

A school of river herring swimming underwater. The fish are silvery with dark vertical stripes. They are swimming in a loose formation, with some facing left and some facing right. The background is dark blue water with some light reflections.

Diadromous Fish Management Update - 2018

River Herring Network – October 18, 2018

Brad Chase – Mass. Division of Marine Fisheries

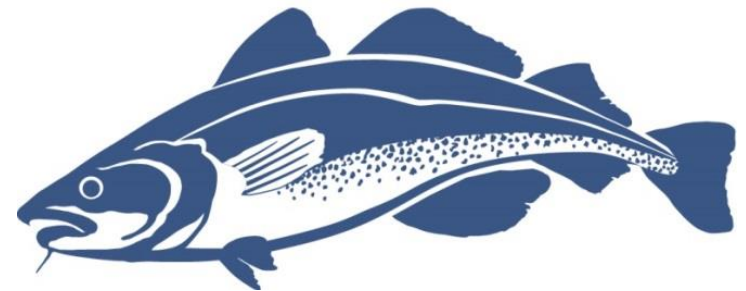
Bob Michelson - Fore River, Braintree

Presentation Outline

1. Interstate Updates
2. Fish Passage Restoration
3. River Herring Monitoring and Trends



Marine Fisheries
Commonwealth of Massachusetts



River Herring By-Catch

- **Buffer Zone:** NE Fishery Management Council voted Sept. 25th to restrict mid-water fishing for sea herring within 12 miles of shore year-round from the Canadian border to Connecticut border
 - With the exception east of Cape Cod where the buffer zone was expanded to about 20 miles
- **Acceptable Biological Catch:** changed formula to set annual catch limits to cap fishing mortality at 80% of sustainable levels, while allowing some of the allocation to be set aside for forage

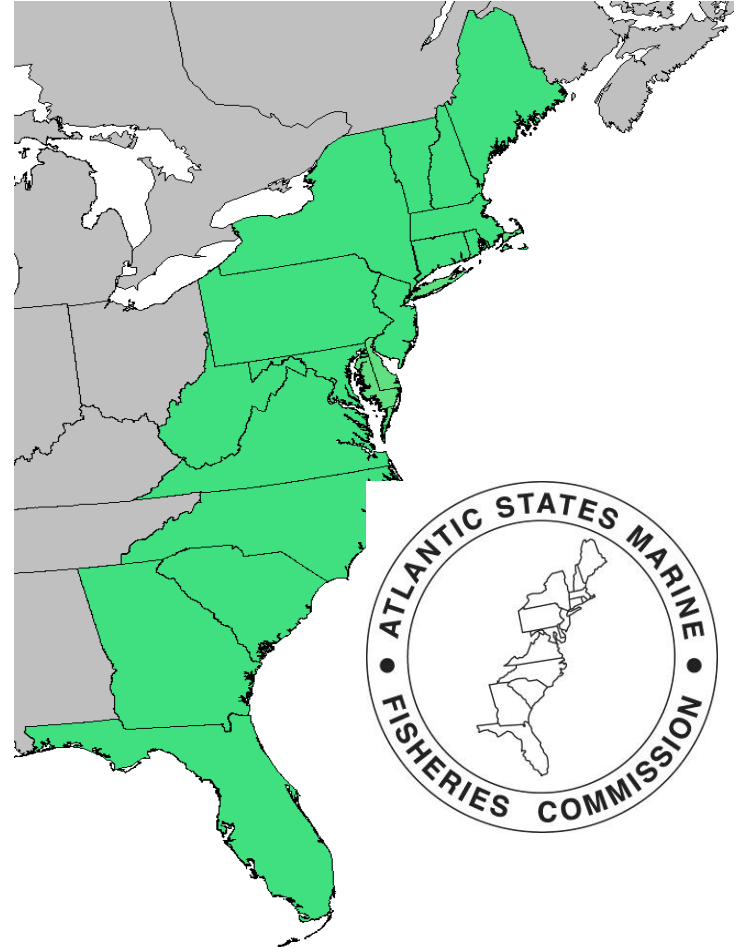
Must be approved by NMFS. Final rule and implementation is expected for 2019

NOAA Endangered Species Act Review 2017-2018

- Previous ESA review in 2013: determined that a threatened or endangered status for blueback herring and alewife was not warranted
 - 2015 Lawsuit: NRDC and Earthjustice sue NOAA over decision. Focus on blueback herring
 - NOAA Receive public comment until October 2017 and hosted an Extinction Risk Workshop and Assessment
- NOAA will publish the status review results by Jan. 31, 2019

Atlantic States Marine Fisheries Commission

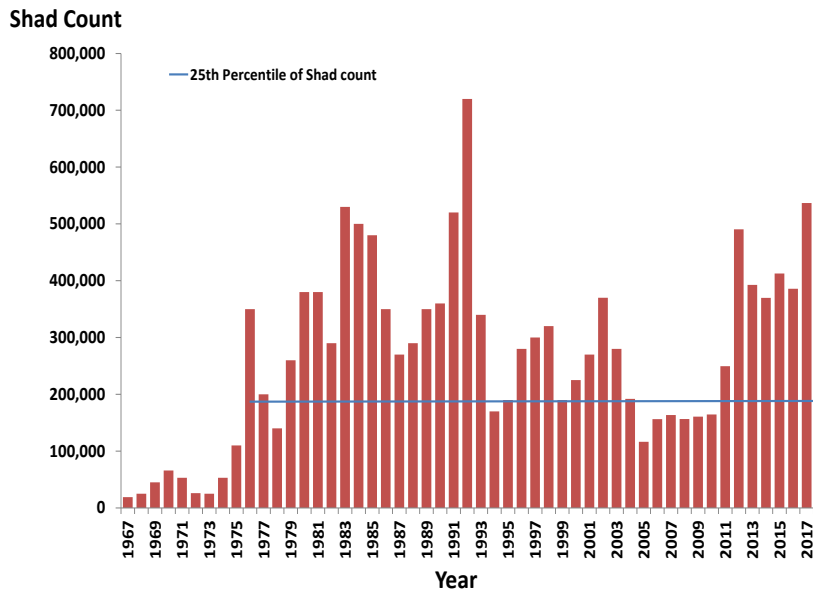
- Interstate Coast-Wide management of migratory species
- **Sustainable Fishery Management Plans** for diadromous fish
- Stock assessment updates for Eel and river herring completed in 2017
- Both updates found stocks to be depleted and with East Coast abundance near historic low levels



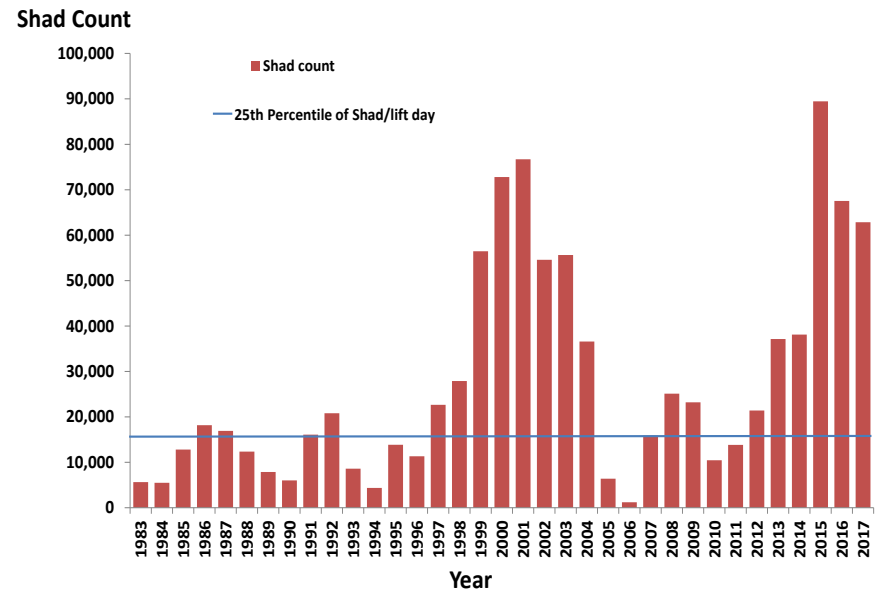
ASMFC – American Shad Stock Assessment 2018

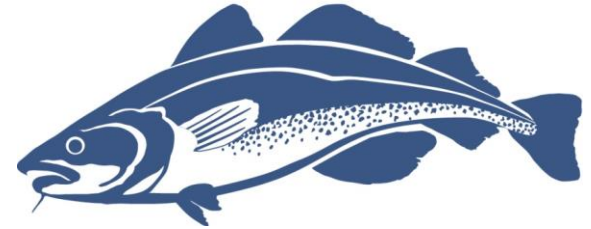
- Benchmark stock assessment started in 2018. Due for completion in the summer of 2019
- Shad data workshop held in Baltimore, March 2018

Connecticut River – Holyoke Dam shad lift counts



Merrimack River – Essex Dam shad lift counts





Recreational and Diadromous Fisheries Program

- Diadromous Fish Passage and Habitat Restoration
- Diadromous Fish Biology and Management
 - 48 Towns with river herring runs
 - 100 river herring runs
 - >150 fishways

Diadromous Fish Project Staff

Brad Chase , AB III - project leader

John Sheppard , AB II - river herring r

Ben Gahagan, AB II - river herring mo

Sara Turner, Ph.D., AB II - river herring

Ed Clark, Fishway Crew - fish passage c

Jim Rossignol, Fishway Crew - fish pas



Fish Passage and Habitat Restoration

1. DMF Fishway Crew work on small fishways
2. Large fishway construction via contracts and collaborations
3. Collaborations on eel passage, channel improvements, and dam removal



Fish Passage Responsibilities

- DMF Fishway Permit
- Fishway O&M plans
- Fishway MOUs
- Fishway maintenance
- River herring stocking
- Habitat assessments
- Run channel maintenance

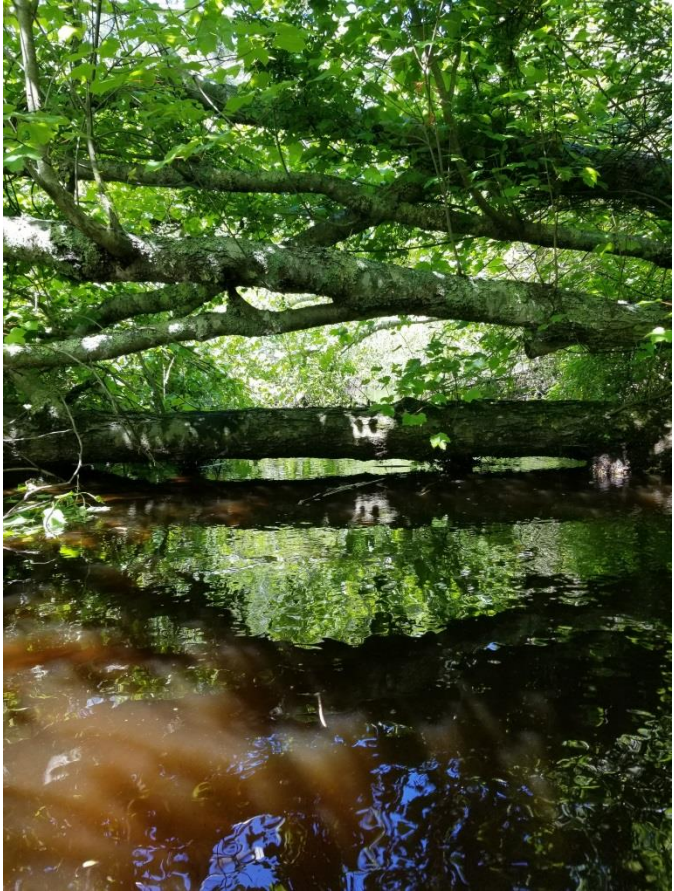
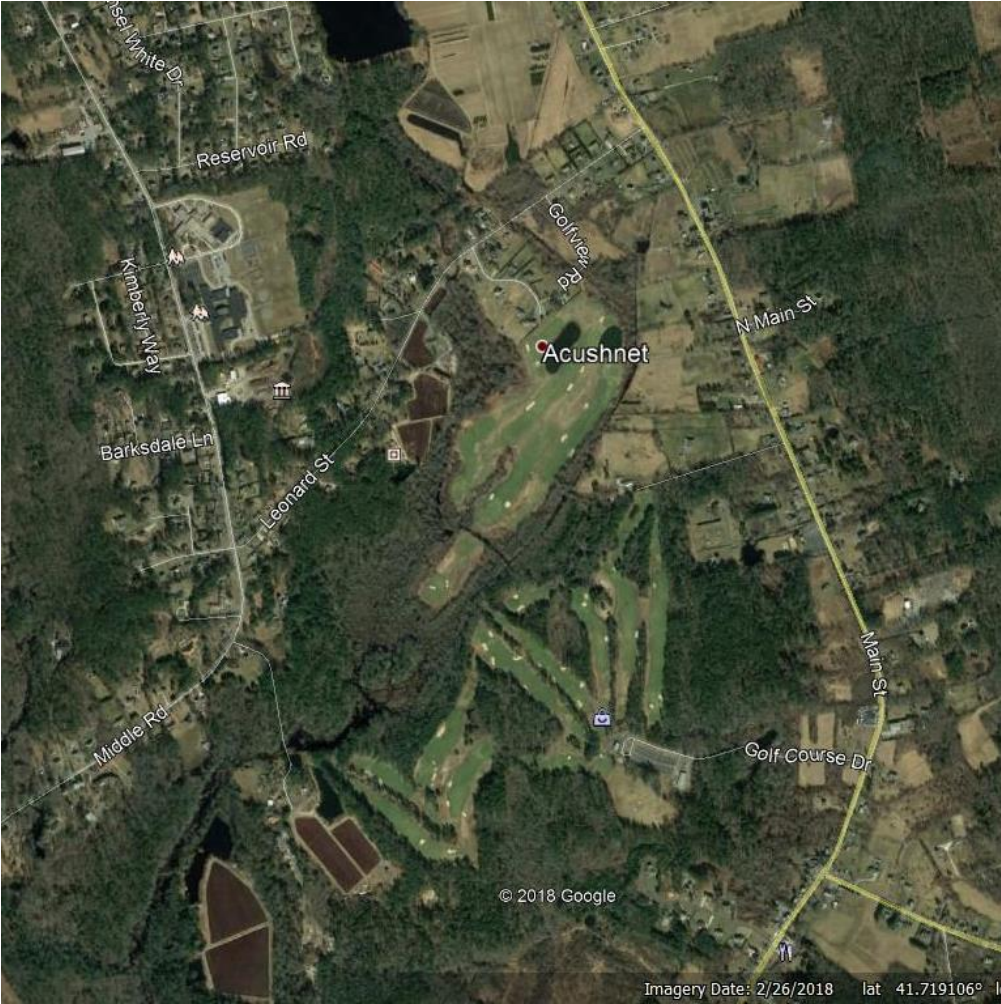


Stream Channel Maintenance

- Fore River Watershed, Braintree
- Jones River, Kingston
- Acushnet River, Acushnet
- Weir River, Hingham



Acushnet River Channel Maintenance

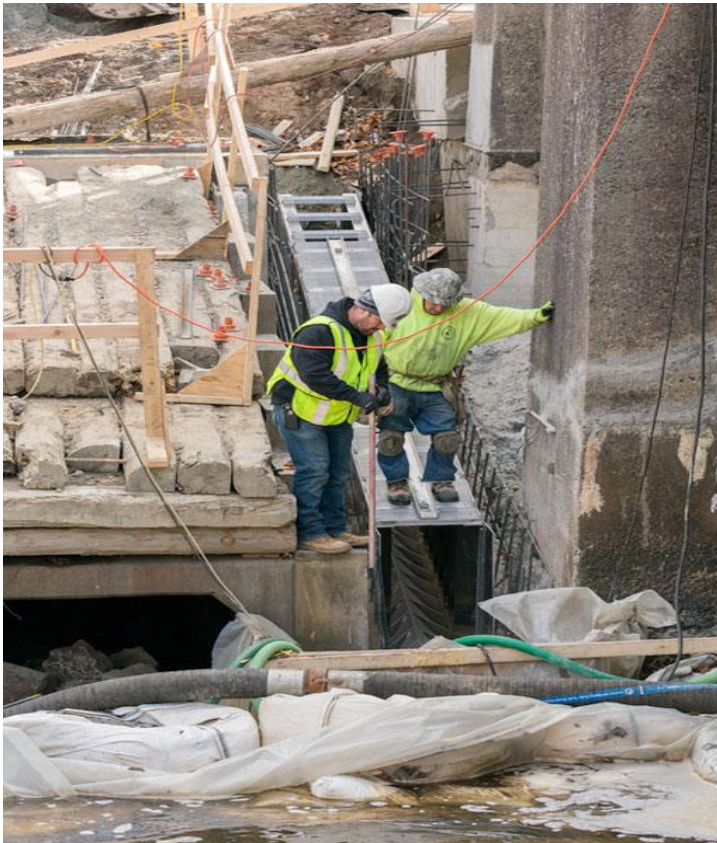


Jones River Channel Maintenance



May 2016

2016 Recap: 3 new fishways with no prior passage



Center Falls Dam, Aberjona
River, Winchester

Bourne Pond, Falmouth



Looks Pond Dam, West Tisbury

Big Year for Fish Passage - 2017



Little River, Gloucester



Great Pond Reservoir, Braintree



Coonamessett River, Falmouth

Dam Removals - 2018

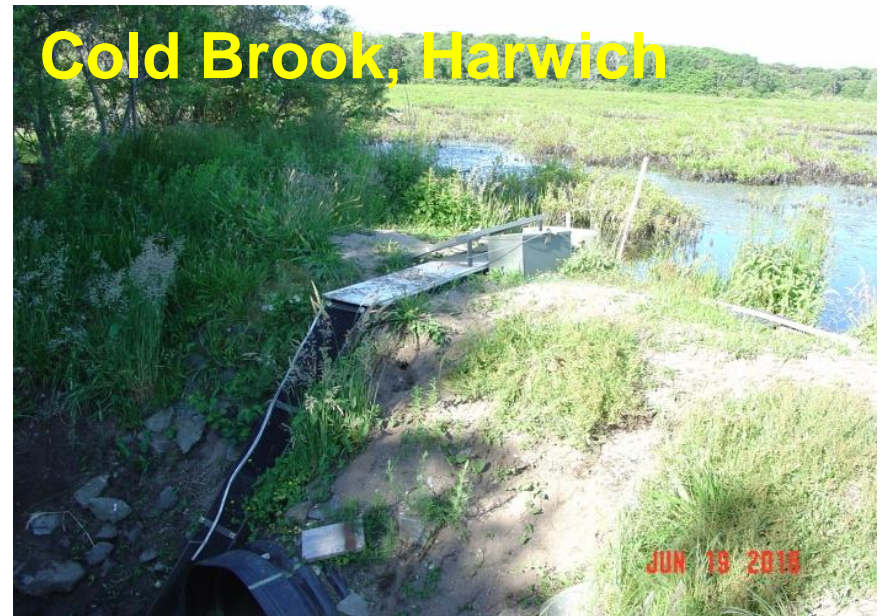


Reed and Barton Dam, Mill River, Taunton



Holmes Dam, Town Brook, Plymouth

Fish in new places.....



Bourne Pond, Falmouth



Horn Pond Dam, Woburn



May 2018 spillway ramp adjustments

2018 Projects Martha's Vineyard



James Pond, West Tisbury

Lagoon Pond, Oak Bluffs



Fresh Pond, West Tisbury

Weir River, Hingham - 2018



Weir and Pool fish ladder board replacement, rock removal, crest board control slots, and stream maintenance

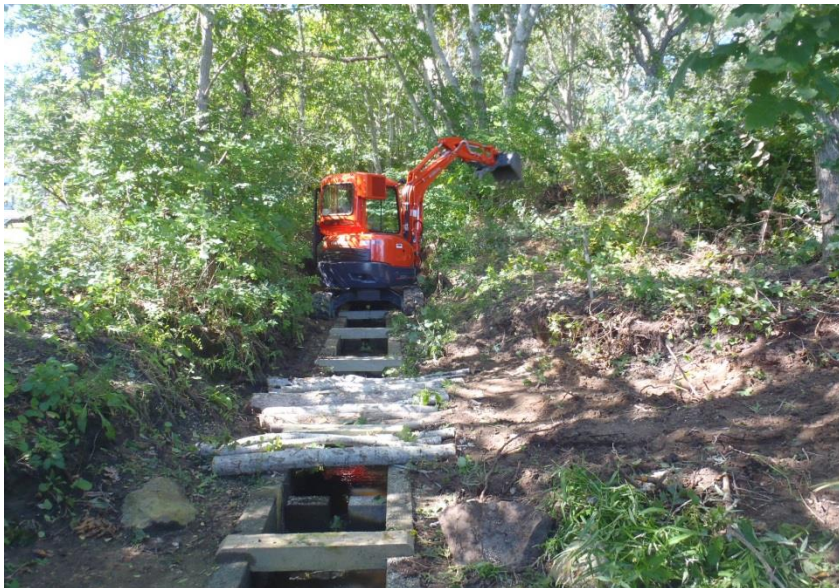
Town Brook, Plymouth – Eel Ramp



Pump-supply eel ramp due to be installed at Jenney Grist Mill soon



Pilgrim Lake, Orleans

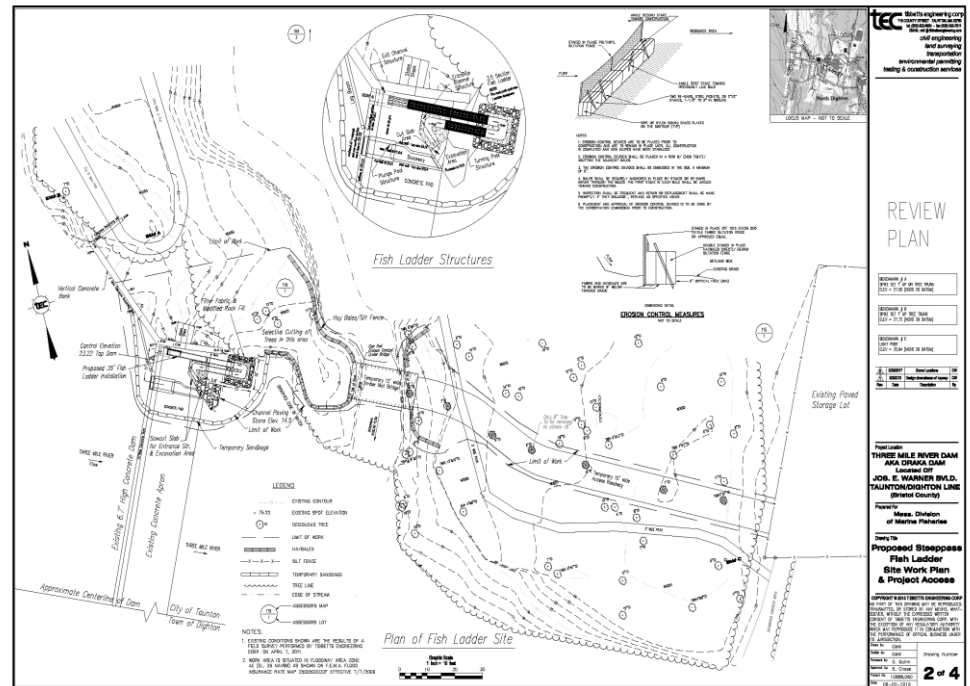
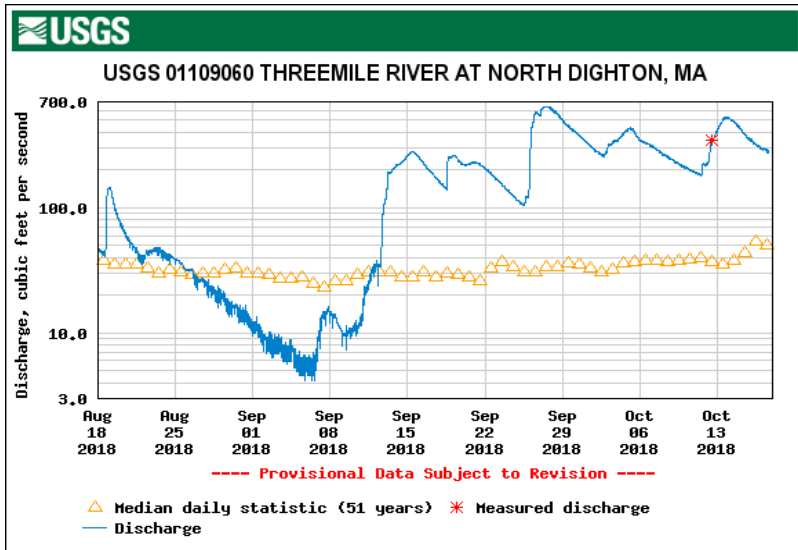


- Herring Brook Road fishway – 2010
- Gravity supply eel ramp – 2011
- Repair 120 ft of fish ladder – 2014/2015
- Pilgrim Lake outlet fishway - 2018

Pilgrim Lake, Orleans - 2018



Draka Dam, Taunton



Diadromous Fish Monitoring

- 1. River herring** - counting and biological sampling
- 2. American shad** - tagging, lift counts, and electrofishing
- 3. Rainbow smelt** - fyke net stations
- 4. American eel** - trap and ramp stations

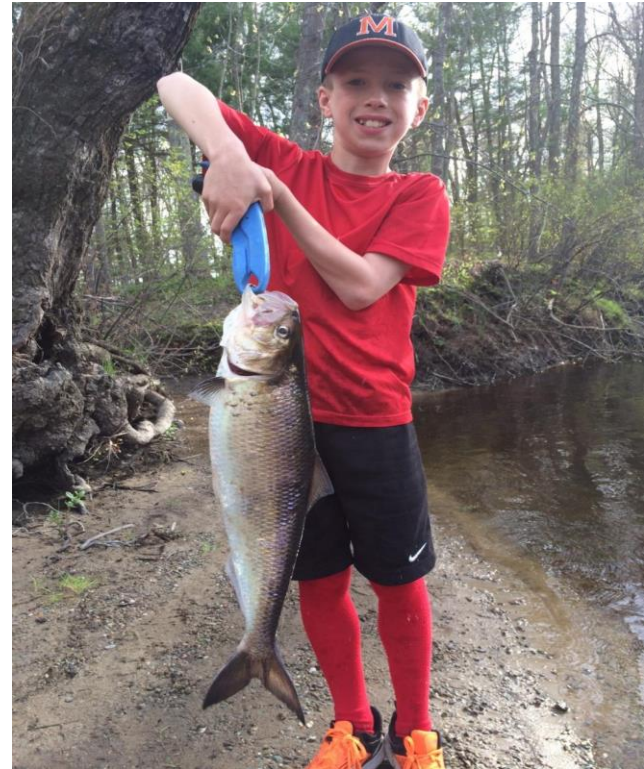
American Shad Monitoring



- Charles River tagging and electrofishing



- South River and Indian Head River electrofishing



Pilot work in Taunton River



Rainbow Smelt Monitoring



Fyke Net monitoring 4 rivers

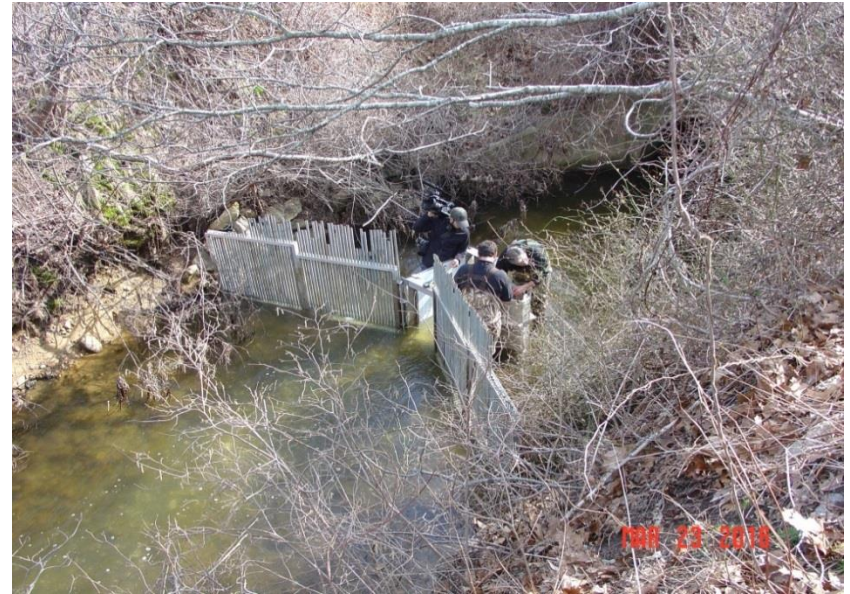
- big catches in Fore River, Braintree, in 2018

River Herring Counting



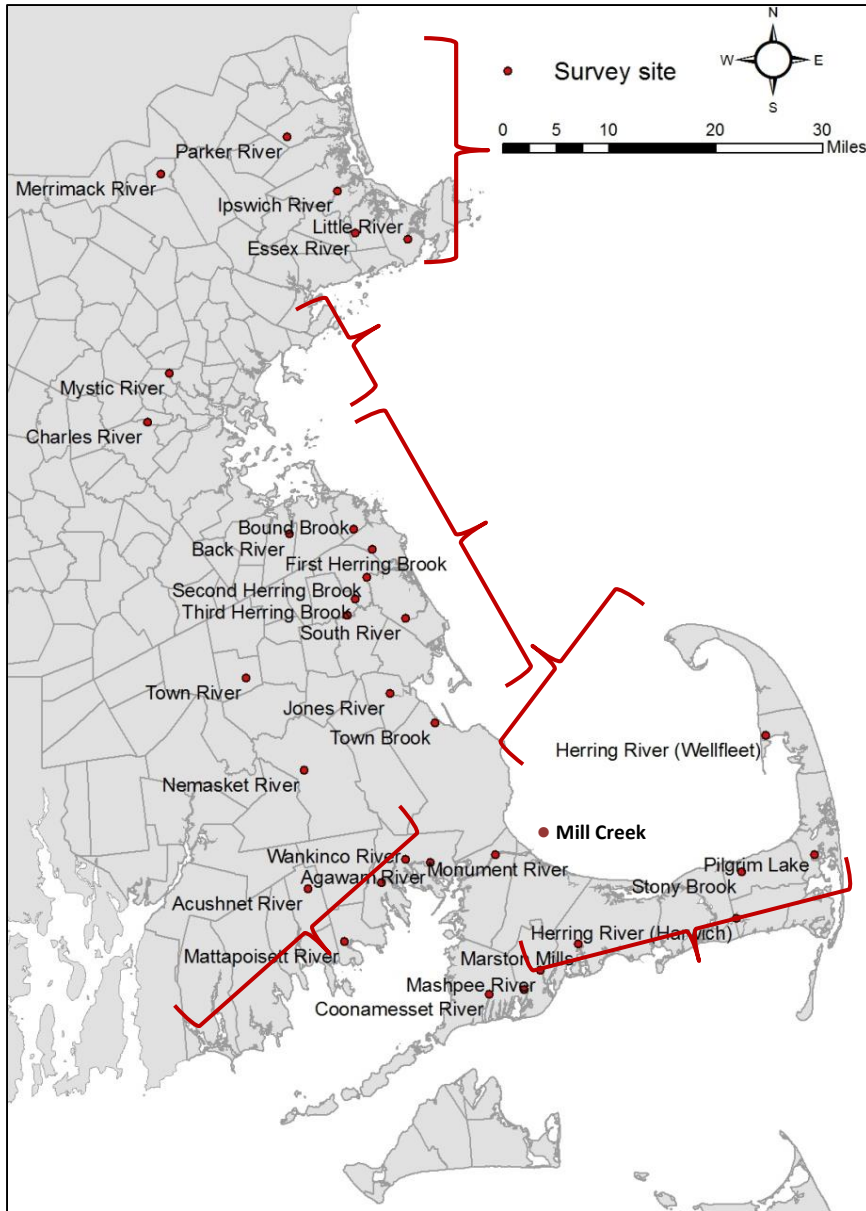
Herring River, Harwich

Herring Creek, Aquinnah



8- channel Smith Root counter

River Herring Counting Locations



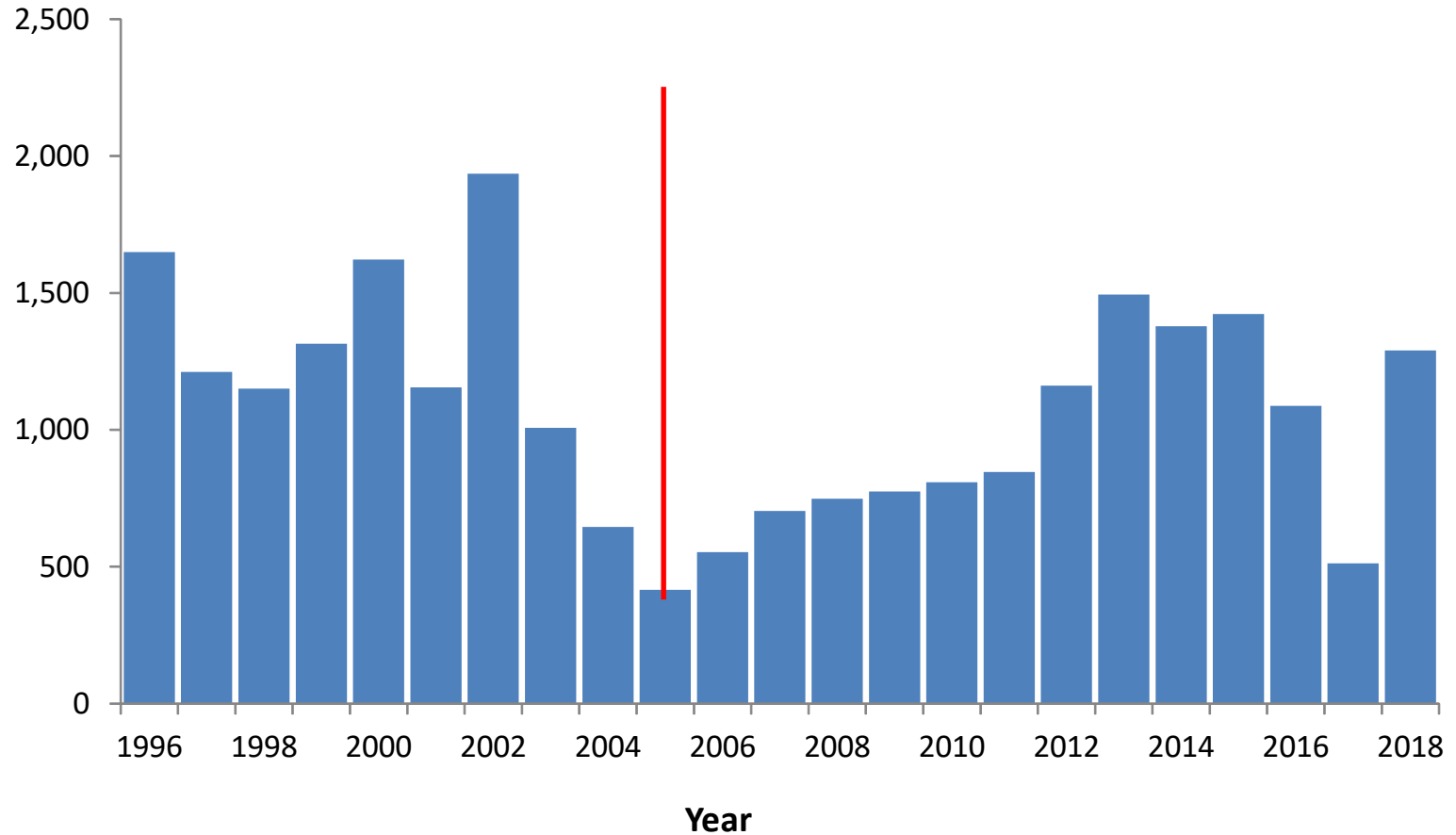
- About 35 river herring counting stations in MA
- 14 with 'census' level quality
- 8 stations sample biological data

What's next?..... Near capacity!

1. Larger run on Cape Cod
2. Long-term Boston Harbor station
3. Restoration response monitoring

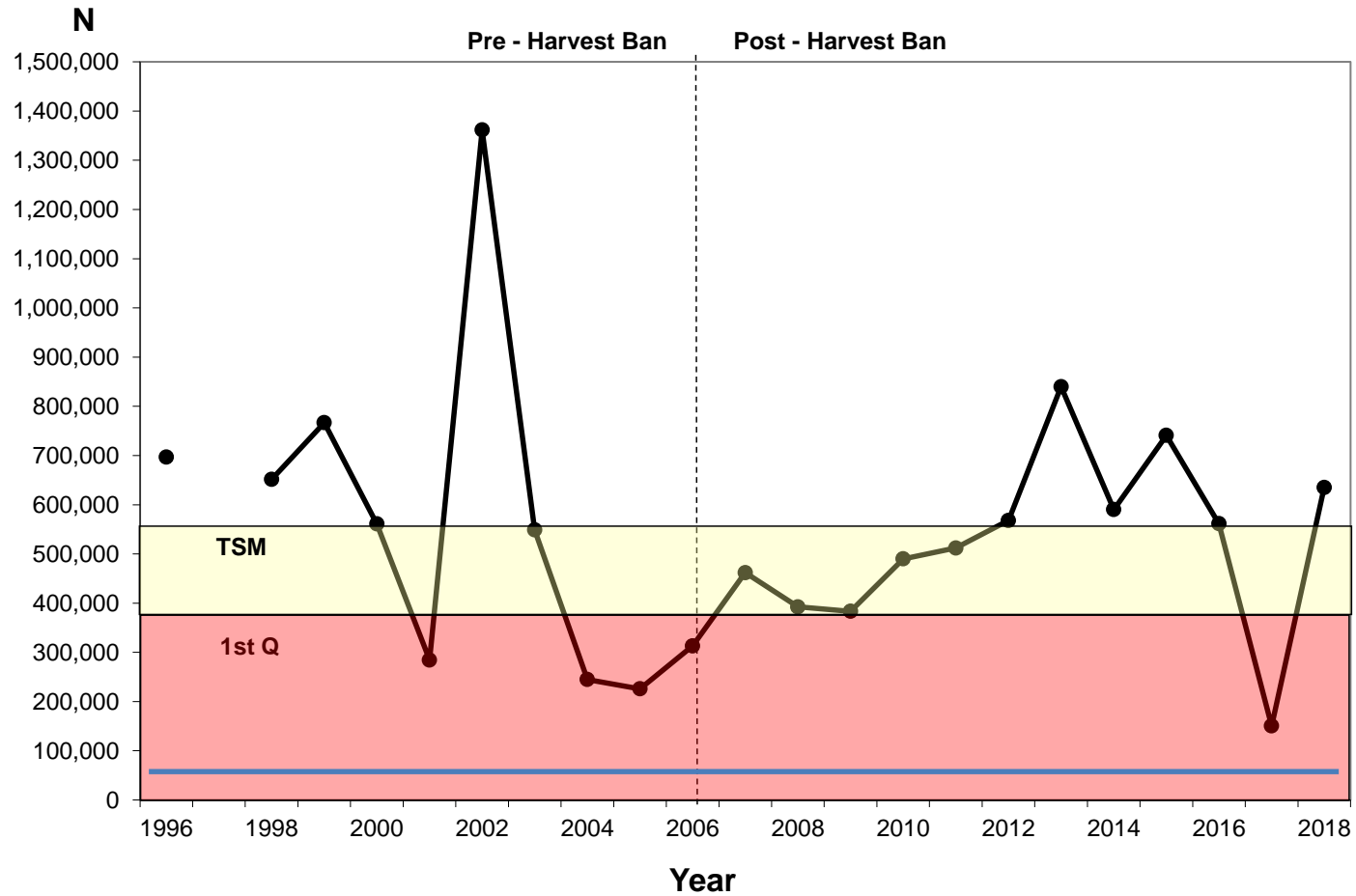
Massachusetts River Herring Count Index: 1996 - 2018

Counts (1,000s)

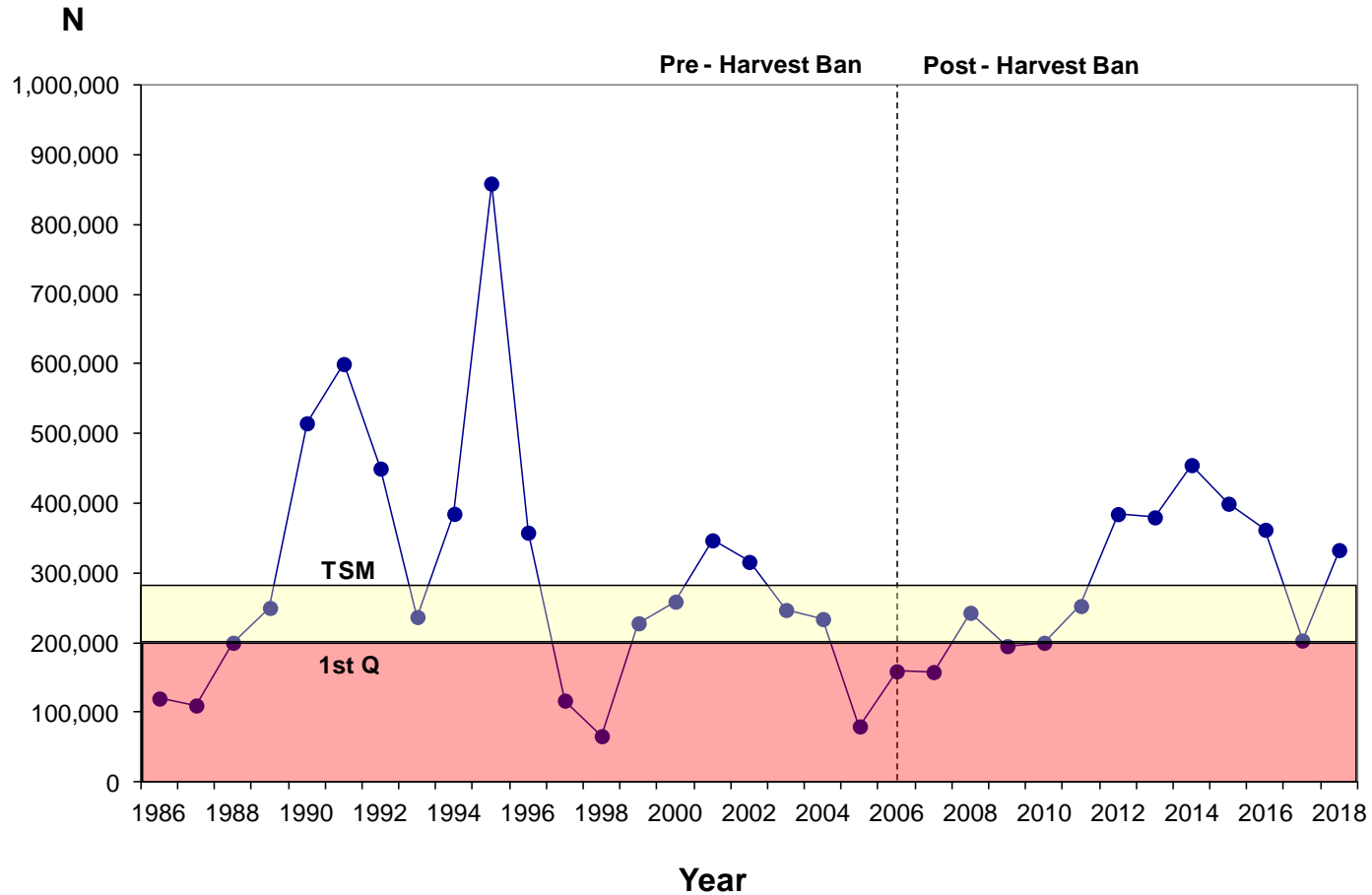


Nemasket River, Mattapoisett River, Monument River and Back River

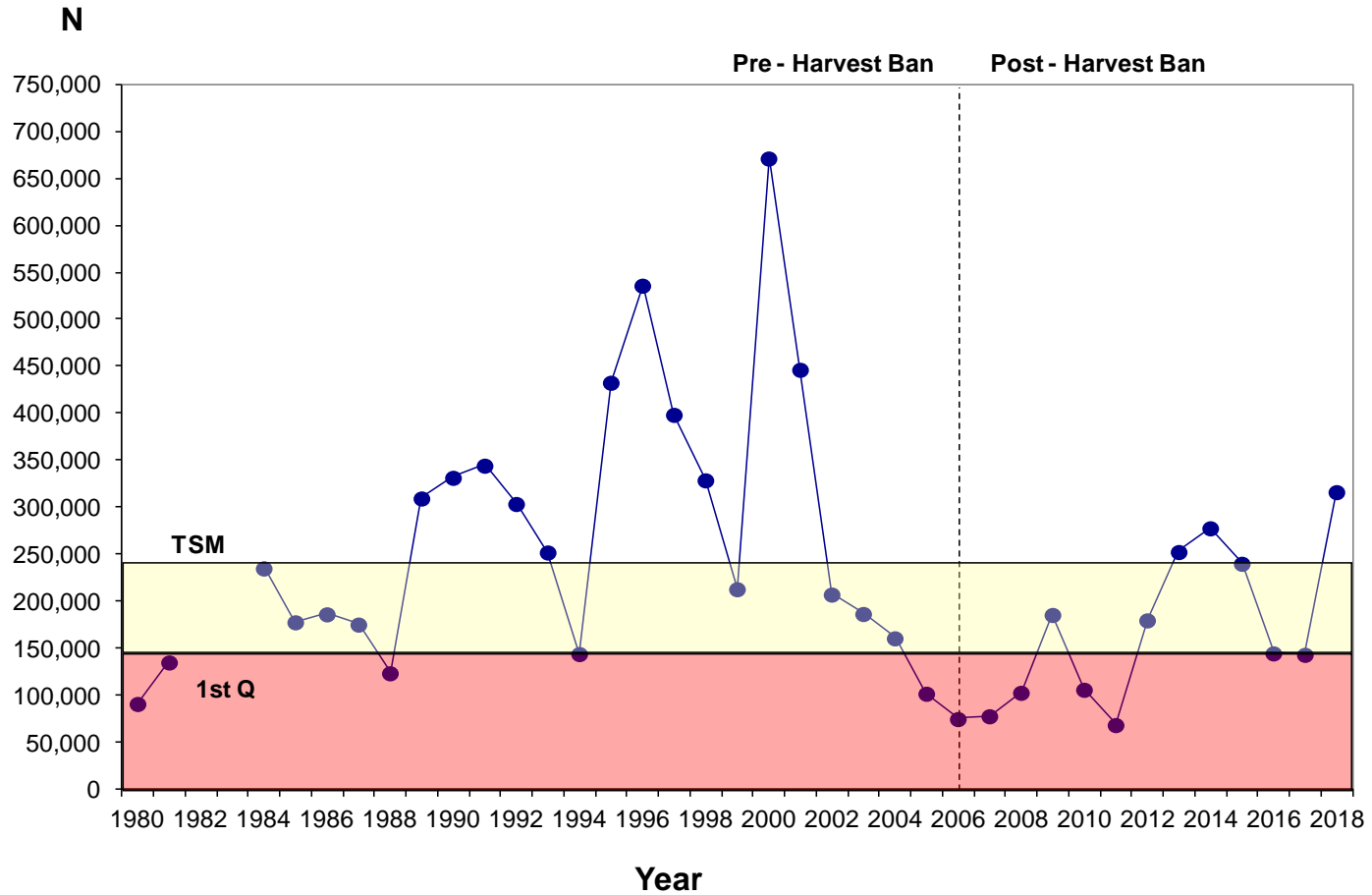
Nemasket River - Visual Count: 1996 - 2018



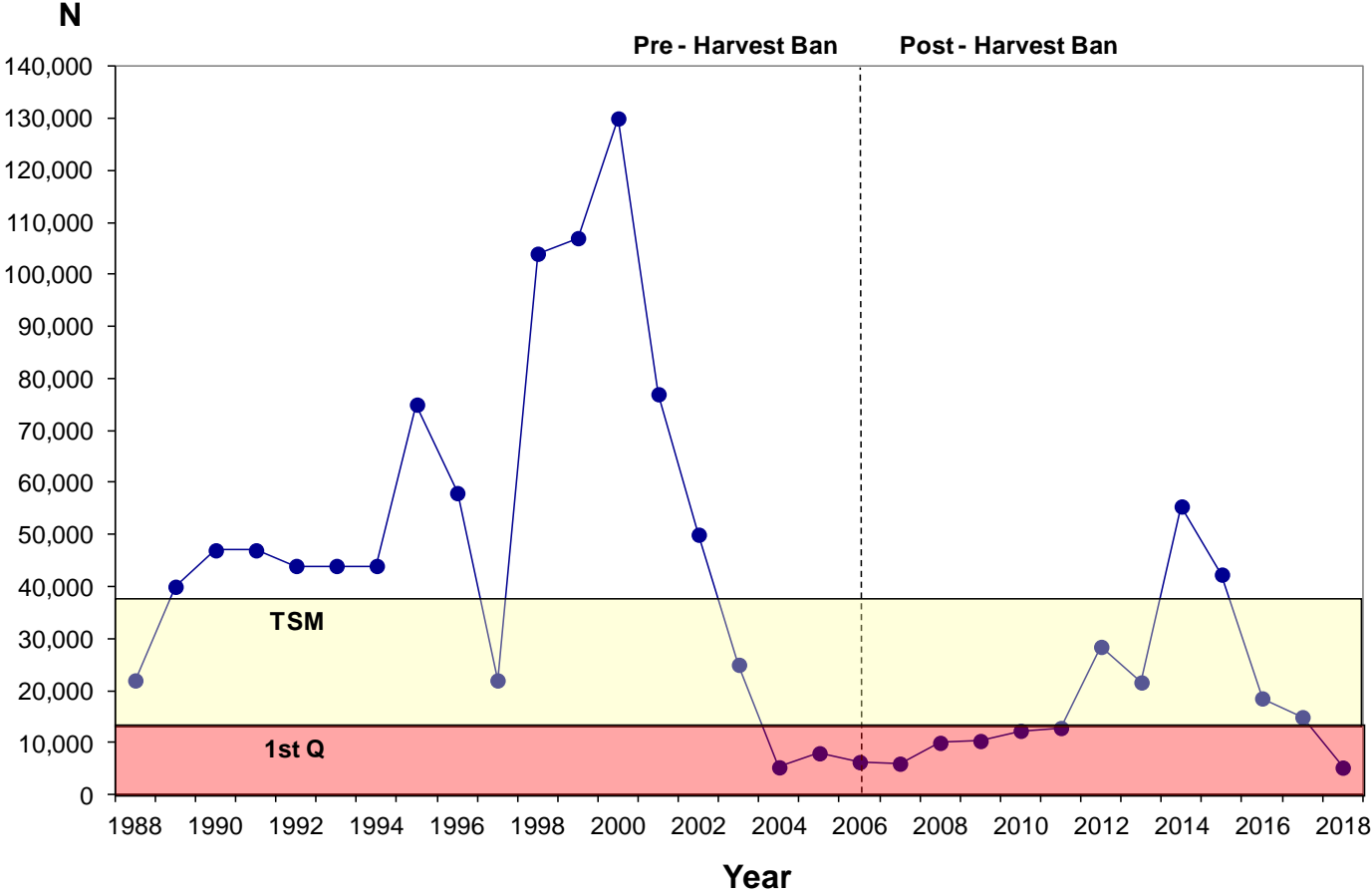
Weymouth Back River – Visual Estimate: 1986 - 2018



Monument River – Electric Count: 1980 - 2018



Mattapoisett River – Electronic Count: 1988 - 2018



Where are we going with all this counting?

- Valuable public education, outreach and stewardship
- Various contributions to life history knowledge and resource management
- Long-term population indices of abundance
- Looking for standardized, sustainable counts with 10+ years of spawning run count estimates
- Looking to increase large run populations

Historical Herring Runs

Belding's surveys from 1912-1920

Recent Harvest

(0.5 – 1.0 million fish)

Agawam River

Bass River

Coonamesset River

Herring River, Harwich

Edgartown Great Pond

Tisbury Great Pond

Monument River

Taunton River (seining)

Previous Harvest

Essex River

Stony Brook

Palmer River

Mattapoisett River

Town Brook, Plymouth

Herring River, Wellfleet

North River, (mainstem/tribs)

Back River

Mashpee River

Larger Herring Runs

Recent Spawning Run Counts

> 300,000 fish

Merrimack River

Charles River

Mystic River, Medford

Back River, Weymouth

Herring Brook, Pembroke

Herring River, Harwich

Nemasket River

Town River, West Bridgewater

Monument River, Bourne

> 200,000 fish

Stony Brook, Brewster

Mashpee River, Mashpee

Santuit River, Mashpee

Town Brook, Plymouth

Larger Herring Runs

Recent Spawning Run Counts **500,000 count club**

> 300,000 fish

Merrimack River

Charles River

Mystic River, Medford

Back River, Weymouth

Herring Brook, Pembroke

Herring River, Harwich

Nemasket River

Town River, West Bridgewater

Monument River, Bourne

> 200,000 fish

Stony Brook, Brewster

Mashpee River, Mashpee

Santuit River, Mashpee

Town Brook, Plymouth

Still Counting.....

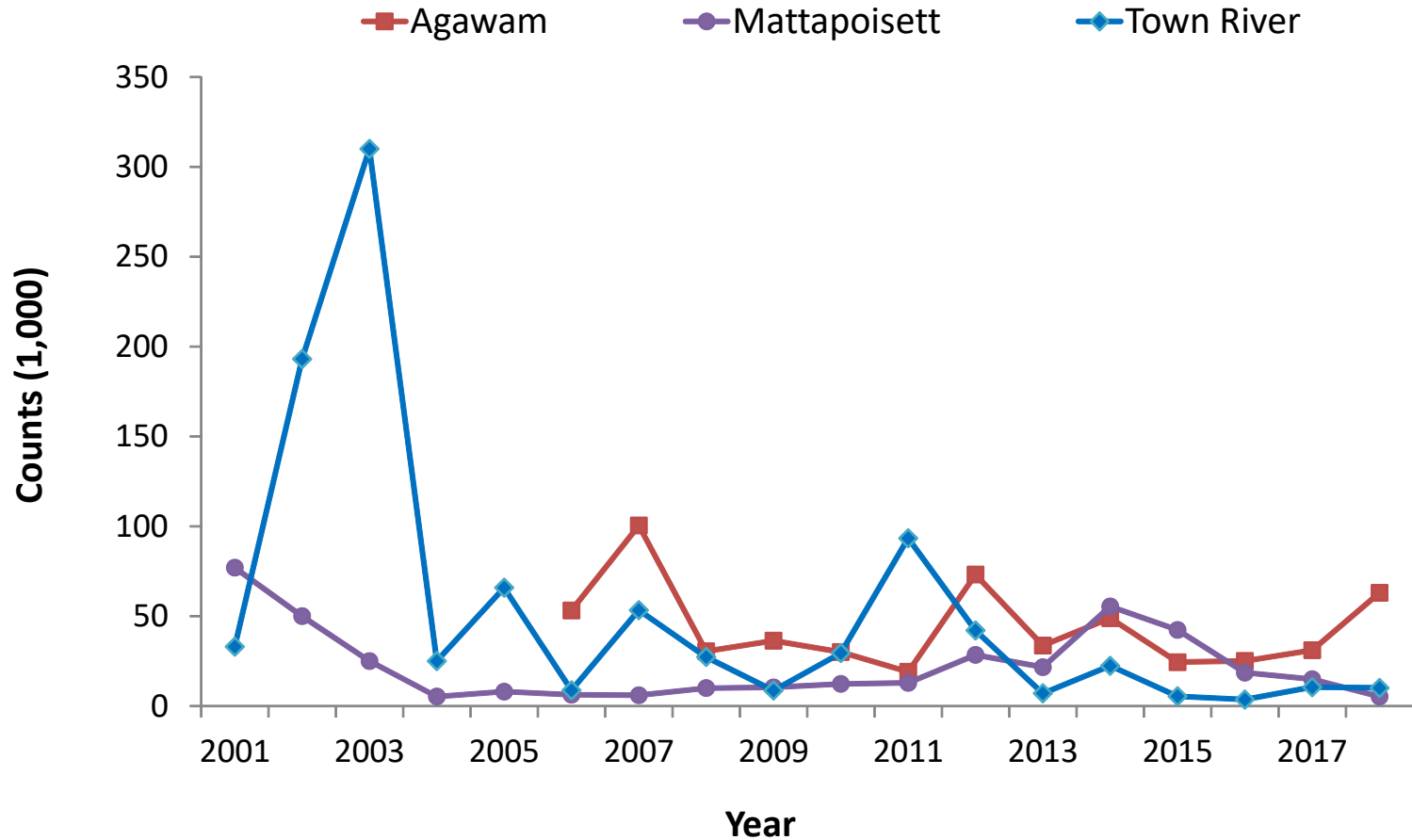
> 10 Years

Wankinco River, Wareham
Agawam River, Wareham
Jones River, Kingston
Stony Brook, Brewster
Marston Mills River, Barnstable
Herring Brook, Pembroke
Herring River, Wellfleet
Herring River (Hinckleys), Harwich
Town Brook, Plymouth

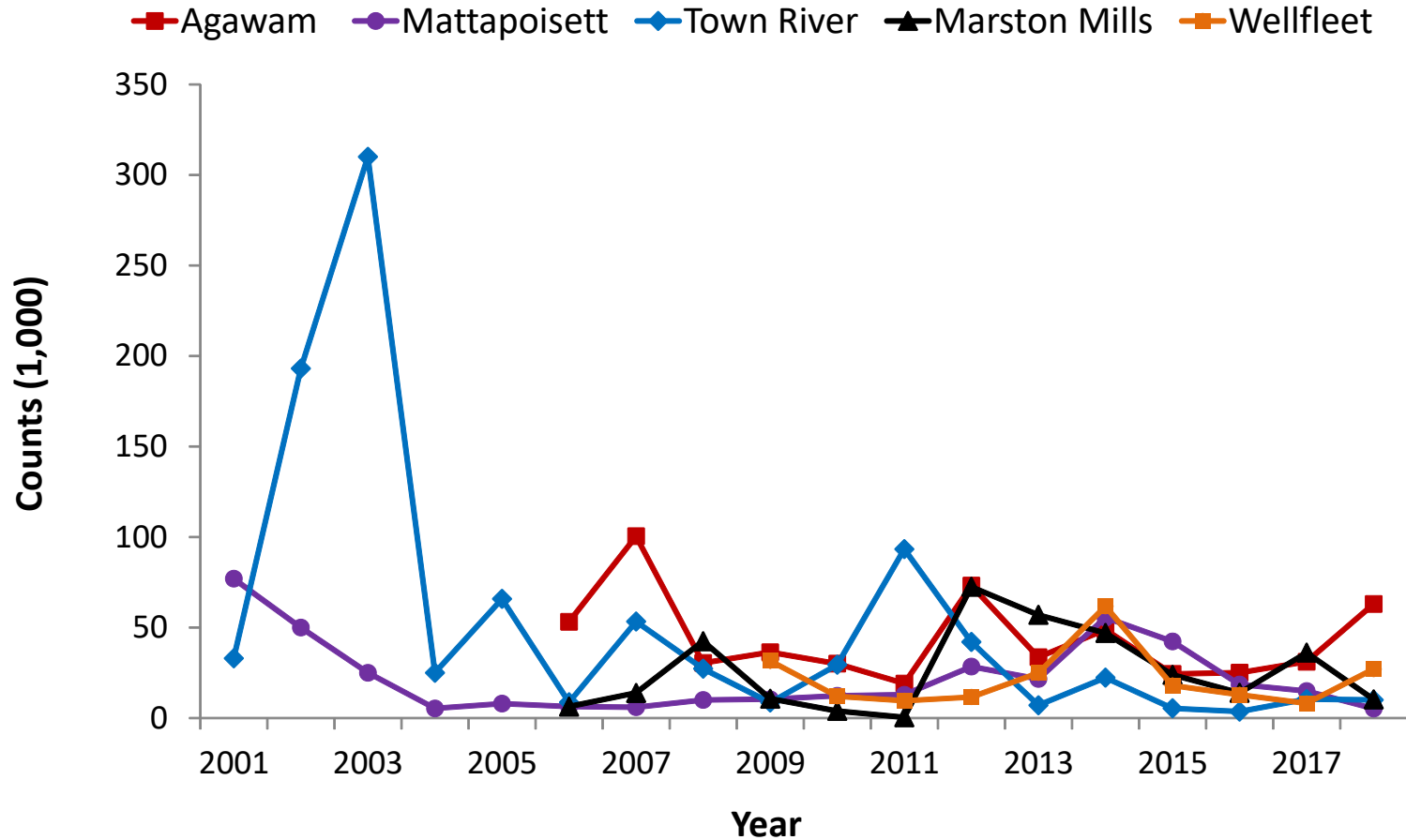
> 15 Years

Parker River, Newbury
Town River, West Bridgewater

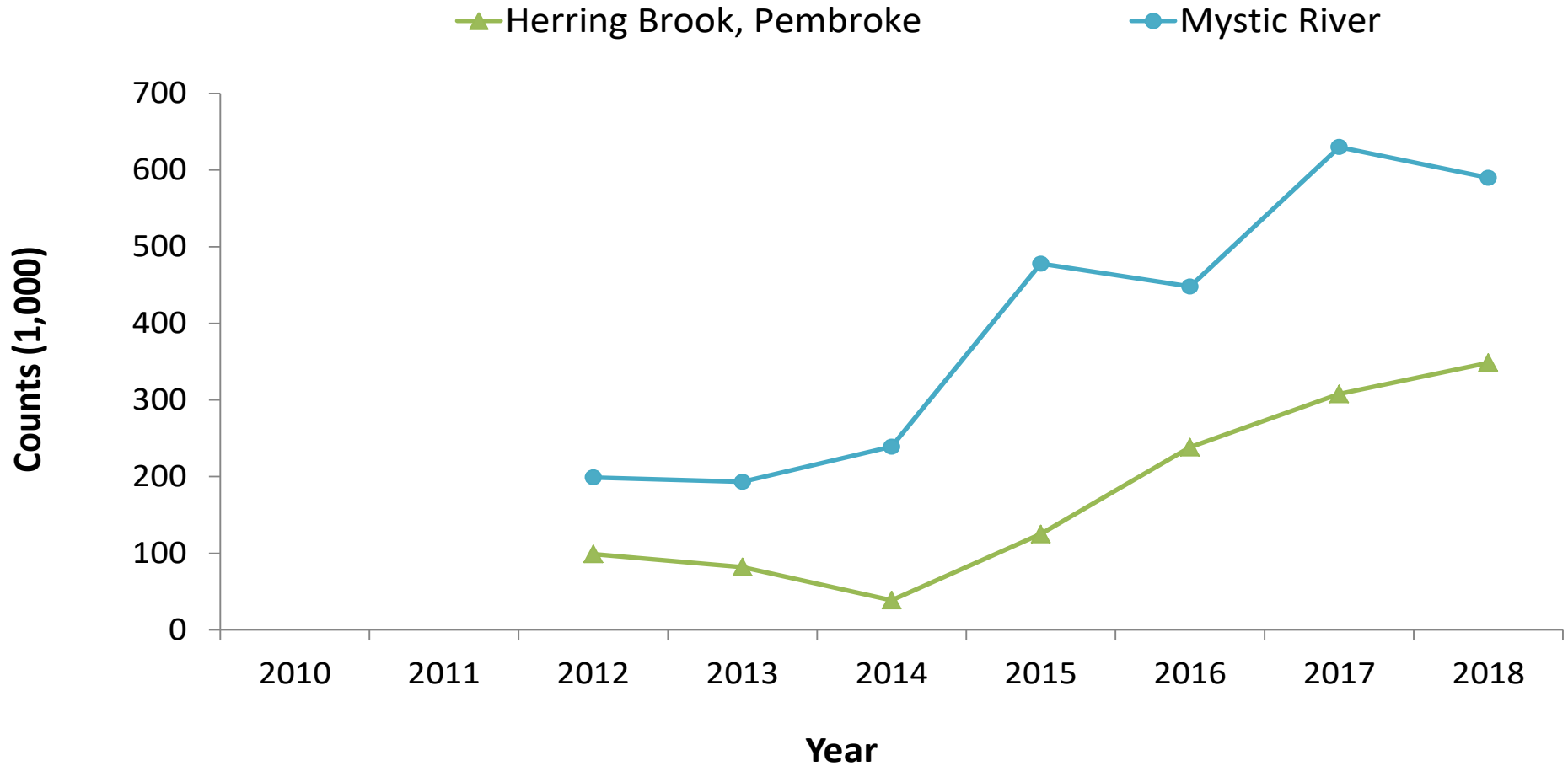
Increasing Duration – without improvements



Increasing Duration – without improvements

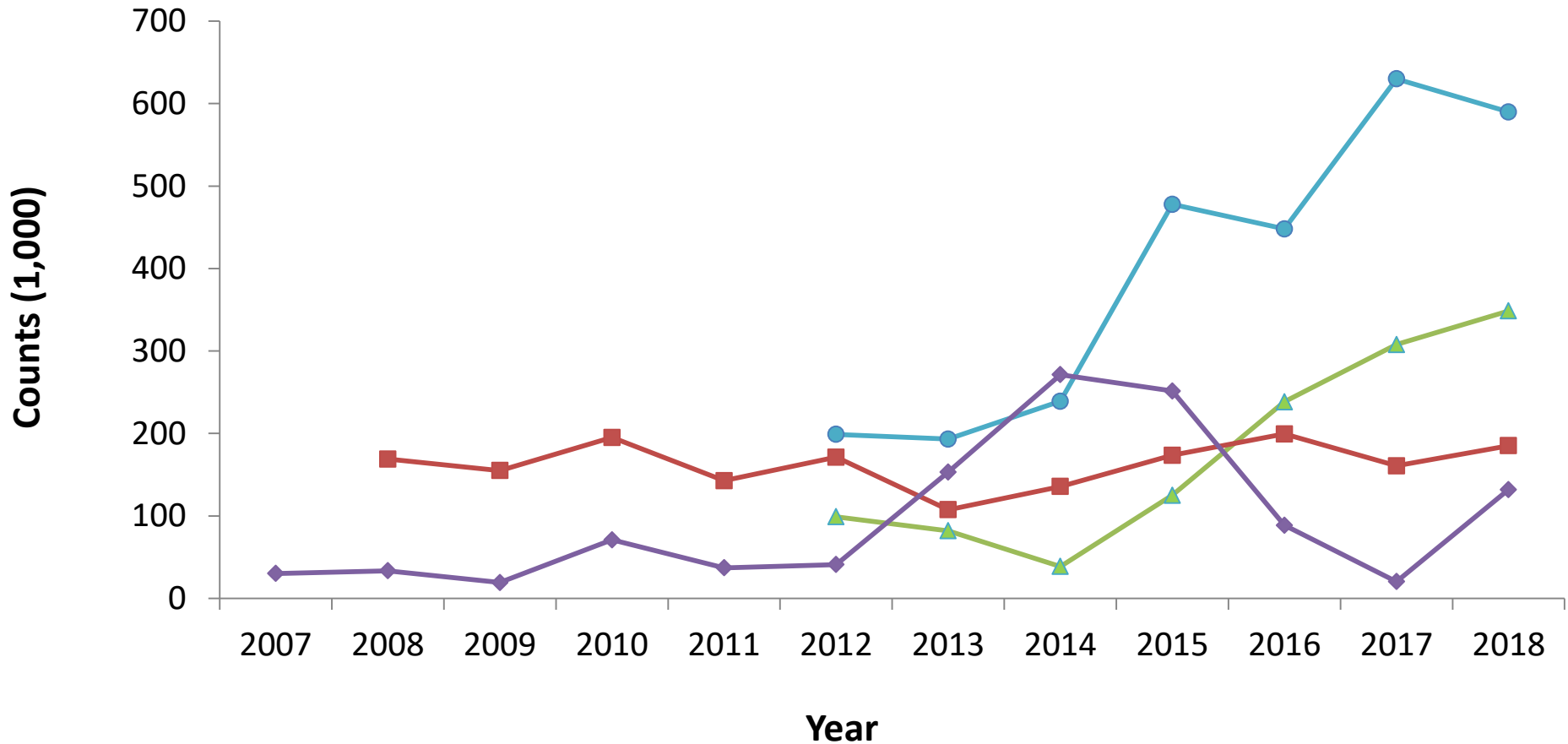


Recent Restoration – increasing runs

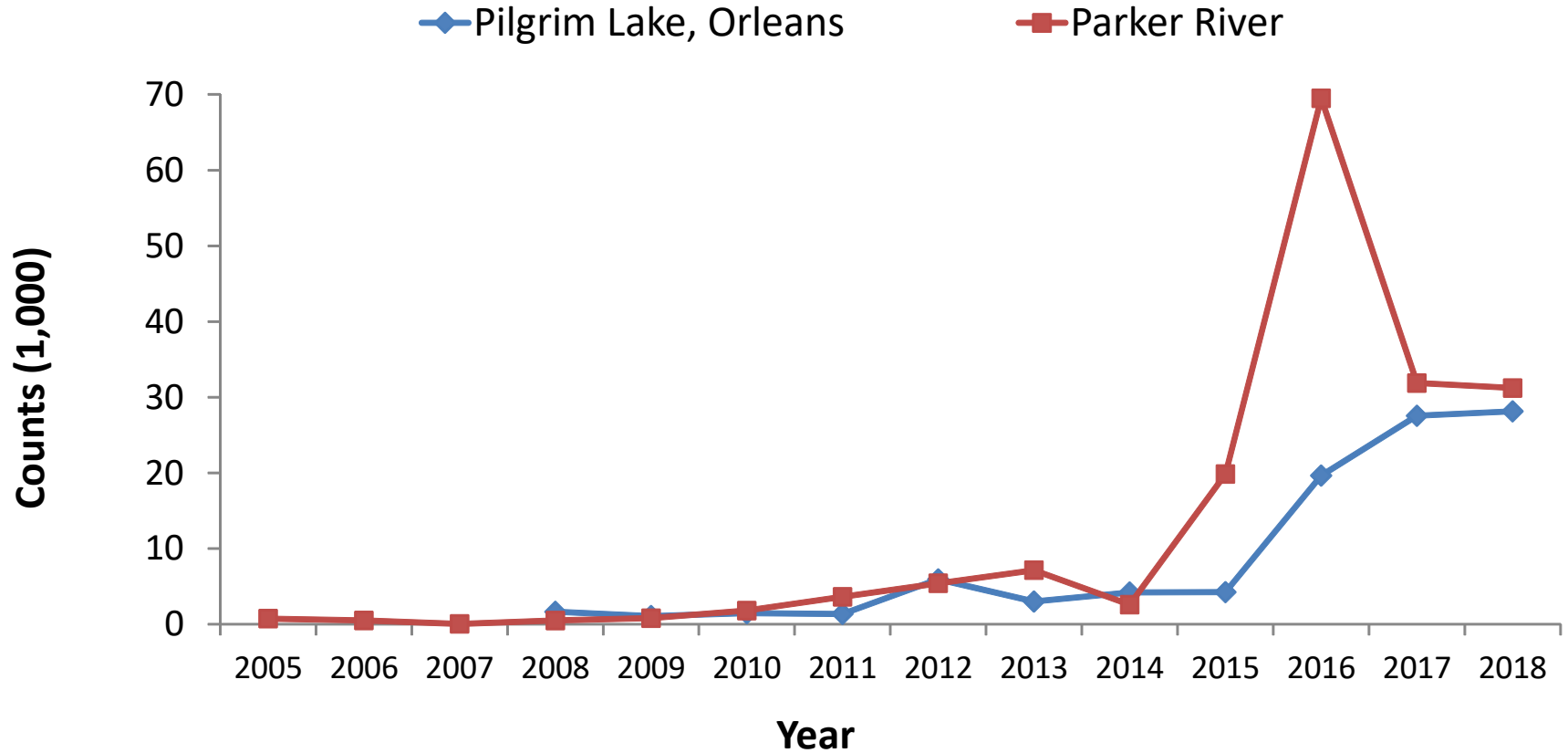


Recent Restoration – mixed response

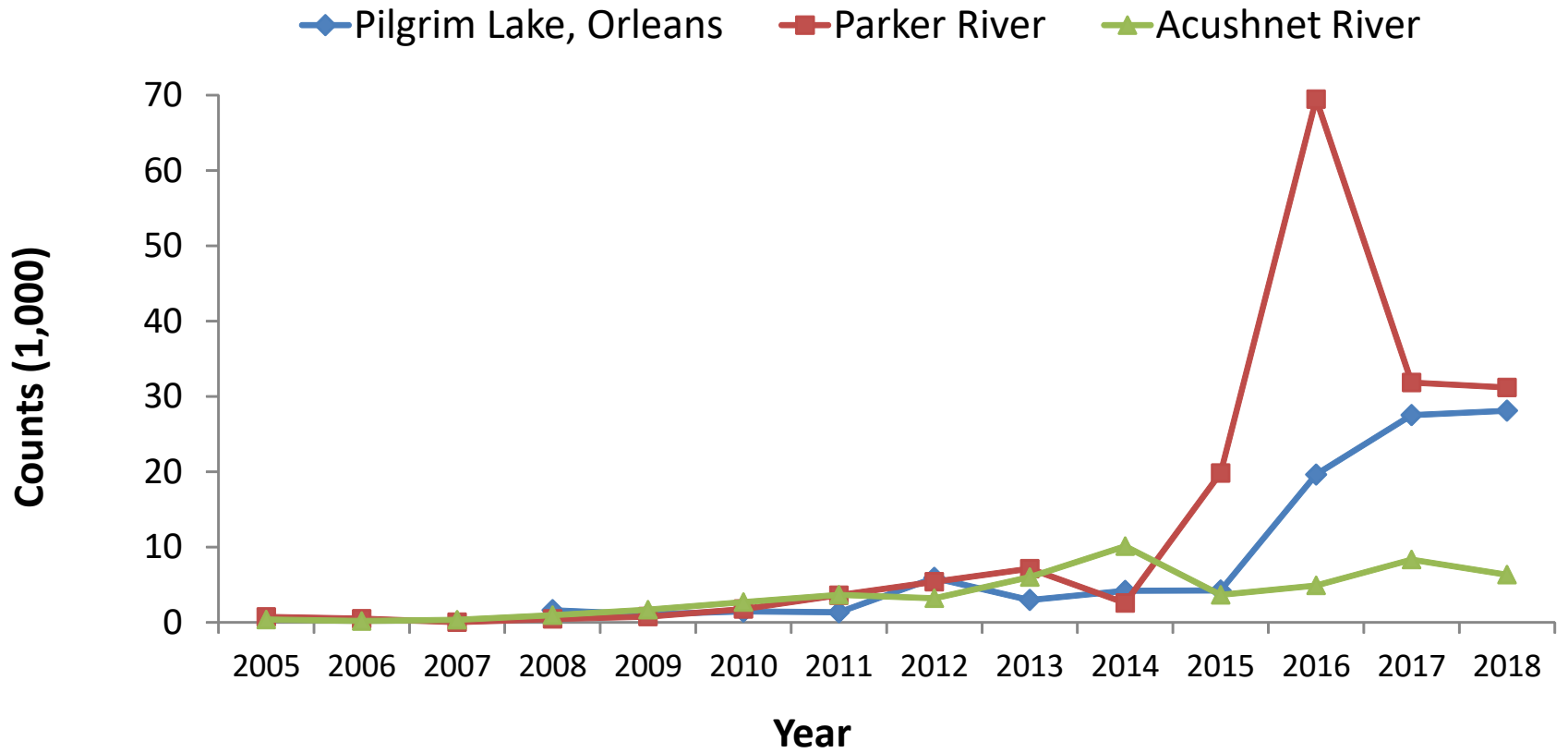
▲ Pembroke ● Mystic ■ Town Brook ◆ Stony Brook



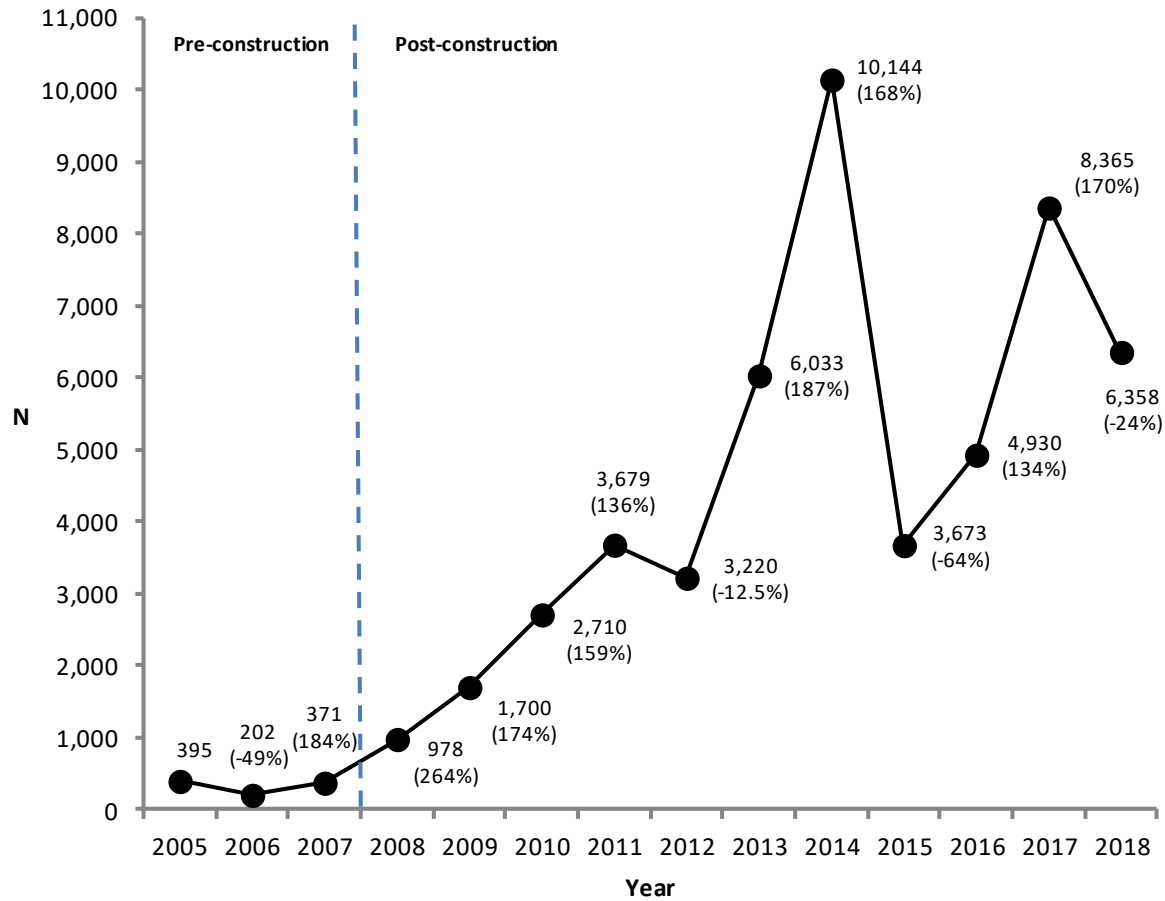
Recent Restoration – increasing runs



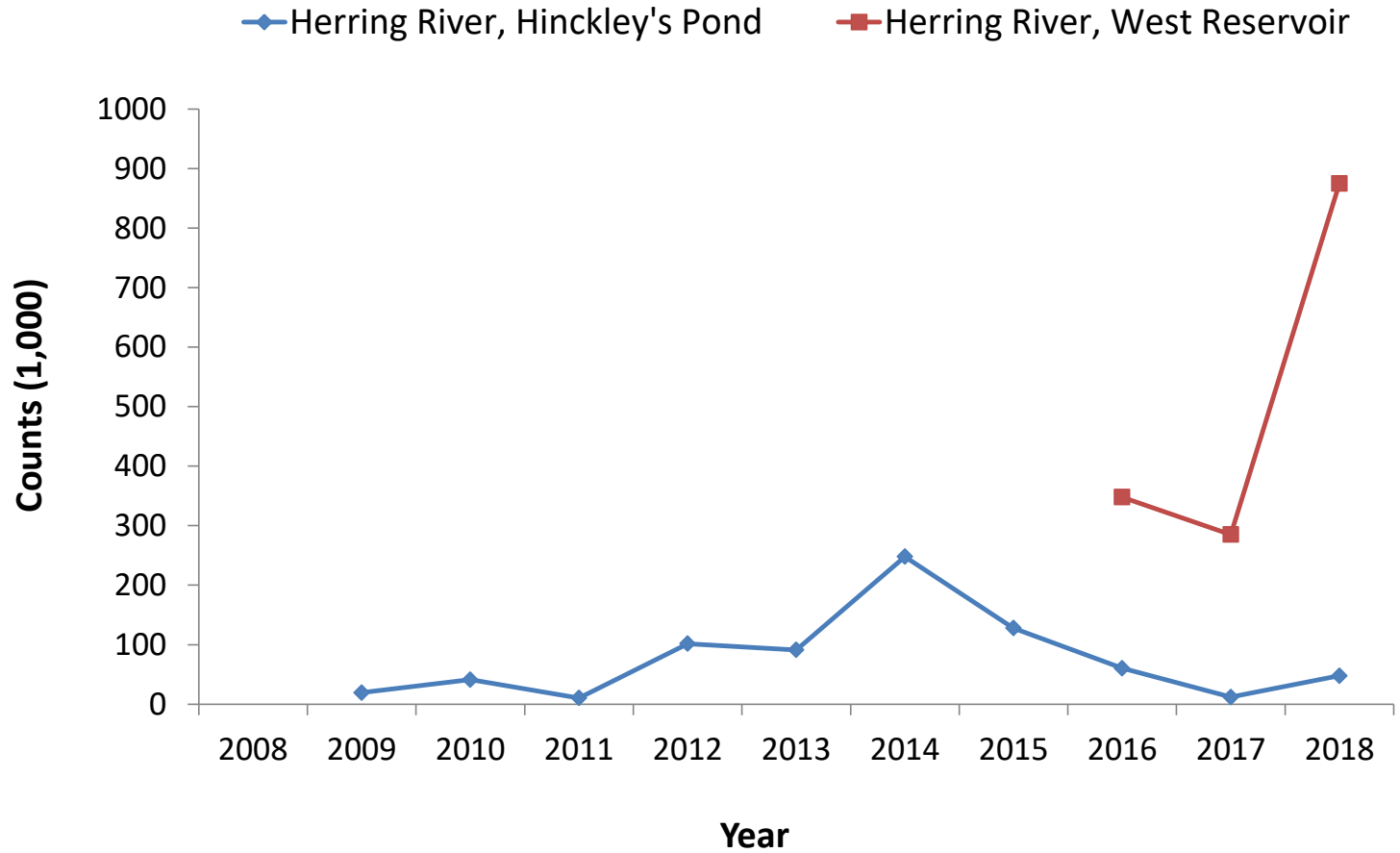
Recent Restoration – increasing runs



Acushnet River



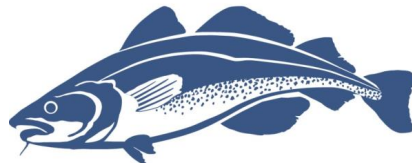
Herring River, Harwich



Project Highlights

- Relative indices of abundance for 5 diadromous species, and good coastal coverage for river herring
- Field applications of electronic and video counting systems for river herring
- Deployment and innovation of eel passage improvements
- Efficient construction and repair of small fishways

Marine Fisheries
Commonwealth of Massachusetts



Project Wish List

- Improved biological reference points for diadromous fish
- Better coverage of larger river systems
- Improved restoration and watershed management coordination
- More rivers in the half million count club

Marine Fisheries
Commonwealth of Massachusetts

