

Chapter 3

Existing Impairments, Pollution Sources, Obstacles and Progress-to-Date

3.1 IMPAIRMENTS

The Rouge Remedial Action Plan Advisory Council (RRAC) summarized the impaired uses of the Main 1-2 as impaired or severely impaired for water contact, warm water fisheries, habitat degradation, aesthetics degradation, aquatic life and wildlife degradation and navigation. The following table lists the watershed impairments, known pollutants and sources of the pollutants.

Table 3-1: Watershed Impairments, Known Pollutants and Sources

IMPAIRMENTS	KNOWN POLLUTANTS	SOURCES
Warm water recreation (Restrictions on swimming)	E.coli, fecal coliform	CSOs, SSOs, illicit connections, animal waste runoff from impervious surfaces
Loss of fish and wildlife habitat	Phosphorus Sediment Increased Temperature Hydrologic flow and velocities	Fertilizer use Sanitary sewage Runoff from impervious surfaces such as parking lots and roads Stream bank erosion Upstream runoff Construction sites Low flow in river, not enough trees and vegetation along the banks Impervious surfaces with insufficient or no storm water controls
Degradation of fish populations and benthos	Sediment Phosphorus Hazardous Materials	Soil erosion Upstream runoff Construction sites Fertilizer use Sanitary sewage Runoff from impervious surfaces Illegal discharges Point source discharges Atmospheric deposition of mercury/PCB

IMPAIRMENTS	KNOWN POLLUTANTS	SOURCES
	Increased Temperature Hydrologic flow and velocities	Low flow, not enough vegetation Impervious surfaces with insufficient or no storm water controls
Eutrophication or undesirable algal growth	Phosphorus Sewage Sediment	Fertilizer use, run off impervious surface SSOs Upstream runoff Soil erosion, construction sites
Degradation of aesthetics	Phosphorus and Nitrogen Sewage Garbage and oils Sediment	Residential fertilizer use Sanitary sewage Runoff from impervious surfaces SSOs CSOs Illicit connections Impervious surfaces such as parking lots Improper disposal of household products Illicit connections Upstream runoff Construction sites
Restrictions on fish consumption	PCBs and mercury	Contaminated sediments Industrial and point source discharges Atmospheric deposition
Restrictions of dredging activities	Hazardous Materials (metals, mercury, PAHs)	Contaminated sediments Industrial and point source discharges Atmospheric deposition Runoff
Fish tumors or other deformities	Organic and inorganic chemicals Viruses	Contaminated sediments Point source discharges Illegal discharges Atmospheric deposition Runoff
Restrictions to navigation	Log jams Sediments Low flow	Stream flow variation Stream bank erosion Upstream runoff Lack of groundwater recharge Loss of wetlands

3.2 ACT 307 SITES AND ABANDONED LANDFILLS

Waste disposal sites were identified in the Technical Memorandum, *Summary of Waste Disposal Sites*, RPO-NPS-TM11.00, July 1994. The following abandoned waste disposal sites were listed:

- **Fons Trailer Park**, located at Southfield and Thirteen Mile Road, Southfield. The site is listed as a former unlicensed waste disposal site.
- **Fons Trailer Park Landfill**, located at Webster and Merrill Roads, Southfield is listed as a former unlicensed disposal site.

The following sites are listed as Part 201 (of Act 451 of 1994, as amended) Sites of Environmental Contamination in the Rouge River Watershed:

- 11 Mile and Orchard Lake Road, Farmington Hills
- Anderson Heat Treat (metal coating), Southfield
- GM Truck and Bus Pontiac Central, Pontiac

3.3 PROGRESS TO DATE

3.3.1 CSO CONTROL EFFORTS

In 1992, The U.S. Environmental Protection Agency (EPA) provided \$46 million to Wayne County to fund the Rouge Project with a primary goal of establishing a watershed-wide approach to addressing the problems of an urban river. This meant looking beyond the obvious impacts (i.e., Combined Sewer Overflows) to matters of recreational use and habitat restoration. While final design decisions for the major civil structures remained with the local communities, the Rouge Project provided overall coordination to encourage substantial differences among the designs commensurate with the intent of the demonstration project.

As a result of this effort, all Combined Sewer Overflows (CSOs) have been controlled in the Main 1-2 Subwatershed. Under the direction of the Oakland County Drain Commissioner's Office, CSO retention/treatment basins were constructed in the Lincoln Hills Golf Club in Bloomfield Township; the Douglas-Evans Nature Preserve in Beverly Hills, and at Linden Park in Birmingham. A great deal of attention was paid to architectural character of these facilities. As a result, these structures are now embraced by the residents who once opposed their construction.

In addition to providing several million dollars in grants to communities to help separate combined sewers and/or construct retention basins to store and treat CSOs, the Rouge Project has funded local community pilot projects that demonstrate how other sources of pollution can be controlled. A part of the Rouge Project has also included extensive monitoring of the water quality and related aquatic habitat of the river to measure progress and pinpoint areas that need further attention.

Within the first few years of monitoring, the Rouge Project documented problems in the river unrelated to CSOs. It became clear as the water quality monitoring results accumulated throughout the watershed that without a comprehensive, watershed approach, the investments made to address CSOs would not restore the designated uses identified in the RAP. Contaminated storm water discharges, sewer overflows, failing septic systems, excessive run-off from developed areas, stream bank erosion, construction activities and a number of other sources and activities were degrading water quality.

3.3.2 SSO CONTROL EFFORTS

The Evergreen-Farmington Sewage Disposal System began construction in 1957. Due to aging of the system, increased population and other inflow contributions, the system has experienced capacity and inflow/infiltration problems and caused basement flooding.

A study was completed to review capacity and inflow/infiltration problems in 1982. The Michigan Department of Environmental Quality (MDEQ) began enforcement action resulting in a Final Order of Abatement in 1988. The Final Abatement Order included projects in two phases, Segments I and II, and were completed in 1992. The work included relief sewers, sewage retention tanks, and rehabilitation of the existing system. Data collected in 1993, after the improvements were completed showed that most of the systems were exceeding their 1993 total outfall capacity (TOC) limits for the short term. However for the long term, the improvements satisfied most of the Abatement Order requirements.

Between 1996-98, there were significant rainfall events, and again some areas experienced sanitary sewer overflows. A Phase I Report was developed, showing which communities were exceeding their TOC limits. The report also determined that the two major sources of the increased volumes were legally connected gravity footing drains and illegal sump connections. Also there were surface waters entering manholes, in flood prone areas, that contributed to inflow to the system. The report recommended the construction of eight (8) additional sanitary retention tanks and/or storage tunnel projects totaling 60 million gallons of storage, and relief sewers. The initial cost estimate for this project was \$180 million.

From 1998 to the present, the Oakland County Drain Commissioner's Office and Member Communities have continued to negotiate with the MDEQ. The current approach includes updating the Phase I Report, providing data from the 2000 and 2001 rainfall events, and summarizing the affects of storms on Segment III sewers, sanitary sewer overflows, and community TOC. The Phase II Report will also provide a corrective action schedule for applicable Segment III areas. This program schedule is proposed to be a phased approach with a 16-year schedule.

The 16-year timeframe is based upon the Watershed Approach to managing sanitary sewer overflows within the Main 1-2 Rouge communities. This approach has been laid out to incorporate a manageable time schedule for the Member Communities budgets and staffs and to accommodate other programs that address the issues. The Main 1-2 Subwatershed Management Plan will also include the implementation of additional best management practices to improve water quality and quantity issues over the next five years.

3.3.3 OTHER PROJECTS

The communities of the Main 1-2 Subwatershed have received grants from the RPO to perform a streambank inventory and a detention pond inventory. These projects are described in the following sections.

3.3.3.1 STREAMBANK INVENTORY

The Main 1-2 Subwatershed is under pressure from urbanization, making it vulnerable to heavy loadings of non-point source pollutants. One such pollutant is excessive sediment. Although, sediment loading is a natural part of a river system, excessive loading can degrade fish and wildlife habitat, destroy wetlands, and reduce the recreational and aesthetic appeal of a river system. In addition, substances such as oils, salts and nutrients can enter the system attached to sediment particles causing eutrophication and a general decrease in water quality in hydraulically connected lakes and ponds.

The purpose of this project is to identify streambank erosion sites along the Main Branch of the Rouge River and to make recommendations that will incorporate best management practices to decrease sediment loading to the River.

3.3.3.2 DETENTION POND INVENTORY

In order to control flooding, Oakland County communities have required that any new developments retain storm water on-site. This requirement spawned the building of detention ponds throughout the Rouge River Watershed. While these basins effectively reduced peak flooding, they do little to reduce the pollutant load from storm water runoff. These same basins, however, present a low cost opportunity to reduce the pollutant load, reduce in-stream erosion, as well as, reduce the “flashiness” of the downstream river flows. By modifying the outlet structure, all of these improvements can be accomplished. The objectives of the storm water detention pond inventory and assessment project are 1) Inventory the existing storm water detention basins within the Main 1-2 Subwatershed, 2) Identify the existing capacity and outlet structure, 3) Recommend improvements to each basin and 4) Prioritize the basin improvements.

3.3.4 SWAG PUBLIC EDUCATION EFFORTS

Public education efforts are critical in controlling non-point source pollution, as well as a required component of each community’s general storm water permit. The Main 1-2 SWAG has worked collectively in performing the following public education projects:

- Two hundred road signs will be posted in various communities marking tributary crossings and watershed boundaries.
- In the fall of 2000 the Main 1-2 communities sponsored a fundraiser to benefit Friends of the Rouge (FOTR). FOTR used the proceeds to add more Oakland County schools to the Rouge Education Project. The Rouge Education Project gives teachers and school children hands-on experience in surface water sampling and evaluating the status of the river.
- The Oakland County Drain Commissioner’s Office supplied Rouge recreation guides and storm drain magnets to all Main 1-2 communities.
- The Oakland County Drain Commissioner’s Office developed and distributed brochures highlighting the County’s IDEP program and advertising their pollution complaint hotline.
- On behalf of the Main 1-2, SOCWA has held master composter workshops and healthy lawn and garden workshops for homeowners and healthy lawn and garden workshops for community representatives. Collectively, these workshops highlight environmentally-friendly lawn management, soil testing, geese management and composting.
- SOCWA has also completed a report highlighting education priorities for the subwatershed.
- Each community was provided with an “Our Actions” display. This display depicts how individual actions can affect water quality in the Rouge.
- The Oakland County Planning Department has provided each community with GIS files on hydrology to promote watershed awareness and stewardship.

3.4 OBSTACLES

All of the stakeholders serving on the Main 1-2 SWAG have embraced the goals of the RAP. Because of the staggering costs associated with eliminating the impairments, the stakeholders have prioritized the identified pollutant sources to assure that the limited financial resources are directed to the worst problem. All have agreed that all sources of untreated sewage entering the water course must be eliminated (Thus, CSO control, SSO control, and illicit connection detection and elimination are the highest priority.) It must be noted that while all of the CSOs in the Main 1-2 have been controlled, many of the Main 1-2 communities also have CSO liabilities in adjacent subwatersheds.

The tremendous costs associated with CSO and SSO control must be staggered to assure the solvency of many communities. This does not diminish the stakeholder's commitment to achieve water quality standards, only the timeframe of compliance.

At the same time, other impairments threaten full use of the river. Extreme peak flows and the sediments associated with these flows destroys habitat and thereby impacts fish and wildlife communities. The communities have committed to addressing these impairments within the content of the subwatershed plan. These commitments are also constrained by the ability to pay for the recommended control alternative. Once the full cost of CSO and SSO control is known, flow related projects can be scheduled.

Non-point source pollution continues to be a problem in the Main 1-2, but through source controls it can be reduced. A number of pollutant sources can be addressed through public education. The efforts have been initiated in the subwatershed and will continue into the future.

Lastly, and most importantly, funding is the biggest obstacle in improving storm water quality and controlling storm water quantity. Historically, the EPA has provided funding to the Rouge communities through the Rouge River National Wet Weather Demonstration Project, but this source is drying up. Clean Michigan Initiative funding is currently available and approval of this management plan helps the community's access a specific pot of money. Even with these funding sources, small local government staffs with large workloads will hamper improvement efforts.