StreamWatch Water Quality Assessment Framework

The 2017 StreamWatch Water Quality Assessment primarily uses data collected between January 1, 2014 – December 31, 2016. Information provided in the 2016 Integrated Report may also be used to influence water quality assessments.

1 Chemical/Physical Parameters

All sites should have at least 20 parameter measurements to make a precise assessment. If 20 measurements were not available during the 2014-2016 timeframe, extensions were made to include data from the beginning of 2017 and/or the end of 2013. Sites with less than 20 measurements are noted.

1.1 Temperature:

Method: Lamotte Armored Alcohol Thermometer
Measurement range: -5.0 – 50.0 degrees Celsius

Score	Assessment Framework
Excellent	No samples greater than 28 degrees Celsius
Good	No samples greater than 31 degrees Celsius
Fair	1 or more samples greater than 31 degrees Celsius
Poor	10%+ samples greater than 31 degrees Celsius

1.2 pH:

Method: Lamotte Precision pH Test Kit #5858-01
Measurement range: 4.5 – 10.0 standard units

Score	Assessment Framework
Excellent	No samples below 6.5 or above 8.5
Good	1 sample below 6.5 or above 8.5
Fair	2 samples below 6.5 or above 8.5
Poor	10%+ samples below 6.5 or above 8.5

1.3 Dissolved oxygen:

Method: Lamotte Dissolved Oxygen Test Kit #5860-01
Measurement range: 0.0 – 20.0 mg/L

Score	Assessment Framework
Excellent	No samples below 5.0 mg/L
Good	0-1 samples below 4.0 mg/L
Fair	2 samples below 4.0 mg/L
Poor	10%+ samples below 4.0 mg/L

1.4 Turbidity:

Method: Lamotte Turbidity Test Kit #7519-01
Measurement range: 0 – 200 Jackson Turbidity Units (JTUs)

Score	**Assessment Framework**
Excellent	No samples greater than 15 JTUs
Good	No samples greater than 50 JTUs
Fair	1 or more samples greater than 50 JTUs
Poor	10%+ samples greater than 50 JTUs

1.5 Nitrate (as N):

Method: Lamotte Nitrate-N and Phosphate Low-Range Test Kit #3119-01
Measurement range: <0.2 – 4.0 mg/L

Since there is no existing water quality standard protecting aquatic life and preventing eutrophication from nitrate, the following sources were used to develop this framework:

- https://nepis.epa.gov/Exe/ZyPDF.cgi/20003CVP.PDF?Dockey=20003CVP.PDF
- http://ceqg-rcqe.ccme.ca/download/en/197

Score	**Assessment Framework**
Excellent	No samples greater than 1.5 mg/L
Good	No samples greater than 3.0 mg/L
Fair	1-2 samples greater than 3.0 mg/L
Poor	10%+ samples greater than 3.0 mg/L

1.6 Phosphate:

Method: Lamotte Nitrate-N and Phosphate Low-Range Test Kit #3119-01
Measurement range: <0.2 – 4.0 mg/L

Score	Assessment Framework
Excellent	Cannot score due to method detection limit
Good	0-1 samples at 0.2 mg/L or greater
Fair	2 samples at 0.2 mg/L or greater
Poor	10%+ samples at 0.2 mg/L or greater

2 BACTERIAL PARAMETERS

There must be at least 5 samples within a 30 day period.

2.1 E. coli:

Method: Colisure with Quanti-tray 2000 Most Probable Number Quantification
Measurement range: 0 – >2,419 colonies per 100 mL water

Score	**Assessment Framework**
Excellent	No samples greater than 235 colonies/100 mL AND geometric mean is 126 colonies/100 mL or less
Good	1 sample greater than 235 colonies/100 mL AND geometric mean is 126 colonies/100 mL or less
Fair	0-2 samples greater than 235 colonies/100 mL AND geometric mean is greater than 126 colonies/100 mL
Poor	3+ samples greater than 235 colonies/100 mL AND geometric mean is greater than 126 colonies/100 mL

3 BIOLOGICAL PARAMETERS

There must be at least 1 sample within a 2 year period. For subwatersheds without a StreamWatch Biological Action Team monitoring location, assessments were made using the New Jersey Department of Environmental Protection 2014 Integrated Report.

3.1 Macroinvertebrate Population Pollution Tolerance:

Method: Kick Net Sampling from 4 Depth/Velocity Regimes
Measurement range: At least 100 organisms

Score	**Assessment Framework**	
	New Jersey Impairment Score (used for sites in the coastal plain)	**High Gradient Macroinvertebrate Family Level Index** (used for sites in the piedmont region)
Excellent	22.5 – 30	63 – 100
Good	15 – <22.5	42 – <63
Fair	7.5 – <15	21 – <42
Poor	<7.5	<21