Three Lakes Association

1984/5 Water Quality Studies

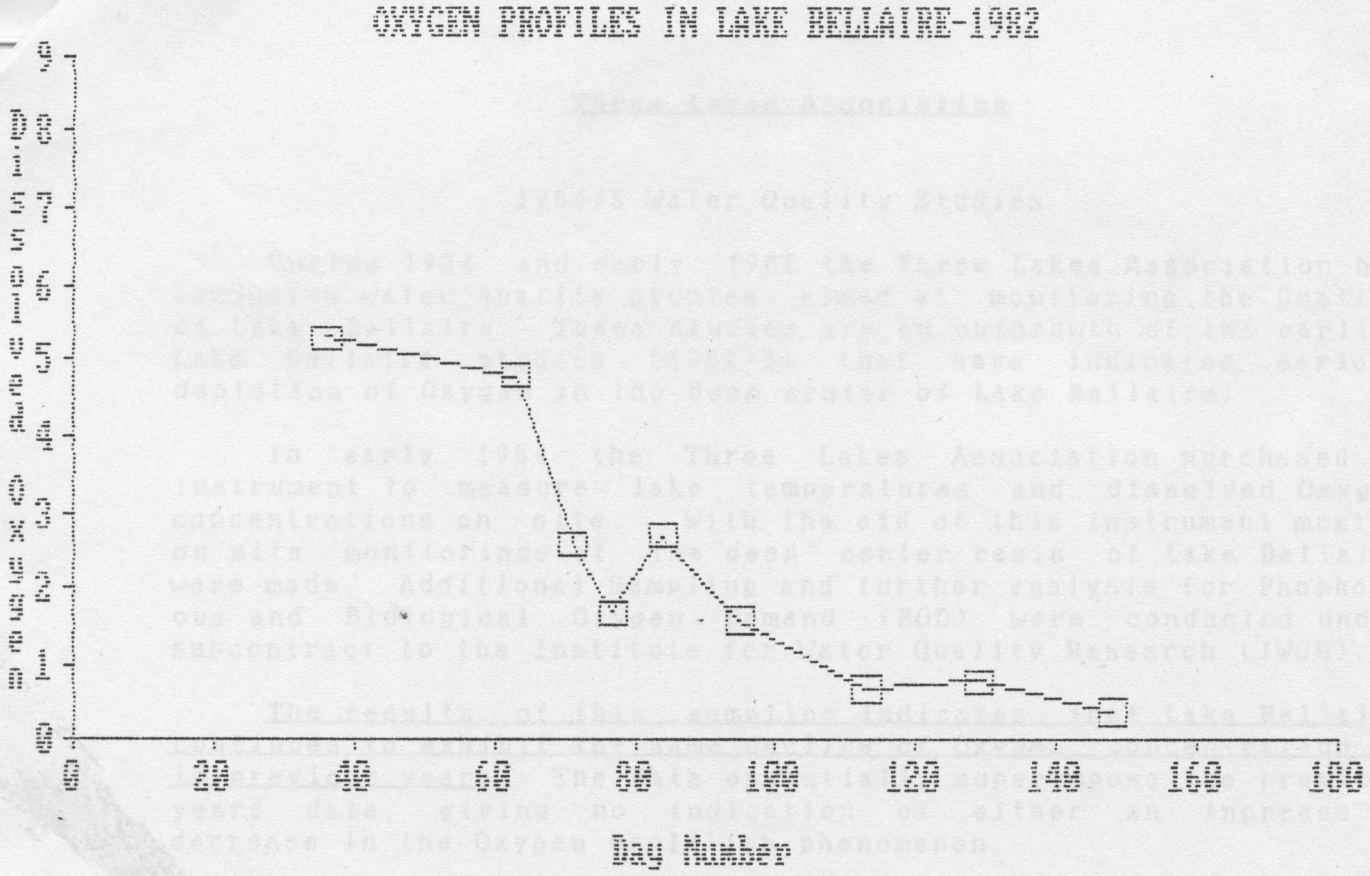
During 1984 and early 1985 the Three Lakes Association has conducted water quality studies aimed at monitoring the Quality of Lake Bellaire. These studies are an outgrowth of the earlier Lake Bellaire studies (1982-3) that have indicated serious depletion of Oxygen in the deep center of Lake Bellaire.

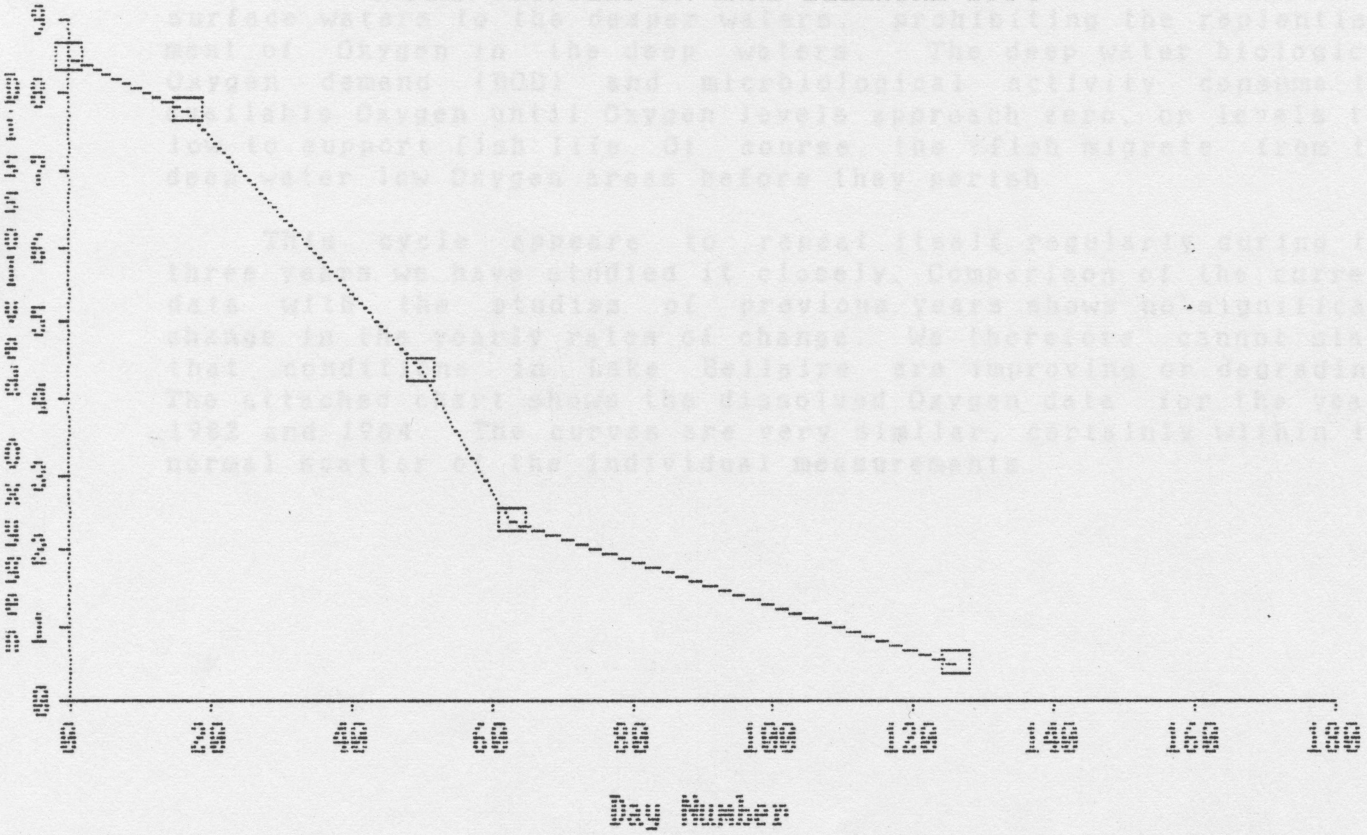
In early 1984 the Three Lakes Association purchased an instrument to measure lake temperatures and dissolved Oxygen concentrations on site. With the aid of this instrument monthy on site monitorings of the deep center basin of Lake Bellaire were made. Additional Sampling and further analysis for Phophorous and Biological Oxygen Demand (BOD) were conducted under subcontract to the Institute for Water Quality Research (IWQR).

The results of this sampling indicates that Lake Bellaire continues to exhibit the same decline of Oxygen concentration as in previous years. The data essentially superimpose the previous years data, giving no indication of either an increase or decrease in the Oxygen depletion phenomenon.

Lake Bellaire is a Eutrophic lake, that is, a lake in it's intermediate stage of evolution, which exhibits a cycle of establishing a thermocline as summer heats up the top 20 or 30 feet of the lake. The thermocline prevents circulation of surface waters to the deeper waters, prohibiting the replentishment of Oxygen in the deep waters. The deep water biological Oxygen demand (BOD) and micrbiological activity consume the available Oxygen until Oxygen levels approach zero, or levels too low to support fish life. Of course, the fish migrate from the deep water low Oxygen areas before they perish

This cycle appears to repeat itself regularly during the three years we have studied it closely. Comparison of the current data with the studies of previous years shows no significant change in the yearly rates of change. We therefore cannot state that conditions in Lake Bellaire are improving or degrading. The attached chart shows the dissolved Oxygen data for the years 1982 and 1984. The curves are very similar, certainly within the normal scatter of the individual measurements.


OXYGEN PROFILES IN LAKE BELLAIRE-1982
Dissolved Oxygen
0
1
2
3
4
5
6
7
8
9
0
20
40
60
80
100
120
140
160
180
Day Number


OXYGEN PROFILES IN LAKE BELLAIRE-1984
Dissolved Oxygen
0
1
2
3
4
5
6
7
8
9
0
20
40
60
80
100
120
140
160
180
Day Number