

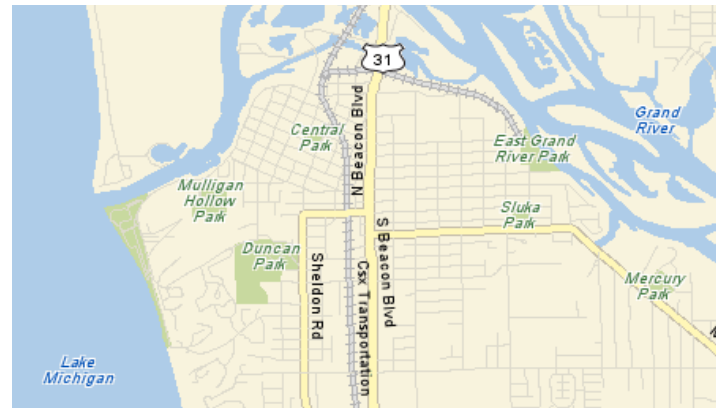
GRAND RIVER FIELD EXPERIMENTS

SUMMER 2007



In order to develop tools to accurately predict potential human health threats to coastal Great Lakes waters, researchers at the National Oceanic and Atmospheric Administration's (NOAA) Center of Excellence for Great Lakes and Human Health, Michigan State University, University of Wisconsin-Milwaukee, and the Georgia Institute of Technology will be conducting an extensive water quality study to better understand the movement and influence of wind, waves, and water currents on contaminants and their interaction with coastal water circulation of Lake Michigan. The ultimate goal of this field study is to develop useful tools to forecast potentially harmful conditions in the coastal waters and beaches in order to assist decision-makers with informing the public in a timely manner to reduce water-related human health risks.

We will be conducting a tracer study on the lower Grand River to investigate flow and to gain a better understanding of movement of these potential pollutants in the Grand River. We will be collecting data on the Grand River to test the adequacy of a fine-scale coastal circulation model. This will be done by conducting a controlled release of a non-toxic, non-harmful red dye into the River, and tracking its transport downstream to the mouth of Lake Michigan. The dye, Rhodamine-WT, can

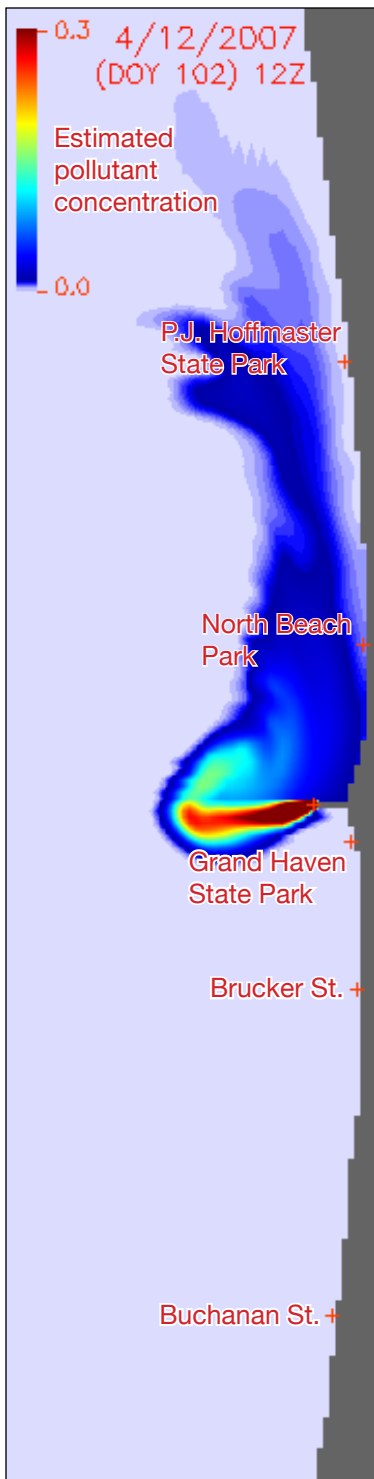


The Grand River, a tributary of Lake Michigan, is the site of our field study. During our study we will collect a series of water samples and measuring wind, wave, and water currents. Image courtesy of Yahoo!Maps

be easily measured at very low concentrations making it an ideal tracer, will be released in the vicinity of the US-31 bridge. Dye will be pumped into the river for approximately 5 hours during each of the two experiments. Water samples will be collected at a number of locations downstream from the input point, between Grand Haven and the mouth of Lake Michigan. Results from these studies will aid in constructing, testing, and refining models that deal with the transport and fate of contaminants. Models will allow us to look at how, how much, and when pollution that enters the rivers affects public beaches.

Tracking dye movement downstream.
Photo by M. Phanikumar.





By conducting tracer studies, CEGLHH scientists will be able to develop accurate models to determine concentrations of bacteria that could contaminate public beaches in places such as Grand Haven.

www.glerl.noaa.gov/res/Centers/HumanHealth/

RELEVANCE OF THE STUDY:

- Timely forecasts of potentially hazardous conditions are critical to public safety.
- The study will allow us to obtain valuable data for characterizing the mixing and movement of pollutants and also determine the influence of wind, currents, waves, and water temperature on contaminant transport.
- If fully successful, the modeling system will be able to be used at other beaches to determine potential contamination events.

TIMELINE:

June 4-8, 2007 - Rhodamine dye will be released for 5 hours on June 6.

July 16-20, 2007 - Rhodamine dye will be released for 5 hours on July 18.

Dye release dates may be changed due to inclement weather. We will notify city officials and public health managers of any changes.

Rhodamine dye is a non-toxic, non-harmful red dye that does not harm humans, animals, or aquatic life at the concentrations used in this study. Public water supplies will not be affected by the use of the dye. The dye can be measured at very low concentrations making it suitable for our research.



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CENTER OF EXCELLENCE FOR GREAT LAKES
AND HUMAN HEALTH

The NOAA Center of Excellence for Great Lakes and Human Health focuses on understanding the inter-relationships between the Great Lakes ecosystem, water quality and human health. The Center employs a multidisciplinary approach to understand and forecast coastal-related human health impacts for natural resource and public policy decision-making, and develop tools to reduce human health risks associated with three research priority areas: beach closures, harmful algal blooms, and drinking water quality. For more information on CEGLHH's research, please contact sonia.joseph@noaa.gov.