



# 2000 Blueback Herring Count Results

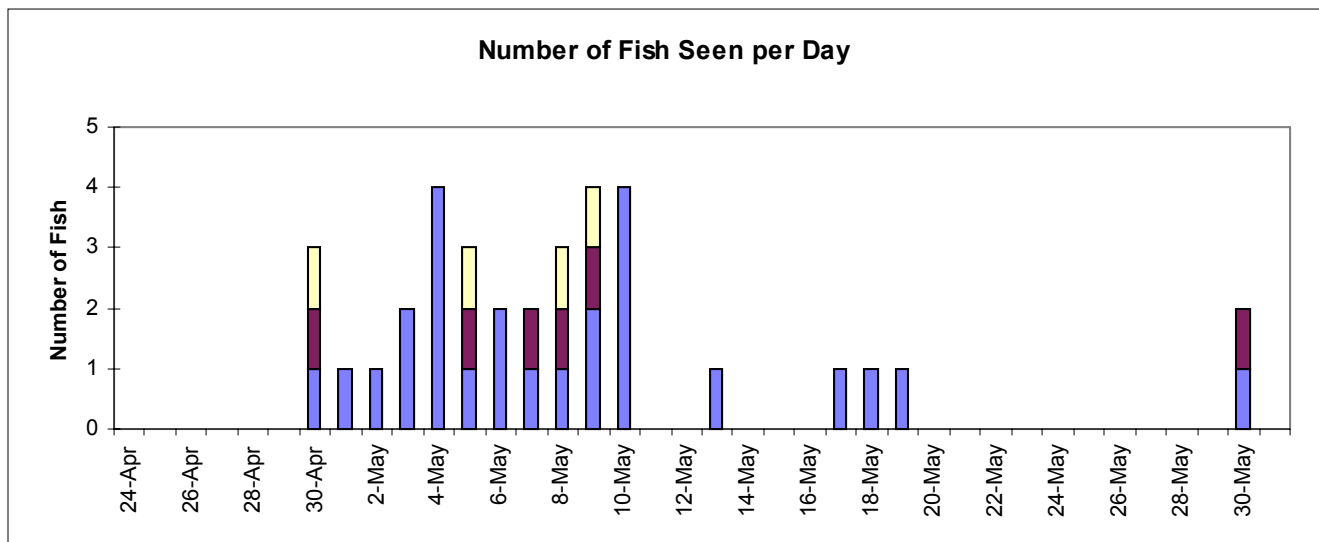
Ipswich River Watershed Association

Historically, the Ipswich River supported a thriving Alewife fishery. Barrels of salted Alewife were sold and transported to the West Indies in the early 1800's. More recently, this fishery was severely 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 herring to the river. 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 very similar and visually indistinguishable species 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.

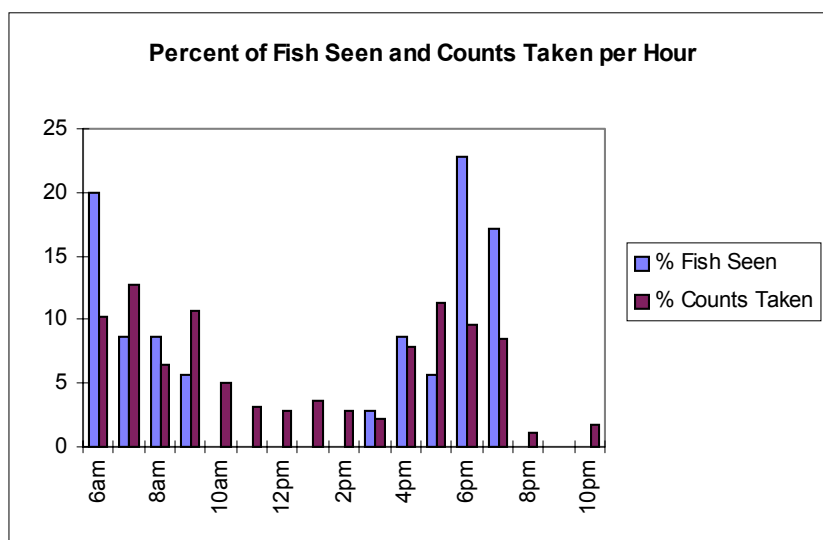
To determine if the restoration project was working, the first annual fish count took place in 1999. A total of 53 fish were seen in a month and a half of volunteer monitoring. This was the first known documented fish count on the Ipswich River. In 2000, the fish count was completed again. Volunteers were trained about the Ipswich River, the restoration project, Blueback Herring and the logistics of the counting at community meetings. Volunteers were asked to count fish in 10 minute intervals at the Sylvania Dam Fish Ladder from April 24th 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 wildlife seen, water temperature, date and time. The Ipswich DPW placed a white metal plate in the bottom of 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 sampling to see if, when and under what conditions the fish were migrating.

From April 24th through May 31st, 2000, 50 volunteers counted 282 ten-minute counts. The average daily number of counts was 8.0, higher than the average daily count of 5.4 in 1999. The minimum count per day was 2 and the maximum 12. Sunny weekend days were the days with the most counts.

A total of 35 herring were sighted on 26 different counts. This is fewer total fish than 1999's total of 53 herring. Last year, however, we saw those 53 fish on 16 occasions. Thus, in 2000, we saw fewer fish per sighting than in 1999. The graph below details fish sightings by date. As can be seen, there is concentration of sightings from April 30th through May 10th. This is earlier than last year's concentration 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 during this time, rather than that there were simply more people counting fish during those days. What is interesting to note is that the peak time for the Parker River Alewife fish run was also April 30th through May 10th, 2000. This raises some questions about the origin and species of the Ipswich run.



Following is a graph that details the distribution of these same 35 fish based on the time of day they were seen:



As can be seen, there is a concentration of fish sightings in the 6 am to 10 am and 5 pm to 8 pm range. When the percentage of fish sightings in each hour was compared to the percentage of total counts taken in each hour there was statistically significant correlation. This indicates that because we had more counts in the 6 am - 10 am and 4 pm - 8 pm range, we saw more fish. In next years count, we should focus on establishing better coverage in the late morning/ afternoon. The data also indicates that fish tended to migrate in the evening, which corresponds well with the 1999 data.

The water temperature at the time of these 26 fish sightings ranged from 12.0 to 21.0 degrees Celsius. This is a larger range of temperature than last year. The following chart details the number of fish seen at different stages of tide:

<u>Tidal Stage</u>	<u>Number of Fish Seen</u>
High Tide	6
1 - 5 hours after High Tide	10
Low Tide	12
1 - 5 hours after Low Tide	7

These results are different than last years, when the fish predominately returned after high tide. A possible explanation is the fact that flow was extremely high this year due to flooding in April. Thus there were large volumes of water even in low tide. In addition to herring, many other forms of wildlife were seen. Volunteers noted seeing grackles, cormorants, swallows, crows and other birds. The 3' long eel (that "intimidated the herring") was definitely a favorite to see as well.

The results from the 2000 fish count are interesting and slightly unexpected as compared to the 1999 fish count in the following ways:

- Despite the fact we had on average 60 percent more counts per day, we saw 51 percent less fish than last year. Possible explanations to consider include: heavy flows interrupted the fish migration, or the year the fish may have spawned in 1997 was a very dry year in the Ipswich and the fry may not have survived.
- In addition, we might not be seeing Bluebacks in the Ipswich. Bluebacks tend to return a few weeks later than Alewife. The Parker River Alewife count had its peak return the exact same days as our peak return: April 30th to May 10th. It is possible that we are counting Alewives and not Bluebacks in our fish count. Perhaps they are the remnant native population or are diverted (lost) Parker River fish.

The following actions are planned to address these issues in the 2001 fish count:

- Catch some of the returning herring and analyze them to determine if they are Blueback Herring or Alewives.
- During the peak run of the fish, establish 24 hour coverage to determine exactly when the fish are running.
- Continue stocking Blueback herring from the Charles into the Ipswich.

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

