



Herman Brothers

Lake & Land Management

December 14th, 2018

Oak Run Fish & Sports

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Dear Ron,

Within this document you will find my report on the fishery survey which we completed on October 3, 2018 at Spoon Lake (Oak Run). The report will outline the entirety of our process collecting data, the analyzed data, the results, as well as my specific recommendations that will continue to take the lake in the direction you would like.

Please do not hesitate to contact me if you have any questions concerning the report.

Thank you!

Sincerely

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Introduction

On the morning of October 3rd, 2018 Austin Bennett and Tad Locher conducted an electrofishing survey with intention of collecting data regarding the current fishery. The electrofishing survey was conducted in the upper, middle, and lower creeks of Spoon Lake at Oak Run in order to obtain raw data from each area of the lake to get a full sample. The survey was broken down into three transects which were classified as the deep creeks, the main lake, and the shallow creeks (lower, main, upper respectively). Each transect was surveyed for 30 minutes using DC electrofishing techniques.

This report is meant to explain and describe the population dynamics occurring within this specific fishery. The goal is to make the analyzed data clear and concise to allow full understanding of this complex ecosystem. Below you will find a brief summary of the survey, the data collected, and the general direction we want to go to reach your goals.

Electrofishing Survey

The survey was conducted under ideal conditions. The temperature was around 70 degrees Fahrenheit with water temperatures of 75 degrees Fahrenheit. By the end of the survey, the wind had picked up to around 20 mph. The cloud cover was around 40%. The only limiting factor in the survey was the water clarity. There was a heavy planktonic algae bloom in full swing when we were there for the survey. This may have an impact on total catch per unit effort (due to lack of water clarity), but will have little-to-no effect on the overall population dynamic comparison. We run into this situation quite often and is nothing to be concerned about regarding data collection and data analysis.

The vegetation identified was Coontail, Leafy Pondweed, Eurasian Milfoil, and sparse patches American Pondweed. It is likely that Curly Leaf Pondweed was present as well, but had come to the end of its lifecycle by the date of the survey.

The analysis and information below will be split into three sections to describe each transect that was surveyed. The first will be the lower (deep creeks) and ending with the upper (shallow creeks). Information regarding conductivity, cpue (catch per unit effort), relative weights, etc. will be found in the analysis section.

While fishing in this lake, you can expect to catch largemouth bass, bluegill, black crappie, white crappie, walleye, channel catfish. On occasion you may catch a common carp, smallmouth bass, white bass, yellow perch, redear sunfish, green sunfish or flathead catfish.

Data Analysis

I. Lower Lake

The conductivity of the water was 420 μ S in the lower end of the lake. This is a “low” number. A relatively low conductivity results in greater success of the equipment. With this conductivity reading, we were able to reach the goal of 5,100 watts of electricity. The goal was determined based on the water temperature and the conductivity level. This is the most accurate method of ensuring enough electricity is being used during the collection.

The collection of fish in this transect can be described by the overall CPUE (catch per unit effort) which was 3.05. This number is fair. I was not surprised at this number as the

depth of the shorelines were very steep and not much structure was reachable with the electrofishing equipment. Many of the fish that were collected came from areas of heavy vegetation and downed trees along the shoreline. Much of the structure was in over 12' of water. With this being said, there should absolutely be more structure added to the shallow water (2-6') within the next couple of years. This section of the lake needs more ambush points for the predator fish. (There was some habitat work done recently which is great, I just want to ensure that this continues and does so in shallow water).

The average relative weight of largemouth bass was slightly lower than I would like to see in the lake. We obviously always shoot for relative weights to meet or exceed 100%, but that is not always the case. The average in this transect was 88.2%. (This number is actually slightly higher than when the survey was last conducted. So we are heading in the right direction.) Along with this, one more number to note is the average size of the adult bass in this transect. The average of the adult bass collected was 13.33 inches. (Also up from the last survey.)

I believe that this low relative weight number in the bass is due to the low abundance of adult bluegill relative to the abundance of the largemouth bass. The ratio of adult bass to bluegill was 1:2. In an ideal scenario that would produce actively growing largemouth bass you would want this number to be 1:10. This means that each adult largemouth bass needs 10 adults bluegill to provide enough forage to have consistent growth and reach its full potential. This is not to say that the bass fishery is doing poorly though. The average relative weight is still fair and the forage base is being shared and negatively impacted slightly by the walleye foraging. We focus our efforts on collecting this

number with largemouth bass because it can describe much more about the fishery. With the knowledge of a low overall relative weight for largemouth bass, we can tell that there is either too many predators present, or there is a lack of forage. In this case, it is a mixture of both. This is not a bad thing, and the numbers are still close to average. We simply need to stock a few more bluegill every couple years and harvest some largemouth bass to get the relative weight number above average. This will also have a positive effect on the walleye and other predators present in the lake! (More information in recommendations section).

II. Main Lake

The conductivity of this transect was slightly higher than the last. The conductivity was 442 μ S in the main section of the lake. With this conductivity reading, we were able to reach the goal of 5,200 watts of electricity. The same was done at this site in order to reach the greatest amount of electrical output.

The CPUE that was recorded at this transect was 3.42. This was slightly better than that of the lower transect, but still was only fair-good. This area was much less conducive to having a high abundance of fish during this time of year due to the steep shorelines and lack of habitat in the area. This was the one transect that we did find a smallmouth bass. The smallmouth bass population has been a focus in the lake as of late, and much effort has been put toward re-establishing this population. It is worth noting that during our survey only one smallmouth bass was collected. This could be due to the algae bloom that was present which could have moved the smallmouth to deeper water. I would recommend adding more structure to this transect if at all possible.

The ratio of adult bass to bluegill was nearly 1:1 in this middle section of the lake. In an ideal scenario that would produce actively growing largemouth bass you would want this number to be 1:10 (As stated above). The average relative weight is still fair and the forage base is being shared and negatively impacted slightly by the walleye foraging. This was likely due to the steep banks and lack of bluegill spawning habitat in this area. I am not surprised to see a low abundance of bluegill in this transect due to the physical description of the shorelines.

III. Upper Lake

The conductivity of the water was 488 μ S in the upper end of the lake. Although this was the highest reading of the whole lake, it is still a “low” number. With this conductivity reading, we were able to reach the goal of 5,100 watts of electricity. The goal was determined based on the water temperature and the conductivity level. The survey was conducted for 30 more minutes at this transect. Overall this area was much more conducive to sustaining a high abundance of fish. If I had to choose a particular location to fish, this would be the spot. The area where the creek comes into the lake was absolutely loaded with fish. The interesting correlation to this fact is, this transect was also the most abundant in vegetation and woody debris. There was plenty of habitat which held an abundance of food for the predator fish to hang around. Once again, I would be fishing in this area.

The overall CPUE of the upper lake was the only section that was over 4. The exact CPUE was 4.26 which is in the category of “good”. This rating of CPUE is much easier to work with because we have a greater sample number to analyze and draw conclusions

from. Obviously with this being the first year of us conducting the survey, we do not have any data of our own to compare to, so in the future we will have the ability to compare data from years past when drawing conclusions and making recommendations.

The average relative weight of the largemouth bass was much closer to the average relative weight we like to see. The average relative weight of the largemouth bass was 97% in this transect. The fish we collected in this area were very actively feeding and were doing so successfully. There were a high abundance of predator fish in this area which does have an effect of the relative weights of the largemouth bass. (It is also worth noting that this number is much higher than when the survey was last conducted.)

Recommendations

- Continue with the walleye and smallmouth bass stocking program, only change the smallmouth bass stocking to an every other year stocking. You are creating a world class walleye fishery and this should continue to grow and progress in my opinion.
 - When stocking smallmouth, stocking a size larger would be ideal, but I realize that this is an extra expense. If you can stock larger fish, you can stock less fish and will still see results. (Also follow every other year stocking)
 - I recommend the same in regards to walleye. The bigger the stocked fish are, the better chance they have of becoming a trophy in this particular lake.
- Stock as many bluegill 3-5" as possible up to 20,000. This will only help to boost the forage base which is being fed on quite heavily with the abundance of predator fish in the lake.

- You should only have to follow this particular recommendation for a couple of years if the habitat for the forage fish is improved. It should become self-sustaining when the habitat is put in place. (I understand that this is a large number of fish and will take up a large portion of the budget, but I believe it is very important in increasing the overall size and health of the predator fish.
- If desired you can stock black crappie every 3rd year. You would need to stock around 2,000 of these at 5-7" in order to see results with these fish. This is not a fish that is necessary to stock at this stage, but there was expressed interest in increasing catch rates of black crappie during the survey. Only consider this if the budget allows.
- Continue current fishing regulations.
 - The only thing I would think about changing would be the largemouth bass regulations, but I would like to have one more survey done before we go changing these regulations.
 - Harvest as many carp as you can. This will continue to help the fishery improve as well.
- Before you decide to move on any other suggestions, I would highly recommend improving the habitat in your lake. I understand that this must be done in areas where recreation is not as common, so we need to work on identifying exactly where this is, and get serious about adding structure in areas of 2-6' of water.
 - Add trees, stumps, rock piles, Christmas trees, artificial structures, whatever it takes to get more habitat. This will help sustain the forage base that I am recommending you stock every year.

- Conduct a follow up survey in the spring of 2019. It would be ideal to stay on a schedule of conducting the survey at the same time of year each year. The spring is the best time to get a very accurate survey at this lake in particular.

Conclusion

It was great to get to meet Ron while conducting the survey and going over the history of Oak Run. We are extremely excited about the potential for growing trophy fish consistently in your lake. You have already created an amazing walleye fishery and by following recommendations above, you have the opportunity to create an amazing largemouth, bluegill, and crappie population.

I look forward to helping in any way I can in the coming year. Please do not hesitate to reach out to me with questions, concerns or comments about the report or anything else. We would like to come back in the spring and conduct a follow up survey. We can get this on the calendar as soon as you choose what date/time works best for you!

Best Regards,

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