



Mid-Atlantic Fishery Management Council

800 North State Street, Suite 201, Dover, DE 19901
Phone: 302-674-2331 | Toll Free: 877-446-2362 | FAX: 302-674-5399 | www.mafmc.org
Richard B. Robins, Jr., Chairman | Lee G. Anderson, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: May 28, 2015
To: River Herring and Shad (RH/S) Committee/Council
From: Jason Didden *JDD*
Subject: June 9, 2015 RH/S Committee of the Whole, Tab Intro

Related to the June 9 RH/S agenda items, a variety of documents follow this memo, as described below. A running underlined page number (bottom right) has been superimposed on the tab for ease of reference.

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2	Committee Terms of Reference
3	RH/S Excerpt from MSB Monitoring Committee Summary
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6	Excerpt from 2015 Specifications EA summarizing the RH/S Cap
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18	ASMFC RH/S Plan Review Catch/Run Data (2012-2013)
22	Annual Review of Council RH/S activities

In addition to these documents, at <http://www.mafmc.org/ssc-meetings/2015/may-13-14> there are two relevant spreadsheets: a “Cap Worksheet” used to develop cap options last year and a worksheet with several NEAMAP (NorthEast Area Monitoring and Assessment Program) RH/S indices.

April 2014 Council Meeting
Montauk Yacht Club, Montauk, NY
April 8-10, 2014

Motion: RH/S Committee Terms of Reference

a. Develop approaches to recommending RH/S catch caps that are based on and appropriate for the abundance and/or population dynamics of RH/S rather than historic catch rates of RH/S.

-Part of understanding this question will likely involve investigating the relative effects of catch in federal fisheries on RH/S stock health compared to other sources of mortality (habitat issues, inshore catch, climate, predation, etc.)

-The Council's Scientific and Statistical Committee (SSC) will be engaged for this term of reference.

b. Consider additional ways to cooperate with the New England Fishery Management Council (NEFMC) on RH/S efforts by recommending catch caps interdependently, for example potentially aligning RH/S catch caps for the Atlantic mackerel and Atlantic herring fisheries in Mid-Atlantic and southern New England waters so as to appropriately address overall RH/S catch.

c. Develop RH/S cap recommendations for the Council and regularly evaluate the overall operation of any Mid-Atlantic (or joint) RH/S catch caps including: cap determination, monitoring, data needs, enforcement, data interpretation, etc.

d. Evaluate additional ways to align MAFMC activities with NOAA Fisheries, the ASMFC, the TEWG, state, and non-governmental activities regarding RH/S.

e. Develop "success criteria" to evaluate MAFMC efforts regarding RH/S given the Council's commitment to regularly evaluate progress (beginning in June of 2014) and to reconsider the overall decision whether or not to make RH/S "stocks in a fishery" under a MAFMC fishery management plan in October 2016. This would likely include consideration of factors such as: Are RH/S stocks improving? Has incidental catch in federal fisheries been limited and/or reduced? Has information about RH/S improved (life history, abundance, etc.)? Has coordination between the entities that are involved in RH/S management improved?

Move to accept above terms of reference.

Anderson from Committee

Approved by consent

2015 MSB Monitoring Committee Summary

This is an excerpt of the relevant RH/S material from the May 21, 2015 Mackerel-Squid-Butterfish (MSB) Monitoring Committee (MC) meeting summary. The full summary is available in the MSB briefing tab.

River Herring/Shad Cap

The MC discussed the River Herring/Shad (RH/S) Cap for the mackerel fishery after reviewing the April 2015 RH/S Advisory Panel meeting summary. The MC noted that its perspective has not substantively changed from last year: given the lack of stock abundance information, a variety of cap options are likely justifiable as long as the Council clearly describes its rationale related to controlling incidental RH/S catch/bycatch - in situations like RH/S where biologically-based catch limits are unavailable, setting the cap is a policy choice. The MC noted that for any cap (and especially a constant cap), because it is not directly tied to RH/S abundance, possibilities exist that it may either become very hard for the fishery to avoid RH/S if their abundances increase, or if RH/S abundances decrease the fishery will not have to work hard to avoid RH/S because there will not be many RH/S around. The first situation would suggest that a cap increase may be warranted while the second would suggest a cap reduction may be warranted. Without better assessment information it is not possible to quantitatively determine the appropriateness of such changes however.

The Monitoring Committee also noted that last year the Council make several key decisions regarding the RH/S cap. One was that adding new years of data was not appropriate because it creates a situation of potentially penalizing the fishery with a shifting baseline for good performance (low catches in recent years would lower the cap over time). Thus the Council used 2005-2012 data rather than 2005-2013 data. Medians of 2005-2012 extrapolations established the 89 mt/155 mt two-phase cap while 2005-2013 data would have resulted in an 81 mt/132 mt two-phase cap. The monitoring committee shares the concern that using years when the cap has been operating potentially creates a shifting baseline that penalizes good fishery performance.

Another key Council decision was the two-phases, whereby the cap is 89 mt when lower mackerel catches (below 10,000 mt) have occurred and then 155 mt after 10,000 mt of mackerel catches have occurred. The rationale behind the two phases was to encourage RH/S avoidance even when mackerel catches are low. If the Council's policy rationale remains the same on both this and the baseline years issues, the MC noted that the only change necessary for the 2016-2018 RH/S cap would be to eliminate the second higher phase of the cap, since the fishery would only be operating in the "less than 10,000 mt" range given the recommended quota (9,177 mt). Since the Council already determined that an 89 mt RH/S cap was appropriate when mackerel catches were in this range it may still be appropriate to remain at the 89 mt level given the likely mackerel quotas for 2016-2018.

There was specific discussion of setting the cap for 3 years versus one year. Since the cap can be revisited each year, the MC saw no issues with setting the cap for 3 years especially since mackerel may be set for 3 years. GARFO will follow up, but it may be possible to set a cap that was automatically hardwired to incorporate new data if the Council wanted to use data from years beyond 2012 in setting a multi-year cap. This concept is further explored in the Council's June 2015 briefing materials for RH/S.

Council Decision Point: What does the Council want to set for the RH/S Cap?

2015 River Herring/Shad (RH/S) Advisory Panel (AP) Summary

The RH/S AP met April 24, 2015 via webinar. This summary does not represent a consensus but rather a summary of the perspectives and ideas that were raised at the meeting. Participants included:

Advisory Panel Participants

Dossy Pruden	Joseph Gordon
Clay Emerson	JP Bilodeau
Dan Hasselman	Rob Ruhle
Greg DiDomenico	Sara Winslow
Jeff Pierce	Peter Moore
John Punola	Paul Eidman

Other

Jason Didden (MAFMC staff lead)	Lars Axelson (MSB AP)
Carly Bari (NMFS GARFO)	Lee Anderson (MAFMC)
Eric Buck	Lori Steele (NEFMC staff)
James Fletcher	Patrick Paquette (MSB AP)
Jeff Deem (MAFMC)	Diane Borggard (NMFS PR/TEWG)
Kiersten Curti (NMFS NEFSC)	

First the participants on the call introduced themselves. During introductions Dan Hasselman summarized recent results of ongoing genetic analyses regarding which areas/ivers RH/S incidental catch is originating from.

Jason Didden presented background information including recent performance of the RH/S Cap and plans for setting the RH/S cap going forward.

Several questions clarified cap issues including that if the 89 mt cap is reached before the mackerel fishery reaches 10,000 mt, then the fishery will not have the opportunity to reach 10,000 mt so it will not get to the 155mt cap level. Also that the cap may be set for multiple years but can be revisited in any year.

Regarding moving to a biologically-based cap, the primary current efforts are contained within the NMFS river herring technical expert working group (TEWG). Staff also notes that the SSC is being engaged on this issue.

There was a mix of perspectives regarding how to set the cap. Ideas that were shared by the RH/S AP included:

- There is some degree of comfort with the current methodology
- A higher cap would be better
- Should include more recent years in setting the cap
- If the mackerel quota is reduced, then the scale-up provision should likewise be adjusted/reduced
- If mackerel and/or RH/S are declining a steady cap may be insufficiently protective

- There should be a mechanism to allow the cap to increase if RH/S abundance increases
- Need to consider the populations of RH/S that are being caught, i.e. potential impacts on any single given stock (which could be a river run). Ongoing genetics work should help with this.
- Need standardized approaches to estimating RH/S population sizes across states.
- If the fishery has figured out how to avoid RH/S, then lowering the cap may be practicable while still allowing the fishery to catch its quota.
- Smoothed graph (average catch ratio) can be misleading as RH/S catch (and mackerel catch) can be seasonally dependent. An early inshore fishery could close the fishery and then an offshore fishery that wouldn't have the same bycatch wouldn't be able to occur.
- There are substantial deficiencies in the RH/S stock assessments
- Several voluntary programs have been put in place but don't know results yet – should not react year to year until we see what happens with these ongoing efforts (study fleet, SMAST, etc.)
- Lowering the cap if the fishery does not get near it can create a use or lose incentive where the fishery will want to catch more RH/S than the minimum they could catch in order to maintain their cap.
- The scale of what is caught offshore is significant and given the low status of RH/S, and RH/S closures and efforts in rivers, the cap seems a reasonable way to address offshore catch.
- Need to come up with a reasonable balance based on a reasonable goal. Need to understand environmental conditions that RH/S exist in.
- Need to address other sources of mortality (function of TEWG), rather than just limiting fishing industry.
- Recreational fisherman up-river have sacrificed much already and are working on other sources of mortality or lack of spawning access, so want to see limits on incidentally-caught fish out in the ocean.
- Shad are not a volume bycatch issue with MSB fisheries.

Additional ideas that were shared by non-AP members included:

- Butterfish and Bunker are examples of how regime shift (real or on paper) happens regularly. Will get some interactions if/when RH/S increase – could close fishery unnecessarily
- You are punishing fishermen for an unproven idea. One interaction halfway through the fishery could close the fishery. Don't cut the cap in half based on performance.
- The reaction "on the beach" lags real-time conditions and means that fishermen will not be able to utilize times of abundance.
- If the RH/S stocks triple then the cap will quickly shut down the mackerel and herring fisheries, and we have missed increases (dogfish) before.
- The Council needs to address chemicals in the rivers and predators/dogfish to address the problem if it is limiting the fisheries through the RH/S caps.

Diane Borrgaard also provided a summary of what the TEWG is working on.

Jason Didden described the pending RH/S update for the Council. A question was raised - What can be done about state moratoriums (can also provide data) – this is an ASMFC issue but the update can summarize the existing regulations. A request to note the potential usefulness of the study fleet and its data was also made and why could it not supplant or supplement observer coverage. A comment was made that trends in abundance information was most important regarding the update, including state data.

5.2 Alternative Set 2: River Herring/Shad Cap for the Mackerel Fishery

These alternatives consider a range of river herring and shad catch (RH/S) caps for the mackerel fishery. The cap was selected by the Council in Amendment 14 to limit non-target RH/S catch (the MSA provides that measures may be developed to conserve non-target species). Amendment 14 indicated that the specifications would implement the specific cap values and other operational details.

The Amendment 14 EIS can be consulted for additional details on why the cap was selected (see: <http://www.nero.noaa.gov/regs/2013/August/12smba14pr.html>), but the basic rationale was that many river herring and shad runs are in poor condition and the mackerel fishery may catch substantial amounts of RH/S in some years – the analysis described in Appendix 2 of Amendment 14 found that Mid-Atlantic mid-water trawl fishing in Quarter 1, which usually is largely but not completely comprised of mackerel fishing, might on average (2005-2010) be catching close to 168 mt or 2 million RH/S (mostly river herring) annually (using 5 fish per pound to convert weight to numbers of fish, per discussion with ASMFC staffer Kate Taylor). The cap was chosen as a way to directly limit RH/S catch while allowing fishermen the flexibility to figure out how to best avoid RH/S.

Amendment 14 and its Environmental Impact Statement considered the impacts of RH/S caps (biological and socioeconomic) on the mackerel fishery and other valued ecosystem components, and specified that the operational aspects of the cap would be set during the specifications process. Amendment 14:

- Specified the cap should be on RH/S in the mackerel fishery and would close the mackerel fishery to directed fishing once the cap is reached.
- Stated that specifications would be used to set the cap amount, the incidental trip limit, the cap trip definition, and the cap closure threshold.
- Specified that the cap would use a methodology similar to the butterfish cap except this cap is on all RH/S catch, not just discards since most RH/S are retained in the high-volume mackerel fishery. As such, trips with observers that retain more than 20,000 pounds of mackerel are used to determine the ratio of RH/S caught to all species retained on observed cap mackerel trips. For all trips that land more than 20,000 pounds of mackerel, the current RH/S ratio is applied to their combined total landings to generate a total RH/S catch estimate for all mackerel trips.
- While Amendment 14 specified that the actual cap amounts would be developed in the specifications process, it did explore some potential cap options for illustrative purposes. Amendment 14 considered caps for the mackerel fishery in the range of 85 mt -235 mt for river herring and 6 mt - 8 mt for shad.
- Amendment 14 also noted that whether or not the cap becomes constraining depends on the cap that is set, the RH/S encounter rates, and landings on mackerel trips. Using data from 2006-2010, Amendment 14 found that if a relatively high RH/S encounter rate occurs, mackerel landings could be limited to around 10,000 mt if the cap is set at the low end (near 91 mt). Lower encounter rates or higher caps were associated with less constraint, or no constraint at all for the mackerel fishery.

The following operational items were specified at the June 2013 Council meeting the first time the Council considered the RH/S cap:

- The Council decided on a combined cap for river herring and shad because the relatively small amount of shad caught by the mackerel fishery and the precision of those estimates would make monitoring a separate cap for shad infeasible
- The Council discussed which trips the cap would apply to in terms of identifying "mackerel trips" and selected trips landing over 20,000 pounds of mackerel because analysis of dealer landings/weight data demonstrated that almost all mackerel 2004-2012 (98.5%) were landed by trips landing over 20,000 pounds of mackerel. Smaller trips (less than 20,000 pounds of mackerel) also had other species as the predominant species landed.
- The Council identified a post closure possession limit (20,000 pounds) to match the cap threshold of 20,000 pounds because of the same analysis.
- The Council decided on a closure threshold of when the cap catch is projected to be 95% of the cap because once the cap closes the fishery, additional trips that would count against the cap would not be expected. Using a projection should ensure a timely closure.

The above operational items were implemented for 2014 and no changes were considered necessary for 2015. The Council considered a variety of RH/S cap approaches for 2015 at its June 2014 meeting, per the following table. Three approaches (historical extrapolated RH/S catch, RH/S catch expanded to proposed 2015 mackerel quota, and RH/S catch expanded to the 2014 mackerel quota) were examined with three time series. The Council concluded that using historical extrapolated catch and/or RH/S catch expanded to proposed 2015 mackerel quota based on the same time period as last year were reasonable, and constructed a hybrid two-phase approach described below in Alternative 2b.

Table 5. RH/S Cap Approaches

	Actual Extrapolated RH/S Catch (mt)	Ratio expanded to new mackerel quota (RH/S mt)	Ratio expanded to 2014 mackerel quota (RH/S mt)
2005-2012 Medians (used last year)	89	155	252
2005-2013 Medians (includes new year)	81	132	214
2005-2010 Medians (no avoidance program)	101	126	204

Council and NMFS technical staffs continue to investigate how a regional cap spanning multiple fisheries might work, and such a cap could use the stratified estimation approach from Amendment 14 analyses. However, at this time for purposes of limiting one fishery, which is what the Council has the authority to do through Amendment 14, a ratio approach tied to mackerel trip definitions must be used, and this is how the values the above table were derived.

Alternative 2b (Preferred) – Two-phase 89 mt/155 mt river herring and shad cap

The Council recommended that the cap be set at 89 mt initially, but if mackerel landings surpass 10,000 mt then the cap would increase to 155 mt, as long as the initial cap had not been surpassed (i.e. once the cap closes the fishery it will stay closed for the remainder of the year). 89 mt is the median of extrapolated catch by vessels landing over 20,000 pounds of mackerel over 2005-2012. 155 mt is the median if the RH/S ratio from each year 2005-2012 is applied to the proposed 2015 mackerel landings quota (20,872 mt). The two-phase system was proposed by the Council so that the incentive for the mackerel fishery to avoid RH/S remains strong if mackerel catches are low or high. A 155 mt RH/S cap should allow the fishery to catch its proposed mackerel quota (20,872 mt) in 2015 if the ratio of RH/S catch to total catch is relatively low compared to 2005-2012 (based on observed trips that land greater than 20,000 pounds of mackerel). Thus once mackerel catches surpass 10,000 mt, as long as the relatively low RH/S catch ratio recorded to that point is maintained, then the fishery should be able to continue fishing up to the mackerel quota.

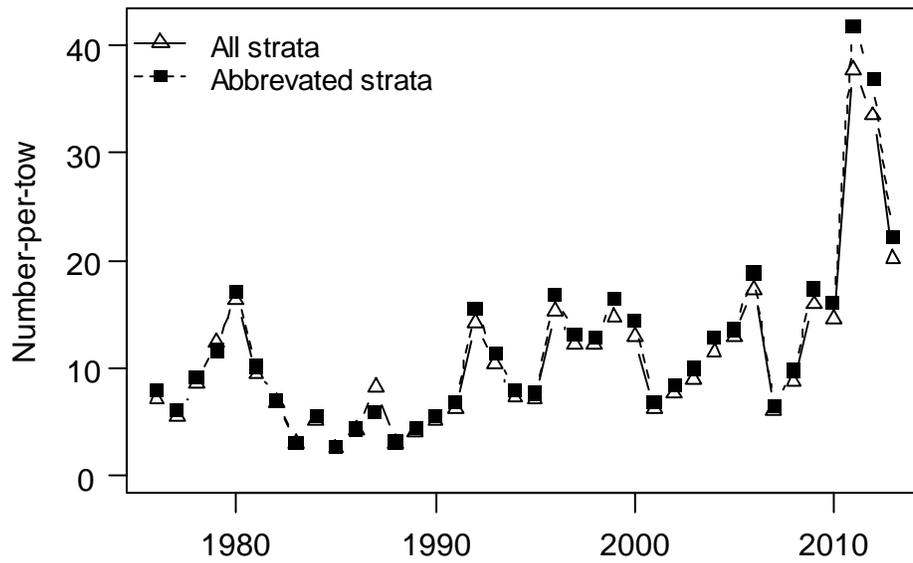
The Council was concerned that if mackerel catches are relatively low, then the incentive to avoid RH/S may be reduced because even if the ratio of RH/S catch is relatively high, with low mackerel landings the cap would still be calculated to be low. Thus the Council included the provision that the cap starts out lower, at 89 mt (the median of actual RH/S catches by the mackerel fishery 2005-2012) so that there is still a strong incentive to avoid RH/S catches even at low levels of mackerel catch.

Once cap trips were estimated to have caught 95% of then-in-effect RH/S cap (89 mt or 155 mt), then the directed mackerel fishery would be closed and a 20,000 pound mackerel trip limit would be instituted for the remainder of the year. This alternative is preferred because it creates a strong incentive for the fleet to avoid RH/S even at low levels of mackerel fishing, allows for the possibility of the full mackerel quota to be caught if the fleet can avoid RH/S, and would likely reduce RH/S catches over time compared to what would occur without a cap in place.

MAFMC Staff note: The figures on this page are just for determining if using the abbreviated spring strata is acceptable (some survey strata were missed in 2014 due to vessel mechanical issues).

Figure 1: Alewife relative abundance (A) and biomass (B) indices derived from the NEFSC spring bottom trawl survey for 1976-2013 using the full set of strata historically used to estimate alewife spring survey indices and an abbreviated set representing those strata that were sampled during the 2014 spring survey.

A)



B)

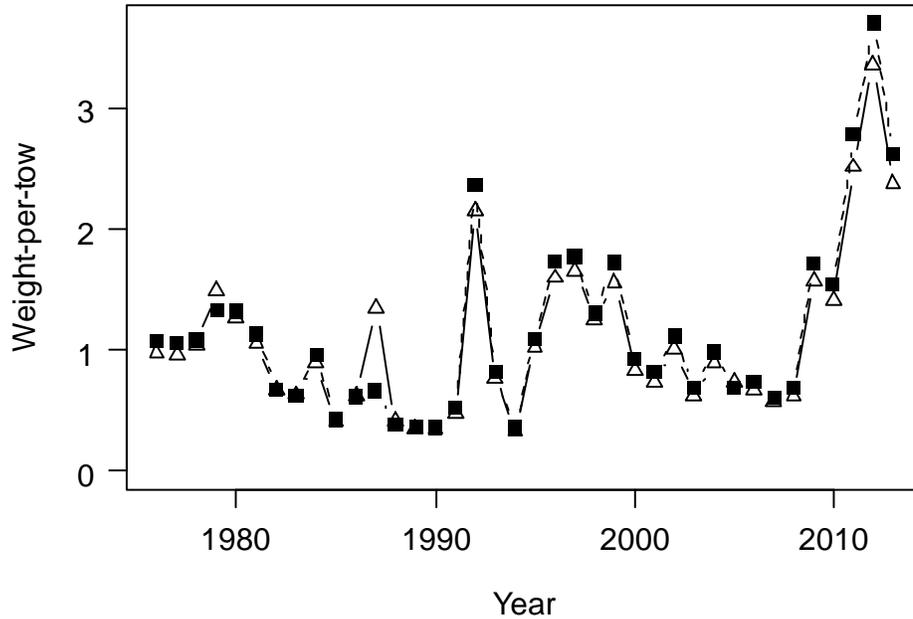
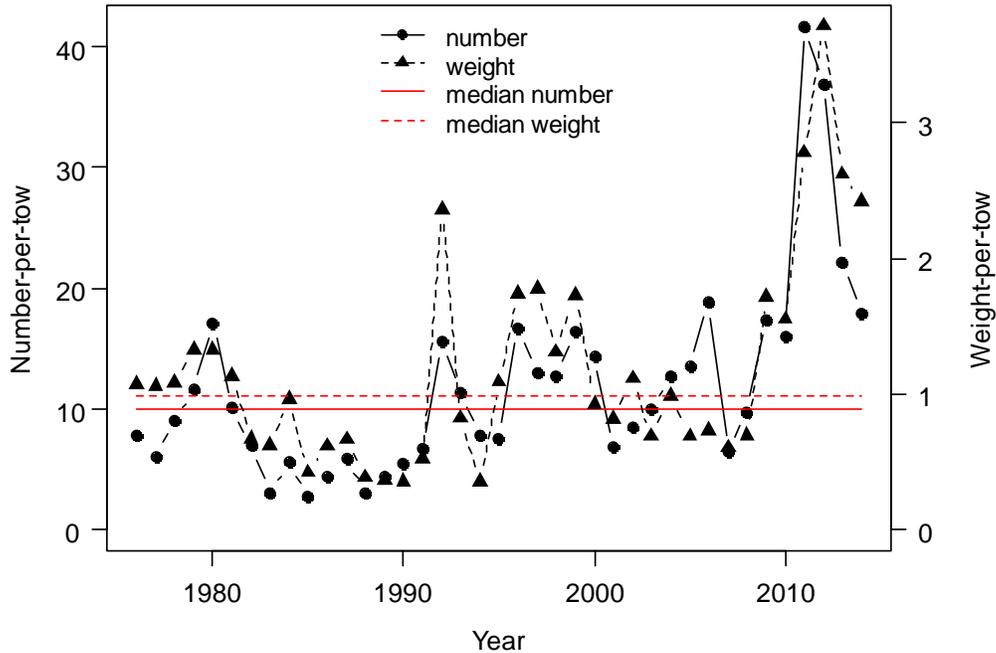


Figure 2: Alewife relative abundance (stratified mean number-per-tow) and biomass (stratified mean kg-per-tow) indices (A) and the proportion of positive tows (B) derived from the NEFSC spring bottom trawl survey for 1976-2014 using an abbreviated strata set representing those strata that were sampled during the 2014 spring survey. The median number- and weight-per-tow values represent the median indices over 1976-2014.

A)



B)

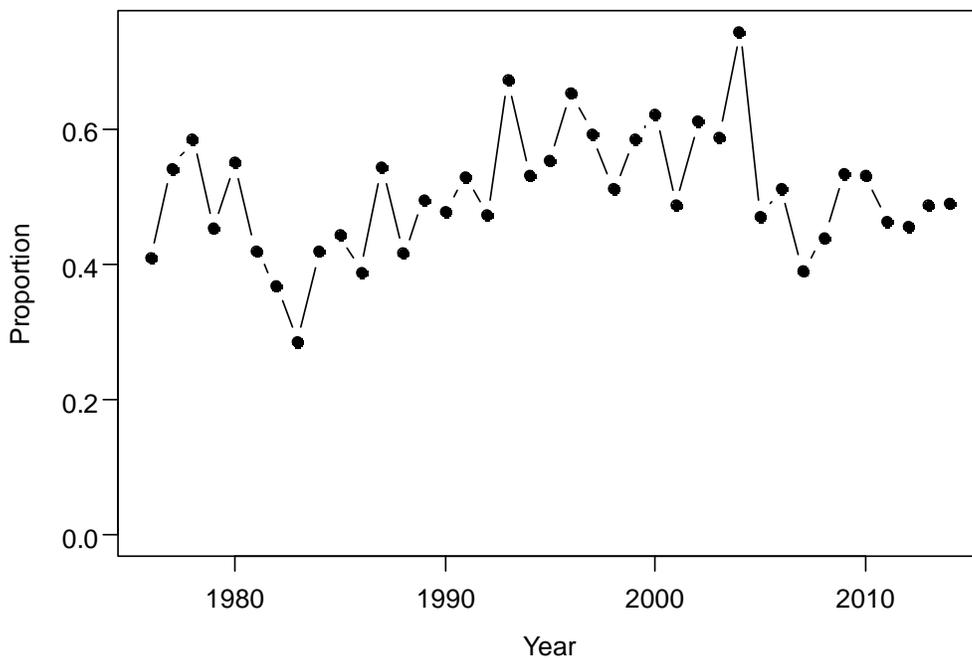
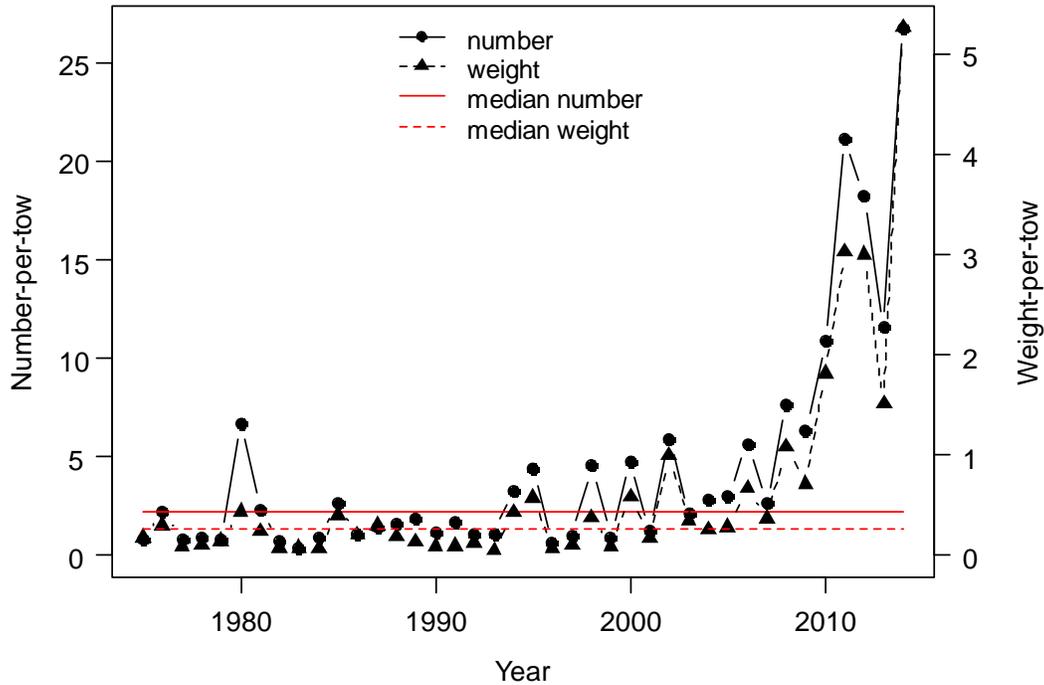
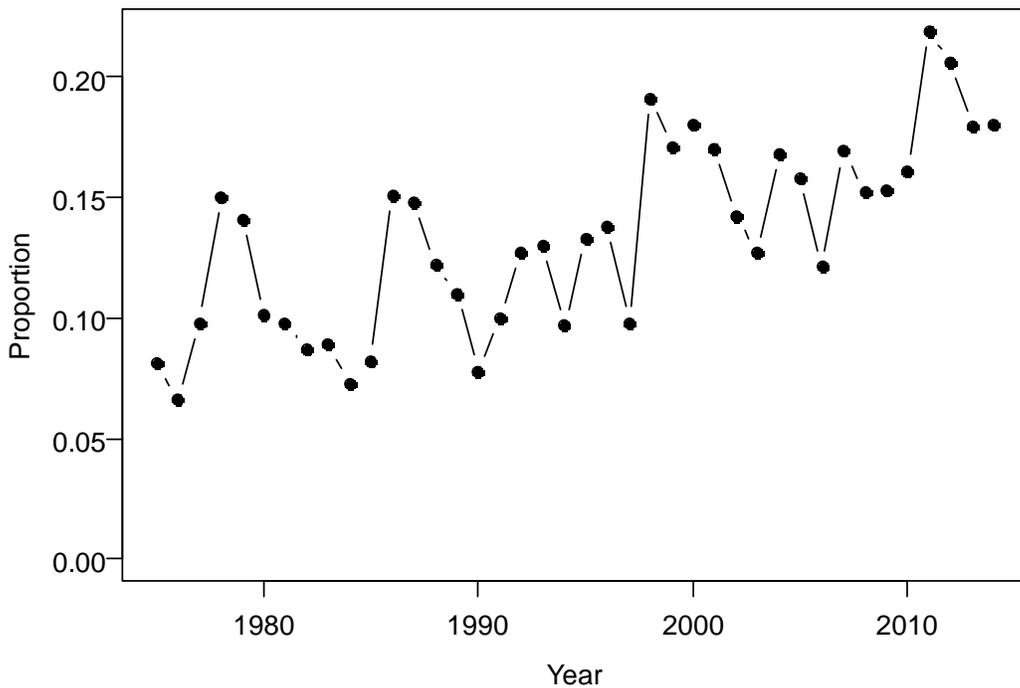


Figure 3: Alewife relative abundance (stratified mean number-per-tow) and biomass (stratified mean kg-per-tow) indices (A) and the proportion of positive tows (B) derived from the NEFSC fall bottom trawl survey for 1975-2014. The median number- and weight-per-tow values represent the median indices over 1975-2014.

A)



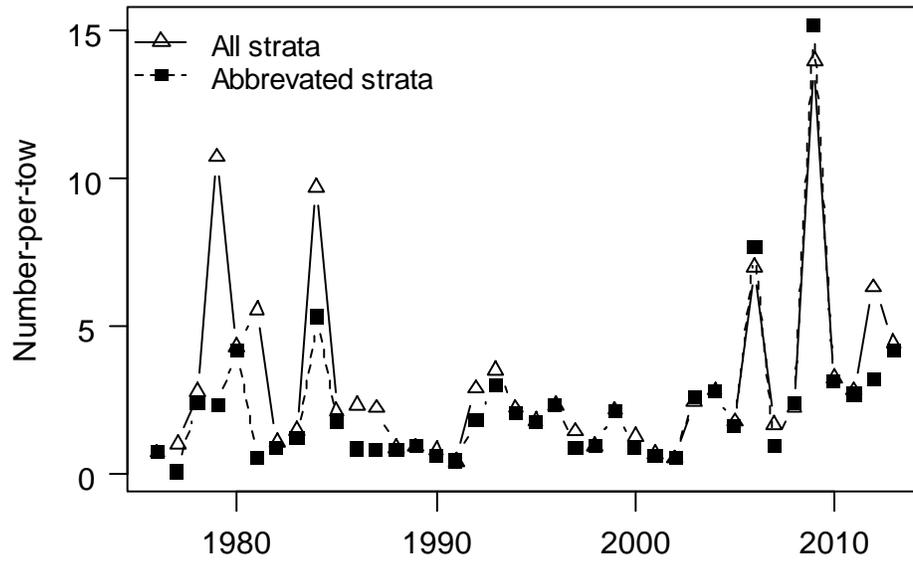
B)



MAFMC Staff note: The figures on this page are just for determining if using the abbreviated spring strata is acceptable (some survey strata were missed in 2014 due to vessel mechanical issues).

Figure 4: Blueback herring relative abundance (A) and biomass (B) indices derived from the NEFSC spring bottom trawl survey for 1976-2013 using the full set of strata historically used to estimate blueback herring spring survey indices and an abbreviated set representing those strata that were sampled during the 2014 spring survey.

A)



B)

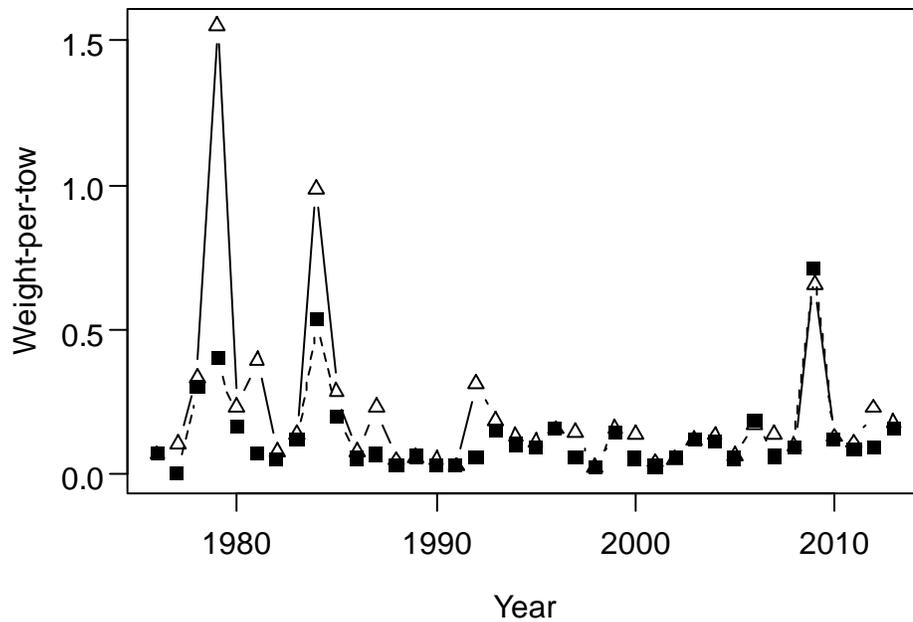
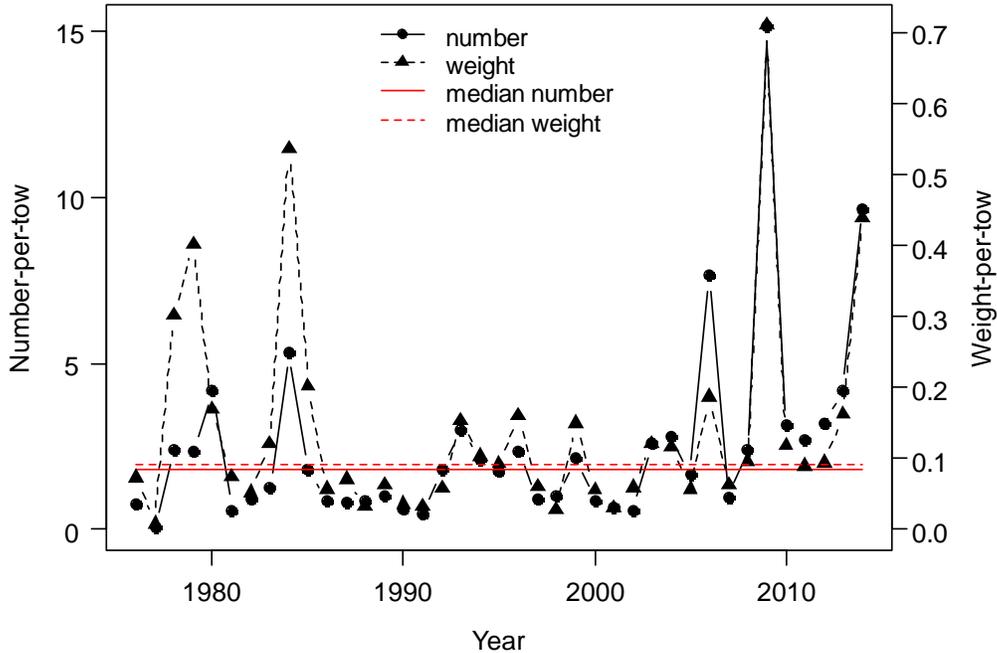


Figure 5: Blueback herring relative abundance (stratified mean number-per-tow) and biomass (stratified mean kg-per-tow) indices (A) and the proportion of positive tows (B) derived from the NEFSC spring bottom trawl survey for 1976-2014 using an abbreviated strata set representing those strata that were sampled during the 2014 spring survey. The median number- and weight-per-tow values represent the median indices over 1976-2014.

A)



B)

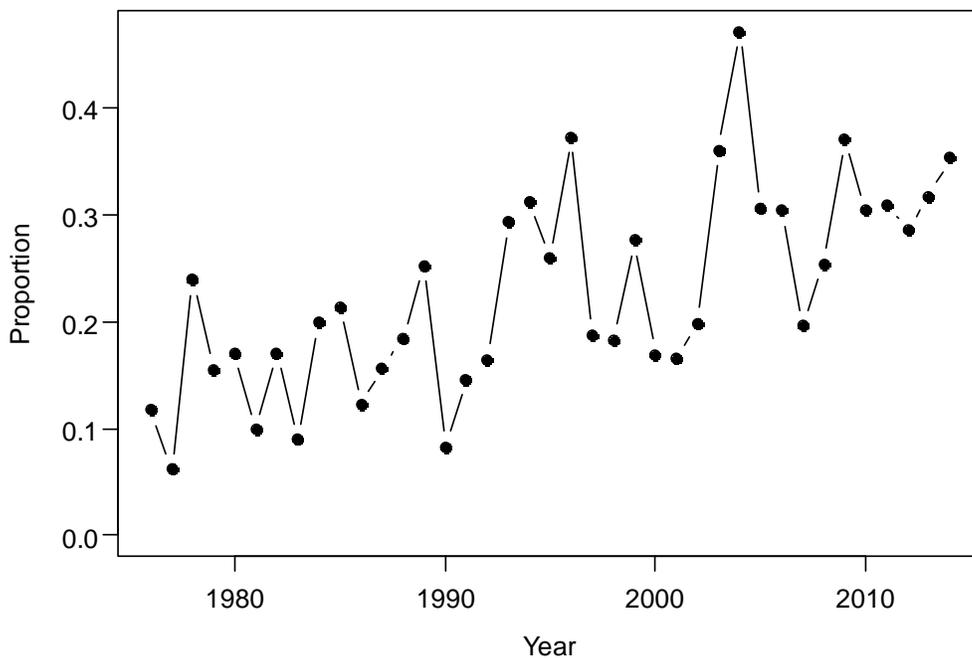
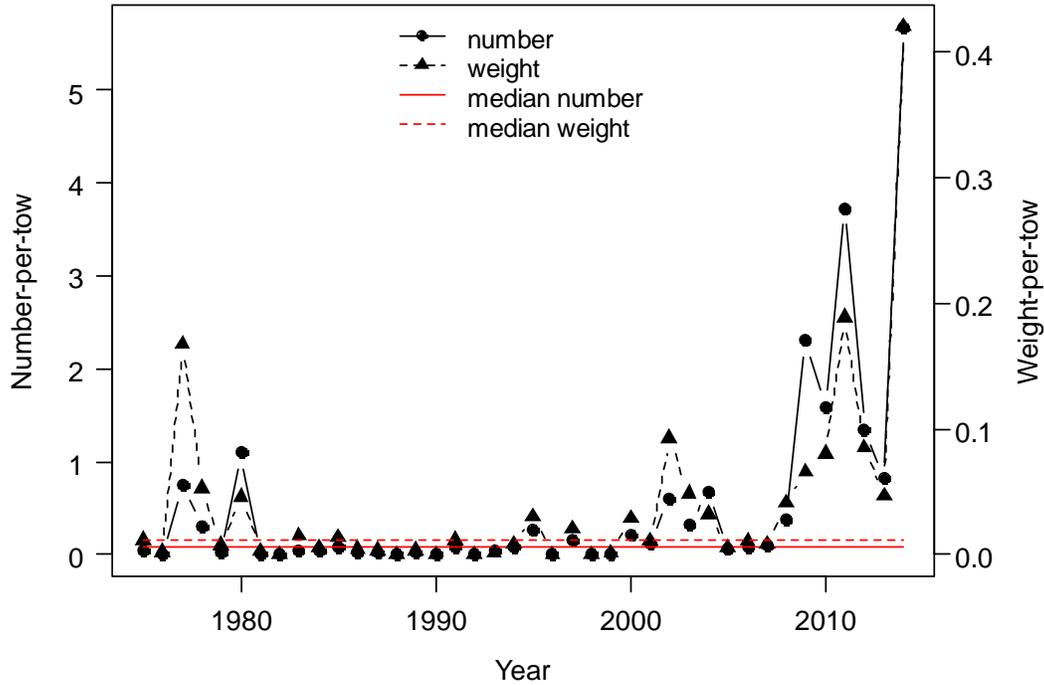
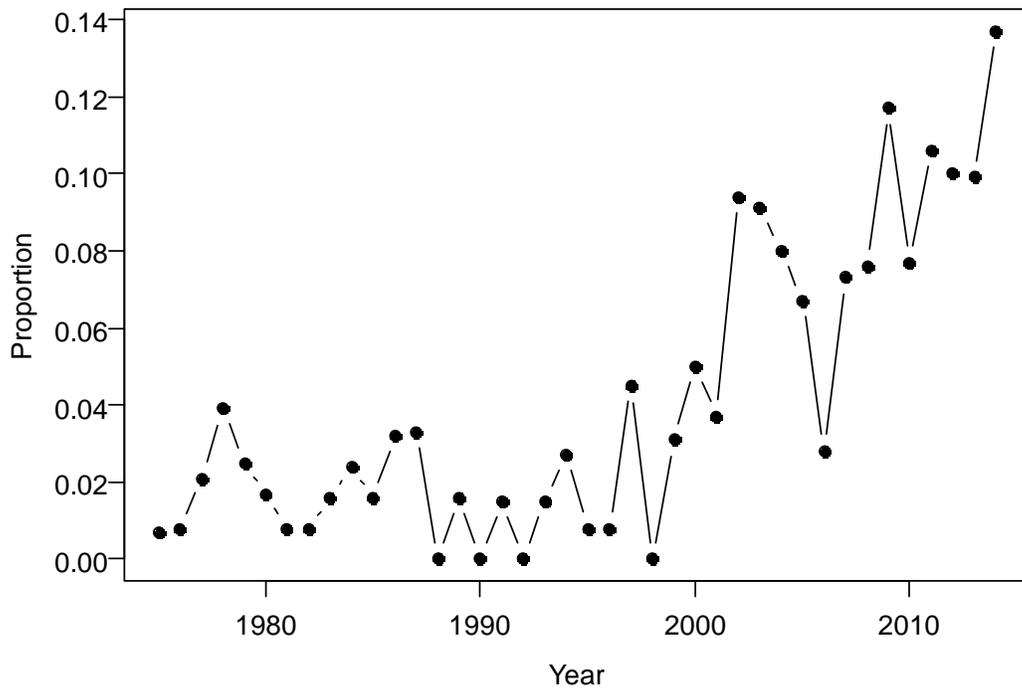


Figure 6: Blueback herring relative abundance (stratified mean number-per-tow) and biomass (stratified mean kg-per-tow) indices (A) and the proportion of positive tows (B) derived from the NEFSC fall bottom trawl survey for 1975-2014. The median number- and weight-per-tow values represent the median indices over 1975-2014.

A)



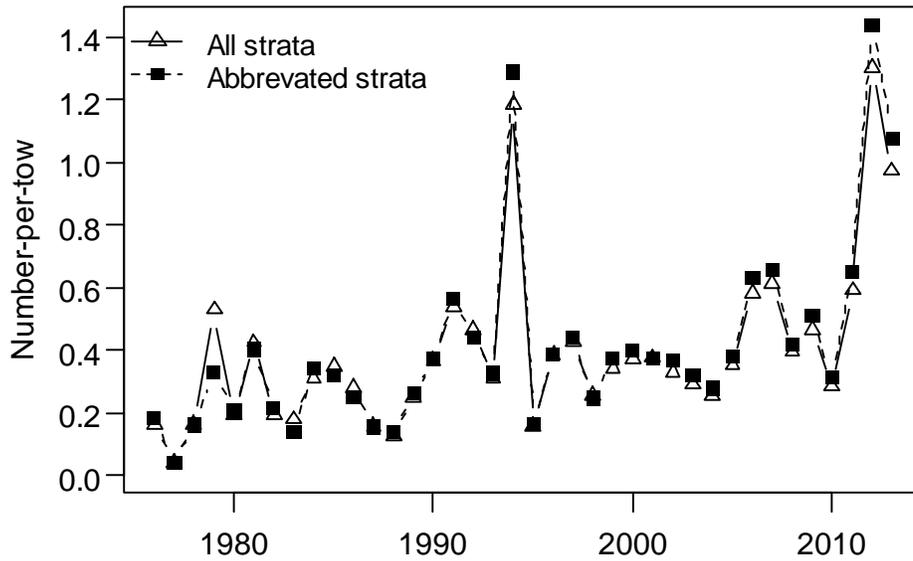
B)



MAFMC Staff note: The figures on this page are just for determining if using the abbreviated spring strata is acceptable (some survey strata were missed in 2014 due to vessel mechanical issues).

Figure 7: American shad relative abundance (A) and biomass (B) indices derived from the NEFSC spring bottom trawl survey for 1976-2013 using the full set of strata historically used to estimate American shad spring survey indices and an abbreviated set representing those strata that were sampled during the 2014 spring survey.

A)



B)

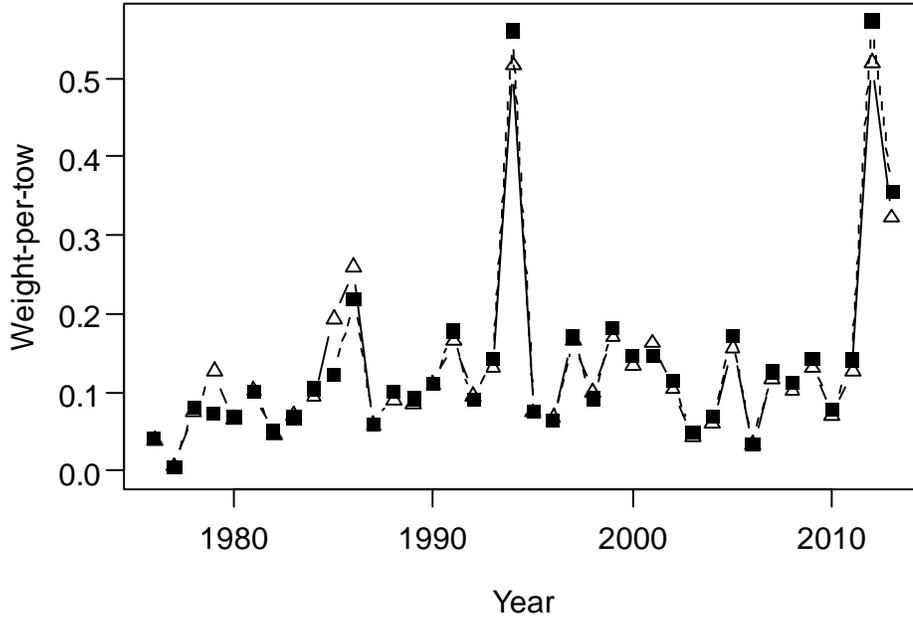
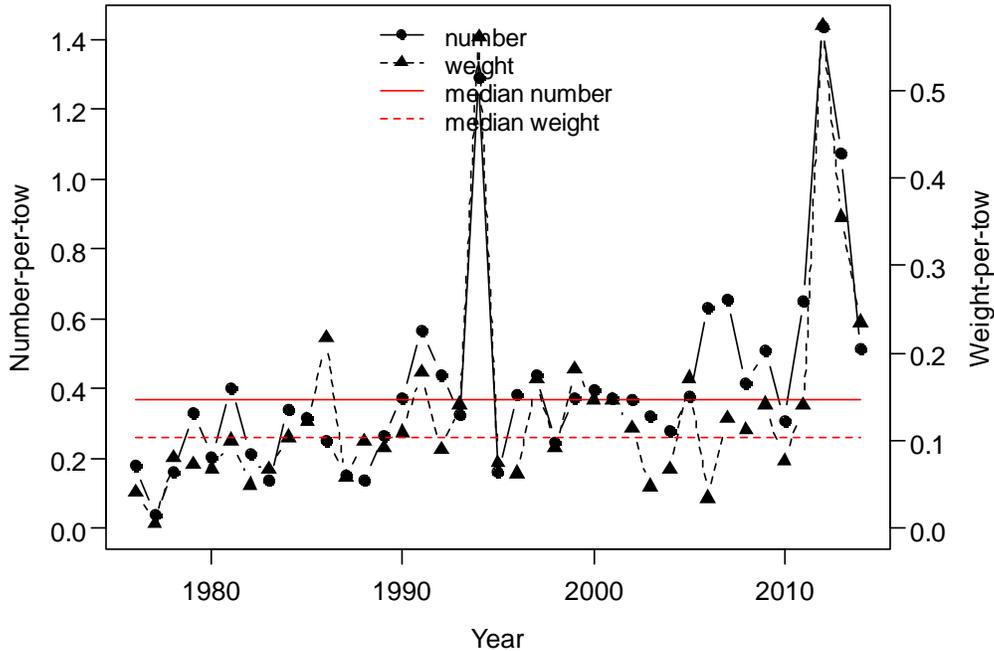


Figure 8: American shad relative abundance (stratified mean number-per-tow) and biomass (stratified mean kg-per-tow) indices (A) and the proportion of positive tows (B) derived from the NEFSC spring bottom trawl survey for 1976-2014 using an abbreviated strata set representing those strata that were sampled during the 2014 spring survey. The median number- and weight-per-tow values represent the median indices over 1976-2014.

A)



B)

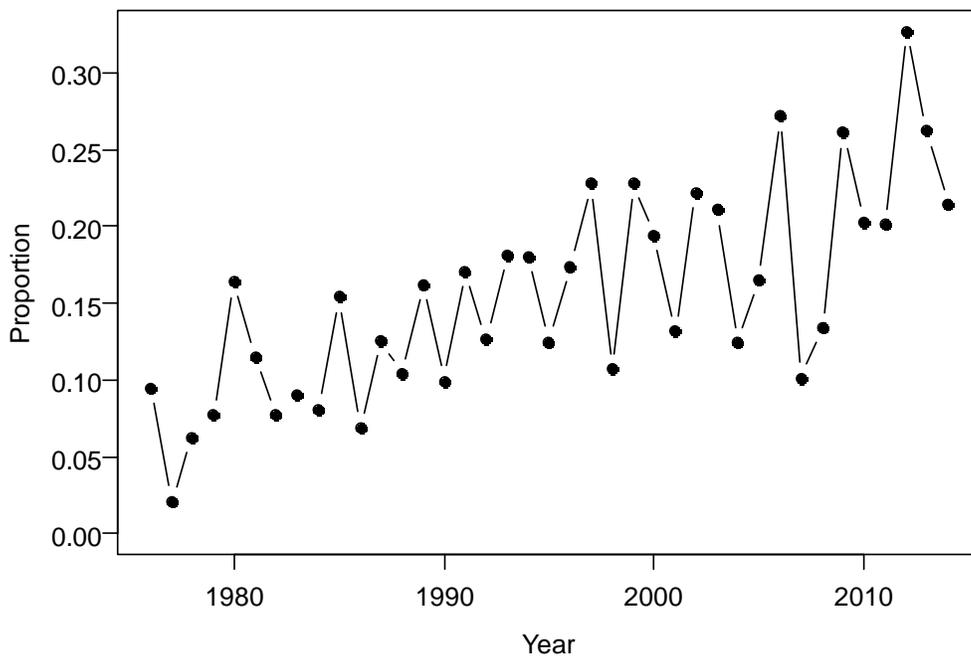
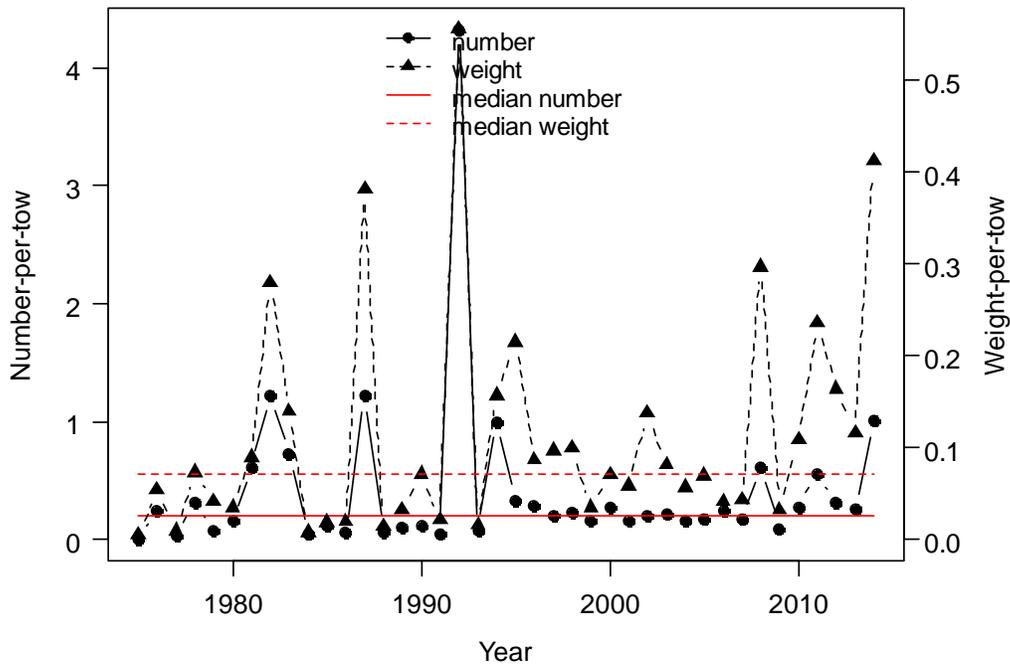


Figure 9: American shad relative abundance (stratified mean number-per-tow) and biomass (stratified mean kg-per-tow) indices (A) and the proportion of positive tows (B) derived from the NEFSC fall bottom trawl survey for 1975-2014. The median number- and weight-per-tow values represent the median indices over 1975-2014.

A)



B)

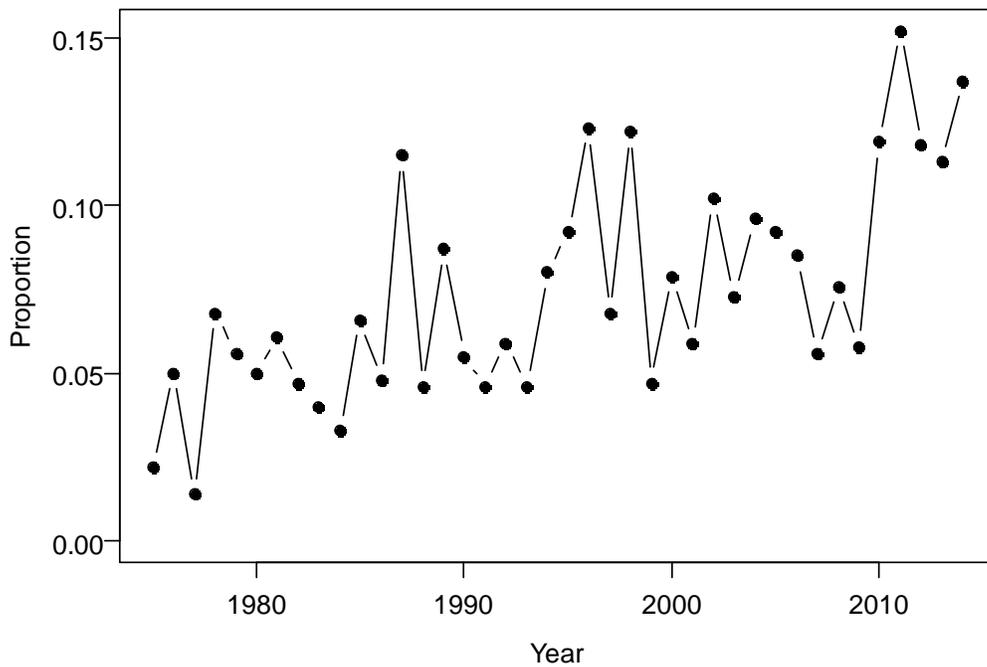


Table 2. American shad and river herring in-river commercial and ocean bycatch landings (in pounds) provided by states, jurisdictions and the NOAA Fisheries for 2012.

	American Shad	River Herring	Hickory Shad
Maine⁴		1,606,535	
New Hampshire		2,681	
Massachusetts			
Rhode Island			
Connecticut	61,623		
New York¹	1,485	16,965	
New Jersey²	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 Carolina³	299,528	163,076	
Georgia⁴			
Florida			
Total	635,960	1,790,309	68,014

¹New York American shad landings are from ocean bycatch

²Includes in-river and coastal harvest

³American shad landings include hickory shad

⁴Georgia & Maine (shad) landings are confidential

Substantial shad recreation fisheries occur on the Connecticut (CT and MA), Hudson (NY), Delaware (NY, PA and NJ), Susquehanna (MD), Santee and Cooper (SC), Savannah (GA), and St. Johns (FL) Rivers. Shad recreational fisheries are also pursued on several other rivers in Massachusetts, Virginia, North Carolina, South Carolina, and Georgia. In 2011, recreational creel limits ranged from zero to 10 fish per day. The exception to this is the Santee River (SC), which is permitted to have a 20 fish per day creel limit due to the approval of a conservation equivalency plan in 2000. Tens of thousands of shad are caught by hook and line from large east coast rivers each year, but detailed creel surveys are generally not available. Actual harvest (catch and removal) may amount to only about 20-40% of total catch, but hooking mortality could boost this “harvest” value substantially. Several comprehensive angler use and harvest surveys are planned or have been recently completed. In October 2006, the Management Board suspended the requirement to monitor the recreational fishery.

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
Maine³		1,423,878	
New Hampshire		4,420	
Massachusetts			
Rhode Island			
Connecticut	65,679		
New York¹	932	10,349	
New Jersey²			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

¹New York American shad landings are from ocean bycatch

²Includes in-river and coastal harvest

³Maine (shad) landings are confidential

Substantial shad recreational fisheries occur on the Connecticut (CT and MA), Delaware (NY, PA and NJ), Susquehanna (MD), Santee and Cooper (SC), Savannah (GA), and St. Johns (FL) Rivers. Shad recreational fisheries are also pursued on several other rivers in Massachusetts, Virginia, North Carolina, South Carolina, and Georgia. Tens of thousands of shad are caught by hook and line from large east coast rivers each year, but detailed creel surveys are generally not available. Actual harvest (catch and removal) may amount to only about 20-40% of total catch, but hooking mortality could boost this “harvest” value substantially. Several comprehensive angler use and harvest surveys are planned or have been recently completed. In October 2006, the Management Board suspended the requirement to monitor the recreational fishery.

As of 2009, MRFSS data are no longer provided for American shad. This is a result of the unreliable design of MRFSS that focuses on active fishing sites along coastal and estuarine areas. In previous years the proportional standard error (PSE) has ranged from 0-100.

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		
Coheco		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	

In addition to the mandatory monitoring requirements stipulated under Amendments 2 and 3, some states and jurisdictions continue important research initiatives for these species. For example, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, and USFWS are actively involved in shad restoration using hatchery-cultured fry and fingerlings. All hatchery fish are marked with oxytetracycline marks on otoliths to allow future distinction from wild fish. During 2012, several jurisdictions from reared American shad, hickory shad, and alewife, stocking a total of 15,727,734 American shad and 380,663 alewife (Table 4).

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.

In addition to the mandatory monitoring requirements stipulated under Amendments 2 and 3, some states and jurisdictions continue important research initiatives for these species. For example, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, and USFWS are actively involved in shad restoration using hatchery-cultured fry and fingerlings. All hatchery fish are



Mid-Atlantic Fishery Management Council

800 North State Street, Suite 201, Dover, DE 19901
Phone: 302-674-2331 | Toll Free: 877-446-2362 | FAX: 302-674-5399 | www.mafmc.org
Richard B. Robins, Jr., Chairman | Lee G. Anderson, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: May 28, 2015
To: River Herring and Shad (RH/S) Committee/Council
From: Jason Didden *JDD*
Subject: Annual RH/S Activity Review

In October 2014, the Council approved a list of questions that would form the basis of an annual RH/S Progress Review. This memo addresses those questions. Council staff anticipates that an iterative refinement of the information presented in this review will occur based on feedback from the Council.

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

While the RH/S-mackerel fishery cap reports available at http://www.greateratlantic.fisheries.noaa.gov/ro/fso/reports/Mackerel_RHS/Mackerel_RHS.htm are preliminary to some degree, review of cap performance indicates that a small percentage of the RH/S cap was utilized in 2014, and a small percentage of the RH/S cap has been used to date in 2015. There have been no closures related to the RH/S cap to date. Staff notes that in both years the percentage of the cap that was used was lower than the percentage of the mackerel fishery that was harvested. Thus if the other underlying catch data remained consistent, the cap would not have interfered with full utilization of the mackerel quota had mackerel been more available to the fishery. Staff also notes that for the Atlantic herring fishery's southern New England RH/S caps (especially for bottom trawl), their RH/S caps may be constraining later in 2015 depending on fishery performance. Discussions with fishermen suggest that the southern New England Atl. Herring fishery essentially shut itself down to preserve some RH/S cap for fishing later in the year. Note: because of the overlap in the Atl. Herring and mackerel fisheries, their cap catch estimates 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 Atl. herring and mackerel RH/S caps, but the cap amounts were set considering this circumstance so that double counting is not a problem for monitoring purposes.

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

The ASMFC review data included earlier in this tab contains landings information from 2012 and 2013. The full reviews, available at <http://www.asmfc.org/species/shad-river-herring>, also summarize RH/S management by state. 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:

TABLE 11. 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%

Staff is investigating if this analysis can be used to update the RH/S incidental catch analysis time series from Amendment 14, which included data through 2010.

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

The following table was also developed for the Omnibus Industry Funded Monitoring Amendment:

TABLE 15. THE PROPOSED OBSERVER SEA DAYS ALLOCATED FOR APRIL 2014 THROUGH MARCH 2015, AND OBSERVED SEA DAYS AND TRIPS FROM JULY 2012 THROUGH JUNE 2013, BY FLEETS THAT TARGET ATLANTIC HERRING.

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).

The revised SBRM prioritization procedures should lead to better coverage in the Mid-Atlantic and New-England small mesh bottom-trawl fleets but less coverage of mid-water trawl fleets. The Omnibus Industry Funded Monitoring Amendment is seeking to mitigate this loss of coverage through a variety of options, which the Council has been updated on. See <http://www.mafmc.org/actions/observer-funding-omnibus>. Council staff is currently working with NMFS GARFO staff to approximate the ratio of coverage on mackerel cap trips for 2013 and 2014 and this should be available by the Council meeting.

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

A cap was set for 2014 and 2015, and it is on the agenda for this meeting for 2016-2018.

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

The cap is still based on recent catch and/or catch ratios expanded up to the mackerel quota depending on how much mackerel has been caught. See additional discussion below regarding SSC involvement. There is substantial ongoing work on RH/S genetics and stock assessment (coordinated via the Technical Expert Working Group (TEWG) for river herring) that may prove useful in the near to medium future.

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

Council staffs continue discussions regarding the possibility and details of merging the mackerel and Atl. herring RH/S caps. However, given the gear and area-based nature of the Atl. herring RH/S caps, merging the caps would likely prove difficult. However, the current cap amounts do account for the mixed nature of mackerel/Atl. herring fishing in the calculation/extrapolation methodologies so the overlap is already accounted for to some degree. A true merging of the caps would require caps that are gear and/or area based, for both fisheries to close when a cap is reached, and for the Councils to agree on the same caps. The key benefit of having both fisheries close at the same time is avoiding discarding of Atl. herring or mackerel while targeting the other, and Council staffs will continue evaluation of this issue.

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

Coordination has remarkably improved over the last several years regarding RH/S. Coordination is primarily accomplished staff-to-staff and Council staff cannot recall any recent "surprises" regarding RH/S management issues. The TEWG continues to actively keep a variety of parties engaged in RH/S conservation issues. While the Council primarily sees the presentations of TEWG products, there are a variety of preparatory meetings and workgroups that incorporate interested individuals across

governmental and non-governmental entities. TEWG activities and products can be further tracked/investigated at <http://www.greateratlantic.fisheries.noaa.gov/protected/riverherring/tewg/>. The TEWG process has recently funded two relevant projects that should provide useful information (http://www.greateratlantic.fisheries.noaa.gov/protected/riverherring/tewg/rfp/rh_cons_proposal_abstracts_vs4.pdf), and the TEWG has also developed a draft conservation plan: <http://www.greateratlantic.fisheries.noaa.gov/protected/riverherring/conserv/index.html>, which the Council was briefed on at the April Council Meeting.

The Omnibus Industry Funded Monitoring Amendment 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. Omnibus Industry Funded Monitoring Amendment activities and products can be tracked/ investigated at <http://www.mafmc.org/actions/observer-funding-omnibus>.

8. How has the SSC been involved?

At the May 2015 SSC meeting Council staff provided an overview of the RH/S cap, as well as the RH/S Committee Terms of Reference, which include:

- a. Develop approaches to recommending RH/S catch caps that are based on and appropriate for the abundance and/or population dynamics of RH/S rather than historic catch rates of RH/S.
 - Part of understanding this question will likely involve investigating the relative effects of catch in federal fisheries on RH/S stock health compared to other sources of mortality (habitat issues, inshore catch, climate, predation, etc.)
 - The Council's Scientific and Statistical Committee (SSC) will be engaged for this term of reference.

While the SSC has previously indicated that it serves primarily a review and advice role, the SSC is considering establishing a working group to further the issue of moving to a biologically-based RH/S cap. Council staff will report back to the Council regarding additional developments. The following is excerpted from the May 2015 SSC summary:

Shad/River Herring Cap in the Mackerel Fishery

Jason Didden reviewed the terms of reference for the Council's River Herring and Shad (RH/S) Committee, one of which includes moving from a catch-history based RH/S Cap on the mackerel fishery to one which is grounded in the inherent productivity of RH/S stocks. As part of this review, Jason described the current methodology for setting the RH/S Cap. Based on the complex issues involved, volunteers from the SSC were solicited for a working group to further consider the question. The charge of the working group would be to develop and/or review methods for setting a RH/S cap that are based on the biology, abundance, and/or productivity of RH/S stocks. John Boreman will follow-up with Council staff regarding the feasibility of such a workgroup.

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 cap, the TEWG, and the Omnibus Industry Funded Monitoring Amendment. Council staff has also actively promoted the existing RH/S voluntary bycatch programs (SMASST/Cornell) through communication with industry. The Council also requested that NMFS evaluate adding RH/S to the SBRM. NMFS completed this analysis in December 2014, and it appears that adding RH/S would not result in appreciable change in observer coverage rates.

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 earlier is also a possibility. 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. While collecting state by state river run data is beyond the resources of Council staff (that is an assessment update type activity), the ASMFC update included earlier in this tab does provide selected run counts for 2013 and 2012. Updated NEFSC survey and NEAMAP indices have also been made available to the Council, as described in the cover memo for this tab.