

2026 eDNA Sampling for River Herring and American Eel in The Peconic River System

Project at a Glance:

Objectives:

- To utilize eDNA analysis to monitor and assess the efficiency of fish passage projects that have been implemented in the Peconic River System
- To develop a cost-effective and repeatable survey design to help support existing monitoring efforts
- To demonstrate the need for continued funding and project development to help expand available suitable habitat for diadromous fish (alewife, blueback herring, American eel)

Location: Riverhead, NY



Timeline:

- Data Collection: mid-February through mid-June 2026
- Data Analysis: TBD

Field Equipment:

- eDNA Citizen Science Sampler (1)
- self-preserving filters (500+)
- YSI with Temperature, Salinity, Dissolved Oxygen Probe (1)
- Rite-in-the-Rain Notebook/Paper (?)
- Nitrile gloves
- Tap water/Deionized Water

Partnerships:

- Peconic Estuary Partnership (PEP)
- New York State Department of Environmental Conservation (NYSDEC)
- Stony Brook University (SBU)
- *University of Albany (eDNA lab?)*

Personnel:

- Marissa Velasquez- Rosante, PEP/NYSDEC
- Kaitlyn Sherman (SBU/NYSDEC)
- Caitlin Craig (NYSDEC)

Methodology/Sampling Plan :

Sample Collections:

In order to cover the full temporal extent of the spring 2026 river herring run sampling will be divided into three “Phases” that will expand approximately 17 weeks. Each Phase will vary in intensity of sampling. Each day of sampling will be considered one “sampling event.” Blanks will be collected at the beginning of each sampling event for all three Phases. Water samples will be collected at the surface, or 6-12 inches below the surface. To avoid contamination and issues with filtration, water samples will NOT be collected from the bottom. Water collection will occur at the following sites: Byron Young Fish Passage, Grangebél, Upper Mills, Forge Road and Edwards Ave. Two samples will be collected at each site: one downstream of the barrier, and one upstream of the barrier. Filtration time and volume of water will be recorded for each sample. In addition to water sample, YSI readings for dissolved oxygen, temperature, and salinity will be taken and recorded at each sampling location (above and below the barrier?). Air temperature, weather events (i.e. rain, snow), cloud coverage, time of day, and tidal stage will also be recorded.

- **Phase 1** will be conducted when there is confidence that river herring have not yet entered the river system for their spawning run, thus establishing a baseline set. Phase 1 will begin the week of February 15, 2026 and continue for 2-3 weeks depending on arrival of fish. Phase 1 will only occur once per week and at a subset of monitoring sites.
- **Phase 2** will be conducted once fish have arrived (as noted by simultaneous monitoring efforts), but no later than week 4 (March 8- March 14). Phase 2 sampling will occur 2-3 times per week at all five monitoring sites. Grangebel is the only tidally dependent site, thus sampling will be coordinated to occur during ebb tide, as recommended in the literature (citation). For safety purposes, sampling will occur during the day. Timing and frequency of sampling will also depend on staff availability, but consistency across sampling events will be attempted.
- **Phase 3** will be conducted once the spawning run has decreased or is coming to an end (as noted by simultaneous monitoring efforts). Similar to Phase 1, Phase 3 sampling events will occur once per week; however, it will be conducted at all five monitoring sites.