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Report No. 85

MUSKEGON LAKE POLLUTION FROM THE STANDPOINT OF FISH LIFE

At the request of Mr. Milton P. Adams, Executive Secretary and Engineer, Michigan Stream Control Commission, we made an examination of Muskegon Lake relative to the effect of pollution on the fish life. It was not necessary for us to take water samples for analysis since the Commission in its very complete survey of this lake is securing these data.

Muskegon Lake is a deep lake, approximately five miles long by a mile wide, and lies in a northeastern-southwesternly direction. It receives the water from the Muskegon River as well as the water from several creeks and Bear Lake. A regular government canal connects it with Lake Michigan. At the time of our visit the water level in the lake was approximately three feet below normal. The Muskegon side of the lake for a distance of approximately five miles is completely commercialized and built up with an almost continuous series of docks which extend out to where the water is about 18 feet deep. The opposite shore line has remained natural. Muskegon Lake receives all of the sewage from the city of Muskegon through several sewers which open independently along the commercialized lake shore. In addition to this some commercial wastes are poured into the lake. The prevailing direction of the wind, the position of the mouths of the streams, opening into the lake, and the protection afforded by the docks and buildings along the shore apparently prevent the moving of the sewage into the lake, consequently, as Mr. Adams says,

there is a more or less protected septic area at the mouth of each individual sewer. This is, no doubt, the fortunate part of this pollution problem as far as fish life is concerned.

While on the lake, fishermen were encountered a short distance from the Standard Oil Company docks and they were catching bluegills. When asked about fishing and fishing conditions they replied to the effect that they caught perch and bluegills but that fishing there was not very good. In this particular part of the lake, the water was not as deep as would be suspected from consulting the Muskegon area map published by J. F. Nellist, Grand Rapids, Michigan. It was estimated that the depth was from 10 to 15 feet. Most of the bottom was abundantly supplied with vegetation characteristic of such a depth and was interspersed with barren areas which had a clean sand bottom.

Seven men and boys fishing from docks between the Goodrich and Municipal Docks were questioned concerning their fishing experiences. The opinion was unanimous that fishing was better on the other side but that they caught fish off of these docks. On the day of our visit one young man had taken a three pound pike (Esox lucius). Another young man claimed that he took a good sized fish home every day, and the day before our visit had taken an eight pound catfish. Fishermen were fishing on the very shore around piles of old dock lumber in this area and when questioned replied that they caught bullheads, pike and sunfish here as well as minnows for bait. Sheepsheads, dogfish, and rock bass were other fish which were taken here. Parasitic lampreys are occasionally found on pike. Filamentous algae, Potamogeton, and Elodea were abundant along the shore in the shallow water in this area. Unfortunately no one was fishing on the opposite side of the lake but some information was obtained from the caretaker at the Muskegon State Park which seems to be the headquarters for many of the fishermen. We were told by the caretaker that fishing had been poor for the last few days and minnows could not be obtained,

which were given as the reasons for the absence of fishermen. Fishing, according to the caretaker, is good on this side of the lake and there are spawning beds along the shore. A rather haevy mortality among the perch was reported during the early summer but this condition was found in many Michigan lakes at the time.

When these facts are taken into consideration it cannot be stated that the fish life in Muskegon Lake is being killed out as a result of pollution. There is, however, the possibility that many of the fish do not frequent the Muskegon side of the lake, and for this, pollution is probably only one of several contributing factors. It, no doubt, is true that the nuisance will be accentuated as the years pass but no very sudden change is likely to occur on account of the volume of fresh water continuously flowing through the lake.

We cannot definitely state that the pollution in the lake is a nuisance as far as fish life is concerned. The particular problem is more or less unique which makes any comparisons with similar situations impossible. We have not had an opportunity to study the situation in a severe hot spell, which, if it were done, would probably alter, somewhat, our conclusion as stated above. It is very likely that conditions in some parts of the lake are such that the game fish have disappeared and coarser fish such as carp, dogfish and catfish have come in to take their places. That the existing condition is a nuisance as far as public health is concerned cannot be denied, as bacterial counts will indicate, but when fish, various kinds and sizes, can be seen in the lake and are taken from the lake by fishermen only a few hundred feet from the mouth of a sewer the detrimental effects of the pollution on fish life become very much more difficult to determine.

We feel that the Stream Control Commission is doing a splendid piece of work in its survey of this lake. The water analysis report, when completed, may make possible some changes or additions to this report. We shall be

glad to have any or all reports of the Stream Control Commission on this lake, for these will be of utmost value in our work.

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