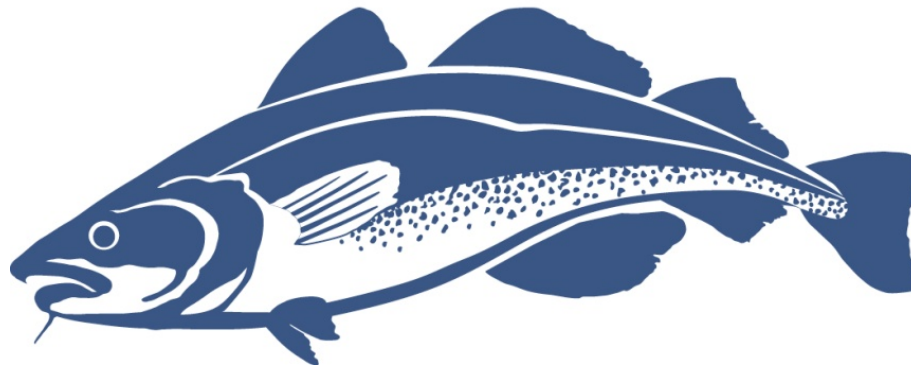


# River Herring Management Update

**Marine Fisheries**  
Commonwealth of Massachusetts



River Herring Network, Wareham, October 24, 2013

# Status of River Herring

- Historic low harvest
- MA harvest ban, 2006
- *ESA Species of Concern, 2006*
- ASMFC coast-wide stock assessment, and Sustainable Fishery plans, 2010 - 2012
- ESA Petition for Threatened Species ruling, 2013
- Fishery Mgt Council's bycatch rulings , 2013



# River Herring Management

1. State/Local
2. Endangered Species Act decision
3. Fishery Mgt. Council's actions on bycatch
4. ASMFC Sustainable Fishery Plans

# Back River, Weymouth



# DMF Responsibilities with Diadromous Fish

## 1. Manage Fish Populations and Harvest

- Population and habitat monitoring
- Atlantic States Marine Fisheries Commission

## 2. Maintain Fish Passage

- Work directly with property owners
- Collaborative projects with partners

## 3. Protect and Restore Fish Habitat

- Wetlands Protection Act
- Collaborative projects

**--Work with Towns**

# Status of Herring Run Management

- 48 MA Towns have river herrings runs
- 78 river herring runs
- about 140 fishways

Coastal Towns with MOUs: 34 ( 61 runs )

Coastal Towns without MOUs: 14 ( 17 runs )

# MA River Herring Prohibition

- Established for 2006 - 2008 out of statewide concerns for river herring populations
- No harvest, possession, or sale of river herring in MA.
- Allowance small bycatch (5% of total landings) in sea herring fishery, and subsistence harvest for Mashpee Wampanoag Indian tribe on Cape Cod
- Renewed for 2009 - 2011. And again for 2012 - 2014.

# MGL Chapter 130, Section 19

- Examine all obstructions in waters flowing to the coast
- Seize and remove illegal obstructions
- Determine where and how fishways are built and repaired
- Determine Operations and Maintenance of all fishways
- Director can issue written orders to provide fish passage; enforceable by MA Superior Court



# MGL Chapter 130, Section 94

- Local Control** – Town government can petition the Director of DMF to regulate a public river herring run
- Section 94 language is focused on harvest in the fishery
  - Silent on managing the run or fish passage
  - In practice, MOU language has addressed passage operations and maintenance

# MA Statutes and Regulations

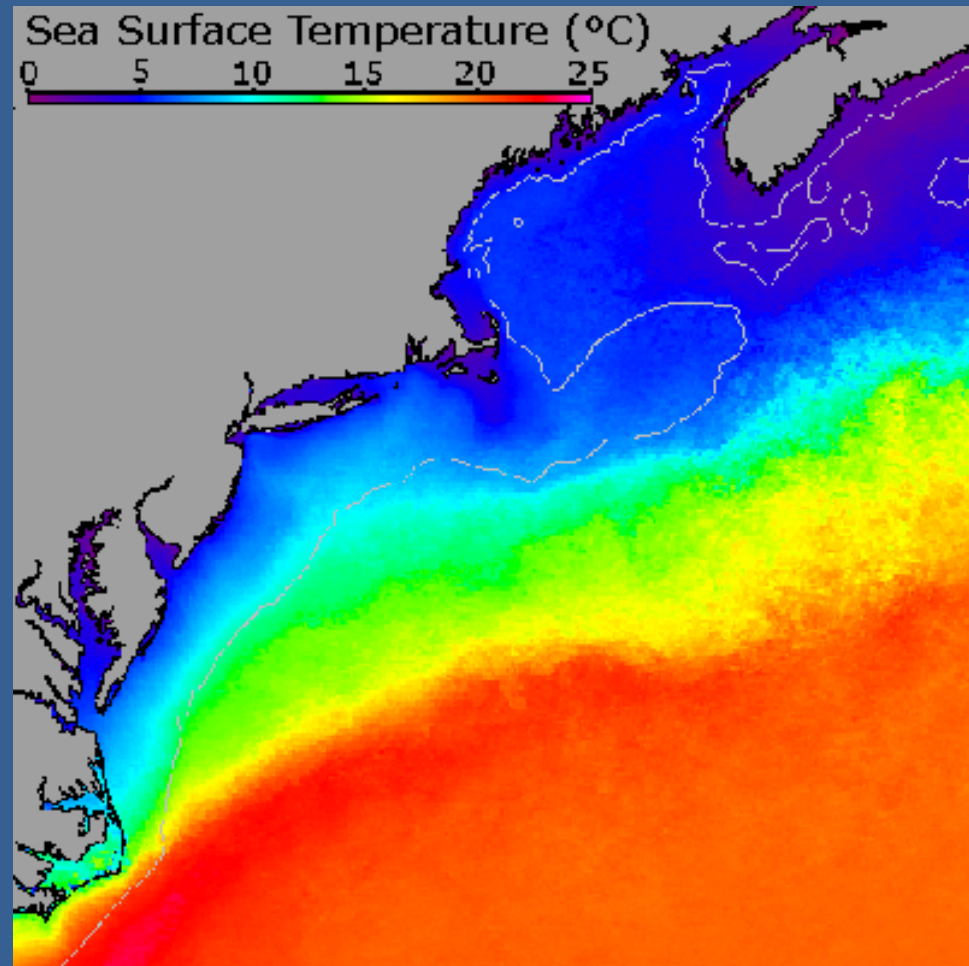
**MGL 130, Section 93:** opening of waterways to create fish runs and lease harvest

**MGL 130, Section 95:** sets fines (\$5 – 50) for taking sea-run fish; “takes, kills, ...obstructs passage... in a fishery”

**322 CMR Sections 7.01 4(f) and 14(m):** DMF Fishway Permit needed for any fish passageway. Includes check-off on engineering plans and O&M.

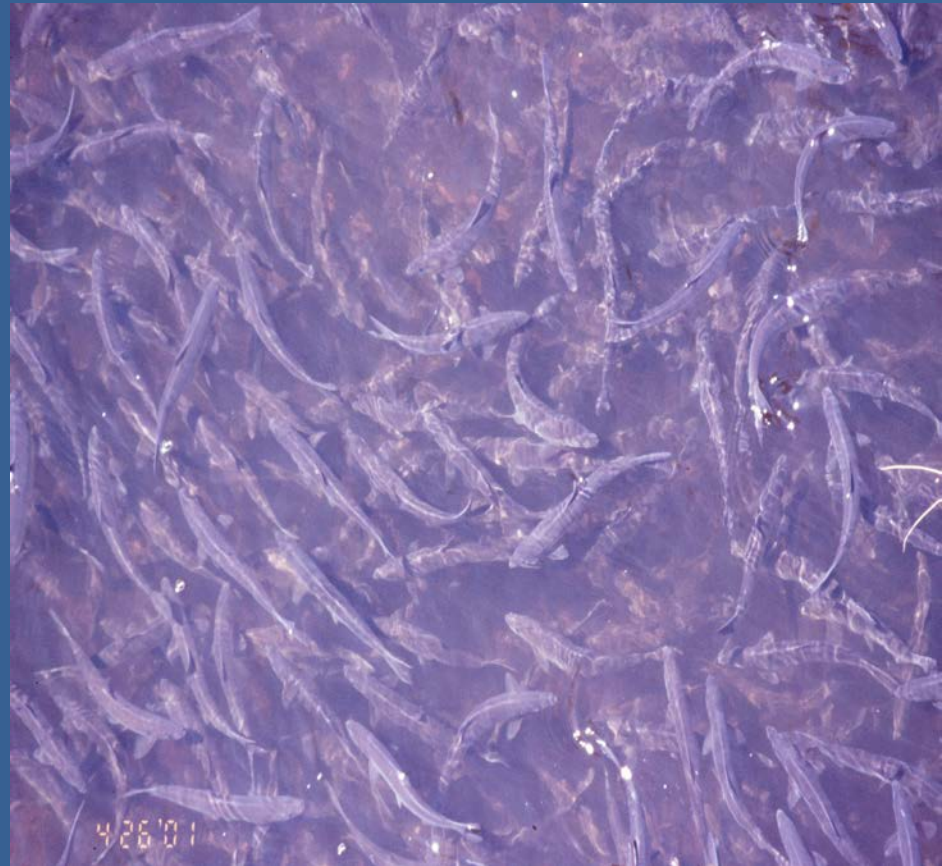
# Distribution

- Alewife range from Labrador to South Carolina
- Blueback herring range from Nova Scotia to St. John's River, FLA
- Extensive marine migrations on continental shelf



# Stock Structure

- Most herring runs are genetically discrete populations
- **Blueback herring:** 4 stocks in Northern NE, Southern NE, Mid-Atlantic and South Atlantic.
- **Alewife:** 3 stocks in Northern NE, Southern NE, and Mid-Atlantic
- Recent genetic studies (Palkovacs et al. 2013) confirm drainage-level mgt is needed



# Alewife

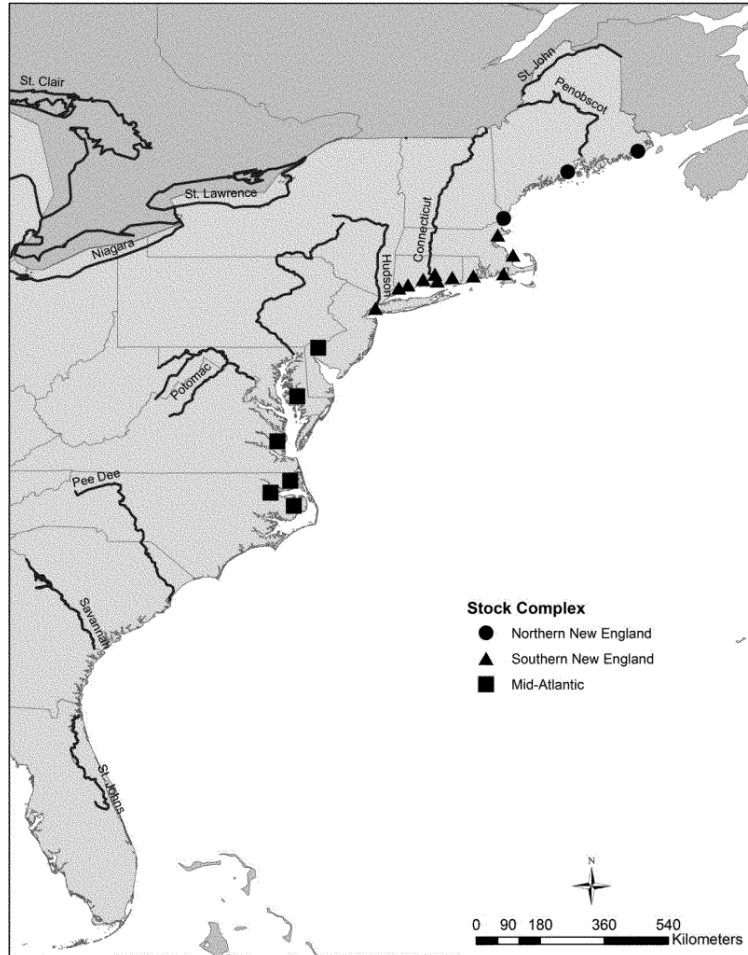


Figure 1. Alewife stock structure identified in Palkovacs *et al.*, 2012, unpublished report.

# Blueback Herring

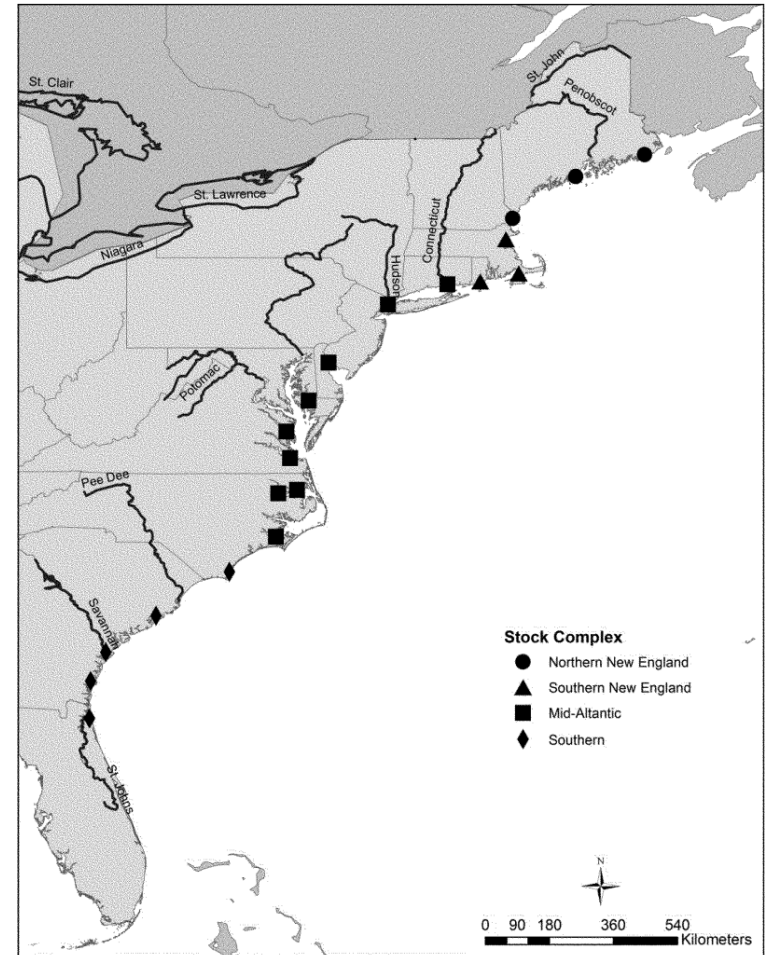


Figure 2. Blueback herring stock structure identified in Palkovacs *et al.*, 2012, unpublished report.



# Endangered Species Act Review

- NOAA petitioned in 2011 by Natural Resources Defense Council to list river herring as *Threatened* under ESA
- NOAA ruled in August 2013 that a listing was not warranted



# Endangered Species Act

The ESA defines an **endangered** species as any species in danger of extinction throughout all or a significant portion of its range, and a **threatened** species as any species likely to become an **endangered** species within the foreseeable future throughout all or a significant portion of its range.

# Endangered Species Act Review

## *Petition*

- The NRDC petition cited the following reasons:
  1. Habitat degradation
  2. Overutilization
  3. Disease and predation
  4. Inadequacy of regulatory mechanisms
  5. Other natural or man-made factors affecting species



# Endangered Species Act Review

## *NOAA's Task*

1. Address 5 main points in petition
2. Determine the definition of “species”
  - Do “distinct populations segments” exist and are they “discrete and significant”?
3. Determine the status of species and the factors that affect their existence and extinction risk
4. Identify efforts underway to protect the species and determine if they are adequate

# Endangered Species Act Review

## *NOAA's Ruling – August 2013*

1. Did not identify a “distinct population segment” for either species. Discrete but not significant
2. Past overharvest “likely contributed” to declining stocks but the extent is **not fully understood**
3. Status “not likely affected” by diseases, and predation impacts are **not fully understood**
4. Adequate regulations?: highlights existing federal statutes with limited conclusions
5. Other factors?: discussion on competition and stocking with limited conclusions

# Endangered Species Act Review

## *Qualitative Threats Assessment*

- A nine member team conducted the assessment by ranking 22 identified threats to both species
- Dams and barriers identified as most important threat to both species across all regions and stocks
- Incidental catch was the 2<sup>nd</sup> highest ranked threat
- 3<sup>rd</sup> grouping of threats: water quality, withdrawals, dredging, and predation

# Qualitative Threats Assessment

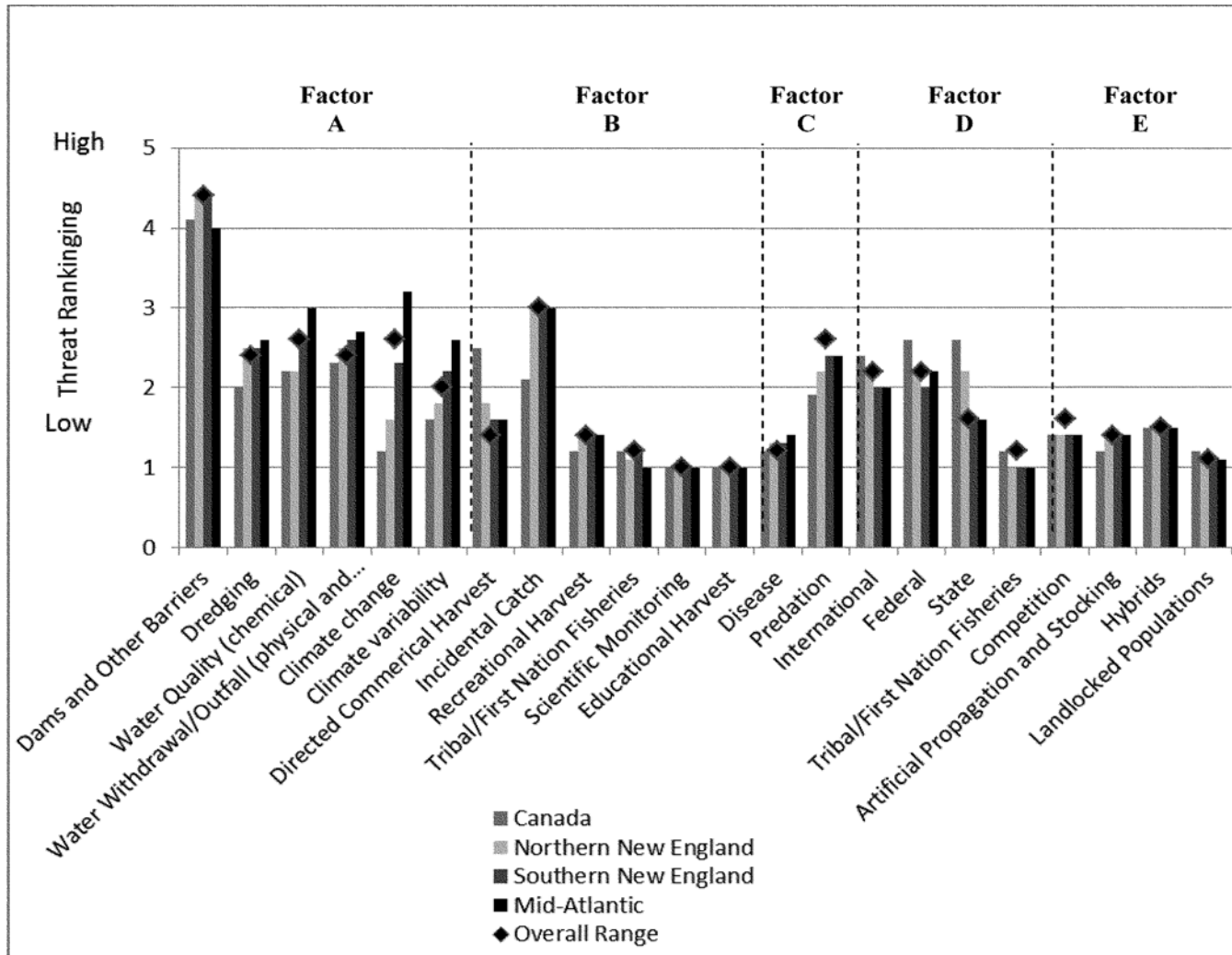


Figure 3. Median qualitative ranking of threats to alewives range-wide and for each stock complex.

# Endangered Species Act Review

## *Next Steps*

- Review does not support the assertion that existing threats put river herring in danger of extinction
- River herring will remain a *Species of Concern* under the Endangered Species Act
- NOAA will provide funds to ASMFC and establish a technical working group to coordinate a coastwide effort to address data gaps and promote conservation







# River Herring Bycatch in Small Pelagic Fisheries

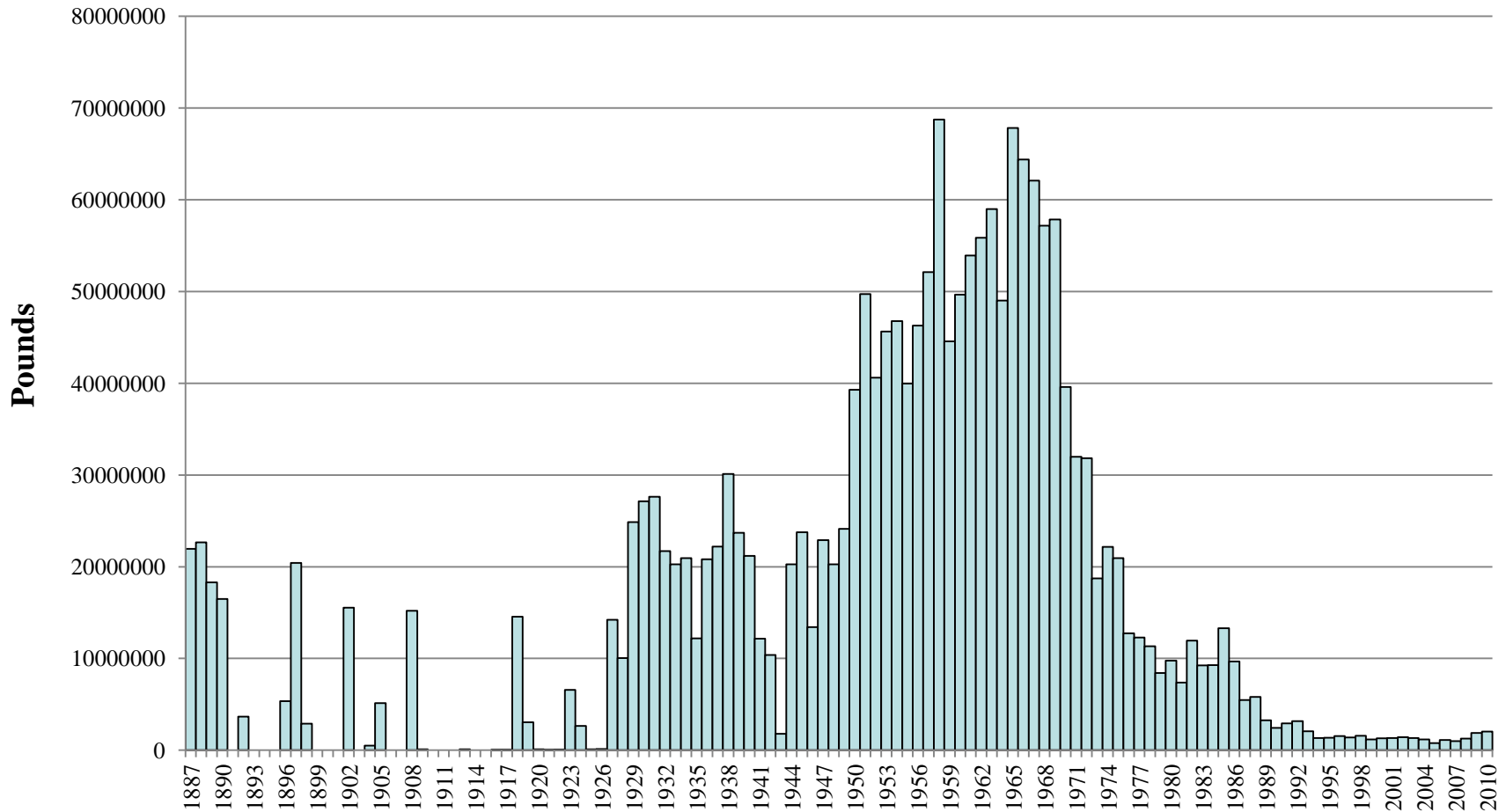
## NE England Fishery Mgt Council --

Proposes **311.4 mt** catch cap combined for river herring and shad in sea herring fishery

## Mid-Atlantic Fishery Mgt Council --

Proposes **236 mt** catch cap combined for river herring and shad in mackerel fishery

# US Commercial Landings of River Herring, 1887 – 2010 (millions of pounds)





# Atlantic Mackerel, Squid, and Butterfish Mgt. Plan -- Mid-Atlantic Fishery Mgt. Council

- Council voted in June to forward Amendment 14 mgt measures to NOAA review and public comment
- Public comment period closed on October 11, 2013
- Key river herring and shad measures:
  1. Improve observer coverage ( 100% on mid-water trawls )
  2. Mortality cap ( 236 mt ) on river herring and shad bycatch
  3. Close fishery at 95% of cap

# Atlantic Herring Fishery Mgt. Plan – New England Fishery Mgt. Council

- Council voted in June to move Amendment 5 mgt measures to NOAA review and public comment
- September 26, 2013 Council vote approved catch cap
- Key river herring and shad measures:
  1. improve observer coverage ( 100% on mid-water trawls )
  2. Mortality cap ( 311 mt ) on river herring and shad bycatch
  3. Close fishery at 95% of cap

# Next Steps for Bycatch in Council Process:

- Process public comments
- NMFS review
- NMFS has stated concerns over implementation of bycatch cap and 100% observer coverage and other measures
- *We'll see how it goes.....*the cap is 1.2 million pounds of river herring

# 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

# Amendment 2 to the Interstate Fishery Mgt. Plan for Shad and River Herring

- Created framework in 2009 for developing Sustainable Fishery Plans and Recovery Plans.
- Sets monitoring requirements for states.
- Gives guidelines for developing sustainability targets, sustainable fishery plans and recovery plans.
- Gives Mgt. Board with authority to approve state's regulatory programs. These are mandatory compliance elements.

# Sustainability Targets

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

- Spawning stock biomass
- Fish passage counts
- Mortality rates
- Repeat spawning ratio
- Juvenile abundance indices

# Maine

## *Approved Sustainable Fishing Plan – Statewide Plan*

- Only state with large coastal fisheries
- Town control of 40 rivers. Plan keeps 19 open for harvest
- Two sustainability targets:
  - 1) Production target -- 235 adults per acre
  - 2) Escapement Target -- 35 adults per acre
- will track landings, run counts, escapement estimates and mortality rates and shut down runs if targets aren't met

# New Hampshire

## *Approved Sustainable Fishing Plan – Great Bay Indicator Stock*

- Estuary-wide vs. river-specific
- Have good data on most rivers in Bay (>20 years)
- Two sustainability targets:
  - 1) Exploitation Rate -- harvest 20% of stock
  - 2) Escapement Target --350 adults per surface acre of habitat
- Also track mortality rates and repeat spawners



# South Carolina

## *Approved Sustainable Fishing Plan – Santee-Cooper River Complex*

- **River specific data:** mark-recapture population stock estimate, Commercial CPUE, passage counts, and exploitation rate estimates
- **Sustainability target:** exploitation rate,  $u \leq 18\%$ 
  - exploitation rate comes from harvest and count records
  - compares this to literature
  - no monitoring or mgt. thresholds

# North Carolina

## *Approved Sustainable Fishing Plan – Chowan River Management Area*

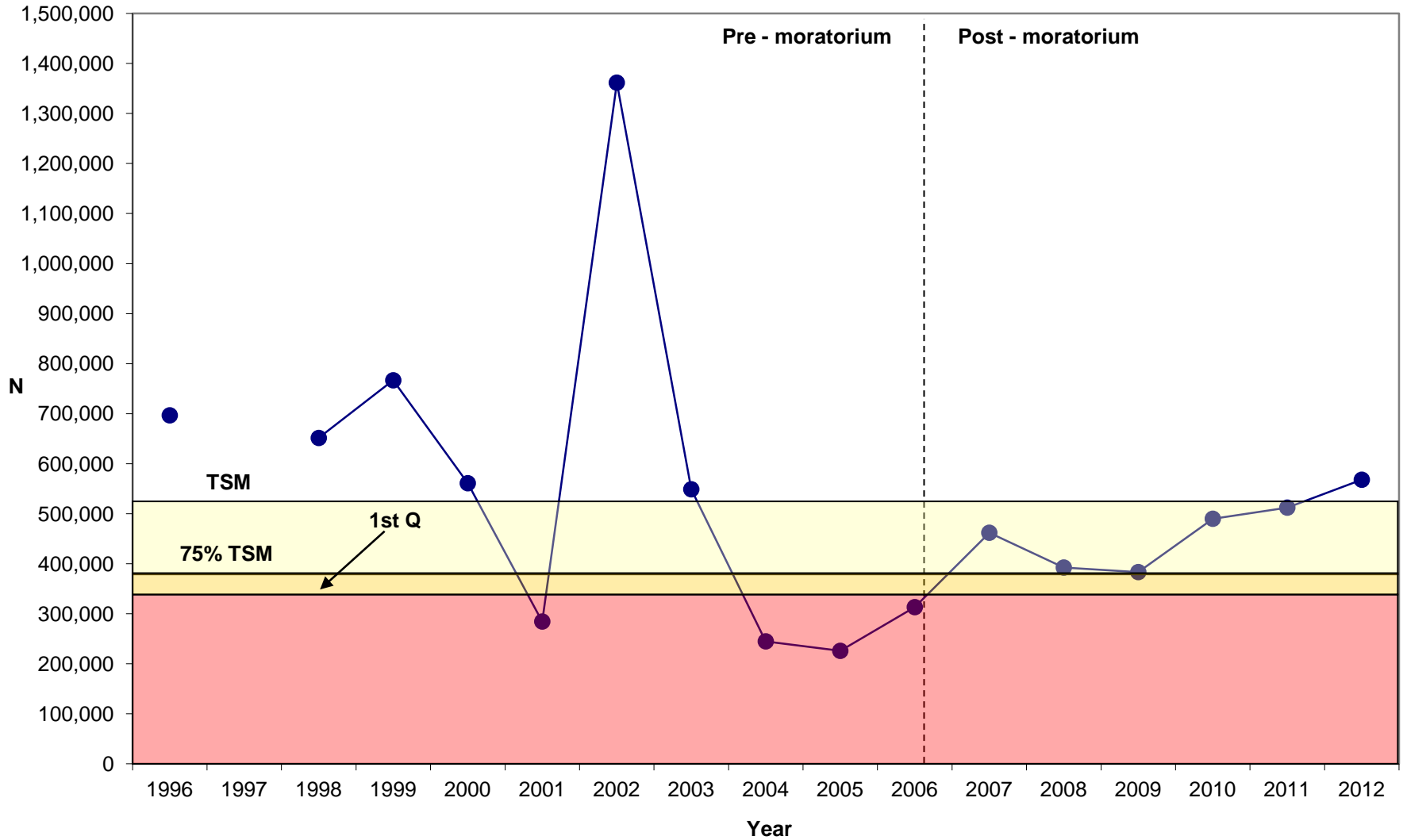
- **Fishery Plan:** 4-day discretionary season with cap of 20 permits, 4,000 pounds and 250 pounds / permit.
- **Monitoring:** no metrics
- **Sustainability target:** no metrics
  - “Current data.....simply do not exist for river herring outside of Albemarle Sound”
  - essentially a commercial bycatch allowance

# New York

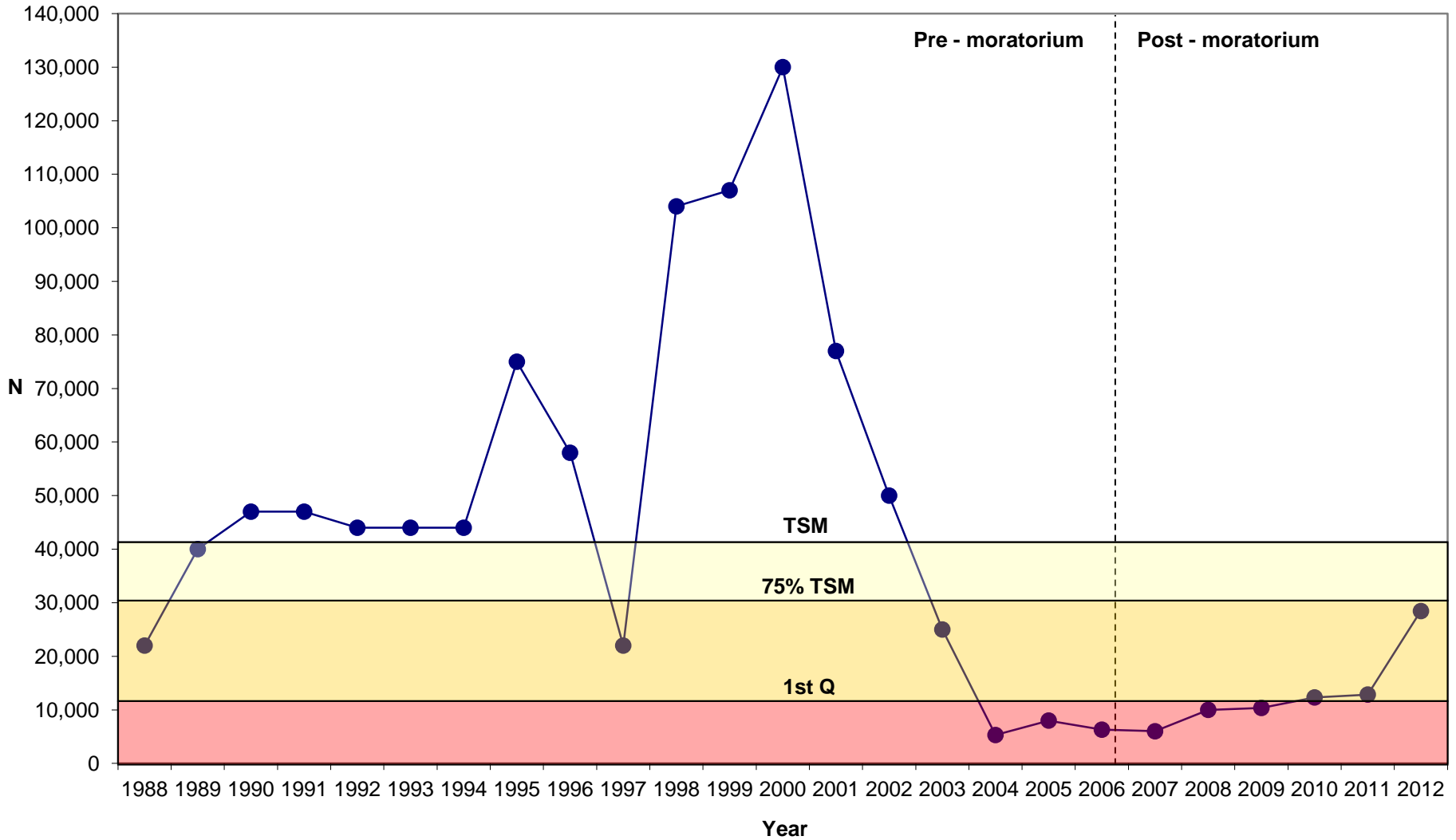
## *Approved Sustainable Fishing Plan – Hudson River main stem and tributaries*

- **Fishery Plan:** a 5-year plan to allow some Hudson River harvest. Ten fish per person recreationally, and a commercial fishery with permit and gear, but no catch limits.
- **Sustainability target:** juvenile beach seine series, 25<sup>th</sup> percentile of 1983-2010 data
- **Sustainability measures:** CPUE, mean length, age-structure and mortality rate
  - the rest of the state remains closed
  - no commercial harvest limits or thresholds

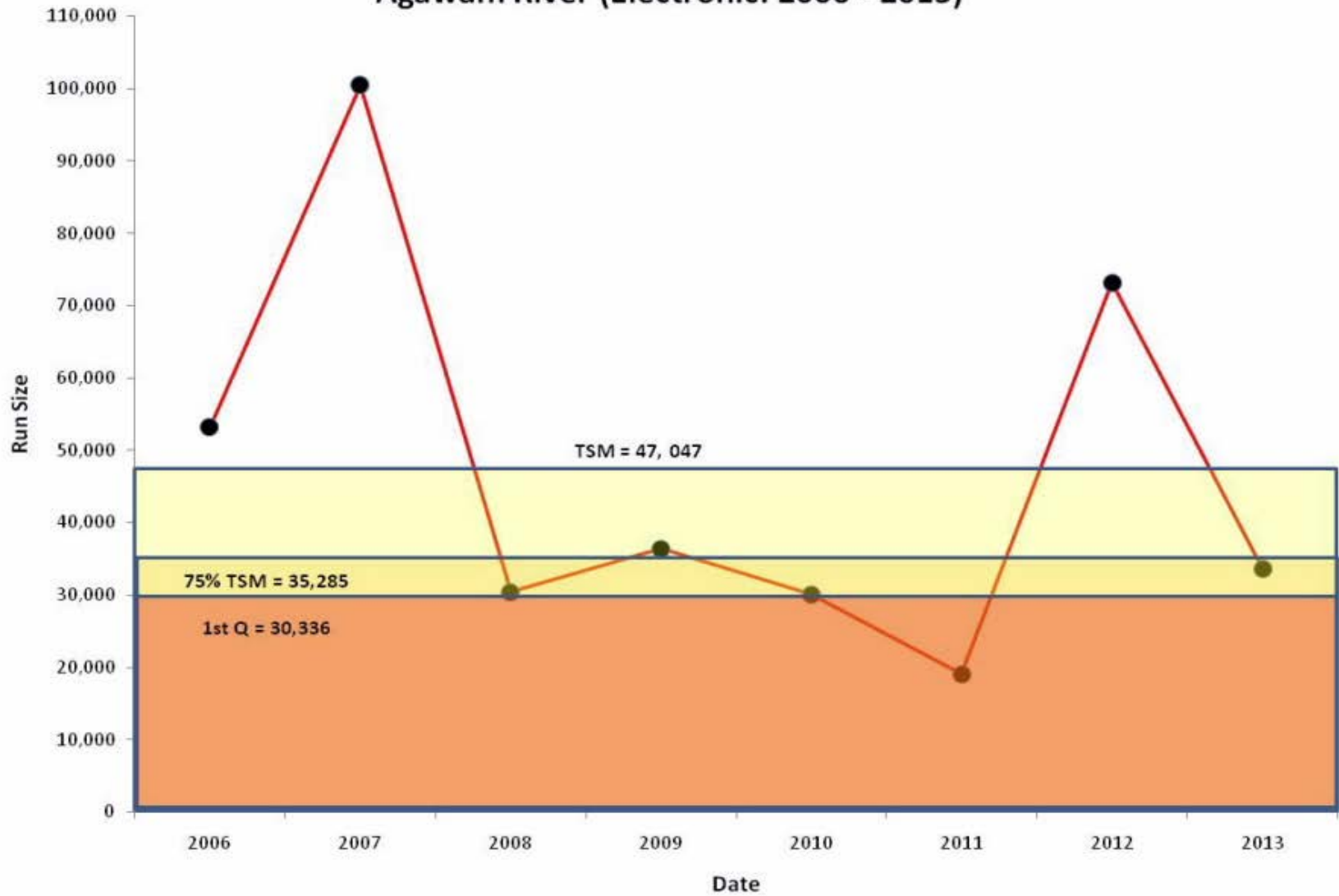
# Nemasket River (Multi-man Visual: 1996 - 2012)



# Mattapoissett River (Electronic: 1988 - 2012)



### Agawam River (Electronic: 2006 - 2013)









# River Herring Stock Structure

- Most severe declines for both species appears to be middle range (Southern NE and Mid-Atlantic).
- Palkovacs et al. (2013) come out and say that because conservation measures and harvest limits have reduced watershed threats therefore off-shore bycatch is playing a role and preventing the recovery. Quite speculative. Not in paper, but in press release and presentations.
- The stock complexes may be discrete, but under the DPS policy, they are not significant to the species as a whole.

# Diadromous Fish Monitoring

1. Ongoing river herring counting stations:
2. New river herring counting stations:
3. Smelt fyke Net Stations:
4. Glass eel trap stations:

# NRCS Cape Cod Restoration

## Cedar Lake, Falmouth



## Santuit Pond, Mashpee



# Morey's Street Dam, Taunton



Back River, Weymouth --

Stony Brook, Brewster

