



**Marbletown Town Park Beach
Sanitary Survey**

Town of Marbletown, New York

February 2026

Executive Summary

Marbletown Town Park Beach, located along Lower Esopus Creek in the Town of Marbletown, New York, has been closed to swimming since 2015 due to elevated fecal bacteria levels. In response to community concerns and recommendations outlined in the Lower Esopus Stream Management Plan, the Town of Marbletown initiated a sanitary survey to evaluate current water quality conditions, identify potential sources of fecal contamination, and inform future recreational use and management of the site.

This study was conducted between June and October 2025 through a collaborative effort involving the Town of Marbletown, T&B Engineering and Landscape Architecture, P.C. (Tighe & Bond), Riverkeeper, Inc., and the Ulster County Soil and Water Conservation District. Funding was provided by a New York State Department of Environmental Conservation Water Quality Improvement Project grant, and all work was performed under an approved Quality Assurance Project Plan.

Water quality sampling at the beach included six events under both dry and wet weather conditions and evaluated a comprehensive suite of physical, chemical, and bacterial parameters. Results indicate that overall water quality at Marbletown Town Park Beach is generally good during dry weather, with most parameters within ranges considered suitable for recreational use. *E. coli* concentrations remained below New York State bathing beach standards during all sampling events. Enterococci exceeded the state standard during two sampling events, including one wet weather event, reinforcing historical findings that bacterial contamination is more likely during or following rainfall.

To better understand the sources of fecal bacteria, microbial source tracking (MST) was conducted at the beach and at five upstream locations. MST results consistently indicated that fecal contamination originates primarily from non-human sources, specifically horses, ruminant wildlife (such as deer), and avian species. Horse-related markers were the most consistently detected across sampling locations. Human and cow fecal DNA were not detected, indicating that septic systems and cattle operations are not contributors to the observed bacterial contamination.

Taken together, the data suggest that Marbletown Town Park Beach is generally suitable for recreational uses such as wading, swimming, fishing, and kayaking during dry weather and periods of low-flow conservation releases from the Ashokan Reservoir. However, elevated bacteria levels during wet weather remain a concern, and reopening the site as a formal bathing beach would require additional monitoring and compliance with New York State Sanitary Code requirements, which the Town does not currently anticipate pursuing.

Based on the findings of this study, recommended next steps include targeted outreach to horse owners to promote best management practices, expanded monitoring in tributaries such as Tongore Creek, additional wet weather sampling to further refine source identification, coordination with the Ulster County Department of Health on future monitoring, and advancement of engineering design and construction to improve recreational access and stabilize eroding riverbanks at the park. These actions align with broader goals of the Lower Esopus Stream Management Plan and support safe, sustainable recreational use of Marbletown Town Park moving forward.

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SECTION 1 | Project Objectives

1.1 Project Background

Located approximately six miles from the Ashokan Reservoir's southeast edge along Lower Esopus Creek, Marbletown Town Park is a locally popular public recreational space. Use of this space historically included beach access for swimming, but the beach has been closed to swimming for several years due to the presence of elevated fecal bacteria levels in the waterway. Sampling efforts on behalf of Riverkeeper and the Ulster County Department of Health indicated acceptable conditions from 2012 through 2015, but unacceptable bacterial concentrations since 2015, rendering the beach inaccessible for public use.

During the development of the Lower Esopus Stream Management Plan (SMP), a process that began in 2023, concerned citizens advocated for the Lower Esopus SMP to include recommendations for improving recreational access at Marbletown Town Park. The final Lower Esopus SMP¹ and an accompanying Lower Esopus Implementation Program² contain a recommendation for determining the source of fecal bacteria contamination at the beach and reducing or eliminating them.

This survey was initiated by the Town of Marbletown and was a collective effort involving the Town, T&B Engineering and Landscape Architecture, P.C. (Tighe & Bond), Riverkeeper, Inc. (Riverkeeper), and Ulster County Soil and Water Conservation District (UCSWCD). Funding for the survey was provided by a Water Quality Improvement Project (WQIP) Program grant from the New York State Department of Environmental Conservation (NYSDEC). Work was conducted under a Quality Assurance Project Plan (QAPP) approved by NYSDEC.

1.2 Project Objectives

The Marbletown Town Park Beach Sanitary Survey aims to document current water quality conditions and identify the source(s) of fecal bacteria contamination at the beach. The results of the survey will assist the Town in determining the future uses and improvements of the site and in working with the community to develop and implement contamination reduction strategies.

¹ Inter-Fluve, 2024. *Lower Esopus Stream Management Plan*. Prepared for Ulster County. May 2024.

² Inter-Fluve, 2024. *Lower Esopus Implementation Program*. Prepared for Ulster County. May 2024.

SECTION 2 | Location

Marbletown Town Park Beach is located on Lower Esopus Creek in the Town of Marbletown in Ulster County. The contributing watershed area is 279 square miles of predominantly forested land (approximately 93%) with limited rural development (approximately 3%) and some lakes, ponds, and wetlands (approximately 4%). Rural development in the watershed consists of residential and agricultural land uses. The largest body of water in the watershed is the Ashokan Reservoir (drainage area of approximately 255 square miles), which is operated by New York City Department of Environmental Protection (NYC DEP) and is a key component of New York City's water supply.

Marbletown Town Park Beach is located approximately nine miles downstream of the Ashokan Reservoir spillway. Flows at the park consist of releases from the Ashokan Reservoir along with runoff from the tributaries draining the approximately 24 square miles of drainage area between the reservoir and the park. The 24-square-mile drainage area consists of the hamlet of Olivebridge and rural development within the limits of the Town of Marbletown. All areas are serviced by septic systems, and no municipal sanitary sewer service is available. Location, watershed, and land use maps are included in Appendix A.

Lower Esopus Creek at Marbletown Town Park Beach is classified by NYSDEC as a Class B(T) stream, or a stream with waters expected to be suitable for swimming and other recreation (B) and potentially supporting trout populations (T). During the period of this study, NYSDEC Region 3 Fisheries staff conducted a Fish Community Analysis at three sites between the Ashokan Reservoir and Marbletown Town Park Beach. Trout spawning was field verified at two of the sites. Unfortunately, Marbletown Town Park Beach has been officially closed to swimming since 2015 due to elevated fecal bacteria levels in the water. The site is also located within the Esopus Creek, Middle, and Minor Tribs waterbody segment (Segment ID 1307-0003), which is currently listed as impaired for fishing and primary and secondary contact recreation due to turbidity.

Unofficial public access to Lower Esopus Creek for other activities such as fishing and kayaking remains, although usage is low. The entire park covers approximately nine acres and includes several ball fields, a pavilion, a playground, and a parking area that are heavily used in the summer months. The Town maintains flush toilets served by a septic system at the pavilion.

SECTION 3 | Hydrographic & Meteorological Characteristics

Marbletown has a humid continental climate, typical of upstate New York. Summers are warm to hot with frequent high humidity, and winters are cold and snowy. Precipitation falls relatively evenly throughout the year, and the historical mean annual precipitation in the watershed is approximately 50 inches. Lower Esopus Creek, like other waterbodies in upstate New York, is increasingly affected by more frequent, intense rain events because of climate change. The watershed upstream of the Ashokan Reservoir faces chronic turbidity issues caused by erosion of fine glacial sediment during heavy rain events.

Stream flow and water quality in Lower Esopus Creek at Marbletown Town Beach Park are heavily influenced by releases from the Ashokan Reservoir. The dominant release signature on stream flow can be seen in records at the Lomontville stream gage (USGS Station No. 01363556) located approximately 0.5 mile upstream of the park (Figure 3-1). The high flow event in May 2025 occurred when the reservoir was above 100% capacity and flow was spilling over the spillway. Controlled releases resumed after reservoir and river flood elevations returned to normal. Smaller peaks in discharge are the result of local precipitation events. More background information on Ashokan releases and release governance can be found in the Lower Esopus SMP and on the NYC DEP website.

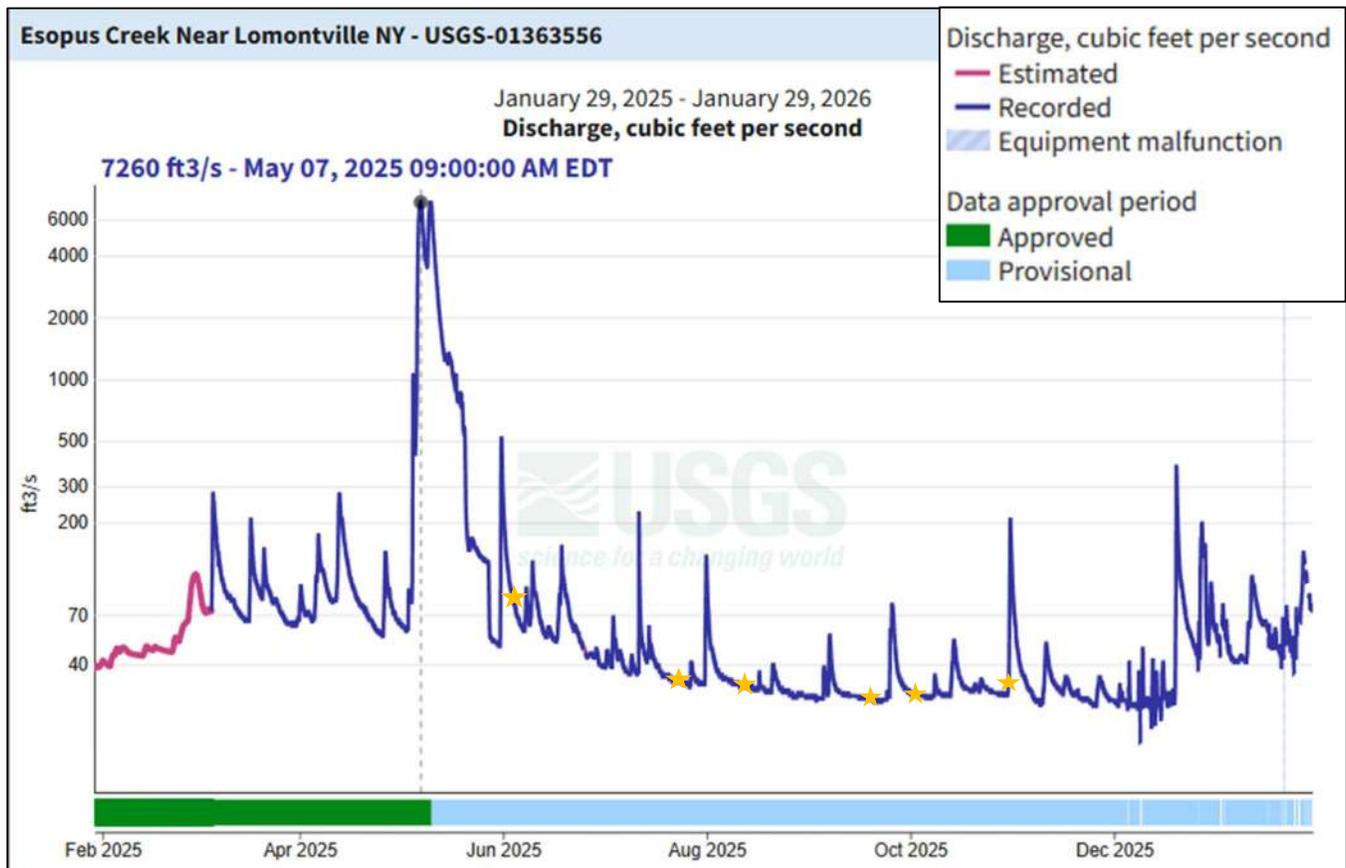


FIGURE 3-1 Discharge in Lower Esopus Creek at Lomontville, New York. Orange stars indicate water quality sampling dates for this study.

Source: USGS Water Data for the Nation. <https://waterdata.usgs.gov/>

SECTION 4 | Physical Characteristics & Water Quality

4.1 Physical Setting

Marbletown Town Park Beach is located on the outer bank of Lower Esopus Creek. The elevation of the top of bank is approximately 200 feet³, and the bank slopes steeply down to the water. At low flow, a remnant beach area is present at approximately 188 feet elevation. The beach area was previously constructed but has not been maintained or augmented since closure of the beach to swimming in 2015. A wooden stairway extends part way down the steep bank, which is sparsely vegetated (Figure 4-1). There were no signs of significant erosion during the geomorphic assessment completed for the SMP; however, residents have expressed concerns about retreat of the bank over the last decade. The creek bed at the location of the beach is naturally composed of cobbles and gravel. Imported beach sediment is sandy.



FIGURE 4-1 Looking downstream at Marbletown Town Park Beach on August 20, 2025

³ Elevations are relative to vertical datum NAVD88 and have been estimated from terrain data using Google Earth Pro.

4.2 Historical Water Quality Data

Riverkeeper has been sampling and testing for enterococci and *E. coli* at Marbletown Town Park Beach since 2012. Testing is conducted once per month during the period May through October of each year. The Riverkeeper data show frequent exceedances of New York State beach water quality standards, particularly during wet weather sampling (Figure 4-2). Acceptable water quality thresholds for permitted freshwater bathing beaches are set out in Subpart 6-2 of the New York State (NYS) Sanitary Code and are as follows, based on a single sample:

- 61 enterococci per 100 mL or
- 235 *E. coli* per 100 mL.

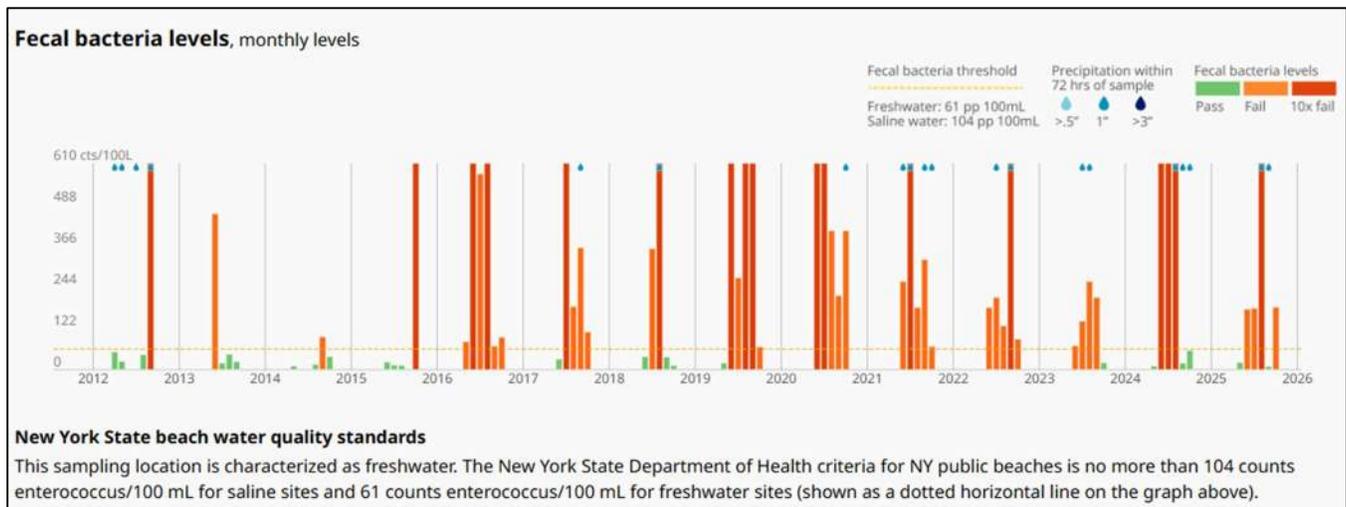


FIGURE 4-2 Riverkeeper testing results for enterococci at Marbletown Town Park Beach determined by IDEXX Enterolert

Source: <https://data.riverkeeper.org/>

Historical Riverkeeper data for the Lower Esopus Creek mainstem also include turbidity results, which frequently exceed 10 NTU. Turbidity levels in Lower Esopus Creek are influenced by the quality of the water released from the Ashokan Reservoir.

4.3 Methods

Water quality sampling at Marbletown Town Park Beach was conducted over a five-month period from early June through late October 2025 (total of six events). Dry weather sampling (five events) was carried out no sooner than 72 hours after a rainfall event, and wet weather sampling (one event) was conducted within eight hours of the start of a precipitation event and once creek levels started to rise. The 11 testing parameters were:

- *E. coli*,
- Enterococci,
- Fecal coliform (includes *E. coli* and other coliform bacteria but not enterococci),
- Turbidity,
- Conductivity,

- Total dissolved solids (TDS),
- Total suspended solids (TSS),
- pH,
- Dissolved oxygen (DO),
- Dissolved organic carbon (DOC), and
- Color.

Testing services for water quality parameters were provided by Pace Analytical in Newburgh, New York. Results were compared with NYS water quality standards (6 NYCRR Part 703 and 10 NYCRR Subpart 6-2).

Field data sheets for the sampling at the Marbletown Town Park Beach site are provided in Appendix B. No unusual field conditions were encountered during sampling. Algae, pollen, and other organic detritus were observed floating in the water, and fish and songbirds were noted in and around the site. Water in the creek had no odor, and water temperature ranged from 50°F in late October to 71.6°F in mid-July. Throughout the sampling period, Ashokan storage remained below the Conditional Seasonal Storage Objective (CSSO)⁴ and thus releases to the Lower Esopus were at a minimum and likely of high quality given the relatively dry weather.

4.4 Results

Appendix C contains a table of results for the water quality sampling and testing at the beach. Results were typically within normal and acceptable ranges with a few exceptions. A summary of the results is provided below.

- The *E. coli* results were well below the sanitary code threshold of 235 *E. coli* per 100 mL.
- The enterococci results exceeded the sanitary code threshold of 61 enterococci per 100 mL twice (6/4/25 and 10/30/25). The highest result was 159.6 per 100 mL on 10/30/25, which was a wet weather sampling event.
- Fecal coliform results were typically below enterococci results.
- Turbidity results were 1 NTU and below, within an ideal range for aquatic life (up to 5 NTU). The state standard for fresh groundwater designated as a potable water supply is 5 NTU. The state standard for Class B surface waters is “no increase that will cause a substantial visible contrast to natural conditions”.
- Conductivity results were generally below 100 $\mu\text{S}/\text{cm}$, which is below the ideal range of 150 to 500 $\mu\text{S}/\text{cm}$ but on its own not indicative of a water quality issue. There is no state standard for conductivity.
- Total dissolved solids (TDS) results ranged from 74 to 136 mg/L, below the state standard for Class B surface waters and within the typical range for healthy streams (50 to 250 mg/L).
- Total suspended solids (TSS) results were below the reporting limit.

⁴ The CSSO is an operating protocol designed by NYC DEP to maintain specific reservoir levels. When storage is below the CSSO, releases are kept to a minimum to maintain flow in Lower Esopus Creek (“conservation releases” or “community releases”) while allowing the reservoir to fill. Conservation releases are 10 to 15 MGD or 15.5 to 23.2 cfs.

- pH results met the state standard range for Class B surface waters (6.5 to 8.5) except on 6/4/25 when pH was 9.2.
- Dissolved oxygen (DO) results ranged from 7.9 to 11.2 mg/L, above the state standard minimum of 4.0 mg/L for non-trout Class B surface waters and within the typical range for healthy streams (5 to 11 mg/L).
- Dissolved organic carbon (DOC) results ranged from 1.6 to 3.2 mg/L, on the low end of the typical range for healthy streams (1 to 10 mg/L) but typical for pristine or headwater streams. There is no state standard for dissolved organic carbon.
- Color results were low on the test scale of 0 to 500 PCU, indicating very clear water.

Overall, the results suggest that water quality at the beach is generally acceptable for contact recreation during dry weather (i.e., at least 72 hours after the latest precipitation) combined with conservation releases from Ashokan Reservoir. *E. coli* results were consistently acceptable, and concentrations were less than those for fecal coliform, which includes *E. coli* as well as other fecal bacteria species. Pace Analytical uses different methods to test for *E. coli* and fecal coliform, which may explain the discrepancy in the results for these indicators.

Enterococci concentrations exceeded water quality standards on two occasions out of six, and the highest recorded concentration was during wet weather. Both occasions were associated with higher stream flows than recorded during the other sampling events.

Upon initial review, Riverkeeper's data (Figure 4-2) appear to indicate a more substantial, persistent problem with elevated bacteria levels than do the data from this study. We conducted a more detailed review of Riverkeeper's data from the same time period as this study and found that Riverkeeper sampled during wetter weather and higher flows. Results from sampling in June 2025 are a good example of this:

- 3.41 inches of rain fell on May 31, 2025;
- Stream flow at the Lomontville gage peaked at 522 cfs on May 31, 2025;
- Riverkeeper at the beach on June 3, 2025 when stream flow was 93 cfs and found 179 enterococci per 100 mL; and
- Tighe & Bond sampled at the beach on June 4, 2025 when stream flow had fallen to 78 cfs and found 62 enterococci per 100 mL.

Both June sampling events occurred at least 72 hours after the storm and were classed as dry weather events and both occurred on the receding limb of the storm hydrograph; however, the Tighe & Bond sampling took place a day later and thus revealed lower bacteria concentrations.

The highest enterococci concentration detected during this study was on October 30, 2025 during a rainstorm. The sample was collected on the rising limb of the hydrograph and reflects the quality of initial runoff from the landscape following a period of dry weather.

Taken together, these findings indicate that bacteria levels in Lower Esopus Creek at the Marbletown Town Park Beach are a function of the time since initiation of runoff. Bacterial concentrations can be expected to be highest during active runoff and decline with time as flows recede following a rainstorm. Depending on the magnitude of the storm, bacteria levels may remain above water quality thresholds beyond 72 hours post rainfall.

SECTION 5 | Potential Pollution Sources

5.1 Methods

Sites upstream of the Marbletown Town Beach Park were selected for additional sampling to help determine potential bacterial pollution sources. The project team conducted a review of land use and land cover, tributary confluence locations, and property ownership information to aid in the selection of sample sites and testing parameters. Five accessible sampling sites on Lower Esopus Creek between the Ashokan Reservoir and Marbletown Town Park Beach were identified. A map of the sampling sites, including the beach, is included in Appendix A.

In reviewing land use and land cover, the group identified five potential predominant sources of fecal bacteria contamination in the watershed: septic systems, birds (specifically waterfowl), horses, cows, and wild animals (specifically deer). An assay for microbial source tracking (MST) using droplet digital polymerase chain reaction (ddPCR) was then selected to detect and quantify the following types of fecal DNA:

- Human,
- Avian,
- Horse,
- Ruminant (cattle, sheep, deer), and
- Cow.

Table 5.1 provides the locations of the selected sampling sites and the details of sampling dates and parameters. Representative site photographs are provided in Appendix D.

At the time of the first beach sampling event on June 4, 2025, sampling and testing for *E. coli* was conducted at the five sites upstream of the beach to detect spatial variability in bacteria levels and narrow in on potential sources of bacterial contamination. A sample was collected at the beach for MST analysis on the same date. The event was a dry weather sampling event.

Following the June 4, 2025 sampling event, six additional MST sampling events were conducted, some limited to the beach site and others at multiple sites during both dry and wet weather.

Testing services for MST were provided by H₂O Molecular in San Diego, California. All samples were bottled, packed, and shipped according to lab instructions and the approved QAPP.

TABLE 5-1 Sampling Locations and Details

Site No.	Site Name	Lat/Long	Sample Date	Wet or Dry	Ashokan Release Rate ¹ (cfs)	Sampling Parameters
1	Ashokan Center - Downstream of the Olivebridge Dam and Ashokan release channel and upstream of the Tongore Creek confluence	41°55'51" N 74°12'12" W	6/4/25	Dry	23.2	<i>E. coli</i>
			8/20/25	Wet	23.2	MST
2	Mill Pond - Approx. 700 feet downstream of Mill Pond and the Tongore Creek confluence	41°55'36" N 74°11'55" W	6/4/25	Dry	23.2	<i>E. coli</i>
			8/20/25	Wet	23.2	MST
			10/30/25	Wet	15.5	<i>E. coli</i> , enterococci, MST
3	Stillwater Road - Downstream of the Ashokan spillway channel confluence	41°55'23" N 74°10'06" W	6/4/25	Dry	23.2	<i>E. coli</i>
			8/20/25	Wet	23.2	MST
4	Johnson Road - Downstream of an unnamed tributary confluence	41°54'19" N 74°09'34" W	6/4/25	Dry	23.2	<i>E. coli</i>
			8/20/25	Wet	23.2	MST
5	Hidden Valley Road - Downstream of an unnamed tributary confluence	41°54'03" N 74°09'11" W	6/4/25	Dry	23.2	<i>E. coli</i>
			8/20/25	Wet	23.2	MST
			10/30/25	Wet	15.5	<i>E. coli</i> , enterococci, MST
6	Marbletown Town Park Beach	41°52'26" N 74°08'20" W	6/4/25	Dry	23.2	All WQ parameters, MST
			7/22/25	Dry	23.2	All WQ parameters, MST
			8/12/25	Dry	23.2	All WQ parameters, MST
			8/20/25	Wet	23.2	MST
			9/17/25	Dry	23.2	All WQ parameters, MST
			10/1/25	Dry	15.5	All WQ parameters, MST
10/30/25	Wet	15.5	All WQ parameters, MST			

¹Release data were provided by NYC DEP to the Town of Marbletown (Daniel Michaud, NYC DEP, personal communication to Rich Parete, Town of Marbletown, on December 4, 2025).

5.2 Results

The results of the June 2025 *E. coli* sampling are provided in Appendix E. The results were well below the water quality threshold of 235 *E. coli* per 100 mL at all six sites. The lowest *E. coli* count was recorded at Site 1, which is the site nearest to the Ashokan Reservoir.

The results of the MST testing are also provided in Appendix E and summarized below.

- Site 1 (Ashokan Center) was tested once during wet weather, and fecal DNA concentrations were below detection limits (BDL).
- Site 2 (Mill Pond) was tested twice during wet weather, and fecal DNA concentrations for avian species and horses were recorded above the average limit of detection (LOD).
- Site 3 (Stillwater Road) was tested once during wet weather, and fecal DNA concentrations were BDL.
- Stream flow at Site 4 (Johnson Road) was tested once during wet weather, and trace levels of avian and horse fecal DNA were detected (i.e., concentrations below the average LOD).
- Stream flow at Site 5 (Hidden Valley Road) was tested twice in wet weather, and fecal DNA concentrations for ruminants and horses were recorded above the average LOD.
- Stream flow at Site 6 (Marbletown Town Park Beach) was tested seven times, five times in dry weather and twice in wet weather, and fecal DNA concentrations for ruminants, avian species, and horses were recorded above the average LOD. On two of those occasions, results for enterococci at the beach exceeded the water quality standard for freshwater bathing beaches.

Overall, both the bacterial testing and the MST results indicate low levels of contamination on the sampling dates. Of the sources tested, ruminants, avian species, and horses are the primary contributors to fecal bacteria contamination at the beach. Horse fecal DNA was the most consistent result across the sites. Cow and human fecal DNA were not detected; therefore, cattle operations and septic systems do not appear to be contributing to the water quality issues at the beach. UCSWCD staff have confirmed that a sizeable dairy farm ceased operation in 2021.

Water quality criteria for beaches based on ddPCR results have not yet been developed for New York; therefore, Tighe & Bond discussed the Marbletown data with H₂O Molecular to better understand how to interpret the results. H₂O Molecular offered the following:

- Results below or similar to the LOD mean that trace levels of fecal DNA were detected;
- Fecal DNA concentrations can generally be considered significant if the results are an order of magnitude greater than the LOD; and
- San Diego County, California has set a beach action threshold for enterococci by ddPCR at 1,413 copies per 100 mL. A criterion based on ddPCR results for human fecal DNA is currently being developed and will likely be set at around 100 copies per 100 mL.

Based on this information, the significant fecal DNA detections during this study were:

- Avian at Site 2 - Mill Pond on 8/20/25 (wet weather),
- Horse at Site 2 - Mill Pond on 10/30/25 (wet weather), and
- Horse at Site 6 - Marbletown Town Park Beach on 6/4/25 (dry weather).

Section 5 | Potential Pollution Sources

These results indicate that during periods of conservation releases from the Ashokan Reservoir, the predominant sources of fecal bacteria contamination in the study area are likely:

- Horse manure from runoff entering the creek upstream of Mill Pond, including from the Tongore Creek catchment area, which includes the communities of Olivebridge and Davis Corners;
- Waterfowl on Mill Pond; and
- Horse manure from runoff entering the creek upstream of the park between Sites 4 and 6.

Additional testing during wet weather is recommended to confirm and provide further insight. MST testing could be expanded to include a broader mammal assay, which would help rule out bacterial contamination from other wildlife.

SECTION 6 | Future Actions & Recommendations

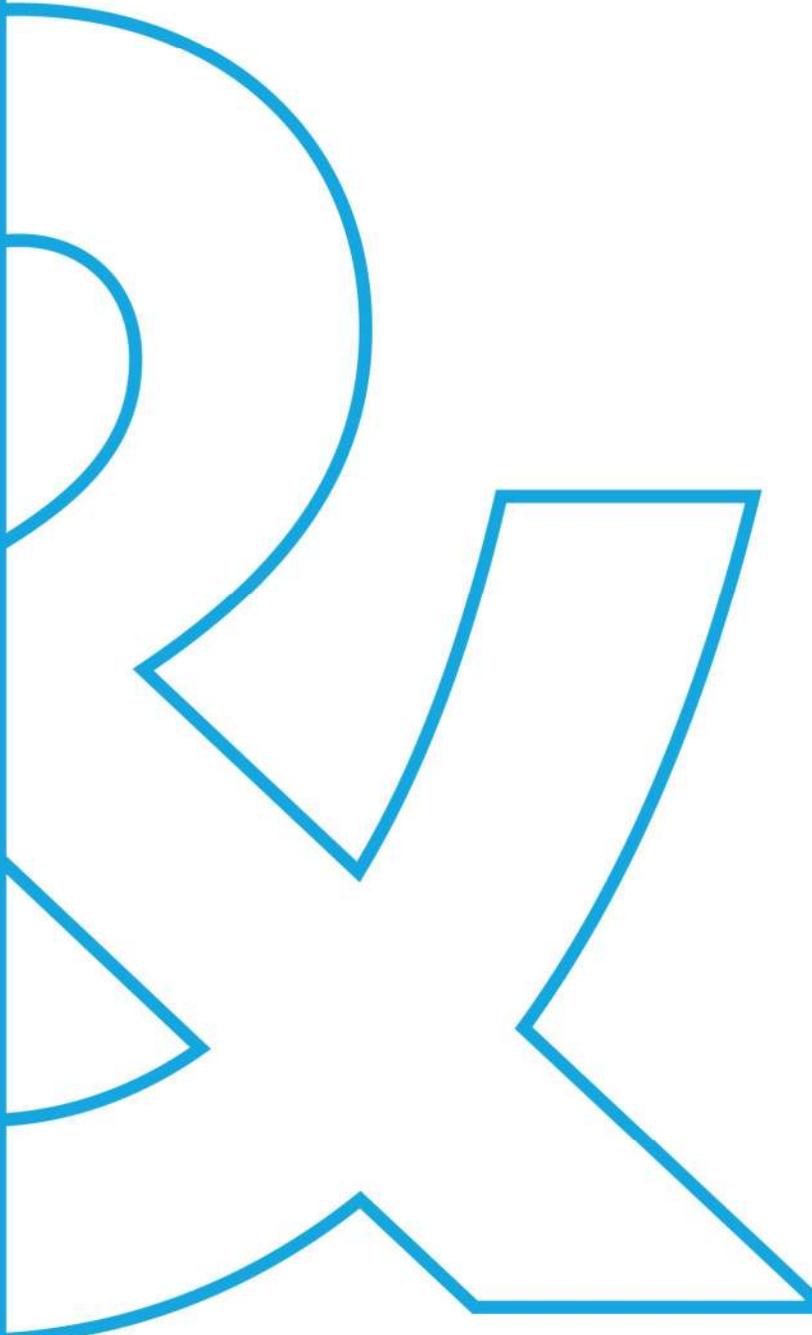
According to the Ulster County Department of Health, the Town would need to conduct additional water quality monitoring and meet the design and operational requirements for a new bathing beach as described in Subpart 6-2 of the New York State Sanitary Code. The Town has indicated that they are unlikely to meet the requirements and therefore are unlikely to reopen the beach as a formal bathing beach. However, the Town would like to improve river access for other recreational uses such as wading, fishing, and kayaking as long as it is safe to do so.

The Town's goals align with the priorities of the Lower Esopus SMP and Lower Esopus Implementation Program. The Town is interested in further advancing Project 15: Improve Recreational Access at Marbletown Town Park and Project 24: Marbletown Town Park Bank Stabilization. Project 15 encompasses the monitoring and source detection completed as part of this study as well as other enhancements such as safer access to the water, a kayak/boat launch, and a reconstructed beach. The description for SMP Project 15 recommends exploring construction of a beach area on the opposite (i.e., inside) bank of the creek where it would be less susceptible to erosion. Project 24 involves stabilizing stretches of eroding bank at and near the park.

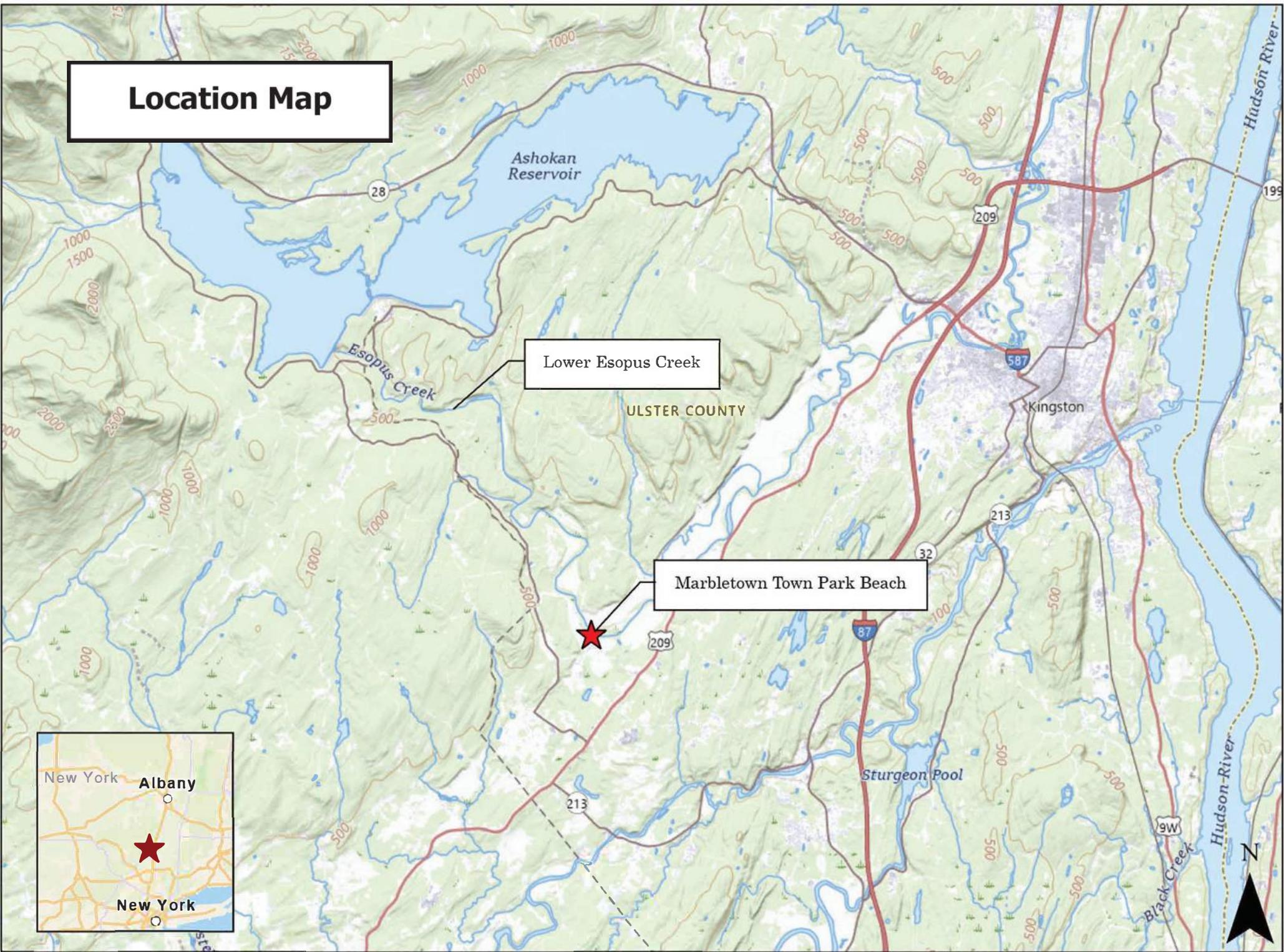
Specific recommendations stemming from this study that would assist the Town in advancing these projects are to:

- Contact horse owners in the areas of the watershed identified by this survey as likely sources and refer them to UCSWCD for information on best management practices (BMPs) to reduce delivery of contaminated runoff to streams;
- Investigate the use of horse manure as a fertilizer in the watershed;
- Develop and implement a water quality sampling and testing program on Tongore Creek;
- Conduct additional wet weather sampling and testing, particularly enterococci and MST;
- Request that the Ulster County Department of Health resume regular monitoring of fecal bacteria at the site; and
- Implement an engineering study and develop designs for improved recreational access and bank stabilization at the park.

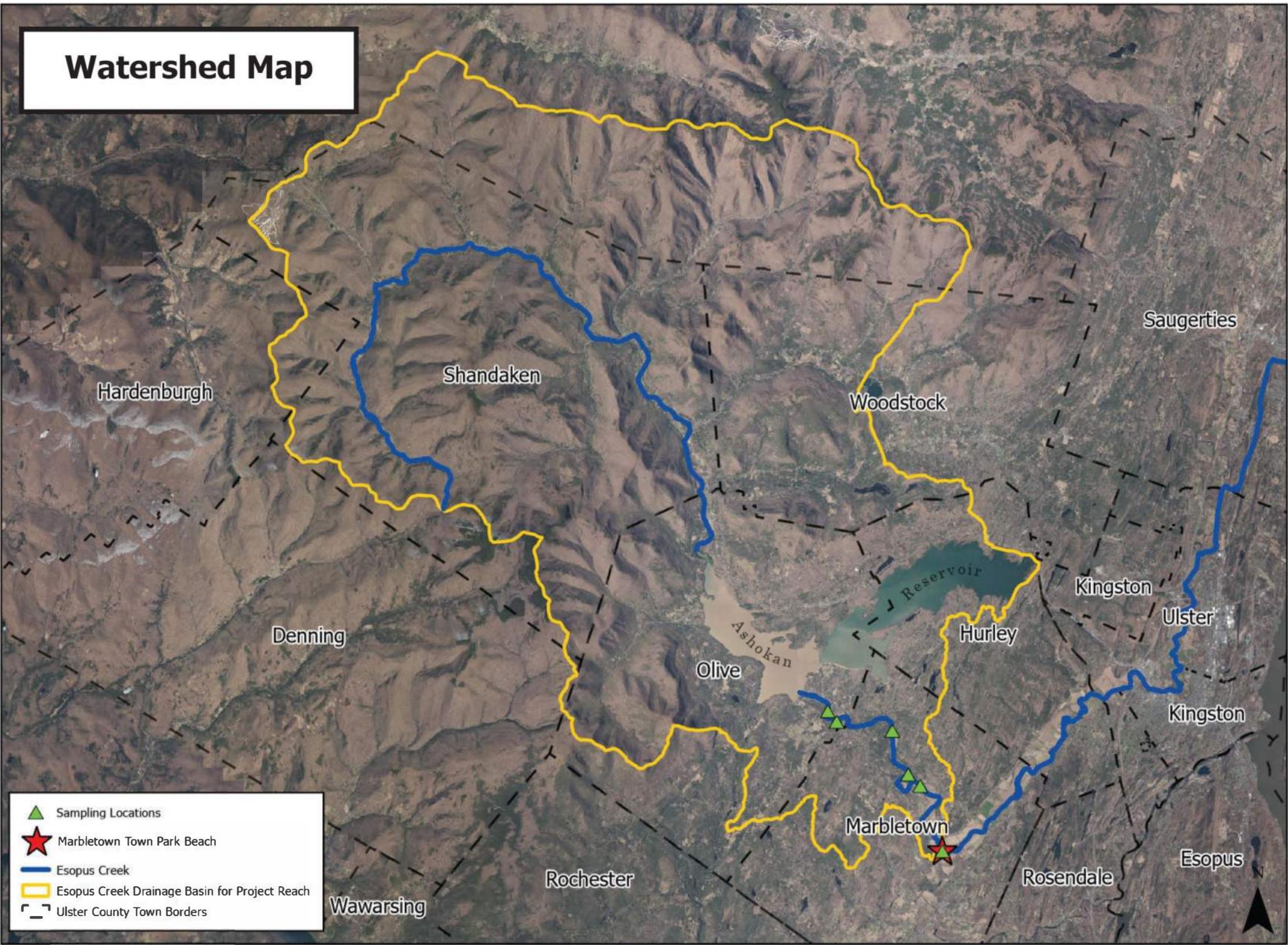
**Appendix A:
Maps**



Location Map



Watershed Map



- ▲ Sampling Locations
- ★ Marbletown Town Park Beach
- Esopus Creek
- ▭ Esopus Creek Drainage Basin for Project Reach
- - - Ulster County Town Borders

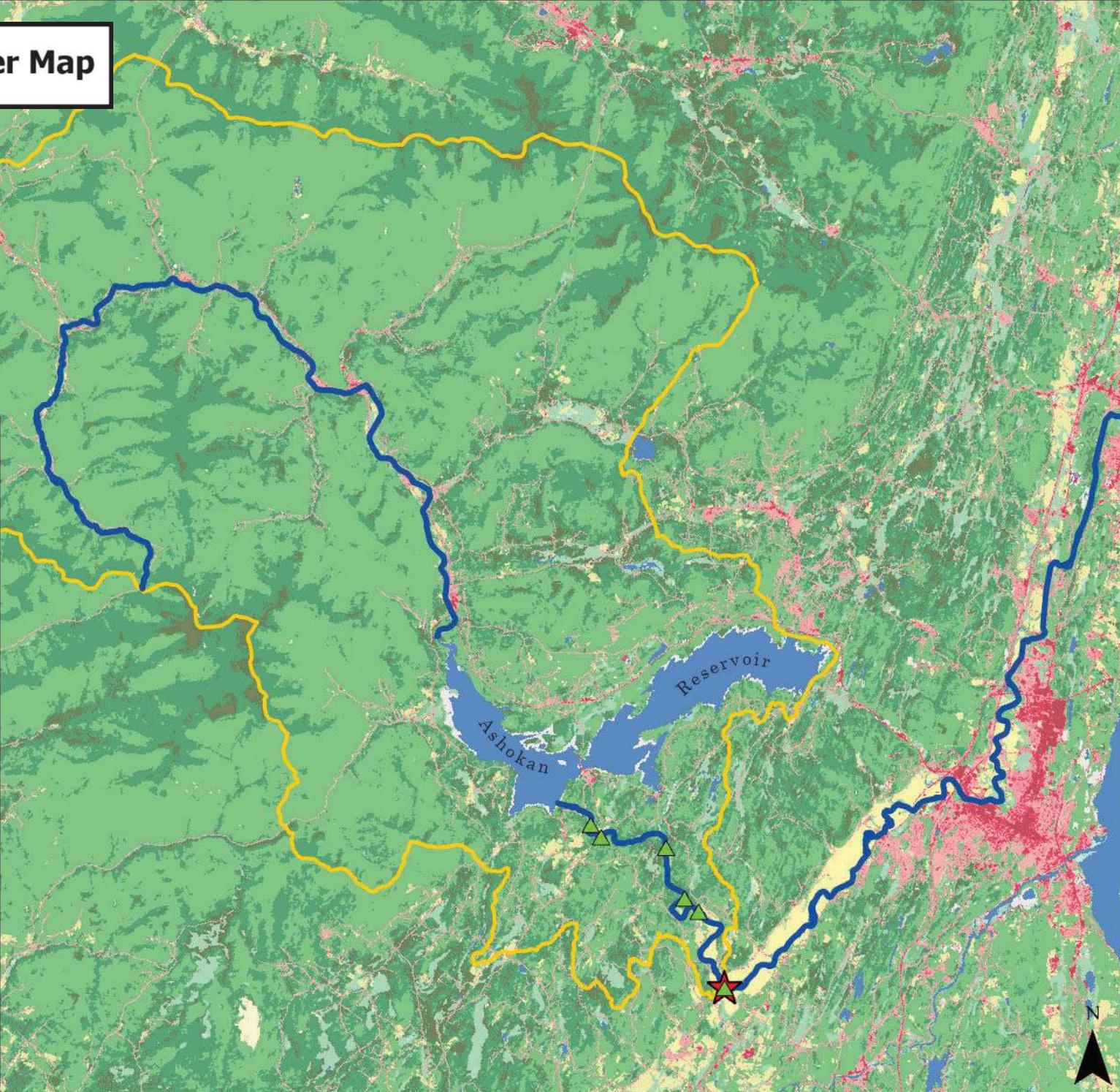
Watershed Land Cover Map

-  Sampling Locations
-  Marbletown Town Park Beach
-  Esopus Creek
-  Esopus Creek Drainage Basin for Project Reach

US Land Cover (NLCD)

ClassName

-  Open Water
-  Perennial Snow/Ice
-  Developed Open Space
-  Developed Low Intensity
-  Developed Medium Intensity
-  Developed High Intensity
-  Barren Land
-  Deciduous Forest
-  Evergreen Forest
-  Mixed Forest
-  Dwarf Scrub
-  Shrub/Scrub
-  Grassland/Herbaceous
-  Sedge/Herbaceous
-  Lichens
-  Moss
-  Pasture/Hay
-  Cultivated Crops
-  Woody Wetlands
-  Emergent Herbaceous Wetlands



Map of Sampling Locations

Site 1 -
Ashokan
Center

Site 2 -
Mill Pond

Site 3 -
Stillwater Rd

Site 4 -
Johnson Rd

Site 5 -
Hidden
Valley

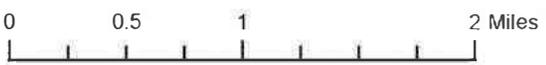
Site 6 -
Town Beach

Ashokan Spillway Channel

Tongore Creek

Legend

-  Sampling Locations
-  Marletown Town Park Beach
-  Esopus Creek



**Appendix B:
Field Data Sheets**



GENERAL INFORMATION

Name of beach (if applicable): Marbleton Town Park Date(s) of survey: 6/4/2025 6/4/2025
 Beach ID: _____ Time(s) of survey: 12:30pm
 Name of waterbody: Esopus Waterbody type: River
 Sampling station(s)/ID: _____ Surveyor affiliation: _____
 WQX organizational ID: _____ Name(s) of surveyor(s): COOPERHERNSDORF RYAN Kappeller
 Sampling location Latitude: 41.8739668 Longitude: -74.1411743
 Dates of swim season Start: closed End: _____

QUALITY ASSURANCE

Will the data collected use an approved Quality Assurance Project Plan (QAPP)? yes no

PART 1: WEATHER AND GENERAL WATERBODY CONDITIONS

Weather Conditions

Survey the weather using the method of your choice. You may use the National Weather Service as your source.

Air temperature: 87.8 89 °C or °F Method for air temperature: (check one) Liquid-in-glass therm. Electronic thermometer
 Weather app Weather report: from airport or weather station? Other: _____
 Dewpoint: 59 °C or °F Method for dewpoint: (check one) Weather app Weather report: from airport or
 weather station? Other: _____
 Relative Humidity (%) 48% Method for relative humidity: (check one) Weather app Weather report: from airport
 or weather station? Other: _____
 Barometric Pressure: 29.60 units: in Method for barometric pressure: (check one) Weather app Weather report: from
airport or weather station? Other: _____
 Wind speed: 12 units: mph Method for wind speed: (check all that apply) Wind vane for direction Weather app
 Wind sock for direction/speed Anemometer for wind speed
 Beaufort scale for wind speed Aerovane for wind direction/speed
 Wind gust speed: 0 units: mph Weather report: from airport or weather station? Other (specify): _____
 Wind direction: SW
 Is the wind: (check one) Onshore Offshore

If you collected wind speed from a local weather station, how far were you from the station: 38 mi or km Stewart ITC Air

How recent was the last rain event: (check one) 0-24 hrs 24-48 hrs 48-72 hrs 72+ hrs Rain intensity: (check one) Misting Light rain
 Moderate rain Heavy rain Other: _____
 Total measured rainfall: _____ in or cm Distance to the gauge/station when recording rainfall amount: _____ mi or km
 Method for rainfall: (check one) Rain gauge Weather report Weather app Other (specify): _____
 Sky condition/amount of cloud cover: (circle one) Sunny Mostly sunny/ 1/8 to 2/8 Partly sunny/ 3/8 to 1/2 Mostly cloudy/ 5/8 to 7/8 Cloudy/ Total coverage
 No clouds
 Method for weather conditions: (check one) Visual observations Weather app Other (specify): _____

Waterbody Conditions

Water flow speed: 0.79 units: F/S Distance: 50 Time: 63
 Method for water flow speed: (check one) Stick with fishing reel with water balloon on end Ball and tether Other: Orange (float)
 Direction from which the wave is coming (e.g., N, SW): N/A How tall are the waves: N/A m or ft
 Is the wave height measured or estimated? (check one) Measured Estimated
 Method for measuring wave height: (check one) Visual examination of wave height Graduated stick and ranging pole
 Other (specify): none
 Is the stream bank/shoreline eroding? yes no



Width of riparian vegetation on river/stream left (looking downstream)
 (check one) none 0-25 ft 25-50 ft 50+ ft

Width of riparian vegetation on river/stream right (looking downstream)
 (check one) none 0-25 ft 25-50 ft 50+ ft

Add additional comments for general waterbody conditions.

Aquatic Organism Passage Barrier *n/a*

What is the outlet drop (e.g., 3.5ft)	Severity of barrier debris, sediment, or rock for the structure with the least amount of debris (None, minor, moderate, severe)	Location (lat/long)	Description

* Minor = <10% open area of structure blocked; Moderate = 10-50% open area of structure blocked; Severe = 50% open area structure blocked

Take images to document aquatic organism passage barriers and provide detailed descriptions where possible:

PART 2: WATER QUALITY

Bacteria

List bacteria samples collected at the beach. Potential pollution sources, if applicable, can be recorded in Part 4.

Sample Point	Sample Number	Location (lat/long)	Date & Time	Parameter (enterococci, E. coli, etc.)	Comments
	6	<i># see general info.</i>	<i>6/4 @ 12:46</i>	<i>E. coli</i>	
	6	↓	↓	<i>Enterococci</i>	
	6	↓	↓	<i>Fecal coliform</i>	

General Water Quality

Water temperature: 67.6 °C or °F | Water color: (circle one) Clear Blue Brown Green Red Other: _____

Method for water temperature: (check one) Multiprobe Electronic meter Graduated thermometer

Report from local radio station Report from NOAA weather band radio Other: _____

Has the water color changed since the last visit? yes no don't know If yes, take photographs and describe:

Select the best description of the water smell: (circle one) None Septic Algae Sulfur Other: _____

How did you measure turbidity? Observed: (check one) Clear Slightly turbid Opaque
 (check one) Measured: NTU value: _____ Secchi disc depth: _____

What method was used to measure the turbidity of the water: (check one) Simple visual observation Visual test kit
 Titrimetric test kit Nephelometer/Turbidimeter Other: _____



pH: _____ Method for measuring pH: (check one) Handheld electronic meters (specify) _____
 pH strips Field test kits Other: _____

Oxidation Reduction Potential(ORP): _____ units: _____ Method for ORP(specify): _____

Total Dissolved Solids(TDS): _____ units: _____ Method for TDS(specify): _____

Total Suspended Solids(TSS): _____ units: _____ Method for TSS(specify): _____

Dissolved Oxygen(DO): _____ units: _____ Method for DO(specify): _____

Dissolved Organic Carbon(DOC): _____ units: _____ Method for DOC(specify): _____

Salinity: (check one) 0-5 ppt 5-15 ppt 15-40 ppt Conductivity: _____ units: _____

Describe other measurements taken and report values:
Samples for dissolved oxygen, DOC, TSS, TDS, color, turbidity, conductance, pH, were sent to Pace Labs

Additional water quality observations:
Lots of floating pollen observed

PART 3: PEOPLE (NUMBER OF BEACH USERS)

Are there bathers or recreators (swimmers, boaters, waders, etc.) present at the beach or waterbody? yes no

Total people in water: 0 + Total people out of water: 0 = Total people at the beach or waterbody: 0

Total number of boats: 0

Report activities observed at the beach or shoreline and in the water. Quantify and take photographs, if possible.

Activity (swimming, fishing, etc.)					
Approximate # of people participating					

Describe notable bather activities that could affect water quality (Example: babies in disposable diapers in the water):

Method for numbers of people participating in various activities: (check one) Counting by surveyor Photos
 Counting by lifeguard Turnstiles Other: n/a

PART 4: POTENTIAL POLLUTION SOURCES

Identify visible sources of pollutants up to 500 feet from the beach or waterbody boundary. Quantify and photograph sources, if possible.

Type of Source	Discharge Source Name	Discharge Source Amount (H, M, L)	Discharge Flow Rate	Discharge Volume	Discharge Source Characteristics
Wetland drainage					
Outfall/Pipe (stormwater)					
Leaking pit latrines/septic	<u>septic on Tongore Rd</u>		<u>unknown</u>	<u>unknown</u>	
Runoff (impervious surfaces)	<u>parking lot</u>		<u>0</u>	<u>0</u>	
Homeless encampments					
Other (specify): _____					

Did you collect samples and complete the Bacteria Samples section in Part 2? yes no

If no, describe why not: No discharge at time of survey

How did you identify the source of discharge? (check one) Visual observation WWTP notification/report Other: _____

How did you measure flow/velocity or volume? (check one) Mechanical flow meter Electric flow meter Flow = 0, not measured
 USGS gauging station WWTP notification/report Orange (float) and stopwatch Other: _____

Floatables and Debris

Are floatables present in the water? yes no If yes, select the types found: (check all that apply)
 Street litter (e.g., cigarette filters) Building materials (e.g., wood/siding)
 Food-related litter (e.g., packaging/containers) Fishing-related (e.g., fishing line, nets, lures)
 Medical items (e.g., syringes) Household waste (e.g., household trash, plastic bags)
 Sewage-related (e.g., tampons, condoms) Other: pollen

Method for determining floatables presence: (check one) Visual observation Cleanup event results Other: _____

Is there debris or litter present on the beach or shoreline? yes no

Select the amount (%) of debris/litter on the beach or shoreline: (check one)
 None Low (1% - 20%) Moderate (21%- 50%) High (>50%)

Select the types of debris found? (check all that apply)
 Street litter (e.g., cigarette filters) Fishing-related (e.g., fishing line, nets, lures)
 Food-related litter (e.g., packaging/containers) Household waste (e.g., household trash, plastic bags)
 Medical items (e.g., syringes) Tar/Oil (e.g., tar balls)
 Sewage-related (e.g., tampons, condoms) Oil/Grease (e.g., oil slick)
 Natural debris (e.g., driftwood, algae) Other: _____
 Building materials (e.g., wood/siding)

Method for determining debris presence: (check one) Visual observation Cleanup event results Other: _____

Algae

Is algae present in the nearshore water, beach and/or shoreline? yes no don't know If present, document with photographs.

Select the amount (%) of algae in nearshore water: (check one)
 None Low (1%-20%) Moderate (21%-50%) High (> 50%)

Select the amount (%) of algae on the beach or shoreline: (check one)
 None Low (1%-20%) Moderate (21%-50%) High (> 50%)

Method for determining amount and color of algae: (check one)
 Visual observation Other (specify): _____

Circle the types of algae found: (check all that apply) Periphyton (attached to rocks, stringy) Globular (blobs of floating material)
 Free floating (no obvious mass of materials) Other (specify): _____

Algae Colors: (check all that apply) Light green Bright green Dark green Yellow Brown Other: _____

Is the nearshore water discolored? yes no don't know

If yes, specify the color: (check all that apply) Clear Green Dark red Brown Yellowish Other: _____

Harmful Algae Blooms

Is there presence of harmful algal blooms? yes no If yes, photograph and describe:

Method for identifying harmful algae blooms in nearshore water and beach: (check one)
 Field guide or internet site for taxonomic identification Other: _____

Are there mats or scum in nearshore waters? (check all that apply) Mats-floating Foam Scum None

Are there dead fish or other dead wildlife deaths present with bloom? yes no

Have any illnesses (e.g., itchy throat, cough, gastrointestinal) been reported by local or state health departments? yes no
 If yes, describe: _____

Is algal toxin monitoring conducted? yes no don't know If yes, have algal toxins been detected? _____

Have algal species been identified? yes no don't know If yes, specify the species: _____



Presence of Wildlife and Domestic Animals

Are wildlife and domestic animals present? yes no If yes, specify and document with photographs.

Type	in Air	in Water	at Beach	Type	in Water	at Beach	Type	in Water	at Beach
Geese				Beavers			Otters		
Gulls				Deer			Raccoons		
Shorebirds				Dogs			Rodents		
Ducks				Frogs			Snakes		
Pigeons				Horses			Toads		
Other <i>cat fish</i>		<input checked="" type="checkbox"/>		Iguanas			Turtles		
Other <i>song-bird</i>	<input checked="" type="checkbox"/>			Mongoose			Other		

Is scat (animal poop) present? yes no If yes, how many piles? _____

Method for determining presence of wildlife and domestic animals: (check one)

- Counting using hand-held counter and if necessary, binoculars Other (specify): _____

Are dead birds found on the beach? yes no If yes, specify the number and species of dead birds found on the beach

Type	# Dead	Type	# Dead	Type	# Dead	Type	# Dead
Common loons		Black-crowned night-heron		Long-tailed ducks		Ospreys	
Herring gulls		Double crested cormorants		Horned grebes		Common tern	
Ring-billed gulls		White winged scoters		Snowy egrets		Belted kingfisher	
Mallard ducks		Red-necked grebes		Great blue herons		Other: _____	

Method for determining the number of dead birds: (check one)

- Counting using hand-held counter and if necessary, binoculars Other (specify): *visual scan of site*

Method for identifying dead birds: (check one)

- Field guide or internet site for taxonomic identification Other (specify): *n/a*

Are dead fish found in the waterbody, on the beach or along the shoreline? yes no If yes, specify the number of dead fish found on the beach or in/at the waterbody and take photographs: _____

Method for determining the number of dead fish: (check one) Visual observation Other (specify): _____

Additional comments or observations on pollution sources, algae, or animals. Describe any photos taken.

GENERAL INFORMATION

Name of beach (if applicable): <u>Marbletown Beach</u>	Date(s) of survey: <u>07/22/2023</u>
Beach ID:	Time(s) of survey: <u>9:30 am - 12:15 pm</u>
Name of waterbody: <u>Esopus</u>	Waterbody type: <u>freshwater river</u>
Sampling station(s)/ID:	Surveyor affiliation:
WQX organizational ID:	Name(s) of surveyor(s): <u>Ryan Kappeler, Katherine Sumner</u>
Sampling location	Latitude: <u>41.8729668</u> Longitude: <u>-74.1411743</u>
Dates of swim season	Start: <u>closed</u> End:

QUALITY ASSURANCE

Will the data collected use an approved Quality Assurance Project Plan (QAPP)? yes no

PART 1: WEATHER AND GENERAL WATERBODY CONDITIONS

Weather Conditions

Survey the weather using the method of your choice. You may use the National Weather Service as your source.

Air temperature: <u>78.2°</u> °C or <input checked="" type="radio"/> °F	Method for air temperature: (check one) <input type="checkbox"/> Liquid-in-glass therm. <input type="checkbox"/> Electronic thermometer <input type="checkbox"/> Weather app <input checked="" type="checkbox"/> Weather report: from airport or <u>weather station?</u> <input type="checkbox"/> Other: _____
Dewpoint: <u>30°</u> °C or <input checked="" type="radio"/> °F	Method for dewpoint: (check one) <input checked="" type="checkbox"/> Weather app <input checked="" type="checkbox"/> Weather report: from airport or weather station? <input type="checkbox"/> Other: _____
Relative Humidity (%): <u>49</u>	Method for relative humidity: (check one) <input type="checkbox"/> Weather app <input checked="" type="checkbox"/> Weather report: from airport or <u>weather station?</u> <input type="checkbox"/> Other: _____
Barometric Pressure: <u>30.12</u> units: <u>in</u>	Method for barometric pressure: (check one) <input checked="" type="checkbox"/> Weather app <input type="checkbox"/> Weather report: from airport or weather station? <input type="checkbox"/> Other: _____
Wind speed: <u>0.2</u> units: <u>mph</u>	Method for wind speed: (check all that apply) <input type="checkbox"/> Wind vane for direction <input type="checkbox"/> Weather app <input type="checkbox"/> Wind sock for direction/speed <input type="checkbox"/> Anemometer for wind speed <input type="checkbox"/> Beaufort scale for wind speed <input type="checkbox"/> Aerovane for wind direction/speed <input checked="" type="checkbox"/> Weather report: from airport or <u>weather station?</u> <input checked="" type="checkbox"/> Other (specify): <u>NWS</u>
Wind gust speed: <u>0.2</u> units: <u>mph</u>	
Wind direction: <u>SW</u>	
Is the wind: (check one) <input type="checkbox"/> Onshore <input type="checkbox"/> Offshore	

If you collected wind speed from a local weather station, how far were you from the station: _____ mi or km

How recent was the last rain event: (check one) 0-24 hrs 24-48 hrs 48-72 hrs 72+ hrs

Rain intensity: (check one) Misting Light rain Moderate rain Heavy rain Other: _____

Total measured rainfall: 0 (in or cm) Distance to the gauge/station when recording rainfall amount: ~4 (mi or km)

Method for rainfall: (check one) Rain gauge Weather report Weather app Other (specify): _____

Sky condition/amount of cloud cover: (circle one)	<input checked="" type="radio"/> Sunny/No clouds	<input type="radio"/> Mostly sunny/1/8 to 2/8	<input type="radio"/> Partly sunny/3/8 to 1/2	<input type="radio"/> Mostly cloudy/5/8 to 7/8	<input type="radio"/> Cloudy/Total coverage
---	--	---	---	--	---

Method for weather conditions: (check one) Visual observations Weather app Other (specify): _____

Waterbody Conditions

Water flow speed: ~~0.79~~ 0.79 units: ft/s Distance: 50 ft time: 66 s

Method for water flow speed: (check one) Stick with fishing reel with water balloon on end Ball and tether Other: Orange (float)

Direction from which the wave is coming (e.g., N, SW): n/a How tall are the waves: n/a m or ft

Is the wave height measured or estimated? (check one) Measured Estimated

Method for measuring wave height: (check one) Visual examination of wave height Graduated stick and ranging pole Other (specify): _____

Is the stream bank/shoreline eroding? yes no

* Weather source - NWS
Hurley rain August
NWS

Width of riparian vegetation on river/stream left (looking downstream)
(check one) none 0-25 ft 25-50 ft 50+ ft

Width of riparian vegetation on river/stream right (looking downstream)
(check one) none 0-25 ft 25-50 ft 50+ ft

Add additional comments for general waterbody conditions.

Aquatic Organism Passage Barrier *n/a*

What is the outlet drop (e.g., 3.5ft)	Severity of barrier debris, sediment, or rock for the structure with the least amount of debris (None, minor, moderate, severe)	Location (lat/long)	Description

* Minor = <10% open area of structure blocked; Moderate = 10-50% open area of structure blocked; Severe = 50% open area structure blocked

Take images to document aquatic organism passage barriers and provide detailed descriptions where possible:

PART 2: WATER QUALITY

Bacteria

List bacteria samples collected at the beach. Potential pollution sources, if applicable, can be recorded in Part 4.

Sample Point	Sample Number	Location (lat/long)	Date & Time	Parameter (enterococci, E. coli, etc.)	Comments
	1	<i>* See general info</i>	<i>7/22 @ 12 pm</i>	<i>E. Coli</i>	
	1	↓		<i>Fecal Coliform</i>	
	1	↓		<i>Enterococci</i>	

General Water Quality

Water temperature: _____ °C or °F Water color: (circle one) Clear Blue Brown Green Red Other: _____

Method for water temperature: (check one) Multiprobe Electronic meter Graduated thermometer
 Report from local radio station Report from NOAA weather band radio Other: _____

Has the water color changed since the last visit? yes no don't know If yes, take photographs and describe:

Select the best description of the water smell: (circle one) None Septic Algae Sulfur Other: _____

How did you measure turbidity? (check one) Observed: (check one) Clear Slightly turbid Opaque
 Measured: NTU value: _____ Secchi disc depth: _____

What method was used to measure the turbidity of the water: (check one) ~~Titrimetric test kit~~ Nephelometer/Turbidimeter Simple visual observation Visual test kit
 Other: _____

pH: _____	Method for measuring pH: (check one) <input type="checkbox"/> Handheld electronic meters (specify) _____ <input type="checkbox"/> pH strips <input type="checkbox"/> Field test kits <input type="checkbox"/> Other: _____
Oxidation Reduction Potential(ORP): _____ units: _____	Method for ORP(specify): _____
Total Dissolved Solids(TDS): _____ units: _____	Method for TDS(specify): _____
Total Suspended Solids(TSS): _____ units: _____	Method for TSS(specify): _____
Dissolved Oxygen(DO): _____ units: _____	Method for DO(specify): _____
Dissolved Organic Carbon(DOC): _____ units: _____	Method for DOC(specify): _____
Salinity: (check one) <input type="checkbox"/> 0-5 ppt <input type="checkbox"/> 5-15 ppt <input type="checkbox"/> 15-40 ppt	Conductivity: _____ units: _____

Describe other measurements taken and report values:
Samples for dissolved oxygen, dissolved organic carbon, TSD, TDS, color, turbidity, conductance, pH sent to local labo

Additional water quality observations:
Floating strands of algae observed, no surface bloom

PART 3: PEOPLE (NUMBER OF BEACH USERS)

Are there bathers or recreators (swimmers, boaters, waders, etc.) present at the beach or waterbody? yes **no**

Total people in water: 0 + Total people out of water: 0 = Total people at the beach or waterbody: 0

Total number of boats: 0

Report activities observed at the beach or shoreline and in the water. Quantify and take photographs, if possible.

Activity (swimming, fishing, etc.)	<i>N/a</i>				
Approximate # of people participating					

Describe notable bather activities that could affect water quality (Example: babies in disposable diapers in the water):
N/a

Method for numbers of people participating in various activities: (check one) Counting by surveyor Photos
 Counting by lifeguard Turnstiles Other: *No people*

PART 4: POTENTIAL POLLUTION SOURCES

Identify visible sources of pollutants up to 500 feet from the beach or waterbody boundary. Quantify and photograph sources, if possible.

Type of Source	Discharge Source Name	Discharge Source Amount (H, M, L)	Discharge Flow Rate	Discharge Volume	Discharge Source Characteristics
Wetland drainage					
Outfall/Pipe (stormwater)					
Leaking pit latrines/septic	<i>Tongue Rd septic</i>		<i>unknown</i>	<i>unknown</i>	
Runoff (impervious surfaces)	<i>Parking lot</i>		<i>unknown</i>	<i>0</i>	
Homeless encampments					
Other (specify): _____					

Did you collect samples and complete the Bacteria Samples section in Part 2? yes **no**
 If no, describe why not: *no discharge at time of survey*

How did you identify the source of discharge? (check one) Visual observation WWTP notification/report Other: *Google earth*

How did you measure flow/velocity or volume? (check one) Mechanical flow meter Electric flow meter
 USGS gauging station WWTP notification/report Orange (float) and stopwatch Other: Flow not measured

Floatables and Debris

Are floatables present in the water? yes no If yes, select the types found: (check all that apply)
 Street litter (e.g., cigarette filters) Building materials (e.g., wood/siding)
 Food-related litter (e.g., packaging/containers) Fishing-related (e.g., fishing line, nets, lures)
 Medical items (e.g., syringes) Household waste (e.g., household trash, plastic bags)
 Sewage-related (e.g., tampons, condoms) Other: leaves, bark peices, algae strands

Method for determining floatables presence: (check one) Visual observation Cleanup event results Other: _____

Is there debris or litter present on the beach or shoreline? yes no

Select the amount (%) of debris/litter on the beach or shoreline: (check one)
 None Low (1% - 20%) Moderate (21%- 50%) High (>50%)

Select the types of debris found? (check all that apply)
 Street litter (e.g., cigarette filters) Fishing-related (e.g., fishing line, nets, lures)
 Food-related litter (e.g., packaging/containers) Household waste (e.g., household trash, plastic bags)
 Medical items (e.g., syringes) Tar/Oil (e.g., tar balls)
 Sewage-related (e.g., tampons, condoms) Oil/Grease (e.g., oil slick)
 Natural debris (e.g., driftwood, algae) Other: _____
 Building materials (e.g., wood/siding)

Method for determining debris presence: (check one) Visual observation Cleanup event results Other: _____

Algae

Is algae present in the nearshore water, beach and/or shoreline? yes no don't know If present, document with photographs.

Select the amount (%) of algae in nearshore water: (check one)
 None Low (1%-20%) Moderate (21%-50%) High (> 50%)

Select the amount (%) of algae on the beach or shoreline: (check one)
 None Low (1%-20%) Moderate (21%-50%) High (> 50%)

Method for determining amount and color of algae: (check one)
 Visual observation Other (specify): _____

Circle the types of algae found: (check all that apply) Periphyton (attached to rocks, stringy) Globular (blobs of floating material)
 Free floating (no obvious mass of materials) Other (specify): _____

Algae Colors: (check all that apply) Light green Bright green Dark green Yellow Brown Other: _____

Is the nearshore water discolored? yes no don't know

If yes, specify the color: (check all that apply) Clear Green Dark red Brown Yellowish Other: _____

Harmful Algae Blooms

Is there presence of harmful algal blooms? yes no If yes, photograph and describe:

Method for identifying harmful algae blooms in nearshore water and beach: (check one)
 Field guide or internet site for taxonomic identification Other: _____

Are there mats or scum in nearshore waters? (check all that apply) Mats-floating Foam Scum None

Are there dead fish or other dead wildlife deaths present with bloom? yes no

Have any illnesses (e.g., itchy throat, cough, gastrointestinal) been reported by local or state health departments? yes no
 If yes, describe:

Is algal toxin monitoring conducted? yes no don't know If yes, have algal toxins been detected? _____

Have algal species been identified? yes no don't know If yes, specify the species: _____

Presence of Wildlife and Domestic Animals

Are wildlife and domestic animals present? yes no If yes, specify and document with photographs.

Type	in Air	in Water	at Beach	Type	in Water	at Beach	Type	in Water	at Beach
Geese				Beavers			Otters		
Gulls				Deer			Raccoons		
Shorebirds				Dogs			Rodents		
Ducks				Frogs			Snakes		X
Pigeons				Horses			Toads		
Other				Iguanas			Turtles		
Other	song-bird			Mongoose			Other small/large fish	X	

Is scat (animal poop) present? yes no If yes, how many piles? _____

Method for determining presence of wildlife and domestic animals: (check one)

- Counting using hand-held counter and if necessary, binoculars Other (specify): Visual observation

Are dead birds found on the beach? yes no If yes, specify the number and species of dead birds found on the beach

Type	# Dead	Type	# Dead	Type	# Dead	Type	# Dead
Common loons		Black-crowned night-heron		Long-tailed ducks		Ospreys	
Herring gulls		Double crested cormorants		Horned grebes		Common tern	
Ring-billed gulls		White winged scoters		Snowy egrets		Belted kingfisher	
Mallard ducks		Red-necked grebes		Great blue herons		Other: _____	

Method for determining the number of dead birds: (check one)

- Counting using hand-held counter and if necessary, binoculars Other(specify): Visual observation

Method for identifying dead birds: (check one)

- Field guide or internet site for taxonomic identification Other(specify): N/A

Are dead fish found in the waterbody, on the beach or along the shoreline? yes no If yes, specify the number of dead fish found on the beach or in/at the waterbody and take photographs: _____

Method for determining the number of dead fish: (check one) Visual observation Other (specify): _____

Additional comments or observations on pollution sources, algae, or animals. Describe any photos taken.

Floating green/brown stringy algae observed, likely periphyton

GENERAL INFORMATION

Name of beach (if applicable): Marbleton Town Park Date(s) of survey: 8/12/23
 Beach ID: _____ Time(s) of survey: 10:30 am
 Name of waterbody: Eggs Waterbody type: River
 Sampling station(s)/ID: _____ Surveyor affiliation: _____
 WQX organizational ID: _____ Name(s) of surveyor(s): Ryan Kappella
 Sampling location Latitude: 41.8739668 Longitude: -74.1411743
 Dates of swim season Start: n/a End: _____

QUALITY ASSURANCE

Will the data collected use an approved Quality Assurance Project Plan (QAPP)? yes no

PART 1: WEATHER AND GENERAL WATERBODY CONDITIONS

Weather Conditions

Survey the weather using the method of your choice. You may use the National Weather Service as your source.

Air temperature: 76.6 °C or °F Method for air temperature: (check one) Liquid-in-glass therm. Electronic thermometer
 Weather app Weather report: from airport or weather station? Other: _____
 Dewpoint: 57 °C or °F Method for dewpoint: (check one) Weather app Weather report: from airport or
 weather station? Other: _____
 Relative Humidity (%) 70 Method for relative humidity: (check one) Weather app Weather report: from airport
 or weather station? Other: _____
 Barometric Pressure: 30.00 units: h Method for barometric pressure: (check one) Weather app Weather report: from
 airport or weather station? Other: _____
 Wind speed: 0.9 units: mph Method for wind speed: (check all that apply) Wind vane for direction Weather app
 Wind sock for direction/speed Anemometer for wind speed
 Beaufort scale for wind speed Aerovane for wind direction/speed
 Weather report: from airport or weather station? Other (specify): _____
 Wind gust speed: 0 units: mph
 Wind direction: 327° (NW)
 Is the wind: (check one) Onshore Offshore

If you collected wind speed from a local weather station, how far were you from the station: ~4 mi or km

How recent was the last rain event: (check one)
 0-24 hrs 24-48 hrs 48-72 hrs 72+ hrs Rain intensity: (check one) Misting Light rain
 Moderate rain Heavy rain Other: n/a

Total measured rainfall: 0 in or cm Distance to the gauge/station when recording rainfall amount: ~4 mi or km

Method for rainfall: (check one) Rain gauge Weather report Weather app Other (specify): _____

Method for weather conditions: (check one) <input checked="" type="checkbox"/> Visual observations <input type="checkbox"/> Weather app <input type="checkbox"/> Other (specify): _____	Sky condition/amount of cloud cover: (circle one)	<input checked="" type="radio"/> Sunny/ No clouds	<input type="radio"/> Mostly sunny/ 1/8 to 2/8	<input type="radio"/> Partly sunny/ 3/8 to 1/2	<input type="radio"/> Mostly cloudy/ 5/8 to 7/8	<input type="radio"/> Cloudy/ Total coverage
---	---	--	---	---	--	---

Waterbody Conditions

Water flow speed: 0.57 units: ft/s Distance: 50 ft Time: 87 s

Method for water flow speed: (check one) Stick with fishing reel with water balloon on end Ball and tether Other: Orange (float)

Direction from which the wave is coming (e.g., N, SW): Na How tall are the waves: 0 m or ft

Is the wave height measured or estimated? (check one) Measured Estimated

Method for measuring wave height: (check one) Visual examination of wave height Graduated stick and ranging pole
 Other (specify): _____

Is the stream bank/shoreline eroding? yes no

Flow rate: 35.5 ft³/s Source: USGS station 01363556 @ Lomontville, NY

Width of riparian vegetation on river/stream left (looking downstream) (check one) <input type="checkbox"/> none <input type="checkbox"/> 0-25 ft <input type="checkbox"/> 25-50 ft <input checked="" type="checkbox"/> 50+ ft	Width of riparian vegetation on river/stream right (looking downstream) (check one) <input type="checkbox"/> none <input checked="" type="checkbox"/> 0-25 ft <input checked="" type="checkbox"/> 25-50 ft <input type="checkbox"/> 50+ ft
---	---

Add additional comments for general waterbody conditions.

Weather station: Hurley, NY, provided by Hudson Valley Farm Hld
 Rainfall gauge: Accessed data on NEWA website

Weather App: NWS (National Weather Service) data for Marbletown, NY on 8/12

* Most recent rain event occurred on 8/6 for a total of 0.01 in (> 72 hours from testing)

Aquatic Organism Passage Barrier n/a

What is the outlet drop (e.g., 3.5ft)	Severity of barrier debris, sediment, or rock for the structure with the least amount of debris (None, minor, moderate, severe)	Location (lat/long)	Description

* Minor = <10% open area of structure blocked; Moderate = 10-50% open area of structure blocked; Severe = 50% open area structure blocked

Take images to document aquatic organism passage barriers and provide detailed descriptions where possible:

PART 2: WATER QUALITY

Bacteria

List bacteria samples collected at the beach. Potential pollution sources, if applicable, can be recorded in Part 4.

Sample Point	Sample Number	Location (lat/long)	Date & Time	Parameter (enterococci, E. coli, etc.)	Comments
Marbletown Park	1	See general info	8/12 9:28am	E. Coli	
↓	2	↓	↓	Fecal Coliform	
↓	3	↓	↓	Enterococci	

General Water Quality

Water temperature: 71.6 °C or °F | Water color: (circle one) Clear Blue Brown Green Red Other: brown sediment on

Method for water temperature: (check one) Multiprobe Electronic meter Graduated thermometer bottom of channel
 Report from local radio station Report from NOAA weather band radio Other:

Has the water color changed since the last visit? yes no don't know If yes, take photographs and describe:

Select the best description of the water smell: (circle one) None Septic Algae Sulfur Other:

How did you measure turbidity? Observed: (check one) Clear Slightly turbid Opaque
 (check one) Measured: NTU value: Secchi disc depth:

What method was used to measure the turbidity of the water: (check one) Simple visual observation Visual test kit
 Titrimetric test kit Nephelometer/Turbidimeter Other: Handheld nephelometer

pH: _____ Method for measuring pH: (check one) Handheld electronic meters (specify) _____
 pH strips Field test kits Other: _____

Oxidation Reduction Potential(ORP): _____ units: _____ Method for ORP(specify): _____

Total Dissolved Solids(TDS): _____ units: _____ Method for TDS(specify): _____

Total Suspended Solids(TSS): _____ units: _____ Method for TSS(specify): _____

Dissolved Oxygen(DO): _____ units: _____ Method for DO(specify): _____

Dissolved Organic Carbon(DOC): _____ units: _____ Method for DOC(specify): _____

Salinity: (check one) 0-5 ppt 5-15 ppt 15-40 ppt Conductivity: _____ units: _____

Describe other measurements taken and report values:

*Samples for DO, DOC, turbidity, pH, color, conductance, TSS & TDS
* see page Analytical data **

Additional water quality observations:

Floating clumps of green algae, settled at bottom unattached

PART 3: PEOPLE (NUMBER OF BEACH USERS)

Are there bathers or recreators (swimmers, boaters, waders, etc.) present at the beach or waterbody? yes **no**

Total people in water: 0 + Total people out of water: 0 = Total people at the beach or waterbody: 0

Total number of boats: 0

Report activities observed at the beach or shoreline and in the water. Quantify and take photographs, if possible.

Activity (swimming, fishing, etc.)	Approximate # of people participating				
<i>na</i>					

Describe notable bather activities that could affect water quality (Example: babies in disposable diapers in the water):

Method for numbers of people participating in various activities: (check one) Counting by surveyor Photos
 Counting by lifeguard Turnstiles Other: _____

PART 4: POTENTIAL POLLUTION SOURCES

Identify visible sources of pollutants up to 500 feet from the beach or waterbody boundary. Quantify and photograph sources, if possible.

Type of Source	Discharge Source Name	Discharge Source Amount (H, M, L)	Discharge Flow Rate	Discharge Volume	Discharge Source Characteristics
Wetland drainage					
Outfall/Pipe (stormwater)					
Leaking pit latrines/septic	<i>Tonyore Rd</i>		<i>unknown</i>	<i>unknown</i>	
Runoff (impervious surfaces)	<i>Parker's lot</i>		<i>0</i>	<i>0</i>	
Homeless encampments					
Other (specify): _____					

Did you collect samples and complete the Bacteria Samples section in Part 2? yes **no**

If no, describe why not: *No discharge of the ot survey*

How did you identify the source of discharge? (check one) Visual observation WWTP notification/report Other: *people count*

How did you measure flow/velocity or volume? (check one) [] Mechanical flow meter [] Electric flow meter [] USGS gauging station [] WWTP notification/report [] Orange (float) and stopwatch [] Other: _____

Floatables and Debris

Are floatables present in the water? yes no If yes, select the types found: (check all that apply) [] Street litter (e.g., cigarette filters) [] Building materials (e.g., wood/siding) [] Food-related litter (e.g., packaging/containers) [] Fishing-related (e.g., fishing line, nets, lures) [] Medical items (e.g., syringes) [] Household waste (e.g., household trash, plastic bags) [] Sewage-related (e.g., tampons, condoms) [X] Other: algae clump

Method for determining floatables presence: (check one) [X] Visual observation [] Cleanup event results [] Other: _____

Is there debris or litter present on the beach or shoreline? yes (no)

Select the amount (%) of debris/litter on the beach or shoreline: (check one) [X] None [] Low (1% - 20%) [] Moderate (21%- 50%) [] High (>50%)

Select the types of debris found? (check all that apply) [] Street litter (e.g., cigarette filters) [] Fishing-related (e.g., fishing line, nets, lures) [] Food-related litter (e.g., packaging/containers) [] Household waste (e.g., household trash, plastic bags) [] Medical items (e.g., syringes) [] Tar/Oil (e.g., tar balls) [] Sewage-related (e.g., tampons, condoms) [] Oil/Grease (e.g., oil slick) [] Natural debris (e.g., driftwood, algae) [] Other: _____ [] Building materials (e.g., wood/siding)

Method for determining debris presence: (check one) [X] Visual observation [] Cleanup event results [] Other: _____

Algae

Is algae present in the nearshore water, beach and/or shoreline? (yes) no don't know If present, document with photographs.

Select the amount (%) of algae in nearshore water: (check one) [] None [X] Low (1%-20%) [X] Moderate (21%-50%) [] High (> 50%)

Select the amount (%) of algae on the beach or shoreline: (check one) [] None [X] Low (1%-20%) [] Moderate (21%-50%) [] High (> 50%)

Method for determining amount and color of algae: (check one) [X] Visual observation [] Other (specify): _____

Circle the types of algae found: (check all that apply) [X] Periphyton (attached to rocks, stringy) [] Globular (blobs of floating material) [] Free floating (no obvious mass of materials) [] Other (specify): _____

Algae Colors: (check all that apply) [X] Light green [] Bright green [X] Dark green [] Yellow [X] Brown [] Other: _____

Is the nearshore water discolored? (yes) no don't know

If yes, specify the color: (check all that apply) [X] Clear [] Green [] Dark red [X] Brown [] Yellowish [] Other: _____

Harmful Algae Blooms

Is there presence of harmful algal blooms? yes (no) If yes, photograph and describe:

Method for identifying harmful algae blooms in nearshore water and beach: (check one) [X] Field guide or internet site for taxonomic identification [] Other: _____

Are there mats or scum in nearshore waters? (check all that apply) [] Mats-floating [] Foam [] Scum [X] None

Are there dead fish or other dead wildlife deaths present with bloom? yes (no)

Have any illnesses (e.g., itchy throat, cough, gastrointestinal) been reported by local or state health departments? yes (no) If yes, describe:

Is algal toxin monitoring conducted? yes no (don't know) If yes, have algal toxins been detected? _____

Have algal species been identified? yes no (don't know) If yes, specify the species: _____

Presence of Wildlife and Domestic Animals

Are wildlife and domestic animals present? yes no If yes, specify and document with photographs.

Type	in Air	in Water	at Beach	Type	in Water	at Beach	Type	in Water	at Beach
Geese				Beavers			Otters		
Gulls				Deer			Raccoons		
Shorebirds	X			Dogs			Rodents		
Ducks				Frogs			Snakes		
Pigeons				Horses			Toads		
Other				Iguanas			Turtles		
Other				Mongoose			Other small fish (perch)	X	

Is scat (animal poop) present? yes no If yes, how many piles? _____

Method for determining presence of wildlife and domestic animals: (check one)

Counting using hand-held counter and if necessary, binoculars Other (specify): _____

Are dead birds found on the beach? yes no If yes, specify the number and species of dead birds found on the beach

Type	# Dead	Type	# Dead	Type	# Dead	Type	# Dead
Common loons		Black-crowned night-heron		Long-tailed ducks		Ospreys	
Herring gulls		Double crested cormorants		Horned grebes		Common tern	
Ring-billed gulls		White winged scoters		Snowy egrets		Belted kingfisher	
Mallard ducks		Red-necked grebes		Great blue herons		Other: _____	

Method for determining the number of dead birds: (check one)

Counting using hand-held counter and if necessary, binoculars Other(specify): _____

Method for identifying dead birds: (check one)

Field guide or internet site for taxonomic identification Other(specify): n/a

Are dead fish found in the waterbody, on the beach or along the shoreline? yes no If yes, specify the number of dead fish found on the beach or in/at the waterbody and take photographs: _____

Method for determining the number of dead fish: (check one) Visual observation Other (specify): _____

Additional comments or observations on pollution sources, algae, or animals. Describe any photos taken.

Periphyton green/brown algae

GENERAL INFORMATION

Name of beach (if applicable): <u>Marketown Beach</u>	Date(s) of survey: <u>09/17/2025</u>
Beach ID:	Time(s) of survey: <u>9:10 am - 10:00 am</u>
Name of waterbody: <u>Esopus</u>	Waterbody type: <u>freshwater River</u>
Sampling station(s)/ID:	Surveyor affiliation:
WQX organizational ID:	Name(s) of surveyor(s): <u>Katherina Sumberac</u>
Sampling location	Latitude: <u>41° 52' 26"</u> Longitude: <u>74° 08' 20"</u>
Dates of swim season	Start: <u>closed</u> End:

QUALITY ASSURANCE

Will the data collected use an approved Quality Assurance Project Plan (QAPP)? yes no

PART 1: WEATHER AND GENERAL WATERBODY CONDITIONS

Weather Conditions

Survey the weather using the method of your choice. You may use the National Weather Service as your source.

Air temperature: <u>72</u> °C or <input checked="" type="radio"/> °F	Method for air temperature: (check one) <input type="checkbox"/> Liquid-in-glass therm. <input type="checkbox"/> Electronic thermometer <input type="checkbox"/> Weather app <input checked="" type="checkbox"/> Weather report: from airport or <u>weather station</u> ? <input type="checkbox"/> Other: _____
Dewpoint: <u>54</u> °C or <input checked="" type="radio"/> °F	Method for dewpoint: (check one) <input checked="" type="checkbox"/> Weather app <input type="checkbox"/> Weather report: from airport or weather station? <input type="checkbox"/> Other: _____
Relative Humidity (%): <u>66%</u>	Method for relative humidity: (check one) <input type="checkbox"/> Weather app <input checked="" type="checkbox"/> Weather report: from airport or <u>weather station</u> ? <input type="checkbox"/> Other: _____
Barometric Pressure: <u>30.07</u> units: <u>in</u>	Method for barometric pressure: (check one) <input checked="" type="checkbox"/> Weather app <input type="checkbox"/> Weather report: from airport or weather station? <input type="checkbox"/> Other: _____
Wind speed: 2 <u>2</u> units: <u>mph</u>	Method for wind speed: (check all that apply) <input type="checkbox"/> Wind vane for direction <input type="checkbox"/> Weather app <input type="checkbox"/> Wind sock for direction/speed <input type="checkbox"/> Anemometer for wind speed <input type="checkbox"/> Beaufort scale for wind speed <input type="checkbox"/> Aerovane for wind direction/speed <input checked="" type="checkbox"/> Weather report: from airport or <u>weather station</u> ? <input type="checkbox"/> Other (specify): _____
Wind gust speed: 4 <u>4</u> units: <u>mph</u>	
Wind direction: <u>11 degrees</u>	
Is the wind: (check one) <input checked="" type="checkbox"/> Onshore <input type="checkbox"/> Offshore	

If you collected wind speed from a local weather station, how far were you from the station: 6.5 mi km

How recent was the last rain event: (check one) <input type="checkbox"/> 0-24 hrs <input type="checkbox"/> 24-48 hrs <input type="checkbox"/> 48-72 hrs <input checked="" type="checkbox"/> 72+ hrs	Rain intensity: (check one) <input type="checkbox"/> Misting <input type="checkbox"/> Light rain <input type="checkbox"/> Moderate rain <input type="checkbox"/> Heavy rain <input checked="" type="checkbox"/> Other: <u>no rain</u>
--	--

Total measured rainfall: N/A in or cm Distance to the gauge/station when recording rainfall amount: 6.5 mi km

Method for rainfall: (check one) Rain gauge Weather report Weather app Other (specify): _____

Sky condition/amount of cloud cover: (circle one)	Sunny/ No clouds	<input checked="" type="radio"/> Mostly sunny/ 1/8 to 2/8	Partly sunny/ 3/8 to 1/2	Mostly cloudy/ 5/8 to 7/8	Cloudy/ Total coverage
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Method for weather conditions: (check one) Visual observations Weather app Other (specify): _____

Waterbody Conditions

Water flow speed: N/A units: not measured

Method for water flow speed: (check one) Stick with fishing reel with water balloon on end Ball and tether Other: _____

Direction from which the wave is coming (e.g., N, SW): N/A How tall are the waves: N/A m or ft

Is the wave height measured or estimated? (check one) Measured Estimated

Method for measuring wave height: (check one) Visual examination of wave height Graduated stick and ranging pole
 Other (specify): none

Is the stream bank/shoreline eroding? yes no

Width of riparian vegetation on river/stream left (looking downstream)
 (check one) none 0-25 ft 25-50 ft 50+ ft

Width of riparian vegetation on river/stream right (looking downstream)
 (check one) none 0-25 ft 25-50 ft 50+ ft

Add additional comments for general waterbody conditions.

weather station: Located in Hurley NY and provided by Hudson Valley Farm Hub.
 Accessed at: newa.cornell.edu

Aquatic Organism Passage Barrier *na*

What is the outlet drop (e.g., 3.5ft)	Severity of barrier debris, sediment, or rock for the structure with the least amount of debris (None, minor, moderate, severe)	Location (lat/long)	Description

* Minor = <10% open area of structure blocked; Moderate = 10-50% open area of structure blocked; Severe = 50% open area structure blocked

Take images to document aquatic organism passage barriers and provide detailed descriptions where possible:

PART 2: WATER QUALITY

Bacteria

List bacteria samples collected at the beach. Potential pollution sources, if applicable, can be recorded in Part 4.

Sample Point	Sample Number	Location (lat/long)	Date & Time	Parameter (enterococci, E. coli, etc.)	Comments
	S9	41.8739668, -74.41743	9/17/2025	MST	
	S5	—	—	Fecal coliform	
	S6	—	—	Enterococci E.coli	
	S7	—	—	Enterococci	
	S4	—	—	sm 9223B,	

General Water Quality

Water temperature: 68.7 °C of °F | Water color: (circle one) Clear Blue Brown Green Red Other: _____

Method for water temperature: (check one) Multiprobe Electronic meter Graduated thermometer

Report from local radio station Report from NOAA weather band radio Other: _____

Has the water color changed since the last visit? yes no don't know If yes, take photographs and describe:

Select the best description of the water smell: (circle one) None Septic Algae Sulfur Other: _____

How did you measure turbidity? Observed: (check one) Clear Slightly turbid Opaque

(check one) Measured: NTU value: _____ Secchi disc depth: _____

What method was used to measure the turbidity of the water: (check one) Simple visual observation Visual test kit

Titrimetric test kit Nephelometer/Turbidimeter Other: _____

pH: _____ Method for measuring pH: (check one) Handheld electronic meters (specify) _____
 pH strips Field test kits Other: _____

Oxidation Reduction Potential(ORP): _____ units: _____ Method for ORP(specify): _____

Total Dissolved Solids(TDS): _____ units: _____ Method for TDS(specify): _____

Total Suspended Solids(TSS): _____ units: _____ Method for TSS(specify): _____

Dissolved Oxygen(DO): _____ units: _____ Method for DO(specify): _____

Dissolved Organic Carbon(DOC): _____ units: _____ Method for DOC(specify): _____

Salinity: (check one) 0-5 ppt 5-15 ppt 15-40 ppt Conductivity: _____ units: _____

Describe other measurements taken and report values:

Additional water quality observations:

This layer of settled light brown algae on stones in water, no surface bloom

PART 3: PEOPLE (NUMBER OF BEACH USERS)

Are there bathers or recreators (swimmers, boaters, waders, etc.) present at the beach or waterbody? yes no

Total people in water: 0 + Total people out of water: 0 = Total people at the beach or waterbody: 0

Total number of boats: 0

Report activities observed at the beach or shoreline and in the water. Quantify and take photographs, if possible.

Activity (swimming, fishing, etc.)	N/a				
Approximate # of people participating					

Describe notable bather activities that could affect water quality (Example: babies in disposable diapers in the water):

N/a

Method for numbers of people participating in various activities: (check one) Counting by surveyor Photos
 Counting by lifeguard Turnstiles Other: _____

PART 4: POTENTIAL POLLUTION SOURCES

Identify visible sources of pollutants up to 500 feet from the beach or waterbody boundary. Quantify and photograph sources, if possible.

Type of Source	Discharge Source Name	Discharge Source Amount (H, M, L)	Discharge Flow Rate	Discharge Volume	Discharge Source Characteristics
Wetland drainage					
Outfall/Pipe (stormwater)					
Leaking pit latrines/septic	<i>Tongue Rd septic</i>		<i>Unknown</i>	<i>unknown</i>	
Runoff (impervious surfaces)	<i>Parking lot</i>		<i>0</i>	<i>u 0 24</i>	
Homeless encampments					
Other (specify): _____					

Did you collect samples and complete the Bacteria Samples section in Part 2? yes no

If no, describe why not: *shallow overland flow - difficult to measure*
Conditions were dry at the time of the sampling.

How did you identify the source of discharge? (check one) Visual observation WWTP notification/report Other: _____

How did you measure flow/velocity or volume? (check one) Mechanical flow meter Electric flow meter
 USGS gauging station WWTP notification/report Orange (float) and stopwatch Other: not measured

Floatables and Debris

Are floatables present in the water? yes **no** If yes, select the types found: (check all that apply)
 Street litter (e.g., cigarette filters) Building materials (e.g., wood/siding)
 Food-related litter (e.g., packaging/containers) Fishing-related (e.g., fishing line, nets, lures)
 Medical items (e.g., syringes) Household waste (e.g., household trash, plastic bags)
 Sewage-related (e.g., tampons, condoms) Other: _____

Method for determining floatables presence: (check one) Visual observation Cleanup event results Other: _____

Is there debris or litter present on the beach or shoreline? yes **no**

Select the amount (%) of debris/litter on the beach or shoreline: (check one)
 None Low (1% - 20%) Moderate (21%- 50%) High (>50%)

Select the types of debris found? (check all that apply)
 Street litter (e.g., cigarette filters) Fishing-related (e.g., fishing line, nets, lures)
 Food-related litter (e.g., packaging/containers) Household waste (e.g., household trash, plastic bags)
 Medical items (e.g., syringes) Tar/Oil (e.g., tar balls)
 Sewage-related (e.g., tampons, condoms) Oil/Grease (e.g., oil slick)
 Natural debris (e.g., driftwood, algae) Other: _____
 Building materials (e.g., wood/siding)

Method for determining debris presence: (check one) Visual observation Cleanup event results Other: _____

Algae

Is algae present in the nearshore water, beach and/or shoreline? **yes** no don't know If present, document with photographs.

Select the amount (%) of algae in nearshore water: (check one)
 None Low (1%-20%) Moderate (21%-50%) High (> 50%)

Select the amount (%) of algae on the beach or shoreline: (check one)
 None Low (1%-20%) Moderate (21%-50%) High (> 50%)

Method for determining amount and color of algae: (check one)
 Visual observation Other (specify): _____

Circle the types of algae found: (check all that apply) Periphyton (attached to rocks, stringy) Globular (blobs of floating material)
 Free floating (no obvious mass of materials) Other (specify): _____

Algae Colors: (check all that apply) Light green Bright green Dark green Yellow Brown Other: _____

Is the nearshore water discolored? **yes** no don't know

If yes, specify the color: (check all that apply) Clear Green Dark red Brown Yellowish Other: _____

Harmful Algae Blooms

Is there presence of harmful algal blooms? ~~yes~~ **no** If yes, photograph and describe:

Method for identifying harmful algae blooms in nearshore water and beach: (check one)
 Field guide or internet site for taxonomic identification Other: _____

Are there mats or scum in nearshore waters? (check all that apply) Mats-floating Foam Scum None

Are there dead fish or other dead wildlife deaths present with bloom? yes **no**

Have any illnesses (e.g., itchy throat, cough, gastrointestinal) been reported by local or state health departments? yes **no**
 If yes, describe:

Is algal toxin monitoring conducted? yes no **don't know** If yes, have algal toxins been detected? _____

Have algal species been identified? yes no **don't know** If yes, specify the species: _____

Presence of Wildlife and Domestic Animals

Are wildlife and domestic animals present? yes no If yes, specify and document with photographs.

Type	in Air	in Water	at Beach	Type	in Water	at Beach	Type	in Water	at Beach
Geese				Beavers			Otters		
Gulls				Deer			Raccoons		
Shorebirds				Dogs			Rodents		
Ducks				Frogs			Snakes		
Pigeons				Horses			Toads		
Other				Iguanas			Turtles		
Other				Mongoose			Other		

Is scat (animal poop) present? yes no If yes, how many piles? _____

Method for determining presence of wildlife and domestic animals: (check one)

Counting using hand-held counter and if necessary, binoculars Other (specify): Visual observation

Are dead birds found on the beach? yes no If yes, specify the number and species of dead birds found on the beach

Type	# Dead	Type	# Dead	Type	# Dead	Type	# Dead
Common loons		Black-crowned night-heron		Long-tailed ducks		Ospreys	
Herring gulls		Double crested cormorants		Horned grebes		Common tern	
Ring-billed gulls		White winged scoters		Snowy egrets		Belted kingfisher	
Mallard ducks		Red-necked grebes		Great blue herons		Other: _____	

Method for determining the number of dead birds: (check one)

Counting using hand-held counter and if necessary, binoculars Other(specify): N/a

Method for identifying dead birds: (check one)

Field guide or internet site for taxonomic identification Other(specify): N/a

Are dead fish found in the waterbody, on the beach or along the shoreline? yes no If yes, specify the number of dead fish found on the beach or in/at the waterbody and take photographs: _____

Method for determining the number of dead fish: (check one) Visual observation Other (specify): _____

Additional comments or observations on pollution sources, algae, or animals. Describe any photos taken.

GENERAL INFORMATION

Name of beach (if applicable): Marbletown Beach Date(s) of survey: 10/01/2025
 Beach ID: _____ Time(s) of survey: 9:10 am - 10:30 am
 Name of waterbody: Esopus Waterbody type: freshwater river
 Sampling station(s)/ID: _____ Surveyor affiliation: _____
 WQX organizational ID: _____ Name(s) of surveyor(s): Katherina Sumberac
 Sampling location Latitude: 41° 52' 26" Longitude: 74° 18' 20"
 Dates of swim season Start: closed End: _____

QUALITY ASSURANCE

Will the data collected use an approved Quality Assurance Project Plan (QAPP)? yes no

PART 1: WEATHER AND GENERAL WATERBODY CONDITIONS

Weather Conditions

Survey the weather using the method of your choice. You may use the National Weather Service as your source.

Air temperature: 59 °C or F Method for air temperature: (check one) Liquid-in-glass therm. Electronic thermometer
 Weather app Weather report: from airport or weather station? Other: _____
 Dewpoint: 37 °C or F Method for dewpoint: (check one) Weather app Weather report: from airport or
weather station? Other: _____
 Relative Humidity (%): 39 Method for relative humidity: (check one) Weather app Weather report: from airport
or weather station? Other: _____
 Barometric Pressure: 30.05 units: in Method for barometric pressure: (check one) Weather app Weather report: from
 airport or weather station? Other: _____
 Wind speed: 13 units: mph Method for wind speed: (check all that apply) Wind vane for direction Weather app
 Wind sock for direction/speed Anemometer for wind speed
 Beaufort scale for wind speed Aerovane for wind direction/speed
 Weather report: from airport or weather station? Other (specify): _____
 Is the wind: (check one) Onshore Offshore

If you collected wind speed from a local weather station, how far were you from the station: 5 mi or km

How recent was the last rain event: (check one)
 0-24 hrs 24-48 hrs 48-72 hrs 72+ hrs Rain intensity: (check one) Misting Light rain
 Moderate rain Heavy rain Other: no rain

Total measured rainfall: 0.0 in or cm Distance to the gauge/station when recording rainfall amount: 5 mi or km
 Method for rainfall: (check one) Rain gauge Weather report Weather app Other (specify): _____

Sky condition/amount of cloud cover: (circle one) Sunny/ No clouds Mostly sunny/ 1/8 to 2/8 Partly sunny/ 3/8 to 1/2 Mostly cloudy/ 5/8 to 7/8 Cloudy/ Total coverage
 Method for weather conditions: (check one) Visual observations Weather app Other (specify): _____

Waterbody Conditions

Water flow speed: _____ units: _____
 Method for water flow speed: (check one) Stick with fishing reel with water balloon on end Ball and tether Other: _____
 Direction from which the wave is coming (e.g., N, SW): _____ How tall are the waves: _____ m or ft
 Is the wave height measured or estimated? (check one) Measured Estimated
 Method for measuring wave height: (check one) Visual examination of wave height Graduated stick and ranging pole
 Other (specify): _____
 Is the stream bank/shoreline eroding? yes no



Width of riparian vegetation on river/stream left (looking downstream)
(check one) none 0-25 ft 25-50 ft 50+ ft

Width of riparian vegetation on river/stream right (looking downstream)
(check one) none 0-25 ft 25-50 ft 50+ ft

Add additional comments for general waterbody conditions.

weather station: Located in Hurley N.Y. and provided by Hudson Valley Farm Hub.
Accessed at: NEWA.Cornell.edu

Aquatic Organism Passage Barrier *N/a*

What is the outlet drop (e.g., 3.5ft)	Severity of barrier debris, sediment, or rock for the structure with the least amount of debris (None, minor, moderate, severe)	Location (lat/long)	Description

* Minor = <10% open area of structure blocked; Moderate = 10-50% open area of structure blocked; Severe = 50% open area structure blocked

Take images to document aquatic organism passage barriers and provide detailed descriptions where possible:

PART 2: WATER QUALITY

Bacteria

List bacteria samples collected at the beach. Potential pollution sources, if applicable, can be recorded in Part 4.

Sample Point	Sample Number	Location (lat/long)	Date & Time	Parameter (enterococci, E. coli, etc.)	Comments
	S8	41.8739668-74.141743	10/01/25	MST	
	S1			Fecal coliform	
	S2			E. coli	
	S3			Enterococci	

General Water Quality

Water temperature: 60.5 °C or °F Water color: (circle one) Clear Blue Brown Green Red Other: _____

Method for water temperature: (check one) Multiprobe Electronic meter Graduated thermometer
 Report from local radio station Report from NOAA weather band radio Other: _____

Has the water color changed since the last visit? yes no don't know If yes, take photographs and describe:

Select the best description of the water smell: (circle one) None Septic Algae Sulfur Other: _____

How did you measure turbidity? Observed: (check one) Clear Slightly turbid Opaque
(check one) Measured: NTU value: _____ Secchi disc depth: _____

What method was used to measure the turbidity of the water: (check one) Simple visual observation Visual test kit
 Titrimetric test kit Nephelometer/Turbidimeter Other: _____

pH: _____ Method for measuring pH: (check one) Handheld electronic meters (specify) _____
 pH strips Field test kits Other: _____

Oxidation Reduction Potential(ORP): _____ units: _____ Method for ORP(specify): _____

Total Dissolved Solids(TDS): _____ units: _____ Method for TDS(specify): _____

Total Suspended Solids(TSS): _____ units: _____ Method for TSS(specify): _____

Dissolved Oxygen(DO): _____ units: _____ Method for DO(specify): _____

Dissolved Organic Carbon(DOC): _____ units: _____ Method for DOC(specify): _____

Salinity: (check one) 0-5 ppt 5-15 ppt 15-40 ppt Conductivity: _____ units: _____

Describe other measurements taken and report values:

Additional water quality observations:

*Thin layer of settled light brown algae on stones in water, no surface bloom.
Increased number of footsteps on bank, included photo.*

PART 3: PEOPLE (NUMBER OF BEACH USERS)

Are there bathers or recreators (swimmers, boaters, waders, etc.) present at the beach or waterbody? yes no

Total people in water: 0 + Total people out of water: 0 = Total people at the beach or waterbody: 0

Total number of boats: 0

Report activities observed at the beach or shoreline and in the water. Quantify and take photographs, if possible.

Activity (swimming, fishing, etc.)	Approximate # of people participating
<i>N/a</i>	

Describe notable bather activities that could affect water quality (Example: babies in disposable diapers in the water):

N/a

Method for numbers of people participating in various activities: (check one) Counting by surveyor Photos
 Counting by lifeguard Turnstiles Other: _____

PART 4: POTENTIAL POLLUTION SOURCES

Identify visible sources of pollutants up to 500 feet from the beach or waterbody boundary. Quantify and photograph sources, if possible.

Type of Source	Discharge Source Name	Discharge Source Amount (H, M, L)	Discharge Flow Rate	Discharge Volume	Discharge Source Characteristics
Wetland drainage					
Outfall/Pipe (stormwater)					
Leaking pit latrines/septic	<i>Tongore Rd</i>		<i>unknown</i>	<i>unknown</i>	
Runoff (impervious surfaces)	<i>Parking lot</i>		<i>0</i>	<i>unk</i>	
Homeless encampments					
Other (specify): _____					

Did you collect samples and complete the Bacteria Samples section in Part 2? yes no

If no, describe why not:

Conditions were dry at the time of the sampling.

How did you identify the source of discharge? (check one) Visual observation WWTP notification/report Other: _____

How did you measure flow/velocity or volume? (check one)
Mechanical flow meter
Electric flow meter
USGS gauging station
WWTP notification/report
Orange (float) and stopwatch
Other: not measured

Floatables and Debris

Are floatables present in the water? yes no
If yes, select the types found: (check all that apply)
Street litter (e.g., cigarette filters)
Food-related litter (e.g., packaging/containers)
Medical items (e.g., syringes)
Sewage-related (e.g., tampons, condoms)
Building materials (e.g., wood/siding)
Fishing-related (e.g., fishing line, nets, lures)
Household waste (e.g., household trash, plastic bags)
Other: some leaves

Method for determining floatables presence: (check one)
Visual observation
Cleanup event results
Other:

Is there debris or litter present on the beach or shoreline? yes no

Select the amount (%) of debris/litter on the beach or shoreline: (check one)
None
Low (1% - 20%)
Moderate (21%- 50%)
High (>50%)

Select the types of debris found? (check all that apply)
Street litter (e.g., cigarette filters)
Food-related litter (e.g., packaging/containers)
Medical items (e.g., syringes)
Sewage-related (e.g., tampons, condoms)
Natural debris (e.g., driftwood, algae)
Building materials (e.g., wood/siding)
Fishing-related (e.g., fishing line, nets, lures)
Household waste (e.g., household trash, plastic bags)
Tar/Oil (e.g., tar balls)
Oil/Grease (e.g., oil slick)
Other:

Method for determining debris presence: (check one)
Visual observation
Cleanup event results
Other:

Algae

Is algae present in the nearshore water, beach and/or shoreline? yes no don't know
If present, document with photographs.

Select the amount (%) of algae in nearshore water: (check one)
None
Low (1%-20%)
Moderate (21%-50%)
High (> 50%)

Select the amount (%) of algae on the beach or shoreline: (check one)
None
Low (1%-20%)
Moderate (21%-50%)
High (> 50%)

Method for determining amount and color of algae: (check one)
Visual observation
Other (specify):

Circle the types of algae found: (check all that apply)
Periphyton (attached to rocks, stringy)
Globular (blobs of floating material)
Free floating (no obvious mass of materials)
Other (specify):

Algae Colors: (check all that apply)
Light green
Bright green
Dark green
Yellow
Brown
Other:

Is the nearshore water discolored? yes no don't know

If yes, specify the color: (check all that apply)
Clear
Green
Dark red
Brown
Yellowish
Other:

Harmful Algae Blooms

Is there presence of harmful algal blooms? yes no
If yes, photograph and describe:

Method for identifying harmful algae blooms in nearshore water and beach: (check one)
Field guide or internet site for taxonomic identification
Other:

Are there mats or scum in nearshore waters? (check all that apply)
Mats-floating
Foam
Scum
None

Are there dead fish or other dead wildlife deaths present with bloom? yes no

Have any illnesses (e.g., itchy throat, cough, gastrointestinal) been reported by local or state health departments? yes no
If yes, describe:

Is algal toxin monitoring conducted? yes no don't know
If yes, have algal toxins been detected? _____

Have algal species been identified? yes no don't know
If yes, specify the species: _____



Presence of Wildlife and Domestic Animals

Are wildlife and domestic animals present? yes no If yes, specify and document with photographs.

Type	in Air	in Water	at Beach	Type	in Water	at Beach	Type	in Water	at Beach
Geese				Beavers			Otters		
Gulls				Deer			Raccoons		
Shorebirds				Dogs			Rodents		
Ducks				Frogs			Snakes		
Pigeons				Horses			Toads		
Other				Iguanas			Turtles		
Other				Mongoose			Other		

Is scat (animal poop) present? yes no If yes, how many piles? _____

Method for determining presence of wildlife and domestic animals: (check one)

- Counting using hand-held counter and if necessary, binoculars Other (specify): visual observation

Are dead birds found on the beach? yes no If yes, specify the number and species of dead birds found on the beach

Type	# Dead	Type	# Dead	Type	# Dead	Type	# Dead
Common loons		Black-crowned night-heron		Long-tailed ducks		Ospreys	
Herring gulls		Double crested cormorants		Horned grebes		Common tern	
Ring-billed gulls		White winged scoters		Snowy egrets		Belted kingfisher	
Mallard ducks		Red-necked grebes		Great blue herons		Other: _____	

Method for determining the number of dead birds: (check one)

- Counting using hand-held counter and if necessary, binoculars Other(specify): N/a

Method for identifying dead birds: (check one)

- Field guide or internet site for taxonomic identification Other(specify): N/a

Are dead fish found in the waterbody, on the beach or along the shoreline? yes no If yes, specify the number of dead fish found on the beach or in/at the waterbody and take photographs: _____

Method for determining the number of dead fish: (check one) Visual observation Other (specify): _____

Additional comments or observations on pollution sources, algae, or animals. Describe any photos taken.

Photos show rocks in river with Brown algae on them.

GENERAL INFORMATION

Name of beach (if applicable): <u>Marbletown Beach</u>	Date(s) of survey: <u>10/30/2025</u>
Beach ID:	Time(s) of survey: <u>11:30 am - 1:30 pm</u>
Name of waterbody: <u>Esopus</u>	Waterbody type: <u>freshwater River</u>
Sampling station(s)/ID:	Surveyor affiliation:
WQX organizational ID:	Name(s) of surveyor(s): <u>Katherina Sumberac</u>
Sampling location	Latitude: <u>41° 52' 26"</u> Longitude: <u>74° 08' 20"</u>
Dates of swim season	Start: <u>closed</u> End:

QUALITY ASSURANCE

Will the data collected use an approved Quality Assurance Project Plan (QAPP)? (yes) no

PART 1: WEATHER AND GENERAL WATERBODY CONDITIONS

Weather Conditions

Survey the weather using the method of your choice. You may use the National Weather Service as your source.

Air temperature: <u>54°</u> °C or <u>(F)</u>	Method for air temperature: (check one) <input type="checkbox"/> Liquid-in-glass therm. <input type="checkbox"/> Electronic thermometer <input checked="" type="checkbox"/> Weather app <input type="checkbox"/> Weather report: from airport or weather station? <input type="checkbox"/> Other: _____
Dewpoint: <u>49.79</u> °C or <u>(F)</u>	Method for dewpoint: (check one) <input checked="" type="checkbox"/> Weather app <input type="checkbox"/> Weather report: from airport or weather station? <input type="checkbox"/> Other: _____
Relative Humidity (%): <u>90%</u>	Method for relative humidity: (check one) <input checked="" type="checkbox"/> Weather app <input type="checkbox"/> Weather report: from airport or weather station? <input type="checkbox"/> Other: _____
Barometric Pressure: <u>29.71</u> units: <u>"Hg</u>	Method for barometric pressure: (check one) <input checked="" type="checkbox"/> Weather app <input type="checkbox"/> Weather report: from airport or weather station? <input type="checkbox"/> Other: _____
Wind speed: <u>20</u> units: <u>mph</u>	Method for wind speed: (check all that apply) <input type="checkbox"/> Wind vane for direction <input checked="" type="checkbox"/> Weather app <input type="checkbox"/> Wind sock for direction/speed <input type="checkbox"/> Anemometer for wind speed <input type="checkbox"/> Beaufort scale for wind speed <input type="checkbox"/> Aerovane for wind direction/speed <input type="checkbox"/> Weather report: from airport or weather station? <input type="checkbox"/> Other (specify): _____
Wind gust speed: <u>30</u> units: <u>mph</u>	
Wind direction: <u>100° East to west</u>	
Is the wind: (check one) <input checked="" type="checkbox"/> Onshore <input type="checkbox"/> Offshore	

If you collected wind speed from a local weather station, how far were you from the station: _____ mi or km

How recent was the last rain event: (check one) <input checked="" type="checkbox"/> 0-24 hrs <input type="checkbox"/> 24-48 hrs <input type="checkbox"/> 48-72 hrs <input type="checkbox"/> 72+ hrs	Rain intensity: (check one) <input type="checkbox"/> Misting <input type="checkbox"/> Light rain <input checked="" type="checkbox"/> Moderate rain <input type="checkbox"/> Heavy rain <input type="checkbox"/> Other: _____
--	--

Total measured rainfall: 0.65 (in) or cm Distance to the gauge/station when recording rainfall amount: 4 (mi) or km

Method for rainfall: (check one) Rain gauge Weather report Weather app Other (specify): _____

Method for weather conditions: (check one) <input type="checkbox"/> Visual observations <input checked="" type="checkbox"/> Weather app <input type="checkbox"/> Other (specify): _____	Sunny/ No clouds	Mostly sunny/ 1/8 to 2/8	Partly sunny/ 3/8 to 1/2	<u>Mostly cloudy/ 5/8 to 7/8</u>	Cloudy/ Total coverage
---	---------------------	-----------------------------	-----------------------------	--------------------------------------	---------------------------

Method for weather conditions: (check one) Visual observations Weather app Other (specify): _____

Waterbody Conditions

Water flow speed: _____ units: _____

Method for water flow speed: (check one) Stick with fishing reel with water balloon on end Ball and tether Other: _____

Direction from which the wave is coming (e.g., N, SW): _____ How tall are the waves: _____ m or ft

Is the wave height measured or estimated? (check one) Measured Estimated

Method for measuring wave height: (check one) Visual examination of wave height Graduated stick and ranging pole
 Other (specify): _____

Is the stream bank/shoreline eroding? yes (no)

Width of riparian vegetation on river/stream left (looking downstream)
(check one) none 0-25 ft 25-50 ft 50+ ft

Width of riparian vegetation on river/stream right (looking downstream)
(check one) none 0-25 ft 25-50 ft 50+ ft

Add additional comments for general waterbody conditions.

Weather station: Located in Hurley NY and provided by Hudson Valley farm Hub

Accessed at : NEWA.cornell.edu.

Aquatic Organism Passage Barrier *N/a*

What is the outlet drop (e.g., 3.5ft)	Severity of barrier debris, sediment, or rock for the structure with the least amount of debris (None, minor, moderate, severe)	Location (lat/long)	Description

* Minor = <10% open area of structure blocked; Moderate = 10-50% open area of structure blocked; Severe = 50% open area structure blocked

Take images to document aquatic organism passage barriers and provide detailed descriptions where possible:

PART 2: WATER QUALITY

Bacteria

List bacteria samples collected at the beach. Potential pollution sources, if applicable, can be recorded in Part 4.

Sample Point	Sample Number	Location (lat/long)	Date & Time (P.M.)	Parameter (enterococci, E. coli, etc.)	Comments
	S-6-B	41.8739668-	10/30/23	Entero	
	S6-E	74.1417		E. coli	
	S5-B			Entero	
	S5-C			E. coli	
	S2-C/B			Entero/e. coli	

General Water Quality

Water temperature: 10 °C or °F Water color: (circle one) Clear Blue Brown Green Red Other: _____

Method for water temperature: (check one) Multiprobe Electronic meter Graduated thermometer
 Report from local radio station Report from NOAA weather band radio Other: _____

Has the water color changed since the last visit? yes no don't know If yes, take photographs and describe:

Select the best description of the water smell: (circle one) None Septic Algae Sulfur Other: _____

How did you measure turbidity? Observed: (check one) Clear Slightly turbid Opaque
 (check one) Measured: NTU value: _____ Secchi disc depth: _____

What method was used to measure the turbidity of the water: (check one) Simple visual observation Visual test kit
 Titrimetric test kit Nephelometer/Turbidimeter Other: _____

pH: _____	Method for measuring pH: (check one) <input type="checkbox"/> Handheld electronic meters (specify) _____ <input type="checkbox"/> pH strips <input type="checkbox"/> Field test kits <input type="checkbox"/> Other: _____
Oxidation Reduction Potential(ORP): _____ units: _____	Method for ORP(specify): _____
Total Dissolved Solids(TDS): _____ units: _____	Method for TDS(specify): _____
Total Suspended Solids(TSS): _____ units: _____	Method for TSS(specify): _____
Dissolved Oxygen(DO): _____ units: _____	Method for DO(specify): _____
Dissolved Organic Carbon(DOC): _____ units: _____	Method for DOC(specify): _____
Salinity: (check one) <input type="checkbox"/> 0-5 ppt <input type="checkbox"/> 5-15 ppt <input type="checkbox"/> 15-40 ppt	Conductivity: _____ units: _____

Describe other measurements taken and report values:

Additional water quality observations:

settled light brown algae, no surface bloom, less algae on bottom of creek than usual.

PART 3: PEOPLE (NUMBER OF BEACH USERS)

Are there bathers or recreators (swimmers, boaters, waders, etc.) present at the beach or waterbody? yes

Total people in water: 0 + Total people out of water: 0 = Total people at the beach or waterbody: 0

Total number of boats: 0

Report activities observed at the beach or shoreline and in the water. Quantify and take photographs, if possible.

Activity (swimming, fishing, etc.)	N/A				
Approximate # of people participating					

Describe notable bather activities that could affect water quality (Example: babies in disposable diapers in the water):

N/A

Method for numbers of people participating in various activities: (check one) Counting by surveyor Photos
 Counting by lifeguard Turnstiles Other: _____

PART 4: POTENTIAL POLLUTION SOURCES

Identify visible sources of pollutants up to 500 feet from the beach or waterbody boundary. Quantify and photograph sources, if possible.

Type of Source	Discharge Source Name	Discharge Source Amount (H, M, L)	Discharge Flow Rate	Discharge Volume	Discharge Source Characteristics
Wetland drainage					
Outfall/Pipe (stormwater)					
Leaking pit latrines/septic	Tongore Rd		unknown	unknown	
Runoff (impervious surfaces)	Parking lot		> 0	unknown	
Homeless encampments					
Other (specify): _____					

Did you collect samples and complete the Bacteria Samples section in Part 2? yes no

If no, describe why not: **Shallow surface water accumulation in the parking lot at the time of sampling. Not sampled because not part of sampling plan for this project.**

How did you identify the source of discharge? (check one) Visual observation WWTP notification/report Other: _____

How did you measure flow/velocity or volume? (check one) Mechanical flow meter Electric flow meter
 USGS gauging station WWTP notification/report Orange (float) and stopwatch Other: not measured.

Floatables and Debris

Are floatables present in the water? yes no If yes, select the types found: (check all that apply)
 Street litter (e.g., cigarette filters) Building materials (e.g., wood/siding)
 Food-related litter (e.g., packaging/containers) Fishing-related (e.g., fishing line, nets, lures)
 Medical items (e.g., syringes) Household waste (e.g., household trash, plastic bags)
 Sewage-related (e.g., tampons, condoms) Other: leaves

Method for determining floatables presence: (check one) Visual observation Cleanup event results Other: _____

Is there debris or litter present on the beach or shoreline? yes no

Select the amount (%) of debris/litter on the beach or shoreline: (check one)
 None Low (1% - 20%) Moderate (21%- 50%) High (>50%)

Select the types of debris found? (check all that apply)
 Street litter (e.g., cigarette filters) Fishing-related (e.g., fishing line, nets, lures)
 Food-related litter (e.g., packaging/containers) Household waste (e.g., household trash, plastic bags)
 Medical items (e.g., syringes) Tar/Oil (e.g., tar balls)
 Sewage-related (e.g., tampons, condoms) Oil/Grease (e.g., oil slick)
 Natural debris (e.g., driftwood, algae) Other: leaves
 Building materials (e.g., wood/siding)

Method for determining debris presence: (check one) Visual observation Cleanup event results Other: _____

Algae

Is algae present in the nearshore water, beach and/or shoreline? yes no don't know If present, document with photographs.

Select the amount (%) of algae in nearshore water: (check one)
 None Low (1%–20%) Moderate (21%–50%) High (> 50%)

Select the amount (%) of algae on the beach or shoreline: (check one)
 None Low (1%–20%) Moderate (21%–50%) High (> 50%)

Method for determining amount and color of algae: (check one)
 Visual observation Other (specify): _____

Circle the types of algae found: (check all that apply) Periphyton (attached to rocks, stringy) Globular (blobs of floating material)
 Free floating (no obvious mass of materials) Other (specify): _____

Algae Colors: (check all that apply) Light green Bright green Dark green Yellow Brown Other: _____

Is the nearshore water discolored? yes no don't know

If yes, specify the color: (check all that apply) Clear Green Dark red Brown Yellowish Other: _____

Harmful Algae Blooms

Is there presence of harmful algal blooms? yes no If yes, photograph and describe:

Method for identifying harmful algae blooms in nearshore water and beach: (check one)
 Field guide or internet site for taxonomic identification Other: _____

Are there mats or scum in nearshore waters? (check all that apply) Mats-floating Foam Scum None

Are there dead fish or other dead wildlife deaths present with bloom? yes no

Have any illnesses (e.g., itchy throat, cough, gastrointestinal) been reported by local or state health departments? yes no

If yes, describe:

Is algal toxin monitoring conducted? yes no don't know If yes, have algal toxins been detected? _____

Have algal species been identified? yes no don't know If yes, specify the species: _____

Presence of Wildlife and Domestic Animals

Are wildlife and domestic animals present? yes **no** If yes, specify and document with photographs.

Type	in Air	in Water	at Beach	Type	in Water	at Beach	Type	in Water	at Beach
Geese				Beavers			Otters		
Gulls				Deer			Raccoons		
Shorebirds				Dogs			Rodents		
Ducks				Frogs			Snakes		
Pigeons				Horses			Toads		
Other				Iguanas			Turtles		
Other				Mongoose			Other		

Is scat (animal poop) present? yes **no** If yes, how many piles? _____

Method for determining presence of wildlife and domestic animals: (check one)

- Counting using hand-held counter and if necessary, binoculars Other (specify): Visual Observation

Are dead birds found on the beach? yes **no** If yes, specify the number and species of dead birds found on the beach

Type	# Dead	Type	# Dead	Type	# Dead	Type	# Dead
Common loons		Black-crowned night-heron		Long-tailed ducks		Ospreys	
Herring gulls		Double crested cormorants		Horned grebes		Common tern	
Ring-billed gulls		White winged scoters		Snowy egrets		Belted kingfisher	
Mallard ducks		Red-necked grebes		Great blue herons		Other: _____	

Method for determining the number of dead birds: (check one)

- Counting using hand-held counter and if necessary, binoculars Other(specify): N/a

Method for identifying dead birds: (check one)

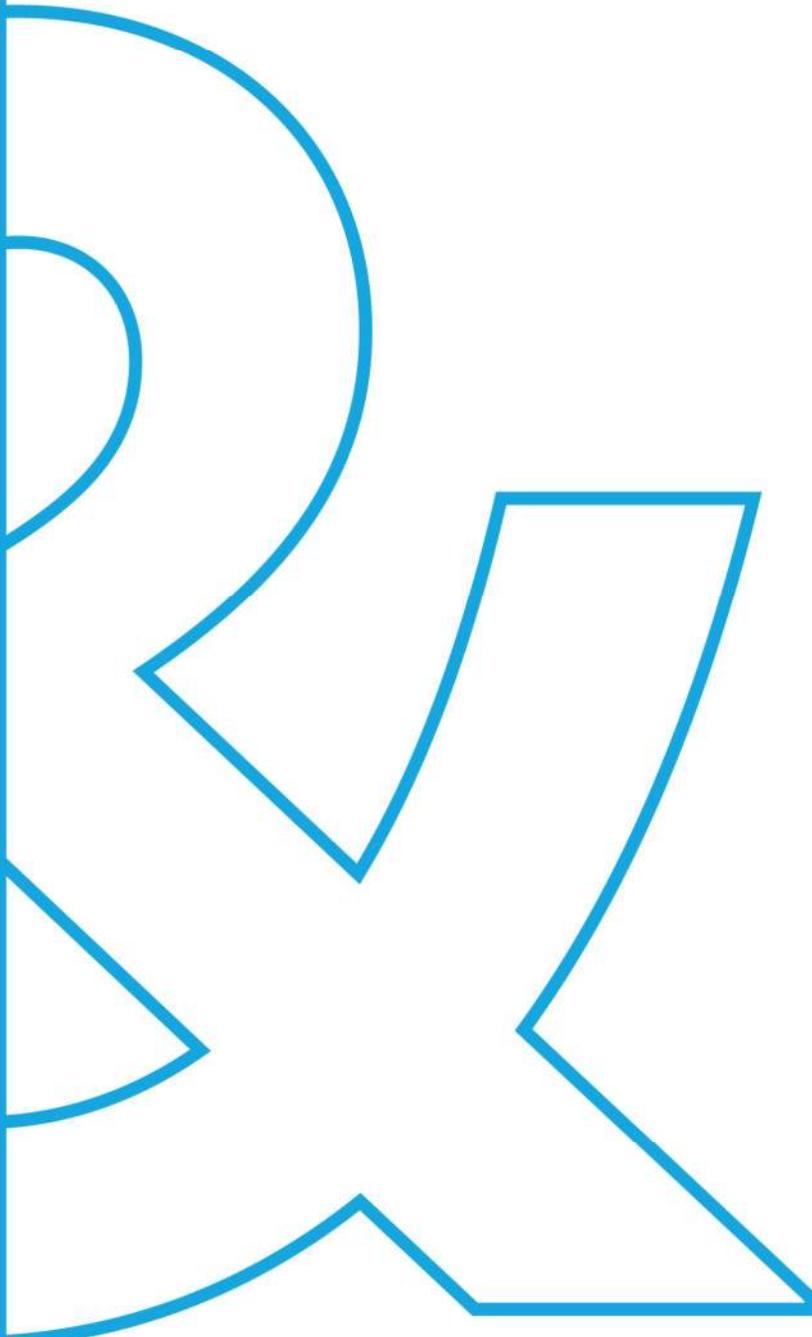
- Field guide or internet site for taxonomic identification Other(specify): N/a

Are dead fish found in the waterbody, on the beach or along the shoreline? yes **no** If yes, specify the number of dead fish found on the beach or in/at the waterbody and take photographs: _____

Method for determining the number of dead fish: (check one) Visual observation Other (specify): _____

Additional comments or observations on pollution sources, algae, or animals. Describe any photos taken.

**Appendix C:
Beach Water Quality Results**



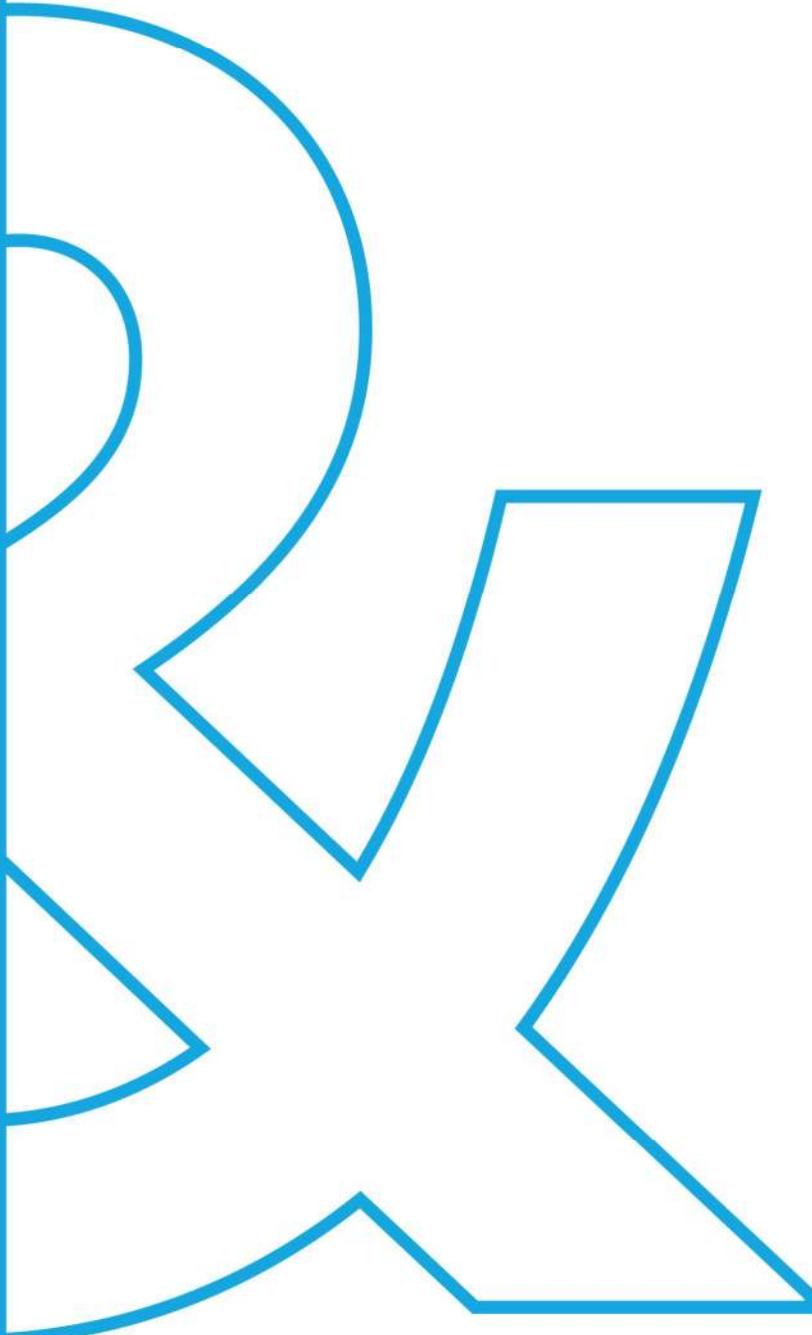
**Marbletown Town Park Beach Water Quality Testing Results
June - October 2025**

Site ID	Site Description	Sampling Date	Rain (in.) Day Of	Rain (in.) Day Prior	Rain (in.) Two Days Prior	Discharge at Lomontville gage (USGS 01363556)	<i>E. coli</i> (MPN/100mL)	Enterococci (MPN/100mL)	Fecal Coliform (MPN/100mL)	Turbidity (NTU)	Conductivity (μS/cm)	TDS (mg/L)	TSS (mg/L)	pH	DO (mg/L)	DOC (mg/L)	Color (PCU)
6	Marbletown Town Park Beach	6/4/25	0	0	0	78.2	30.9	62.4	1	1	99.2	90	<3.3	9.2	10.2	3.2	20
6	Marbletown Town Park Beach	7/22/25	0	0	0	33.5	40.2	44.3	12	0.65	87.8	80	<3.3	7.5	7.9	1.6	15
6	Marbletown Town Park Beach	8/12/25	0	0	0	31.6	58.3	44.8	24.3	0.8	101	136	<3.3	7.4	9.1	1.8	10
6	Marbletown Town Park Beach	9/17/25	0	0	0	27.6	53.7	29.5	12.1	0.6	81	74	<3.3	7.6	9.9	1.9	2
6	Marbletown Town Park Beach	10/1/2025	0	0	0	28.9	50.4	26.6	33.1	missing	95.7	84	<3.3	7.8	11.2	2.2	5
6	Marbletown Town Park Beach	10/30/2025	2.08	0	0	35.3	41.4	159.6	43.6	1	91.6	missing	missing	7.5	11.2	1.7	2

Notes:

1. Exceedances of water quality standards or typical values are shown in red.
2. Missing data were caused by errors in the chain of custody forms that were not corrected in time for laboratory testing. The omissions have no bearing on the outcomes of this study.
3. MPN = Most Probable Number
4. Historical rainfall data are from the Network for Environment and Weather Applications (NEWA) gage maintained by Hudson Valley Farm Hub in Hurley, NY. Source: <https://newa.cornell.edu/>
5. Precipitation records for June 4, 2025 indicate 0.01 inch of rain; however, any precipitation that occurred on that date fell after sampling was completed.
6. Typical summer low flow at the Lomontville gage in 2025 was approximately 28 cfs under conditions of conservation releases from the Ashokan Reservoir.

**Appendix D:
Site Photographs**





Site 1 – Ashokan Center (June 4, 2025)



Site 2 – Mill Pond (June 4, 2025)



Site 3 – Stillwater Road (June 4, 2025)



Site 4 – Johnson Road (June 4, 2025)

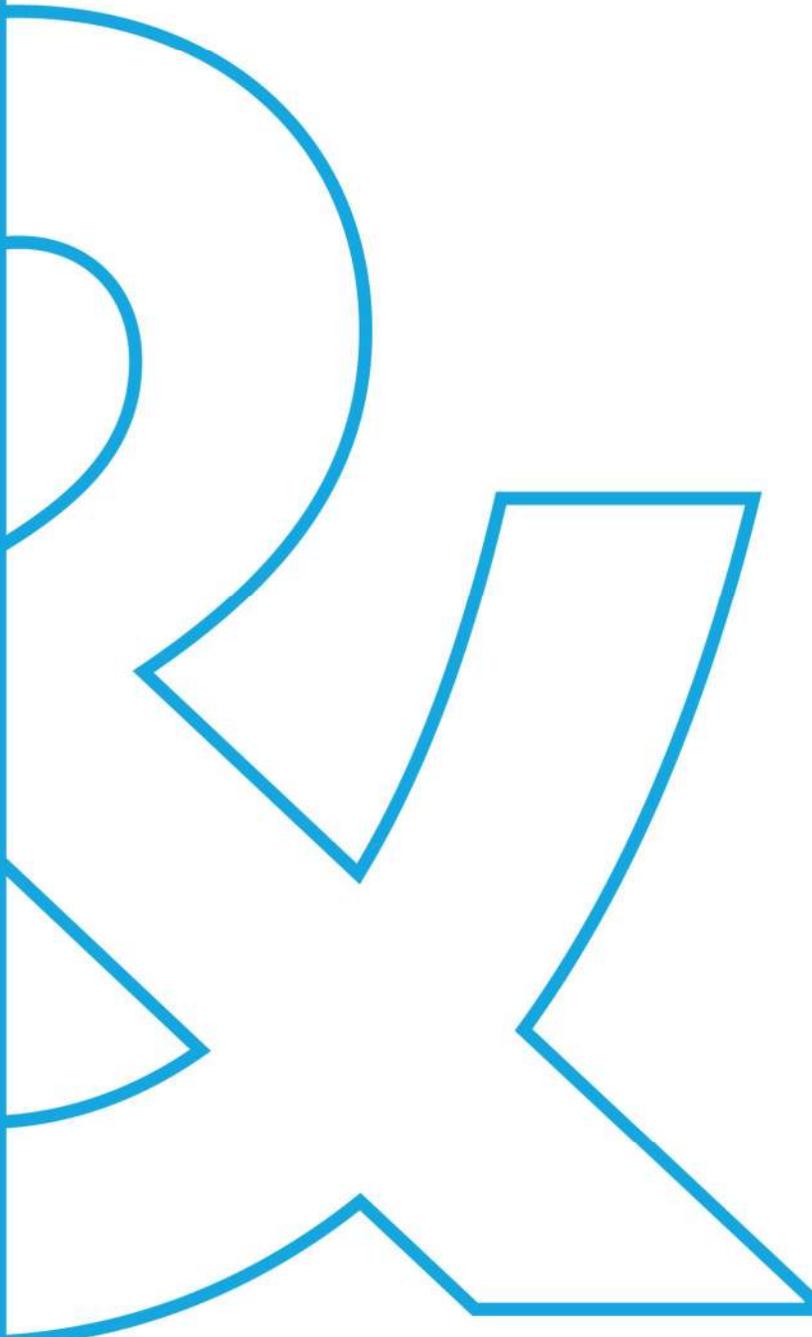


Site 5 – Hidden Valley Road (June 4, 2025)



Site 6 – Marbletown Town Park Beach (July 22, 2025)

**Appendix E:
MST Results**



Microbial Source Tracking Results
June - October 2025

Site ID	Site Description	Sampling Date	Rain (in.) Day Of	Rain (in.) Day Prior	Rain (in.) Two Days Prior	<i>E. coli</i> (MPN/100mL)	Enterococci (MPN/100mL)	ddPCR Results						
								Ruminant (copies/100mL)	Avian (copies/100mL)	Cow (copies/100mL)	Human (copies/100mL)	Horse (copies/100mL)		
6	Marbletown Town Park Beach	6/4/25	0	0	0	30.9	62.4	65.7 (162.4)	39.4 (159.6)	BDL	BDL	113.7 (53.8)		
6	Marbletown Town Park Beach	7/22/25	0	0	0	40.2	44.3	23.6 (25.8)	11.8 (25.8)	BDI	BDL	82.1 (28.0)		
6	Marbletown Town Park Beach	8/12/25	0	0	0	58.3	44.8	BDL	BDL	BDL	BDL	40.7 (29.9)		
1	Ashokan Center	8/20/25	0.77	0	0	No data	No data	BDL	BDL	BDL	BDL	BDL		
2	Mill Pond							BDL	120.5 (24.8)	BDL	BDL	56.9 (26.9)		
3	Stillwater Road							BDL	BDL	BDL	BDL	BDL		
4	Johnson Road							BDL	17.9 (24.8)	BDL	BDL	25.1 (26.9)		
5	Hidden Valley Road							44.0 (27.0)	BDL	BDL	BDL	68.4 (29.2)		
6	Marbletown Town Park Beach							29.2 (24.8)	35.0 (24.8)	BDL	BDL	24.7 (26.9)		
6	Marbletown Town Park Beach	9/17/25	0	0	0	53.7	29.5	BDL	39.9 (24.8)	BDL	BDL	75.6 (26.9)		
6	Marbletown Town Park Beach	10/1/25	0	0	0	50.4	26.6	31.6 (24.8)	BDL	BDL	BDL	72.9 (26.9)		
2	Mill Pond	10/30/25	2.08	0	0			18.9	<1	17.5 (24.3)	70.1 (24.3)	BDL	BDL	208.6 (26.4)
5	Hidden Valley Road							38.4	20.1	BDL	24.63 (24.8)	BDL	BDL	94.7 (26.9)
6	Marbletown Town Park Beach							41.4	159.6	BDL	BDL	BDL	BDL	55.6 (26.9)

Notes:

1. ddPCR results are shown as copies/100mL with the limits of detection (LOD) in parentheses. Reported LOD values are averages for the laboratory equipment over a period of time, and detections may be less than the LOD although such detections are considered trace
2. BDL = Below detection limits
3. Exceedances of water quality standards (enterococci) or average limits of detection (ddPCR) are shown in red.
4. Historical rainfall data are from the Network for Environment and Weather Applications (NEWA) gage maintained by Hudson Valley Farm Hub in Hurley, NY. Source: <https://newa.cornell.edu/>