

Report on Peconic River Alewife Run - 2010

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With the completion of the Rock Ramp fish passage (Figure 1) in Grangebel Park on February 22, 2010, a volunteer monitoring program was undertaken to document the alewife spring spawning run in the Peconic River. The newly installed Rock Ramp was designed to provide permanent fish passage for these fish to access spawning habitat in the waters above Grangebel Park.

The history of the effort to aid alewife passage in the Peconic River began with a Peconic Estuary Program Demonstration Grant in 1995. In 1995 and 1996, alewives were captured below Grangebel Park dam by dip net and moved upstream over the dam. In addition, several hundred alewives were captured from the alewife run into Big Fresh Pond in Southampton to augment those fish moved from within the Peconic River system. During 1997 to 1999, students from the Riverhead Middle School's Science Program, under the guidance of Mr. Robert Conklin, captured and moved alewives upstream over the Grangebel Park dam. Because of these efforts, by 2000 a local community effort (The Peconic River Fish Restoration Commission) secured the funds to purchase and place an Alaska Steep Pass fish ladder in the north spillway of the Grangebel Park dam to increase the spawning runs potential. The Alaska Steep Pass was placed and removed annually from 2000 to 2009 for the duration of the spawning run, approximately March 1 through May 1. A local environmental company, Miller Environmental Inc, Calverton, undertook this labor intensive effort of placement and operation each year. In addition, debris removal was a continuous task during operation undertaken on a volunteer basis by Mr. Robert Conklin.

Although the steep pass was successful, a more permanent solution to fish passage was sought. It took several years to develop a final set of construction plans, obtain the necessary dam safety and construction permits, plus secure last minute funding necessary to complete construction.

Construction of the permanent Rock Ramp fish passage project began just before Christmas 2009. Completion occurred on February 22, 2010 when the upstream coffer dam was removed allowing water to flow down the Rock Ramp. Following the construction of the Rock Ramp, the next logical step was to expend effort to monitor alewife utilization of the new fish passage. This report will document the observations at three sites: the Rock Ramp, Upper Mills Gauging Station dam on the main stem of the Peconic River and Woodhull dam on Little River, the first major tributary to the Peconic River. Figure 2 identifies the Peconic River Estuary and Peconic River watershed and Figure 3 identifies the locations of the three observations sites.

Survey objectives:

1. To detect the presence of alewife spawning upstream of the new Rock Ramp.
2. Using springtime observations, document the timing Peconic River alewife run.
3. Visually attempt to estimate spawning run abundance.
4. Collect biological data from a sample of spawning adult alewives from the Peconic River.

This report summarizes the 2010 observations and collected data.

Figure 1. Grangebel Park Rock Ramp Fish Passage.



Methods and Materials:

Observations

In early March 2010, observations began to document alewife presence shortly after the Rock Ramp began operation. Observation sites included the Rock Ramp, and the first two barriers up stream of the Rock Ramp, Upper Mills dam and Woodhull dam. Data collected at each site followed the procedures established for the Long Island wide

alewife survey conducted by the Seatuck Environmental Association (<http://www.seatuck.org/current-conservation-projects/137.html>). All observational data collected here were reported using protocols established by the Environmental Defense fund and the South Shore Estuary Reserve. Standard protocol includes date, time, location, water temperature (if possible), weather conditions, alewife presence or absence, and, if present, how many. Notes regarding other species observed at the site and harvest of alewives were also recorded.

Biological data collection

Biological data collected included total length and sex. Alewives were captured by dip net at the base of the Woodhull dam. Three different size dip nets were used. The primary net was an long handled crab net (7ft 8in handle) with a 14 inch diameter ring by 12 inches deep bearing 2 1/4 inch stretched mesh webbing. The second net employed was a landing net (8 ft 8in handle) with a 22 inch hoop by 24 inches deep with 1 3/4 inches stretched mesh webbing. This net was used on three occasions. The third net was a small crab net with a four ft handle with a 13 inch ring, and 2 1/4 inch stretched mesh webbing. This net was only utilized a couple of times and was replaced by the primary net described above.

All fish were captured at the base of the outflow pipe at Woodhull dam and placed in a five gallon bucket with fresh water for each batch of fish collected. Fish would be dipped until fifteen to twenty five fish had been captured. The fish would then be palpated to determine sex, measured to the nearest millimeter in total length, and returned to the pool below the dam. Alewives were not moved above the dam due to lack of proper permits to move the fish. Efforts are underway to design fish passage over this dam in order to gain access to potential spawning area above Woodhull Dam.

On each visit to the Woodhull dam site an attempt was made to estimate a minimum and maximum number of alewives in the pool. It was not possible to determine an exact number of fish in the pool because: fish could hide along the banks under the overhanging branches, were not readily visible in the deeper portions of the pool or not visible in the turbulent waters under the outflow pipe

Estimates were made using counts of alewives along the edges of the pool and in the shallow center of the pool then extrapolated based on the size of the pool. The pool below Woodhull dam was approximately 50-70 feet long by 25-40 feet wide. High and low estimates were made for each visit to provide a range of the number of fish present. Estimates were not made at either Upper Mills dam due to poor visibility, or at the Rock Ramp due to access at Grangebél Park and the ramp because of continued constriction activities.. However, alewives were observed at both of these sites during the spring 2010 spawning run.

Observations were recorded on standard data forms provided by the Seatuck Environmental Association and entered on the Seatuck Environmental Association's website. Biological data was entered into a MS Excel spreadsheet by date.

Results:

Between March 16 and May 16, 2010, the Woodhull dam site was visited on 32 occasions. Alewives were observed on 31 of the 32 visits (Table 1). Based on these observations the peak of the 2010 alewife spawning run occurred between April 5th and May 1st. The lowest estimate during the period was 200 fish on April 15th and the highest conservative estimate was 3000 on April 20th. A conservative estimate of over 1000 spawning alewives were present in the pool on 11 of 14 visits. Table 1 contains a minimum and maximum estimate for each visit. For overall run size, based on the observed estimates per visit, a minimum of 24,000 alewives entered the Peconic River to spawn this spring. The actual run size is most likely much higher in the range of 40 to 50 thousand spawning alewives.

A total of 612 alewives were captured, measured for total length and palpated to determine sex. The overall sex ratio was 356 males to 256 females (1.4:1 Male to Female), Table 2. The average size of the males was 263.1 mm with a range of 235 mm to 300 mm (Figure 5); average size of females was 273.1 mm with a range of 243 mm to 313 mm (Figure 5). More smaller males were present in the run compared to females (Figure 3); females size distribution was fairly wide. There were only two dates (April 10 and April 27) where the number of females equaled or exceeded males during 2010.

Discussion:

The data presented above provide a baseline for comparison with future data collections from the Peconic River system. A number of the alewife programs along the East Coast utilize volunteers to document the success of alewife spawning runs. It may be necessary to continue use of volunteers to collect these data. It will also be important to continue to follow the program standards initiated by the South Shore Estuary Reserve.

Effort will also be taken in the future to improve the count accuracy of adult alewives entering the Peconic River. A small grant has been secured to purchase and install a fish counter to document the true magnitude of the alewife spawning run in the Peconic River. It is anticipated that this device will be in place for the 2011 spawning run. Selection of a placement location will be undertaken once the construction in Grangebel Park has been completed.

The alewife spawning run observations from this past spring exceeded all expectations (Figure 4). No one really knew what to expect with the completion of this project, since we had little or no experience with this type of fish passage project. The local Construction Company (Terry Bros.) did a fantastic job of completing this project during the winter of 2009/2010 under some less than ideal conditions. The numbers of fish using the Ramp is a good example of using a natural stepped stream as a model for fish passage.

It is anticipated that monitoring efforts will continue during the 2011 spawning run. Data collection for length, sex ratio and age will be attempted. Scale samples will be collected from a subsample of those fish measured for future age analysis. The data collected in 2011 will provide a snapshot for comparison with this year's data. Ideally this relatively simple data collection effort should be continued in order to assess the impacts of improved river herring passage into the Peconic River.

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Figure 4. Alewives at base of Woodhull Dam during 2010 Spawning Run.



Table 1. Peconic River Alewife Observations at Woodhull Dam, 2010.

Date	Alewives	Min Est	Max Est	Measured
Mar 16, 2010	Y	50	50	
Mar 18, 2010	Y	75	100	
Mar 19, 2010	Y	60	100	
Mar 21, 2010	Y	250	400	39
Mar 22, 2010	Y	200	300	51
Mar 25, 2010	Y	50	75	10
Mar 27, 2010	Y	500	750	34
Mar 28, 2010	Y	25	50	
Apr 1, 2010	Y	150	250	
Apr 3, 2010	Y	15	30	
Apr 5, 2010	Y	1000	1500	68
Apr 6, 2010	Y	750	1000	40
Apr 7, 2010	Y	2500	5000	53
Apr 8, 2010	Y	2500	4000	55
Apr 9, 2010	Y	3000	6000	
Apr 10, 2010	Y	1500	2500	36
Apr 14, 2010	Y	1500	2000	
Apr 15, 2010	Y	200	300	17
Apr 19, 2010	Y	1000	1500	
Apr 20, 2010	Y	3000	6000	102
Apr 22, 2010	Y	2500	5000	
Apr 24, 2010	Y	1500	2000	
Apr 27, 2010	Y	250	500	26
Apr 29, 2010	Y	300	500	42
May 1, 2010	Y	1500	2000	39
May 2, 2010	Y	50	100	
May 3, 2010	Y	100	150	
May 5, 2010	Y	1	1	
May 5, 2010	Y	50	50	
May 8, 2010	Y	30	30	
May 10, 2010	Y	3	3	
May 16, 2010	N	0	0	
Totals		24609	42239	612

Table 2. Mean total length (mm) by sex by date for alewives collected at the Woodhull Dam, 2010.

Date	Male	Mean TL	Female	Mean TL
Mar 21, 2010	29	261.3	10	275.4
Mar 22, 2010	28	363.8	23	278.9
Mar 25, 2010	7	262.6	3	279.7
Mar 27, 2010	19	265.2	15	272.8
Apr 5, 2010	40	262.9	28	271.3
Apr 6, 2010	24	265.3	16	272.2
Apr 7, 2010	36	264.0	17	275.4
Apr 8, 2010	31	265.1	24	274.9
Apr 10, 2010	18	260.3	18	274.1
Apr 15, 2010	9	265.8	8	276.0
Apr 20, 2010	55	263.4	47	271.2
Apr 27, 2010	10	262.3	16	267.2
Apr 29, 2010	23	258.7	19	271.2
May 1, 2010	27	261.8	12	273.8

Figure 5. Length frequency (number by size group) of male and female alewives collected in the Peconic River, 2010.

