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Conflicting Demands for the Smaller Lakes

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THE ROCHESTER COMMITTEE FOR SCIENTIFIC INFORMATION
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Conflicting Demands for the Smaller Lakes

Summary

The first thrust of the State Health Department's effort to improve water quality by reducing nutrient input has been directed, logically, at large sources of pollution (major urban areas) and the largest watershed of the state, the Lake Ontario Basin; for the smaller lakes of the state, notably the Finger Lakes, definite policies remain to be developed. Although many of the lakes are public water supply and bear the highest state classification (AA) there is an enormous difference in the pollution permitted. Lakes differ widely in type and amount of use, but a consistent increase in use can only lead to conflict. Regulation of usage is the only long range alternative to ruin. Conesus, Canandaigua, Keuka, Canadice, Hemlock and Canadarego Lakes are discussed specifically.

Sewage Effluent - An Evolution of Standards

Conesus Lake has a densely populated shoreline and receives sewage from the village of Livonia after primary treatment, as well as untreated sewage from Lakeville quite near the outlet. (See R.C.S.I. Bulletin, October 1968.) The Livonia sewage is usually treated against bacteria, but failures have been detected from time to time (coliform counts in the moderate to heavy range). The small creek at the north-east corner of the lake continually discharges water with a heavy coliform count, and Hannah's Creek at Pebble Beach usually has a moderate count. Human waste is usually delivered to septic tanks, which are at- or near-the water table, and frequently are within 10 yards of the shore. In some cases sealed holding tanks are used, without regulation of disposal of the pumped contents. Wash water is discharged frequently into "dry" wells and more or less directly into the lake, although it is categorized as Sewage by the Health Department. The effective control of the entire watershed is obviously beyond the control of the single inspector, regardless of his ability and devotion. State regulations posted at the public launching site deny use of the lake to boats with toilets or sinks. Chemical tests for phosphate show high levels are being put into the lake, and detergent foam has been observed in the Wilkins Creek area and adjacent to the development known as Dacola Shores. At a recent hearing to consider applications for landfills at Dacola Shores (Geneseo, N. Y., July 16, 1969, by State Water Resources Commission), an officer of the State Health Department, Kenneth B. Goldbaugh, stated that Dacola Shores was probably an illegal subdivision, and that neither septic tanks nor holding tanks would be acceptable in the proposed fill areas. Furthermore, the applicants intended to discharge wash water into wells, not realizing that it was sewage! In contrast, the Town Board of Conesus wrote a letter supporting one of the applicants.

A peripheral sewer system is now being considered for the lake and will soon be considered in a vote by people of the area. It appears that it will be expensive to householders, although most of the cost will be paid by subsidy.

The problem of boat and outboard motor pollution has been discussed elsewhere. It can be noted further that there is considerable opposition to public use of the lake for boating by the owners of shore property, although public access is restricted to a single launching site.

Keuka Lake appears to have experienced an improvement of its water quality after several years of stringent watershed controls of septic tanks. The solution would not be feasable for Conesus because of its more intensive use and its already advanced condition of deterioration.

Canandaigua Lake is far larger and deeper than minor Finger Lakes such as Conesus and Keuka. Consequently both its natural aging and its response to pollution are less noticeable. Nevertheless, there is already concern for its future and conflict between users. An urban development is being planned near the lake. The development is Bristol Harbour Village, with Mr. Frederick Sarkis of Rochester as president. Septic tanks were not even considered for the population of 1300 or more, and consultant engineers were engaged to design a treatment plant (Harnish & Lookup of Newark, N.Y.). The proposed plant would utilize a lagoon as final treatment, with the stated intention of:

a. Chlorinating to kill bacteria
b. Reducing the organic matter (BOD)
c. Reducing phosphate and probably nitrates and other nutrients as well

The phosphates which will be released will in all likelihood exceed the minimum requirements of excessive algal growth. The effluent from the proposed treatment plant will be released into Seneca Point Brook, an intermittent stream. N. W. Classen in Water and Sewage Works, July 1969, p. 84A remarks that ponds can have an adverse effect on the receiving stream.

The suspended solids in the stream can be increased and considerable algae can be released. In correspondence with Mr. Wayne Harris of the Monroe County Conservation Council, the engineering firm stated, "The concern over nutrient removal is one we share with you and all concerned with water pollution control efforts in New York State." Elsewhere, the responsibility of discharging into AA waters was clearly accepted.

Mr. Harris has challenged the assertion that the proposed plant would perform as expected. The plant has been approved by the district engineer at Geneva, Mr. Henry Smith, and by the State Health Department (Rochester Democrat & Chronicle, July 26). The mechanism for final approval consists of reviews by two agencies of the State Health Department, the Division of Engineering Design and the Water Quality Division. This is a technical dispute which is of considerable public interest as a test of whether the procedure which has been established for review is indeed effective.

Nutrient removal is not now required in Canandaigua Lake! Mr. Harris is doing a particular service in demanding a re-definition of the concept of "damage" to a lake. It is already supposed to be illegal to put harmful material into a lake, but in fact, few restrictions have been applied.

Canadarego Lake - This lake is north of Cooperstown. It is about 5 miles long, and receives minimally treated sewage discharge from the Village of Richfield Springs. The lake has been studied by the Research Unit of the State Health Department and cooperating scientists for the purpose of developing standards and regulations for small lakes. After the Village had made the primary decision to build a new treatment plant, it was pursuaded, informally, by the Health Department to change its plans and install advanced treatment with newly developed package plant which is designed for almost total removal not only of organic matter but of nutrients as well. This will be the first such plant installed on an inland New York lake. It probably will not be the last.

Cayuga Lake. At this time the only announced plant is the Bell Station about 12 miles north of Ithaca. As previously reported (R.C.S.I. Bulletin, May 1969), work has been halted while the New York Gas and Electric Company reassesses the situation. A marked change of attitude is apparent on the part of company representatives. They manifest an increased concern with consequences, apparently as a result of extensive communication with interested scientists. The company has invested heavily in research, primarily by the Cornell Aeronautical Laboratories and the Water Resources Group (Ithaca). The total outlay for such research may reach $500,000.

An advisory group to the State Health Department conducted a hearing and discussion among various interested groups at Ithaca in late May and concluded that the primary concerns over the plant would be circulation of nutrients and radioactive waste. It is quite evident that the concept of "damage" is again a central question. The threat of thermal pollution appears marginal, but the question remains as to why any such damage should be risked. There is no regulation, present or proposed, which prohibits the pumping of nutrients from the bottom to the top of the lake, but damage could result. R.C.S.I. has received reliable information that the plans have been altered so that water would not be drawn from the depths (hypolimnion) of the lake, thus greatly reducing that danger. There is a clear conflict of calculations between the power company engineers and outsiders (R.C.S.I. and Committee to Save Cayuga Lake) as to whether the present permissible limits for radiation would be exceeded in 12-20 years, but even if the conflict should be resolved the question remains of whether any radioactive waste should be deliberately dumped into an inland lake, river or stream.

If our understanding of the nuclear power process is correct, a minor amount of radioactive material enters the condenser water by simple exchange mechanisms. The radioactive materials which are released into the condenser water for discharge to the lakes are deliberately added.

As a portion of the nuclear power process it is necessary to remove the radioactive material accumulated by leakage from the coolant which passes through the reactor. The radioactive material consists of Strontium-90, Cesium-137, Tritium (hydrogen) and various others. These elements are continuously collected in a special collection area. They are then dispersed in the condenser coolant and released to the lake, river or stream.

What becomes a real question is if the radioactive materials are accumulated in one location, why do not the power companies concentrate them or ship them for processing and re-use or common disposal under carefully controlled conditions, rather than simple release to the immediate environment. The cost of such waste disposal is a justifiable cost of nuclear power and places the burden on the monetary side rather than the health aspect side. The cost of true removal should be considered in the initial cost of construction.

At the present time, the prospect facing the public is that all nuclear plants can release radioactive materials to the environment. In every case the amount released "does not" exceed Title 10CFT-ZO; the A.E.C. regulations. However, the accumulative effect must be considered. If one examines nuclear power plant sites one will often find, not one but two or perhaps three plants projected at the same location. Indian Point has three. An unconfirmed report is that the second R. G. & E. plant is now being considered. Peach Bottom, Oyster Creek has 2 to 3.

It is good economical practice for the utility companies to plan for several plants at the same location as many of the facilities can serve multiple units. No statement has been made to assure that the Bell Station will be the only nuclear power station on Cayuga Lake!