

DEPARTMENT OF NATURAL RESOURCES
Division of Fisheries

County: Lake

T 45N

R 10E

S 10,11

SUPPLEMENTAL SURVEY

Directions from nearest town: South of Route 134, east of Rt 83, southwest of Lindenhurst, IL

Date of Inspection: 9/24/2013

Water (Name): Miltmore Lake

Owner:

Address of Owner:

Phone of Owner:

Lessee: ---

Person(s) Contacted: Dan Venturi

Identification: Township Manager

Address of Contact: 37908 North Fairfield Road Lake Villa, IL 60046

Phone of Contact: 847-356-2116

Water Classification: Public Other

1. Survey initiated by: Frank Jakubicek

2. Water Size: 83 acres

3. Date of last inspection or work on water: 5/30/1995

4. Purpose of Survey: Update the Status of the Fishery

5. **Observation, comment, recommendations:** During 60 minutes of D/C electrofishing a total of 141 fish from 16 species (Table 1) were collected. This was the first time D/C electrofishing gear was used on Miltmore Lake. Prior surveys were conducted with either 3500 watt (A/C) or 5000 watt (A/C) generators and although good at collecting fish in certain situations, D/C gear is more efficient higher conductivities, clear lakes and near vegetation. The following is a summary of our catch data and recommendations.

We collected 30 largemouth bass in 60 minutes of electrofishing for a catch rate of 0.5 fish per minute. Our management goal for largemouth bass is to collect 1 fish per minute. For comparison, we collected 5 largemouth bass in 90 minutes of electrofishing in 1995 using A/C gear. Population indices indicated a balanced proportion of fish in the population with a Proportional Size Distribution (PSD) of 62, a Relative Size Distribution (RSD) for 14 inch fish (RSD14) of 43, an RSD for 15 inch fish of 19 (RSD15 = 27) and an RSD16 for 16 inch fish of 5. Illustrated in Figure 1 these indices give us a picture of what the bass population looks like and what size fish begin to become less abundant in the lake (natural and manmade mortality). Larger fish are always less abundant than smaller fish but what size the change in abundance takes place tells us a lot about harvest/mortality characteristics on the population. The data is interpreted as suggesting 62% of the bass collected were at least 12" long (compared to all bass over 8" long in the sample), 43% of the bass were longer than 14", 19% longer than 15" and 5% over 16" long.

6. **Biologist:** Frank Jakubicek

Date of Report: 1/4/2014

Distribution: If classification of State, Public, or Stream: District, Area, Central
All others: District

Table 1. Catch Summary for Miltmore Lake 9/24/2013
(60 minutes D/C electrofishing sample)

Species	Number	Min. Length (in.)	Avg. Length (in.)	Max. Length (in.)
Largemouth bass	30	3.4	10.9	16.5
Bluegill	56	1.6	5	6.9
Black crappie	13	4.9	6.8	10.8
Yellow perch	11	4.3	6	9.6
Bluntnose minnow	7	1.9	2.6	3.4
Grass pickerel	6	5.7	9	10.5
Pumpkinseed sunfish	4	4.5	5.4	6.0
Golden shiner	3	7.1	7.5	7.8
Warmouth	2	4.6	4.7	4.8
Common carp	2	21.5	21.6	21.9
Brown bullhead	2	8.9	9.1	9.3
Sand shiner	2	2.2	2.3	2.2
Bowfin	1	24.8	24.8	24.8
Northern pike	1	24	24	24
Yellow bass	1	8.3	8.3	8.3
Brook silverside	1	3.3	3.3	3.3

PSD shows the proportion of fish that are sexually mature and are of reproductive size (12"). Managers generally consider a population balanced when the PSD ranges between 40 and 60 so roughly half of the fish in the sample are sexually mature and capable of reproduction. Relative Stock Density (RSD) values are helpful when trying to establish reasonable catch limits. We select RSD values at lengths that may be significant for management purposes. For example, our data suggests 43% of the bass population would be legal size and "keepable" if the lake had a 14" length limit, 19% would be legal if the length limit was 15" and 5% of the population legal at a 16" length limit.

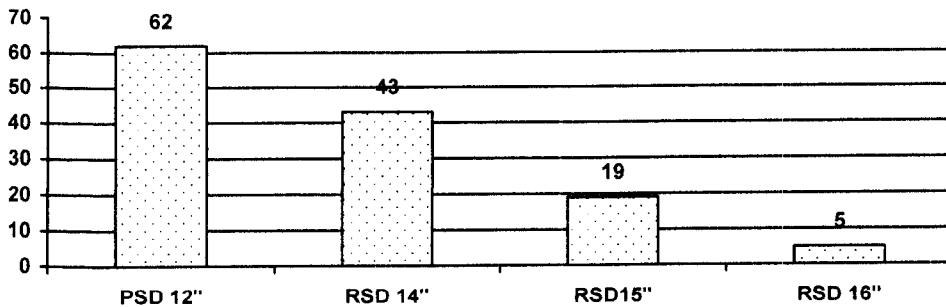


Figure 1. Graph of Largemouth Bass Population Indices for Miltmore Lake sample 9/24/2013

Bluegill were relatively small size, the PSD for bluegill was 41 which is considered "balanced" and within the range we like the value to be but since no fish longer than 7" were collected, fishermen targeting bluegill would be disappointed. Decades creel information tells us fishermen like to target bluegill at least 7" long but prefer even larger. Since larger fish were not part of our sample, fishing reports might confirm larger bluegill reside in the lake, if they do then some of the below comments can be re-evaluated. Bluegill size is a good indicator of whether the system has enough predation. In lakes where there is enough predation bluegills grow to a large size (8" in our area), when predation is insufficient the bluegill population stockpiles around 6" to 6.5" and it's difficult to grow fish to 8" long. Competition for food (too many fish of a certain size all vying for the same size food) retards growth and over-time, fish stockpile near the size they become sexually mature (in bluegill it's near 6" to 6.5" and for crappie it's about 8" to 8.5"). Getting panfish to grow beyond these stockpile lengths is difficult and takes a long time, it all begins with trying to reach the point of "adequate" predation!

Other species shown in Table 1 were less abundant and consistent with the area. Yellow perch, grass pickerel and pumpkinseed sunfish are often collected in lakes with a significant amount of sand, diverse vegetation and of glacial origin. Black crappie are present in most systems and commonly collected below 9" long but in Miltmore we collected fish close to 11" long; this is a size crappie fishermen enjoy catching. Having a strong predator population helps keep everything in check by controlling (eating) the offspring of panfish that have high reproductive potential. Without strong predation, panfish abundance gets too high, fish become thin, and the system purges itself of the excess through natural die-offs. Harvesting panfish helps reduce abundance and allows room for smaller fish to grow. Common carp were present and should always be removed by fishermen when caught. They have the

potential to disrupt reproduction, re-suspend bottom sediments, and increase turbidities so aquatic vegetation doesn't grow. If a lake goes that direction, carp flourish, perpetuating their existence. Turning the lake back to a point where water clarity is good enough for plants to grow is very difficult, takes many, many years and a lot of effort; keeping carp abundance low is a better alternative. Carp don't usually thrive in clear lakes but are capable of significant population growth if water quality or predatory pressure decreases.

Eurasian waterfoil and water lilies were abundant in the shallow parts of Lake Miltmore. E. milfoil can be targeted with various herbicides that have little impact on native pondweeds. The Lake County Health Department -- Lakes Management Unit has a lot of experience and information regarding management of aquatic vegetation and are a resource that should be utilized.

In conclusion, the fishery in Miltmore Lake was in pretty good shape even though our bass catch rate was below our goal of one fish per minute. Their size distribution indicates the potential for significant reproduction provided fishermen don't target nesting fish and allow them to spawn. A strategy to increase bass abundance is to practice catch and release during the spawn (May 1 to June 1) so nesting fish are not harvested and their offspring have a chance to survive (male bass guard the nest, fan the eggs, and if removed from the nest the eggs/fry are vulnerable to predation so catch and release during the spawn helps improve the chances of a successful spawn). Panfish will respond (grow larger) if enough predation is present but developing enough predation takes a long time (5 to 10 years) and lake user's who are on the same page relative to harvesting panfish and protecting predators.

Recommendations:

1. Manage vegetation to protect native species and allow vegetation to grow in areas where boating access is not needed.
2. Establish a stocking program to enhance predator species and post reasonable catch limits so fishermen and other lake users can harvest some fish to stay connected to the lake (and outdoors). Lake users who have no connection to the outdoors lose interest in the management of it!
3. Include in your newsletter and post at access points a catch and release policy from May 1 to June 1 to protect spawning bass so natural reproduction has a chance to occur. Natural reproduction is considerably more economical than purchasing bass fingerlings to enhance the population.

Example of reasonable regulations:

Species	Daily creel	Length Limit
Largemouth bass	3	15"
Northern pike	3	24"
Panfish (bluegill and crappie)	25	None

How do these help? Bass become sexually mature at 12" so can have 3 reproductive efforts before they're a harvestable size. Northern pike are similar, they become sexually mature at 20" so have 2 or 3 reproductive efforts before they're harvestable. Panfish can be very vulnerable during certain times of the year so to spread the harvest of larger individuals around a reasonable creel limit allows fishermen to catch several meals from one successful event yet not go overboard with harvest during that small window of opportunity.

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County: Lake

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SUPPLEMENTAL SURVEY

Directions from nearest town: South of Route 134, east of Rt 83, southwest of Lindenhurst, IL

Date of Inspection: 5/16/2013

Water (Name): Fourth Lake

Owner:

Address of Owner:

Phone of Owner:

Lessee: ---

Person(s) Contacted: Dan Venturi

Identification: Township Manager

Address of Contact: 37908 North Fairfield Road Lake Villa, IL 60046

Phone of Contact: 847-356-2116

Water Classification: Public Other

1. Survey initiated by: Frank Jakubicek

2. Water Size: 304 acres

3. Date of last inspection or work on water: 2008

4. Purpose of Survey: Update the Status of the Fishery

5. **Observation, comment, recommendations:** During 60 minutes of daytime electrofishing (D/C) a total of 75 fish from 12 species were collected (Table 1). This was the second time since the early 1970's that a IDNR Fisheries survey was conducted on this lake. Access is relatively restrictive and fishing access is generally limited to local residents. Undeveloped access for a small boat was available on the northwestern shoreline. The following is a brief summary of the results.

Our sample consisted of a fairly diverse mix of fish and was nearly identical to the species mix in 2008 except in 2008 we collected one warmouth and this time one yellow bullhead. Bluegill (n = 35) were the most abundant species. Only two largemouth bass (both were immature; < 12" long) and one northern pike (30" long) were collected which was unexpected. We observed a couple adult bass (> 12" long) but were unable to collect them and expected a strong year class of small bass produced from surviving adults following the fish kill a few years ago. Because catches within each species are so low it's difficult to say much about any one species other than bluegill.

Population parameters for bluegill indicate the species contains mature fish with a Proportional Stock Density (PSD) of 76, a Relative Stock Density (RSD) - 7" of 12, an RSD - 7.5" of 9 and an RSD - 8" of 0. These data define the adult portion of our catch as 76% greater than 6" long, 12% of the catch exceeded 7" long, 9% exceeded 7.5" and no bluegill were longer than 8" long. Bluegill fishing should be reasonable good if fishermen concentrate on quality bluegill habitat. We found fish near sandy beaches and rocky shorelines. Since the lake was abundantly vegetated it would be difficult to choose which weedbeds might hold fish and which wouldn't unless a lot of time was put into locating weedbeds near sandy bottoms instead of the "marl/clay" areas which are common around the lake.

6. **Biologist:** Frank Jakubicek

Date of Report: 1/21/2014

Distribution: If classification of State, Public, or Stream: District, Area, Central
All others: District

Table 1. Catch Summary for Fourth Lake 5/16/2013
(60 minutes D/C electrofishing sample)

Species	Number	Min. Length (in.)	Avg. Length (in.)	Max. Length (in.)
Largemouth bass	2	5	7.3	9.5
Bluegill	35	1.7	6.1	7.7
Black crappie	8	5.5	8.3	9.3
Yellow perch	5	4.8	7.2	9
Grass pickerel	4	6.7	8.7	11.8
Pumpkinseed sunfish	5	5.2	5.5	6.0
Golden shiner	6	3.9	4.7	5.5
Common carp	5	8.2	18.6	22.6
Yellow bullhead	1	8.0	8.0	8.0
Bowfin	3	20.7	22.1	24.4
Northern pike	1	30.0	30.0	30.0

Fourth Lake is similar to many locations throughout the area where fish survive winters as long as the system has “flow”. Flowing water in shallow lakes allows fish to survive in situations where we think conditions couldn’t possibly maintain sportfish. When flows decrease (for whatever reason) and conditions worsen the lakes fishery restructures itself. It’s common for lakes to restructure toward species that can survive the poorest water quality conditions the lake can dish out. In most cases this means tolerant fish species like common carp, green sunfish, black bullhead and golden shiners survive and thrive because predators like largemouth bass die off. In Fourth Lake’s case, some of these species are present as well as several marsh-type fishes like northern pike, bowfin and grass pickerel. If Fourth Lake was small, the tolerant fish mentioned above would probably be the only fish present but because it’s a relatively large lake with inflows and a connection to Lake Miltmore some diversity from solely tolerant fishes are present and over time, if conditions that caused the previous fish kill don’t occur to frequently, the sportfishery will recover and re-establish itself in a more balanced form. Adult fish from the major species are present and capable of reproduction so reproduction will occur and within the next few years a noticeable increase in their abundance will likely be noticed.