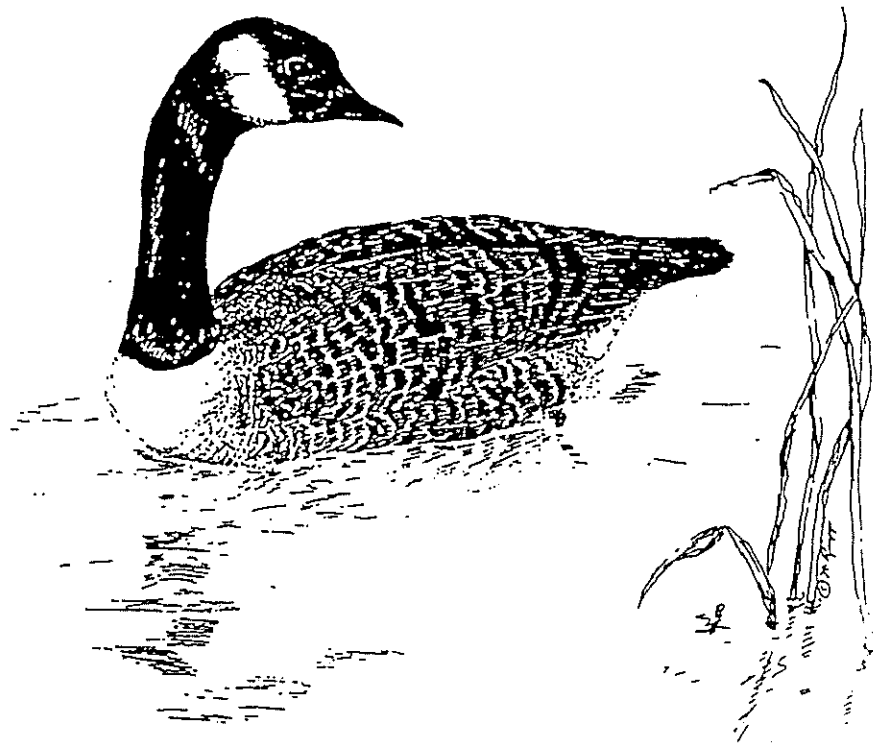


Rochester Embayment Remedial Action Plan Status Report: March 2001



**Rochester Embayment Remedial Action Plan
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Introduction

After the *Stage II Rochester Embayment Remedial Action Plan* (RAP) was published in September 1997, water quality staff and volunteers in the watershed began implementing many proposed water quality measures, while continuing and intensifying existing water quality measures.

Water quality staff and volunteers have:

- Implemented all of the proposed remedial actions that were selected at a public meeting held in April 1997. These actions have been completed or are near completion.
- Implemented many other proposed remedial actions, studies and monitoring methods as staff time and funding have become available.
- Prepared delisting criteria and monitoring methods for the 12 use impairments identified in the Rochester Embayment.
- Educated the community about water quality via special programs, public events, and publications.

This document provides an update of RAP activities *in Monroe County* through February 2001. The five rural counties in the Rochester Embayment watershed (Allegany, Genesee, Livingston, Ontario, Wyoming) have a separate set of proposed remedial actions that are currently being implemented.

If you have questions or comments on this Status Report, please contact Carole Beal at (716) 292-3935 or cbeal@mcls.rochester.lib.ny.us.

Chapter 1
Status of Proposed RAP
Remedial Measures

**Chapter 1. Status of Monroe County Remedial Measures Selected as High Priority and Recommended
Based on Stage II RAP Chapter 7 (Urban), and 1999 RAP Addendum Chapter 2**

Abbreviations:

COE	(U.S. Army) Corps of Engineers	NYSDEC	New York State Department of Environmental Conservation
EMC	(Monroe County) Environmental Management Council	SWCD	(Monroe County) Soil and Water Conservation District
EPA	(U.S.) Environmental Protection Agency	USGS	United States Geological Survey
GFLRPC	Genesee/Finger Lakes Regional Planning Council	WQCC	(Monroe County) Water Quality Coordinating Committee
NRCS	(Federal) Natural Resources Conservation Service	WQMAC	(Monroe County) Water Quality Management Advisory Committee
FL-LOWPA	Finger Lakes-Lake Ontario Watershed Protection Alliance		

Use Impairments Addressed:

- | | |
|--|--|
| 1. Restrictions on fish and wildlife consumption | 9. Drinking water taste and odor problems |
| 3. Degradation of fish and wildlife populations | 10. Beach closings |
| 5. Bird or animal deformities or reproductive problems | 11. Degradation of aesthetics |
| 6. Degradation of benthos | 12. Added costs to agriculture or industry |
| 7. Restrictions on dredging activities | 13. Degradation of plankton populations |
| 8. Eutrophication or undesirable algae | 14. Loss of fish and wildlife habitat |
- (Both major and minor impacts of remedial measures are considered.)

Remedial Measures	Use Impairments (#) Addressed	Status if underway or Priority, Jan. 2001	Responsible Entities	Additional Information
Stage II RAP Chapter 7 (Urban) Remedial Measure Name and Number: <i>High Priority</i> Remedial Measures				
23. Complete basin water quality plans for the Lake Ontario West, Genesee River and Lake Ontario Central/Irondequoit basins; focus on plans for individual stream watersheds within the basins	1,3,5,6,7, 8,9,10,11, 12,13,14	1 plan completed; 3 plans underway	Counties, SWCDs, municipalities	Plan completed for Irondequoit Creek. Plans underway for Long Pond-Northrup Creek, tributary of Black Creek, and Oatka Creek. (Merged with Measure #10d)
9. Continue developing and implementing intermunicipal agreements (IMAs) between Monroe County & the municipalities to protect water quality	1,3,5,6,7, 8,10,11,14	Ongoing	County, municipalities	6 IMAs in effect
10c. Develop created wetlands that manage storm-water quality by instituting intergovernmental agreements	3,6,7,8,9, 10,11,12, 13,14	Ongoing	County, municipalities	There was an IMA with each of the towns that participated in conversion projects.
10f. Expand the Highway Projects Task Group effort to include state and municipal departments of transportation and public works	3,6,7,8,9, 10,11,12, 13,14	High priority	NYS Dept of Transportation, County, municipalities	Highway efforts currently focus on County roads.

Remedial Measures	Use Impairments (#) Addressed	Status if underway or Priority, Jan. 2001	Responsible Entities	Additional Information
11a. Organize a workshop to educate the development community, municipalities and the general public about the impact of impervious surfaces on water quality, and possible mitigating strategies	1,3,5,6,7,8,9,10,11,13,14	Will be implemented in 2001	Health Dept, County Planning & Development, EMC, private consultants, Planning Council	FL-LOWPA funds identified; program expected in 2001.
10a. Continue the dry basin conversion program to manage stormwater quality	3,6,7,8,9,10,11,12,13,14	Ongoing	County, municipalities	Dry basin conversion expected in the Town of Ogden using FL-LOWPA funds.
10b. Conduct a demonstration of a swirl concentrator as a stormwater management strategy for urbanized areas	3,6,7,8,9,10,11,12,13,14	Ongoing	SWCD, municipality	Demonstration at a town department of public works
10d. Develop watershed-based drainage plans that identify drainage-related water quality problems and recommend remedial actions such as creation of stormwater wetlands	3,6,7,8,9,10,11,12,13,14	1 plan completed; 3 plans underway	Counties, SWCDs, municipalities	Plan completed for Irondequoit Creek. Plans underway for Long Pond-Northrup Creek, tributary of Black Creek, and Oatka Creek. (Merged with Measure #23)
4b. Form a small business task group to introduce pollution prevention options, and initiate mentor and volunteer consultant programs	1,3,5,6,7,13,14	1st project underway	County, City of Rochester, NYSDEC, businesses	A manual and poster for auto recyclers has been prepared and will be distributed during 2001. A NYSDEC workshop for auto recyclers will be conducted in spring 2001.
13b. Provide technical assistance to small wastewater treatment plants if necessary to reduce phosphorus discharges	3,8,9,10,11,13,14	Underway	County, municipalities	FL-LOWPA funds identified to assist Village of Scottsville to institute phosphorus removal.
3b. Study the benefits of a NYS substance ban policy that would prioritize chemicals for banning; study the legal authority for banning the chemicals	1,3,5,6,7,13,14	High priority	WQMAC, County, NYSDEC	
13e. Establish a policy for "package" wastewater treatment plants	3,8,9,10,11,13,14	High priority	Health Dept, NYSDEC	
22a. Establish a local water quality nonprofit organization that would plan, coordinate, fund and implement educational activities	1,3,5,6,7,8,9,10,11,12,13,14	Completed	County, Rochester Museum & Science Center	The organization is being established in the first quarter of 2001. (Merged with Measure #22b)
17d. Prepare a list of programs, contacts and elementary school curricula that can be distributed to teachers; include information on local wetlands and activities for different age groups	3,8,14	Completed	Colleges, Sea Grant, Cooperative Extension, NYSDEC, teachers assns, school board assns	

Remedial Measures	Use Impairments (#) Addressed	Status if underway or Priority, Jan. 2001	Responsible Entities	Additional Information
8. Enact a long-term agreement with the U.S. Army COE to ensure that restrictions on overflow dredging in the Rochester harbor continue despite changes in personnel and political climate	1,3,5,6,7,10,11,13	Agreement requested in 2001	County, COE, NYS-DEC	
4a. Establish a pollution prevention team to focus on one or more chemical pollutants, identify sources and options for pollution prevention, and prepare a work-plan to eliminate discharges of the chemical(s)	1,3,5,6,7,13,14	One project completed	County, medical and dental communities, academia	Project was mercury pollution prevention. A manual was prepared for hospitals, distributed in the Rochester Embayment watershed and to other hospitals in U.S and Canada, and available on the web. A booklet and poster were prepared for dentists, distributed in the Rochester Embayment watershed.
13a. Establish an annual phosphorus pollutant loading goal for the Embayment; set annual pollutant loading limits for watershed wastewater treatment plants that will help to achieve this goal	3,8,9,10,11,13,14	Data collection and concentration goals complete	County, WQMAC, municipalities, academia	Data collection and goal setting were done in conjunction with developing delisting criteria for the eutrophication use impairment. A pollutant loading goal has not yet been established.
6. Stencil storm drains with the message "Do Not Dump – Drains to Stream"; educate the neighborhoods and others about proper disposal of household hazardous substances	1,3,5,6,11,13,14	Ongoing	Dept. Environmental Services, Health Dept, Cooperative Extension, towns, transportation Departments	Monroe County Department of Environmental Services is coordinating efforts. In 2001, the new water quality collaborative may be coordinator. The Stormwater Coalition may also promote and sponsor stencil projects.
1999 RAP Addendum Chapter 2 Remedial Measure Name and Number: <i>High Priority</i> Remedial Measures				
2. Support a proposed study on ways to reduce erosion in the Genesee River due to the flow regime from the dam	7,9,10,11,12,14	High priority	COE, USGS, municipalities, universities	
4b. Establish an IGA with the COE to prevent future increase in the area of the Turning Basin that is dredged	1,2,3,4,5,6,7,8,9,10,11,13,14	High priority	COE, Monroe County	
8. Implement a half-day workshop for municipalities and their engineers about stormwater pollution prevention plans	6,7,8,9,10,13,14	To be completed in 2001	Health Dept, SWCD, NYSDEC, municipalities	
9. Reevaluate the rankings of remedial measures, studies and monitoring methods every 6 years	1,2,3,4,5,6,7,8,9,10,11,12,13,14	High priority	Health Dept	

Remedial Measures	Use Impairments (#) Addressed	Status if underway or Priority, Jan. 2001	Responsible Entities	Additional Information
Stage II RAP Chapter 7 (Urban) Remedial Measure Name and Number: <i>Recommended</i> Remedial Measures				
1b. Initiate a public education program about identification of equipment containing PCBs	1,3,5,6,7,14	Recommended	Industrial, commercial & municipal entities; public environmental interest groups	
20b. Use intergovernmental agreements to facilitate the use of municipal land-use powers to protect fish and wildlife habitat	3,6,8,11,14	Recommended	County, municipalities	
24. Evaluate new proposals for remedial actions, studies and monitoring methods every 3 years	1,3,5,6,7,8,9,10,11,12,13,14	1st evaluation completed; 2 nd underway	County, WQMAC, WQCC, municipalities, academia	First evaluation resulted in the <i>Rochester Embayment Remedial Action Plan 1999 Addendum</i> .
17a. Plan annual workshops for local officials to educate about the benefits of wetlands and how land use decisions affect wetlands; include a wetland tour as part of each workshop	3,8,14	Ongoing	EMC, Nature Conservancy, Health Dept, County Planning & Development, NYS-DEC, SWCD, Fisheries Advisory Board, Planning Council, Town Supervisors Assn.	Several workshops were hosted in 1999 and 2000.
4c. Municipalities should initiate pollution prevention within their own programs as educational examples for the communities	1,3,5,6,7,13,14	One ongoing	County, towns, villages	The City of Rochester has a pollution prevention program.
2. Promote interaction with decision makers for other Lake Ontario RAPs and the Lakewide Management Plan about sources of critical pollutants that are located outside the Rochester Embayment watershed	1,3,5,6,14	Recommended	WQMAC	
13c. A student intern would perform a literature search on phosphorus emissions from wastewater treatment plant sludge incinerators to determine the fate of phosphorus	3,8,9,10,11,13,14	Completed	Health Dept, County Env. Services	

Remedial Measures	Use Impairments (#) Addressed	Status if underway or Priority, Jan. 2001	Responsible Entities	Additional Information
14. Create an Agricultural Best Management Practices (BMPs) Coordinator position to facilitate the increased implementation of BMPs	1,3,5,6,7,8,9,10,11,13,14	Recommended	WQCC, SWCD, Co-operative Extension, NRCS	
17b. Develop and staff a speakers bureau to solicit audiences and give presentations of slide shows or videos on the value of wetlands	3,8,14	Ongoing	EMC, Nature Conservancy, NYSDEC, Health Dept.	As needed. Not a formal program.
10e. Promote the use of biofilters through the continued establishment of intergovernmental agreements	3,6,7,8,9,10,11,12,13,14	Recommended	County, municipalities	
1a. Electric utilities should accelerate the reduction of PCBs in equipment	1,3,5,6,7,14	Recommended	Electric utility	
20a. Develop partnerships among the Genesee /Finger Lakes Regional Planning Council, Monroe County, not-for-profit organizations and municipalities to facilitate the use of municipal land use powers to protect habitat	3,6,8,11,14	Recommended	GFLRPC, County, NYSDEC, municipalities, nonprofit organizations	
22b. Create a full-time position to coordinate water quality education activities in Monroe County	1,3,5,6,7,8,9,10,11,12,13,14	Completed	County, Rochester Museum and Science Center	A full-time position has been created to head the local collaborative organization that will plan, coordinate, fund and implement educational activities. (Merged with Measure #22a)
7a. Investigate the feasibility of pumping contaminated fluid at the site of the Brewer St. tunnel under the Genesee River and remediating it	1,3,5,6,7,13,14	Recommended	RG&E, Rochester Pure Waters, County Env. Services	
19. Implement a program to identify and rank critical habitat in and along waterways with the goal of restoring, enhancing and protecting the most significant habitats	3,8,14	Recommended	WQMAC, EMC, NYSDEC, nonprofit organizations, SWCD, WQCC, Health Dept, County Planning & Development	
11c. Use the intergovernmental agreement process to encourage municipalities to address the impacts of impervious surfaces on water quality by revising their parking regulations or by encouraging cluster development and the use of porous paving materials	1,3,5,6,7,8,9,10,11,13,14	Task group established	County, municipalities	A demonstration project is being planned, using an allocation from FL-LOWPA

Remedial Measures	Use Impairments (#) Addressed	Status if underway or Priority, Jan. 2001	Responsible Entities	Additional Information
15b. Implement a lawn care education program for neighborhoods adjacent to water bodies with a history of eutrophication problems; include meetings with neighborhood associations and field visits	1,3,5,6,7,8,9,10,11,13,14	Pilot project underway	Cooperative Extension, County	The name of the program is Great Lawns/Great Lakes. Pilot serves 90 home in 3 towns.
15c. Coordinate the use of Master Gardeners to educate homeowners regarding lawn care methods that protect water quality	1,3,5,6,7,8,9,10,11,13,14	Pilot project underway	Cooperative Extension, County	Master Gardeners are used as part of the Great Lawns/Great Lakes program.
18. Communicate with the International Joint Commission and the St. Lawrence River Board of Control about the need to consider environmental interests, as well as other interests, in managing lake levels	3,14	Recommended	WQCC	
15a. Implement the Monroe County Cornell Cooperative Extension's proposal to demonstrate the impact of yard maintenance activities on water quality	1,3,5,6,7,8,9,10,11,13,14	Ongoing	Cooperative Extension, County	The proposal has been incorporated into Great Lawns/Great Lakes activities.
5b. Communicate with the NYSDEC about Monroe County sites listed in the NYS Hazardous Substance Waste Disposal Site Study to promote remediation of local sites	1,3,5,6,7,11,13,14	Ongoing	NYSDEC, Monroe County Waste Site Advisory Comm.	
16a. Institute streambank erosion control programs as part of developing watershed-based drainage plans	3,6,8,10,11,13,14	Underway	County, municipalities	Streambank erosion inventory under way. Priority projects are being identified and some FL-LOWPA funding is allocated for remediation.
1c. Develop a program for removal and disposal of equipment containing PCBs within industrial, commercial, municipal and residential locations	1,3,5,6,7,14	Recommended	Industrial, commercial & municipal entities; Monroe Co. Hazardous Waste Collection Facility	
7b. Educate developers about the history of contamination in the Genesee River gorge	1,3,5,6,7,13,14	Recommended	Health Dept, EMC, City of Rochester	
3a. Promote changes to NYSDEC's existing antidegradation policy that would specify a process for reviewing proposed actions that would result in discharges that significantly lower water quality	1,3,5,6,7,13,14	Recommended	Monroe County; WQCC, NYSDEC	
There are no 1999 RAP Addendum Chapter 2 remedial measures that are <i>recommended</i> .				

Chapter 2

Status of Proposed RAP Studies

**Chapter 2. Status of Studies Based on Stage II RAP Chapter 4
and 1999 RAP Addendum Chapter 3**

The studies in the Stage II RAP were ranked according to the percentage of voters on a technical committee that believed the study should be "high priority." That vote for each study is shown below. The studies that have been added in 1999 are shown in shaded areas. Their order should be considered to be approximate.

Study	Location of Study Description	Priority Based on Voting	Status January 2001	Additional Information
Study to determine if the Lake Ontario portion of the Rochester Embayment suffers from degradation of benthos (organisms living on the bottom of a body of water)	Stage II RAP Section 4.5	100%	Completed	Performed by SUNY Brockport professor with NYGLPF support
Discover the reasons for the large differences from year to year in Toxics Release Inventory (TRI) data	RAP 1999 Addendum Section 3.8	100% ¹		
Identify and eliminate problems caused by in-building drains and cross connections	RAP 1999 Addendum Section 3.12	90% ²	Ongoing	Performed by Monroe County Department of Environmental Services
Study to determine if populations of phytoplankton (microscopic algae) and zooplankton (microscopic aquatic animals) in the Lake Ontario portion of the Rochester Embayment are impaired	Stage II RAP Section 4.7	85%		
Determine and evaluate alternatives for the uses of pesticides and herbicides in Monroe County	RAP 1999 Addendum Section 3.11	78% ³		
Study alternatives for the use of herbicides to control roadside vegetation on the Monroe County highway system	RAP 1999 Addendum Section 3.10	76% ⁴		Some alternatives evaluated in 1999.
Genesee River erosion study focusing on the area between the Letchworth Park flood control dam and Genesee	Stage II RAP Section 4.4	69%	Phase I completed	Phase I performed by SUNY Genesee professor
Study to verify whether or not fish in the Rochester Embayment have a chemical flavor or odor	Stage II RAP Section 4.1	67%		

Incidence of fish tumors or other fish deformities in the Rochester Embayment watershed	Stage II RAP Section 4.3	67%		
Estimate of the amount of cadmium and lead in runoff due to wear of vehicle tires	Stage II RAP Section 4.8	33%		
Study to learn if contaminants affect the benthic community in the lower Genesee River and, if so, which ones	Stage II RAP Section 4.6	11%		Will be done as part of RIBS and benthic delisting criteria monitoring
Study to verify whether a fishless segment exists in the lower Genesee River	Stage II RAP Section 4.2	8%	Completed	Performed by NYSDEC. Publication: <i>Lower Genesee River Study</i>
Update of the pollutant loadings of the Genesee River and wastewater treatment plants	Stage II RAP Section 4.10	7%		
Quantification of the amount of cyanide discharged into the air from wastewater treatment plant sludge incinerators	Stage II RAP Section 4.9	0%		

¹ 100% of those voting on new studies believed that this study should be “recommended.” The Committee subsequently placed the study in the “high priority” category.

² 90% of the members of the Monroe County Water Quality Management Advisory Committee that amended the original proposal believed that this study should be high priority.

³ 78% of those voting on new studies initially believed that this study should be “recommended. The Committee subsequently placed the study in the “high priority” category.

⁴ 76% of Monroe County Water Quality Management Advisory Committee members that amended the original proposal believed that this study should be high priority.

Chapter 3
Status of Proposed RAP
Monitoring Methods

**Chapter 3. Status of Monitoring Methods Based on Stage II RAP Chapter 9
and 1999 RAP Addendum Chapter 4**

The monitoring methods in the Stage II RAP were ranked according to the percentage of voters on a technical committee that believed the monitoring method should be “high priority.” That vote for each monitoring method is shown below. The monitoring methods that have been added in 1999 are shown in shaded areas. Their order should be considered to be approximate.

Monitoring Method	Location of Monitoring Method Description	Priority Based on Voting	Status January 2001	Additional Information
Monitor levels of toxic chemicals in resident turtles	Stage II RAP Section 9.1a	100%	Funding obtained	To be performed by SUNY Brockport professor with NYGLPF support.
Monitor species diversity and abundance of benthic and water-column macroinvertebrates (aquatic animals without backbones).	Stage II RAP Section 9.1b	100%		Will be conducted as part of toxics delisting criteria monitoring. May be performed by RIBS.
Monitor benthic and water-column <i>Chironomid</i> (midge fly) larvae deformities	Stage II RAP Section 9.1c	100%		
Measure phosphorus loading trends from the Genesee River at an agricultural and an urban location to learn their relative contributions	Stage II RAP Section 9.3b	100%		
Determine the status of chemical seeps on the face of the Lower Falls of the Genesee River	Stage II RAP Section 9.8a	100%		May be done as part of Aesthetics monitoring
Use volunteers to collect and monitor litter in and along waterways	Stage II RAP Section 9.9	100%	Ongoing	Community Water Watch program
Determine the status of populations of phytoplankton (microscopic algae) and zooplankton (microscopic aquatic animals) in the lower Genesee River portion of the Rochester Embayment	Stage II RAP Section 9.12	100%		Monitoring of <i>zooplankton</i> will be done as part of plankton delisting criteria monitoring.
Implement citizen monitoring of stream habitat	Stage II RAP Section 9.13b	100%	Ongoing	Community Water Watch program
Monitor road salt usage	Stage II RAP Section 9.17b	100%	Research has begun.	A Task Group will be established.

Monitoring Method	Location of Monitoring Method Description	Priority Based on Voting	Status January 2001	Additional Information
Monitor enforcement efforts for New York State Department of Environmental Conservation permits for stormwater discharges	Stage II RAP Section 9.14	91%		
Continue Monroe County Water Authority monitoring of turbidity for the Lake portion of the Rochester Embayment	Stage II RAP Section 9.10a	90%	Ongoing	
Build upon the existing Marsh Monitoring Program and the proposed Reference Wetlands System to monitor wetland habitat quality and quantity	Stage II RAP Section 9.13a	90%	Pilot program underway	Community Wetlands Watch program
Utilize an intern to develop and conduct a water quality survey	Stage II RAP Section 9.15a	90%	Completed	Publication: <i>Water Quality Opinion Survey 2000</i>
Coordinate with a professional pollster to conduct a water quality survey	Stage II RAP Section 9.15b	88%		
Obtain data from the U.S. Army Corps of Engineers on required sediment sampling in the Rochester harbor	Stage II RAP Section 9.2b	83%	Data has been requested	
Monitor other (than the Lower Falls) chemical seeps in the Genesee River gorge	Stage II RAP Section 9.8b	80%		
Compile and interpret data from existing habitat monitoring programs	Stage II RAP Section 9.13c	80%		
Continue monitoring water quality at Ontario beach during the swimming season	Stage II RAP Section 9.6	73%	Ongoing	Performed by Monroe County Environmental Health Laboratory
Continue monitoring zebra mussel population trends as part of inspection of water intakes	Stage II RAP Section 9.11b	73%	Ongoing	
Continue Monroe County Water Authority monitoring of turbidity in the lower Genesee River portion of the Embayment	Stage II RAP Section 9.10b	70%	Ongoing	
Create a centralized and easily accessible database for all water quality data produced within Monroe County	Stage II RAP Section 9.18	70%	Initial steps taken	

Monitoring Method	Location of Monitoring Method Description	Priority Based on Voting	Status January 2001	Additional Information
Periodically inventory municipalities on their land use policies designed to help meet water quality goals	RAP 1999 Addendum Section 4.3	67% ¹		
Encourage more stringent permit limits and increased monitoring if and when permit limits for chemicals on the list of High Priority Chemical Pollutants are documented	RAP 1999 Addendum Section 4.4	67% ¹		
Establish volunteer environmental observers to report on unusual discharges to water	Stage II RAP Section 9.14b	66%	Ongoing	Community Water Watch program
Prepare periodic status reports on nuisance algae in Lake Ontario	Stage II RAP Section 9.3c	58%	Research on algae began in 2000 and is continuing.	
Monitor chloride concentrations in the Salmon Creek/Braddock Bay system	Stage II RAP Section 9.17a	56%		
Organize volunteer <i>Cladophora</i> algae observers who would report to the Monroe County Health Department	Stage II RAP Section 9.7	45%	Greece residents tracked algae in 2000.	
Document changes in SPDES permit limits for chemicals on the list of high priority chemical pollutants when permits of Rochester Embayment watershed facilities are renewed	Stage II RAP Section 9.14a	38%		
Use aerial photography to monitor <i>Cladophora</i> algae beds	Stage II RAP Section 9.3d	33%	NYGLPF, County and FL-LOWPA support obtained	To be performed by Rochester Inst. of Technology Imaging Center
Conduct a survey of Monroe County businesses on the impacts of raw water turbidity on the cost of doing business	Stage II RAP Section 9.10c	23%		
Conduct a survey of county or regional industries, agriculture and golf courses on the impact of zebra mussel on the cost of doing business	Stage II RAP Section 9.11a	18%		

¹ 67% of those voting on new monitoring methods believed that this monitoring method should be "Recommended." The Committee kept this monitoring method in the "recommended" category.

Chapter 4
Use Impairment Delisting
Criteria and Monitoring
Methods

Chapter 4: Use Impairment Delisting Criteria and Monitoring Methods

The delisting criteria and monitoring methods for the use impairments identified in the Rochester Embayment were developed by six committees. Representatives of environmental organizations, academia, and local businesses were included on five of these committees.

The delisting criteria and monitoring methods for each use impairment must be approved by three Monroe County agencies:

- Water Quality Management Advisory Committee,
- Water Quality Coordinating Committee, and
- Water Quality Management Agency.

The status for each use impairment is shown in the following table.

Use Impairment	Recom- mended by WQMAC	Recom- mended by WQCC	Approved by WQMA
#1 Restrictions on fish & wildlife consumption	√	√	
#3 Degradation of fish & wildlife populations	√	√	
#5 Bird/animal deformities or reproductive problems	√	√	
#6 Degradation of benthos	√	√	
#7 Restrictions on dredging activities	√		
#8 Eutrophication or undesirable algae	√		
#9 Drinking water taste and odor problems	√	√	
#10 Beach closings			
#11 Degradation of aesthetics			
#12 Added costs to agriculture or industry	√	√	
#13 Degradation of phyto/zooplankton			
#14 Loss of fish & wildlife habitat	√	√	

Use Impairment #1: Fish and Wildlife Consumption Advisories

Assumptions

1. For this use impairment, the area of interest is the lower Genesee River and the Rochester Embayment. Contaminant input comes from the entire watershed.
2. LaMPs and other RAPs will address contaminants of concern from outside the Rochester Embayment watershed. The Binational Toxics Strategy will address air-borne contaminant input from outside the Great Lakes Basin.
3. The contaminants of concern for these delisting criteria are PCBs, mirex and dioxin.

Delisting Criteria	Monitoring Methods
<p>Periodic or continuous monitoring will be conducted until it is confirmed that a use impairment no longer exists. At such time, no further monitoring is necessary for <i>delisting</i>. Additional studies may be performed in the future, but the purpose and details of those studies would be determined by a different group or groups.</p>	
<p>1. There are no Area of Concern-specific fish and wildlife consumption advisories issued by New York State; <u>and</u></p>	<p>Monitor annual New York State Department of Health (NYS-DOH) fish and wildlife consumption advisories.</p>
<p>2. There is no significant contaminant input from the Rochester Embayment watershed contributing to contaminant levels in fish and wildlife tissue that require fish and wildlife consumption advisories, as indicated by the following:</p> <ul style="list-style-type: none"> • Tissue concentrations of contaminants of concern in representative samples of resident fish and wildlife are lower than the guidelines requiring advisories.* 	<p>Identify the best resident species to monitor for tissue concentrations of dioxins/furans, PCBs and mirex/photomirex.</p> <p>Request that the New York State Department of Environmental Conservation sample tissue of the resident species in the area of interest and evaluate the results against the New York State Department of Health consumption advisory criteria.</p>
<p>*Note: A natural restoration time period will likely occur between low contaminant levels in the environment and low contaminant levels in tissues.</p>	<p>Notes:</p> <ul style="list-style-type: none"> • A SUNY Brockport study is proposed to identify the best resident species to monitor and to develop a model correlating air, water, sediment and tissue concentrations of dioxins/furans, PCBs and mirex/photomirex. • Use lipid normalization as an interpretation method.

Use Impairment #3: Degradation of Fish and Wildlife Populations

Assumptions

1. For this use impairment, the area of interest is the lower Genesee River and the Rochester Embayment, associated wetlands, and nearshore areas. Contaminant input comes from the entire watershed.
2. LaMPs and other RAPs will address contaminant input from outside the Rochester Embayment watershed. The Binational Toxics Strategy will address air-borne contaminant input from outside the Great Lakes Basin.
3. The high level of PCBs in fish in the Area of Concern is thought to be the main reason for the absence of mink. Habitat factors are also likely to contribute to the impairment. Physical and biological habitat factors have been evaluated by the Habitat Oversight Committee and are addressed in delisting criteria for Use Impairment #14.

Delisting Criteria	Monitoring Methods
<p>Periodic or continuous monitoring will be conducted until it is confirmed that a use impairment no longer exists. At such time, no further monitoring is necessary for <i>delisting</i>. Additional studies may be performed in the future, but the purpose and details of those studies would be determined by a different group or groups.</p>	
<p>Environmental conditions in the Area of Concern support healthy, self-sustaining communities of fish and wildlife, as indicated by:</p>	
<p>1. Representative samples of water do not exceed NYSDEC ambient water quality standards for the protection of aquatic life and/or for protection of wildlife*, and</p> <ul style="list-style-type: none"> • NYSDEC, Division of Water (June 1998). <i>Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limits</i>, Technical and Operational Guidance Series (TOGS) 1.1.1, Albany, NY. 	<p>Collect samples during each of the four seasons of the year throughout the Rochester Embayment and its watershed. The following sites should be considered:</p> <ul style="list-style-type: none"> • Genesee River at Turning Point above any area of dredging • Braddocks Bay/Salmon Creek outside any area of dredging • Irondequoit Bay outside any area of dredging • Open lake site(s) <p>Analyze the samples for PCBs, dioxins/furans, mirex and mercury. If concentrations of these contaminants in 90% or more of the samples are below concentrations known to degrade fish and wildlife populations, there will be no further monitoring for this delisting criterion.</p> <p>Note: As new information becomes available on other contaminants affecting fish and wildlife, additional contaminants may be monitored.</p>

Delisting Criteria	Monitoring Methods
<p>2. Water column macroinvertebrate communities are “non-impacted” or “slightly impacted” according to NYSDEC indices (Bode et al, 1996), <u>and</u></p>	<p>Conduct multiplate sampling during 3 seasons of the year for one year within the Rochester Embayment and its watershed. The following sites should be considered:</p> <ul style="list-style-type: none"> • Genesee River at Turning Point above any area of dredging • Braddocks Bay/Salmon Creek outside any area of dredging • Irondequoit Bay outside any area of dredging • Open lake site(s) <p>Determine if water column macroinvertebrate communities are “non-impacted” or “slightly impacted” according to NYSDEC community indices.</p>
<p>3. Mink are present and are reproducing*, <u>or</u> levels of PCBs, dioxins/furans, mirex and mercury measured in the tissue of resident prey are below those known to be associated with mink reproductive failure.</p> <p>*Note: It is not currently feasible to evaluate mink reproduction, but it may become feasible in the future.</p>	<p>Utilize a winter track study to determine if mink are present. Establish and monitor levels of PCBs, dioxins/furans, mirex and mercury in tissues of resident mink prey.</p> <p>Note: As new information becomes available on other contaminants affecting mink, additional contaminants may be monitored.</p>

Use Impairment #5: Bird or Animal Deformities or Reproductive Problems

Assumptions

1. For this use impairment, the area of interest is the lower Genesee River and the Rochester Embayment, associated wetlands, and nearshore areas. Contaminant input comes from the entire watershed.
2. LaMPs and other RAPs will address contaminant input from outside the Rochester Embayment watershed. The Binational Toxics Strategy will address air-borne contaminant input from outside the Great Lakes Basin.
3. The high level of PCBs in fish in the Area of Concern is thought to be the main reason for the absence of mink. Habitat factors are also likely to contribute to the impairment. Physical and biological habitat factors have been evaluated by the Habitat Oversight Committee and are addressed in delisting criteria for Use Impairment #14.

Delisting Criteria	Monitoring Methods
<p>Periodic or continuous monitoring will be conducted until it is confirmed that a use impairment no longer exists. At such time, no further monitoring is necessary for <i>delisting</i>. Additional studies may be performed in the future, but the purpose and details of those studies would be determined by a different group or groups.</p>	
<p>1. Representative samples of water do not exceed NYSDEC ambient water quality standards for the protection of aquatic life and/or for protection of wildlife*, and</p> <p>* NYSDEC, Division of Water (June 1998). <i>Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limits</i>, Technical and Operational Guidance Series (TOGS) 1.1.1, Albany, NY.</p>	<p>Collect water samples during each of the four seasons of the year for one year within the Rochester Embayment and its watershed. The following sites should be considered:</p> <ul style="list-style-type: none"> • Genesee River at Turning Point above any area of dredging • Braddocks Bay/Salmon Creek outside any area of dredging • Irondequoit Bay outside any area of dredging • Open lake site(s) <p>Analyze the samples for PCBs, dioxins/furans, mirex and mercury. If concentrations of these contaminants in 90% or more of the samples are below concentrations known to cause bird or animal deformities or reproduction problems, there will be no further monitoring for this delisting criterion.</p> <p>Note: As new information becomes available on other contaminants affecting fish and wildlife, additional animal species and contaminants may be monitored.</p>

Delisting Criteria	Monitoring Methods
<p>2. Mink are present and are reproducing*, <u>or</u> levels of PCBs, dioxin/furans, mirex and mercury measured in the tissue of resident prey are below those known to be associated with mink reproductive failure.</p> <p>*Note: It is not currently feasible to evaluate mink reproduction, but it may become feasible in the future.</p>	<p>Utilize a winter track study to determine if mink are present. Establish and monitor levels of PCBs, dioxin/furans, mirex and mercury in tissues of resident mink prey.</p> <p>Note: As new information becomes available on other contaminants affecting mink, additional contaminants may be monitored.</p>

Use Impairment #6: Degradation of Benthos

Assumptions

1. For this use impairment, the area of interest is the lower Genesee River. As of January 2000, it is unknown whether or not the benthos of the Rochester Embayment is degraded. Contaminant input comes from the entire watershed.
2. Degradation is due to contaminants.

Delisting Criteria	Monitoring Methods
<p>Periodic or continuous monitoring will be conducted until it is confirmed that a use impairment no longer exists. At such time, no further monitoring is necessary for <i>delisting</i>. Additional studies may be performed in the future, but the purpose and details of those studies would be determined by a different group or groups.</p>	
<p>1. Benthic macroinvertebrate communities are “non-impacted” or “slightly impacted” according to NYSDEC indices (Bode et al., 1996).</p> <p style="text-align: center;"><u>or</u></p>	<p>Collect benthic macroinvertebrates during spring, summer and fall seasons for one year within the Rochester Embayment and its watershed. The following sites should be considered:</p> <ul style="list-style-type: none"> • Genesee River at Turning Point above any area of dredging • Braddocks Bay/Salmon Creek outside any area of dredging • Irondequoit Bay outside any area of dredging • Open lake site(s) <p>Analyze samples for community structure indices for Ponar samples from soft sediments (Appendix IV, Bode et al., 1996).</p>
<p>2. In the absence of conclusive community structure data, the toxicity of sediment-associated contaminants is not statistically higher than controls.</p>	<p>Perform acute and chronic sediment toxicity tests according to ASTM/EPA standard methods on samples collected as described under Use Impairment #6, Delisting Criterion #1, Monitoring Methods.</p>

Use Impairment #7: Restrictions on Dredging Activities

Delisting Criteria	Monitoring Methods
1. A formal long-term agreement between Monroe County and the U.S. Army Corps of Engineers (COE) is in place to prohibit overflow dredging in the Rochester harbor (the NYSDEC may also be included in the agreement); and	Formal monitoring of the dredging process would be conducted by Monroe County Environmental Health Laboratory staff during beach monitoring activities.
2. The quality of the material to be dredged meets the standards for open-lake disposal.	<i>Great Lakes Dredge Material Testing and Evaluation Manual</i> (U.S. EPA, U.S. Army Corps of Engineers)

Dredging Background

Dredging is performed every two years to maintain the navigational channel of the Rochester harbor for commercial and recreational vessels. There are four dredging methods:

- Hopper dredge with overflow
- Hopper dredge without overflow
- Pipeline dredge
- Bucket, grapple or clamshell dredge

The hopper, pipeline and clamshell methods have been used at Rochester harbor.

With the overflow method, the hoppers are filled to capacity and then filling continues with an overflow until the density of the load reaches a level that has been predetermined to give maximum operational efficiency. The overflow returns the less dense material to the River, causing considerable local turbidity.

Since the 1960s there has been concern about impact of overflow dredging on the water quality of the Genesee River and Ontario Beach. Problems associated with overflow are:

1. The concentrations of most pollutants in Genesee River sediment vary inversely with particle size. These pollutants include coliform bacteria, pathogenic bacteria, heavy metals, organic compounds, and nutrients.
2. The overflow from a hopper dredge is essentially a mud/water mixture decanted from the hoppers. The mixture contains floating debris, oils, organic solids, and fine-grained inorganic sediment. This material does not settle quickly back to the bottom and it markedly degrades water quality.
3. The frequency of combined sewer overflows has decreased significantly since the 1960s, but was once a major concern. Fecal coliform and pathogens from the City's combined sewer overflow settle during periods of moderate to low flow, resulting in a substantial concentration of these

organisms in the sediments. A decanting of the fine particles from the hoppers during overflow washes large numbers of fecal coliform and pathogenic bacteria back into the River.

During the 1970s the involved parties (Monroe County, NYS-DEC, and the U.S. Army Corps of Engineers) generally agreed that overflow dredging caused the only serious water quality problems associated with dredging. In 1977 dredging was performed without overflow and the dredged material was discharged to an open lake disposal area. This method required only a moderate increase in time and almost totally eliminated negative water quality impacts.

In 1982 there was a lapse from the informal agreement on the part of the dredging contractor, and a serious degradation of water quality resulted from overflow dredging in the River harbor. Therefore, in 1983 Monroe County again expressed a major concern about overflow dredging and at a meeting the involved parties recommitted to the restriction on overflow dredging.

In 1986 a hopper dredge was used with overflow in order to perform water quality testing to provide a basis for restricting overflow dredging in the future. The data indicated that elevated fecal coliform levels could result from the resuspension of dredge overflow. The data also indicated that overflow dredging was not advantageous for increasing solids content within the hopper bins and, therefore, did not improve operational efficiency.

Sediment is tested every five years for suitability for open-lake disposal. The report on testing results is submitted to the NYSDEC and U.S. EPA. Testing was last performed in 1999 and the quality of Rochester harbor sediment was shown to be similar to that of the open lake.

As of 2000, there is no formal written agreement restricting overflow dredging, only letters and verbal agreements. However, no overflow dredging is allowed in any permit application, including those of marinas in the area. (Overflow dredging is not widely used in the Great Lakes anymore.) NYSDEC, the Army Corps of Engineers, and dredging contractors have pre-dredging meetings to ensure a common understanding.

Use Impairment #8: Eutrophication or Undesirable Algae

Assumptions

1. Eutrophication is defined as the normal slow aging process by which a lake evolves into a bog or marsh and ultimately assumes a completely terrestrial state and disappears. Although it occurs naturally, eutrophication can accelerate when human activity adds nutrients, such as phosphate detergents and inorganic fertilizers, to the water. These nutrients stimulate the growth of algae, which will eventually die, settle to the bottom and decompose. Decomposition of the plant material uses up oxygen and can make water intolerable for fish and other aquatic creatures.
2. The near-nearshore area is defined as areas of the embayment with a depth of 1 meter. The nearshore area is defined as areas of the embayment with a depth of eleven (Russell Station) to twelve meters (Old Van Lare Outfall).
3. All surface waters have the potential for eutrophication problems.
4. The similarity of near-nearshore data from outside and inside the Rochester Embayment suggests that the eutrophication problem may be lake-wide and not exclusive to the Rochester Embayment.

Delisting Criteria	Monitoring Methods
Periodic or continuous monitoring will be conducted until it is confirmed that a use impairment no longer exists. At such time, no further monitoring is necessary for delisting. Additional studies may be performed in the future, but the purpose and details of those studies would be determined by a different group or groups.	
1. Total Phosphorus concentrations for near (11-12 m) and near-nearshore (1 m) are less than or equal to 15 ppb and 20 ppb respectively; and	Monitor total phosphorus concentrations from May through October in near* and near-nearshore** areas.
2. Chlorophyll a concentrations for the near (11-12 m) and near-nearshore (1 m) are less than or equal to 3.8 ppb and 5 ppb respectively; and	Monitor chlorophyll a concentrations from May through October in near* and near-nearshore** areas.
3. Secchi disk measurements in the nearshore (12 m) are greater than or equal to 4 meters.	Measure secchi disk depths in nearshore^ areas from May through October.

* Russell Station and Old Van Lare Outfall

**Webster Beach, Forest Lawn, Grandview and Rigney Bluff

^ Old Van Lare Outfall

Comments

1. The causes of eutrophication in the near-nearshore areas have not been definitely determined. However, one potential cause is the recycling of nutrients by zebra mussels, which produce increased filamentous algae. Other possible causes include physical disturbances, warmer water temperatures, prevailing northwesterly winds, lake levels and natural and manmade traps such as sand bars and breakwalls.
2. As of 2000 there does not appear to be a significant eutrophication problem in the nearshore area of the Rochester Embayment.
3. One goal is for a trend of reduction of nutrients as measured within the Genesee River and Embayment streams that will continue indefinitely.

Use Impairment #9: Drinking Water Taste and Odor Problems

Assumptions

1. In the Rochester Embayment a drinking water taste and odor problem is defined as a musty/earthy taste and odor due to natural lake processes, and not due to drinking water treatment.
2. All surface waters have the potential for occasional taste and odor problems. In a complex ecosystem such as the Great Lakes, the impairment may always exist to some extent.
3. "Lake Ontario water purveyors most commonly receive consumer complaints regarding "earthy" or "musty" taste and odors...Most Lake Ontario water purveyors report taste and odor problems during the warmer months when water temperatures exceed 60°F." (New York State Department of Environmental Conservation, June 1994. *Lakewide Impacts of Critical Pollutants on United States Boundary Waters of Lake Ontario*) The problem is more prevalent at shallower nearshore water intakes.
4. MIB and geosmin, possible causes of taste and odor problems, are produced by algae in life processes and are "natural" in a complex lake system.
5. The causes of taste and odor problems have not been definitely determined. Probable contributing factors are:
 - Benthic algae/zebra mussels/actinomyces
 - Reduced nutrient loading that allows for increased water clarity and light penetration.
6. In the Rochester Embayment, the problem is not occurring as a result of water quality degradation in the watershed.
7. In the Rochester Embayment taste and odor is an aesthetic problem, and is not a human health concern.

Delisting Criteria	Monitoring Method
1. Current scientific literature indicates that drinking water taste and odor is a Great Lakes-wide problem; and	Members of the Drinking Water Oversight Committee review scientific literature on an ongoing basis and meet, as needed, to determine if the Rochester Embayment watershed may be contributing to any cause of drinking water taste and odor that has been established.
2. The scientific literature establishes cause(s) for taste and odor problems; and	
3. The Rochester Embayment watershed does not contribute significantly to the taste and odor problem as determined using the findings of Delisting Criteria #2.	

Use Impairment #10: Beach Closings

Draft Assumptions

1. Due to occasional unfavorable weather conditions and the proximity of Ontario Beach to the mouth of the Genesee River, “no beach closings” is not a realistic goal.
2. Beach closings are based on the Ontario Beach operating model.

<i>Draft Delisting Criteria</i>	<i>Draft Monitoring Method</i>
1. Ontario Beach is open at least 90% of the swimming season (8 days closed in an 80-day season); and	Data collected and summarized annually in the Ontario Beach Report
2. The Ontario Beach operating model is at least 90% accurate.	

Use Impairment #11: Degradation of Aesthetics

<i>Draft Delisting Criteria</i>	<i>Draft Monitoring Method</i>
There is virtually no persistent decomposing algae along the Lake Ontario shoreline (algae does not persist more than 10% of summer days) for 5 consecutive years; <u>and</u>	Survey
There are no visually detectable chemical seeps at the lower Falls; <u>and</u> Remediation has occurred in the gorge, such that seeps are unlikely to reoccur; <u>and</u>	Survey Communications with RG&E and the City of Rochester
Dead alewives along the Lake Ontario shoreline are part of a lakewide problem to which the Rochester Embayment watershed does not contribute; <u>and</u>	Literature search
There are virtually no discarded salmonids in the lower Genesee River, due to improper fishing practices, for 5 consecutive years; <u>and</u>	Survey
There is a ___% reduction in litter in the lower Genesee River, based on Fall 2001 lower Genesee River cleanup, for 5 consecutive years; <u>and</u>	Survey, based on 2001 lower Genesee River cleanup
Suspended sediment concentrations remain less than 30 mg/l for at least 80% of a year, and exceed 200 mg/l for no more than 5 events with a combined duration of not greater than 20 days, as determined by a 5-year average (habitat delisting criterion on suspended sediment)	Evaluate EHL data at the Charlotte Pump Station. Use water years (Oct. 1-Sep 30) for averaging.

Use Impairment #12: Added Costs to Agriculture and Industry

Assumptions

1. The presence of zebra mussels is the primary reason for significant costs to agriculture or industry for the use of water in the Rochester Embayment.
2. Zebra mussels, an exotic species, are present throughout the Great Lakes and their tributaries.
3. These delisting criteria apply only to process water.

Delisting Criteria	Monitoring Method
1. Current scientific literature indicates that zebra mussel is a Great Lakes-wide problem; and	Members of the Drinking Water Oversight Committee review scientific literature on an ongoing basis and meet, as needed, to determine if the Rochester Embayment watershed may be contributing to the zebra mussel problem.
2. The Rochester Embayment watershed does not contribute to the presence of zebra mussel in the Rochester Embayment.	

Use Impairment #13: Degradation of Phytoplankton and Zooplankton Populations

Draft Assumption

The use impairment was based on impairment to zooplankton in the Genesee River. No use impairment was identified for phytoplankton in the River or for zooplankton/phytoplankton in the Rochester Embayment.

<i>Draft Delisting Criterion</i>	<i>Draft Monitoring Method</i>
Ninety percent of ambient water samples (collected monthly for one year), compared to a control, cause no chronic toxicity to <i>Ceriodaphnia dubia</i> .	<p>Perform chronic toxicity testing* monthly for one year on <i>Ceriodaphnia dubia</i> exposed to samples of ambient water from the Boxart Street sampling site, as part of NYSDEC Rotating Intensive Basin Studies (RIBS). Repeat testing every 5 years on RIBS rotation until use impairment is delisted.</p> <p>* USEPA. 1994. Short-term methods for estimating the chronic toxicity of effluents and receiving water to freshwater organisms, Third edition. EPA/600/4-91/002. U.S. Environmental Protection Agency, Environmental Monitoring Systems Laboratory, Cincinnati, OH. 341 pp.</p>

Use Impairment #14: Loss of Fish and Wildlife Habitat

Assumptions:

1. The study area for this use impairment is limited to the Rochester Embayment, the lower Genesee River from the Lower Falls to Lake Ontario, and the contributing area north of the historical Lake Iroquois shoreline (approximately Ridge Road).
2. Toxic chemical indicators for delisting this use impairment have been determined by the Toxics Oversight Committee.
3. Except for agricultural areas, most loss of wetlands in the study area is permanent.
4. In areas where structures have been built in the stream buffer, it may not be feasible to restore natural vegetation.
5. Experts do not consider mink to be a good indicator of habitat quality, but there is no better terrestrial indicator.

Delisting Criteria	Monitoring Methods
1. There is no net loss of acreage and quality of federal or state-designated wetlands, using 1996 as the baseline year for comparisons; <u>and</u>	1. Use EMC inventory method to evaluate diversity of vegetation (every 3 years is recommended) in 6 representative wetlands, including the degree of intrusion by exotic/invasive species. Incorporate information about additional wetlands if it becomes available. 2. Evaluate acreage of wetlands, as shown by aerial photos (every 3 years is recommended).
2. There is no net loss of the 50-foot-wide buffer strip of trees and shrubs on both sides of NYSDEC classified streams and the Genesee River up to the Lower Falls (using 1999 as the baseline year for comparisons); <u>and</u>	Evaluate some streambanks where there is concern plus some streambanks chosen randomly (every 3 years is recommended). Use aerial photos for the evaluation or, if a town has streambank regulations, contact the town for data. Conservation Boards and Highway Departments are possible sources of data.

Delisting Criteria	Monitoring Methods
3. Suspended sediment concentrations remain less than 30 mg/l for at least 80% of a year, and exceed 200 mg/l for no more than 5 events with a combined duration of not greater than 20 days, as determined by a 5-year average; <u>and</u>	Evaluate EHL data at the Charlotte Pump Station. Use water years (Oct. 1-Sep 30) for averaging.
4. Hexagenia, or another appropriate indicator, is present in the Embayment and in suitable habitats in the Genesee River up to the Lower Falls; Members of the stonefly, mayfly and caddisfly families are present in streams; <u>and</u>	<ol style="list-style-type: none"> 1. Use Makarewicz (SUNY Brockport) data for Lake Ontario portion of Embayment. 2. Use U.S. Fish & Wildlife or EHL data for the River. 3. Use Community Water Watch data for streams
5. Amphibian diversity and abundance in the study area (including the Genesee River up to the Lower Falls if monitoring can be performed safely) are comparable to expected standards for the type of habitat; <u>and</u>	Use Marsh Monitoring Program (MMP) methods and data. Compare the number of species in study area wetlands with the number expected to be found in healthy wetlands. Number expected could be a non-AOC average determined by the MMP.
6. Lake sturgeon of different life stages inhabit the Genesee River up to the Lower Falls and the Embayment, <u>or</u> physical and biological habitat are suitable for sturgeon; <u>and</u>	Assess and monitor habitat conditions, presence or absence of sturgeon and movements of transplanted sturgeon on a 3-5 year basis. Use data from U.S. Fish and Wildlife project.
7. Mink inhabit and reproduce within areas contiguous to the Genesee River and streams within the defined area, <u>or</u> physical and biological habitat are suitable for mink.	<ol style="list-style-type: none"> 1. NYSDEC would fine-tune mink trapping data for our purpose. 2. Perform winter tracking study in conjunction with NYSDEC. 3. Use CWW reporting.

Chapter 5
Lakewide vs. Local
Impairments Issue Statement

Chapter 5: Lakewide vs. Local Impairments Issue Statement
(Adopted by the Monroe County Water Quality Management Advisory Committee)

The remedial measures of the Rochester Embayment RAP address the sources and causes of Use Impairments in the Area of Concern (AOC) that have been identified as originating in the watershed or the AOC itself, and contributing to impairments in the AOC. The WQMAC is supportive of delisting those Use Impairments for which the Rochester Embayment watershed is not a significant contributor of pollutants, and therefore no remedial actions can be proposed. The Committee recommends the status of the 14 Use Impairments (as developed by the International Joint Commission) be revisited every 10 years (starting in 2010) or more frequently as new information or technology becomes available. Use Impairments may be delisted or additional Use Impairments may need to be added or re-listed.

The WQMAC recognizes that there are lakewide impairments that do not originate from pollutants (or other causes of impairments) within the Rochester Embayment watershed. The WQMAC will continue to work with local, state, federal, and international agencies on programs, such as the Lake Ontario Lakewide Management Plan, that recognize (R. Nelson) address these lakewide Use Impairments. For example, the WQMAC will defer to the four parties (NYSDEC, EPA, Environment Canada, and Ontario Ministry of Environment) regarding lakewide Use Impairments with the understanding that they will keep the WQMAC informed of ongoing progress, or lack thereof, toward remediation.

Use Impairments	Local Use Impairments	Lakewide Use Impairments	Local actions can be taken to address local pollutants	Local actions will have minimal impact on pollutants causing the UI
Restrictions on fish and wildlife consumption	X	X*		x
Tainting of fish and wildlife flavor				
Degradation of wildlife pop. (mink)	X	X*		x
Fish tumors or other deformities				
Bird/animal deformities or other reproductive problems (mink)	X	X*		x
Degradation of benthos	X		x	
Restrictions on dredging activities	X		x	
Eutrophication or undesirable algae	X	X	x	
Drinking water taste and odor problems	X	X		x
Beach closings	X		x	
Degradation of aesthetics	X		x	
Added cost to agr. or industry (zebra mussels)	X	X		x
Degradation of phytoplankton and zooplankton pop.	X		x	
Loss of fish and wildlife habitat	X	X*	x	

* indicates that the Use Impairment is addressed in the L. O. Lakewide Management Plan
 Shaded areas indicate lakewide use impairments for which local action will have minimal or no impact.

Chapter 6
Water Quality Education
1998-2000

Chapter 6: Water Quality Education (1998-2000)

Many water quality educational activities are ongoing. Some have resulted from RAP proposals. Others are independent of RAP activities. Most of the educational activities are conducted by one or more of the following agencies:

- Monroe County Department of Health
- Monroe County Department of Environmental Services
- Monroe County Soil and Water Conservation District
- Cornell Cooperative Extension of Monroe County

Programs that have been initiated or sponsored:

- Water Education Collaborative. The Collaborative will plan, coordinate, fund, and implement water quality educational activities throughout the community.
- Community Water Watch Program. Several training sessions have been held. Currently there are 33 stream teams active.
- The Great Lawns/Great Lakes Program. Developed to help homeowners care for their lawns without degrading water quality.
- Annual New York Stormwater Management Conference and Exhibition (with several Soil & Water Conservation Districts). Brings engineers, planners and municipal representatives together for one day of training on stormwater regulations, best management practices and implementation techniques.
- Workshops for local municipal officials and citizens to educate about wetland regulations and the use of stormwater wetlands to treat stormwater runoff.
- One-day wetland seminar and field trip as part of the NYS Association of Environmental Management Councils/NYS Association of Conservation Commissions annual conference.
- Storm drain stenciling projects.
- Intensive educational campaign in the Northrup Creek/Long Pond watershed on the federal Department of Agriculture's Wetland Reserve Program. Potentially eligible landowners were identified and contacted.
- Work with a local school district to plan a hands-on wetlands education project for middle school students.
- Water Quality Survey.
- Conservation Field Days. A workshop for 1300 sixth-grade students held in a park. Students are exposed to water quality, recycling, composting, stormwater management, agricultural conservation and more.
- Envirothon - Instruct the aquatics topic for the competition. Host a series of mini-workshops throughout the winter to help prepare participants for the spring review session and competition.
- Highway Stormwater Management Training (with the Monroe County Department of Transportation).
- Environmental health education program to assist a community impacted by the proximity of inactive hazardous waste sites.

Participation at exhibits and educational programs:

- Seneca Park Zoo Environmental Fair. Educates approximately 7,000 visitors.
- Rochester Museum and Science Center's Science and Technology Week.

- Science Exploration Days
- Preserving Earth Through Education (with elementary schools)
- Festival on the Oatka.
- Rochester Area Community Foundation all-day program *Caring for Creeks*.
- Annual Science Educator's Conference. Provide material to 20 area teachers.

Publications include:

- Biannual newsletter *Watershed*. Currently each issue is mailed to approximately 1,900 people and it is distributed at environmental fairs and exhibits.
- Community Water Watch Volunteer Manual
- Community Wetland Watch Volunteer Manual
- Hospital manual *Reducing Mercury Use in Health Care: Promoting a Healthier Environment* (on the web at www.epa.gov/glnpo/bnsdocs/merchealth)
- Dental booklet *Prevent Mercury Pollution: Use Best Management Practices for Amalgam Handling and Recycling* (Appendix M of the hospital manual noted above)
- Brochure *Wetlands for Citizens and Land Use Decision Makers*. Distributed through community events and at public buildings.
- Brochure *Great Lawns/Great Lakes*
- *Water Quality Opinion Survey 2000: Public Attitudes and Knowledge Regarding Water Quality in Monroe County, New York*.
- Irondequoit Creek Watershed Collaborative *Recommendations for Comprehensive Stormwater Management*
- Draft *North Chili Tributary of Black Creek Watershed Plan*
- Draft *Northrup Creek/Long Pond Wetland Conservation Plan*
- Draft *Auto Recyclers Guide to a Cleaner Environment: Best Management Practices*
- Two water quality videos have also been produced: *Our Water Resources* and *Water Quality and You*.

Chapter 7
Follow-up to the NYSDEC
Trackdown of Chemical
Contaminants to Lake Ontario

Chapter 7: Follow-up to the NYSDEC *Trackdown of Chemical Contaminants to Lake Ontario*

From October 1993 to November 1994, the New York State Department of Environmental Conservation (NYSDEC) sampled surface water and wastewater along major tributaries of Lake Ontario and sites within their basins. The results of the sampling and analysis were reported in the NYSDEC document *Trackdown of Chemical Contaminants to Lake Ontario from New York State Tributaries* (April 1996). A summary of results pertinent to the Rochester Embayment watershed was included in the *Stage II Rochester Embayment Remedial Action Plan*, Section 3-15.

The 1996 document included recommendations for further work at some of the sites. These recommendations were followed by field work performed in 1995 and 1996. The results were reported in the NYSDEC document *Follow-Up Contaminant Trackdown Investigations of Niagara River and Lake Ontario Basin 1995-1996* (May 1997). Results pertinent to the Rochester Embayment watershed are summarized below.

PCBs

PISCES (passive in-situ chemical extraction samplers) samples were collected from influents and effluents of three Monroe County wastewater treatment plants, Frank E. Van Lare (FEV), Gates-Chili-Ogden (GCO, closed in 1998), and Northwest Quadrant (NWQ). PISCES were also placed in and recovered from five major sewer trunks entering the Van Lare plant. Samples were collected during the period October 30, 1996 – November 13, 1996. Results are shown below. *Numbers were obtained by interpreting a graph, and they should be considered to be approximate:*

Mean PISCES-Derived PCB Concentrations from Monroe County Wastewaters

<u>Location</u>	<u>ng/L PCBs</u>
Hastings St. pump station	330
Norton & Hollenbeck	29
Cliff St. pump station	22
Irondequoit pump station	13
Dix Road	9
FEV influent	120
FEV effluent	~2
NWQ influent	10
NWQ effluent	<2
GCO influent	30
GCO effluent	<2

The three wastewater treatment plants achieved a 99% PCB removal rate. The Hastings St. pump station samples, which had the greatest PCB concentration, were strongly dominated by a

mixture like Aroclor 1248. Aroclor 1248 was used for vacuum pumps, hydraulic fluid, plasticizer in synthetic resins, adhesives, and heat transfer fluids.

Follow-up investigations in the drainage area of the Hastings St. pump station are recommended if the Van Lare effluent PCB concentration needs to be reduced.

Mercury

Mercury grab samples were taken on November 13 – November 14, 1996 at the influent and effluent sides of the three treatment plants and from nine other sites reflecting a variety of potential sources.

- FEV influent and effluent
- NWQ influent and effluent
- GCO influent and effluent
- Tap water from Hemlock Lake, sampled at Monroe County Pure Waters, Rochester Operations Center
- Monroe County Environmental Health Lab (EHL), 740 East Henrietta Road
- Aid to Hospitals, a commercial laundry
- Olin's sanitary lateral on south side of Buffalo Road near the railroad tracks
- Bennington Road, sanitary main downstream from Pfeiffer Glass and Genesee Mirror
- Sanitary sewer of Rochester General Hospital
- RG&E Russell Station batch discharge tank, includes coal pile runoff
- Eastman Dental Center
- Strong Memorial Hospital (*This sanitary sewer site includes flow from the Eastman Dental Center.*)

Sampling results are shown below.

<u>Location</u>	<u>ng/L Mercury</u>
FEV influent	191
FEV effluent	15.2
NWQ influent	226
NWQ effluent	10.7
GCO influent	54.4
GCO effluent	3.19
Tap water	0
EHL	1,150
Aid to Hospitals	282
Olin	46.9
Bennington Rd.	50.3
Rochester General Hospital	88.7
RG&E Russell Station	4.15
Eastman Dental	1,920
Strong Memorial + Eastman Dental	17,000

The three wastewater treatment plants had a mean mercury removal efficiency of 94%. The 1996 sampling data showed a much greater mercury concentration at Strong Memorial Hospital than at the Eastman Dental Center. During the 1994 sampling, the relative abundance from the two was reversed and the concentrations were lower. Results from Rochester General Hospital suggest that hospital wastewater there is not necessarily highly contaminated with mercury. High mercury concentrations were also found in wastewater below a public health lab where mercury reagents had been used and below a commercial laundry using caustic soda (which may be manufactured using the mercury-cell process).

Follow-up sampling for mercury should be conducted if Van Lare effluent concentrations require reduction and after suitable methods for sample compositing have been adopted.

An aggressive mercury pollution prevention program has been initiated at both Strong Memorial Hospital and Eastman Dental Center since 1996.

Notes

1. NYSDEC sampling detected PCBs in stream sediment and surface soils along Tributary #3 of Brockport Creek in the Town of Clarkson and Village of Brockport. The sampling was part of an investigation of two inactive hazardous waste disposal sites. The investigation began in 1999 and is continuing.

2. In 1996, Slater Creek was one of 14 Lake Ontario tributaries and two Niagara River tributaries to be sampled for young-of-year (y-o-y) fish by the NYSDEC. Analysis of fish composites showed that Slater Creek had the highest (wet weight and lipid adjusted) total chlordane value. These fish also ranked within the top three sites for elevated dieldrin and total PCBs. Slater Creek placed 6th for total DDT in y-o-y fish and was one of two streams with a trace of mirex in young fish.

Follow-up sediment and water sampling was conducted in 1998 and 1999 at various points along the Creek in an attempt to identify the location of any sources of these contaminants. Follow-up sampling showed PCB concentrations in sediment and water to be low with no evidence of significant ongoing inputs of PCBs to the Creek. Dieldrin was found to be slightly elevated in water and sediment samples. Dieldrin may have been used historically in orchards located in the headwaters of Slater Creek. A more complete analysis of follow-up sampling results should be completed this year and will include consideration of any additional monitoring needs.