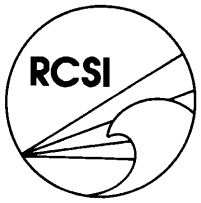

Rochester Committee
for Scientific Information
Rochester, NY

RCSI Bulletin 9
Float Tests and Grease Ball Deposits on Lake Ontario Beaches

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May 18, 1966

THE ROCHESTER COMMITTEE FOR SCIENTIFIC INFORMATION

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#9(a)

FLOAT TESTS AND GREASE BALL DEPOSITS ON LAKE ONTARIO BEACHES

RCSI reports previously issued have established (1) the sporadic occurrence of very high counts of coliform bacteria in the waters of the area beaches; (2) the discharge of sewage solids (paper, fecal matter, grease balls, etc.) at the outfalls of Rochester's Durand Eastman plant and of Irondequoit's Pattonwood and Summerville plants; and (3) the routine discharge of unchlorinated sewage into the Genesee River by the Pattonwood plant. Some doubt was raised by local officials concerning the causal relationship between the discharge of septic sewage into the Genesee and the lake, and the occurrence of coliform counts on the beaches far in excess of the 2400 per 100 ml permitted by state law. It was suggested that these were soil coliforms, or that they were of bather origin.

To assist in clearing up these points, float tests were initiated at the mouth of the river and at the outfall of the Durand-Eastman plant in the lake. Also, careful examinations of the beaches were made.

Grease balls identical in appearance to those found in large numbers at the sewage outfalls were found in extensive deposits on Ontario Beach, on the beach extending east of the river, along the entire length of Durand Eastman Beach, and on the beach just west of the mouth of Irondequoit Bay. Condoms and what appeared to be fecal pellets were noted occasionally. Floats put into the river on three occasions were generally recovered on the beach east of the river, although a few were found on Ontario Beach. On the one occasion that floats were put into the lake at the Durand-Eastman outfall, they were recovered in large drifts of grease balls on the beach west of the mouth of Irondequoit Bay; this is a densely populated area.

These tests show that WNW to NW breezes bring floats, released at the mouth of the River or at the Durand Eastman outfall, to shore at Rochester area beaches. Inspection of a map shows that it is reasonable to define winds ranging in direction from WNW northward through a semi-circle to E as being "onshore winds" with respect to the locations of the sewage discharges, and the beaches.

The following data come from a U.S. Weather Bureau bulletin summarizing hourly observations at the Rochester Airport from 1951 to 1960.

	Percent frequency of wind direction				
	WNW-NW	NNW-N	NNE-NE	ENE-E	Total "onshore"
June	14.0	6.2	4.9	5.7	30.8
July	14.4	7.1	6.0	4.4	31.9
August	10.4	7.9	7.7	7.1	33.1

The distribution of floats, or floating sewage, would be affected by wind direction as well as water currents. In our tests, "onshore" breezes brought floats to shore.

Further float tests, as well as knowledge of water currents, will be necessary to define more clearly the conditions under which sewage will come to shore. Coliform counts on surface water at the edge of the beach, as well as counts on samples taken at depths of several feet, will be needed to characterize the degree of sewage pollution of the beaches.

Chlorine tests run at the Pattonwood plant outfall on May 13, 15 and 17 (since our last report was issued) were negative without exception; if this plant is chlorinating, the chlorine is gone by the time the sewage enters the river with its load of solids. (We have previously shown such sewage to be extremely septic.) This plant discharged large amounts of black sludge on May 11 and 14; the Summerville plant discharged black sludge into the river on May 17, but has been chlorinating.

The results we have obtained indicate that sewage solids and septic sewage continue to be discharged into the river and the lake, and that the flow patterns produced by wind and water currents are such as to frequently bring floating sewage back onto essentially all of the beach north and northeast of the city.

We are indebted to Dr. and Mrs. M.E. Missal for assistance in carrying out the float tests.

TECHNICAL APPENDIX

There follows a summary of the data and observations on which the above conclusions are based.

Float tests

May 11. 50 red floats put into river at north end of east jetty at 10:45 A.M. Wind from the WNW, moderate. 49 red floats recovered on beach within half a mile east of the jetty at 6:15 P.M. the same day.

May 13. 40 red floats put into river at north end of east jetty at 11:50 A.M. Wind from the WNW, brisk. 32 of these floats were recovered on the beach east of the jetty on May 15 and 17.

May 15. 70 blue floats put into lake at Durand-Eastman outfall at 10:55 A.M. On May 16, 19 floats were recovered between the mouth of Irondequoit Bay and Marge's Restaurant about ½ mile west. 19 more floats were found between the restaurant and old Boardwalk Park. One float was found a short distance west of old Boardwalk Park. During this test the wind was generally from the NW.

May 17. 50 yellow blocks were put into the river at the end of the east jetty at 5:25 P.M. NW wind, moderate, which shifted to E. during the night. 15 floats recovered from the beach immediately east of the east jetty, and 2 floats recovered from Ontario Beach near the west end.

Inspections of beaches

May 16. Very extensive deposits of grease balls were seen on the beach between the outlet of Irondequoit Bay and the intersection of Scenic View Dirve and Lake Bluff Road. Light NW breeze.

May 17. Extensive drift of small dirty-white grease balls on beach just in front of the Harbor Square apartment project.

May 18. Two lines of grease ball deposits were found on the beach just east of the east jetty of the river; one right at the water's edge, the other about 20-30 feet back up on the beach. 2 condoms were found at the water's edge. Dense drifts of grease were observed in some places.

Ontario Beach. Deposits of grease balls were observed all along the water's edge and on the beach about 50 feet from shore. 2 condoms were seen at the water's edge about 50 ft. W. of the west jetty at the river's mouth.

Durand-Eastman Beach, by Sunshine Camp. Grease balls in drift at water's edge, grease balls in drift back 20-30 ft. on the beach. Several pellets of what appeared to be fecal matter.

Durand-Eastman Beach, by Titus Avenue and Kings Highway road. Grease balls found on the beach.

Durand- Eastman Beach, approximately 200 yards W. of bath houses. Grease balls at water's edge.

Durand-Eastman Beach, in front of bath houses. Grease balls at water's edge.

North end of Irondequoit Bay at the end of the expressway. Found a half-dozen grease balls along a distance of about 50 yards.

Lake Ontario beach at W. side of Irondequoit Bay outlet. Lots of grease balls, condom.

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