

Award: SUNY RF of Stony Brook University Peconic Estuary Partnership– GE1525

2025 Alewife Monitoring on the Peconic River System: Grangebél Park and Woodhull Dam

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This annual report contains information pertaining to the 2025 Alewife and American Eel monitoring efforts and results from two sites on the Peconic River: Grangebel Park and Woodhull Dam. These two sites vary in methodology and will be reported separately.

I. Grangebel Park Alewife and American Eel Monitoring

Alewife: The Grangebel Park site represents the first obstruction Alewife encounter during their spawning migration in the Peconic River. A nature-like or rock ramp fishway was installed in 2010 and is the only route Alewife can use to reach freshwater suitable for spawning. This location serves as an excellent site for estimating the total number of Alewife that migrate into the Peconic River each year. The goals and objectives of this monitoring site are as follows:

Goal: To estimate the Peconic River Alewife Population

Objectives:

- 1) To maintain the video monitoring equipment installed at Grangebel Park during the spring migration.
- 2) To analyze video data collected at Grangebel Site for daily estimates of Alewife passage.

a) Accomplished Goals and Objectives

- 1) The monitoring equipment (camera, computer, job box, and wooden frame) was installed Feb 28th and maintained until equipment was found vandalized and inoperable April 3rd.
- 2) River population was estimated using Woodhull visual counts and passage efficiency at the Byron Young Fishway, see Woodhull report below.

b) Reasons why the established goals were not met, if appropriate.

To calculate total passage at Grangebel, full season video capture is needed. Vandalism was found on April 3rd 2025, which included the job boxes containing the laptop controlling the camera and the RFID controls being pushed off the walking bridge platform (Figure 1). Therefore, only a small portion of run (several weeks or <20%) was captured and the camera, laptop and hard drive was damaged. Without full camera coverage and RFID detections, an accurate population estimate at this site is cannot be calculated. Video analysis efforts were focused solely on Woodhull for the 2025 season.

c) Additional pertinent information including problems encountered, future suggestions etc.

Equipment Needs for future years: A laptop with either Salmonsoft or a video analysis hardware will be needed. For this season, we borrowed a laptop from Seatuck.

Job Box Security: Currently there is only one attachment point (the walkway bridge railing) for two job boxes (Camera and RFID). An additional eye hook or plate U hook secured into the concrete base of the bridge would allow less slack in the chain for this type of vandalism to occur again.

Budget Modification: One less intern was hired this year, which provided an additional \$1540 to the budget for covering supplies lost: the AHD converter (\$282) and camera repair (\$367) and purchasing equipment (waders, data storage, nets, totes and PIT tags) for the following year .

Student Intern Assigned Task Adjustments: The hours originally assigned to analyzing Grangebel footage were reassigned to monitoring the temporary passage and providing passage at Bridal Veil Falls (Grangebel Park) for glass eels, more detail is provided in the American Eel section.

American Eel: The head of tide dam is located in Grangebél Park, along with a nature-like fishway and a small man-made pool with a spillway called “Bridal Veil Falls”. Glass eels appear unable to climb the barrier wall and move upstream at this site, resulting in a bottleneck and an unusually high density. A temporary eel pass, comprising of a tied-up net, was placed at the Bridal Veil Falls barrier (Figure 2) to facilitate glass eel upstream migration for the first time in 2025. The net was removed at the end of the season.

Goal: To monitor Bridal Veil Falls temporary eel-pass

Objectives:

- 1) To maintain temporary passage for glass eels
- 2) To collect glass eels remaining in the man-made pool and move them upstream.

a) Accomplished Goals and Objectives

Bridal Veil Falls was monitored nearly every day this spring. Glass eels were found in the pool on April 1st. Sampling and monitoring ended May 25th. Glass eels were observed using the net, one was observed successfully climbing it and exiting at the top (Figure 3). A total of 19,862 glass eels were collected in the pool and released above the dam.

b) Reasons why the established goals were not met, if appropriate.

All goals were met.

c) Additional pertinent information including problems encountered, future suggestions etc.

The temporary eel pass showed some success but needs consistent monitoring. Occasionally the net was loosened between zip ties and other fish could get trapped in the net.

II. Woodhull Dam Alewife and Eel Monitoring

Alewife: The Woodhull Dam represents the second obstruction Alewife encounter during their spawning migration in the Peconic River in the Little River tributary. A pool and weir fishway with an additional culvert at the top of the fishway was installed in 2022. 2023 was the first year that camera monitoring was deployed, however broke down midway through the season. In 2024, the camera was replaced and installed at a new location, inside the viewing pool directly at the fishway exit. Camera monitoring was used to quantify the number of Alewives successfully using the fishway and entering the newly restored habitat of Little River and Wildwood lake. Salmonsoft was used to monitor the run and pre-screened the videos with detected motion. The entire video data collected was analyzed, thus provides a total count estimate. The same methods and equipment were used in 2024 and 2025

Goal: To estimate the number of Alewife using the Byron Young Fish Passage at Woodhull Dam

Objectives:

- 1) To maintain the video monitoring equipment installed at Woodhull Dam during the spring migration.
- 2) To analyze video data collected at Woodhull Dam for daily estimates of Alewife passage.

a) Accomplished Goals and Objectives

Equipment Maintenance and Installation: The new camera was installed February 21st 2025 before Alewife were seen arriving in the Peconic River. Videos were analyzed through May 16th. On April 28th, 2025, vandalism occurred at Woodhull. The damage included the destruction of the Byron Young Fishway Sign, deconstruction of the RFID antenna and wires were pulled out of the antenna, damage to the gate and the locks, all equipment (RFID, camera and eel pump) were unplugged, ropes holding the camera backboard were cut (Figure 4.) Nothing was permanently damaged and the camera was operational within 40 hours. There was also fishing line and hooks in the viewing pool and Alewife scales on the walkway. An Alewife was detected on camera getting snagged on a fishing hook before the power went out.

Alewife Woodhull Passage: A total of 5,202 Alewife were detected going through the fishway and passing through the camera between March 14th and May 15th 2025 (Figure 5). Passage increased approximately 500% compared to 2024 (N=983).

Population Estimate

Several hundred Alewife were PIT tagged and released below Woodhull Dam in 2023 and 2025. Passage rates can be obtained next year when tagged fish return to the system, contingent on the PIT tag antenna array being deployed and maintained by Dr. Peter Daniel (Hofstra University). The PIT tag passage efficiency (# tagged fish detected at upstream antenna / # tagged fish detected at downstream antenna) was 2.5% last year (2024) and increased to 28.7% this year (2025). Applying this proportion to the total camera count this year results in 18,103 Alewife in the Peconic River (Figure 6.). Modifications to the flow of the upstream and downstream opening by adding and removing boards, thus changing water level, appear to improve passage efficiency.

- b) Reasons why the established goals were not met, if appropriate.

All goals were met.

- c) Additional pertinent information including problems encountered, future suggestions etc.

Additional cameras and signs may be helpful in deterring vandalism.

American Eel: The Byron Young Fishway also has an eel pass adjacently attached to the pool and weir. A water pump is used to provide continuous water flow down a covered slope. The upstream exit has a small uncovered panel sloped into the viewing pool.

Goal: To monitor the eel pass at the Byron Young Fishway

Objectives:

- 1) To maintain passage for eels
- 2) To collect and count eels using the fishway.

- a) Accomplished Goals and Objectives

A modified seine net was placed on the upstream exit of the eel pass from Feb 28th 2025 through May 25th 2025 (Figure 7). The net was checked every day for eels and for sufficient water flow. Modifications to the fishway including opening up the entrance, repairing the water pump and implemented in February 2025 and were very successful. Both 1,224 glass eels and 1,390 elvers (total 2,614) successfully passed the entire season. Prior to the modifications, a total of 5 elvers were counted in 2024.

- b) Reasons why the established goals were not met, if appropriate.

All goals were met.

- c) Additional pertinent information including problems encountered, future suggestions etc.

The eel water pump is often clogged or not working properly. A new design using a temporary pump may be more reliable and have consistent water flow – allowing for greater eel passage.

- III. **Internship Participants** *Internships*: Four internships with stipends were awarded to Suffolk County Community College students: Paul Delzatto, Raquel Lituma, Renae Smith and Karlene Etsch. All students equally participated in field maintenance, each visiting these sites at least 3 times per week, and analyzing ~16 days of Woodhull footage.



Figure 1. Camera box vandalized at Grangebél, all equipment was pushed over the walkway during heavy rain and some parts were submerged.



Figure 2: Bridal Veil Falls in Grangebel Park

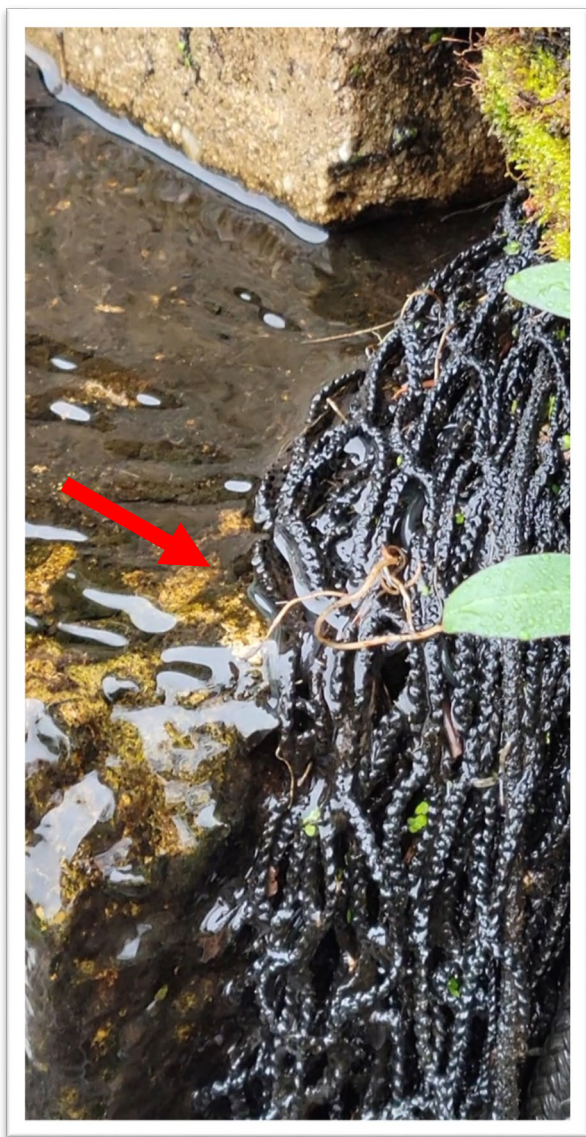


Figure 3: Top of temporary eel pass in Bridal Veil Falls, red arrow is pointing to a glass eel that successfully climbed it.

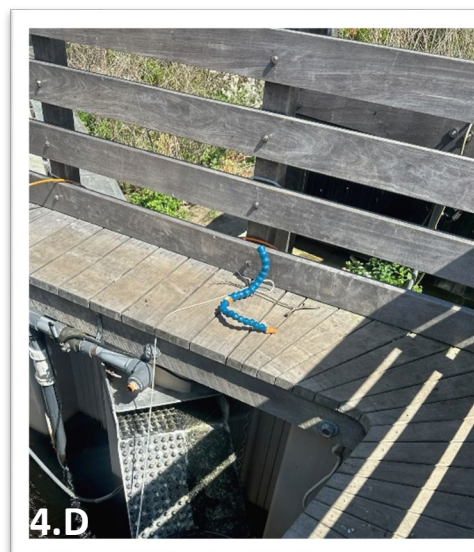
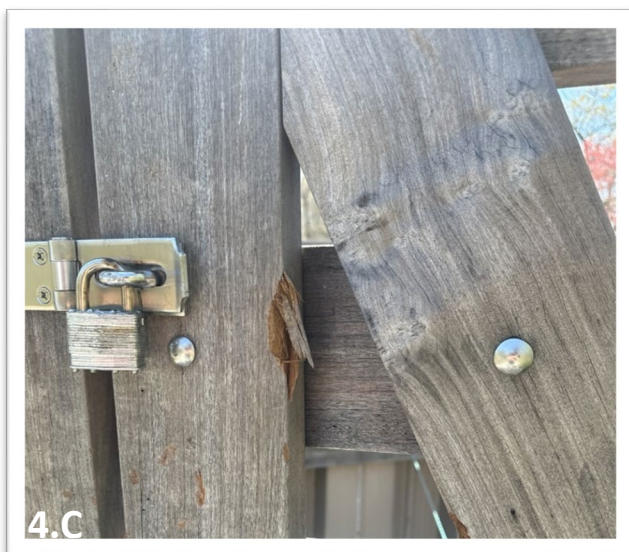
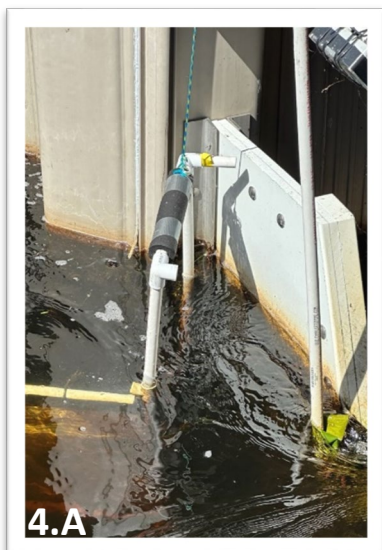


Figure 4. Woodhull vandalisim. A) Antenna and backing for camera disassembled; B) Sign damaged; C) Gate and lock shows damage; D) Hosing for eel pass disassembled

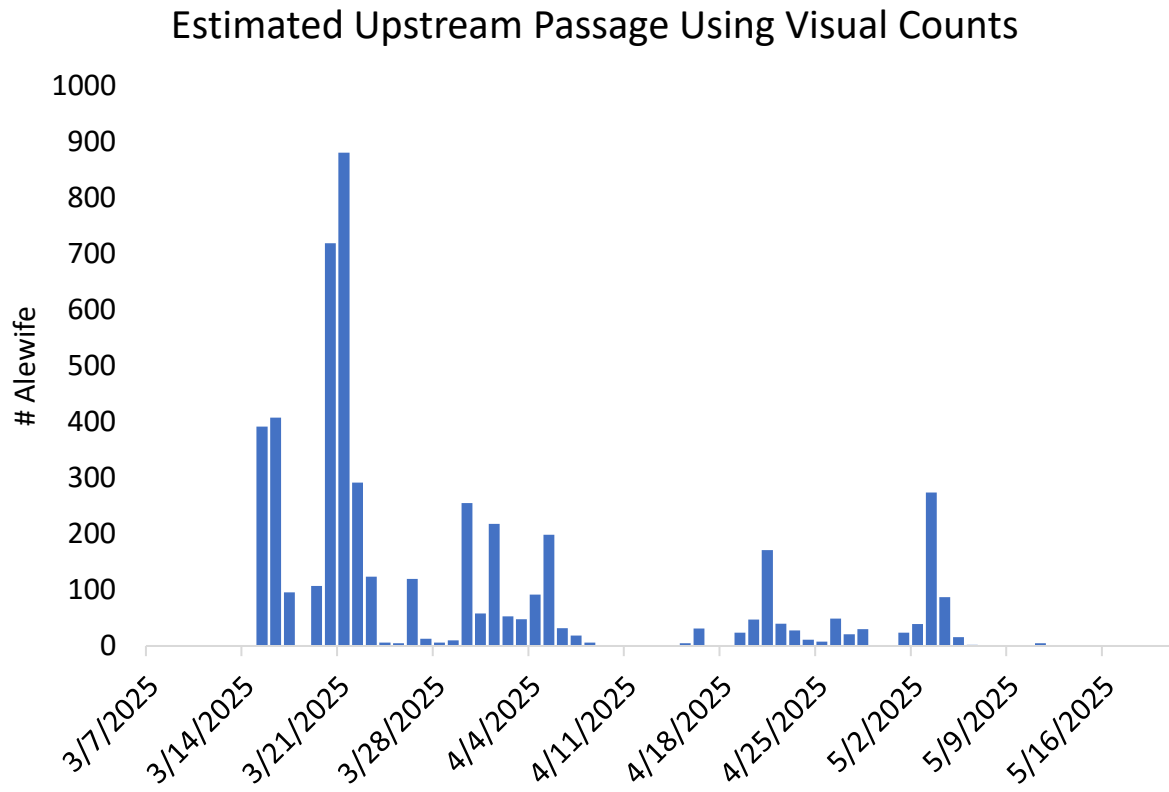


Figure 5. Daily visual Alewife counts from the Byron Young Fishway.

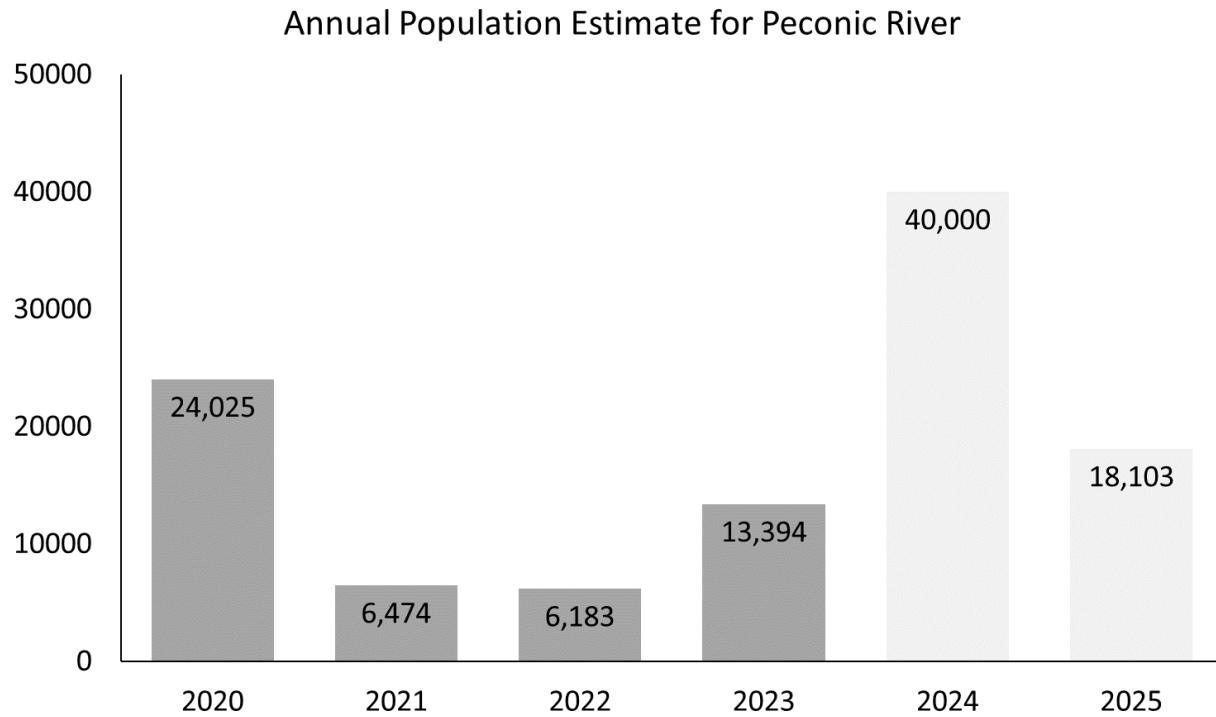


Figure 6. Dark grey bars (2020-2023) were obtained from visual counts at Grangebel Park and adjusted for multipassage, decreasing all visual counts by 67%. Light grey bars (2024- 2025) was obtained from Woodhull visual counts and adjusted by applying annual passage rates of tagged returners in the Byron Young Fishway.

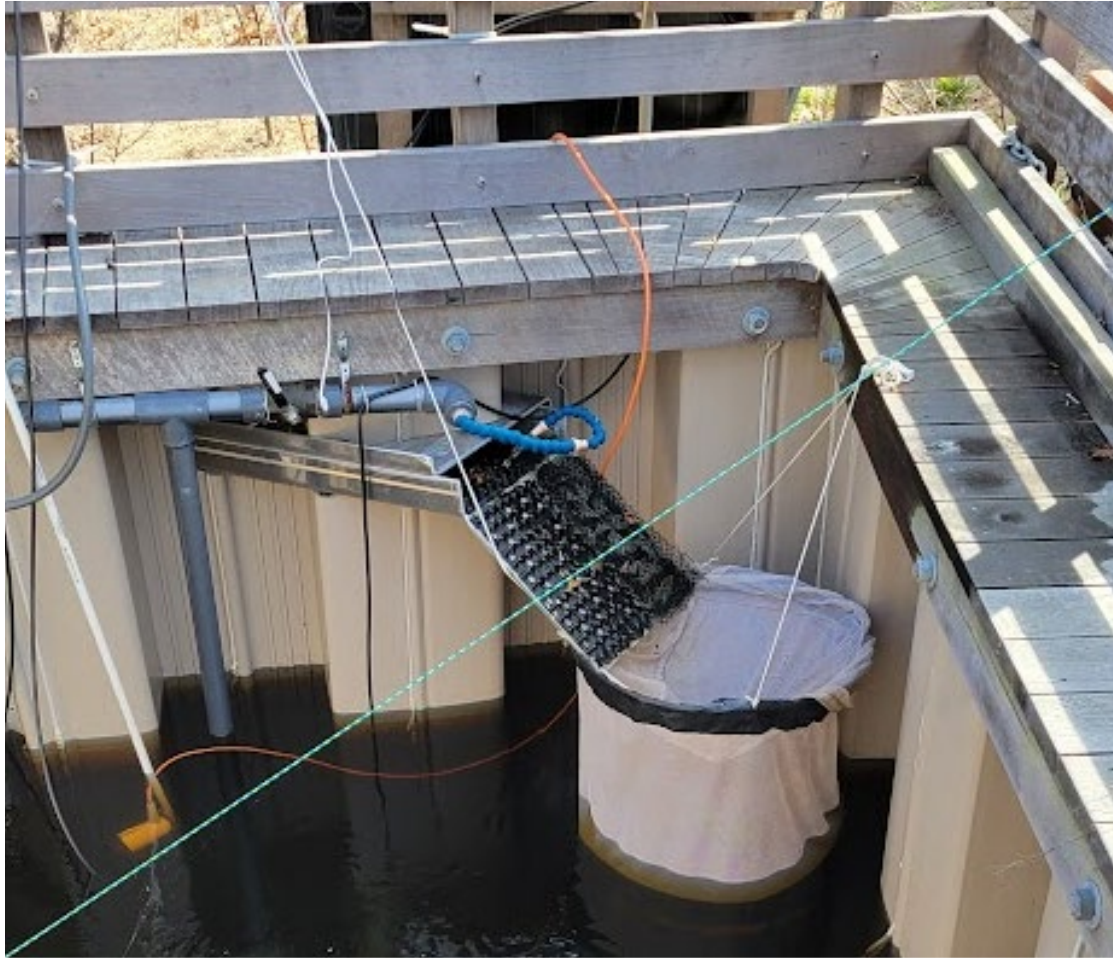


Figure 7. Woodhull eel pass collection net in viewing pool.