

ILLINOIS DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF FISHERIES

County: Lake

T 45N R 10E S 21, 22

Directions: Two miles NW of **SUPPLEMENTAL SURVEY**

Grayslake on Hainesville Rd.

Date of Inspection: 10/13/2009

Water (Name) Highland Lake Owner Multiple

Address of Owner \_\_\_\_\_ Phone of owner \_\_\_\_\_

Lessee \_\_\_\_\_

Persons(s) contacted Mike Kalstrup Identification Lake Property Owners Association

Address of contact 21820 Washington St., Grayslake, Il. 60030 Phone of contact (847) 548-2401

Water classification (check) State \_\_\_ Pub-Coop \_\_\_ Pub-Other \_\_\_ Organ XXXX Commer \_\_\_ Stream \_\_\_\_\_

1. Survey initiated by: Frank Jakubicek

2. Water size: 110.0 Acres or \_\_\_\_\_ Miles.

3. Date of last inspection or work on water: 2002

4. Purpose of survey: Fish Population Survey

5. Observations, comments, recommendations:

During 60 minutes of D/C electrofishing a total of 101 fish were collected from 8 species (Table 1). In terms of relative abundance bluegill (61%), largemouth bass (21%), and black crappie (8%) made up the bulk of the sample with single fish from several other species filling out the catch.

The lack of vegetation hampered sampling and reduces the capacity of this lake to produce and support fish. We collected several bass, bluegill and a northern pike near the inflow at Washington Street and fish were near vegetation. Sparse patches of vegetation were spread around the lake. Few fish were collected over sand. Several species of fish now absent from Highland Lake could thrive if vegetation were present including bluntnose minnows, emerald shiners, lake chubsuckers and the local E&T fishes; blackchin shiners, blacknose shiners and banded killifish. Sufficient vegetation helps the food web, ties up nutrients, reduces re-suspension of fine sediments, and provides a platform a strong diversified fishery. Perennial elimination of vegetation is detrimental to a lakes ecology and disrupts the interdependence necessary for a balanced fishery and a healthy aquatic ecosystem. It's true too much vegetation can cause problems but vegetation can be managed to allow access and control it's abundance. In the current state and with the past management practices, Highland Lake will take years to re-establish plant diversity and adequate abundance. Practical aquatic vegetation management needs to begin soon so the lake can begin the road to recovery and the issues of invasive aquatic plant abundance can be worked through. The State recommends at least 20% vegetative coverage for most lakes however the morphology of Highland Lake will make it difficult to hit this number because your lake's percentage of shallow water is so high and your water clarity is high. When native pondweeds become established, fewer problems will arise and residents will admire the diversity. Several area lakes have such good plant diversity and it's a pleasure to look at them, fish them and recreate on them. Highland Lake has this potential.

The electrofishing catch rate of 21 bass per hour (as well as the previous surveys catch rate of 43 largemouth bass per hour) was below the management objective of 60 fish per hour. This survey was undertaken to evaluate a winterkill that occurred during 2009 (Janurary and February 2009). Residents reported dead largemouth bass, yellow bass and carp. Our data indicates young of the year bass were present (indicating reproduction in spring 2009) and 15" to 16" adult fish survived. We did not detect bass between 4" and 15" long. This doesn't mean these year classes are not present, it only means they were not abundant enough for us to detect. No Population Indices describing the sample could be calculated because they rely on fish between 8" and 12" long for comparisons and none were collected.

6. Biologist: Frank Jakubicek Date of Report: 1/22/2010  
F.M. 5.0

Largemouth bass are key to balancing a fishery because they reproduce in a wide variety of lake systems and are great predators. Reproduction was detected during this survey so the adults present were successful in spring 2009. Overwinter survival is the most difficult time for fish so if these young of the year survive the winter of 2010 the fishery will “probably” begin the road to recovery. Bass usually require 3 to 4 years to mature so the 2009 fingerlings might reproduce in spring 2012. It may be prudent to stock as many bass (4” to 6” long or longer) as the lake committee can afford to add to the current population so predation is strong enough to keep other species in some assemblage of “check”. This may not be possible but it should be attempted. This situation creates the perfect conditions for yellow bass, black crappie, bluegill, or carp to explode and become a dominant part of the lakes biomass; I can’t predict which species it will be. Once this overabundance occurs, they’ll stunt, and it will be very difficult to re-balance the fishery.

Panfish were dominated by bluegill from a few young of the year (age 0+) thru 7.6 inch fish (age 5+). Most fish were collected near a couple of near overhanging trees, wood piers, rocky shoreline near vegetation. The D/C electrofishing gear allowed us to collect some black crappie. These fish usually aren’t available with our usual A/C gear but the switch in gear types was chosen just for this fact and because it “pulls” fish from deeper water. All crappie were collected near vegetation. Crappie were both young of the year size and mature (up to 11”). They reproduced in spring 2009 as well and have the potential to expand their population quickly. Crappie are a very prolific species.

We collected one northern pike and missed another. Both were fish were around 30” and nice fish. Northern pike can be stocked as an alternative predator and can eat larger prey than largemouth bass so are good choices to incorporate into a lakes fishery

No walleye were collected or observed. In a clear water lake like Highland it’s very difficult to collect walleye during the day.

The carp population didn’t appear to be overly abundant. We collected only one small fish 7” long and should have seen more if they were more abundant or overly abundant. Having a poor carp population is a good thing and movement of carp by fishermen between lakes should be avoided (and its illegal!). My suggestion is to remove every carp encountered. Your population appears to be low and it would be a “good thing” to keep it that way.

In conclusion, it appears Highland Lake did experience a partial winterkill that reduced adult bass abundance. Predation should be added to the lake to help reduce the likelihood of panfish becoming over abundant. If you wanted to expand the diversity of the fishery, stocking emerald shiners or bluntnose minnows would be a good way to add some forage without introducing a potentially harmful species. They may be hard to find but both can reproduce in your lake and maintain themselves. Fathead minnows and golden shiners are less desirable species. Fatheads almost never succeed in lakes. Vegetation is the key to everything, without it almost nothing thrives. The process of re-establishing a viable native plant community will take some time (years!) but will really help the lake move forward.

### **Recommendations (in priority order):**

1. Aquatic plants are part of every lake ecosystem and should be allowed to grow so the lake remains healthy. Re-evaluate your goals and the health of the lake as you move forward.
2. Establish a 15 inch minimum length limit and 1 per day catch limit on largemouth bass and stock as many largemouth bass as the Lake Committee can afford so a strong predator base becomes established. This will help keep forage species in check.
3. Establish a 24 inch minimum length limit and 1 per day catch limit on northern pike. Stock northern pike when funds are available so larger predators are present to feed on larger prey.
4. Rotate your predator stockings so various year classes are present.
5. Conduct a fish survey to re-evaluate progress of the fishery in 2011 or 2012.