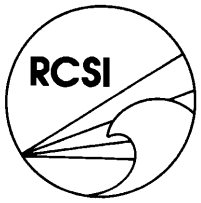

Rochester Committee
for Scientific Information
Rochester, NY

RCSI Bulletin 46
Summary Bulletin - Conesus Lake Studies

By: Herman S. Forest
October 1968

THE ROCHESTER COMMITTEE FOR SCIENTIFIC INFORMATION
P. O. Box 5236, River Campus Station
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Water Pollution #46 October, 1968

Summary Bulletin - Conesus Lake Studies

by

Herman S. Forest

Recent studies on Conesus Lake have been reported in a manuscript of about 30 pages in length. The paper will probably be published in the Proceedings of the Rochester Academy of Science as Paper No. 7 of the series on the Flora of the Genesee Country. Both because a considerable delay must be expected before publication and because the availability of such a journal to the public is limited, the manuscript has been mimeographed, and is available now in its entirety on request to Dr. Herman S. Forest, Biology Department, State University College, Geneseo, New York 14454.

The Aquatic Flora of Conesus Lake consists of two parts: I. The Environment of the Lake and II. The Aquatic Angiosperms. The authors are Herman S. Forest and Edward L. Mills. R.C.S.I. member Dr. Bruce Ristow performed the phosphate analyses, and Mrs. Regina Stewart processed the water samples for the counting of coliform bacteria.

Abstract:

The environment of Conesus Lake, including topographic, geologic and limnological information is discussed. Ecology from a human standpoint includes a historical account of man-made changes since 1900 and the modification and effect of the environment through landfills. Included in the ecological consideration of the lake are: 1) a study of the sewage increase and its relationship to coliform counts and the pollution of the environment and 2) an analysis of the pattern of phosphorus content and distribution in the lake. Preliminary distribution data and quantitative community analysis of the flora, including 26 genera and 43 species of angiosperms are presented and discussed.

Part One contains the information of chief concern to the public. It is a documentation of extreme pressure being placed on an environment with little land-use planning. A few selected conclusions are:

1. A substantial portion of the shoreline has been modified by walling and filling operations. A peninsula of major size (3 acres) has been created entirely by filling, and at least one complete homesite created elsewhere.

2. The emergent plant community ("swamp" type) is threatened with extinction, since a land fill has been approved for Sand Point. After subsequent studies had been completed in the early fall, I was able to state that the area is of "exceptional value as a natural history reserve," in a personal attempt to persuade state officials to save the swamp.

   Also subsequent to the writing, applications have been filed by four adjacent owners to fill the only other swampy area bordering the lake, that adjacent to the inlet. I have filed an opposition to the applications, acting as an individual.

3. An analysis of almost 200 coliform counts supported the conclusion that the proposed beach at Sand Point and adjacent to the Lake Outlet would probably not meet State Health Department Standards. A contributor of moderate pollution is a stream adjacent to the area, while a small stream discharging only .3 mile away almost always had counts of more than one hundred thousand in a standard 100 ml. portion, but the source of the bacteria is unknown. An inquiry is being directed to the State Health Department Regional Office at Hornell as to whether stream standards are being violated.

4. The only effluent of a treatment plant to enter the lake is that of Livonia, which enters through Wilkins Creek. The coliform level remained low most of the time in this effluent.

5. The two chief sources of phosphorus entering the Lake are Conesus Inlet stream and Wilkins Creek. A sampling of all principal streams around the inlet indicated that the phosphorus source was the natural marsh adjacent to the lake, through which the principal inlet stream flows. There was no evidence of a major contribution from farm runoff.

6. The phosphorus contribution from the effluent of the Livonia plant and Wilkins Creek was very high in content, approximately 5 ppm. as PO_4 (or about 1.3 ppm. as P) in the creek as it enters the lake, but the volume of the creek is probably less than 10% of the total input water. As in the case of the phosphorus contribution of Conesus Inlet, at least half of the phosphorus remains in the lake, as bottom sediment or as organic material. Subsequent to the completion of the report, it was found that the phosphate contribution of Wilkins Creek apparently creates a fan-shaped area of enormous plant fertility in the vicinity of its mouth.

Concluding Note:

This study was provocative of further work because it may supply concrete evidence on a critical question in regard to fertilization of water such as Lake Ontario; even in water which already contains considerable phosphate, and which is already fertile, the addition of concentrated doses of phosphate increases the growth of algae (conspicuously Cladophora) and rooted plants ("weeds") enormously.