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Five years' freedom from pollution has not changed Stone Lake from an algae-ridden, unattractive body of water into a haven for fishermen and swimmers, three researchers at the University of Notre Dame concluded in a partial report to the Federal Water Quality Administration. The goal of their research is to learn what steps nature takes in cleaning up pollution. Except for preliminary studies with fly-ash, an air pollutant which removes organic and chemical pollutants in test situations, they have not tried any external means to improve the quality of the lake.

Dr. Mark W. Tenney, associate professor of civil engineering, Dr. Wayne F. Echelberger, associate professor of civil engineering and Dr. Thomas C. Griffing, assistant professor of biology, studied the chemical, biological and physical state of Stone Lake near Cassopolis, Mich., from the time sewage stopped flowing into it in 1965 until the present. "Where lakes with large rivers emptying into them and good drainage running from them might recover quickly after pollution stops," the three explained, "lakes which have no inflow or outflow are more fragile." Rain water is the only addition of clear water to Stone Lake, while seepage and evaporation are the only outflow.

One of the lake's biggest problems is repollution of phosphates from the bottom muds. The chemical is taken up by plants in the lake and accumulates in the bottom muds when the plants die and decay. It then dissolves in the water and re-enters the pollution cycle, even though little new phosphate is added from sewers or chemical fertilizers.

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The phosphate encourages a wild growth of green plants, leading to scum and choking weeds. When the plants die, they fall to the bottom and decay, depleting the oxygen at lower levels in the lake. The lack of oxygen interferes with the growth of good game fish and larger animals which normally eat plants and control insect populations.

In conclusion, the three noted "If immediate improvement of a lake such as Stone Lake is desired, external manipulation techniques must be employed." Tenney, Echelberger and Griffing have been investigating the possible use of fly-ash, an industrial air pollutant, in removing chemical and organic pollutants from the water. The fine ash can reduce the amount of phosphate in the water and then sifts to the bottom and forms a seal over the polluted muds of experimental tanks, preventing future phosphate release into the water. The researchers are awaiting funds to test the feasibility of such a treatment on a lake-wide basis.