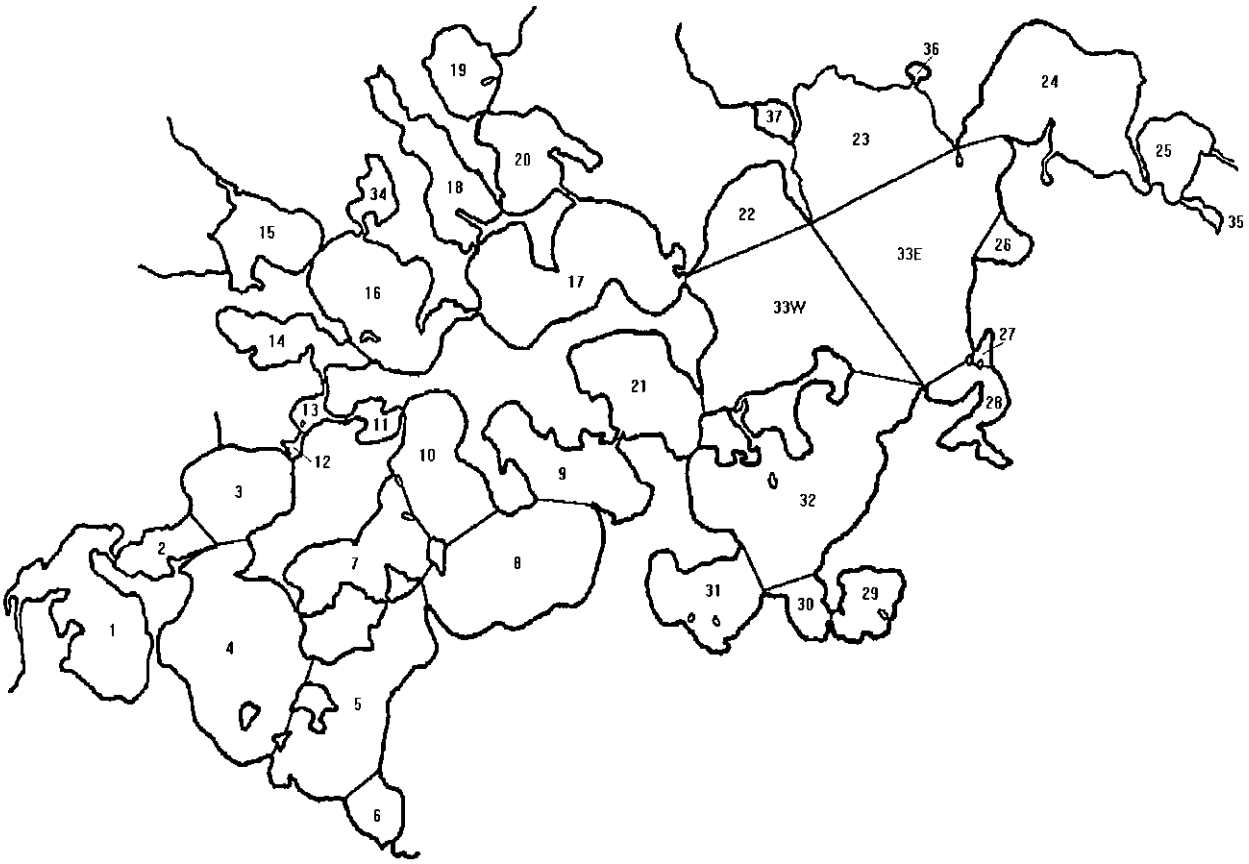
The shoreline and watershed of Lake Minnetonka is highly developed and puts stress on the lake's aquatic habitat and ecosystem integrity. Large docks, boating platforms, and man-made beaches have the potential to destroy vital habitat for fish and wildlife. Environmentally friendly development practices, such as shoreline buffer strips of natural vegetation, are necessary to maintain the current water quality of Lake Minnetonka. Shoreline development, invasive species, and the fish diseases Viral Hemorrhagic Septicemia (VHS) and Largemouth Bass Virus should be a concern to all Minnesotans who enjoy lake recreation.

Figure 1: ***Location and numbering of individual sampling bays on Lake Minnetonka.***



KEY TO NUMBERED BAYS OF LAKE MINNETONKA (27-0133)

1 Halsted's Bay
2 Priest's Bay
3 Cook's Bay
4 West Upper Lake
5 South Upper Lake
6 Smithtown Bay
7 Phelp's Bay
8 East Upper Lake
9 Carman's/Old Channel Bay
10 Spring Park Bay
11 Black Lake
12 Emerald Lake
13 Seton Lake
14 Harrison's Bay
15 Jenning's Bay
16 West Arm Bay
17 Crystal Bay
18 North Arm Bay19 Stubb's Bay
20 Maxwell Bay
21 Lafayette Bay
22 Smith's Bay
23 Brown's Bay
24 Wayzata Bay
25 Gray's Bay
26 Robinson's Bay
27 St. Louis Bay
28 Carsons Bay
29 St. Alban's Bay
30 Excelsior Bay
31 Gideon's Bay
32 South Lower Lake & Echo Bay
33W North Lower Lake (West half)
33E North Lower Lake (East half)
34 Forest Lake (27-0139)
35 Libb's Lake (27-0085)
36 Peavy Lake (27-0138)
37 Tanager Lake (27-0141)

Lake: MINNETONKA

Bay/Basin: ENTIRE LAKE

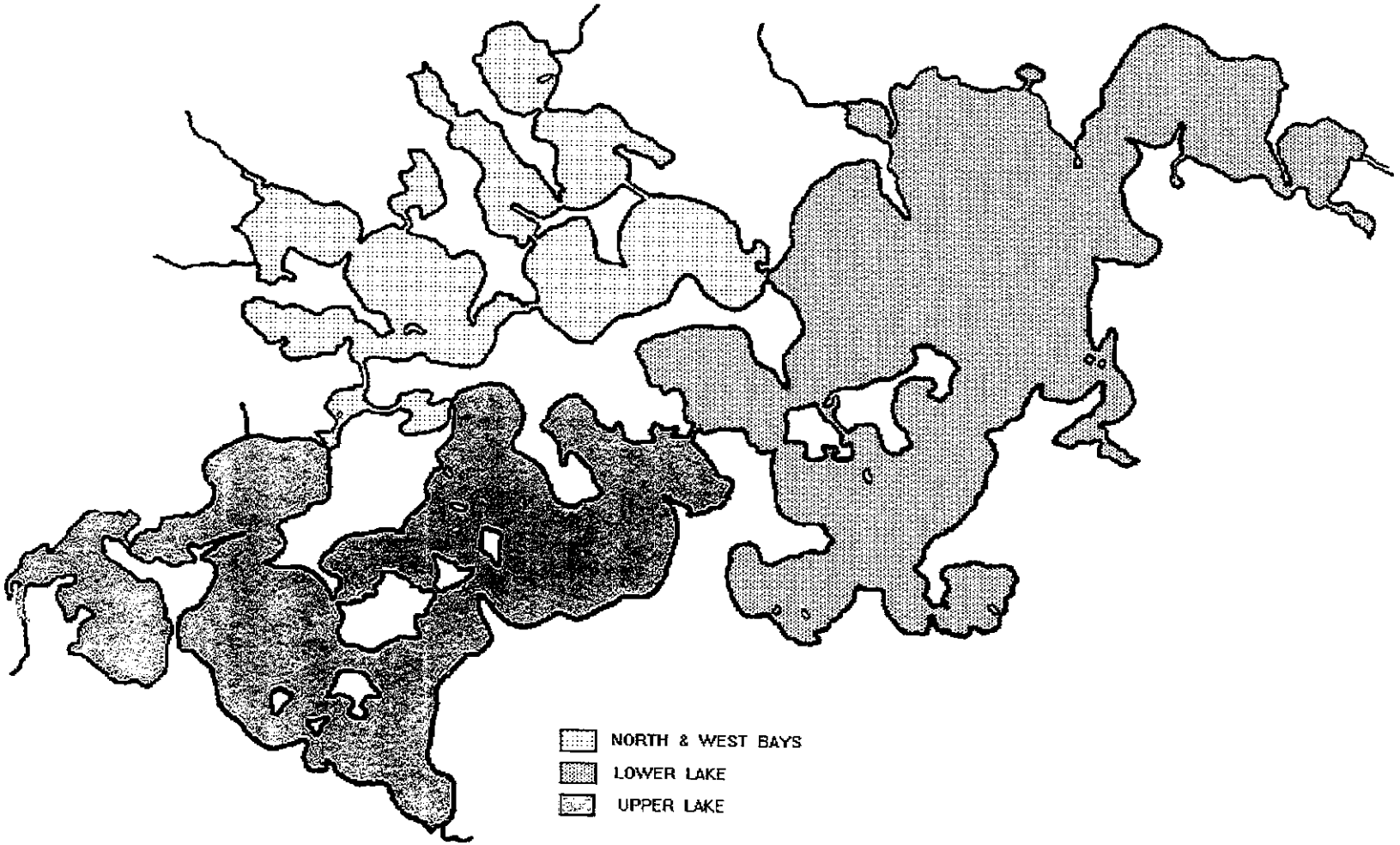


Figure 2: *Location of the three major sampling basins of Lake Minnetonka.*

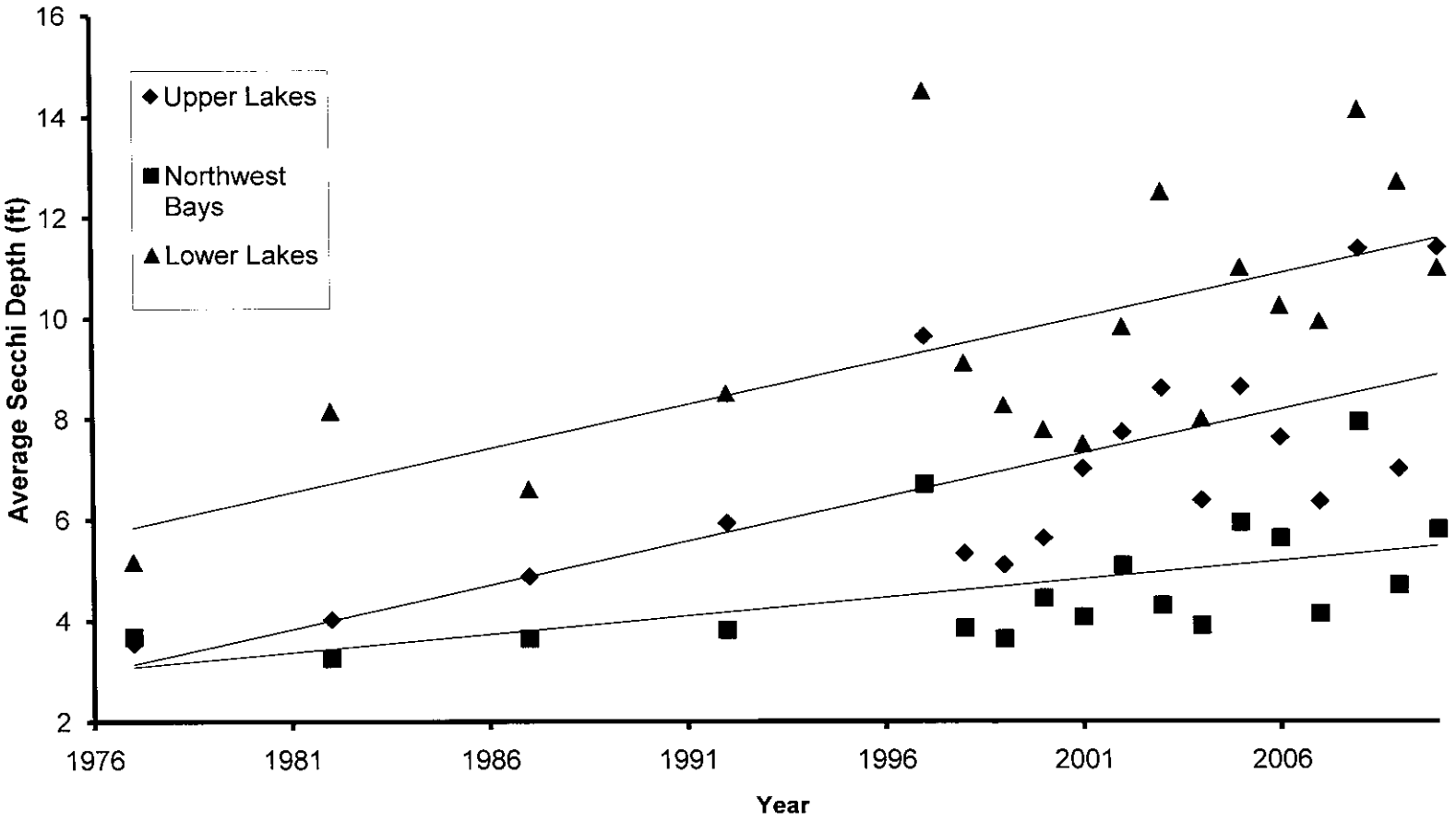


Figure 4. Average Secchi Depth Readings in the Three Basins of Lake Minnetonka, 1977-2010.

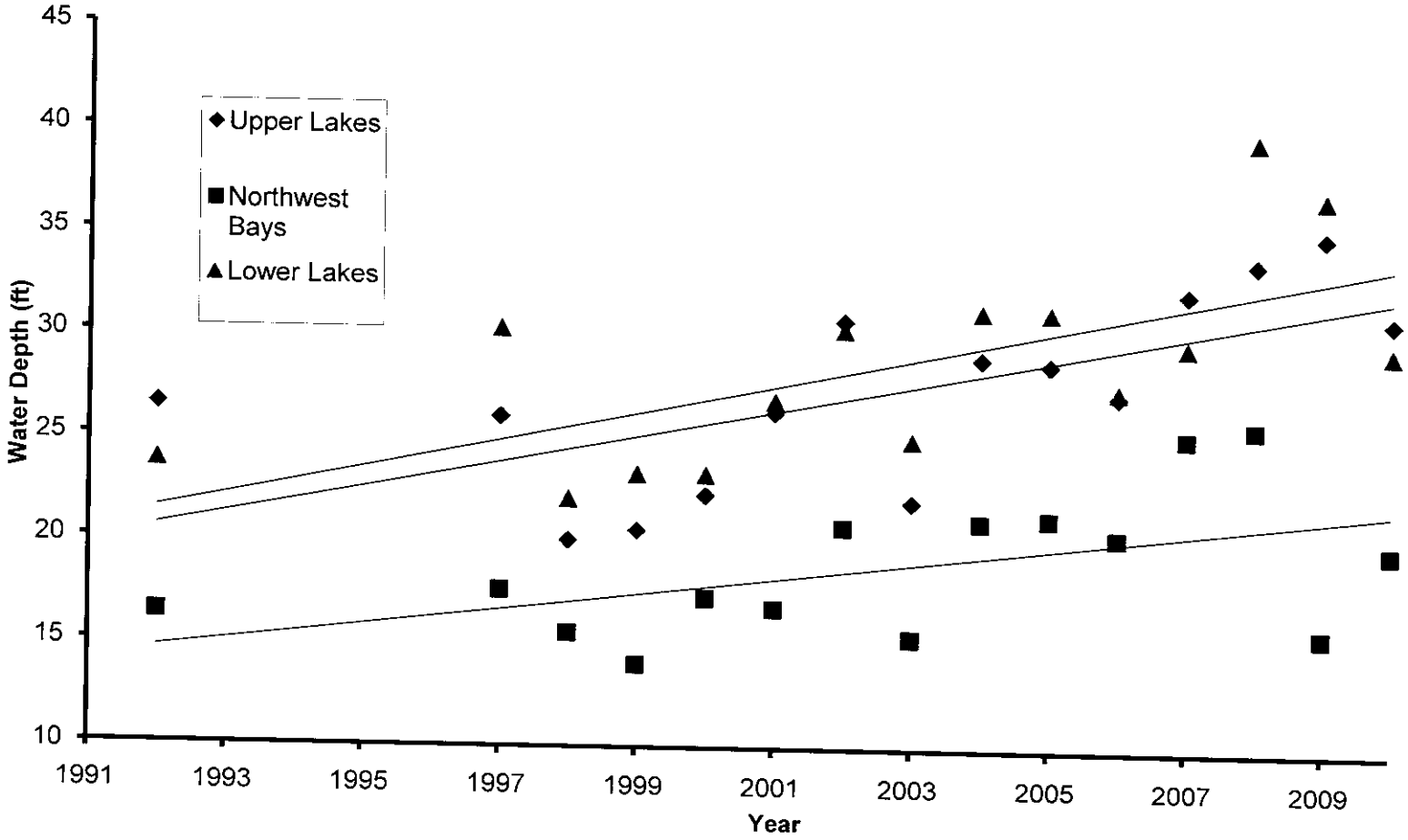


Figure 5. Average Minimum Water Depth in the Three Basins of Lake Minnetonka Where Dissolved Oxygen is Below 2.0 Parts per Million, 1992-2010.

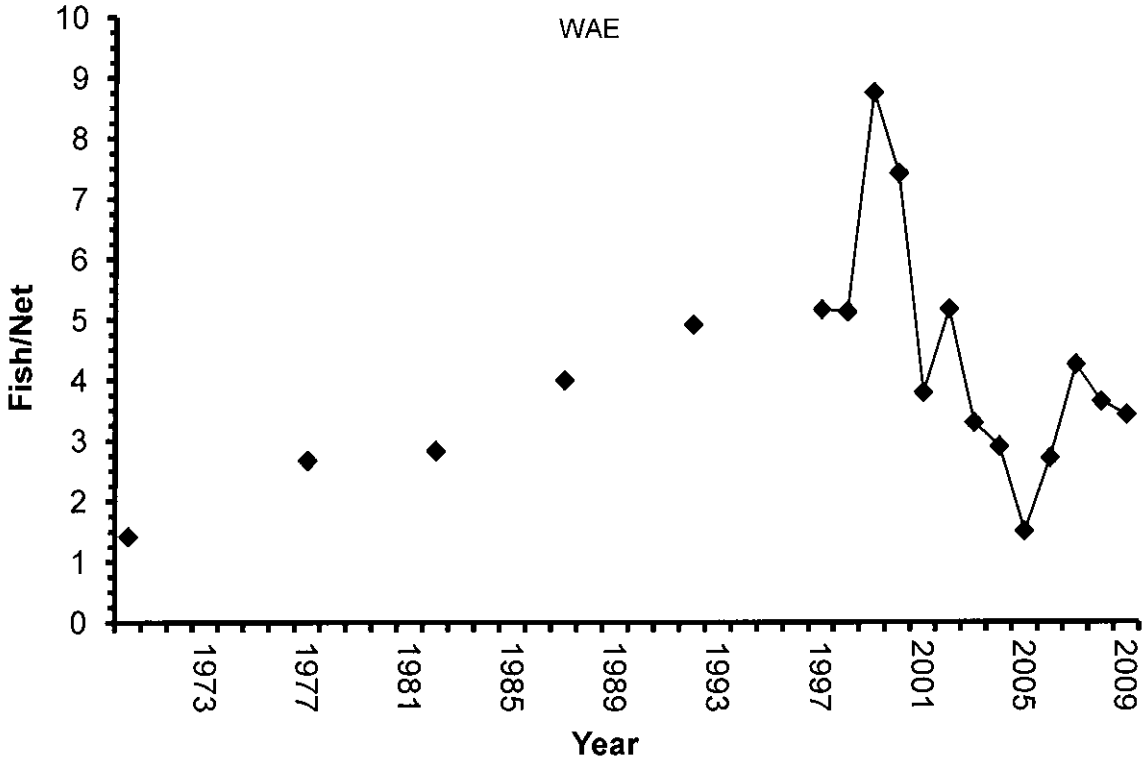


Figure 6. Historic walleye gillnet catch rates from common nets in Lake Minnetonka, Hennepin County, 1970-2009. The walleye stocking rate doubled in Lake Minnetonka in 2001, but resumed 1.1/ littoral acre thereafter.

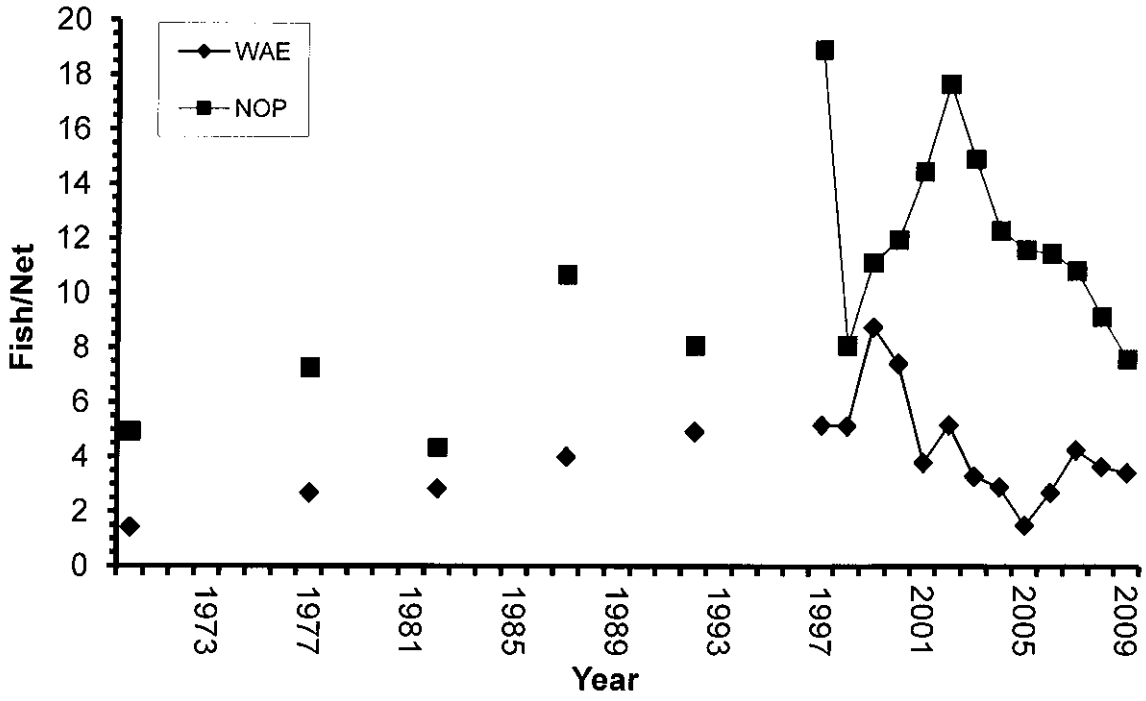


Figure 7. Historic northern pike (NOP) and walleye (WAE) gillnet catch rates from common nets in Lake Minnetonka, Hennepin County, 1970-2009. The walleye stocking rate doubled in Lake Minnetonka in 2001, but resumed 1.1/ littoral acre thereafter.

Species	Vital Rate		
	Z	S	A
Walleye	0.322	0.725	0.275
Northern pike	0.447	0.639	0.361
Yellow perch	0.626	0.535	0.465

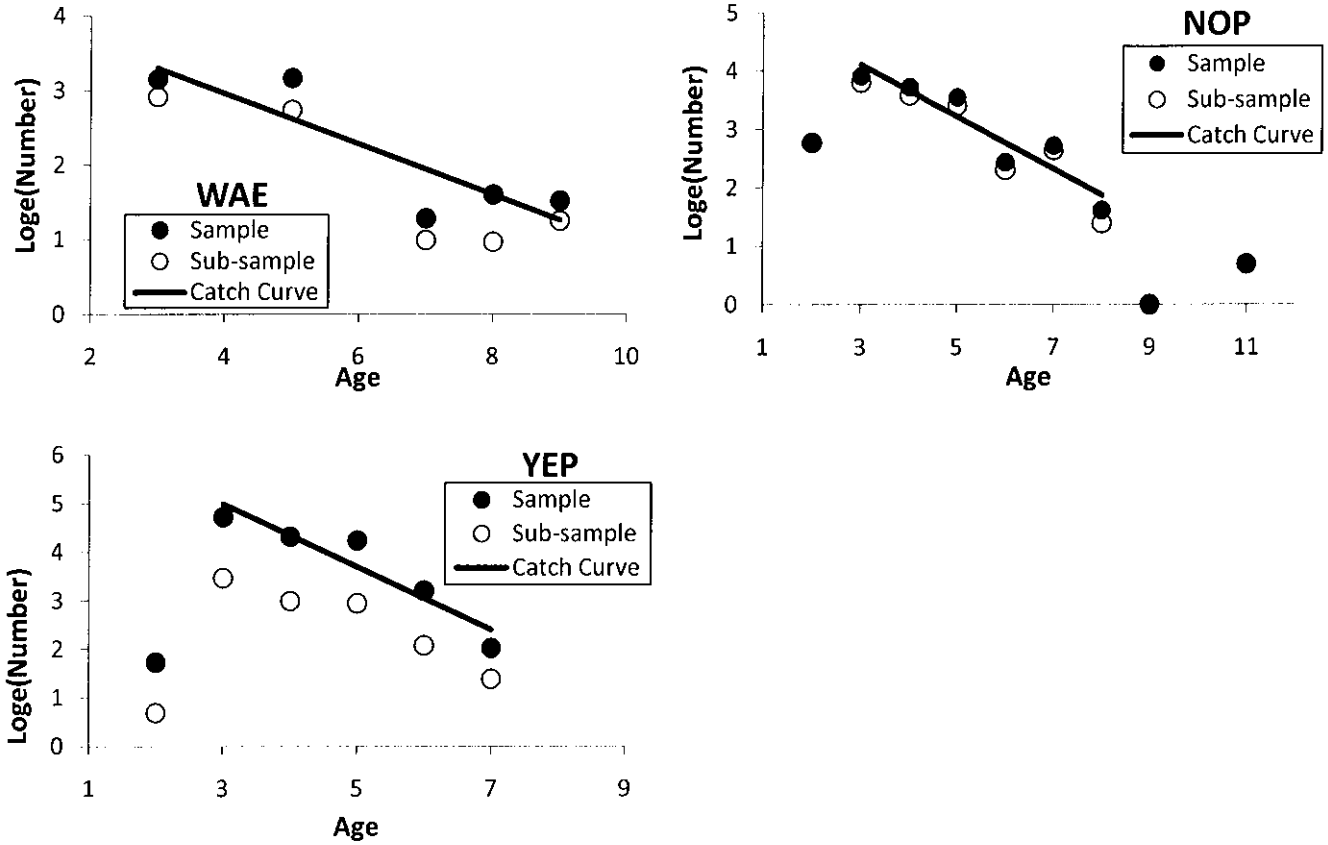


Figure 8. Instantaneous total mortality (Z), annual survival (S), and annual mortality (A) of walleye, northern pike and yellow perch derived from gillnets in Lake Minnetonka, Hennepin County, Minnesota in 2009.

Lake: Minnetonka
Bay/Basin: Entire Lake

Table 2. Physical Parameters and Sampling Effort, by Basin

Bay/Basin	Lake Section	Surface Area	Littoral Acres	Percent Littoral	Maximum Depth	Miles of Shoreline	Lake Class	2010 Effort Gill Nets
Halsted's	1	545	322	59	36	5.36	24	0
Priest's	2	138	76	55	34	1.75	24	0
Cook's	3	362	131	36	43	2.29	24	0
West Upper	4	379	193	51	84	5.62	27	2
South Upper	5	710	320	45	67	4.95	27	2
Smithtown	6	114	33	29	88	1.22	24	0
Phelp's	7	379	272	72	36	3.81	24	0
East Upper	8	783	261	33	52	3.33	27	4
Carman's	9	403	187	46	56	3.14	24	0
Spring Park	10	402	141	35	36	2.67	24	0
Upper Lake Total		**4215**	**1936**	**46**	**84**	**34.14**	**22**	**8**
Black Lake	11	80	64	80	24	1.81	38	0
Emerald Lake	12	15	14	93	16	1.02	40	0
Seton Lake	13	44	41	93	24	1.24	38	0
Harrison's	14	211	183	87	46	3.61	38	2
Jenning's	15	285	174	61	23	3.05	24	0
West Arm	16	577	383	66	44	4.60	24	2
Crystal	17	800	285	36	113	6.10	27	2
North Arm	18	307	186	61	64	4.57	24	0
Stubb's	19	195	104	53	37	2.25	24	0
Maxwell	20	300	175	58	44	3.43	24	0
Forest Lake	34	84	49	58	42	1.72	30	0
NW Bays Total		**2898**	**1658**	**57**	**113**	**33.40**	**22**	**6**
Lafayette	21	460	195	42	62	3.47	24	0
Smith's	22	262	244	93	20	1.71	38	0
Brown's	23	648	209	32	88	3.05	27	2
Wayzata	24	751	198	26	63	3.33	27	2
Gray's	25	175	127	73	28	2.19	30	0
Robinson's	26	90	27	30	70	0.86	24	0
St. Louis	27	22	12	55	42	0.48	30	0
Carson's	28	173	108	62	64	2.74	24	0
St. Alban's	29	164	102	62	44	2.19	24	0
Excelsior	30	123	79	64	34	1.14	30	0
Gideon's	31	350	150	43	56	3.14	24	0
South Lower	32	1069	310	29	77	7.53	27	2
Northeast Lower	33E	1010	190	19	96	1.62	27	2
Northwest Lower	33W	1008	240	24	73	2.38	27	2
Libb's Lake	35	23	23	100	8	1.11	40	0
Peavy Lake	36	9	3	33	63	0.57	30	0
Tanager Lake	37	54	38	70	23	1.07	30	0
Lower Lake Total		**6391**	**2255**	**35**	**96**	**38.58**	**22**	**10**

Lake: Minnetonka
Bay/Basin: Entire Lake

Table 3. Secchi Depth and Minimum Depth Where Dissolved Oxygen is Below 2.0 Parts Per Million (see next page)

2001 - 2003 data were collected by Hennepin Parks, while previous data were collected by MN DNR Fisheries. Samples were taken in the last week of June or the first week of July, except 1992 when samples were taken at the time that gill nets were set.

Bay/Basin	Secchi Depth (feet)																	
	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1992	1987	1982	197
Halsted's	7.0	2.4	9.5	1.9	3.5	3.5	2.0	1.6	4.9	4.9	2.5	2.9	3.4	5.4	4.0	2.0	2.0	2.2
Cook's	11.0	7.2	10.5	7.0	7.5	7.0	5.0	6.2	6.6	7.2	6.0	5.0	4.2	9.8	4.9	4.5	4.2	2.9
West Upper	11.0	7.5	13.0	8.0	10.0	12.0	9.0	16.4	8.9	6.6	6.5	5.6	5.8	12.2	6.5	5.5	3.9	4.2
Spring Park	16.5	10.8	12.5	8.5	9.5	12.0	9.5	10.2	10.5	9.2	7.5	6.9	7.9	11.2	8.3	7.5	6.0	4.9
Upper Lk Avg.	**11.4**	**7.0**	**11.4**	**6.4**	**7.6**	**8.6**	**6.4**	**8.6**	**7.7**	**7.0**	**5.6**	**5.1**	**5.3**	**9.6**	**5.9**	**4.9**	**4.0**	**3.**
Harrison's	4.0	2.5	7.0	--	4.5	6.5	3.0	3.0	3.3	3.2	2.8	2.7	2.1	4.2	2.3	6.4	1.9	2.6
Jenning's	3.0	1.8	6.5	2.9	3.5	6.0	3.0	3.0	4.3	2.6	2.5	2.5	2.1	5.3	2.1	2.3	4.2	2.5
West Arm	4.0	2.1	--	3.8	5.5	6.0	3.0	3.3	5.2	3.6	3.5	2.9	2.0	4.9	2.4	2.5	3.2	3.0
Crystal	11.0	11.0	12.0	6.3	8.5	7.0	6.8	8.2	5.9	6.1	6.3	5.0	5.5	10.6	5.6	4.5	3.1	7.0
North Arm	8.0	8.0	10.5	6.0	9.5	6.5	5.5	5.9	6.9	6.9	8.0	6.9	7.5	9.9	6.0	4.4	--	5.0
Stubb's	5.0	3.1	4.0	4.5	3.5	4.5	3.0	3.3	4.6	3.0	3.0	2.0	3.6	3.9	3.6	2.6	2.9	2.3
Maxwell	8.0	7.5	9.0	4.0	6.0	6.0	4.0	4.9	5.6	3.6	6.0	5.0	5.0	5.9	5.5	3.3	4.9	4.5
Forest Lake	3.0	1.5	6.5	1.5	4.0	5.0	3.0	3.0	4.9	3.6	3.5	2.1	3.0	8.9	3.0	3.2	2.6	2.6
NW Bays Avg.	**5.8**	**4.7**	**7.9**	**4.1**	**5.6**	**5.9**	**3.9**	**4.3**	**5.1**	**4.1**	**4.4**	**3.6**	**3.9**	**6.7**	**3.8**	**3.7**	**3.3**	**3.**
Wayzata	11.0	13.7	16.0	8.8	12.0	14.0	10.0	12.5	10.5	6.7	9.0	8.5	8.1	14.9	10.0	9.0	6.3	7.3
St. Alban's	13.0	14.4	17.0	12.0	13.0	12.0	9.0	14.1	13.1	9.5	9.9	9.0	11.7	16.0	6.0	--	--	-
Lower Lake So.	14.0	13.7	14.0	9.0	11.0	12.0	9.0	18.4	10.5	6.6	8.9	9.6	9.6	16.0	12.0	7.5	10.0	6.5
Peavy	6.0	9.1	9.5	--	5.0	6.0	4.0	4.9	5.2	7.2	3.3	6.0	7.0	11.1	6.0	3.3	--	1.7
Lower Lk Avg.	**11.0**	**12.7**	**14.1**	**9.9**	**10.3**	**11.0**	**8.0**	**12.5**	**9.8**	**7.5**	**7.8**	**8.3**	**9.1**	**14.5**	**8.5**	**6.6**	**8.2**	**5.**

Lake: Minnetonka
Bay/Basin: Entire Lake

Table 3 (continued). Secchi Depth and Minimum Depth Where Dissolved Oxygen is Below 2.0 Parts Per Million

2001 - 2003 data were collected by Hennepin Parks, while previous data were collected by MN DNR Fisheries. Samples were taken in the last week of June or the first week of July, except 1992 when samples were taken at the time that gill nets were set.

Bay/Basin	Depth (ft.) of D.O. < 2.0 ppm.											
	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999
Halsted's	18.0	19.7	22.0	18.0	20.0	20.0	16.0	13.0	16.4	20.0	15.0	17.0
Cook's	27.0	42.0	28.0	29.0	27.0	30.0	25.0	23.0	27.9	23.0	23.0	23.0
West Upper	47.0	52.5	54.0	54.0	38.0	36.0	49.0	26.0	50.8	36.0	29.0	21.0
Spring Park	32.0	26.0	31.0	28.0	24.0	29.0	26.0	26.0	27.9	26.2	22.0	21.0
Upper Lk Avg.	**31.0**	**35.1**	**33.8**	**32.3**	**27.3**	**28.8**	**29.0**	**22.0**	**30.8**	**26.3**	**22.3**	**20.5**
Harrison's	16.0	11.5	19.0	16.0	15.0	17.0	19.4	13.0	14.8	13.1	14.0	12.0
Jenning's	16.0	12.5	19.0	14.0	16.0	14.0	13.0	13.0	14.8	13.1	19.0	13.0
West Arm	20.0	13.5	25.0	22.0	23.0	22.0	20.0	13.0	19.7	19.7	18.0	17.0
Crystal	36.0	28.5	71.0	75.0	35.0	40.0	45.0	26.0	51.0	26.0	27.0	17.0
North Arm	24.0	19.0	21.0	23.0	24.0	22.0	20.0	16.0	21.3	16.4	19.0	15.0
Stubb's	14.0	14.0	17.0	16.0	16.0	22.0	20.0	16.0	14.8	13.1	12.0	11.0
Maxwell	18.0	16.5	21.0	22.0	20.0	22.0	20.0	16.0	18.0	19.7	18.0	17.0
Forest Lake	14.0	10.0	13.0	14.0	14.0	11.0	11.0	10.0	11.5	13.1	11.0	10.0
NW Bays Avg.	**19.8**	**15.7**	**25.8**	**25.3**	**20.4**	**21.3**	**21.1**	**15.4**	**20.7**	**16.8**	**17.3**	**14.0**
Wayzata	32.0	39.4	36.0	13.0	30.0	42.0	40.0	30.0	32.8	32.0	28.0	28.0
St. Alban's	32.0	36.5	29.0	36.0	30.0	35.0	40.0	30.0	31.2	32.8	27.0	24.0
Lower Lake So.	46.0	55.8	58.0	40.0	35.0	33.0	35.0	33.0	49.2	32.8	32.0	32.0
Peavy	8.0	16.4	36.0	--	15.0	15.0	10.0	7.0	8.2	9.8	6.0	9.0
Lower Lk Avg.	**29.5**	**37.0**	**39.8**	**29.7**	**27.5**	**31.3**	**31.3**	**25.0**	**30.4**	**26.9**	**23.3**	**23.3**

Lake: Minnetonka
Bay/Basin: Entire Lake

Table 4. 2010 Gill Net Catch Summary

250 Foot Experimental Gill Nets
Number of net sets: 24
First net set on: 6-14-10
Last net set on: 7-02-10
Target species: Northern Pike, Walleye, Yellow Perch

	Summary by Numbers					Summary by Weight (lbs.)					
	Total	Number	Lake Class 22 Quartiles			Total	Pounds	Mean	Lake Class 22 Quartiles		
Species	No.	Per Set	25%	50%	75%	Pounds	Per Set	Weight	25%	50%	75%
Black Bullhead	7	**0.29**	0.46	1.63	4.11	4.78	0.20	**0.68**	0.55	0.70	0.95
Black Crappie	120	**5.00**	0.22	0.42	1.14	29.33	1.22	**0.24**	0.24	0.38	0.55
Bluegill	2070	**86.25**	N/A	N/A	N/A	338.84	14.12	**0.16**	N/A	N/A	N/A
Bowfin	1	**0.04**	0.08	0.13	0.24	5.29	0.22	**5.29**	3.01	4.13	5.18
Common Carp	2	**0.08**	0.13	0.30	0.46	22.35	0.93	**11.18**	3.11	5.21	7.10
Golden Shiner	0	**0.00**	0.06	0.11	1.63	0.00	0.00	**0.00**	0.09	0.12	0.15
Green Sunfish	17	**0.71**	0.11	0.20	0.46	1.19	0.05	**0.07**	N/A	N/A	N/A
Hybrid Sunfish	16	**0.67**	N/A	N/A	N/A	2.13	0.09	**0.13**	N/A	N/A	N/A
Largemouth Bass	2	**0.08**	0.25	0.62	1.20	0.42	0.02	**0.21**	0.55	0.77	1.05
Muskellunge	2	**0.08**	0.10	0.14	0.29	31.54	1.31	**15.77**	3.06	3.82	5.25
Northern Pike	165	**6.88**	3.00	5.00	7.89	650.43	27.10	**3.94**	1.68	2.25	2.80
Pumpkinseed	26	**1.08**	N/A	N/A	N/A	2.52	0.11	**0.10**	N/A	N/A	N/A
Rock Bass	27	**1.13**	1.00	2.93	6.63	7.41	0.31	**0.27**	0.30	0.41	0.52
Walleye	70	**2.92**	4.01	6.61	9.63	221.07	9.21	**3.16**	1.12	1.43	1.90
White Sucker	1	**0.04**	1.02	2.00	3.49	0.26	0.01	**0.26**	1.52	1.89	2.28
Yellow Bullhead	3	**0.13**	0.65	2.59	6.43	1.87	0.08	**0.62**	0.62	0.75	0.95
Yellow Perch	416	**17.33**	7.06	17.14	33.87	53.40	2.23	**0.13**	0.12	0.15	0.21

Total fish per set: 122.71 Total pounds per set: 57.20

Lake: Minnetonka
Bay/Basin: Entire Lake

Table 5. Stocking History and Walleye Year Class Strength from 2010 Gill Net Sample

Walleye Stocked																			
Year	**2010**	**2009**	**2008**	**2007**	**2006**	**2005**	**2004**	**2003**	**2002**	**2001**	**2000**	**1999**	**1998**	**1997**	**1996**	**1995**	**1994**	**1993**	**1992**
Fingerlings	101,533		126,124		125,337		123,456		111,603	329,318	66,811		143,238		106,345		85,257		24,141
Yearlings						12,441				19,051		5,975					2,160		2,741
Adults																	273		556
Pounds	6,442		6,448		6,450	1,164	5,346		6,407	11,608	3,651	2,505	6,459		3,975		4,278		3,523
Walleye Sampled																			
Age	**0**	**I**	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII**	**IX**	**X**	**XI**	**XII**	**XIII**	**XIV**	**XV**	**XVI**	**XVII**	**XVIII**
Entire Lake (n = 70)			**4**		**27**	**3***	**10**	**1***	**3**	**2**	**2**	**3***	**8**	**4***	**3**				
Lower Lake (n = 35)			1		19	2*	3		1	2		2*	3	1*	1				
Upper Lake (n = 26)			3		6		5	1*	2		2		4	2*	1				
NW Bays (n = 9)					2	1*	2					1*	1	1	1				

* Originated from a non-stocked year class

Lake: Minnetonka
Bay/Basin:Entire Lake

Table 6. Historic Catch per Gill Net Set

Species	Fish/Net																	
	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1992	1987	1982	1977
Black Bullhead	0.29	0.04	0.32	0.08	0.46	0.25	1.04	1.21	1.46	1.21	2.13	4.79	0.38	0.4	8.19	6.76	4.95	12.36
Black Crappie	5.00	4.42	3.27	4.58	3.67	1.13	2.71	3.46	2.17	1.88	3.79	4.5	2.83	2.63	4.01	5.86	11.2	8.23
Bluegill	86.25	48.29	87.32	54.33	57.42	30.13	44.54	34.50	40.58	35.58	24.33	29.92	16.58	56.88	44.92	24.49	39.11	18.55
Bowfin	0.04	--	--	0.04	0.08	0.04	0.08	0.08	0.04	--	0.04	0.08	0.08	0.05	0.05	--	0.18	0.02
Brown Bullhead	--	0.04	--	--	0.04	--	0.08	0.13	0.04	--	--	0.08	0.13	0.15	0.73	0.98	0.25	0.75
Common Carp	0.08	0.08	0.27	--	0.08	0.04	0.38	0.17	0.08	0.21	0.21	0.38	0.25	0.27	0.47	0.3	0.64	0.36
Golden Shiner	--	0.04	0.18	--	--	--	--	--	0.04	--	--	0.33	0.29	0.47	0.09	0.07	0.25	0.05
Green Sunfish	0.71	0.13	0.27	0.38	0.13	0.04	--	--	0.04	0.08	0.04	0.04	--	0.04	0.03	0.09	0.02	0.05
Hybrid Sunfish	0.67	0.13	1.23	0.42	0.83	0.38	--	0.42	0.46	0.08	0.08	0.13	0.13	0.32	0.33	0.67	0.16	--
Largemouth Bass	0.08	--	0.05	0.08	--	--	0.08	0.04	0.04	0.08	0.04	0.04	--	0.13	0.16	0.56	0.18	0.54
Muskellunge	0.08	0.08	0.09	0.04	0.08	0.04	--	0.04	0.08	0.08	0.25	--	0.08	0.05	--	--	--	--
Northern Pike	6.88	7.58	9.14	10.83	11.46	11.58	12.33	14.92	17.67	14.46	11.96	11.13	8.08	17.25	8.19	10.16	4.27	5.93
Pumpkinseed	1.08	1.50	1.45	2.08	1.04	1.08	0.92	0.13	0.33	0.21	0.33	0.5	0.13	1.25	0.8	0.88	0.41	0.8
Rock Bass	1.13	0.33	1.18	0.71	0.50	0.13	0.63	0.38	0.38	0.33	0.21	0.33	0.33	0.48	1.24	0.23	0.27	0.16
Smallmouth Bass	--	--	0.09	--	0.08	0.04	--	0.08	0.08	--	0.17	0.08	--	0.05	0.17	0.35	--	--
Walleye	2.92	3.42	3.64	4.25	2.71	1.50	2.92	3.29	5.17	3.79	7.42	8.75	5.13	4.53	4.97	3.79	2.43	1.86
White Crappie	--	--	--	--	--	--	--	0.04	--	0.08	--	--	0.13	0.13	1.2	7.51	3.86	6.73
White Sucker	0.04	0.08	0.05	0.17	0.04	0.13	0.13	0.04	--	0.21	0.08	0.13	0.17	0.19	0.43	0.79	0.84	0.91
Yellow Bullhead	0.13	0.21	0.41	0.25	0.17	--	0.13	0.13	0.08	0.04	0.13	0.46	0.21	1.15	6.99	5.63	1.95	2.91
Yellow Perch	17.33	16.75	15.36	13.96	16.29	15.88	12.92	9.16	7.25	9.71	4.88	13.08	22.29	6.59	3.67	6.53	13.14	11.59

Lake: Minnetonka
Bay/Basin: Entire Lake

Table 7. Historic Gill Net Catch per Net of Northern Pike, Walleye, and Yellow Perch by Basin -- All Nets

Entire Lake		2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1992	1987	1982	1977	1970
No. of Sets		24	24	22	24	24	24	24	24	24	24	24	24	24	75	75	43	44	44	32
	NOP	6.8	7.6	9.1	10.8	11.5	11.6	12.3	14.9	17.7	14.5	12.0	11.1	8.1	17.3	8.2	10.2	4.3	5.9	5.0
	WAE	2.9	3.4	3.6	4.3	2.7	1.5	2.9	3.3	5.2	3.8	7.4	8.8	5.1	4.5	5.0	3.8	2.4	1.9	1.2
	YEP	17.3	16.8	15.4	14.0	16.3	15.9	12.9	10.3	7.3	9.7	4.9	13.1	22.3	6.6	3.7	6.5	13.1	11.6	22.1
Upper Lake		**2010**	**2009**	**2008**	**2007**	**2006**	**2005**	**2004**	**2003**	**2002**	**2001**	**2000**	**1999**	**1998**	**1997**	**1992**	**1987**	**1982**	**1977**	**1970**
No. of Sets		8	8	8	8	8	8	8	8	8	8	8	8	8	25	22	14	14	14	12
	NOP	6.1	4.3	8.6	8.8	16.4	14.6	12.8	13.8	18.3	10.0	14.6	16.5	9.4	26.4	8.0	11.0	4.6	6.1	5.1
	WAE	3.3	2.3	3.1	5.0	2.0	1.6	4.6	2.4	5.9	3.5	6.4	9.3	5.4	4.4	5.2	3.5	1.2	1.0	0.3
	YEP	21.5	7.4	7.9	16.3	8.5	12.0	6.6	6.4	2.4	2.4	0.9	13.4	23.5	6.6	4.7	11.2	26.3	11.4	15.4
Lower Lake		**2010**	**2009**	**2008**	**2007**	**2006**	**2005**	**2004**	**2003**	**2002**	**2001**	**2000**	**1999**	**1998**	**1997**	**1992**	**1987**	**1982**	**1977**	**1970**
No. of Sets		10	10	8	10	10	10	10	10	10	10	10	10	10	33	34	18	19	19	11
	NOP	7.8	10.1	10.4	13.5	7.6	10.2	12.8	14.8	23.5	19.2	10.7	7.1	6.8	12.6	9.1	10.0	4.0	4.7	4.9
	WAE	3.5	4.3	4.3	5.1	3.0	1.8	2.4	4.0	6.3	5.9	8.0	10.0	5.4	4.4	5.3	5.1	4.4	3.3	1.8
	YEP	6.1	3.1	2.0	4.0	6.9	9.2	2.2	3.6	0.2	1.6	0.0	3.1	5.8	1.6	1.2	3.5	2.2	2.4	23.3
NW Bays		**2010**	**2009**	**2008**	**2007**	**2006**	**2005**	**2004**	**2003**	**2002**	**2001**	**2000**	**1999**	**1998**	**1997**	**1992**	**1987**	**1982**	**1977**	**1970**
No. of Sets		6	6	6	6	6	6	6	6	6	6	6	6	6	17	19	11	11	11	9
	NOP	6.3	7.8	8.2	9.2	11.3	9.8	11.0	16.2	15.2	12.5	10.5	10.7	8.5	12.9	6.6	9.4	4.4	7.8	5.1
	WAE	1.5	3.5	3.5	1.8	3.2	0.8	1.5	3.3	2.3	0.7	7.8	6.0	4.3	5.0	3.9	1.7	0.6	0.5	1.8
	YEP	30.5	52.0	43.2	27.5	42.3	32.2	39.2	22.2	25.5	33.0	18.3	29.3	48.2	16.2	7.3	5.8	15.3	27.7	29.6

Lake: Minnetonka
Bay/Basin: Entire Lake

Table 8. Mean Length (in.) and Weight (lbs.) of Gillnet Sampled Fish (continued on following page)

Species	2010			2009			2008			2007			2006		
	No.	Mean Length	Mean Weight	No.	Mean Length	Mean Weight	No.	Mean Length	Mean Weight	No.	Mean Length	Mean Weight	No.	Mean Length	Mean Weight
Black Bullhead	7	10.74	0.68	1	8.86	0.38	7	7.28	0.25	2	11.65	0.82	11	10.60	0.76
Black Crappie	120	7.58	0.24	106	7.50	0.23	72	7.50	0.23	110	7.36	0.22	88	7.22	0.22
Bluegill	2070	5.94	0.16	1159	5.94	0.16	1921	5.87	0.17	1304	5.89	0.15	1378	5.92	0.17
Bowfin	1	25.00	5.29	--	--	--	--	--	--	1	24.61	5.05	2	17.32	1.83
Brown Bullhead	0	--	--	1	13.15	1.68	--	--	--	--	--	--	1	14.02	1.41
Common Carp	2	29.07	11.18	2	--	--	6	25.53	2.30	--	--	--	2	25.67	8.99
Golden Shiner	0	--	--	1	7.72	0.17	4	7.01	0.12	--	--	--	0	--	--
Green Sunfish	17	4.54	0.07	3	4.51	0.06	6	4.33	0.06	9	4.29	0.05	3	4.34	0.07
Hybrid Sunfish	16	5.24	0.13	3	5.62	0.14	27	5.55	0.14	10	5.35	0.13	20	5.60	0.14
Largemouth Bass	2	7.81	0.21	--	--	--	1	15.24	1.86	2	7.26	0.17	0	--	--
Muskellunge	2	39.76	15.77	2	29.07	6.41	2	20.69	2.33	1	40.39	16.12	2	47.56	27.59
Northern Pike	165	25.38	3.00	182	23.78	3.29	201	24.53	3.50	260	23.32	3.07	275	24.10	3.53
Pumpkinseed	26	4.76	3.94	36	4.24	0.06	32	4.33	0.06	50	4.60	0.08	25	4.60	0.08
Rock Bass	27	6.89	0.27	8	8.49	0.47	26	8.01	0.41	17	7.69	0.38	12	7.42	0.34
Smallmouth Bass	0	--	--	--	--	--	2	15.37	1.59	--	--	--	2	12.40	1.17
Walleye	70	19.89	3.16	82	19.60	3.11	80	17.96	2.49	102	17.89	2.38	65	18.60	2.66
White Crappie	0	--	--	--	--	--	--	--	--	--	--	--	0	--	--
White Sucker	1	8.62	0.26	2	16.85	2.16	1	17.64	2.37	4	15.61	1.74	1	13.07	0.94
Yellow Bullhead	3	10.47	0.62	5	9.65	0.51	9	10.15	0.66	6	10.58	0.65	4	11.06	0.80
Yellow Perch	416	6.56	0.13	402	6.66	0.14	338	6.61	0.13	335	6.37	0.11	391	6.24	0.12

Lake: Minnetonka
Bay/Basin: Entire Lake

Table 8 (continued). Mean Length (in.) and Weight (lbs.) of Gillnet Sampled Fish (continued on following page)

Species	2005			2004			2003			2002			2001		
	No.	Mean Length	Mean Weight	No.	Mean Length	Mean Weight	No.	Mean Length	Mean Weight	No.	Mean Length	Mean Weight	No.	Mean Length	Mean Weight
Black Bullhead	6	9.82	0.58	25	9.52	0.61	29	9.80	0.23	33	10.20	0.67	29	9.70	0.57
Black Crappie	27	7.46	0.21	63	7.66	0.26	83	7.10	0.22	53	7.10	0.22	45	6.60	0.18
Bluegill	721	6.04	0.17	1068	5.81	0.15	828	5.80	0.16	974	5.50	0.12	854	5.70	0.15
Bowfin	1	22.40	3.15	2	19.17	2.35	2	17.40	1.73	1	10.70	0.43	0	--	--
Brown Bullhead	0	--	--	2	13.35	1.35	3	8.80	0.41	1	13.70	1.50	0	--	--
Comon Carp	1	28.15	10.25	9	27.80	10.22	4	24.50	8.03	2	27.40	9.47	5	27.50	9.71
Golden Shiner	0	--	--	0	--	--	0	--	--	1	5.90	0.08	0	--	--
Green Sunfish	1	4.09	0.05	0	--	--	0	--	--	1	5.90	0.10	2	5.10	0.09
Hybrid Sunfish	9	6.51	0.22	0	--	--	10	4.90	0.09	11	4.60	0.09	2	5.00	0.11
Largemouth Bass	0	--	--	2	18.60	3.70	1	6.30	0.16	1	12.90	1.59	2	10.10	0.57
Muskellunge	1	38.70	16.89	0	--	--	1	38.40	14.11	2	30.90	6.64	2	27.90	4.80
Northern Pike	277	23.97	3.29	293	22.20	2.53	358	21.90	2.63	425	21.40	2.40	347	21.60	2.35
Pumpkinseed	26	3.79	0.05	22	4.24	0.07	3	5.30	0.12	8	4.10	0.06	5	4.60	0.09
Rock Bass	3	9.08	0.59	15	7.56	0.37	9	8.30	0.44	8	8.20	0.48	8	8.40	0.54
Smallmouth Bass	1	15.24	1.61	0	--	--	2	15.90	1.93		16.10	2.20	0	--	--
Walleye	37	19.33	2.92	70	19.06	2.85	79	16.50	1.97	126	17.60	2.20	91	18.00	2.30
White Crappie	0	--	--	0	--	--	1	7.90	0.19	0	--	--	2	4.60	0.04
White Sucker	3	15.76	1.72	3	17.74	2.60	1	17.70	2.09	0	--	--	5	17.10	2.10
Yellow Bullhead	0	--	--	3	11.23	0.81	3	12.00	1.00	2	5.30	1.22	1	12.00	0.95
Yellow Perch	380	6.19	0.12	310	6.34	0.13	247	6.10	0.15	174	6.30	0.11	233	6.30	0.12

Lake: Minnetonka
Bay/Basin: Entire Lake

Table 8 (continued). Mean Length (in.) and Weight (lbs.) of Gillnet Sampled Fish

Species	2000			1999			1998			1997			1992		
	No.	Mean Length	Mean Weight	No.	Mean Length	Mean Weight	No.	Mean Length	Mean Weight	No.	Mean Length	Mean Weight	No.	Mean Length	Mean Weight
Black Bullhead	51	10.36	0.64	115	8.72	0.38	9	10.70	0.73	30	10.23	0.68	147	10.14	0.62
Black Crappie	91	7.41	0.23	108	6.97	0.20	68	7.24	0.21	197	7.35	0.22	301	6.85	0.19
Bluegill	584	5.82	0.14	718	5.38	0.11	398	5.76	0.14	4.27	6.10	0.17	3369	6.31	0.19
Bowfin	1	19.13	2.56	2	26.77	7.28	2	21.97	3.07	4	21.00	3.23	4	16.20	1.98
Brown Bullhead	0	--	--	2	13.44	1.31	3	11.82	0.77	11	13.10	1.10	55	11.22	0.07
Comon Carp	5	28.57	11.83	9	27.93	9.87	6	26.14	8.57	20	25.92	8.34	35	24.65	7.20
Golden Shiner	0	--	--	8	6.19	0.09	7	7.24	0.14	35	6.94	0.12	7	6.84	0.12
Green Sunfish	1	4.57	0.05	1	4.13	0.05	0	--	--	3	5.21	0.10	2	4.20	0.10
Hybrid Sunfish	2	4.78	0.10	3	5.10	0.10	3	5.83	0.17	24	5.60	0.15	25	5.06	0.13
Largemouth Bass	1	11.30	0.67	1	8.11	0.24	0	--	--	10	11.00	1.01	12	11.60	0.98
Muskellunge	6	24.97	5.06	0	--	--	2	42.70	18.71	4	36.26	11.35	0	--	--
Northern Pike	287	21.58	2.37	267	21.87	2.50	194	22.06	2.54	1294	21.19	2.24	614	22.17	2.62
Pumpkinseed	8	4.90	0.10	12	4.93	0.09	3	3.79	0.04	94	4.27	0.07	60	4.93	0.12
Rock Bass	5	9.54	0.65	8	8.70	0.55	8	8.57	0.51	36	7.20	0.32	93	6.67	0.26
Smallmouth Bass	4	16.90	2.39	2	13.48	1.39	0	--	--	4	15.65	2.15	13	14.03	1.61
Walleye	176	17.44	2.10	210	16.23	1.86	123	17.63	2.17	340	18.23	2.26	373	17.34	2.13
White Crappie	0	--	--	0	--	--	3	9.59	0.43	10	9.12	0.37	90	7.89	0.27
White Sucker	2	17.26	2.32	3	14.25	1.45	4	18.60	2.69	14	17.28	2.34	32	18.20	2.60
Yellow Bullhead	3	12.94	1.31	11	12.00	1.02	5	12.13	0.96	86	11.66	0.90	524	10.69	0.66
Yellow Perch	117	6.98	0.15	314	6.49	0.12	535	6.16	0.10	494	6.70	0.13	275	6.54	0.13

Lake: Minnetonka
Basin: Entire Lake

Table 9. Length Frequency Distribution (inches) of Fish Collected in Gill Nets, 2010 (for fish < 36.00 inches, continued on following page)

	BLB	BLC	BLG	BOF	CAP	GSF	HSF	LMB	MUE	NOP	PMK	RKB	WAE	WTS	YEB
< 3.00	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
3.00 - 3.49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.50 - 3.99	-	-	31	-	-	-	2	-	-	-	6	-	-	-	-
4.00 - 4.49	-	-	188	-	-	10	4	-	-	-	8	-	-	-	-
4.50 - 4.99	-	2	71	-	-	5	-	-	-	-	2	-	-	-	-
5.00 - 5.49	-	2	283	-	-	2	3	-	-	-	2	5	-	-	-
5.50 - 5.99	-	3	378	-	-	-	3	-	-	-	5	-	-	-	-
6.00 - 6.49	-	11	569	-	-	-	1	-	-	-	3	5	-	-	-
6.50 - 6.99	-	31	333	-	-	-	2	-	-	-	-	6	-	-	-
7.00 - 7.49	-	16	185	-	-	-	1	-	-	-	-	2	-	-	-
7.50 - 7.99	-	15	29	-	-	-	-	2	-	-	-	3	-	-	-
8.00 - 8.49	-	15	1	-	-	-	-	-	-	-	-	5	-	-	-
8.50 - 8.99	-	7	-	-	-	-	-	-	-	-	-	1	-	1	-
9.00 - 9.49	-	6	-	-	-	-	-	-	-	-	-	-	1	-	-
9.50 - 9.99	-	6	-	-	-	-	-	-	-	-	-	-	2	-	-
10.00 - 10.49	3	2	-	-	-	-	-	-	-	-	-	-	-	-	1
10.50 - 10.99	2	1	1	-	-	-	-	-	-	-	-	-	1	-	2
11.00 - 11.49	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-
11.50 - 11.99	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.00 - 12.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.00 - 13.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.00 - 14.99	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
15.00 - 15.99	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-
16.00 - 16.99	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-
17.00 - 17.99	-	-	-	-	-	-	-	-	-	1	-	-	7	-	-
18.00 - 18.99	-	-	-	-	-	-	-	-	-	3	-	-	2	-	-
19.00 - 19.99	-	-	-	-	-	-	-	-	-	6	-	-	12	-	-
20.00 - 20.99	-	-	-	-	-	-	-	-	-	14	-	-	8	-	-
21.00 - 21.99	-	-	-	-	-	-	-	-	-	11	-	-	4	-	-
22.00 - 22.99	-	-	-	-	-	-	-	-	-	9	-	-	8	-	-
23.00 - 23.99	-	-	-	-	-	-	-	-	-	14	-	-	3	-	-
24.00 - 24.99	-	-	-	-	-	-	-	-	-	11	-	-	3	-	-
25.00 - 25.99	-	-	-	1	-	-	-	-	-	25	-	-	3	-	-
26.00 - 26.99	-	-	-	-	-	-	-	-	-	15	-	-	1	-	-
27.00 - 27.99	-	-	-	-	1	-	-	-	-	20	-	-	2	-	-
28.00 - 28.99	-	-	-	-	-	-	-	-	-	9	-	-	2	-	-
29.00 - 29.99	-	-	-	-	-	-	-	-	-	12	-	-	-	-	-
30.00 - 30.99	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-
31.00 - 31.99	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-
32.00 - 32.99	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-
33.00 - 33.99	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
34.00 - 34.99	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-
35.00 - 35.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
= > 36.00	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-

	BLB	BLC	BLG	BOF	CAP	GSF	HSF	LMB	MUE	NOP	PMK	RKB	WAE	WTS	YEB
Total	7	119	2070	1	2	17	16	2	2	165	26	27	70	1	3
Min. Length	10.20	4.76	2.44	25.00	27.83	4.09	3.74	7.68	36.22	17.80	3.82	5.04	9.25	8.62	10.08
Max. Length	11.89	11.38	10.63	25.00	30.31	5.47	7.20	7.95	43.31	34.80	6.46	8.74	28.50	8.62	10.71
Mean Length	10.74	7.58	5.94	25.00	29.07	4.54	5.24	7.81	39.76	25.38	4.76	6.89	19.89	8.62	10.47
# Measured	7	118	2037	1	2	17	16	2	2	165	26	27	70	1	3
No Lengths for	0	2	33	0	0	0	0	0	0	0	0	0	0	0	0

Lake: Minnetonka
Basin: Entire Lake

Table 9 (continued). Length Frequency Distribution of Fish Collected in Gill Nets, 2010 (for fish < 36.00 inches, continued on following page)

	YEP
< 3.00	-
3.00 - 3.49	-
3.50 - 3.99	-
4.00 - 4.49	-
4.50 - 4.99	-
5.00 - 5.49	12
5.50 - 5.99	95
6.00 - 6.49	111
6.50 - 6.99	91
7.00 - 7.49	73
7.50 - 7.99	22
8.00 - 8.49	5
8.50 - 8.99	5
9.00 - 9.49	1
9.50 - 9.99	2
10.00 - 10.49	-
10.50 - 10.99	-
11.00 - 11.49	-
11.50 - 11.99	-
12.00 - 12.99	-
13.00 - 13.99	-
14.00 - 14.99	-
15.00 - 15.99	-
16.00 - 16.99	-
17.00 - 17.99	-
18.00 - 18.99	-
19.00 - 19.99	-
20.00 - 20.99	-
21.00 - 21.99	-
22.00 - 22.99	-
23.00 - 23.99	-
24.00 - 24.99	-
25.00 - 25.99	-
26.00 - 26.99	-
27.00 - 27.99	-
28.00 - 28.99	-
29.00 - 29.99	-
30.00 - 30.99	-
31.00 - 31.99	-
32.00 - 32.99	-
33.00 - 33.99	-
34.00 - 34.99	-
35.00 - 35.99	-
= > 36.00	-

	YEP
Total	417
Min. Length	5.24
Max. Length	9.84
Mean Length	6.56
# Measured	394
No Lengths for	22

Lake: Minnetonka
Basin: Entire Lake

Table 9 (continued). Length Frequency Distribution of Fish Collected in Gill Nets, 2010 (for fish ≥ 36.00 inches)

	BLB	BLC	BLG	BOF	CAP	GSF	HSF	LMB	MUE	NOP	PMK	RKB	WAE	WTS	YEB
< 36.00	7	120	2070	1	2	17	16	2	-	165	26	27	70	1	3
36.00 - 36.99	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
37.00 - 37.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38.00 - 38.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39.00 - 39.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40.00 - 40.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41.00 - 41.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42.00 - 42.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43.00 - 43.99	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
44.00 - 44.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45.00 - 45.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46.00 - 46.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47.00 - 47.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
48.00 - 48.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
49.00 - 49.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50.00 - 50.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
51.00 - 51.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
52.00 - 52.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
53.00 - 53.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
54.00 - 54.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
55.00 - 55.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
56.00 - 56.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
57.00 - 57.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
58.00 - 58.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
59.00 - 59.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60.00 - 60.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
61.00 - 61.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
62.00 - 62.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
63.00 - 63.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
64.00 - 64.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65.00 - 65.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
66.00 - 66.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
67.00 - 67.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
68.00 - 68.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
69.00 - 69.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70.00 - 70.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
71.00 - 71.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72.00 - 72.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
73.00 - 73.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
74.00 - 74.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75.00 - 75.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
76.00 - 76.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
77.00 - 77.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
= > 78.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BLB	BLC	BLG	BOF	CAP	GSF	HSF	LMB	MUE	NOP	PMK	RKB	WAE	WTS	YEB
Total	7	120	2070	1	2	17	16	2	2	165	26	27	70	1	3
Min. Length	10.20	4.76	2.44	25.00	27.83	4.09	3.74	7.68	36.22	17.80	3.82	5.04	9.25	8.62	10.08
Max. Length	11.89	11.38	10.63	25.00	30.31	5.47	7.20	7.95	43.31	34.80	6.46	8.74	28.50	8.62	10.71
Mean Length	10.74	7.58	5.94	25.00	29.07	4.54	5.24	7.81	39.76	25.38	4.76	6.89	19.89	8.62	10.47
# Measured	7	118	2037	1	2	17	16	2	2	165	26	27	70	1	3
No Lengths for	0	2	33	0	0	0	0	0	0	0	0	0	0	0	0

Lake: Minnetonka
Bay/Basin:Entire Lake

Table 10. Walleye Mean Back-calculated Length (in.) at Age, by Basin and Sex

Entire Lake	Sample Size	AGE																
		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII
Male																		
Female																		
Combined	66	5.6	9.6	13.5	16.3	18.2	19.6	20.1	20.9	21.5	22.3	22.9	23.0	---	---	---	---	---

Lower Lake	Sample Size	AGE																
		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII
Male																		
Female																		
Combined	32	6.0	10.2	13.8	16.4	18.2	19.2	19.3	19.9	20.0	20.3	20.7	20.8	---	---	---	---	---

Upper Lake	Sample Size	AGE																
		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII
Male																		
Female																		
Combined	26	5.2	8.7	12.6	15.8	17.9	19.5	20.2	21.2	22.1	22.9	23.7	24.2	---	---	---	---	---

Northwest Bays	Sample Size	AGE																
		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII
Male																		
Female																		
Combined	8	5.8	10.5	14.6	17.4	19.4	20.7	21.9	22.6	23.3	23.9	24.4	23.1	---	---	---	---	---

Lake: Minnetonka
Bay/Basin: Entire Lake

Table 11. Northern Pike Mean Back-calculated Length (in.) at Age, by Basin and Sex

Entire Lake	Sample Size	AGE								
		I	II	III	IV	V	VI	VII	VIII	IX
Male										
Female										
Combined	138	9.4	15.8	19.9	22.8	25.1	27.3	29.3	30.3	33.3

Lower Lake	Sample Size	AGE								
		I	II	III	IV	V	VI	VII	VIII	IX
Male										
Female										
Combined	64	9.0	15.4	19.3	22.2	24.6	26.7	28.7	29.2	

Upper Lake	Sample Size	AGE								
		I	II	III	IV	V	VI	VII	VIII	IX
Male										
Female										
Combined	43	10.0	16.4	20.6	23.7	25.5	27.5	29.4	31.5	33.4

Northwest Bays	Sample Size	AGE								
		I	II	III	IV	V	VI	VII	VIII	IX
Male										
Female										
Combined	31	9.4	15.4	20.3	23.1	25.7	30.3	31.9		

Lake: Minnetonka
Bay/Basin: Entire Lake

Table 12. Yellow Perch Mean Back-calculated Length (in.) at Age by Basin.

Basin	Sample Size	Age							
		I	II	III	IV	V	VI	VII	VIII
Entire Lake	103	2.4	3.7	5.1	6.2	7.0	7.9	8.4	--
Lower Lake	25	2.3	3.6	4.9	5.9	7.0	8.6	9.0	--
Upper Lake	36	2.4	3.7	5.1	6.3	6.9	7.6	--	--
Northwest Bays	42	2.5	3.8	5.2	6.3	7.1	7.8	8.1	--

Lake: Minnetonka
Bay/Basin: Entire Lake

Table 16. Length at Capture of Northern Pike, Walleye, and Yellow Perch Collected in Gill Nets, 2010

Species: Northern Pike
Body-Scale Constant: 2.09
Total Sample Size: 138

		Length At Capture					Length Increments	
Year Class	Age	Sample Size	Average Length	Maximum Length	Minimum Length	Standard Error	Increment	Standard Error
2008	2	7	19.71	20.63	18.50	0.285	1.52	0.125
2007	3	17	20.88	25.98	18.43	0.452	1.40	0.109
2006	4	38	23.69	28.43	20.08	0.326	1.20	0.052
2005	5	36	25.49	30.04	20.47	0.405	1.04	0.061
2004	6	23	27.88	32.36	23.23	0.478	0.99	0.075
2003	7	13	30.15	34.80	26.46	0.677	0.86	0.080
2002	8	3	30.46	32.48	27.64	1.454	0.78	0.072
2001	9	1	34.25	34.25	34.25	N/A	0.92	N/A

Species: Walleye
Body-Scale Constant: 1.10
Total Sample Size: 66

		Length At Capture					Length Increments	
Year Class	Age	Sample Size	Average Length	Maximum Length	Minimum Length	Standard Error	Increment	Standard Error
2008	2	4	9.90	10.83	9.25	0.331	1.43	0.223
2007	3	0	-	-	-	-	-	-
2006	4	26	17.62	21.34	14.69	0.332	1.02	0.083
2005	5	3	20.31	21.02	19.57	0.421	0.73	0.090
2004	6	10	21.29	24.21	19.29	0.565	0.76	0.056
2003	7	1	20.47	20.47	20.47	N/A	0.36	N/A
2002	8	3	21.94	24.02	20.67	1.046	0.43	0.063
2001	9	2	21.00	22.05	19.96	1.043	0.39	0.054
2000	10	2	22.09	22.17	22.01	0.079	0.33	0.127
1999	11	2	25.47	28.50	22.44	3.031	0.36	0.066
1998	12	7	24.05	27.99	20.31	1.087	0.41	0.044
1997	13	3	24.27	27.36	20.08	2.172	0.32	0.079
1996	14	3	22.14	24.21	20.16	1.172	0.46	0.092

Species: Yellow Perch
Body-Scale Constant: 1.18
Total Sample Size: 103

		Length At Capture					Length Increments	
Year Class	Age	Sample Size	Average Length	Maximum Length	Minimum Length	Standard Error	Increment	Standard Error
2008	2	5	5.61	5.83	5.47	0.067	1.02	0.096
2007	3	41	5.94	6.54	5.24	0.055	0.81	0.021
2006	4	34	6.87	7.68	5.91	0.076	0.63	0.028
2005	5	9	7.41	8.54	6.69	0.195	0.57	0.041
2004	6	11	8.43	9.84	7.56	0.212	0.51	0.029
2003	7	3	8.98	9.80	8.15	0.477	0.54	0.121

Lake: Minnetonka
Bay/Basin: Entire Lake

Table 17. Historic Proportional Size Distribution and Relative Size Distribution-Preferred of Northern Pike, Walleye, and Yellow Perch Collected in Gill Nets (continued on following page)

Species	Year	Entire Lake		Lower Lake		Upper Lake		NW Bays	
		PSD*	RSD-P*	PSD	RSD-P	PSD	RSD-P	PSD	RSD-P
Northern Pike	2010	85	22	83	15	82	35	95	18
	2009	78	15	74	12	75	13	87	24
	2008	78	20	74	20	76	16	88	27
	2007	71	16	60	7	74	23	71	16
	2006	73	21	73	24	69	15	82	28
	2005	77	17	77	18	49	8	84	28
	2004	55	9	46	4	54	11	77	14
	2003	53	7	47	6	48	7	60	9
	2002	49	8	33	2	47	10	83	13
	2001	48	8	35	3	59	21	70	8
	2000	48	7	36	2	46	7	70	16
	1999	53	7	33	7	53	8	73	5
	1998	54	7	51	10	44	9	73	6
	1997	47	9	43	7	47	6	52	6
	1992	59	6	50	7	68	13	73	15
Walleye	2010	97	51	94	37	100	61	100	77
	2009	77	49	55	36	100	61	100	67
	2008	81	38	58	23	92	40	100	57
	2007	75	33	70	21	74	36	75	33
	2006	87	33	71	14	88	50	89	47
	2005	76	38	68	26	77	38	100	80
	2004	81	36	75	67	84	38	89	33
	2003	66	12	50	8	83	11	85	30
	2002	88	22	87	22	91	22	86	21
	2001	79	30	86	32	86	32	100	75
	2000	78	27	59	12	90	25	96	53
	1999	60	25	54	16	49	25	97	50
	1998	84	27	79	8	88	38	88	46
	1997	82	28	69	14	85	30	99	49
	1992	68	31	68	32	57	16	90	57

*Stock, quality, and preferred lengths (inches) are, respectively: 14, 21, and 28 for northern pike, 10, 15, and 20 for walleye, and 5, 8, and 10 for yellow perch.

Lake: Minnetonka
Bay/Basin: Entire Lake

Table 17 (Continued). Historic Proportional Size Distribution and Relative Size Distribution-Preferred of Northern Pike, Walleye, and Yellow Perch Collected in Gill Nets

Species	Year	Entire Lake		Lower Lake		Upper Lake		NW Bays	
		PSD*	RSD-P*	PSD	RSD-P	PSD	RSD-P	PSD	RSD-P
Yellow Perch	2010	3	0	3	0	0	0	7	0
	2009	4	0	0	0	5	0	16	0
	2008	4	0	0	0	0	0	5	0
	2007	3	0	0	0	1	0	3	0
	2006	4	0	0	0	1	0	6	0
	2005	1	0	0	0	0	0	2	0
	2004	2	0	0	0	0	0	3	0
	2003	2	0	0	0	0	0	4	0
	2002	2	0	0	0	0	0	2	0
	2001	3	0	7	0	0	0	4	0
	2000	6	0	--	--	0	0	6	0
	1999	2	0	0	0	0	0	4	0
	1998	2	0	0	0	0	0	4	0
	1997	4	0	0	0	6	0	4	0
	1992	9	0	0	0	20	0	1	0

*Stock, quality, and preferred lengths (inches) are, respectively: 14, 21, and 28 for northern pike, 10, 15, and 20 for walleye, and 5, 8, and 10 for yellow perch.

Lake: Minnetonka
Bay/Basin: Entire Lake

Table 18. Historic Relative Weight of Northern Pike, Walleye, and Yellow Perch Collected in Gill Nets

Basin	Species	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997
Entire Lake	NOP	92	92	90	90	92	89	86	91	89	85	90	89	86	86
	WAE	90	94	91	91	93	91	91	96	94	89	91	94	89	88
	YEP	90	90	87	88	91	93	97	102	88	92	86	84	89	88
Lower Lake	NOP	90	89	87	88	93	88	84	92	85	82	84	88	85	83
	WAE	91	93	90	91	92	93	89	95	93	90	93	94	87	85
	YEP	92	87	90	81	99	96	99	100	79	85	--	77	89	88
Upper Lake	NOP	93	90	90	90	92	89	87	88	90	84	87	87	85	88
	WAE	89	92	91	91	93	89	93	91	97	89	90	95	91	89
	YEP	92	88	87	91	85	95	99	93	98	102	79	83	89	92
NW Bays	NOP	92	101	93	91	93	93	90	94	93	92	91	94	90	88
	WAE	89	96	92	93	93	88	92	100	94	88	90	94	88	92
	YEP	87	87	87	88	90	90	96	105	87	92	86	86	88	85

Relative weights were calculated for individual fish and then averaged by basin as described in Anderson, R.O., and R.M. Neumann. 1996. Length, Weight and Associated Structural Indices. Pages 447-482 in B.R. Murphy and D.W. Willis, editors. Fisheries techniques, 2nd edition. American fisheries Society, Bethesda, Maryland.

Appendix 1. Major Boat Launch Locations on Lake Minnetonka

Lake Access

Station ID	Ownership	Public Use	Type	Location / Comments
AC - 1	County	Open to Public use	Concrete	Spring Park Bay Access.
AC - 2	N/A	Open to Public use	Concrete	Three Rivers Park District-Lake Minnetonka Regional Park.
AC - 3	City	Open to Public use	Concrete	Cook's Bay Access.
AC - 4	DNR	Open to Public use	Concrete	Gray's Bay Access.
AC - 5	DNR	Open to Public use	Concrete	North Arm Access.
AC - 6	DNR	Open to Public use	Concrete	Maxwell Bay Access.
AC - 7	City	Fee/Permit needed	Concrete	Carson's Bay Access.

State of Minnesota
Department of Natural Resources
Division of Fish and Wildlife
Section of Fisheries

Completion Report

Lake Minnetonka

Fisheries Population Assessment—2010

June 14-July 2, 2010

Part of Federal Aid Project F-29-R(P)-22

Compiled by:

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West Metro Fisheries Management Area

Field Sampling Performed by:

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Approved by: _____
Area Fisheries Manager Date

Approved by: _____
Regional Fisheries Manager Date