Table 1. Community Water Monitoring Tiered Data Quality Framework

In general, the amount of time, money, and expertise required increases with the tiers.

	Data Uses	General Requirements
TIER 1	• Community education • Municipal engagement	***Study design*** available for review by potential data users, with: • Documentation of methods, locations, and timeframe
TIER 2	Includes Tier 1 uses, plus: • Project-specific monitoring • Water quality report cards • BMP effectiveness monitoring • Targeting installation of BMPs • Targeting advanced monitoring • NJDEP Comprehensive Regional Assessments	***QAPP***[1] approved at Tier 2 by NJDEP BEARS[2] or NJ Watershed Watch Network with: • Use of standard operating procedures with defined levels of accuracy and precision
TIER 3	Includes Tier 2 uses, plus: • Regulatory assessments of water quality standard attainment	***QAPP***[1] approved at Tier 3 by NJDEP Office of Quality Assurance, with: • Use of NJDEP-Certified field and/or laboratory methods for chemical and microbiological analyses • Use of EPA Rapid Bioassessment Protocol for habitat assessments • Use of a defined NJ Watershed Watch Network method for macroinvertebrates (see Table 2)

[1]*QAPP = Quality Assurance Project Plan, a technical document that describes exactly how your data is being collected, analyzed, and stored for future potential data users to review. NJ Watershed Watch Network will help you to prepare according to the guidelines set forth by NJDEP Office of Quality Assurance and the EPA Citizen Science Handbook.*

[2]*NJDEP Bureau of Environmental Assessment, Restoration and Standards*

Table 2. A Deep Dive into Tier 3 Macroinvertebrate Assessments

	MACROS 3.1 *Good (AmeriCorps method)*	**MACROS 3.2** *Better*	**MACROS 3.3** *Best*
Method	• Sample collection with D-frame net using multi-habitat technique • Subsampling and identification performed by volunteers in the field	• Sample collection with D-frame net using multi-habitat technique • Sample preservation in the field, with 95% ethanol • Sample sorting, subsampling, and identification performed by volunteers in a controlled environment	• Sample collection with D-frame net using multi-habitat technique • Sample preservation in the field, with 95% ethanol • Sample sent to laboratory for sorting, subsampling, and identification
Taxonomic Level	• Mix of Class, Order, and Family, limited to 22 target organisms	• Family (except Annelids at Class level)	• Genus or Species
Assessment Indices	• Volunteer High Gradient Index • Volunteer Coastal Plain Index • Volunteer Pinelands Index	• HGMI – family (high gradient only)	• HGMI • CPMI • PMI
Quality Assurance	• 50-organism identification proficiency test before first sample and every 3 years thereafter • Field audit of sampling technique before first sample and every 3 years thereafter	• 50-organism identification proficiency test before first sample and every 3 years thereafter • 10% of group samples re-identified annually by approved lab • Field audit of sampling technique before first sample and every 3 years thereafter	• All identifications performed by approved lab • Field audit of sampling technique before first sample and every 3 years thereafter
Training	• Two-day training	• Three-day training	• Half-day training
Volunteer Time Commitment	• Field work – approximately 3 hours per sample	• Field work – approximately 1 hour per sample • Lab work – approximately 3-4 hours per sample	• Field work – approximately 1 hour per sample
Financial Resources Required	• Up-front costs to include sampling materials like waders, nets, trays, buckets, sieves, rinse bottles, and utensils	• Up-front costs to include sampling materials (see 3.1) and preservation jars plus laboratory materials like dissecting microscopes, desk lamps, gridded sorting trays, 12-sided die, petri dishes, forceps, and vials • Ethanol for preservation	• Up-front costs to include sampling materials (see 3.1) and preservation jars • Ethanol for preservation • Lab identification – approximately $150-250 per sample, plus shipping