

FISHERIES DIVISION
Michigan Department of Natural Resources
Gaylord District Headquarters
P.O. Box 667
Gaylord, Mi. 49735

STATUS OF THE FISHERY REPORT
FOR
LAKE BELLAIRE, ANTRIM COUNTY
(T29-30N, R7-8W)

Setting

Lake Bellaire is located in the southwest corner of Antrim County. It is included in the Elk River drainage which empties into Grand Traverse Bay, Lake Michigan. This lake is part of the Antrim County Chain-of-lakes, and is considered the upper most lake in the lower chain. The topography of the surrounding area is gently sloping to very steep hills, with sandy and loamy soils. The soils adjacent to the lake are poorly drained, nearly level, mucky, loamy, and sandy soils. The nearest community is the City of Bellaire, which is located just north of the lake. Bellaire is the largest community in the county and is the County Seat. Due to the presence of the steep hills, there are two down hill skiing developments nearby, and tourism is an important industry in the area in both summer and winter.

The shoreline surrounding the lake is mostly private, and most of the upland is developed with homes and cottages. There are two state owned public access sites on the lake. One is located on the west side and has ample parking and a good boat ramp. The other access site is located on the east side and has only a small, gravel ramp. In addition, both the inlet and outlet are navigable. Boats can enter the lake from the Intermediate River, where there is a private marina with a boat ramp located at the first upstream bridge. Boat access is also available from the Grass River and many boats use this waterway.

Description and Habitat Condition

The approximate size of Lake Bellaire is 1,775 surface acres. It has a single basin, which has a maximum depth of about 95 feet and an average depth of 60 feet. In addition, there is a north arm which is fairly shallow (an average of about 20 feet deep). The shoal area is quite flat, and varies in width from 60 to 2,000 feet, with an average of 300-400 feet. The drop-off generally occurs at about 5-10 feet of water, and the slope is fairly steep to very steep.

Lake Bellaire is classified as a coldwater lake due to its water depth. The lake stratifies, and oxygen levels remain suitable below the thermocline. Water chemistry analysis indicates oxygen levels above the thermocline of 7.0 to 9.6 ppm and below the thermocline of 4.0 to 6.0. In addition, pH has been measured at 8.5 and methyl orange alkalinity ranged from 136 to 144 ppm.

The shoal areas are mostly composed of sand and marl and the deepwater bottom type ranges from clay, marl, and organics. No gravel areas have been located. Vegetation in the shoal areas is sparse, however, weed beds are fairly abundant along the drop-offs.

Fish run up the Intermediate River (the inlet) for spawning purposes, but a dam located approximately 1 mile upstream in Bellaire prevents further upstream migration. The Grass River (the outlet) permits movement of fish through four downstream lakes (Clam, Torch, Skegemog, and Elk). A dam located at the outlet of Elk Lake prevents movement of fish into the system from Grand Traverse Bay.

Fishery, Fish Population, and Past Management

Most of the past management of Lake Bellaire has been for salmonids (walleye fry were stocked from 1933 to 1938). Lake trout were stocked from 1932 to 1965. Beginning in 1966, splake have been stocked almost annually, except for the period 1977-1980, when production shortages made substitutions necessary. In 1978, lake trout were stocked, and in 1977 and 1979-1980, brown trout were stocked.

In addition to stocking, brush shelters have been installed periodically in the lake. The last time brush shelters were placed in the lake was in 1979. The attached map shows the locations of these shelters.

A gill net survey was conducted in mid September, 1987. Results indicate there is a moderate size population of walleye, which is supported by natural recruitment. The population is characterized by large fish, and growth rates are excellent. There is also a very good population of smallmouth bass with excellent growth rates. There are many large smallmouth present (about 75% of the fish captured were of legal size, and lengths ranged up to 20 inches), and catches are often entered in Fisheries Division's Master Angler Program. Not many splake were captured in the survey, but other information indicates the survival and growth of the splake population is good. In addition, a number of large lake trout and a few large brown trout were captured. Other species which occur in Lake Bellaire include small to moderate populations of northern pike, largemouth bass, yellow perch, bluegill, pumpkinseed sunfish, rock bass, longnose gar, brown bullhead, common white sucker, smelt, and cisco.

There are both summer and winter fisheries on Lake Bellaire. The winter fishery is mostly for the large walleye and smelt, although splake and lake trout are also taken. Most of the walleye and smelt are caught after dark and success has been very good. Smelt run the Intermediate River and Grass Creek (a small tributary to the north arm) in spring. This run occurs early and there is a special regulation opening these two streams for

dipping in March and April. Anglers comment that the average size of the smelt in these runs is small. The open water fishery is for walleye, smallmouth bass, northern pike, and splake. Most of the fishing pressure is for walleye and this is mainly a troll fishery. The smallmouth and northern pike fisheries occur early in the season and success is fairly good. Splake run the Intermediate River in fall and there is a fair fishery below the dam in Bellaire for these fish.

Discussion

Walleye are not stocked in the lake, and the present population is due solely to natural recruitment. There appears to be no change over the results from a survey in 1976, which concluded that there is only a moderate size population with limited recruitment. Because of the very good growth rates and limited natural recruitment, supplemental stocking would probably enhance the population.

As discussed above, few splake were captured in the 1987 survey. Especially missing was the 1987 plant, which should have been most abundant. This may indicate poor survival, however, the success of the fishery indicates that, contrary to the survey results, splake survival is good.

All of the lake trout captured were had an adipose clip, the clip used for the 1978 plant. Although these fish are probably from the 1978 plant in Lake Bellaire and represent very good survival, it is also possible these fish moved in from Torch or Elk Lake, which have received fish with the same clip. This same situation may be true for the few brown trout which were captured.

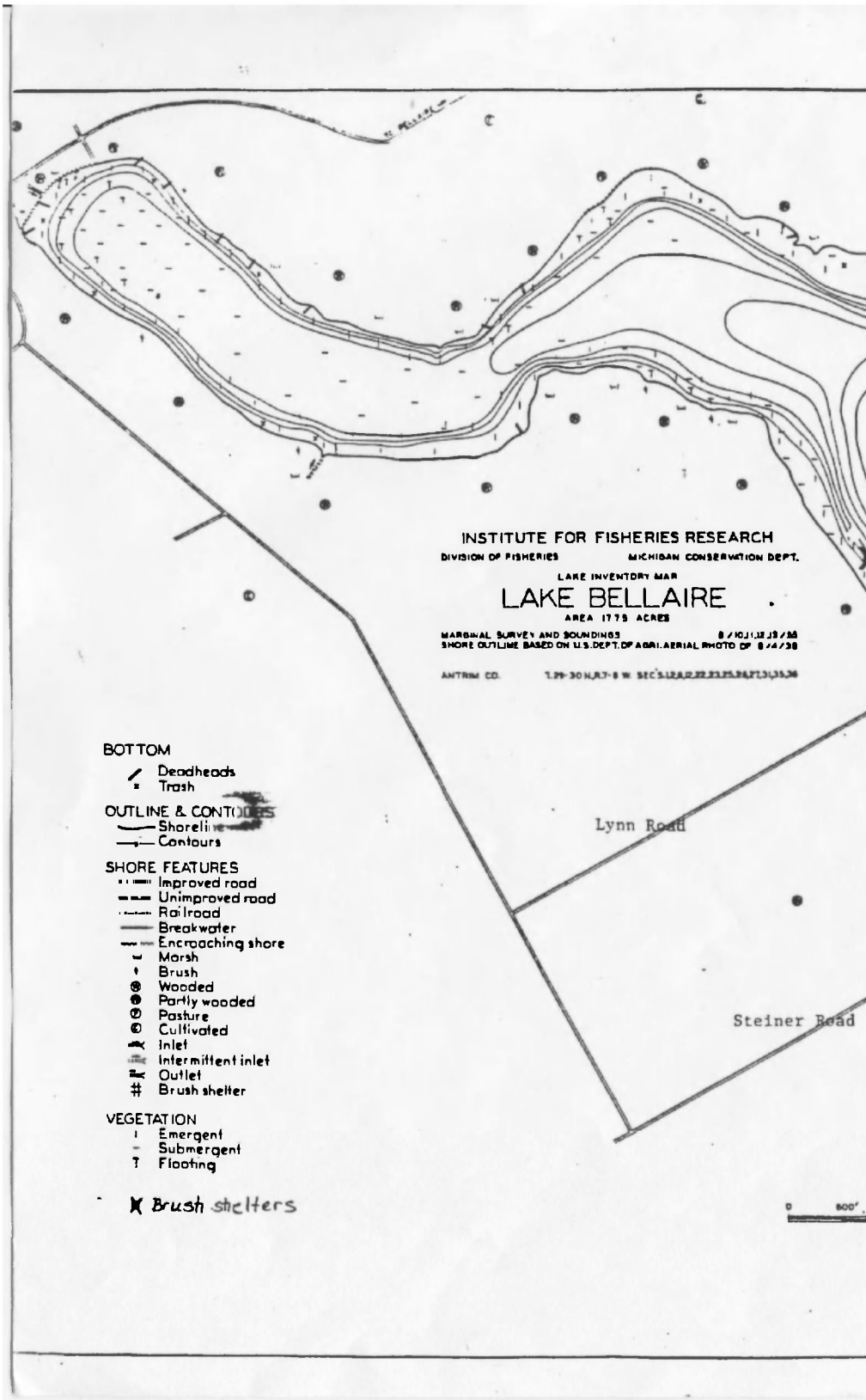
The excellent growth rates of most of the game fish species is attributable to the tremendous forage base in the lake. In addition to the smelt and cisco populations, there is a very large population of brook silversides, among other minnow type species and crayfish were common on the nets. The biggest complaint among anglers is that the abundant forage makes the game fish difficult to catch.

Management Direction

Lake Bellaire is well suited for both coldwater and coolwater species and should continue to be managed for these species. To this end, the following strategy should be adopted.

Management Strategy

- 1) Continue annual stocking of 30,000 yearling splake.
- 2) Begin supplemental stocking of walleye fingerlings when available.
- 3) Survey periodically to evaluate status of stocks, including a trap net survey.



INSTITUTE FOR FISHERIES RESEARCH
 DIVISION OF FISHERIES MICHIGAN CONSERVATION DEPT.

LAKE INVENTORY MAP
LAKE BELLAIRE
 AREA 1775 ACRES

MARGINAL SURVEY AND SOUNDINGS 8/10/12/13/14
 SHORE OUTLINE BASED ON U.S. DEPT. OF AGRIC. AERIAL PHOTO OF 8/4/58
 ANTRIM CO. T.29-30 N. R.7-8 W. SEC. 12, 22, 32, 33, 34, 35, 36

BOTTOM

- Deadheads
- Trash

OUTLINE & CONTOURS

- Shoreline
- Contours

SHORE FEATURES

- Improved road
- Unimproved road
- Railroad
- Breakwater
- Encroaching shore
- Marsh
- Brush
- Wooded
- Partly wooded
- Pasture
- Cultivated
- Inlet
- Intermittent inlet
- Outlet
- Brush shelter

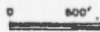
VEGETATION

- Emergent
- Submergent
- Floating

X Brush shelters

Lynn Road

Steiner Road





LAKE BELLAIRE WATER SURFACE ELEVATION 1232.5

PUBLIC FISHING SITE

New Public Access

1200' 1800' 2400'
SCALE

25 BRUSH SHELTERS IN 5 GROUPS OF 5 EACH
INSTALLED DURING WINTER OF 1954-55 BY
THE LAKE BELLAIRE IMPROVEMENT CLUB IN
COOPERATION WITH THE DEPT. OF CONSERVATION

LAKE BELLAIRE Antrim County T.29-30N., R.7-8 W. Secs. 1, 2, 6, 12, 22, 23, 25, 26, 27