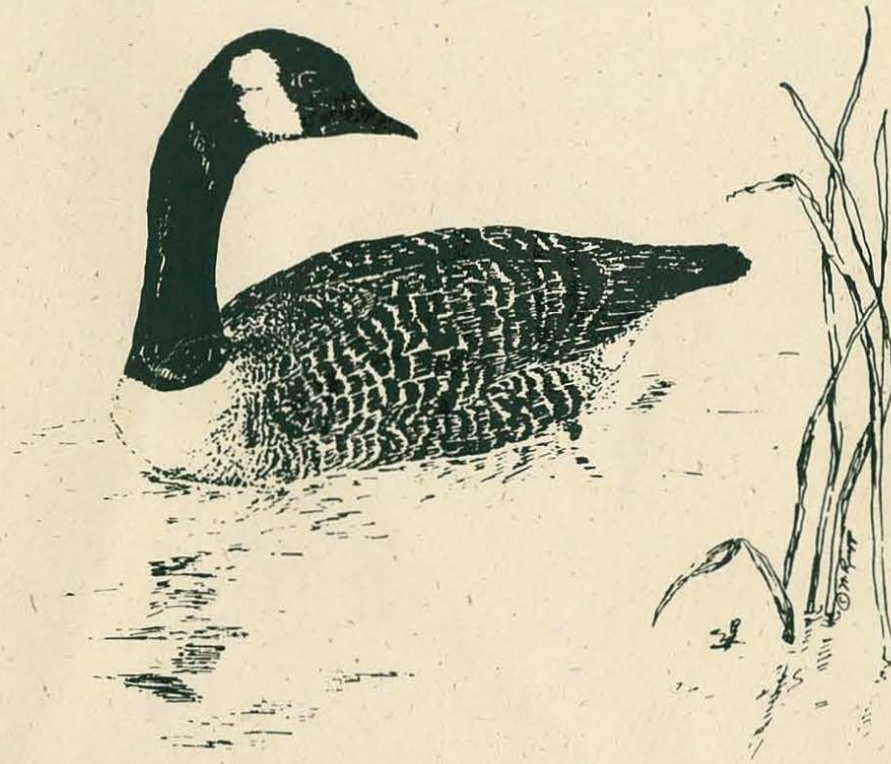


Rochester Embayment Remedial Action Plan Executive Summary

Draft: January 1997



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1. Introduction

1.1. What is the Rochester Embayment Remedial Action Plan (RAP)? (For additional information, see Chapter 1 of the Stage II RAP)

The Rochester Embayment RAP is a plan to restore and protect the water quality of the Rochester Embayment of Lake Ontario and its watershed. Many citizens, government agencies, and community organizations provided input on the development of this plan. The Plan was developed in two stages.

The Stage I RAP (which was completed in 1993):

- established water quality goals and objectives,
- described water quality conditions/problems, and
- identified pollutant sources.

The Stage II RAP:

- provides additional information regarding the causes and sources of water quality problems,
- describes completed and ongoing actions/remedial measures,
- identifies new actions/remedial measures that are needed to restore water quality,
- describes studies and monitoring programs that are needed to complete identification of water quality problems and track progress in restoring water quality,
- outlines a strategy to fund implementation of the Plan, and
- describes who should implement the Plan.

1.2. Why is the RAP being prepared?

The Rochester Embayment RAP is one of 43 RAPs being prepared and implemented in order to advance the Great Lakes Water Quality Agreement between the United States and Canada. The stated purpose of the Agreement is to "...restore and maintain the chemical, physical, and biological integrity of the waters of the Great Lakes Basin Ecosystem." As part of the effort to fulfill this mission, the International Joint Commission¹ (IJC) identified 43 Areas of Concern (AOC) within the Great Lakes Basin, including the Rochester Embayment of Lake Ontario. The AOCs are locations which are characterized by serious pollution problems and are the focal points of Great Lakes remedial activities. The Agreement requires that a RAP be developed and implemented for each AOC so that water quality is restored and protected.

¹ The IJC, which was created by the Boundary Waters Treaty in 1909, is an independent commission, composed equally of United States and Canadian appointees. It provides a quasi-judicial and investigative mechanism to cooperatively resolve problems, including water and air pollution and fluctuating lake levels, along the two countries' common border.

1.3. What is the Rochester Embayment Area of Concern? (For additional information, see Chapter 2 of the Stage II RAP)

The Rochester Embayment AOC (see Figure 1-1) is defined as the approximately 35 square mile portion of Lake Ontario between Nine Mile Point in the Town of Webster and Bogus Point in the Town of Parma. The AOC also includes the approximately six mile reach of the Genesee River, from the Lower Falls to the mouth, that is influenced by water levels in Lake Ontario. Because a watershed approach is being taken in the preparation of the Plan, the study area also includes the approximately 3,000 square mile watershed (see Figure 1-2) that drains to the Rochester Embayment (and therefore impacts water quality in the Embayment). A watershed is a region of land that drains to a particular watercourse or body of water.

1.4. RAP Development Process

Among the six AOCs in New York State, the Rochester Embayment RAP is unique in that it was developed by Monroe County, under contract with the New York State Department of Environmental Conservation (NYSDEC). This was done because Monroe County already had several water quality programs in place. Staff from the Monroe County Health Department Bureau of Water Quality Planning are coordinating the RAP process and writing the RAP documents. The Plans for the other five AOCs in New York State were, or are being prepared by NYSDEC staff.

Throughout the planning process, it has been recognized that public participation is critical in order to insure community support for the RAP. A number of mechanisms have been employed to insure that the general public, elected officials, and technical experts participate in the development of the Plan. These included the Monroe County Water Quality Management Advisory Committee (WQMAC), the Monroe County Water Quality Coordinating Committee (WQCC), review teams, ranking committees, and public meetings.

The WQMAC has been the primary mechanism for obtaining public input on the development of the Plan. The WQMAC is the public advisory group to the Monroe County Water Quality Management Agency² (WQMA) on water quality issues. The 35-member Committee is comprised of representatives from the following groups: public interests, economic interests, public officials, and citizens. Throughout the planning process, the primary activity of the Committee has been to advise the Agency and the State Department of Environmental Conservation on the development of the Plan. Committee members reviewed the draft narrative of the Plan and discussed substantive issues at their regular monthly meetings.

² The WQMA is the primary administrative group which oversees water quality issues in Monroe County. The WQMA is chaired by the Monroe County Deputy County Executive and is comprised of County department heads and representatives from the County Legislature, the WQMAC, the County Water Authority, and the Soil and Water Conservation District. The Agency's mission is to protect and improve water quality at the watershed level by developing, implementing, and monitoring the effectiveness of policies and programs.

Figure 1-1

THE AREA OF CONCERN
The Rochester Embayment of Lake Ontario
&
The Genesee River from the Lower Falls to the Mouth

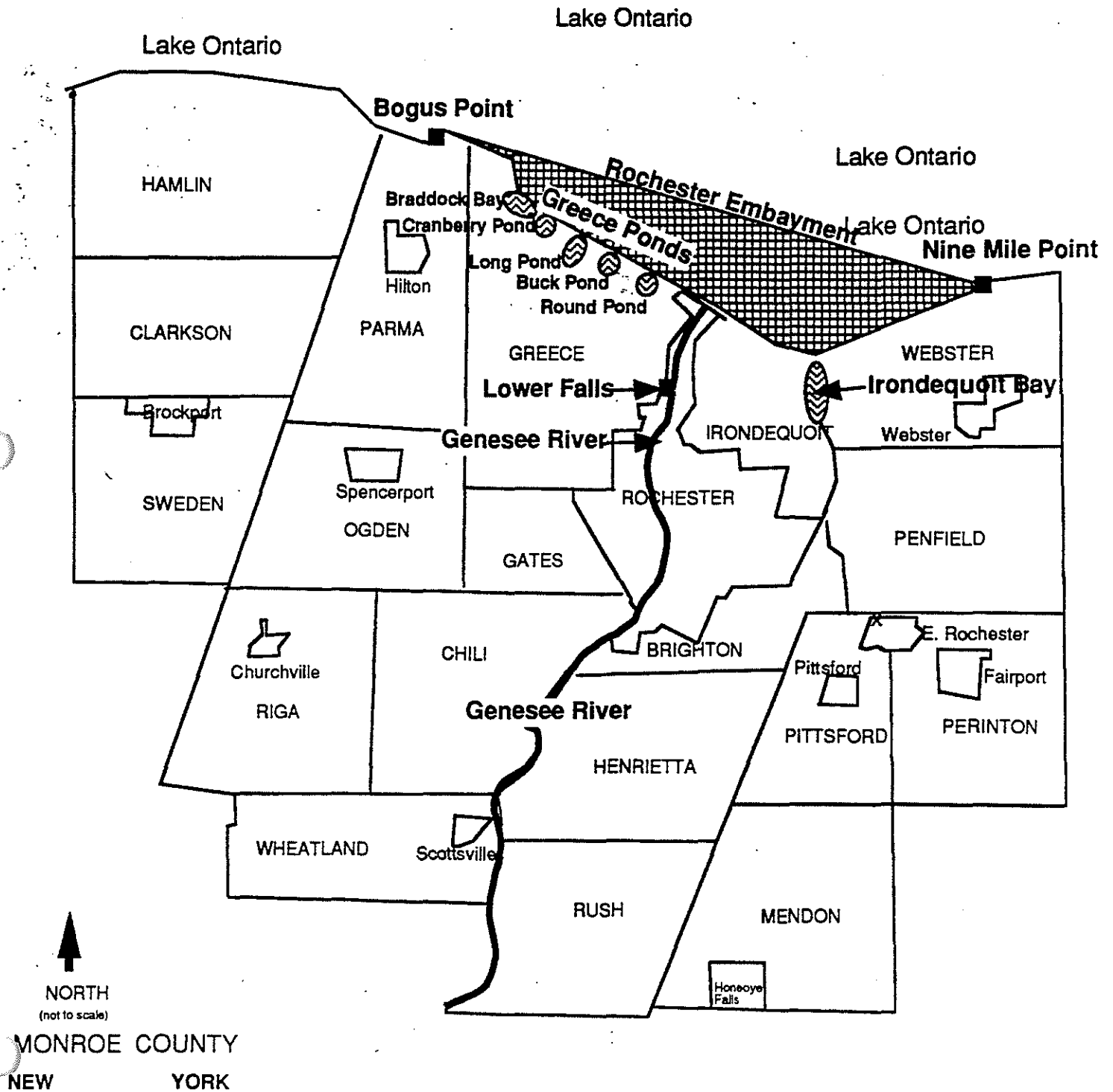
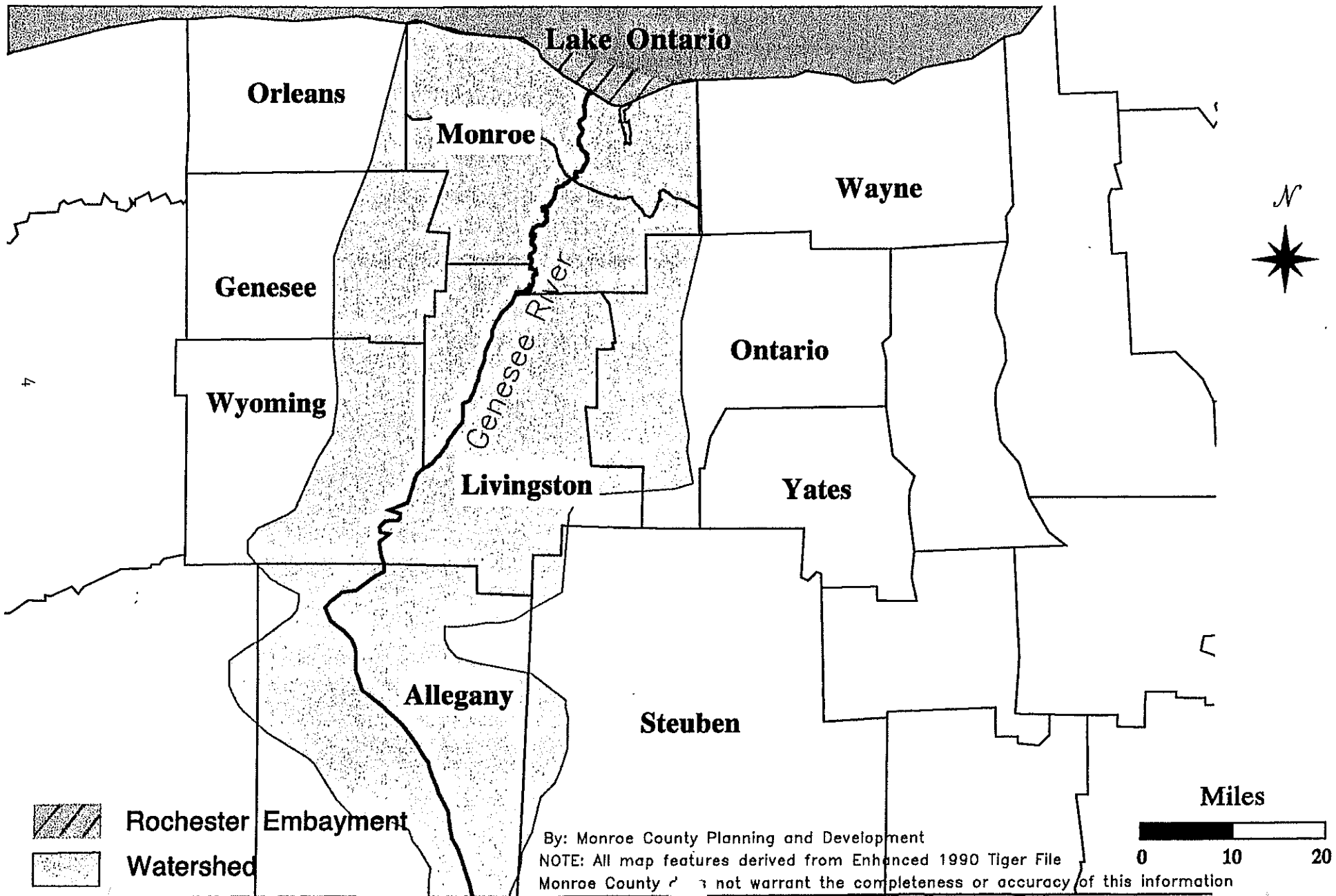


Figure 1-2
**Rochester Embayment and Watershed
Western New York**



The Monroe County Water Quality Coordinating Committee (WQCC) also reviewed and commented on the draft RAP narrative at their regular monthly meetings. The WQCC is a technical advisory committee consisting of representatives from municipal, county, state, and federal agencies. The role of the Committee is to coordinate the implementation of water quality related activities and to advise the Agency.

Substantial public input on the RAP was also obtained through the use of technical review teams. As individual draft sections of the Plan were completed, they were distributed to these ad hoc review teams which were comprised of experts, interested persons, and affected parties. These review teams provided valuable input which was carefully considered.

Additional public input on the RAP was provided by the three ranking committees. These committees were assembled in order to prioritize the new remedial measures, studies, and monitoring methods that are outlined in the Plan. The ranking committees were comprised of elected officials, government agency representatives, citizens, and technical experts. As part of the ranking process, the committees suggested a number of revisions to the draft Plan. For additional information regarding these ranking processes, see Chapters 3 and 4 of the Executive Summary.

Public review of the Plan is also being solicited through the use of public meetings (scheduled following the completion of the draft Stage I and Stage II Remedial Action Plan documents). Issues raised at these meetings are being addressed by changes in the document and by means of responsiveness summaries (included in the Stage I and Stage II documents).

1.5. Guiding Principles of the RAP (For additional information, see Stage II RAP, Chapter 1)

The ecosystem approach is one of the guiding principles of the Great Lakes Water Quality Agreement. In the RAP, the term “ecosystem approach” is defined as a comprehensive resource management philosophy that recognizes the interrelationship of air, water, land and biological systems, including humans. Therefore, the Plan must address (1) the impact of land use, air quality, and biological systems (including humans) on water quality and (2) the impact of water quality on land use, air quality, and human health. Two of the goals that were established as part of the planning process relate directly to human health.

- Virtual elimination of toxic substances that impair (adversely affect) human health and/or cause fish and wildlife consumption advisories.
- Public beaches in the Rochester Embayment are open for swimming, based upon best available health and safety standards.

In addition, it has been recognized that remedial measures designed to address water quality problems also protect human health.

1.6. RAP Goals (For additional information, see Chapter 5 of the Stage II RAP)

In order to guide the planning process, the following goals for the Rochester Embayment

Watershed were developed by the Monroe County Water Quality Management Advisory Committee. The Advisory Committee defined a goal as a “statement of purpose about the end result (desired state of being) of a proposed management activity”.

- Virtual elimination of toxic substances that impair (adversely affect) human health and/or cause fish and wildlife consumption advisories.
- Public beaches in the Rochester Embayment are open for swimming, based upon best available health and safety standards.
- Shorelines and waterways are free of aesthetically objectionable materials.
- Contaminated sediments in the lower Genesee River have no negative impact upon the water quality and biota in the Rochester Embayment; sediment quality is suitable for open lake disposal.
- Water and shore habitats within the Rochester Embayment support thriving fish and wildlife populations.
- Diversity of plant and animal communities within the Rochester Embayment.
- Drinking water produced from Lake Ontario has no unusual or unpleasant taste.
- The benthic macroinvertebrate community in the lower Genesee River is not degraded by pollution.
- The littoral zone of the Rochester Embayment is mesotrophic rather than eutrophic.
- Water from the Embayment (and its tributary drainage basins) which is used for agricultural and industrial purposes can be used with minimum added cost due to exotic species.

2. Water Quality Problems and Sources

(For additional information, see Stage II RAP, Chapter 3)

2.1. Known and unknown water quality problems in the Rochester Embayment

The Rochester Embayment includes two areas (see Figure 1-1):

- Rochester Embayment: The part of Lake Ontario within the Rochester Embayment.
- Lower Genesee River: The six-mile stretch of the Genesee River that is affected by lake levels (from the River's mouth to the Lower Falls).

The Monroe County Water Quality Management Advisory Committee analyzed water quality problems separately for the Rochester Embayment and the lower Genesee River (see Table 2-1).

In the Stage II RAP, water quality problems are called "use impairments." The list of use impairments in Table 2-1 was developed by the International Joint Commission (see Executive Summary, Chapter 1). Each use impairment is an indicator of poor water quality.

2.2. Evidence for Rochester Embayment water quality problems

Use Impairment #1: Restrictions on fish and wildlife consumption

Status: Impaired

Evidence: The New York State Department of Health (NYSDOH) annually issues Health Advisories for Chemicals in Sportfish and Game.

Use impairment #2: Tainting of fish and wildlife flavor

Status: Unknown

Need for study: A proposed study, "Verify whether or not fish in the Area of Concern have a chemical flavor or odor," is described in the Stage II RAP, Chapter 4. The recommendation regarding this study is explained in the Stage II RAP, Chapter 10.

Use impairment #3: Degradation of fish and wildlife populations

Status: Impaired for mink

Evidence: Mink reproductive failure

Need for further study: A proposed study, "Verify whether a fishless segment exists in the lower Genesee River," is described in the Stage II RAP, Chapter 4. The recommendation regarding this study is explained in the Stage II RAP, Chapter 10.

Use impairment #4: Fish tumors or other deformities

Status: Unknown

Need for study: A proposed study, "Incidence of fish tumors or other deformities in the Rochester Embayment watershed," is described in the Stage II RAP, Chapter 4. The recommendation regarding this study is explained in the Stage II RAP, Chapter 10.

Table 2-1. Water Quality Problems Identified in the Rochester Embayment

	<u>Use Impairment</u>	<u>Lower Genesee River</u>	<u>Rochester Embayment</u>
1	Restrictions on fish and wildlife consumption	yes ¹	yes
2	Tainting of fish and wildlife flavor	unknown	unknown
3	Degradation of fish and wildlife populations	yes ²	yes ²
4	Fish tumors or other deformities	unknown	unknown
5	Bird or animal deformities or reproductive problems	yes ²	yes ²
6	Degradation of benthos	yes	unknown
7	Restrictions on dredging activities	yes ³	no
8	Eutrophication or undesirable algae	not applicable	yes
9	Drinking water consumption and taste and odor problems	not applicable	yes ⁴
10	Beach closings	not applicable	yes
11	Degradation of aesthetics	yes	yes
12	Added costs to agriculture or industry	yes	yes
13	Degradation of phytoplankton and zooplankton populations	yes	unknown
14	Loss of fish and wildlife habitat	yes	yes

¹ There is no specific fish consumption advisory for the Genesee River. However, most fish species found in the Lower Genesee River spend part of their lifetimes in Lake Ontario and are subject to Lake Ontario contaminants.

² Mink reproductive problems

³ Even if this use impairment were to be "delisted" according to IJC guidelines, it would be wise to continue the restriction on overflow dredging. The restriction should continue indefinitely.

⁴ Treated drinking water supplies in the Rochester Embayment watershed are safe. Some taste and odor problems are noticed by customers whose water intake is in the Embayment.

Use impairment #5: Bird or animal deformities or reproductive problems

Status: Impaired for mink; unknown for bird or animal deformities

Evidence: Mink reproductive failure. (R.E. Foley et al., 1988, Environmental Toxicology and Chemistry 7: 363-374)

Need for further study: Even though some bird deformities have been observed, no study has been recommended to attribute the cause. Because the birds are migratory, it would be difficult to attribute a cause to conditions in the Rochester Embayment watershed.

Use Impairment #6: Degradation of benthos (organisms that live on the bottom of lakes and rivers)

Status: Impaired for the lower Genesee River, unknown for the Rochester Embayment

Evidence: Sediment tests in 1990 using the burrowing mayfly indicated that the sediments in the lower Genesee River fit into the "moderately polluted" category. Sediment tests in 1992 and 1993 using the sideswimmer, red midge, water flea and a commercial culture indicated that lower Genesee River sediments were mildly or moderately toxic to these organisms.

Need for study: A proposed study, "Does the Lake Ontario portion of the Rochester Embayment suffer from degradation of benthos?" is described in the Stage II RAP, Chapter 4. The recommendation regarding this study is explained in the Stage II RAP, Chapter 10.

Use impairment #7: Restrictions on dredging activities

Status: Impaired in the Genesee River

Evidence: At the request of Monroe County and the NYSDEC, the U.S. Army Corps of Engineers has restricted overflow dredging in the Rochester Harbor.

Use impairment #8: Eutrophication or undesirable algae

Status: Impaired in Lake Ontario

Evidence: The nearshore areas of Lake Ontario experience massive blooms of *Cladophora* and other algae. When the *Cladophora* algae becomes detached, it accumulates along and on the shore, where it promotes the growth of coliform bacteria as it decomposes.

Use impairment #9: Restrictions on drinking water consumption or taste and odor problems

Status: There are no restrictions on drinking treated water anywhere in the Rochester Embayment watershed. However, there are occasional taste and odor problems with treated drinking water.

Evidence: There are occasional reports to the Monroe County Water Authority of taste and odor problems in water drawn from Lake Ontario and treated.

Use impairment #10: Beach closings

Status: Impaired

Evidence: Ontario Beach, just west of the mouth of the Genesee River, was closed from 1967 until 1976 because it could not meet public health standards for fecal coliform bacteria. Since 1976, the beach has been open unless unacceptable water quality is predicted. In recent years, the beach has been closed for one-quarter to one-half of the beach season due primarily to rotting algal debris.

Use impairment #11: Degradation of aesthetics

Status: Impaired

Evidence: (1) Algae washes onshore, causing a visual impairment and odor as it decomposes. (2) Silt often gives the Genesee River and the Embayment a muddy look. (3) Litter, carried by flowing water, is observed after storms. (4) Odors from a chemical seep at the Lower Falls of the River have been evident. (5) At times, alewives in Lake Ontario experience massive die-offs and accumulate on beaches. (6) The remains of salmonids are sometimes observed in the lower Genesee River after they have died naturally or after they have been caught and discarded.

Use impairment #12: Added costs to agriculture or industry

Status: Impaired due to zebra mussels

Evidence: Zebra mussels in Lake Ontario and the lower Genesee River have resulted in extra water treatment costs for industrial and municipal water users, agriculture, residences and golf courses.

Use impairment #13: Degradation of phytoplankton and zooplankton populations

Status: Impaired in the lower Genesee River; unknown for the Rochester Embayment

Evidence: New York State Department of Environmental Conservation data for one type of zooplankton have indicated occurrences of significant chronic toxicity at some sites in the Genesee River.

Need for study: A proposed study, "Are phytoplankton and zooplankton populations in the Lake Ontario portion of the Rochester Embayment impaired?" is described in the Stage II RAP, Chapter 4. The recommendation regarding this study is explained in the Stage II RAP, Chapter 10.

Use impairment #14: Loss of fish and wildlife habitat

Status: Impaired

Evidence: Habitat has been lost due to filling of wetlands, deforestation, agriculture and urban/suburban development.

Need for study: Research on "Contaminant impacts on black tern populations in the Rochester Embayment watershed" is described in the Stage II RAP, Chapter 3.

2.3. Use impairments, causes and sources

Table 2-2 displays the linkages between impaired uses, pollutants causing impaired uses, and sources of pollutants. Generally, supporting information for Table 2-2 can be found in the Stage I RAP, Chapters 4 and 5. Information that is new since the completion of the Stage I RAP can be found in sections 3.15, 3.16, 7.18, and 9.17 of the Stage II RAP.

**Table 2-2
Rochester Embayment Use Impairments, Causes and Sources**

INDICATOR (Use Impairment)	LOCATION Genesee River	LOCATION L.O./Embayment	CAUSES (Known)	CAUSES (Possible)	SOURCES ¹ (Known)	SOURCES ² (Possible)
Restrictions on fish and wildlife consumption	Yes	Yes	PCB ⁷		-Scrapyards -Disposal sites -Recycling through sediments, water, air	-Electrical equipment in storage -Electrical equipment still in use.
			Mirex ⁷		-Niagara River area -Oswego area	
			Dioxin ⁷		-Atmospheric deposition/ -Incineration -Niagara River area	
			Chlordane ⁷ (waterfowl only)		-Past agricultural and residential use	
			DDT ⁷ (waterfowl only)		-Past insecticide use -Atmospheric deposition	
Tainting of fish and wildlife flavor	Unknown	Unknown		Phenols		-Atmospheric deposition -Industrial and municipal wastewater
Degradation of fish and wildlife populations (mink reproductive problems)	Yes (for mink; unknown for other species)	Yes (for mink; unknown for other species)		PCB ⁷	-Scrapyards -Disposal sites -Recycling through sediments, water, air	-Electrical equipment in storage -Electrical equipment still in use
				Mercury ⁷	-Industrial wastewater -Abandoned industrial sites	-Atmospheric deposition -Abandoned industrial sites
Fish tumors or other deformities	Unknown	Unknown		PAHs in sediments		-Ash fill -Asphalt runoff -Coal tar -Atmospheric deposition -Petroleum product spills
Bird or animal deformities or reproductive problems (mink reproductive problems)	Yes (mink)	Yes (mink)		PCB ⁷ (see Degradation of fish & wildlife populations)	-Scrapyards -Disposal sites -Recycling through sediments, water, air	-Electrical equipment in storage -Electrical equipment still in use

INDICATOR (Use Impairment)	LOCATION Genesee River	LOCATION L.O./Embayment	CAUSES (Known)	CAUSES (Possible)	SOURCES ¹ (Known)	SOURCES ² (Possible)
Degradation of benthos	Yes	Unknown	Oxygen depletion		-CSOs and other past discharges (lasting effects in sed.) ³ -Industrial and municipal wastewater -Stormwater	
				Cadmium ⁷	-Industrial and municipal wastewater	
				Copper	-Nonpoint sources -Industrial and municipal wastewater	
				Iron	-Nonpoint sources -Disposal sites	
				Nickel	-Nonpoint sources -Industrial and municipal wastewater	
				Silver ⁷	Eastman Kodak Co.	
				Fuel oil		-Unknown
				Sediment toxics	-Nonpoint sources -Industrial and municipal wastewater -Disposal sites	
				PCB ⁷	-Scrapyards -Disposal sites -Recycling through sediments, water, air	-Electrical equipment in storage -Electrical equipment still in use
	Chlordane ⁷	-Merrill St. storm sewer				
Restrictions on dredging activities	Yes	No	Oxygen depletion		-CSOs and other past discharges (lasting effects in sed.) ³ -Industrial wastewater -Stormwater	
			Fecal coliform		-CSOs ³ -Stormwater	
			Ammonia		-Stormwater -Wastewater	

INDICATOR (Use Impairment)	LOCATION Genesee River	LOCATION L.O./Embayment	CAUSES (Known)	CAUSES (Possible)	SOURCES ¹ (Known)	SOURCES ² (Possible)
Restrictions on dredging activities (continued)			Turbidity (sediment)		-Agricultural runoff -Construction sites -CSOs ³ -Dredging -Natural causes -Streambank erosion -Urban stormwater	
Eutrophication or undesirable algae	N/A ⁴	Yes	Excess nutrients (phosphorus ⁷)		-Agricultural runoff -Atmospheric deposition -CSOs ³ -Dredge spoil -On-site waste disposal systems -Municipal and industrial wastewater -Urban stormwater	
Drinking water taste and odor problems	N/A ⁵	Yes	Algae (phosphorus ⁷)		-Agricultural runoff -Atmospheric deposition -CSOs ³ -Dredge spoil -On-site waste disposal systems -Municipal and industrial wastewater -Urban stormwater	
			Turbidity and temperature changes		-Weather conditions agitate lakewater	
Beach closings	N/A ⁶	Yes	Algae (phosphorus ⁷)		-Agricultural runoff -Atmospheric deposition -On-site waste disposal systems -Municipal and industrial wastewater -CSOs ³ -Dredge spoil -Urban stormwater	
			Fecal coliform		-CSOs and stormwater (Genesee River) ³ -Decomposing algae -Dredging (distributes bacteria from sediments) -Sewer cross-connections -Stormwater runoff (West Sub-basin)	

INDICATOR (Use Impairment)	LOCATION Genesee River	LOCATION L.O./Embayment	CAUSES (Known)	CAUSES (Possible)	SOURCES ¹ (Known)	SOURCES ² (Possible)
Beach closings (continued)			Turbidity (Sediment)		-Agricultural runoff -Construction sites -CSOs ³ -Dredging -Natural causes -Streambank erosion -Urban stormwater	
Degradation of aesthetics	Yes	Yes	Algae (phosphorus ²)		-Agricultural runoff -Atmospheric deposition -CSOs ¹ -Municipal and industrial wastewater -On-site waste disposal systems -Dredge spoil -Urban stormwater	
			Turbidity (sediment)		-Agricultural runoff -Construction sites -CSOs ³ -Dredging -Natural causes -Streambank erosion -Urban stormwater	
			Litter		-CSO ¹ -Dredging -Littering -Storm sewers	
			Dead fish below Lower Falls		-Natural die-off -Fish cleaning	
			Chemical seeps at Lower Falls			-Creosote from beams in RG&E tunnel -Buried tank from old furniture factory or other industrial use -Former dump in gully
Added costs to agriculture or industry	Yes	Yes	Zebra Mussels		-Exotic species	
				Turbidity		-Weather conditions agitate lakewater

INDICATOR (Use Impairment)	LOCATION Genesee River	LOCATION L.O./Embayment	CAUSES (Known)	CAUSES (Possible)	SOURCES ¹ (Known)	SOURCES ² (Possible)
Degradation of phytoplankton and zooplankton populations	Yes	Unknown		Eutrophication (excess phosphorus ⁷)	-Agricultural runoff -Atmospheric deposition -CSOs ³ -On-site waste disposal systems -Municipal and Industrial Wastewater -Urban stormwater	
				Predation		-Zebra mussels
				Phenols		
Loss of fish and wildlife habitat	Yes	Yes	Filling/draining of wetlands		-Development near shorelines	
			Removal of riparian vegetation		-Development near shorelines	
			Sedimentation		-Natural causes -Urban stormwater -Agricultural runoff -Streambank erosion	
				Road salt	-Winter highway salting	
				Lack of fluctuation in lake levels	Lake level management	

NOTES:

¹SOURCES (known) lists known sources of the pollutants in question, but does not attempt to prioritize the importance of those sources. The relative magnitude of the sources can be determined for some pollutants but not for others. A more complete discussion of this is included in Chapter 5 of the Stage I RAP. When a particular point source is listed (e.g. Kodak), it appears from preliminary calculations to account for most of the loading other than that accounted for by nonpoint sources. Other point sources that appear to contribute to a very small percentage of the total loading are not listed. Treatment plants discharging to the lake are not listed here, since their effluent is discharged where it is designed to have a minimal effect on the Embayment.

²SOURCES (Possible) includes those sources that have already been identified as possible contributors to the Impairments listed. Others may be identified as a result of further study.

³Combined Sewer Overflows (CSOs) are listed as sources of pollutants in several categories, even though the CSOAP program has now diverted most of the combined sewage to the Van Lare treatment plant and future overflows are expected to be rare. The reason CSOs are listed is that the Impairments have been identified based on data collected during the past several years, including times when CSOs were a contributing factor. Some impairments may diminish in the future due to the CSOAP program. But of necessity, the table reflects information from the recent past. Data on operation of the CSOAP system will be collected in accordance with permit requirements and for review and analysis.

⁴This impairment is not applicable in the Genesee River because flowing rivers are not subject to the process of eutrophication.

⁵The Lower Genesee River is not used as a source of drinking water.

⁶There are no beaches on the Lower Genesee River.

⁷A chemical that is specifically named on the Rochester Embayment High Priority Chemical Pollutant List.

3. Remedial Actions for Water Quality Problems

3.1. Completed and ongoing remedial actions (For additional information, see Stage II RAP, Chapter 6)

For our purposes, remedial measures are actions that are needed to restore water quality. The Great Lakes Water Quality Agreement requires that RAPs include an evaluation of remedial measures that are already in place before decisions are made about new remedial actions. Numerous federal, state and local activities have contributed to water quality improvements in the Rochester Embayment. These activities are described in Chapter 6 of the Stage II RAP.

3.2. New remedial actions for urban areas (For additional information, see Stage II RAP, Chapter 7 Urban and Chapter 10)

The Monroe County Water Quality Management Advisory Committee (WQMAC) and the Monroe County Water Quality Coordinating Committee (WQCC) developed a list of possible new remedial actions for Rochester Embayment water quality problems. The list was further developed into narratives that included details about the proposed actions, such as costs, potential sources of funding and who would be responsible for each action. Each narrative went through three stages of review: (1) team of experts, (2) WQMAC, and (3) WQCC.

It was recognized that funding and personnel resources are not sufficient to carry out all the proposed actions. Therefore, after all of the proposed actions were reviewed, a task group (Urban Ranking Task Group) used a formal process to rank the actions as “high priority,” “recommended” or “not recommended.” The criteria for the ranking were benefit, cost, feasibility and popularity. Actions ranked as “not recommended” may be reconsidered in the future. The task group that ranked the proposed actions included public officials, citizens and representatives of economic interests and public interests.

It was also recognized that remedial actions that are high priority in Monroe County (an urban area) may be different than those in rural areas. Therefore, a separate task group was formed to rank the remedial actions for the predominantly rural counties of the Rochester Embayment watershed (see Section 3-3).

Table 3-1 displays the “high priority” and “recommended” proposed actions in their ranked order for the predominantly urban areas of Monroe County.

**Table 3-1. Monroe County Selected New Remedial Measures
Based on Stage II RAP, Chapter 7: Possible New Remedial Measures (Urban)**

Abbreviations:

EMC	Monroe County Environmental Management Council	U.S. EPA	U.S. Environmental Protection Agency
GFLRPC	Genesee/Finger Lakes Regional Planning Council	WQCC	Monroe County Water Quality Coordinating Committee
NRCS	(Federal) Natural Resources Conservation Service		
NYSDEC	New York State Department of Environmental Conservation	WQMAC	Monroe County Water Quality Management Advisory Committee
SWCD	Monroe County Soil and Water Conservation District		

Problems addressed (both major and minor impacts of actions are listed):

- | | |
|--|--|
| 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 |

The highest ranking projects are at the top of the table and descend in ranked order.

Chapter 7 (Urban) Action Name and Number	Problems Addressed	Priority	Potential Responsible Entities	Potential Funding Sources
23. Complete the basin water quality plans for the Lake Ontario West basin, Genesee River basin and Lake Ontario Central/Irondequoit basin. Focus on plans for individual stream watersheds within the basins.	1,3,5,6,7,8,9,10,11,12,13,14	High priority	Health Dept, WQMAC, WQCC	NYSDEC, County
9. Continue developing and implementing inter-governmental agreements between Monroe County and the municipalities to protect water quality.	1,3,5,6,7,8,10,11,14	High priority	County, municipalities	County, municipalities, Aid to Localities
10c. Develop created wetlands that manage stormwater quality through the process of instituting intergovernmental agreements.	1,3,5,6,7,8,9,10,11,13,14	High priority	County, municipalities	NYSDEC, County, municipalities

Chapter 7 (Urban) Action Name and Number	Problems Addressed	Priority	Potential Responsible Entities	Potential Funding Sources
10f. Expand the Highway Projects Task Group effort to include state and municipal departments of transportation and public works in water quality protection.	1,3,5,6,7,8,9,10,11,13,14	High priority	NYS Dept of Transportation, County, municipalities	Not applicable
11a. Organize a workshop in order to educate the development community, municipalities, and the general public regarding the impact of impervious surfaces on water quality and possible mitigating strategies.	1,3,5,6,7,8,9,10,11,13,14	High priority	Health Dept, County Planning & Development, EMC, private consultants, Planning Council	Registration fees
10a. Continue the dry basin conversion program in order to manage stormwater quality.	1,3,5,6,7,8,9,10,11,13,14	High priority	County, municipalities	U.S. EPA, NYSDEC, County, municipalities
10b. Conduct a demonstration of a swirl concentrator as a stormwater management strategy for urbanized areas.	1,3,5,6,7,8,9,10,11,13,14	High priority	County	NYSDEC, County
10d. Develop watershed-based drainage plans that identify drainage-related water quality problems and recommend remedial actions such as the creation of stormwater wetlands.	1,3,5,6,7,8,9,10,11,13,14	High priority	County, municipalities	NYSDEC, County, municipalities
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	High priority	County Planning & Development, County County Env. Services, Industrial Management Council, small business assns, Chamber of Commerce, professional societies, WQCC	County, NYSDEC, trade & professional assns, small business assns
13b. Provide technical assistance to small wastewater treatment plants if necessary to reduce phosphorus discharges.	1,3,5,6,7,13,14	High priority	County, municipalities	County, municipalities
3b. Study the benefits of a NYS substance ban policy that would prioritize chemicals for banning and study the legal authority for banning the chemicals.	1,3,5,6,7,13,14	High priority	WQMAC, County, NYSDEC	County, NYSDEC, U.S. EPA

Chapter 7 (Urban) Action Name and Number	Problems Addressed	Priority	Potential Responsible Entities	Potential Funding Sources
13e. Establish a policy for "package" wastewater treatment plants.	1,3,5,6,7,13,14	High priority	Health Dept, NYSDEC	County, NYSDEC
22a. Establish a local water quality not-for-profit organization that would plan, coordinate, fund and implement educational activities.	1,3,5,6,7,8,9,10,11,12,13,14	High priority	County, WQCC, WQMAC	County, grants, memberships, private donations
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	High priority	Colleges, Sea Grant, Cooperative Extension, grants, NYSDEC, teachers assns, school board assns	Colleges, Sea Grant, Cooperative Extension, grants, NYSDEC, teachers assns, school board assns
8. Enact a long-term agreement with the U.S. Army Corps of Engineers 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	High priority	County, U.S. Army Corps of Engineers, NYSDEC	County, U.S. Army Corps of Engineers, NYSDEC
4a. Establish a pollution prevention team to focus on one or more chemical pollutants, identify sources and options for pollution prevention, and prepare a workplan to eliminate discharges of the chemical(s).	1,3,5,6,7,13,14	High priority	WQCC, Health Dept, EMC, County Env. Services, Off of Emergency Preparedness, SWCD, WQMAC, industry, academia, NYSDEC	County, NYSDEC, U.S. EPA, businesses, trade assns, foundations
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 the goal.	1,3,5,6,7,13,14	High priority	County, WQCC, NYSDEC, municipality	Municipalities, user fees, NYSDEC
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	High priority	Health Dept, Dept of Transportation, Cooperative Extension, towns	Grants; contribution of staff time, donations from citizen groups & private corporations

Chapter 7 (Urban) Action Name and Number	Problems Addressed	Priority	Potential Responsible Entities	Potential Funding Sources
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	Counties
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	County, Aid to Localities
24. In 1997, evaluate proposals for new remedial actions that are suggested during the RAP review process. Evaluate new proposals every 3 years thereafter.	1,3,5,6,7,8,9,10,11,12,13,14	Recommended	Health Dept, WQMAC, WQCC, nonprofit organization	NYSDEC, County
17a. Plan annual workshops for local officials to educate them about the benefits of wetlands and how land use decisions affect wetlands. Include a wetland tour as part of each workshop.	3,8,14	Recommended	EMC, Nature Conservancy, Health Dept, County Planning & Development, NYSDEC, SWCD, Fisheries Advisory Board, Planning Council, Town Supervisors Assn.	Grants, contribution of staff time, workshop fees
4c. Municipalities should initiate pollution prevention within their own programs as educational examples for the communities.	1,3,5,6,7,13,14	Recommended	County, towns, villages	County, towns, villages
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	County, NYSDEC, U.S. EPA
13c. A student intern would perform a literature search on phosphorus emissions from wastewater treatment plant sludge incinerators to determine the fate of phosphorus.	1,3,5,6,7,13,14	Recommended	Health Dept, County Env. Services	Health Dept, County Env. Services

Chapter 7 (Urban) Action Name and Number	Problems Addressed	Priority	Potential Responsible Entities	Potential Funding Sources
14. Create an Agricultural Best Management Practices (BMPs) Coordinator Position in order to facilitate the increased implementation of BMPs in the Rochester Embayment Watershed.	1,3,5,6,7,8,9,10,11,13,14	Recommended	WQCC, SWCD, Cooperative Extension, NRCS	County, Aid to Localities, foundations, NYS Ag Non-Point Source Grant Program
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	Recommended	EMC, Nature Conservancy, NYSDEC	NYSDEC, County, corporate donations
10e. Promote the use of biofilters through the continued establishment of intergovernmental agreements.	1,3,5,6,7,8,9,10,11,13,14	Recommended	County, municipalities	County, municipalities
1a. Electric utilities should accelerate the reduction of PCBs in equipment.	1,3,5,6,7,14	Recommended; ongoing	Electric utility	Electric utility
20a. Develop partnerships between 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	County, municipalities, GFLRPC, grants
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	Recommended	County, Cooperative Extension, SWCD	County, grants
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	Subject to negotiation
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	Aid to Localities, Great Lakes Protection Fund, private donations

Chapter 7 (Urban) Action Name and Number	Problems Addressed	Priority	Potential Responsible Entities	Potential Funding Sources
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	Recommended	County, municipalities	County
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	Recommended	Cooperative Extension, Health Dept	County, NYSDEC
15c. Coordinate the use of Master Gardeners to educate home owners regarding lawn care methods that protect water quality.	1,3,5,6,7,8,9,10,11,13,14	Recommended	Cooperative Extension, Sea Grant, SWCD, County	County, NYSDEC, Great Lakes Protection Fund
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	Not needed
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	Recommended	Cooperative Extension	County, NYSDEC
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	Recommended	NYSDEC, Waste Site Advisory Comm.	NYSDEC
16a. Institute streambank erosion control programs as part of developing watershed-based drainage plans.	3,6,8,10,11,13,14	Recommended	County, municipalities	NYSDEC, County, municipalities

Chapter 7 (Urban) Action Name and Number	Problems Addressed	Priority	Potential Responsible Entities	Potential Funding Sources
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	Industrial, commercial & municipal entities; local governments
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	Developer, responsible party
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	County, NYSDEC

Problems addressed (both major and minor impacts of actions are listed):

- | | |
|--|--|
| 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 |

3.3. New remedial actions for rural areas (For additional information, see Stage II RAP, Chapter 7 Rural and Chapter 10)

Because it was recognized that appropriate remedial actions may be very different in urban and in rural areas, a task group (Rural Ranking Task Group) was formed to rank remedial actions specifically for the rural counties of the Rochester Embayment watershed. The Genesee/Finger Lakes Regional Planning Council¹ was instrumental in organizing the task group. The task group was composed of one or more representatives of Allegany, Genesee, Livingston, Ontario and Wyoming Counties. The task group used, as its starting point, the urban narrative about proposed new remedial actions. First, the task group chose the proposed actions that would apply to rural counties. In several cases, the original urban narrative was rewritten to reflect rural needs and rural perspectives. Rewritten narratives were reviewed by the Task Group members.

It was recognized that funding and personnel resources are not sufficient to carry out all the proposed actions. Therefore, the task group used a formal process to rank the actions as “high,” “medium” or “low” priority. Actions ranked as “low” priority may be reconsidered in the future.

Table 3-2 displays the “high” and “medium” proposed actions for the rural counties of the Rochester Embayment watershed.

¹ The Genesee/Finger Lakes Regional Planning Council has nine member counties, six of which are entirely or partly in the Rochester Embayment watershed. Programs include economic development, regional and community planning, and intergovernmental coordination. The Water Quality Program is a major part of its regional planning component.

**Table 3-2. Rural Counties Selected New Remedial Measures
Based on Stage II RAP, Chapter 7: Possible New Remedial Measures (Rural)**

Abbreviations:

EMC	(County) Environmental Management Council	SWCD	(County) Soil and Water Conservation District(s)
GFLRPC	Genesee/Finger Lakes Regional Planning Council	U.S. EPA	U.S. Environmental Protection Agency
NRCS	(Federal) Natural Resources Conservation Service	WQCC	(County) Water Quality Coordinating Committee(s)
NYSDEC	New York State Department of Environmental Conservation		

Problems addressed (both major and minor impacts of actions are listed):

- | | |
|--|--|
| 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 |

Chapter 7 (Rural) Action Name and Number	Problems Addressed	Priority	Potential Responsible Entities	Potential Funding Sources
26a. 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	High priority	NYSDEC, Counties, WQCCs	NYSDEC, Counties
29. 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	High priority	County health depts, county depts of transportation, Cooperative Extension, towns, nonprofit organizations, community civic groups	Grants, contributions of staff time, donations from citizen groups & private corporations, corporate sponsorship
32a. Investigate phosphorus discharge from small wastewater treatment plants to learn if it contributes to eutrophication problems.	3,8,9,10,11,13,14	High priority	NYSDEC, counties, regional planning councils, municipalities	NYSDEC, counties, municipalities

Chapter 7 (Rural) Action Name and Number	Problems Addressed	Priority	Potential Responsible Entities	Potential Funding Sources
33. Intensify the implementation of agricultural methods that protect water quality by providing technical and cost-share assistance.	1,3,5,6,7,8,9,10,11,13,14	High priority	SWCDs, NRCS, Cooperative Extension, WQCCs	Counties, Aid to Localities, foundations, NYS Ag Non-point Source Grant Program
34b. Educate the public about lawn care practices that protect water quality by means of a targeted public education effort.	1,3,5,6,7,8,9,10,11,13,14	High priority	Cooperative Extension, SWCDs, Counties	Counties, NYSDEC
34c. Educate the public about lawn care practices that protect water quality by means of utilizing trained master gardeners.	1,3,5,6,7,8,9,10,11,13,14	High priority	Cooperative Extension, Sea Grant, SWCDs, Counties	Counties, NYSDEC, Great Lakes Protection Fund
35. Implement a streambank erosion control program. Develop and prioritize a list of stream segments experiencing significant erosion. Analyze and select appropriate remedial actions.	3,6,8,10,11,13,14	High priority	NYSDEC, counties, WQCCs, SWCDs, NRCS, municipalities	NYSDEC, counties, municipalities
39. Gather data pertinent to water quality. Develop watershed plans and eventually a Genesee River basin water quality plan.	1,3,5,6,7,8,9,10,11,12,13,14	High priority	Regional planning councils, WQCCs, Water Resources Board, NYSDEC	NYSDEC, regional planning councils, Water Resources Board, counties
40. Continually evaluate proposals for new remedial measures.	1,3,5,6,7,8,9,10,11,12,13,14	High priority	County WQCC, G\FLRPC	County WQCC, G\FLRPC
25a. Investigate the extent of PCB sources by surveying electric utilities, businesses, municipal and educational facilities, apartment complexes, and a representative sample of farms and homeowners.	1,3,5,6,7,14	High/medium priority	Electric utility, EMC, health depts, planning dept, regional planning councils, NYS Dept of Health	Electric utility, NYSDEC, U.S. EPA
28. Gather information about possible hazardous waste sites and verify the sites by field checking. Communicate with the NYSDEC about the sites.	1,3,5,6,7,11,13,14	High/medium priority	Hired investigator, regional planning councils, EMCs, health depts, planning depts, WQCCs	U.S. EPA, NYSDEC, Senator Initiatives, Aid to Localities

Chapter 7 (Rural) Action Name and Number	Problems Addressed	Priority	Potential Responsible Entities	Potential Funding Sources
31a. Conduct septic system surveys to determine problem locations.	6,8,10,11,14	High/ medium priority	Health depts, NYS Dept of Health, SWCDs, WQCCs	Counties, NYS Dept of Health, NYSDEC, user fees, inspection fees,
31b. Seek funding for septic system repair or replacement and for sewers in high-density areas.	6,8,10,11,14	High/ medium priority	County health depts, WQCCs, planning depts	Counties, NYS Dept of Health
31c. Establish a county health department and sanitation code if there is none.	6,8,10,11,14	High /medium priority	County executive, legislature, board of supervisors	Counties, NYS Dept of Health
31d. Provide educational materials and programs for homeowners who maintain septic systems.	6,8,10,11,14	High /medium priority	County health depts, EMCs, Cooperative Extension	Counties, NYS Dept of Health, Cooperative Extension
38. The WQCC would sponsor the development and distribution of a fact sheet describing water quality educational programs and opportunities with the county.	1,3,5,6,7, 8,9,10,11,12, 13,14	High/ medium priority	Counties, WQCCs	Counties, grants
25b. Educate managers of commercial, municipal and educational facilities and homeowners about equipment that contains PCBs.	1,3,5,6,7, 14	Medium	Investigator, commercial & municipal entities, public interest groups, EMCs, Cooperative Extension	Electric utilities, counties, NYSDEC, U.S. EPA
26b. Promote the development of a NYS substance ban policy that would prioritize chemicals for banning and would study the legal authority for banning the chemicals.	1,3,5,6,7, 13,14	Medium	Counties, NYSDEC	Counties, NYSDEC, U.S. EPA
27. Form a team of municipal and technical persons that would determine pollutants and sources to target for pollution prevention. Develop an educational program and offer technical advice.	1,3,5,6,7, 8,9,10,11,13, 14	Medium	Regional or county pollution prevention team	Counties, NYSDEC, U.S. EPA, NRCS

Chapter 7 (Rural) Action Name and Number	Problems Addressed	Priority	Potential Responsible Entities	Potential Funding Sources
32b. Promote the use of nonphosphate-based detergent alternatives for commercial dishwasher use.	3,8,9,10, 11,13,14	Medium	NYSDEC, NYS Dept of Health, regional planning councils, Cooperative Extension, counties, restaurant or food processing industry, professional organizations	NYSDEC, NYS Dept of Health, detergent manufacturer, restaurant or food processing professional organization
36. Educate local officials and the public on the value of wetlands using workshops, speakers, videos, contests, curriculum, field trips, and printed materials.	3,8,14	Medium	NYSDEC, environmental organizations, regional planning councils, EMCs, real estate assns, counties, municipalities, education assns, SWCDs, colleges	NYSDEC, environmental organizations, regional planning councils, EMCs, real estate assns, grants, counties, fees, corporate donations, U.S. EPA, colleges, education assns,
37. Create a task group to identify and rank critical fish and wildlife habitats along waterways. Analyze strategies to protect and/or improve the critical habitats.	3,8,14	Medium/low	Counties, NYSDEC, nonprofit organizations	Counties, NYSDEC, Aid to Localities, Great Lakes Protection Fund, private foundations

Problems addressed (both major and minor impacts of actions are listed):

1. Restrictions on fish and wildlife consumption
2. Drinking water taste and odor problems
3. Degradation of fish and wildlife populations
4. Beach closings
5. Bird or animal deformities or reproductive problems
6. Degradation of aesthetics
6. Degradation of benthos
7. Restrictions on dredging activities
7. Added costs to agriculture or industry
8. Eutrophication or undesirable algae
8. Degradation of plankton populations
9. Drinking water taste and odor problems
10. Beach closings
11. Degradation of aesthetics
12. Added costs to agriculture or industry
13. Degradation of plankton populations
14. Loss of fish and wildlife habitat

4. Studies and Monitoring Methods

(For additional information, see Stage II RAP, Chapters 4, 9 and 10)

As seen on Table 2-1, there are some cases where it is not known whether or not a water quality problem exists in the Rochester Embayment. There are also many instances when more information about the sources of pollution is needed. The Stage II RAP suggests **studies** to:

- Determine whether or not a water quality problem exists.
- Learn more about the sources of pollutants.

(See Table 4-1.)

The Stage II RAP also proposes one or more methods for testing (**monitoring**) to learn if remedial actions have been effective and Rochester Embayment water quality problems are decreasing over the years. (See Table 4-2.)

Each proposed study and monitoring method was designed by, or with the assistance of, professional scientists in the appropriate field of science. Each proposed study received three levels of review by:

- Review team composed of persons knowledgeable in the appropriate field of science.
- Monroe County Water Quality Coordinating Committee (a technical committee).
- Monroe County Water Quality Management Advisory Committee (a citizen-based committee).

Because of the limited amount of resources that are available for studies and for monitoring, a task group (Studies and Monitoring Task Group) of persons with a broad range of technical and scientific expertise was formed. The task group used a formal process to evaluate the studies and the monitoring methods and rank them in importance to the RAP process.

The task group considered every study and monitoring method to be worthy of implementation, and none was removed from the final lists of recommendations. At the “high” end of the lists, funding and commitment for a study or monitoring method is intended to be pursued aggressively. At the “low” end of the list, a study or monitoring method will be pursued if and when an opportunity for funding and commitment occurs. The Task Group did not attempt to draw a line between “high” and “low”.

Table 4-1. Proposed Studies

(In ranked order, beginning with the highest priority)

1. 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).
2. 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.
3. Genesee River erosion study focusing on the area between the Letchworth Park flood control dam and Genesee .
4. Study to verify whether or not fish in the Rochester Embayment have a chemical flavor or odor.
5. Incidence of fish tumors or other fish deformities in the Rochester Embayment watershed.
6. Estimate of the amount of cadmium and lead in runoff due to wear of vehicle tires.
7. Study to learn if contaminants affect the benthic community in the lower Genesee River and, if so, which ones.
8. Study to verify whether a fishless segment exists in the lower Genesee River.
9. Update of the pollutant loadings of the Genesee River and wastewater treatment plants.
10. Quantification of the amount of cyanide discharged into the air from wastewater treatment plant sludge incinerators.

Table 4-2. Proposed Monitoring Programs

The monitoring programs are listed in ranked order, beginning with the highest priority. Groups of monitoring methods listed together (#1, #2, etc.) tied in the voting and have the same ranking. For example, there are nine first priority programs, one second priority program, etc.

- #1: Monitor levels of toxic chemicals in resident turtles.
Monitor species diversity and abundance of benthic and water-column macroinvertebrates (aquatic animals without backbones).
Monitor benthic and water-column *Chironomid* (midge fly) larvae deformities.
Measure phosphorus loading trends from the Genesee River at an agricultural and an urban location to learn their relative contributions.
Determine the status of chemical seeps on the face of the Lower Falls of the Genesee River.
Use volunteers to collect and monitor litter in and along waterways.
Determine the status of populations of phytoplankton (microscopic algae) and zooplankton (microscopic aquatic animals) in the lower Genesee River portion of the Rochester Embayment.
Implement citizen monitoring of stream habitat.
Monitor road salt usage.
- #2: Monitor enforcement efforts for New York State Department of Environmental Conservation permits for stormwater discharges.
- #3: Continue Monroe County Water Authority monitoring of turbidity for the Lake portion of the Rochester Embayment.
Build upon the existing Marsh Monitoring Program and the proposed Reference Wetlands System to monitor wetland habitat quality and quantity.
Utilize an intern to develop and conduct a water quality survey.
- #4: Coordinate with a professional pollster to conduct a water quality survey.
- #5: Obtain data from the U.S. Army Corps of Engineers on required sediment sampling in the Rochester harbor.
- #6: Monitor other (than the Lower Falls) chemical seeps in the Genesee River gorge.
Compile and interpret data from existing habitat monitoring programs.
- #7: Continue monitoring water quality at Ontario beach during the swimming season.
Continue monitoring zebra mussel population trends as part of inspection of water intakes.
- #8: Continue Monroe County Water Authority monitoring of turbidity in the lower Genesee

River portion of the Embayment.

Create a centralized and easily accessible database for all water quality data produced within Monroe County.

- #9: Establish volunteer environmental observers to report on unusual discharges to water.
- #10: Prepare periodic status reports on nuisance algae in Lake Ontario.
- #11: Monitor chloride concentrations in the Salmon Creek/Braddock Bay system.
- #12: Organize volunteer *Cladophora* algae observers who would report to the Monroe County Health Department.
- #13: 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.
- #14: Use aerial photography to monitor *Cladophora* algae beds.
- #15: Conduct a survey of Monroe County businesses on the impacts of raw water turbidity on the cost of doing business.
- #16: Conduct a survey of county or regional industries, agriculture and golf courses on the impact of zebra mussel on the cost of doing business.

The Studies and Monitoring Task Group suggested the following revisions to four monitoring methods. The monitoring methods, as revised, were not ranked.

- Establish sediment quality goals for the Rochester harbor at the mouth of the Genesee River and sample sediments to monitor progress toward the goals: Merge with monitoring of benthic and water-column *Chironomid* larvae (midge fly) deformities, for which sediment sampling is required. (Item 1c above)
- Measure phosphorus at defined sampling sites in the littoral zone of the Rochester Embayment: Sample more sites (to be defined at a later date) than originally suggested.
- Monitor local atmospheric deposition. Analyze for bioaccumulative chemicals of concern and other new parameters to be defined at a later date. (Bioaccumulative chemicals accumulate significantly in aquatic organisms and have the potential of causing adverse effects.)
- Monitor events at the Akzo Nobel Salt Mine. It was the opinion of the Task Group that this activity is already being conducted by the New York State Department of Environmental Conservation (NYSDEC). (The NYSDEC monitors permit-related activities, but not water quality effects downstream of the Mine.)

5. RAP Implementation

5.1. Responsible Parties (For additional information, see Stage II RAP Chapter 11)

Implementation of the Rochester Embayment RAP will require the involvement of government agencies, the private sector, and the general public. The following are some of the primary state, regional, and local organizations that will be responsible for implementing the RAP.

- New York State Department of Environmental Conservation (NYSDEC) - The NYSDEC is responsible for overseeing and coordinating RAP implementation in New York State. The NYSDEC will provide technical assistance and fund cooperative projects to reach water quality goals.
- Genesee/Finger Lakes Regional Planning Council (G/FLRPC) - The G/FLRPC will be responsible for connecting member counties into the RAP process and ensuring communication among the counties in the Rochester Embayment Watershed regarding RAP implementation.
- Water Resources Board (WRB)¹ - The WRB will be responsible for connecting member counties into the RAP process, implementing cooperative projects to reach water quality goals, and facilitating the tracking of RAP implementation.
- Monroe County Water Quality Management Agency (WQMA) - The WQMA will be responsible for overseeing RAP implementation in Monroe County.
- Water Quality Coordinating Committees (WQCCs) - The WQCCs will be responsible for advancing and coordinating high priority project implementation.
- Monroe County Water Quality Management Advisory Committee (WQMAC) - The WQMAC will advise the WQMA and the NYSDEC on RAP implementation, implement educational activities, and develop restoration targets.
- Not-for-profit organization - The not-for-profit organization will be responsible for coordinating and implementing educational activities and serving as a “watchdog” of RAP implementation.

¹ The WRB is an alliance of 24 counties in the Lake Ontario Basin that was established in order to promote basin-wide cooperation to maintain and improve water quality in the Finger Lakes-Lake Ontario region of New York State.

5.2. RAP Implementation Process (For additional information, see Stage II RAP Chapter 11)

The process that will be used to implement the selected remedial measures, studies, and monitoring methods (as listed in the Executive Summary, Chapters 3 and 4) in the Rochester Embayment Watershed will vary by county. In Monroe County, the WQCC will create task groups to research funding strategies, secure funding, and obtain commitments to implement specific actions.

In the rural counties in the Rochester Embayment Watershed, the WQCCs will (as appropriate) incorporate the selected remedial measures into their county water quality strategies. The WRB and the G/FLRPC will identify appropriate existing groups, or create new task groups, to facilitate the implementation of the selected remedial measures. The project leadership groups will research funding strategies and seek to secure funding and commitments.

5.3. RAP Funding Strategy

A wide range of possible RAP funding mechanisms are described in Chapter 8 “Evaluation/Overview of Financing Mechanisms” of the Stage II RAP. Using this information, a Rochester Embayment RAP funding strategy was developed for Chapter 11 “Management of RAP Implementation”.

5.3.1. Monroe County

The **general**² Rochester Embayment RAP funding strategy for **Monroe County** consists of the following five sub-strategies:

- **Finger Lakes-Lake Ontario Watershed Protection Alliance (FL-LOWPA)**³ - The Monroe County WQCC, through Monroe County’s membership in the FL-LOWPA, will seek funding to implement the selected remedial measures, studies, and monitoring actions. Alliance activities are funded by state aid, grants, and in-kind contributions from member counties. Beginning in the 1996 fiscal year, each member county will receive an equal share of funds allocated to the FL-LOWPA by the New York State Legislature (\$1.2 million in fiscal year 1996).

² Ad hoc task groups of the Monroe County WQCC will be established in order to facilitate implementation of the selected actions. Each of these task groups will develop a specific funding strategy for the action they are seeking to implement.

³ FL-LOWPA is an alliance of the 24 New York State counties in the Lake Ontario Basin. The Alliance is governed by the Water Resources Board. The FL-LOWPA program is designed to facilitate the development and implementation of coordinated and dynamic whole-watershed management programs; exchange information on the status of surface water quality in the region; and address local water priorities.

- **Partnerships** - The Monroe County WQCC will facilitate the creation of formal and informal partnerships to implement the selected actions. A partnership is a voluntary, consensus-based coalition of organizations, agencies, and individuals convened in order to advance a specific project. These partnerships will be established by the WQCC task groups (as described in 5.2 RAP Implementation Process). Funding sources are likely to include grants, contributions from the partners, and in-kind contributions.
- **Grants** - The Monroe County WQCC and its member agencies will seek grants from federal and state agencies and private foundations to fund the selected actions. For additional information regarding possible federal and state grant sources, see Chapter 8 “Evaluation/Overview of Financing Mechanisms” Part C “Accessing Funds from Existing Sources”.
- **Not-for-profit organization** - The Monroe County WQCC, with assistance from the WQMAC, will establish a not-for-profit organization that will conduct its own fund raising to advance the selected actions that involve public education and stewardship building.
- **Special districts** - Monroe County and the municipalities will continue to explore the possibility of creating special districts⁴ as part of the ongoing process of establishing water quality intergovernmental agreements. The purpose of these special districts would be to finance stormwater management activities. If Monroe County and the municipalities ultimately decide to create special districts, these districts could provide a significant revenue source (through the taxes/fees charged to property owners) for RAP stormwater management implementation activities.

5.3.2. Rural Counties

The Rochester Embayment RAP funding strategy for the rural counties in the watershed consists of the following sub-strategies.

- **FL-LOWPA** - The WQCCs in the rural counties, through their counties’ membership in the FL-LOWPA, will seek funding to implement the selected actions.
- **Grants** - The WQCCs in the rural counties will seek grants from federal and state sources and private foundations to fund the selected actions.
- **Joint projects** - The WQCCs in the rural counties, with assistance from the G/FLRPC

⁴ A special district is an independent unit of local government organized to perform a single function (such as stormwater management) or a limited number of related functions. Special districts usually have the power to incur debt and levy taxes.

and/or the WRB, will jointly advance implementation of selected remedial measures. The participation of a number of counties in the cooperative implementation of a single project will make it more affordable. Joint projects could be funded through grants or in-kind contributions. Several possible joint projects were identified as part of the process of ranking new remedial measures in the rural counties. Additional possible joint projects may be identified through the G/FLRPC's proposed Regional Water Quality Strategy process and the FL-LOWPA/Lakewide Management Plan⁵ coordinating effort.

⁵ The Great Lakes Water Quality Agreement requires the development and implementation of a Lakewide Management Plan (LaMP) for each of the five Great Lakes. The LaMPs are designed to restore the beneficial uses of the Great Lakes by reducing levels of critical pollutants that cause lakewide problems.

