Mid-Atlantic Fishery Management Council
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MEMORANDUM

Date: June 2, 2016

To: River Herring and Shad (RH/S) Committee/Council

From: Jason Didden

Subject: Annual RH/S Progress Review

In October 2014, the Council approved a list of questions to form the basis of an annual RH/S Progress Review. This memo addresses those questions. In addition, a proposed outline for the updated Stock in the Fishery White Paper (August completion) follows the Progress Review.

1. How has the Atl. mackerel RH/S cap performed?

A review of cap performance (http://www.greateratlantic.fisheries.noaa.gov/ro/fso/reports/Mackerel_RHS/Mackerel_RHS.htm) indicates that a relatively small percentage of the RH/S cap was caught in 2014, 2015, or 2016 to date. There have been no closures related to the RH/S cap so far. Low mackerel landings have contributed to the low RH/S estimates. Due to the overlap in the Atl. Herring and mackerel fisheries, their RH/S cap catches cannot be added together to produce a total catch across caps - RH/S on a trip with both Atl. herring and mackerel can count against both the Atl. herring and mackerel RH/S caps. Because the cap amounts were set considering this circumstance, double counting is not a problem for monitoring. The Monitoring Committee has not found any operational issues with the cap, other than noting that the recent low observer coverage and high RH/S catch variability means precision may be low. The Industry-Funded Monitoring Amendment has analyzed precision in the 2014/2015 mackerel RH/S caps:

	Fishing Year[1]: CV (Observer Coverage)	
Catch Cap	2014	2015[3]
RHS-Mackerel	48.9% *(37.8%)*	22.7% *(7.3%)*[3]

Source: GARFO Quota Monitoring Database as of 5/22/2016
[1]Catch cap fishing year: river herring/shad = calendar year; haddock = May-April
[3]Fishing Year 2015 data are PRELIMINARY

Somewhat counterintuitively, the Coefficient of Variation (CV – a measure of relative precision) for 2015 was better than 2014 despite substantially lower observer coverage in 2015. CV is dependent on both coverage and the underlying data - the RH/S catches in 2015 were more similar to each other on the few 2015 observed mackerel trips compared to 2014, resulting in better CVs despite the lower coverage.

2. What has recent coastal RH/S catch been?

The ASMFC annual fishery management plan reviews are available at http://www.asmfc.org/species/shad-river-herring. Catch figures for 2012-2014 from those reports (all "Table 2") are provided below:

Table 2. American shad and river herring in-river commercial and ocean bycatch landings (in pounds) provided by states, jurisdictions and the NOAA Fisheries for 2012.

	American Shad	River Herring	Hickory Shad
Maine[4]		1,606,535	
New Hampshire		2,681	
Massachusetts			
Rhode Island			
Connecticut	61,623		
New York[1]	1,485	16,965	
New Jersey[2]	28,120	84	924
Pennsylvania			
Delaware			
Maryland		290	
D.C.			
PRFC	4,742		446
Virginia	4,601		999
North Carolina	235,861	678	65,645
South Carolina[3]	299,528	163,076	
Georgia[4]			
Florida			
Total	**635,960**	**1,790,309**	**68,014**

[1]New York American shad landings are from ocean bycatch
[2]Includes in-river and coastal harvest
[3]American shad landings include hickory shad
[4]Georgia & Maine (shad) landings are confidential

Table 2. American shad and river herring in-river commercial and ocean bycatch landings (in pounds) provided by states, jurisdictions and NOAA Fisheries for 2013.

	American Shad	River Herring	Hickory Shad
Maine[3]		1,423,878	
New Hampshire		4,420	
Massachusetts			
Rhode Island			
Connecticut	65,679		
New York[1]	932	10,349	
New Jersey[2]			3,483
Pennsylvania	2,854		
Delaware			
Maryland		305	
D.C.			
PRFC	3,799		
Virginia	4,825		755
North Carolina	257,869	743	71,326
South Carolina	205,368	192,454	652
Georgia	62,017		2,162
Florida			
Total	**608,428**	**1,632,149**	**78,378**

[1]New York American shad landings are from ocean bycatch
[2]Includes in-river and coastal harvest
[3]Maine (shad) landings are confidential

Table 2. American shad and river herring in-river commercial and ocean bycatch landings (in pounds) provided by states, jurisdictions and NOAA Fisheries for 2014.

	American Shad	River Herring	Hickory Shad
Maine[3]		1,720,285	
New Hampshire			
Massachusetts		192	
Rhode Island			
Connecticut	61,544		
New York[1, 3]		8,450	
New Jersey[2]	42,599		456
Pennsylvania			
Delaware	85,794		
Maryland			
D.C.			
PRFC	4,013		1,300
Virginia	1,325		1,025
North Carolina	193,130	989	109,407
South Carolina[4]	333,602	114,905	1,311
Georgia[3]			
Florida			
Total	**776,586**	**1,844,821**	**119,118**

[1]New York American shad landings are from ocean bycatch
[2]New Jersey shad landings includes in-river and Delaware Bay harvest
[3]Georgia, Maine, and New York shad landings are confidential
[4]South Carolina American shad landings include hickory shad

The Omnibus Industry Funded Monitoring Amendment has analyzed observer data to obtain RH/S incidental catch estimates for purposes of determining which fleets have accounted for RH/S catch. The table below is excerpted from draft Omnibus Industry Funded Monitoring Amendment text:

FLEETS RESPONSIBLE FOR RH/S CATCH (TOTAL CATCH FROM 2005-2013)

Fishing Fleet	Percent of RH/S Catch
Midwater Trawl (Single and Paired)	57%
Small Mesh Bottom Trawl	33%
Large Mesh Gillnet	7%
Purse Seine	0.3%

While the 2014 RH/S caps in the Atlantic herring fishery approximately matched this pattern, catch was higher for small mesh bottom trawl in the 2015 herring caps, and that would have only accounted for a portion of total small mesh bottom trawl RH/S catch. See http://www.greateratlantic.fisheries.noaa.gov/ro/fso/reports/Mackerel_RHS/Mackerel_RHS.htm for historical performance of the Atl. herring and mackerel RH/S caps. Staff recommends that the Council request that the Science Center update general RH/S catch estimates (as estimated via the Standardized Bycatch Reporting Methodology (SBRM)), so that Amendment 14 RH/S catch analyses are updated through 2015.

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3. What levels of observer coverage have been achieved in relevant fisheries?

The revised SBRM prioritization procedures determine year to year observer coverage generally based on where discards of federally-managed species most occur, and available funding. In recent years this process has led to fewer midwater trips being observed (but more small mesh bottom trawl trips). The Omnibus Industry-Funded Monitoring Amendment is seeking to supplement SBRM coverage through a variety of options. The following tables were developed for the Industry-Funded Monitoring Amendment and describe planned and realized coverage levels for the relevant fleets as pertaining to RH/S caps. As described in #1 above, coverages of trips that qualified for the mackerel fishery's RH/S cap were 38% (CV=49%) in 2014 and 7% (CV=23%) in 2015.

Fleet	Region	Sea Days allocated for April 2014 to March 2015	Observed sea days, July 2012 to June 2013	VTR sea days, July 2012 to June 2013	Observed trips, July 2012 to June 2013	VTR trips, July 2012 to June 2013
Small Mesh Bottom Trawl	MA	1,289	631	7,003	263	3,569
Small Mesh Bottom Trawl	NE	1,604	463	7,315	171	3,315
Purse seine	MA	12	0	447	0	441
Purse seine	NE	20	71	699	31	319
Midwater Trawl (Pair and Single)	MA	0	7	72	1	10
Midwater Trawl (Pair and Single)	NE	45	638	1,389	146	394

Source: NEFOP/GARFO Proposed Seaday Allocation for 2014 (Appendix C); Wigley et al., 2014 (Appendix D).

Fleet	Region	Proposed sea days for April 2016 to March 2017	Observed sea days, July 2014 to June 2015	VTR sea days, July 2014 to June 2015	Observed trips, July 2014 to June 2015	VTR trips, July 2014 to June 2015
Small Mesh Bottom Trawl	MA	1,171	997	6,761	360	3,088
Small Mesh Bottom Trawl	NE	798	933	8,847	319	3,381
Purse seine	MA	6	0	174	0	172
Purse seine	NE	19	29	661	13	315
Midwater Trawl (Pair and Single)	MA	30	8	134	1	26
Midwater Trawl (Pair and Single)	NE	440	160	1,189	43	363

Source: 2016 Discard Estimation, Precision, and Sample Size Analyses for 14 Federally Managed Species Groups in the Waters off the Northeastern United States; Wigley et al., 2016 (included in Appendix 4).

4. Was a cap set for RH/S for the following year?

Caps were previously set for 2014 and 2015, and in 2015 the Council set a cap of 82 mt (180,779 pounds) for 2016-2018. If the Atlantic mackerel fishery catches 95 percent of the RH/S cap (77.9 mt), the directed mackerel fishery will be closed and vessels will be limited to a 20,000-lb incidental catch trip limit for the remainder of the fishing year.

5. Was the cap based on recent catch or more directly tied to RH/S population dynamics?

The cap was originally based on catch ratios expanded up to the mackerel quota. Given the low RH/S cap catches and low mackerel quota, the Council has reduced the RH/S cap in recent years. With the current 82 mt mackerel cap, in order to catch the mackerel quota the fishery must maintain a RH/S catch rate around the median value for 2005-2012.

6. What progress has been made on aligning cap operation with the Atlantic herring fishery's cap?

Given the degree of alignment created by the current estimation procedures and the potential for the Councils to disagree on year to year cap amounts even if a joint framework was established, it is not clear to staff that there likely would be substantial gains from moving from the status quo cap setting procedures. If a cap was based on a biologically-derived amount, then more explicitly aligning the caps *may* be more important. See previous memo on this topic at http://www.mafmc.org/s/Tab16_ED-Report.pdf for additional background.

7. What other RH/S coordination with other management partners has occurred (NMFS, NEFMC, ASMFC, states, NGOs, academia, TEWG, etc.)?

The TEWG continues to actively keep a variety of parties engaged in RH conservation issues. Staff will provide a high-level overview at the Council meeting, but the following products provide a medium-level summary of recent TEWG outcomes:

*River Herring Conservation Plan Executive Summary and 2015 Year in Review
http://www.greateratlantic.fisheries.noaa.gov/protected/riverherring/conserv/rh_plan_2015_executive_summary_042916.pdf

*Fisheries Subgroup 2015 Update
http://www.greateratlantic.fisheries.noaa.gov/protected/riverherring/tewg/fisheries/tewg_fisheries_-_data_gaps_and_cons_ideas_update_nov_2015.pdf

*Genetics Subgroup 2015 Update
http://www.greateratlantic.fisheries.noaa.gov/protected/riverherring/tewg/genetics/genetic_subgroup_white_paper_final_updated_march_9__2016.pdf

The Omnibus Industry-Funded Monitoring Amendment (another topic at the June 2016 meeting) has also served to maintain a high level of collaboration among NMFS, the MAFMC, and the NEFMC on RH/S issues even though the goals of that Amendment are broader than just RH/S issues.

8. How has the Scientific and Statistical Committee (SSC) been involved?

There have been preliminary discussions with the SSC regarding a working group to evaluate the feasibility of developing a biologically-based cap. The ASMFC currently has assessment updates scheduled for shad in 2017 and river herring in 2018. Embedding an SSC member in those updates may be one way to assist the SSC in becoming more familiar with RH/S data, which could assist in any SSC efforts to develop a biologically-based cap.

9. What other actions have been taken by the Council that could affect RH/S?

The primary work from staff over the last year that could affect RH/S involves the TEWG and the Omnibus Industry-Funded Monitoring Amendment. Council staff has also promoted the existing RH/S voluntary bycatch programs (SMAST/Cornell) through communication with industry. Another issue that has come up repeatedly in TEWG discussions is that members of the public with diverse perspectives believe that a one-stop database of RH/S run strength trends would be very helpful to contextualize news reporting of runs in particular areas. Council staff has been engaging with NMFS and ASMFC staff to determine if such a project is feasible, and how it could be accomplished. The State of Maine took preliminary steps to accomplish a portal for this kind of information, www.riverherring.com, and discussions are continuing on a way to create a resource that would allow quick access to regional run count information. Council staff has also provided support to NOAA General Counsel regarding legal actions pertaining to RH/S and the stock in the fishery issue, which will culminate in a revised stock in the fishery white paper and subsequent Council reconsideration of the stock in the fishery issue in October.

10. What information is available on RH/S abundance trends?

RH/S are scheduled to undergo assessment updates in 2018/2017 respectively. Benchmarks are scheduled for five years after the updates, though if new data or modeling improvements suggest a benchmark would be appropriate sooner, then sooner is also a possibility for benchmarks. Waiting until after 2020 for benchmarks should allow some of the improvements in data collection being worked on through the TEWG to be useful for an assessment. Also, if state moratoria and/or RH/S catch caps have had positive impacts there would be more time to observe those impacts. While collecting state by state river run data is beyond the resources of Council staff (that is an assessment update type activity), the ASMFC does provide selected run counts in its FMP reviews, provided below for 2012-2014:

Table 3. American shad and river herring passage counts at select rivers along the Atlantic Coast in 2012.

State/River	Shad	River Herring
Maine		
Androscoggin	11	170,191
Saco	6404	27,858
Kennebec	5	179,357
Sebasticook	163	1,703,520
St. Croix		36,168
New Hampshire		
Cocheco		27,608
Oyster		2,573
Lamprey		86,862
Exeter		378
Taylor		92
Winnicut		5
Massachusetts		
Merrimack	21,396	
Rhode Island		
Gilbert Stuart		107,901
Nonquit		60,132
Buckeye Brook		90,625
Pennsylvania/Maryland/Delaware		
Susquehanna (Conowingo)	23,629	52
Susquehanna (Holtwood)	4,238	
South Carolina		
St. Stephen Dam	150,082	
Total 2012	205,928	
Total 2011	307,793	

Table 3. American shad and river herring passage counts at select rivers along the Atlantic Coast in 2013.

State/River	Shad	River Herring
Maine		
Androscoggin	14	69,297
Saco	6171	43,414
Kennebec	0	94,456
Sebasticook	114	2,272,492
St. Croix		16,677
New Hampshire		
Cocheco		18,337
Oyster		7,149
Lamprey		79,408
Exeter		378
Taylor		128
Winnicut		0
Massachusetts		
Merrimack	37,149	17,359
Connecticut		
Holyoke Dam	392,967	976
Rhode Island		
Gilbert Stuart		91,240
Nonquit		52,563
Buckeye Brook		45,244
Pennsylvania/Maryland/Delaware		
Susquehanna (Conowingo)	12,733	7
Susquehanna (Holtwood)	2,503	
Susquehanna (Safe Harbor)	1,927	
Susquehanna (York Haven)	202	
South Carolina		
St. Stephen Dam	324,984	
Total 2013	774,132	2,808,149
Total 2012	205,928	2,493,322

Note: Passage numbers on Susquehanna River are cumulative. For example, any shad counted at the York Haven dam has also passed the previous three dams (Safe Harbor, Holtwood and Conowingo). The dams are listed in ascending order of passage mile.

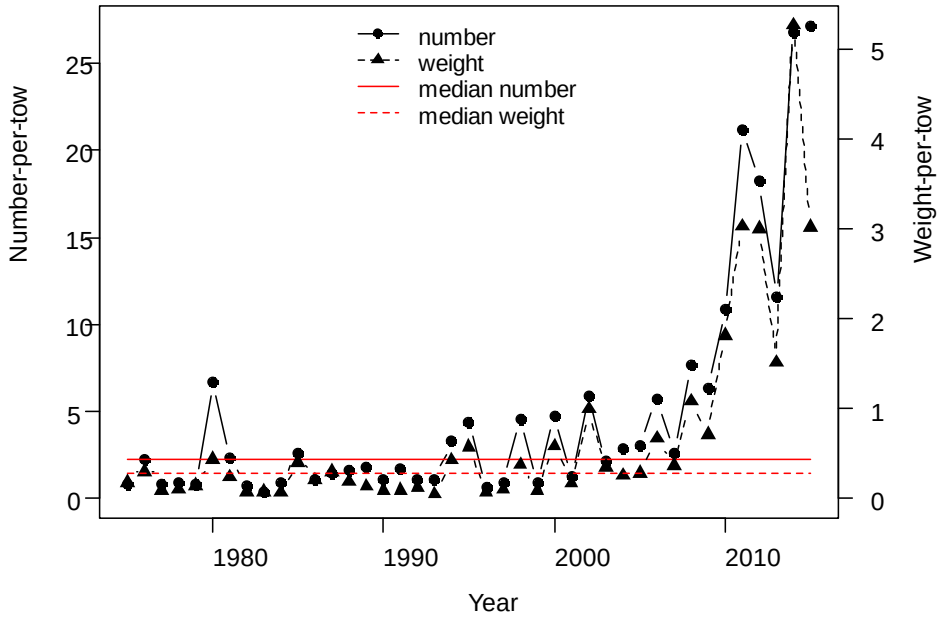
Table 3. American shad and river herring passage counts at select rivers along the Atlantic coast in 2014.

State/River	Shad	River Herring
Maine		
Androscoggin	0	55,953
Saco	2,580	11,576
Kennebec	1	108,432
Sebasticook	26	2,282,454
St. Croix		26,893
New Hampshire		
Cocheco		29,968
Oyster		4,227
Lamprey		84,868
Exeter		789
Taylor		57
Winnicut		0
Massachusetts		
Merrimack	34,789	33,515
Rhode Island		
Gilbert Stuart		102,408
Nonquit		71,501
Buckeye Brook		47,263
Connecticut		
Holyoke Dam	370,506	647
Pennsylvania/Maryland		
Susquehanna (Conowingo)	10,425	382
Susquehanna (Holtwood)	2,625	2
Susquehanna (Safe Harbor)	1,336	0
Susquehanna (York Haven)	8	0
South Carolina		
St. Stephen Dam	42,535	171,200
Total 2014	426,073	3,031,753
Total 2013	776,162	2,922,985
Total 2012	205,928	2,493,322

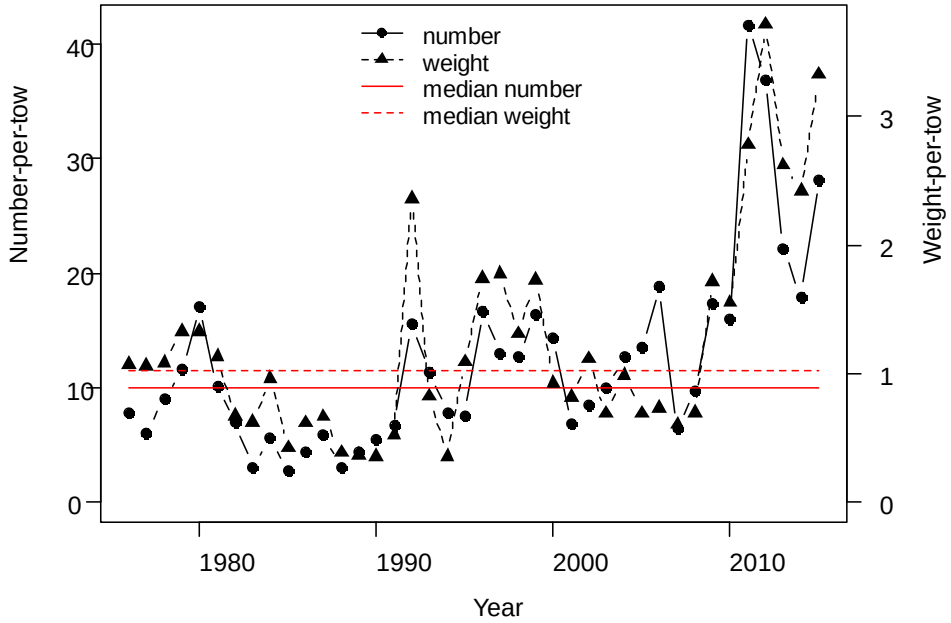
Note: Passage numbers on Susquehanna River are cumulative. For example, any shad counted at the York Haven dam has also passed the previous three dams (Safe Harbor, Holtwood and Conowingo). The dams are listed in ascending order of passage mile.

Updated NMFS and NEAMAP trawl survey indices through 2015 for river herrings are provided below. All values are above long term medians. Staff will provide shad indices at the Council meeting. Spring 2016 data should be available prior to October 2016 (and possibly by August 2016), but the spring 2016 NMFS data will have to be interpreted cautiously given the issues with the timing of that survey in 2016.

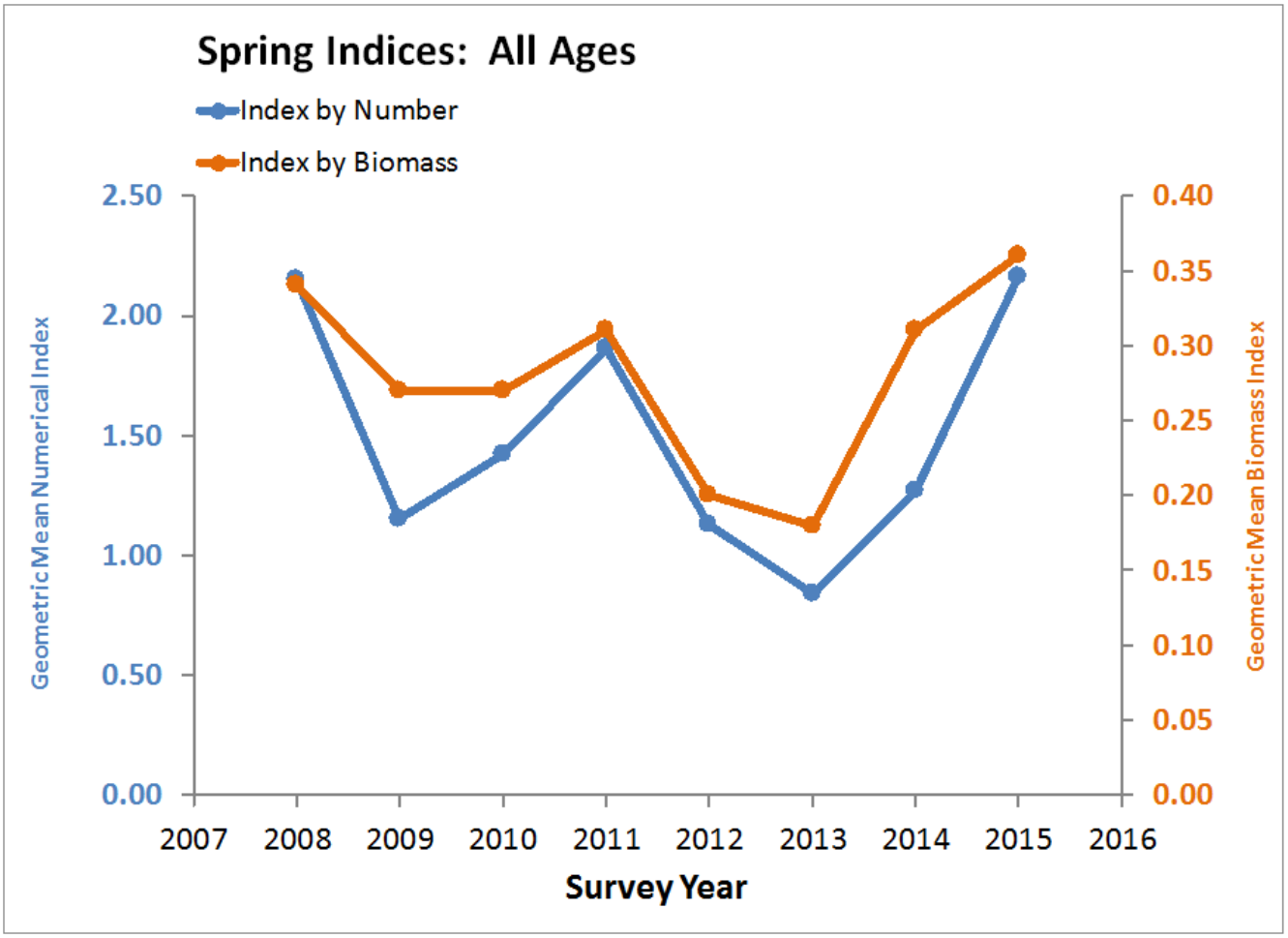
NMFS Alewife - FALL



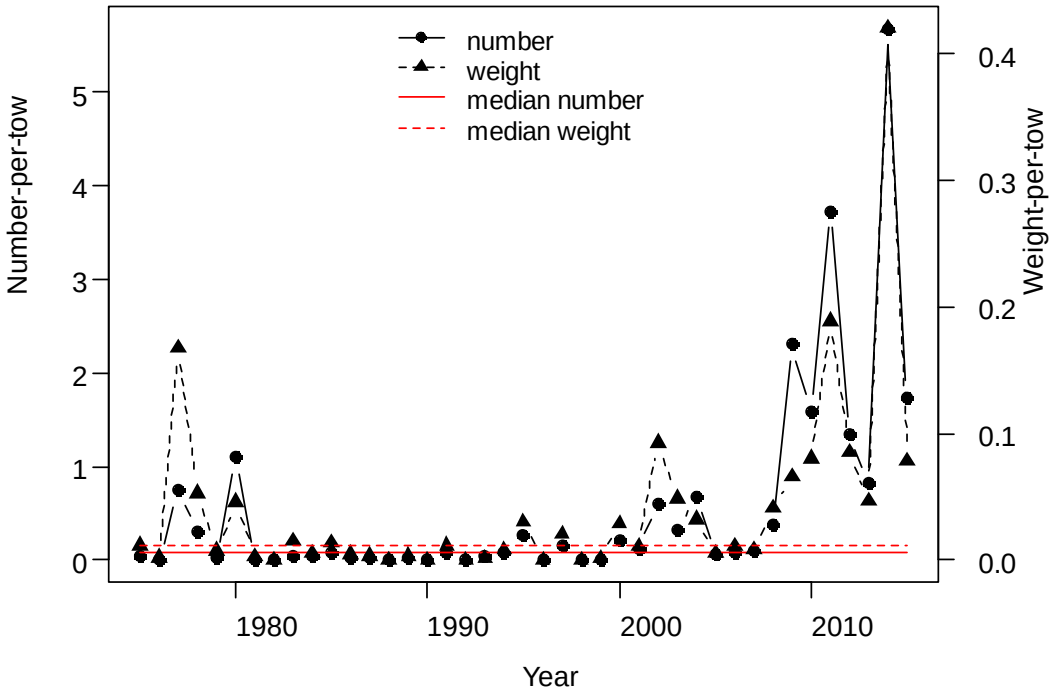
NMFS Alewife – SPRING (Abbreviated strata set due to 2014 survey issues, but previous analyses demonstrated no substantial change in trends using the abbreviated survey strata)



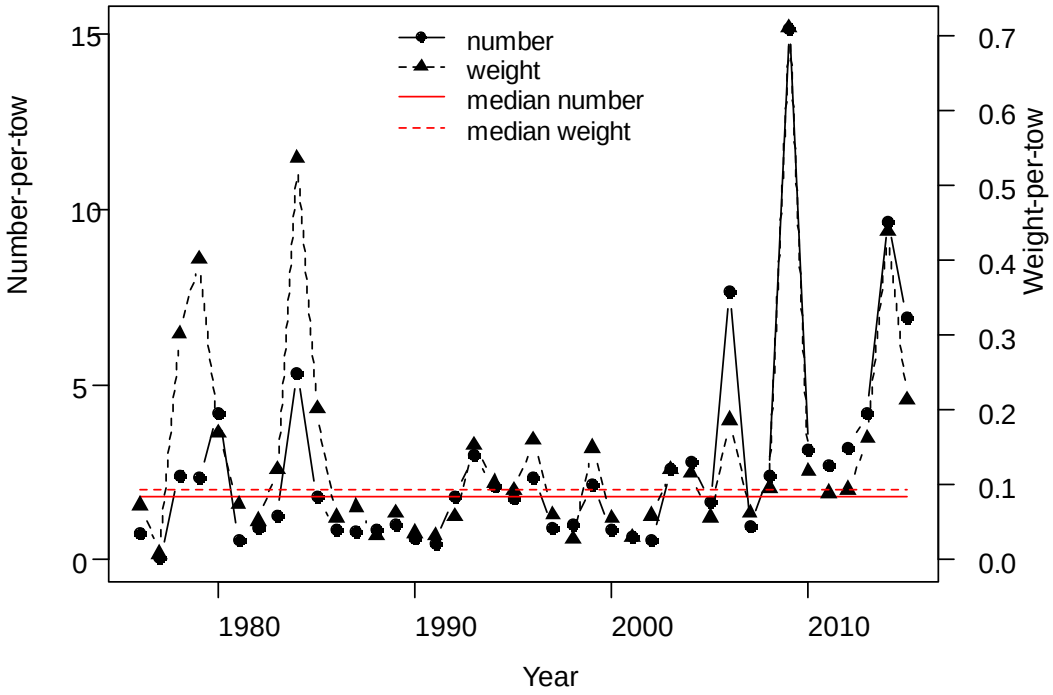
NEAMAP Alewife SPRING



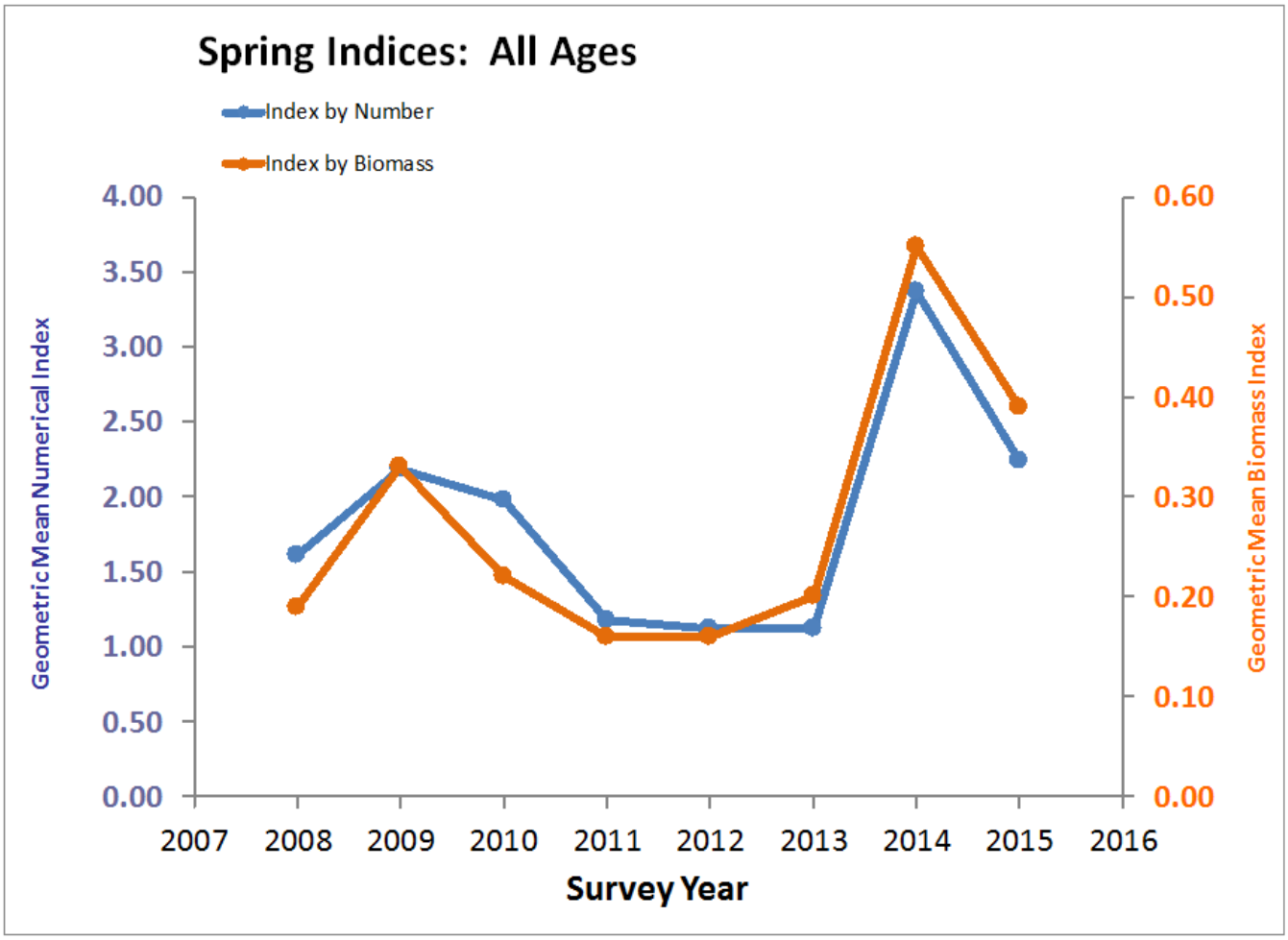
NMFS Blueback - FALL



NMFS Blueback – SPRING (Abbreviated strata set due to 2014 survey issues, but previous analyses demonstrated no substantial change in trends using the abbreviated survey strata)



NEAMAP Blueback SPRING



Proposed Outline – Stock In Fishery RH/S White Paper
with Expanded Environmental Analysis

1. Intro
2. Magnuson-Stevens Act (MSA) Requirements
    a. Definition & Need for Conservation and Management
    b. National Standards (NS)
        i. National Standard 7 details & applicability
        ii. Proposed NS1 guideline revision details relative to stock in fishery decision
    c. Required & Discretionary contents of fishery management plans (FMPs)
3. RH/S Background
    a. Description of RH/S Biology/Life History/Abundance (current and historical)
        i. Review current/new science, especially genetic information, indices (MA vs NE), available run information, etc.
        ii. Review recent assessments (note current NMFS participation)
        iii. Consider upcoming assessment updates/benchmarks
    b. Description of RH/S Role in the Ecosystem
    c. Description of RH/S Directed & Incidental Fisheries (current and historical)
        i. Historical use and value of RH/S directed fisheries
        ii. Consideration of recent/current/future observer coverage levels
    d. Description of recent/current RH/S Management
        i. General jurisdictional issues
        ii. States
        iii. ASMFC
        iv. ESA/NMFS
        v. TEWG
        vi. Councils (caps, coordination issues, etc.)
        vii. Voluntary – shore-side monitoring/bycatch avoidance program(s) results; study fleet + environmental modeling work
        viii. Dam removals & passage improvements
    e. Consider role of climate change
4. Describe the kinds of alternatives (with examples) that result from the required and discretionary MSA FMP contents, e.g. proxy status determination criteria, catch limits, accountability measures, EFH, time area closures, etc.
5. Environmental analysis (direct, indirect, and cumulative) of immediately adding vs not adding River Herring and Shad to a fishery and managing it by use of proxies.
    a. Describe no-action impacts, including:
        i. full consideration of the impacts of the earlier decision by the full Council to not add River Herring and Shad into an FMP in Amendment 14

ii. Review success criteria and progress updates to determine course of RH/S situation over last 3 years
    1. Are RHS stocks improving?
    2. Any evidence that incidental catch in federal fisheries has been limited and/or reduced?
    3. Has scientific information about RH/S improved (life history, abundance, etc.)?
    4. Has coordination between the entities that are involved in RHS management improved?
iii. full consideration of the future impacts of failing now to include River Herring and Shad in the fishery

b. Fully describe the likely impacts of immediately adding RH/S as typically-managed Council stocks through the use of proxy reference points
    i. Describe likely impacts from required FMP provisions
    ii. Describe potential impacts from discretionary FMP provisions
    iii. Impacts include standard VECs (RH/S, other non-targets, EFH, protected resources, socio-economic), as well as ecosystem considerations
    iv. Evaluate how FMP requirements, such as additional support for management, stock assessments, observer coverage, EFH designation, etc. may help:
        1. increase RH/S populations
        2. fill data/information gaps that could have indirect future benefits
    v. Impact considerations to include impacts from higher RH/S populations on all VECs

6. Other applicable legal requirements