



*Focus on Aitkin Area*

# *Fisheries*



A NEWSLETTER OF THE MINNESOTA DNR AITKIN AREA FISHERIES OFFICE DECEMBER, 2016

## Winter operations in the Aitkin Fisheries Area

By Rick Bruesewitz

Well it looks like winter has finally arrived. In many fisheries offices across the state, including ours, winter is the typical time to examine the structures we collect from fish to estimate their age (see the *Tiny Tidbit* in upper right of this page), and to analyze all the rest of the information we collected during the open water season.

In Aitkin, this is also the time for us to start operations of the fish trap at the outlet of the Rice River on Rice Lake in the Rice Lake National Wildlife refuge. This important fisheries function has been operated since the 1950s. While in the "old days" those fish were used to stock a multitude of lakes in Aitkin County, we now know better than to stock on top of already high density Northern Pike populations. The fish we catch these days typically end up in southern Minnesota, in waters that have very poor or even no natural reproduction.

In a typical year, Aitkin staff will harvest several thousands of pounds of pike. Last year, things didn't go so well due to the warm weather and we were only able to harvest about 2,300 lbs. While we were hoping for more typical weather conditions this season, it sure is not looking very typical outside.

That said, I'd venture to say we are not going to have a very typical ice-fishing season this year again either. Be really careful, especially in the early season.

Have a great and safe ice fishing season!



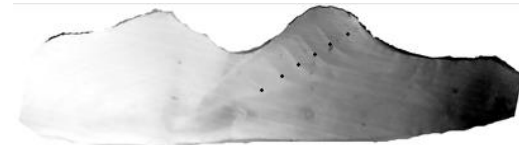
*Greg Berg with a net full of pike ready to be weighed and loaded onto the tank truck.*

This and all future issues will be posted on the Aitkin Fisheries website at

<http://www.dnr.state.mn.us/areas/fisheries/aitkin/index.html>

I look forward to your feedback and suggested topics for future issues; you can contact our office by email at [aitkin.fisheries@state.mn.us](mailto:aitkin.fisheries@state.mn.us).

### TINY TIDBITS



*Trees are not the only thing that have "growth rings", we routinely examine the cross section of an otolith (an inner ear structure in fish) to count the annuli (rings) in order to tell us how old that fish was. Knowing the age of a fish is important to us for the evaluation of various stocking strategies and comparing levels of reproduction in any given water. The photo above is an otolith from a six year old walleye captured in the fall (seven growing seasons, only six winters).*



*Silver Redhorse from Big Sandy*

### *Did you know that...?*

Inflatable life vests are becoming more and more popular and affordable. Be sure to check yours over periodically for holes. While we hope to never have to rely on them, it only takes one bad circumstance to turn something into a life and death situation. Every year our fisheries technician (Kris Nissen—above with redhorse) manually inflates the vests to ensure their integrity. Those that don't hold air overnight are replaced.

# BSL update

By Greg Berg

Hello all, my name is Greg Berg and I am the Assistant Fisheries Supervisor for the Aitkin Area Fisheries office. I started working here in 2003, and I can't believe I have been working in the area for over 13 years already!



Over the years, all of us at Aitkin have spent many hours working on the Big Sandy Lake fishery doing a wide variety of different fisheries related surveys and assessments. Typically our work focusses on standard monitoring, which is now conducted every three years and gives us updates on which way the fish populations are trending. We also do annual night electrofishing in late September or early October for "young-of-the-year" walleyes (fish that were hatched earlier this year). This gives us an index of the natural reproduction.

In addition to our standard work, we also conducted several special projects. Here are some updates for those surveys.

## POPULATION ESTIMATE

It was REAL busy up on Big Sandy this year! As you may know, we did a special project this spring and early summer called a mark/recapture population estimate (PE). This type of survey allows us to estimate the actual number of fish in the lake. One of the projects I will be working on this winter will be to pin down a couple of numbers from the data we collected this spring. I've only recently had time to start compiling and analyzing the data, but it appears we caught and marked over 2500 fish from Big Sandy Lake itself and about another 390 from the Sandy River. Wow! That took some work. All of the fish were marked by removing the third dorsal spine. Some of you may have noticed some of these fish in your catches this summer. Preliminary estimates from 3 different recapture methods gave us estimates of around 3 walleye per acre that were 12 inches and larger, with about half of them over 14 inches. We will continue to refine these estimates for a final report in spring.



Technician Kris Nissen with the largest walleye (29 inches) sampled this spring on the Sandy River.

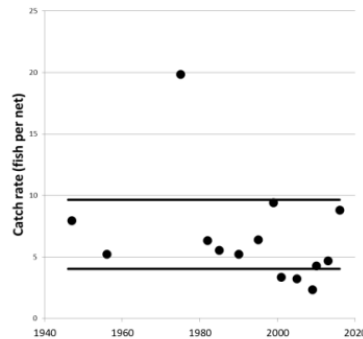


## STANDARD SURVEY

Next we conducted our every 3 year Standard Survey of the lake using gillnets and trap nets, which are placed in the same locations every survey to look at the numbers and sizes of all the fish species in the lake. Preliminary numbers had the walleyes at a catch rate of nearly 9 per net, which is the highest catch we've seen since 1999, and the 3rd highest catch we've observed! Tullibee were back on the scene too, with near median levels observed in the catch. Crappie numbers were back down to more average levels, although the number of fish over 10 inches were still the 3rd highest we've observed. One last note is that Channel Catfish were observed for the first time in our survey.

## EXPERIMENTAL FALL GILL NETTING

### Walleye



Historical gill net assessment catch rates for walleye in Big Sandy Lake.

To finish out the field season we also did some experimental gill netting at the end of September, using the same gillnet locations as the summertime survey to see how the numbers compared with summer, but more importantly to better identify mature females (eggs are visible in fall, whereas not in summer).

One of the goals of the special regulations on the walleye is to increase female spawning stock biomass, and fall gill netting is the standard method we use in Minnesota to evaluate this particular population statistic. At first glance it seems that overall walleye catches were lower than the summer nets, but black crappie and tullibee catches increased to some degree and female spawning stock was similar to summer. We'll be looking at these data more closely this winter.

## CREEL SURVEY

On top of all of this we also conducted a creel survey this summer, for the first time in many years. There have only been 3 creel surveys conducted on the

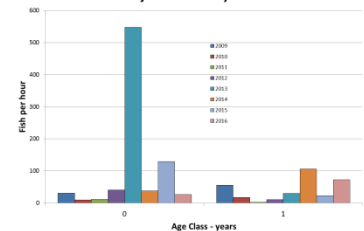
lake as follows: 1988, 2001 and 2016. A creel survey is the best tool that we have for measuring the fishing pressure and harvest on recreational sport fisheries.

Again, much of this data will be compiled and analyzed during the winter months, but preliminary evaluation indicates that it started out pretty slow, then picked up as the summer progressed and was best from mid-July through mid-August for walleye, and September for crappie. Although there were peak times and good bites here and there, I'd say fishing this summer on average was pretty slow with a fairly small percentage of "keepers" being caught, but we'll know more when the final numbers are tallied. It will be good to have both the creel survey and the population estimate in the same year. This will help us judge the activity with respect to abundance. Due to budgetary reprioritization we needed to cut the creel survey two weeks shorter than what we had planned.

## FALL ELECTROFISHING

While electrofishing catches were somewhat lower this year, they were still not too bad for young-of-the-year, and were actually very good for 1 year old fish. It is pretty common to have a slightly weaker year class just after a really good one. The 2013 and 2015 year classes both appear very strong. In addition, the average length of the 2016 year class walleye appears to be over 6 inches, which bodes well for future survival.

Big Sandy Lake fall electrofishing catch rates for juvenile walleye



Yup, it was a busy, but enjoyable summer on the lake. I hope you enjoyed it as well!

## "GRUMPY" TECH TIPS

By Kris Nissen

Hi, my name is Kris Nissen, I have been the fisheries technician at Aitkin for ten years. One of my job responsibilities is keeping boats and survey equipment working and well maintained. Sometimes I get a little grumpy when: ***Intermittent electrical issues take up too much of my time!***



I can't stress enough the importance of a good ground on your outboard motor. Intermittent starter issues in an outboard motor are usual caused by a either a bad ground or else a weak starter battery.



Main ground wire from battery connecting to starter and engine block.

Clean and tighten the connections on your starting battery and on the starter. Sometimes a poor ground connection occurs where the starter bolts on to the engine block. Dissimilar metals of the engine block and starter can develop corrosion and the vibration of the engine or regular bumpy rides can loosen even the tightest connections. These very typical circumstances just don't make for the proper conditions needed for a good ground.

Click pic for more ice safety info!



## Family fun on the Mississippi River

By Kris Nissen

The Mississippi River in Aitkin County provides excellent angling opportunities for many fish species including the Smallmouth Bass. The last stream survey of the entire portion of the Mississippi River in Aitkin County was conducted in 2007. Trap nets, electrofishing, and angling were used to sample 79 Smallmouth Bass up to 18" and 9 years old. In 2015, our office worked on a Musky electrofishing project on a good portion of the Mississippi River in Aitkin County. Although only a handful of Musky were sampled (*including the 53 incher on the front page*), Smallmouth Bass were also observed in good numbers and sizes. More Smallmouth Bass were observed in the shallow rocky areas, and nearer the mouths of the tributaries to the main river. Some of these tributaries also had good numbers of bass. Besides the rock and tributary habitats, we would also see Smallmouth Bass holding near downed trees. Anyone who has been on the river near Aitkin knows well there are a lot of downed trees in our area.



Just about every year we are contacted by anglers who believe they have caught a state record "rock bass" (right) that weighs well over the current record of 2 lbs. Invariably these have been Smallmouth Bass (above) taken from Mille Lacs, Round Lake by Garrison, or the Mississippi River. Smallmouth Bass have red eyes too!!!! For more info on each species – click on the pics



Son of Fishery Technician Kris Nissen, Tanner Nissen, hefts a nice Smallie while his brother Hunter continues to cast on the Mississippi River near Aitkin.

My family and I thoroughly enjoy fishing the Mississippi River in Aitkin County. We have caught Smallmouth Bass approaching 20", and good numbers of smaller fish. If you want a chance at some hard fighting fish in the Aitkin area, you might want to give Mississippi River Smallmouths a try.



Kris with a nice Smallie electrofished from a Mississippi River tributary in the Aitkin Area.



# So what is IBI?

By Alisha Hallam



*Biotic integrity is: "The ability of an aquatic ecosystem to support and maintain a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of the natural habitats within a region." Karr and Dudley 1981*

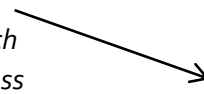
IBI is short for the index of biological integrity (IBI), and is a method used to measure a lakes ecosystem health. This method uses a scoring system that compares the types and numbers of fish in a lake to what is expected to be found in a healthy lake of a similar type. There are certain species of fish that are considered to be "indicator species". Some, which are considered "intolerant", can only survive in healthy water, while others are considered "tolerant" because they can live in less than healthy habitats. An IBI survey uses a combination of our standard trap netting and gill netting assessment gear, along with additional near shore sampling equipment. This near shore portion of the IBI sampling consists of backpack electrofishing and seining at predetermined, randomly selected stations around the lake, with the number of stations being dependent on the size of the lake. Each year the Aitkin fisheries crew conducts this near shore sampling (IBI) on numerous lakes in Aitkin County.

Some examples of the indicator species, which are considered intolerant and require good water quality to survive, are:

- Banded killifish
- Shiners
- Trout
- Burbot (eelpout)
- Cisco (tullibee)



- Sculpin
- Logperch
- Rock bass
- Darters
- Smallmouth bass



Once a station has been seined and electrofished, the fish are identified, counted, and then released. These numbers are then used to calculate a score using a variety of different measurements. A few examples of these measurements include: the number of intolerant species found, the number of tolerant species found, the number of vegetation-dwelling species, the percentage of bottom living individuals, and the percentage of insect eating species. A final score is then calculated and this is then compared to a standard for a similar lake type, and then the lake is categorized in regards to its ability to support fish life (see table below).

Ultimately these results are then used by the Minnesota Pollution Control Agency in the evaluation of the overall aquatic health within each major watershed.



DNR Fisheries staff use a seine (left) and backpack electrofisher (below right) to sample the nearshore component of the fish community. Species such as the Iowa Darter (above right) are captured, identified, and counted. Note that Iowa Darters are considered to be an "intolerant" indicator species and are typically only found in waters of good quality



For more information on the IBI program, click on the table below.

Category	Description	Management Implication
Exceptional	Minnesota's highest quality lakes	Top priority for protection, especially for lakes at risk of land use change or shoreline development
Fully Supporting	Healthy lakes that support diverse fish populations	Protection needed; some restoration may also be required
Vulnerable	Lakes that are somewhat degraded but still support some sensitive species	Top priority for restoration, protection of remaining quality habitat
Not Supporting	Lakes that are degraded and where sensitive species can no longer live	Restoration, sometimes extensive, will be needed; lake will be added to the impaired waters list
Insufficient Information	Sampling did not yield enough data to make a clear determination about lake health	Additional data collection is needed