

Historically, the Ipswich River supported a thriving Alewife fishery. This fishery was severly impacted due to obstructions on the mainstem of the river and the use of Alewife spawning ponds for water supply. In recent years, the Department of Fisheries and Wildlife and the Riverways Program have been working to restore this fishery. The restoration effort has centered on repairing the fish ladder at the Sylvania dam and transporting migrating blueback herrings from the Charles River to the Ipswich River. It was hoped that the offspring of these transported fish would imprint upon the Ipswich and return to the Ipswich to spawn. Because the Alewife spawning ponds are still in use for water supply and restocking with Alewife would create a conflict of interest, the restocking effort has been centered on a similar species to the Alewife, the Blueback Herring. Bluebacks herrings are *anadromous* fish: they are born in fresh water, live for two to three year in the ocean and then return to spawn in their original spawning stream.

The determine if the restoration project was working, Richard Tomczyk, the Parker and Ipswich River Basin Team Leader of the Executive Office of Environmental Affairs, Karen Pelto, Stream Ecologist with the Riverways Program and the Ipswich River Watershed Association worked together to organize a "Fish Count". Volunteers were trained about the Ipswich River, the restoration project, Blueback Herring and the logistics of the counting at three community meetings. Volunteers were asked to count fish in 10 minute intervals at the Sylvania Dam Fish Ladder as often as they wished from April 15th through May 31st. Data was recorded on cards that were left in a container at the Quebec Labrador Foundation. Volunteers recorded blueback herring sightings, as well as other fish, birds and wildlife seen, water temperature and the date and time. The Ipswich DPW and High School Environmental Science students painted and placed a metal piece in the fish ladder to assist in seeing the fish.

It is important to note that this count was not designed to estimate the total number of fish migrating through the Sylvania Dam. This count was designed to establish a random sampling to see first if, and second when and under what conditions, the fish were migrating.

From April 15th through May 31st, 75 volunteers counted 254 times. The average daily number of counts was 5.4, with a minimum of 2 and a maximum of 12. Sunny weekend days were the days with the most counts, while mid-week days and the last days of May where the board was difficult to see were the days with the lowest counts.

A total of 53 herring were sighted on 16 different counts. The graph below details fish sightings by date:



As can be seen, there is concentration of sightings from May 14th through May 23rd. When the percentage of fish sightings seen each day was compared to the percentage of total counts taken each day there was no statistically significant correlation. This indicates that there actually were more fish migrating from May 14th to May 23rd, rather than that there were simply more people counting fish during those days.

Following is a graph that details the distribution of these same 53 fish based on the time of day they were seen:



As can be seen, there is a concentration of fish sightings in the 5 pm to 9 pm range, yet many fish were also seen from 7 - 8 am and 2 - 3 pm. When the percentage of fish sightings in each hour was compared to the percentage of total counts taken in each hour there was no statistically significant correlation. This indicates that there actually were more fish migrating in the evening hours, rather than that there were simply more people counting fish in the evening hours.

The water temperature at the time of these 16 fish sightings ranged from 14.0 to 18.5 degrees Celsius. The following chart details the number of fish seen at different stages of tide:

| <u>Tidal Stage</u> | Number of Fish Seen |
|----------------------------|---------------------|
| High Tide | 6 |
| 1 - 5 hours after HighTide | 34 |
| Low Tide | 6 |
| 1 - 5 hours after Low Tide | 7 |

In addition to herring, many other forms of wildlife were seen. Many volunteers noted seeing grackles, cormorants and many more species of birds. In addition, five volunteers noted seeing river otters (one who saw an otter swim up the fish ladder 30 seconds after a herring did).

The data collected in the 1999 Herring Count supports the following conclusions:

- Herring are returning to the Ipswich River and using the Sylvania Dam fishway.
- The herring were generally seen in mid to late May, in the afternoon to evening hours, after high tide and when the water temperature was above 14 degrees Celsius.

We would like to recommend that the following actions be taken to continue the fishway restoration project:

- Repair of the next obstruction to the fish migration, the Willowdale Dam Fishway.
- Consideration as to the fate of the third and final mainstem obstruction, the Bostik Dam in Middleton.
- Continued stocking of river herring from the Charles into the Ipswich.

To end, thank you to all of the volunteers who made this fish count possible!