

# **Armour Lake Fish Survey**

## **Background:**

At the annual meeting of the Friends of Armour Lake (FOAL) held on July 2011, several of the property owners suggested an initiative to the Board: the possibility of planting walleye in Armour Lake. Many of the property owners in attendance felt the number of walleye had decreased over the years, and with the number of fisherman we have on Armour, this would be a nice initiative for FOAL to consider. And we felt that most property owners would approve of having additional walleye in our lake. As a new member of the Board I offered to take on this initiative. I was told at that time that the Murphy Lake Association (also private) had been planting walleye for years, and it would be a good starting point to find out the process they went through.

I then spoke to a representative from the Murphy Lake Association to discuss the procedure. I was informed that you must first apply for a permit from the DNR. Once you get the permit, you then contact a fish farm to purchase the type and size fish you want to stock.

Next I spoke to Steve Gilbert at the DNR. He explained that Armour is a naturally producing walleye lake, and that an AC electrofishing survey would have to be conducted before the DNR would issue a permit to plant fish. According to Mr. Gilbert, the last fish survey conducted on Armour Lake was in **June of 1960**. He told me that FOAL could hire a private company to do the survey (which would cost about \$3500) or the DNR could do it at no cost, since they had no data on Armour for over 50 years.

The FOAL Board members agreed that it would be great if the DNR would perform the electrofishing survey at no cost. In addition, the survey could tell us a great deal about the current health of Armour Lake. The Board also decided to post the entire survey on the FOAL website so all property owners could read the detailed report. Jim Rennhack volunteered to be the FOAL point of contact for the DNR when the survey was conducted, and Tom Weigand agreed to let the DNR use his boat landing.

## **Results of the DNR Survey dated January 4, 2012:**

The survey was conducted on the night of October 25, 2011. The DNR reported that the sampling conditions were excellent. The survey consisted of a single lap of the entire shoreline (6 miles, excluding one small island) using an AC electrofishing boat. The crew collected all fish regardless of length throughout the entire survey. All fish species were collected within two ½ mile index stations. According to the DNR, an additional spring fyke netting and electrofishing survey would be required to get a complete inventory of all the species and age classes present in the lake. However, this fall survey does provide an accurate indication of the game fish recruitment and a general overview of the species present in the water body.

The results from the fall survey indicate that Armour Lake has a healthy walleye based fishery. The fishery is also very diverse with 15 species captured. Two of the species, cisco and mottled sculpin are good indicators of water quality. (In fact, the DNR crew told Jim Rennhack that Armour was one of the most pristine lakes they had seen in northern Wisconsin). There appears to be good walleye spawning habitat and abundant woody cover

for other species present. Recruitment for all game fish species is adequate and no stocking is recommended at this time.

As noted above Armour Lake has a healthy walleye fishery. The fall electrofishing survey found that a good natural year class was produced this year with 14.0 young of year per mile. The long term catch rate of young of year (YOY) walleye captured in fall electrofishing surveys conducted in natural walleye waters in northern Wisconsin (not stocked) is 34 YOY/mile. The average YOY for the stocked waters in northern Wisconsin is only 9 YOY per mile. (If you see around 15 YOY per mile it's considered to be a significant year class). They also noted significant numbers of walleye from the 2010 class (6.7/ mile).

Given that Armour Lake produces good natural year classes on a regular basis, it falls under the DNR's no stocking guidance. The bottom line is that the lake is doing a reasonable job of recruiting walleye on its own and is producing a fishable population, given its small size and moderate fertility. Stocking of walleye will not add significantly to the population and may harm the health of the entire fishery.

Scale samples were collected to determine the age of the smaller walleyes captured and the length distributions of the YOY and yearling year classes. (Scales have growth rings on them similar to the rings on trees that allow us to determine their age). Scales were also collected from a few larger walleye. The results from this sample indicate that walleye in Armour Lake are growing at about the same rate as other walleye populations in the area. The DNR sample size of larger fish was small, and a more extensive sample could be obtained with a full spring survey\* to get the complete picture. However, the DNR informed me that the cost of this type of survey would have to be borne by FOAL, and would cost in excess of \$10,000 – whether it was done by the DNR or a private company. The entire results of the DNR's fall fish survey on Armour Lake can be viewed on the FOAL website (and the result of each fish specie can be found). <https://sites.google.com/site/thefriendsofarmourlake/home>

\*A full spring survey would include both netting and an AC electrofishing on each specie: walleye as soon as the ice goes out, followed by muskellunge and smallmouth bass in early June.

Tom Reinkober

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