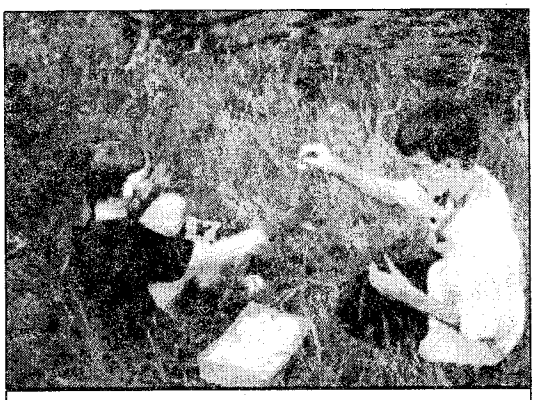
Ruddiman Creek Fact Sheet

Ruddiman Creek is located mainly within the City of Muskegon, but portions of its watershed extend into the Cities of Norton Shores, Muskegon Heights, and Roosevelt Park. Ruddiman Creek currently carries water from storm sewers located in all four cities. Land uses in the 2,994 acre watershed range from residential, recreational to commercial and heavy industrial uses. The main branch of Ruddiman Creek, its two tributaries and Ruddiman Pond all have adjacent wetlands along portions of their lengths, providing valuable habitat and other ecological services such as flood control.

Why is the Ruddiman Creek Watershed Receiving so Much Attention?

Two major problems being addressed by citizens, local, state and federal partners are contaminated sediments (mineral or organic solid matter that is washed or blown into water bodies) and polluted stormwater runoff (rain water that flows over land and through storm sewers to the creek). The most seriously **contaminated sediments** resulted from direct, historic pollution discharges through storm drains and from solid waste disposal into the adjacent wetlands. These sediments include heavy metals, hydrocarbons, chlorinated solvents, PCBs and other potentially harmful chemicals. **Stormwater runoff** is an ongoing concern that is being addressed by the City of Muskegon's Department of Public Works and through a municipal partnership at the county level.

The symptoms of these two problems have impaired recreational and ecological uses of Ruddiman Creek for over sixty years. Signs around the creek warn against contact with the water. Past and recent fish and macroinvertebrate (aquatic insect) inventories on the creek indicate poor fish and aquatic habitat. Deposits of fine sediment cover spawning beds for fish and prevent some aquatic plants from growing.



Kids from the Youth Volunteer Corps perform water quality tests on water from Ruddiman Creek.

The current effort to restore Ruddiman Creek took root in the Muskegon Lake Public Advisory Council (PAC). Muskegon Lake was identified as an Area of Concern (AOC) in 1985. The Remedial Action Plan (RAP) was released in 1987 and updated by the PAC in 1994. Since then, the PAC has been working towards restoring beneficial uses, which will result in de-listing the lake from the AOC list. Ruddiman Creek is identified as a major contributor to the degradation of Muskegon Lake in the RAP and is considered part of the AOC. Locally, the cleanup of the creek is a priority because there are so many people living in close proximity to the stream; it flows through back yards and recreational areas in the densely populated neighborhoods of Glenside, Lakeside, and Campbell.

The Ruddiman Creek Task Force formed in 1996 to focus on this vital part of our local ecosystem. The Glenside Neighborhood Association (GNA) has acted as a host, providing the Task Force with funds, a place to meet, refreshments, and other support. The two groups have been instrumental in activating local citizens for cleanup of the creek. In the fall of 1996, residents of Nims, Lakeside, Glenside, Roosevelt Park and Campbell Neighborhoods provided input to the Task Force's Strategic Plan, and after many years of hard work, some elements of that plan are coming to fruition. Among other things, the Task Force and GNA have hosted annual Earth Week cleanups since 1996 and have also helped coordinate several conferences on contaminated sediments to educate local residents and decision-makers.

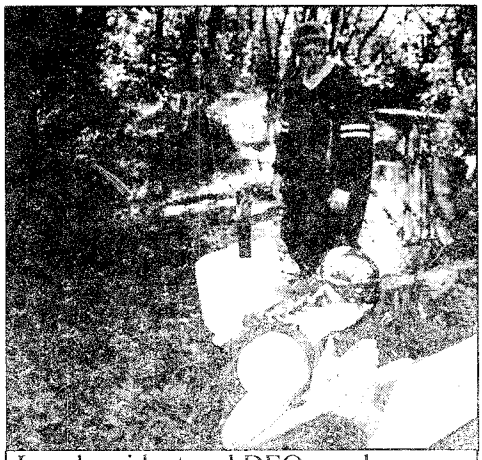
How Did the Creek Get So Polluted?

Ruddiman Creek, because of its sandy well-drained soils and close proximity to sources of hazardous substances, is especially at risk for contamination. Leaks or spills from any home, business, or industry in the watershed have the potential to migrate through the soils and into the creek. Ruddiman Creek is used as an outlet for the storm sewer system. Potential contamination of the creek can occur from leaks, cross-connections and overflows from the sanitary sewer system into the storm sewer.

2000 Phase II File Review Report

There are over eighty sites of environmental concern with significant or moderate potential for impacting Ruddiman Creek. Fourteen "geographical sites" with significant potential for having impacted Ruddiman Creek were identified in the April 2000 U.S. Army Corps of Engineers Phase II File Review Report. They include:

- Mobil Oil – *50,000 gallons of gasoline were spilled in 1971, only 26,000 gallons were recovered; soils and groundwater are contaminated with lead and BTEX.*
- Mobil Oil Bulk Terminal – *elevated BTEX levels on site*
- Kaydon Corp. –*Chlorinated solvents present in soil and groundwater from past operations, detected adjacent to creek.*
- Chevron Terminal –*BTEX present in groundwater between site and creek*
- Amoco Oil Co. – *Elevated levels of BTEX and Lead adjacent to creek; known discharges of BTEX exceeding allowable levels.*
- Sealed Power Corp. –*BTEX, chlorinated solvents, and metals in soil and groundwater; 1992 Trichloroethylene and 1995 BTEX discharges exceeded allowances.*
- A.E. Goetze
- Goetze Corporation
- Great Lakes Plating
- Gene's Service
- CWC Textron,
- Emro 6302/Wesco
- The Meat Block
- United #6297/Emro



Local resident and DEQ employee Tom Berdinski lends a hand to DLZ personnel as they collect samples for the Phase II assessment.

Because contamination may still be seeping into the creek through groundwater from old sources, the MDEQ Surface Water Quality Division has requested that the Environmental Response Division (ERD) coordinate with the current cleanup process.

What Has the Effort Accomplished So Far?

Thanks to the concerned citizens of the area, the creek is receiving attention from more organizations and agencies than ever before. People from a variety of disciplines and backgrounds have come together to learn all they can about Ruddiman Creek and coordinate programs. Knowing the details, such as the volume of water that the creek carries, groundwater flow direction, the location of clay beds, and the history of land uses surrounding the creek, ensures that cleanup efforts are effective and that all sources of the pollution are identified.

In order to deal with contaminated sediments, the environmental cleanup process involves various phases. The Phase I Assessment was performed through a review of historical records and regulatory databases along with site visits and interviews with local residents. Phase II is determining the location and extent of the contaminated sediments, whether the pollution is ongoing, and if additional testing is needed before treatment begins. A technical team with representatives of the Ruddiman Creek Task Force, City of Muskegon DPW, Grand Valley State University, Muskegon Conservation District, MDEQ Surface Water Quality Division and USDA Natural Resources Conservation Service provided input to help determine the exact locations for the US Army Corps of Engineer's sampling plan. The effort resulted in the sampling of forty sites, each at three different depths, for a total of 120 samples in the lagoon and the three branches of the creek.

Phase II Sampling Results – Main Branch

Contaminant	# Samples Taken	# Exceeding Threshold Effect Concentrations	# Exceeding Probable Effect Concentration
Volatile Organic Compounds	17	9*	
Semi-Volatile Organic Compounds	17	12	5
Metals	17	16	8
Polychlorinated Biphenyls	17	6	2
Cyanide	17	17*	

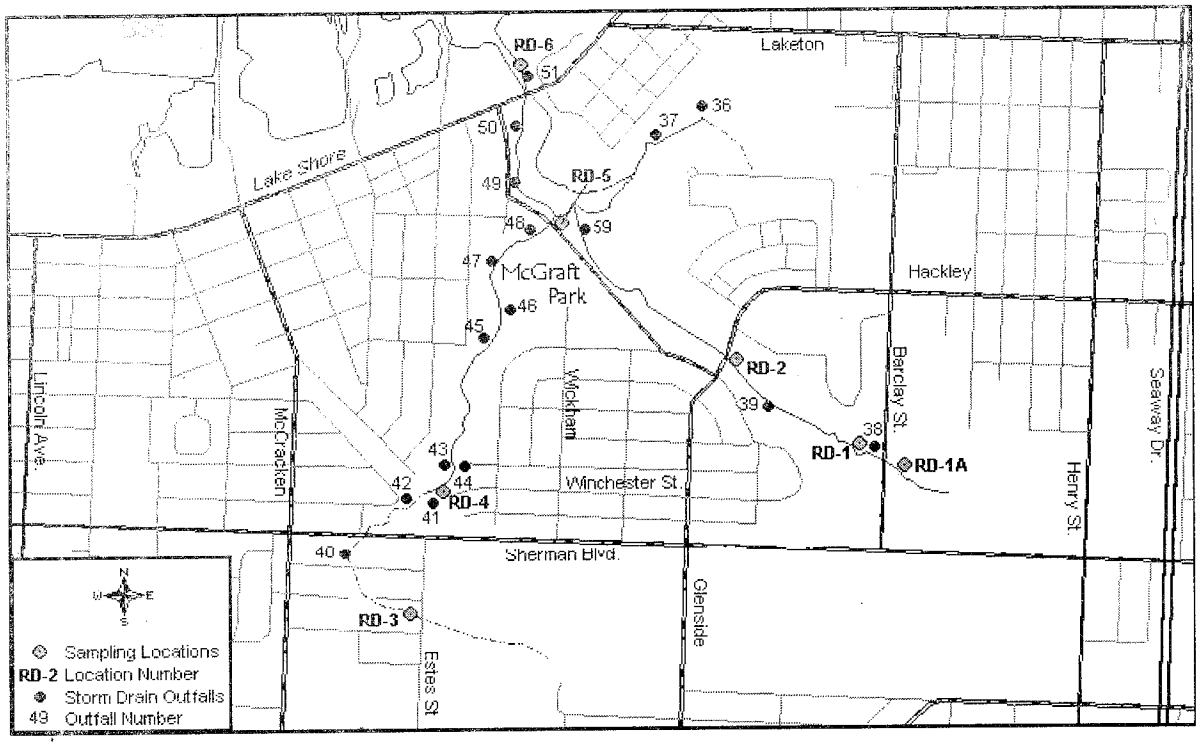
**Indicates "reportable levels" – no Threshold and Probable Effect Concentrations developed for these contaminants.*

All samples from the main branch contained at least one contaminant exceeding Threshold or Probable Effect

As part of the public input process, the Muskegon Conservation District worked with the Youth Volunteer Corps to distribute surveys in the Ruddiman Creek area in the summers of 1999 and 2000. The purpose of the surveys was to assess the current knowledge of residents and how they would like to use the creek. Respondents seemed relatively knowledgeable about Ruddiman Creek and its associated pollution problems. In both years, wildlife watching was indicated as the most popular use of Ruddiman Creek. The desired uses shown at right suggest that, for the first time in a long time, people are daring to hope. Information such as this determines how clean Ruddiman Creek must be before the effort can rest. The Task Force, with support from local citizens, has stated in no uncertain terms that total restoration of the creek is all they will accept. Copies of the Phase I and II Assessments and the compiled survey results are available through the Muskegon Conservation District's *Muskegon Lake Information and Data Repository*.

- Survey Results -
How Would You Use Ruddiman Creek if Pollution Didn't Exist?

60% Watch Wildlife
30% Fish
20% Wade
10% Swim



Storm drain outfalls and proposed sampling locations on Ruddiman Creek. Task Force members have volunteered to monitor sites along Ruddiman Creek for nutrients, bacteria, and/or aquatic insects.

What's next?

Phase III is the next step of the Environmental Remediation Process. It includes additional sampling and laboratory analysis, the installation of monitoring wells, and a geophysical survey (to discover buried tanks, etc.). Phase III will also investigate whether the potential sites listed earlier have actually impacted the creek, and if any responsible parties still exist. Although the DEQ has set aside Clean Michigan Initiative funds, these steps must be completed before they can be used to clean up Ruddiman Creek in Phase IV.

Task Force members are also getting involved in volunteer monitoring activities on the creek. Their main concern is fecal coliform. High levels of these bacteria in the creek have previously been attributed to raccoons, but the Task Force wants more definitive proof that it is not coming from illicit connections or sanitary sewer overflow. Janet Vail of Grand Valley State University's Water Resources Institute has been working with the group to find a way to distinguish between bacteria from human and animal sources.

Right now, the Ruddiman Creek Task Force is faced with keeping public interest high and leveraging local funds for the cleanup effort. In order to keep the process going, local funds will probably be necessary to match part of what the government agencies contribute. Sometimes this can take the form of in-kind services such as volunteer work or the use of space or equipment at no charge. Other times, such as in the implementation stage of the cleanup, the matching funds must be actual dollars. Public involvement will continue to shape and direct the cleanup process.

Muskegon Conservation District
1001 E. Wesley Room 6
Muskegon, MI 49442
Phone: (231) 773-0008
Fax: (231) 773-1210

What Can I Do To Help Ruddiman Creek?

- Provide your input to the Ruddiman Creek Task Force, the Muskegon Lake PAC and the Muskegon Conservation District. Your desired uses of the creek and informational needs are very important to the cleanup effort. **Monthly meetings are held the third Tuesday of the month, at 7:00 p.m. at McGraft Park Community Center. Call Theresa Bernhardt at (231) 759-1237 for more information.**
- Practice environmentally friendly household management. These small changes can make a big difference to Ruddiman Creek: *(for more tips like these, contact the Conservation District)*
  - Keep grass clippings and leaves away from streams, lakes, ditches, and drains. Leave them on your lawn to provide nitrogen for your grass, reduce your need for fertilizer, and reduce the amount of nitrogen in the creek.
  - Wash your car on the lawn where the water can soak into the ground rather than in the street where the water goes straight to a stream.
  - Recycle used motor oil and repair any leaks from your automobile immediately.
- Adopt a portion of Ruddiman Creek. The Muskegon Conservation District provides equipment and coordinates several trainings throughout the year on voluntary stream monitoring procedures and reporting. To be contacted for the next training, **call the Conservation District at 231-773-0008.**