

shores of the Detroit and Niagara Rivers." In 1920 it was given authority to take corrective measures, but by then the advent of chlorination had provided an easy solution for the immediate problem.

In 1946 the two governments asked the Commission to study the causes and effects of pollution in the streams flowing in and out of the lower Lakes—the St. Marys, St. Clair, Detroit and Niagara Rivers—and in 1950 the Commission made specific remedial recommendations. The immediate situation improved, but the long-range

problems remained and in October 1964 the Commission was asked to report on the state and prospects of Lake Erie and Lake Ontario. The result was the 1972 Great Lakes Water Quality Agreement. But the difficulties in implementation were underestimated. The recent annual report notes, "The Commission believes that the parties . . . could not have foreseen the magnitude of the problems of clean-up and the length of time that clean-up would take." It may take a decade or more to achieve the basic goals.

Status Reports

Without treatment, pollution could kill the Great Lakes. But now they are neither dead nor useless, and the damage done to Erie has been often exaggerated.

Cities along the Lakes' edges have improved their sewage plants. Canada began with a clear lead; the Province of Ontario has adequate sewage treatment for eighty-five per cent of its population. Major facilities for most of the untreated (or inadequately treated) areas will be completed this year. Thunder Bay's will be delayed until 1977. In the United States some sixty per cent of the population has adequate facilities and the remaining programs are under construction.

[LAKE ERIE]

Last summer Lake Erie swimmers noticed that the water seemed cleaner than it had the summer before.

They were right—from their limited point of view. Major sewage plant construction is well under way. Detroit and Buffalo will complete their projects by 1979. Cleveland will not complete its projects before 1981.

Chloride concentrations have decreased, but the Lake's overall condition has deteriorated, not from bacteria but from phosphorus. Erie, viewed from the shore, seems longer and wider than Ontario and as long as Huron, but it has far less water than either. The Lake is in effect three basins overlapping—a large central one, a deeper eastern one and a shallow one in the west. The deepest point is only 210 feet down. The big shallow central basin is in bad shape. In 1972 an area of 2,547 square miles there was anoxic—algae stimulated by the phosphorus (from detergents and other sources) had died and its decomposition had consumed the oxygen in the lower, cooler waters. In dying it also produced more phosphorus, stimulating the growth of more algae.

Last summer 4,246 square miles were anoxic. Anoxia kills fish. The improved sewage treatment facilities have greatly reduced the flow of detergents but the run-off of phosphorus-based fertilizers from farm land has increased. Scientists now believe that only the total elimination of the flow of new phosphorus into Erie will reverse the anoxia.

The prospect is for slow but steady improvement, and the probability, that the goal of the US's Water Pollution Control Act amendments—a lake clean enough for swimmers and fish by 1983—will be met. The long-term prospects may be less pleasant. Increased population and industrial growth could send Erie back to its current state after the year 2020.

Ecologist Robert G. Rolan believes, "by that time we will have new technologies or will no longer be discharging into the Lake."

[LAKE MICHIGAN]

The waters of Lake Michigan, 923 feet deep, are generally of high quality. Three areas have problems—Green Bay, Milwaukee Harbor and the Indiana Harbor Ship Canal. The last major treatment plant in the Fox River Valley area near Green Bay will be in operation at Fond du Lac by July 1977. Steel and chemical plants in Calumet in the Indiana Harbor Ship Canal area have resisted compliance with regulations and their cases are now before the courts.

[LAKE ONTARIO]

Ontario, the second most threatened Lake, has shown early signs of oxygen deficiency. It is polluted not only by its own industries and municipalities but also by the waters from the other Lakes, most particularly Erie. The consolidation of thirty-three small treatment plants in the