

Bear Lake Fisheries Survey Summary Report – 2012

In 2012, the Department of Natural Resources conducted a comprehensive survey on Bear Lake in order to provide direction for the future fisheries management of this water body. The following report is a brief summary of data collected from various fish captured during the survey. If you have any questions or would like more detailed information, please contact: Al Niebur, DNR Fisheries Biologist, 647 Lakeland Rd, Shawano, Wisconsin, 54166. Phone: 715-526-4227

How does the DNR evaluate the fishery?

DNR uses 2 primary sampling methods in any given year to collect data on the gamefish and panfish in lakes. All public accessible lakes are sampled in rotation. Large acreage high use lakes receive intensive (comprehensive) netting and electrofishing effort. Smaller acreage (<100 acres) lakes get sub sampled (index sampling) by electrofishing only since they are too numerous to undertake with a comprehensive effort. **In 2012, Bear Lake was sampled with a comprehensive survey.**

A **comprehensive fish survey** is an assessment of the entire fish community in a lake. Different survey methods are used to sample all the different fish species that inhabit a lake. Fyke-netting and boomshocking are the primary fish capture methods. Once fish are captured, information can be collected as it relates to species composition, abundance, size structure, age classes, growth, survival, and reproductive success.



Spring and Fall sampling use electrofishing to capture fish. Shocking is done at night as fish move into shallower water (< 5ft). DC current is sent into the water and fish are drawn to the anode (+ charge) that extends off the front of the boat. As they get closer to the anode their muscles relax for a few seconds, which allows us to net them. Fish are counted, measured, weighed, and examined for marks and then released. A small sample of fish is sacrificed for age estimation and disease testing.



DNR fisheries crew removing fish from fyke-net. Fyke netting is a passive fish capture technique where nets are set near prime spawning areas and fished for several consecutive days (dependent on length of spawning time). Nets are checked daily.

The following surveys were conducted on Bear Lake:

Fyke Netting after ice-out: This survey is conducted with fyke nets to target spawning northern pike, walleye and yellow perch. This gear also has large by-catch of bluegill, black crappie and other panfish species.

Spring Electrofishing: This survey is conducted at night with a boomshocker (see sidebar for further explanation) and is used to target walleye, largemouth bass, and smallmouth bass and recapture fish that were marked during fyke netting. Other species are also collected.

Gamefish Summary

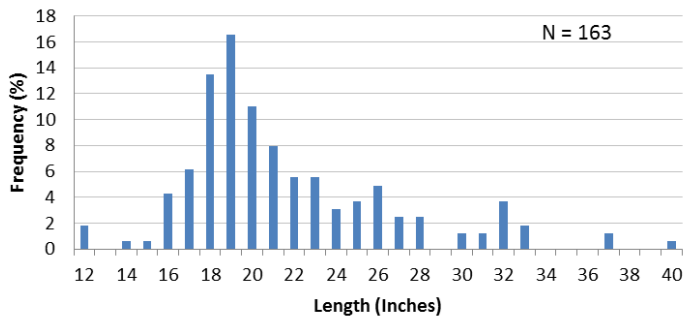
Largemouth bass were found in high abundance and comprised the majority of the predator (gamefish) catch. A total of 251 largemouth bass were captured during electrofishing and fyke netting surveys with length ranges of 5.5 - 20.5 inches and an average length of 11.6 inches. Size structure was average with 21% of catch greater than legal size (14 inches) and 4.5% over 16 inches. Relative abundance (i.e. no per mile of shoreline) was 57/mile which is slightly higher than previous surveys conducted in 2010 which yielded 44/mile.

Northern Pike were found at moderate abundance. A total of 164 northern pike were captured during our electrofishing and fyke netting surveys. Length ranges were 12.0 - 40.0 inches and averaged 21.9 inches. Size structure was above average with 46% over 21 inches and 8% greater than 32 inches. Historically, Bear Lake has produced good populations of northern pike with good size structure which is above average when compared to other area lakes. This has and continues to remain true with Northern Pike.

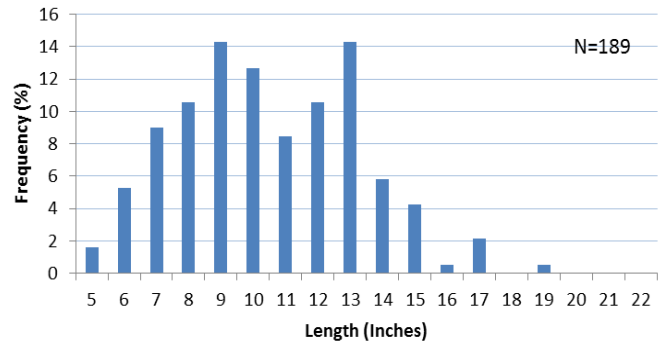
Walleye were found in low abundance. A total of 19 walleye were captured during fyke-netting surveys and no walleye captured during electrofishing. Average length was 22.8 inches with ranges of 20.0 to 27.0 inches. Size structure was above average with 100% of catch greater than legal size of 15 inches and 26% over 25 inches.



Northern Pike Length Frequency



Largemouth Bass Length Frequency



Panfish Summary

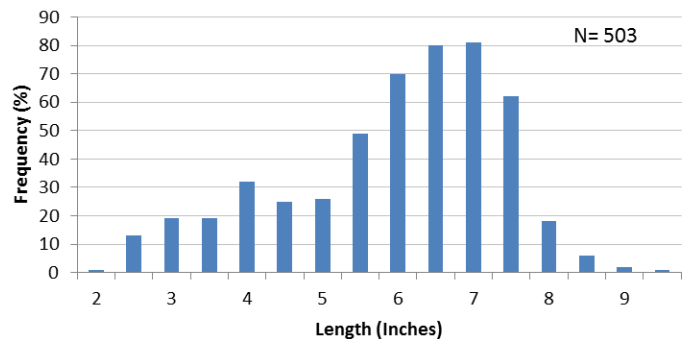
Bluegill was found at moderate abundance and was the dominant panfish sampled on Bear Lake. A total of 882 were captured during the early spring netting survey. Length ranged from 3.5 – 9.5 inches with a mean length of 6.7 inches. Size structure was above average and considerably better than in past surveys. Fyke-netting catch showed 78% of bluegill was greater than 6.0 inches and 44% were greater than 7.0 inches. Electrofishing catches were significantly less and of smaller size distribution with 129 fish captured. Length ranged from 2.0 – 8.0 inches with a mean length of 4.7 inches. Electrofishing catches yielded 25% of fish were greater than 6 inches and 3% were greater than 7 inches.

Black crappie was found at moderate abundance. A total of 121 Black Crappie were captured during the early spring fyke-netting survey. Length ranged from 5.0 – 13.5 inches with an average length of 8.9 inches. Size structure was high with 69% of the catch greater than 8.0 inches and 40% greater than 10.0 inches. Note: The largest bar (10.0 inches) on the length frequency graph represents a strong 2008 year class.

Summary and Management Options

- 1) Predator fish populations (primarily largemouth bass and northern pike) were found at moderate relative abundance and size structure was at acceptable levels. No changes in management are recommended at this time.
- 2) Panfish populations appear to be in good condition. Abundance was at adequate levels and all species showed average to high size structure.
- 3) Common carp and gizzard shad were sampled in low numbers but should be monitored. Common carp at higher abundances can cause significant harm to aquatic habitat and water quality by the uprooting of aquatic vegetation and disturbance of bottom substrate. Gizzard shad are highly efficient at feeding on zooplankton and at higher densities could cause problems with outcompeting other fish species (e.g. juvenile bass, bluegill, crappie) that also feed on zooplankton. Maintaining higher populations of largemouth bass and northern pike will be beneficial in controlling carp and gizzard shad numbers.
- 4) Protect and/or restore natural aquatic habitat. Preserving existing habitat such as aquatic plants and near shore wood structure will be far more beneficial in maintaining the fishery than relying on stocking and artificial habitat enhancements (e.g. rip rap, cribs). Additions, of large coarse woody structure may be an option to improve fish habitat.
- 5) Continue monitoring of fish population. Bear Lake is scheduled to be surveyed again in 8-10 years.

Bluegill Length Frequency



Black Crappie Length Frequency

