

A lake is the landscape's most beautiful and expressive feature. It is the earth's eye; looking into which the beholder measures the depth of his own nature.
.....Walden- Henry David Thoreau

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Ref.: WAB0005
To: Chairman Dr. Wayne Stobo and Members,
Halifax/Halifax County Watershed Advisory Board (**WAB**), HRM
From: S. M. Mandaville (Professional Lake Manage.), Chairman and Volunteer
Exec. Director
Date: March 11, 2000
Subject: My missing statement in # 3.1: Minutes of the Board meeting of February
16, 2000 w.r.t. **POWER BOATS ON SHALLOW LAKES**'- future probability on
Bennery Lake (also applies to all shallow lakes everywhere!)

In the minutes for the February 2000 meeting, under Item# 3.1, what I had stated w.r.t. power boats on shallow lakes was missing. Hence I will enunciate it here once again, as well as expand on it with a couple of references.

Power boats are an environmental concern, especially w.r.t. shallow lakes, whether the prime use of the lake is for supplying 'drinking water' or for other forms of 'recreation'. I had given a copy of a published paper on this subject to Dr. Tony Blouin of HRM sometime during 1996-97 among a host of other published literature and extracts as well as a few other handbooks further during 1996- to date, all in the domain of Limnology and/or Lake Management.

In this 'missive' I am not alluding to any fuel leaks, etc. I will try my best to summarize two published papers here with references from other handbooks.

1. "The importance of these findings is that powerboating on shallow lakes is likely to stir up bottom sediments, increasing turbidity and probably accelerating deterioration of water quality. Since organic bottom sediments generally are rich in nutrients, lake managers should be concerned. Recycling of nutrients from bottom sediments has the distinct potential to increase algae growth and worsen water quality." (Wright and Wagner, 1991)
2. In 1974, the EPA (Environmental Protection Agency, USA) published a study by Prof. Dr. Yousef, conducted at several Florida lakes, analyzing the impact of boating activity on turbidity in shallow lakes. Shallow lakes were defined as lakes with a maximum depth of 30 ft. The study concluded that even 10 hp engines could produce significant stirring of bottom sediments at depths up to 15 ft.

- a) At shallow Lake Osceola, the impact of a 100 hp powerboat even for 30 minutes produced increases in turbidity and phosphorus concentrations of 40 to 500% in test plots.
 - b) Even a 10 hp engine, operated for one hour, produced significant increases in turbidity, orthophosphorus, and total phosphorus, and these ranged from 25 to 1,000%.
3. In 1979, in another study, Prof. Dr. Yousef found significant increases in phosphorus as a result of boating activity- 16 to 73%- and concluded that, "substantial water quality effects are possible due to recreational boating on shallow lakes".
 4. "Excluding motor boats from small experimental plots in a lake with heavy boat traffic significantly increased macrophyte biomass, coverage, and shoot height compared to impacted areas. Lakes across the country are increasingly threatened by overuse., particularly involving more and larger motor boats. In recent years, Lake Ripley, located in Jefferson County in southern Wisconsin, has exhibited a decline in macrophyte abundance along with increased motor boat activity. Weekly water samples were collected for turbidity, suspended solids, dissolved oxygen, and temperature. Our hypothesis was that motor boats limit macrophyte growth either directly by physical disturbance or more indirectly by generating turbidity which decreases light availability and therefore limits production and biomass. Results indicated that motor boats reduced plant biomass quite dramatically, primarily through scouring of the sediment substrate and direct cutting, but not through turbidity generation." (Asplund and Cook, 1997)
 5. Somewhere in my wide collections is a court proceedings from (most probably) the State of New York where the Judge (and Jury) **upheld** the TOTAL BAN on power boats in not just one but several lakes within a certain 'lake management district'. The ban was placed by the Lake Management Authorities and was **vehemently opposed** by several, inclusive of boat manufacturers/retailers, several recreational boat associations and others. The Authorities won and the ban was permanent!

REFERENCES:

- Asplund, T.R., and Cook, C.M. 1997. Effects of Motor Boats on Submerged Aquatic Macrophytes. *Lake and Reserv. Manage.* 13(1):1-12.
- Wright, D.O., and Wagner, K.J. 1991. Power boats on shallow lakes: A brief summary of literature and experience on Lake Mohegan (NY). *Lake Line, N.Am. Lake Manage. Soc.* 11(4):8-12.
- Yousef. 1974. Assessing effects on water quality by boating activity. EPA670/2-74-072. U.S. Environmental Protection Agency.
- Yousef, et al. 1979. Changes in phosphorus concentrations due to mixing by motor boats in shallow lakes. *Wat. Res.* 14:841.