

8. Monitoring & Assessment

<u>Agricultural Practices (A)</u>	<u>Development (D)</u>	<u>On-site Wastewater Systems (O)</u>	<u>Stormwater Runoff (SR)</u>	<u>Wastewater Treatment (WW)</u>			
<u>Drinking Water (DW)</u>	<u>Tourism and Other Economic Development (T)</u>	<u>Water Quality Standards (WQS)</u>					
<u>Water Quality (WQ)</u>	<u>Exotic species (ES)</u>	<u>Fertilizers and Pesticides (F)</u>	<u>Heavy metals (H)</u>	<u>Phosphorus and Nutrient Loading (N)</u>	<u>Organic compounds (OC)</u>	<u>Pathogens (P)</u>	<u>Sediment (S)</u>
<u>Comprehensive Planning (C)</u>	<u>Education (E)</u>	<u>Economic Revitalization & Sustainability (ER)</u>	<u>Infrastructure (I)</u>				

Introduction

A well-designed monitoring program is an essential element for effective stewardship and management of Cayuga Lake and the watershed. Data from monitoring can help the IO and the Watershed Steward identify or confirm areas of concern within the watershed, and set priorities for implementing best management practices. Monitoring can be used to measure the effectiveness of specific control actions and the need for further controls to meet water quality objectives. Ultimately, trend analysis of lake and tributary monitoring data, will be the soundest evaluation of the effectiveness of the RPP.

There are important linkages between monitoring and public education. Citizen monitoring programs can focus community support on the resource, and instill life-long lessons on how actions on the landscape affect receiving water quality. A well-designed monitoring program may address public concerns such as "is water quality getting better or worse", "why are there weeds at my camp", "can I eat the fish I catch", or "is the water safe to drink".

A monitoring plan for a large, deep lake with an extensive network of tributaries must be carefully designed to reflect spatial and temporal heterogeneity. The Technical Committee has drafted a Monitoring Framework (see Appendix M) outlining an approach to an integrated monitoring plan for the Cayuga Lake Watershed. This framework will continue to be developed through the implementation phase of the RPP.

Goals

- Improve the scientific basis for managing Cayuga Lake and watershed
 - Address data gaps identified in the *Preliminary Watershed Characterization*
 - Confirm pollution sources and priority areas
 - Document the effectiveness of Best Management Practices
 - Provide data that can be used to develop or verify management tools such as models
- Provide information to lake managers and the watershed community regarding:
 - Trends in quality of surface water and groundwater in the Cayuga Lake basin
 - Suitability of water quality for human uses (such as drinking and swimming)
 - Status of the lake's food web
- Coordinate monitoring activities to maximize resources and eliminate redundancies

Existing Measures and Gaps

A number of agency and academic scientists conduct research or monitoring in the Cayuga Lake watershed. Each program is designed to meet specific objectives. The Cayuga Lake Projects Directory (see Appendix M) provides a list of the major investigations of the lake and watershed.

Additional monitoring is done by surface water suppliers (see Appendix M) and groundwater water suppliers (see Appendix M), the Cayuga County Health Department for on-site wastewater testing (see Appendix N) (also see Inspection Results in Appendix N), and wastewater treatment plants discharge monitoring reports (see Appendix F - Summary Of Permitted Point Source Loads To Cayuga Lake And Tributaries).

The *Preliminary Watershed Characterization* report Chapter 6, Watershed and Subwatershed Technical Findings (see Appendix C) lists important data gaps that limit our ability to define priority areas and select appropriate BMPs. An important data gap is the limited groundwater testing.

Recommendations

Programmatic recommendations:

Monitoring and assessment are a means to evaluate whether water quality and resource-related goals for the Cayuga Lake Watershed are being met. Monitoring activities will occur over time, and individual participants will change over the years. It is very important to identify a program leader committed to making monitoring program a priority. There will always be competition for funding and allocation of staff time, and successful implementation of a long-term monitoring program will requires a strong advocate.

No. 8	Monitoring & Assessment Recommendations	Related Issue(s)	Potential Responsible Org(s)	Measures/ Targets	Approx Cost
A	Programmatic Recommendations				
A1	<p>One agency and individual within the agency should be identified to serve as the overall program manager. This leader would be responsible for coordinating activities of the multitude of agency, university, and citizen-based monitoring programs and serving as a point of contact for data and information. Examples of responsibilities of the program manager include:</p> <ul style="list-style-type: none"> • develop a central clearinghouse (see Appendix K) or Web site dedicated to Cayuga Watershed monitoring; • convene an annual planning meeting to discuss monitoring activities, quality assurances/quality control measures, and opportunities for coordination; • maintain a central database of results (including groundwater data); • convene meetings to discuss findings, identify gaps, and determine priorities for monitoring; • advocate for funding; • prepare an annual summary "State of the Cayuga Lake Watershed" report; and • meet with the public to discuss progress. 	A, D, O, SR, WW, DW, WQ, E	IO Technical Committee (lead for detailed strategy), WSS, AI, NYSDEC, IO, CLWN, WQCCS	Develop detailed strategy within 1 year.	Strategy development: \$20,000 Annual cost for coordinator : \$25,000
B	Technical Recommendations (Top Priority)				
B1	Increased focus on tributary monitoring to refine estimates of pollutant loading and confirm priority subwatersheds. Details to be developed as part of A1.	A, SR, WW, WQ, N, P, S	AI, C, CLWN, M, NRCS, NYSDEC, SWCD, USGS	Coordinated watershed monitoring program developed as part of A1	\$50,000/yr
B2	Re-establish the UGSG gauging station on Salmon Creek.	A, D, O, SR, DW,	IO, USGS	Gauge reestablished	Start-up cost:

		WQ, F, H, N, OC, P, S,		by October 2003	\$12,000 Annual cost \$10,000 – \$13,000 (USGS may match 30% of this)
B3	Participate in the Citizens Statewide Lake Assessment Program (CSLAP). This program gathers trophic state data and a few related parameters in the lake. Four stations should be established on Cayuga Lake: southern and northern segments and two mid-lake stations reflecting the regulatory segmentation of the lake.	A, D, O, SR, WW, DW, WQ, ES, F, H, N, OC, P, S, E,	CLWN, WSS CWQCCs, CCE	In progress, led by WSS (CLWN)	\$5,000/yr
B4	Work with colleges to design and implement an annual program to sample macroinvertebrates (aquatic insects and worms) in the tributaries to Cayuga Lake and calculate standard NYSDEC indices of pollution tolerance.	WQS, WQ	AI	Within 2 years	\$50,000/yr
Technical Recommendations (Lower Priority)					
B5	Sample lake sediments in the delta areas near major tributaries for organic compounds and heavy metals	D, SR, WW, DW, WQ, H, OC, S,	NYSDEC	Within 10 years	\$50,000