

A large school of river herring swimming in clear water. The fish are silvery and elongated, moving in a coordinated pattern. The water is clear, and the background shows some rocky or sandy bottom.

# River Herring Management Update: 2014

River Herring Network, Plymouth, October 30, 2014

Massachusetts Division of Marine Fisheries

4/26/01

# Presentation Outline

1. 2014 Fish Passage Improvements
2. 2014 River Herring Monitoring
3. ASMFC Sustainable Fishery Plans
4. Updates on Coast-Wide River Herring Mgt.

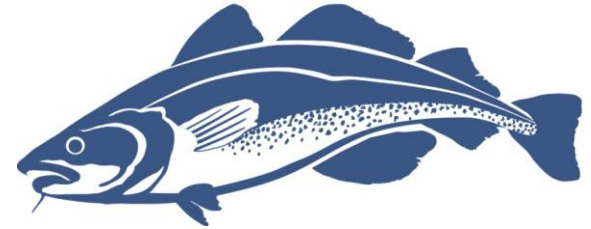


# River Herring



- 48 MA Towns with river herring runs
- 78 river herring runs
- 140 fishways





# Recreational and Diadromous Fisheries Program

- Diadromous Fish Passage and Habitat Restoration
- Diadromous Fish Biology and Management

# Fish Passage and Habitat Restoration

1. DMF Fishway Crew work on small ladders
2. DMF Fishway construction via contracts
3. Fishway construction collaboration
4. Collaborations on eel passage, channel improvements, and dam removal



# Project Tasks

- Fishway maintenance
- Run channel restoration and maintenance
- DMF Fishway Permit
- Passage feasibility studies
- Fishway O&M plans
- River herring stocking



# Fishway Operation & Maintenance Plan

- Prescribed by MGL 130, Section 19 and codified in permit
- Renewed effort presently to draft O&M plans for all new and reconstructed fishways
- **Documentation:** for the next crew
- **Operation:** time of year, manipulation of flow
- **Maintenance:** primarily debris removal and vegetation/sediment management

**Status:** 16 O&M plans drafted, 2011-2013; 6 finalized





Paul J. Diodati  
Director

## Commonwealth of Massachusetts

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### *Marine Fisheries* River Herring Stocking Protocols

Date: March 2013

**Purpose:** The Massachusetts Division of Marine Fisheries (*Marine Fisheries*) has transferred river herring between river systems in stocking trucks to supplement restoration efforts since the 1940s. In 2012, *Marine Fisheries* reviewed their river herring stocking methodologies to develop guidelines to aid our decisions on stocking. From this review, the following protocols were adopted to provide guidance to *Marine Fisheries* when evaluating town requests and new restoration initiatives that seek to transfer river herring from one river system to another.

**Restoration Objectives:** It is important to highlight that our primary objective in restoring river herring populations is to create natural habitat conditions that support sustainable runs in coastal rivers. The restoration of native herring runs includes the improvement of spawning, nursery, and migratory habitat. Stocking herring can assist this process, but will not be a primary response or done in isolation from habitat improvement, and decisions will be carefully weighed to avoid unintended consequences.

**Population status:** Due to low population levels, river herring are currently under a moratorium in Massachusetts in which harvest, possession, and sale are prohibited. Population declines are evident in several river systems that have been traditionally used for donor stock. Therefore, careful consideration, based on professional experience and protocols, will be used when selecting donor stocks and introducing herring to new habitats.

1. **Within-basin transfers (WBT):** The transfer of river herring between locations within the same river system can be conducted under circumstances where a site has a temporary downstream obstruction or conditions that severely delay migrations. Requests for WBT stocking will not have the same genetic or habitat considerations as stocking from out-of-basin transfers (OBT). Therefore, WBT requests will be treated differently from OBT requests and reviewed on a case-by-case basis.
  1. **Out-of-basin transfers (OBT):** Out-of-basin transfer (transfer of fish from one river system to another) is a practice used historically to establish a new herring run, restore an extirpated run, or to augment an existing run. Decades of stocking efforts between systems within or between neighboring watersheds have provided observational evidence that these goals have been met in numerous cases. However, few formal evaluations of OBT stocking have been conducted to resolve concerns over stocking efficiency and genetic stock interactions. Frank et al. (2009) recently documented that pre-spawning adult alewives transferred from the Nemasket River (Narragansett drainage) to the Ipswich River (Ipswich Bay drainage) exhibited short residence time with the majority of individuals migrating downstream and likely leaving the river immediately after release. Given the current reduced status of river herring populations state-wide, *Marine Fisheries* will use the following guidelines to make case-by-case decisions on OBT stocking efforts including the selection of donor and recipient

# 2014 Fish Passage Projects

## Fishways

Tom Matthews Pond, Yarmouth

Mill Pond, West Tisbury

Carter Beal Park, Bourne

Seymour Pond, Harwich

Pilgrim Lake, Orleans

Gorman Mill Pond, Pembroke

## Eel Ramps

Silver Springs, Wellfleet

Mill Pond, Rockport

Morey's Street Dam, Taunton

# 2013 Fish Passage Projects

## Fishways

Parker River, Newbury

Savory Bog, Barnstable

Wareham St. Fishway, Nemasket River,  
Middleborough

## Large Projects

Santuit Pond Dam, Mashpee

Cedar Lake, Falmouth

Hathaway Pond Dam, Rochester

Morey's Street Dam, Taunton

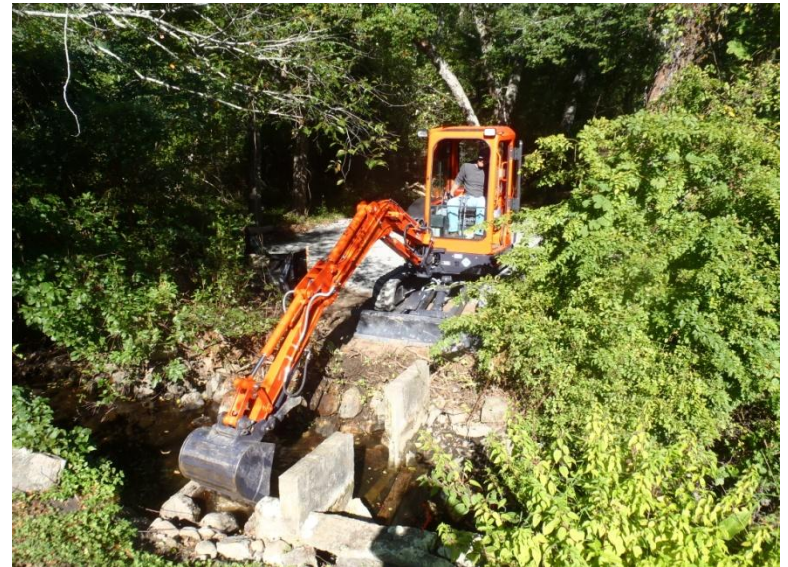
Town Brook smelt habitat, Quincy

# DMF Fishway Crew



Mill Pond, West Tisbury

# Tom Matthews Pond, Yarmouth



Monument River, Bourne

# Collaborative Fishway Projects

## Cedar Lake, Falmouth



Morey's Street Dam, Taunton



Santuit Pond, Mashpee

# Large Watershed Projects



Westport River



Fore River, Braintree



Jones River, Kingston



# Diadromous Fish Monitoring

1. River herring counting and biological sampling
2. American shad (Charles River/Merrimack River)
3. Smelt fyke Net Stations
4. Glass eel trap stations and ramps



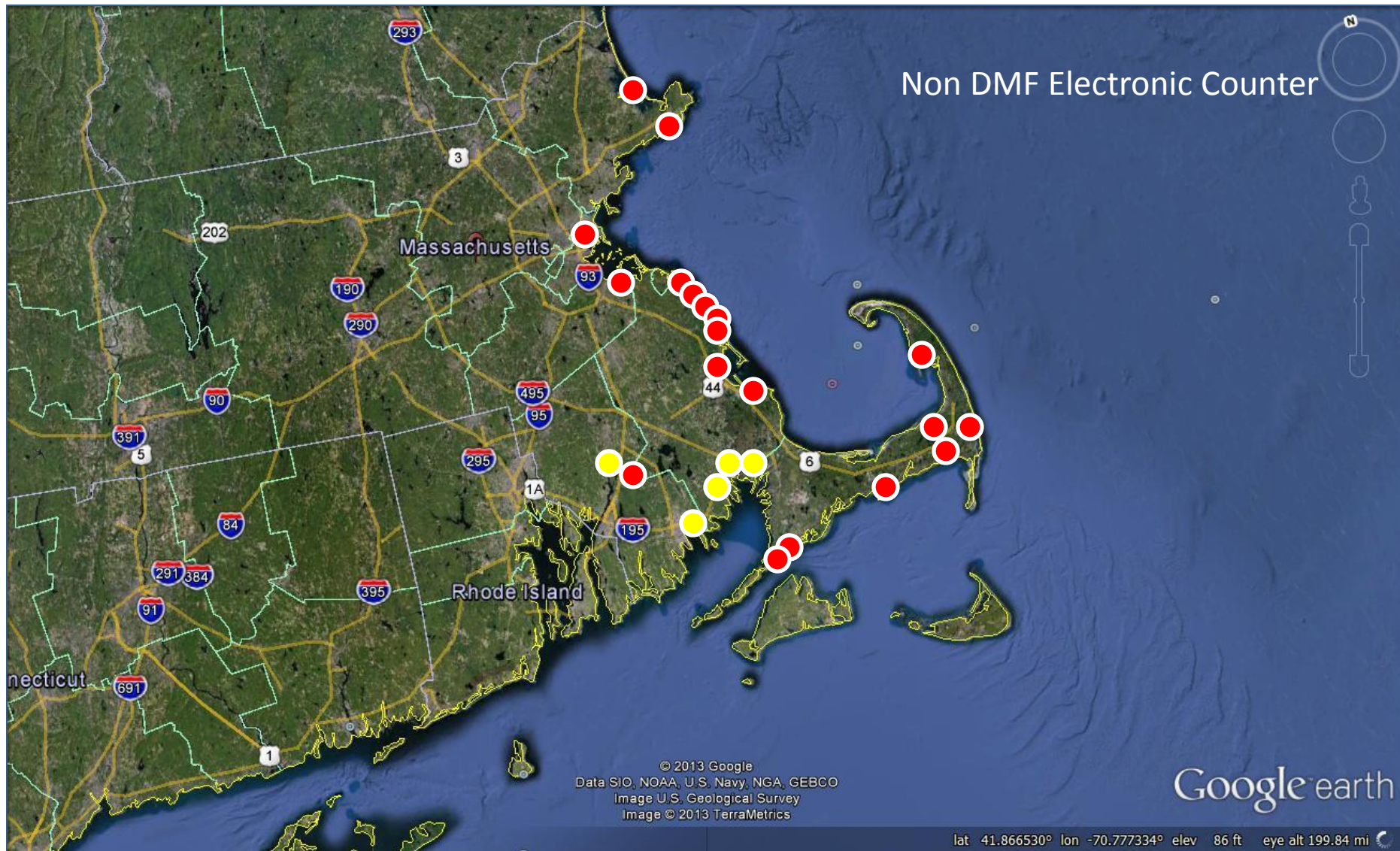
# River Herring - Monitoring

- 2013-2014: full implementation of new assessment techniques/technologies
  - 1) Otolith analysis
  - 2) 8 channel electronic counter
  - 3) Video counting system
- **Objective:** coverage of river herring run in each major coastal drainage area for continuous monitoring and biological sampling

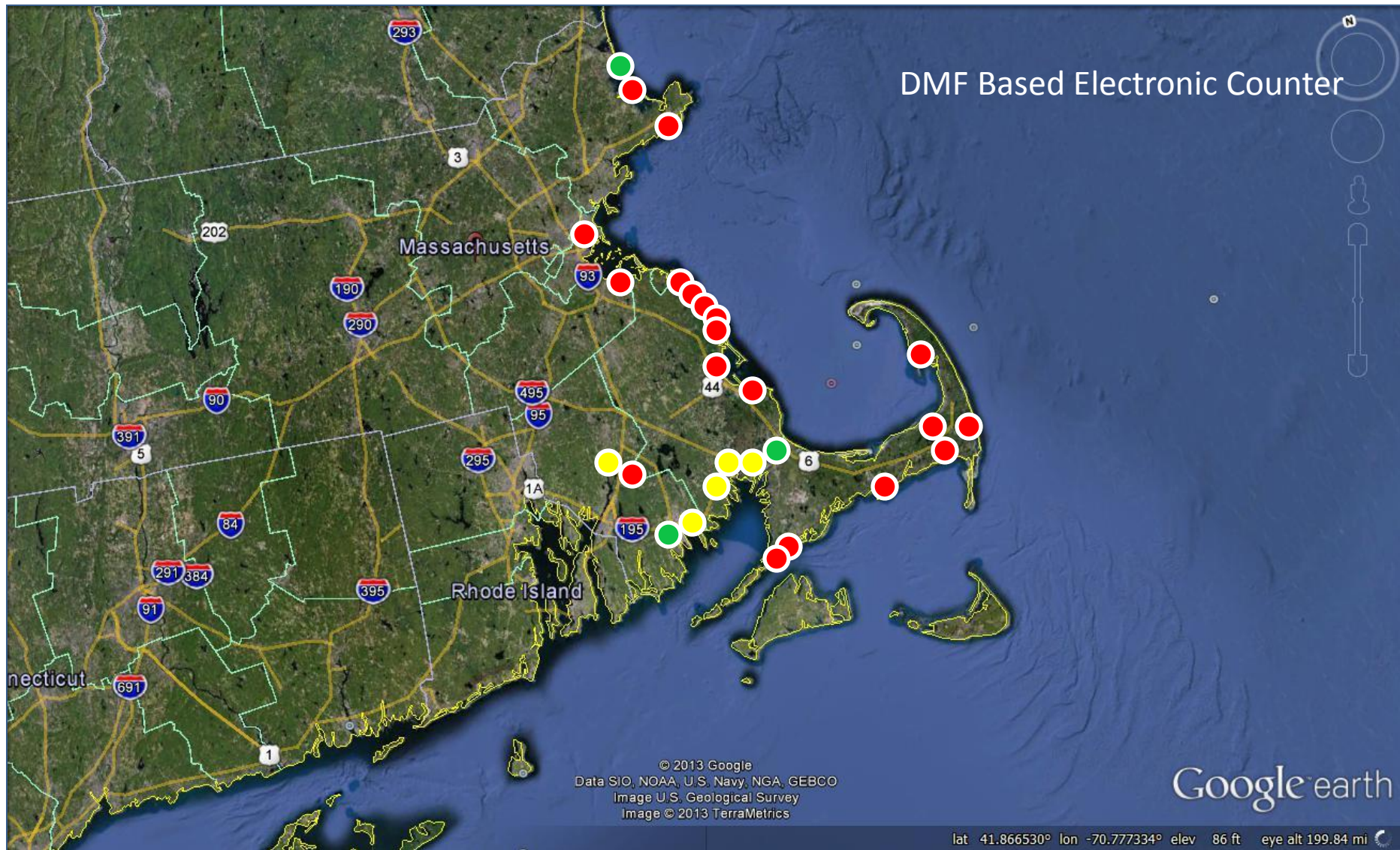
# River Herring - Monitoring



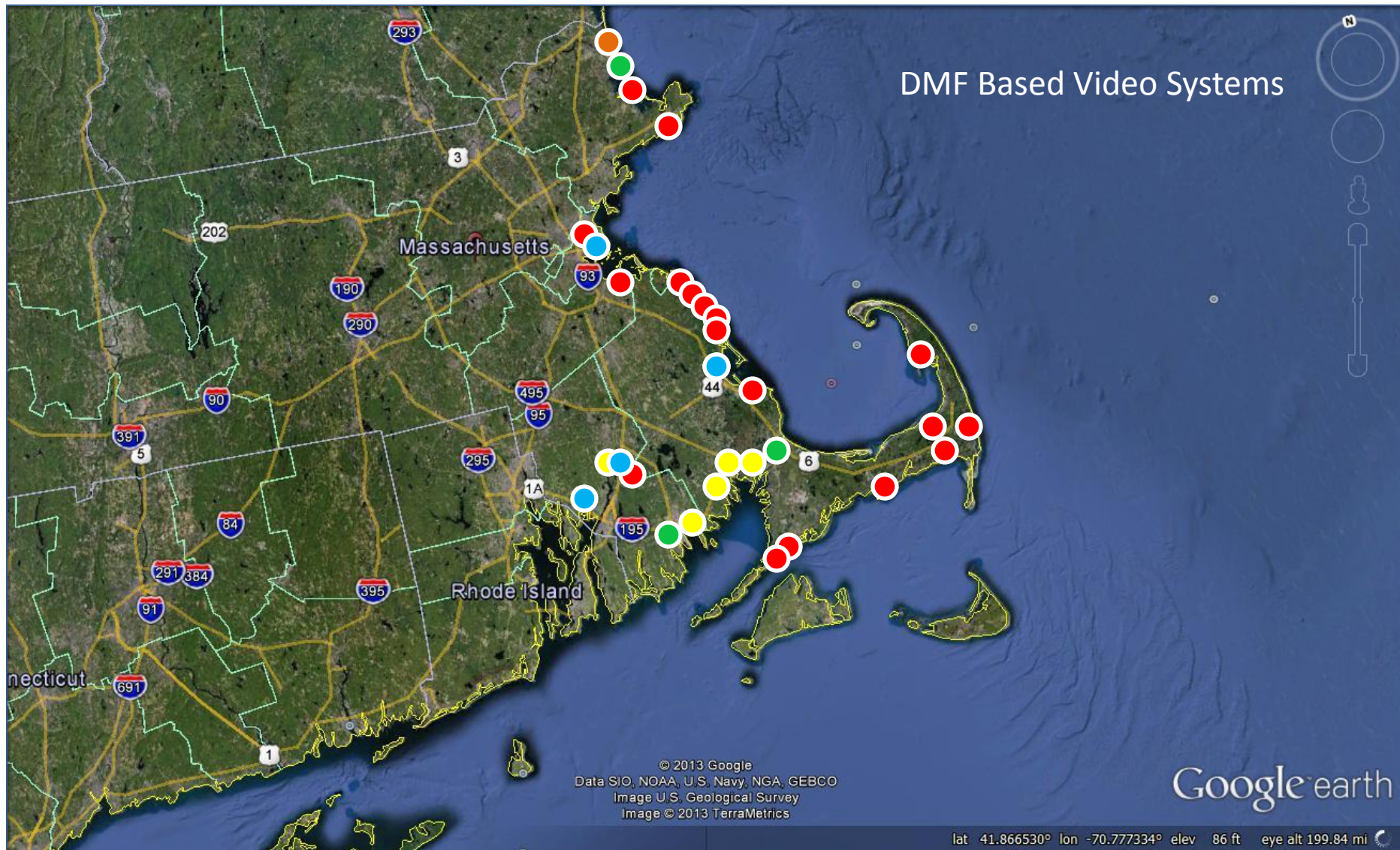
# River Herring - Monitoring



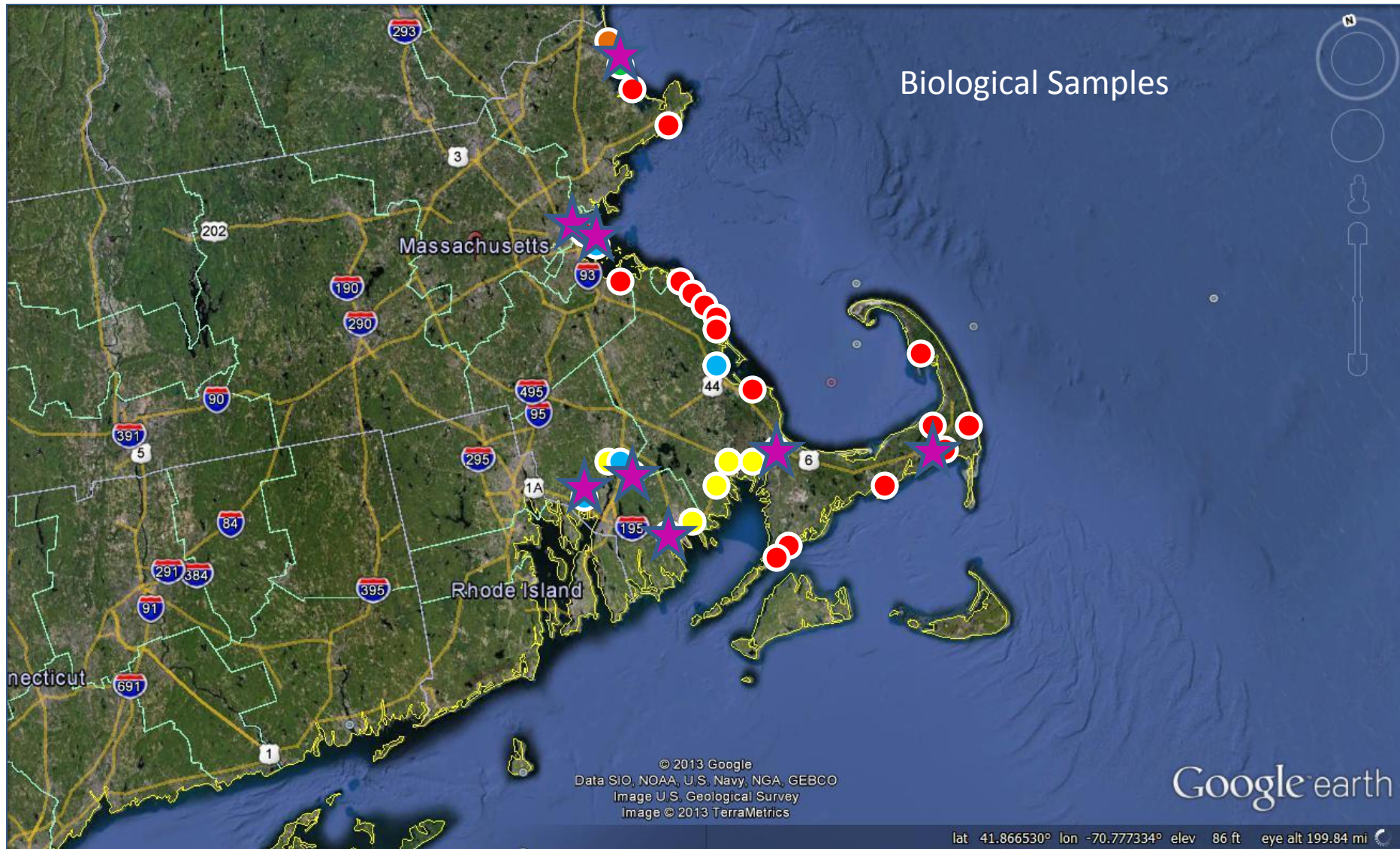
# River Herring - Monitoring



# River Herring - Monitoring



# River Herring - Monitoring



# Why Monitor River Herring?

- detect long-term population trends
- provide metrics to assess responses to management actions
- support strong cultural interest to maintain and restore fish runs



# Atlantic States Marine Fisheries Commission

## ASMFC

- States are required to monitor river herring runs and report annually to ASMFC
- States are required to develop sustainability targets based on the best available science
- ASMFC closed state fisheries with no approved sustainable fishery plans on January 1, 2012



# Sustainability Targets

*“may include but not limited to....”*

- **Spawning stock biomass** (target fish / spawning acre)
- **Fish passage counts** (set % of ave. 10+ year count)
- **Mortality rates** (not much guidance)
- **Repeat spawning ratio** (set minimum %)
- **Juvenile abundance indices** (set % ave. 10+ year index)

# River Herring Sustainable Fishery Plans

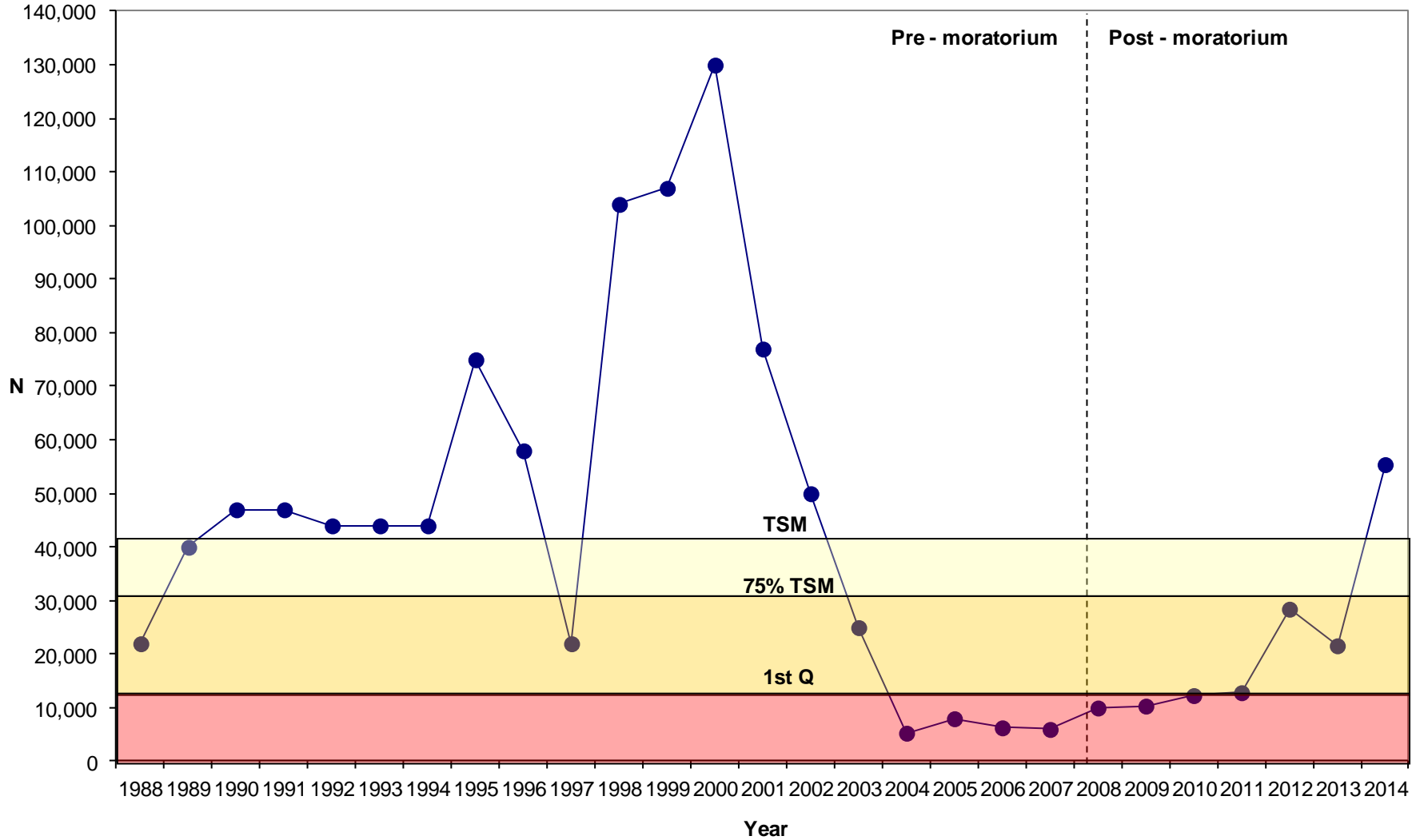
**Definition:** “ *will not diminish potential future reproduction and **recruitment** of herring stocks* “

**Management Units:** state-wide, regional and river specific.

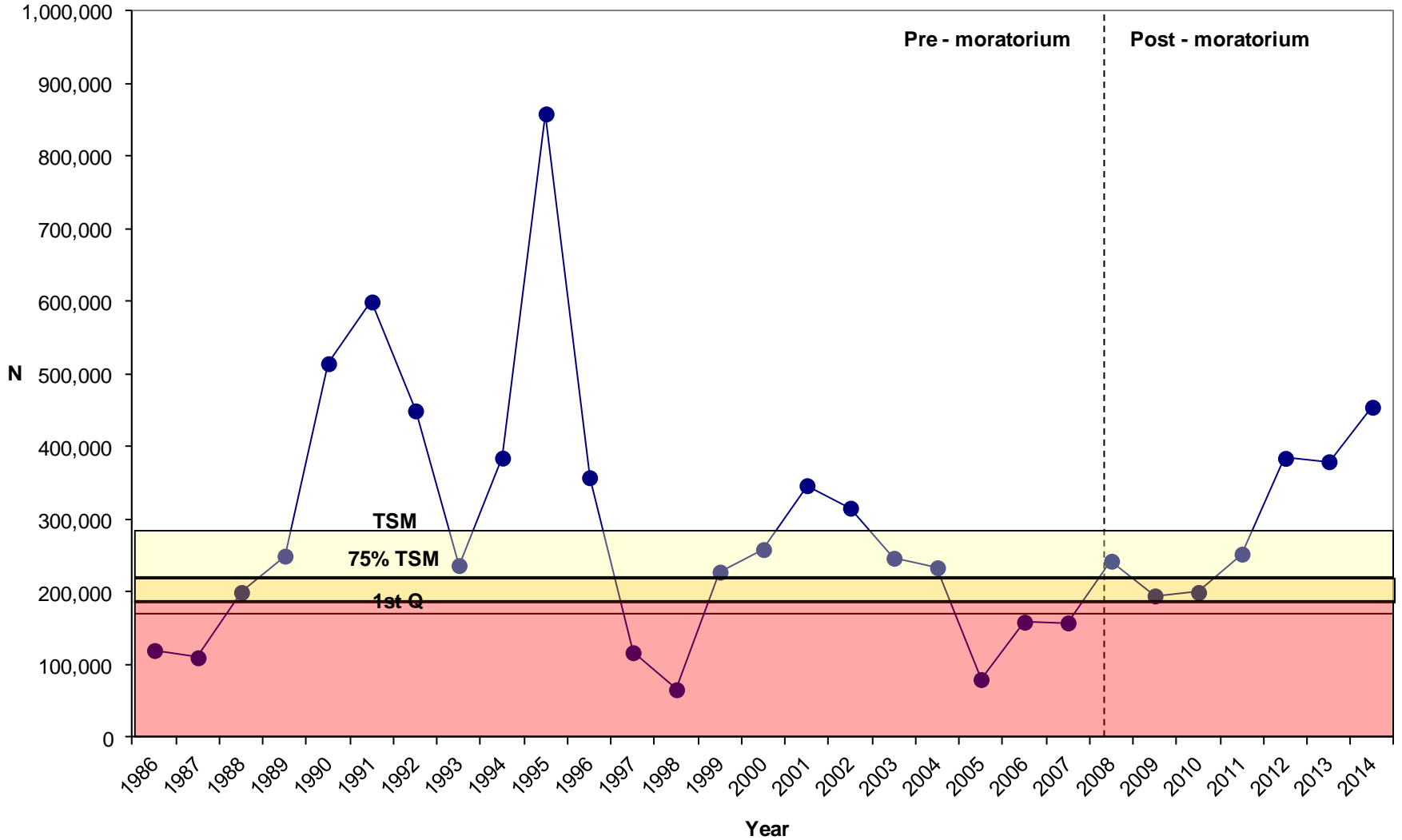
Five Plans approved during 2011-2012: ME, NH, NY, NC, SC

**Bottom Line:** ASMFC has been flexible in approving plans that are supported by limited data. Run counts with best professional judgment has been the primary approach.

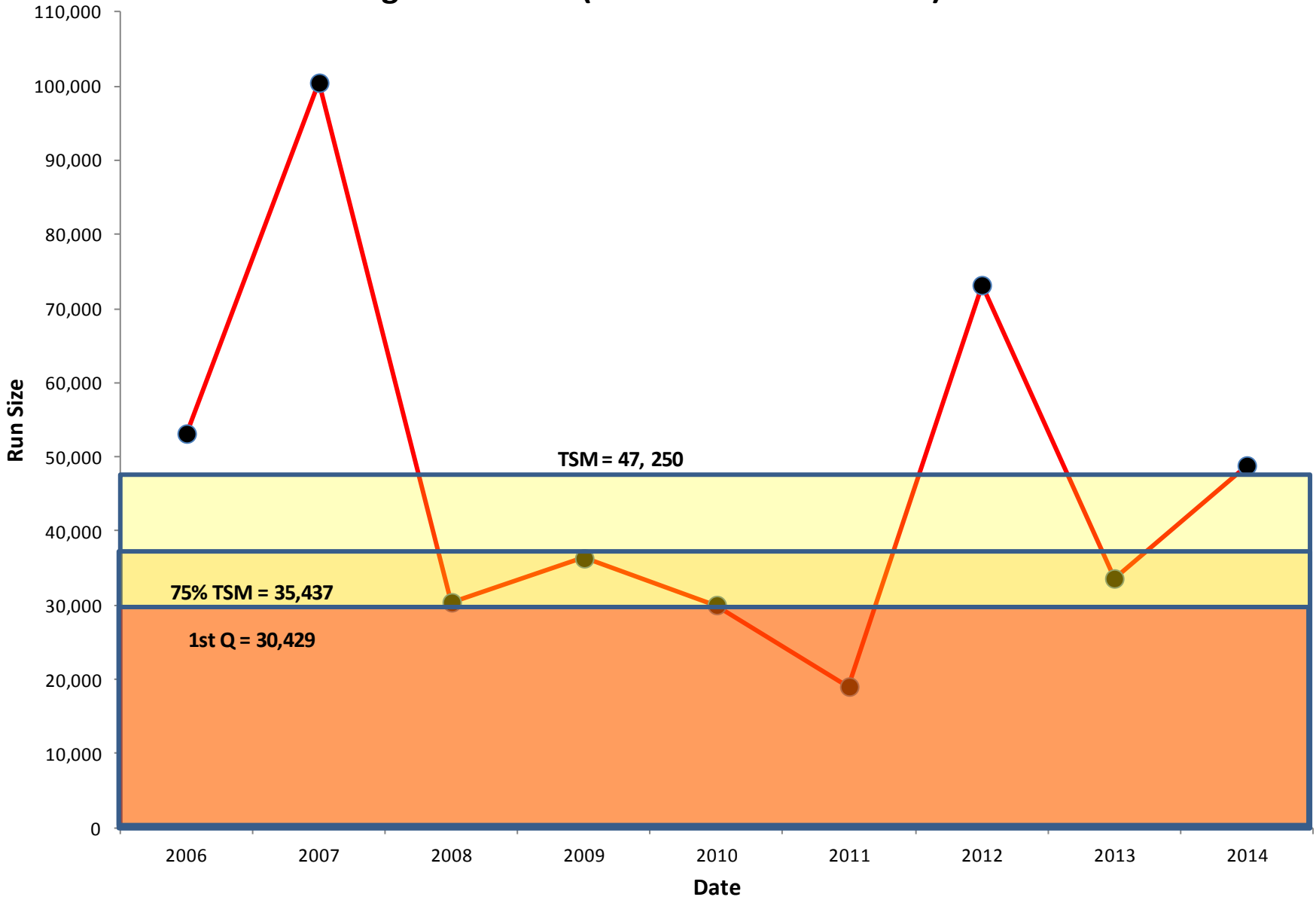
# Mattapoissett River (Electronic: 1988 - 2014)



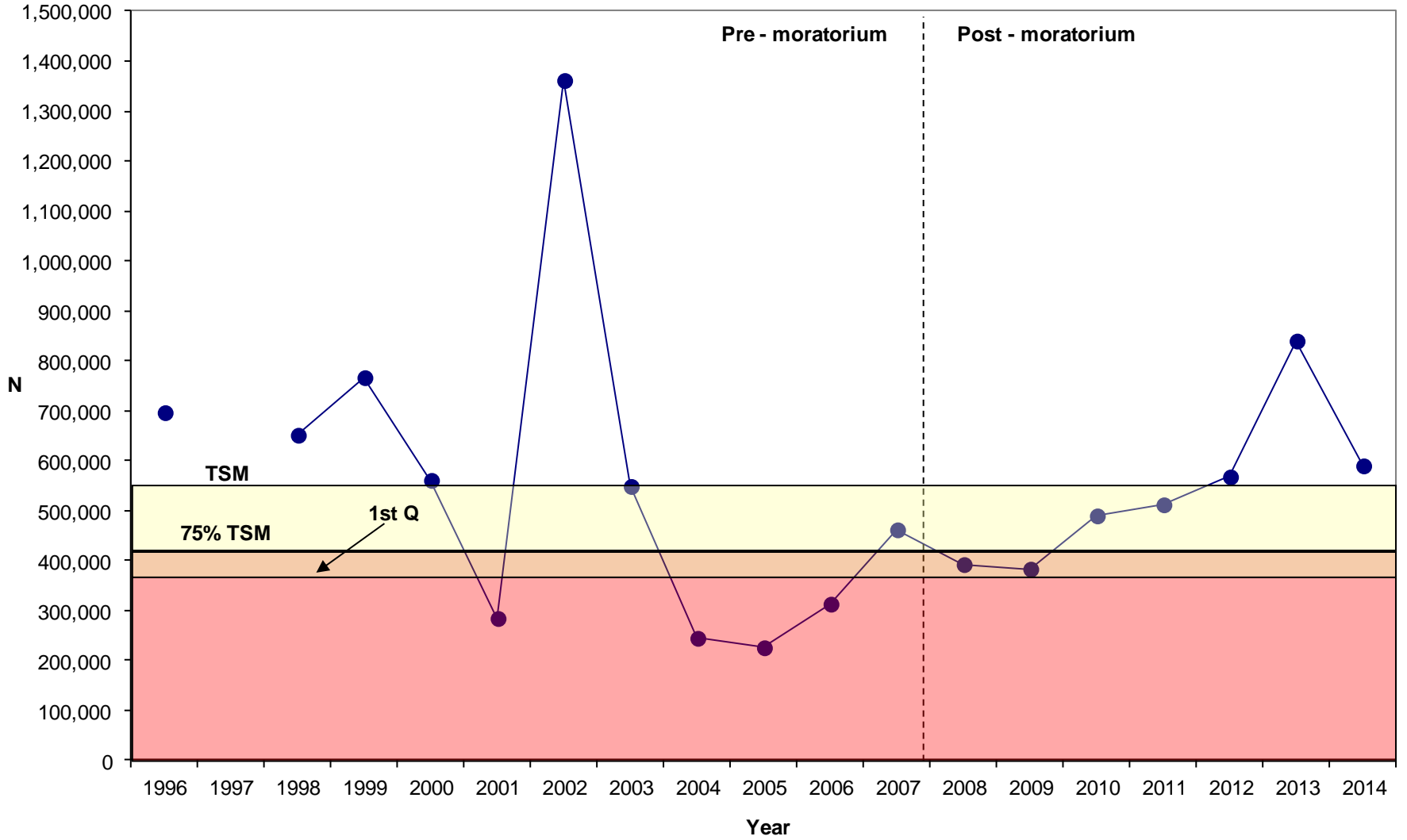
# Back River (1-man Visual: 1986 - 2014)



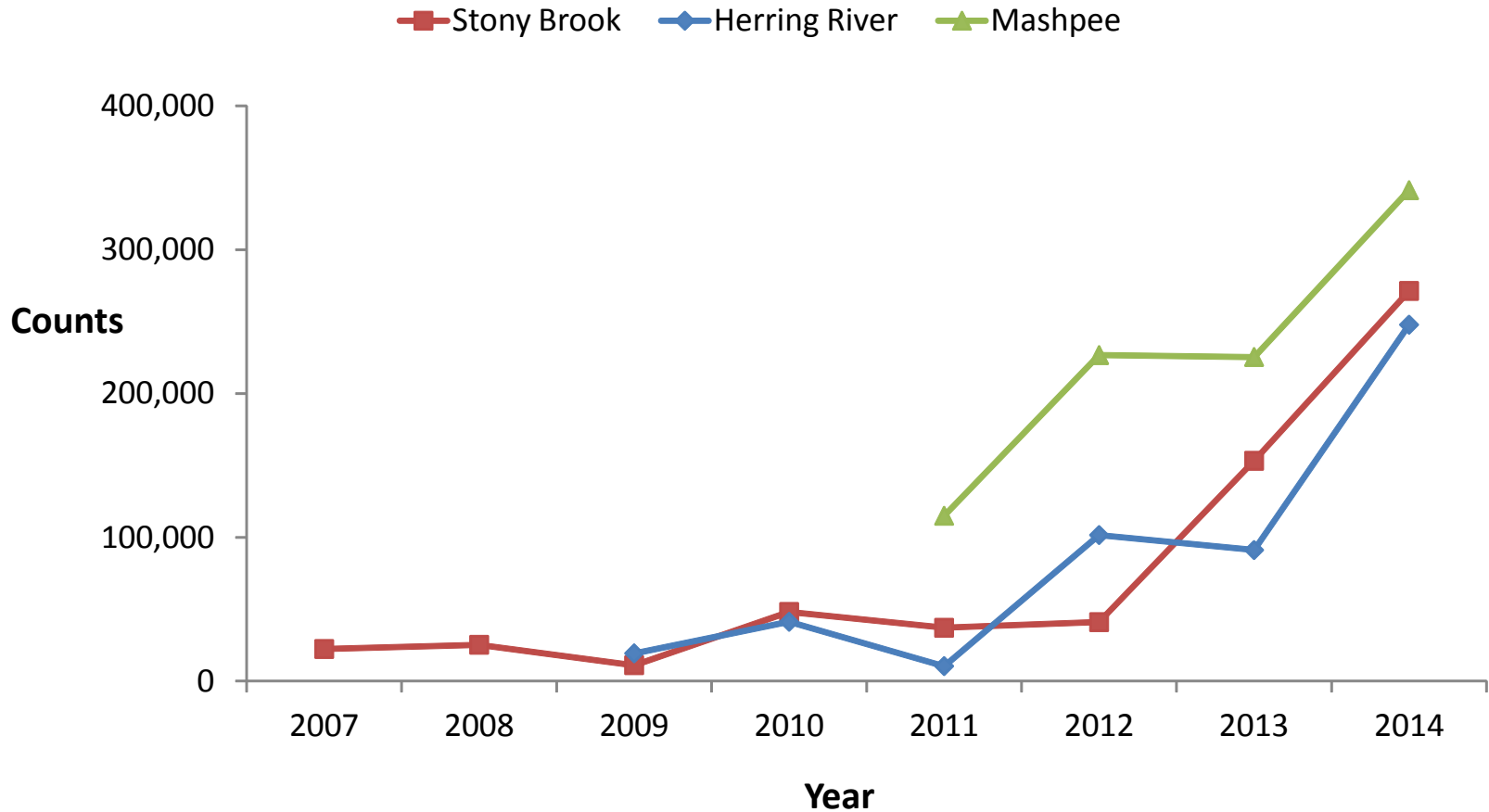
# Agawam River (Electronic: 2006 - 2014)



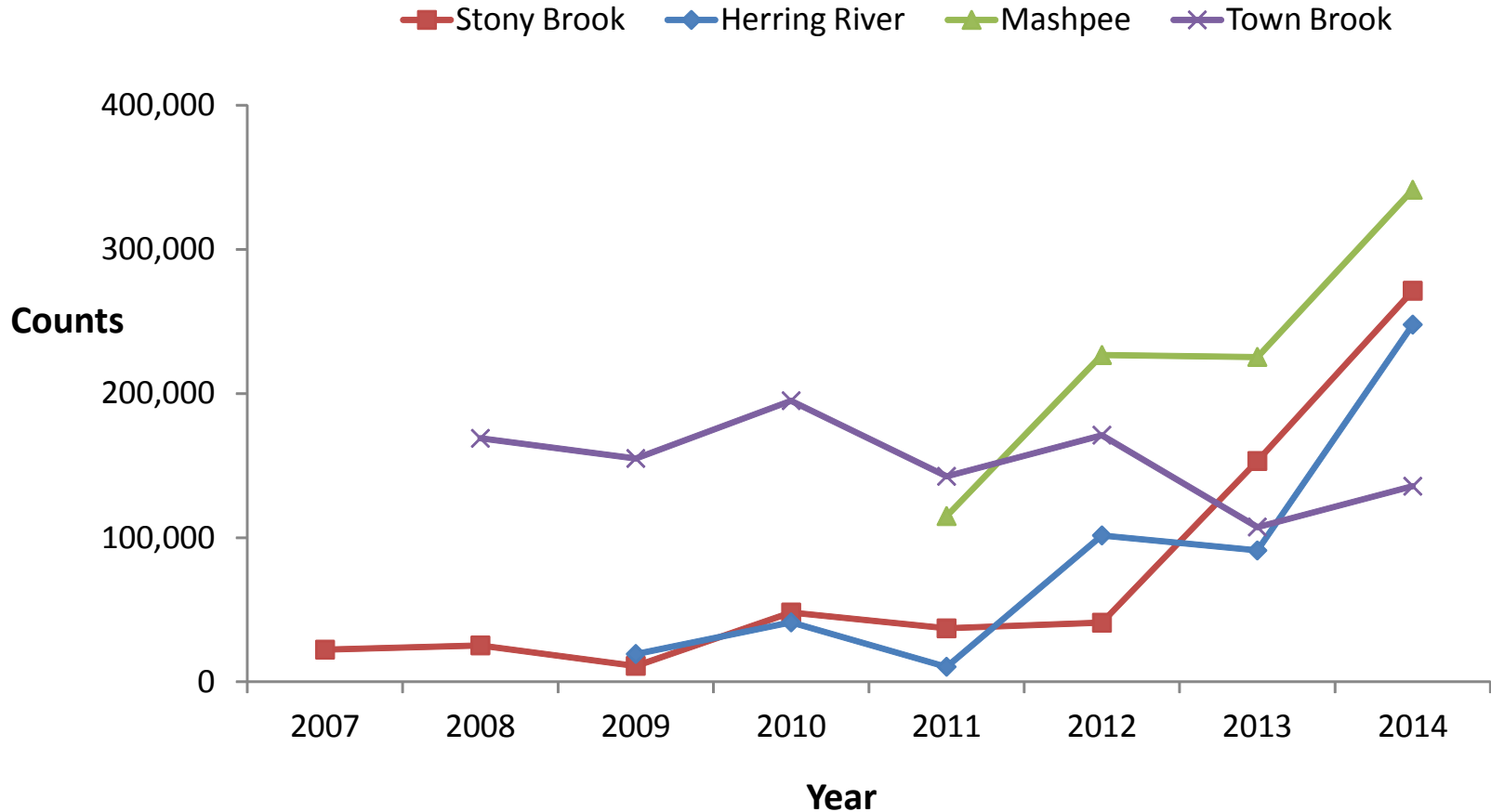
# Nemasket River (Multi-man Visual: 1996 - 2014)



# River Herring Counts: Short-Term Results



# River Herring Counts: Short-Term Results





# Status of River Herring

- MA harvest ban, 2006- *ongoing*
- ASMFC coast-wide stock assessment, and Sustainable Fishery plans, 2010 - 2012
- Fishery Mgt Council's bycatch regulations, 2013-2014
- ESA Petition for Threatened Species ruling, 2013. Process leading to river herring conservation plan



# River Herring Bycatch in Small Pelagic Fisheries

## NE England Fishery Mgt Council -- Sea Herring

Proposes **311.4 mt** catch cap for river herring and shad. Not approved for 2014

## Mid-Atlantic Fishery Mgt Council -- Mackerel

Proposes **236 mt** catch cap for river herring and shad. Accepted for 2014

# Next Steps for Bycatch in Council Process:

- Mid-Atlantic catch cap was in place in 2014 with NMFS monitoring
- Mid-Atlantic catch cap will be adjusted annually based on mackerel quota calculates using median bycatch amounts from 2005 to present
- NE Council intends to further consider sea herring fishery catch cap. Both councils recommend teaming up to have a joint cap for both small pelagic fisheries
- Voluntary avoidance program funded for 2014 and 2015

# NOAA / ASMFC River Herring Conservation Plan

- Resulting from 2013 ESA Ruling on river herring status
- Goal is to produce an integrated conservation restoration plan
- Established a Technical Expert Working Group (TEWG)
- TEWG meeting this year to work on conservation planning
- Funding solicitation now open to support big-picture research topics on river herring