A 2005 Assessment of the Fish Community of Straight Lake, Boy Scout Lake and the Straight River, Polk County, Wisconsin (MWIC 2627800, 2518800, 2626900).

By

Heath M. Benike
Senior Fisheries Biologist
Wisconsin Department of Natural Resources
Northern Region - Barron

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Introduction

In 2005, the Wisconsin Department of Natural Resources acquired a 2,800 acre parcel of property in northern Polk County near Luck, Wisconsin. A portion of this property contains two undeveloped lakes (Straight and Boy Scout Lakes). Straight Lake is a shallow 107 acre undeveloped drainage lake with a maximum depth of 12 feet. A small dam is present on the outlet of Straight Lake that raises the water level several feet. Historic fisheries surveys of Straight Lake are lacking mainly because the property has been in private ownership and no public access has been developed. What little information exsisted suggested that a fish community consisting of largemouth bass Micropterus salmoides, northern pike Esox lucius and panfish Lepomis sp. were likely present. Boy Scout Lake is a small 8 acre landlocked seepage lake located southeast of Straight Lake with a maximum depth of 17 feet. No fisheries information is present on this lake, however it was assumed largemouth bass, northern pike and panfish were likely present.

Straight Lake is also the headwaters of the Straight River which exits the eastern portion of Straight Lake on flows eastwardly towards Polk County Highway I. This section of stream was surveyed in 1954 and contained warmwater minnows and juvenile yellow perch Perca flavescens near the outlet of Straight Lake and at Polk County Highway I.

Considering their was limited fisheries information present, a baseline inventory of the fish community was conducted in 2005. This report highlights the results of that survey with specific management options for each waterbody that can be used for future master planning efforts for this property.

Methods

A nighttime electrofishing survey using a pulsed DC mini-boomshocker operating at approximately 475 volts and 14 amps was used to sample the entire shoreline on Straight and Boy Scout Lakes on the evening of 9-27-05. All fish seen were collected and identified. All gamefish were measured to the nearest 0.5 inch and all panfish were measured to the nearest 0.1 inch. Scales were collected from a sub-sample of gamefish and panfish to obtain age and growth information. Effort was recorded in hours sampled and reported in Catch per Unit of Effort (CPUE). Size structure of fish was determined by calculating proportional and relative stock density values for chosen species.

A daytime electrofishing survey using a pulsed DC backpack electrofishing unit operating at 225 volts and 1.8 amps was used to sample a 143 meter station located upstream of Polk County Highway I. All fish seen were collected, identified and counted. All gamefish or panfish captured were measured to the nearest 0.1 inch. Coldwater IBI values were calculated at this site to determine if this portion of stream has any potential to be managed as a coldwater (trout) fishery.

Results and Discussion

Straight Lake

Largemouth bass were the most common gamefish collected. CPUE was 91 fish/hr. Largemouth bass ranged from 3.5 to 17.9 inches in length and the size structure of largemouth bass was good with a PSD of 58 and RSD-14 value of 16. Both values are considered to be in the normal range for Polk County lakes. Growth rates for largemouth bass were good. Although growth and abundance was good, the ageing data suggested that no largemouth bass older than age 6 were collected. Considering that Straight Lake was in private ownership for many years it would be reasonable to assume larger/older bass (8+ years of age and in the 18-20 inch range) would be present in the population, but these larger fish were not documented during the survey.

Northern pike were the second most common gamefish collected. CPUE was 6 fish/hr. Considering the low number of fish collected PSD and RSD values were not calculated. Age and growth information suggests the oldest northern pike collected was 6 years of age at 30.8 inches in length. Northern pike growth was considered good but again, similar to largemouth bass, no northern pike larger that age 6 were collected.

Bluegill Lepomis macrochirus were the most common panfish collected. CPUE was 297 fish/hr. Bluegill ranged from 2.0-7.3 inches in length. Growth for bluegill was good, however the maximum age for bluegill was 6 years of age.

Yellow perch and pumpkinseed Lepomis gibbosus were also collected; abundance was much lower at 16 and 14 fish/hr, respectively. Yellow perch ranged from 2.0-9.1 inches in length and pumpkinseed ranged from 3.9-6.6 inches in length. The oldest pumpkinseed collected was 6 years of age and the oldest yellow perch was 5 years of age.

Other fish present were fathead minnow Pimephales promelas, black bullhead Ictalurus melas, bluntnose minnow Pimephales notatus, white sucker Catostomus commersoni , golden shiner Notemigonus crysoleucas and central mudminnow Umbra limi.

Based on the results of this survey a desirable fishery is present in Straight Lake. However considering there were no fish collected older than 6 years of age, and given the shallow depth of Straight Lake (12 feet), it is likely that a fish winterkill occurred within the past 10 years

Boy Scout Lake

Black crappie Pomoxis nigromaculatus were the only game or panfish collected. Black crappie ranged from 2.0-8.0 inches. Growth of crappie was excellent at 8.0 inches of length at age 2. Other species collected were black bullhead and various species of minnows. Fish communities dominated by black crappie and bullhead suggest that frequent fish winterkill conditions occur because both species are tolerant of low dissolved oxygen levels. Based on the results of this survey a sportfishery is not present in Boy Scout Lake and it is likely fish winterkill conditions occur on a frequent basis.

Straight River

Sampling of the Straight River at Polk County Highway I, documented one juvenile largemouth bass (3.9 inches) and the remaining fish were warmwater minnows. More specifically, creek chub Semotilus atromaculatus, blacknose dace Rhinichthys atratulus, northern redbelly dace Phoxinus eos, white sucker, common shiner Notropis cornutus, brassy minnow Hybognathus hankinsoni, fathead minnow and golden shiner were collected. Coldwater IBI ratings were calculated at this location and the results were “Poor” which suggests that the stream is best managed as a warmwater fishery at this location and that it will likely be dominated by warmwater minnows in the future.

Management Options

Straight Lake

Fishing Regulations

Option A1: Provide a high quality angling experience with larger than average size fish present when compared to similar waters in Polk County. The following fishing regulations would be recommended: Northern pike 26 inch minimum length limit, daily bag limit of 2, largemouth bass minimum length 18 inches, daily bag of 1in total and a panfish daily bag limit of 10 in total, no length limit.

Option A2: Provide an average angling experience with no expectation that larger than average fish would be present when compared to similar waters in Polk County. The general statewide fishing regulation would remain in place which are as follows. Northern pike, no minimum length limit, daily bag of 5, largemouth bass minimum length limit 14 inches, daily bag of 5 in total and a panfish daily bag limit of 25 in total, no length limit.

Winterkill/Lake Aeration

Option B1: If the lake winterkills in the future, the lake should be restocked but an aeration system should not be installed. This option minimizes human influence but still allows the opportunity for a fishery to be established before the next winterkill occurs. Typically it would take 8-10 years before the fishery returns to a desirable state if this option is pursued and in the interim fishing opportunities during each time period would be poor at best.

Option B2: If a winterkill occurs in the future, the lake should not be restocked. Under this option, if a severe winterkill occurred it would likely be void of a sport fishery for an extended period. This option would provide limited fishing opportunities for the public and limit the recreational value of Straight Lake from an angling perspective; however it would minimize management costs in terms or stocking, fish surveys etc. in the future.

Option B3: The installation and maintenance of an aeration system could be installed as a proactive measure in an effort to prevent fish winterkill conditions from occurring. Considering that no fish older than age 6 were present in the fishery, winterkill conditions have likely occurred within the past 10 years.

If an aeration system is not installed and the lake experiences a winterkill, it may take an additional 8-10 years before the fish community returns to its present state.

Options B4: If the lake winterkills in the future, an aeration system should be installed and maintained. This option would prevent any future fish winterkill conditions from occurring and provide a desirable fishing experience but it would not be as progressive as option B3. It would still take 8-10 years before the fishery will return to its present state if the lake winterkilled in the near future.

Straight Lake Water Levels

Option C1: Maintain existing lake levels in their current state. Any reduction in lake water level from future dam modifications could lead to additional fish winterkill conditions because of a decrease in water depth and volume. Considering the maximum depth of Straight Lake is only 12 feet deep and their is already some evidence to suggest the lake has winterkilled recently, lowering lake levels would likely increase the risk of potential future fish winterkill conditions.

Option C2: Remove the dam at the outlet of Straight Lake and restore the lake it its original elevation. This option would lower the lake level several feet. It is likely that the fish community would be negatively impacted by this option by reducing the total volume and depth of Straight Lake. The risk of fish winterkills would be very high if this option was chosen. The benefit of this option is that the long term cost of maintaining a dam would be eliminated if the structure was removed.

Access for Management, Electricity and Emergency Conditions

Option D1: The existing access road on the south shore of Straight Lake should be maintained. The access road should be gated with access only available to Department staff for management or emergency purposes. This is the only respectable access to the shoreline of Straight Lake that could be used for management and emergency access purposes. If this access road is abandoned or not maintained, there would be little opportunity for future fisheries management activities such as fish surveys, stocking, aeration installation, habitat restoration activities, etc. In addition, this access road would be a logical route for potential utility access to power any future aeration system.

Option D2: No access roads should be maintained for management or emergency purposes. This would prohibit access for Department staff for management and emergency access services to Straight Lake. Under this option fisheries management services (surveys, stocking, aeration, etc.) would be limited or absent.

Boy Scout Lake

Option A1: Warmwater Fishery-Bass and Panfish. Re-stock largemouth bass and panfish in an effort to restore a warmwater sport fishery. This fish community would be similar to what is present in Straight Lake. Considering the existing fish community documents that a recent fish winterkill has occurred the installation and maintenance of a lake aeration system would be needed to prevent future fish winterkills from occurring in the future. Re-stocking the lake without installing an aeration system to maintain the warmwater sport fishery would not be cost-effective because it is likely the lake would winterkill on a frequent basis.

Option A2: Coldwater Fishery-Trout. Considering its depth (17 feet) and topography (steep shoreline) the potential exists to manage this lake for trout on a seasonal and perhaps a year round basis. Stocking legal length and small fingerling trout annually would provide a seasonal put and take and/or put grow and take trout fishery. This option would provide additional fishing opportunities for anglers considering Straight Lake already has an established warmwater (bass/pike/panfishery). It is anticipated that this option would provide high angler catch rates and provide ample shorefishing opportunities for anglers. This option would not necessarily require the installation of a lake aeration system because is likely the majority of trout would be harvested before ice-up of each year. This has been an effective management tool in small lakes in Washburn County.

Option A3: Do not manage Boy Scout Lake for fish. This option would essentially maintain the status quo. Lake aeration would not be necessary, no fish stocking would occur and angling opportunities would not be present. The lake would be void of a desirable fishery, but management costs would be reduced by not providing fisheries management surveys.

Straight River

Considering the river is dominated by warmwater minnows their appears to be limited value in terms of providing angling opportunities. No management plans are anticipated for this waterbody based on the results of this survey.