



Otsego Lake Water Quality Data

January 6, 2011



JANUARY 6, 2011

Data were collected using a YSI Series 6 Multiparameter sonde.

TEMPERATURE & DISSOLVED OXYGEN PROFILES

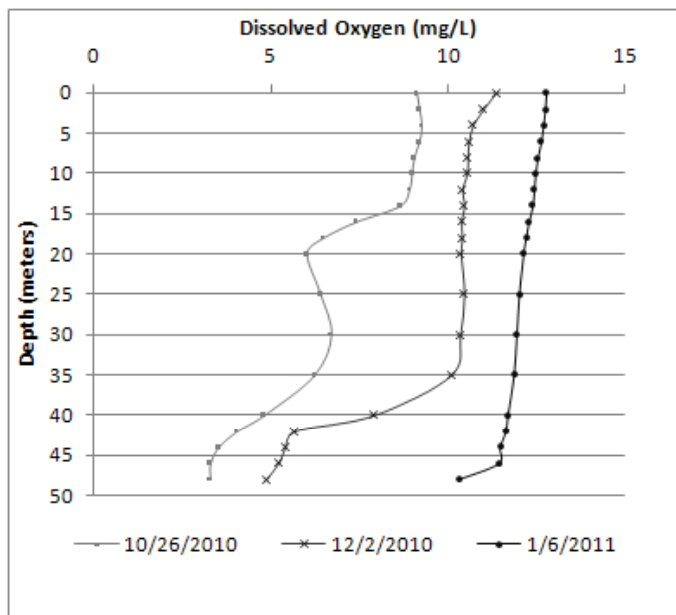
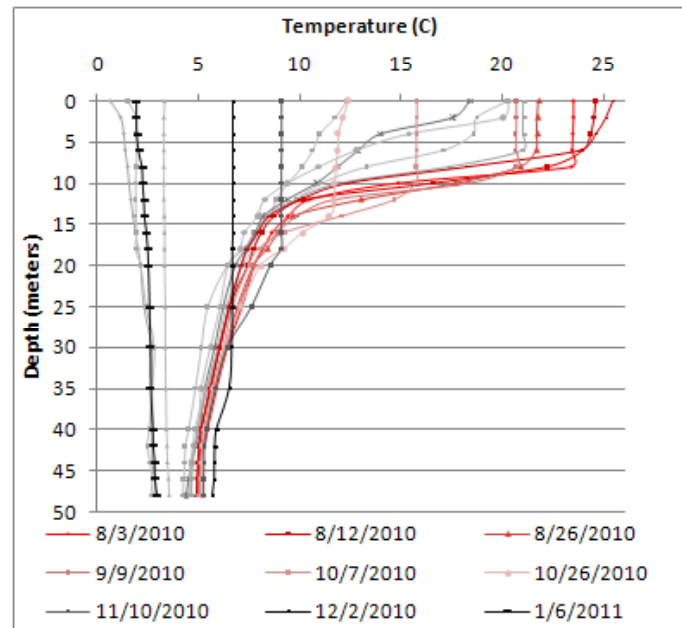
Depth		Temp		Dissolved Oxygen mg/L
m	ft	°C	°F	
0	0	1.96	35.5	12.78
2	6.5	1.96	35.5	12.75
4	13.1	1.97	35.5	12.70
6	19.7	2.05	35.7	12.64
8	26.2	2.22	36.0	12.54
10	32.8	2.25	36.1	12.48
12	39.4	2.31	36.2	12.44
14	45.9	2.34	36.2	12.40
16	52.5	2.43	36.4	12.29
18	59.0	2.49	36.5	12.21
20	65.6	2.52	36.5	12.14
25	82.0	2.58	36.6	12.02
30	98.4	2.62	36.7	11.95
35	114.8	2.64	36.8	11.87
40	131.2	2.73	36.9	11.70
42	137.8	2.75	37.0	11.64
44	144.4	2.82	37.1	11.48
46	150.9	2.83	37.1	11.44
48	157.5	2.93	37.3	10.31

Inverse Stratification

-Colder water at surface
-Warm water below

Temperature profiles over the course of the year show transitions between seasonal thermal stratification regimes. Layers develop through the spring and summer as the surface waters are warmed and mixed by sun and wind, while the water below remains cold and therefore is more dense. These layers provide different habitat conditions in the open water (off-shore) areas of the lake. As over-night air temperatures drop and daylight periods decrease, the surface waters begin to cool, as seen from 10/7 through the 12/2 profile, and the thermocline occurs at greater depth.

In the graph below, the 1/6 profile depicts the beginnings of the thermal stratification often seen beneath the ice, where the coldest water is at the surface (as temps approach freezing) and the warmest water is at the bottom. This is referred to as *inverse stratification*. Turn-over occurred sometime between 12/2 and 1/6. Ice-cover may form at any time!



Dissolved oxygen: the concentration of oxygen dissolved in water. Colder water can dissolve a greater amount of oxygen than warm water.

Dissolved oxygen concentrations

As the seasons progress, oxygen in the deeper waters is consumed primarily by bacterial decomposition of dead algal cells and to a small degree by organisms living in the bottom waters. When algal production is excessive, usually due to high phosphorus levels, oxygen can fall to levels approaching those needed by sensitive, cold water fish such as lake trout and salmon., as seen at left on 10/26.

Currently, turn-over has occurred and oxygen is distributed throughout the water column. Some oxygen is being consumed at depths below 46 m, likely as biomass is decomposed.