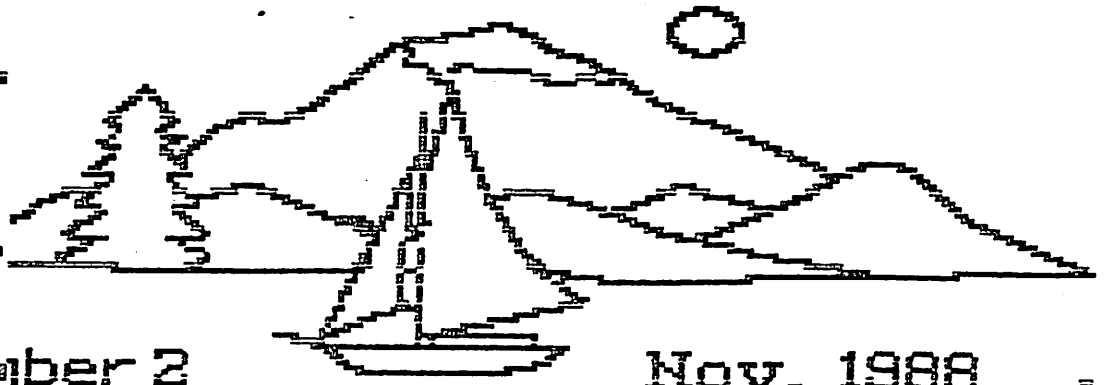
# LAUREL LAKE LEDGER



Volume 1 Number 2 Nov. 1988

## OFFICERS FOR 1989

Donald Garland President
John Dumont Secretary/Treasurer

## Board of Directors

Karl Anderson
Jim Baab
Robert Prunier
Shirley Quinn
Bill Hoag
Gus Hoyland
Tracy Januskiewicz
Margarite Albertini
George Graf Jr.
Laura Whitmore
Milton Posovsky
Virginia Nevins
Midge Deyo

## 1988 ANUAL MEETING

The annual meeting of the Laurel Lake Association was held on Saturday, July 23, 1988 at White's Field, Laurel Lake Campground.

Prior to the official meeting, Mr. Jody Connors, aquatic biologist from the New Hamsphire Department of Environmental Services, addressed the membership on the natural and environmental effects on Laurel Lake. (A summary of his address can be found later in this newsletter under Lake Productivity and Eutrophication.)

Nomination and election of officers took place after the reading and acceptance of the minutes for the 1987 Annual Meeting. Re-elected to two year terms on the Board were Virginia Nevins, Jim Baab, Midge Deyo and Bill Hoag. Also elected for two year terms were Gus Hoyland and Terry Januskiewicz, replacing Horace Daub and Art Rousseau. George Graf Jr. replaced Warren Furey for his one year unexpired term.

Milton Posovsky, Chairman of the Water Sampling Committee, reported to the Association on recent samplings.

Ashley Fletcher reported to the Association on the current state of affairs regarding the Seon Corporation and their plans to reopen the quarry. He encouraged all persons to write to the town Selectmen and various state officials to express their feelings.

Milt Posovsky made a motion to have the Association contribute the sum of $500. to the Concerned Citizens of Fitzwilliam. The motion was seconded, but failed to pass.

George Graf Jr. made a motion to consider a donation to the Concerned Citizens of Fitzwilliam at the next Board of Director's Meeting. The motion was seconded and passed unanimously.

Don Garland reported to the membership on the status of Association Incorporation.

A motion was made by Bill Woodruff to join the State of New Hamphshire Lay Monitoring Program. The motion was seconded and passed unanimously.

Milt Posovsky made a motion to contribute to the local Ambulance Building Fund. The motion was tabled.

The meeting adjourned at 5:20 P.M. followed by the Association's Annual Family Picnic.

## FIRST ANNUAL LABOR DAY LAUREL LAKE ASSOCIATION SUNFISH REGATTA

The Laurel Lake Association sponsored its first Labor Day Sunfish Regatta on Monday, September 5th. Six hearty souls, under the direction of Commodore Prunier, set sail under varying conditions to vie for the coveted trophies.

David Garland showed true nautical prowess in sailing his boat to a first place finish. Thomas White placed second , while Wayne Chase finished third. Other participants were Mike Friedman, Jack Dumont and Jason Kendall.

## SEPTEMBER 17, 1988 BOARD OF DIRECTORS MEETING

The Board of Directos of the Laurel Lake Association met on September 17th at the home of President Don Garland. In attendance were Don Garland, John Dumont, Shirley Quinn, Tracy Januskiewicz, Milt Posovsky and Gus Hoyland.

Don Garland brought the meeting to order at 10:10 A.M. by announcing that he had appointed Jim Deyo, Jim Townsend, George Graf Jr. and Barbara Green to serve as the new Water Testing Committee which is associated with the state of New Hampshire Lay Monioring Program. Don Treat has agreed to serve as the group's chairman.

Secretary/Treasurer John Dumont submitted a financial statement to the Directors and read a letter received from Director George Graf Jr., who was unable to attend the meeting.

Milt Posovsky reported on the summer water samplings.

John Dumont reported that he had completed re-incorporation papers with the State of New Hampshire and as of September 8, 1988 the Laurel Lake Association had been re-incorporated.

The Board of Directors directed the Association Officers to make a modest donation to TEASI, Troy Ambulance Service, based on the discussion at the Annual Meeting.

The Board of Directors congratulated Milt Posovsky for the excellent job in recruiting membership for the Association for the 1988 season. (The Association had 169 members during the 1988 season.)

Don Garland presented a proposal to separate the offices of Secretary/Treasurer into two separate positions because of increased membership. This proposal will be brought before the membership at the 1989 Annual Meeting.

President Garland presented a schedule of events for the 1989 season to the Board.

Meeting adjourned at 11:45 A.M.

## NEW HAMPSHIRE STATE ASSISTED LAY MONITORING PROGRAM

The primary goal of the Lay Monitoring Program is to collect long-term water quality trend data on New Hampshire lakes. The data is to be utilized by lake residents and the Biology Bureau of New Hampshire Water Supply and Pollution Control Division (WSPCD) to describe and identify changes in lake water quality, make decisions regarding the use and protection of lakes, and develop solutions to lakes with problems. Only by the collection of data over time can biologists determine whether the water quality of a particular lake is declining, improving, or remaining stable.

New Hampshire has 1301 lakes and ponds wholly or partly within the state, representing 149,344.5 acres. Only 777 are greater than or equal to 10 acres, and only 567 are 20 acres or larger in size. The Biology Bureau has surveyed 415 of these lakes and ponds between 1976 and 1985, accounting for greater then 98% of all surface area. Plans are to continue to

survey an additional 40 lakes or ponds each year and periodically resurvey some of the earlier surveyed lakes. However, these surveys consist of data collected on only one summer day and one winter day. To determine statistically valid trends, data must be collected more frequently each year, and over a period of many years.

Since it is impossible for WSPCD to collect this quantity of information without the help of volunteers, the Lay Monitoring Program, which is a cooperative effort between WSPCD and lake Associations such as ours, was established. The WSPCD's responsibility in this venture is to provide the sampling equipment, train volunteers in the sampling procedure, analyze the samples, and interpret the data. In addition the Biology Bureau seeks to educate lake residents on lake ecology and protection. Lake residents for their part agree to provide the use of their boat and time, sample at a frequency as set up in their program, and use good accurate sampling techniques. In addition they maintain a vigilance for potential problems, such as the introduction of exodic weeds.

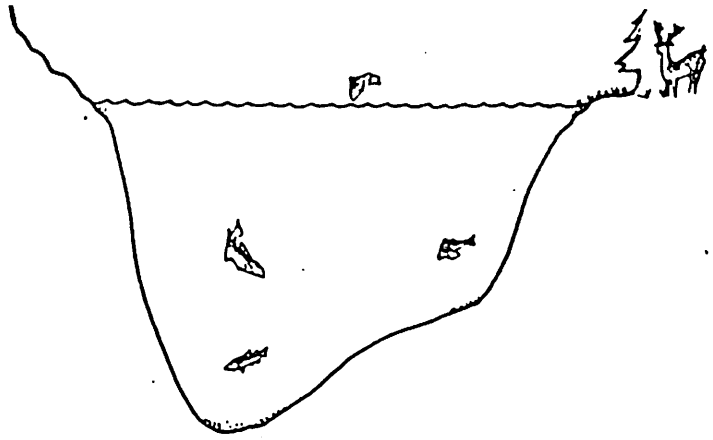
## LAKE PRODUCTIVITY & EUTROPHICATION

Lakes and ponds naturally contain aquatic rooted plants and algae. The amount of plants and algae these water bodies contain (the productivity) varies from lake to lake. Lake productivity is determined by the amount of nutrients (food substance) that are available in the water to maintain macrophytic (plant) or planktonic (algae) growth. In all lakes, productivity will increase gradually over thousands of years through a natural aging process known as eutrophication.

To understand how lakes age or eutrophy, we have to look at how they were created. Most New Hampshire lakes were created approximately 10,000 years ago as the last glacier receded. As the ice pack moved, land areas were scoured and rock materials were deposited, forming lake basins. The land that drains into a lake is called the watershed. From the instant that a lake in created, the aging process or filling-in, begins. Material is carried from the watershed by streams, wind and runoff to become deposited in the lake.

Although most of New Hampshire's lakes were created at the same time, they were not created equally. Some were large and deep, others very shallow. They also age at different rates because of differences in geology, runoff, and watershed characteristics. It is possible to find "young" and "old" lakes today, even areas of dry land where remnants of a past lake basin can still be identified.

As orignally defined, the trophic status of a lake referred to the level of nutrients, or amount of foodstuff availalble for plant growth, present in the lake. However, with the increased use of these terms by the layman and media they have lost their precise meanings. The term "eutrophication" is now generally used, even by most scientists, to describe the natural aging of a lake. Terms such as eutrophic and oligotrophic are now used to describe lake types, rather than water types, where lake morphometry (depth, area,etc.) and biological growth are also considered.

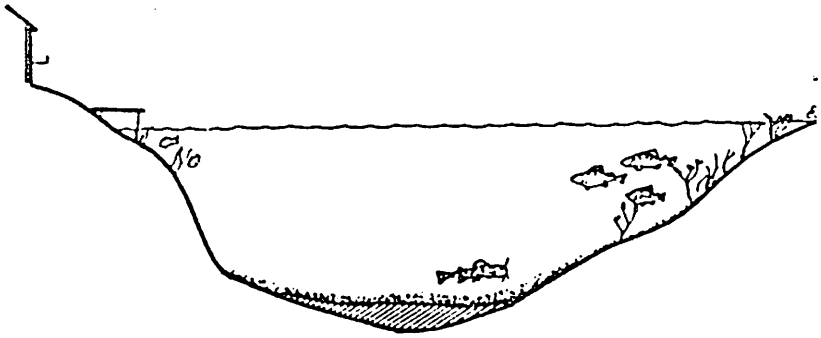


Oligotrophic

a. Steep Sided, Clear Water
b. Low Nutrient Enrichment
c. Little Planktonic Growth, Low Productivity
d. Few Aquatic Plants
e. Sand or Rock Along Most of Shoreline
f. Coldwater Fishery
g. High Dissolved Oxygen Content

An oligotrophic lake is a steep sided lake with crystal clear waters and rocky or sandy bottoms. Both planktonic and rooted plant growth are sparse, and the lake supports a coldwater (trout and/or salmon) fishery.

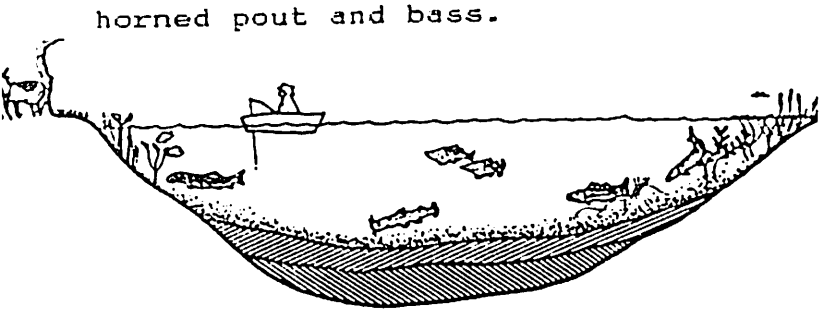
Before the lake progresses from an oligotrophic to eutrophic lake, it passes through an intermediate stage with characteristics shared by both lake types. This intermediate stage is termed mesotrophic.



Mesotrophic

a. Moderate Nutrient Enrichment
b. Moderate Planktonic Growth
c. Some Sediment Accummulation Over Most of Lake Bottom
d. Usually Supports Warmwater Fish Species

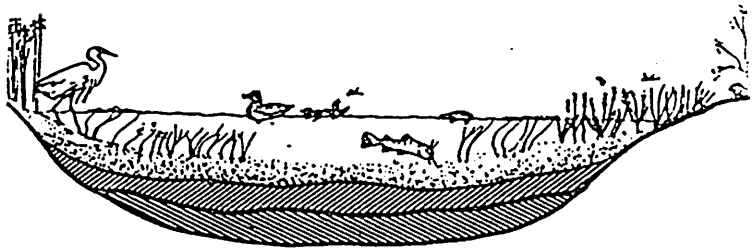
An old, or eutrophic lake, is shallow with a soft mucky bottom. Rooted plants growth is abudant along the shores and out into the lake. Algae blooms are not unusual, and the water is often colored with suspended and organic matter reducing its clarity. Eutrophic lakes support only warm water fisheries such as perch, horned pout and bass.



Eutrophic

a. High Nutrient Enrichment
b. Much Planktonic Growth (High Productivity)
c. Extensive Aquatic Plant Beds
d. Much Sediment Accumulation on Lake Bottom
e. Low Bottom Dissolved Oxygen
f. Only Warmwater Fish Species

Marshes, swamps and bogs are the eventual fate of all lakes. They are highly productive areas ans an essential part of New Hampshire's environment.



Wetland

Many of New Hampshire's lakes are aging at such a slow rate that changes in trophic state would not be noticeable in a person's lifetime. However, when nutrients are introduced into a lake from cultural sources in addition to those entering from natural sources, the natural aging or eutrophication process is accelerated and productivity becomes excessive. Lakes impacted by cultural eutrophication age before their time, creating undesireable water quality conditions. In most cases, phytoplankton blooms cause unsightly surface scums and obnoxious odors, and decrease water transparancy, lowering the aesthetic values of the lake, and in some cases, inducing fish kills. Although aquatic plants are beneficial to the lake ecosystem, excessive abundance can interfere with boating, swimming, fishing and other recreational activities. When abundant plankton and aquatic weeds die off each year they fall to the lake bottom, causing a higher rate of sedimentation. The sedimenting orgainic material then begins to decay through bacterial decomposition. An abnormally high organic load may result in a subsequent high uptake of oxygen by the bacteria from the water. In these cases, oxygen depletion is common. When the natural environment of a lake is altered, habitats may change and the aquatic foodchain and wildlife may be affected. These are only some of the many possible effects of a culturally eutrophied lake.

Nutients may be introduced into a lake from cultural sources as a consequence of human activity along the lakeshore and in the watershed. Shoreline cultural sources of nutrients include faulty septic systems, shoreline erosion, fertilizer runoff, bathing in the lake and roadside runoff. Most of these sources cand be controlled by lakeside residents.
Nutrients from within the lakes watershed include agricultural and urban runoff, erosion from logging or construction operations, and point sources from sewage treatment plants and industries.

Each of New Hampshire's lakes are at a unique stage in the eutrophication process. The different trophic status of each of our lakes is an essential componsnt of New Hampshire's enviroment.

TO BE CONTINUED

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