

## **Jones Lake**

Crawford County, Township 28N, Range 2W, Sections 30 and 31  
Au Sable River Watershed, last survey, 2004

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### **Environment**

Jones Lake is 42.5 acre natural lake located in north central Crawford County in Michigan's northern Lower Peninsula. The lake is approximately 14 miles northeast of the City of Grayling on County Road 612. The entire lake is publicly owned and located within the Au Sable State Forest. Michigan Department of Natural Resources Forest, Mineral and Fire Management Division, manages a 42 site State Forest Campground on the lake with pit toilets, well water and a concrete boat ramp. Two thirds of the riparian zone is wooded upland with the remainder being shrub scrub wetland.

The lake is contained in an extensive deposit of gravels and sands that originated as glacial and ice-contact outwash (Zorn and Sendek, 2001). The lake has a small drainage area, less than 5 square miles, with direct outlet into the East Branch Au Sable River. Two small ponds are connected to the south portion of the lake with no discernable inlets found. Primary source of water for the lake is ground water or spring seepage. Maximum depth of the lake is 37 feet with bottom type consisting of sand, organics and marl. Total alkalinity ranges 92 - 147 mg/l and the pH ranges from 7.5 to 8.2 indicating a general productivity potential in the low to mid range. The lake stratifies seasonally with little to no oxygen found below 20 feet during periods of stratification.

### **History**

Fishery survey observations date back to 1924 at Jones Lake with the initial survey documenting a fish community composed of yellow perch, sunfish, rock bass, smallmouth bass and northern pike. Numerous forage minnows were also identified including blacknose shiner, common shiner, "shore minnow", bluntnose dace and golden shiner. Additional survey efforts in 1959, 1961 and 1964 added largemouth bass, bluegill, pumpkinseed sunfish and common white sucker to the fisheries community. Growth rates for the various game species were average with typical size distributions for northern fish assemblages. Angler complaints about the poor quality of fishing in the lake were common.

The first recorded fish stocking in Jones Lake was made in 1944 with the introduction of 600,000 walleye fry, 6,000 fingerling bluegill and 600 fingerling largemouth bass (Table 1). This was followed up with a plant of 2,000 fingerling bluegill in 1945 and 20,000 in 1957. The bluegill plant in 1957 resulted from angler reports that stated bluegill had disappeared from the lake.

In 1965 a new fisheries management strategy was introduced which was directed at converting Jones Lake to a trout fishery. This was accomplished by applying rotenone to the lake to remove competing fish species with a follow-up stocking of brook, brown and rainbow trout. From 1965 to 1972, 32,164 rainbow trout, 2,000 brown trout and 4,200 brook trout of various sizes were stocked to develop the trout fishery (Table 1). Follow-up surveys conducted in 1967, 68, 69 and 70 indicated limited survival of

stocked trout with minimal carry-over to following years. Survey notes to the files also state that the condition of the trout was "poor" with growth rates less than state average and an over-all "skinny" appearance. In addition, the original fish community (bluegill, yellow perch, pumpkinseed sunfish, northern pike, largemouth bass and smallmouth bass) quickly re-established in the lake either through survival from the rotenone application or through movement via the outlet from the East Branch Au Sable River. Trout management was considered a failure, most likely due to lack of suitable cold water habitat (a lack of oxygenated water below the thermocline). Trout management was discontinued in 1972.

A one time plant of 3,000 coho (silver) salmon was made in Jones Lake in 1974. No explanations of this plant could be located in the MDNR files, but it is speculated that this was an experimental plant to evaluate the behavior and movement of newly introduced salmon into Michigan. Similar plants were conducted in other waters around the state during that same period.

From the mid 1970's through 1980 no formal fisheries surveys were conducted and the status of the fish community was only inferred from angler reports. These reports indicated a variable fishery (more bad years than good years) with largemouth bass, bluegill and northern pike the primary game fish. Size distribution was considered poor at that time but it was reported that a few large fish were occasionally caught with largemouth bass up to 20", bluegill up to 10" and northern pike up to 40". Yellow perch were numerous but the population appeared to be stunted with few large fish caught.

In 1982 a new fisheries management direction was initiated to improve the size structure of the existing fish community. The plan was to reduce the number of small yellow perch, common white sucker and bullhead that was believed to be "stunting" the fish community and allow for more growth of the remaining fish. This action was accomplished by trapping and removing the non-desirable fish through the use of small mesh fyke nets. This manual removal was conducted during the spring of 1982 and 1983. The target species for removal included yellow perch (under 6 inches), common white suckers and bullheads. Totals removed for the two-year period included 142 lbs of yellow perch (3.3 lbs/ac), 323.8 lbs of sucker (7.6 lbs/ac) and 5.4 lbs of bullheads (0.1 lbs/ac) for a total of 471.2 lbs of rough fish (11.1 lbs/ac). This success of this management action was considered "marginal" as it was labor intensive and resulted in a relatively small catch.

During these manual removal nettings, additional biological data was also collected on all species captured. Small yellow perch and bluegill were most common in the survey with northern pike and largemouth bass the most common predators. Growth rates for the panfishes (bluegill, pumpkinseed sunfish, rock bass, yellow perch and largemouth bass) were within one inch of the state average mean length at age. Northern pike had a poor growth rate, approximately three inches below state average mean length at age.

With the lack of success of the manual removals and the persistent problem with overabundant small bluegill and yellow perch, a fingerling walleye stocking program was initiated in 1991 (Table 1). The goal was to establish an effective predator (walleye) that would reduce the biomass of small bluegill and yellow perch and subsequent competition to allow better growth of the remaining bass, northern pike, bluegill, yellow perch and rock bass. Spring fingerling walleye were prescribed for stocking at a rate of 100 per acre with stocking to occur on a two to four year rotation. These introductions have

been successful in establishing a walleye population as noted in two shocking surveys (1992 and 2003) and two netting surveys (1993 and 2002).

In September of 1992 a fall walleye recruitment shocking survey was conducted to evaluate walleye fingerling plants made in 1991 and 1992. The entire shoreline around the lake was shocked with data collected from all fish captured. A total of 137 fish were collected of which 15 were walleye ranging in size from 6 to 15 inches. Two anglers interviewed on the lake by the survey crew had caught one largemouth bass (16") and 15 bluegills (7.5" to 10.5"). In addition rusty crayfish were noted as abundant in the lake. Management recommendations were to continue fingerling walleye stocking and to consider special restrictive bass and bluegill regulations for quality fishing.

May of 1993 a netting survey was conducted to evaluate the bluegill population for inclusion in a potential state wide bluegill study (table 2). This survey included seven fyke nets and one gill net with a 15 net night total effort with a catch of 189 fish from 11 different species. The catch consisted of 5 walleye (7" to 22"), 20 northern pike (7" to 33"), 3 largemouth bass (10" to 20"), 7 bluegill (4" to 9"), 6 yellow perch (3" to 8"), 3 pumpkinseed sunfish (3" to 8"), 125 rock bass (2" to 10"), 7 common white sucker (14" to 21"), 11 brown bullhead (7" to 11"), and one new species, a 13" black crappie. Growth for most species appeared at or near mean length at age except northern pike which was 4.8" below the state average. Even though few bluegills were captured in the nets, angler reports indicated the fishing for bluegills was good. Management recommendations were to continue walleye stocking.

### **Current Status**

The two most recent fish management surveys were conducted in June of 2002 and September of 2003 by MDNR Fisheries Division. The 2004 survey was directed at evaluating the fish community for potential designation as a "Quality Fishing Lake". The sampling effort consisted of 12 large mesh fyke net lifts and 4 small mesh fyke net lifts. A total of 71 fish were captured from 9 species including bluegill (15 fish; 2.2" to 6.6"), white sucker (14 fish; 5.7" to 21.9"), rock bass (14 fish; 2.7" to 8.8"), walleye (9 fish; 12.8" to 21.1"), northern pike (6 fish; 19.2" to 25.9"); brown bullhead (6 fish; 11.0" to 14.1"); black bullhead (3 fish; 9.0" to 9.6"), yellow perch (3 fish; 4.6" to 5.1") and largemouth bass (1 fish 6.9") during the early June survey. Growth rates were similar to previous surveys with mean growth index above the state average for walleye, near the state average for bluegill and rock bass and below the state average for northern pike. The small sample size of fish collected may indicate a depressed fish population due to low productivity and high exploitation.

A fall walleye recruitment shocking survey was conducted in early September of 2003 to evaluate a June 2003 planting of 5,923 fingerling walleye. The entire shoreline was shocked (1.15 mile) with a 45 minute shocking time. Ninety-eight walleye were captured of which 97 were young of year (YOY) with a length range 4.7" to 8.1". The catch rate was 127 YOY per hour indicating strong survival. The Sern's Index indicates an average year class based on a measure of 20 YOY/acre. One 19.1 inch (age 5) walleye was also captured which corresponded to a 1998 stocking year.

### **Analysis and Discussion**

Twelve netting/seining surveys and two shocking surveys have been conducted on Jones Lake since 1924. Twenty-one fish species have been identified as having been present in the lake with bluegill, yellow perch, rock bass, pumpkinseed sunfish, largemouth bass, smallmouth bass, northern pike, walleye, brown bullhead, black bullhead, common white sucker and golden shiner listed as present in the lake now. The lake is low to moderate in productivity resulting in a low fish biomass. Fish growth rates are typically near the state average mean length at age. Size distributions of game fish have been acceptable to anglers with adequate numbers and large individuals noted in the population such as bluegill >10", Northern pike > 30", largemouth bass > 20" and walleye > 20". Periodically there have been high numbers of small yellow perch and bluegill.

Management actions have included attempts to produce a trout fishery through chemical reclamation with rotenone and stocking brook, brown and rainbow trout. This effort was not successful due to the absence of critical habitat (dissolved oxygen in the cold water zone below the thermocline). Other attempts to management the fish community included two manual removals to reduce the number of rough fish (sucker and bullhead) and small panfish (bluegill and yellow perch) to improve over-all growth rates of game fish. This action was considered time consuming and with no detectable benefits to the fish community. The final management action involved stocking walleye fingerlings to establish an effective top predator to reduce the numbers of small panfish and to establish a fishable walleye population. This action was successful with the presence of multiple year classes of walleye present and angler reports of walleye being caught.

### **Management Direction**

Jones Lake has challenged fisheries managers for years to maximize the fishery potential. Even though there has been a persistent problem with small panfish, the lake has produced large northern pike, largemouth bass and bluegill with growth rates at or near state average. It is speculated that even a modest harvest of game fish suppresses the over-all fish population. Future management actions will be directed at improving the numbers of large northern pike (>28"), largemouth bass (>15"), walleye (>20") and bluegill (>8").

In order for this to be accomplished, restrictive harvest and angling regulation will be imposed on Jones Lake through the "Quality Fishing Lakes" designation (Sendek, 2004). It is recommended that angling regulation include catch and release for all fish species, artificial lures only and an angling season from June 1 to September 31.

Follow-up evaluation will be conducted in 10 years of inclusion in "Quality Fishing Lakes" designation to determine if the fish size structure is conforming to the guidelines established.

Recent fingerling walleye stocking has established a good population with multiple year classes present and fish exceeding 20 inches. Fingerling walleye stocking will continue on a three to four year rotation with a stocking rate of 100 fingerlings per acre (4,200) to provide an adequate predator base and sport fishery.

### **References**

Sendek, Steven P., 2004. Guidelines for selection of quality non-trout fishing lakes. Michigan Department of Natural Resources, Fisheries Division.

Zorn, T.G., and S.P. Sendek. 2001. Au Sable River Assessment. Michigan Department of Natural Resources, Fisheries Division, Special Report 26, Ann Arbor, Michigan.

**Table 1.** -Stocking history for Jones Lake, Crawford County

| Year | Species         | Number  | Size/Age        |
|------|-----------------|---------|-----------------|
| 2003 | Walleye (tit)   | 5,923   | 1.3 inches      |
| 2001 | Walleye (mus)   | 16,361  | 1.8 inches      |
| 1998 | Walleye (tit)   | 4,850   | 1.8 inches      |
| 1995 | Walleye (mus)   | 4,270   | 2.2 inches      |
| 1992 | Walleye (mus)   | 3,087   | 4.5 inches      |
| 1991 | Walleye (mus)   | 2,000   | 1.7 inches      |
| 1974 | Coho            | 3,000   | Fingerling      |
| 1972 | Rainbow trout   | 2,100   | Fall fingerling |
| 1970 | Rainbow trout   | 625     | Adults          |
|      | Hybrid sunfish  | 42,000  | Fall fingerling |
| 1969 | Brown trout     | 500     | Adults          |
|      | Rainbow trout   | 39      | Yearlings       |
| 1968 | Brown trout     | 1,500   | Adults          |
| 1966 | Rainbow trout   | 21,000  | Fingerling      |
| 1965 | Brook trout     | 4,200   | Yearling        |
|      | Rainbow trout   | 8,400   | Yearling        |
| 1957 | Bluegill        | 20,000  | Fingerling      |
| 1945 | Bluegill        | 2,000   | Fingerling      |
| 1944 | Bluegill        | 6,000   | Fingerling      |
|      | Largemouth bass | 600     | Fingerling      |
|      | Walleye         | 600,000 | Fry             |

**Table 2.** -Species and relative abundance of fishes collected at Jones Lake, Crawford County, May 1993.

| Common name         | Number | Length range (in.) | Average len. (in.) | Total wt. (lbs.) |
|---------------------|--------|--------------------|--------------------|------------------|
| Black crappie       | 1      | 13                 |                    | 1.2              |
| Bluegill            | 7      | 4-10               | 6.0                | 1.3              |
| Brown bullhead      | 11     | 7-12               |                    | 7.6              |
| White sucker        | 7      | 14-21              | 19.0               | 20.4             |
| Golden shiner       | 1      | 4                  |                    |                  |
| Largemouth bass     | 3      | 10-20              | 13.8               | 6.0              |
| Northern pike       | 20     | 7-33               | 16.0               | 23.2             |
| Pumpkinseed sunfish | 3      | 3-8                | 6.2                | 0.8              |
| Rock bass           | 125    | 2-10               | 6.4                | 28.8             |
| Walleye             | 5      | 7-22               | 12.4               | 4.0              |
| Yellow perch        | 6      | 3-8                | 5.5                | 0.4              |