

# Volunteer Counts of River Herring: Why and How?



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Association to Preserve Cape Cod

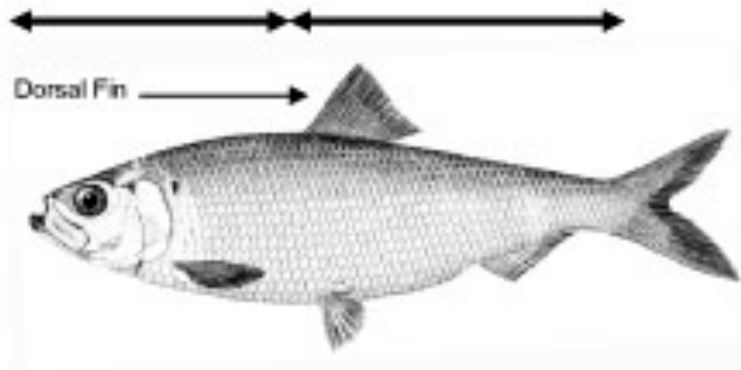
482 Main Street

Dennis, MA 02638



# River Herring – Two Anadromous Species

## HERRING SPECIES OF MASSACHUSETTS: EASY WAYS TO IDENTIFY THEM



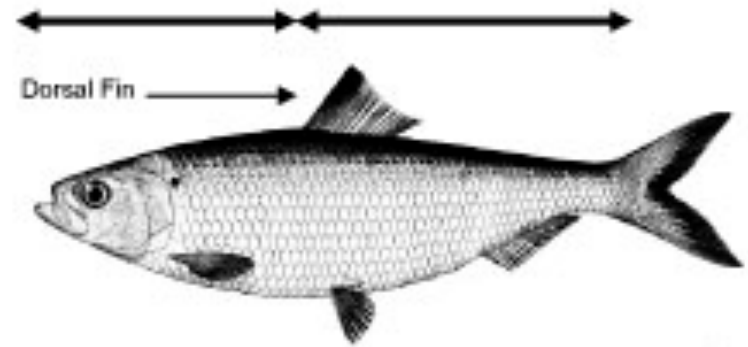
### **Alewife (*Alosa pseudoharengus*)**

Description: Gray to gray-green dorsal color, eye width greater than distance from front of eye to tip of snout, distinct round dark spot behind gill cover, lining of body cavity is light colored, belly sharp (saw-toothed)

Size: Up to 15 inches, generally larger than bluebacks

Habitat: Found in marine and fresh waters (rivers, lakes, and coastal waters – mainly in ponds and deep pools)

Regulations: **Illegal to take, possess or sell**



### **Blueback herring (*Alosa aestivalis*)**

Description: Blue-black to blue-green dorsal color, eye width is equal to distance from front of eye to tip of snout, dark spot behind gill cover is less distinct, lining of body cavity is dark colored, belly sharp (saw-toothed)

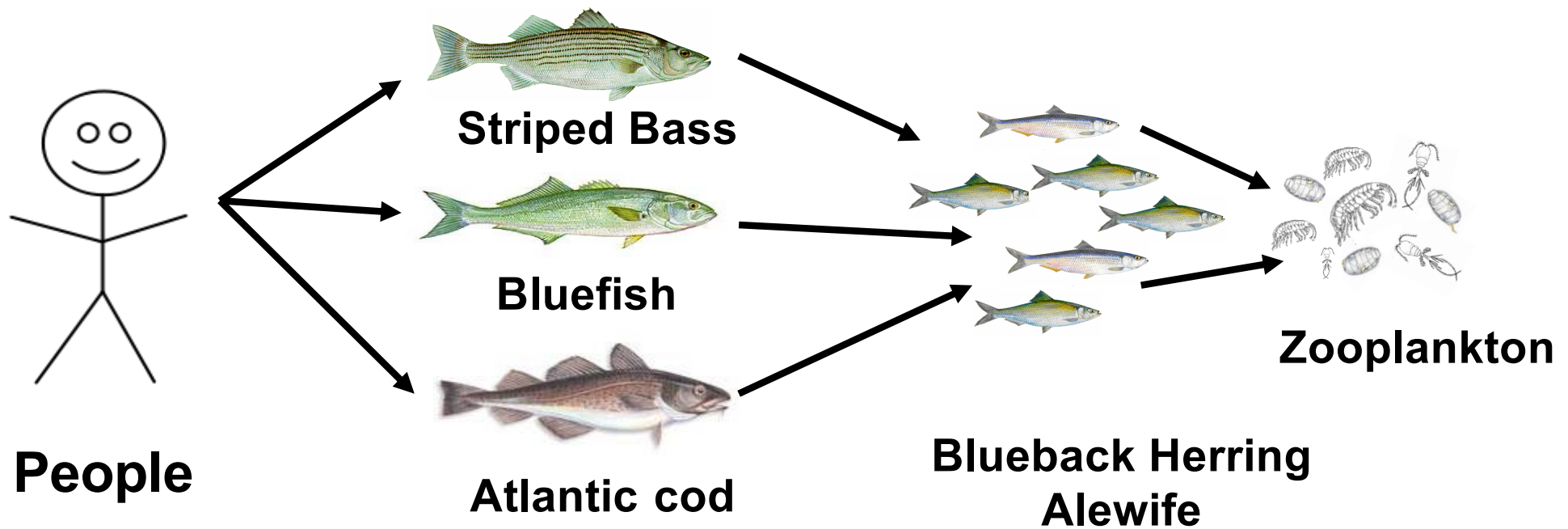
Size: Up to 15 inches, generally smaller than alewives

Habitat: Found in marine and fresh waters (coastal waters and rivers with swift moving waters over hard substrate)

Regulations: **Illegal to take, possess or sell**

Source: Massachusetts Division of Marine Fisheries.

# Why do we care about river herring? (Food!)



Other species that eat herring: osprey, bald eagle, great blue heron, gulls, terns, cormorants, other seabirds, seals, whales, river otter, fox, raccoon, skunk, weasel, fisher, turtles, tuna, haddock, halibut, American eel, brook trout, rainbow trout, brown trout, smallmouth and largemouth bass, white and yellow perch.





RAINBOW TROUT



BROOK TROUT

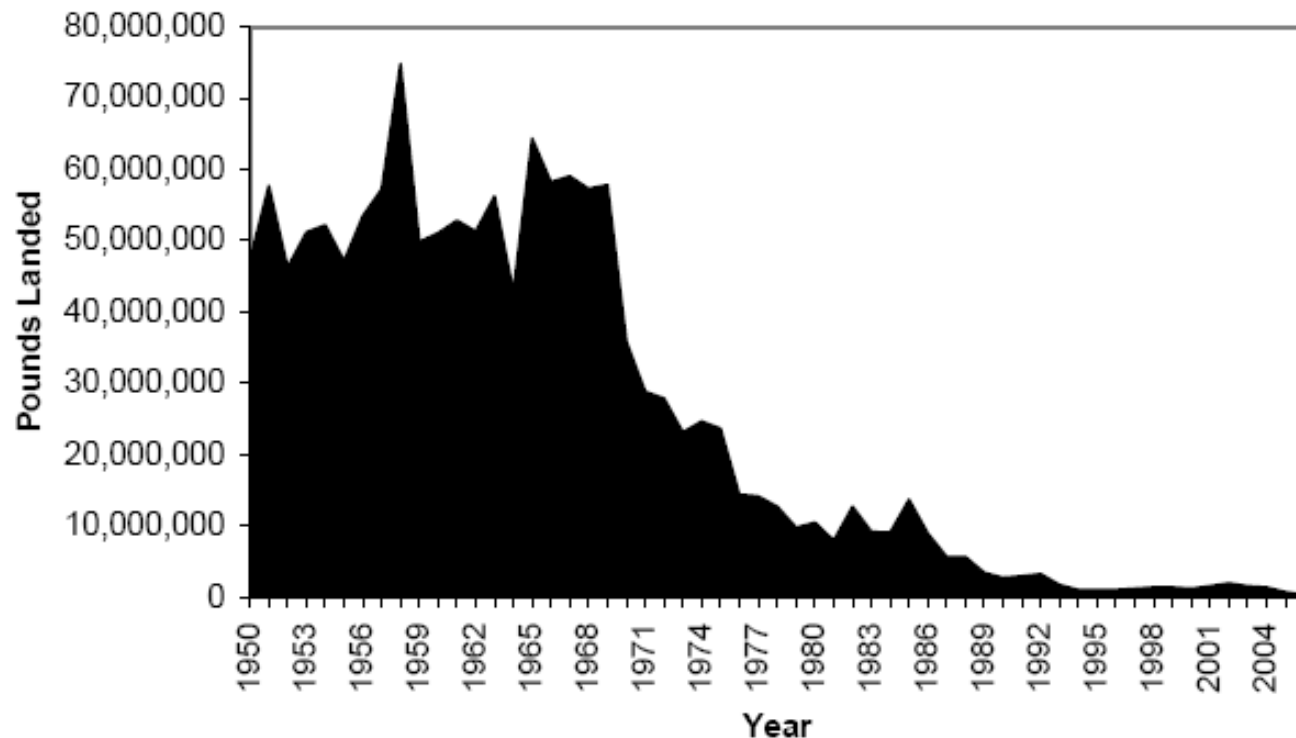


BROWN TROUT





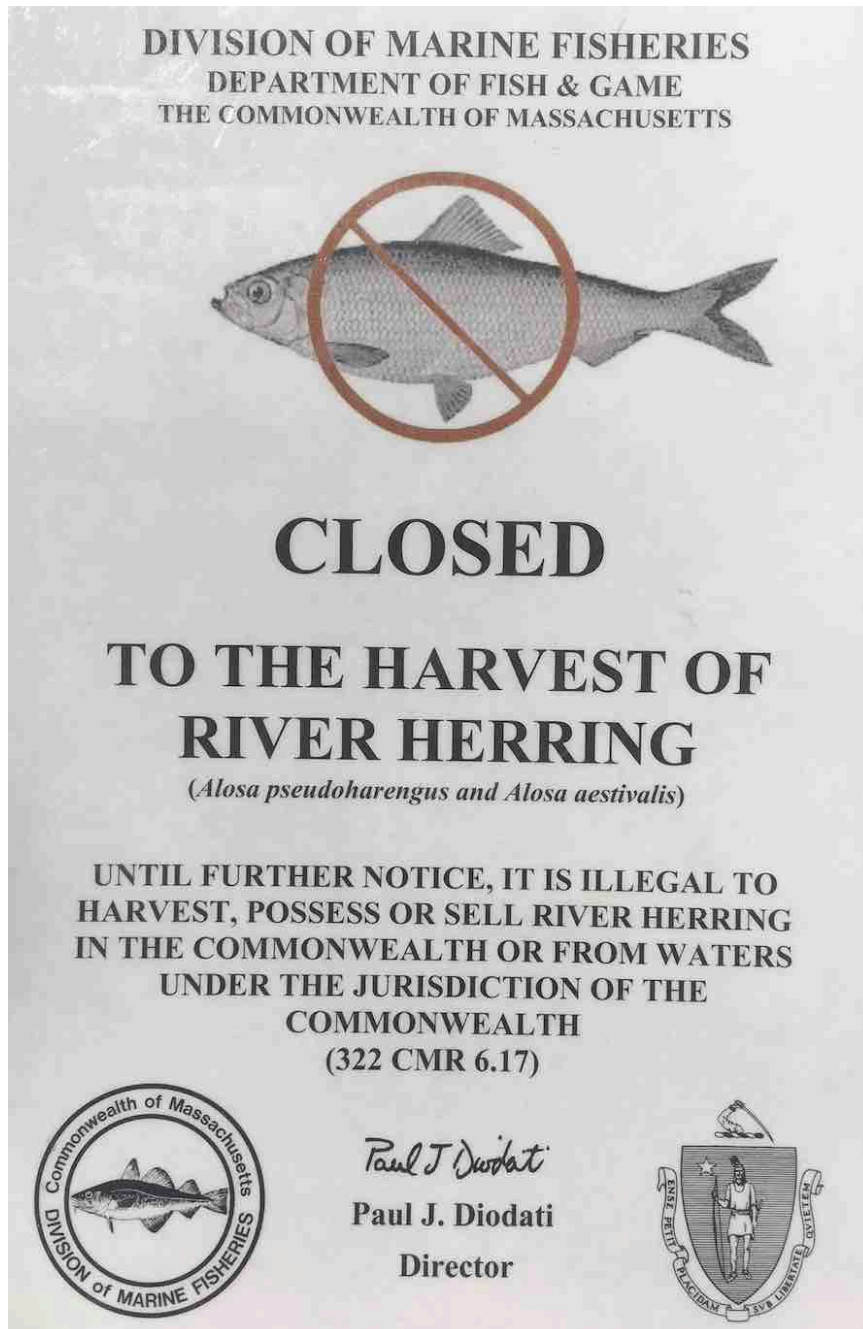
# Regional Decline of River Herring Populations



## Causes of decline:

- Barriers to passage
- Water withdrawals
- Habitat loss
- Water pollution
- Poaching
- Predation
- Overfishing
- 2017 – near historic lows

# What's Being Done: Ban on Fishing, 2006 - ongoing

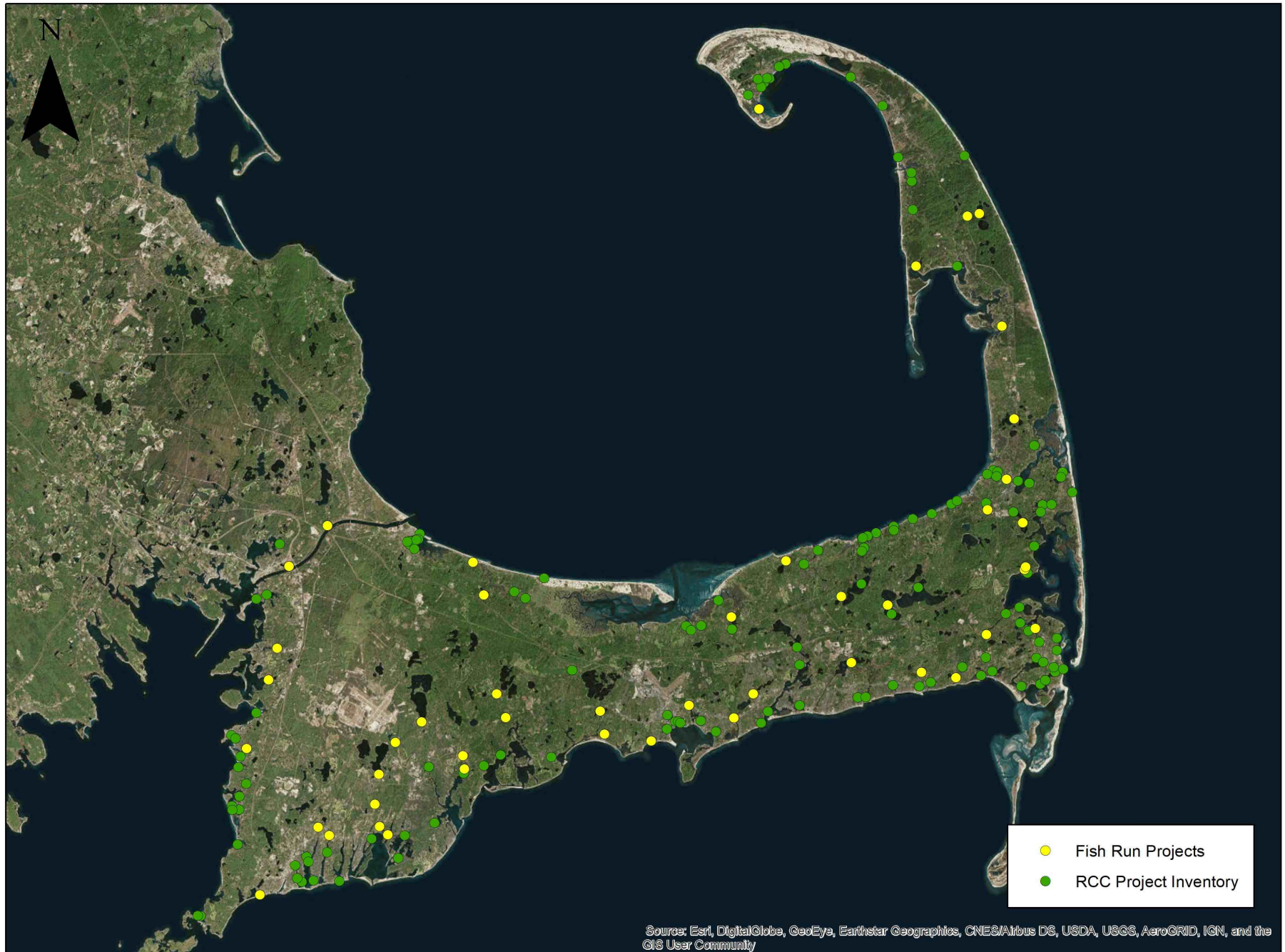


NOAA National Marine Fisheries Service:

- Approved 12-mile ban on mid-water trawling for herring from Connecticut to Canadian border;
- Approved 20-mile ban east of Cape Cod;
- New catch limits set at 80% of sustainable levels
- Requires ongoing monitoring of herring populations, fishing, and catch.



# What's Being Done: Herring Run Restoration Projects

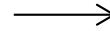


# What's Being Done: Restoration of Fish Runs

Before

After

Upper Shawme  
Pond, Sandwich

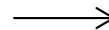


Upper Shawme Dam

No passage for 30 years

Fish ladder installed in 2009

Stony Brook,  
Brewster

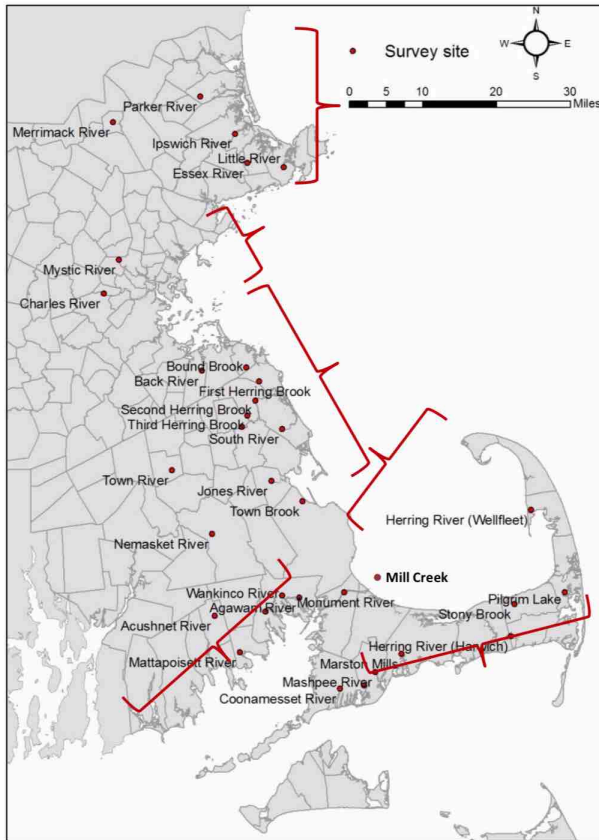


4 feet wide culvert

18 feet wide opening,  
plus daylight



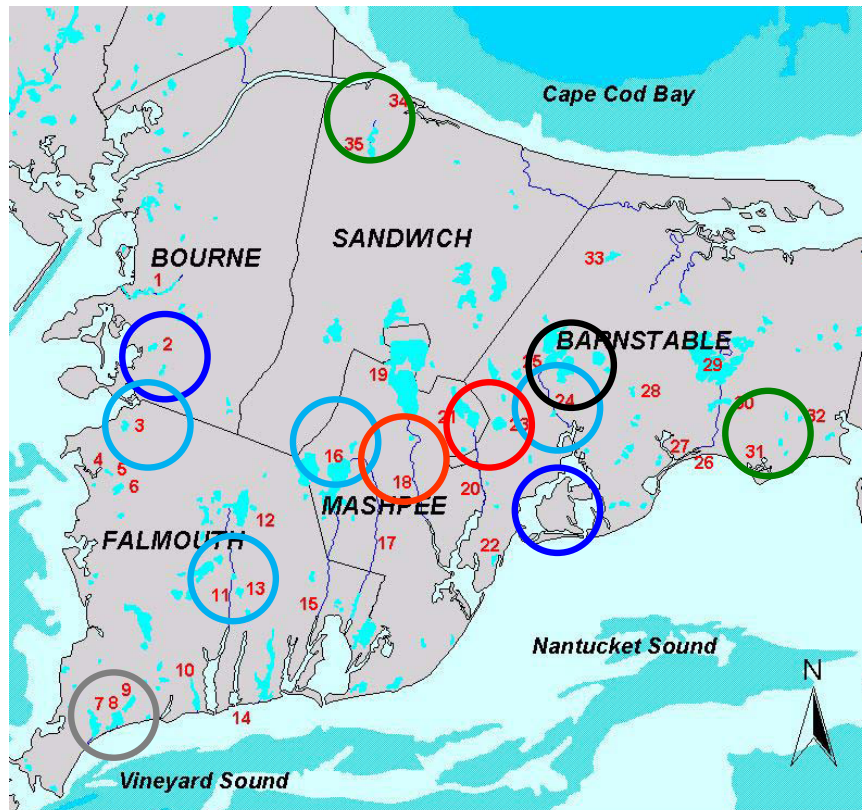
# What's Being Done: Herring Counts



- Agencies & herring wardens need count data for population estimates, management & protection
- About 35 counting sites in MA – Cape Cod has about half
- Both electronic and volunteer visual counts
- Counts help to document success of restoration projects
- Builds public support and gets people outside!

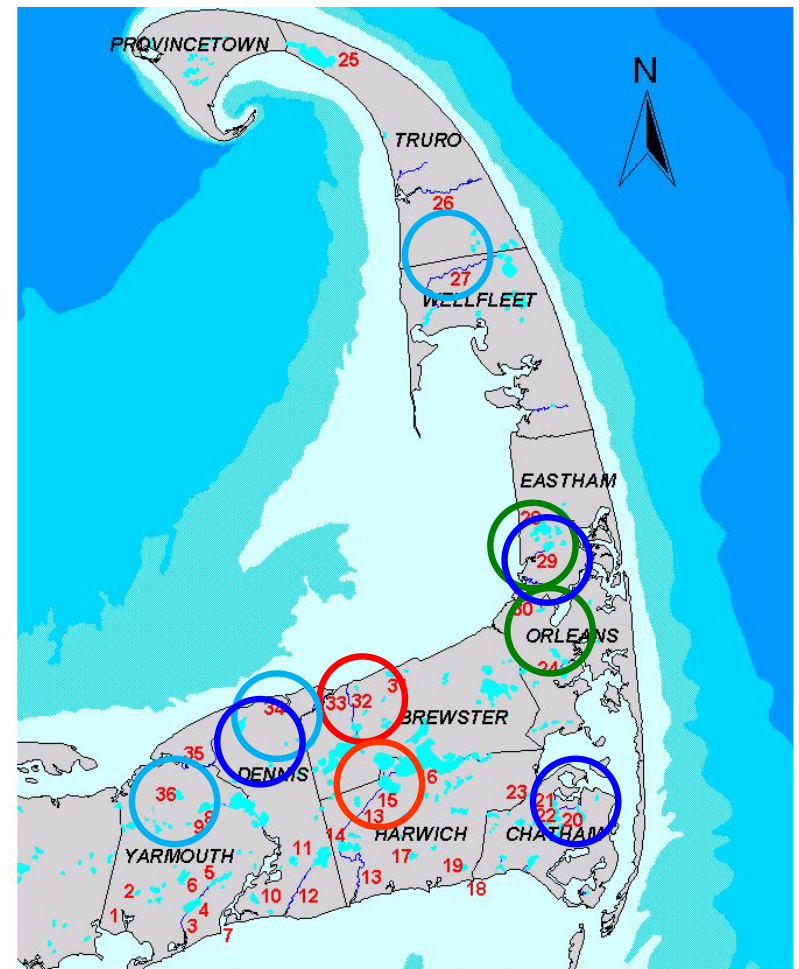


# Volunteer Herring Count Programs on Cape Cod



Major streams and ponds of Western Cape Cod.

Stream/Pond Names:	12 - Coonamessett Pond	24 - Marstons Mills River
1 - Pocasset River	13 - Flax Pond	25 - Middle Pond
2 - Red Brook Pond	14 - Green Pond	26 - Centerville River
3 - Cedar Lake	15 - Childs River	27 - Bumps River
4 - Wild Harbor River	16 - Johns Pond	28 - Lumbert Pond
5 - Dam Pond	17 - Quashnet River	29 - Wequaquet Lake
6 - Wing Pond	18 - Mashpee River	30 - Long Pond
7 - Oyster Pond	19 - Mashpee - Wakeby Pond	31 - Halls Creek
8 - Salt Pond	20 - Santuit River	32 - Aunt Bettys Pond
9 - Siders Pond	21 - Santuit Pond	33 - Mill Pond
10 - Little Pond	22 - Rushy Marsh Pond	34 - Mill Creek
11 - Coonamessett River	23 - Lovells Pond	35 - Shawmee Lakes



Major streams and ponds of eastern Cape Cod

Stream/Pond Names:	10 - Kelleys Pond	19 - Skinequit Pond	28 - Great Pond
1 - Mill Creek	11 - Fresh Pond	20 - Frost Fish Creek	29 - Herring River
2 - Little Sandy Pond	12 - Swan Pond River	21 - Stillwater Pond	30 - Rock Harbor Creek
3 - Parkers River	13 - Herring River	22 - Lovers Lake	31 - Cobbs Pond
4 - Seine Pond	14 - West Reservoir	23 - Muddy Creek	32 - Stony Brook
5 - Long Pond	15 - Hincleys Pond	24 - Pilgrim Lake	33 - Quivett Creek
6 - Plashes Pond	16 - Long Pond	25 - Pilgrim Lake	34 - Sesuit Creek
7 - Bass River	17 - Grass Pond	26 - Pamet River	35 - Chase Gardens Creek
8 - Mill Pond	18 - Red River	27 - Herring River	36 - Matthews Pond
9 - Miss Thatchers Pond			

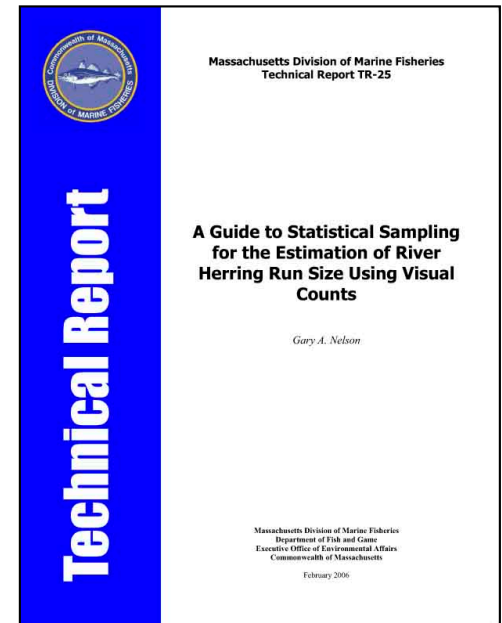
MA Division of Marine Fisheries, A Survey of Anadromous Fish Passage in Coastal Massachusetts, Part 2. Cape Cod and the Islands. MA DMF TR-16.

Blue: < 1,000 herring. Green: 1,000 – 9,999 herring. Light blue: 10,000 – 99,999 herring. Red: > 100,000 herring.

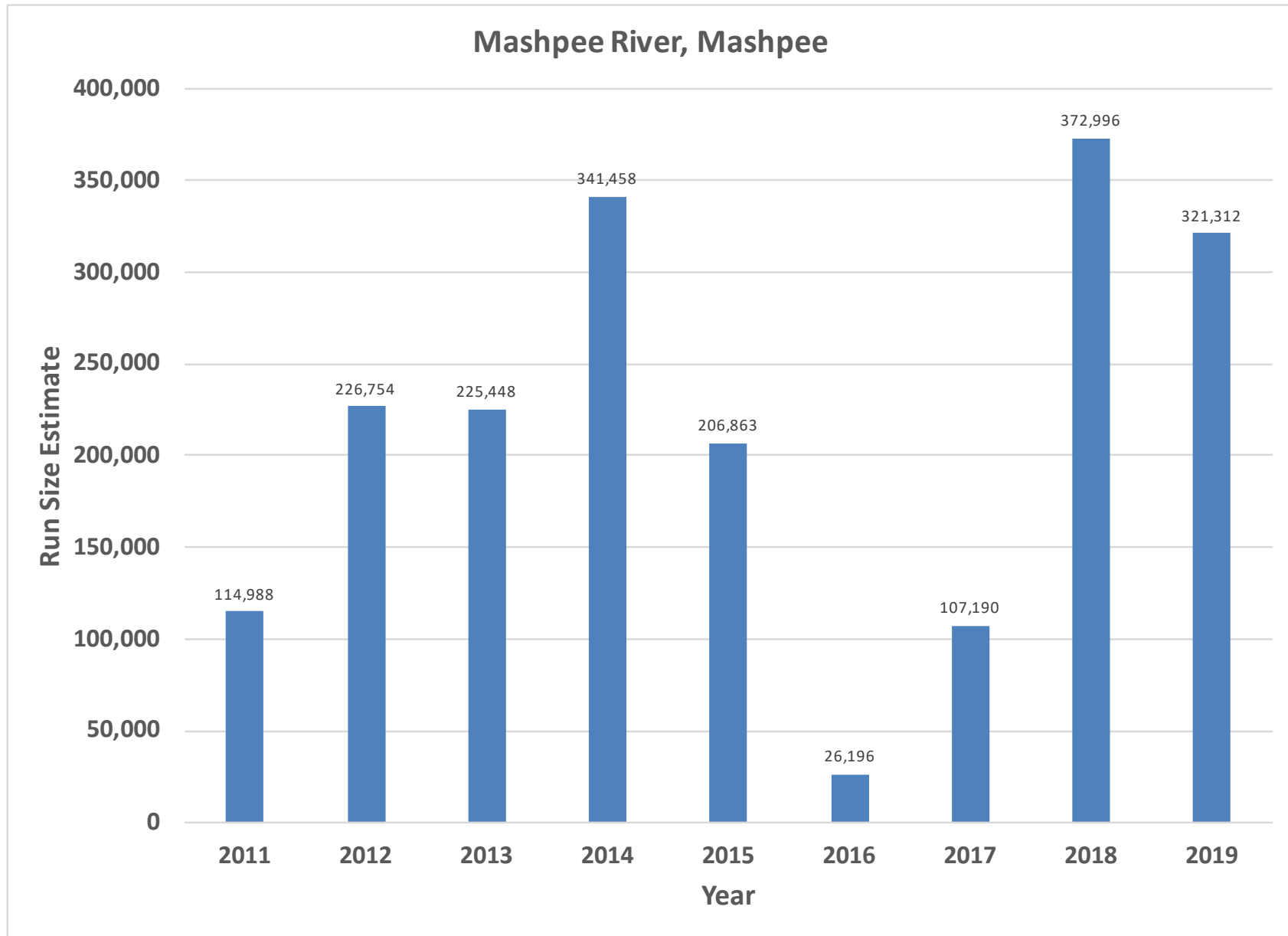


# Volunteer Herring Count Method

- Uses visual counts of herring migrating upstream to estimate herring population;
- Statistical method developed by DMF (Nelson, 2006);
- Counts done from April 1 to June 1;
- Counts done between 7 a.m. and 7 p.m. (12-hr day);
- 10-minute counts, 9 times a day, at random times;
- Data collected:
  - Date
  - Start and end times of 10-minute counts
  - Number of herring passing count site
  - Water temperature (degrees C)
  - Air temperature (degrees C)
  - Weather (using a weather classification code)
  - Comments (e.g., herring or eels nearby, predators)
- Report to APCC's website (see instructions) and send hard copies later;
- Other uses of data.

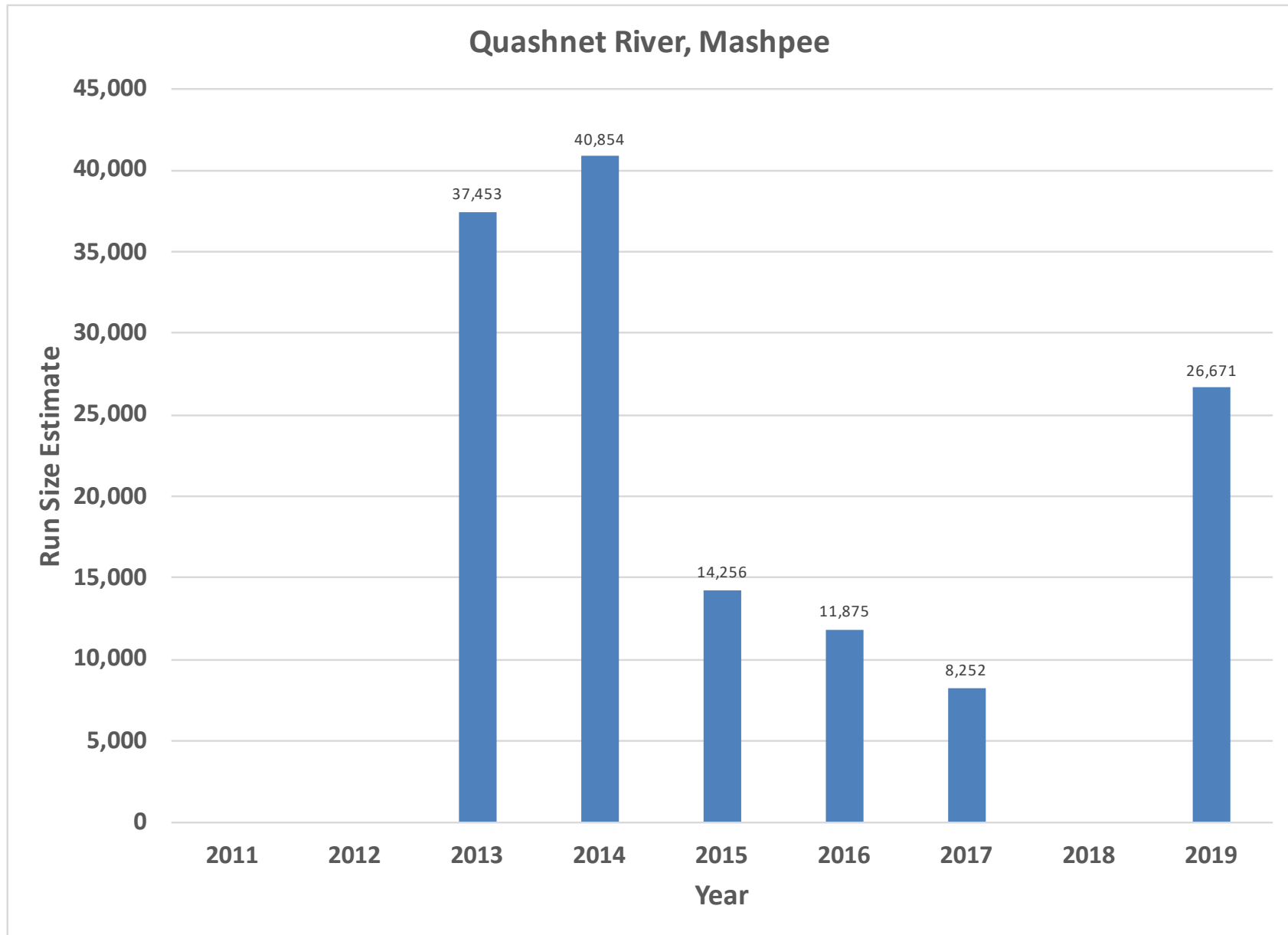


# Results: Mashpee River run sizes over time

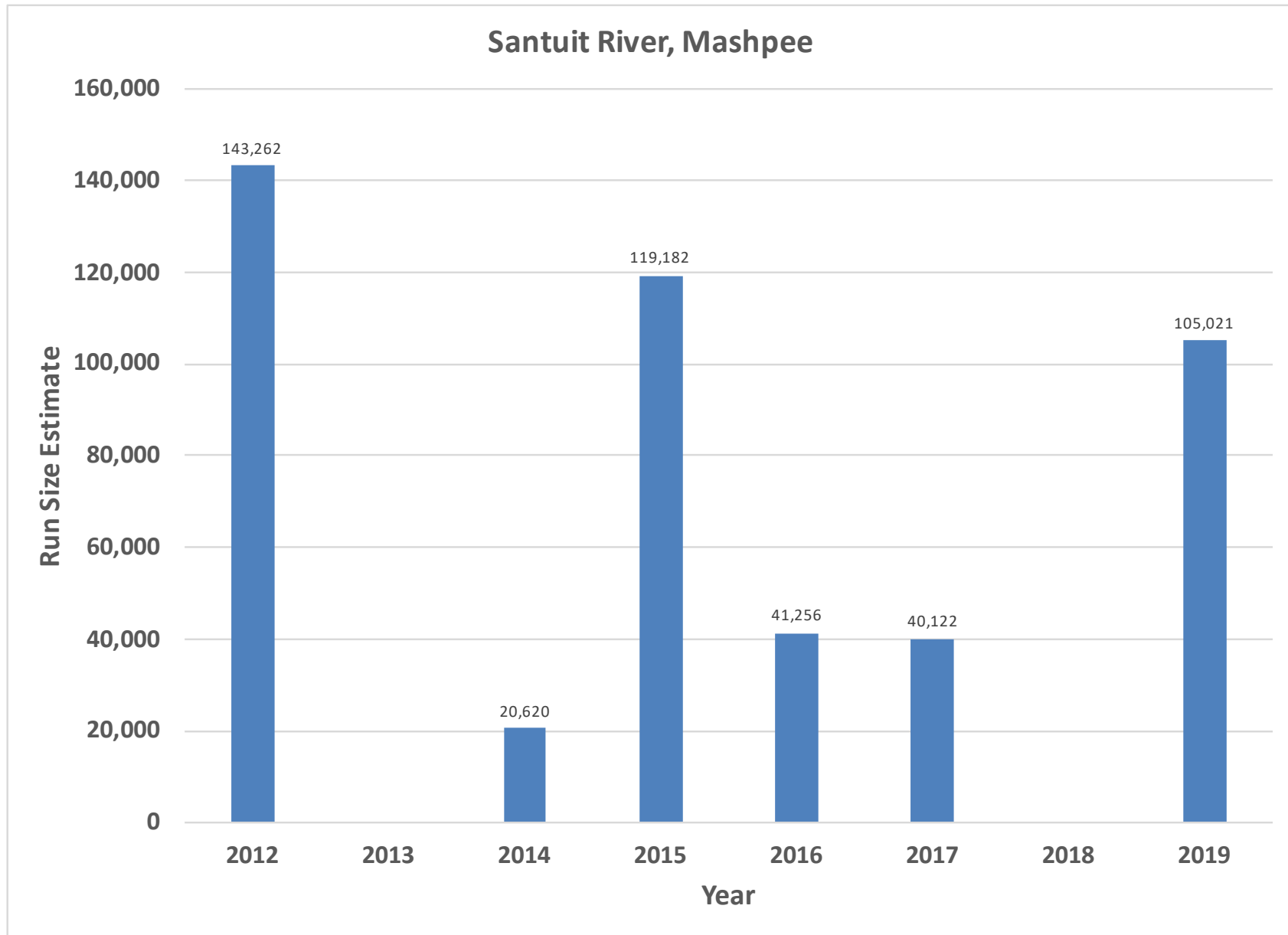




# Results: Quashnet River run sizes over time



# Results: Santuit River run sizes over time



# Acknowledgements

- Many volunteers!
- Herring Wardens & Natural Resource Directors in the Towns of Bourne, Brewster, Chatham, Dennis, Eastham, Falmouth, Harwich, Mashpee, Orleans, Sandwich, Wellfleet, and Yarmouth
- Abigail Franklin, Cape Cod Cooperative Extension / WHOI Sea Grant
- River Herring Warden Network, Cape Cod Commercial Fishermen's Alliance
- Cape Cod Salties
- Eastham Herring Monitors, Eastham Conservation Trust
- Stony Brook Herring Monitors
- Friends of Herring River, Wellfleet
- Harwich Conservation Trust, Harwich
- Dennis Conservation Trust, Dennis
- Bass River Rod & Gun Club, Yarmouth
- Coonamessett River Trust, Falmouth
- Mashpee Herring Monitors
- Mill Creek Herring Monitors
- NOAA Restoration Center
- Massachusetts Bays National Estuary Program
- Massachusetts Division of Marine Fisheries
- Massachusetts Environmental Trust
- North and South Rivers Watershed Association
- Orleans Waterways & Shellfish Advisory Committee
- Gulf of Maine Council
- Eddy Foundation of Brewster
- Friendship Fund
- Dolphin Trust
- Prospect Hill Foundation
- APCC members and donors



# For more information:

Visit APCC's website at [www.apcc.org](http://www.apcc.org) and look under  
"Programs / Science / Herring Run Monitoring"

Also check out the training video created by Cape  
Media, at: <https://vimeo.com/368068987>

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