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Report on Survey of Moon and Perch Lakes, Hillsdale County, Somerset Township, with Fish Management Recommendations

Moon Lake and Perch Lake are similar in size, both having an area of between 30 and 40 acres. Both are surrounded by private property but are at the disposal of the public. The owner of part of the shore line of both lakes, Mr. Herbert McCourty, cement magnate, is a public-spirited man and delights in seeing the public enjoy itself on portions of his property. Fishing is temporarily discouraged on Moon Lake in order that the fish population may become "built up". In the near future this will again be opened to public fishing.

In most ways the two lakes are quite dissimilar. A brief account of each is here presented:

Perch Lake

Size	Area 37.5 acres. Length 1900 feet. Width 1200 feet.
Inlets and Outlets	The lake has no outlet. It has a spring feeder on the west side. A marshy area exists between the spring and the lake proper. The spring is small and provides only a limited amount of water.
Pollution	No pollution was observed. No efforts were made to determine whether or not the lake contained bacteria which might be injurious to humans, but, so far as the fish population is concerned--no pollution was evident.

Use of water
and adjoining
land

Three cottages are found at the northeast end of the lake. Much of the surrounding land is used for pasture. A wood lot to the east has been cleared of brush and has been so equipped that it may serve as a picnic ground. This may be used by the public. The water is used considerably for swimming although it is a little too shallow to be ideal for this purpose. There is a moderate amount of fishing.

Temperature and
chemical condi-
tion

Temperature is high in the summer. The lake being shallow and the water unstratified, temperature varies little between top and bottom. The lake is unsuited for trout or related fishes but temperatures are quite satisfactory for bass and other warm water species.

When examined (June 19, 1931) oxygen was fairly high and no carbon-dioxide was found to be present. The water is clear (except after storms), soft and very alkaline. Oxygen is present to the bottom. Chemically, the lake is well suited to fish life.

Depth

The entire lake is shallow. It has a maximum depth of about 9 feet and an average depth of about 6 feet.

Bottom

Sand is present along the north, east and south shores. These sandy areas contain a small amount of gravel; not enough to provide good spawning beds. The bottom of the lake is largely peat. Fibrous peat is present along the west shore and in several small bays. By far the greatest part of the bottom is pulpy peat.

Vegetation

Vegetation is abundant. The plants are chiefly rushes, pond lilies, musk-grass, and broad-leafed pond weeds.

Natural food Aquatic insects are abundant. Minnows are fairly numerous. Food is more or less plentiful. The minnow population can probably be increased in the future (see recommendations).

Spawning grounds Spawning beds are located where sand is present. These beds are not very satisfactory and can be improved. Beds are fairly abundant (see recommendations).

Species of fish present Bluegills, large-mouth bass, perch and bullheads predominate. Some pike and sunfish are present. Calico bass are reported to be present. Fish appear to be moderately abundant but are not plentiful.

Designation Although some pike are present the lake is primarily a bass lake. It is and should be so designated. Bass and bluegills are much more common than pike.

Predators Obnoxious fish were neither found nor reported to be present. Possibly some mud pickerel (Esox vermiculatus) are present, but these are protected by the state (their removal would seem desirable). A few great blue herons, king fishers, green herons and bitterns were seen here. Very likely a few snapping turtles are also present.

Cove# The vegetation furnishes some protection for the young fish but better protection is desired (see recommendations).

Fertility The lake is very productive.

Recommendations:

1. 1000 bluegills and 1000 large-mouth bass fingerlings should be planted annually.

2. Spawning grounds are inadequate. Very little gravel is found in the nests. About 50 cubic yards of gravel should be placed on the sand in locations shown on the chart which is herewith enclosed. The lakes are located in moraine country and gravel can be obtained near at hand. The gravel should be spread about one inch thick over as much of the suitable bottom as possible, at depths of 2 to 8 feet.
3. Cover increase is desirable. About 15 brush heaps should be placed in the water at points indicated on the chart. These heaps have proved to be highly successful.
4. Water-logged slabs of wood should be placed on the sand, fairly near shore. These are used by blunt-nosed minnows for spawning. The minnows are now present and efforts should be made to increase their numbers by favoring their natural reproduction.

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MOON LAKE

Size Area 31.7 acres. Length 2000 feet. Width 1500 feet.

Inlets and outlets A small inlet enters the lake on the south side. This flows from Lombard Lake and Butler Lake--two small bodies of water south of Moon Lake. These two lakes were not studied by the field party and no information can be given here regarding the advisability of a dam in the inlet to prevent fish from passing up or down.

The outlet, Goose Creek, flows from the lake on the north side. The outlet was not examined.

Pollution No pollution was noticed. So far as the fish life is concerned the lake appears quite free from any injurious substances.

Use of water and adjoining land No cottages are found on the lake. Wooded areas are found to the north and east. A cultivated field lies to the west and ~~to~~ the south side is swampy. The lake is used for boating and fishing. It is not used for swimming. The marl shelf, though fairly firm, is too soft to serve as a beach and good swimming conditions would not be obtained without considerable expense. The two groves of trees furnish delightful places for outings.

Temperature and chemical condition Temperature at the surface is fairly high in summer. Decided stratification of the water is evident. When the lake was examined (June 18, 1931) the surface temperature was 25 degrees higher than the bottom temperature. The change in temperature takes place in the layer between 6 and 20 feet from the surface.

Oxygen was found to be present at the top and center but not at the bottom. Because of the lack of bottom oxygen the lake is not suited to trout and related species but it is quite satisfactory for warm water fish.

No carbon-dioxide was found. The water is moderately alkaline and is rather hard. It has a brownish color but is fairly clear.

Depth

Maximum depth is about 37 1-2 feet. Average depth is about 27 to 30 feet. The slope is quite steep. The shelf is moderately wide, especially in the north east bay and in the inlet and the outlet bays.

Bottom

The bottom on the shelf is of marl while the bottom below the shelf is pulpy peat. In the outlet bay a mixture of marl, pulpy peat and fibrous peat is found.

Vegetation

Vegetation is fairly abundant on the shelf and quite abundant on the slope. Very little is found in deep water, the plants which are most abundant include: pond-weeds, rushes, pond lilies, and musk-grass. Vegetation in general is plentiful and an increase in the amount of plant life is undesirable.

Natural food

Food is plentiful. Minnows are fairly abundant and aquatic insects are very abundant. The natural food in the lake will support a rather large fish population.

Spawning grounds

Spawning beds are very unsatisfactory. This is probably one of the chief reasons for the limited fish population. The beds are on marl--nests being made on root tips. Better spawning beds are desirable (see recommendations).

Species of fish present

Bluegills are fairly abundant. Large-mouth bass, perch, bullheads, northern pike, pumpkin-seed sunfish and warmouth

bass are also present. Dogfish are fairly abundant. Mud pickerel may also be present.

Designation Bass and pike are both present but bass and bluegills are most abundant. This lake is, and should be, designated as a bass lake.

Predators Predators are abundant. Dogfish are numerous. Some fish eating birds were seen here and a number of snapping turtles were found in the lake. One turtle taken by the party weighed approximately 20 pounds. Another was seen eating fish out of the nets and several other large ones were sighted.

Cover The vegetation produces some protection for young fish but, because of the presence of predators in rather large numbers, much more and better protection is needed. Brush heaps are highly desirable (see recommendations).

Fertility The lake is quite productive and is not in need of increased fertility.

Recommendations:

1. 1000 large-mouth bass and 1000 bluegill fingerlings should be added annually. Because of the presence of predators these should be of a large size when planted.
2. Spawning beds are inadequate. No gravel is present. The marl bottom in the north east bay is fairly firm and should support gravel. About 50 cu. yds. should be placed on the areas indicated on the accompanying chart, at depths of 2 to 8 feet, in a layer about one inch thick.
3. Cover increase is highly desirable. Brush heaps should be placed beyond the gravel as indicated on the chart. About 10 to 15 heaps should be used.

Because of the abundance of predators these heaps are highly desirable. A few placed at the edge of the shelf in other parts of the lake should also prove beneficial to some extent.

4. Some slabs should be sunk fairly near shore--in places indicated on the chart. These are used, for spawning, by the blunt-nosed minnow. This minnow is quite prolific and quite valuable as food for the larger fish and its presence in increased numbers is desirable.
5. Every effort should be made to reduce the number of dogfish and snapping turtles present. Spearing parties, under the direction of a conservation officer, appear to be more or less successful in reducing the number of these predators.

More technical and detailed information may be obtained if desired from the Institute for Fisheries Research, University Museum, Ann Arbor, Michigan.

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