section1E\_toxicity

NYSDEC SMAS : Keleigh Reynolds

4/17/2020

Toxicity testing of surface waters, sediments, porewaters, and effluents are routinely performed as part of the RIBS program (<https://www.dec.ny.gov/chemical/29854.html>). Sediment toxicity was evaluated according to SOP #403-16 Microtox® Acute Toxicity Test for Sediments, Porewaters and Effluents. Testing procedures use a bioassay to assess potential acute toxicity in sediments and surface waters to aquatic life (SOP #403-16). Sediment and extracted sediment porewater samples are tested using a bioluminescent bacterium Vibrio fischeri (V. fischeri). Tests are a measure of light reduction between collected samples and a control following a 15-minute exposure period and expressed as the median effect concentration (EC50) of a sample that causes a 50% reduction in light emission from the V. fischeri. Appendix X (Fact Sheet: Acute & Chronic Toxicity Assessments of NY Streams & Rivers) describes toxicity testing procedures, Assessment criteria and results classifications.

Results from Microtox® Acute Toxicity Test for Sediments, Porewaters and Effluents collected in 2017 are found in (@ref tab.id=“Tox-table”). In the Wallkill Watershed, sediments ranged from non-toxic to severe and porewaters ranged from non-toxic to toxic.

Table :Wallkill River Microtox® sediment and porewater toxicity results for select locations in the Wallkill River Survey. Sediment samples were collected for toxicity testing in baseflow conditions during macroinvertebrate community collection at sampling locations.

| **Station ID** | **Sample Date** | **Sediment   Assessment** | **Porewater   Assessment** | **Sediment   EC50** | **Porewater   EC50** |
| --- | --- | --- | --- | --- | --- |
| 13-QKER-0.9 | 8/2/2017 | Non-toxic | Non-toxic | 78.18 | > 100 |
| 13-WCHEE-0.6 | 8/2/2017 | Non-toxic | Non-toxic | 65.38 | > 100 |
| 13-WALK-46.6 | 8/2/2017 | Severe | Non-toxic | 4.46 | > 100 |
| 13-MONH-4.1 | 7/26/2017 | Moderate | Non-toxic | 24.29 | > 100 |
| 13-MONH-0.4 | 8/2/2017 | Slight | Non-toxic | 42.21 | > 100 |
| 13-WALK-35.6 | 8/2/2017 | Moderate | Non-toxic | 38.73 | > 100 |
| 13-WALK-29.9 | 8/3/2017 | Slight | Non-toxic | 43.07 | > 100 |
| 13-WALK-26.9 | 8/3/2017 | Moderate | Toxic | 36.92 | 69.53 |
| 13-WALK-22.8 | 8/3/2017 | Slight | Non-toxic | 42.33 | > 100 |
| 13-WALK-19.0 | 8/3/2017 | Moderate | Toxic | 37.3 | 84.11 |
| 13-GUNK-0.4 | 8/3/2017 | Non-toxic | Toxic | 64.1 | 42.67 |
| 13-WKLEI-0.6 | 8/3/2017 | Slight | Non-toxic | 59.37 | > 100 |