

September 28, 1932

Report 173

REPORT ON PINE LAKE, MANISTEE COUNTY,
WITH RECOMMENDATIONS FOR IMPROVEMENT OF FISHING

Size and
location

Pine Lake is located 2 miles west and 1 mile south of Wellston. The lake is reached by several roads--all of which are winding sand trails. The lake has an area of 159 acres, is slightly over 5/8 mile long and 1/2 mile wide.

Inlets and
outlets

No inlets occur around the lake. Water drains out of the outlet bay during high water. It drains through a low swampy area and according to reports many fish are stranded in this outlet marsh, at times, when the lake level is high and water drains from the lake through this marsh.

Water

From all indications the water is clean and is quite suitable for fish life. No indications of pollution were seen.

Use of water

Resort development on this lake is very limited. Two cottages with boat liveries are located on the north shore. No other cottages or structures of any kind are found elsewhere on the lake. Most of the shoreline is bordered by second growth timber. The lake is used only for fishing. Fishing is fairly extensive.

Temperature

The warm layer extends from the surface to 20 feet down. All water over 20 feet deep is cold. The lowest 20 feet have a temperature of 46 degrees. The upper third of the lake has satisfactory temperature for warmwater species while the lower two-thirds are suited primarily (in temperature) for cold water species.

Oxygen

Oxygen is fairly high in the warm region and considerable is present in the colder parts. None was found at the bottom.

Other chemical
conditions

The water is alkaline at all depths, is fairly clear and fairly soft, and contains no free carbon dioxide except at the bottom. Even at the bottom the carbon dioxide is limited.

Depth The lake has a fairly wide sandy shoal. Generally this is several hundred feet or more in width. A fairly sharp slope occurs at the dropoff. About 1/3 of the lake is over 30 feet deep. A maximum depth of 57 feet was found.

Bottom Sand occurs to the dropoff around most of the lake. In outlet bay the sand is mixed with pulpy peat. Along the southern half of the lake a band of marl exists between the sand and the dropoff. The bottom in deep water is pulpy peat.

Cover Cover is poor. Weed beds are limited in extent and little brush or other shelter occurs on the shoals. It is reported that many logs sank into the lake during lumbering days but these are evidently too deep to be of much benefit.

Vegetation The growth of vegetation in Pine Lake is rather sparse on the whole. However, near the outlet bay and in the south end there are some very good weed beds. There is considerable muskgrass, sago pondweed and variable-leaved pondweed near the outlet, but it extends out into only nine feet of water. Bulrush, cane grass, sedge, cattail, burreed lilies, muskgrass and floating pondweed are abundant in the bay. In the beds at the south end water milfoil is very dense while sago and leafy pondweeds are common. Towards the shore from these beds is a fine stand of bulrushes extending several hundred feet along the shore, with some muskgrass and pondweeds intermixed.

Vegetation is lacking beyond the depth of eleven feet in all parts of the lake.

Natural food Crayfish, snails, frogs, and aquatic insects are common. Minnows are also common. Food is fairly abundant but cannot be considered plentiful.

Spawning grounds A few spawning beds were found in the outlet bay. Some beds were located at various places along the lake. These were generally in water 2 to 3 feet deep. Some were on small pieces of bark while others were on sand with snail shells and weeds in the nests. No suitable gravel for smallmouth bass spawning could be located. The smallmouth bass evidently do spawn here but lack ideal conditions.

Predators Predators are relatively few. No undesirable predatory fishes were taken or reported. Some turtles and a number of

kingfishers were seen here. Northern pike are not taken in this lake. Those predators which are present are too few to seriously interfere with the fish population.

History of fishing

Pine Lake according to local residents, has always afforded good fishing. It is reported that, years ago, lake trout were taken by the wagonload. Fishing has been primarily for bass. Several attempts to introduce walleyed pike have been relatively unsuccessful. A few are found dead along the shore, at times, but these are not large. Bass fishing is fairly good at present. It is reported that the average fish taken this season is somewhat larger than the average taken during the preceding season. Bass reach a fair size.

Species of fish present

Game fish. Only a limited number of species are present. Smallmouth bass, largemouth bass, and perch are fairly abundant, and all 3 species reach a fair size. The smallmouth bass are reported to outnumber largemouth bass about 4 to 1. Small perch are quite abundant and some large ones are present. Perch reaching a length of 15 inches are reported. The perch according to local residents, were placed in the lake primarily as food for the bass.

Cisco are present. Net sets for cisco were not successful and an estimate of their abundance could not be made. Local residents report, however, that many cisco are seen here in winter.

Lake trout were once plentiful but are no longer caught. It is quite possible that a few are still present. Some of the cisco seen are reported to have had scars. It is also reported that at times fish would take the bait, would not jump above the surface and would always snap the line.

Since northern pike are not present and since walleyes are still small (so far as is known), and since bass generally leap above the surface when hooked and usually do not tear the line, it is quite possible that large lake trout have been hooked. If present, they are quite limited in number.

Walleyes have been planted in the past but, thus far, they have evidently not been very successful. Small ones are seen from time to time.

Bluegills are present in limited numbers.

Coarse fish. Common suckers are fairly abundant. No other coarse fish were seen.

Obnoxious fish. No obnoxious fish were seen or reported.

Forage fish. Minnows are fairly abundant but are not plentiful. The small perch very likely also serve as forage fish to some extent. Any lake trout which may be present undoubtedly prey on the cisco.

Laws and regulations

The lake is now an unclassified (bass) lake. Northern pike are not present and walleyes are still few and small. Bass and perch predominate.

Acknowledgments

Boats for the investigation were provided by Pine Lake Villa.

Recommendations

This lake now has many excellent properties. With considerable improvement it should provide excellent fishing. It is now lacking in several important factors and should respond unusually well to the improvements suggested below.

Stocking

Stocking with 2000 smallmouth bass, 2000 perch and 1000 bluegills, all fingerlings is recommended. Continued experimental stocking with walleyes for a few years is recommended. Annual stocking with 10,000 walleye fry for 3 years is suggested. If, in that time the walleyes have made little or no progress, further stocking with this species is not recommended.

Annual stocking with lake trout is considered advisable. Since these were once present, (and may still be present in limited numbers), and since cisco are in the lake, also since temperature and oxygen are satisfactory for this species, there are good reasons to believe that lake trout fishing can be restored. Stocking with 20,000 fry or 2000 fingerlings for 5 years is recommended. If, after 5 years, no signs of lake trout are found, further stocking is not considered advisable.

Better results may be expected if provision of more shelter precedes, or accompanies the stocking. Northern pike are not present, but since this is a good bass lake, the introduction of northern pike is not considered advisable.

Predator control

Predators are few. Efforts to reduce the number of predators need not, in our opinion, be made.

Gravel spawning beds

No gravel is available, at proper depths, for spawning. Gravel is especially desirable for the smallmouth bass. Firm sand bottom is present at desirable depths. The packing of

50 cu. yards of gravel, on sand bottom, in water 2 to 5 feet deep, is recommended. This should be placed in heaps, about a bushel of gravel per heap. Largemouth bass and bluegills will probably also utilize this gravel to some degree for spawning. The gravel should be placed at more or less regular intervals around the lake.

Food increase Increase of food is desirable. Introduction of species of minnows not already present is not recommended. Efforts to increase the number of minnows should be made. Construction of slab devices, such as the one shown in the general report is considered very desirable. The blunt-nosed minnow, one of our most desirable forage fishes, and one which spawns under flat objects, is present in the lake. The construction of 25 slab devices is recommended. These should be placed around the shore at more or less regular intervals in water 6 to 18 inches deep.

Fertility increase Increase of fertility is considered unnecessary.

Vegetation increase The growth of vegetation might well be encouraged in many parts where weeds are not now numerous. Some weeds will probably establish themselves among the brush shelters after they are placed in the lake. The placing of tubers of weeds in the brush shelters (see next item) is considered desirable. Methods of planting, kinds of vegetation to be planted, etc., will not be discussed here. Details can be obtained from our office whenever it is found desirable to do the planting.

Cover increase Increase of protection for young fish is desirable. It is not so urgent here as in some lakes since highly predatory fishes and obnoxious fishes do not occur here. Bass, however, have cannibalistic tendencies and the young fish will be in need of some shelter. Since the shelters also provide food for the young fish and encourage plant growth, and since both food and plants are in need of encouragement, the shelters are desirable for a number of reasons. A demonstration brush shelter was constructed on this lake. One of the operators of Pine Lake Villa witnessed this construction and is able to give information regarding it. Details are also given in the general report. Construction of 25 shelters is recommended. About half of these should be placed on the shoal at the dropoff. The remainder should be "hung" over the dropoff so that one end is in water 25 or 30 feet deep.

As mentioned above, the planting of vegetation in the open parts of those shelters placed on the shoulder would tend to stimulate the growth of weed beds.

Regulation of water level Since the outlet is intermittent and is generally not flowing, the maintenance of a definite level, or the regulation of the

level could not well be carried out. The water level fluctuated relatively little, however, and the matter of regulating the level in this lake is relatively unimportant.

Dam in outlet

According to reports the fish are stranded at times in the outlet swamps. It is also believed that fish pass down the outlet during high water. This can be controlled by packing brush in the swamp along the edge near the outlet bay. This brush would permit the water to pass through but would hold the fish in the lake. Plenty of brush is available and such a screen could be made in relatively short time and with no cost except, possibly, the labor.

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