Elements of the 2009 AMP in relation to ACJ-required monitoring objectives.

ACJ Statement of Required Program Objective:	2009 Program Elements	Data Used To
Quantify external loading of phosphorus, nitrogen, suspended solids, indicator bacteria, and salts. Assess the reduction in loading achieved by the CSO improvements. Design program to evaluate the relative contribution of point and nonpoint sources of pollution to the lake.	(Annual program) Tributary monitoring: biweekly, and high flows – Includes locations upstream and downstream of CSOs, urban and rural segments of subwatersheds.	Estimate annual external loading to Onondaga Lake
Assess the tributaries' physical habitat and macroinvertebrate community.	(Periodically; next survey scheduled for 2012) • Stream mapping using NRCS Visual Stream Assessment Protocol in CSO-subwatersheds: Onondaga Creek, Ley Creek and Harbor Brook (Every 2 years, next survey scheduled for 2010) • Macroinvertebrate surveys of CSO-affected subwatersheds	Quantify baseline conditions and provide basis to measure change. Quantify baseline conditions and provide basis to measure change
Gather data on an adequate temporal and spatial scale to assess compliance with ambient water quality standards.	(Annual programs) • Lake monitoring program: South Deep Station and nine nearshore stations • Tributary monitoring program • Seneca River monitoring program	Assess compliance with numerical and narrative standards Calibrate and verify models

Elements of the 2009 AMP in relation to ACJ-required monitoring objectives (continued).

ACJ Statement of Required Program Objective:	2009 Program Elements	Data Used To
Evaluate changes in the water quality and trophic state of Onondaga Lake in response to reductions in external loading achieved by the improvements to Metro and the CSOs.	(Annual programs) • Lake monitoring • Tributary monitoring • River monitoring	Assess conditions in relation to inputs and trends Calibrate USGS watershed model of land use and nutrient export (using AMP tributary data) Construct conceptual model and mass-balance model Calculate "fish space metrics" to track changes in available habitat for cold water, cool water and warm water fish Develop and calibrate Onondaga Lake model
Expand the chemical monitoring program to include other indices of ecological integrity: biological data, contaminant burden, and physical habitat.	(Annual biological program unless noted otherwise) • Fish: nesting, larvae, juveniles, and adult communities • Lower trophic levels: phytoplankton and zooplankton • macrophytes: annual aerial surveys with ground-truthing; full field surveys in 2000, 2005 and 2010 • macroalgae: visual surveys in nearshore areas • littoral macroinvertebrates: surveys in 2000, 2005 and 2010 Fish flesh contaminant levels, monitored and reported by NYSDEC	Assess current trophic state, abundance and diversity of species, importance of exotic species, reproductive success Test for trends or shifts in data Compare Onondaga Lake with Oneida Lake (zooplankton community) and other regional lakes (fish community)

Elements of the 2009 AMP in relation to ACJ-required monitoring objectives (continued).

ACJ Statement of Required Program Objective:	2009 Program Elements	Data Used To
Through interaction with NYSDEC and appropriate peer reviewers, coordinate data collection and analysis to provide data at an adequate spatial and temporal scale to use in existing or revised lake models.	Annual program and supplemental investigations, NYSDEC review and approvals Meetings with OLTAC and work groups	Support conceptual and empirical (mass-balance) model; AMP data will be used to calibrate and verify new lake model (begun in 2005)
Define ambient water quality conditions in the Seneca River between Cross Lake and the Three Rivers junction.	(Annual program) Surveys at Seneca River Buoy 316 (target low flow conditions)	Assess current conditions, data set for model validation Assess compliance with ambient water quality standards
Evaluate and quantify the assimilative capacity of the Seneca River and quantify effects of zebra mussels. Quantitative Environmental Analysis, LLC. Final Phase 2 Report Three Rivers Water Quality Model. Prepared for: Onondaga County Department of Water Environment Protection Syracuse, NY, Onondaga Lake Cleanup Corp., Syracuse, NY. Job Number: ONOsen: 227. August 2005.	River modeling work group and peer review (Annual program) Surveys during low flow conditions in the fall (depends on hydrologic conditions) Periodic zebra mussel assessment	Assess current conditions, data set for model verification Assess current conditions, compile data for model verification