Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
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MEMORANDUM

October 22, 2015

To: **American Lobster Management Board**

From: **SNE Lobster Subcommittee**

RE: **Report from the Subcommittee's October 2nd Meeting**

The Southern New England Lobster Subcommittee (Subcommittee) met on October 2, 2015 in Old Lyme, CT to review the status of the Southern New England (SNE) lobster stock and discuss potential objectives for management. The Subcommittee consisted of 16 individuals including representatives from the states of Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Maryland, industry representatives from LCMT's 2, 3, 4, 5, and 6, members of the technical committee (TC), and federal representatives.

Presentations on the status of the SNE stock from the 2015 Stock Assessment, recent changes in SNE lobster management, and preliminary projections on abundance estimates framed the discussion of the Subcommittee. Stock projections presented many scenarios under various levels of fishing mortality (F) and natural mortality (M). Scientists cautioned that these analyses were preliminary and had neither been vetted by the Lobster TC nor peer-reviewed. The projections also proved to be very sensitive to assumed natural mortality and recruitment rates, both of which are evidently changing in SNE and difficult to predict into the future. Nevertheless, the projections indicated that, with no fishing pressure, stocks would continue to decline with a natural mortality higher than 0.4; however, at M=0.225 (the natural morality used in the 2015 Assessment for years after 1998) and in the absence of fishing pressure, the stock abundance could almost triple by 2025. Importantly, this tripled biomass would still be well below the stock rebuilding threshold. In other words, a five-year moratorium would not be sufficient to rebuild the stock even if natural mortality remains constant, which itself seems unlikely. The projections also indicated that a 75% reduction in fishing pressure would be needed to stabilize the stock at its present level given current but constant low levels of recruitment and M=0.225.

Some Subcommittee members argued the current stock level is in better condition than the assessment demonstrated. Specifically, they stated that, while there was a significant decline in the nearshore fishery (e.g. Long Island Sound, Buzzards Bay), the offshore portion of the stock remains viable and catches have been maintained. State data on landings and traps fished supported the conclusion that catch per unit effort has recently increased in portions of SNE; however, several members noted that this can be explained by the fact that effort in the fishery has decreased faster than the lobster population over the past two decades. Others noted the inevitable connection between the nearshore decline of lobsters and an overall decline in the SNE stock.

Given the severity of the projections, discussion of the Subcommittee focused on the feasibility of rebuilding and subsequent impacts on the stock and industry. The discussion was bracketed by possible alternatives at opposite ends of the spectrum. At one end, the Subcommittee discussed trying to rebuild the stock using alternatives which would reduce F to zero, such as a moratorium. This alternative would be potentially devastating to the lobster industry in the area. At the other end of the spectrum, the Subcommittee discussed the potential impacts of doing nothing beyond the measures already introduced in Addenda XVII and XVIII. This alternative could also be devastating since scientists suggest the status quo will quickly result in a fishery that is non-sustainable. The range of potential management objectives considered are expanded on below.

"Rebuild the SNE Stock" The preliminary stock projections suggested the SNE stock cannot be rebuilt to the current reference points; natural mortality is simply too high. The stock, however, could be stabilized at 2009 levels if F were reduced to zero. The Subcommittee discussed that the clear benefit of this approach is stopping the severe decline in lobster abundance and stabilizing the stock, albeit at 2009 levels which are considered depleted. Several drawbacks of this approach were also discussed, most notably, the loss of the SNE lobster industry. Members of the Subcommittee expressed concerns that a moratorium would result in the loss of critical fishing infrastructure, including loss of dock space to higher paying recreational and pleasure boats, loss of dealer income from lobsters, and loss of market space to lobstermen further north. As a result, if the fishery were to re-open, there would be no lobster industry left. Other Subcommittee members pointed out that the Jonah crab fishery, whose traps are capable of catching lobster, may impede the success of a moratorium. Finally, changing environmental conditions could reduce the effectiveness of a moratorium. Factors such as water temperature, ocean acidification, habitat loss, spawning success, and predation could all contribute to a higher natural mortality in the future, hampering the ability of the stock to rebound.

"Prevent Further Declines in Spawning Stock Biomass" Another objective considered by the Subcommittee was to stabilize the SNE stock at its current level. According to preliminary projections, achieving this goal would require a 75% reduction in current fishing pressure. Members of the Subcommittee expressed concern that such a large reduction would cripple the industry, similar to that of a moratorium. The economic and infrastructure losses from a 75% reduction in exploitation might be no different than shutting the industry down. Nor would this option offer any potential stock rebuilding according to the projections; it would only stop the downward stock trend. This projection assumes no increase in natural mortality, which some suggested is unlikely.

"Slow the Rate of Decline in Spawning Stock Biomass" In order to maintain some minimal component of the SNE lobster fishery, the Subcommittee also considered smaller reductions in fishing exploitation which could potentially slow the decline of the stock. This could take the form of another 10% reduction in exploitation, similar to the action taken by the Board when faced with comparable information following the 2009 stock assessment. A management response of this magnitude could help preserve fishing infrastructure. Several Subcommittee members felt this sort of objective should also focus on transitioning the industry to other species (ex: Jonah crab). Others commented that this more moderate response would allow scientists time to take account of measures in Addenda XVII and XVIII which are only now beginning to

be implemented. Some felt such a small response was no different than doing nothing. Accepting this objective would be accepting further declines in the SNE stock.

"Prevent Loss of Fishery Infrastructure" The Subcommittee discussed the social and economic objective of preserving the lobster industry. This objective would maximize short term economic gains at the possible expense of long term economic and resource sustainability in SNE. Given the implementation of a series of trap reductions in Lobster Conservation Management Areas (LCMA) 2 and 3 beginning in 2016, several Subcommittee members felt management should wait for these trap reductions to take place before taking further action. Others argued these trap reductions are to remove latent effort and may result in insufficient conservation.

The Subcommittee was not able to find consensus on a single objective; however, they did agree on the following:

1. While a moratorium is not an appropriate management response, neither is no action. The Subcommittee eliminated these extreme alternatives as potential responses, but acknowledged that the Board may want to include these rejected alternatives in discussions as a frame of reference.
2. A uniform management response for all of SNE may not be appropriate. While having separate management regimes for each LCMA will add complexity to the management scheme, uniform action may not work given the different fishery composition and potential stock dynamics between the various LCMA's. Once an objective is chosen, further discussion will needed to determine if management responses should be uniform across SNE or unique to each LCMA.
3. Natural mortality in the SNE stock is increasing as the result of multiple factors including changing water temperatures and predation. In particular, human changes to the coastal ecosystem and increasing water temperatures are seen as shrinking the viable habitat of the stock. Furthermore, predation, especially from black sea bass, is considered an important and growing source of natural mortality. The Board and Technical Committee should research ways to minimize this increase in natural mortality.
4. The current reference points may no longer be relevant to the SNE stock due to changing conditions. New reference points may need to be developed in light of these changing conditions.

During the group's discussion, the Subcommittee requested some additional work from the TC. This included reviewing the stock projections with the TC, transferring the projection units from spawning stock biomass to reference abundance, and determining the relationship between the number of traps fished and the exploitation rate, so as to better understand the relationship between trap levels and fishery exploitation.

For questions regarding the Subcommittee composition or meeting, please contact Megan Ware, FMP Coordinator, at mware@asmfc.org

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MEMORANDUM

October 27, 2015

To: **American Lobster Management Board**

From: **Burton Shank; NMFS/NEFSC**

Re: **Update on SNE Stock Projections Presented at SNE Subcommittee Meeting**

Two different stock projection runs were presented at the SNE lobster subcommittee meeting on October 2nd. In that presentation, population abundance was presented in units of Spawning Stock Biomass (SSB), as that was the only abundance proxy available in the projection software at the time. It was suggested that these plots be updated, using the reference abundance and include the abundance reference point for better interpretability. The updated plots are attached below.

For both runs, recruitment was assumed to remain constant at levels similar to those observed from 2011 – 2014, based on the basecase model output. Thus recruitment is independent of the dynamics of the adult population.

In the first run, we examined population projections assuming different levels of natural mortality (M; non-fishing mortality) and no fishing pressure. Reference abundance was stable around M=0.3 with populations recovering some at lower values of M and further decreasing at higher M values (Figures 1 & 2). This is in contrast to SSB which was stable at values just below M=0.4 for this run. Recall that M was assumed to be 0.15 at the beginning of the population model (1982) and stepped up to 0.225 in the mid 90's.

In the second run, we held M=0.225, the value assumed at the end of the accepted basecase model run, and varied fishing pressure from 0 to 100% of current landings. It is important to note that this projection forces the extraction of the same number of lobsters in each year until there are no legal lobsters left in the population. Thus, declining populations tend to decrease rapidly. The reference abundance stabilizes at 15% of current fishing pressure, again in contrast to SSB which stabilized at ~25% of current fishing pressure.

In both of these projections, SSB shows greater recovery potential than Reference Abundance (all lobsters >=78mm CL). This is because SSB is the product of abundance at size, probability of maturity at size, and fecundity at size, so a single large lobster has the reproductive capacity of several smaller individuals. Both projection runs assume decreased fishing pressure, which affects only lobsters above legal size. Decreasing fishing pressure results in a greater proportion of the population remaining above legal size, positively affecting SSB calculations. This is evident in Figure 5, where mean carapace length in the population increases at low fishing pressure but decreases at higher fishing pressure.

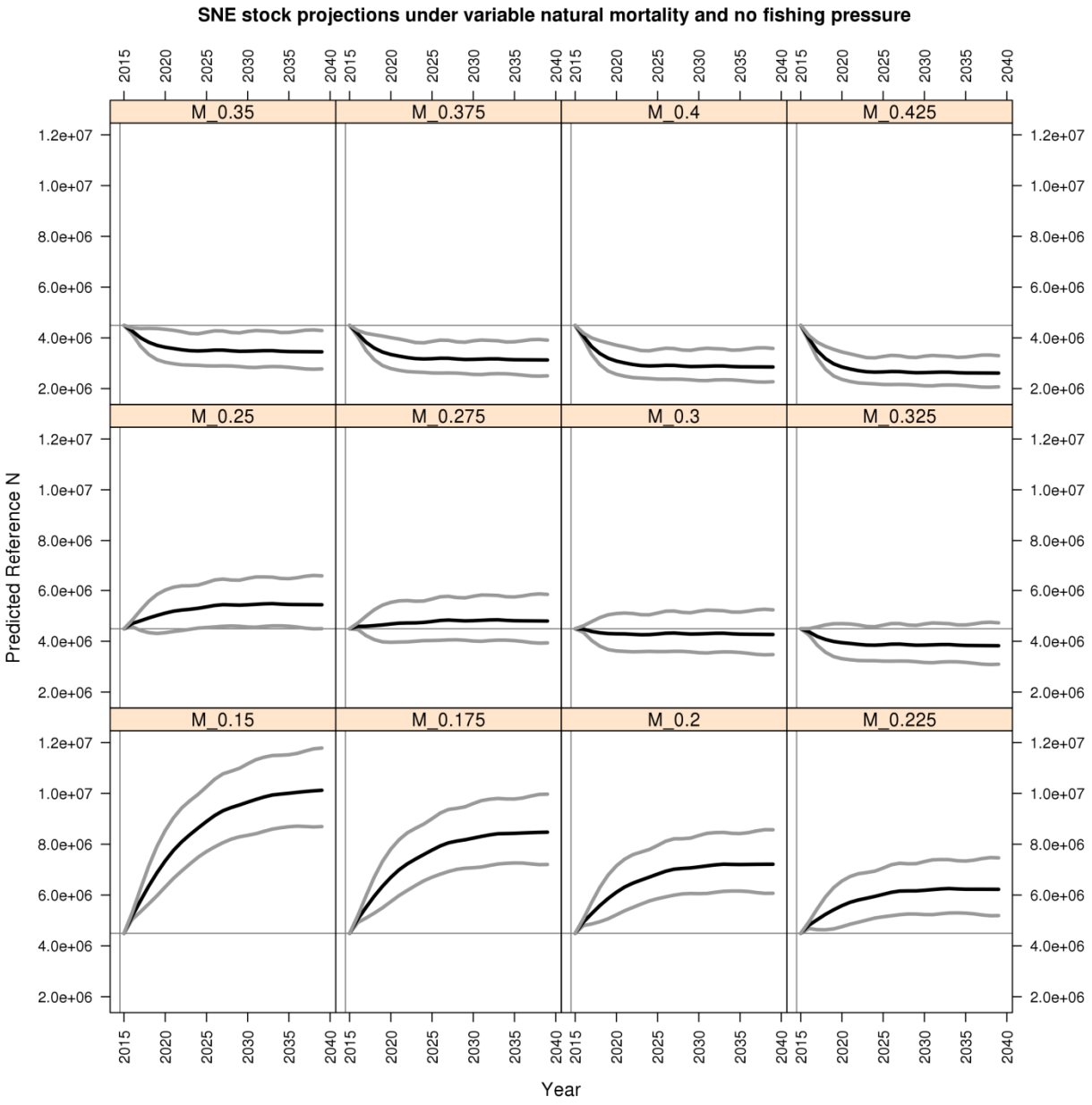

Figure 1. Projected changes in reference abundance assuming no fishing and different levels of natural mortality. Black line is the mean trend +/- 2SD (gray lines). Recall that M was assumed to be 0.15 at the beginning of the population model (1982) and stepped up to 0.225 in the mid 90's.

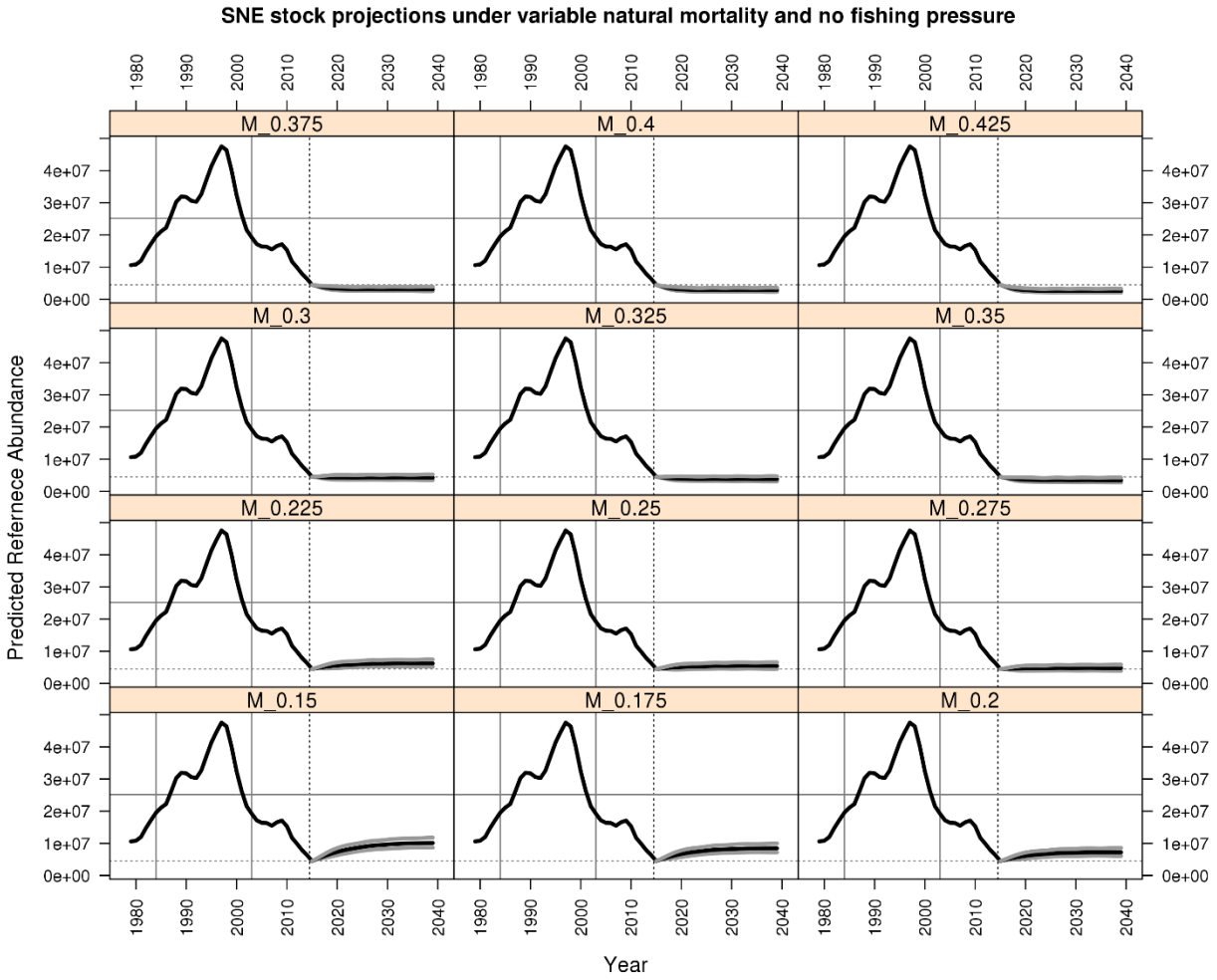

Figure 2. Model time series and projected changes in reference abundance assuming no fishing and different levels of natural mortality. The reference period and trend-based reference point are shown in solid gray lines. Recall that M was assumed to be 0.15 at the beginning of the population model (1982) and stepped up to 0.225 in the mid 90's.

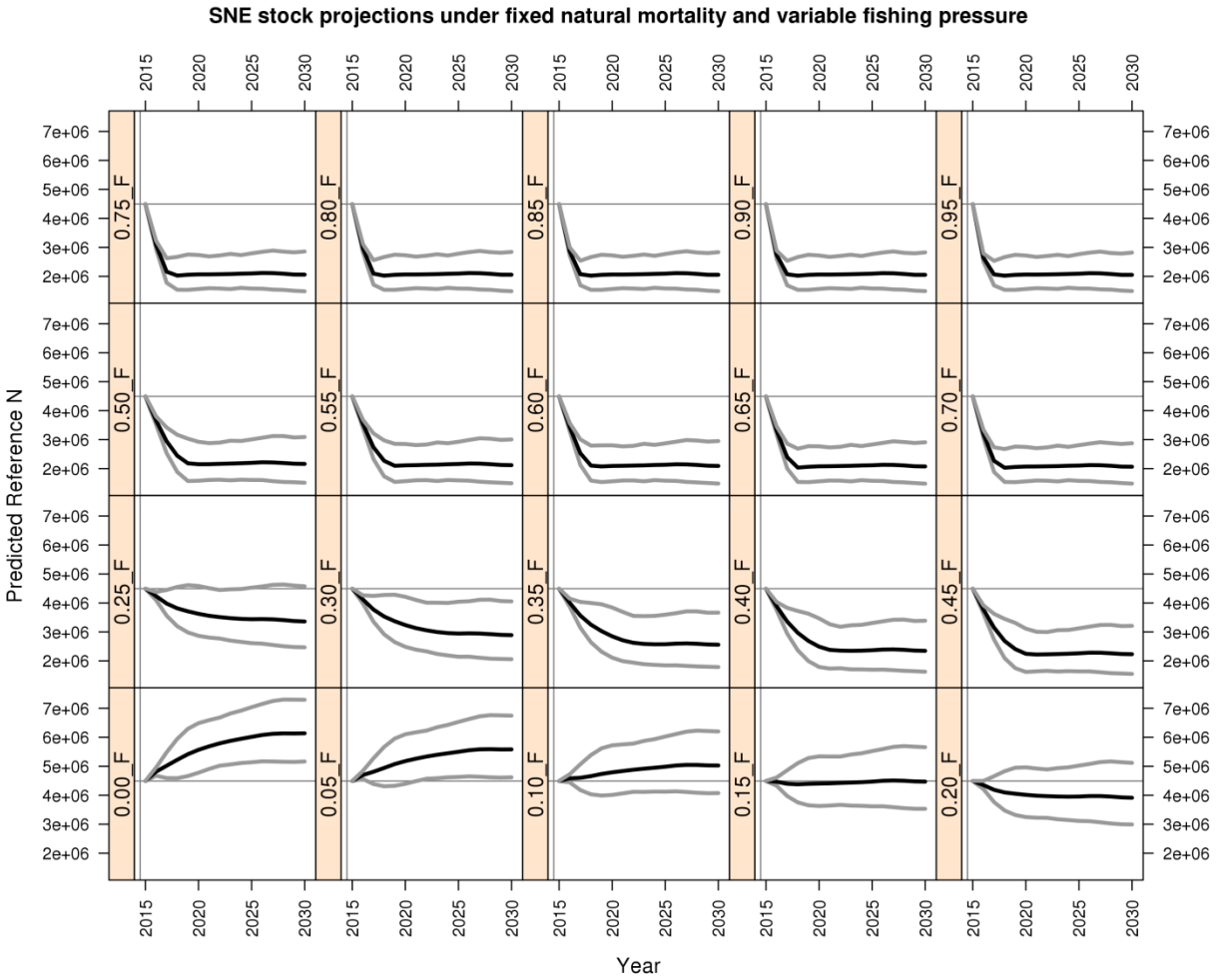

Figure 3. Projected changes in reference abundance assuming fixed natural mortality (M=0.225) and variable fishing pressure (0-95% of current landings). Black line is the mean trend +/- 2SD (gray lines).

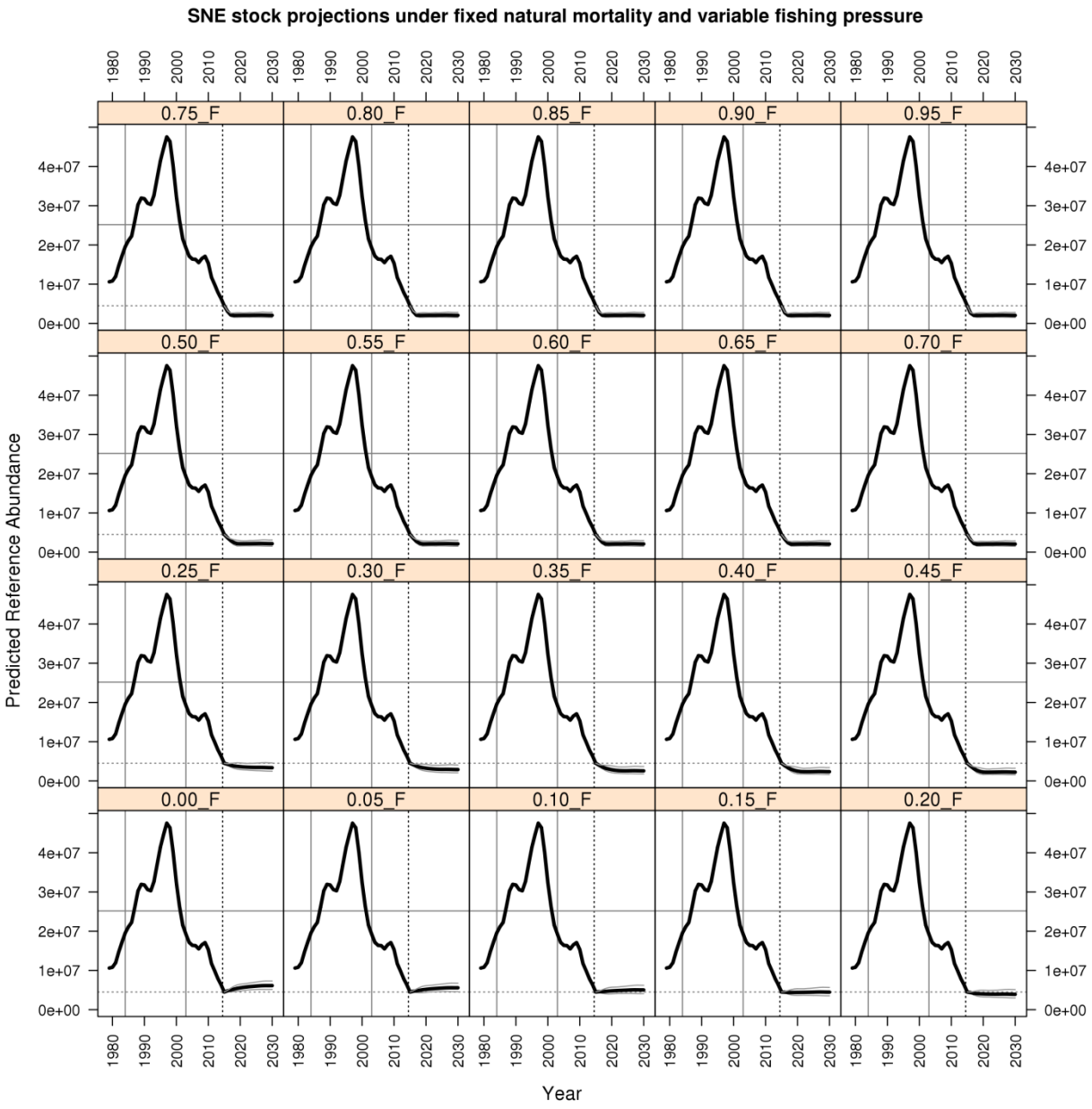

Figure 4. Model time series and projected changes in reference abundance assuming fixed natural mortality (M=0.225) and variable fishing pressure. Black line is the mean trend +/- 2SD (gray lines). The reference period and trend-based reference point are shown in solid gray lines.

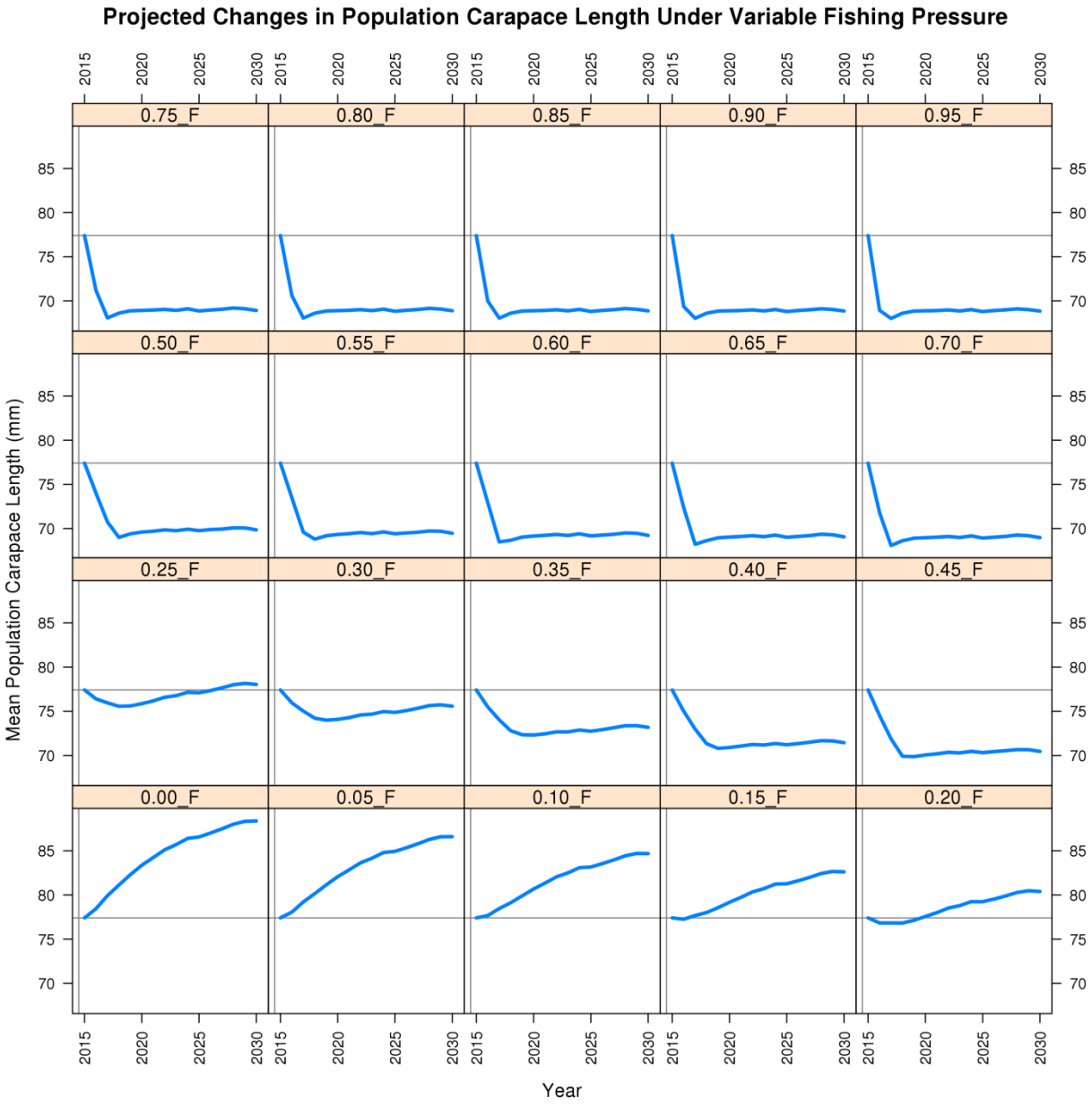

Figure 5. Projected change in mean carapace length for the run with fixed natural mortality and variable fishing pressure.

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MEMORANDUM

October 27, 2015

To: **American Lobster Management Board**

From: **Burton Shank; NMFS/NEFSC**

Re: **Relationship between fishing effort and fishery exploitation**

At the SNE lobster subcommittee meeting on Oct 2nd, there were some requests for information on how the planned trap reductions over the next six years would affect exploitation rates. The assessment model calculates fully-recruited fishing mortality and exploitation rates by year. Both fishery mortality and exploitation rates show a general decline over the time series with increases in the late '90s / early 2000's and are currently around time series lows (Figure 1, top and center plots).

For the recent benchmark assessment, we assembled data on the number of traps fished in any given year for New York, Connecticut, and Massachusetts (south shore). Unfortunately, data were not available from Rhode Island, New Jersey, or Maryland. Also, it would be ideal to have effort measured as trap soak days but this also was not available. The number of traps fished increased in the early years of the time series, peaking in 1998, and declined thereafter to reach a time series low in the recent years (Figure 1, bottom).

Because this time series represents two different dynamics, a fishery building in response to an increasing resource and contracting in response to a declining resource, I examined the relationship between exploitation and effort for both the entire time series and only the declining period. In both cases, there is generally a positive relationship between fishing mortality or exploitation and fishing effort (Figure 2 and 3). Neither relationship is necessarily trending towards the origin, suggesting that changes in fishing effort are not currently proportional to fishing mortality or exploitation. However, the trend is marginally steeper and the y intercept is closer to the origin for the recent years than for the entire time series.

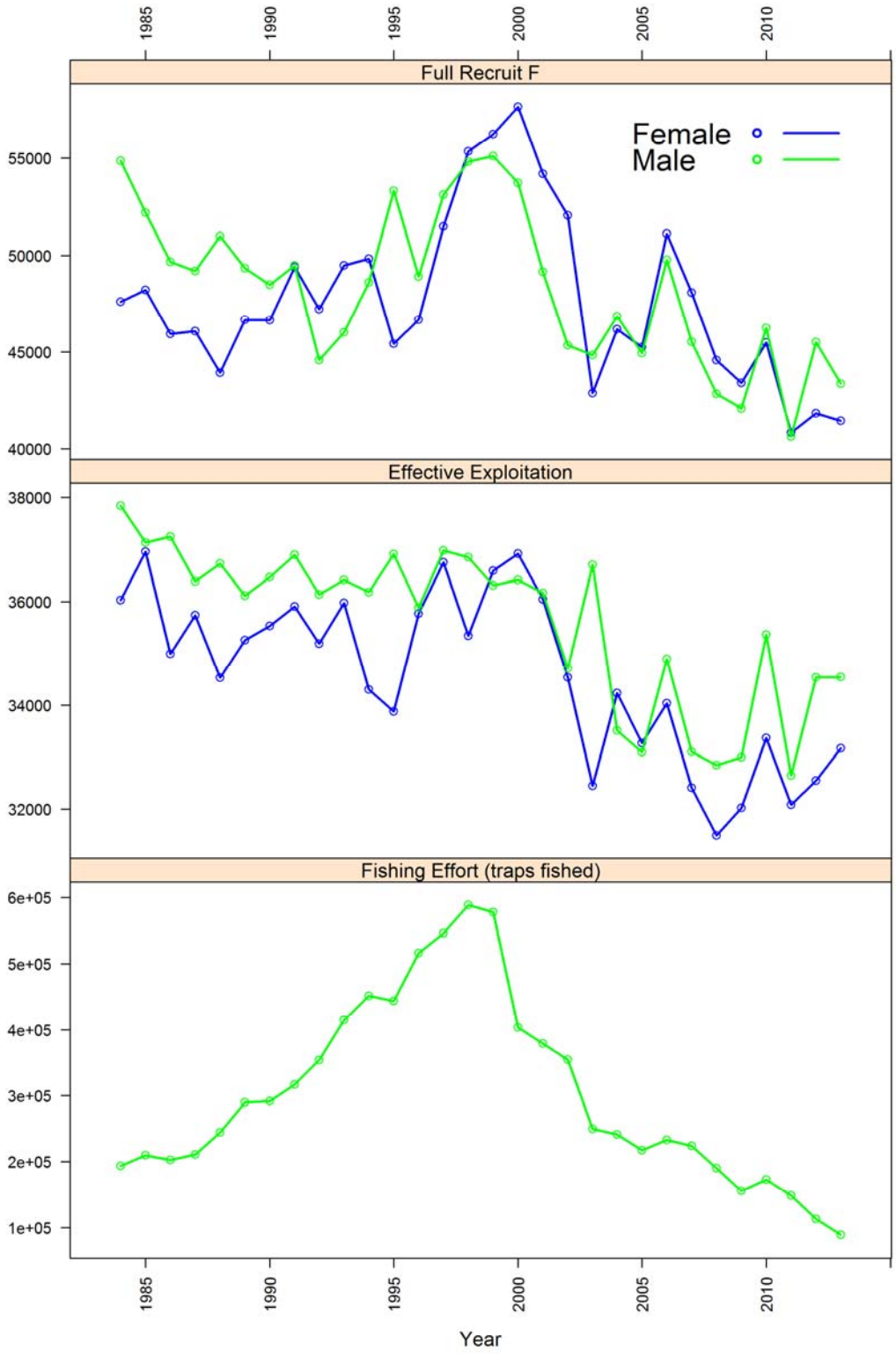

Figure 1. Time series of SNE exploitation and fishing effort.

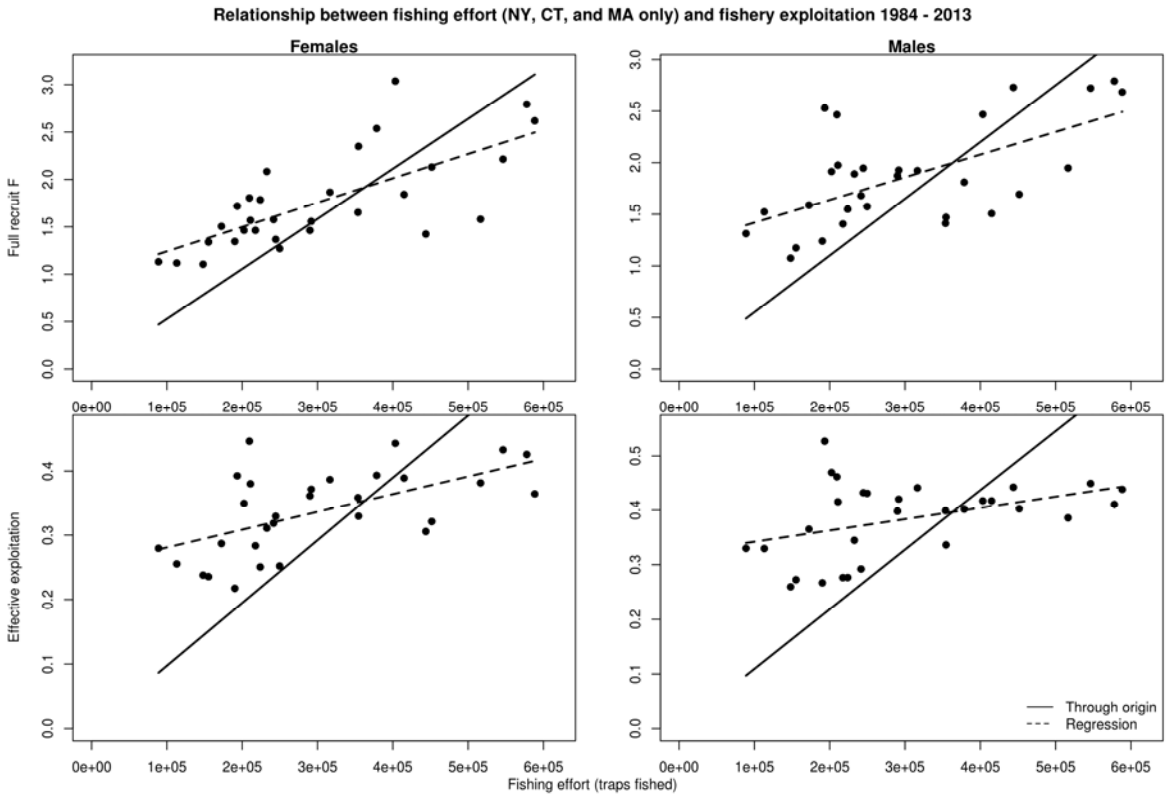

Figure 2. Relationship between fishing effort and exploitation for 1984 – 2013. Number of traps fished is only for NY, CT, and MA.

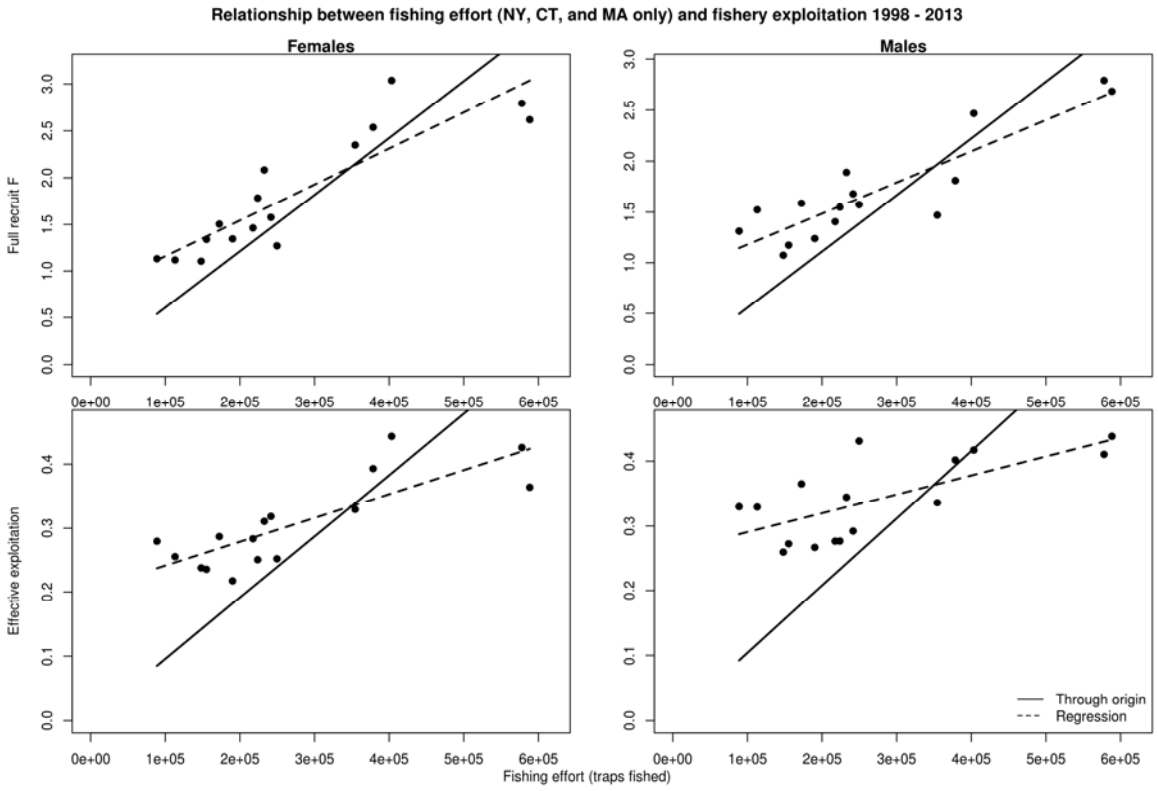

Figure 3. Relationship between fishing effort and exploitation for 1998 – 2013. Number of traps fished is only for NY, CT, and MA.

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Dr. Louis B. Daniel, III, (NC), Chair *Douglas E. Grout (NH), Vice-Chair* *Robert E. Beal, Executive Director*

Vision: Sustainably Managing Atlantic Coastal Fisheries

The following data was provided by NEFMC for Board consideration in regards to the incidental bycatch of Jonah crab by non-trap gear. The data shows Jonah crab landings by non-trap gear from 2010 to 2014. Information submitted by NOAA GARFO regarding this same topic can be found on page 10 of this document.

Jonah Crab Data (dealer data, and permit data used to verify unknown gear types)

Table 1: Species Landed on non-trap trips that landed Jonah crab (2014)

NESPP3	Species Name	Landings (lbs)	Value of
11	Monkfish	6,236	4,586
12	Monkfish (tails)	46,749	98,915
23	Bluefish	131	74
51	Butterfish	48	44
81	Cod	32,409	63,866
96	Cusk	545	616
115	Am. Eel	3	2
116	Congor Eel	59	36
120	Winter Fl.	28,747	38,741
121	Summer Fl.	9,028	25,680
122	Witch Fl.	6,192	14,719
123	Yellowtail Fl.	26,416	31,351
124	Dabs (Am. Plaice Fl)	9,885	16,240
127	Fourspot Fl.	285	124
147	Haddock	23,331	37,641
152	Red Hake	943	161
153	White Hake	19,335	28,288
159	Atl. Halibut	98	848
188	John Dory	650	715
212	Atl. Mackerel	3	2
240	Redfish	19,275	13,071
269	Pollock	18,715	17,648
326	Sculpins	49	37
329	Scup	816	286
335	Black Sea Bass	145	391
344	Weakfish	11	32
347	Am. Shad	4	3
351	Smooth Dogfish	211	125
352	Spiny Dogfish	385	113
365	Skates, unclassified	4,490	5,736
366	Little Skate	9,000	810
367	Winter Skate	27,462	24,009
438	Tautog	27	85

446	Golden Tilefish	62	128
509	Silver Hake	708	545
711	Jonah Crab	13,306	5,358
727	Lobster	18,758	88,083
775	Conchs	6	41
800	Scallops	68	841
801	Loligo Squid	2,087	2,088
Grand	All	326,678	522,079

Table 2: 2014 Jonah Crab Landings for Non-Trap Vessels, by State

State	No. of Pe rmits	Sum of SPPLNDLB	Sum of SPPVALUE
RI	71	7,346	3,647
MA	18	5,433	1,107
NY	22	410	494
CT&NJ	4	117	110
All	115	13,306	5,358

Table 3: Number of non-trap vessels landing Jonah crab in 2014

Gear Code	Gear Type	Number of Permits	Jonah Crab Landings	Value ($)
50	Bottom Otter Trawl	32	6,187	1,629
100	Gillnets	16	233	258
999/20	Other or not specified*	67	6,886	3,471
Grand	All	115	13,306	5,358

Note (Table 3): Gear code 999 (unknown gear) are landings by permit holders with non-trap and trap lobster permits, along with other permits. The landings from those trips are shown below in Table 4. These values are included in the tables above, because in other years (i.e. 2013, the permits landing with gear code 999 also have permits that include bluefish, herring, dogfish, fluke, tilefish, squid, mackerel, and other species confirmed in the landings), the landings include groundfish, which is not permitted on lobster trap trips. This information is used to make the inference that gear code 999 is non-trap gear when the permit data indicates that the permit holder holds non-trap permit, or non-trap lobster and trap lobster permits.

Table 4: Species Landed on trips with lobster trap and gear code 999/Unknown (2014)

Species	Landings (lbs)	Value of Landings ($)
Jonah Crab	6801	3403
Lobster	191	1146
Grand Total	6992	4549

Table 5: Species Landed on non-trap trips that landed Jonah crab (2013)

NESPP3	Species Name	Landings (lbs)	Value of Landings ($)
12	Monkfish (tails)	75,964	130,601
121	Summer Fl.	28,143	81,639
367	Winter Skate	26,228	13,710
509	Silver Hake	22,203	21,600
365	Skates (not specified)	18,045	11,558
153	White Hake	15,719	26,770
269	Pollock	13,630	23,698
11	Monkfish	11,472	5,911
240	Redfish	11,419	7,813
123	Yellowtail Fl.	10,111	16,393
124	Am. Plaice Fl.	9,838	15,019
711	Jonah Crab	6,081	3,828
727	Lobster	4,588	16,198
352	Spiny Dogfish	3,430	636
329	Scup	2,678	2,181
122	Witch Fl.	2,153	5,956
81	Cod	2,145	6,212
366	Little Skate	1,560	1,560
152	Red Hake	1,509	976
147	Haddock	1,506	3,180
51	Butterfish	1,115	879
801	Loligo Squid	1,072	1,984
351	Smooth Dogfish	976	723
800	Sea Scallops	475	4,867
335	Black Sea Bass	414	1,643
188	John Dory	349	417
341	Sea Robin	306	68
23	Bluefish	242	156
120	Winter Fl.	175	354
105	Dolphinfish	68	37
234	Mullets	60	47
159	Atl. Halibut	55	440
446	Golden Tilefish	45	68
116	Congor Eel	40	20
93	Cunner	39	9
212	Atl. Mackerel	34	30
344	Weakfish	21	40
96	Cusk	20	15
712	Rock Crab	14	8
456	Triggerfish	6	7
90	Atl. Croaker	4	3
155	Hake (Red/White)	4	2
NA	Other	6	8
Grand Total	All	273,962	407,264

Table 6: 2013 Jonah Crab Landings for Non-Trap Vessels, by State

State	Number of Permits	Jonah Crab Landings (lbs)	Value of Landings ($)
RI	38	3,542	2,120
MA	22	1,880	887
NY & CT	40	595	762
NJ	3	64	59
All	**103**	**6,081**	**3,828**

Table 7: Number of non-trap vessels landing Jonah crab in 2013

Gear Code	Gear Type	Number of Permits	Jonah Crab Landings (lbs)	Value of Landings ($)
50	Bottom Otter Trawl	35	2,604	1,720
100	Gillnets	28	316	483
999	Unknown Gear	40	3,161	1,625
Grand Total	All	103	6,081	3,828

Table 8: Species Landed on non-trap trips that landed Jonah crab (2012)

NESPP3	Species	Number of Permits	Landings (lbs)	Value of Landings ($
12	Monkfish (tails)	86	46,241	127,497
711	Jonah Crab	47	4,099	2,959
121	Summer Fl.	42	17,916	47,273
122	Witch Fl.	34	5,800	9,118
124	Am. Plaice Fl.	33	20,074	27,040
153	White Hake	31	59,708	90,262
81	Cod	24	3,701	10,883
509	Silver Hake	24	3,052	2,209
727	Lobster	22	10,798	45,101
335	Black Sea Bass	21	549	2,004
269	Pollock	20	104,171	89,090
329	Scup	20	21,579	13,397
23	Bluefish	20	2,826	2,796
367	Winter Skate	16	5,411	4,266
801	Loligo Squid	12	607	995
152	Red Hake	9	10,260	5,752
11	Monkfish	9	1,774	2,278
240	Redfish	8	38,310	24,933
123	Yellowtail Fl.	8	4,297	5,011
365	Skates (unclassified)	8	1,278	861
51	Butterfish	8	314	409
344	Weakfish	6	204	470
800	Sea Scallop	6	119	1,111
352	Spiny Dogfish	5	4,250	728
147	Haddock	5	1,542	3,685
116	Conger Eel	4	58	43
	Other	20	49,881	6,035
Grand Total	All	548	418,819	526,206

Table 9: 2012 Jonah Crab Landings for Non-Trap Vessels, by State

State	Number of Permits	Jonah Crab Landings (lbs)	Value of Landings ($)
MA	18	2,119	1,297
RI	7	1,337	961
NY	15	545	550
NJ	7	98	151
All	47	4,099	2,959

Table 10: Number of non-trap vessels landing Jonah crab in 2012

Gear Code	Gear Type	Number of Permits	Jonah Crab Landings	Value of Landings
50	Bottom Otter Trawl	25	2,838	1,869
100	Gillnet	12	479	466
	Unknown or other	10	782	624
Grand Total	All	47	4,099	2,959

Table 11: Species Landed on non-trap trips that landed Jonah crab (2011)

NESPP3	Species	Number of Permits	Landings (lbs)	Value of Landings
12	Monkfish (Tails)	138	61,877	182,829
121	Summer Fl.	119	63,475	135,329
711	Jonah Crab	67	2,986	2,056
329	Scup	55	22,804	12,488
122	Witch Fl.	51	17,241	27,893
335	Black Sea Bass	43	1,111	5,781
81	Cod	38	16,272	28,043
727	Lobster	38	4,599	18,887
153	White Hake	37	15,087	19,235
801	Loligo Squid	37	814	1,238
23	Bluefish	36	19,226	10,024
124	Am. Plaice Fl.	33	14,047	18,772
509	Silver Hake	33	1,656	1,265
123	Yellowtail Fl.	30	12,090	15,859
367	Winter Skate	29	6,561	7,842
365	Skates (unclassified)	25	15,787	12,941
269	Pollock	25	11,583	8,745
147	Haddock	21	16,569	24,581
152	Red Hake	19	468	210
800	Sea Scallop	18	3,624	36,479
446	Golden Tilefish	14	195	522
120	Winter Fl.	13	47,670	94,253
352	Spiny Dogfish	12	30,735	7,122
240	Redfidh	10	6,975	4,389
341	Sea Robin	10	465	45
351	Smooth Dogfish	6	6,690	2,004
188	John Dory	6	256	274
96	Cusk	6	49	47
366	Little Skate	4	17,933	1,829
11	Monkfish	4	253	156
51	Butterfish	4	200	203
90	Atlantic Croaker	3	100	67
	Other	12	265	682
Grand Total	All	996	419,663	682,090

Table 12: 2011 Jonah Crab Landings for Non-Trap Vessels, by State

State	Number of Permits	Jonah Crab Landings (lbs)	Value of Landings ($)
RI	18	1,257	666
MA	15	884	438
NJ	19	512	577
NY & CT	15	333	375
All	67	2,986	2,056

Table 13: Number of non-trap vessels landing Jonah crab in 2011

Gear Code	Gear Type	Number of Permits	Jonah Crab Landings (lbs)	Value of Landings ($)
50	Bottom Otter Trawl	49	2,609	1,625
52	Scallop Otter Trawl	3	44	56
100	Gillnet	15	333	375
Grand Total	All	67	2,986	2,056

Table 14: Species Landed on non-trap trips that landed Jonah crab (2010)

NESPP3	Species Name	Number of Permits	Landings (lbs)	Value of Landings ($)
12	Monkfish, tail	192	47,978	148,266
121	Summer Fl.	190	64,840	134,775
711	Jonah Crab	106	10,815	3,822
329	Scup	100	28,550	16,724
509	Silver Hake	95	43,193	20,506
81	Cod	80	33,328	61,199
801	Loligo Squid	78	91,784	93,124
727	Lobster	75	4,266	17,402
122	Witch Fl.	67	8,856	22,607
153	White Hake	53	28,858	43,615
124	Am. Plaice Fl.	47	33,709	39,487
366	Little Skate	45	320,650	29,305
123	Yellowtail Fl.	43	17,202	24,061
365	Skates (unclassified)	40	13,509	6,878
51	Butterfish	39	6,510	4,837
152	Red Hake	38	4,719	1,495
335	Black Sea Bass	37	557	1,611
446	Golden Tilefish	36	1,423	2,507
269	Pollock	30	12,165	14,716
23	Bluefish	28	855	571
367	Winter Skate	23	19,230	18,260
147	Haddock	23	13,839	14,028
212	Atl. Mackerel	16	1,004	535
240	Redfish	15	9,916	5,542
116	Conger Eel	15	210	115
120	Winter Fl.	14	4,423	8,034
188	John Dory	14	188	190
800	Sea Scallop	12	234	1,711
344	Weakfish	10	78	140
776	Channeled Whelk	9	18	36
341	Sea Robin	8	215	52
159	Atl. Halibut	5	179	1,052
96	Cusk	5	172	168
125	Sand Dab Fl.	5	138	60
	Other	11	18,173	1,028
Grand Total	All	1604	841,784	738,459

Table 15: 2010 Jonah Crab Landings for Non-Trap Vessels, by State

State	Number of Permits	Jonah Crab Landings (lbs)	Value of Landings
RI	84	5,487	2,763
ME & MA	14	5228	998
NY & NJ	8	100	61
All	106	10,815	3,822

Table 16: Number of non-trap vessels landing Jonah crab in 2010

Gear Code	Gear Type	Number of Permits	Jonah Crab Landings (lbs)	Value of Landings
50	Bottom Otter Trawl	98	8,845	2,831
54	Ruhle Trawl (bottom)	3	52	26
100	Gillnet & unknown	5	1,918	965
Grand Total	All	106	10,815	3,822

Table 17: Number of trips affected by the ASMFC crab limit for non-trap gear, based on number of days fished in prior years (2010-2014)

Year	Minimum # of days fished	Maximum Number of days fished	Average Number of days fished	Number of Trips Constrained by ASMFC trip limit	Percentage of trips constrained by crab limit
2010	0.1	9.54	1.17	7/300	2.33%
2011	0.04	9.56	1.72	2/326	0.61%
2012	0.04	9.4	1.26	6/198	3.03%
2013	0.1	8.83	1.18	4/168	2.38%
2014	0.13	10.48	1.23	4/140	2.86%

Note (Table 17): This spreadsheet is based on data provided by GARFO using the DMIS database. The data has not been reviewed for errors, and there seems to be a few errors for the two largest landings in the dataset (2010-2015 Jonah crab landings). This is also based on the assumption that one crab = 1 pound (same assumption used by the ASMFC). In addition, this trip level data cannot be used to identify the number of vessels affected (i.e. same permit holder may fish more than one trip in any given year).

The following data was submitted by NOAA GARFO for Board consideration. It was queried from the Vessel Trip Report database and shows the bycatch of Jonah crab in non-trap gear between May 1, 2013 and August 31, 2015. Landings are reported in pounds, using the assumption that 1 crab = 1 pound.

- 372 trips reported Jonah Crab Landings
- 365 trips stayed within the Commission-approved non-trap limit of 200 crabs/day up to 500 crabs/trip
- 356 landed 200 crabs or fewer
- 7 trips exceeded the Commission-approved non-trap limits
- Landings from these 7 trips ranged from 300 to 2300 crabs
- 3 trips landed over 900 crabs

Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
703.842.0740 • 703.842.0741 (fax) • www.asmfc.org

MEMORANDUM

October 26, 2015

To: **American Lobster Management Board**

From: **Tina Berger, Director of Communications**

RE: **Advisory Panel Nomination**

Please find attached two nominations to the American Lobster Advisory Panel – John Godwin, a seafood processor from New Jersey and Grant Moore, a commercial offshore trap fisherman from Massachusetts. Grant Moore replaces Bro Cote on the panel. Please review this nomination for action at the next Board meeting.

If you have any questions, please feel free to contact me at (703) 842-0749 or tberger@asmfc.org.

Enc.

cc: Megan Ware

American Lobster Advisory Panel

Bolded names await Board review and approval

October 26, 2015

Maine (4)

Jon Carter (comm/pot)
333 Main Street
Bar Harbor, ME 04609
Phone: (207)288-4528
Appt. Confirmed: 5/30/96
Appt. Reconfirmed 7/26/00
Appt. Reconfirmed 1/2/06
Appt Reconfirmed 5/10
Confirmed Interest: 9/4/15 but cannot make meeting in October

Robert Baines (comm/pot)
Waterman's Beach Road
South Thomaston, ME 04858
Phone: (207)596-0177
Appt. Confirmed: 5/30/96
Appt. Reconfirmed 7/26/00
Appt. Reconfirmed 1/2/06
Appt Reconfirmed 5/10
Confirmed Interest: 8/28/15

David Cousens (comm/pot)
Waterman's Beach Road
South Thomaston, ME 04858
Phone: (207)594-7518
Email: LPC6850@aol.com
Appt. Confirmed 8/28/03
Appt. Confirmed 8/07

Vacancy (comm/pot)

New Hampshire (2)

Robert Nudd (comm/inshore pot)
531 Exeter Road
P.O. Box 219
Hampton, NH 03842
Phone (eve): (603)926-7573
Appt. Confirmed: 10/30/95
Appt. Reconfirmed 9/15/99
Appt. Reconfirmed 1/2/06
Appt Reconfirmed 5/10
Confirmed Interest: 8/31/15

James A. Willwerth (comm./trap)
10 Mill
Hampton Falls, NH 03844
Phone (day): (603) 765-5008
Phone (eve): (603) 926-3139
JAW080257@comcast.net
Appt Confirmed 10/22/12
Confirmed Interest but is fully committed: 9/3/15

Massachusetts (4)

Angelo Correnti (rec/diver)
156 Spring Street
Medford, MA 02155
Phone: (617)391-1034
Appt. Confirmed: 5/30/96
Appt. Reconfirmed 9/15/00
Appt. Reconfirmed 1/2/06
Appt Reconfirmed 5/10
Appt. Reconfirmed 9/15

Arthur Sawyer Jr. (comm pots)
368 Concord Street
Gloucester, MA 01930
Phone: (978)281-4736
FAX: (978)281-4736
Email: sooky55@aol.com
Appt. Confirmed: 1/29/01
Appt. Reconfirmed 1/2/06
Appt Reconfirmed 5/10
Appt. Reconfirmed 9/15

John Carver
PO Box 36
Green Harbor, MA 02041
Phone (day): (781)500-9763
Phone (eve): (781)837-7523
FAX: (781)837-1707
Email: KAZDVM@aol.com
Appt. Confirmed: 5/9/05
Appt Reconfirmed 5/10
Appt. Reconfirmed 9/15

Grant Moore (comm/offshore pot)
4 Gooseberry Farms Lane
Westport, MA 02790
Phone (day): 508.971.2190

American Lobster Advisory Panel

Bolded names await Board review and approval

October 26, 2015

Phone (eve): 508.636.6248
FAX: 508.636.5789
Email: grantmoore55@gmail.com

Rhode Island (2)
David Spencer (comm/offshore pot)
20 Friendship Street
Jamestown, RI 02835
Phone: (401)423-2120
Appt. Confirmed: 10/30/95
Appt. Reconfirmed 9/15/99
Appt. Reconfirmed 2/7/06
Appt Reconfirmed 5/10
Confirmed Interest: 8/27/15

Lanny Dellinger (comm./pot)
160 Snuffmill Road
Saunderstown, RI 02874
Phone (day): (401)932-5826
Phone (eve): (401)294-7352
Email: lad0626@aol.com
Appt Confirmed 2/21/06
Appt Reconfirmed 5/10
Confirmed Interest: 8/27/15

Connecticut (2)
John Whittaker (comm./pot)
37 Spring Street
Noank, CT 06340
Phone (day): (860)287-4384
Phone (eve): (860)536-7668
FAX: (860)536-7668
Email: whittboat@copmcast.net
Appt Confirmed 2/21/06
Appt Reconfirmed 5/10
Confirmed Interest: 9/3/15

Vacancy (comm pot)

New York (2)
George Doll (comm/inshore pot)
70 Seaview Avenue
Northport, New York 11768
Phone: (631)261-1407
FAX: (631)261-1407
Appt. Confirmed: 11/29/00
Appt. Reconfirmed 1/23/06
Appt Reconfirmed 5/10
Confirmed Interest: 8/31/15

James Fox (comm/pot)
160 Highland Drive
Kings Park, NY 11754
Phone: (631)361-7995
Email: jcfox@erols.com
Appt. Confirmed: 10/16/01
Appt. Reconfirmed 1/23/06
Appt Reconfirmed 5/10
No response to inquiry on remaining on panel

New Jersey (2)
Jack Fullmer (rec)
443 Chesterfield-Arneytown Road
Allentown, NJ 08501
Phone: (609) 298 - 3182
Appt Confirmed 2/21/06
Appt Reconfirmed 5/17/10
Confirmed Interest: 8/28/15

John Godwin (processor)
1 Saint Louis Avenue
Point Pleasant Beach, NJ 08742
Phone: 732.245.0148
FAX: 732.892.3928
pointlobster@aol.com

ATLANTIC STATES MARINE FISHERIES COMMISSION

Advisory Panel Nomination Form

This form is designed to help nominate Advisors to the Commission's Species Advisory Panels. The information on the returned form will be provided to the Commission's relevant species management board or section. Please answer the questions in the categories (All Nominees, Commercial Fisherman, Charter/Headboat Captain, Recreational Fisherman, Dealer/Processor, or Other Interested Parties) that pertain to the nominee's experience. If the nominee fits into more than one category, answer the questions for all categories that fit the situation. **Also, please fill in the sections which pertain to All Nominees (pages 1 and 2). In addition, nominee signatures are required to verify the provided information (page 4), and Commissioner signatures are requested to verify Commissioner consensus (page 4). Please print and use a black pen.**

Form submitted by: Daniel J. McKiernan (your name) State: MA

Name of Nominee: Grant Moore

Address: 4 Gooseberry Farms Lane

City, State, Zip: Westport, MA 02790

Please provide the appropriate numbers where the nominee can be reached:

Phone (day): 508-971-2190 Phone (evening): 508-636-6248

FAX: 508-636-5789 Email: grantmoore55@gmail.com

FOR ALL NOMINEES:

1. Please list, in order of preference, the Advisory Panel for which you are nominating the above person.
   1. American Lobster
   2. _____
   3. _____
   4. _____

2. Has the nominee been found in violation of criminal or civil federal fishery law or regulation or convicted of any felony or crime over the last three years?

   yes _____ no ✓

3. Is the nominee a member of any fishermen's organizations or clubs?

   yes ✓ no _____

   If "yes," please list them below by name.

Atlantic Offshore Lobstermens Association

Mass Lobstermen's Association

4. What kinds (species) of fish and/or shellfish has the nominee fished for during the past year?

Lobster

CRAB

5. What kinds (species) of fish and/or shellfish has the nominee fished for in the past?

Lobster

Scallop

Cod, Haddock, Cusk, Hake

Swordfish

Tuna

FOR COMMERCIAL FISHERMEN:

1. How many years has the nominee been the commercial fishing business? 40 years
2. Is the nominee employed only in commercial fishing? yes ✓ no
3. What is the predominant gear type used by the nominee? TRAPS
4. What is the predominant geographic area fished by the nominee (i.e., inshore, offshore)? Offshore

FOR CHARTER/HEADBOAT CAPTAINS:

1. How long has the nominee been employed in the charter/headboat business? _____ years
2. Is the nominee employed only in the charter/headboat industry? yes _____ no _____

   If "no," please list other type(s)of business(es) and/occupation(s):

3. How many years has the nominee lived in the home port community? _____ years

   If less than five years, please indicate the nominee's previous home port community.

FOR RECREATIONAL FISHERMEN:

1. How long has the nominee engaged in recreational fishing? _____ years

2. Is the nominee working, or has the nominee ever worked in any area related to the fishing industry? yes _____ no _____

   If "yes," please explain.

_____

_____

_____

FOR SEAFOOD PROCESSORS & DEALERS:

1. How long has the nominee been employed in the business of seafood processing/dealing? _____years

2. Is the nominee employed only in the business of seafood processing/dealing?

   yes _____ no _____ If "no," please list other type(s) of business(es) and/or occupation(s):

_____

_____

_____

3. How many years has the nominee lived in the home port community? _____ years

   If less than five years, please indicate the nominee's previous home port community.

_____

FOR OTHER INTERESTED PARTIES:

1. How long has the nominee been interested in fishing and/or fisheries management? _____ years

2. Is the nominee employed in the fishing business or the field of fisheries management? yes _____ no _____

   If "no," please list other type(s) of business(es) and/or occupation(s):

_____

_____

_____

FOR ALL NOMINEES:

In the space provided below, please provide the Commission with any additional information which you feel would assist us in making choosing new Advisors. You may use as many pages as needed.

I feel that I can bring experience to the AP when dealing with the offshore lobster fishery

Nominee Signature: J. Grant Moore Date: 9/15/15

Name: GRANT Moore
(please print)

COMMISSIONERS SIGN-OFF (not required for non-traditional stakeholders)

Daniel J McKiernan for David Pierce
State Director State Legislator

Governor's Appointee

ATLANTIC STATES MARINE FISHERIES COMMISSION

Advisory Panel Nomination Form

This form is designed to help nominate Advisors to the Commission's Species Advisory Panels. The information on the returned form will be provided to the Commission's relevant species management board or section. Please answer the questions in the categories (All Nominees, Commercial Fisherman, Charter/Headboat Captain, Recreational Fisherman, Dealer/Processor, or Other Interested Parties) that pertain to the nominee's experience. If the nominee fits into more than one category, answer the questions for all categories that fit the situation. **Also, please fill in the sections which pertain to All Nominees (pages 1 and 2). In addition, nominee signatures are required to verify the provided information (page 4), and Commissioner signatures are requested to verify Commissioner consensus (page 4). Please print and use a black pen.**

Form submitted by: Peter Clarke State: NJ
(your name)

Name of Nominee: John Godwin

Address: 1 Saint Louis Avenue

City, State, Zip: Point Pleasant Beach, NJ 08742

Please provide the appropriate numbers where the nominee can be reached:

Phone (day): 732-245-0148 Phone (evening): 732-245-0148

FAX: 732-892-3928 Email: pointlobster@aol.com

FOR ALL NOMINEES:

1. Please list, in order of preference, the Advisory Panel for which you are nominating the above person.
   1. American Lobster AP
   2. _____
   3. _____
   4. _____

2. Has the nominee been found in violation of criminal or civil federal fishery law or regulation or convicted of any felony or crime over the last three years?

   yes _____ no X

3. Is the nominee a member of any fishermen's organizations or clubs?

   yes _____ no X

   If "yes," please list them below by name.

4. What kinds (species) of fish and/or shellfish has the nominee fished for during the past year?

Am. lobster	Scallops
Jonah Crab	Black Sea Bass
Oysters	Ling/Whiting

5. What kinds (species) of fish and/or shellfish has the nominee fished for in the past?

Am. lobster	Scallops
Jonah Crab	Black Sea Bass
Oysters	Ling/Whiting

FOR COMMERCIAL FISHERMEN:

1. How many years has the nominee been the commercial fishing business? 23 years
2. Is the nominee employed only in commercial fishing? yes X no_____
3. What is the predominant gear type used by the nominee? Lobster Dealer
4. What is the predominant geographic area fished by the nominee (i.e., inshore, offshore)? All of LCMA 4

FOR CHARTER/HEADBOAT CAPTAINS:

1. How long has the nominee been employed in the charter/headboat business? _____ years
2. Is the nominee employed only in the charter/headboat industry? yes _____ no_____

   If "no," please list other type(s)of business(es) and/occupation(s):_____

3. How many years has the nominee lived in the home port community? _____ years

   If less than five years, please indicate the nominee's previous home port community.

FOR RECREATIONAL FISHERMEN:

1. How long has the nominee engaged in recreational fishing? _____ years

2. Is the nominee working, or has the nominee ever worked in any area related to the fishing industry? yes _____ no _____

   If "yes," please explain.

_____

_____

_____

FOR SEAFOOD PROCESSORS & DEALERS:

1. How long has the nominee been employed in the business of seafood processing/dealing?
   23 years

2. Is the nominee employed only in the business of seafood processing/dealing?

   yes x no _____ If "no," please list other type(s) of business(es) and/or occupation(s):

_____

_____

_____

3. How many years has the nominee lived in the home port community? 41 years

   If less than five years, please indicate the nominee's previous home port community.

_____

FOR OTHER INTERESTED PARTIES:

1. How long has the nominee been interested in fishing and/or fisheries management? _____ years

2. Is the nominee employed in the fishing business or the field of fisheries management?
   yes _____ no x

   If "no," please list other type(s) of business(es) and/or occupation(s):

_____

_____

_____

FOR ALL NOMINEES:

In the space provided below, please provide the Commission with any additional information which you feel would assist us in making choosing new Advisors. You may use as many pages as needed.

As co-owner of the largest single American lobster processor from NY through North Carolina, Point Lobster Company has been in operation since 1981 and has been family owned and operated since incorporation. Annually, Point Lobster handles roughly one million pounds of both NJ harvested product as well as other domestic imported product. Mr. Godwin has a comprehensive view of all sides of the lobster industry including harvesting, wholesale, and retail.

Nominee Signature: _____ Date: 9/14/15

Name: John Godwin
(please print)

COMMISSIONERS SIGN-OFF (not required for non-traditional stakeholders)

Brian Nafflin for Dave Chanda
State Director

State Legislator

Governor's Appointee

Atlantic States Marine Fisheries Commission

ISSUES AND OPTIONS (v2)
UNDERDEVELOPMENT AND CONSIDERATION FOR AMENDMENT 3 TO THE INTERSATE FISHERY MANAGEMENT PLAN FOR ATLANTIC HERRING

Prepared by:

The Atlantic Herring Plan Development Team

Ashton Harp, Chair, Atlantic States Marine Fisheries Commission
Renee Zobel, New Hampshire Fish and Game
Dr. Matthew Cieri, Maine Department of Marine Resources
Micah Dean, Massachusetts Division of Marine Fisheries
Dr. Madeline Hall-Arber, MIT Sea Grant
Lori Steele, New England Fisheries Management Council

This draft document was developed for the Atlantic Herring Section's review and discussion during the

ASMFC Vision: Sustainably Managing Atlantic Coastal Fisheries

November 2015 ASMFC meeting week. It is not intended to solicit public comment as part of the Commission/State formal public input process. However, comments will be accepted at the appropriate time during the Section's meeting. Also, as this document is further developed into the Draft Amendment 3 for Public Comment and if it is approved, a public comment period will be established to solicit input on the issues contained in the document.

EXECUTIVE SUMMARY

The executive summary highlights all of the sections of Draft Amendment 3 that contain a management decision. The summary is intended to be a shortened version of the document that will be distributed at public hearings. Draft Amendment 3 in its entirety will be presented at the Winter Section meeting.

1.0 INTRODUCTION

The Atlantic States Marine fisheries Commission (ASMFC) is developing an amendment to its Interstate Fishery Management Plan (FMP) for Atlantic Herring (*Clupea harengus*) under the authority of the Atlantic Coastal Fisheries Cooperative Management Act (ACFMA). The U.S. Atlantic herring fishery is currently managed as a single stock through complementary plans by the Atlantic States Marine Fisheries Commission (ASMFC) and New England Fishery Management Council (NEFMC). ASMFC has coordinated interstate management of Atlantic herring in state waters (0-3 miles) since 1993—currently managed under Amendment 2 and Addenda I-VI to the ASMFC Fishery Management Plan (FMP). Management authority in the exclusive economic zone (EEZ, 3-200 miles from shore) lies with the New England Fishery Management Council (NEFMC) and NOAA Fisheries. Based on the 2015 Operational (Update) Assessment, Atlantic herring is currently not overfished and overfishing is not occurring.

1.1 Statement of the Problem

While Atlantic herring reproduce in the same general season each year, the onset, peak and duration of spawning may vary by several weeks annually (Winters and Wheeler, 1996) due to changing oceanographic conditions (e.g., temperature, plankton availability, etc.). In an effort to protect the integrity of the spawning stock and allow for increased recruitment, the ASMFC developed a system of seasonal spawning closures that accounted for this interannual variability in spawning time. However, at the time of development in the early 1990s, limited data were available to derive the critical parameters of the spawning closure system which is based on the female gonadal somatic index (GSI). Given concerns over the adequacy of the system to protect spawning fish in the areas they spawn, the Commission initiated the development of Draft Amendment 3 to the Interstate Atlantic Herring Fishery Management Plan (FMP).

The current monitoring system uses samples collected from the commercial fishery, which is dependent on interactions with spawning fish. Samples from Maine and Massachusetts are analyzed separately, and sometimes contain too few fish to confidently characterize spawning stages. The current population of herring is quite different today as the stock has rebuilt, and there is a broader range of age classes with older and larger fish compared to the stock during overfished conditions. Given a broad range of age classes, fish arrive at the spawning grounds at a different times (larger fish can swim faster and arrive earlier than smaller fish). There is evidence to support modifications to the spawning monitoring program will more adequately protect spawning fish in the areas where they spawn.

At the request of the fishing industry, Draft Amendment 3 also includes options to remove the fixed gear set-aside provision. Currently, the set-aside of 295 mt is available to fixed gear fishermen up to November 1, after which the remaining set-aside becomes available to the rest of the Area 1A fishery. The November 1 date was set because, typically, herring have migrated out

of the Gulf of Maine by that time of the year. Anecdotal evidence suggest herring are in the Gulf of Maine after November 1, therefore fixed gear fishermen requested the set-aside be available to them for the remainder of the calendar year.

Members of industry also suggested a requirement for fish holds to be empty of fish prior to trip departures. This provision would encourage less wasteful fishing practices by creating an incentive to catch amounts of herring as demanded by markets. The New England Fishery Management Council included a complementary provision in its Framework Adjustment 4 to the federal Atlantic Herring FMP.

2.0 SPAWNING AREA EFFICACY

2.1 Spawning Area Closure Monitoring System

The PDT conducted a review of scientific literature and analyzed GSI data for a decade to inform an updated GSI-based spawning monitoring system (see Appendix 1. *Technical Report on Atlantic Herring GSI-Based Spawning Monitoring Program*). Currently GSI samples are obtained directly from the commercial herring fishery, however it is not always possible to collect sufficient data to inform the start of the spawning closure, therefore a system that forecasts closure dates is recommended by the PDT (Option C).

Option A. Status Quo

Closures in a given area will begin based on the spawning condition of Atlantic herring as determined from commercial catch samples. Commercial catch sampling shall begin by at least August 1 for the Eastern and Western Maine areas, and by at least September 1 for the Massachusetts/New Hampshire area. If sufficient samples are not available, closures will begin on the default dates.

Sufficient sample information shall mean at least two (2) samples of 100 fish or more, in either length category, taken from commercial catches during a period not to exceed seven days apart.

Closures in a given area will begin seven days after the determination that female herring in ICNAF gonadal stages III - V from that specific area have reached the following spawning conditions: female herring greater than 28 cm in length have reached a mean gonadosomatic index (GSI) of 20%; or female herring greater than or equal to 23 cm and less than 28 cm in length have reached a mean GSI of 15%.

Length refers to the mean natural total length, measured from the tip of the snout to the end of the caudal fin in normal position. “GSI” shall mean gonadosomatic index calculated by the following formula. Length refers to the mean natural total length, measured from the tip of the snout to the end of the caudal fin in normal position. “GSI” shall mean gonadosomatic index calculated by the following formula:

GSI = [Gonad Weight / (Total Body Weight - Gonad Weight)] x 100 percent.

Option B. Status Quo with Adjustments (new verbiage is underlined)
Closures in a given area will begin based on the spawning condition of Atlantic herring as determined from fishery dependent or independent samples. Sampling shall begin by at least August 1 for the Eastern and Western Maine areas, and by at least September 1 for the Massachusetts/New Hampshire area. If sufficient samples are not available, closures will begin on the default dates.

Sufficient sample information shall mean at least two (2) samples of 100 fish or more, in either length category, taken from fishery dependent or independent source within a spawning closure area by Maine, New Hampshire or Massachusetts. The fishery will remain open if sufficient samples are available, but they do not contain female herring in ICNAF gonadal stages III – V.

Closures in a given area will begin seven days after the determination that female herring in ICNAF gonadal stages III - V from that specific area have reached the following spawning conditions: female herring greater than 28 cm in length have reached a mean gonadosomatic index (GSI) of 20%; or female herring greater than or equal to 23 cm and less than 28 cm in length have reached a mean GSI of 15%.

Length refers to the mean natural total length, measured from the tip of the snout to the end of the caudal fin in normal position. "GSI" shall mean gonadosomatic index calculated by the following formula. Length refers to the mean natural total length, measured from the tip of the snout to the end of the caudal fin in normal position. "GSI" shall mean gonadosomatic index calculated by the following formula:

GSI = [Gonad Weight / (Total Body Weight - Gonad Weight)] x 100 percent.

Option C: GSI_{30}-Based Forecast System
Closure date for a spawning area will be projected based on a minimum of three (3) fishery dependent or independent samples, each containing at least 25 female herring in ICNAF gonadal stages III-V. Because larger herring spawn first, female GSI values will be standardized to that of a 30 cm fish, (95th percentile of observed female herring lengths) using the following formula:

$$GSI_{30} = GSI_{obs} + 1.84 * (30 - TL_{cm})$$

When a significant positive relationship is detected between GSI_{30} and date, the slope of this line will be used to forecast a closure date. The forecasted closure date will be the day where GSI_{30} is projected to exceed the selected trigger value. As additional samples are collected, the forecast will be updated and fine-tuned. Once the forecasted date is within 5 days, the spawning closure will be announced. If no significant increase in GSI_{30} is detected prior to the default closure date, the default closure date would apply.

GSI_{30} Trigger Value: Spawning occurs at the completion of maturity stage V. Therefore, a point near the high end of observed GSI values for stage V fish should be used as the trigger. A higher value closes the fishery later and just prior to spawning, whereas a lower value provides additional protection for maturing fish.

70th Percentile : GSI_{30} Trigger = 23
Closes the fishery at an earlier date to provide more protection for maturing fish, but may not provide complete protection for spawning fish.

80th Percentile: GSI_{30} Trigger = 25
Closes the fishery in the later stages of maturity, but before spawning.

90th Percentile: GSI_{30} Trigger= 28
Closes the fishery just prior to spawning.

2.2 Default Closure Dates

The PDT recommends adjusting the method for triggering a closure in a spawning area. Because all GSI samples are obtained directly from the commercial herring fishery, it is not always possible to collect sufficient data to inform the start of the spawning closure. As such, default closure dates were established for each of three spawning areas with a presumed general north-south progression of spawning.

Analysis of GSI data from 2004-2013 suggests onset of spawning can vary by five or more weeks from year to year. This observation is corroborated by scientific studies on herring spawning times (Boyar 1968; Grimm 1983; Stevenson 1989; Winters and Wheeler 1996). Median trigger dates were calculated for the period 2004-2013 using the formula and trigger values described under Issue 1.1 Option C. In other words, Sub-Options B1-B3 represent the average date that trigger would have been reached in previous years. Insufficient data were available for the Eastern Maine area, so a value derived from literature sources (Stephenson 1989) is used for all options other than the status quo for the Eastern Maine area.

Option A: Status Quo
If sufficient samples are not available, closures will begin on the following dates.

Eastern Maine Spawning Area:	August 15
Western Main Spawning Area:	September 1
Massachusetts/New Hampshire Spawning Area:	September 21

Option B: Default Dates Associated with GSI_{30} Trigger Values
If sufficient samples are not available, closures will begin on the following dates associated with the respective GSI_{30} trigger value.

- **Sub-Option B1: 70th Percentile (GSI_{30} Trigger = 23)**
  Closes the fishery at an earlier date to provide more protection for maturing fish, but may not provide complete protection for spawning fish.

Eastern Maine Spawning Area:	August 28
Western Maine Spawning Area:	September 25
Massachusetts/New Hampshire Spawning Area:	September 25
Tri-State (WM-MA/NH) Spawning Area*:	September 25

- **Sub-Option B2: 80th Percentile (GSI_{30} Trigger = 25)**
  Closes the fishery in the later stages of maturity, but before spawning.

Eastern Maine Spawning Area:	August 28
Western Maine Spawning Area:	October 4
Massachusetts/New Hampshire Spawning Area:	October 4
Tri-State (WM-MA/NH) Spawning Area*:	October 4

- **Sub-Option B3: 90th Percentile (GSI_{30} Trigger = 28)**
  Closes the fishery just prior to spawning.

Eastern Maine Spawning Area:	August 28
Western Maine Spawning Area:	October 17
Massachusetts/New Hampshire Spawning Area:	October 17
Tri-State (WM-MA/NH) Spawning Area*:	October 17

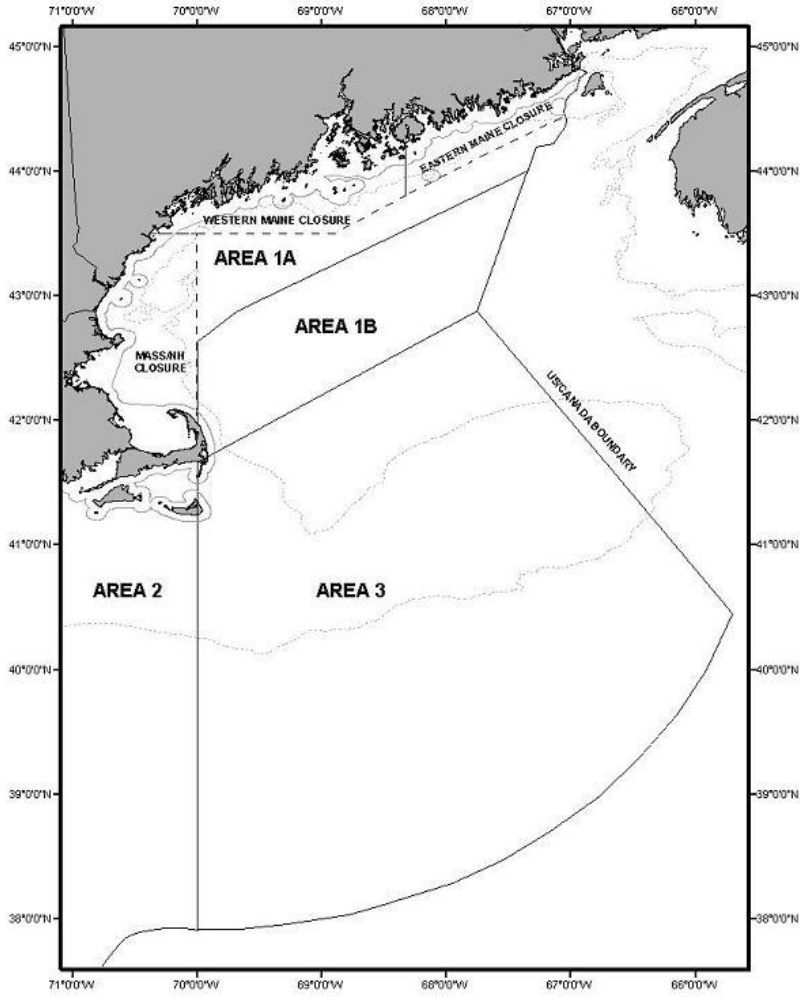
**Tri-State Spawning Area options if Option 2.3 B is selected.*

2.3 Spawning Area Boundaries

The PDT evaluated 1) sub-dividing MA/NH, and 2) combining Western Maine and MA/NH. Anecdotal reports from industry suggested there was variation in the spawning season within the MA/NH area (i.e., spawning occurs earlier to the north). A potential alternative to sub-divide the MA/NH area was initially proposed. However, upon review of the GSI data from both the Massachusetts Division of Marine Fisheries and Maine Division of Marine Resources sampling programs, this does not appear to be the case. In fact, both programs track each other well and the combined dataset appears well-suited to continue to inform the initiation of the MA/NH spawning closure. Therefore, the PDT has found the current spawning area boundaries within MA/NH are adequate and further sub-areas are not warranted.

Additionally, there is no significant difference in the spawning onset times in the Western Maine and MA/NH area after adjusting to a standard 30 cm fish, which leads the PDT to recommend merging these two areas into one to increase the number of samples available to inform spawning closures (Option B).

Figure 1. ASMFC Atlantic Herring Spawning Areas



Option A. Status Quo
Maintain the spawning area boundaries (figure 1):

Eastern Maine Spawning Area
All waters bounded by the following coordinates:

Maine coast 68° 20' W
43° 48' N 68° 20' W
44° 25' N 67° 03' W
North along US/Canada border

Western Maine Spawning Area
All waters bounded by the following coordinates:

43° 30' N Maine coast
43° 30' N 68° 54.5' W
43° 48' N 68° 20' W
North to Maine coast at 68° 20' W

Massachusetts/New Hampshire Spawning Area
All waters bounded by the Massachusetts, New Hampshire and Maine coasts, and 43° 30' N and 70° 00' W

Option B. Update Spawning Areas: Combine the WM and MA/NH spawning areas, resulting in two spawning areas.
Eastern Maine Spawning Area
All waters bounded by the following coordinates:

Maine coast 68° 20' W
43° 48' N 68° 20' W
44° 25' N 67° 03' W
North along US/Canada border

Tri-State (WM-MA-NH)
All waters bounded by the Massachusetts, New Hampshire and Maine coasts, and:

Cape Cod north to 43° 30' N and 70° 00' W
43° 30' N 68° 54.5' W
43° 48' N 68° 20' W
North to Maine coast at 68° 20' W

2.4 Spawning Closure Period

It has become evident the current GSI observations are not particularly useful for describing the duration of the spawning period, because fishery-dependent (or commercial catch) samples are not available after the start of the closure. Several earlier studies in the GOM concur that the typical duration of herring spawning within a particular area is approximately 40 days. It is fairly common to find spawning herring in fishery samples after the initial four week closure. Therefore, it appears the current 4-week closure period is inadequate given the goals and objectives of this management action. Increasing to a 6-week closure (42 days) would provide a better match for the available information on the duration of GOM herring spawning.

Analysis of GSI data from 2004-2013 suggest larger fish spawn earlier than smaller fish. This finding is corroborated by studies documenting a size-dependent maturation process (Boyar 1968; Ware and Tanasichuk, 1989; Oskarsson et al., 2002; Slotte et al., 2000). As the age structure of the herring resource expands with the recovery, it is possible spawning events will lengthen.

CLOSURE PERIOD

Option A: Status Quo

By default, all spawning closures in all spawning areas selected under Issue 2.2 will last four (4) weeks.

Option B: Six Week Spawning Closure

By default, all spawning closures in all spawning areas selected under Issue 2.2 will last six (6) weeks.

RE-CLOSURE PROTOCOL

Option A: Status Quo

Catch sampling of the fishery will resume at the end of the initial four-week closure period. If catch sampling indicates significant numbers of spawn herring are still being harvested, closures will resume for an additional two weeks. Significant numbers of spawn herring is defined as 25% or more mature herring, by number in a catch sample, have yet to spawn. Mature or "spawn" herring are defined as Atlantic herring in ICNAF gonadal stages V and VI.

Option B: Defined Protocol

Sampling will resume in the final week of the initial closure period or at the end of the initial closure period. If one (1) sample taken from within a spawning closure area, by Maine, New Hampshire or Massachusetts, indicates significant numbers of spawn herring then closures will resume for an additional two (2) weeks. Significant numbers of spawn herring is defined as 25% or more mature herring, by number in a sample, have yet to spawn. Mature or "spawn" herring are defined as Atlantic herring in ICNAF gonadal stages V and VI. Sample is defined as a minimum of 100 randomly selected adult sized fish from a fishery dependent or independent source.

Option C: No Re-Closure Protocol

Samples will not be collected at the end of an initial closure period to inform the possibility of a re-closure.

3.0 FIXED GEAR SET-ASIDE PROVISION ADJUSTMENT

In recent years, Atlantic herring has been known to occur along the mid-coast of Maine through November. Fixed-gear fishermen have requested to remove the rollover date, thereby maintaining access to a dedicated quota for the fixed gear fishery after November 1. Fishermen expect a demand for bait in the lobster fishery through end of the year.

Historically, the fish have migrated away from the Gulf of Maine coast by November. In the past decade, fixed gear landings have not fully utilized the set aside of 295 mt (e.g., utilization over a 10-year average is 197.4 mt, or 67% of the set-aside) and landings after November 1 have been 0 mt since 1993.

The PDT noted, should fixed-gear fishermen exceed the 295 mt set-aside, they have access to the total Area 1A sub-quota. There is no biological basis for or against adjusting the rollover provision of the fixed-gear set aside, but there may be socioeconomic reasons. In addition, if the rollover provision is changed then there will be inconsistent set aside measures between state and federal rules.

Table 1. Atlantic Herring Landings from Fixed Gear Fishery Before and After November 1 Rollover Date

Year	Sub-ACL Closure Date	Area 1A Sub-ACL (mt)	Cumulative Catch (mt) by Dec 31	Fixed Gear Landings (mt)	
				Jan-Oct	Nov-Dec
2004	11/19/2004	60,000	60,071	49	0
2005	12/2/2005	60,000	61,570	53	0
2006	10/21/2006	50,000	59,980	528	0
2007	10/25/2007	50,000	49,992	392	0
2008	11/14/2008	43,650	42,257	24	0
2009	11/26/2009	43,650	44,088	81	0
2010	11/17/2010	26,546	27,741	823	0
2011	10/27/2011	29,251	29,359	23	0
2012	11/5/2012	27,668	25,057	0	0
2013	10/15/2013	29,775	29,820	C	C
2014	10/26/2014	33,031	33,428	C	C

Note: "C" denotes that the value cannot be reported due to confidentiality.

Option A: Status Quo
The fixed gear set-aside will be available to fixed gear fishermen in Area 1A until November 1. If the set-aside has not been utilized by the fixed gear fisheries west of Cutler by November 1, it will then be made available to the remainder of the herring fleet fishing in Area 1A until the directed fishery in 1A closes. *Fixed gear fishermen can continue fishing and landings will count towards the Area 1A sub-quota.* If 92% of the Area 1A TAC has already been reached by November 1 (and the directed herring fishery in 1A is therefore closed), the set-aside will be released as part of the 5% set-aside for incidental catch in 1A (at a 2,000 lb trip limit).

Option B: Remove the rollover provision
The fixed gear set-aside will be available to fixed gear fishermen west of Cutler through December 31. When 92% of the Area 1A TAC has been reached, all directed Atlantic herring fisheries in Area 1A will closed. Unused portions of the fixed gear set-aside will not be rolled from one year to the next.

4.0 EMPTY FISH HOLD PROVISION

Currently, the interstate and federal Atlantic Herring FMPs do not require an empty fish hold prior to departing the dock. However, there is concern that unsold herring are dumped at sea if there is not enough market demand for the resource. Additionally, fish from multiple trips can be mixed if the holds are not completely emptied—this has the potential to compromise landings data used to inform harvest control measures and bycatch avoidance programs, particularly for river herring. Furthermore, leaving fish in the vessel's hold prevents portside samplers from observing the entirety of a trip.

The New England Fishery Management Council (NEFMC), in Draft Framework Adjustment 4, approved a requirement for vessel holds to be empty of fish prior to leaving a dock. The Council adopted Alternative 2.1.2, Alternative 2, Option C: a waiver may be issued for instances when there are fish in the holds after inspection by an appropriate law enforcement officer. This alternative would only apply to Category A and B boats. The intent is for waivers to be issued for refrigeration failure and non-marketable reported fish. Option B, below, matches the NEFMC preferred option. *This is currently a proposed rule to the federal FMP, if it does not become effective federally then states will be responsible for implementing the empty fish hold provision.*

Option A: Status Quo
No empty fish hold provision. There is no requirement to empty vessel holds of fish prior to a fishing trip departure.

Option B: Empty Fish Hold Provision *(The intent is to mirror the provision in the federal plan, contingent on federal adoption)*
This option would require that fish holds on Category A/B Atlantic herring vessels are empty of fish before leaving the dock on any trip when declared into the Atlantic herring fishery. A waiver may be issued for instances when there are fish in the hold after inspection by an appropriate law enforcement officer (the intent is for waivers to be issued for refrigeration failure and non-marketable fish that have been reported by the vessel). Only vessels departing on a fishing trip (i.e. declared into the fishery) are

required to have holds empty of fish. As such, waivers would not be required for vessels transporting fish from dock to dock. This option is contingent upon federal adoption.

Option C: Empty Fish Hold Provision *(This option is similar to Option B, with the additional underlined text, contingent on federal adoption)*
This option would require that fish holds on Category A/B Atlantic herring vessels with ability to pump fish are empty of fish before leaving the dock on any trip when declared into the Atlantic herring fishery. A waiver may be issued for instances when there are a pumpable quantity of fish in the hold as determined by an appropriate law enforcement officer (the intent is for waivers to be issued for refrigeration failure and non-marketable fish that have been reported by the vessel). Only vessels departing on a fishing trip (i.e. declared into the fishery) are required to have holds empty of fish. As such, waivers would not be required for vessels transporting fish from dock to dock. This option is contingent upon federal adoption.

Option D: Empty Fish Hold Provision *(The intent is to mirror the provision in the federal plan, not contingent on federal adoption)*
This option would require that fish holds on Category A/B Atlantic herring vessels are empty of fish before leaving the dock on any trip when declared into the Atlantic herring fishery. A waiver may be issued for instances when there are fish in the hold after inspection by an appropriate law enforcement officer (the intent is for waivers to be issued for refrigeration failure and non-marketable fish that have been reported by the vessel). Only vessels departing on a fishing trip (i.e. declared into the fishery) are required to have holds empty of fish. As such, waivers would not be required for vessels transporting fish from dock to dock.

Option E: Empty Fish Hold Provision *(This option is similar to Option B, with the additional underlined text, not contingent on federal adoption)*
This option would require that fish holds on Category A/B Atlantic herring vessels with ability to pump fish are empty of fish before leaving the dock on any trip when declared into the Atlantic herring fishery. A waiver may be issued for instances when there are a pumpable quantity of fish in the hold as determined by an appropriate law enforcement officer (the intent is for waivers to be issued for refrigeration failure and non-marketable fish that have been reported by the vessel). Only vessels departing on a fishing trip (i.e. declared into the fishery) are required to have holds empty of fish. As such, waivers would not be required for vessels transporting fish from dock to dock.

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Technical Report on Gonadal-Somatic Index-Based Monitoring System for Atlantic Herring Spawning Closures in US Waters

for Draft Amendment 3 to the Atlantic Herring Fishery Management Plan

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Introduction

While Atlantic herring reproduce in the same general season each year, the onset, peak and duration of spawning may vary by several weeks annually (Winters and Wheeler, 1996). It is believed that this behavioral plasticity is an evolutionary adaptation that takes advantage of optimal oceanographic conditions (e.g, temperature, plankton availability, etc.) to maximize offspring survival (Sinclair and Tremblay, 1984; Winters and Wheeler, 1996). In an effort to protect the integrity of the spawning stock and allow for increased recruitment, the ASMFC developed a system of seasonal spawning closures in the early 1990s that accounted for this interannual variability in spawning time. Historically, managers have focused on protecting the bulk of spawning during the fall season (August through October), but Atlantic herring are also known to spawn from late July through December. Acknowledging that macroscopic identification of the maturity stage of individual fish is a somewhat subjective process, the closure rule was based on a female gonadal somatic index (GSI), which is assumed to increase linearly as herring approach full maturity (Figures 1 and 2; Equation 1).

1) $GSI = 100 \times [W_{gonad}]/[W_{gonad}-W_{total}]$

At the time of the rule's creation, it was recognized that smaller herring generally have lower GSI values than larger herring (Figure 3). Consequently, separate triggers were established for two size classes: GSI = 15 for 23-27 cm; and GSI = 20 for 28+ cm. According to the closure rule, once two consecutive samples of herring achieve an average female GSI in excess of either trigger, the fishery closes for four weeks. Because all GSI samples are obtained directly from the commercial herring fishery, it is not always possible to collect sufficient data to inform the start

of the spawning closure. As such, default closure dates were established for each of three areas that presumed a general north-south progression of spawning (Table 1). Despite the design of the closure system, it is fairly common to find spawning herring in fishery samples after the closure. To counteract this, a closure extension rule was established that mandated a two-week

additional closure if fishery-dependent sampling revealed that greater than 25% of a post-closure sample contained fish in spawning condition (Stage V or VI).

When the rules were first established in the early 1990s, limited data were available to derive the critical parameters of the GSI-based spawning closure system (i.e., size categories; GSI triggers; default dates; closure duration). Given recent concerns over the adequacy of the system, which initiated the development of Draft Amendment 3 to the Interstate Atlantic Herring Fishery Management Plan (FMP), the Herring Plan Development Team felt that a re-examination of these parameters was warranted in light of an additional two decades worth of GSI sampling data.

Factors Affecting GSI

There is substantial variability in average GSI from one sample to the next, and it is often unclear whether this change is tracking the expected progression of gonad development of the population or is simply a function of the fish size, sample location, gear type, or year. The combined MADMF/MEDMR dataset of fishery-dependent samples includes 8,474 GSI observations (5,435 maturity observations) from 385 samples and covers three inshore spawning areas (Eastern Maine, Western Maine, Massachusetts-New Hampshire); three gear types (purse seine, midwater trawl, and bottom trawl); 15 years (1998-2013); three months (Aug-Oct); and 13 length bins (from 22 to 34 cm). Unfortunately, data are lacking for many factor level combinations (e.g., MWT samples are generally unavailable at the same time/area as other gear types), thereby preventing an analysis of the simultaneous influence of each factor on GSI/maturity using the full dataset. Nonetheless, we can evaluate the influence of several factors by examining a subset of the data. To this end, a generalized linear model (GLM) relating the GSI of female herring to a suite of factors (GSI ~ DAY + YEAR + LENGTH + AREA) was constructed using data from non-midwater trawl trips from the years 2004-2013.

Size

The current size-based closure system assumes that smaller herring achieve full maturity at a lower GSI than larger herring. While this has been demonstrated for the closely related Pacific herring (Ware and Tasanichuk, 1989), there is little evidence for such a relationship in our sample data (Figure 4). An alternative explanation for the observed size-GSI relationship (Figure 3) is a size-dependent arrival on the spawning ground (i.e., larger herring spawn earlier). This phenomenon had been documented in several other herring populations (Boyar 1968; Ware and Tanasichuk, 1989; Oskarsson et al., 2002; Slotte et al., 2000), and is believed to be related to a size-dependent maturation process (Ware and Tanasichuck, 1989), or swimming speed (i.e. larger herring arrive earlier to spawning grounds) (Slotte et al, 2000). Regardless, there is clear evidence of a decreasing average fish size as the spawning season progresses (Figure 5).

While it is true that smaller GOM herring generally have lower GSI than larger fish (at a given point in time), it is likely that all sizes achieve a similar maximum GSI, just at different times. As

expected, the GLM estimated a strong positive relationship between length and GSI (Table 2 - for every 1 cm increase in length, there is a corresponding increase in GSI of 1.84 points). This slope for the LENGTH parameter can be used to standardize GSI observations to a common herring size, thereby removing the influence of length from GSI sample data.

Year

The strongly significant year effect indicates that the GSI for a given length/date may shift by six (6) or more points from year to year (Table 3). This suggests that the onset of spawning can vary by five or more weeks, underscoring the need for a GSI-based monitoring system instead of fixed closure dates. Several other studies corroborate this level of interannual variability in spawning time (Boyar 1968; Grimm 1983; Stevenson 1989; Winters and Wheeler 1996).

Day

The slope of the DAY parameter (0.19) in the GLM model represents the rate at which GSI increases per day, after controlling for the effects of other factors. Theoretically, this rate could be used to forecast the date when GSI (after adjusting for LENGTH) exceeds a trigger value from a single sample of fish. However, there is likely some interannual variability in this rate, and it would be more prudent to use samples from within a season to estimate the slope of the DAY parameter to forecast a closure date.

Area

The Eastern Maine (EM) spawning area was identified as having a significantly higher GSI than the other two areas, meaning that spawning occurs earlier in EM than elsewhere. Interestingly, the Western Maine (WM) and Massachusetts-New Hampshire (MA-NH) spawning areas do not appear to have significantly different spawning times. This suggests that these two areas should have a similar default date, or could even be combined to increase the number of samples available for informing spawning closures. Several earlier studies describe the timing of herring spawning in the GOM through the use of fishery-dependent maturity data and direct observation of demersal egg beds (Table 3 - Boyar et al., 1973; Cooper et al., 1975; McCarthy et al., 1979; Stevenson 1989). While these investigations confirm an earlier spawning time in EM than in MA-NH, there is no historical evidence to inform the timing of spawning in the WM area.

Fishing Gear

An alternative GLM was attempted that included gear type (bottom trawl vs purse seine) as an additional predictor variable (GSI ~ DAY + YEAR + LENGTH + AREA + GEAR); While GEAR was a marginally significant predictor of GSI, this more saturated model did not improve fit to the data, as measured by the Bayesian Information Criterion (BIC). This suggests that it is appropriate to combine samples obtained from these gear types. It should be noted that midwater trawl samples were excluded from this analysis, as this gear rarely operates at the same

time/location as the other gears, preventing an objective determination of whether this gear type influences the GSI of a sample.

Proposed Changes to the Closure System

Given that larger herring spawn earlier, it makes sense to standardize GSI observations to a large size class (e.g., 30 cm – 95th percentile of observed lengths), so that the closure period is inclusive of most spawners. Therefore, the observed GSI of each individual fish should be adjusted using the formula (Formula 2), where *a* is the slope of the length parameter from the GLM (*a*=1.84) and *b* is the reference length class (*b*=30 cm):

2) $GSI_{30} = GSI_{obs} + a * (b - TL_{cm})$

Herring are determinate spawners, releasing all of their eggs in a single batch (Kurita and Kjesbu, 2008). Therefore, spawning can be considered imminent at the end of Stage V (i.e., full maturity). However, a range of GSI values has been observed within Stage V that likely represents the final progression of the maturity cycle (Figure 6). Therefore, a point near the high end of the distribution of Stage V GSI values could be considered a reasonable measure of the onset of spawning. Managers could select different points from this distribution as a trigger value, depending on their objectives or risk tolerance. A higher value would shift the fishery closure nearer to the expect onset of spawning, whereas a lower value would shift the closure earlier to provide more protection to pre-spawning fish.

Once the fishery-dependent sampling program has a sufficient number of samples (e.g., a minimum of three) with a significant positive slope to the GSI_{30}~DAY relationship (α= 0.05), a fishery closure date could be forecasted (i.e., the date when GSI_{30} exceeds $GSI_{trigger}$). This forecast could be updated as additional samples are acquired and an official closure date selected when the forecast is within a certain number of days (e.g., 5 days). If insufficient samples are available to predict the $GSI_{trigger}$ date prior to the default closure date, the default date would apply.

Using GSI sample data from previous seasons, we can estimate the date at which a $GSI_{trigger}$ would have been reached in each year (Figure 7). The average trigger date provides some representation of what an appropriate default closure date might be (Figure 8). Depending on the trigger value used, the average date for the MA-NH area is 4-24 days later than the most robust literature account for this area, which observed the arrival of herring egg beds on Jeffreys ledge between 1972 and 1978 (Table 3 – McCarthy et al., 1979). Most of the contemporary GSI sampling effort has been focused inshore of Jeffreys Ledge, suggesting spatial and/or interannual variation of spawning time within this area. Unfortunately, there are no literature sources available to inform the default date for Western Maine. The GLM model found no significant difference between the two areas; therefore, it appears reasonable to combine the two areas, increasing the number of samples available to inform a larger Tri-State (WM-MA-NH) spawning area (Table 2). With such few GSI samples available to describe the EM area, the historical

information of when herring eggs have been observed on lobster traps is likely more applicable for this area (Table 3 – Stevenson 1989).

Contemporary GSI observations are not particularly useful for describing the duration of the spawning period, because fishery-dependent samples are not available once the closure commences. However, several earlier studies in the GOM concur that the typical duration of herring spawning within a particular area is approximately 40 days (Table 3). Therefore, it appears the current 4-week closure period is inadequate and increasing to a 6-week closure (42 days) would provide a better match for the available information on the duration of GOM herring spawning.

By using the sequence of individual samples obtained in previous years, we can apply the proposed closure rules to simulate the performance of the forecasting algorithm. For example, in 2011 a September 11 closure would have been announced on September 6, assuming a choice was made to select a closure date at five days prior (Figure 9).

There are several benefits to the GSI-based closure system as outlined in this paper:

1) By providing a forecasted closure date once an increase in GSI_{30} is detected, all interested parties (samplers, managers, industry) will have advance notice as to when the spawning closure is likely to occur, allowing them to plan their activities accordingly.
2) Because the forecasting model uses the GSI information from all samples to project a closure date, there isn't pressure to obtain two consecutive samples just prior to spawning, a task that has proven difficult in many years. For this reason, default closure dates due to insufficient samples would occur less often.
3) Aligning the assumptions of the closure system with the current understanding of the reproductive ecology of herring will improve the accuracy of and maximize the effectiveness of spawning closures.
4) By directly taking into account the effect of length on GSI, perceived discrepancies between sampling programs (MADMF, MEDMR) can be reconciled.

Ideally, we would have GSI and maturity samples from before, during, and after the spawning season. This would provide a better idea of maximum GSI (i.e. appropriate trigger value), and how that coincides with the presence of Stage V (full maturity) and Stage VI (spawning) fish. Unfortunately, because the GSI-monitoring program is entirely fishery-dependent, there are essentially no samples available once the spawning closure begins. A directed fishery-independent effort to obtain herring samples during and after the closure could provide this information and be used to further refine the parameters of the closure system in the future.

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Table 1. Current default dates for herring spawning closures in the GOM

Spawning Closure Area	Default Closure Date
Eastern Maine (EM)	August 15th
Western Maine (WM)	September 1st
Massachusetts/New Hampshire (MA-NH)	September 21st

Table 2. Output from GLM (GSI ~ DAY + YEAR + LENGTH + AREA).

ANOVA Table:

	Df	Deviance	Resid. Df	Resid. Dev	F	Pr(>F)
NULL			4052	131631		
J	1	18802	4051	112829	1032.017	< 2.2e-16 ***
as.factor(YEAR)	9	4554	4042	108275	27.773	< 2.2e-16 ***
LENGTH	1	32700	4041	75575	1794.853	< 2.2e-16 ***
AREA	2	1990	4039	73585	54.627	< 2.2e-16 ***

Coefficients:

	Estimate	Std. Error
(Intercept)	-83.585212	1.949353
J	0.190262	0.005731
as.factor(YEAR)2005	1.514119	0.595370
as.factor(YEAR)2006	2.999203	0.673709
as.factor(YEAR)2007	1.297457	0.551941
as.factor(YEAR)2008	1.573861	0.630355
as.factor(YEAR)2009	1.881865	0.572551
as.factor(YEAR)2010	0.889922	0.591108
as.factor(YEAR)2011	6.144499	0.572099
as.factor(YEAR)2012	5.147404	0.576039
as.factor(YEAR)2013	5.373736	0.572403
LENGTH	1.838863	0.042996
AREAMA-NH	-2.504169	0.325561
AREAWME	-2.775418	0.265547

Table 3. Literature accounts of the timing and duration of herring spawning in the GOM.

Study	Years	Method	Area	Average First Spawning	Average Last Spawning	Average Season Length (days)
Boyar et al., 1973	1972	Maturity	MA-NH	Sep 10	Oct 20	40
Cooper et al., 1975	1974	Eggs (scuba)	MA-NH	Sep 29	Oct 25	26
McCarthy et al., 1979	1972-1978	Eggs (scuba, sub, grab)	MA-NH	Sep 20	Oct 30	40
Stevenson 1989	1983-1988	Eggs (lobster traps)	EM	Aug 28	Sep 20	40

Figure 1. Observed GSI of female herring by ICNAF maturity stage from 2013 fishery dependent samples from the MA-NH spawning area.

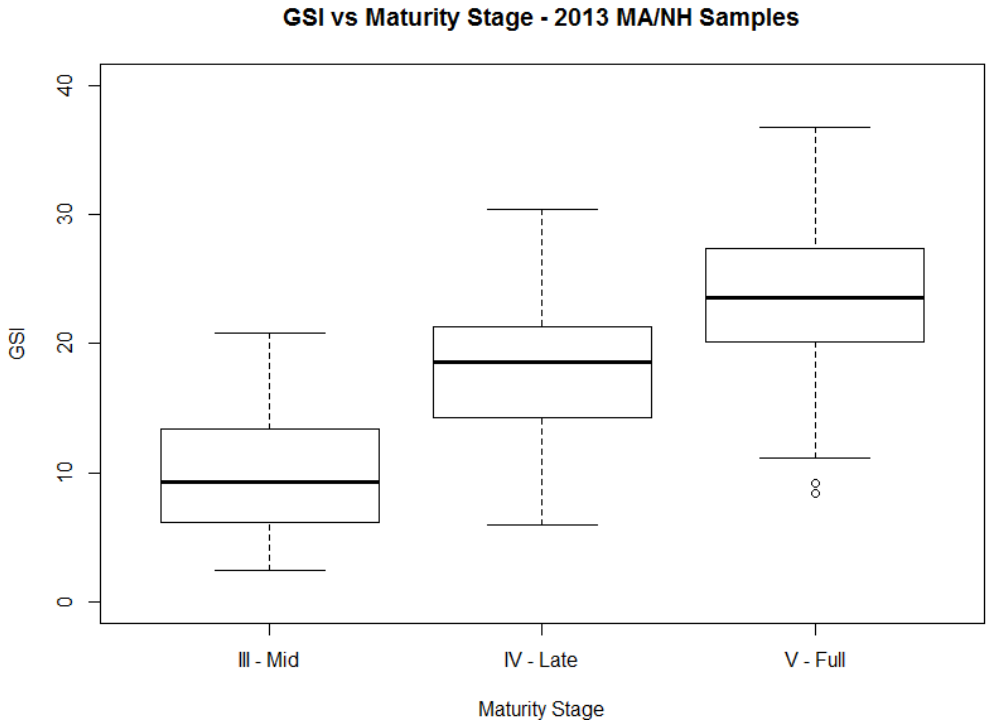


Figure 2. Female GSI by date from 2013 MA-NH samples. The red line indicates a significant positive linear relationship between GSI and sample date.

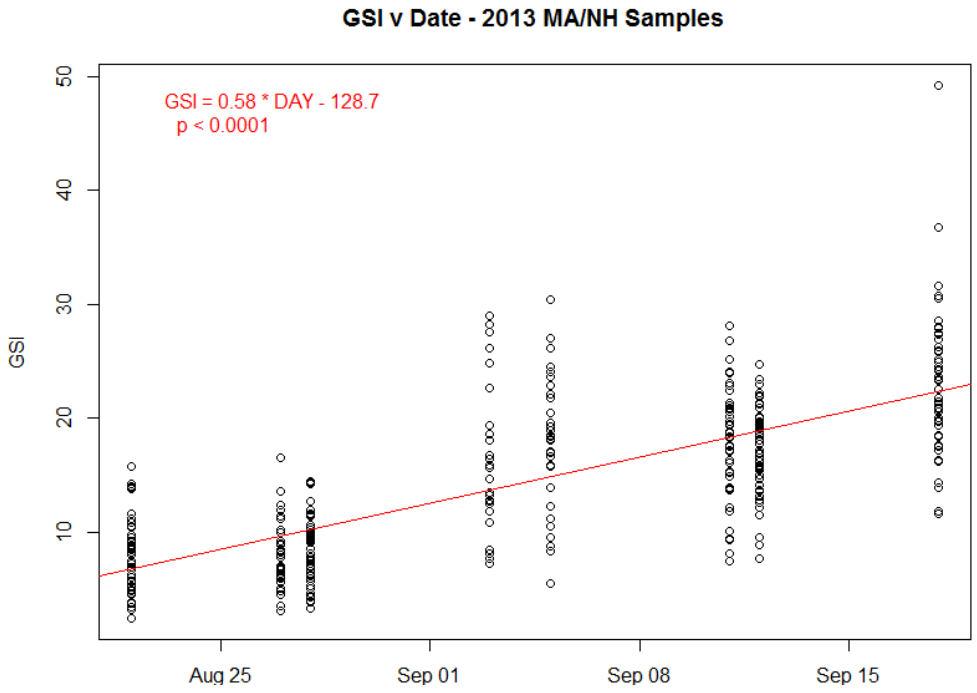


Figure 3. Boxplots of GSI by length bin from all sample data (based on total length).

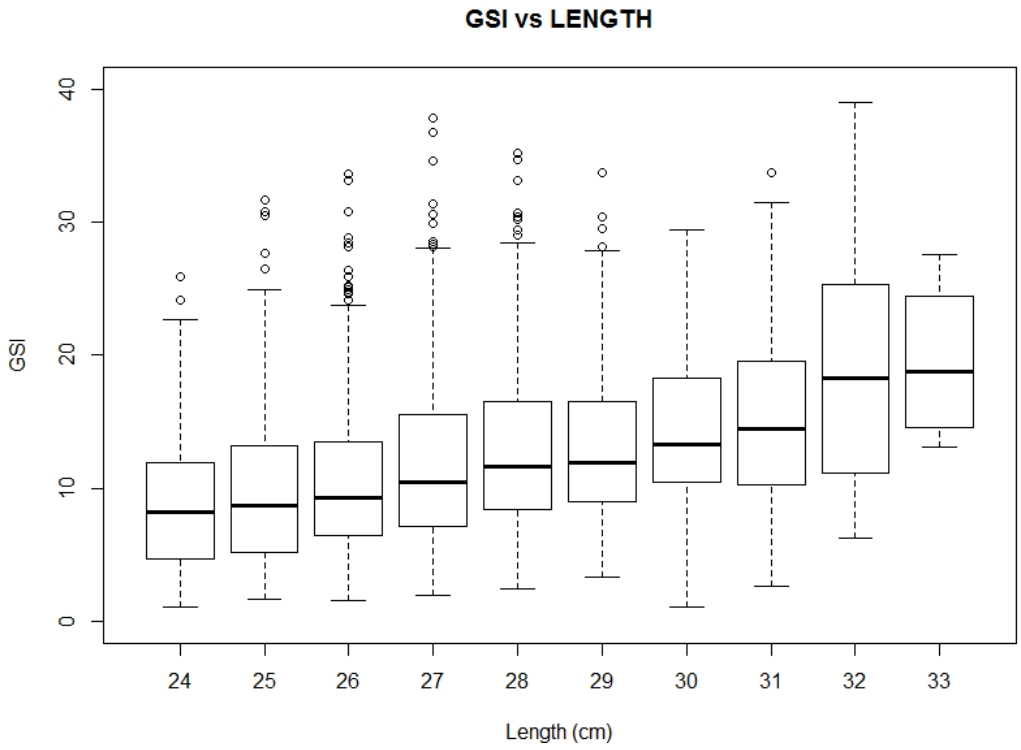


Figure 4. Boxplots of GSI at Stage V (full maturity) by length bin. The current size-based GSI triggers are shown in red (GSI = 15 for 24-27 cm; GSI = 20 for 28+ cm).

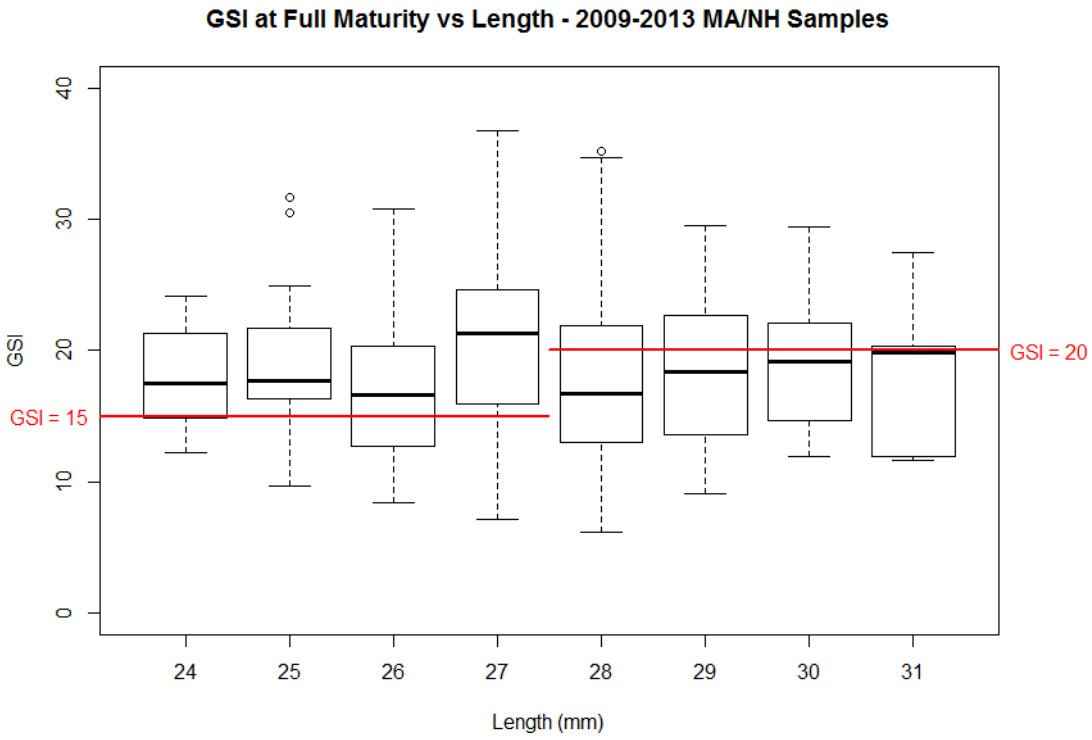


Figure 5. Observed fish length from MEDMR sampling of the MA-NH fishery in 2010. Note the significant decrease in observed fish length over the course of the season.

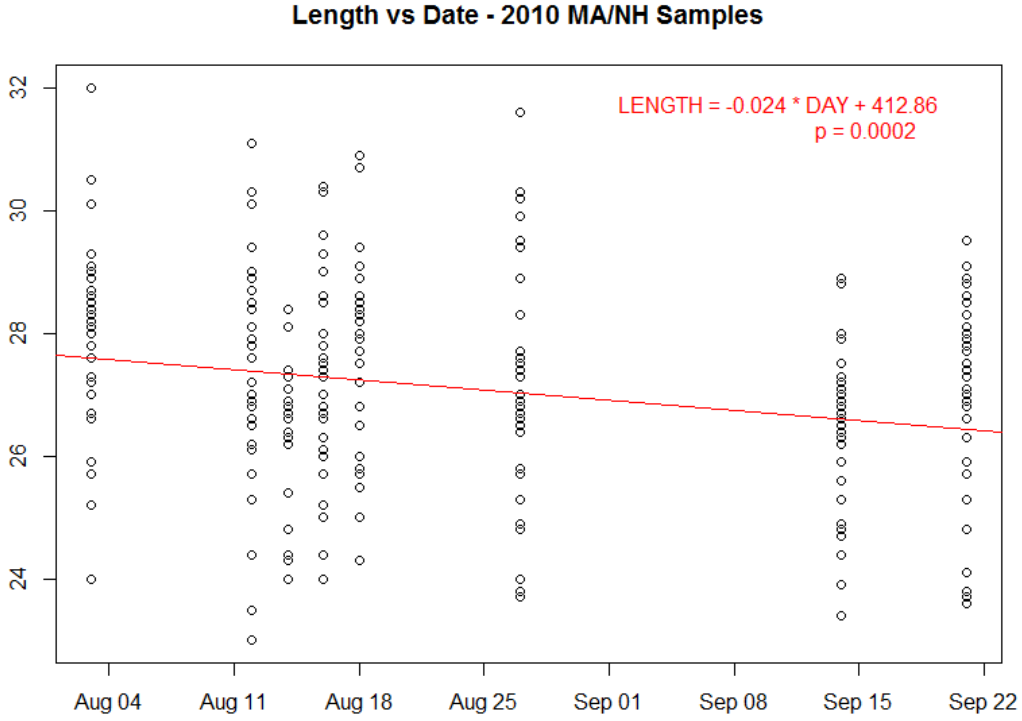


Figure 6. Distribution of GSI values for herring classified as Stage V (full maturity). The GSI value at a series of quantiles are shown in red.

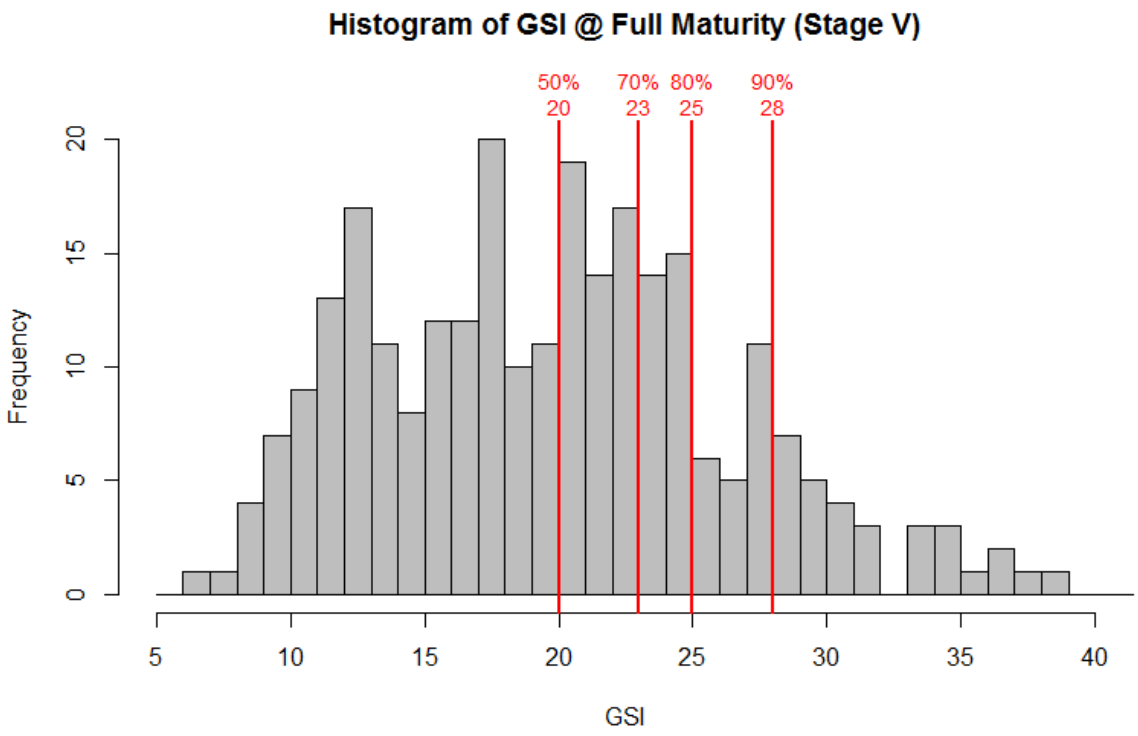


Figure 7. Forecasted dates when GSI_{30} exceeded a range of $GSI_{trigger}$ values for sample data from the Western Maine (WM) and Massachusetts-New Hampshire (MA-NH) spawning areas combined. A diagonal line represents a significant linear relationship between GSI_{30} and sample date. Gray points with error bars represent the mean GSI_{30} per sample +/- 2 standard errors.

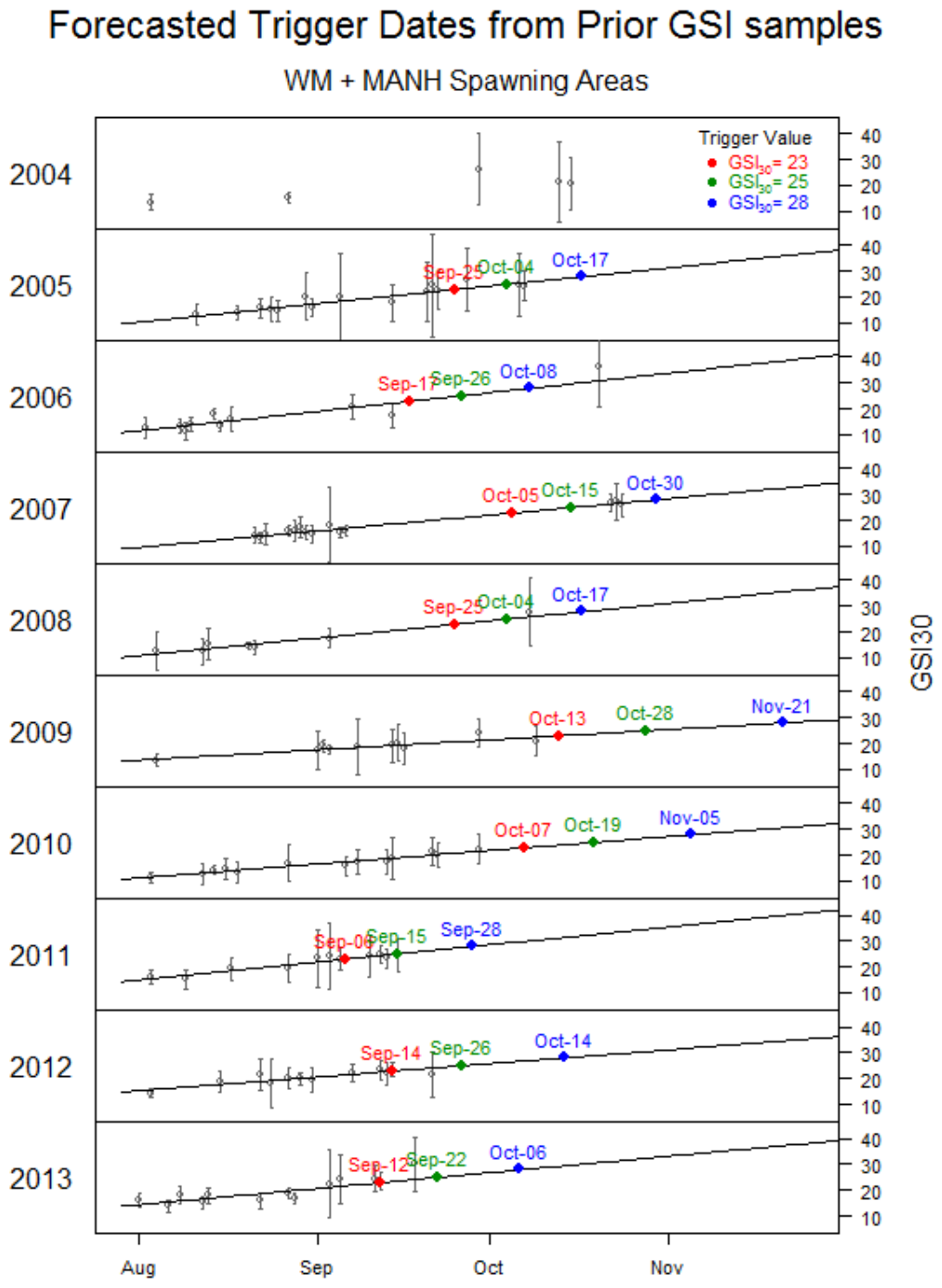


Figure 8. Boxplots of forecasted trigger dates for the WM and MA-NH spawning area combined (same data from Figure 7). The median date for each trigger value is labeled and could be used to set a default closure date for when sufficient samples are unavailable to forecast a trigger date.

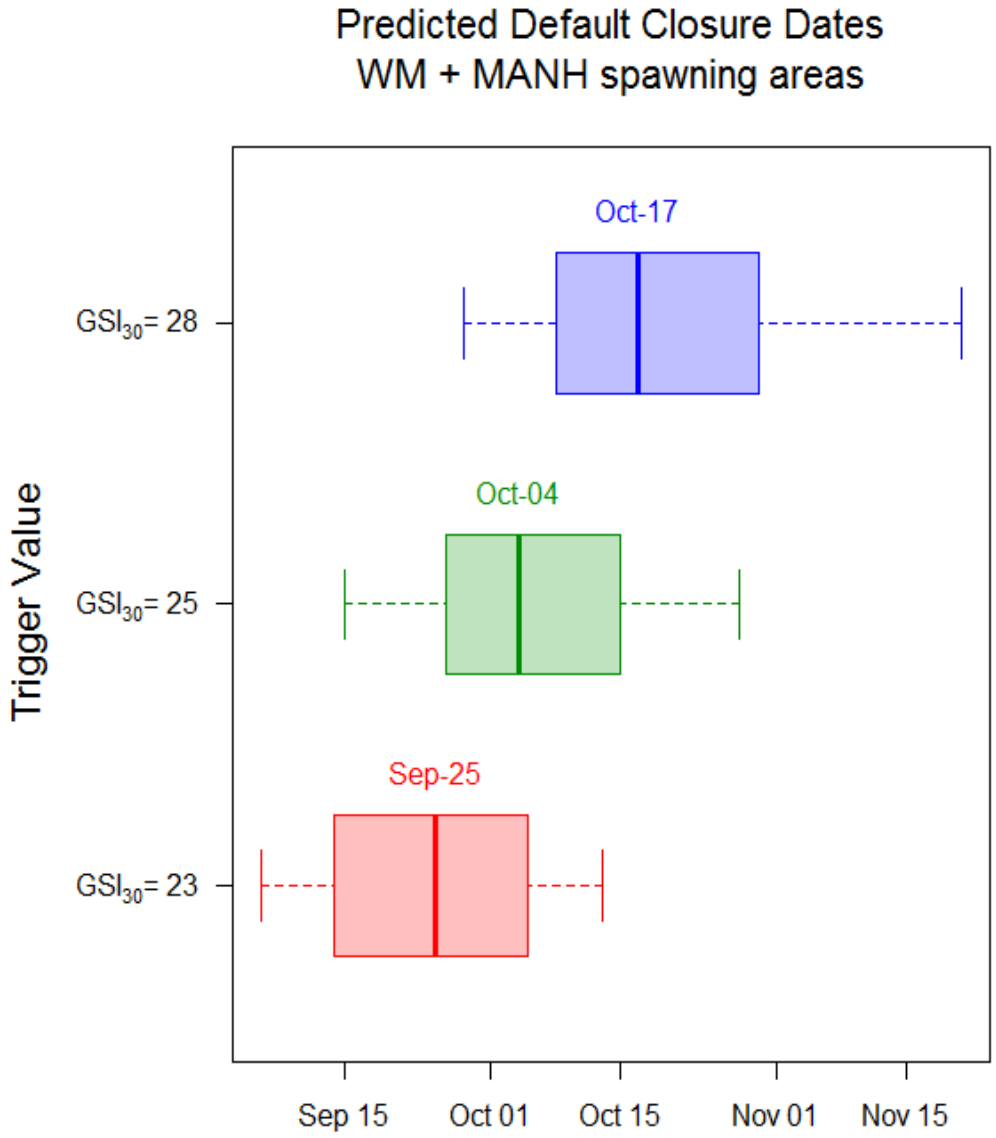
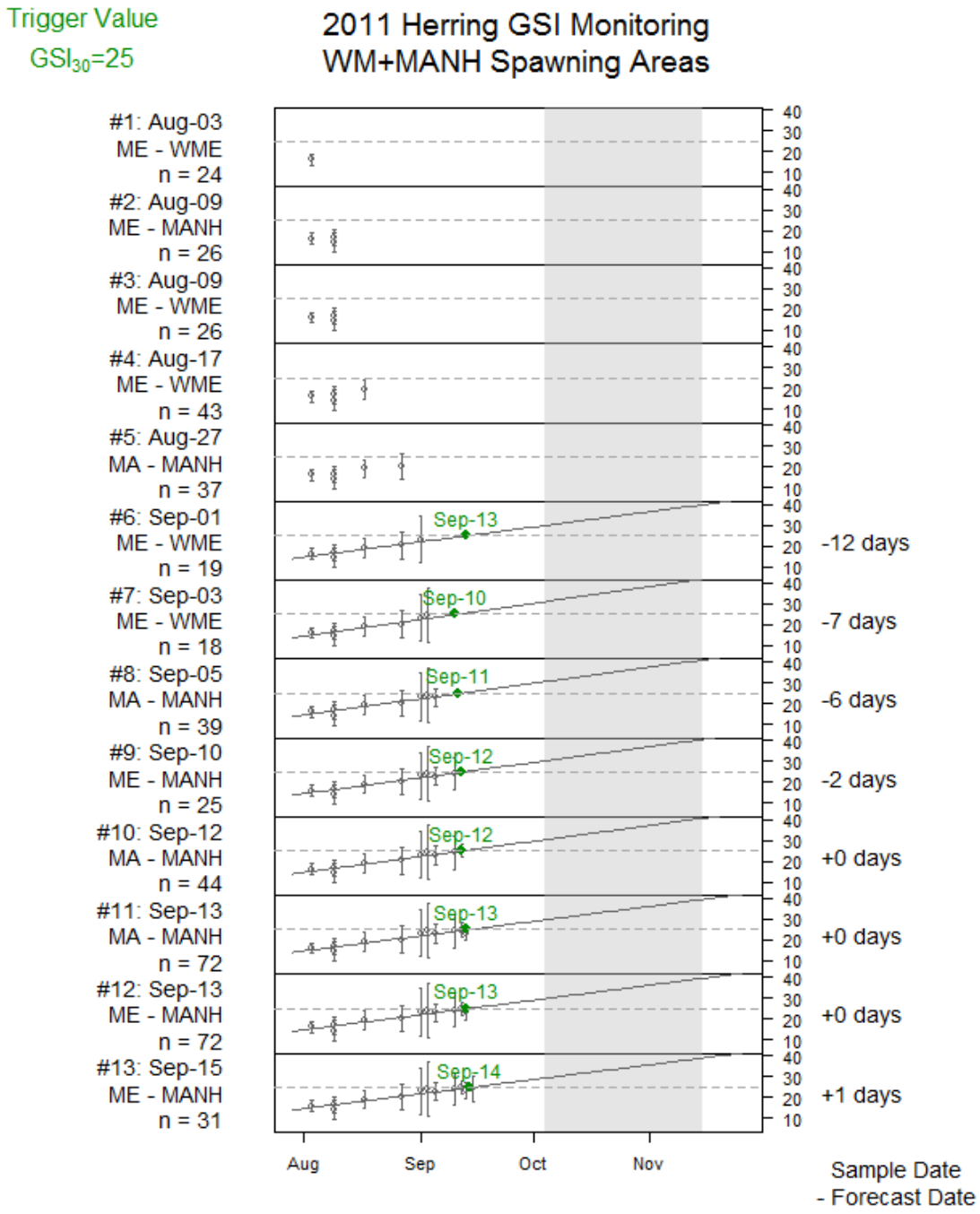


Figure 9. An example implementation of a modified GSI-based closure system using 2013 sample data from the MA-NH spawning area. A significant linear increase in GSI_{30} is detected after six samples (Sep-1st). Projecting this relationship forward, a closure date is forecast for Sep-13th. As additional samples are collected, the linear relationship and forecasted closure date are updated. If the choice was made to select a closure date at 5 days prior, a Sep 11th closure would have been announced on Sep 6th. The gray region identifies default t closure period associated with the trigger value used in this example (GSI_{30} = 25).



ASMFC Atlantic Herring Advisory Panel
Conference Call - October 23, 2015 – 10:00 AM
Issues and Options Draft Amendment 3 to the Atlantic Herring IFMP

Meeting Staff: Ashton Harp (ASMFC)

Advisory Panel (9): Jeff Kaelin (Chair - NJ), Greg DiDomenico (NJ), Philip Ruhle Jr. (RI), Shawn Joyce (NH), Stephen Weiner (MA), Patrick Paquette (MA), Jennie Bichrest (ME), Mary Beth Tooley (ME), Peter Moore (ME)

Public (2): Terry Stockwell (Section Chair - ME), Brad Schondelmeier (MADMF)

The Atlantic States Marine Fisheries Commission's Atlantic Herring Advisory Panel met via conference call on October 23, 2015 to discuss the issues and options in Draft Amendment 3. These reflect the guidance given to the Plan Development Team (PDT) at the August Section meeting—to, primarily, develop options that protect spawning fish in the Gulf of Maine. The Section will consider options for public comment when it meets on November 2, 2015.

Prior to considering the discussion document, an advisor voiced concern that the document provides no biological analysis or socio-economic analysis, so that weighing some of the spawning closure options becomes difficult. The January 2015 TC report was mentioned as helpful, relative to better understanding the forecasting system being recommended, but the AP, generally, had remaining questions about how the system would work.

It was also noted that the problem statement should include a discussion of the current status of Atlantic herring's spawning stock status and that Table 3 and Figure 2 of the Council's 2016-2018 Herring Specifications document could be included to provide this information. Some advisors suggested that any additional spawning protection in the Gulf of Maine should be tied to spawning stock status, coastwide, since extending the GOM closure period for an additional two weeks would have significant economic impacts on herring fisherman and the lobster fishery, where bait demand is high during the late summer and fall period.

Issue 1: Spawning Area Efficacy (Section 2.0)

2.1 *Spawning Area Closure Monitoring System*

There was consensus in support of *Option C, GSI_{30}-Based Forecast System*. Advisors supported the forecast system's likely ability to better target closures to periods of time when the majority of fish are spawning. Advance warning prior to a closure was voiced as a positive, which is provided by the forecasting system's announcing closures 5 days before the forecasted date. Advisors voiced concern about the fact that last week's opening and reclosing of the MA/NH spawning area all took place within 24 hours, which caused significant disruption to the fishery. Some advisors suggested that much of the fish in that area had already spawned and that the weather was better than it had been for a month. Advisors commented that the goal of this program should not be to save every spawning herring, particularly given the coastal spawning stock condition today. Advisor's also supported this option as it requires that projections would be based on a minimum of 3 samples. One advisor supported the status

quo, Option A.

REQUEST: The AP asked the TC why is the forecasting system standardized for larger fish (30 cm) when the current GSI (gonadosomatic index) is based on fish under 28 inches?

There was no consensus relative to which of the three *GSI_{30} Trigger Value* options should be chosen.

2.2 *Default Closure Dates*

As noted above, the AP could not come to a consensus on the appropriate GSI_{30} trigger value due to uncertainty of the outcome. Five people felt the 70^{th} percentile trigger value would provide additional protection so fishing just prior to spawning would not happen. One person was opposed to the 70^{th} percentile option, they felt the fishery would have to stay closed longer to accommodate maturing fish and spawners.

REQUEST: The AP asked, how do each of the percentile triggers compare or relate to the status quo approach?

2.3 *Spawning Area Boundaries*

There was a general consensus in support of *Option A, status quo,* which has the effect of maintaining the three spawning areas. The AP voiced concern and reluctance to combine the Western Maine and Massachusetts/New Hampshire spawning areas. Advisors felt Option B would likely result in a large coastal shutdown based on a few samples. In addition, the AP felt there was not sufficient biological evidence to support anything other than status quo.

REQUEST: The AP suggested that a chart depicting the spawning area boundaries would be helpful for the public and that the document should also reflect fishing effort in these areas over time; the NMFS should be able to supply VMS (vessel monitoring system) data

2.4 *Spawning Closure Period*

Closure Period

There were seven advisors in support of the status quo, Option A, a four week closure with the fishery being closed for an additional two weeks, if necessary, and three in favor of Option B, a six week closure. A participant commented they were not entirely in favor of a six week closure, but it was better than the status quo given the potential damage (i.e. fishing on spawners) that one herring boat can impose in just a couple of days. A participant in favor of status quo commented that there is not enough social and economic data to justify a six week closure and the document should outline the effects it could potentially have on lobster fishermen.

Re-closure Protocol

Three advisors were in favor of the status quo and two participants were in favor of option B, defined protocol. Those in favor of Option B liked that it only involved one sample to initiate a re-closure, which is why other advisors opposed it.

Issue 2: Fixed Gear Set-Aside Provision Adjustment (Section 3.0)

The AP was unanimously in favor of the *status quo, Option A.*

REQUEST: The AP asked that the document include historical landings in the fixed gear fishery. This information should also be available in the Council's specifications document.

Issue 3: Empty Fish Hold Provision (Section 4.0)

There was general support for an empty fish hold provision in the fishery and the issue has been addressed by the Council. Five advisors were in favor of Option E, an empty fish hold provision, limiting the requirements to vessels with the ability to pump fish, that is not contingent on federal adoption and two participants were in favor of Option B, an empty fish hold provision, with the pumping limitation, that is contingent upon federal adoption of the same provision.

Other Comments:

- The AP discussed the benefit of reinstating a tolerance for spawning fish in the fishery because it would provide the opportunity to regularly collect samples of herring for GSI analysis from vessels that are working in the area to be closed. REQUEST: The majority of AP members requested that the Section consider adding a tolerance option to draft Amendment 3. One advisor did not support this suggestion.
- Add information relative to current status of the fishery (i.e., SSB) in the introduction of the document.
- A participant said they were confused about the goals and objectives of the draft amendment, there should text added to the document that describes that protecting spawning fish is a goal, in addition to maintaining the fishery and markets. Protecting spawning fish exclusively is unrealistic.
- One participant noted that although the spawning stock biomass is above the target, there is still a need to update the spawning closure system. The spawning closure system is necessary irrespective of the status of the stock.

ACTION: The Chair suggested that the AP be polled to see who would like to continue being an AP member and re-populate the AP if necessary. Nine of sixteen members participated in the conference call.

The AP call ended at 12:00 PM

ASMFC Summer Flounder Adaptive Regional Management

Regional Options for Delaware Bay

October 2015

Background/Statement of the Issue

In 2014 and 2015 the ASMFC approved Addenda XXV and XXVI, respectively, implementing adaptive regional management for the recreational summer flounder fishery. The goals identified in the addenda were to provide equitable access and harvest opportunities and address disparate measures by neighboring states that are utilizing the same fishing areas. While the regional management efforts enacted to date have largely been successful at meeting these goals, one unintended consequence was development of significant regulatory differences in Delaware Bay that are contrary to the goals of the addenda and needs to be resolved.

Since the implementation of state-by-state conservation equivalency by the ASMFC in 2001, recreational summer flounder management measures have always been different between the states of New Jersey and Delaware (see Table 1) and therefore have been different in Delaware Bay. In general, New Jersey has had a smaller minimum size limit, higher possession limit and shorter season when compared to Delaware regulations. However, in the 13 years of state-by-state conservation equivalency specification setting the minimum size limit difference was 1 inch or less in 11 of the 13 years and never greater than 1.5 inches. As a result of regional management, there has been a 2 inch size limit difference created between these two states which has negatively impacted the fishery on New Jersey's side of Delaware Bay.

A review of the recreational fishery between the two states sharing Delaware Bay show a very similar fishery, and the availability of similar size summer flounder to recreational fishermen are nearly the same. A subset of MRIP size frequency, harvest and catch data from 2009 – 2012 from trips assigned and conducted in Delaware Bay for both Delaware and New Jersey were evaluated to determine similarities between the two states' summer flounder fisheries (note: 2013 information was not included because there were no records assigned to Delaware Bay in New Jersey in 2013). To evaluate the availability of the similar sized summer flounder to recreational fishermen in New Jersey and Delaware fishing in Delaware Bay, observed (harvested) lengths from all modes sampled in Delaware Bay were examined. Lengths were binned into 1 inch intervals and the length frequency was calculated as the number in a bin divided by the total number measured for that year and state. Figure 1 indicates a nearly identical length frequency distribution of harvested fish between both states across all years

with New Jersey having a slightly higher portion of smaller summer flounder, particularly in 2012 (note: sample size for New Jersey tends to be much smaller than Delaware).

In order to evaluate the overall fishery, catch per trip estimates were developed as well as harvest to catch ratios to determine overall "success" of a trip. Catch based estimates are based on trips where summer flounder was identified as either a primary or secondary target species between May and October (Waves 3, 4,and 5), and only those trips with a single angler identified were used to ensure estimates were made on a per angler basis. These results demonstrate that, on average, the catch rates in Delaware Bay are very similar between the two states with rates slightly higher in New Jersey (excluding 2009) with an average of 4.9 fish caught per trip in New Jersey and 3.4 in Delaware (see Figure 2). When evaluating the harvest to catch ratio to determine the success of a trip, the results are very similar to the harvest information. Success rates between the two states on trips within Delaware Bay are very similar to each other with New Jersey having a slightly higher success rate with 2.8% of all caught fish being harvested versus 2.3% in Delaware.

The similarities in the fishery between the two states in terms of catch rate, harvest rate, and size distribution support identical or similar minimum size limits within Delaware Bay. The current 2" difference in minimum size limit due to regional management has resulted in negative impacts to the New Jersey Delaware Bay fluke fishery. Fortunately, these differences can be easily addressed with cooperative management between the two states. Regional management is still a relatively new approach to ASMFC managed species and before regions are set for too long, now is the time to make minor adjustments to the regional structure to accomplish the original goals identified in Addendum XXV and XXVI.

Potential Regional Options

On July 23, 2015, ASMFC Commissioners and Fish and Wildlife staff from Delaware and New Jersey met to discuss potential conceptual regional management scenarios/examples that might help address the regulatory differences (specifically the size limit) in which both states might agree to or may need further investigation. The group all agreed that aspects of the fishery such as availability, catch rates, and size distribution, are similar on both sides of the Bay and that it would be ideal and beneficial to have consistent or more similar regulations on both sides of the Bay.

Four different options/scenarios were agreed to for further consideration. Those options and some additional details are provided below (no order of priority):

1. **Delaware Bay as its own region** (similar to Option 5 in draft Addendum XXVI) – consistent measures for Delaware Bay with the two states potentially having different measures in other parts of state. The rest of Delaware would

be included Southern Region with equivalent measures and the rest of New Jersey would be included with New York and Connecticut with equivalent measures.

2. **DE Bay included in Southern Region** (similar to Option 4 in draft Addendum XXVI) – All of Delaware Bay and Southern Region (DE, MD, VA) would have same measures

    a. Potential for slight modifications for the New Jersey side to have same size and possession limit but more restrictive season for any savings.

3. **Delaware Bay and Delaware Region** – the Delaware Bay and all of Delaware would have same measures for consistency within Delaware waters. Southern Region would then be just Maryland and Virginia while the rest of New Jersey would be with New York and Connecticut with equivalent measures.

4. **New Jersey its own "region"** – New Jersey would establish separate measures for its side of Delaware Bay to get as similar as possible to Delaware's measures (ex. 16" for Delaware and 17" for New Jersey with same possession limit and likely a shorter season in New Jersey to match the rest of the state). Delaware would remain in Southern Region and rest of New Jersey would implement the same measures as New York and Connecticut even though not technically in region.

No other changes were considered for the existing regional structure; all other aspects of the regional framework would remain as currently constructed.

Next Steps

The Board has the ability to extend Addendum XXVI for another year (through the 2016 season). Therefore, any changes to the existing regional management breakdown, such as those proposed here, would require the initiation of a new addendum. **New Jersey requests the Board consider the development of a new addendum in order to create a regional approach that addresses the significant disparity within the shared waters of Delaware Bay.**

New Jersey also requests the Board task the Technical Committee to evaluate these scenarios utilizing the 2015 (and/or 2014) data and to determine feasibility and develop example management measures that keep harvest within the 2016 coastwide RHL.

Table 1. State specific recreational summer flounder measures for NJ and DE (note: 2000 measures were set under coastwide management; 2001 – 2013 measures set under conservation equivalency; 2014 measures set under adaptive regional management).

	New Jersey			Delaware		
Year	**Size**	**Bag**	**Season**	**Size**	**Bag**	**Season**
2000	15.5	8	168	15.5	8	146
2001	16	8	123	17.5	4	146
2002	16.5	8	130	17.5	4	230
2003	16.5	8	164	17.5	4	365
2004	16.5	8	157	17.5	4	365
2005	16.5	8	157	17.5	4	365
2006	16.5	8	157	17	4	365
2007	17	8	108	18	4	365
2008	18	8	107	19.5	4	365
2009	18	8	105	18.5	4	365
2010	18	6	101	18.5	4	347
2011	18	8	142	18	4	358
2012	17.5	5	147	18	4	358
2013	17.5	5	122	17	4	365
2014	18	5	128	16	4	365

Figure 1. Length frequency plots showing the observed harvested summer flounder in Delaware Bay between New Jersey and Delaware from 2009 – 2012. Observed lengths from the MRIP database across all modes were then binned into 1 inch intervals and the length frequency was calculated as the number in a bin divided by the total number measured for that year and state.

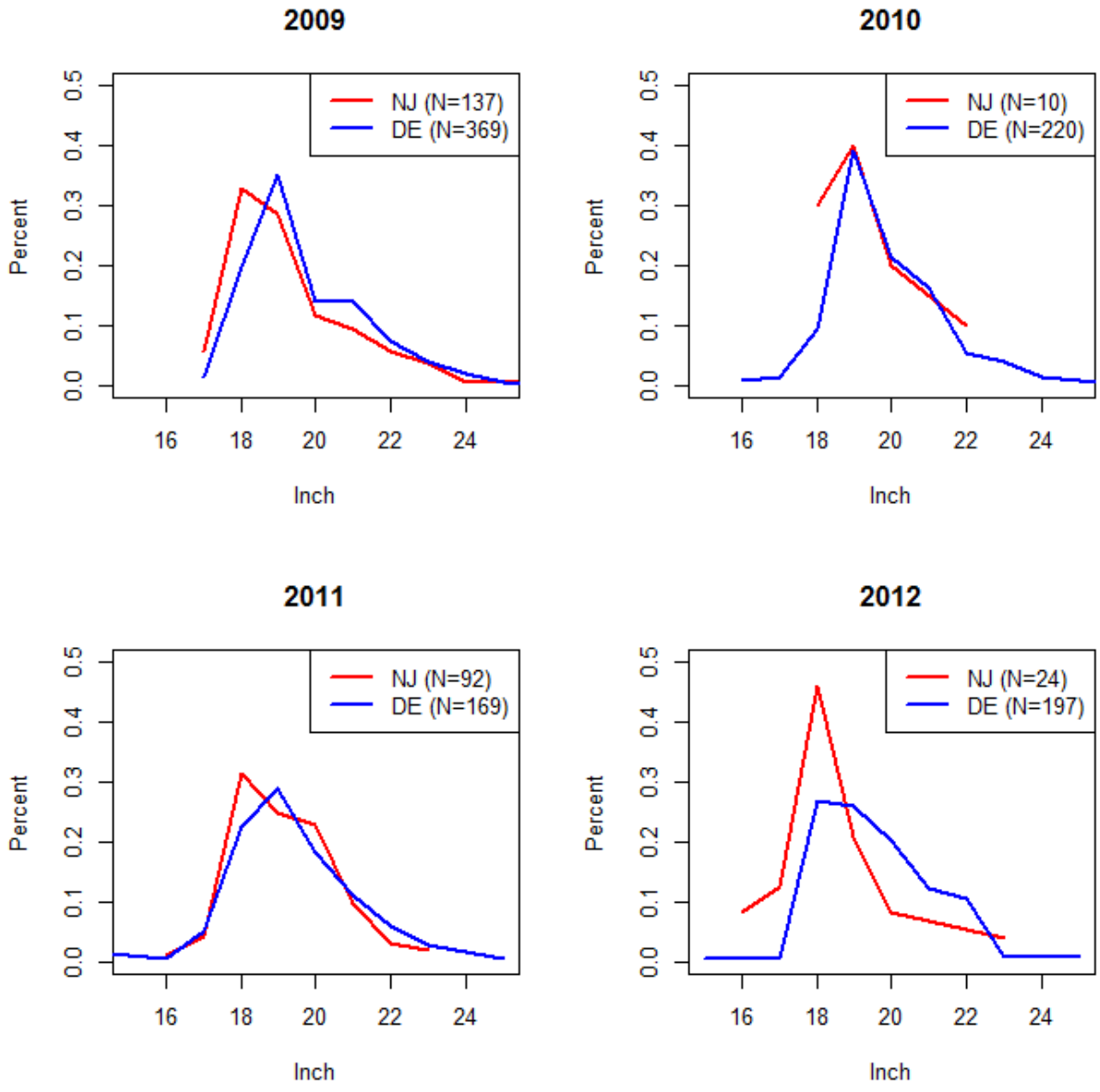


Figure 2. Catch per angler trip estimates by year and four-year average for New Jersey and Delaware trips in Delaware Bay. Catch per trip calculations were derived by taking the sum of all fish caught (harvest and discards) divided by the number of summer flounder targeted trips.

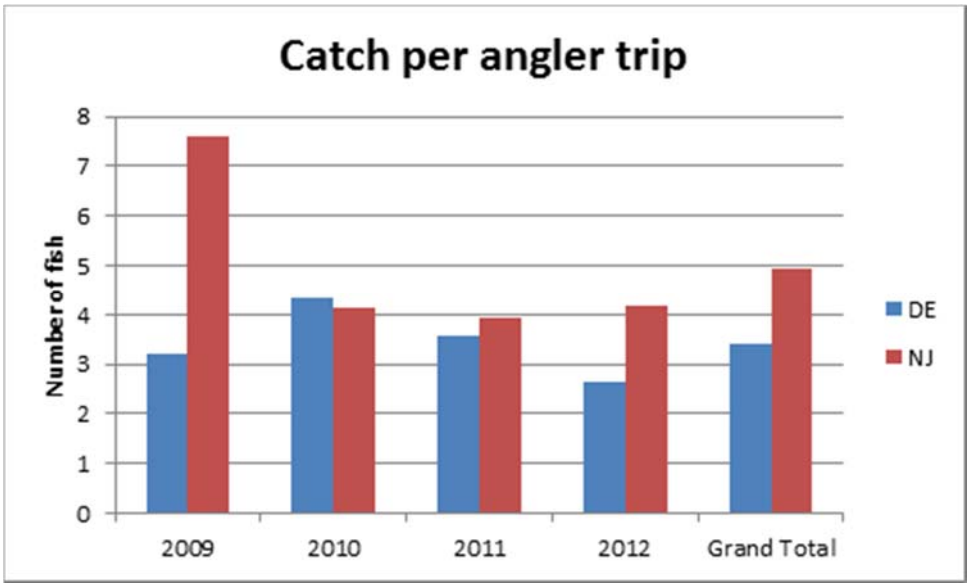
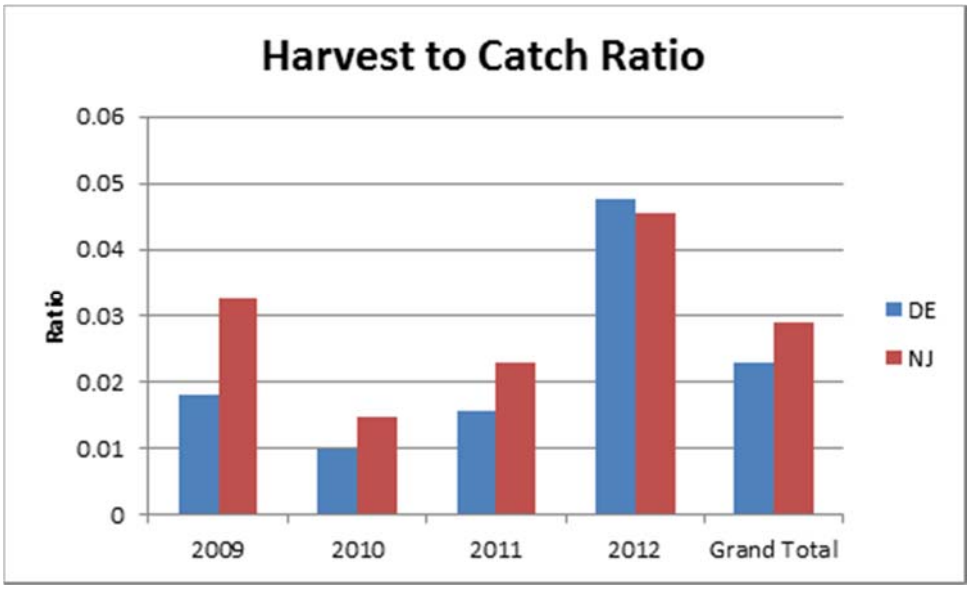


Figure 3. Harvest to catch ratio by year and four-year average for New Jersey and Delaware on trips within Delaware Bay. Ratio is calculated by taking the sum of all harvested fish divided by the sum of all fish caught (harvest and discards).



Atlantic States Marine Fisheries Commission

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MEMORANDUM

October 27, 2015

To: **Summer Flounder, Scup and Black Sea Bass Management Board**

From: **Kirby Rootes-Murdy, FMP Coordinator**

RE: **2016 Commercial Black Sea Bass Quotas**

In August 2015, both the Commission and Council set the 2016 black sea bass commercial quota at 2.24 million pounds. In September the Mid-Atlantic Fishery Management Council (Council)'s Scientific and Statistical Committee (SSC) revised their previous recommendation for the 2016-2017 Black Sea Bass Acceptable Biological Catch (ABC) after considering a new peer reviewed data poor modeling approach. In October, the Council approved the revised 2016 and 2017 ABC recommendation of 6.67 million pounds based on the new SSC recommendation. The new 2016 Council approved commercial quota is 2.71 million pounds. The Board will consider the revised ABCs and quotas at the Commission's Annual Meeting in November. Table one presents 2016 state-by-state quotas based on the newly revised Council commercial quota without accounting for any overages.

In determining the state-by-state quotas for 2016, Commission staff has been working with the states and NOAA Fisheries to determine final landings numbers for 2014. Because final landings are not available before the next year's final quota is published (typically December or January), overages from the previous year's fishery are delayed one year. For black sea bass, NOAA Fisheries subtracts any overages from the coastwide commercial quota but the Commission only subtracts overages from states that went over their state quota (NOAA Fisheries does not subdivide the black sea bass quota by state, only the Commission does). This means states that did not go over their quota will have no impacts to their following year's state quota, regardless of any coastwide overages the previous year. Addendum XX outlines the process to deduct state overages.

In evaluating the commercial landings from 2014, ASMFC and NOAA Fisheries staff have identified discrepancies between state reported landings and commercial dealer reports recorded through the SAFIS system (Tables 2 and 3). While coastwide landings from both sources indicate the total coastwide 2014 quota was exceeded, the landings differ in the extent states exceeded their quota and the coastwide quota was exceeded. Data collected from the states indicate the 2014 quota was exceeded by 0.01% or 171 pounds. Data pulled by NOAA Fisheries indicate the 2014 quota was exceeded by 4.68% or 101,739 pounds. The NOAA overage is approximately 3.75% of the 2016 revised commercial quota. Staff is seeking guidance in how to move forward in the specification process for 2016, specifically what data set should be used in determining final 2014 landings. If the Commission and NOAA Fisheries do not come to agreement on final 2014 landings numbers and use different data sources the overall quota will not be the same for state and federal waters. Those fishing under federal permits will potentially have different regulations.

Table 1. 2016 State-by-State Commercial Black Sea Bass Quotas based on the revised ABC recommendation from the MAFMC SSC

State	% Allocation	2016 ASMFC Initial Quota*
ME	0.005	13,550
NH	0.005	13,550
MA	0.13	352,300
RI	0.11	298,100
CT	0.01	27,100
NY	0.07	189,700
NJ	0.2	542,000
DE	0.05	135,500
MD	0.11	298,100
VA	0.2	542,000
NC**	0.11	298,100
Total	100%	2,710,000

*State by state Quotas have not been adjusted yet for 2014 overages.
**North Carolina landings north of Cape Hatteras.

Table 2. 2014 State Commercial Black Sea Bass Landings based on NOAA Dealer Reports in pounds

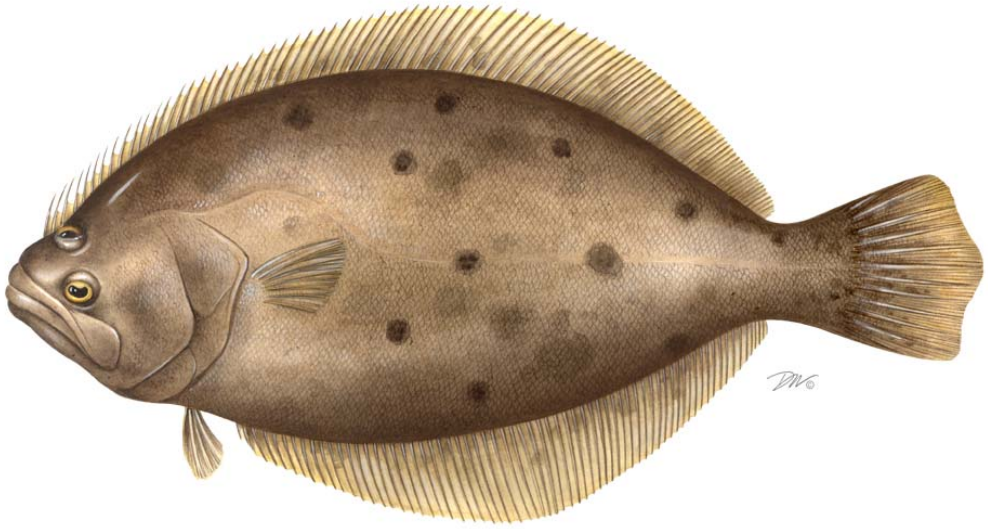
STATE	NOAA Commercial Landings	NOAA RSA Landings	NOAA Landings – RSA	Final 2014 ASMFC State Quota (including Transfers)	NOAA overage	NOAA overage
ME	0	0	0	872		
NH	0	0	0	872		
MA	307,053	29,777	277,276	282,661		
RI	267,774	22,506	245,268	239,174	2.55%	6,094
CT	27,036	0	27,036	21,743	24.34%	5,293
NY	223,706	35,270	188,436	172,202	9.43%	16,234
NJ	494,076	8,003	486,073	434,862	11.78%	51,211
DE	102,279	0	102,279	108,716		
MD	303,314	0	303,314	239,174	26.82%	64,140
VA	419,952	9,790	410,162	444,901		
NC	236,207	0	236,207	229,135	3.09%	7,072
Total	**2,381,397**	**105,346**	**2,276,051**	**2,174,312**	**4.68%**	**101,739**

Table 3. 2104 State Commercial Black Sea Bass landings as reported by the States in pounds.

STATE	ASMFC Commercial Landings	ASMFC RSA Landings	ASMFC Landings – RSA	Final 2014 ASMFC State Quota (including Transfers)	ASMFC overage	ASMFC overage
ME	0	0	0	872		
NH	0	0	0	872		
MA	307,046	30,188	276,858	282,661		
RI	267,300	23,593	243,707	239,174	1.90%	4,533
CT	26,957	0	26,957	21,743	23.98%	5,214
NY	237,458	35,300	202,158	172,202	17.40%	29,956
NJ	493,775	8,000	485,775	434,862	11.71%	50,913
DE	102,279	0	102,279	108,716		
MD	248,032	0	248,032	239,174	3.70%	8,858
VA	387,518	9,790	377,728	444,901		
NC	210,989	0	210,989	229,135		
Total	**2,281,354**	**106,871**	**2,174,483**	**2,174,312**	**0.01%**	**171**

2015 REVIEW OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
FISHERY MANAGEMENT PLAN FOR THE 2014 SUMMER FLOUNDER FISHERY

SUMMER FLOUNDER
(Paralichthys dentatus)



Prepared by

Kirby Rootes-Murdy (ASMFC)

Summer Flounder Plan Review Team
Kirby Rootes-Murdy (ASMFC), Chairman
Mike Bednarski (MA)
Kiley Dancy (MAFMC)

September 2015

2014 REVIEW OF THE ASMFC FISHERY MANAGEMENT PLAN FOR SUMMER FLOUNDER *(Paralichthys dentatus)*

I. Status of the Fishery Management Plan

The summer flounder (*Paralichthys dentatus*) fishery of the Atlantic Coast is managed jointly by the ASMFC Summer Flounder, Scup, and Black Sea Bass Management Board (Board) and the Mid-Atlantic Fishery Management Council (MAFMC or Council). The original ASMFC Fishery Management Plan, established in 1982, recommended a 14 inch minimum size. The MAFMC Plan, prepared in 1988 and based on the ASMFC plan, established a 13" minimum size. Since then, fourteen amendments have been developed and approved, except Amendment 1 which would have required a 5–1/2" minimum mesh size in the codend of trawls and Amendment 11 which would have reallocated commercial quota shares.

Amendment 2 (approved in August 1992) provided a strategy for reducing fishing mortality to Fmax, balanced against reasonable impacts on the fishermen. Management measures included a federal (EEZ) moratorium on entry into the commercial fishery, vessel and dealer permitting and reporting requirements, an annual commercial quota, and minimum mesh requirements with an exemption program. Recreational fishery measures include size limits, possession limits, and seasonal closures.

The management system established under Amendment 2 has been modified by the following amendments. Amendment 3 (approved in July 1993) revised the mesh requirement exemption program and modified the poundage thresholds for the mesh requirements (change to 2 seasonal thresholds instead of year-round 100 lbs). Amendment 4 (approved in September 1993) revised the state-specific shares of the coastwide quota allocation in response to a reporting issue in Connecticut. Amendment 5 (approved in December 1993) allows states to transfer or combine their commercial quota shares. Amendment 6 (approved in May 1994) allows properly stowed nets with a cod end mesh size less than that stipulated in the plan to be aboard vessels in the summer flounder fishery. Amendment 7 (approved May 1995) adjusted the stock rebuilding schedule and capped the 1996-1997 commercial quotas at 18.51 million pounds. There is no Amendment 8 or 9 to the ASMFC FMP. The Council adopted Scup management measures as Amendment 8 and Black Sea Bass measures as Amendment 9, while the Board adopted separate Scup and Black Sea Bass Management Plans.

Amendment 10, approved by the Board in May 1997, initially sought to examine the commercial quota management system. Its scope was expanded to address a number of federal and state issues in the fishery, including: 1) allow framework adjustments to the minimum mesh for any portion of the net; 2) require 5.5” diamond mesh between the wings and the codend of trawls; 3) continue the federal moratorium on entry; 4) remove the requirement that federally permitted vessels must land summer flounder every year; 5) modify the federal vessel replacement criteria; 6) implement state *de minimis* criteria; 7) prohibit transfer at sea; 8) require states to report summer flounder landings from state waters to the NMFS; and 9) allow states to implement a summer flounder filet at sea permit system. The amendment also proposed alternative commercial quota schemes, including 1) a trimester quota with state-by-state shares during summer, 2) a trimester coastwide quota of equal periods, and 3) a revision to the allocation formula. Ultimately, the Board and Council decided to maintain the current state-by-state quota allocation system.

Amendment 12, approved by the Board in October 1998, was developed to bring the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan in to compliance with the new and revised National Standards and other required provisions of the Sustainable Fisheries Act. Specifically, the amendment revised the overfishing definitions (National Standard 1) for summer flounder, scup and black sea bass and addressed the new and revised standards relative to the existing management measures (National Standard 8-consider effects on fishing communities, National Standard 9-reduce bycatch, National Standard 10-promote safety at sea). The Amendment also identified essential habitat for summer

flounder, scup and black sea bass. Finally, Amendment 12 added a framework adjustment procedure that allows the Council to add or modify management measures through a streamlined public review process. Amendment 12 was partially approved by NMFS on April 28, 1999.

In December 2000, the Board approved Amendment 13. Although there were some management alternatives included in public hearing drafts of the document that could have resulted in changes to summer flounder management measures, none were approved for implementation. As a result, Amendment 13 has no impact on the summer flounder fishery.

Framework Adjustment 2 to the Summer Flounder, Scup and Black Sea Bass FMP, adopted in January 2001, provided the information and analyses necessary to implement a system of conservation equivalency for the recreational summer flounder fishery. Based on a coastwide recreational harvest limit, Framework 2 allows states to customize summer flounder recreational management measures in order to address issues associated with the availability of summer flounder on spatial and temporal scales.

Addenda III and IV were approved on January 29, 2001. Addendum IV provides that, upon the recommendation of the relevant monitoring committee and joint consideration with the Council, the Board will make a decision concerning what state regulations will be rather than forward a recommendation to NMFS. The states will then be responsible for implementing the Board's decision. Addendum III established specifications for the 2001 recreational summer flounder fishery.

The Board approved Addendum VIII in December of 2003. Under this addendum, state-specific targets for recreational landings are derived from the coastwide harvest limit based on each state's proportion of landings reported in 1998.

The Board approved Addendum XIII in August of 2004. This addendum modifies the FMP so that, within a given year, TALs for the summer flounder, scup, and/or black sea bass can be specified for up to three years. Multi-year TALs do not have to be constant from year to year, but instead are based upon expectations of future stock conditions as indicated by the best available scientific information during the year in which specifications are set.

The Board approved Addendum XV in December of 2004. The addendum was developed to allow for a change in the allocation scheme for the increase commercial quota from 2004 to 2005, approximately 1.3 million pounds, as well as the additional quota from 2004 to 2006, approximately 1.6 million pounds. For the fishing years 2005 and 2006, the associated quota increases were allocated to the following states as a bycatch allocation. 75,000 pounds of summer flounder will be allocated each to Maryland, New York, Connecticut, and Massachusetts; 15,000 lbs to Delaware; 5,000 lbs to Maine; and 90 lbs to New Hampshire.

The Board approved Addendum XVII in August of 2005. Addendum XVII established a program wherein the Board could sub-divide the recreational summer flounder coastwide allocations into voluntary regions. This is an addition management tool in the management toolbox. This addendum also allowed the averaging or combination of multiple years of data (i.e. landings-per-angler, length-frequency distributions) in analyses to determine the impacts of proposed recreational management programs. The programs also included minimum fish sizes, possession limits, and fishing seasons. The averaging of annual harvest estimates will not be allowed.

The Board approved Addendum XVIII in February of 2006. The addendum seeks to stabilize fishing rules as close to those that existed in 2005, in part, to minimize the drastic reductions facing three states. The addendum allows the three states (NY, CT, and MA) facing large reductions in their harvest targets

to capitalize on harvest opportunities that are foregone by states that choose to maintain their 2005 recreational fishing rules in 2006.

Addendum XIX, approved in August 2007, broadens the descriptions of stock status determination criteria contained within the Summer Flounder, Scup, and Black Sea Bass FMP to allow for greater flexibility in those definitions, while maintaining objective and measurable status determination criteria for identifying when stocks or stock complexes covered by the FMP are overfished. It establishes acceptable categories of peer-review for stock status determination criteria. When these specific peer-review metrics are met and new or updated information is available, the new or revised stock status determination criteria may be incorporated by the Commission directly into the annual management measures for each species.

The Board approved Addendum XXV in February of 2014. The addendum seeks to respond to the unintended consequence of using conservation equivalency (e.g., state-specific recreational management measures) to stay within the annually established coastwide recreational harvest limit for summer flounder through regional management. For 2014, the regions were the following: Massachusetts; Rhode Island; Connecticut through New Jersey; Delaware through Virginia; and North Carolina. All states within a region have same minimum size, bag limit, and season length. A continuation of Addendum XXV was initiated through Addendum XXVI and will be voted on at the ASMFC Winter Meeting in February 2015, with the approved measures to take effect in 2015.

The objectives of the FMP have not changed and are to: 1) reduce fishing mortality of summer flounder to assure overfishing does not occur; 2) reduce fishing mortality on immature summer flounder to increase spawning stock biomass; 3) improve yield from the fishery; 4) promote compatible management regulations between State and Federal jurisdictions; 5) promote uniform and effective enforcement of regulations; and 6) minimize regulations to achieve the stated objectives.

The management unit includes summer flounder in US waters in the western Atlantic Ocean from the southern border of North Carolina northward to the US - Canadian border. States and jurisdictions with a declared interest in the summer flounder FMP include all those from North Carolina through Massachusetts except Pennsylvania and the District of Columbia, as well as NMFS and USFWS. An ASMFC plan review team, Technical Committee, and species board, and the MAFMC Demersal Species Committee are actively working on this plan. A joint ASMFC-MAFMC Technical Monitoring Committee provides annual framework adjustment advice.

II. Status of the Stock

The most recent peer review of the summer flounder assessment was the June 2015 Stock Assessment Update.

Relative to the new (updated) reference points the stock is not overfished and but overfishing is occurring. F on fully selected age 4 fish ranged between .793 and 1.776 from 1982-1996 and then decreased to .284 in 2007. Since 2007 the fishing mortality has increased to .359 in 2014, 16% above the SAW 57 F threshold (F Threshold= F_{MSY}=$F35_{\%}$ = 0.309).

Spawning stock biomass (SSB) decreased from 55.16 million lbs in 1982 to 15.58 million lbs in 1989 and then increased to peaks of 101.48 million lbs in 2003 and 104.73 million lbs in 2010. In 2014, SSB was estimated to be 88.91 million lbs, 65% of the 2013 SAW 57 SSB_{MSY} proxy= $SSB_{35\%}$= 137.6 million lbs.

Average recruitment from 1982 to 2014 is 41 million fish at age 0. The 1983 and 1985 year classes are the largest in the assessment time series at 75 and 62 million fish, while the 1988 year class is the smallest

at only 10 million fish. The 2014 year class is estimated to be average at 41 million fish, and improvement from the previous four years of below average year classes (36,20, 23, and 27 million fish respectively).

III. Status of the Fishery

Commercial landings peaked in 1984 at 37.77 million lbs, and reached a low of 8.8 million lbs in 1997.From 2005 through present commercial landings have been variable, with two peak years (16.91 million lbs in 2005 and 16.57 million lbs in 2011) that have been followed by steady declines. Over the last four years landings have continued to decline in part due to annual quota limits. Over the last three years landings have exceeded the commercial coastwide quota. 2014 commercial landings declined to 10.9 million pounds, exceeding the commercial quota by 0.4 million lbs. The principle gear used in the fishery is the otter trawl. Commercial discard losses in the otter trawl and scallop dredge fisheries are estimates from observer data and recently account for 5 to 10% of the total commercial catch.

Recreational harvest from 2005 to present have also shown stead declines in part due to the coastwide recreational harvest limit. From 2009 through 2013 harvest was below the recreational harvest limit; in 2014 coastwide harvest exceeded the recreational harvest limit by 5% at 7.39 million lbs. Recreational losses have recently accounted for 15 to 20% of the total catch.

IV. Status of Assessment Advice

The 2015 assessment updates indicates that while catch in recent years has not been substantially over the ABCs, the projected fishing mortality rates have been exceeded and projected spawning stock biomass has not been achieved. These results appear to be largely driven by poor recruitment. The update shows a consistent recent retrospective pattern in recruitment, as 5 of the last 7 year classes have been initially over-estimated by a range of 22% to 49%. The update shows that recruitment of age 0 fish was below average for each of the four year classes from 2010 to 2013. A historical retrospective analysis, comparing model estimates from the 1990-2015 assessments, also indicates a recent trend of underestimation of F and overestimation of SSB since the 2011 assessment update.

Landings that correspond to fishing at or near the threshold F rate (FMSY=F35%=0.309) may result in overfishing if the previous retrospective pattern of underestimation of F occurs in the future.

Biological Reference Points (updated by the 2015 Stock Assessment Update)

- F Threshold= F_{MSY}=$F35_{\%}$ = 0.309
- Current (2014) F=0.359 overfishing is occurring
- Spawning Stock Biomass (SSB) threshold = 68.8 million lbs
- SSB target = 137.6 million lbs
- Current SSB (2014) =88.9 million lbs stock is not overfished

V. Status of Research and Monitoring

Several states and NMFS conduct seasonal sampling cruises using an otter trawl to assess the condition of summer flounder populations inshore and in the Exclusive Economic Zone (EEZ). Massachusetts collects sex and maturity samples and local abundance indices from spring and fall otter trawl surveys, as well as young of the year information in its winter flounder juvenile seine survey. The Commonwealth monitored the commercial fishery through the observation of six directed trawl fishery trips, as well as through dealer Integrated Voice Response (IVR) systems and mandatory fishermen's logbook. Rhode Island monitors the commercial quota for summer flounder using an automated IVR system and dealers are required to provide weekly reports through the IVR of summer flounder landings. Connecticut commercial summer flounder landings are monitored through monthly commercial fishermen logbooks, and weekly and monthly dealer reports. These reports contain daily records of fishing and dealer

purchase activity. There was no sea sampling or port sampling activity for summer flounder in 2004. New York conducts a survey of anglers on open boats on Great South Bay to collect data on age and size composition from which mortality rates are calculated. New Jersey collects data from the commercial trawl fishery and conducts an ocean trawl survey from which data on summer flounder are collected and catch-per-unit-of-effort and distribution information are generated for juveniles and adults. Delaware's commercial landings are monitored through a mandatory monthly harvest report from all state-licensed fishermen. Maryland constructs a juvenile index from trawl data collected in the ocean side bays and is also compiling data on population age, sex, and size from summer flounder taken in pound nets. A statewide voluntary angler survey is conducted and records location, time spent fishing, number of fish caught, number kept, and lengths of the first 20 fish caught. Virginia prepares a young-of-the-year index from data collected from beach seine and trawl surveys. North Carolina conducts two otter trawl surveys for juvenile fluke, conducts tagging programs to determine migrations and to assess mortality, and collects information on age and growth and catch-per-unit-of-effort for the winter trawl fishery, the estuarine gill net fishery, pound net fisheries, the ocean sink net fishery and the long haul seine fishery.

VI. Status of Management Measures and Issues

Management measures imposed upon harvesters of summer flounder include an annual commercial quota and recreational harvest limit, minimum sizes, minimum mesh requirements for trawls, permits and administrative fees for dealers and vessels, a moratorium on entry into the fishery, mandated use of sea samplers, monitoring of sea turtles in the southern part of the management unit, and collection of data and record keeping by dealers and processors. Fishing mortality has been controlled by a Total Allowable Landings (TAL) since 1983, allocated into a commercial quota (60% of the TAL) and a recreational harvest limit (40% of the TAL). The commercial quota is allocated to each state based on landings during a baseline period, and any overages are subtracted from a state's quota for the following year. The state allocations of the commercial quota are included in table 1.

Summer Flounder Compliance Criteria

The PRT found no compliance issues.

De Minimis

Delaware requests *de minimis* status. The PRT notes that they meet the requirement of *de minimis.*

COMMERCIAL FISHERY

The following measures may change annually. The 2014 measures are indicated.

Minimum size: 14"
Minimum mesh and threshold: 5.5 diamond, 6" square
Regulation of mesh beyond the codend: 5.5" throughout the mesh
2013 Commercial quota: 12,11 million pounds, 11.49 million lbs after adjustment for the research set a-sides.

In 1998 the Summer Flounder, Scup, and Black Sea Bass Management Board recommended that 15% of each state allocation must be set aside to mitigate discards after closure of the directed summer flounder commercial fishery. To be eligible to land this 15%, the state must adopt appropriate trip limits sufficiently restrictive to allow bycatch landings for the entire year without exceeding the state quota. Additionally, either the state or the fishermen must participate in collection of additional discard data.

The following measures are not subject to annual adjustment.

Quota management provisions: States are required to adopt appropriate measures to manage their quota shares. States may transfer or combine their quota shares as specified in Amendment 5. States must document through a vessel and dealer reporting system all landings that are not otherwise included in the federal monitoring of permit holders. States are required to forward all landings information to the NMFS for inclusion in quota reporting.

Transfer at Sea: States must prohibit permitted summer flounder vessels from transferring summer flounder from one vessel to another at sea. (As specified in Amendment 10)

De minimis status: States having commercial landings less than 0.1% of the coastwide total will be eligible for *de minims* status. (As specified in Amendment 10). Delaware has requested de minimis status and meets the requirements.

RECREATIONAL FISHERY

The Management Board chose to adopt regional management through conservation equivalency for the 2014 recreational fishery under the provisions of Framework 2 (see table 3 for state measures). As such, the Federal recreational bag limit and minimum fish size were waived and the fishing season and vessel owners were subject only to the regulations in their states.

2014 recreational harvest limit: 7.01 million lbs. after adjustment for the research set a-sides.

OTHER MEASURES

Filet at sea permit: Party or charter vessels in state waters will be allowed to filet at sea if they obtain a state issued permit allowing such activity. (As specified in Amendment 10)

Reporting:

1. States must submit a commercial fishery management proposal by October 1 of each year. The proposal must detail the specific management measures that the state intends to use to manage their commercial quota allocation. The proposal must be reviewed and approved by the Management Board.

2, States must submit an annual compliance report to the Chairman of the Summer Flounder Plan Review Team by June 1 of each year. The report must detail the state's management program for the current year and establish proof of compliance with all mandatory management measures and all framework changes specified for the current year. It should include landings information from the previous year, and the results of any monitoring or research program.

This summary of compliance criteria is intended to serve as a quick reference guide. It in no way alters or supersedes compliance criteria as contained in the Summer Flounder FMP and Amendments thereto.

VII. Current State-by-State Implementation of FMP Requirements

1997 - 2014 Summer Flounder FMP Compliance Schedule

COMMERCIAL:

14" minimum size	3/1/97
5.5" codend mesh	1/1/98
Ability to regulate mesh in any portion of the net	1/1/98
5.5" mesh, body	6/3/98

Prohibition of transfer at sea	1/1/98
Mandatory reporting to NMFS of landings from state waters	1/1/98

RECREATIONAL

Regional Management Measures under conservation equlivency	2/2014

GENERAL

Submission of annual commercial management plan	10/1/97, annually thereafter
Submission of annual landings and compliance report	6/1/98, annually thereafter

Table 1. State by state allocation for annual commercial quota

State	**Allocation (%)**
Maine	0.04756%
New Hampshire	0.00046%
Massachusetts	6.82046%
Rhode Island	15.68298%
Connecticut	2.25708%
New York	7.64699%
New Jersey	16.72499%
Delaware	0.01779%
Maryland	2.03910%
Virginia	21.31676%
North Carolina	27.44584%
Total	100%

Table 1. Summer Flounder Commercial Landings by State (2004-2014) in pounds.
Source: National Marine Fisheries service Commercial Landings Data & State Compliance Reports (2014)

State		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
MA		1,192,602	1,274,429	920,549	659,784	644,404	731,174	851,889	1,132,192	891,495	859,150	694,777
RI		3,084,560	2,925,365	2,122,528	1,515,684	1,473,439	1,793,891	2,289,379	2,824,032	2,064,076	1,799,394	2,054,951
CT		406,038	448,594	316,533	205,115	220,510	256,768	308,341	401,377	298,849	280,652	253,442
NY		1,798,830	1,172,279	1,219,842	929,132	832,415	1,119,093	1,330,015	1,483,785	1,237,126	999,206	833,577
NJ		1,587,972	2,156,909	2,379,733	1,697,472	1,540,811	1,798,903	2,165,325	2,830,686	2,268,793	1,995,298	1,826,455
DE		7,565	5,427	4,376	2,261	1,213	2,952	1,858	836	677	913	1,687
MD		262,492	337,652	247,743	228,809	208,219	213,564	263,302	259,392	139,824	165,134	218,350
VA		3,906,048	3,869,171	2,756,952	1,853,693	1,651,575	1,978,754	2,589,786	4,050,998	4,111,708	4,868,842	2,049,045
NC		4,844,136	4,064,474	3,981,430	2,670,122	2,406,611	2,859,048	6,622,004	5,708,254	1,087,427	543,247	2,906,789
Total		17,927,681	17,073,033	13,949,754	9,774,075	9,002,613	10,774,754	16,455,427	18,724,801	11,801,702	11,511,836	10,839,073

Table 2. Recreational Landings by State (2004-2014) in numbers of fish.
Source: "Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division July 17, 2015"

State	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
ME	0	0	0	0	0	0	0	0	0	0	0
NH	0	0	717	0	562	0	0	0	84	0	0
MA	224,729	267,081	238,970	138,071	232,285	50,382	45,156	58,372	75,803	31,228	112,840
RI	248,988	164,909	264,142	175,778	203,745	71,739	118,455	161,125	103,102	127,713	184,668
CT	216,154	156,724	137,521	112,227	145,661	44,944	35,028	47,071	62,501	269,650	119,502
NY	1,024,670	1,163,329	752,388	865,957	608,925	298,634	334,491	376,198	509,123	518,016	509,131
NJ	1,616,811	1,300,223	1,556,151	1,067,404	761,843	824,887	552,401	736,848	1,130,407	1,244,432	1,175,383
DE	111,362	72,696	88,149	108,264	35,227	87,232	53,512	66,820	45,474	58,279	93,029
MD	42,261	117,021	37,471	103,849	57,895	64,647	25,215	15,347	22,617	53,180	79,513
VA	674,552	684,272	762,597	397,041	260,221	289,075	260,050	317,674	259,973	186,916	139,431
NC	156,967	101,212	112,176	138,989	43,510	74,641	77,157	60,422	63,135	44,941	45,708
Total	4,316,494	4,027,467	3,950,282	3,107,580	2,349,874	1,806,181	1,501,465	1,839,877	2,272,219	2,534,355	2,459,205

Table 3. 2014 recreational management measures for summer flounder by state.

State	Minimum Size (inches)	Possession Limit	Open Season
Massachusetts	16	5 fish	May 22-September 30
Rhode Island	18	8 fish	May 1-December 31
Connecticut*	18	5 fish	May 17-September 21
*At 42 designated shore sites	16		
New York	18	5 fish	May 17-September 21
New Jersey*	18	5 fish	May 23-September 27
*NJ Pilot shore program 1 site	16	2 fish	May 23-September 27
Delaware	16	4 fish	All year
Maryland	16	4 fish	All year
PRFC	16	4 fish	All year
Virginia	16	4 fish	All year
North Carolina	15	6 fish	All year

Table 4. 2015 recreational management measures for summer flounder by state.

State	Minimum Size (inches)	Possession Limit	Open Season
Massachusetts	16	5 fish	May 22-September 23
Rhode Island	18	8 fish	May 1-December 31
Connecticut*	18	5 fish	May 17-September 21
*At 41 designated shore sites	16		
New York	18	5 fish	May 17-September 21
New Jersey*	18	5 fish	May 22-September 26
*NJ Pilot shore program 1 site	16	2 fish	May 22-September 26
Delaware	16	4 fish	All year
Maryland	16	4 fish	All year
PRFC	16	4 fish	All year
Virginia	16	4 fish	All year
North Carolina	15	6 fish	All Year

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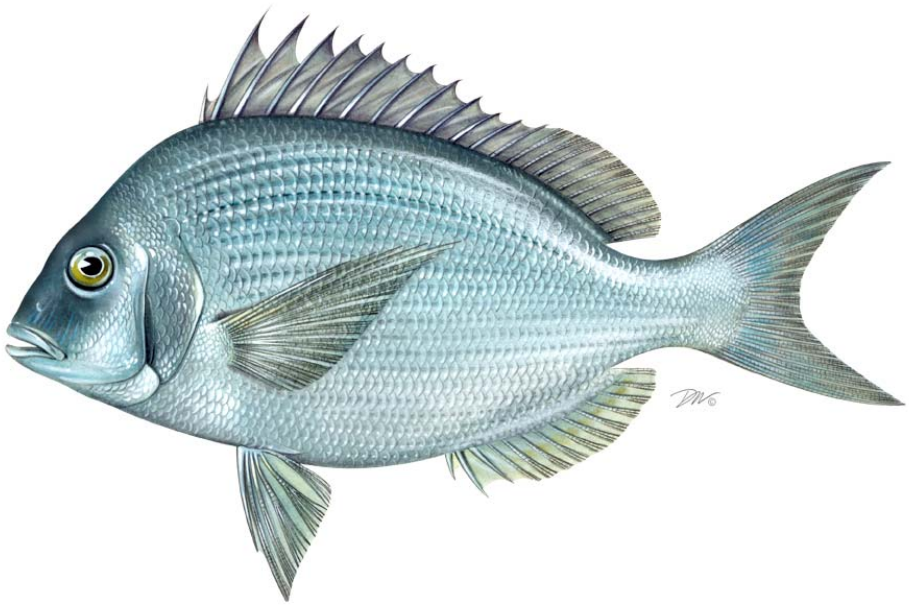
ATLANTIC STATES MARINE FISHERIES COMMISSION
FISHERY MANAGEMENT PLAN for the 2014 SCUP FISHERY
SCUP *(Stenotomus chrysops)*



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2015 Review of the Atlantic States Marine Fisheries Commission

Fishery Management Plan for Scup for the 2014 Fishing Year

I. Status of the Fishery Management Plan

ASMFC management of scup was initiated as one component of a multi-species FMP addressing summer flounder, scup and black sea bass. The Commission approved the Fishery Management Plan for Scup in March 1996. Amendment 12 to the Summer Flounder, Scup, and Black Sea Bass FMP, which established revised overfishing definitions, identification and description of essential fish habitat, and defined the framework adjustment process, was approved by the Commission in October 1998.

The FMP included a seven-year plan for reducing fishing effort and restoring the stock. The primary concerns were excessive discarding of scup and near collapse of the stock. Management measures implemented in the first year of the plan (1996) included: dealer and vessel permitting and reporting, 9-inch commercial minimum size, 4-inch mesh restriction for vessels retaining over 4,000 pounds of scup, and a 7-inch recreational minimum size. The biological reference point to define overfishing when the plan was initially developed was F_{MAX}, or F=0.25. To allow flexibility in addressing unforeseen conditions in the fishery, the plan contained provisions that allow implementation of time and area closures. The plan also specified the option for changes in the recreational minimum size and bag limit, or implementation of a seasonal closure on an annual basis.

Addendum 1 to the Summer Flounder, Scup, and Black Sea Bass FMP explains the quota management procedure for management and distribution of the coastwide commercial quota that was approved in September 1996 and implemented as a coastwide Total Allowable Catch (TAC) in 1997. Addendum 1 also details the state-by-state quota system for the summer period (May through October) that was implemented in 1997. Each state receives a share of the summer quota based on historical commercial landings from 1983-1992.

In June 1997, the Commonwealth of Massachusetts filed a lawsuit against the Secretary of Commerce stating that the historical data used to determine the quota shares underestimated the commercial landings of scup. Massachusetts also stated that the resulting quota share discriminated against Commonwealth of Massachusetts residents. On April 27, 1998, the U.S. District Court voided the state-by-state quota allocations for the summer quota period in the federal fishery management plan, and ordered the Secretary of Commerce to promulgate a regulation that sets forth state-by state quotas in compliance with the National Standards. The court order does not technically affect the state-by-state quota allocations that are included in the ASMFC Addendum 1 to the Summer Flounder, Scup, and Black Sea Bass FMP. The Summer Flounder, Scup, and Black Sea Bass Management Board developed three Emergency Rules to address the quota management during the summer quota period during 1999, 2000 and 2001.

Amendment 12 to the Summer Flounder, Scup and Black Sea Bass FMP established a biomass threshold for scup based on the maximum value of the 3-year moving average of the NEFSC spring bottom trawl survey index of spawning stock biomass (2.77 kg/tow, 1977-1979). The Amendment stipulated that the scup stock was overfished when the spawning stock biomass index fell below this value. Amendment 12 also defined overfishing for scup to occur when the fishing mortality rate exceeded the threshold fishing mortality of F_{MAX}=0.26.

In 2002, the Board developed Addendum V to the FMP in order to avoid the necessity of developing annual Emergency Rules for summer period quota management. Addendum V established state shares of the summer period quota based on historical commercial landings from 1983-1992, including additional landings from Massachusetts added to the NMFS database in 2000. State shares implemented by this addendum will remain in place until the Board takes direct action to change them.

Another significant change to scup management occurred with the approval of Addendum VII in February 2002. This document established a state specific management program for the 2002 recreational scup fishery based on the average landings (in number of fish) for 1998-2001. Only Massachusetts through New York (inclusive) were permitted to develop individual management programs. Due to the extremely limited data available, the Board developed specific management measures for the states of New Jersey, Delaware, Maryland, Virginia, and North Carolina. The addendum had no application after 2002.

Addendum IX established a state specific management program for the 2003 recreational scup fishery based on the average landings (in number of fish) for 1998-2001. Only Massachusetts through New York (inclusive) were permitted to develop individual management programs. Due to the extremely limited data available, the Board developed specific management measures for the states of New Jersey, Delaware, Maryland, Virginia, and North Carolina. The addendum had no application after 2003.

Addendum X allowed for any unused quota from the winter I scup fishery to be rolled over into the winter II fishery period. It also increased the possession limit by 500 lbs per 500,000 pounds of scup that are rolled over. The addendum also establishes an alternative to the May 1 start date of the summer period. Specifically, in the event of a closure prior to April 15th, state permit holders could land and sell scup caught exclusively in state waters to state and Federally permitted dealers after April 15th and prior to the Federal opening of the Summer period on May 1. Landings by state permitted fishermen after April 15th and prior to May 1 will apply to the Summer period quota allocated to the state where the scup were landed. States have to request that the date of the Summer period change for state permit holders and are required to notify NMFS that these landings will apply to the Summer period quota.

Addendum XI, approved in January 2004, allows states to customize scup recreational management measures while also setting a management process that minimizes the administrative burden when implementing conservation equivalency.

Addendum XIX, approved in August 2007, broadens the descriptions of stock status determination criteria contained within the Summer Flounder, Scup, and Black Sea Bass FMP to allow for greater flexibility in those definitions, while maintaining objective and measurable criteria for identifying when stocks are overfished. It establishes acceptable categories of peer-review for stock status determination criteria. When these specific peer-review metrics are met and new or updated information is available, the new or revised stock status determination criteria may be incorporated by the Commission directly into the annual management measures for each species.

Addendum XX sets policies to reconcile quotas overages to address minor inadvertent quota overages. It was approved in November 2009. It streamlines the quota transfers process and establishes clear policies and administrative protocols to guide the allocation of transfers from states with underages to states with overages. It also allows for quota transfers to reconcile quota overages after the year's end.

States with a declared interest in the Scup FMP are Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, and North Carolina. The Commission's Summer Flounder, Scup, and Black Sea Bass Management Board serves as the species management board, and the Demersal Species Committee guides plan development for the MAFMC. The Summer Flounder, Scup, and Black Sea Bass Technical Committee addresses technical issues. Industry advice is solicited through the Scup and Black Sea Bass Advisory Panel, and annual review and monitoring is the responsibility of the Scup Plan Review Team.

II. Status of the Stock

The assessment model for scup changed in 2008 from a simple index-based model to a complex statistical catch at age model. The new model incorporates a broader range of fishery and survey data than was used previously.

Since 1984, recruitment (e.g., the number of fish entering the population) estimates are influenced mainly by the fishery and survey catches-at-age, and averaged 109 million fish during 1984-2014. The 1999, 2006, and 2007 year classes are estimated to be the largest of the time series, at 222, 222, and 218 million age 0 fish. Below average recruitment occurred in 2012 and 2013. The 2014 year class is estimated to be above average at 112 million age 0 fish.

The new reference points are F MSY $=F_{40\%} = 0.220$. $F_{40\%}$ is the rate of fishing that will result in 40% of the spawning potential of an unfished stock. The spawning stock biomass target is equal to $SSB_{40\%}$ = 87,302 mt or 192.47 million pounds. The 2015 stock assessment indicates the 2014 F was 0.127 and SSB was 403 million pounds, therefore overfishing is not occurring and the stock is rebuilt.

III. Status of the Fishery

Commercial scup landings, which had declined by over 33% to 8.8 million pounds in 1988 from peak landings (approximately 49 million lbs) in 1960, increased to 15.6 million pounds in 1991, then steadily dropped to the lowest value in the time series, 2.7 million pounds in 2000. Since 2001, commercial landings have continued to increase nearly every year to about 15.03 million pounds in 2011. Since 2011 commercial landings have continued to increase, ranging from 14.88 million lb in 2012, to 17.87 million pounds in 2013. In 2014 commercial landings were 15.93 million lbs, about 77% of the commercial quota. Since 1979 approximately 80% of the commercial landings have been landed in Rhode Island (38%), New Jersey (26%), and New York (16%). Otter trawl is the principal gear, accounting for 65%-90% of commercial landings since 1979.

The recreational fishery for scup is significant, with the greatest proportion of the catches taken in states of Massachusetts through New York. Since 1981, recreational harvest has averaged 32% of total landings (commercial and recreational). From 2005 to 2014, recreational harvest has ranged from 2.69 million lbs in 2005 to 5.11 million lbs in 2013. In 2014 recreational harvest was 4.12 million lbs, about 59% of the recreational harvest limit.

IV. Status of Assessment Advice

Technical advice to managers has cautioned rapid increases in quota to meet the revised maximum sustainable yield given uncertainties in recruitments. They advised a more gradual increase in quotas is a preferred approach reflective of the uncertainty in the model estimates and stock status.

A between assessment comparison provided another measure of assessment uncertainty due to historical changes in model estimates. The 2010 assessment estimates of SSB and F are intermediate with respect to the 2008 assessment and the 2009 update for the same years, while the size of the 2007 year class was overestimated in the 2008 assessment compared to the 2010 update. The next benchmark assessment is scheduled for Summer 2015.

V. Status of Research and Monitoring

Commercial landings data are collected by the NMFS Vessel Trip Report system and by state reporting systems. The NEFSC sea sampling program collects commercial discard information. Biological samples (age, length) from the commercial fishery are collected through NEFSC weighout system and by the state of North Carolina. Recreational landings and discard information is obtained through the Marine Recreational Fisheries Statistics Survey Program. The Commonwealth of Massachusetts collected length frequency information for the recreational fishery in 2001 as part of a federally funded effort to monitor the recreational and commercial directed fisheries. One non-directed fishery assumed to have substantial scup bycatch was also monitored. This monitoring effort decreased substantially in 2002 as the study received funding for one year. Fishery independent abundance indices are available from surveys conducted by the NEFSC, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and the Virginia Institute of Marine Science.

VI. Management Measures and Developing Issues

Addendum 1 to the Scup FMP specifies the commercial quota management scheme. The annual coastwide quota is divided among three periods. The Winter I period is January through April, the summer period is May through October, and November and December make up Winter II. During the winter periods, the quota is coastwide and is limited by trip limits. The summer allocation is divided into state shares. When a winter period allocation is landed, the states and the NMFS must prohibit landings. When a state lands it summer allocation it is expected to close its fishery and the NMFS will close that state for landings by federally permitted vessels. The quota, as well as accompanying trip limits, will be set annually. [Note: The Federal FMP currently contains a coastwide commercial quota during the summer period due to the court decision described in Section I]. The Board has expressed interest in exploring alternative quota programs for scup.

Scup FMP Compliance Criteria:

COMMERCIAL FISHERY for 2014

The following management measures may change annually.

Minimum size of possession: 9" Total Length
Minimum mesh and threshold: Otter trawls must have a minimum mesh size of 5" for the first 75 meshes from the terminus of the net and a minimum mesh size of 5" throughout the net for codends constructed with fewer than 75 meshes.
Threshold to Trigger Minimum Mesh Requirements: 500 pounds of scup from November 1 through April 30 and 200 pounds or more of scup from May 1 through October 31.
Maximum roller rig trawl roller diameter: 18"
Pot and trap escape vents: 3.1" round, 2.25" square
Pot and trap degradable fastener provisions: a) untreated hemp, jute, or cotton string 3/16" (4.8 mm) or smaller; b) magnesium alloy timed float releases or fasteners; c) ungalvanized, uncoated iron wire of 0.094" (2.4mm) or smaller
Commercial quota: 21.95 million pounds (adjusted for overages and research set-asides)
Winter I and II landing limits: Winter I = 9,877,500 lbs, 1,000 lbs trip limits when the quota reaches 80%; Winter II = 3,498,830 lbs

The following required measures are not subject to annual adjustment:

Vessel and dealer permitting requirements: States are required to implement a permit for fishermen fishing exclusively in state waters, and for dealers purchasing exclusively from such fishermen. In addition, states are expected to recognize federal permits in state waters, and are encouraged to establish a moratorium on entry into the fishery.

Vessel and dealer reporting requirements: States are required to implement reporting requirements for state permitted vessels and dealers and to report landings from state waters to the NMFS.

Scup pot or trap definition: A scup pot or trap will be defined by the state regulations that apply to the vessels principal port of landing.

Quota management requirements:

Winter I and II: States are required to implement landing limits as specified annually, States are required to notify state and federal permit holders of initial period landing limits, in-period adjustments, and closures. States are required to prohibit fishing for, and landing of, scup when a period quota has been landed, based on projections by NMFS. States must report landings from state waters to the NMFS for counting toward the quota

Summer: States are required to implement a plan of trip limits or other measures to manage their summer share of the scup quota. States are required to prohibit fishing for, and landing of, scup when their quota share is landed. States may transfer or combine quota shares. States must report all landings from state waters to the NMFS for counting toward the state shares.

RECREATIONAL FISHERY for 2014

Addendum IX established a state-specific management program for Massachusetts through New York (inclusive), and specific management measures for the states of New Jersey, Delaware, Maryland, Virginia, and North Carolina.

The following measures may change annually:

2014 Recreational Measures

2014 Minimum size, possession limits and seasonal closure: Table 4

2014 Recreational Harvest Limit: 7.03 million pounds.

2015 Recreational Measures

2015 Minimum size, possession limits and seasonal closure: Table 5

2015 Recreational Harvest Limit: 6.80 million pounds

OTHER MEASURES

Reporting: States are required to submit an annual compliance report to the Chair of the ASMFC Scup Plan Review Team by June 1 of each year. This report should detail the state's management program for the current year and establish proof of compliance with all mandatory management measures. It should include landings information from the previous year, and the results of any monitoring or research programs.

De minimis: States having commercial landings during the summer period that are less than 0.1% of the summer period quota are eligible for *de minimis* consideration. States desiring *de minimis* classification must make a formal request in writing through the Plan Review Team for review and consideration by the Scup Management Board.

This summary of compliance criteria is intended to serve as a quick reference guide. It in no way alters or supersedes compliance criteria as contained in the Scup FMP and any Amendments thereto.

Compliance Issues

The PRT found no compliance issues.

De Minimis

The state of Delaware request *de minimis* status. The PRT notes Delaware meets the *de minimis* requirements.

VII. State Compliance with Required Measures

Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, and North Carolina are required to comply with the provisions of the Scup FMP. All states implemented regulations in compliance with the requirements approved by the Board.

Scup FMP Compliance Schedule

1996 and 1997 initial FMP compliance dates:

Commercial Fishery

Quota Management Measures	
ability to implement and enforce period landing limits	1/1/97
ability to notify permit holders of landing limits and closures	5/1/97
ability to close the summer fishery once the state share is harvested	5/1/97
ability to close the winter fisheries once the period quota is harvested	5/1/97
Size limit	6/30/96
Minimum mesh	1/1/97
Pot and trap escape vents, degradable fasteners	6/30/96
Roller diameter restriction	6/30/96
Vessel permit and reporting requirements, state	1/1/97
Dealer permit and reporting requirements, state	1/1/97

Recreational Fishery

Quota Management Measures	
Size limit	6/30/96

General

States submit annual monitoring and compliance report	6/1 annually

Annual Specifications

Commercial	
Winter I Landing Limits	1/1/14
Winter II Landing Limits	11/1/14

Recreational

Massachusetts– New York (inclusive)	
State specific minimum size, possession limit and season	3/1/14
New Jersey – North Carolina (inclusive)	
Federal coastwide minimum size, possession limit and season	12/1/13

Table 1. Summary of scup management measures, 2005-2014.

Management measures	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
TAC (m lbs)	18.65	19.79	13.97	9.9	15.54	17.09	31.92	40.88	38.71	35.99
Commercial ACL (m lbs)	-	-	-	-	-	-	-	31.89	30.19	28.07
Commercial quota–adjusted (m lbs)[a]	12.23	11.93	8.9	5.24	8.37	10.68	20.36	27.91	23.53	21.95
Commerical. landings	8.18	9.00	9.24	5.22	8.20	10.73	15.03	14.88	17.87	15.93
Recreational TAC (m lbs)	-	-	-	-	-	-	-	8.99	8.52	7.92
Recreational harvest limit-adjusted (m lbs)[a]	3.96	4.15	2.74	1.83	2.59	3.01	5.74	7.55	7.55	7.03
Recreational landings	2.69	3.72	4.56	3.79	3.23	5.97	3.67	4.17	5.11	4.12
Commercial fish size (in)	9	9	9	9	9	9	9	9	9	9
Min. mesh size (in, diamond)	5	5	5	5	5	5	5	5	5	5
Mesh threshold	500/ 200	500/ 200	500/ 200	500/ 200	500/ 200	500/ 200	500/ 200	500/ 200	500/ 200	500/ 200

[A] 2005-2014 commercial quotas and recreational harvest limits were adjustted for the Research Set Aside (RSA) program. The RSA program was suspended for 2015.

Table 2. Scup commercial landings by state 2004-2014 in pounds.

State	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Maine	2										
Massachusetts	775,940	1,134,759	1,088,148	1,104,316	527,325	718,751	1,030,688	1,243,810	2,005,268	1,094,975	1,185,816
Rhode Island	3,457,498	3,423,611	3,671,250	3,892,671	2,133,001	1,785,994	4,298,595	6,335,391	6,309,321	4,689,540	6,932,462
Connecticut	255,569	327,861	297,912	255,884	283,101	203,607	323,757	644,030	905,060	1,194,949	811,106
New York	1,906,889	2,185,836	2,305,161	2,280,112	1,203,661	1,845,908	2,689,443	3,542,538	4,306,621	4,407,231	3,190,433
New Jersey	1,891,086	1,914,358	1,392,868	1,575,144	773,829	1,528,545	1,550,249	1,966,479	978,531	2,033,083	1,925,591
Delaware	2	0	0	3	0	0	0	9	1	4	4
Maryland	47,200	927				9,000	27,183	54,229	8,263		230,104
Virginia	448,574	287,891	80,292	22,579	95,939	211,576	371,376	620,480	339,868	913,113	660,324
North Carolina	523,554	351,609	139,420	66,856	205,703	244,337	102,745	308,907	4,098	28,394	159,930
Coastwide	**9,274,058**	**9,627,665**	**9,065,404**	**9,259,713**	**5,222,559**	**6,547,718**	**10,394,036**	**14,715,873**	**14,857,031**	**14,361,289**	**15,095,770**

Table 3. Scup recreational landings, 2004-2014, by state in numbers of fish.

State	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Massachusetts	3,312,973	656,524	424,968	1,769,960	761,612	1,069,275	925,222	785,205	1,587,006	2,042,669	1,634,104
Rhode Island	816,894	430,747	470,286	353,450	632,839	139,576	398,178	567,697	497,505	818,472	975,812
Connecticut	1,072,232	508,296	532,362	925,236	549,083	288,702	1,087,681	932,637	868,475	929,901	561,182
New York	1,876,973	859,156	1,677,998	1,596,391	1,450,860	1,460,314	1,990,340	714,789	592,238	1,096,409	1,132,448
New Jersey	60,141	118,667	327,202	99,320	87,186	174,809	739,901	44,813	119,961	144,712	45,847
Delaware	518	3,870	319	2,365	1,338	821	0	40	86	0	35
Maryland	1,095	1,832	226	305	104	32	18	11		0	0
Virginia	10,999	8,507	0	586	3,920	527	5,284	10,413	1,425	1,263	0
North Carolina	1,710	1,832	775	214			1,653	607	1,800	630	769
Total	**7,153,535**	**2,589,431**	**3,434,136**	**4,747,827**	**3,486,942**	**3,134,056**	**5,148,277**	**3,056,212**	**3,668,496**	**5,034,056**	**4,350,197**

Table 4. 2014 State Scup Recreational Measures

State	Minimum Size (inches)	Possession Limit	Open Season
Massachusetts For Hire	10	45 fish from May 1- June 30; 30 fish from July 1- Dec 31	May 1- December 31
Private Angler	10	30 fish; private vessels with 6 or more persons aboard are prohibited from possessing more than 150 scup per day	May 1- December 31
Rhode Island For Hire	10	30 fish from May 1-Aug 31 and Nov 1-Dec 31; 45 fish from Sept 1-Oct 31	May 1- December 31
Private Angler	10"; and 9" or greater for shore mode at 7 designated sites	30 fish	May 1- December 31
Connecticut For Hire	10	30 fish from May 1-Aug 31 and Nov 1-Dec 31; 45 fish from Sept 1-Oct 31	May 1- December 31
Private Angler	10; and 9" for shore mode at 46 designated sites	30 fish	May 1- December 31
New York For Hire	10	30 fish from May 1-Aug 31 and Nov 1-Dec 31; 45 fish from Sept 1-Oct 31	May 1- December 31
Private Angler	10	30 fish	May 1- December 31
New Jersey	9	50 fish	Jan 1-Feb 28 and July 1 – December 31
Delaware	8	50 fish	All Year
Maryland	8	50 fish	All Year
Virginia	8	30 fish	All Year
North Carolina	8	50 fish	All Year

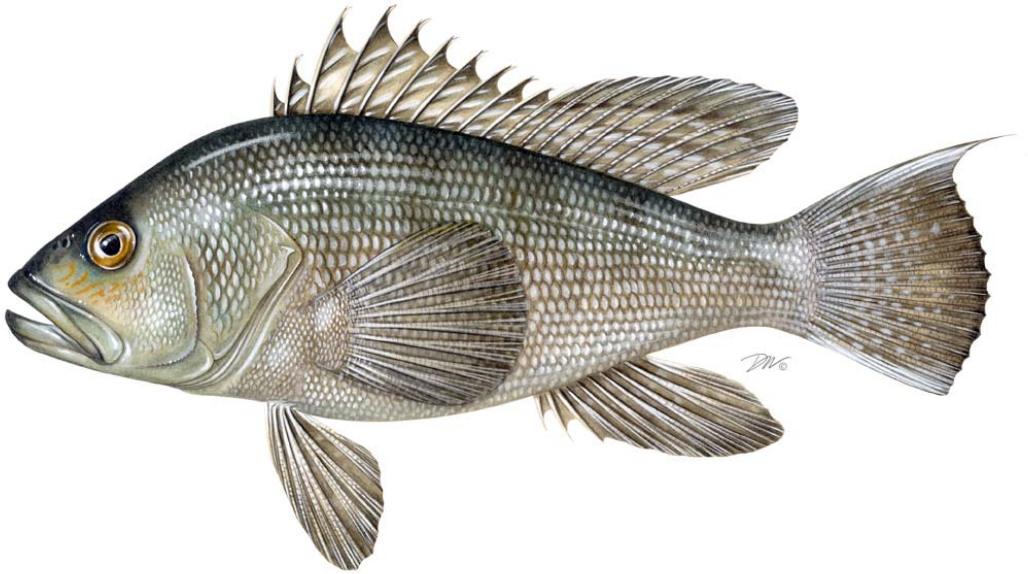
Table 5. 2015 State Scup Recreational Measures

State	Minimum Size (inches)	Possession Limit	Open Season
Massachusetts For Hire	10	45 fish from May 1- June 30; 30 fish from July 1- Dec 31	May 1- December 31
Private Angler	10	30 fish; private vessels with 6 or more persons aboard are prohibited from possessing more than 150 scup per day	May 1- December 31
Rhode Island For Hire	10	30 fish from May 1-Aug 31 and Nov 1-Dec 31; 45 fish from Sept 1-Oct 31	May 1- December 31
Private Angler	10"; and 9" or greater for shore mode at 3 designated sites	30 fish	May 1- December 31
Connecticut For Hire	10	30 fish from May 1-Aug 31 and Nov 1-Dec 31; 45 fish from Sept 1-Oct 31	May 1- December 31
Private Angler	10; and 9" for shore mode at 46 designated sites	30 fish	May 1- December 31
New York For Hire	10	30 fish from May 1-Aug 31 and Nov 1-Dec 31; 45 fish from Sept 1-Oct 31	May 1- December 31
Private Angler	10	30 fish	May 1- December 31
New Jersey	9	50 fish	Jan 1-Feb 28 and July 1 – December 31
Delaware	8	50 fish	All Year
Maryland	8	50 fish	All Year
Virginia	8	30 fish	All Year
North Carolina	8	50 fish	All Year

Table 6. Scup Landings by period.

Year	Period	Commercial Quota	Trip Limits	Landings (lbs)	Date Closed	% of Quota Landed
2002	Winter I	3,517,300	10,000/1,000	3,063,836	--	87.1
	Summer	2,556,595	--	1,223,202	--	47.8
	Winter II	1,179,502	2,000	1,135,769	2-Dec	96.3
2003	Winter I	5,602,495	15,000/1,000	3,752,176	--	66.9
	Summer	4,521,879	--	4,407,785	--	97.5
	Winter II	1,979,689	1,500	1,592,624	--	80.4
2004	Winter I	5,568,920	15,000/1,000	3,587,841	--	65.5
	Summer	4,808,455	--	4,055,207	--	84.5
	Winter II	1,967,825	1,500	1,407,733 [f]	--	82.2
2005	Winter I	5,518,367	15,000/1,000	3,684,768	--	66.8
	Summer	4,764,806	--	4,001,662	--	89.5
	Winter II	1,987,718	1,500	1,380,444	--	74.6
2006	Winter I	3,554,991	30,000/1,000	3,626,237	--	102
	Summer	4,647,569	--	3,219,929	--	69.3
	Winter II	3,729,581	2,000/1,000	2,115,323	--	56.7
2007	Winter I	4,012,895	30,000/1,000	3,400,934	--	84.8
	Summer	3,464,914	--	4,254,987	21-Sep	122.8
	Winter II	1,417,991	2,000/1,000	1,590,747	--	112.2
2008	Winter I	2,291,699	30,000/1,000	2,356,716	--	102.8
	Summer	1,437,558	--	1,935,074	16-Jul	134.6
	Winter II	940,948	2,000/1,000	892,318	--	94.8
2009	Winter I	3,777,443	30,000/1,000	3,774,583	--	99.9
	Summer	2,930,733	--	3,072,340	--	104.8
	Winter II	1,334,791	2,000/1,000	1,356,961	--	101.7
2010	Winter I	4,964,716	30,000/1,000	4,740,681	--	95.4
	Summer	4,286,759	--	4,175,206	--	97.4
	Winter II	1,754,325	2,000/1,000	1,482,669	--	84.5
2011	Winter I	6,897,648	30,000/1,000	5,648,867	--	81.9
	Summer	7,930,504	--	6,349,749	--	80.1
	Winter II	3,245,500	2,000/1,000	2,556,214	--	78.8
2012	Winter I	12,589,558	50,000/1,000	5,190,370	--	41.2
	Summer	10,870,390	--	6,326,576	--	58.2
	Winter II	11,635,321	8,000	2,484,470	--	21.4
2013	Winter I	10,613,157	50,000/1,000	7,431,296	--	70.0
	Summer	9,163,877	--	7,684,995	--	83.9
	Winter II	6,932,998	8,000	2,324,250	--	33.5
2014	Winter I	9,900,000	50,000/1,000	5,833,858	--	58.9
	Summer	8,548,364	--	7,146,612	--	83.6
	Winter II	7,232,471	8,000	2,318,732	--	32.1

2015 REVIEW OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
FISHERY MANAGEMENT PLAN FOR the 2014 BLACK SEA BASS FISHERY
Black Sea Bass *(Centropristis striata)*



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September 2015

2015 Review of the Atlantic States Marine Fisheries Commission
Fishery Management Plan for Black Sea Bass

I. Status of the Fishery Management Plan

ASMFC management of black sea bass was initiated as one component of a multi-species fishery management plan (FMP) addressing summer flounder, scup, and black sea bass. In 1990, summer flounder was singled out for immediate action under a joint ASMFC and Mid-Atlantic Fishery Management Council (MAFMC or Council) plan. Further action on the scup and black sea bass plan was delayed until 1992 to expedite the summer flounder FMP and subsequent amendments. The joint Black Sea Bass FMP was completed and approved in 1996. The MAFMC approved regulations for black sea bass as Amendment 9 to the Summer Flounder FMP in May 1996.

The management unit of the Black Sea Bass FMP includes all black sea bass in U.S. waters in the western Atlantic Ocean from Cape Hatteras, North Carolina north to the Canadian border. Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, and North Carolina have declared an interest in black sea bass. The Commission's Summer Flounder, Scup, and Black Sea Bass Management Board and the MAFMC Demersal Species Committee guide development of the FMP. Technical issues are addressed through the Summer Flounder, Scup, and Black Sea Bass Technical Committee and the Black Sea Bass Monitoring Committee. The Black Sea Bass Plan Review Team conducts annual reviews and monitors compliance and the Scup and Black Sea Bass Advisory Panel provide industry input and advice.

The objectives of the FMP are to reduce fishing mortality to assure overfishing does not occur, reduce fishing mortality on immature black sea bass to increase spawning stock biomass, improve yield from the fishery, promote compatible regulations among states and between federal and state jurisdictions, promote uniform and effective enforcement, and to minimize regulations necessary to achieve the stated objectives. The initial FMP defined overfishing as fishing in excess of F_{MSY}=$F_{40\%}$, or F=0.42 up until Addendum XIX (2007). It also defined overfished as the spawning stock biomass being below SSB_{MSY}= $SSB_{40\%}$ =12,537 mt. There has not been a peer review and accepted since the 2012 assessment update. The initial black sea bass FMP was designated to reduce fishing mortality by a coastwide commercial quota allocated by state, and a recreational harvest limit constrained through the use of minimum size, possession limit, and seasonal closures.

Amendment 12 to the Summer Flounder, Scup, and Black Sea Bass FMP was approved by the Commission in October 1998 and established revised overfishing definitions, identification and description of essential fish habitat, and defined the framework adjustment process.

Addendum IV, approved on January 29, 2001, provides that upon the recommendation of the relevant monitoring committee and joint consideration with the Council, the Board will decide the state regulations rather than forward a recommendation to NMFS. Addendum IV also made the states responsible for implementing the Board's decision on regulations.

Starting in 1998, the fishery was subject to lengthy closures and had some significant quota overages in the commercial sector. Fishery closures occurring as a result of exceeded quotas resulted in increased discards of legal sized black sea bass in mixed fisheries for the remainder of the closed period. A significant financial hardship for the fishing industry resulted from a decrease in market demand caused by a fluctuating supply. To address these issues, the Management Board enacted a series of Emergency Rules in 2001 that established initial possession limits, triggers, and adjusted possession limits. These measures helped reduce the length of fishery closures, but the rapidly changing regulations confused fishermen and added significant administrative burden to the states. To simplify the process for all parties, the Board approved Addendum VI to provide a mechanism for initial possession limits, triggers, and adjusted possession limits to be set during the annual specification setting process without the need for further Emergency Rules.

Amendment 13, approved by ASMFC in May 2002, implemented a federal, coastwide annual quota that is managed by ASMFC using a state-by-state allocation system. The Amendment was implemented in 2003 and 2004. State-specific shares are listed in Table 1.

Amendment 13 also removed the necessity for fishermen who have both a Northeast Region (NER) Black Sea Bass permit and a Southeast Region (SER) Snapper Grouper (S/G) permit to relinquish their permits for a six-month period prior to fishing south of Cape Hatteras during a northern closure.

Addendum XII, approved in 2004, continues the use of a state-by-state allocation system, managed by the ASMFC on an annual coastwide commercial quota.

Addendum XIII approved in 2004, modifies the FMP so that Total Allowable Landings (TALs) for the summer flounder, scup, and/or black sea bass can be specified for up to three years.

Addendum XIX continues the state-by-state black sea bass commercial management measures, without a sunset clause. This addendum also broadens the descriptions of stock status determination criteria contained within the Summer Flounder, Scup, and Black Sea Bass FMP to allow for greater flexibility in those definitions, while maintaining objective and measurable status determination criteria for identifying when stocks or stock complexes covered by the FMP are overfished. It establishes acceptable categories of peer-review for stock status determination criteria. When these specific peer-review metrics are met and new or updated information is available, the new or revised stock status determination criteria may be incorporated by the Commission directly into the annual management measures for each species.

Addendum XX sets policies to reconcile quotas overages to address minor inadvertent quota overages. It was approved in November 2009. It streamlines the quota transfers process and establishes clear policies and administrative protocols to guide the allocation of transfers from states with underages to states with overages. It also allows for quota transfers to reconcile quota overages after year's end.

Addendum XXV continues the use of ad-hoc regional management measure options to alleviate the differences between state by state measures among the states along the coast. It was approved in February 2014. The addendum allows northern states (MA-NJ) to adjust management measures annually to best meet the needs of their state while constraining harvest to the overall

coastwide RHL. In years of overages, the northern states- which harvest the largest percentage- adjust their management measures to account for harvest reductions in subsequent years.

II. Status of the Stock

The assessment model for black sea bass changed in 2008 from a simple index-based model to a complex statistical catch at length model incorporating a broad range of fishery and survey data. The fishery catch is modeled as a single fleet with indices of stock abundance from NEFSC winter, spring, and autumn surveys. A model averaging approach was adopted using the average of results from ten candidate models.

The northern stock of black sea bass (i.e. black sea bass north of Cape Hatteras, North Carolina) was designated as overfished in 2000, and was under a stock rebuilding strategy from 2000-2009. In 2009, that the stock was declared rebuilt after the 2008 stock assessment indicated that the stock was not overfished and overfishing was not occurring in 2007. When the assessment model was updated in 2012, it was determined that the stock was not overfished and overfishing was not occurring in 2011. The next benchmark stock assessment is scheduled for fall 2016.

III. Status of the Fishery

The commercial fishery is allocated 49% of the total allowable landings (TAL) for black sea bass. The principle gears used in the fishery are pots, otter trawls and handline. After peaking at 218 million pounds in 1952, commercial landings markedly decreased in the ‘60s and have since ranged from 1.17 to 3.6 million pounds since 1981. In 1998 a quota system was incorporated into management and state-by-state share were introduced in 2003. From 2005-2014 commercial landings have remained stable, with a range from 2.87 million lbs in 2005 to 1.17 million lbs in 2009 (Table 2 and 3). In 2014 commercial landings were approximately 2.19 million lbs. Commercial discards are generally less than 441,000 pounds per year.

The recreational fishery is allocated 51% of the TAL for black sea bass. After peaking in 1985 at 12.35 million pounds, recreational harvest averaged 3.75 million pounds annually from 1988 to 1997. Recreational harvest limits were put in place in 1998 and harvest ranged from 1.1 to 3.24 million pounds from 1998 to 2014 (Table 4). In 2014 the recreational harvest was 3.74 million pounds. Recreational discards are significantly higher than commercial, ranging from 3 to 10 million fish per year.

IV. Status of Research and Monitoring

Commercial landings information is collected by the Vessel Trip Reporting system and dealer reports. States are also required to collect and report landings data. Sea sampling data from the NEFSC sea sampling program are used to estimate discards. The NEFSC weigh-out program provides commercial age and length information. Recreational landings and discards were estimated through the Marine Recreational Fisheries Statistics Survey (MRFSS) until 2008, with the Marine Recreational Information Program (MRIP) replacing it for all data collected from 2008 to present.

Fishery-independent surveys are conducted in Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Maryland, Virginia, and North Carolina. The Virginia Game Fish Tagging

Program has targeted black sea bass since 1997. Data from the tagging program will be used to develop an analytical, age-based model. Recruitment and stock abundance data are provided by the NEFSC spring, autumn, and winter trawl surveys.

V. Status of Assessment Advice

The next benchmark stock assessment is scheduled for 2016.

VI. Status of Management Measures and Developing Issues

Currently there are no developing black sea bass FMPs.

VII. Black Sea Bass Compliance Criteria

2014 Commercial Fishery Requirements

Minimum size of possession: 11”
Minimum mesh: larger nets are required to possess a minimum of 75 meshes of 4.5” diamond mesh in the codend or the entire net must have a minimum mesh size of 4.5” throughout; smaller nets must have 4.5" mesh or larger throughout
Mesh Threshold: 500 lbs for January-March and 100 lbs for April-December
Maximum roller rig trawl roller diameter: 18”
Pot and trap escape vents: 2 ½” for circular, 2" for square, and 1-3/8 x 5-3/4" for rectangular. Must be 2 vents in the parlor portion of the trap
Pot and trap degradable fastener provisions: a) untreated hemp, jute, or cotton string 3/16” (4.8 mm) or smaller; b) magnesium alloy timed float releases or fasteners; c) ungalvanized, uncoated iron wire of 0.094” (2.4mm) or smaller. The opening covered by a panel affixed with degradable fasteners would be required to be at least 3” x 6”.
Commercial quota: 2.17 million pounds
Pot and trap definition: A black sea bass pot or trap is defined as any pot or trap used by a fisherman to catch and retain black sea bass.

2014 Recreational Fishery Requirements

See Table 5.
Recreational harvest limit: 2.26 million pounds

Other Measures

Reporting: States are required to submit an annual compliance report to the Chair of the Black Sea Bass Plan Review Team by June 1st. The report must detail the state’s management program for the current year and establish proof of compliance with all mandatory management measures. It should include landings information from the previous year, and the results of any monitoring or research programs.

This summary of compliance criteria is intended to serve as a quick reference guide. It in no way alters or supersedes compliance criteria as contained in the Black Sea Bass FMP and any Amendments thereto. Also please note that the management measures may change annually.

VII. Compliance

States and jurisdictions required to comply with the provisions of the Black Sea Bass FMP are: Massachusetts**,** Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Potomac

River Fisheries Commission, Virginia, and North Carolina. All states implemented regulations in compliance with the requirements approved by the Board.

All states appear in compliance with the FMP provisions for fishing year 2014.

Black Sea Bass FMP Compliance Schedule

Commercial	
9” Size Limit	1/1/97
10” Size Limit	1/1/98
11” Size Limit	1/1/02
Minimum mesh and threshold provisions	1/1/02
Pot and trap escape vents and degradable fasteners	1/1/97
Roller diameter restriction	1/1/97
States must report to NMFS all landings from state waters	1/1/98

Recreational	
Size Limit	1/1/97
Harvest Limit	1/1/98
Ability to implement possession limits and seasonal closures	1/1/98

General

Annual compliance report	Annually, 7/1

Table 1. State by state allocation for annual quota.

State	% Allocation
Maine	0.50%
New Hampshire	0.50%
Massachusetts	13%
Rhode Island	11%
Connecticut	1%
New York	7%
New Jersey	20%
Delaware	5%
Maryland	11%
Virginia	20%
North Carolina	11%

Table 2. Black Sea Bass Commercial Landings by State (2004-2014) in pounds.
Source: National Marine Fisheries Service Commercial Landings Data (July 2015)

State	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
ME											
NH	336										
MA	382,389	510,162	596,480	442,136	316,722	148,470	260,181	287,666	248,463	329,223	276,858
RI	435,733	293,976	273,161	356,542	226,925	128,053	241,892	185,709	187,806	237,951	243,707
CT	24,867	17,522	10,445	10,123	15,554	17,854	21,422	20,485	17,677	22,735	26,957
NY	240,517	244,074	295,078	265,940	201,222	123,287	200,463	177,997	153,347	180,947	237,458
NJ	697,085	543,733	494,352	480,112	424,667	204,213	305,294	293,609	310,427	494,075	485,775
DE	83,728	72,931	87,381	63,431	60,700	50,259	76,913	82,436	82,351	104,937	102,279
MD	283,605	336,662	350,385	170,909	159,453	125,643	203,088	182,711	140,861	219,321	230,953
VA	393,269	443,644	305,871	189,875	211,500	164,524	263,563	274,446	391,384	493,153	377,728
NC*	881,261	690,043	777,659	472,931	484,507	614,734	400,879	272,189	61,187	88,242	211,127
Coastwide	3,422,790	3,152,747	3,190,812	2,451,999	2,101,250	1,577,037	1,973,695	1,777,248	1,593,503	2,170,584	2,192,842

** Landings are from both north and south of Hatteras from 2004-2011*

Table 3. 2014 Black Sea Bass Commercial State by State Quotas (pounds)*

State	% Allocation	2014 ASMFC Intial Quota[#]	2014 transfers as of 12/24	2014 Quota after transfer	2015 ASMFC Initial Quota
ME	0.005	10,872	-10,000	850	11,065
NH	0.005	10,872	-10,000	850	11,065
MA	0.13	282,661			287,680
RI	0.11	239,174			243,422
CT	0.01	21,743			22,129
NY	0.07	152,202	20,000	172,202	154,905
NJ	0.2	434,862			442,585
DE	0.05	108,716			110,646
MD	0.11	239,174			243,422
VA	0.2	434,862	10,039	444,901	442,585
NC	0.11	239,174	-10,039	229,135	243,422
Total	100%	2,174,312			2,212,923

Table 4. Black Sea Bass Recreational Landings by State (2004-2014) in pounds.
Source: National Marine Fisheries Service MRIP (2004-present)

State	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
NH									4,587	18,060	0
MA	224,338	365,186	149,993	153,869	365,108	626,082	999,914	318,379	1,049,251	675,563	1,087,847
RI	49,694	164,960	67,076	59,566	82,072	50,290	238,039	85,912	226,130	148,417	370,531
CT	37,897	119	4,684	41,941	99,848	1,025	23,029	13,758	261,163	252,602	599,860
NY	194,743	230,832	455,213	563,199	528,613	844,746	965,767	399,030	542,688	682,867	777,978
NJ	42,593	80,214	140,931	136,564	26,378	36,190	28,357	46,609	993,093	30,273	631,457
DE	1,311,011	904,999	690,651	1,086,652	827,511	763,593	779,105	181,695	49,967	471,442	30,962
MD	19,571	93,475	136,064	49,002	32,603	40,681	41,386	51,714	42,173	9,928	87,086
VA	58,889	49,312	105,134	64,954	51,974	112,339	28,987	26,753	2,599	31,339	17,964
NC*	274,340	229,893	151,075	196,134	90,977	145,208	138,961	95,004	7,082	17,970	132,351
Coastwide	**2,213,076**	**2,118,990**	**1,900,821**	**2,351,881**	**2,105,084**	**2,620,154**	**3,243,545**	**1,218,854**	**3,178,733**	**2,338,461**	**3,736,036**

** Landings are from both north and south of Hatteras*

Table 5. 2014 recreational management measures for black sea bass by state

State	Minimum Size (inches)	Possession Limit	Open Season
Maine	13	10 fish	May 19-September 21
New Hampshire	13	10 fish	January 1-December 31
Massachusetts	14	8 fish	May 17-September 15
Massachusetts For-Hire vessels with MA DMF Letter of Authorization)	14	8 fish	May 17-May 31
		20 fish	September 1-September 30
Rhode Island	13	3 fish	June 29- August 31
		7 fish	September 1-December 31
Connecticut	13	3 fish	June 21-August 31
(Private & Shore)		8 fish	September 1-December 31
Connecticut (Authorized party/charter monitoring program vessels)	13	8 fish	June 21-December 31
New York	13	8 fish	July 15-December 31
New Jersey	12.5	3 fish	July 1-August 31
		15 fish	May 19-June 30;
			September 1- 6;
			October 18-December 31
Delaware	12.5	15 fish	May 19-September 18;
			October 18-December 31
Maryland	12.5	15 fish	May 19-September 18;
			October 18-December 31
Virginia	12.5	15 fish	May 19-September 18;
			October 18-December 31
North Carolina, North of Cape Hatteras (N of 35°	12.5	15 fish	May 19-September 18;
			October 18-December 31

Table 6. 2015 recreational management measures for black sea bass by state.

State	Minimum Size (inches)	Possession Limit	Open Season
Maine	13	10 fish	May 19-September 21
New Hampshire	13	10 fish	January 1-December 31
Massachusetts	14	8 fish	May 23-August 27
Rhode Island	14	1 fish	July 2-August 31
		7 fish	September 1-December 31
Connecticut	14	3 fish	June 1-August 31
(Private & Shore)		5 fish	September 1-December 31
Connecticut (Authorized party/charter monitoring program vessels)	14	8 fish	June 21-December 31
New York	14	8 fish	July 15-October 31
		10 fish	November 1-December 31
New Jersey	12.5	2 fish	July 1-July 31
		15 fish	May 27-June 30; October 22-December 31
Delaware	12.5	15 fish	May 19-September 18; October 18-December 31
Maryland	12.5	15 fish	May 15-September 21; October 22-December 31
Virginia	12.5	15 fish	May 19-September 18; October 18-December 31
North Carolina, North of Cape Hatteras (N of 35° 15'N)	12.5	15 fish	May 15-September 21; October 22-December 31

Atlantic States Marine Fisheries Commission

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MEMORANDUM

TO: **Executive Committee**

FROM: **Robert Beal, Executive Director**

DATE: **October 27, 2015**

SUBJECT: **Review of Executive Committee Recommended Changes to the Commission Guidance Documents**

The Executive Committee (EC) met on August 5, 2015 to review potential changes to the Commission guidance documents and developed nine recommended changes. Below is a summary of those nine actions.

The Commission's guidance documents detail the operating policies, procedures, roles, and responsibilities of the Commission and its committees. These documents include the ISFMP Charter, Compact and the Rules and Regulations, the Appeal Process, Conservation Equivalency: Policy and Technical Guidance Document, Technical Support Group Guidance and Benchmark Stock Assessment Process, and the Advisory Committee Charter. Over time the way the Commission conducts its business has evolved and, in some cases, is not consistent with its guiding documents. Also, there are examples where the documents do not provide clear guidance.

Issue 1: Appealing Non-Compliance Findings
Guiding Documents: ISFMP Charter and Appeals Process
The Appeals Process provides a mechanism for a state/jurisdiction to petition for a management decision to be reconsidered, repealed, or altered. The process is intended to only be used in extraordinary circumstances where all other options have been exhausted. While the Appeals Process states out-of-compliance findings can be appealed, it fails to outline the specifics of how such an appeal should be addressed.

Policy Questions: Should the process for appealing a non-compliance finding be the same as appealing other Commission decisions? If the Commission allows non-compliance findings to be appealed under the existing appeals process, the timing requirements of a non-compliance decision and an appeal would be problematic. When a non-compliance finding has been made the Commission is required to notify the state and the Secretaries of Commerce and the Interior of the Commission's determination within ten business days. However, the Appeal Process provides that an appeal will be addressed at the next scheduled Commission Meeting. Given the timing of our meetings this could be well after the non-compliance finding has been sent to the Secretaries of Commerce and the Interior.

Because a non-compliance finding goes through several bodies of review, it may already have an appeal process "built-in." Non-compliance recommendations start with the species management board, are reviewed by the Policy Board, and then forwarded to the full Commission. A further review is completed by the Secretaries of Commerce and the Interior, where states have the opportunity to justify their actions prior to a final compliance determination by the Secretaries. Does the Non-Compliance Process need to be amended to include an appeal process?

AOC Recommendation: The AOC recommends removing a state's ability to appeal a non-compliance finding from the Commission guidance documents. Since a non-compliance finding must be made at multiple levels within the Commission, the AOC felt the states had adequate opportunity to receive all of the relevant information and debate the issue prior to making a decision. Also, a state found out of Compliance by the Commission has the opportunity to present their case to the Secretaries of Commerce and the Interior prior to a final compliance decision.

Executive Committee Action: The EC recommends to the Policy Board to remove a state's ability to appeal a non-compliance finding from the Commission guidance documents.

Issue 2: Definition of a Final Action
Guiding Document: ISFMP Charter and Rules and Regulations
Both the ISFMP Charter and the Rules and Regulations define what constitutes a final action. The Charter definition includes the establishment of quotas, allocations, approval of FMPs/amendments/addenda, emergency actions, and non-compliance recommendations. The Rules and Regulations include all of these except for emergency actions; therefore, there is an inconsistency between the two documents. Since the last modification of the Charter, the Commission has begun to conduct roll call votes for all final actions to increase transparency. The Rules and Regulations also reference the definition when describing the 2/3 majority requirement to amend or rescind a final action.

Policy Question: Should the definition of final action be expanded to be consistent with Commission goals to be transparent in its actions?
Possible language changes to the Charter and Rules and Regulations:

1. Final actions would be defined as: setting fishery specifications (including but not limited to, quotas, trip limits, possession limits, size limits, seasons, area closures, gear requirements), allocation, final approval of FMPs/amendments/addenda, emergency actions, conservation equivalency plans, and non-compliance recommendations.

AOC Recommendation: The AOC recommends modifying the definition of a final action consistent with the proposed definition above.

Executive Committee Action: The EC recommends to the Policy Board the definition of final action is: setting fishery specifications (including but not limited to, quotas, trip limits, possession limits, size limits, seasons, area closures, gear requirements), allocation, final approval of FMPs/amendments/addenda, emergency actions, conservation equivalency plans, and non-compliance recommendations.

Issue 3: Amendment and Addendum Process, including timing of Advisory Input
Guiding Document: ISFMP Charter

Public Comment on Public Information Documents
The Commission's Charter outlines the process to draft and approve amendments and addenda. While most of the guidance is clear there are a few areas where additional specificity would improve the process.

The Charter outlines the timing for which the draft FMP or amendment is available for public comment but is silent on the public comment timing for public information documents (PID). Draft amendments must have four public hearings, the hearing schedule must be published within 60 days following approval of the draft amendment/FMP, the hearing document must be published for 30 days before the first hearing, and public comment will be accepted for 14 days following the date of the last hearing.

Policy Question: Does the Commission want to require the same timing provisions for PIDs? The Commission currently tries to follow this process for PIDs.

AOC Recommendation: The AOC recommends applying the same timeline to public information documents and draft FMPs/amendments as described above with the modification of only requiring three public hearings for both PIDs and draft FMPs/amendments.

Executive Committee Action: The EC recommends to the Policy Board the same timeline outline for draft FMPS/amendments apply to PIDs and modifying the number of required public hearings to three for both PIDs and draft FMPs/amendments.

Public Comment on Draft Addenda
The Charter is also silent on how long draft addenda are out for public comment. Currently, many of the FMPs require a minimum of 30 days public comment for draft addenda. This language is included in the adaptive management section.

Policy Question: Does the Commission want to require draft addenda to be available for public comment for a minimum of 30 days across all FMPs?

AOC Recommendation: The AOC recommends requiring a minimum of 30 days public comment on all draft addenda.

Executive Committee Action: The EC recommends to the Policy Board a minimum of 30 days public comment on all draft addenda.

Advisory Panel Involvement in FMP/Amendment Development
The Charter and Advisory Committee Charter provide mixed guidance on when advisory panels (AP) should provide input to the FMP process. In order to have clear guidance, staff suggests AP input should be provided at the following stages of the FMP/amendment development.

1. **During the development of the PID**. APs provide guidance to the PDT before the Board reviews the document for public comment.
2. **During the development of the Draft FMP.** After the Board gives the PDT guidance on issues to include in the draft, APs provide feedback to the PDT on those issues.
3. **During the public comment of the Draft FMP.** APs meet to give recommendations on the public comment draft of the FMP. This meeting should try to be scheduled after the public hearings so the AP can be presented with an overview of the comments received at the hearings.

Policy Question: Is this the correct timing for AP input into the FMP/amendment process?

AOC Recommendation: The AOC recommends using the three opportunities listed above to solicit Advisory Panel input during FMP/amendment development.

Executive Committee Action: The EC recommends to the Policy Board using the three opportunities described above to solicit Advisory Panel input during FMP/amendment development.

Issue 4: Technical Committee Decision Making and Staff Participation on Committees' Guiding Documents: ISFMP Charter and ASMFC Technical Support Group Guidance and Benchmark Stock Assessment Process

Voting and Decision-making
Previously, the Policy Board had discussed how technical committees (TC) make decisions when the committee cannot come to consensus. The Board stated the overall goal is for committees to develop recommendations through consensus. The problem arises when a group cannot come to consensus. Some Board members are concerned the committee guidance is not as constructive when consensus is not reached since the Board is provided with differing scientific recommendations and is left with making a policy decision on technical input. There is also concern when majority and minority options are presented, it is not clear how strongly the committee supports or does not support each of the options. To address this problem, the Policy Board decided the TCs would vote on issues when consensus could not be reached. The number of votes in favor and against each recommendation would be presented to the Board. Members of the Board expressed concerns voting may make some TC members uncomfortable and take away from science and add politics to the discussion.

AOC Recommendation: The AOC recommends that TCs continue to strive to find consensus whenever possible, however a vote should be taken if a consensus can't be reached. The same standard for voting would apply to stock assessment subcommittees (SASC).

Executive Committee Action: The EC recommends to the Policy Board that TCs continue to strive to find consensus whenever possible, however a vote should be taken if a consensus can't be reached. The same standard for voting would apply to stock assessment subcommittees (SASC).

Staff Involvement
The guidance document states Commission staff members are not members of TCs but they are members of stock assessment committees. Commission science staff often take part in TC deliberations and do work to support those discussions. Questions were raised if staff should be members of TCs if they are doing the work to support Committee work. If TCs were required to vote when consensus could not be reached then staff members would also vote on issues. The downside of allowing staff to vote is it may compromise the ability of staff to remain neutral on issues being presented to the Board if that is a Board priority.

Policy Questions: Should the TCs vote when they are not able to achieve consensus? Should the Commission staff be designated as members of TCs?

Possible options for Commission staff participation on TCs:

1. Commission science staff are not TC members and could not participate in or run analyses for TC discussion. State staff would support all TC work.
2. Commission science staff are not TCs members but perform analyses to support TC discussions and recommendations. They can take part in the deliberations of the TC for recommendations to the Board.
3. Commission science staff are members of TCs and perform analyses to support TC discussions and recommendations. They do not take part in the deliberations of the TC for recommendations to the Board.
4. Commission science staff are TC members and perform analyses to support TC discussions and recommendations, as well as take part in the deliberations of the TC for recommendations to the Board. Staff would also vote if the TC could not come to consensus.

AOC Recommendation: The AOC recommends staff is fully involved with conduct of analyses and deliberations of TCs and SASCs. If consensus can't be reached within a TC, then staff will not participate in a vote, however staff will participate in SASC votes when necessary.

Executive Committee Action: The EC recommends to the Policy Board science staff is fully involved with conduct of analyses and deliberations of TCs and SASCs. If consensus can't be reached within a TC, then science staff will not participate in a vote, however science staff will participate in SASC votes when necessary.

Issue 5: Commissioner Attendance
Guiding Documents: The Compact and the Rules and Regulations

The Commission's Compact states the continued absence of representation or any representative on the Commission from any state should be brought to the attention of the state's governor. This directive from the Compact led to language in the Rules and Regulations stating a state official will be notified of unexplained absence of any Commissioner from two consecutive meetings.

Policy Questions: Should a state official be notified if a commissioner is absent for more than two meetings but has given an explanation for why he/she could not attend? Are two consecutive absences considered a continued absence? What state official should be notified?

Possible language changes to the Rules and Regulations:

1. The state official will be notified of the absence of any Commissioner or their proxy from two consecutive meetings.
2. The state official will be notified of the absence of any Commissioner or their proxy from three consecutive meetings.
3. After two consecutive absences of a Commissioner or their proxy, the Commissioner will be contacted in writing by the Executive Director to request a reason for the absences. The Executive Director will work with the Chair to determine if a state official should be notified of the absences.

AOC Recommendation: The AOC agreed Commissioner attendance is important for the Commission's success. The AOC felt that multiple letters going to Governors or other state officials may not be appropriate or constructive. The AOC recommends that a state's Executive Committee member be notified in the event there are repeated absences of a Commissioner. The Executive Committee member could then work with their state officials to determine what action, if any, should be taken.

Executive Committee Action: The EC recommends to the Policy Board that a state's Executive Committee member be notified in the event there are repeated absences of a Commissioner. The Executive Committee member could then work with their state officials to determine what action, if any, should be taken.

Issue 6: Appeal Criteria
Guiding Documents: ISFMP Charter and Appeals Process

The Appeals Process provides a mechanism for a state to petition for a management decision to be reconsidered, repealed or altered. The appeals process is intended to only be used in extraordinary circumstances where all other options have been exhausted. Management measures established through the FMP/amendment/addendum process can be appealed. However, the appellant must use one of the following criteria to justify an appeal: decision not consistent with FMP goals and objectives, failure to follow process, insufficient/inaccurate/incorrect application of technical information, historical landings period not adequately addressed, or management actions resulting in unforeseen circumstances/impacts. The following issues currently cannot be appealed: management measures established via emergency action, out-of-compliance findings (this can be appealed but, through a separate, established process, see Issue 1 above), and changes to the ISFMP Charter.

P**olicy Questions:** Should the following appeal criteria be modified or clarified?

1. Decision not consistent with the FMP
2. Failure to follow process
3. Insufficient/inaccurate/incorrect application of technical information

4. Historical landings period not adequately addressed
5. Management actions resulting in unforeseen circumstances/impacts

AOC Recommendation: The AOC recommends the current appeal criteria be retained. The wording of the criteria is somewhat vague, but this is intentional to allow for states to bring forward their concerns. The AOC felt it would be difficult to provide a highly detailed list of actions that can and can't be appealed. The discretion of the Chair, Vice-Chair, and immediate past Chair is a key component in interpreting the current appeal criteria. The AOC has confidence the elected leaders will provide a fair review of any appeals brought forward by the states.

Executive Committee Action: The EC recommends the Policy Board take no action to change the current appeal criteria.

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MEMORANDUM

TO: **Executive Committee**

FROM: **Robert Beal, Executive Director**

DATE: **October 27, 2015**

SUBJECT: **Review of Commission Guidance Documents**

The Executive Committee (EC) met on August 5, 2015 to review potential changes to the Commission guidance documents. The Executive Committee took action on nine issues, however due to time constraints were unable to come to a final decision on two issues. The following memorandum summarizes the two remaining issues from the August meeting and introduces two new issues for consideration by the Executive Committee.

The Commission's guidance documents detail the operating policies, procedures, roles, and responsibilities of the Commission and its committees. These documents include the ISFMP Charter, Compact and the Rules and Regulations, the Appeal Process, Conservation Equivalency: Policy and Technical Guidance Document, Technical Support Group Guidance and Benchmark Stock Assessment Process, and the Advisory Committee Charter. Over time the way the Commission conducts its business has evolved and, in some cases, is not consistent with its guiding documents. Also, there are examples where the documents do not provide clear guidance.

Issue 1: Definition of a 2/3 Majority
Guiding Documents: ISFMP Charter and Rules and Regulations

Commission guidance documents state a 2/3 majority is required to establish and terminate an emergency action, as well as amend or rescind a previous final action. Currently, 2/3 majority is defined as the entire voting membership of a Board regardless of whether voting members are present. For the vote to carry, 2/3's of the entire voting membership of the Board must vote in the affirmative. This can be problematic when voting entities are not present or abstain from a vote. An absence, abstention, or a null vote is the equivalent of a negative vote. The current definition intentionally set a high standard (overwhelming support) for a Board take emergency action or to overturn previous actions to protect the integrity of our decision-making process.

Policy Question: Should the definition of a 2/3 majority be altered?

Possible options for the 2/3 majority definition:

1. Status quo
2. A 2/3 majority will be defined by the members present at the meeting (a quorum is necessary) rather than the entire voting membership.

3. A 2/3 majority will be defined by the entire voting membership, however any abstentions will not be considered when determining the total number of votes.

Note: When determining the number of votes necessary to achieve a 2/3 vote, there will often not be a whole number of votes needed. For example: If a management board has 11 voting members, it will require 7 1/3 votes for a 2/3 majority. In the event there is not a whole number of votes, the votes required will be rounded up to the next whole number.

AOC Recommendation: The AOC did not develop a final recommendation on this issue, but agreed the Executive Committee should continue the discussion. Members of the AOC noted the outcome of votes had been impacted by abstentions and absences and the process should be modified. Other members commented that they support status quo and feel there should be overwhelming support to change previous actions or declare an emergency.

August 2015 Executive Committee Action:

The EC made the following motion regarding the 2/3 majority voting. *Move to approve option 3 from the staff document with the modification that only abstentions from the federal services would not count. Motion made by Mr. Daniel; seconded by Mr. Abbott.*

After a lengthy discussion a motion was made by Mr. Abbott to table. Mr. Clark seconded and the motion to table passed unanimously.

Issue 2: Advisory Panel, Law Enforcement Committee and Technical Committee Participation at Board Meetings

Guiding Documents: ISFMP Charter and ASMFC Technical Support Group Guidance and Benchmark Stock Assessment Process

Advisory bodies such as advisory panels, the Law Enforcement Committee and TCs provide advice to the species management boards. It is the responsibility of the Chair of each group to represent the viewpoints of all committee members, including opposing opinions when presenting to the management boards. There have been instances where chairs, in particular advisory panel Chairs, have expressed their own opinions and not those of the panel or have spoken on subjects the panel has not discussed as a group. This has raised concerns with both Board members and the advisory panel members.

Policy question: How does the Board ensure advisory body chairs follow the guidance outlined in the Charter and the Technical Support Group Guidance document?

Possible language changes for participation of advisory body chairs at board meetings:

1. Board Chairs should enforce the guidelines specified in the committee guidance documents where advisory bodies only represent the viewpoints of the committee in their presentation to the Board. Failure of chairs to follow the Board Chair's guidance may result in his/her replacement as advisory body chair.

2. Chairs should present their report and answer any specific questions relevant to their report. Chairs may not ask the Board questions or present their own viewpoints during Board deliberations.

3. Chairs should present their report and answer any specific questions relevant to their report. Once the report and Board questions are done, the Chair would move to the public seating.

AOC Recommendation: The AOC did not develop a final recommendation on this issue, however there were a number of consensus ideas. The AOC agreed the TC Chair (or other representative) should be at the table for the entire meeting. This person if often asked questions by Board members. The AOC also agreed there is a perception the Chair of the Advisory Panel has unfair access to the Board if they are allowed to fully interact with the Board during their deliberations. While the AOC did not reach a consensus, many of the members felt that option 3 above is most appropriate, but should only be applied to the Advisory Panel Chair.

August 2015 Executive Committee Action:
The EC did not have adequate time to fully address this issue.

Issue 3: Council Participation on Management Boards

Guiding Documents: ISFMP Charter

The charter states the Executive Directors/Chairs of the Regional Fishery Management Councils may be invited to be a voting member of an ISFMP species management board when the board determines that such membership would advance the inter-jurisdictional management of the specific species. When the management area includes more than one Council, the applicable Councils will need to identify one Executive Director/Chair to receive the invitation to participate on that board as a voting member.

The Charter does not specify how the Council should participate on boards that manage more than one species (e.g. The Lobster Board takes action on both lobster and Jonah crab issues)

Policy question: Should the Council representative on a multi-species management board be able to participate on all actions being considered by the management Board or just species specific actions for which the Council was invited to participate on the management board?

Possible language changes for Council participation at board meetings:

1. If a Council(s) has been invited as voting member of a board that manages multiple species, the board will designate which species can be discussed and voted on by the Council representative.

2. If a Council(s) has been invited as voting member of a board that manages multiple species, the Council representative is being invited to participate on all actions of the board, regardless of species interest.

Issue 4: Web Based Public Hearings and On-line Public Comment Surveys

Guiding Documents: ISFMP Charter

The ISFMP Charter requires the Commission to conduct a minimum number of public hearing for public information documents (PIDs), new FMPs, and draft amendments. Those public hearings are held in the states requesting hearings. Public hearings can also be held at the request of a state for draft addenda. With new technology and changing social behaviors, how the Commission conducts public hearings and collects public comments is evolving.

Some Councils have begun to hold webinar based public hearings. The structure is similar to an in-person public hearing where staff presents the document to the public and then the public is allowed to ask questions. Once questions are completed, the public has the opportunity to comment on the draft document. For larger states where it could take several hours for a member of the public to travel to the hearing location a webinar based hearing provides an opportunity to be involved in the Commission process.

In addition, the Commission tested an on-line survey as an additional tool to collect public comments. New York decided to not hold an in-person public hearing on the Jonah crab FMP due to the low number of permit holders and landings. But staff developed an on-line survey in which New York sent out to their limited number of permit holders to fill out. These surveys would not be used in lieu of public hearings, but will be another tool to help solicit public comment and increase public participation.

Policy question: Should the Commission hold webinar based public hearings?

Possible language changes for webinar based public hearings:

1. PIDs and draft amendments must have three public hearings, one of which could be a webinar based public hearing.

Policy question: Should the Commission develop on-line surveys to collect public comments for public hearing documents?

No language change would be necessary to conduct on line public comment surveys.

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Atlantic States Marine Fisheries Commission

26 October 2015

ATN: Robert Beal, Exec. Director

Re: American Eel - Comments for November Annual Meeting

Dear Bob,

For five years I have watched your Commission and its Eel technical committee struggle with insufficient data, an unwarranted endangered species claim and Maine operate a 2 month US$ 4 million elver fishery.

Caribbean countries today annually export 30,000 lbs of live elvers while Addendum 4 asks a State to do an expensive time consuming life cycle survey if they intend to harvest over 750 lbs.

State of the art eel aquaculture business' operate successfully in Asia and EU while U.S. imports over US$ 200 million of eel products.

Most Atlantic States have history harvesting eel. Today South Carolina is afraid to be out of compliance with ASMFS, does not amend its antiquated regulations, authorize research fishing or work with its fishermen to develop a plan and an Eel farm in North Carolina continues to be unsuccessful getting permission to fish in its own state.

Rostrata eel are found throughout our Atlantic and Gulf Coasts. They are not endangered. They are underutilized. A closely monitored glass and adult eel fishery - will only help document a biomass and justify a future quota and management system.

Time is of essence. We would like to see some formal discussion at your annual meeting which results in a motion that gives States flexibility to authorize a reasonable amount of eel fishing again.

Sincerely,

BQ

W.C. Quinby

Encl: 4 August corresp.

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August 4, 2015

Robert E. Beal, Executive Director
Atlantic States Marine Fisheries Commission
1050 N. Highland Street
Arlington, VA 22201

RE: Amercian Eel. Summer meeting agenda

Dear Bob:

This is more of a plea than a request for ASMFC to give their blessing for States to have more flexibility to deal with the eel resources within their jurisdiction.

Today the Dominican Republic and Haiti harvest over 10 tons of glass eel. The U.S. annually imports over US$ 200 million of eel products while ASMFS and USFWS continues to deal with an inappropriate endangered species claim from a California based environmental group.

I assume that members of your technical committee are familiar with the 2014 ICES eel working group 200 page report done by 44 experts from 20 countries. In 2007 the EU's eel resource was 'in decline'. Over the past 3 years their recruitment index has increased.

The more we learn about this Catadromous species the more interesting eels become. State fisheries managers are not doing their constituents any favors. ASMFS and USFWS have been using incomplete and outdated data for too long. States are using this situation as an excuse not to authorize even research fishing.

We can agree that the health and sustainability of our Rostrata Eel resource is not so much the quantity coming from the Sargasso but more of a habitat issue. Today there are tools to have real-time monitoring. Please be ready at your November meeting to authorize interested States to do research and conduct their own eel fisheries.

Sincerely Yours,

William C. Quinby

Former NOAA Administrator Hogarth Calls For Responsible Fisheries Management

by News Editor / Newsroom Ink on October 19, 2015

If the fishing industry had a CEO, Dr. Bill Hogarth, Director of the Florida Institute of Oceanography, would have had him fired a long time ago. Photo: Ed Lallo/Newsroom Ink

by Ed Lallo/Gulf Seafood News Editor

If the fishing industry had a CEO, Dr. Bill Hogarth, Director of the Florida Institute of Oceanography (FIO), is convinced he would not last a month. He firmly believes the operating pattern for the whole industry needs to be re-examined and the industry needs to start stepping up to the role of a multi-billion dollar economic powerhouse.

"Fishing is a huge, huge business and we don't really operate it as the big multinational business that it is, in my opinion," Hogarth told Gulf Seafood News while sitting in his St. Petersburg office. "This state is known for its citrus industry, but fishing revenues dwarf citrus. The fishing industry in Florida alone it is a $30 billion industry. That is more than citrus, cattle, space, and ranching industries put together; double that. Is one of the top 10 industries in the state, it drives both the tourism and restaurants."

While head of the National Oceanic and Atmospheric Administration's Fisheries Service, Hogarth shows his catch after a Alaska fishing trip with Senator Ted Stevens. co-author of the Magnuson-Stevens Fishery Conservation and Management Act. Photo: NatGeographic

Dr. Hogarth, a member of the Gulf Seafood Institute (GSI), knows that of what he preaches.

In 2001 Dr. Hogarth was appointed by President George W. Bush as the Assistant Administrator for Fisheries at the National Oceanic and Atmospheric Administration (NOAA). There he oversaw the management and conservation of marine fisheries and the protection of marine mammals, sea turtles and coastal fisheries habitat. He also served as the Commissioner and Chairman for the International Commission for the Conservation of Atlantic Tuna and the Commissioner and Chairman for the International Whaling Commission.

An accomplished marine research scientist with decades of experience in marine fisheries management, he has been in his current position at the FIO since January 2011. Located on the Campus of the University of South Florida, his office is an Academic Infrastructure Support Organization for all Florida universities and is responsible for bringing together different expertise. It operates two research vessels, as well as research lab in the Florida Keys.

Small Town Boy

One of four children, Dr. Hogarth is a product of Jarratt, a small Virginia town of 600 located an hour and a half from Virginia Beach. He was one of twelve students in his senior class; 8 girls and 4 boys. “We had all 12 classes in the same building,” he said.

Being pushed by family to study medicine, he was admitted to University of Richmond.

Hogarth (left) spends a day inspecting fish collected for study while serving as director of North Carolina’s fish policy in the 1980s. Photo: Bill Hogarth

“I was ill prepared for college. I had very bad study habits,” said Dr. Hogarth. “The Dean of Students at the University of Richmond made all new students take his class. After just six weeks he came to me and asked ‘why I was there?’ I answered my family wants me to go to medical school, to which he replied ‘at the rate you are going you will never make it’.”

With the Dean’s recommendation, he entered the Army Reserves, to get “some discipline”. After six months he rejoined his classmates at the school with a warning from his Army Reserve Commander not to let his grades fall.

Upon reentering university life, Dr. Hogarth also changed his major from medicine to marine studies. Upon graduation he received funding for his master’s doing research in the Chesapeake Bay on striped bass. He received his Master’s degrees from the University of Richmond in Virginia and a Ph.D. from North Carolina State University where he studied wahoo, a prized sports fishermen known for its speed and high-quality flesh.

Life in Fishery Management

Prior to his NOAA appointment, he served as the Director of the North Carolina Division

Hogarth’s office is an Academic Infrastructure Support Organization for all Florida universities and is responsible for bringing together different expertise. It operates two research vessels, including the research team onboard the Weatherbird II. Photo: Florida Institute of Oceanography

“In North Carolina I had a great job, I would go to marinas and check vessels to see what fish they caught. When I got to Florida I found it to be an entirely different situation,” he explained. “People fish 24-hours a day from bridges, from the side of the road, as well as from boats. The game is completely different here.”

The fisheries expert has been in the business almost 50 years and he is seeing the same issues now that he did back when he started. “Back when I started, fish had a better chance; fishermen didn’t have the sophisticated equipment that everybody has now,” he said.

“Commercial fishermen used to keep a record of depths and temperatures where they found fish. Equipment now will take a fisherman exactly to the temperature, exactly to the drop,” said the GSI Board Member. “This is available to all size vessels and all types of fisherman so they can immediately go to where the fish are. Put it simply, fish just don’t have much of a fighting chance anymore.”

Dr. Hogarth sees today's affluent society rapidly increasing the number of recreational fishermen, especially in Gulf waters. He says he really learned this lesson when he came to Florida where so many people are living on the water and it seems there is a boat by every backdoor.

IFQs

The Florida marine expert is a firm believer in Individual Fishing Quotas (IFQ). He realizes that he is often perceived by the recreational sector as a commercial fishing supporter, but in fact he doesn't consider himself anything other than a resource person. For him it is all about taking care of the resource while at the same time getting the most economic benefit, especially in the Gulf of Mexico.

According to Hogarth, the heavily regulated commercial fishing industry keeps exacting records and trip tickets to know exactly what and where a fish is caught. Photo: Ed Lallo/Newsroom Ink

"The Gulf, like all our coastal waters, is a public trust resource," he said sitting back in his office chair. "People in Iowa have just as much right to enjoy fish like red snapper just as much as those living in Louisiana or Florida."

According to him, the heavily regulated commercial fishing industry keeps exacting records and trip tickets to know exactly what and where a fish is caught. He feels is time for the recreational industry to step up and put in place some sort of accountability measures.

"I know there is tremendous disagreement between recreational and commercial fishermen. Saltwater fishing is kind of the last frontier, so to speak," he said. "It used to be people could fish with no regulations. Now it is one of the most regulated areas in the country and fishermen are resistant to change. The problem remains, the saltwater fishing population continues to grow."

During a recent St. Petersburg meeting, Dr. Hogarth chats with Lee Crockett, director of fish policy at The Pew Charitable Trusts. Photo: Pew Charitable Trusts

The commercial fishing industry is heavily regulated. Trip tickets show exactly what fish is caught and where enforcement of commercial fishing regulations is strict and effective. However, with tens of thousands of recreational fisherman the job of policing the regulation is much more difficult. He feels the commercial sector has to continue to thrive because it is invaluable in providing fish to the restaurants and markets across the country.

His believes IFQs offer the industry a working business management model.

"Before IFQs there used to be an eight-day season for red snapper. No matter what the weather fishermen would risk life and limb to go out and fish that first day," he explained. "By the end of the first day snapper would drop in price from $4-5 a pound, to ten to twenty cents a pound because so much was harvested. Markets would fluctuate wildly; there was not a steady supply of fresh seafood except for six to eight days a month. It was no way to run a business."

IFQs allow fishermen to make better business decisions. He says if a fisherman has 10,000 pounds of fishing rights he can sell the fish to suppliers when, and in the amount, needed. The result is a constant supply of fresh fish, with fishermen not having to risk their life to harvest.

Hogarth believes the same model will works for the charter-for-hire sector, and is a strong supporter of the new federally-funded voluntary electronic logbook program for data collection for the Gulf's federally permitted charter-for-hire fishing fleet. Photo: Ed Lallo/Newsroom Ink

He believes the same model will works for the charter-for-hire sector and is a strong supporter of the new federally-funded voluntary electronic logbook program for data collection in the Gulf of Mexico for the federally permitted charter-for-hire fishing fleet. With a majority of Florida's 42% share of the country's recreational fishing being in the Gulf, this program sponsored by the National Fish and Wildlife Foundation, the Gulf Seafood Institute and CLS America Corporation would be an asset for the state's economy.

This two-year volunteer data collection program utilizes a wireless satellite connection to an Android tablet provided for use on any fishing vessel. A captain can enter both catch and discard data on all fish caught; most importantly, those that are commonly targeted like amberjack, grouper, snapper and triggerfish.

"A fisherman with a charter or head boat should be given an amount of fish and it should be up to him to decide how he can make the most money with the allotment," said Dr. Hogarth. "It is important to separate those who are making money off the resource and make them a business. Then you have to manage the private recreational anglers differently, but it will take a big public education effort to make this sector work better"

Will a phone app work? Can we use tags? Are more in-season adjustments need? Is it possible to go to a three day a week season instead of 7 days a week to prolong the season? Should slot limits be put in place? These are all questions he ponders as he searches for answers to recreational accountability and ways to extend the recreational seasons. Ten-day seasons are not acceptable to fishermen.

Managing Recreational

"We have to look at managing recreational differently than we do commercial, it is a lot more wide open and much more efficient to manage," he said scratching his head. "We don't do a good job at estimating the catch because we don't have a timely reporting system. We've tried lots of things but none of it has really worked well."

Dr. Hogarth thinks the recreational sector needs to learn from other successful wildlife management schemes.

He explained it is important to learn from existing wildlife management models.

"We can learn from the management of recreational hunting and inland fishing," he said. "Bass is one of the most successful fisheries in the country, but look how they operate with tags and other restrictions.

We seem to think that salt water fishing is entirely different and that you can't learn from anybody else, but in my opinion recreational needs to learn from other successful wildlife management schemes."

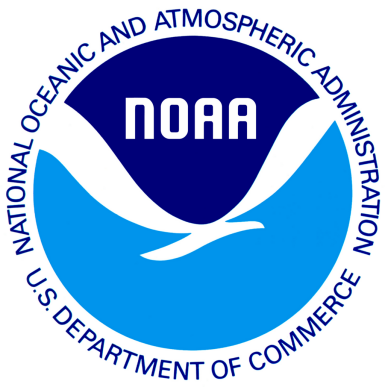
Dr. Hogarth got involved with GSI because he felt this is the one group with the expertise to find solutions for fishery issues facing the Gulf of Mexico. "This group works together without being radical on either side. We have to get the radicals neutralized so sane minds can find real solutions. We have to find a way to bring all parties together and GSI does that," he said.

In January of year next Dr. Hogarth's 50-year career will transition once again as he retires from his current post. He said he will still continue to "piddle" somewhere in fishery issues.

In January of year next Dr. Hogarth's 50-year career will come to an end as he retires from his current post. He said he will still continue to "piddle" somewhere in fishery issues and remain an active member of GSI.

"I have had a great life," said the director from his office overlooking the water. "Fisheries very controversial, but it is also too valuable to the economy. I really don't think politicians realize how important it is to the economy. People look at the Gulf and our oceans see how big and vast they are and how much seafood they produce; they just don't realize how fragile they are. The fishing industries need a good responsible CEO to take care of them."

The following report is an abbreviated version of the full GARM Report. It contains information that is only pertinent to winter flounder stocks.



Northeast Fisheries Science Center Reference Document 15-XXXX

Stock Assessment Update of 20 Northeast Groundfish Stocks Through 2014

by Northeast Fisheries Science Center

October 2015

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Stock Assessment Update of 20 Northeast Groundfish Stocks Through 2014

by Northeast Fisheries Science Center

NOAA, National Marine Fisheries Service,

Northeast Fisheries Science Center, 166 Water Street, Woods Hole, MA 02543

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Science Center
Woods Hole, Massachusetts

October 2015

Northeast Fisheries Science Center Reference Documents

This series is a secondary scientific series designed to assure the long-term documentation and to enable the timely transmission of research results by Center and/or non-Center researchers, where such results bear upon the research mission of the Center (see the outside back cover for the mission statement). These documents receive internal scientific review, and most receive copy editing. The National Marine Fisheries Service does not endorse any proprietary material, process, or product mentioned in these documents.

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1 Executive Summary

Note:Working Paper

Update assessments were conducted for the twenty stocks in the Northeast Multispecies Fishery Management Plan in 2015 (Table 1). The updates replicated the methods recommended in the most recent benchmark decisions, as modified by any subsequent operational assessments or updates (Table 2), with the intention of simply adding years of data (Table 3). However, minor flexibility was allowed to address emerging issues (Table 4).

Stock status did not change for 15 of the 20 stocks, worsened for two stocks, improved for one stock, and became more uncertain for two stocks (Table 5).

The number of stocks with retrospective adjustments applied increased from the last assessment from 2 to 7 (Table 6). The previous Georges Bank cod assessment did apply a retrospective adjustment, however, the assessment model was not approved at the 2015 Updates so it has been excluded from these counts.

While the number of overfished stocks and stocks experiencing overfishing has generally decreased since 2007 (Figure 1), the magnitude of overfishing or depletion for several stocks has worsened considerably (Figures 2 and 3); Gulf of Maine cod, Southern New England/Mid-Atlantic yellowtail flounder, witch flounder and Cape Cod/Gulf of Maine yellowtail flounder). Of those Northeast groundfish stocks for which stock status can be determined, the majority remain below their biomass targets (69%; Figures 1 and 3).

Recent NEFSC survey biomass indices for both the spring and fall surveys are below the long term means. For the majority of stocks the average of the most recent five years are below the time series means (Figures 4 and 5)

Estimates of overall (aggregate) groundfish minimum swept area biomass are at, or near, all-time highs (Figures 6 and 7). However, the current stock diversity of the overall groundfish biomass is less than that seen in the 1960s and 1970s. Current groundfish biomass is dominated by only a few stocks: For example the combined biomass of the Georges Bank haddock, Gulf of Maine haddock, and redfish stocks currently make up more than 80% of the overall groundfish biomass (Figure 8).

Information supplemental to the assessment report for each stock can found on the Stock Assessment Support Information (SASINF) website.

The appendix to this document contains: The letter from the Northeast Regional Coordinating Council providing guidance on the operational assessment procedure (Section 22.1), a summary of the meeting with the Assessment Oversight Panel during which assessment plans were developed (Section 22.2), a summary of NEFSC outreach on 2015 groundfish operational assessments (Section 22.3) and statements from fishing industry members (Section 22.4).

Table 1: List of stocks included in the groundfish update and the abbreviations used for each in this document.

Stock Abbrev	Stock Name
CODGM	Gulf of Maine Cod
CODGB	Georges Bank Cod
HADGM	Gulf of Maine Haddock
HADGB	Georges Bank Haddock
YELCCGM	Cape Cod/Gulf of Maine Yellowtail Flounder
YELSNEMA	Southern New England/Mid-AtlanticYellowtail Flounder
FLWGB	Georges Bank Winter Flounder
FLWSNEMA	Southern New England/Mid-Atlantic Winter Flounder
REDUNIT	Acadian Redfish
PLAUNIT	American Plaice
WITUNIT	Witch Flounder
HKWUNIT	White Hake
POLUNIT	Pollock
CATUNIT	Wolffish
HALUNIT	Atlantic Halibut
FLDGMGB	Gulf of Maine/Georges Bank Windowpane
FLDSNEMA	Southern New England/Mid-Atlantic Windowpane
OPTUNIT	Ocean Pout
FLWGM	Gulf of Maine Winter Flounder
YELGB	Georges Bank Yellowtail Flounder

Table 2: Lead scientist for each stock (current/previous if different), information about last assessment, including: the forum for review of the last assessment (Forum), the type of assessment done (Type), publication year (Pub.) the terminal year of the catch data included (Term. yr.), overfished/overfishing status, rebuilding status, and reference. *Note: Op. Update = Operational Update*

Stock	Lead	Forum	Type	Pub.	Term. yr.	Overfished?	Overfishing?	Rebuild status	Reference
CODGM	Michael Palmer	Op. Update	Update	2014	2013	Yes	Yes	By 2024	CRD14-14
CODGB	Loretta O'Brien	SARC 55	Benchmark	2012	2011	Yes	Yes	By 2026	CRD13-11
HADGM	Michael Palmer	SARC 59	Benchmark	2014	2013	No	No	Rebuilt	CRD14-09
HADGB	Liz Brooks	GARM2012	Update	2012	2010	No	No	Rebuilt	CRD12-06
YELCCGM	Larry Alade/Chris Legault	GARM2012	Update	2012	2010	Yes	Yes	By 2023	CRD12-06
YELSNEMA	Larry Alade	SARC 54	Benchmark	2012	2011	No	No	Rebuilt	CRD12-18
FLWGB	Lisa Hendrickson	Op. Update	Update	2015	2013	No	No	By 2017	CRD15-01
FLWSNEMA	Tony Wood/Mark Terciero	SARC 52	Benchmark	2011	2010	Yes	No	By 2023	SARC52
REDUNIT	Brian Linton/Tim Miller	GARM2012	Update	2012	2010	No	No	Rebuilt	CRD12-06
PLAUNIT	Loretta O'Brien	GARM2012	Update	2012	2010	No	No	By 2024	CRD12-06
WITUNIT	Susan Wigley	GARM2012	Update	2012	2010	Yes	Yes	By 2017	CRD12-06
HKWUNIT	Kathy Sosebee	SARC 56	Benchmark	2013	2011	No	No	By 2014	CRD13-10
POLUNIT	Brian Linton	Op. Update	Update	2015	2013	No	No	Rebuilt	CRD15-01
CATUNIT	Chuck Adams/Chad Keith	GARM2012	Update	2012	2010	Yes	No	Unknown	CRD12-06
HALUNIT	Dan Hennen/Jessica Blaylock	GARM2012	Update	2012	2010	Yes	No	By 2055	CRD12-06
FLDGMGB	Toni Chute/Lisa Hendrickson	GARM2012	Update	2012	2010	Yes	Yes	By 2017	CRD12-06
FLDSNEMA	Toni Chute/Lisa Hendrickson	GARM2012	Update	2012	2010	No	No	Rebuilt	CRD12-06
OPTUNIT	Susan Wigley	GARM2012	Update	2012	2010	Yes	No	By 2014	CRD12-06
FLWGM	Paul Nitschke	Op. Update	Update	2015	2013	Unknown	No	Unknown	CRD15-01
YELGB	Chris Legault	TRAC 2015	Update	2015	2014	Unknown	Unknown	By 2032	TRAC2015

Table 3: Data used in each assessment. The column heads are US commercial landings (US c-land), US commercial discards (US c-disc), US recreational landings (US r-land), US recreational discards (US r-disc), Canadian catch (CA catch), NEFSC spring, fall and winter surveys (NEFSC S, NEFSC F and NEFSC W), Massachusetts spring and fall surveys (MA S and MA F), Maine/New Hampshire spring and fall surveys (ME/NH S and ME/NH F) and Canadian Department of Fisheries and Oceans February survey (DFO S).

	Catch					**Surveys**							
Stock	US c-land	US c-disc	US r-land	US r-disc	CA Catch	NEFSC S	NEFSC F	NEFSC W	MA S	MA F	ME/NH S	ME/NH F	DFO S
CODGM	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	No	No	No	No
CODGB	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	Yes
HADGM	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No	No	No	No	No
HADGB	Yes	Yes	No	No	Yes	Yes	Yes	No	No	No	No	No	Yes
YELCCGM	Yes	Yes	No	No	No	Yes	Yes	No	Yes	Yes	Yes	Yes	No
YELSNEMA	Yes	Yes	No	No	No	Yes	Yes	Yes	No	No	No	No	No
FLWGB	Yes	Yes	No	No	Yes	Yes	Yes	No	No	No	No	No	Yes
FLWSNEMA	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	No	No	No
REDUNIT	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	No	No
PLAUNIT	Yes	Yes	No	No	Yes	Yes	Yes	No	Yes	Yes	No	No	No
WITUNIT	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	No	No
HKWUNIT	Yes	Yes	No	No	Yes	Yes	Yes	No	No	No	No	No	No
POLUNIT	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No	No	No	No	No
CATUNIT	Yes	Yes	Yes	No	No	Yes	Yes	No	Yes	No	No	No	No
HALUNIT	Yes	Yes	No	No	Yes	No	Yes	No	No	No	No	No	No
FLDGMGB	Yes	Yes	No	No	No	No	Yes	No	No	No	No	No	No
FLDSNEMA	Yes	Yes	No	No	No	No	Yes	No	No	No	No	No	No
OPTUNIT	Yes	Yes	No	No	No	Yes	No	No	No	No	No	No	No
FLDWGM	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	No
YELGB	Yes	Yes	No	No	Yes	Yes	Yes	No	No	No	No	No	Yes

Table 4: Assessment type and reference points from previous assessment. *Note: sp=stochastic projection.*

Stock	Assess.	Type	F def.	B def.	F_{MSY} type	F_{MSY} value	B_{MSY} type	B_{MSY} value	MSY type	MSY value
CODGM	ASAP	age-based	F_{Full}	SSB	$F_{40\%SPR}$	0.18	sp	47,184 (M=0.2) or 69,621 (Mramp)	sp	7,753 (M=0.2) or 11,388 (Mramp)
CODGB	ASAP	age-based	F_{Full}	SSB	$F_{40\%SPR}$	0.18	sp	186,535	sp	30,622
HADGM	ASAP	age-based	F_{Full}	SSB	$F_{40\%SPR}$	0.46	sp	4,108	sp	955
HADGB	VPA	age-based	avg F ages 5-7	SSB	$F_{40\%SPR}$	0.39	sp	124,900	sp	28,000
YELCCGOM	VPA	age-based	avg F ages 4-6	SSB	$F_{40\%SPR}$	0.26	sp	7,080	sp	1,600
YELSNEMA	ASAP	age-based	avg F ages 4-5	SSB	$F_{40\%SPR}$	0.32	sp	2,995	sp	773
FLWGB	VPA	age-based	avg F ages 4-6	SSB	Fmsy	0.44	sp	8,100	sp	3,200
FLWSNEMA	ASAP	age-based	avg F ages 4-5	SSB	Fmsy	0.29	sp	43,661	sp	11,728
REDUNIT	ASAP	age-based	F_{Full}	SSB	$F_{50\%SPR}$	0.04	sp	238,000	sp	8,891
PLAUNIT	VPA	age-based	avg F ages 6-9	SSB	$F_{40\%SPR}$	0.18	sp	18,398	sp	3,385
WITUNIT	VPA	age-based	avg F ages 8-11	SSB	$F_{40\%SPR}$	0.27	sp	10,051	sp	2,075
HKWUNIT	ASAP	age-based	F_{Full}	SSB	$F_{40\%SPR}$	0.20	sp	32,400	sp	5,630
POLUNIT	ASAP	age-based	avg F ages 5-7	SSB	$F_{40\%SPR}$	0.27	sp	76,900	sp	14,800
CATUNIT	SCALE	length-based	F_{Full}	SSB	$F_{40\%SPR}$	0.33	sp	1,756	sp	261
HALUNIT	RYM	surplus production	biomass wted F	B	F0.1	0.07	deterministic	49,000	deterministic	3,500
FLDGMGB	AIM	index	relative F (catch/survey biomass)	surv. B	replacement ratio	0.44	MSY *proxy* / $F_{MSYproxy}$	1.60	median catch 1995-2001	700
FLDSNEMA	AIM	index	relative F (catch/survey biomass)	surv. B	replacement ratio	2.09	MSY *proxy* / $F_{MSYproxy}$	0.24	median catch 1995-2001	500
OPTUNIT	index	index	relative F (catch/survey biomass)	surv. B	median relative F 1977-1985	0.76	median surv. B 1977-1985	4.94	F_{MSY} * B_{MSY}	3,754
FLWGM	empirical	survey expansion	exploitation rate (catch/30+cm biomass)	surv. B	exploitation rate ($F_{40\%}$ from YPR)	0.23	NA	NA	NA	NA
YELGB	empirical	survey expansion	NA	surv. B	NA	NA	NA	NA	NA	NA

Table 5: Synopsis of status by stock.

Stock	Last Assessment	Status Change?	Overfishing?	Overfished?
CODGM	2014	Same	Yes	Yes
CODGB	2012	More uncertain	Unknown	Yes
HADGM	2012	Same	No	No
HADGB	2014	Same	No	No
YELCCGM	2012	Same	Yes	Yes
YELSNEMA	2012	Worse	Yes	Yes
FLWGB	2014	Worse	Yes	Yes
FLWSNEMA	2011	Same	No	Yes
REDUNIT	2012	Same	No	No
PLAUNIT	2012	Same	No	No
WITUNIT	2012	Same	Yes	Yes
HKWUNIT	2013	Same	No	No
POLUNIT	2014	Same	No	No
CATUNIT	2012	Same	No	Yes
HALUNIT	2012	More uncertain	Unknown	Yes
FLDGMGB	2012	Better	No	Yes
FLDSNEMA	2012	Same	No	No
OPTUNIT	2012	Same	No	Yes
FLWGM	2014	Same	No	Unknown
YELGB	2014	Same	Unknown	Unknown

Table 6: Comparison of biomass (B) and fishing mortality (F) rate Mohn's rho values (ρ) by stock between the previous assessment and the 2015 updates. The biomass and fishing mortality rate point estimates and ρ adjusted values (Adj.) are provided for the 2015 update assessments. The total number of stocks using ρ adjusted values in the last assessment and the 2015 assessments (ρ adj. vs. pt. est. for those stocks that did not use the ρ adjustment), along with the type of ρ adjustment used in the 2015 assessment (NAA=numbers at age, SSB=spawning stock biomass applied to all ages), are also provided. Only age-based and length-based stocks that could exhibit retrospective patterns are included in this table. *Note: Because the Georges Bank cod assessment was rejected at the 2015 OA Update it has been excluded from this table.*

		Biomass				**Fishing Mortality Rate**				**Used**		
Stock	Model	ρ_{last}	ρ_{2015}	B_{2015}	Adj.	ρ_{last}	ρ_{2015}	F_{2015}	Adj.	Last assess.	2015	Proj. adj.
CODGM	ASAP(M=0.2)	0.53	0.54	2225	1445	-0.33	-0.31	0.956	1.386	pt. est.	pt. est.	none
CODGM	ASAP(M-ramp)	0.17	0.2	2536	2113	-0.05	-0.08	0.932	1.013	pt. est.	pt. est.	none
HADGM	ASAP	-0.15	-0.04	10325	10755	0.3	0.03	0.257	0.25	pt. est.	pt. est.	none
HADGB	VPA	0.2	0.5	225080	150053	-0.15	-0.34	0.159	0.241	pt. est.	ρ adj.	SSB
YELCCGM	VPA	0.68	0.98	1695	857	-0.19	-0.45	0.35	0.64	ρ adj.	ρ adj.	NAA
YELSNEMA	ASAP	0.14	1.06	502	243	-0.16	-0.53	1.64	3.53	pt. est.	pt. est.	none
FLWGB	VPA	0.26	0.83	5275	2883	-0.16	-0.51	0.379	0.778	pt. est.	ρ adj.	SSB
FLWSNEMA	ASAP	0.35	0.21	6151	5105	-0.31	-0.25	0.16	0.214	pt. est.	pt. est.	none
REDUNIT	ASAP	0.04	0.26	414544	330004	-0.04	-0.19	0.012	0.015	pt. est.	ρ adj.	NAA
PLAUNIT	VPA	0.62	0.32	14439	10915	-0.35	-0.32	0.08	0.12	ρ adj.	ρ adj.	NAA
WITUNIT	VPA	0.61	0.51	3129	2077	-0.33	-0.38	0.428	0.687	pt. est.	ρ adj.	SSB
HKWUNIT	ASAP	0.15	0.18	28553	24197	-0.13	-0.12	0.076	0.086	pt. est.	pt. est.	none
POLUNIT	ASAP	0.29	0.28	198847	154865	-0.25	-0.28	0.051	0.07	pt. est.	ρ adj.	NAA
CATUNIT	SCALE	0.96	0.83	592	324	-0.55	-0.36	0.003	0.005	pt. est.	pt. est.	none

Table 7: The biomass (B) and exploitation rate (F) values used for status determination were adjusted to account for a retrospective pattern in some stocks. In general, when the B or F values adjusted for restrospective pattern (B_ρ and F_ρ) were outside of the approximate 90% confidence interval (Conf. limits), the ρ adjusted values were used to determine stock status (Adj. = Yes). There were exceptions however, such as YELSNEMA and CODGM(M=0.2) and details regarding each decision can be found in the report and reviewer comments sections for each stock. Only stocks that had both an estimable 7-year Mohn's ρ for B and F and estimable approximate 90% confidence limits on terminal year B and F values are included.

Stock	B_{2014}	B_ρ	Conf. limits	F_{2014}	F_ρ	Conf. limits	Adj?
CODGM(M=0.2)	2,225	1,443	1,942 - 2,892	0.956	1.39	0.654 - 1.387	No
CODGM(M ramp)	2,536	2,106	1,921 - 3,298	0.932	1.01	0.662 - 1.304	No
HADGB	225,080	150,053	171,911 - 301,282	0.159	0.241	0.13 - 0.203	Yes
HADGM	10,325	10,712	7,229 - 14,453	0.257	0.25	0.164 - 0.373	No
YELSNEMA	502	243	355 - 739	1.64	3.53	1.053 - 2.348	No
YELCCGM	1,695	857	1,375 - 2,111	0.355	0.64	0.25 - 0.52	Yes
FLWSNEMA	6,151	5,105	5,045 - 7,500	0.16	0.21	0.12 - 0.213	No
FLWGB	5,275	2,883	3,783 - 6,767	0.379	0.778	0.254 - 0.504	Yes
PLAUNIT	14,543	10,977	12,742 - 16,439	0.08	0.116	0.069 - 0.093	Yes
WITUNIT	3,129	2,077	2,643 - 3,864	0.428	0.687	0.321 - 0.603	Yes
HWKUNIT	28,553	24,197	24,351 - 33,480	0.076	0.086	0.063 - 0.092	No
POLUNIT	198,847	154,919	37,243 - 255,097	0.051	0.07	0.084 - 0.066	Yes
REDUNIT	414,544	330,004	368,906 - 465,828	0.012	0.015	0.011 - 0.014	Yes

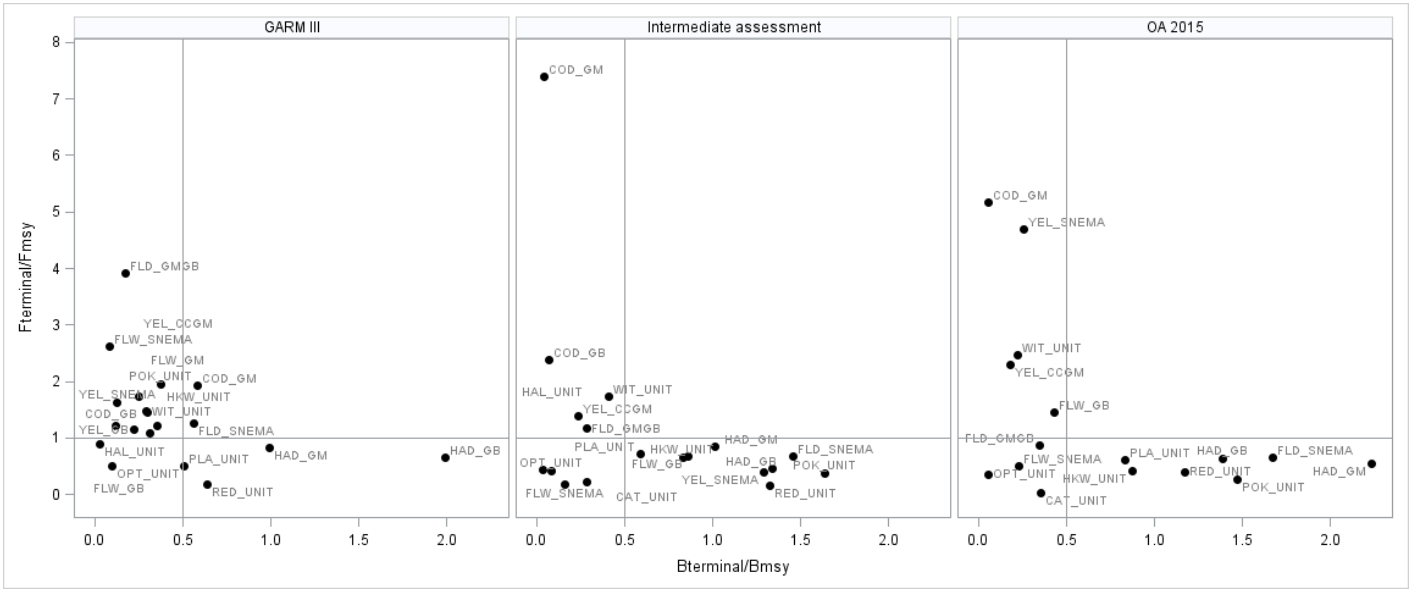

Figure 1: Status of the Northeast Multispecies Fishery Management Plan (groundfish) stocks in 2007 (GARM III) and 2014 (OA 2015) with respect to the F_{MSY} and B_{MSY} proxies. The 'Intermediate assessment' represents the last stock assessment conducted prior to the OA 2015 assessment (year varies by stock). Stocks on which overfishing is occurring are those where the $\frac{F_{terminal}}{F_{MSY\,proxy}}$ ratio is greater than 1 and overfished stocks are those where the $\frac{B_{terminal}}{B_{MSY\,proxy}}$ ratio is less than 0.5. *Notes: (1) the GARM III assessments did not include wolfish; (2) for the intermediate assessments stock status could not be determined for Gulf of Maine winter flounder (OA 2014) or Georges Bank yellowtail (TRAC 2015); and, (3) based on the OA 2015 assessments stock status could not be determined for Atlantic halibut, Gulf of Maine winter flounder and Georges Bank yellowtail flounder. In the OA 2015 assessment, the stock status for Georges Bank cod remained overfished and overfishing is occurring; however, since the assessment was rejected, ratios of terminal conditions to reference points cannot be determined. Species codes: COD-Atlantic cod, HAD-haddock, POL-pollock, RED-redfish, WHK-white hake, OPT-ocean pout, CAT-wolffish, PLA-American plaice, FLW-winter flounder, YEL-yellowtail flounder, WIT-witch flounder, FLD-windowpane flounder, HAL-Atlantic halibut.*

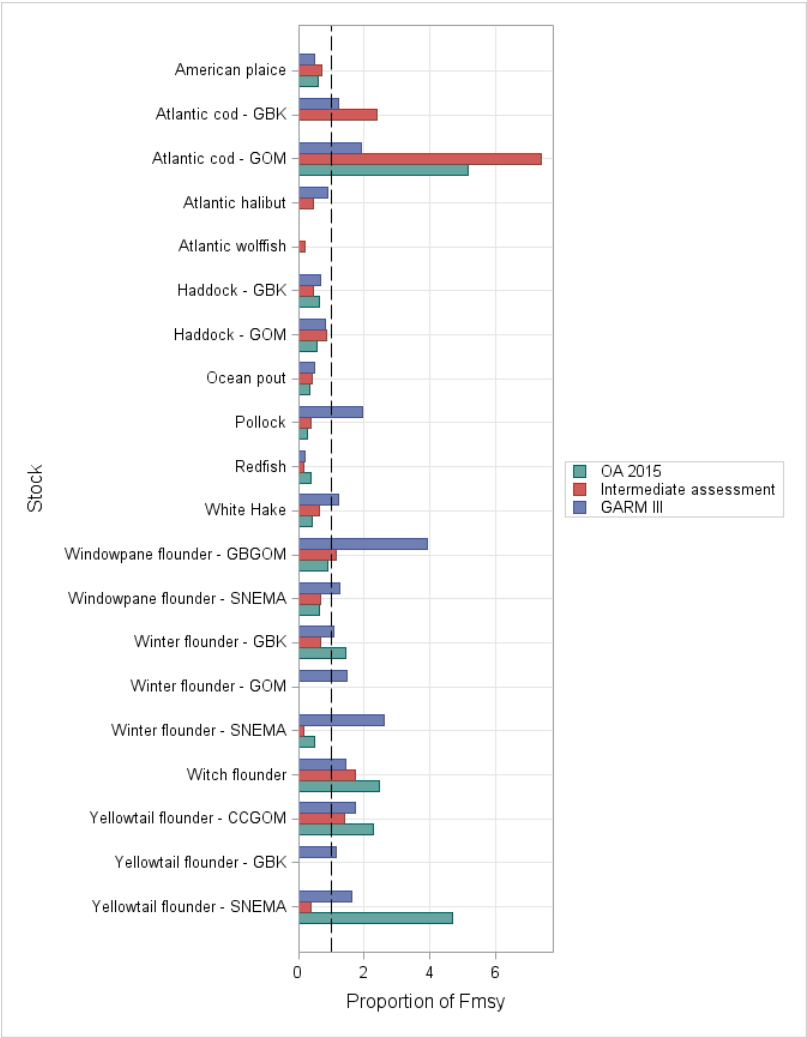

Figure 2: Changes in the ratio of fishing mortality to FMSY proxy from 2007 (GARM III) to 2014 (OA 2015) for the twenty Northeast Multispecies Fishery Management Plan (groundfish) stocks. The results from the assessment prior to the OA 2015 assessment are shown for each stock to provide an 'Intermediate' value. Stocks on which overfishing is occurring are those where the $\frac{F_{terminal}}{F_{MSYproxy}}$ ratio is greater than 1. *Notes: (1) the GARM III assessments did not include wolfish; (2) stock status in the 'Intermediate' assessment could not be determined for Gulf of Maine winter flounder or Georges Bank yellowtail flounder; and, (3) based on the OA 2015 assessments stock status could not be determined for Atlantic halibut, Gulf of Maine winter flounder and Georges Bank yellowtail flounder. In the OA 2015 assessment, the stock status for Georges Bank cod remained overfished and overfishing is occurring; however, since the assessment was rejected, ratios of terminal conditions to reference points cannot be determined.*

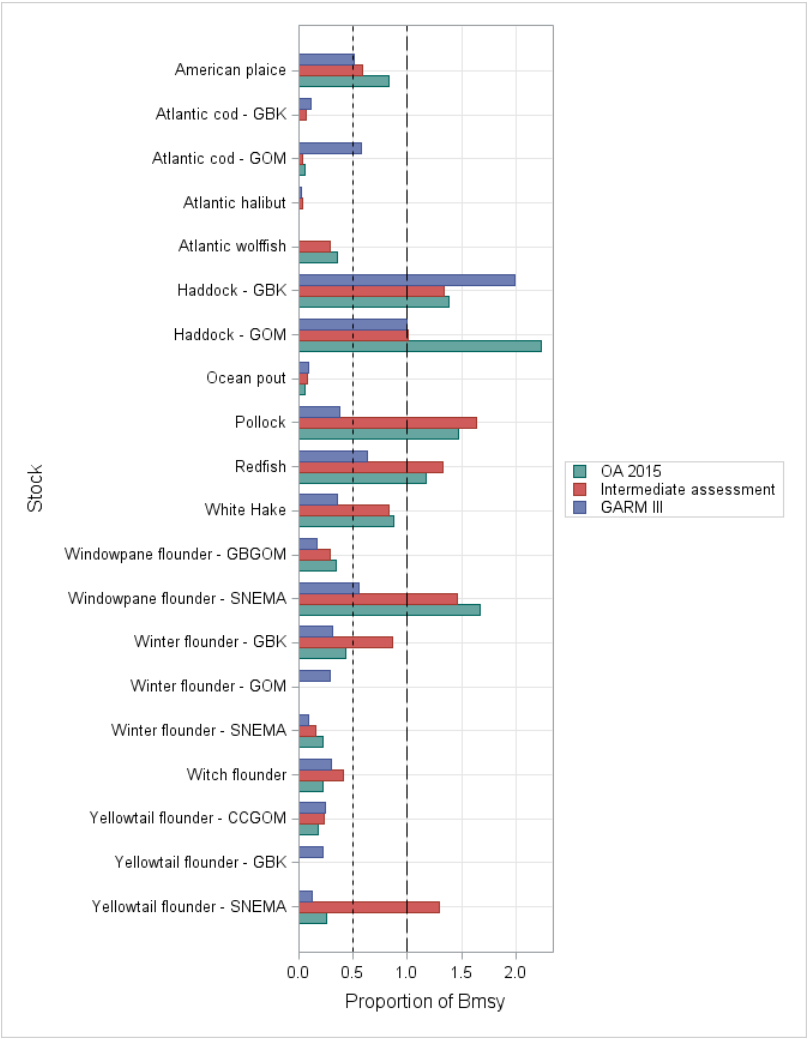

Figure 3: Changes in the ratio of stock biomass to BMSY proxy from 2007 (GARM III) to 2014 (OA 2015) for the twenty Northeast Multispecies Fishery Management Plan (groundfish) stocks. The results from the assessment prior to the OA 2015 assessment are shown for each stock to provide an 'Intermediate' value. Stocks that are overfished stocks are those where the $\frac{B_{terminal}}{B_{MSYproxy}}$ ratio is less than 0.5. *Notes: (1) the GARM III assessments did not include wolfish; (2) stock status in the 'Intermediate' assessment could not be determined for Gulf of Maine winter flounder or Georges Bank yellowtail flounder; and, (3) based on the OA 2015 assessments stock status could not be determined for Atlantic halibut, Gulf of Maine winter flounder and Georges Bank yellowtail flounder. In the OA 2015 assessment, the stock status for Georges Bank cod remained overfished and overfishing is occurring; however, since the assessment was rejected, ratios of terminal conditions to reference points cannot be determined.*

Figure 4: NEFSC spring bottom trawl survey index standardized anomalies (Z-score) for the Northeast Multispecies Fishery Management Plan (groundfish) stocks from 1968 to 2015. *Note that both the Georges Bank/Gulf of Maine and Southern New England/Mid-Atlantic windowpane flounder stocks are not included since the spring survey is uninformative as an index of abundance and not used in the stock assessment.*

Figure 5: NEFSC fall bottom trawl survey index standardized anomalies (Z-score) for the Northeast Multispecies Fishery Management Plan (groundfish) stocks from 1963 to 2014. *Note that ocean pout is not included since the fall survey is uninformative as an index of abundance and not used in the stock assessment.*

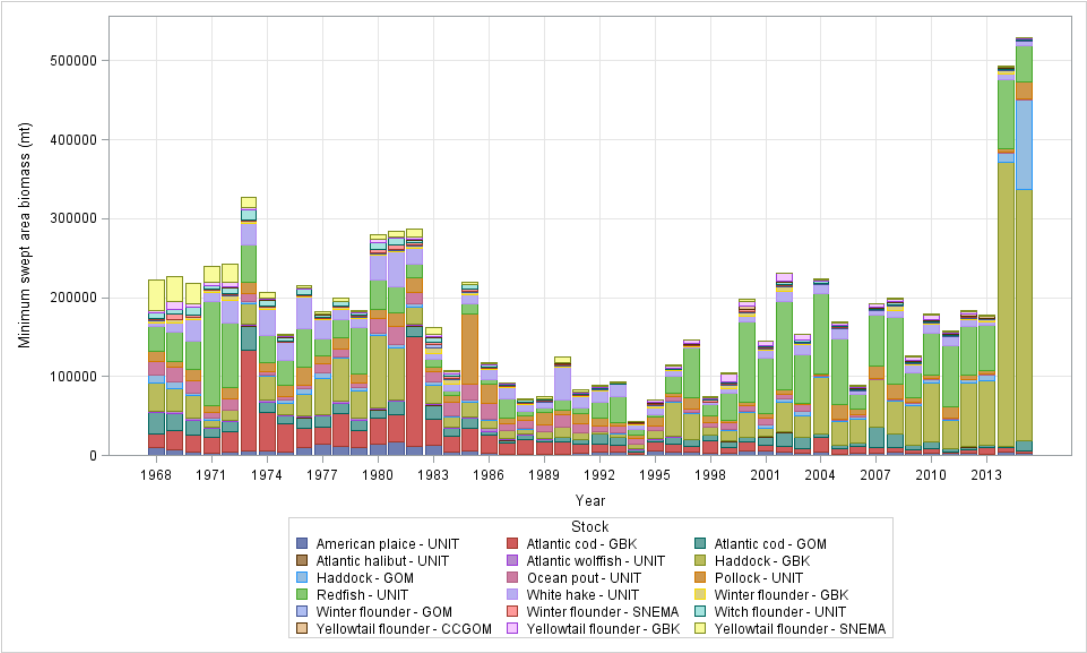

Figure 6: NEFSC spring bottom trawl survey minimum swept area biomass (mt) for the Northeast Multispecies Fishery Management Plan (groundfish) stocks from 1968 to 2015, by stock. Minimum swept area estimates assume a trawl swept area of 0.0112 nm^2) (0.0384 km^2) based on the wing spread of the trawl net. *Note that both the Georges Bank/Gulf of Maine and Southern New England/Mid-Atlantic windowpane flounder stocks are not included since the spring survey is uninformative as an index of abundance and not used in the stock assessment.*

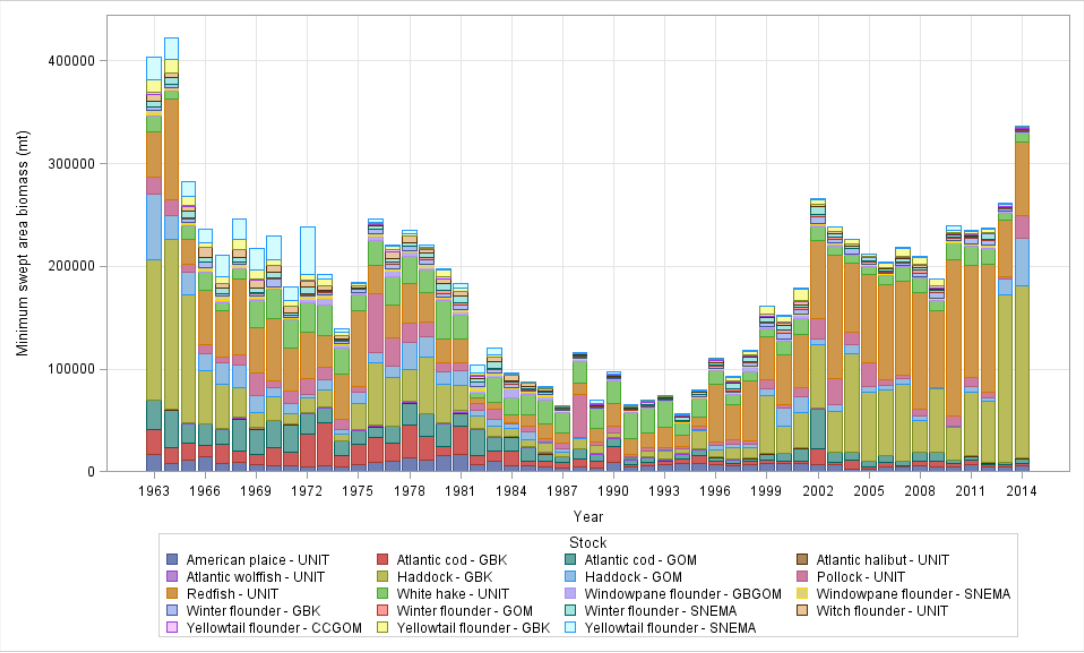

Figure 7: NEFSC fall bottom trawl survey minimum swept area biomass (mt) for for the Northeast Multispecies Fishery Management Plan (groundfish) stocks from 1963 to 2014, by stock. Minimum swept area estimates assume a trawl swept area of 0.0112 nm^2 (0.0384 km^2) based on the wing spread of the trawl net. *Note that ocean pout is not included since the fall survey is uninformative as an index of abundance and not used in the stock assessment.*

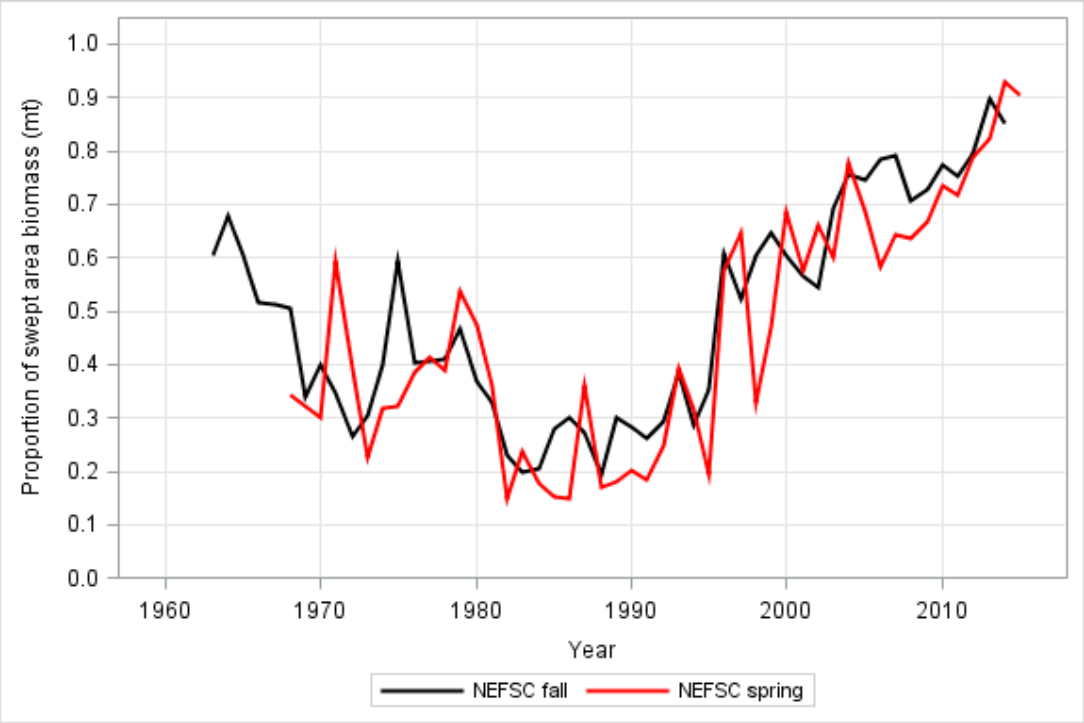

Figure 8: Proportion of the total groundfish swept minimum swept area biomass contributed by Georges Bank and Gulf of Maine haddock and Redfish based on the NEFSC spring and fall bottom trawl surveys.

8 Georges Bank winter flounder

Lisa Hendrickson

This assessment of the Georges Bank winter flounder (Pseudopleuronectes americanus) stock is an operational update of the existing 2014 operational VPA assessment which included data for 1982-2013 (Hendrickson et al. 2015). Based on the previous assessment the stock was not overfished and overfishing was not ocurring. This assessment updates commercial fishery catch data, research survey biomass indices, and the analytical VPA assessment model and reference points through 2014. Additionally, stock projections have been updated through 2018.

State of Stock: Based on this updated assessment, the Georges Bank winter flounder (*Pseudopleuronectes americanus*) stock is overfished and overfishing is occurring (Figures 39-40). Retrospective adjustments were made to the model results. Spawning stock biomass (SSB) in 2014 was estimated to be 2,883 (mt) which is 43% of the biomass target for an overfished stock (SSB_{MSY} = 6,700 with a threshold of 50% of SSBMSY; Figure 39). The 2014 fully selected fishing mortality (F) was estimated to be 0.778 which is 145% of the overfishing threshold (F_{MSY} = 0.536; Figure 40).

Table 26: Catch input data and VPA model results for Georges Bank winter flounder. All weights are in (mt), recruitment is in (000s) and F_{Full} is the average fishing mortality on ages (ages 4-6). Catch and model results are only for the most recent years (2005-2014) of the current updated VPA assessment.

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
					Data					
US landings	2,012	825	795	947	1,658	1,252	1,801	1,911	1,675	1,114
CA landings	73	55	12	20	12	45	52	83	12	12
US discards	118	110	188	143	91	138	129	113	47	46
CA scall dr discards	145	135	44	69	252	109	88	79	29	47
Catch for Assessment	2,348	1,125	1,039	1,179	2,013	1,544	2,070	2,186	1,763	1,219
					Model Results					
Spawning Stock Biomass	4,426	4,478	4,316	3,931	4,282	4,997	5,157	4,829	4,645	5,275
F_{Full}	0.679	0.265	0.309	0.371	0.459	0.365	0.507	0.5	0.533	0.379
Recruits $age1$	3,840	6,106	9,566	12,874	11,355	5,789	7,650	6,519	6,217	6,575

Table 27: Comparison of reference points estimated in the 2014 assessment and the current assessment update and stock status during 2013 and 2014, respectively. An estimate of F_{MSY} was used for the overfishing threshold and was based on long-term stochastic projections.

	2014	Current
F_{MSY}	0.44	0.536
SSB_{MSY} (mt)	8,100	6,700 (4,370 - 10,610)
MSY (mt)	3,200	2,840 (1,850 - 4,480)
Median recruits (age 1) (000s)	13,235	9,880
Overfishing	No	Yes
Overfished	No	Yes

Projections: Short-term projections of biomass were derived by sampling from a cumulative distribution function of recruitment estimates (1982-2013 year classes) from the final run of the ADAPT VPA model. The annual fishery selectivity, maturity ogive, and mean weights-at-age used in the projection are the most recent 5 year averages (2010-2014). An SSB retrospective adjustment factor of 0.546 was applied in the projections.

Table 28: Short-term projections of catch (mt) and spawning stock biomass (mt) for Georges Bank winter flounder based on a harvest scenario of fishing at 75% of F_{MSY} between 2016 and 2018. Catch in 2015 was assumed to be 1,150 (mt).

Year	Catch (mt)	SSB (mt)	F_{Full}
2015	1,150	2,623 (1,802 - 3,813)	0.362
2016	755	2,295 (1,472 - 3,482)	0.402
2017	830	2,595 (1,894 - 3,594)	0.402
2018	1,110	3,581 (2,390 - 5,948)	0.402

Special Comments:

- What are the most important sources of uncertainty in this stock assessment? Explain, and describe qualitatively how they affect the assessment results (such as estimates of biomass, F, recruitment, and population projections).

  The largest source of uncertainty is the estimate of natural mortality based on longevity (max. age = 20 for this stock), which is not well studied in Georges Bank winter flounder, and assumed constant over time. Natural mortality affects the scale of the biomass and fishing mortality estimates. Other sources of uncertainty include the underestimation of catches. Discards from the Canadian bottom trawl fleet were not provided by the CA DFO and the precision of the Canadian scallop dredge discard estimates, with only 1-2 trips per month, are uncertain. The lack of age data for the Canadian spring survey catches requires the use of the US spring survey age/length keys despite selectivity differences. In addition, there are no length or age composition data from the Canadian landings or discards of Georges Bank winter flounder.

- Does this assessment model have a retrospective pattern? If so, is the pattern minor, or major? (A major retrospective pattern occurs when the adjusted SSB or F_{Full} lies outside of the approximate joint confidence region for SSB and F_{Full}; see Table 7).

  The 7-year Mohn's ρ, relative to SSB, was 0.26 in the 2014 assessment and was 0.83 in 2014. The 7-year Mohn's ρ, relative to F, was -0.16 in the 2014 assessment and was -0.51 in 2014. There was a major retrospective pattern for this assessment because the ρ adjusted estimates of 2014 SSB (SSB_{ρ}=2,883) and 2014 F (F_{ρ}=0.778) were outside the approximate 90% confidence region around SSB (3,783 - 6,767) and F (0.254 - 0.504). A retrospective adjustment was made for both the determination of stock status and for projections of catch in 2016. The retrospective adjustment changed the 2014 SSB from 5,275 to 2,883 and the 2014 F_{Full} from 0.379 to 0.778.

- Based on this stock assessment, are population projections well determined or uncertain?

  Population projections for Georges Bank winter flounder are reasonably well determined.

- Describe any changes that were made to the current stock assessment, beyond incorporating additional years of data and the affect these changes had on the assessment and stock status.

  The only change made to the Georges Bank winter flounder assessment, other than the incorporation of an additional year of data, involved fishery selectivity. During the 2014 assessment update, stock size estimates of age 1 and age 2 fish were not estimable in the VPA during year t + 1 (CVs near 1.0). When age 2 stock size is not estimated in year t + 1, the VPA model calculates the stock size of age 1 fish (i.e., recruitment) in the terminal year by using the age 1 partial recruitment (PR) value to derive the F at age 1 in the terminal year. The age 1 PR value used in the 2014 assessment update was 0.001. However, when this same age 1 PR value was used in a VPA run for the current assessment update, the low PR value combined with the low age 1 catch in 2014 resulted in an unlikely high stock size estimate for age 1 recruitment in 2014 (i.e., 41,587,000 fish) when compared to survey observations of the same cohort (i.e., age 1 in 2014 and age 2 in 2015). In order to obtain a more realistic estimate of age 1 recruitment in 2014, I allowed the VPA model to estimate age 2 stock size in 2015 (and thereby avoided the use of an age 1 PR value in the age 1 stock size calculation for 2014) and used the back-calculated PR values from this VPA run to derive a new PR-at-age vector which was used in the final 2015 VPA run. Similar to the 2014 assessment update, the final 2015 VPA run did not include the estimation of age 2 stock size and the new PR-at-age vector was computed using the same methods as in the 2014 assessment. Full selectivity occurs at age 4. For the 2015 assessment update, fishery selectivity for ages 1-3 was changed from the 2014 assessment values of 0.001, 0.10 and 0.43, respectively, to 0.01, 0.08 and 0.55, respectively. Differences between estimates of F, SSB and R values from the final 2015 VPA run, with the new PR vector, and a 2015 VPA run that utilized the PR vector from the 2014 assessment are shown in Table G30 (see SASINF).

- If the stock status has changed a lot since the previous assessment, explain why this occurred.

  The overfished and overfishing status of Georges Bank winter flounder has changed in the current assessment update due to a worsening of the retrospective error associated with fishing mortality and SSB.

- Indicate what data or studies are currently lacking and which would be needed most to improve this stock assessment in the future.

The Georges Bank winter flounder assessment could be improved with discard estimates from the Canadian bottom trawl fleet and age data from the Canadian spring bottom trawl surveys.

- Are there other important issues?
  None.

8.1 Reviewer Comments: Georges Bank winter flounder

Recommendation: The Panel concluded that the updated assessment with retrospective adjustment was acceptable as a scientific basis for management advice. The revised partial recruitment assumption for VPA calibration was well justified.

Alternative Assessment Approach: Not applicable

Sources of Uncertainty: The major source of uncertainty is the retrospective pattern. The magnitude of the retrospective pattern is substantially greater than the 2014 update assessment. The decrease in estimates of stock size from the previous update is largely influenced by updated survey indices. The natural mortality assumption was revised in the SAW52 benchmark assessment, but the assumption is based on limited longevity information. The catch is underestimated and uncertain, because the magnitude of Canadian trawl discards is unknown. The Panel also noted that age composition of the Canadian survey and fishery is not sampled, and that weight at age and maturity at age have declined since 2008. The MSY reference point is conditional on an assumed steepness value.

Research Needs: The Panel recommends that the sources of the retrospective pattern need to be addressed. Considering that retrospective patterns are a common problem, the generic problem may be most appropriately addressed in a research track topic, and all possible sources of the retrospective problem should be investigated (misspecified natural mortality, changes in natural mortality, under-reported catch, changes in survey catchability and misspecified selectivity, etc.). Survey data should be updated to monitor rebuilding or persistent decreases and better sampling of the magnitude and age composition of Canadian discards is needed. Dedicated age samples are needed for the Canadian survey and fishery.

References:

Hendrickson L, Nitschke P, Linton B. 2015. 2014 Operational Stock Assessments for Georges Bank winter flounder, Gulf of Maine winter flounder, and pollock. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 15-01; 228 p.

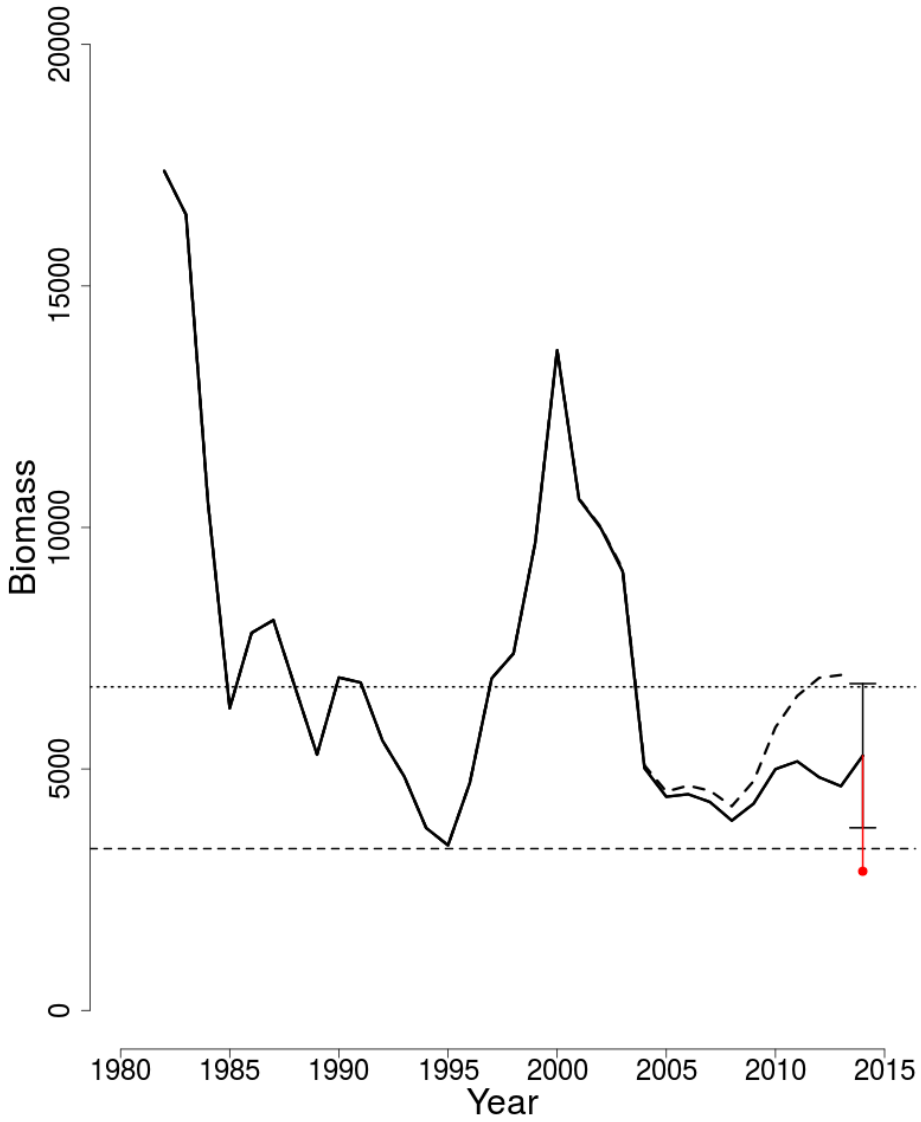

Figure 39: Trends in spawning stock biomass (mt) of Georges Bank winter flounder between 1982 and 2014 from the current (solid line) and previous (dashed line) assessments and the corresponding $SSB_{Threshold}$ ($\frac{1}{2}$ SSB_{MSY}; horizontal dashed line) as well as SSB_{Target} (SSB_{MSY}; horizontal dotted line) based on the 2015 assessment. Biomass was adjusted for a retrospective pattern and the adjustment is shown in red. The approximate 90% normal confidence intervals are shown.

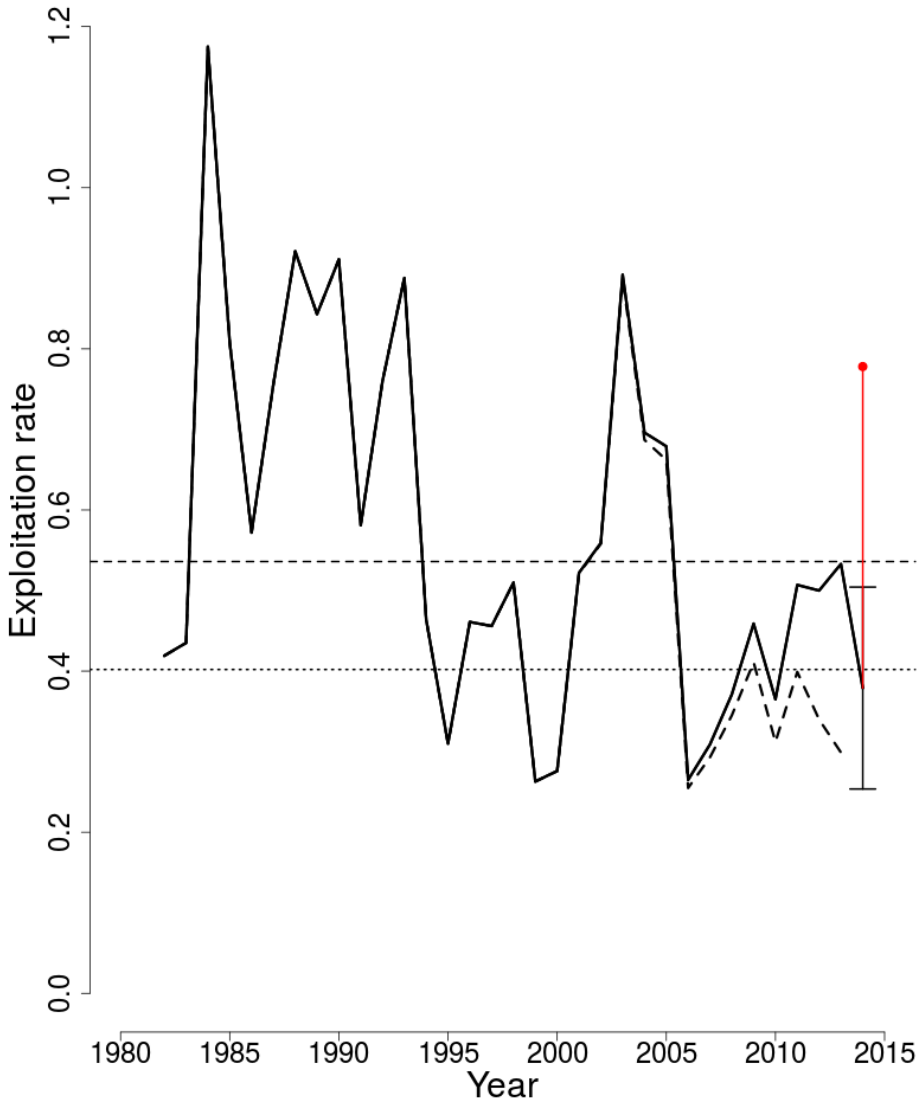

Figure 40: Trends in fully selected fishing mortality (F_{Full}) of Georges Bank winter flounder between 1982 and 2014 from the current (solid line) and previous (dashed line) assessments and the corresponding $F_{Threshold}$ (F_{MSY}=0.536; horizontal dashed line) as well as (F_{Target}= 75% of FMSY; horizontal dotted line). F_{Full} was adjusted for a retrospective pattern and the adjustment is shown in red. The approximate 90% normal confidence intervals are also shown.

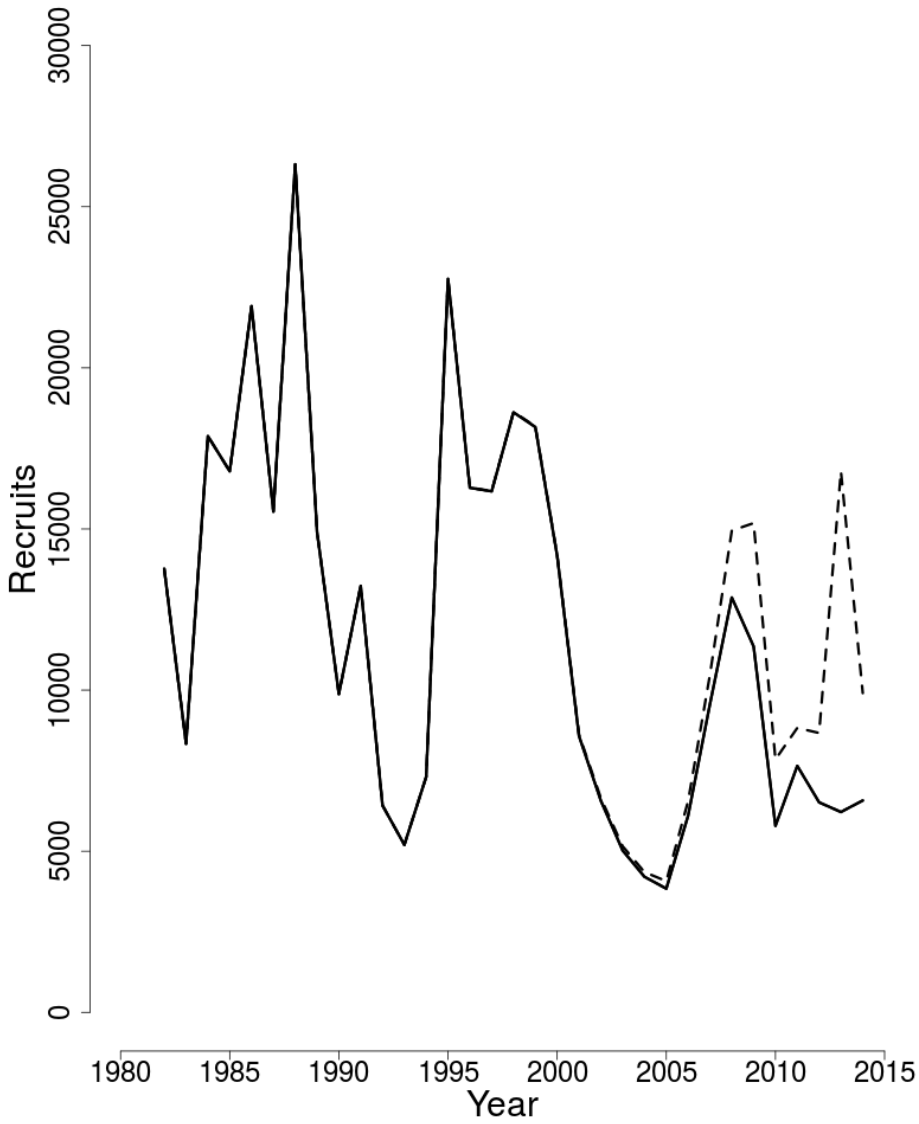

Figure 41: Trends in Recruits (age 1) (000s) of Georges Bank winter flounder between 1982 and 2014 from the current (solid line) and previous (dashed line) assessments. The approximate 90% normal confidence intervals are shown.

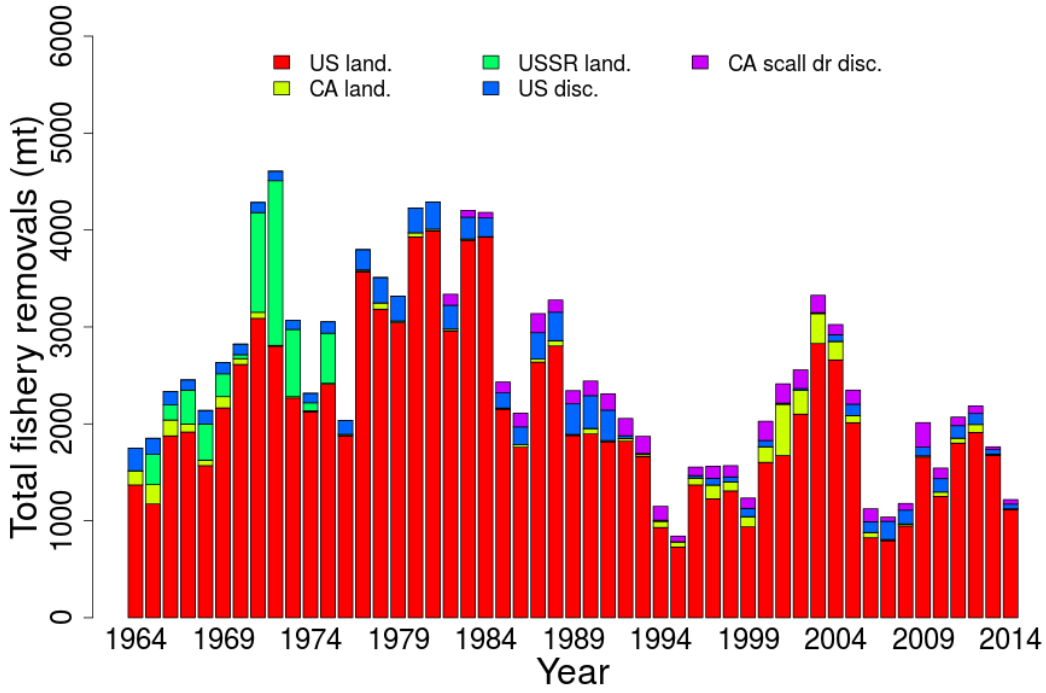

Figure 42: Total catches (mt) of Georges Bank winter flounder between 1982 and 2015 by country and disposition (landings and discards).

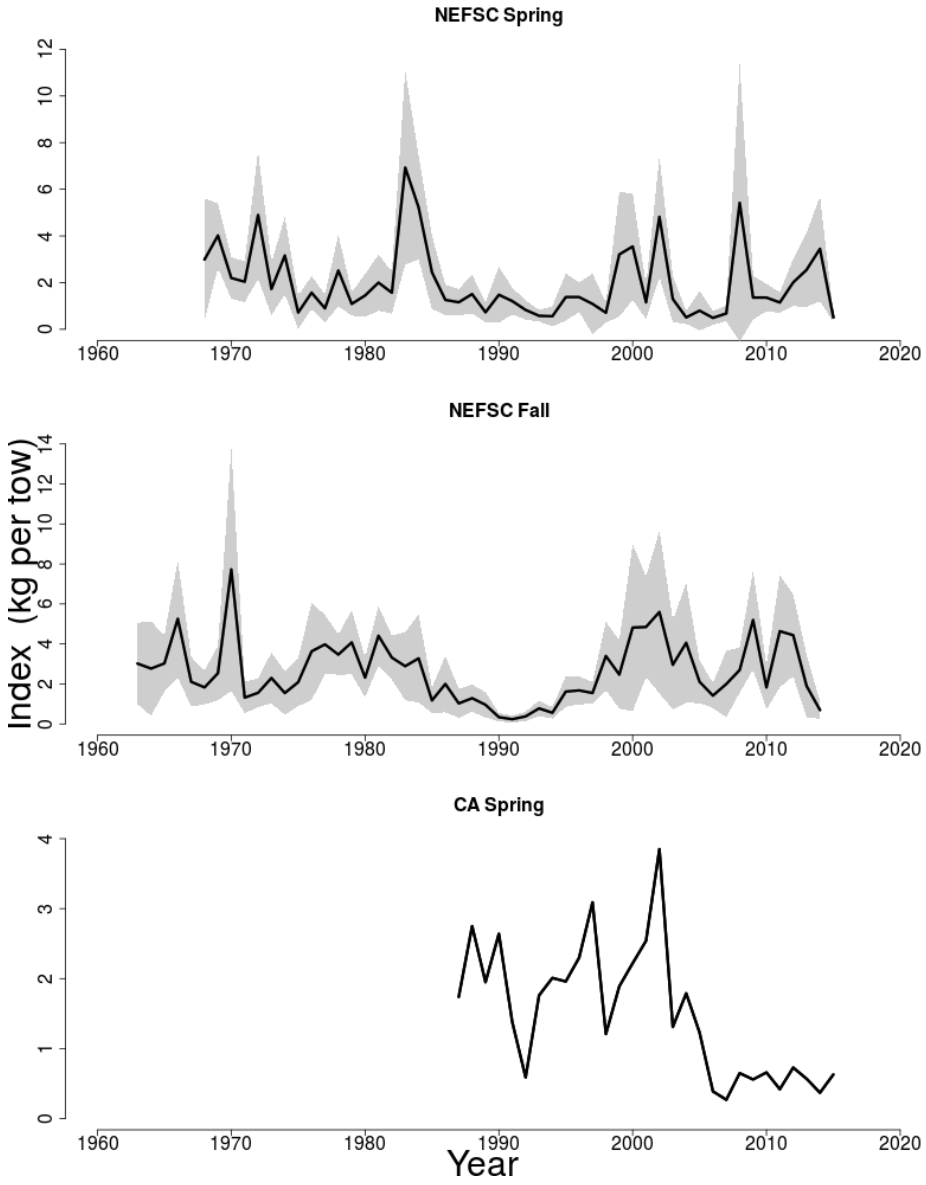

Figure 43: Indices of biomass for the Georges Bank winter flounder for the Northeast Fisheries Science Center (NEFSC) spring (1968-2015) and fall (1963-2014) bottom trawl surveys and the Canadian DFO spring survey (1987-2015). The approximate 90% normal confidence intervals are shown.

9 Southern New England Mid-Atlantic winter flounder

Anthony Wood

This assessment of the Southern New England Mid-Atlantic winter flounder (Pseudopleuronectes americanus) stock is an operational update of the existing 2011 benchmark ASAP assessment (NEFSC 2011). Based on the previous assessment the stock was overfished, but overfishing was not ocurring. This assessment updates commercial fishery catch data, recreational fishery catch data, and research survey indices of abundance, and the analytical ASAP assessment models and reference points through 2014. Additionally, stock projections have been updated through 2018

State of Stock: Based on this updated assessment, the Southern New England Mid-Atlantic winter flounder (*Pseudopleuronectes americanus*) stock is overfished but overfishing is not occurring (Figures 44-45). Retrospective adjustments were not made to the model results. Spawning stock biomass (SSB) in 2014 was estimated to be 6,151 (mt) which is 23% of the biomass target (26,928 mt), and 23% of the biomass threshold for an overfished stock ($SSB_{Threshold}$ = 13464 (mt); Figure 44). The 2014 fully selected fishing mortality was estimated to be 0.16 which is 49% of the overfishing threshold (F_{MSY} = 0.325; Figure 45).

Table 29: Catch and status table for Southern New England Mid-Atlantic winter flounder. All weights are in (mt) recruitment is in (000s) and F_{Full} is the fishing mortality on fully selected ages (ages 4 and 5). Model results are from the current updated ASAP assessment.

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
					Data					
Recreational discards	14	16	5	3	9	8	18	2	4	1
Recreational landings	124	136	116	73	87	28	65	31	7	30
Commercial discards	105	151	118	109	165	153	298	483	206	64
Commercial landings	1,320	1,720	1,628	1,113	271	174	150	134	857	658
Catch for Assessment	1,563	2,023	1,867	1,298	532	363	531	650	1,074	753
					Model Results					
Spawning Stock Biomass	5,021	5,517	6,338	5,552	5,038	5,806	6,946	7,116	7,077	6,151
F_{Full}	0.35	0.41	0.36	0.28	0.11	0.07	0.09	0.11	0.19	0.16
Recruits $age1$	13,244	7,368	6,212	9,422	7,416	7,070	5,365	5,281	2,633	4,906

Table 30: Comparison of reference points estimated in an earlier assessment and from the current assessment update. F_{MSY} was generated assuming a Beverton-Holt S-R relationship and an SSB_{MSY} proxy was used for the overfished threshold and was based on long-term stochastic projections. Recruitment estimates are median values of the time-series. 90% CI are shown in parentheses.

	2011	Current
F_{MSY}	0.290	0.325
SSB_{MSY} (mt)	43,661	26,928 (18,488 - 39,847)
MSY (mt)	11,728	7,831 (5,237 - 11,930)
Median recruits (age 1) (000s)	19,256	16,448
Overfishing	No	No
Overfished	Yes	Yes

Projections: Short term projections of biomass were derived by sampling from a cumulative distribution function of recruitment estimates assuming a Beverton-Holt stock recruitment relationship. The annual fishery selectivity, maturity ogive, and mean weights at age used in projection are the most recent 5 year averages; The model exhibited minor retrospective pattern in F and SSB so no retrospective adjustments were applied in the projections.

Table 31: Short term projections of total fishery catch and spawning stock biomass for Southern New England Mid-Atlantic winter flounder based on a harvest scenario of fishing at F_{MSY} between 2016 and 2018. Catch in 2015 was assumed to be 717 (mt), a value provided by GARFO (Dan Caless pers. comm.). 90% CI are shown next to SSB estimates.

Year	Catch (mt)	SSB (mt)	F_{Full}
2015	717	5,439 (4,423 - 6,607)	0.183
2016	1,041	4,732 (3,827 - 5,774)	0.325
2017	973	3,782 (3,057 - 4,645)	0.325
2018	1,515	4,612 (3,267 - 7,339)	0.325

Special Comments:

- What are the most important sources of uncertainty in this stock assessment? Explain, and describe qualitatively how they affect the assessment results (such as estimates of biomass, F, recruitment, and population projections).

  A large source of uncertainty is the estimate of natural mortality based on longevity, which is not well studied in Southern New England Mid-Atlantic winter flounder, and assumed constant over time. Natural mortality affects the scale of the biomass and fishing

mortality estimates. Natural mortality was adjusted upwards from 0.2 to 0.3 during the last benchmark assessment assuming a max age of 16. However, there is still uncertainty in the true max age of the population and the resulting natural mortality estimate. Other sources of uncertainty include length distribution of the recreational discards. The recreational discards, are a small component of the total catch, but the assessment suffers from very little length information used to characterize the recreational discards (1 to 2 lengths in recent years).

- Does this assessment model have a retrospective pattern? If so, is the pattern minor, or major? (A major retrospective pattern occurs when the adjusted SSB or F_{Full} lies outside of the approximate joint confidence region for SSB and F_{Full}; see Table 7).

  No retrospective adjustment of spawning stock biomass or fishing mortality in 2014 was required.

- Based on this stock assessment, are population projections well determined or uncertain?

  Population projections for Southern New England Mid-Atlantic winter flounder are reasonably well determined. There is uncertainty in the estimates of M. In addition, while the retrospective pattern is considered minor (within the 90% CI of both F and SSB) the rho adjusted terminal value is very close to falling outside of the bounds, becoming a major retrospective pattern. This would lead to retrospective adjustments being needed for the projections.

- Describe any changes that were made to the current stock assessment, beyond incorporating additional years of data and the affect these changes had on the assessment and stock status.

  No changes, other than the incorporation of new data were made to the Southern New England Mid-Atlantic winter flounder assessment for this update.

- If the stock status has changed a lot since the previous assessment, explain why this occurred.

  The stock status of Southern New England Mid-Atlantic winter flounder has not changed since the previous benchmark in 2011.

- Indicate what data or studies are currently lacking and which would be needed most to improve this stock assessment in the future.

  The Southern New England Mid-Atlantic winter flounder assessment could be improved with additional studies on maximum age, as well additional recreational discard lengths. In addition, further investigation into the localized struture/genetics of the stock is warranted. Also, a future shift to ASAP version 4 will provide the ability to model envirionmental factors that may influence both survey catchability and the modeled S-R relationship

- Are there other important issues?

  None.

9.1 Reviewer Comments: Southern New England Mid-Atlantic winter flounder

Recommendation: The Panel concluded that the updated assessment was acceptable as a scientific basis for management advice.

Alternative Assessment Approach: Not applicable

Sources of Uncertainty: The major sources of uncertainty are the change in productivity and poor fit to some survey data. There are residual patterns for some surveys (e.g., NEFSC fall and CTDEP) and the retrospective magnitude is close to the confidence limits of the estimates. The natural mortality assumption was revised in the SAW52 benchmark, but the assumption is based on limited longevity information. The Panel noted that the size composition of recreational catch, particularly discards, is poorly sampled.

Research Needs: The Panel recommends that the decrease in productivity should be explored, including environmental effects on recruitment. The potential for depletion of stock components should be considered and information on natural mortality should be investigated. The next benchmark assessment should investigate the weighting of multiple surveys. Recent investigations of maturity should be considered in the next assessment.

References:

Smith, A. and S. Jones. 2008. In. Northeast Fisheries Science Center. 2008. Assessment of 19 Northeast Groundfish Stocks through 2007: Report of the 3^{rd} Groundfish Assessment Review Meeting (GARM III), Northeast Fisheries Science Center, Woods Hole, Massachusetts, August 4-8, 2008. US Dep Commer, NOAA Fisheries, Northeast Fish Sci Cent Ref Doc. 08-15; 884 p + xvii. http://www.nefsc.noaa.gov/publications/crd/crd0815/

Northeast Fisheries Science Center. 2011. 52^{nd} Northeast Regional Stock AssessmentWorkshop (52^{nd} SAW) Assessment Report. US Dept Commer, Northeast Fish SciCent Ref Doc. 11-17; 962 p. Available from: National Marine Fisheries Service, 166Water Street, Woods Hole, MA 02543-1026, or online at http://www.nefsc.noaa.gov/nefsc/publications/

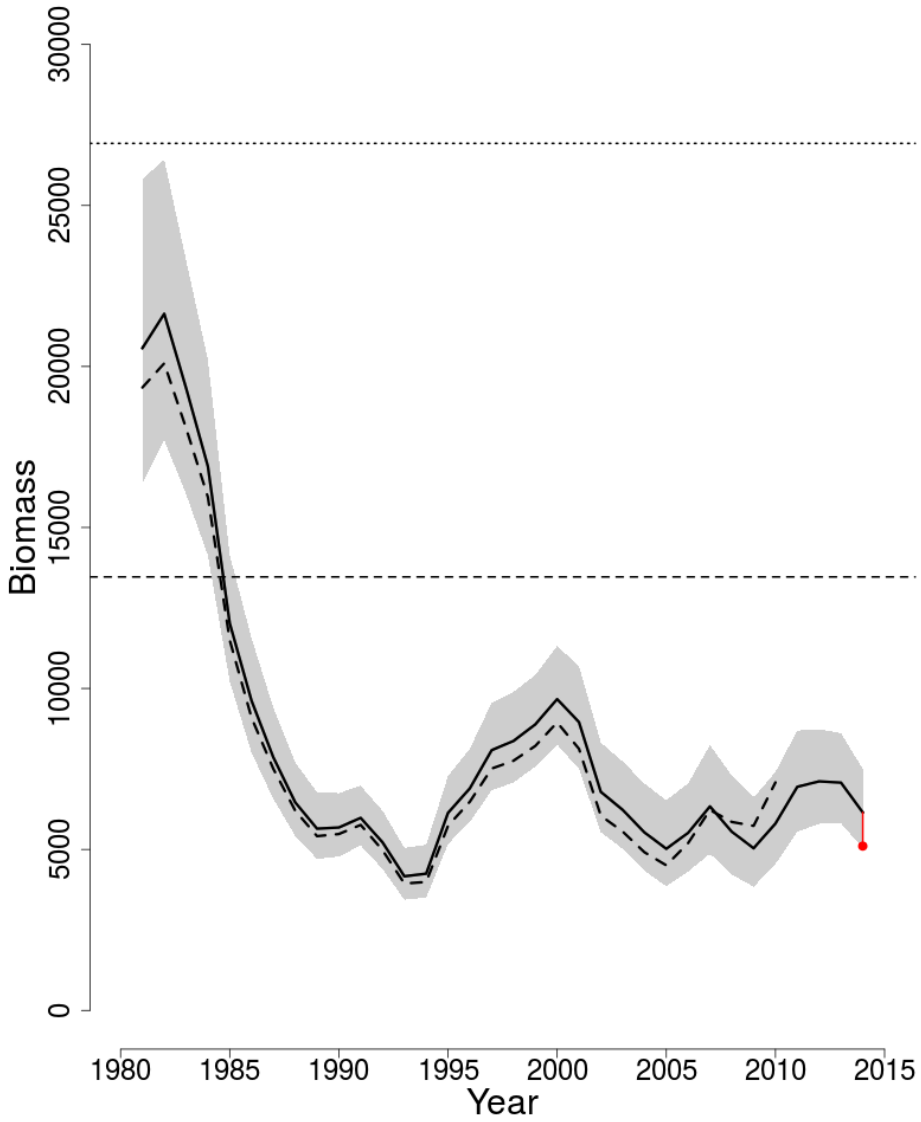

Figure 44: Trends in spawning stock biomass of Southern New England Mid-Atlantic winter flounder between 1981 and 2014 from the current (solid line) and previous (dashed line) assessment and the corresponding $SSB_{Threshold}$ ($\frac{1}{2}$ SSB_{MSY} *proxy*; horizontal dashed line) as well as SSB_{Target} (SSB_{MSY} *proxy*; horizontal dotted line) based on the 2015 assessment. The approximate 90% lognormal confidence intervals are shown.

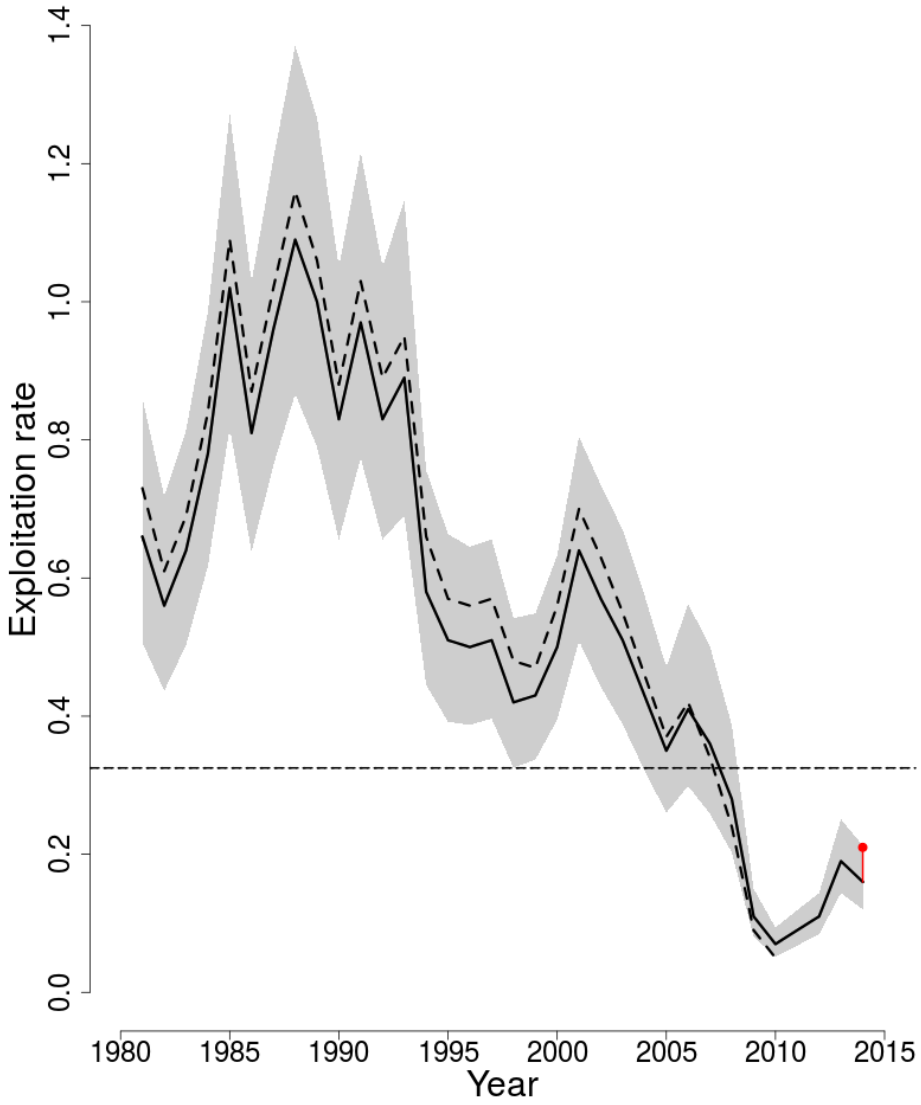

Figure 45: Trends in the fully selected fishing mortality (F_{Full}) of Southern New England Mid-Atlantic winter flounder between 1981 and 2014 from the current (solid line) and previous (dashed line) assessment and the corresponding $F_{Threshold}$ (F_{MSY}=0.325; horizontal dashed line) based on the 2015 assessment. The approximate 90% lognormal confidence intervals are shown.

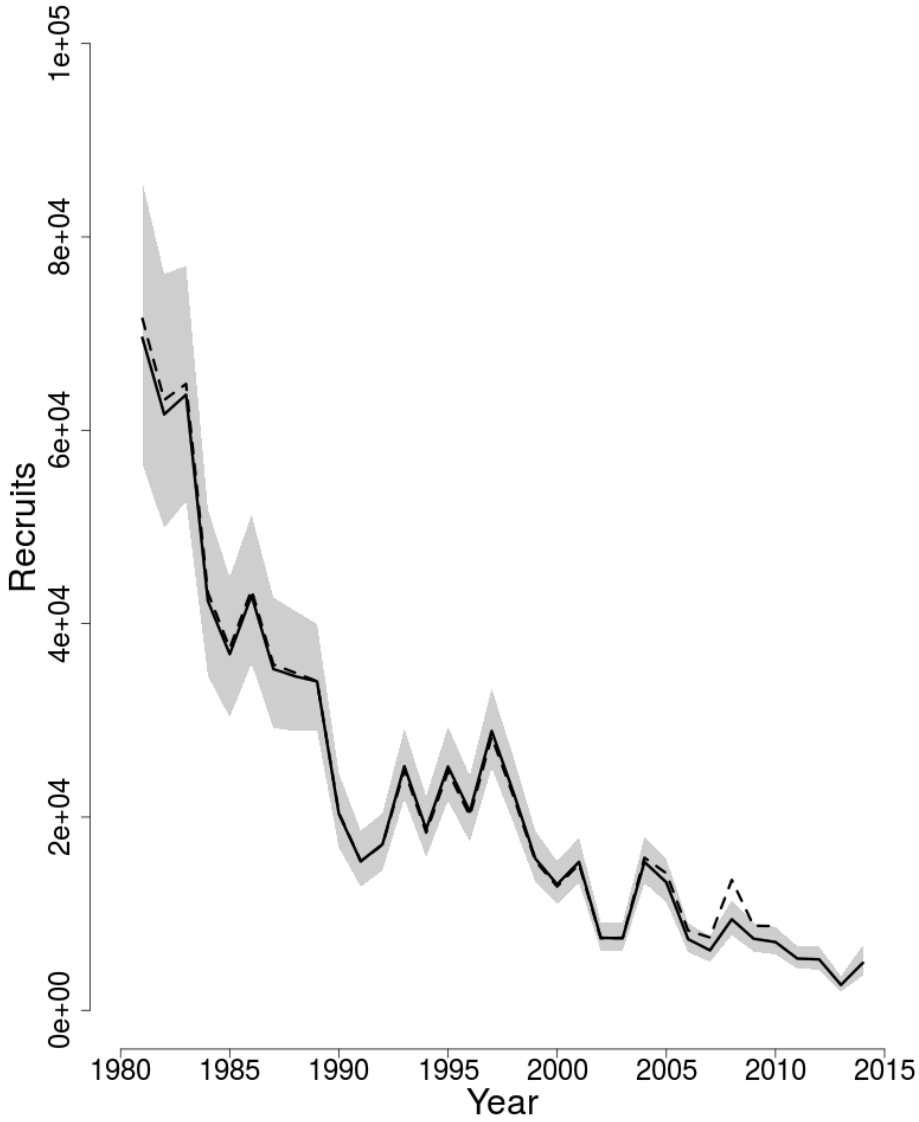

Figure 46: Trends in Recruits (age 1) (000s) of Southern New England Mid-Atlantic winter flounder between 1981 and 2014 from the current (solid line) and previous (dashed line) assessment. The approximate 90% lognormal confidence intervals are shown.

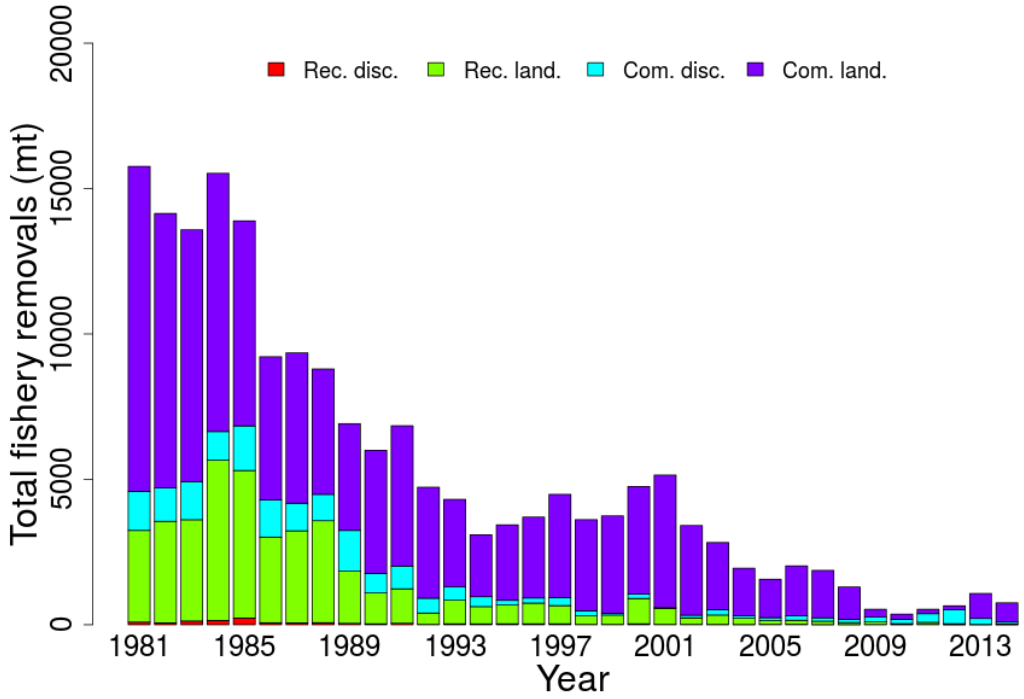

Figure 47: Total catch of Southern New England Mid-Atlantic winter flounder between 1981 and 2014 by fleet (commercial, recreational) and disposition (landings and discards).

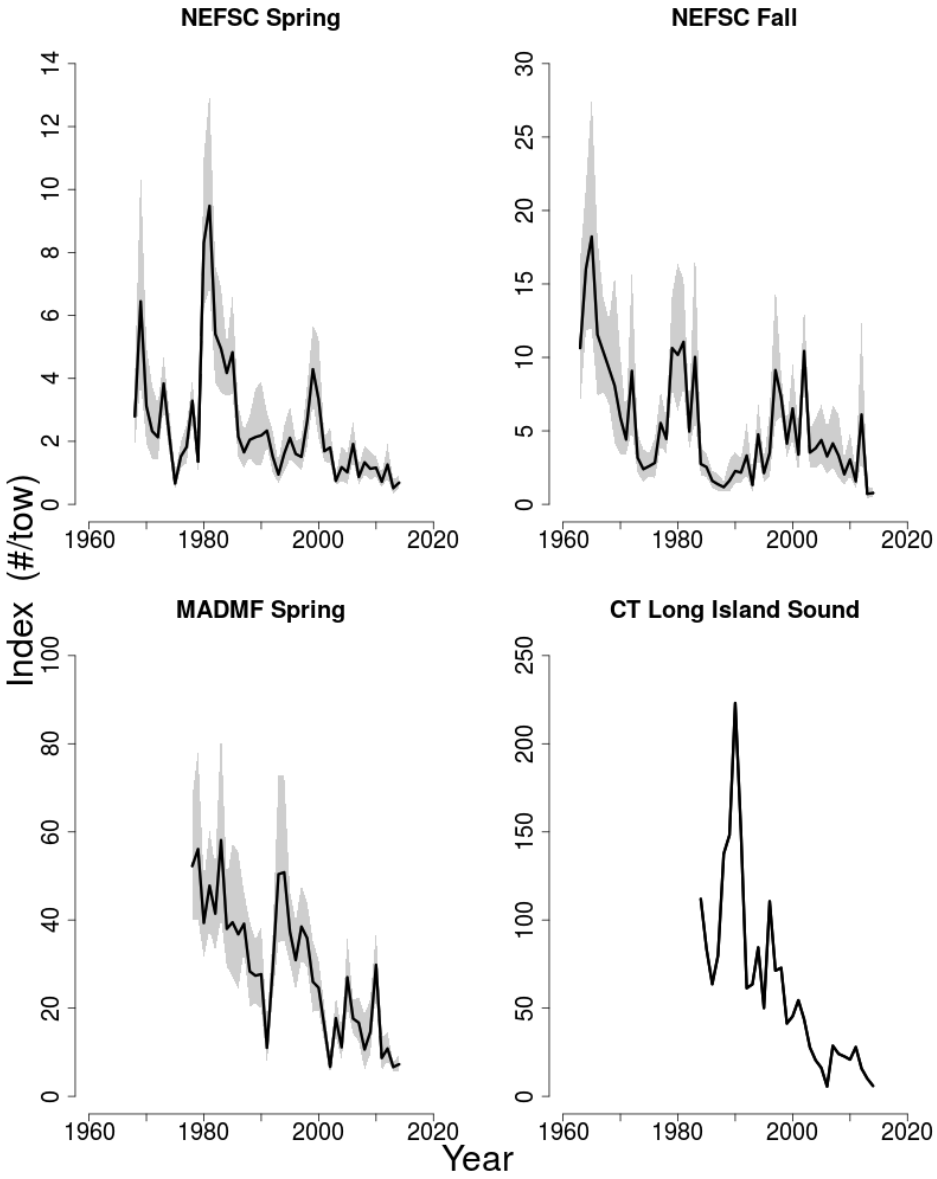

Figure 48: Indices of biomass for the Southern New England Mid-Atlantic winter flounder between 1963 and 2014 for the Northeast Fisheries Science Center (NEFSC) spring and fall bottom trawl surveys, the MADMF spring survey, and the CT LISTS survey The approximate 90% lognormal confidence intervals are shown.

20 Gulf of Maine winter flounder

Paul Nitschke

This assessment of the Gulf of Maine winter flounder (Pseudopleuronectes americanus) stock is an operational update of the existing 2014 operational update area-swept assessment (NEFSC 2014). Based on the previous assessment the biomass status is unknown but overfishing was not occurring. This assessment updates commercial and recreational fishery catch data, research survey indices of abundance, and the area-swept estimates of 30+ cm biomass based on the fall NEFSC, MDMF, and MENH surveys.

State of Stock: Based on this updated assessment, the Gulf of Maine winter flounder (*Pseudopleuronectes americanus*) stock biomass status is unknown and overfishing is not occurring (Figures 95-96). Retrospective adjustments were not made to the model results. Biomass (30+ cm mt) in 2014 was estimated to be 4,655 mt (Figure 95). The 2014 30+ cm exploitation rate was estimated to be 0.06 which is 26% of the overfishing exploitation threshold proxy (E_{MSY} *proxy* = 0.23; Figure 96).

Table 58: Catch and status table for Gulf of Maine winter flounder. All weights are in (mt) and E_{Full} is the exploitation rate on 30+ cm fish. Biomass is estimated from survey area-swept for non-overlaping strata from three different fall surveys (MENH, MDMF, NEFSC) using a q=0.6 assumption on the wing spread.

	2009	2010	2011	2012	2013	2014
	Data					
Recreational discards	4	3	4	1	1	2
Recreational landings	60	40	38	22	29	55
Commercial discards	12	6	4	10	6	5
Commercial landings	283	139	173	348	218	213
Catch for Assessment	359	187	219	381	254	275
	Model Results					
30+ cm Biomass	7,612	6,341	6,666	3,337	2,932	4,655
E_{Full}	0.05	0.03	0.03	0.11	0.09	0.06

Table 59: Comparison of reference points estimated in an earlier assessment and from the current assessment update. An $E_{40\%}$ exploitation rate proxy was used for the overfishing threshold and was based on a length based yield per recruit model from the 2011 SARC 52 benchmark assessment.

	2014	Current

E_{MSY} *proxy*	0.23	0.23
B_{MSY}	Unkown	Unkown
MSY (mt)	Unkown	Unkown
Overfishing	No	No
Overfished	Unknown	Unknown

Projections: Projections are not possible with area-swept based assessments. Catch advice was based on 75% of $E_{40\%}$(75% E_{MSY} *proxy*) using the fall area-swept estimate assuming q=0.6 on the wing spread. Updated 2014 fall 30+ cm area-swept biomass (4,655 mt) implies an OFL of 1,080 mt based on the E_{MSY} *proxy* and a catch of 810 mt for 75% of the E_{MSY} *proxy*.

Special Comments:

- What are the most important sources of uncertainty in this stock assessment? Explain, and describe qualitatively how they affect the assessment results (such as estimates of biomass, F, recruitment, and population projections).

  The largest source of uncertainty with the direct estimates of stock biomass from survey area-swept estimates originate from the assumption of survey gear catchability (q). Biomass and exploitation rate estimates are sensitive to the survey q assumption (0.6 on wing spread). The 2014 empirical benchmark assessement of Georges bank yellowtail flounder based the area-swept q assumption on an average value taken from the literature for west coast flatfish (0.37 on door spread). The yellowtail q assumption corresponds to a value close to 1 on the wing spread which would result in a lower estimate of biomass (2,995 mt). Another major source of uncertainty with this method is that biomass based reference points cannot be determined and overfished status is unknown.

- Does this assessment model have a retrospective pattern? If so, is the pattern minor, or major? (A major retrospective pattern occurs when the adjusted SSB or F_{Full} lies outside of the approximate joint confidence region for SSB and F_{Full}; see Table 7).

  The model used to determine status of this stock does not allow estimation of a retrospective pattern. An analytical stock assessment model does not exist for Gulf of Maine winter flounder. An analytical model was no longer used for stock status determination at SARC 52 (2011) due to concerns with a strong retrospective pattern. Models have difficulty with the apparent lack of a relationship between a large decrease in the catch with little change in the indices and age and/or size structure over time.

- Based on this stock assessment, are population projections well determined or uncertain?

  Population projections for Gulf of Maine winter flounder, do not exist for area-swept assessments. Catch advice from area-swept estimates tend to vary with interannual variability in the surveys.

- Describe any changes that were made to the current stock assessment, beyond incorporating additional years of data and the affect these changes had on the assessment and stock status.

  No changes, other than the incorporation of new data were made to the Gulf of Maine winter flounder assessment for this update. However, stabilizing the catch advice may be desired and could be obtained through the averaging of the area-swept fall and spring survey estimates.

- If the stock status has changed a lot since the previous assessment, explain why this occurred.

  The overfishing status of Gulf of Maine winter flounder has not changed.

- Indicate what data or studies are currently lacking and which would be needed most to improve this stock assessment in the future.

  Direct area-swept assessment could be improved with additional studies on survey gear efficiency. Quantifying the degree of herding between the doors and escapement under the footrope and/or above the headrope for each survey is needed since area-swept biomass estimates and catch advice are sensitive to the assumed catchability.

- Are there other important issues?

  The general lack of a response in survey indices and age/size structure is the primary source of concern with catches remaining far below the overfishing level.

20.1 Reviewer Comments: Gulf of Maine winter flounder

Recommendation: The panel concluded that the updated assessment was acceptable as a scientific basis for management advice. Trends were updated for the NEFSC, MDMF, and MENH surveys. The 2015 catch was estimated including commercial and recreational landings; and the recreational, large mesh trawl, and gillnet discards. Analytic models used previously were deemed inappropriate by the SARC 52 benchmark due to concerns with a large retrospective pattern. The lack of an apparent relationship between a large decrease in catch and little change in indices and age or size structure cause poor fit in models that have been used. Currently the assessment is based on a 30+ cm area swept biomass estimated directly from the surveys. Projections are not possible with area-based assessments.

Alternative Assessment Approach: Not applicable

Sources of Uncertainty: The largest source of uncertainty originates from the assumption of survey gear catchability (q). Biomass and exploitation rate estimates are sensitive to the survey q assumption. Another major source of uncertainty is that biomass-based reference points cannot be determined and overfished status is unknown. The lack of a relationship between the large decrease in catch with little changes in the indices and age and/or size structure over time is perplexing. Catch advice from area-swept estimates tend to vary with interannual variability in the surveys. The lack of an analytical model contributes to uncertainty. It is unknown why the stock is not responding to low catches and low exploitation rates. This is a data-limited assessment, and as such, the results are limited.

Research Needs: Direct area-swept assessment could be improved with additional studies on survey gear efficiency. Inclusion of the spring survey into the assessment should be considered.

References:

Hendrickson L, Nitschke P, Linton B. 2015. 2014 Operational Stock Assessments for Georges Bank winter flounder, Gulf of Maine winter flounder, and pollock. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 15-01; 228 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026, or online at http://nefsc.noaa.gov/publications/

Northeast Fisheries Science Center. 2011. 52^{nd} Northeast Regional Stock AssessmentWorkshop (52^{nd} SAW) Assessment Report. US Dept Commer, Northeast Fish SciCent Ref Doc. 11-17; 962 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026, or online at http://www.nefsc.noaa.gov/nefsc/publications/

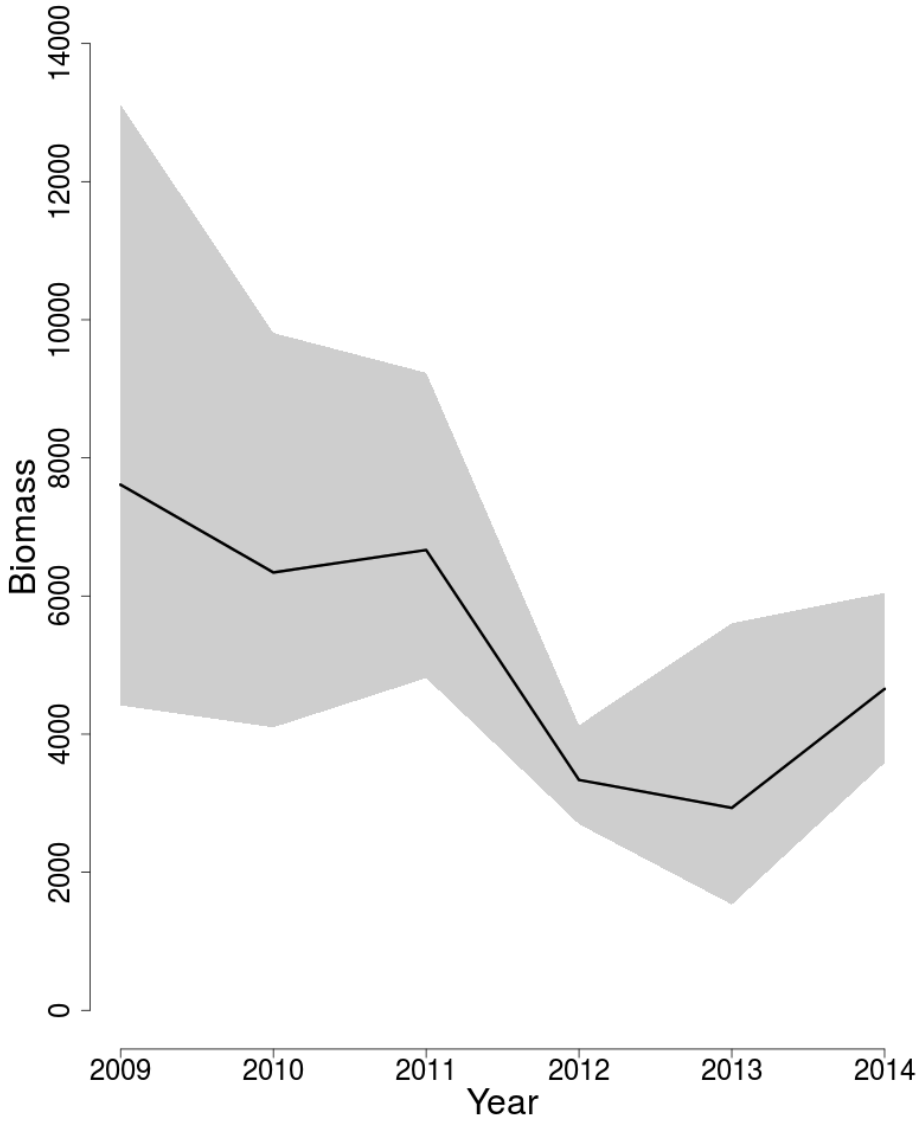

Figure 95: Trends in 30+ cm area-swept biomass of Gulf of Maine winter flounder between 2009 and 2014 from the current assessment based on the fall (MENH, MDMF, NEFSC) surveys. The approximate 90% lognormal confidence intervals are shown.

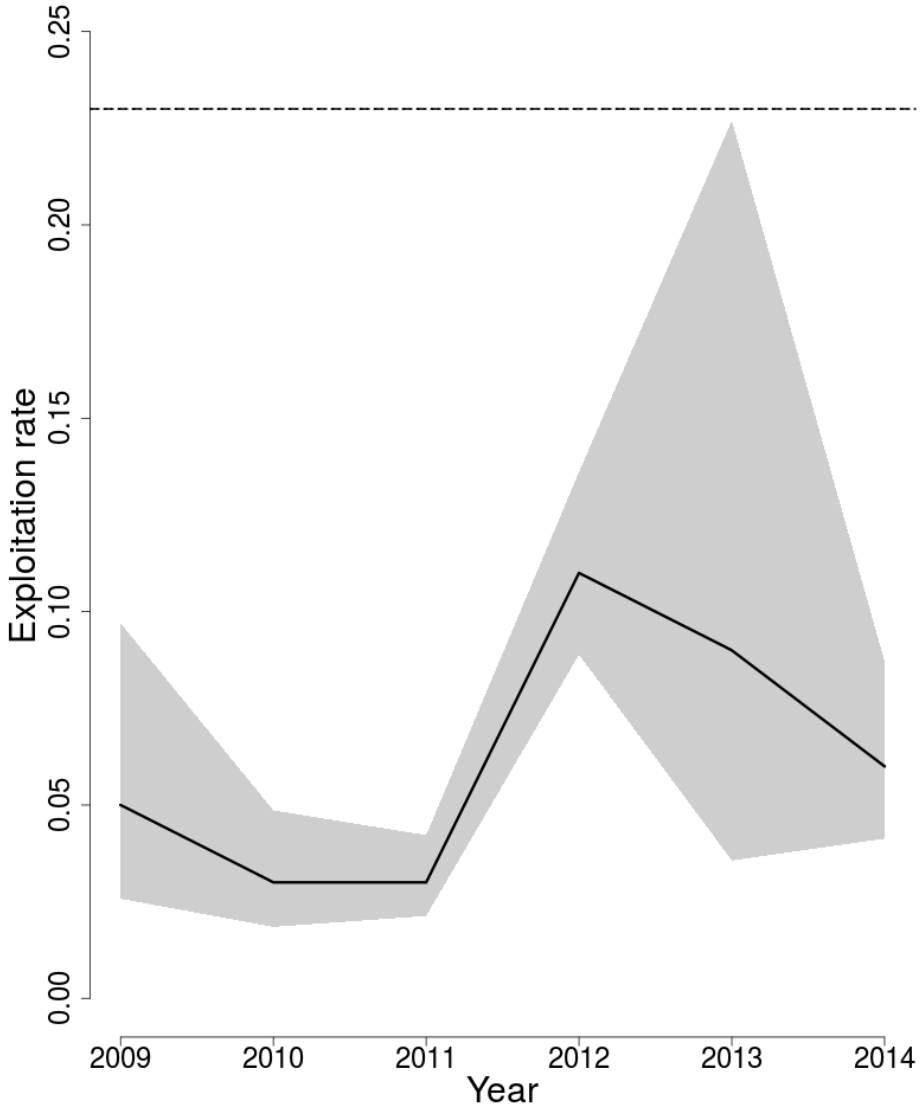

Figure 96: Trends in the exploitation rates (E_{Full}) of Gulf of Maine winter flounder between 2009 and 2014 from the current assessment and the corresponding $F_{Threshold}$ (E_{MSY} *proxy*=0.23; horizontal dashed line). The approximate 90% lognormal confidence intervals are shown.

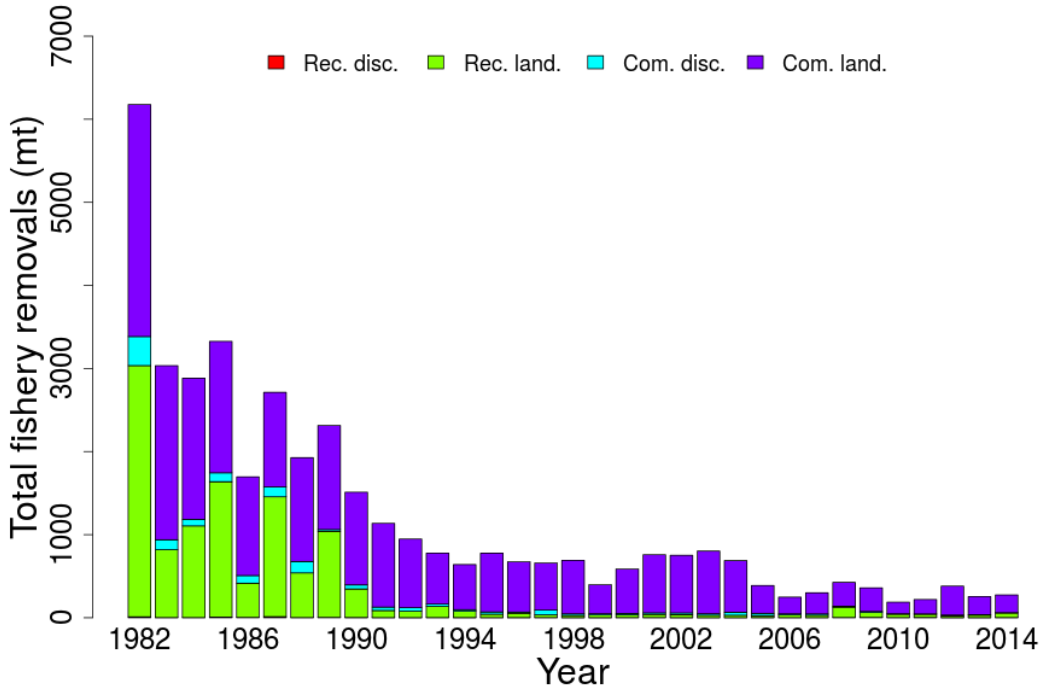

Figure 97: Total catch of Gulf of Maine winter flounder between 2009 and 2014 by fleet (commercial and recreational) and disposition (landings and discards). A 15% mortality rate is assumed on recreational discards and a 50% mortality rate on commercial discards.

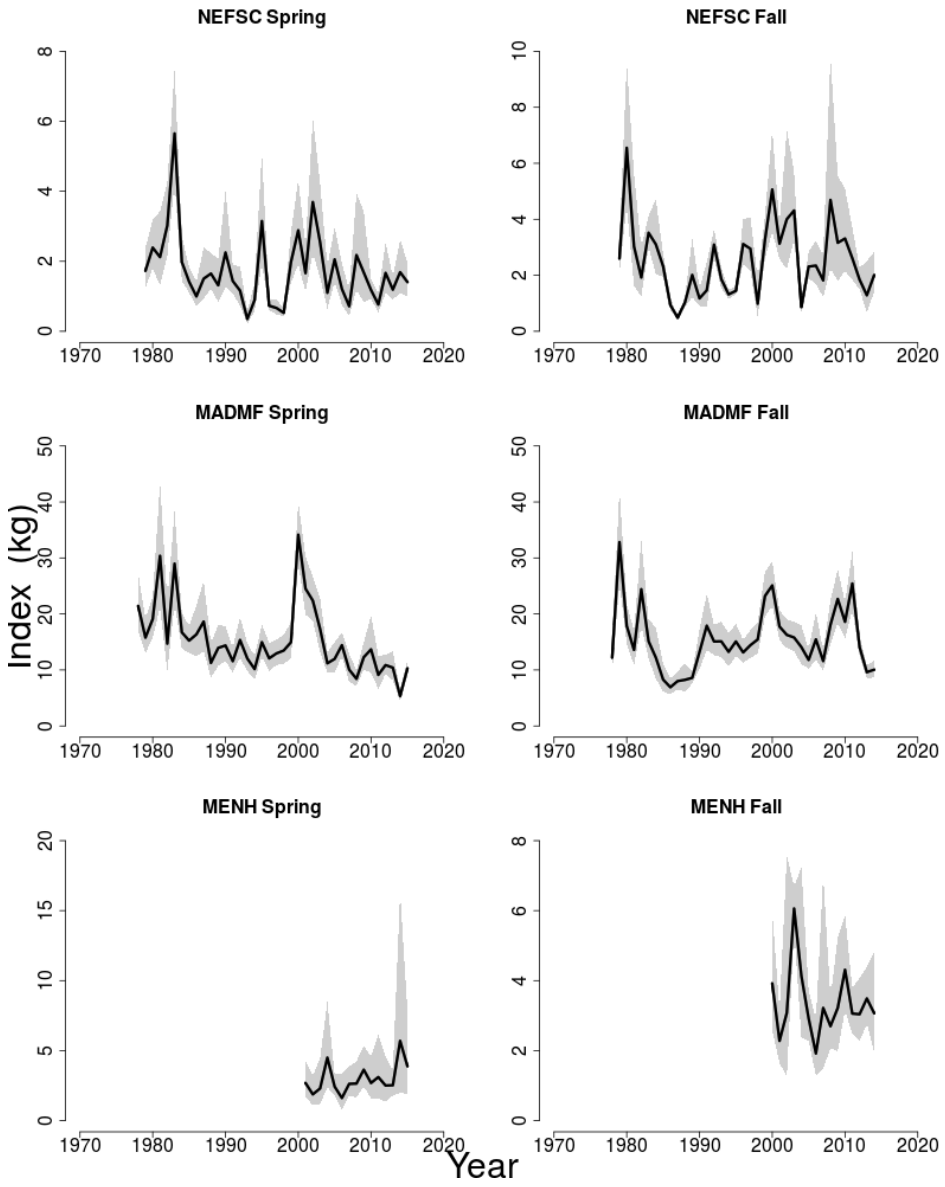

Figure 98: Indices of biomass for the Gulf of Maine winter flounder between 1978 and 2015 for the Northeast Fisheries Science Center (NEFSC), Massachusetts Division of Marine Fisheries (MDMF), and the Maine New Hampshire (MENH) spring and fall bottom trawl surveys. NEFSC indices are calculated with gear and vessel conversion factors where appropriate. The approximate 90% lognormal confidence intervals are shown.

22 Appendix

22.1 Northeast Regional Coordinating Council letter

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northeast Fisheries Science Center
166 Water Street
Woods Hole, MA 02543-1026

June 30, 2015

Dear NRCC Partners:

At our May 2015 meeting, we discussed the upcoming suite of Operational Assessments for 20 New England groundfish stocks. The NRCC recognized the value in this operational approach, in that it provides information useful to making fishery management decisions for a larger number of stocks and more rapidly and frequently. However, the NRCC also understood that trade-offs are inherent with this approach.

To provide more rapid assessments, these Operational Assessments are conducted using the existing, peer-reviewed assessment model for each stock, updated with new data collected since the last assessment. There is little to no scope for revising the underlying assessment model, as any such changes would require significant analytical work and would also require expanded peer review and discussion. This additional analytical work and peer review are typical of Benchmark Assessments, which are conducted for stocks that require incorporation of significant new information or a different analytical approach.

The NRCC supported completion of the upcoming 20 Operational Assessments and also recognized the importance of setting clear constraints on modifications to the existing models and data streams for each Operational Assessment. These constraints are essential to avoid the possibility for greatly increasing the complexity of each assessment, with resultant delays and reduction in our capacity to complete such a large number of assessments. Communication of these constraints is necessary to discourage external scientists or stakeholders from investing in developing new approaches or data streams that could not be accommodated within the Operational Assessment framework.

In the interest of setting and communicating these constraints, the NRCC reviewed a comprehensive list of types of modifications and agreed whether each type of modification could be accommodated within an Operational Assessment or if the modification could only be considered within a Benchmark Assessment. Since efficiency is essential to the success of the Operational Assessment concept, the majority of modifications could not be accommodated. However, in addition to incorporating new data from existing data streams to update current parameters in the existing assessment models, the NRCC felt that Operational Assessments could make minor adjustments to account for (a) updated information on growth and maturation of fish; (b) changes in values of reference points, but not the underlying basis for the reference points; and (c) introduction or modification of retrospective adjustments for biomass or fishing mortality. Modifications to the discard mortality data stream would be beyond the scope of an Operational Assessment in most cases, but, given recent changes to discard mortality data used for management of the cod recreational fishery, the NRCC agreed that modifications to discard mortality data streams could be considered for the Operational Assessment for Gulf of Maine cod and for other stocks with similar significant changes to discard mortality data.

Other modifications to existing assessment models or data streams would require more extensive analysis consistent with Benchmark Assessments. Modifications of this sort include: (a) changes to the abundance and trend data streams (e.g., changes to surveys, survey indices, LPUE); (b) changes to measures of scale (e.g., new or revised measures of catchability, new catch estimate data streams); (c) changes to the bases for reference points (e.g., updated priors on steepness, incorporation of regime changes); (d) changes in model configuration (e.g., changes in selectivity function, differential weighting of likelihood components, down-weighting of information such as specific year classes, splitting surveys and modeling data separately, new models); and (e) changes in biological information (e.g., changes in natural mortality). None of the modifications in items (a) to (e) will be considered in the Operational Assessments of groundfish in September 2015.

We provide this summary of our discussion for your review and feedback, and seek your concurrence in communicating these guidelines to the public, on behalf of the NRCC.

John K. Bullard
Regional Administrator
Greater Atlantic Regional Fisheries Office

William A. Karp, Ph.D.
Science and Research Director
Northeast Fisheries Science Center

cc: R. Beal, ASMFC
C. Moore, MAFMC
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22.2 Assessment Oversight Panel summary

Summary of Assessment Oversight Panel Meeting
July 27, 2015
Woods Hole MA 02543
Draft--September 13, 2015

As part of the Operational Assessment process for the 20 Groundfish stock assessments, the Assessment Oversight Panel (AOP) met in Woods Hole to review the assessment plans for each stock. The meeting was also broadcast as a Webinar.

The AOP consisted of:

Jake Kritzer, Environmental Defense Fund, Boston, MA
Jean Jacques Maguire, Sillery, Quebec
Steve Cadrin, SMAST, University of Massachusetts
Paul Rago, Northeast Fisheries Science Center, Woods Hole

In addition to lead scientists for each stock and other staff from the Population Dynamics Branch, participants included: Tom Nies (NEFMC Exec Director), Jonathan Peros (NEFMC staff), Terry Alexander (NEFMC member), Mike Simpkins (NEFSC) and Jim Weinberg(NEFSC). Participants on the webinar included Aja Szumylo (GARFO), Amanda Helwig, Chris Kellogg (NEFMC), Erica Fuller, Katie Almeida (GARFO), Sally Sherman (MEDMR), Sarah Robinson, Vito Giacalone, Jackie O'Dell, and Doug Butterworth.

The following reports and presentations were reviewed or served as background for the meeting.

- Individual presentations by stock, combined in the file= "AOP 7-27-2015 All Presentations. Pdf"
- Overview of NEFMC Multispecies Groundfish: Data and Model Configuration Summary, in the file "Model-Data-Summary.pdf"
- Summary of Stock Assessment Prospectuses for all stocks assessed by the NEFSC in the file "Stock Prospectus.pdf"
- Memo of June 30, 2015 from Regional Administrator John Bullard and Science and Research Director William Karp to NRCC on guidance for Operational Assessments. File = "nrcc-memo.pdf"

The meeting began at 10:00 am. Lead scientists for each stock gave a series of presentations on the data to be used, model specifications, evaluation of model performance, the process for updating the biological reference points, and the basis for catch projections. Presentations ranged from 10 to 25 minutes and we were able to address all 20 stocks before 4:30pm. Three background documents were provided to the Panel. The first was an updated prospectus for each stock. The second was an overview summary all the salient data and model information for each stock. The third was the NRCC Guidance memo on the Operational Assessments. The NRCC guidance memo was recognized as particularly relevant to the deliberations of the AOP.

The meeting served as a valuable forum for standardizing methods across assessments and resolving a number of potentially contentious issues. The overarching issues addressed included:

- A 90% confidence interval for fishing mortality and spawning stock biomass will be used as an objective way of applying a retrospective adjustment to terminal year stock size estimates. When the Mohn's rho adjusted F and SSB lie outside the joint confidence region of the terminal year estimates, the terminal year abundance estimates will be adjusted by the SSB rho estimate for stock status determination and catch advice projections.

- The likelihood function for the ASAP stock recruitment relationship will not include the constants as part of the function. This precedent was established at the most recent Operational Assessment of Atlantic herring and will be continued here.

- Projections for stock size and catches will be based on the Fmsy proxy and 75% Fmsy (or Frebuild if this rate is already in effect as the default for management (e.g. witch flounder).

- Estimates of catch in 2015 will be provided by the GARFO and will be used in all projections.

- The data quality assurance filter for tows from the FSV Bigelow bottom trawl survey will be based on TOGA criteria rather than SHG, an earlier filter used for the R/V Albatross.

- Values of all assessment reference points will be updated and based on updated growth and maturation values for reference point determination. Biological information will be averaged over the same time period (e.g., 3 or 5 years) as in last assessment. However, there will be no adjustments to the basis of biological reference points (e.g., change from F40% to F30%).

- Changes to natural mortality rate will not be allowed per the NRCC memo.

- For only a few stocks with issues identified in the table below, sensitivity runs will be presented to the Review Panel.

- The AOP provided a review of a study discard mortality rates of GOM cod that is currently in review for the ICES journal. The AOP agreed that the results of the study were sufficient for use in the September Operational Assessments for both the GOM and GB cod stocks.

- The NRCC guidance memo noted the possibility of changing other discard mortality rates if appropriate, and scientifically sound studies were available. In particular, consideration will be given to studies for wolffish and Atlantic halibut.

- The SSC will determine the most appropriate method for determining the OFL and ABC. In the absence of an approved model, this would likely utilize recent average catch over a number of

years to be determined based on the trends observed in the stock. If an ABC has already been approved by the Council under Framework 53 for the 2016 fishing year, it might be utilized in the event the updated model is an insufficient basis for catch determination.[1]

- No alternative dynamic models will be applied in the event that the operational model for a given stock that was approved in the most recent benchmark assessment does not pass the upcoming peer review. Development and application of an alternative model for assessment generally requires a benchmark assessment with a greater scope for review and participation than is feasible in an Operational Assessment.

One of the general conclusions from the meeting was that recommendations for benchmark assessments should be expected for assessments that reveal either revised status or poor agreement between data and models (i.e. lack of fit or strong retrospective patterns). Decisions on benchmarks and their timing will be made by the Northeast Regional Coordinating Council.

Specific recommendations for each assessment were summarized in the attached set of Powerpoint presentations. In general the AOP approved these plans but highlighted a number of clarifications as summarized below:

Stock Name	***Lead Scientist***	***Major Comments***
Overview of Process	Paul Rago	Terms of Reference listed in presentation will be used.
Gulf of Maine Cod	Michael Palmer	Results for both the Mramp and constant M will be presented. Discard mortality for recreationally caught fish will be reduced from 30% to 15%.
Georges Bank Cod	Loretta O'Brien	Discard mortality for recreationally caught fish will be reduced from 30% to 15%. The M=0.8 VPA and associated consequence analysis developed by the TRAC for EGB cod are outside the scope of the update, and any inconsistency between the GB cod update, and EGB cod assessment methods or TMGC decisions will need to be reconciled in the Council process.
Gulf of Maine Haddock	Michael Palmer	Base run should turn the likelihood constants OFF but should be turned on for a sensitivity run.
Georges Bank Haddock	Liz Brooks	Base case model will omit certain strong recruitments from bootstraps but a sensitivity analysis will include them. Results are relevant to estimation of 2013 year class.
Cape Cod/Gulf of Maine Yellowtail Flounder	Larry Alade	No comments
Southern New England/Mid-Atlantic	Larry Alade	Split survey run will not be included. Confirm that recent recruitment is low vis-à-vis projection assumptions.

[1] Subsequent to the meeting NEFMC staff noted that the 2016 ABCs for GM haddock and GOM cod were approved by the SSC only with the understanding that new ABCs would be adopted in the 2015 assessments. Hence it may not be appropriate to use the existing ABCs as "Plan B" alternatives. The AOP did not comment on this.

Yellowtail Flounder		
Georges Bank Winter Flounder	Lisa Hendrickson	Do not use AIM as Plan B. Discard mortality =100% because no satisfactory alternative is available for this stock.
Southern New England/Mid-Atlantic Winter Flounder	Tony Wood	Do not use scaled Q as Plan B for this stock
Acadian Redfish	Brian Linton	No Comments
American Plaice	Loretta O'Brien	No Comments.
Witch Flounder	Susan Wigley	This VPA assessment has a split series. If a significant retrospective pattern is observed, the rho adjustment factor will be applied.
White Hake	Kathy Sosebee	Per the SARC 56 benchmark, a truncated CDF of recruitment will be used for catch projections (1995-2012). Reference points will be based on recruitments from 1963-2012. Plan B = catch for 2016 per Framework Adjustment.
Pollock	Brian Linton	Perform sensitivity analysis with flat-topped selectivity assumption. This sensitivity run has been useful to SSC for setting ABC in the past.
Wolffish	Chuck Adams	Recent average catch will be used as basis for Plan B. Updated maturation data will be used in model formulation. This is additional information collected in same manner as used in previous assessment.
Atlantic Halibut	Dan Hennen	The current model for Atlantic halibut sensitive to initial conditions. The final determination of the model's utility will be determined by the review panel in September. AOP recommended sensitivity analysis of model to assumed discard mortality rate. Plan B = recent average catch.
Gulf of Maine/Georges Bank Windowpane	Toni Chute	Recent average catch will be used for Plan B if assessment model fails. Canadian catches have not been reported in recent years and cannot be used in this assessment. The use of projections was questioned, noting that the PDT has chosen not to use these in recent years. However, the AIM projection method is part of original assessment benchmark and should not be changed.
Southern New England/Mid-Atlantic Windowpane	Toni Chute	As above
Ocean Pout	Susan Wigley	No changes
Gulf of Maine Winter Flounder	Paul Nitschke	No changes to BRPs values expected because no changes in growth rates observed. Empirical model only uses data from Bigelow surveys.
Georges Bank Yellowtail Flounder	Chris Legault	This assessment was updated as part of the TRAC. No further revisions will be done at the Operational Assessment.

The meeting concluded at 4:30 pm. Assessment reports will be prepared by the lead scientists and uploaded to the following website http://www.nefsc.noaa.gov/groundfish/operational-assessments-2015/. Draft assessment reports will be made available approximately two weeks before the Peer Review Panel meets September 14-18. In addition to the short summary reports, all of the model inputs and outputs, and supporting tables, figures and graphs will be made available via a web-based tool.

22.3 Outreach on 2015 groundfish operational assessments

Outreach on 2015 Groundfish Operational Assessments

Given the relatively new process associated with these operational assessments, the NEFSC made an extra effort to promote understanding of the process ahead of the peer review meeting. These efforts included a webinar/seminar for in-house outreach staff, sector managers, and New England fishery Management Council groundfish and recreational fishing advisors on July 20, and a data-rich dedicated website:
http://www.nefsc.noaa.gov/groundfish/operational-assessments-2015/

On July 22, 2015 the NEFSC also held five port-based outreach meetings for fishermen and other stakeholders. These occurred in Maine (Portland), New Hampshire (Hampton), and Massachusetts (Gloucester, Woods Hole, New Bedford.) Assessment analysts met with attendees at each location to learn more about recent observations from the fleet and ports that might help focus future research to improve assessments. Each meeting started with a brief introduction on the timeline for the assessments, what new information would be considered, and how the results would be reviewed before use in the fishery management process.

Although not the first time that outreach meetings have been held for industry ahead of an assessment, this is the first time that summaries of the meetings are included in the assessment report and provided to peer reviewers. The summaries were prepared from notes taken by NEFSC communications staff, then provided to meeting attendees for comment before they were finalized for publication.

2015 Groundfish Operational Assessment Industry Outreach Meeting—Portland Maine
22 July 2015

Observations

Scientific surveys are unreliable indicators of fish abundance: Many attendees were concerned that there will be decreases in their quotas because of survey data, which they do not believe reflects fish abundance. They're concerned that the timing of the survey cruises and the sparse coverage of areas where fishermen are seeing the most fish do not give a complete representation of the fish population. In particular, two fishermen noted that they avoid fishing Platt's/New Ledge because there is an abundance of cod there, yet three NEFSC tows that occurred in that area caught zero cod in the spring. Overall, they worry that the survey is "too thin" because of the variability in the movement of fish. For example, there may be an area where fishermen don't catch anything for weeks, but then after a month or so that same area is flooded with fish. If the survey only covers that area on one day, and that day happens to be an off day, then the scientists won't know that sometimes that area is full of fish. A participant at the meeting noted that all these characteristics would be expected to increase the variability of the survey, but not create bias, meaning the long term trends should be representative.

Concerns that reduced landings of a species are interpreted as lower abundance: Some fishermen stated that they are under their quota on some fish (such as monkfish) simply because they are trying to avoid species such as dabs and gray soles. They would like a higher quota on the dabs and gray soles so that they can take their quota on monkfish. The fact that they aren't catching as many monkfish as allowed is not because that stock is low, but because fishermen are trying to avoid other fish that occur

with monkfish. There is concern that the way this appears in the landings data suggests that there are fewer fish in the water than are really there. An NEFSC analyst noted that low catch is not assumed to mean low population abundance.

Fishermen report large numbers of cod in pocketed areas they are avoiding or can't access: The fishermen and charter boats aggregate in one area in order to avoid catching "choke" stocks. They see pockets of cod everywhere and are afraid to fish in those areas because they don't want to go over their quotas. They are hearing from scallopers that there are cod on Georges Bank and near Canada. Lobstermen tell them they are seeing young cod in their lobster traps.

Cod populations, while not at high levels, are in better condition than the assessments indicate: Many fishermen said they simply do not see evidence on the water of what the science is finding. They feel that cod is recovering, perhaps not at record highs, but it is not as low as the assessment.

Revised Gulf of Maine cod recreational discard mortality rates will lower quotas: Some fishermen are worried that the fact that revised recreational discard rates allowed in the upcoming assessments will lead to a lower quota overall. There is concern that their quotas will only drop as a result of these assessments. An analyst noted this was not the case; quotas could increase if the updated assessments indicate increased stock abundance.

Early warning of a changing trend in the population or quota allocation would be welcome: A seafood processor raised the issue of stability and predictability. He cannot always buy the fish that come in locally because he might be set up to process something different. If he had some advance warning about which species would be allowed more catch, then he could be prepared to process what comes in. Overall, industry members indicated that they would like some advance notice of what to expect from these assessments and that more stability would be helpful. But one participant noted that stability at low catch amounts is not desirable.

Are Gulf of Maine cod and gray sole being out-competed? The fishermen had questions about fish that swim together possibility out-competing depleted stocks for resources. For example, monkfish might be outcompeting gray soles and haddock might be outcompeting cod. Other ecological concerns were raised, such as red tide. An NEFSC analyst noted the difficulty in trying to find a direct link between two species in such a complex ecosystem with many species and interactions.

Fishermen would like to take a more active role in the assessments: Fishermen would like to communicate with the assessment scientists and relay them what they are seeing on the water. The fishermen feel that the scientists should be able to reach out to them if they come across data that doesn't add up and perhaps they could explain something that's happening at sea that would factor into what the science seems to be showing.

Scientific surveys should better track fishery practices: Some felt it would be better if the survey used the same kind of gear, same trawl speed, and go to the same places as the fishermen. Let the fishermen show the scientists where the fish are and what they are seeing. Side by side tows with the survey vessel and the commercial fishing vessels might provide useful information and would help improve credibility

in the survey. An analyst noted this is exactly what is done during cooperative research projects when catching fish for a particular study is the goal, scientists rely on the fishermen's knowledge to find the fish. However, multispecies surveys require sampling in all the habitats, some of which will not be suited for a particular species.

Fishermen's feedback needs to be reflected in assessments: Several fishermen felt that the cooperative research programs were useful in bridging the gap between the fishing industry and the assessment scientist. Most importantly, if NEFSC shows that it is using fishermen's feedback in the assessment process, then there will be more willingness for future collaboration and continued dialog. An NEFSC analyst noted that these meetings were the first step towards doing exactly that.

Potential Areas for Further Examination or Research

- Consider fine-scale surveys of areas where fishermen expect large cod are occurring, or other ways of increasing survey stations in these areas
- Investigate occurrence of cod and gray sole in lobster gear and whether this significant enough to warrant further sampling or monitoring.
- Interrogate food habits data regarding competition among monkfish, cod, haddock, and gray sole in the Gulf of Maine
- Seek a way to turn the kinds of observations obtained in industry outreach meetings like this one into data that can inform assessments
- Find ways to more effectively use cooperative research to bridge the gap between the fishing industry and the assessment scientist

2015 Groundfish Operational Assessment Industry Outreach Meeting—Hampton, NH
22 July 2015

Observations

Scientific surveys are unreliable indicators of fish abundance and vary too much: There was a general frustration in what was called the "inconsistency" of the survey. If fishermen could see reliable, consistent results from the survey, results that match up with what they are seeing on the water, then they would believe the survey is consistent. Because they feel the results are not reliable, some are calling for a complete overhaul of the trawl data and how scientists are collecting it. Those present were concerned about the small number of surveys per year, the number of stations (too few), the tow protocols, the timing, the reluctance to change the survey to account for changing water temperatures, and so on. There were also concerns about trawl gear bottom contact, and avoiding survey stations where other fishing activity is occurring (particularly lobster pots). An analyst noted more tows in each survey would increase the precision of the survey, but would not be expected to change the mean.

Seasonality is an overlooked parameter in the scientific surveys: The fishermen feel the time of year when the survey occurs is even more important than location. The research survey tows in the spring,

but cod swim in certain areas a certain times of the season. It doesn't make sense to tow when the fish aren't around, so of course the survey isn't going to catch anything at the beginning of May. Still location remains a factor. There's the concern that the areas the research cruises tow are not a representative sample.

Closed areas should be better surveyed: There were concerns the closed areas don't get surveyed at all on any given year. It was suggested that the strata need to be redrawn to ensure sampling occurs in each closed area during each survey.

Fish are present in relatively large numbers in areas fishermen are avoiding or can't access: Fishermen are concerned that the assessments are not going to capture the numbers of fish and their location in the areas fishermen are avoiding because they contain an abundance of cod. They worry that the scientists will assume they are catching less fish because there are fewer fish available, not because they are avoiding going over their quotas. An NEFSC analyst noted that reduced catch by the fishery is not assumed to mean fewer few in the population, and that fishery models relate the annual amounts of catch to changes in the survey to estimate the size of the population.

Surveys should cover the line of areas where fishermen expect to catch cod: The fishermen worry that the population of several stocks is increasing but this is not reflected in assessments because the research vessels are not capturing that information. As a result, the fishermen are not taking quotas of healthier stocks because they are avoiding the ones with lower quotas. They are frustrated that research vessels do not survey along a line of areas where they expect to catch cod, and then the scientists could note the differences from year to year in the places where cod are typically caught. An NEFSC analyst noted that the Maine-New Hampshire originally included fixed stations but that these were abandoned after a number of years because they were not providing additional information.

Are changing environmental factors (climate variability and change) and competition among species being considered in establishing survey stations and in assessments? If the water temperatures have been rising, fish that like colder water might be swimming deeper to stay in those ideal temperatures. Many of these fish are now living at deeper depth than they used to according to some participants. NEFSC analysts noted that the surveys do sample in these deeper waters as well. Fishermen also asked about competition for resources among different species. For example, is it possible that the abundant numbers of haddock are outcompeting cod because they occur together? The fishermen were concerned about maximum sustainable yield of all stock simultaneously when they compete at the same niche. Many species compete in pairs, e.g., cod and haddock, witch flounder and American plaice, yellowtails and blackbacks. All the species compete, but it is most fishermen's experience that when one of the species in the pairs listed is abundant, the other species is less abundant. So when, for example, haddock is abundant cod is less abundant. Fishermen would like to have this observation investigated.

An NEFSC analyst noted that there are many species in the region that are generalist feeders, making it hard to directly relate the change in abundance of one species to that of another.

Spring and summer 2015 conditions should be used in operational assessments: Some seemed discouraged that the data being used for the upcoming assessments will not reflect the population

dynamics found in the water this spring and summer. An NEFSC analyst noted that one goals of the operational assessments is to reduce the lag between the most recent data that can be included and the most recent data collected. Data from spring and fall 2015 will be included n the next update. To include these data in the 2015 operational assessment would delaying the analyses until these most recent data collected are ready for use.

Fishery-dependent data does not accurately reflect abundance: From Gloucester to Maine, some suggested, all the charter party boats are huddled in a ten mile spot, and VTRs will show that they are in the one same area to avoid catching cod. This is problematic because there won't be much fishery-dependent data on the many areas where the fishermen are seeing high numbers of cod.

Fishermen want more opportunities to talk to assessment scientists, but worry about the risks of doing so: Fishermen are reluctant to say exactly where the fish are because they're worried NOAA will then close those areas. Industry members would like more opportunities to interact with the scientists. They'd like to review the assessment reports before they are public, and if there's an FAQ section on the website, they'd like the ability to respond so that there's more of a dialogue and exchange happening, rather than information only flowing one way. An NEFSC analyst noted his participation in cooperative research aboard a commercial boat was a positive experience and suggested that meetings like these would also help. The participants were asked if there were other ways of communicating between scientists and the fishing industry that could be tried. Google hangout was mentioned as a possibility.

Something doesn't add up if the fishermen are seeing cod at the same rate they have been for 10 years, but the scientists are saying that the population is only at 3%: Many said they could not believe that the stock size of cod is what the assessments indicate because they are catching so many. Some fishermen said there was a dip five years ago, but this year they are seeing the healthiest levels that they've seen in 7 years. They are finding cod higher up in the water column. One fisherman works on research projects and has no trouble targeting cod of any age or size. In addition, lobstermen are seeing age 1 cod in their traps, more than they've seen before.

Potential Areas for Further Examination or Research

- Consider fine-scale surveys of areas where fishermen expect large cod or other fish believed to be scarce are occurring, or other ways of increasing survey stations in these areas
- Investigate occurrence of cod and wolfish in lobster gear and whether this significant enough to warrant further sampling or monitoring.
- Interrogate food habits data regarding competition among monkfish, cod, haddock, and gray sole in the Gulf of Maine
- Seek a way to turn the kinds of observations obtained in industry outreach meetings like this one into data that can inform assessments

2015 Groundfish Operational Assessment Industry Outreach Meeting—Gloucester, MA
22 July 2015

Observations

Catch rates for Gulf of Maine cod are increasing: Fishermen observed that their catch rates for cod are increasing. They contended that, after a few years of decline, the cod are back and are plentiful, much more so than in the 1990s. Several said that they are easily filling the current quota and fear they cannot avoid all of the cod that are out there, even by using cod-end sensors to try to avoid large catches of cod, as many in the Gloucester fleet have been doing since 2009. Participants questioned how, if GOM cod is at 3% of the SSB target, they could be consistently finding Gulf of Maine cod throughout the range (inshore and offshore) and be spending so much time avoiding cod. By way of example, some fishermen noted that during the 2014 fishing year they were actively staying away from areas where they knew Gulf of Maine cod would be located because of the 2014 reduction in ACL (1,500 mt). But, when word of a pending Emergency Action became known, more GOM cod were caught (easily) in the weeks leading up to the Emergency Action than during the prior 5-6 months of the 2014 fishing year to date. These observations do not comport with the Gulf of Maine cod assessment, which indicates that the stock is at historic lows.

The Gulf of Maine cod population has significant numbers of large fish that are not available to the fishery and therefore not showing up in logbooks or landings: Participants were concerned about the reported "age truncation" of the stock. Their belief is that there has been a consistent supply of Gulf of Maine cod of many sizes (scrod, market and large) being caught and landed. Several fishermen reported that large fish are showing up in their catch. There was discussion of what was meant by “large” and a range of views on that. Among the measures discussed were relative size (large or small), absolute length (measured in inches or centimeters), market category (scrod, market, large), and age structure (i.e., what ages are considered “old” and what length does that represent? Are those “old” fish associated primarily with the large market category?) Many felt that these large cod are sheltering in areas that are no longer fished because vessels are too small to reach them, or where they are too numerous to avoid (thereby risking quota overage or opportunities to fish for other species), or in closed areas. Some of the areas mentioned as harboring the large cod are: Cash’s Ledge, Whaleback, deeper waters, and the mid-western portion of Gulf of Maine closure. The reported presence of significant numbers of large cod is at odds with the assessment finding that the age structure of the population is truncated.

Recreational fishermen are catching large cod inside the western Gulf of Maine closure: Several commercial fishermen asserted that this is the case. The reported presence of significant numbers of large cod in recreational catch is at odds with catch data collected from the recreational fishery that reflect a truncated size structure, similar to data from the commercial catch.

The Gulf of Maine cod population has significant numbers of large fish that are not available to the research surveys: The fishermen have numerous concerns about the scientific resource surveys. These

include the density of sampling (too sparse), the frequency of sampling (not often enough), and not in the right place (where cod do not occur).

Prevalence of lobster gear inshore prevents detection of cod that are present in these areas: Several people expressed concern that important areas of the Gulf of Maine are not being surveyed by scientists or fished by groundfishermen because of the density of lobster traps. There's a perception that those unsampled areas are providing a refuge for cod and gray sole that are not being counted in the assessment. Fishermen also referenced anecdotal reports of lobstermen seeing lots of cod. Scientists from the Northeast Fisheries Science Center (NEFSC) and from Massachusetts Division of Marine Fisheries (MADMF) indicated that the MADMF survey is consistently able to make tows along inshore areas where lobster gear occur, and that a review of their database indicated very few occurrences where a planned tow was moved due to presence of gear.

Undocumented discarding in the 1990s may be skewing abundance estimates: Fishermen acknowledged that there was undocumented discarding of cod in the 1990s when the restrictive trip limits were introduced. The result was discarded cod unaccounted for in catch data, and a skewed picture of age composition based on landings because of high grading, both of which could still be affecting the population abundance trend in the assessment.

Survey data have too much influence on population estimates, while commercial data have too little: This was a widely held view.

Potential Areas for Further Examination or Research

- Seek a way to turn the kinds of observations obtained in industry outreach meetings into data that can inform assessments.
- To better explain perceived inconsistencies between fishermen's observations and assessment results, conduct work to:
    - Better document fishing patterns and how they have changed under sectors and in response to management measures. This could be characterized both spatially and temporally, including maps of fishing grounds, and geographic distribution of landings by statistical area and port. This could also include an examination of seasonal oceanographic conditions relative to well-defined fishing grounds over time. Input from fishermen as well as analysis of VTRs could help identify well-defined fishing grounds over time.
    - Examine the implications of 1990s unreported discarding and high grading on assessments. This could take the form of a limited set of sensitivity analyses to bound the scale of unreported catch.
- Examine density of survey tows by strata over time, and spatial distribution of tows within strata over time, to address concerns that the survey sampling is inadequate. This could be compared with reported areas of fishery landings over time from VTRs and observer data.
- Investigate the effects of closed areas and fishing patterns on port sampling data (age, length and market category)

- Investigate occurrence of cod and gray sole in lobster gear and whether this is significant enough to warrant further sampling or monitoring. It was noted by NEFSC scientists that there is now increased observer coverage on lobster trips. Sampling and monitoring of this fishery will likely evolve over time based on reviewing annual patterns of bycatch.

2015 Groundfish Operational Assessment Industry Outreach Meeting--Woods Hole, MA
July 22, 2015

The NEFSC Woods Hole Laboratory hosted guests from the Nature Conservancy and the Mass. Fisherman's Partnership. Roughly a dozen fishermen and fishery managers participated in the conference call/webinar, which was also open to the meeting held in New Bedford. Following the presentation and Q&A, New Bedford exited the conference call, and each location hosted its own discussion. Some callers remained on the phone to participate in the Woods Hole meeting. Most discussion points were covered in conjunction with New Bedford, but Woods Hole-specific topics are highlighted below.

Many attendees expressed appreciation for the opportunity to talk with the NEFSC, though there were requests that future meetings be held in the late afternoon/early evening to accommodate fishing schedules.

OBSERVATIONS

(WH, NB)

Timing of Operational Assessments: The idea was floated by one caller to conduct the more thorough benchmark assessments more frequently. NEFSC staff explained why conducting large-scale benchmarks every year is not efficient, and does not result in a better picture of stock status. Benchmarks are best used to consider significant new data or methods, things that fundamentally change the patterns of scale and that are not available on an annual basis. Because of their complexity, expense, and required analyst time, doing more benchmarks also means fewer annual updates and operational assessments and more time between assessments for each species.

Assessment Process Data Sharing: Several participants and callers wanted specific timing for when the data portal associated with the groundfish operational assessments would be available for use. NEFSC staff indicated that the database will be functional by the time reports are delivered to the reviewers, currently expected to be at least one week, but possibly two weeks ahead of the assessment meetings.

Assessment Meeting Reviews: There was a question about the groundfish operational assessment process. Would the peer reviewers have the authority to reject a stock review outright? NEFSC staff said the peer reviewers can recommend changes similar to those that occurred with the 2015 Herring Operational Assessments, which incorporated retrospective adjustments. NEFSC staff noted that biological reference points used in the last assessments for these species are being retained, but

reference point values may change based on new data, which could actually result in a change in stock status if systematic trends in weight and age are found.

Assessment Meeting Logistics: Callers requested the names of the panel as well as schedule details for September's meetings. NEFSC replied that the report would include text written by peer review panel, and short summary statements on all 20 stocks. Monday through Thursday would be used to present and discuss assessment results for each species/stock. Friday will be used for synthesis and report writing. NEFSC staff reiterated that brief, detailed feedback would be welcomed throughout the entire process.

Assessment Meeting—Stock Prioritization: Several participants wanted to know how we currently prioritize future benchmark studies, and wondered how we will prioritize them going forward. NEFSC staff explained that it was a long-term issue with many components, but this may represent an opportunity for further developing a process.

Observer Monitoring : Several callers expressed considerable reluctance to embrace the fishery monitoring process. Many were concerned about relying on fishery monitoring data, given the significant changes happening and the level of turmoil in the process. The controversy over funding the monitors continues to be a challenge, with several callers voicing strong opinions on whether the presence/absence of an at-sea monitor affects observation bias. Specific comments are as follows:

"Trip duration and landing quantities are measures of bias induced by monitoring."

"Monitoring reduces scope for normal behavior. "

"I haven't changed my fishing limits based on observer status. I don't have the time or bank account to change anything I do to accommodate a monitor. But I think I'm in the minority, because I know a lot of other fishermen who will change their behavior to skew the data."

A related discussion at the Woods Hole meeting centered on random selection of trips for fishery monitoring. Some participants felt strongly that the selection is not as random as it should be. The perception is that observers only seem to want certain boats. One caller asked what the effect would be if at-sea monitoring is eliminated, with NEFSC staff replying that discard estimates would be less precise due to a smaller sample size. The NEFSC may have an opportunity here to assist the fishing community by offering as much info on the fishery monitoring program as possible—one example being an online tutorial on the program.

Data usage and assessment cut-off dates: One caller requested an explanation of how NEFSC incorporates fishery and fishing data into its operational and benchmark Assessments. NEFSC staff attempted to explain how fishermen's data is used, noting that vessel trip reports are key to estimating abundance and catch, and biological samples taken from catch on observed trips as well as from landed fish are important for determining the characteristics of fish removed by harvesting.

There was a question about cutoff dates for data for September's assessment. NEFSC staff reported that data collected though calendar year 2014 would be used for landings, discards and survey data but

several species may incorporate Spring 2015 survey data. Gulf of Maine cod, specifically, will **not** use Spring 2015 data.

WH only: It was pointed out that Spring 2014 and Spring 2015 were polar opposites in GOM, one very warm and one unseasonably frigid. Is there an opportunity for scientific discussion regarding stock status in temperature extremes?

P**otential Areas for Further Examination or Research**

- Work to develop a wider common understanding of assessment prioritization and process, and how industry generated data enter the assessments
- Work to better characterize observer bias in the data, and account for it as needed in the assessments
- Work to better explain the Northeast Fishery Observer Program goals and operations
- Examination of stock performance in years when water temperatures have been unusually high or low

2015 Groundfish Operational Assessment Industry Outreach Meeting--New Bedford, MA
July 22, 2015

Observations

Concerns from industry that reduced landings are interpreted as lower abundance and the Total Allowable Catches (TAC) are being lowered: Fishermen are landing 20-25 percent of their TAC and feel like the TACs, other than for haddock, are being lowered because of the lower landings. Mention of yellowtail as an example. Some fishermen believe predation is causing poor recruitment, that places like Nantucket Lightship have not seen yellowtail in years, while others question numbers and believe there is more yellowtail out there. An analyst noted that yellowtail recruitment was poor despite low fishing pressure, that lack of young fish recruited to the population results in lack of adult biomass to support higher catches. Analyst also noted that while predation may be part of the equation, there is no evidence of that and predation is not believed to be a primary source hindering population productivity.

Scientific surveys aboard the *Bigelow* do not match what fishermen are seeing and are therefore unreliable indicators of what is really happening: Industry representatives questioned where the *Bigelow* goes and the lack of a station match with where fish are being caught. They felt only a few stations, maybe six, were useful. They suggested they provide guidance for where the Bigelow could go at certain times of the year to get a more accurate picture of what they believe is going on. They don't understand why the *Bigelow* goes to areas where there are no fish, or why all the zero tows are included in assessments from these areas when they are catching plenty of fish in other areas. An analyst noted that we need to know where the fish are not as well as where they are, that the survey shows trends in the populations, while the commercial data provides information on the scale of the populations.

Changing fishing patterns in response to regulatory mandates makes it difficult to interpret the use of CPUE in the assessments. Industry was concerned about how assessments take into account changing fishery effort patterns in response to regulatory mandates. Reviewers have not accepted CPUE as a measure of abundance. Fishing industry wants to know if there is a baseline of effort expected, and if industry does not hit that, are they penalized in the assessment model. An analyst replied that their job is not to penalize fishermen for not achieving a baseline level; they are interested in population levels and harvest,. Vessel trip reports and dealer data are important sources for getting information on fishery removals, along with survey data to monitor population trends over time.

Industry felt their discard rates are low, and want to know how discard rates are applied since each sector has a different rate. Several said their rates are low, about 10%, while scientists see higher rates. Questions on what impact observers have on how the rates are applied to all trips, and what is the discard rate for the industry as a whole. An analyst noted there is variability from one sector to another, that it depends on gear types across many trips, and explained the discard estimate procedure and how it is applied.

Climate change needs to be factored into assessments. A study and evidence in the cold pool area regarding temperature related to recruitment success was extensively studied to explain yellowtail recruitment patterns in recent decades. Evidence that reduced suitable habitat may have contributed to low recruitment trends was not considered strong enough and required further research. Analyst noted that Stony Brook University is working with NEFC to look at this issue. Better information is needed.

Fishermen/the fishing industry wants to be more involved in the assessments. Fishermen don't come to these meetings because they are tired and frustrated with the process. They are fishing at about 25 percent capacity, perceive they have lost market share and wonder how/if they will get it back. They want to have more input to the assessments, suggest digging into the data from past side-by side tows (i.e. a dedicated Georges Bank yellowtail survey with industry to compare catches at different times of the year). They would like to know how to get more information to and from fishermen and scientists about what each is seeing. They feel their information is not being used in assessments and should be. Multiple offers were made extending an invitation to NEFSC scientists to come down to the boats to see them and talk in an informal way, face to face. An analyst noted that the meeting was a first step in bridging that gap.

Industry wants to know what they can do to help improve the situation. They mentioned they are providing a lot of information now and want to know what else they could do. An analyst stated the need for consistent, accurate vessel trip report data, that it has improved over time but could be better. The analysts noted the data is being used now and is the basis of any assessment, that their data is invaluable and is used with the survey data.

Retrospective patterns in models are biased toward lower estimates and are a concern. A question arose about how uncertainty from the government shutdown, Bigelow breakdowns, and other interruptions is incorporated in stock assessments since an analytical assessment can place certain weight on these factors. An analyst explained that the government shutdown did not affect the

completion of the Bigelow survey, that not all stocks were affected by the Bigelow breakdowns but due diligence would be applied to understand the effects of a truncated survey, and these uncertainties would be presented or accounted for in a modeling context for the reviewers. The analyst explained how models are adjusted within confidence levels, that uncertainties will be flagged and carried forward in a systematic way to inform future benchmarks.

Potential Areas for Further Examination or Research

- Consider guidance from fishermen as to where the *Bigelow* could go (survey stations) at certain times of the year to get a more accurate view of where fish are and when
- Take fishermen and scientists out together on a one-day *Bigelow* survey to show how the nets and sensors work
- Find a way to turn industry observations into data that can inform assessments
- Create more face-to-face opportunities for fishermen and scientists to talk informally about what each is seeing
- Find ways to more effectively use cooperative research, such as comparison tows and other joint projects with industry, to bridge the gap between the fishing industry and assessment scientists

22.4 Industry statements

I begin my comment with an open invitation to Loretta O Brian and Mike Palmer to come out on a fishing trip with me anytime. in the past Steve Murawski and John Brodsiak made trips with me and found them enlightening.

My name is Mike Russo, I am the owner operator of the FV GULF VENTURE. The Gulf Venture Is a 40' gillnetter currently enrolled in the Trip Gillnet category. undoubtedly the smallest trip netter in New England. We make 3 to 5 day trips anywhere inside the US Canadian line.We fish between 48 to 96 nets daily depending on location and conditions. Soak times typically under 16 hrs.

I have been groundfishing as a crew and Captain for 30 years now,primarily with tub trawl and gillnet. Most of my experience is from fishing east of the Cape but in recent years have expanded my range thru out the Gulf of Maine and out to the Eastern area on GB.

After last year's GOM cod assessment and the subsequent quota reduction ,I had to bring my boat back to the Cape to fish on GB. There's more cod in the GOM than what nmfs says and the quota is very difficult to lease.Now we're going to be up against the same situation on GB.

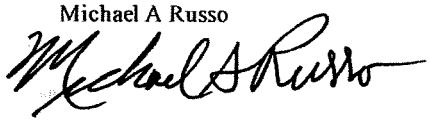
This summer I've made 9 trips in the EGB and WGB stock sreas. In the eastern area I have no experience, I found cod in 25 to 30 fathom and had hauls over 10000lbs in one day. On my last trip there I fished in 100 to 110 fathom and found cod ,I left the because I was looking for pollock and hake. Day 2 and 3 of that same trip Was spent on Franklin Swell . By day 3 I had found fish and it was primarily cod in 90 to 100 fathoms. I made 3 more trips to Franklin and had good catches with 50% of the Catch being cod. In my past experience I've never had that kind of cull deeper than 65 fathom. Also my catch of cod has been averaging 25% large cod,the best %s being up to 50% in 95 fathom. That's an indication to me that there's some large cod around ,large cod tend to bounce off 6.5 in gear ,the ones you catch are usually rolled up in the net. Same trend I have been experiencing in the GOM . I feel the cod stock has shifted to the deep water in the WGB area. .Grey Seals,dogfish and water temps I believe are the biggest reasons.

If a 150 mt TAC were in place this year my wgb my landings would have accounted for close to 8% of the quota in 9 days. I can't stress enough that this is the SMALLEST boat currently groundfishing in New England In the trip gillnet catagory. I have been working without the benefit of a network on GB. I steam 18 hrs and not see another groundfish boat. I'm finding cod in various quantity everywhere I go beyond the inshore bottom off the Cape.

I do not believe the trawl survey is finding the fish in the deep water on GB and GOM. If the stock is so low , why am I finding them from 25 to 110 fathom and over a wide geographic range? I will not accept the excuse that I'm seeing the last aggregation of cod .

However there are problems inside of 50 miles from the Cape .that's why I shifted offshore.
The Grey seals And dogfish have destroyed the inshore fishing . I have little hope that I'll be able to catch a trip of cod within sight of the Cape for the rest of my career. Cutting the WGB cod quota will do nothing to solve those issues. It's not a problem caused by commercial fisherman and I feel we shouldn't be penalized for it.

sincerely
Michael A Russo



Atlantic States Marine Fisheries Commission

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MEMORANDUM

October 27, 2015

To: Atlantic Menhaden Management Board

From: Biological Ecological Reference Points Workgroup

RE: Ecological Reference Point Recommendations for Draft Amendment 3 Development

The Biological Ecological Reference Points Workgroup (BERP WG) has been tasked to develop ecological reference points (ERPs) that will be considered with changes to the Atlantic menhaden management program in Draft Amendment 3. In the *Ecological Reference Points for Atlantic Menhaden* report, the BERP WG presented a suite of preliminary ERP models and ecosystem monitoring approaches for feedback as part of the 2015 Benchmark Stock Assessment for Atlantic Menhaden (Appendix E, SEDAR 40 Stock Assessment Report). In August, ASMFC conducted a facilitated workshop with managers and stakeholders to develop specific ecosystem and fisheries objectives to drive further development of ERPs.

At its October meeting, the BERP WG used the outcome of this Ecosystem Management Objectives Workshop (EMOW) and the SEDAR 40 peer review recommendations to assess the ability of each ERP model or tool to address management objectives and performance measures. The BERP WG identified fundamental objectives and performance measures from the EMOW that can be addressed using ecological models and approaches. Objectives such as "Sustain Atlantic menhaden to provide for historical and cultural values" or "Achieve broad public support for management" would require additional data (e.g., socioeconomic) or identification of relationships that are outside the purview of the BERP WG.

Based on committee deliberations, the BERP WG recommends using a surplus production (Steele-Henderson) and a multispecies statistical catch-at-age model to formulate potential reference points. Table 1 summarizes the recommended models and the fundamental objectives each model can address as well as the associated performance measures. Models were selected based on: (1) the ability to address multiple management objectives; (2) the ability to predict and monitor performance measures in response to management action; (3) technical merits; and (4) adherence to the advice from the SEDAR 40 Peer Review. Additionally, a majority of the BERP WG was in favor of using ecosystem indicators (e.g., forage indices or predator prey ratios) as a monitoring tool, which would give an empirical indication on performance of some management measures and indicate when to use modeling tools to assess the system. A minority of the BERP WG suggested that the ecosystem indicators be considered to develop harvest control rules as standalone alternatives to the other modeling approaches. At the next meeting of the BERP WG, the minority members will provide examples for committee consideration, and a final recommendation will be made. Currently, the BERP WG recommends their use only in an ecological context in conjunction with the other approaches rather than as standalone indicators.

The BERP WG also discussed models that are in development outside of the committee. External models such as a coastwide Ecopath with Ecosim and another surplus production model will be explored and compared to BERP WG modeling efforts as appropriate during the BERP

WG process. Because these efforts are not a draw on committee time, the BERP WG agreed that the findings from these models would be useful to compare to BERP WG modeling outputs to check for convergence.

The BERP WG notes that the timeline for model development and subsequent review will exceed the current tentative timeline for Draft Amendment 3. Creating ERPs from these models will take three to four years before being ready for management use. Three to four years is on the order of a new stock assessment with the added complications associated with modeling multiple species using a suite of models in order to address management objectives. The multispecies models will require six months to a year to complete development of the code. Because these are complex, brand-new models, the BERP WG and the menhaden TC will require a year or two to review and test the models, to ensure that the code is correct and the models are robust and performing well. During this time, the BERP WG and the TC will also have to gather, vet, and update all inputs for a standard single-species assessment for menhaden, as well as the same data for all the predators included in the model. During this process, the BERP WG will periodically present updates to the Board and request feedback where applicable. Once the BERP WG and TC are satisfied with the performance of the models and the final model runs are completed, the models and inputs will have to be peer-reviewed, then presented to the Board, which will require three to six months. When the Board has accepted the multispecies assessment framework, the BERP WG will conduct a Management Strategy Evaluation (MSE) to quantify the effects of different levels of fishing mortality on the objectives identified by the Board. This will allow the Board to examine the tradeoffs between different objectives and select ERPs that achieve the desired balance between all objectives. The MSE will require six months to a year, depending on the range of options the Board wants to consider.

In the interim, the BERP WG recommends that the Board continue the use of the BAM single-species biological reference points as accepted for management use from the 2015 Benchmark Stock Assessment for Atlantic menhaden. The Board may also consider an *ad hoc* ecological control rule such as those found in the Lenfest Forage Fish Report[1], E=F/Z =0.4[2], SPR = 30 or 50%[3] as well as others outlined in Department of Fisheries and Oceans Canada review[4]. Although these *ad hoc* reference points are easily calculated, they are generalized rules of thumb based on meta-analyses of multiple species. The BERP WG previously reviewed the Lenfest Forage Fish Report and did not feel that the management actions recommended in that report are appropriate for Atlantic menhaden management (see Memo M15-30). The BERP WG met with the Lenfest Forage Fish Task Force in August and maintains its original position. Additionally, none of the *ad hoc* approaches will allow for an evaluation of the tradeoffs between management objectives for menhaden and predators without the development of a multispecies MSE framework and forward projections of a multispecies model.

The BERP WG will present these recommendations for approval and tasking from the Atlantic Menhaden Management Board at its November 3rd meeting. Once approved, the BERP WG will move forward with the assessment process.

For more detailed information, please see the Ecosystem Management Objectives Workshop Report, the October meeting summary of the BERP Workgroup, and the April BERP WG memo on the ASMFC website: http://www.asmfc.org/species/atlantic-menhaden.

Table 1: BERP WG recommended modeling approaches to develop ERPs for Atlantic menhaden and the fundamental objectives they address.

	FUNDAMENTAL OBJECTIVES										
	Sustain menhaden to provide for fisheries				Sustain menhaden to provide for predators				Provide stability for all types of fisheries		
	PERFORMANCE MEASURES										
	Abundance/ biomass of menhaden	Menhaden yield objectives	Age Composition	Historical distribution (Age comp as proxy)	Abundance/ biomass of predators	Predator yield objectives	Predator nutrition	Prey availability relative to predator distribution	Stability in yield for directed menhaden fisheries	Stability in yield for non-menhaden fisheries	**Timeline for Management Use**
Single-Species Models											
BAM Statistical Catch-at-Age Model (current model)	X	X	X	X					X		Ready now
Multi-Species Models											
Surplus Production											
Steele-Henderson	X	X					X (proxy)		X		6 months-1 year, 2-3 years for committee review, peer review
Catch-at-Age											
Multi-species Catch-at-Age (MSSCA)	X	X	X	X	X	X	X (proxy)	*	X	X	1 year to finalize model, 2-3 years for committee review, peer review

*: Possible to develop a spatially-explicit version of the model that would meet that performance objective, but would require extensive additional work (10+ yrs)

The WG also recommends that ecosystem indicators such as forage indices and predator nutrition be monitored as part of a comprehensive ecosystem approach.
Progress on additional ecosystem models being developed by outside groups (e.g., time-varying r, Ecopath with Ecosim) should also be monitored.

References:

[1.] Pikitch, E., Boersma, P.D., Boyd, I.L., Conover, D.O., Cury, P., Essington, T., Heppell, S.S., Houde, E.D., Mangel, M., Pauly, D., Plagányi, É., Sainsbury, K., and R.S. Steneck. (2012). Little Fish, Big Impact: Managing a Crucial Link in Ocean Food Webs. Lenfest Ocean Program. Washington, DC. 108 pp.

[2.] Patterson, K. 1992. Fisheries for small pelagic species: an empirical approach to management targets. Rev. Fish Biol. Fish., 2:321-338

[3.] Walters, C. J., and Martell, S. J. D.. 2004. Fisheries ecology and management. Princeton University Press, Princeton and Oxford. 399 pp.

[4.] Guénette, S., Melvin, G., and Bundy, A. 2014. A review of the ecological role of forage fish and management strategies. Can. Tech. Rep. Fish. Aquat. Sci. 3065

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MEMORANDUM

October 27th, 2015

To: Atlantic Menhaden Management Board

From: The Committee on Economics and Social Sciences

RE: Socioeconomic Study of Menhaden Fisheries - Request for Proposals Update

As discussed at the August meeting of the Atlantic Menhaden Management Board (Board), the Committee on Economics and Social Sciences (CESS) is developing a Request for Proposals (RFP) to conduct a study on the socioeconomics of Atlantic menhaden commercial fisheries. The research will be funded through a cooperative agreement with NOAA Fisheries. The CESS met in September to discuss the direction of the RFP and potential project deliverables. The CESS decided that a characterization of the coastwide menhaden fishery is a necessary first step in order to then perform economic analyses to describe the trade-offs of various allocation strategies and assist fishery managers in allocation decisions. The research should build on a previous study, Kirkley et al. 2011, as a general framework and expand the research to the coastwide level. These data are needed before economic analyses can be performed to optimize allocation. Information from the project will be made available to researchers and future RFPs designed to explore allocation trade-offs.

The CESS generated an anticipated set of deliverables the project should generate to inform management decisions, while being cognizant of budgetary and time constraints. In an October call, a subcommittee of the CESS reviewed and refined the project deliverables, and determined primary and secondary project objectives. The primary objective of the project will be to explore social equity and the distributional consequences of management change on both the Atlantic menhaden commercial bait and reduction fisheries. The research contract is anticipated to begin in early 2016, with deliverables expected in early 2017.

While the CESS understands that analyses exploring the trade-offs among allocation options may be a top priority of the Board, the Committee believes that a characterization of the commercial fishery is necessary before these analyses can be performed. This project will still provide valuable social and economic information. The suggested list of primary project deliverables can be found below. However, the CESS suggests that the Board allocation subgroup meet with the CESS RFP subcommittee to provide feedback on project objectives and deliverables to ensure that the information collected is the most beneficial to the management objectives of the Board. If the Board agrees that the allocation subgroup should meet with the CESS RFP subcommittee, additional time will be necessary for RFP development, leading to a short delay in the project starting, but deliverables will still be expected early 2017. The CESS will ask the Board to provide suggestions on how to proceed during its November 3rd meeting.

Primary Objective: *Define social equity and the distributional consequences of management change on both the Atlantic menhaden commercial bait and reduction fisheries.*

Identify political and social resources: individuals, families, firms, and communities (including social organizations, power, and leadership)

Anticipated project deliverables:

Characterize the bait fishery coast-wide in context

The harvesting sector of the fishery:

- Trend in pounds caught per year (by state)
    - Concentration in specific ports
- Trend in average and total revenues from menhaden (by state and year)
    - Distribution of revenues
    - Operational costs
- Vessel and gear characteristics
- Participant information
    - Demographics, education, distribution, longevity in fishery, income
- Employment in the sector
    - Alternative employment opportunities (by state/county)
    - Annual revenue shares by species/state to identify alternative targets and sources of fishery revenues
- Participation in fishery (direct dependence)
    - Number of fishermen and boats (historic and current employment, including crew)
        - Identify what extent fishermen focus on menhaden as a primary catch and during what seasons
        - Attitudes, beliefs, norms, values, perceptions
            - Job satisfaction, health safety
            - Importance of menhaden
                - Directly or via ecosystem services
        - Networks (crew, friends, family)
- Identify in-/direct subsidies, e.g., fuel subsidies, tax breaks etc.
- Identify substitute bait products and their average dockside prices by state

Processing and distribution sector:

- Number of bait retailers and wholesalers that sell menhaden (by state)
    - Number/types of employees
        - Income by position
    - Total bait sales and proportion of menhaden sales
- Distribution of the product
    - Identify the clients or purchasers (both commercial and recreational)
        - Identify the product forms and prices
            - Wholesale with prices and area
            - Retail with prices and area

- Preferred form for each targeted fish species and user type

Characterize the reduction fishery <u>in context:</u>

<u>The harvesting sector of the fishery:</u>

- Trend in landings and revenues ideally with operational costs
- Time series with capacity utilization and fixed costs
- Time series in quantity of quota allocated, quota landed, and menhaden processed
- Participation in fishery (direct dependence)
    - Trend in number and demographics of employees
        - Estimate the share of income these employees represent in their communities
        - Attitudes, beliefs, norms, values, perceptions
            - Job satisfaction, health safety
            - Importance of menhaden
                - Directly or via ecosystem services
        - Networks (crew, friends, family)
- Population, education of communities of interest
    - Vulnerability
    - Alternative employment opportunities

<u>Shoreside entities:</u>

- Importance in the community in terms of how many direct and ancillary jobs supported, etc.
    - Change over time
- Uses of the reduction fishery product with info about supply chains
    - Substitutes for the product
    - Trends in prices for possible substitutes
- Identify in-/direct subsidies, e.g., fuel subsidies, tax breaks etc.

References:
Kirkley, J.E. Hartman, T., McDaniel, T., McConnell, K., and J. Whitehead. An Assessment of the Social and Economic Importance Of Menhaden (*Brevoortia tyrannus*) (Latrobe, 1802) In Chesapeake Bay Region. 2011. VIMS Marine Resource Report No. 2011-14. 227 pp.

COASTAL CONSERVATION ASSOCIATION MARYLAND

RECREATIONAL ANGLERS WORKING TO CONSERVE, PROTECT, AND ENHANCE MARYLAND'S MARINE RESOURCES

Via email.

Mr. Robert Boyles
Chairman, Atlantic Menhaden Management Board
Atlantic States Marine Fisheries Commission
1050 N. Highland Street, Suite 200 A-N
Arlington, VA 22201

Dear Robert,

At its November 3rd meeting, the Atlantic Menhaden Management Board will be asked to provide guidance to the Plan Development Team on the preparation of a Public Information Document for Draft Amendment 3. I write now to urge you and your board members to include a Lenfest approach among the options listed in that document and to encourage the Board to stay on a track that would result in the implementation of Amendment 3 in 2017.

The Lenfest approach is well documented in the scientific literature for the setting of ecological reference points and is best suited to meet the objectives that were agreed to by the Ecological Management Objectives Workshop. Furthermore, it is the only methodology that can be applied immediately to the management of Atlantic Menhaden without further modeling efforts and peer review. While we do not object to the development of more complex multi-species models, reliable versions of these will require a significant investment in staff resources and are likely years away.

The Coastal Conservation Association has long supported management efforts that provide an adequate supply of menhaden for the entire food web. The Lenfest approach is specifically designed to meet this important objective and can do so in the shortest time frame. Its inclusion in the Public Information Document will allow the public an opportunity to comment on an option that is scientifically justified and available for immediate use by the managers.

Thank you for your consideration of this request.

Sincerely,

David Sikorski
Chair-Government Relations Committee

Atlantic States Marine Fisheries Commission

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Dr. Louis B. Daniel, III, (NC), Chair *Douglas E. Grout (NH), Vice-Chair* *Robert E. Beal, Executive Director*

October 26, 2015

To: **Tautog Management Board**
From: **Ashton Harp, ISFMP Coordinator**
Subject: **Public Comment on Tautog Draft Amendment 1**

The following pages represent a summary of written comments received by ASMFC by October 23, 2015 at 5:00 p.m. (closing deadline) on Draft Amendment 1 to the Tautog Interstate Fishery Management Plan.

A total of 46 written comments were received. Of those comments 14 were from an organization or group, and 32 were personalized individual comments.

Eight public hearings were held in each state within the management unit for tautog (Massachusetts through Virginia). Approximately 80 individuals attended all public hearings combined. Public hearing summaries were distributed in the Briefing Materials.

A tally of the groups/organizations and individuals who commented on regional management is provided in tables 1 and 2. Comments on goals and objectives, management measures, reference point and rebuilding timeframes and other issues are summarized collectively.

Comments were submitted by the following groups or organizations:
Hi-Mar Striper Club, Middletown, New Jersey
North Folk Captains Association, New York
Rhode Island Party and Charter Boat Association
New Jersey Council of Diving Clubs
Rhode Island Salt Water Anglers Association
Great Bridge Fisherman's Association, Virginia
Norfolk Anglers Club, Virginia
Virginia Beach Anglers Club, Virginia
Gateway Striper Club, Brooklyn, New York
Virginia Saltwater Sportfishing Association, Inc.
Jersey Coast Anglers Association, Toms River, New Jersey
Peninsula Salt Water Sport Fisherman's Association, Virginia
New York State Conservation Council
New York Coalition for Recreational Fishing

ISSUE 1: REGIONAL MANAGEMENT

Management Question

- Which management area approach do you support: Option 1 (status quo), Option 2, Option 3 or Option 4?

Table 1. Comments submitted by groups or organizations

Option 1 (Current Stock Definition)	Option 2 (3 stocks)	Option 3 (3 stocks)	Option 4 (4 stocks)
Single Stock: Massachusetts – Virginia	1) Massachusetts–Connecticut	1) Massachusetts–Rhode Island	1) Massachusetts–Rhode Island
	2) New York–New Jersey	2) Connecticut–New Jersey	2) Long Island Sound (Connecticut–New York)
	3) Delaware–North Carolina	3) Delaware–North Carolina	3) New York–New Jersey (excluding LIS)
			4) Delaware–North Carolina
6 organizations	**1 organization***	**3 organizations***	**7 organizations***

* Two organizations supported Option 3 or 4; one organization supported Options 2 or 4

Table 2. Comments submitted by individuals

Option 1 (Current Stock Definition)	Option 2 (3 stocks)	Option 3 (3 stocks)	Option 4 (4 stocks)
Single Stock: Massachusetts – Virginia	1) Massachusetts–Connecticut	1) Massachusetts–Rhode Island	1) Massachusetts–Rhode Island
	2) New York–New Jersey	2) Connecticut–New Jersey	2) Long Island Sound (Connecticut–New York)
	3) Delaware–North Carolina	3) Delaware–North Carolina	3) New York–New Jersey (excluding LIS)
			4) Delaware–North Carolina
7 individuals	**5 individuals***	**8 individuals***	**14 individuals***

* Two individuals supported Option 2 or 3; four organization supported Options 3 or 4

ISSUE 2: FISHERY MANAGEMENT PLAN GOALS AND OBJECTIVES

Management Questions

- Are these goals and objectives still appropriate for the tautog fishery and resource?
- What changes to the goals and objectives need to be made to reflect the needs of the fishery and the resource?
- Which five objectives do you feel are the most important?

The following includes the current fishery management plan goals and objectives, and associated comments in italics.

GOALS

A. To perpetuate and enhance stocks of tautog through interstate fishery management so as to allow a recreational and commercial harvest consistent with the long-term maintenance of self-sustaining spawning stocks
    - *Rewrite to: manage the tautog stock in a way that facilitates a robust and sustainable commercial and recreational harvest*
B. To maintain recent (i.e. 1982-1991) utilization patterns and proportions of catch taken by commercial and recreational harvesters
    - *Should specifically name charter and party boat harvesters*
    - *Base numbers should be 2009-2013*
C. To provide for the conservation, restoration, and enhancement of tautog critical habitat for all life history stages
D. To maintain a healthy age structure
E. To conserve the tautog resource along the Atlantic coast to preserve ecological benefits such as biodiversity and reef community stability, while maintaining the social and economic benefits of commercial and recreational utilization

OBJECTIVES

A. To establish criteria, standards, and procedures for plan implementation as well as determination of state compliance with FMP provisions
    - *Voted as one of the most important objectives*
B. To allow harvest that maintains spawning stock biomass (SSB) in a condition that provides for perpetuation of self-sustaining spawning stocks in each spawning area, based on maintain young-of-the-year indices, SSB, size and age structure, or other measures of spawning success at or above historical levels as established in the plan
C. To achieve compatible and equitable management measures among jurisdictions throughout the fishery management unit
D. To enact management recommendations which apply to fish landed in each state, so that regulations apply to fish caught both inside and outside of state waters

- *Suggested actions to achieve this goal: work with NMFS to institute federal regulations that would require all fishermen to hold state licenses from their home state and the state where their vessels departs; fishermen would have to abide by the more restrictive regulations*

E. To promote cooperative interstate biological, social, and economic research, monitoring and law enforcement
   - *Remove 'law enforcement' from Objective E and create a specific objective that addresses law enforcement involvement in this fishery.*
   - *Voted as one of the most important objectives*

F. To encourage sufficient monitoring of the resource and collection of additional data, particularly in the southern portion of the species range, that are necessary for development of effective long-term management strategies and evaluation of the management program. Effective stock assessment and population dynamics modeling require more information on the status of the resource and the biology/community/ecology of tautog than is currently available, in particular to facilitate calculation of F and stock trends
   - *Voted as one of the most important objectives*
   - *There should be stronger emphasis on accurate data collection for this fishery*

G. To identify critical habitats and environmental factors that support or limit long-term maintenance and productivity of sustainable tautog populations

H. To adopt and promote standards of environmental quality necessary to the long-term maintenance and productivity of tautog throughout their range

I. To develop strategies that reduce fishing mortality, restore stock size composition and the historical recreational/commercial split, consider ecological and socio-economic impacts and identify problems associated with the offshore fishery. Compatible regulations between the states and the EEZ are essential
   - *Add: to maintain strong relationships with professional fishermen to gain a better understanding of the fishery strength and trends*
   - *The fishery should be managed with the largest stakeholder group in mind*
   - *Voted as one of the most important objectives*

ISSUE 3: MANAGEMENT MEASURES

Management Questions

- Do you support the use of regional management measures?
- What are the most effective management measures in place?
- Are there management measures that can be improved upon to better achieve management goals and objectives?
- Are there additional state management efforts that should be included in the FMP?

Suggested management measures were grouped by topic. The number after a comment indicates a repeat comment.

- *Gear Type*
    - Ban pots and traps in the commercial fishery (4)
    - The number of fish traps per fisherman should be limited
    - It should be illegal to sell tautog caught as bycatch in lobster pots
        - Those who were against potting have the perception that the tautog abundance was higher prior to the use of potting.

- *Size Limits*
    - Increase the minimum size limit to 16 inches for all states (2)
    - Establish the same minimum size limit for all regions (4)
    - Increase the size limit and decrease the bag limit

- *Open/Closed Season*
    - Reduce the New York commercial fishing season
    - Open seasons for each state should be evaluated for overlap with current spawning seasons
    - Fishery should be closed in spring and early summer to protect spawners
    - Fishery should be closed all summer
    - Fishery should be closed all spring (2)
    - Adjust the fishing season as necessary to account for cold winters because tautog do not bite in very cold water (3)

- *Regional Management*
    - Regional quotas should be established for the recreational and commercial sector. If regional quotas are exceeded, then the state(s) responsible would have to implement more restrictive measures the following year. (3)
    - States should work together to establish regional management measures
    - Slot limits, on a regional basis, should be researched for this fishery (4)

- *Other*
    - Manage party and charter permitted vessels separately from the private and shore based anglers
    - Impose a 10 fish maximum per private vessel for all states (current a RI regulation)
    - Wave 1 harvest data is not available in the recreational landings estimates from New Jersey through Virginia, therefore fishing during this time period should be prohibited
    - There should be a commercial permit to target tautog
    - Weekly or bi-weekly harvest should be reported at the state level
    - Tautog tournaments encourages 'opening day mentality' which has led to increased landings and participants in the fishery

ISSUE 4: REFERENCE POINTS AND REBUILDING TIMEFRAMES

Management Questions

- Do you support the ability to change reference points based on the latest peer-reviewed stock assessment recommendations without the need of a management document?
- Do you support the use of regional reference points?
- Do you support stock rebuilding timeframes that correspond to the needs of each regional management area (i.e. timeframes that are based upon respective stock condition relative to their regional reference points)?

Those in favor of regional management were also in favor of regional reference points and rebuilding timeframes. An individual said managers should be hesitant to accept new reference points and rebuilding timeframes, and only those that are realistic should be adopted. Another said the contents of a peer-review stock assessment should be incorporated into the FMP without the need for a management document or a public hearing process. An individual said ASMFC should adopt the federal guidelines for rebuilding timeframes, the stock should be rebuilt in 10 years if biologically feasible.

ISSUE 5: OTHER ISSUES

Management Questions

- Do you support the use of adaptive management to meet the goals and objectives of the fishery?
- Do you support increased monitoring to improve our understanding of tautog life history and stock dynamics as well as aid in development of future stock assessments?

- Are undersized tautog harvested for recreational bait or the live fish market in your state? If so, is this a concern to you?
- Should there be an ASMFC mandated commercial fish tagging program to minimize the unlawful commerce of tautog and provide traceability of all fish in commerce back to the state of origin. Should the point of tagging be the point of harvest and/or the point of sale?
- As a structure-oriented species, do you have regional habitat recommendations, recognizing that the Commission and the state marine fishery agencies have limited regulatory authority for habitat?
- What other changes should be made to the tautog fishery that are not covered by the topics included in this document?

Comments include:

- *Black Market*
    - Five organizations and six individuals are in favor of a commercial tagging program. Three organizations and one individual do not support a commercial tagging program. Those in favor voiced support for tagging at the point of harvest. This tool would allow for future quota management and provide a more accurate representation of the legitimate commercial harvest. Three individuals are in favor of banning the live market, commercially caught fish would have to be killed and bled.
    - One striped bass organization said they do not, and have not seen, tautog used a bait for striped bass.
    - Fines should be at least $100 per undersized fish along with confiscation of equipment until the fine is paid
    - Establish a phone number so fishermen can report illegal activity
- *Habitat*
    - Four individuals commented on the importance of maintaining existing reefs and creating artificial reefs. Other comments include:
        - Manmade reef rebuilding and reef re-introduction should be a priority
        - Beach replenishment projects are disrupting natural shorelines and destroying prime fishing areas
- *Other*
    - An ecosystem approach should be applied to this fishery; the tautog fishery is negatively impacted by the abundance of black sea bass
    - Logbooks should be required for this fishery
    - Addendums to the FMP should be regionally focused

Tautog Written Summaries
August-October 2015
Draft Amendment 1

Connecticut: 9
Virginia: 13
New Jersey: 10
New York: 10
Rhode Island: 2
Massachusetts: 1
Delaware: 1

_____
From: Bill <bill@marshviewmarina.com>
Sent: Saturday, October 24, 2015 7:12:47 AM
To: Simpson, David
Subject: Tautog Management

Hi Dave,

I believe option 4 is the best option for us. Also as far as blackish are concerned we should implement a slot limit...As an avid fisherman, marine bio background, and a marina owner for 20 years I have witnessed this beautiful fishery on the decline...large, old fish are stripped from our waters each year...Especially due to tournaments that glorify these double digit monsters and never released...best "eaters" are fish in the 16-17" range anyway before they develop the heavier red meat down their sides...just my concern in all the years of observation on the sound...

Thank you,

Bill Kokis
(860) 304-0207
Sent from my Verizon Wireless 4G LTE smartphone

Hello Ashton,

My name is Jeff Tyrol and I am an avid recreational fisherman in CT. I have recently joined a local fishing club and am trying to get more informed on the fisheries management issues that effect me and understanding how to voice my opinions on how I would like to see these issues managed.

At our club's last meeting our guest speaker David Simpson talk a little about Tautog Management. As lengthy of a topic it is he gave everyone a copy of the Public Information Document to look over and encouraged us to voice our opinion on the issue.

I understand the current step is gathering input on what the best regional breakdown for Tog management would be.

After reading the options there is only one that makes sense to me and that would be Option 4. I fish the waters of Long Island Sound and looking at it from the Connecticut standpoint it would not be fair to us to be grouped together with with other states which our stocks don't overlap with..

It is extremely important to make sure we manage the LIS stock appropriately especially when you look at the total number of recreational landings between CT and NY.

After reading all the information about the known movement of Tautog it seems like the LIS stock has minimal overlap with both the Massachusetts /RI stock and the rest of Southern NY. One of the options has CT grouped with NJ which is a totally different biomass all together.

With Tautog being such home based fish that stays near the same reefs year to year it makes sense to use a management plan that treats them as such.

I love going out and targeting Tog and so does my wife, in fact we enjoy a day anchored up togging more than anything else in our area. It's the most fun fishery there is in our area and I would like to see it protected with the best most localized management possible so it will still be strong if not stronger for us to take our children out and experience in years to come.

On behalf of all the recreational fishermen and women in our area I would definitely recommend you to use management area option 4 not only for our future but also for the future of these amazing slow growing fragile fish.

Thank you for the opportunity to be able to voice my opinion and be a part of this decision

-Jeff Tyrol

Ms Harp

Please excuse the lateness of my responses but I believe that I did get this in before the deadline.

Tautog are a very important species for me as I've been catching them since I was a small boy along with my father. I value them mostly as a large part of my fall fishing and would like to be able to continue this for years to come.

I did mention to you at the hearing in CT. that there was a lot of information in the document to understand all at once and that you would be receiving lots of emails. Well here are my responses to your questions and I hope that will help with formulating a balanced FMP.

Thank you

Michael Kraemer

ISSUE 1:

Which management area approach do you support: Option 1 (status quo), Option 2, Option 3 or Option 4?

- Being in Connecticut we have no other place to fish for tautog other than Long Island Sound so that makes option 4 the only real choice we have. As long as New York is in agreement to managing LIS as one shared body of water than we should also work on common regulation and creel limits.

ISSUE 2:

Are these goals and objectives still appropriate for the tautog fishery and resource?

- In a word, yes. The idea here is to protect what we have and maintain it for years to come

What changes to the goals and objectives need to be made to reflect the needs of the fishery and the resource?

- I don’t believe we need to change the goals however I find that some of the objectives are not applicable to LIS

Which five objectives do you feel are the most important?

- Why is this limited to just 5 objectives? If they will help with the FMP why not use all of them that apply?

I do think that objective D does not apply to LIS since it is all state waters. But it might have some benefit elsewhere.

ISSUE 3:

Do you support the use of regional management measures?

- Yes I do ,and again since all we have is LIS I feel it is imperative to have regional management.

What are the most effective management measures in place?

- At this time all we have are size and creel and season to work with. Possibly later we might consider slot size too.

Are there management measures that can be improved upon to better achieve management goals and objectives?

- I think we need to focus more on reporting of catch data. The current system is good in theory but short on practicality. As a recreational fisherman I have never been approached by a survey agent. I understand the logistics and expense involved but there has to be a better monitoring system.

Are there additional state management efforts that should be included in the FMP?

- Other than what I have stated above as my opinions I don't see how the state will have the flexibility to make changes to a Federal Management Plan.

ISSUE 4:

Do you support the ability to change reference points based on the latest peer-reviewed stock assessment recommendations without the need of a management document?

- I believe that would streamline the process and might get more accurate data to future stock assessments

Do you support the use of regional reference points?

- Again since we are in an enclosed environment I am all in favor of the regional approach.

Do you support stock rebuilding timeframes that correspond to the needs of each regional management area (i.e. timeframes that are based upon respective stock condition relative to their regional reference points)?

- This one I am unsure of. I find arbitrary time frames to be restrictive to good management by placing a burden to reach a goal in a set amount of time. I have felt in the past that some of these deadlines have not worked as intended.

ISSUE 5:

Do you support the use of adaptive management to meet the goals and objectives of the fishery?

- I support anything that will preserve the stock while also providing a common sense approach to providing for use of the fishery

Do you support increased monitoring to improve our understanding of tautog life history and stock dynamics as well as aid in development of future stock assessments?

- I think we need to have increased monitoring for the sake of stock assessments and I am participating in a state run tagging system to determine habits of the species throughout their lives.

Are undersized tautog harvested for recreational bait or the live fish market in your state? If so, is this a concern to you?

- I personally have never heard of using short Tautog as a bait species. I would hate to have this become a widespread problem anywhere.

Should there be an ASMFC mandated commercial fish tagging program to minimize the unlawful commerce of tautog and provide traceability of all fish in commerce back to the state of origin. Should the point of tagging be the point of harvest and/or the point of sale

- There needs to be something in place to stop the Asian live fish marketing of primarily undersized fish.I do favor the tagging of them being sold but I would like to see a program of the sort used for striped bass here in Connecticut.

END of Michael Kramer Comment

From: Byxbee, Kenneth [mailto:KByxbee@StamfordCT.gov]
Sent: Friday, September 18, 2015 7:48 AM
To: DEEP Marine Fisheries
Subject: Tautog Fisheries Management Plan

To whom it may concern, As a fisherman whom has fished the waters of Long Island Sound's Western area for over 50 years I would like to comment on the proposed Assessment Management Areas and I would like to see Option 3 implemented, Combining CT and Northshore into one zone. Since the demise of the Lobster Fishery, due to WHATEVER, and the overfishing of the Tautog Stocks by Lobster and Fish Traps in the 90's, I have noticed a profound impact of not only the numbers but also the size of the Fish. To further substantiate my cause, I am sick and tired of watching the NY party boats fishing our CT shoreline day after day and being allowed to harvest more fish then I!!!!! This can definitely be alleviated by the implementation of one bag limit for both states on ALL Inshore species harvested within the LI Sound period!!! I further believe that DEEP should research the possibility of CLOSING the Winter Flounder fishery for at least a 5 year period, commercial and recreational, to HOPEFULLY result in a viable fishery once again… Thank you for your indulgence, Ken Byxbee, Stamford, CT

From: LYKE, GARY J PW [mailto:gary.lyke@pw.utc.com]
Sent: Tuesday, September 15, 2015 7:15 AM
To: DEEP Marine Fisheries
Subject: Tautog

I feel Ct. should join with Mass. and Rhode Island in this matter as we are basically in line with each other on the east coast and even though New York is important and Jersey I don't believe they are as in tuned to the areas that concern most Ct. fishermen. Rhode Island seems to really have it together with their fishery and Mass. is also very good at working with our environment. I have fished and hunted both states and find actually that Ct. is the least in tuned of the states mentioned. We are either to overboard with our laws or we are not strict enough. We could learn something from being involved with these states and they can learn from us also. I think Jersey and New York think they kind of rule the roost when it comes to regulating these types of things.

From: Rick Tomasetti [mailto:RWTomasetti@SEandAInc.com]
Sent: Monday, September 14, 2015 4:54 PM
To: DEEP Marine Fisheries
Subject: Tautog PID Comment

Dear Sirs,

In order of effectiveness meaning reducing mortality;

1. Add more stringent Commercial quotas.
2. Introduce a slot limit to allow breeders to live; increasing biomass.
3. Provide more stringent limits on recreational fisherman.
4. Higher fines for GROSS negligence. (ref MASS and CT arrests) SAME PEOPLE, SAME CRIME.

While your at it, STOP allowing inshore dragging by commercial fisherman (1½ mile at least) or severely reduce their allowable take, DRAGGERS ARE KILLING THE LOCAL ENVIRONMENT for the sake of the almighty dollar.

V/R,

Rick Tomasetti

24 Doyle Rd

Waterford, CT

From: RomanAround5246 [mailto:romanaround5246@gmail.com]
Sent: Tuesday, September 22, 2015 6:58 AM
To: DEEP Marine Fisheries
Subject: Tautog Amendment 1

Good Morning,

Unfortunately I am unable to attend the public hearing on Amendment 1 for Tautog. It's always very informative to you go into depth explaining what will be accomplished by these amendments instead of trying to figure it out through all those fancy words.

Anyways I am writing to you to voice my opinion on the 4 different choices. My choice is for option 4. I think that Long Island Sound is a unique body of water that is different from say Block Island Sound. It is more protected and warmer and a good environment for fish to spawn and grow. For example, there are many and I mean many black sea bass in the inch to 10 inch range everywhere in the Niantic area. Also there is a Spring spawn for Porgies in the Gardiner Bay area.

Personally I would love to see Long Island Sound be it's own designated area for all fish. I don't think we deserve to be lumped in with Rhode Island, New York or New Jersey. We have different conditions and situations between Long Island Sound and the open oceans. With that said, have the North Shore of New York and Connecticut be it's own zone.

I also have a question about fish being caught. I know alot of boats go to Rhode Island for fluke and tautog and same goes for Montauk. I am just wondering which state gets credit for the catches? I am a member of your Volunteer Angler Survey and the way that it is set up now makes no sense. It only has one area as an area fished, even though you fish in 2 different areas. Also there is a line that runs right thru the center of the Race, so which zone do you claim in the book. I think everyone should get a logbook when they get a license to record their information.

Thank you for listening to me and making my opinion heard. You do a great job thinking about the recreational anglers and commercial interests even though none of them think so. I remember attending the meetings and listen to the unhappy and angry people. Unfortunately with my work schedule I am unable to attend them.

Sincerely,

Roman Dudus

Hello to both of you,

I've been somewhat crazy busy and wanted to get my comments into both of you.

Issue 1 – Stock Management – **Option 4** is incredibly important for CT and NY anglers who fish LIS. The fishery in LIS has become incredibly popular and generates more and more interest – this showing up in the landing data for CT.

Issue 2 – FMP Goals – the goals are still appropriate.. the 5 most important are: wait… the most important one is MISSING – understand the stock status as it relates to the overall population – my intuition is that there is no mixing of the stocks (LIS fish likely stay in LIS, etc..).. Tautog are not understood and that research is critical. Example – the CTDEEP and the my little group of fishing buddies allied under the CT RFA umbrella just started a tagging study.. informal results are showing the fish have not moved at all .. I expect that to change but if the populations are not migrating at all management becomes very difficult. Another example – New Haven Harbor has a massive breakwater system that has great recreational angling for tautog associated with it. On a nice weekend there could be 100 anglers fishing the breakwaters (maybe more).. if those fish are truly resident to the structure how is that accounted for in the FMP?

Issue 3 – Management measures – refer to my comments in Issue #2 – if the fish do not migrate (or mix).. then regional management measures do not make any sense – in general I support regional management but without a thorough understanding of tautog migration (or lack of migration) then regional management measures make no sense. My somewhat poor analogy is that perhaps tautog are like "deer" (very local population) and we are attempting to manage them like waterfowl. (I don't hunt anymore but the analogy makes sense to me.) RESEARCH IS NEEDED

Issue 4 – reference points/rebuilding timeframes – there is a need to use regional reference points..

Other issues:

I've been fishing for tautog since I could walk – all basically in Central CT.. so its slightly over 50 years of tautog fishing. The fishery has changed enormously. The first issue is that the fish used to have no commercial value, in the early 1970's friends that participated in the commercial lobster fishery would give my family as many tautog as we wanted – they were that abundant and tended to be readily caught in lobster pots. The recreational fishery used to be 100% private boats, today there is a new group of charter boats that utilize smaller vessels and an expanded "head boat fleet" that fish CT waters (head boats being "party boats" that can accommodate from 20-60 anglers). Until the late 1990's you NEVER encountered these large boats in central LIS – today its common to see party boats from CT and NY fishing the same general areas in central LIS. The point of this discussion is that that participation in the fishery has expanded in LIS. In addition to the expansion the private boat anglers all have GPS devices that enable boats to fish "hot spots" on the same reefs. In the not that distant past electronic navigation was not typically available to the private boat angler. Then there was a change in fishing tackle technology – the use of braided fishing lines has allowed anglers to fish in strong currents that were unfishable in the past. All of these changes have greatly increased landings in LIS.

The “hot new thing” in tautog fishing is the use of “tog jigs” with Asian crabs in shallow water – using the same braided line technology. This change has also increased landings and participation. There is a new group of anglers utilizing kayaks and this technology with great success. Anglers viewpoints and participation in the fishery have also changed – today many anglers typically want to catch many fish (easy to do with the jigs).. and keep some fish for the table. Anglers exclusively targeting tautog solely has a “food fish” have decreased. Sport is becoming more important.

In addition to the above, CT has had an explosion in tautog tournaments – which is also increasing landings and participation on the fishery. The use of restrictive seasons (to contain harvest) has also resulted in an “opening day mentality” that is helping to drive up landings.

Other ideas (generated from my discussion with friends who fish for tautog):

1. Institute a slot limit – allowing large spawning fish to survive is the best management tool by far for this fishery. Using a restrictive slot limit would also allow for elimination of the “opening day” scenario which is putting a tremendous strain on the resource. The fishery is changing (use of jigs and catch and release fishing) - while there may be some push back from the “recreational for hire fleet” the health of the tautog resource is going to require substantial changes and this tautog fishery is historically a private boat based fishery. Managing the fish for the benefit of the largest stakeholder group is important. The slot limit could be decided on a regional basis – I think it’s very important for the LIS region. In reality the older larger tautog or not great eating anyway. The slot limit format will also make the tautog tournaments change their format (help protect the larger fish that are being targeted for these events).
2. Commercial fish – allow for a smaller size and mandate tagging of all commercial fish. The small size commercial fish will help eliminate the black market fishery – as will tagging. Tog are hardy enough that the tags will not kill fish that will end up in the live fish trade (black market tautog really need to be addressed and this may fix the problem)

Thanks – Jack Conway

October 23, 2015

Ashton Harp
1050 North Highland St, Suite 200 A-N
Arlington, VA 22201

Via email: aharp@asmfc.org

Re: August 2015 ASMFC PID for Tautog

Dear Ashton,

After careful review of the August 2015 Atlantic States Marine Fisheries Commission (ASMFC) Public Information Document (PID) for tautog, I write to offer the following comments as a professional fisherman of more than 25 years. Everyone with a stake in the fishery – fishermen and regulators alike – wants to see a healthy tautog stock that can be harvested in a sustainable manner. I offer these comments in the hope that ASMFC can and will adopt a common sense approach that other regulatory agencies have lacked in similar contexts (NOAA and black sea bass regulations come to mind).

One fact serves as the overarching theme to my comments and underscores my gravest concerns about the PID: *the recreational harvest data in Table 4A, particularly for Connecticut and New York, is heavily flawed*. ASMFC cannot make sound decisions with regard to the fishery if those decisions are informed by faulty and unreliable data.

The most recent data for Connecticut shows harvests of 88,728 pounds, 982,891 pounds, and 392,146 pounds in 2011, 2012, and 2013, respectively, before reflecting a staggering leap of **275%, to 1,470,133 pounds**, in 2014. If the data is to be believed, the 2014 tautog harvest in Connecticut was the largest since 1981 – virtually impossible, given the steady tightening of regulations governing the fishery over the last 33 years. During that time, the regulations have evolved from something on the order of 25 fish at 12" to our current limit of 4 fish at 16".

The wild fluctuations in the recreational harvest data should be a red flag, even to the most casual observer. Such a dramatic and irregular rise and fall in the data prevents a regulatory body from conducting an effective analysis, given the tendency of highly volatile data to conceal underlying trends. The inability to spot any trend at all from year to year makes the data inherently unreliable. (The PID suggests as much when it generously describes the harvest data for tautog as "more uncertain than other commonly targeted species.")

The data in Table 4C, showing the number of trips targeting or harvesting the species, is similarly suspect. It suggests that the number of such trips in Connecticut increased 85% from 2013 to 2014, and 117% in New York during the same period. That rate of increase is virtually impossible. Tautog-related bait sales in Connecticut and New York have fallen steadily and dramatically over the last 5 years – a fact that underscores the incredibility of both the harvest data and the trip data.

Perhaps it should come as no surprise that the recent tautog data is unreliable. The pace and severity of cuts to the limits on tautog precludes the collection of reliable data on the fishery's health and size. As the PID correctly notes, "tautog are a slow-growing, long-lived species … [that is] slow to rebuild." In my

25+ years as a professional fisherman I have seen the tautog stock slowly rebound, with subtle changes every year. The trend in regulation of this fishery has been to make steady and dramatic decreases in the permissible recreational harvest, but the very nature of the species dictates that the impact of those restrictions will not be seen for years. To expect immediate results from recently introduced regulatory restrictions, and to enact further restrictions in the absence of such immediate results, ignores the very nature of the species.

Before turning to each of the issues presented in the PID, I ask ASMFC to reconsider the fundamental way in which it views recreational harvest data. A strong rod and reel catch is a sign of a strong fishery – not a sign that the size of the fishery is being reduced in aggregate. The simple fact is that a weak fishery cannot support a strong rod and reel harvest.

Issue 1: Stock Management Areas

Management Question: Which management area do you support: Option 1 (status quo), Option 2, Option 3, or Option 4?

Option 4 represents the best management area. Smaller, more discrete management areas are a better way to manage the stock, keeping in mind that some of these areas will overlap (e.g., Eastern Long Island Sound and Fishers Island Sound feed the south shore of Rhode Island in the late fall).

Issue 2: Management Plan Goals

Management Questions: (1) Are these goals and objectives still appropriate for the tautog fishery and resource? (2) What changes to the goals and objectives need to be made to reflect the needs of the fishery and the resource? (3) Which five objectives do you feel are the most important?

The management plan goals are unnecessarily lengthy and complex. The largest Fortune 500 companies would be ill-equipped to achieve such granular goals and objectives. The needless complexity and specificity serves only to muddy the waters.

The only goal of the FMP should be to manage the blackfish stock in a way that facilitates a robust and sustainable commercial and recreational harvest.

There are four key tools necessary to accomplish that goal:

1) **ACCURATE DATA** on harvested fish
2) Habitat protection
3) Communication between states and local management areas to achieve an accurate view of stock strength – East Coast-wide and at the local level
4) Strong relationships with professional fishermen to gain a better understanding of the fishery strength and trends

Issue 3: Management Measures

Management Question 1: Do you support the use of regional management measures?

Yes.

Management Question 2: What are the most effective management measures in place?

Closure dates, bag limits, and size limits.

Management Question 3: Are there management measures that can be improved upon to better achieve management goals and objectives?
Management Question 4: Are there additional state management measures that should be included in the FMP?

Yes, as to both questions. ASMFC should adopt longer summer closures to support spawning – there is no need for a summer tautog season.

There should also be specialized regulations for areas that combine large catch rates with few inherent restrictions on the catch. For example, the New Haven breakwall consistently produces a very high number of blackfish landings but exhibits a number of characteristics that make it ripe for abuse. Those characteristics include the fact that it is accessible without a boat, is sheltered from poor weather conditions, is relatively unaffected by strong tides, and can be visited several times a day by the same angler with little fear of being caught with multiple creel limits. There are several similar areas within Connecticut and they should be treated differently than more typical fishing sites. Just as Connecticut has created "Enhanced Opportunity Shore Fishing Sites" to allow more generous regulations at certain sites, so too should it create more restrictive regulations for sites that warrant them.

Finally, commercial blackfish harvests should utilize a tagging program similar to the program in place for striped bass. Such a program would also enable fishermen to pen fish for future sale to *legally* leverage the live market.

Issue 4: Reference Points and Rebuilding Timeframes

Management Question 1: Do you support the ability to change reference points based on the latest peer-reviewed stock assessment recommendations without the need of a management document?

No.

Management Question 2: Do you support the use of regional reference points?

Yes.

Management Question 3: Do you support stock rebuilding timeframes that correspond to the needs of each regional management area?

Yes.
Issue 5: Other Issues

Management Question 1: Do you support the use of adaptive management to meet the goals and objectives of the fishery?

Yes, to the extent that the goals and objectives are reassessed to reflect the overall strength and size of the fishery. ***Accurate, reliable data must serve as the basis for all decisions.***

Management Question 2: Do you support increased monitoring to increase our understanding of tautog life history and stock dynamics as well as aid in development of future stock assessments?

Yes, wholeheartedly. The tautog is a slow-growing fish with strong ties to the same habitat structure year after year – that's really all we know. In light of the increasingly restrictive regulations enacted over the past decade, ASMFC's harvest data is highly questionable, tending to suggest either that the fishery is more robust than ever, or that the data is completely unreliable. Either way, a better understanding of stock dynamics, and of the effect of regulations on those dynamics, is critical to ASMFC's efforts.

Management Question 3: Are undersized tautog harvested for recreational bait or the live fish market in your state? If so, is this a concern to you?

Undersized tautog are rarely, if ever, harvested for recreational bait. They are, however, harvested for sale on the live fish market and, yes, it's a concern.

Management Question 4: Should there be an ASMFC-mandated commercial fish tagging program? Should the point of tagging be the point of harvest and/or the point of sale?

Yes, there should be a tagging program for commercial blackfish harvests similar to that for striped bass, with a specified number of tags allotted per license. The tagging program should explicitly permit fishermen to pen fish for future sale to *legally* leverage the live market. Finally, it should be impermissible to sell tautog harvested as bycatch in lobster pots.

Management Question 5: As a structure oriented-species, do you have regional habitat recommendations?

Yes. There should also be specialized regulations for habitats that combine large catch rates with few inherent restrictions on the catch. For example, the New Haven breakwall consistently produces a very high number of blackfish landings but exhibits a number of characteristics that make it ripe for abuse. Those characteristics include the fact that it is accessible without a boat, is sheltered from poor weather conditions, is relatively unaffected by strong tides, and can be visited several times a day by the same angler with little fear of being caught with multiple creel limits. There are several similar habitats within Connecticut and they should be treated differently than more typical fishing sites. Just as Connecticut has created "Enhanced Opportunity Shore Fishing Sites" to allow more generous regulations at certain sites, so too should it create more restrictive regulations for habitats that warrant them.

Management Question 6: What other changes should be made to the tautog fishery that are not covered by the topics included in this document?

ASMFC should consider the influence of other species on the tautog fishery. For example, it is perennially the case that the tautog fishery is heavily impacted by the black sea bass fishery, given the latter species' appetite and aggressiveness. Virtually every habitat that supports tautog also supports black sea bass – so small blackfish don't stand a chance of maturing and flourishing if the black sea bass population is not kept in check. Regulations on black sea bass should be loosened to foster the health of the tautog fishery.

I appreciate ASMFC's effort to solicit public comments regarding the PID for the Interstate Fishery Management Plan for Tautog.

Sincerely,

Captain Preston Glas
Helen III / Groton, CT

CC. David Simpson
Director, CT DEEP Marine Fisheries Division
Via email david.simpson@ct.gov

Ashton Harp October 22, 2015

Atlantic States Marine Fisheries Commission

Subject: Comments to Amendment 1 to the Tautog Fishery Management Plan

I am a recreational Tautog fisherman in the state of Virginia. I am submitting comments to the proposed Amendment for the management of Tautog .

1. Issue 1, Stock Management Area: Any option other than option 1(status quo) is my choice, I think regional approach is the best choice for Virginia.
2. Issue 3, Management Measures: The minimum size limits should be the same for recreational and commercial fishermen coast wide .
3. Each state should be able to manage their regulations to meet the target harvest
4. Other Issues: I support that there should be a mandated commercial tagging program, this would help minimize the unlawful commerce of the tautog and that the point of tagging should be the point of harvest. . I think that management community should evaluate the performance of each state plans that are submitted, to see if that the results are what they proposed, and should be held accountable for their performance, just like in summer flounder fishery. Management / technical community should evaluate the open season of each state to see it coincides with the spawning season of the tautog that is in their state. By keeping the spawn season closed it could possibility increase the success rate of the spawn.

James D. Agee
702 Lake Dale Way

Yorktown, VA

I do not support option 1 for Va.

Darrel Cummins

I fish in the Chesapeake Bay in Virginia. Virginia game fish tagging data shows that "our" population of tog does not migrate very much. A majority of tag returns are from the same general area where the fish was first caught. Option 1 is a terrible option for Virginia. I urge the ASMFC to not put Virginia into option one. I support option 2 or 3 for Virginia. Please put Virginia in option two or three.

Thanks,
--
Craig Freeman

Ashton, Thank You for your efforts on this. As a Virginia angler I would like to see Option 2 put into place.'Thank You,
Anthony L. Martin, President Bull Island Anglers Club in Poquoson, VA

I have reviewed the Tog PID and recommend ASMFC implement the following regarding tautog:

Implement regional management of tog with any option other than option 1. Out of all the options, I believe option 4 as the most viable.

I agree with the ASMFC goals and objective as stated.

I support current management structure implementing regional management of tog moving away from coast wide management. Allow each region to establish its own set of seasons and limits.

I support measures to rebuild stocks for those regions that are being overfished (which does not include Virginia).

An additional management measure recommended is to grant authority to regions (and/or states) to adjust tog season as necessary.

Thank you

T Tammaro
Mahi@cox.net
757 721-5574

Subject: Tautog Public Information Document (PID).

I have carefully reviewed the Tog PID and recommend ASMFC implement the following regarding tautog:

Issue #1. Implement regional management of tog with any option other than option 1. Out of all the options, I believe option 4 as definitely the most viable.

Issue #2. I agree with the ASMFC goals and objective as stated.

Issue #3. I support current management structure implementing regional management of tog moving away from coast wide management. Allow each region to establish its own set of seasons and limits.

Issue #4. I support measures to rebuild stocks for those regions that are being overfished (which does not include Virginia).

Issue #5. An additional management measure recommended is to grant authority to regions (and/or states) to adjust tog season as necessary to account for cold winters as tog do not bite in very cold water.

Thank you for your consideration on this matter.

Signed,

Alan Hoffman
14 Marwood Drive
Palmyra, Va. 22963
(434) 989-1444

I have reviewed the Tog PID and recommend ASMFC implement the following regarding tautog:

Issue #1. Implement regional management of tog with any option other than option 1. Out of all the options, I believe option 4 as the most viable.

Issue #2. I agree with the ASMFC goals and objective as stated.

Issue #3. I support current management structure implementing regional management of tog moving away from coast wide management. Allow each region to establish its own set of seasons and limits.

Issue #4. I support measures to rebuild stocks for those regions that are being overfished (which does not include Virginia).

Issue #5. An additional management measure recommended is to grant authority to regions (and/or states) to adjust tog season as necessary to account for cold winters as tog do not bite in very cold water.

Thank you for your consideration on this matter.

Signed, Charlie Davidson
8195 New Point Comfort Hwy
Port Haywood, Va. 23138

Dear Ashton,

I have been a saltwater angler fishing the lower Chesapeake Bay for over 20 years. All information I have ever seen on Tautog says that the fish are not migratory and tend to spend their long life in one general area. Because of this fact, I support the ASMFC in developing a management plan that breaks the populations of Tog and thus the catch regulations into separate regions (Options 2-4) rather than one coast wide stock (Option 1). I also, support the ability for agencies to regulate the fishery via addendum in order to act as quickly as possible to make changes to regulations as fishery data becomes available and warrants adjustment.

I appreciate the opportunity to provide input on these matters and hope that the ASMFC is successful in maintaining this valuable resource for the enjoyment and benefit of all.

Thanks,

Mike Wills

Dear Ms. Harp, Mr. O'Reilly & Mr. Cinimo,

I had planned to attend your meeting in Newport News last night. However, I was not able to make it due to a last minute scheduling conflict.

At your meeting I was to represent not only myself but also the Great Bridge Fisherman's Association. Our organization is over 100 members. At our meeting October 5, 2015 we discussed the proposed four options and it was a unanimous vote that option 1 NOT be selected. Tautog are not a migratory fish and there should not be a coast-wide stock assessment or management for the species.

Option 4 was voted by the members of The Great Bridge Fisherman's Association members as our preferred choice by a wide margin.

Our membership also observed that a few states were allowing fish as small as 15 inches to be kept. Also, many of the other states have larger bag limits and longer seasons.

Please copy me on public releases of information on the Tautog decisions and future meetings. I plan to attend future meetings as a liaison between your committee and The Great Bridge Fisherman's Association membership.

John Ermalinski

Dear Ms. Harp,

I'm a recreational angler that fishes the Chesapeake bay often. We have a great taug fishery in Virginia and I would like the ASMFC to take the following action in preserving that fishery;

- Move away from the coast-wide tautog management and shift to a regional stock management option. Specifically, I would like Option 4 as I believe it provides the most logical regional makeup for proactive fishery management.
- The Goals and Objective in the Public Information Document are clear and represent a good framework to improve the tautog fishery.
- Rebuilding timeframes and reference points should be tailored to each regional stock management area. Where overfishing is occurring the timeframes and reference points should reflect specific action to rebuild the stock in that management area.
- Shift away from the long-term Amendment process as toward the shorter Addendum process. A year is too long to have meaningful impact on the fishery. Using the Addendum process to affect change during the tautog season will have a dramatic impact to remedy overfishing instances and protect the fishery. Addendums to the Fishery Management Plan should be regionally focused to address fishery issues within that geographic area.
- Although not an issue in our coastal Virginia tautog fishery, the poaching of undersized fish for a commercial market or as bait should be stopped. I would like a commercial tagging program at the point of harvest for the live tautog market in areas where this is an issue. Tags similar to what we use for catch & release tagging are easy to implement and would discourage the harvesting of undersized live tautog in the market. This requirement is within the scope of the ASMFC to implement and should be done to prevent this illegal action.

Sincerely,

Dr. James Eisenhower
1262 W. Ocean View Ave. #7
Norfolk, Virginia, 23503

Virginia Saltwater Sportfishing Association, Inc. (VSSA)
P.O. Box 28898, Henrico, VA 23228
http://www.ifishva.org
A Non-Profit 501-C3 Organization
Representing All Virginia Recreational Saltwater Anglers

Atlantic States Marine Fisheries Commission
Ashton Sharp, Tog FMP Coordinator
1050 N. Highland St, Suite A-N
Arlington, VA 22201,

Subject: Tautog Public Information Document (PID). October 19, 2015

The Virginia Saltwater Sportsman Association (VSSA) is a new and growing organization of recreational fisherman in the Commonwealth of Virginia. Our mission includes representing the interests of Virginia's recreational saltwater anglers, ensuring the long-term sustainability of Virginia's fisheries, while protecting Virginia's marine, boat and tackle industry jobs.

VSSA has polled hundreds of anglers in Virginia and we highly recommend ASMFC implement the following regarding tautog:

Issue #1. Implement regional management of tog with any option other than option 1. VSSA prefers option 4 as the most viable.

Issue #2. VSSA supports the ASMFC goals and objective as stated. Recommend adding support independent fisheries research to better justify regulatory actions.

Issue #3. VSSA supports current management structure implementing regional management of tog moving away from coast wide management. Allow each region to establish its own set of seasons and limits.

Issue #4. VSSA supports measures to rebuild stocks for those regions that are being overfished (which does not include Virginia).

Issue #5. An additional management measure recommended is to grant authority to regions (and/or states) to adjust tog season as necessary to account for cold winters as tog do not bite in very cold water.

Thank you for your consideration on this matter. If you have any questions or comments, the best way to contact us is through our website or email, ifishva@gmail.com.

Sincerely,
Mike Avery
Mike Avery

Prepared comments for the ASMFC Public Hearing on the Interstate Fishery Management Plan for Tautog on October 6, 2015

Thank You, for allowing me to speak on this issue before the Commission.

My name is Will Bransom, I'm a retired Naval Officer, and I'm also the president of the Norfolk Anglers Club, more importantly I'm also an avid diver and fisherman.

I took the opportunity to meet with two other organizations, the Virginia Beach Anglers Club and the Great Bridge Fishing Association and surveyed their members on this issue. Taken together, it represents approximately 250 members that share the following opinion.

The Norfolk Anglers Club, Virginia Beach Anglers Club, and the Great Bridge Fishing Association support the following position;

1. We desire that Coast-wide management and Stock Assessments be revised to reflect 4 distinct Tautog regional stocks as reflected in Option 4. This provides for better fidelity of Tautog stock status and would provide the State Fishery Management Divisions in each of those regions more opportunity to manage the commercial and recreational fishery for their region based on meaningful data from their waters.

2. We endorse the Fishery Management Plan Goals & Objectives as drafted in the Interstate Fishery Management Plan without change.

3. We support the use of regional management efforts, to include the use of possession limits/size and seasonal closures established by State Fishery Management Divisions. Additionally, the continued use of gear restrictions and quotas for commercial Tautog fishery is also endorsed.

4. We support the application of Reference Points and Rebuilding Timeframes that are tailored to Stock Assessments at the Regional Stock Management level. As referenced in the 2015 Stock Assessment, Tautog is overfished and overfishing is occurring on a coast-wide basis, however, that is not the case in the De-Md-Va (NC) region. This highlights why selecting any Stock Management Option otherthan Coast-wide is important. Reference Points and Rebuilding Timeframes can most effectively be applied if done at the regional area where an issue has been identified.

5. We support the application of an Addendum over that of an Amendment process for revision of the Interstate Fishery Management Plan. Having an addendum process with a 3-6 month timeline for finalization is a preferred method over the much longer timeframe for an Amendment. Addendums to the IFMP should be applied is response to the Stock Assessments and other factors and based on Regional Stock management issues.

6. The issues of harvesting live undersize Tautog for the seafood restaurant business or for commercial fishing as bait are not activities known in our coastal Virginia fishery. We support the study and application

of a commercial (at point of harvest) tagging program for the commercial harvest of Tautog in regional areas where this activity is occurring.

In summary, I'd like to add that the Atlantic States Marine Fisheries Commission has a great opportunity to amend the Interstate Fishery Management Plan for Tautog. From one that considers a coast-wide assessment to one that takes into account the Tautog's limited north-south migration and unique life history to a regionalized management approach. The regional stock unit (Options 2 – 4) as management areas for Tautog is the right approach for the fishery and our combined club recommendation is for Option 4.

Membership (Family)

Norfolk Anglers Club – 50

Virginia Beach Anglers Club – 80

Great Bridge Fishing Association – 120

Jersey Coast Anglers Association
Working for Marine Recreational Anglers
1201 Route 37 East Suite 9 Toms River NJ 08753
TEL.: 732-506-6565 - FAX: 732-506-6975

Ashton Harp 10/22/15
1050 North Highland St., Suite 200 A-N
Arlington, Va. 22201

Dear Ashton,

The Jersey Coast Anglers Association represents approximately 75 clubs throughout our state. We appreciate this opportunity to comment on the public information document for Amendment 1 to the Interstate Fishery Management Plan for Tautog.

It is very disheartening to be told that tautog are overfished and that overfishing is occurring in most areas of the east coast. In fact from the perspective of most tautog fishermen in New Jersey, it is unbelievable. They report stellar fishing with some truly monster tog to over 20 lbs being caught as well as good representation of tog of all sizes. Most of us believe that our regulations are already far too restrictive.

Regarding the PID, JCAA supports Option 1, status quo with the fishery being managed as one stock from Massachusetts to Virginia. However, we would support the fishery being managed on a regional basis provided it could be done correctly. We urge you to further develop science to better determine the boundaries of the various stocks. By your own admission, options 2, 3 and 4 all present problems of some sort. Lets hold off on regionalization for now until you can get it right.

Many New Jersey fishermen are very skeptical of any regionalization plan for good reason. We were forced into a region against our will for fluke in 2014. The plan was supposed to alleviate the problem of neighboring states fishing essentially the same waters but having vastly different regulations. This was done to appease New York fishermen who had a higher size limit than New Jersey fishermen both of whom were fishing the NY bight area. However, in reality all the regionalization plan did was to transfer the problem to the Delaware Bay area. Now fishermen from Delaware fishing essentially the same waters as fishermen from NJ have only a 16" size limit and a much longer season, while NJ fishermen have an 18" size limit. How is that fair?

Regarding tautog, options 2 and 3 are unacceptable primarily because there is little biological connectivity between New Jersey and Connecticut and we would be fishing on different stocks.

As previously stated, we prefer option one but of the current regionalized plans, option 4 is the only one that makes some sense. However, at this time complete data is missing for this option which makes it hard to endorse. Additionally, if we were to endorse this option, it would be on a conditional basis. New York's regulations are far more restrictive than New Jersey's and we vehemently oppose our regulations being made more restrictive so that theirs can be relaxed. While it is nice to have compatible regulations between bordering states it is more important for each state to have the right to choose the regulations that are best for their fishermen. We suggest that if we do have regionalization it should be with State-by-State measures. Each region would be given a quota and within that region each state would be given a target quota. Target quotas

would be set and then adjusted accordingly when necessary to ensure that each state would continue to be allowed to harvest its traditional percentage share of the harvest. If the regional quota was exceeded, the state most responsible for causing it would have bare the brunt of it be having more restrictive regulations the following year. However, states would be encouraged to work together on this so that perhaps a longer term agreement could be reached.

Regarding other parts of the PID most of New Jersey's fishermen would be happy if the tautog fishery in the future remains as good as it is now. Of course we would like it to be even better. We are opposed to more restrictive regulations but urge that the environment and habitat be improved. For example we strongly support the creation, maintenance and expansion of artificial reefs. This is particularly important at this time as our government is destroying the marine environment. They are replenishing our beaches and in doing so are burying sand and calico crabs while at the same time they are also burying, notching or completely removing many of our jetties that were prime habitat for blackfish and other species. Worse still, they are using sand from many of our inshore lumps which are designated as "prime fishing areas" and are of crucial importance to forage and game fish alike.

We agree with most if not all of the listed goals and objectives. It is difficult to determine exactly which are the most important. However, Objectives A, B, E and I are near the top of the list. We are aware that there is a very significant problem with the illegal sale of live tautog primarily in Asian markets in large cities like New York. There is insufficient law enforcement there and we urge that more officers be hired and/or a special task force be created to combat this illegal activity. We also urge that harsher penalties should be created for all illegal fishing activity. For example a fish market that is selling illegal tautog should be shut down for a period of time rather than just being fined. To many of those who break our fisheries laws, fines are accepted just as a cost of doing business. This needs to change.

We disagree with your statement that law enforcement noted a significant number of hook and line fishermen using undersized tautog as live bait for striped bass. Statements like that hurt your credibility. Striper fishermen who use live bait prefer menhaden, mackerel, herring and eels. Tautog are rarely used and the amount that are used is miniscule. We suggest that this statement be removed from the Amendment or that proof be provided if you still believe it is a problem.

There are many other factors that are impacting the tautog population far more than striper fishermen using them for bait. Probably the most significant is the explosion and expansion of our sea bass populations. They are not only competing with tautog for food such as crabs but they are eating juvenile tautog. I have noted this in the sea bass I clean. Perhaps, a study should be done to see just how prevalent this problem is. Sea bass are negatively impacting our fluke fishery as well. Spiny dogfish have been "restored" and are negatively impacting the populations of more desirable species as well. We can't have all the desirable species at peak periods of abundance at the same time as there is simply not enough food for all of them. We favor a more sensible eco-system approach to fisheries management.

Thank you for your consideration in this matter.

Sincerely,

Paul Haertel, President
Jersey Coast Anglers Association

If we hope to increase the tautog spawning stock biomass we must stop fishing on the pre-spawning and spawning aggregations. From information in the PID it appears that all states except New Jersey allow commercial fishing during the spring spawning season. I feel that halting the fishery during this time period would be one of the best measures we can take to enhance the stocks.

Drew Kolek

Ashton,

I am a New Jersey blackfish angler. Please note my support for maintaining the current approach to blackfish management and NOT moving to regionalization. Regionalization would have a devastating impact on the New Jersey recreational and charter fishing sector and would not serve to improve the overall stock.

Thank you
Matt Conner

Ashton, I received your name as the contact for written comments relating to the current tog management measures that are being discussed. I know that the ASMFC is evaluating options for management of tautog, and of those options presented only one of them leaves the quota to be assessed and managed on a state by state basis. The others all regionalize the various states together in different groups. I am a firm believer that regionalizing New Jersey with the Northern states and New York serves only to benefit those states while penalizing New Jersey and its fishing related businesses. I am in FULL SUPPORT of continuing with status quo management status on tautog, and feel it is in the interest of New Jersey and her many fishing related businesses to allow the states to manage themselves instead of going with regionalization. We've already bore the brunt of poor management decisions based on lackluster information regarding black sea bass and summer flounder, and doing the same with tautog would cause even more damage to an already fraying thread that the fishing industry is precariously hanging from.

Thank You

John M Gonsorick

Concerned recreational fisherman

I run a private recreational fishing boat out of Cape May NJ and have been a recreational fisherman for over 30 years. ASMFC regionalization of blackfish would be devastating for NJ anglers. The current coastwide management of the species makes the most sense. NJ has over 100 miles of shoreline that make it physically the size of its own region. Lumping NJ with NY and CT is not the answer. Currently NY and CT are heavily fished fisheries… with CT taking more blackfish than NY and NJ combined. By lumping us with those states our fisherman and tackle stores would have to pay a penalty for the overfishing that is occurring in CT and NY. Another option to put Put NY outside of LI and NJ together is not a good choice either, currently there is no data on this option. Please consider the full affects of regionalizing blackfish management before making this important decision.
Thanks, Anthony Bruno

Ashton, I received your name as the contact for written comments relating to the current tog management measures that are being discussed. I know that the ASMFC is evaluating options for management of tautog, and of those options presented only one of them leaves the quota to be assessed and managed on a state by state basis. The others all regionalize the various states together in different groups.

I make my living by running a full time charter fishing company in Cape May, New Jersey. Fishing for tog is a huge component of our spring, fall, and winter business. Regionalizing with other states would cause us to lose a significant portion of our season, resulting in loss of trips and therefore revenue which would be devastating to my business on the heels of the fluke and sea bass regionalization which resulted in tremendous quota cuts and stiffer regulations for our state. I am a firm believer that regionalizing New Jersey with the Northern states and New York serves only to benefit those states while penalizing New Jersey and its fishing related businesses. I am in FULL SUPPORT of continuing with status quo management status on tautog, and feel it is in the interest of New Jersey and her many fishing related business to allow the states to manage themselves instead of going with regionalization. We've already bore the brunt of poor management decisions based on lackluster information regarding black sea bass and summer flounder, and doing the same with tautog would cause even more damage to an already fraying thread that the fishing industry is precariously hanging from.

Mark G Romano
Horizon Millwork Corp.
856-309-5775

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Thank you for your time and hope to hear back from you!

- Capt. Adam Crouthamel
ADAM BOMB SPORT FISHING

Mr. Harp
The purpose of this letter is to share my perspective on the current state of the tautog fishery in New Jersey.
The fishery does not need more stringent regulations. What it needs is much better enforcement of the existing rules and regulations. Additionally, what fisheries managers need is more credibility. Fisherman do not believe the science and data inputs being used to make the regulations.
Recreational fisherman including charter boat operators are facing dire consequences because of faulty data leading to incorrect and flawed outcomes.
The public information document states "90% of the harvest comes from recreational fishery". This is patently false. The largest issue facing tautog is poaching. The combination of $10+ per pound for live blackfish + a slow growing stock is a poor combination for stock sustainability. Please focus on enforcement or possession of live blackfish in china towns (NYC and Philadelphia). This will certainly help.
In table 5 of the document, the author shows commercial landings for NY and NJ combined are in an overall decline. Again, this is not the case. Take a trip any day to highland reef or 17 fathoms and you will quickly notice the majority of boats are " hanging nets". Within these nets are live blackfish. In case an enforcement office comes close, the captain sends the bag to the bottom in order to evade a fine.

Regionalization of the regulations does nothing to help the fishery. Please use the disaster created by regionalizing the fluke fishery. It was nothing short of a failure. The PID ADMITS this on page on page 10 " there is no biological evidence to determine where stock boundaries should be drawn". If that's the case, why waste time and effort of creating a boundary.
Additionally, I do not believe your stock assessment and harvest estimates. They can't possibly be correct. The overall average blackfish calculates out to be 4.3 pounds. That is exaggerated. The average size is lower. This is not surprising as the same faulty MRIP methodology is being used.
If you truly want to make the species flourish, I recommend you focus efforts on stock assessment and demand estimates. What you are using is not correct. This leads to fisherman ignoring your science and by extension the ever changing regulations.

Regards
Tom Trageser

NEW JERSEY COUNCIL OF DIVING CLUBS

P. O. Box 841
Eatontown, NJ 07724-0841
http://www.scubanj.org

Comments on the PID for Amendment 1
to the Interstate Fishery Plan
for Tautog Management

Ashton Harp, ASMFC
1050 North Highland St, Suite 200 A-N
Arlington, VA 22201

Dear Ms Harp:

The New Jersey Council of Diving Clubs (NJCDC) is an organization of 14 sport diving clubs in New Jersey with a few clubs in nearby states. Tautog is one of the big three fish (Fluke, Sea Bass, and Tautog) in the sport diver fishery in New Jersey. This does not include Lobster, which is very important in sport diver fishery. The NJCDC submits the following comments on Tautog Management.

Regarding regional management and stock management areas, the NJCDC would go along with Option 4– Grouping New Jersey with New York excluding Long Island Sound. LIS should be grouped with Connecticut.

However, the regional management concept should come with some stipulations. If you are rethinking Tautog management in a regional approach, the states constituting the region should have an opportunity to sit down and make their size, season and bag limit similar or nearly similar. In other words, if you look at page 17, New York and NJ regulations are completely different. One has a 15 and the other a 16 inch limit, one has Oct 5 through Dec 14 with a 4 bag limit season while NJ has a series of dates allowing for some shore fishing in the warmer months with a late or colder season offshore. This could create a situation where one state is overfished and one is not based on its current regulations.

Changing to a regional approach should allow for a clean slate to redesign conservation measures to be somewhat similar without regard to locking states into what they did in previous years, but still complying with conservation equivalency. I'm concerned that the regional management approach may mean that two states could be penalized if one states overfishes due to its different rules.

Regarding goals, maintaining spawning stock should mean don't take Tautog during the late spring and early summer spawning season. NJ does this for the recreational fishery, but not for the commercial fishery. I received an E mail from a friend of mine who is a party boat captain out of Atlantic Highlands that said, "there is a large commercial fishery - potters and roller netters - in Raritan Bay during the Tautog spawning season in the spring which takes tens of thousands of pounds of ripe spawners each spring" .

To provide for the conservation, restoration, enhancement of Tautog critical habitat is very important. Unfortunately, NJ does not do that. Jetties have been identified as critical habitat for tautog, especially south of Elberon where there is virtually no offshore rock structure. I used to spearfish certain jetties and can attest to the importance of the ends of jetties and sunken jetties as Tautog habitat in the warmer months. But the craze for beach replenishment now means the ends of jetties are only two or three feet deep. Sand replenishment is also destroying the offshore lumps, which is prime fish habitat, in its never ending search for borrow areas. I dove a borrow area once to investigate a hopper dredge hitting part of a wreck, and found an unending landscape of 5 foot deep furrows and not a single living thing with the one exception being a few sea bass under the broken piece of wreckage.

The larger older female Tautog are supposed to produce the most eggs, and that would suggest to me a larger size limit as a standard in the ocean.

Regarding reference points and time frames, I have reservations about rushing in to change reference points based on just the latest stock assessment, peer reviewed or not! These stock assessments are not infallible, are often just educated guesses, and rushing into making radical changes based on the latest flawed survey does not make sense! Stock rebuilding timeframes should be flexible and allow adequate time. They should not be based on unrealistic time frames.

Regarding other issues, the PID mentioned Adaptive Management, but I prefer the amendment process. States need time to get rules changed either through rules or laws. I did not like the reference to area closures that can devastate both recreational and commercial boaters that are unlucky enough to be based opposite such an area. You do need to address the illegal fishery as my Atlantic Highlands friend says, "Everyone and his brother has bags of live tog hanging over the sides of their boats going to the oriental market both in and out of season. Ban the sale of live Tautog."

Sincerely,

Jack Fullmer
Legislative Committee

Please reply directly to:

Jack Fullmer
443 Chesterfield-Arneytown Rd
Allentown, NJ 08501 jf2983182@msn.com

HI-MAR STRIPER CLUB INC.

P.O. BOX 126 • MIDDLETOWN, NJ 07748

October 15, 2015

Mr. Ashton Harp

Atlantic States Marine Fisheries Commission

1050 North Highland St., Suite 200 A-N

Arlington, VA 22201

Reference: Tautog Public Information Document

Dear Sir:

This letter of comment is being sent by the Hi-Mar Striper Club. We are a fishing club with 43 members, based in Monmouth County, New Jersey. Our comments to Public Information Document for Amendment to the Interstate Fishery Management Plan for Tautog are as follows:

- Contrary to the information contained in the PID, we do not believe Tautog should be managed on a regional basis because they do not migrate north to south, but inshore and offshore, as the PID states, tending to stay near and return to their homes. Management should be on a local, statewide basis, with the proper resources provided to each state to properly manage this species. Regional management may cause a state to be unjustly "punished" because another state within the region overfished its quota.

- Hi-Mar Striper Club's choice for stock management is Option 1 (Status Quo).

- To promote proper and effective mamgement of Tautog the ASMFC and other agencies should prevent the use of certain catch methods used by commercial fishing, such as fish pots and traps to discourage catching of undersized live fish, and the use of gear that disrupts and destroys the habitat, such as roller nets.

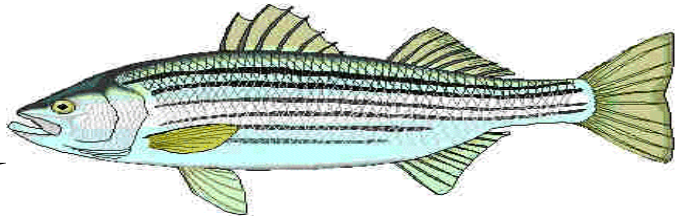
Thank you for the opportunity to provide these comments.

Stephen M. Machalaba

Secretary, Hi-Mar Striper Club (smachalaba@aol.com)

cc: C. Campi, President, Hi-Mar Striper Club

GATEWAY STRIPER CLUB, INC.



October 23, 2015

Ashton Harp
1050 North Highland St.
Suite 200 A-N
Arlington, VA 22201
Email: aharp@asmfc.org

RE: Tautog (PID) - Comments

Dear Ashton Harp:

The Gateway Striper Club is concerned about the status of the tautog (blackfish) fishery. In fact, recreational fisherman and their organizations on the east coast have been concerned since the 1980s when the non-traditional practice of potting for Tautog began and the resulting simultaneous decline of the fishery.

It appears that requests for quick and stringent restrictions on what was a traditionally recreational species gained little traction. The population continued to decline and the number of older larger specimens declined. As the public document correctly points out, blackfish and long-lived and slow growing. Thus we were dumbfounded by the failure of managers to take speedy and dramatic action.

The Gateway Striper club applauds the intentions of the ASMFC to finally move management from lip-service to meaningful plan and take effective measures that actually have a chance of restoring the population to traditional levels of abundance and age distribution. We believe the F target=0.10 value will restore the fishery over several decades, yet recent history (2011-prestn) suggests that without drastic action this mortality rate will not be met. We believe the most important issues on the table, and consequently those that have the best chance of restoring the fishery, are to ban potting and the live fish market.

Responses to issues:

Issue 1: Stock Management Areas – We support Option 1: Coast-wide management
Issue 2: Fishery Management Goals and Objectives – Management questions: 1. Are the goals and objectives still appropriate? Yes, but regulations need to be changed and

enforcement stepped up to achieve F=0.10. 2. What changes to the goals and objective are needed." Goals and objectives (F and I) need to embrace more stringent regulations. That include a higher size limit, lower bag limit and the end of potting. 3. Which 5 goals and objective are the most important: We believe: A, D, E, F and I.
Issue 3: Management Measures- Management questions: 1. Do you support regional management of Tautog? NO – we support timeframes based upon the biology of the species, In this case related to the fact that the species is slow growing and long lived in order for the species to have the opportunity to recover as soon as possible. Issue 5: other issues. The overall questions presented in this section of the document is "How would you like the Tautog fishery and resource to look in the future?" We would like to restore the fishery to levels that existed prior to the introduction of potting for blackfish and the rise of the live fish market. That means we'd like the stocks to return to levels of abundance and age distribution prior to potting.

Management questions:

Question 1. Yes
Question 2 a. Yes
Question 4: Yes

2. a) Size limits
   b) Bag limits
3. a) Increase size limit
   b) Decrease bag limit
4. a) Yes, end potting and the live blackfish market

Issue 4: Management questions – 1. No, we do not support coast-wide reference points. If coast-wide reference point are used, then yes we support that approach. 2) NO, We support the use of overall coastal reference points. 3) We support a) Hook and line harvest only, with strict controls on numbers and size limits. B) Eliminate potting and the live fish market. C) Tagging should be done at the point of harvest. Yes

5. Build more reefs on the south shore and add to old ones.

6. End the potting and live market for blackfish. Reason: There was no problems with blackfish stocks prior to the use of potting and the live fish market.

Sincerely,

Gene Ander
Corresponding Secretary.
Email: geneander@optimum.net

October 21, 2015

SUBJECT: TAUTOG PID

Dear Mr. Harp

After our Regional Directors, Ron Sineo and Charles Bevilacqua, attended the September 28th ASMFC public information meeting on amending the regulations for tautog, the NYS Conservation Council has made the following observations and recommendations:

Information provided at this meeting identified that tautog along the Atlantic Coast are being overfished. Furthermore, they are not migratory in the same way that most other species are. Instead of travelling hundreds of miles up and down the coast, they tend to migrate inshore then offshore. There is also apparently great fidelity to local seasonal sites. That said, the proposed amendment with each of its options for consideration seems to attempt to solve the overfishing problem at the expense of those states that are not overfishing. On page 9 of the ASMFC public document, they admit that coast-wide, Massachusetts, Rhode Island, and Connecticut are the states that are experiencing overfishing. In each of the proposed options, New York State is not currently experiencing overfishing. Yet in each option it is clear that NY fisherman will be restricted further than they currently are under the existing coast-wide management plan.

The ASMFC has determined that recreational fishermen are responsible for 90% of the tautog catch. On page 17 of the PID, Table 3A indicates that Massachusetts has a 365 day season on tautog; Rhode Island a 150 day season; and Connecticut a 150 day season. New York has a mere 55 day season. Each of these states has the same size limit of 16 inches. How is this equitable, given that Mass., R.I. and Conn. are all being overfished?

It is therefore our recommendation that none of the new options be selected, and that we maintain the status quo until such time as an option is put forth to address the overfishing of Massachusetts, Rhode Island, and Connecticut.

The ASMFC is the federal government's representative in this management, yet the enforcement of these regulations is left largely to the individual states! In New York's case there are around 500 miles of coastline which the DEC Division of Marine Resources Law Enforcement is required to enforce. The current Law Enforcement staffing in Regions 1, 2 & 3 is not sufficient to patrol the extensive NY coastline. Clearly the federal government should provide additional funding to protect the fishery. Lastly, with regard to the issue of mandated commercial fish tagging, we do not support this notion for tautog, because legal NYS fishermen who bring tautog to market do so while the fish is still alive. The Asian market pays a premium for live fish. Tagging tautog causes mortality, and therefore reduces its market value.

Sincerely,

NYS CONSERVATION COUNCIL, INC.

A. Charles Parker

A. Charles Parker
President

As the representative of The North Fork Captains Association from Long Island New York I would like to put forth our position regarding Tautog. At this time our position would be to maintain the status quo. We do not feel that there is enough data available at this time to make changes. Making decisions to change to something like regional management or any other new plan based on insufficient data is never a good thing. We respect your efforts but feel we should maintain the status quo. Thank you.

Captain Robert W. Busby
President
North Fork Captains Association

I don't have a problem with commercial fishermen keeping 25 fish a day, but let them catch them like everyone else has to. Pots catch 24 hrs a day, 7 days a week. These 'fishermen' cull out the bigger fish and even let the other pots hold fish for the next day. That is not fishing, that is just wrong. I know commercial fishermen who are against this practice, because when they fish (by actually going out there and using rod and reel) they have a hard time reaching their limit. If you do the math, with 25 fish a day being harvested during the 330 day season, that's 1 commercial fisherman keeping over 8000 fish (that they get to freely pick). I know guys that consider setting out 10 times in the season (due to weather wind and sea conditions) as being lucky. An average rod-and-reel fisherman might get out 15 times in the course of the season. I have a friend that went out yesterday and caught over 70 blackfish, but only ONE keeper which was just 16 inches. Yet there were hundreds of pots in the area he was fishing.

I am attempting to have all my friends and colleagues comment on the situation so you have a better understanding on how bad this is really getting. Every year the sizes of keepers diminishes; this is ecologically and commercially unsustainable in the worst way. I am asking you to really look into this matter before it is too late.

If you would like to contact me and discuss this matter further, my name is Gary Stephens and my phone number is 516-769-0242. Again, I would greatly appreciate it if someone would respond and investigate this issue. THANK YOU

Sent from my iPhone thanks Gary stephens

To Whom It May Concern:

I have read and disagree with the DEC findings that the Tautog/Blackfish population is being destroyed via the fisherman using rod and reel. I have fished the north shore of the Long Island Sound for Tautog/Blackfish since the age of eight 8 and I am now just about to turn sixty five 65 God willing. Certainly part of the problem is the catching and keeping of short undersized fish that never have the opportunity to spawn. I would suggest a fine of at least $100 per fish for anyone in possession of undersized fish along with confiscating there equipment until the fine is paid. Establish a phone number for the reporting of any such instance particularly for party boat and private boat fishing where the appropriate law enforcement agency can take action. If people know that anyone can report abuse they will tend to avoid being abusive.Now just in the last ten 10 years the Long Island Sound North Shore has been devastated with fish traps. From what I have been told there are No limits on fish traps. How is that possible? What has happened is we now have a great demand for Tautog/Blackfish in restaurants up and down the Eastern seaboard however they want these fish live. The traps are set to allow the smaller fish to escape and hold the larger fish hence the problem with repopulation. Is anyone checking what is being kept and what is being released? We are now and have been destroying our fisheries for as long as I can remember. We did it with winter flounder, bass, fluke and numerous other species. The reason for the destruction always comes back to the same issue greed. The all mighty dollar. Perhaps a complete fishing ban on Tautog/Blackfish for a year or two will allow the population to reestablish itself and eliminate some of these money fish traps. The bottom line is something has to be done before it is too late. I'm happy to see that we are finally beginning to see the error of our ways and hopefully we will take appropriate action for future generations to enjoy this our fishery.
P.S. I personally would have no problem in reporting abuse.

Respectfully,
James E. Watson

Ashton Harp

1050 North Highland St., Suite 200 A-N

Arlington, VA 22201

Fax: (703) 842-0741

aharp@asmfc.org (subject line: Tautog PID)

ISSUE 1: STOCK MANAGEMENT AREAS Vote for OPTION #3

ISSUE 2: FISHERY MANAGEMENT PLAN GOALS AND OBJECTIVES :

What changes to the goals and objectives need to be made to reflect the needs of the fishery and the resource?

Which fobjectives do you feel are the most important?

· To identify critical habitats and environmental factors that support or limit long-term maintenance and productivity of sustainable tautog populations. (REEF RE-BUILDING / REEF ADDITION in the waters of Long Island as what is being done in the southern regions Maryland, Delaware)

· To encourage sufficient monitoring of the resource and collection of additional data. Effective stock assessment…. (If Option 3, ensuring data is shared with the other state regions)

· To allow harvest that maintains spawning stock biomass (SSB) in a condition that provides for perpetuation of self-sustaining spawning stocks in each spawning area, based on maintain young-of-the-year indices, SSB, size and age structure, or other measures of spawning success at or above historical levels as established in the plan. (A balanced Size and Bag Limit that IS NOT universal to each region).

ISSUE 3: MANAGEMENT MEASURES

Do you support the use of regional management measures? YES as indicated by my support of OPTION #3

· Are there management measures that can be improved upon to better achieve management goals and objectives? Are there additional state management efforts that should b included in the FMP? (BAN the use ofPOTS & TRAPS in the commercial sector of the fishery. Pots and Traps Fish 365 days/ 24 hrs a year!!! Where a hook and line commercial fisherman can be restricted by other factors such as weather. Furthermore Traps do not discriminate on the size of the fish. They CATCH EVERYTHING.

ISSUE 4: REFERENCE POINTS AND REBUILDING TIME FRAMES:

Do you support stock rebuilding timeframes that correspond to the needs of each regional management area (i.e. time framesthat are based upon respective stock condition relative to their regional reference points)?

· YES and time frames SHOULD correspond to their respective Region, Meaning not a “one size fits all approach” and every region is bound by whatever recommendation is set forth.

ISSUE 5: OTHER ISSUES :

Illegal fishing of undersized tautog:The live fish market Demand in the NY,NJ,CT area exasperates this illegal black market. A proposal to combat this issue is to enact a law forbidding the sale of LIVE fish. Meaning any Tautog commercially caught must be killed and bled. And again going back to my earlier proposal: banning the use of Traps & Cages in the commercial arena would also help.

Should there be an ASMFC mandated commercial fish tagging program to minimize the unlawful commerce of tautog and provide traceability of all fish in commerce back to the state of origin? This is an interesting proposal and I would support it as I believe this would discourage the illegal harvest of blackfish but also would help in scientific data research.

What other changes should be made to the tautog fishery that are not covered by the topics included in this document?

I believe that MAN MADE Reef rebuilding/ Reef introduction would tremendously help not only the tautog population. But also other fisheries such as Black Sea Bass, Scup, and Cod. All of which aggregate around structured habitat. Manmade reefs provide the base for coral growth as well as shelter for plankton, crustaceans, mussels and oysters all eventually becoming part of the food chain.

Best Regards
JOHANN SCHULTZ

In response to ASMFC's request for input into Tautog management, I respectfully submit the following comments:

1. Regionalization is very important to the management of this fishery. Please adopt compatible and equitable management measures throughout a fishery management unit. The present hodgepodge of state-by-state regulation is confusing, and the fact that the fishery is overfished suggests that the present regulations are not working.

2. Regarding the question on how you would like the Tautog fishery to look in the future, I offer a simple solution: Try to turn back the clock. Please find a management strategy that returns Tautog to a primarily recreational fishery. Tautog was not overfished when the resource was primarily harvested by recreational fishers. The present high-market value has created an explosion of directed effort on this fishery. At one time Tautog was an incidental catch in the commercial fishery, and the fish was often not even shipped to market because of low market returns, which often exceeded the cost of shipping. (See page 7 of PID, Tautog value return was 0.03 per lb. in 1962!)

3. Since I am a New York fisherman, I would recommend the following suggestions:
A. Consider reducing the nearly year-round commercial fishery season in New York. Adopt similar regulation as in Connecticut and Rhode Island.
B. ASMFC should mandate a commercial fish-tagging program at point of harvest and point of sale. This tool would allow for future quota management and give a more accurate measure of legitimate commercial sale.
C. New York should consider adopting similar/comparable recreation and commercial regulations as Connecticut. Consider a two-fish recreational possession limit for April 1-30. Consider adopting the same commercial size regulation as Connecticut, i.e., 16 inches. Consider reducing the New York commercial possession limit to 10 fish with a mandatory tagging requirement.
D. New York should consider reducing the recreational possession limit to three fish during the fall and two fish during the proposed April 1-30. The present recreational possession limit of four fish is often unachievable at the present level of stock abundance and simply does not work when fish are co-mingled among anglers.

4. Which management area approach do you support? I believe option 3 offers the best approach, considering the available data. Option 4 may be worthy when additional analysis becomes available.

Thank you for allowing my input in the management of this important resource.

Chester Zawacki
New York DEC, retired

ASHTON - PLEASE PASS THIS ALONG TO THE OTHER AP & TANTOG BOARD MEMBERS

THANK YOU

LOOK FORWARD TO MEETING YOU ON 09/28

John G. Mihale
153 California Place North
Island Park, NY 11558

09/23/2015

ASHTON HARP
ASMFC
1050 NORTH HIGHLAND ST.
SUITE 200 A-N
ARLINGTON VA 22201

TAUTOG PID

My RECOMMENDATION IS OPTION 1 STATUS QUO

THE FOLLOWING INFORMATION FROM THE ORIGINAL TAUTOG MANAGEMENT PLAN OF APRIL 1996 AND THE PID OF AUGUST 2015 EXPLAIN MY RATIONALE FOR THIS RECOMMENDATION.

1- THE ORIGINAL MANAGEMENT PLAN FOR TAUTOG OF APRIL 1996 WAS NOT FULLY IMPLEMENTED UNTIL JAN 1 2012 ALTHOUGH ALL STATES HAD INCREASED THE MINIMUM SIZE LIMIT TO AT LEAST 14" BY 1996, (AS REQUIRED BY THE PLAN) THE IMPLEMENTATION OF THE REQUIRED FISHING MORTALITY TARGET OF F 0.15 WAS NOT ACHIEVED UNTIL JAN 1, 2012 IN EFFECT THE FULLY COMPLIANT MANAGEMENT PLAN FOR TAUTOG HAS BEEN IN EFFECT FOR LESS THAN FOUR YEARS.

SOME OF THE FACTS PRESENTED TO US IN THE ORIGINAL TAUTOG MANAGEMENT PLAN OF OF APRIL 1996 ARE:

A- FROM PAGE 5 "TAUTOG NORMALLY REACH SEXUAL MATURITY AT 3-4 YEARS OF AGE (7-12") ALTHOUGH THERE ARE SOME SEXUALLY MATURE

2 YEAR OLD FISH.

B - FROM PAGE 6 " IN RHODE ISLAND WATERS THE MEAN LENGTH OF A SEVEN YEAR OLD MALE WAS 14.1 INCHES WHILE A FEMALE WAS 13.2 INCHES"

C - ALSO FROM PAGE 6 " OPTIMUM SIZE FOR FEMALE EGG PRODUCTION HAS BEEN ESTIMATED AT 14-16 INCHES"

D - FROM PAGE 7 TABLE 1 TAUTOG LENGTH AT AGE RELATIONSHIP

4 YEAR OLD TAUTOG IS 10.5"
5 " " " IS 12.5"
6 " " " IS 14 "
7 " " " IS 15.5"
8 " " " IS 17"

2 - IT IS THEREFORE EXTREMELY UNLIKELY THAT ANY OF THE TAUTOG THAT HAVE COME INTO EXISTENCE SINCE JAN 1, 2012 HAVE COME CLOSE TO THE 15"-16" MINIMUM LEGAL SIZE LIMIT TO BE HARVESTED AND THE OPTIMUM SIZE FOR FEMALE EGG PRODUCTION (SEE C ABOVE).

IT SEEMS LIKELY THAT MOST OF THE TAUTOG THAT HAVE COME INTO EXISTENCE SINCE JANUARY 1, 2012, ARE JUST BEGINNING TO ENTER THE REPRODUCTIVE PHASE OF THEIR LIVES. " TAUTOG NORMALLY REACH SEXUAL MATURITY AT 3-4 YEARS OF AGE 7-12"

THIS SUGGESTS TO ME THAT WE HAVE NOT GIVEN ADDENDUM VI SUFFICIENT TIME TO BEGIN TO INCREASE THE STOCK. WE NEED TO BE VIGILANT BUT WE ALSO NEED TO BE PATIENT.

3- EVEN IF THE COMMISSION DECIDES TO PROCEED WITH A REGIONAL APPROACH (WHICH I AM AGAINST) THEY SHOULD DO IT FOR THE RECREATIONAL FISHERY ONLY. IT WILL BE EXTREMELY DIFFICULT TO TRY TO COMBINE THE COMMERCIAL FISHERIES OF STATES WITH DIFFERENT SIZE POSSESSION AND OPEN SEASONS.

E.G. NEW YORKS COMMERCIAL FISHERY HAS A 327 DAY OPEN SEASON AND A MAXIMUM POSSESSION LIMIT OF 25 FISH. THE 25 FISH MAXIMUM POSSESSION LIMIT IS A STATE LAW WHICH CANNOT BE INCREASED BY THE NY STATE DEC

NEW JERSEY HAS AN 88 DAY OPEN SEASON AND SOME OF THE COMMERCIAL FISHERMEN HAVE NO LIMIT ON THE NUMBER OF TAUTOG THEY CAN HARVEST DURING THEIR OPEN SEASONS

AGAIN MY RECOMMENDATION IS OPTION 1 STATUS QUO

RESPECTFULLY

John G. Mihale
153 California Place North
Island Park, NY 11558

1075 Tooker Avenue
West Babylon, NY 11704
September 28, 2015

Ashton Harp
Atlantic States Marine Fisheries Commission
1050 North Highland Street, Suite 200 A-N
Arlington, VA 22201

Dear Ms. Harp:

Thank you for the opportunity to comment on future approaches to tautog management,.

I have been a participant in the tautog fishery since the early 1960s, first in western Long Island Sound and then, beginning in 1984, on the South Shore of New York's Long Island. During those fifty years, I have witnessed a sharp decline in both the quality of the fishery and the opportunities provided to tautog anglers. My suggestions for rebuilding and managing the fishery follow.

ISSUE 1: STOCK MANAGEMENT AREAS

Regional management measures should be adopted, based on Option 3, which groups Connecticut with New York and New Jersey, and does not split Long Island Sound

The most recent tautog stock assessment notes that "the Tautog [Technical Committee] has determined that the 'coastwide' stock unit is inappropriate...the Tautog TC determined that regions of MA-CT, NY-NJ, and DE-NC would be most appropriate." However, "the Technical Committee expressed concern that this preferred regionalization splits Long Island Sound between the [Southern New England] and NY-NJ regions, so a highly regarded alternative regional breakdown moves CT from the [Southern New England] to the NY-NJ region."[1]

Option 3 represents such "highly regarded alternative regional breakdown," and should be the option selected for tautog management, as it is the only option, other than Option 1, which maintains the status quo, and does not split Long Island Sound into two separate regions.

Maintaining Long Island Sound within a single management region should be one of the goals of the *Fishery Management Plan for Tautog* (the "Management Plan"), as such Management Plan may be amended or otherwise supplemented from time to time. As an angler who spent the first twenty-five years of my angling life fishing almost exclusively in western Long Island Sound, and who still fishes the region on occasion, I can assure the Atlantic States Marine Fisheries Commission ("ASMFC") and its Tautog Management Board (the "Management Board") that tautog anglers in Long Island Sound, and

[1] Atlantic States Marine Fisheries Commission, *Tautog Benchmark Stock Assessment and Peer Review Reports*, February 2015, p. 13.

particularly those from New York State, travel widely and do not restrict themselves to fishing within their own state's waters.

Although there is some good tautog habitat on the North Shore of Long Island, the majority of the best fishing grounds lie in Connecticut waters. Thus, in the waters where I most often fished, which ran from the Connecticut/New York border to the Norwalk (Connecticut) Islands, one normally fished alongside party boats that docked in New Rochelle, City Island and Huntington, New York, as well as with many private vessels registered in New York State.

The same situation continues today.

Thus, it makes no sense at all to divide Long Island Sound into two different regions, as such division does not reflect the way anglers actually utilize Long Island Sound's tautog resource.

Option 4, which creates a special management region for Long Island Sound, acknowledges that body of water should have unified management, but would create real-world law enforcement issues. Having two different sets of regulations for the same state, as would occur in New York and perhaps in eastern Connecticut, could easily lead to angler confusion.

However, Option 3 raises the issue of including Connecticut in a region with New Jersey even though, as the *Public Information Document for Amendment 1 to the Interstate Fishery Management Plan For Tautog* (the "PID") points out, fishermen in Connecticut and New Jersey do not fish on the same tautog stock.[2]

The only way to answer such objection is to take a practical approach. No region would be perfect in all respects. Grouping Connecticut with the other New England states and New York only with New Jersey would split Long Island Sound. Creating a special management region would make stock assessments difficult and create two different sets of regulations, and potential law enforcement issues, within New York State. And should New York were grouped with the New England states in order to keep Long Island Sound in one region, an option that has not been suggested, it would create problems where New York shares a common fishery with New Jersey.

Thus, ASMFC must select the best, if still imperfect option. That is Option 3, which eliminates shared-waters issues in Long Island Sound for Connecticut and New York, and in the ocean for New York and New Jersey. Theoretically, it might cause a shared-waters issue for New Jersey in Delaware Bay, but given that the tautog fishery in Delaware so small that Delaware was granted *de minimus* status this year,[3] such issue is far more theoretical than real.

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[2] Atlantic States Marine Fisheries Commission, *Public Information Document for Amendment 1 to the Interstate Fishery Management Plan for Tautog*, August 2015, p. 11.

[3] *Ibid.*, p. 6

ISSUE 2: FISHERY MANAGEMENT PLAN GOALS AND OBJECTIVES

The goals and objectives presented in the PID are generally proper and appropriate, although some must be modified.

The goals and objectives of the Management Plan, as set forth in pages 11-12 of the PID are generally proper and appropriate and, if achieved, would probably lead to a rebuilt and sustainably managed tautog population. However, there are certain points that require revision or additional consideration.

A

Goal B's stated use of 1982-1991 to determine "utilization patterns and proportions of catch taken by commercial and recreational harvesters" should be updated to reflect changes that have occurred in the fishery over the past thirty years

Fisheries allocation data should reflect the current state of the fishery and the state off the fishery that managers envision for the future; it should not be permanently locked into past harvest patterns that may have no relation to today's biological, oceanographic or demographic conditions.

Using a data from 1982-1991 might have been barely justifiable in 1996, when the initial Management Plan was drafted. However, it is not justifiable today, when the data from that time period is from 24 to 33 years old. It should be replaced with data that reflects today's conditions.

Furthermore, those 1982-1991 base years include most of the harvest period from 1987 through 1992, a period when, according to the *Tautog Benchmark Stock Assessment and Peer Review Reports* (the "Benchmark Assessment"), "harvest levels were unsustainable."[4] Base years should not include periods of known unsustainability.

The data from the current 1982-1991 base years are also skewed by questionable recreational landings estimates for 1986, which approached 17 million pounds, nearly twice the landings in any other year in the entire 1981-2014 time series. The Benchmark Assessment refers to 1986 as "a unique year in which recreational harvest in Massachusetts was unusually high,"[5] which should probably be viewed as the assessors' understated criticism of the 1986 estimate. Base years should also not include such clearly erroneous data.

The Management Board should instead select more recent base years that better reflect today's fishery. As a practical matter, that will make little difference with respect to allocation. During the period 1982-1991, the de facto allocation was about 90% recreational, 10% commercial, whether or not the 1986 data was taken into account. Updating the base years to 2009-2013, the last five-year period

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[4] ASMFC, *Tautog Benchmark Stock Assessment*, p. 16
[5] *Ibid.*, p. 15

for which both recreational and commercial landings data is available, only shifts the allocation by a single percentage point, to 91% recreational, 9% commercial.[6]

However, by resetting the base years, the Management Board will set an important precedent that shows its willingness to adapt management measures that change with changing conditions in the tautog fishery, and not mire itself in harvest and usage patterns that prevailed in the past.

B

More emphasis needs to be placed on Objective D and, in particular, in controlling tautog harvest in federal waters

In order to better coordinate federal landings with state regulatory frameworks, ASMFC should work with the National Marine Fisheries Service to institute federal regulations that would, at a minimum, 1) require any fisherman participating in the fishery to hold all state licenses that would be required of such fisherman in the water of his or her home state and the state which the vessel departed when making the relevant trip and 2) require each fisherman to abide by the more restrictive of the tautog regulations in his or her home state or the state which the vessel departed when making the relevant trip.

ISSUE 3: MANAGEMENT MEASURES

ASMFC must adopt science-based management measures which promptly end overfishing and begin the timely rebuilding of overfished stocks.

To be blunt, ASMFC and the Management Board should be embarrassed of its failure to rebuild blackfish stocks and the hesitant manner in which it has adopted management measures.

As acknowledged in the PID, ASMFC and the Management Board were fully aware of the need to reduce fishing mortality to 0.15 by 1996, if not earlier. However, ***fully nineteen years*** after it was made aware of that fact, it has still failed to do so. The Benchmark Assessment informs us that as of 2013, fishing mortality was still at the very unacceptable level of 0.30.[7]

The fishing public should be outraged at such failure to constrain harvest, and ASMFC and the Management Board should be embarrassed by their demonstrated inability or unwillingness to begin the recovery of the stock, even though nearly two decades have passed.

Much of the failure is due to the Management Board's unwillingness to end overfishing. As mentioned earlier, it knew in 1996 that fishing mortality had to be reduced to 0.15; however, it decided to wait—to let overfishing continue—until 1999 before reducing fishing mortality to 0.15. A year later, it

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[6] Allocation percentages derived from data obtained from the National Marine Fisheries Service's websites http://www.st.nmfs.noaa.gov/commercial-fisheries/commercial-landings/annual-landings/index for commercial data and https://www.st.nmfs.noaa.gov/SASStoredProcess/do? For recreational data.

[7] ASMFC, *Public Information Document,* pp. 4-5.

extended the deadline to the year 2000. Two years after that, it extended the deadline again, to allow two more years of overfishing. And that was only the beginning. It was not until 2011 that the Management Board finally required states to adopt regulations that might actually reduce fishing mortality to 0.15, and even then, as the Benchmark Assessment shows, those regulations were not tough enough to get the job done.

If ASMFC is to meet its obligation to restore and sustainably manage the tautog stock, it must completely overhaul its management approach and adopt the following approach.

For both the commercial and recreational fisheries:

1. Set an annual catch limit for each sector, denominated in pounds. "Soft" catch limits based on estimated fishing mortality are not effective, particularly in the case of a badly overfished stock and/or one that is still experiencing overfishing, since they require substantial retroactive analysis of both landings and tautog abundance to determine whether the F_{target} and/or $F_{threshold}$ were exceeded. It is far faster and easier to determine whether harvest exceeded hard-poundage catch limits, by simply referring to commercial landings data and the Marine Recreational Information Program ("MRIP").
2. Base regulations, and the annual catch limit, on a reasonable probability that they will not lead to overfishing and will, in fact, help to rebuild the stock. A 50% chance of success—a management effort that is as likely to fail as succeed—is NOT acceptable. The Management Board should be seeking to adopt measures with a 60 to 75 percent chance of success.
3. Overfishing must be ended immediately, not with a three-year, six-year or, in the case of tautog, sixteen-year phase-in before mandated (but still inadequate) measures are put in place. Yes, people will complain of "socio-economic impacts" if managers live up to their responsibilities. But that is inevitable, because such impacts will always occur in the short term when harvest is meaningfully reduced, and unless harvest is meaningfully reduced, the fishery will never be restored. However, the short-term economic impacts caused by meaningful regulation will, in the long term, be more than offset by the benefits of fishing on a fully-restored stock.

In the recreational fishery:

1. Accountability measures adequate to deter overfishing and remediate its effects when it occurs should be put in place. Today, with the "soft" fishing mortality targets used to manage the fishery, there is no real incentive for states to devise measures that will reduce harvest to the fishing mortality target. Instead, they reap short-term benefits by proposing regulations, based on notoriously imprecise single-state and single-wave data, that incorporate the greatest level of risk that ASMFC's Tautog Technical Committee (the "Technical Committee") might approve. Then, if the state exceeds the fishing mortality target, it faces no sanction; it must merely adopt the more restrictive regulations that it should have put in place in the first place. Accountability measures that require sanctions such as quota paybacks, should the fishing mortality threshold be exceeded, would provide far more incentive for states to adopt more appropriate regulations without first attempting to game the conservation equivalency system.

2. No recreational fishing should take place in Wave 1 unless recreational harvest data, which the Technical Committee determines is at least as precise as the MRIP data available for Waves 2-6, is available for the relevant fishery. As it is, Wave 1 harvest is not included in the recreational landings estimates, despite the fact that significant winter tautog fisheries exist. No one can accurately estimate the volume of tautog landed between New Jersey and Virginia Wave 1. However, a report issued by the Maryland Department of Natural Resources earlier this year describes tautog fishing as being "good on the wreck and reef sites located off Ocean City since the season opened on January 1st," and describes a potential all-tackle world record tautog of 28 ½ pounds being caught on January 2nd.[8] A New Jersey newspaper article from the end of January a few years ago begins with the line "Though we are entering the second month of 2010 already, tautog continue to hound dog all around the reef and wreck sites, and dedicated anglers are having a ball with some serious sized whitechins. The largest of all tautog usually come up from the depths in late January, and this week there were catches of titanic tog from 12 to 20.5 pounds along the coastline, with a 19-pounder taken off Cape May."[9] Thus, it appears that the Wave 1 fishery is substantial, and that the lack of Wave 1 data could thus be causing a substantial underestimate of the recreational landings, very possibly contributing to the stock's failure to recover.

In the commercial fishery:

1. Requiring a permit identifying all participants in the tautog fishery. Right now, the fishery is open access in many states and the number and identity of participants is largely unknown; in New York, for example, only a basic foodfish license is needed to participate, as there is no tautog-specific permit, making it impossible to identify those who are actively involved in the fishery.
2. Establishing a hard quota either at the coastwide, regional or state level, and shutting down the fishery when it appears that such quota will be landed. Without such hard quota, the commercial harvest could easily exceed expected levels, while managers have no ready remedy to correct the situation.
3. Requiring weekly or bi-weekly reporting of harvest at the state level. Such reporting is necessary to assure that the stock can be shut down before overfishing occurs.
4. Adopting accountability measures that require the commercial sector to pay back overages when the annual coastwide, regional or state quota is exceeded. Without accountability, fishermen have little incentive to constrain their harvest, and there is no ready means to remediate the damage to the stock caused by overfishing.

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[8] http://www.dnr.state.md.us/fisheries/fishingreport/index.asp?d=02112015

[9] http://blogs.courierpostonline.com/fishhead/2010/01/29/saltwater-fishing-report-titanic-tautog-keeping-anglers-busy/

ISSUE 4: REFERENCE POINTS AND REBUILDING TIMEFRAMES

ASMFC should adopt the same approach used by the Mid-Atlantic Fishery Management Council with respect to reference points and rebuilding timeframes.

It is clear that ASMFC's approach to tautog management hasn't worked. The stock has been under management for a full nineteen years, yet remains overfished and, at least in the northern part of its range, subject to overfishing as well.

That being the case, ASMFC and the Management Board should be seeking to emulate a management approach that has worked well. One good example is the approach taken by the Mid-Atlantic Fishery Management Council (the "Mid-Atlantic Council"), which until recent work showed that summer flounder is again overfished, has not had an overfished stock or a stock experiencing overfishing for a number of years.

ASMFC should thus follow the Mid-Atlantic Council's example, with respect to managing not just tautog, but all other species.

A

The contents of a peer-reviewed stock assessment should be incorporated into the Management Plan without the need for a management document or public hearing process.

A peer-reviewed stock assessment represents the "gold standard" in fisheries management. There is no better science available.

That being the case, it makes no sense for ASMFC to undergo a prolonged management process, involving a formal addendum and public comment obtained at multiple hearings, when it knows that the probability that it will receive a comment supported by the level of scientific certainty needed to discredit a peer-reviewed stock assessment is indistinguishably close to zero.

Instead, ASMFC and its Management Board representatives will be forced to endure the usual litany of comments that include "There's nothing wrong with the stock, we're catching plenty of fish," "Those scientists don't know what they're talking about, they're not out on the water every day like I am," "It's just the cycle, the fish will come back," and "If you accept the recommendations of the stock assessment, you'll put me out of business." None of those comments have any real relevance as to whether the reference points recommended in a peer-reviewed stock assessment should be incorporated into the Management Plan, but they still delay the adoption of the updated reference points by many months, thus perpetuating overfishing while delaying stock recovery, whileand at the same time devouring ASMFC resources that could be better put to other uses.

The management process will be considerably streamlined, and substantial time and money saved by ASMFC, if the reference points included in a peer-reviewed stock assessment were automatically incorporated into the Management Plan, with no public comment required.

B

The same stock rebuilding timeframes required by federal law should be incorporated into the Management Plan.

The Mid-Atlantic Council's fishery management plans are successful largely because they follow the timeframes set out in the Magnuson-Stevens Fishery Conservation and Management Act.[10] Overfishing must be stopped immediately, while the stock must be rebuilt in no more than ten years if biologically feasible.

Such timeframes instill a discipline in managers that forces them to make the difficult decisions needed to rebuild a depleted stock. Without such mandates, as the history of tautog management sadly depicts, managers are too often tempted to yield to stakeholder pleas to minimize socio-economic impacts by deferring needed actions and/or adopting half-measures that are not stringent enough to rebuild the stock, abut instead lead to a descending death-spiral of similar half-measures that are never restrictive enough to rebuild the stock, but instead continue to place additional restrictions on fishermen in exchange for little apparent conservation benefit, and so end up harming both fishermen and fish.

The disciplined adoption of stock rebuilding measures that have a high probability of successfully constraining harvest to target levels and rebuilding the stock within a time certain will ultimately lead to a rebuild stock. Failing to do so, and adopting a flexible management approach that includes rebuilding measures which are at least as likely to fail as succeed, and do not require rebuilding within such a time certain, are the best way to perpetuate ASMFC's record of failure with respect to rebuilding the stock.

ISSUE 5: OTHER ISSUES

Action must be taken to reduce the illegal harvest of tautog.

The illegal commercial harvest of both undersized and legal-sized tautog is a pervasive, long-standing problem which is hindering managers' ability to rebuild the stock. It would not be surprising to learn that the illegal commercial harvest is greater than the licit commercial landings.

It is a difficult problem to remedy, as virtually all of the illegally harvested tautog in the commercial fishery are destined for the live-fish market. The need to keep the fish healthy and alive rules out the use of tags that interfere with their ability to breathe, and other tag designs have not been developed or proven in use.

Having said that, it might well be appropriate to institute a tagging requirement, which would effectively eliminate the live fish market until such time as the marketplace could design a tag,

[10] 16 U.S.C. 1801 et seq.

acceptable to the Management Board and ASMFC's Law Enforcement Committee, which could be successfully used in live fish and would allow the live fish market to continue.

Tagging must take place at the time and place of capture to avoid the possibility of untagged fish being sold "under the table" to restaurants and other small-scale outlets; requiring a system that tracks fish by tag number from the fishermen to the retail outlet would be useful if the logistics are not impossible to work out.

Imposing such requirements will, as a practical matter, be very difficult. However, without them, the illegal commercial fishery is unlikely to be controlled.

Illegal recreational harvest is also a difficult problem to remedy. Many illegal tautog are retained, both for use as bait and for human consumption. Outside of dedicating additional law enforcement assets to the problem, which is essentially a budgetary issue for the states, it's not clear what else can be done, as retaining undersized tautog is already illegal, and adding another layer of penalties will do nothing to increase the rate of apprehension.

SUMMARY

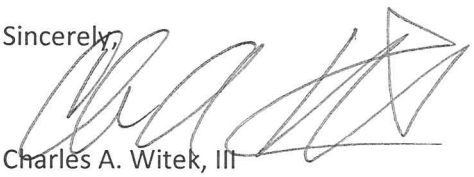
In order to more effectively restore and manage the tautog fishery, ASMFC and the Management Board should adopt measures that

- Establish multiple management regions, including a central management region composed of Connecticut, New York and New Jersey;
- Update the base years used to determine allocation of the resource;
- Prevail upon the National Marine Fisheries Service to adopt complimentary regulations for federal waters;
- Establish an annual catch limit, denominated in pounds, for both the recreational and commercial sectors;
- Have at least a 60% chance of successfully rebuilding the stock;
- Have at least a 60% chance of constraining fishing mortality to or below 0.15 within one year;
- Impose poundage-based accountability measures on the recreational fishery should it exceed its annual catch limit in any year;
- End all Wave 1 recreational fisheries unless and until harvest estimates that the Technical Committee deems equal or superior to those provided by MRIP for Waves 2-6 can be provided for such Wave 1 fisheries;
- Require species-specific permits to be obtained by all commercial fishermen participating in the fishery;
- Establish weekly or bi-weekly reporting of all commercial landings;
- Require the commercial fishery to be closed when landings approach the sector's annual catch limit;
- Impose poundage-based accountability measures on the commercial fishery should it exceed its annual catch limit in any year;

- Allow ASMFC to incorporate reference points and other data from peer-reviewed stock assessments into the Management Plan without prior public input;
- Recover the stock in no more than 10 years, unless that is determined to be biologically impossible, in which case the recovery time shall be as short as possible, although greater than 10 years; and
- Reduce the illegal harvest of tautog.

Thank you for considering my views on this matter.

Sincerely,



Charles A. Witek, III

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OCT 13 2015
Atlantic States Marine Fisheries Commission

Comments on Tautog Management

Responding to Public Information

Document for Amendment I

ASMFC

N.Y. Coalition for Recreational Fishing

Submitted by: William A.Young, Pres.

William A. Young

Introduction:

The Coalition for Recreational Fishing is concerned about the status of the tautog (blackfish) fishery. In fact, recreational fishermen and their organizations on the east coast have been concerned since the 1980s when the non-traditional practice of potting for tautog began and the resulting simultaneous decline of the fishery.

When potting began in NY State, anglers implored the DEC to stop the practice. We argued that it was a non-traditional harvest method. Further, traditionally there was only a small commercial market and the population had been stable for many decades. Our arguments seemed to us to be logical since when lobbying for restrictions in harvest methods for other species such as weakfish and striped bass we were told repeatedly that such changes could not be made to management measure because these practices were traditional. **At that time we wondered if the "traditional" argument only works one way.**

Our requests for quick and stringent restrictions on what was a traditionally recreational species gained little traction. The population continued to decline and the number of older larger specimens declined. As the public document correctly points out, ***blackfish are long-lived*** and ***slow growing***. Thus, we were dumbfounded by the failure of managers to take speedy and dramatic action.

The Coalition for Recreational Fishing applauds the apparent intentions of the ASMFC to finally move management from lip-service to a meaningful plan and take effective measures that actually have a chance of restoring the population to traditional levels of abundance and age distribution. We believe the F target=0.10 value will restore the fishery over several decades, yet recent history (2011-present) suggests that without drastic action this mortality rate will not be

met. We believe the most important issues on the table, and consequently those that have the best chance of restoring the fishery, are to ban potting and the live fish market.

Responses to Issues

Issue 1: Stock Management Areas

We support Option 1: Coast-wide Management.

We believe one set of regulations throughout the range of the tautog is the fairest approach, the easiest to enforcement both intrastate and interstate, and will reduce distracting discussions about "unfair and varying rules," state to state.

Issue 2: Fishery Management Goals and Objectives

Management questions:

1. Are the goals and objectives still appropriate? Yes, but regulations need to be changed and enforcement stepped up to achieve F=0.10.
2. What changes to the goals and objectives are needed? Goals and objectives (F and I) need to embrace more stringent regulations. That includes a higher size limit, lower bag limit, and the end of potting.
3. Which 5 goals and objectives are the most important:
    a. A, D, E, F, I

Issue 3: Management Measures:

Management questions:

1. Do you support regional management of tautog?

NO. We support timeframes based upon the biology of the species. In this case related to the fact that the species is slow growing and long lived in order for the species to have the opportunity to recover as soon as possible.

Issue 5: Other issues

The overall question presented in this section of the document is "How would you like the tautog fishery and resource to look in the future?"

We would like to restore the fishery to levels that existed prior to the introduction of potting for blackfish and the rise of the live fish market. That means we'd like the stocks to return to levels of abundance and age distribution prior to potting.

Management questions:

1. Do you support the use of adaptive management to meet the goals and objectives of the fishery?
    a. Yes
2. Do you support increased monitoring?
    a. Yes
3. Are undersized tautog harvested for use as recreational bait for other species?
    a. Although we have not witnessed this practice, we have heard that it is being done. Yes, it concerns us, but it is yet another example of how some users believe that the laws and regulations are meaningless because so few people are penalized. There is a need for more enforcement across the fisheries board!
4. Should there be a commercial tagging mandate for commercially harvested blackfish?

NO.

2. What are the current measures that are most effective?
    a. Size limits
    b. Bag limits.
3. Which *existing* management measures can be improved upon?
    a. Increase size limit
    b. Decrease bag limit
4. Are there additional measures that should be included in the FMP?
    a. Yes, end potting and the live blackfish market.

Issue 4: Reference points and rebuilding timeframes:

Management questions:

1. Do you support the ability to change regional reference points based upon the latest peer-reviewed stock assessment recommendations without the need for a management document?

   No, we support coast-wide reference points. If coast-wide reference points are used, then yes we support that approach.
2. Do you support the use of regional reference points?

   NO. We support the use of overall coastal reference points.
3. Do you support stock rebuilding timeframes that correspond to the needs of each regional management area?

We Support:

a. Hook and line harvest only, with strict controls on numbers and size limits.

b. Eliminate potting and the live fish market.

c. Tagging should be done at the point of harvest. Yes.

5. Do you have recommendations regarding habitat for tautog?

   a. Let nature take care of the structure.

6. What other management changes should be made to protect, conserve, and nurture tautog stocks that are not mentioned in the document?

   a. End the potting and live market for blackfish. **Reason: Simple, there was no problem with blackfish stocks prior to the use of potting and the live fish market!!! This is not rocket science, and the solution lies in returning to traditional harvest practices, with suitable bag and size limits.**

R.I. Party and Charter Boat Association
140 Jerry Lane
North Kingstown, RI 02852
401-741-5648
www.rifishing.com

October 17, 2015

Ashton Harp
1050 North Highland St., Suite 200 A-N
Arlington, VA 22201

Dear Ashton,

As President of the Rhode Island Party and Charter Boat Association (RIPCBA) I represent 65 small businesses, their crew members, and thousands of clients who sail aboard our vessels each year. As requested in the ASMFC Public Information Document for Amendment 1 to the Interstate Fishery Management Plan for Tautog, I would like to offer the following comments for the RIPCBA.

Tautog is an important species for the Charter/Party Boat industry in Rhode Island, most notably in the late fall when other species like summer flounder, striped bass and pelagic's are less available. We support the responsible management of Tautog based on the best science available. Rhode Island has a history of proactive and responsible management of Tautog.

Issue 1:
Specifically, the RIPCBA supports the peer reviewed 2015 benchmark stock assessment where it suggests the use of regional stock units as management areas. Alternative Stock Definition Option 3 offers the best use of regional stock units based on available science and data. More research and data collection should be undertaken prior to expanding management any further than 3 stocks. We oppose Option 2, which also recognizes 3 socks, but does not accurately reflect the strong site fidelity that Tautog exhibit and would result in poor management of the species.

Issue 2:
Regarding goals and objectives:
Goal's A, C, D and E are appropriate as written
Goal B should specifically include charter/party harvesters in addition to commercial and recreational harvesters.

The objectives are generally appropriate to meet the goals of the FMP. The RIPCBA would suggest removing law enforcement from objective E and creating a specific objective that addresses law enforcement. Tautog are particularly and frequently subject to illegal harvest by unlicensed fisherman. Poaching has been documented and anecdotally reported for years. We feel in order to manage Tautog responsibly, enforcement of regulations should take a higher priority in all states.

The five most important objectives for responsibly managing the Tautog resource are Objective A., E., G., H., and I. (see above comments regarding enforcement in Objective E, if enforcement were to be developed into a specific objective, it would be added to the list of important objectives in addition to those we listed.)

Issue 3:
The RIPCBA supports the use of regional management measures as a way to work with the species limited migration patterns and to provide Tautog fishermen with the best experiences possible.

We support the use of spawning closures, like in place in RI, when coupled with the necessary research to determine appropriate closures.

Issue 3 continued:

Managing Party/Charter permitted vessels separately from the private and shore based anglers would result in better fishing experiences for all recreational anglers, and this should be seriously considered in the amendment. RI has had success with this management practice for years. RI uses a maximum boat limit to manage the private recreational fisherman, while recognizing the individual nature of the Charter/Party fisherman by maintaining a per person limit for fisherman fishing on a charter/party boat.

The current 16 inch size limit is appropriate for Tautog across the board. Smaller size limits have been sited as a means to perpetuate illegal harvest in some areas.

Additionally, MRIP data used to characterize the recreational Tautog fishery is subject to additional biases due factors that affect this fishery, such as weather and the time of year that the bulk of the fishing takes place. Extreme year to year fluctuations in catch estimates are common. Modern electronic reporting technologies are available, particularly in the Charter/Party industry that could help to better characterize not only catch and effort, but also collect discard data and temporal/spatial information important to the management of Tautog.

The RIPCBA feels any changes to reference points should be vetted through a public process, to the extent possible. If the science and data supports the use of regional reference points, they should be used. Regional management means just that, so yes, reference points and rebuilding timelines should correspond to any regional management areas ultimately determined for management of Tautog.

A research priority should be given to determining the applicability of slot limits for use in the recreational fishery due to the increased fecundity of larger females.

Thank you for the opportunity to comment on this important amendment to the Tautog FMP. We look forward to participating in the entire public process as we all work to rebuild this important species for RI's Charter/Party Boat industry.

~Rick

Capt. Rick Bellavance, President
R.I. Party and Charter Boat Association

RHODE ISLAND
SALTWATER
ANGLERS
Association

P.O. Box 1465, Coventry, Rhode Island 02816 401-826-2121 FAX: 401-826-3546 www.RISAA.org

September 30, 2015

Ashton Harp
Atlantic States Marine Fisheries Commission
1050 North Highland St., Suite 200 A-N
Arlington, VA 22201

Subject: Tautog PID

Dear Sirs:

The Rhode Island Saltwater Anglers Association, representing over 7,600 recreational anglers and 29 affiliated clubs, submit the following as our preferred options for the Tautog Public Information Document for consideration by the Tautog Management Board.

ISSUE #1 STOCK DEFINITIONS
We support Option 4: Four stocks - MA-RI, L.I. Sound (CT-NY), NY-NJ (no LIS), DE-VA

ISSUE #2 FISHERY MANAGEMENT GOALS
We support the following five objectives:
B. To allow harvest that **maintains spawning stock biomass** (SSB) in a condition that provides for perpetuation of self-sustaining spawning stocks in each spawning area, based on maintain young-of-the-year indices, SSB, size and age structure, or other measures of spawning success at or above historical levels as established in the plan

D. To enact management recommendations which apply to fish landed in each state, so that **regulations apply to fish caught both inside and outside of state waters**

E. To promote **cooperative interstate** biological, social, and economic research, monitoring and law enforcement

F. To **encourage sufficient monitoring** of the resource and collection of additional data, particularly in the southern portion of the species range, that are necessary for development of effective long-term management strategies and evaluation of the management program.

H. To adopt and promote **standards of environmental quality** necessary to the long-term maintenance and productivity of tautog throughout their range

ISSUE #3 MANAGEMENT MEASURES
• Do you support the use of regional management measures?
YES we do, but as noted in Stock Definitions option 4.
* Are there additional state management efforts that should be included in the FMP?
Rhode Island has tautog regulations that, in addition to usual size/season/bag, an additional provision of **"10 fish maximum per private vessel"** and we feel that this should be adopted for all states.

ISSUE #4 REFERENCE POINTS AND REBUILDING TIMEFRAMES

• Do you support the ability to **change reference points** based on the latest peer-reviewed stock assessment recommendations without the need of a management document?
NO, we do not.

• Do you support the use of **regional reference points**?
YES

• Do you support **stock rebuilding timeframes** that correspond to the needs of each regional management area?
YES

ISSUE #5 OTHER ISSUES
We support:
YES, we support the use of adaptive management to meet the goals of the fishery

YES, we support increased monitoring

YES, we agree that taking undersized tautog is a major concern in Rhode Island

NO, we do not agree with a mandated commercial fish tagging program

YES, we agree that habitat is important for tautog, and we encourage any methods for protection and increasing structure, such as the **creation of artificial reefs.**

Our response to other changes that should be made not covered in this document is **greater enforcement of size and bag limits.**

Respectfully,

Stephen J. Medeiros
Executive Director

MY ONLY COMMENTS ARE TO CLOSE SPRING TAUTOG SEASONS COASTWIDE TO PROTECT SPAWNING FEMALES. ALSO TO MAKE SIZE LIMITS THE SAME FOR ALL STATES.

REGARDS,
WALTER KELLY
MARION, MA.
[COMMERCIAL TAUTOG ANGLER]

I won't be attending the Tautog AP meeting but I support Option 2. I have a concern with Option 1 as that could potentially result in DE having to take further reductions as a result of states to the North of here not properly managing their fishery. I have a concern with Option 3 because if NJ has to take significant reductions it could potentially result in charter and head boats from NJ to start operating out of DE.
Greg Jackson

Atlantic States Marine Fisheries Commission

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703.842.0740 • 703.842.0741 (fax) • www.asmfc.org

MEMORANDUM

October 27, 2015

To: Tautog Management Board

From: Law Enforcement Subcomittee

RE: Illegal Harvest of Tautog

At the August, 2015 meeting of the Tautog Management Board of the Atlantic States Marine Fisheries Commission (ASMFC), members requested that a subcommittee of Law Enforcement representatives to the ASMFC and members of the Tautog Management Board be formed to review and address the illegal harvest of tautog. The subcommittee includes the following members:

Commissioners

Adam Nowalsky, (Tautog Board Chair)
Dan McKiernan (MA)
David Simpson (CT)

Law Enforcement Committee

Lt. Jason Snellbaker (LEC representative to Tautog Board)
Capt. Timothy Huss (NY)
Capt. Doug Messeck (DE)
Major Pat Moran (MA)

Staff

Ashton Harp
Mark Robson

The subcommittee conducted a telephone conference call on October 20, 2015. After reviewing some of the public comments that have been received in response to the draft Public Information Document for Draft Amendment 1 to the Interstate Fishery Management Plan for tautog, the subcommittee discussed illegal harvest issues and provides the following comments and recommendations to the Tautog Management Board. While these comments reflect a consensus of the subcommittee, some variations on the nature and extent of illegal harvest and sale occurred among the states.

The Subcommittee believes there is significant illegal harvest of tautog.

This is primarily evident in the market for live tautog. Illegal harvest is coming from both the recreational and commercial fishing sectors. The market for live tautog, including undersized fish, is being driven by high demand for consumption purposes and consequent high prices. Evidence of illegally harvested fish has been documented in cases against fishermen, fish houses and at retail markets and restaurants. In Massachusetts there have been a number of large cases made against licensed commercial fishermen, whereas in Delaware, New Jersey and New York illegal harvest seems mostly concentrated in the recreational fishery. Regardless of source, most

undersized, out-of-season or illegal quantities of live tautog are associated with the demand for tautog at ethnic food markets or restaurants. These markets are often found in large cities such as New York City and Philadelphia. While the subcommittee agrees that the primary concern rests with the illegal harvest for the retail/restaurant markets, a subset of illegal activity does occur among individuals and small groups harvesting fish for personal consumption or subsistence. This latter group may not even be aware they are violating specific regulations. Additionally, a large number of cases are made against recreational fishermen in possession of illegal, dead tautog.

There are a number of factors making the illegal harvest intractable.

Language Barriers.—Because of the involvement of many ethnic food markets, enforcement officers frequently encounter language barriers with dealers and retail owners, especially in the live-fish market. The State of Delaware has attempted to address this issue by posting advisories in different languages. The subcommittee agrees however that an illegal harvester (poacher) is not likely to be from any particular ethnic group or age. When inspecting markets officers may encounter language barriers with owners or employees and be presented with written records or receipts in non-English languages.

Dispersed Activity.—Because of the amount of illegal activity among recreational fishermen, there is a very dispersed and fluid type of poaching activity. A state may make a large number of cases against illegal recreational fishing, but because so many individuals are moving in and out of the fishery, it is hard to have an impact. Small groups of fishermen are collaborating to post lookouts, coordinate landings and transport fish away from docksides. Illegal landings and transport is occurring very late at night in remote and unpredictable locations. High prices for fish and high demand seem to be exacerbating this dispersed and widespread activity.

Inconsistent Regulations.—In Delaware, where regulations are less strict than neighboring states, fishermen are going there specifically to take advantage of those less restrictive regulations, and also engage in illegal activity. In other words, variable regulations are placing more fishing pressure on states with more liberal harvest regulations. The lack of a uniform, coast wide minimum size limit and the absence of compatible regulations in federal waters is a major impediment to effective enforcement.

No Accountability Requirements.—The nature of the live fish market means that effective, focused enforcement could take place at local seafood markets and restaurants. Such inspections do in fact occur regularly, depending on the states' authorities. However, the lack of any tagging or documentation requirements for live fish in possession significantly reduces the effectiveness of such oversight. A restaurant may have a tank with live fish. There may or may not be any records for these fish, which could be a mix of legal and undersized fish from multiple sellers. They may have been in the tank for many months. The records, if they can be produced, may be written in a language that the inspecting officer cannot read. In some cases the subcommittee discussed, fish were tracked back to major market sources in Pennsylvania. However Pennsylvania officers have more limited inspection authority and must demonstrate probable cause or have a warrant to check for suspected illegal fish being purchased and held for resale.

Recommendations for Enhancing Enforcement.

Uniform, coast wide minimum size limit.—The subcommittee strongly recommends that a uniform, minimum size limit be established. It would allow standardization of enforcement effort in the field and eliminate loopholes when fish are moved across state lines. It is difficult to effectively enforce and prosecute cases involving undersized fish in markets and restaurants when those fish may be legal in one jurisdiction, and illegal in another.

Federal Waters Consistency.—The subcommittee strongly recommends that the ASMFC ask federal fishery managers for consistent harvest regulations for tautog in federal waters consistent with adjacent state waters. Ideally this would include a single minimum size limit for all federal waters.

Implement a Tagging System.—The Subcommittee strongly supports development of some form of tagging system, especially for live-harvested fish. The subcommittee recognizes the difficulty in developing a safe and effective tag for live fish. However, a tag requirement would take care of a number of problems and limitations currently hindering enforcement efforts. It would greatly enhance the effectiveness of inspections at dealers, markets and restaurants, allowing officers to determine when, where and from who fish were obtained. To be successful, tags must be useable only one time, and they must prominently identify state of origin, year and a unique identifying number or code. Fish should be tagged immediately upon harvest.

Members of the subcommittee provided examples of significant monetary penalties for possession of illegal fish, including elevation of penalties to felony-level depending on the amount and severity of the illegal harvest. The subcommittee believes that current fines and penalties are in some cases significant, but cannot say whether stricter penalties across the board would have a damping effect on illegal activity. For reference, existing penalties for some states are presented below.

APPENDIX

Pennsylvania Regulation

The subcommittee discussed problems with illegal fish in markets and restaurants in Pennsylvania. Following is the pertinent regulation for tautog in these markets:

63.50. Importation of tautog.

It is unlawful for a person to import into this Commonwealth, sell, offer for sale or purchase tautog (*Tautoga onitis*) measuring less than 15 inches in length.

Fines and Penalties

Delaware

There is a $50.00 fine plus assessments ($107.00 total) per violation. Each fish is a violation and each time the daily limit is exceeded is a separate violation.

New York

71-0923 (generally for recreational violations, but can be applied to commercial offenses)

8.a. for violations involving one to five fish, shellfish or crustaceans, twenty-five dollars for each fish, shellfish or crustacean taken or possessed in violation of the above sections;

b. for violations involving six to twenty-five fish, shellfish or crustaceans, fifty dollars for each fish, shellfish or crustacean taken or possessed in violation of the above sections;

c. for violations involving more than twenty-five fish, shellfish or crustaceans, one hundred dollars for each fish, shellfish or crustacean taken or possessed in violation of the above sections; or by both such fine and imprisonment.

For purposes of determining the applicable fine pursuant to this subdivision, the number of fish, crustaceans or shellfish shall be the aggregate number involved in the violation, regardless of species.

Sec. 71-0924. Illegal commercialization of fish, shellfish, crustaceans, and wildlife.

Notwithstanding any other provision of this chapter, when a violation involves the sale, trade or barter of fish, shellfish, crustaceans, wildlife, or parts thereof, the sale, trade or barter of which is prohibited by the fish and wildlife law, the following additional penalties shall be imposed:

1. where the value of fish, shellfish, crustaceans, wildlife, or parts thereof, is two hundred fifty dollars or less, the offense shall be a violation punishable by a fine of five hundred dollars and/or not more than fifteen days of imprisonment;

2. where the value of fish, shellfish, crustaceans, wildlife, or parts thereof, is more than two hundred fifty dollars but does not exceed one thousand five hundred dollars, the offense shall be a misdemeanor punishable by a fine of five thousand dollars and/or not more than one year of imprisonment;

3. where the value of fish, shellfish, crustaceans, wildlife, or parts thereof, exceeds one thousand five hundred dollars, the offense shall constitute a class E felony under the provisions of the penal law; and

4. where the value of ivory articles, as defined in section 11-0535-a of this chapter, exceeds twenty-five thousand dollars, the offense shall constitute a class D felony under the provisions of the penal law.

5. For the purposes of this section the value of fish, shellfish, crustaceans and wildlife shall be the fair market value of or actual price paid for such resource, whichever is greater. For purposes of this section, "sale" shall include the acts of selling, trading or bartering and all related acts,

such as the act of offering for sale, trade or barter, and shall also include the illegal possession of fish, shellfish, wildlife or crustacea with intent to sell. It shall be presumptive evidence of possession with intent to sell when such fish, shellfish, wildlife or crustacea is possessed in quantities exceeding the allowable recreational quantities, or is possessed in a retail or wholesale outlet commonly used for the buying or selling of such fish, shellfish, wildlife or crustacea, provided, however, that nothing in this subdivision shall preclude the admission of other evidence which may serve to independently prove a defendant's intent to sell.

Massachusetts

Tautog regulations at 322 CMR 6.40 are promulgated pursuant to the authority at G.L. c. 130 s. 17A. Per state law, the criminal penalty would be $50-$1,000 w/no potential jail time (G.L. c. 130 s. 2) and the non-criminal citation would be $50 (G.L. c. 21A s. 10H). So it would be a $50 citation for 1 fish up to some unspecified number, unless criminal charges are filed.

If the violator is commercially fishing w/o a commercial permit, the criminal penalty is $10 - $10,000 and up to three years imprisonment but not both (G.L. c. 130 s. 80) and the non-criminal penalty is $100 (G.L. c. 21A s. 10H). The same goes for any entity involved in the primary purchase of tautog without a commercial dealers permit authorized for the primary purchase of finfish.

We do not have a per-fish penalty although it is something we have desired for years. We can talk to the courts and make recommendations of a per-fish penalty and although in some cases they have gone along with our request, ultimately it is the judge's discretion.

New Jersey

Currently the penalty for undersize, over-limit, and closed season tautog is $30 per fish. The penalty will be increasing to $100 per fish in the near future due to the documented and continued noncompliance with the current regulations. The commercial penalties are $300 to $3000 for 1st offense and $500 to $5000 for 2nd Offenses.

MID-ATLANTIC FISHERY MANAGEMENT COUNCIL
Doubletree Philadelphia Center City
October 6, 2015
SPINY DOGFISH MOTIONS AND SELECTED ALTERNATIVES

Move to set the 2016 ABC at 16,765 mt.
Nowalsky/King (18/6/0)
Motion carries

Move to accept the other management measures defined in table 1 of the staff memo from J. Didden to Dr. Chris Moore.
O'Reilly/deFur (21/1/1)
Motion carries

Table 1. MAFMC staff-recommended multi-year catch and landings limits for spiny dogfish for 2016-18

Specifications	Basis	2015 (pounds)	2015 (mt)	2016 (pounds)	2016 (mt)	2017 (pounds)	2017 (mt)
OFL	Projected Catch at Fmsy	53,455,485	24,247	55,313,982	25,090	56,824,148	25,775
ABC	Council Risk Policy	36,960,498	16,765	36,433,593	16,526	36,676,102	16,636
Canadian Landings	= avg last 3 years (10,11,12)	143,300	645	143,300	65	143,300	65
Domestic ABC	= ABC - Candadian Landings	36,817,198	16,700	36,290,293	16,461	36,532,801	16,571
ACL	= Domestic ABC	36,817,198	16,700	36,290,293	16,461	36,532,801	16,571
Mgt Uncert. Buffer	Avg. pct overage since 2011	0	0	0	0	0	0
ACT	= ACL - mgt uncertainty	36,817,198	16,700	36,290,293	16,461	36,532,801	16,571
U.S. Discards	= 3 year average (12,13,14)	11,494,167	5,214	11,494,167	5,214	11,494,167	5,214
TAL	ACT - Discards	25,323,030	11,486	24,796,126	11,247	25,038,634	11,357
U.S. Rec Landings	= 2014 Estimate	68,343	31	68,343	31	68,343	31
Comm Quota	TAL - REC Landings	25,254,687	11,455	24,727,782	11,216	24,970,291	11,326

Move to request an analysis to substitute that the catch limit for 2016 be based on a 3- year average of the mature female biomass for 2015, 2013, and 2012/2011 combined (average 184,000 mt.) and not based on a 2-year (2013 & 2015) average of 135,500 mt).
Pierce/DiLernia
Ruled out of order by chair

Move that the Council request that the SSC, with guidance from the NEFSC, determine the OFL and the ABC for 2016 using a 3-yr average of mature female biomass for 2015, 2013, and 2012/2011 combined and any other options that the SSC/Center consider appropriate.
Pierce/Batsavage (24/0/0)
Motion carries

Move to eliminate the federal trip limit.
Hemilright/Luisi (7/15/1)
Motion fails

2015 REVIEW OF THE ATLANTIC STATES MARINE FISHERIES COMMISSION FISHERY MANAGEMENT PLAN FOR

HORSESHOE CRAB

(*Limulus polyphemus)*

2014 Fishing Year

Horseshoe Crab Plan Review Team:

Sheila Eyler, U.S. Fish and Wildlife Service

Stewart Michels, Delaware Department of Natural Resources and Environmental Control

Kirby Rootes-Murdy, Chair, Atlantic States Marine Fisheries Commission

October 2015

Table of Contents

I. Status of the Fishery Management Plan

Date of FMP Approval:	December 1998
Amendments	None
Addenda	Addendum I (April 2000) Addendum II (May 2001) Addendum III (May 2004) Addendum IV (June 2006) Addendum V (September 2008) Addendum VI (August 2010) Addendum VII (February 2012)
Management Unit:	Entire coastwide distribution of the resource from the estuaries eastward to the inshore boundary of the EEZ
States With Declared Interest:	Massachusetts - Florida
Active Boards/Committees:	Horseshoe Crab Management Board, Advisory Panel, Technical Committee, and Plan Review Team; Shorebird Advisory Panel; Delaware Bay Ecosystem Technical Committee

a) Goals and Objectives

The Interstate Fishery Management Plan for Horseshoe Crabs (FMP) established the following goals and objectives.

2.0. Goals and Objectives
The goal of this Plan is to conserve and protect the horseshoe crab resource to maintain sustainable levels of spawning stock biomass to ensure its continued role in the ecology of the coastal ecosystem, while providing for continued use over time. Specifically, the goal includes management of horseshoe crab populations for continued use by:

1) *current and future generations of the fishing and non-fishing public (including the biomedical industry, scientific and educational research);*
2) *migrating shorebirds; and,*
3) *other dependent fish and wildlife, including federally listed (threatened) sea turtles.*

To achieve this goal, the following objectives must be met:
(a) prevent overfishing and establish a sustainable population;
(b) achieve compatible and equitable management measures among jurisdictions throughout the fishery management unit;
(c) establish the appropriate target mortality rates that prevent overfishing and maintain adequate spawning stocks to supply the needs of migratory shorebirds;
(d) coordinate and promote cooperative interstate research, monitoring, and law enforcement;

(e) identify and protect, to the extent practicable, critical habitats and environmental factors that limit long-term productivity of horseshoe crabs;

(f) adopt and promote standards of environmental quality necessary for the long-term maintenance and productivity of horseshoe crabs throughout their range; and,

(g) establish standards and procedures for implementing the Plan and criteria for determining compliance with Plan provisions.

b) Fishery Management Plan Summary

The framework for managing horseshoe crabs along the Atlantic coast was approved in October 1998 with the adoption of the Interstate Fishery Management Plan for Horseshoe Crabs (FMP). The goal of this plan is to conserve and protect the horseshoe crab resource to maintain sustainable levels of spawning stock biomass to ensure its continued role in the ecology of coastal ecosystems, while providing for continued use over time.

In 2000, the Horseshoe Crab Management Board approved Addendum I to the FMP. Addendum I established a state-by-state cap on horseshoe crab bait landings at 25 percent below the reference period landings (RPL's), and *de minimis* criteria for those states with a limited horseshoe crab fishery. Those states with more restrictive harvest levels (Maryland and New Jersey) were encouraged to maintain those restrictions to provide further protection to the Delaware Bay horseshoe crab population, recognizing its importance to migratory shorebirds. Addendum I also recommended that the National Marine Fisheries Service (NMFS) prohibit the harvest of horseshoe crabs in federal waters (3-200 miles offshore) within a 30 nautical mile radius of the mouth of Delaware Bay, as well as prohibit the transfer of horseshoe crabs in federal waters. A horseshoe crab reserve was established on March 7, 2001 by NMFS in the area recommended by ASMFC.

In 2001, the Horseshoe Crab Management Board approved Addendum II to the FMP. The purpose of Addendum II was to provide for the voluntary transfer of harvest quotas between states to alleviate concerns over potential bait shortages on a biologically responsible basis. Voluntary quota transfers require Technical Committee review and Management Board approval.

In 2004, the Board approved Addendum III to the FMP. The addendum sought to further the conservation of horseshoe crab and migratory shorebird populations in and around the Delaware Bay. It reduced harvest quotas and implemented seasonal bait harvest closures in New Jersey, Delaware, and Maryland, and revised monitoring components for all jurisdictions.

Addendum IV was approved in 2006. It further limited bait harvest in New Jersey and Delaware to 100,000 crabs (male only) and required a delayed harvest in Maryland and Virginia. Addendum V, adopted in 2008, extends the provisions of Addendum IV through October 31, 2010. In early 2010, the Board initiated Draft Addendum VI to consider management options that will follow expiration of Addendum V. The Board voted in August 2010 to extend the Addendum V provisions, via Addendum VI, through April 30, 2013. The Board also chose to include language, allowing them to replace Addendum VI with another Addendum during that time, in anticipation of implementing an adaptive resource management (ARM) framework.

The Board approved Addendum VII in February 2012. This addendum implemented an ARM framework for use during the 2013 fishing season. The framework considers the abundance levels of horseshoe crabs and shorebirds in determining the optimized harvest level for the Delaware Bay states of New Jersey, Delaware, Maryland, and Virginia (east of the COLREGS).

II. Status of the Stock and Assessment Advice

No definitions for overfishing or overfished status have been adopted by the Management Board. However, the majority of evidence in the most recent stock assessment, the 2013 Stock Assessment Update (available at http://www.asmfc.org/species/horseshoe-crab#stock), indicates abundance has increased in the Southeast region. In the Delaware Bay Region, increasing trends were most evident in juvenile indices, followed by indices of adult males. Over the time series of the survey, no trend in the abundance of female crabs is evident.

In contrast, continued declines in abundance were evident in the New York and New England regions. Decreased harvest quotas in Delaware Bay have potentially redirected harvest to nearby regions. Current harvest within the New England and New York Regions may not be sustainable. Continued precautionary management is therefore recommended coastwide to anticipate effects of redirecting harvest from Delaware Bay to outlying populations.

III. Status of the Fishery

Bait Fishery

For most states, the bait fishery is open year round. However, because of seasonal horseshoe crab movements (to the beaches in the spring; deeper waters and offshore in the winter), the fishery operates at different times. State waters of New Jersey and Delaware are closed to horseshoe crab harvest and landing from January 1st through June 7th each year, and other state horseshoe crab fisheries are regulated with various seasonal/area closures.

Reported coastwide bait landings in 2014 remained well below the coastwide quota (Table 1, Figure 1). Bait landings decreased 18% from the previous year, due to decreased landings in Massachusetts, Rhode Island, New York, Maryland and Georgia. Delaware harvested 7,609 crabs over their 162,136 quota, and will be accounted for with a reduced quota of 154,527 crabs in 2015.

Table 1 Reported commercial horseshoe crab bait landings by jurisdiction.

Jurisdiction	ASMFC Quota 2014	State Quota 2014	2009	2010	2011	2012	2013	2014
MA	330,377	165,000	98,332	54,782	67,087	106,821	128,774	106,645
RI	26,053	12,545	18,729	12,502	12,632	19,306	18,030	13,319
CT	48,689	48,689	27,065	30,036	24,466	18,958	19,645	20,634
NY	366,272	150,000	123,653	124,808	146,995	167,723	161,623	133,887
NJ*	162,136	0	0	0	0	0	0	0
DE*	162,136	160,435	102,659	61,751	95,663	100,255	163,582	168,044
MD*	255,980	255,980	165,434	165,344	167,053	169,087	240,688	148,269
PRFC	0	-	0	0	0	0	0	0
DC	0	-	0	0	0	0	0	0
VA**	172,828	172,828	187,546	146,857	121,650	151,887	156,761	139,228
NC	24,036	24,036	33,025	9,938	27,076	22,902	26,559	21,196
SC	0	0	0	0	0	0	0	0
GA	29,312	29,312	0	0	0	0	5,745	0
FL	9,455	9,455	0	993	0	0	0	2,046
TOTAL	1,587,274	1,028,280	756,443	607,011	662,622	756,939	921,407	753,268

***Male-only harvest**

****Virginia harvest east of the COLREGS line is limited to 81,331 male-only crabs under the ARM harvest package #3. Virginia harvest east of the COLREGS were 32,307 and 52,538 in 2013 and 2014 respectively. The total above represents harvest on both sides of the COLREGS line.**

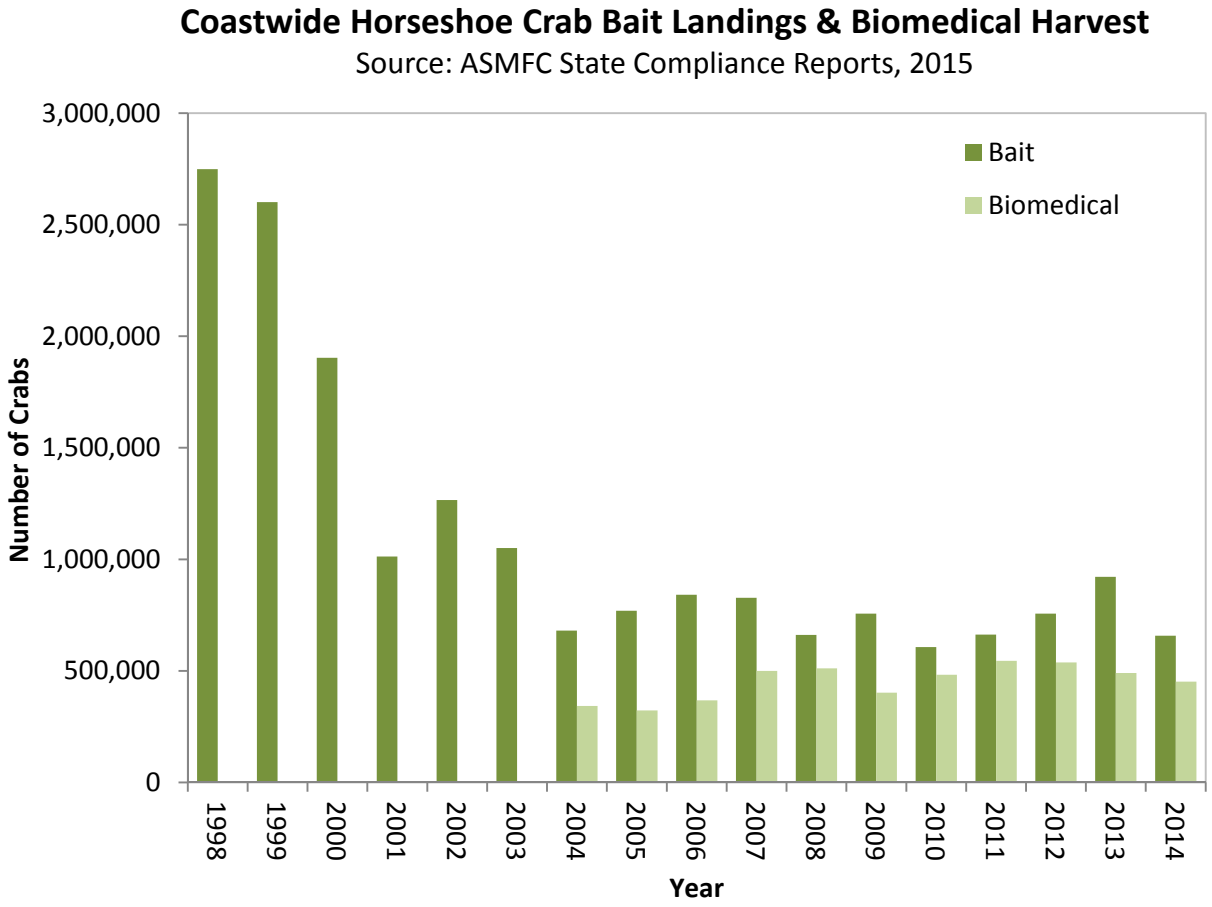


Figure 1: Number of horseshoe crabs harvested for bait and biomedical purposes, 1998 -2014.
Please note the following details regarding biomedical harvest numbers:
* Biomedical harvest includes all horseshoe crabs brought to bleeding facilities, including those that were harvested as bait and counted against state quotas.
* Most of the biomedical crabs harvested are returned to the water after bleeding; a 15% mortality rate is estimated for all bled crabs.

Reported coastwide landings since 1998 show more male than female horseshoe crabs were harvested annually. Several states presently have sex-specific restrictions in place to limit the harvest of females. The American eel pot fishery prefers egg-laden female horseshoe crabs as bait, while the whelk (conch) pot fishery is less dependent on females. Unclassified landings have generally accounted for around 10% of the reported landings since 2000.

The hand, trawl, and dredge fisheries typically account for over 85% of the reported commercial horseshoe crab bait landings. In 2014, these gears accounted for slightly more with 88.7% of commercial landings. Other methods that account for the remainder of the harvest include gill nets, pound nets, and traps.

Biomedical Fishery

The horseshoe crab is an important resource for research and manufacture of materials used for human health. There are four companies along the Atlantic Coast that process horseshoe crab blood for use in manufacturing Limulus Amebocyte Lysate (LAL): Associates of Cape Cod, Massachusetts; Lonza (formerly Cambrex Bioscience) and Wako Chemicals, Virginia; and Charles River Endosafe, South Carolina. There is one company that bleeds horseshoe crabs but does not manufacture LAL: Limuli Labs, New Jersey. Addendum III requires states where horseshoe crabs are collected for biomedical use to collect and report harvest data and characterize mortality.

The Plan Review Team annually calculates total coastwide harvest and estimates mortality. It was reported that 524,103 crabs (including crabs harvested as bait) coastwide were brought to biomedical companies for bleeding in 2014 (Table 2). This represents a slight decrease from the average of the previous five years (569,516 crabs). Of this total, 72,089 crabs were reported as harvested for bait and counted against state quotas, representing a marked decrease over the average of the previous five years (Table 2: row B). These crabs were not included in the mortality estimates (Rows D, F, and G) below. It was reported for 2014 that 452,014 crabs were harvested for biomedical purposes only. Males accounted for 57% of total biomedical harvest; females comprised 37%; 6% of the harvest was unknown. Crabs were rejected prior to bleeding due to mortality, injuries, slow movement, and size (known mortality prior to bleeding is included in Row D below). Based on state reports for 2014, approximately 11% of crabs (or 37,837 crabs) harvested and brought to bleeding facilities were rejected. Approximately 1% of crabs, collected solely for biomedical purposes, suffered mortality from harvest up to the point of release. Total estimated mortality of biomedical crabs for 2014 was 78,798 crabs (at 15% post-release estimated mortality), with a range of 30,171 to 151,738 crabs (5-30% post-release estimated mortality).

Table 2: Numbers of horseshoe crabs harvested, bled and estimated mortality for the biomedical industry.

		2008	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*
A	**Number of crabs brought to biomedical facilities (bait and biomedical crabs)**	511,478	512,552	548,751	628,476	611,827	545,973	524,103
B	**Number of bait crabs bled**	87,864	110,350	66,047	83,312	73,580	55,393	72,089
C	**Number of biomedical-only crabs harvested (not counted against state bait quotas)**	423,614	402,202	482,704	545,164	538,247	490,580	452,014
D	**Reported mortality of biomedical-only from harvest to release**	2,973	6,298	9,665	6,917	6,891	5,269	5,858
E	**Number of biomedical-only crabs bled**	402,080	362,291	438,417	492,734	556,995	484,920	486,266

F	**Estimated mortality of bled biomedical-only crabs post-release (15% est. mortality)**	60,312	54,344	65,763	73,910	83,549	72,738	72,940
G	**Total estimated mortality on biomedical crabs not counted against state bait quotas (15% est. mortality)**	63,285	60,642	75,428	80,827	90,440	78,007	78,798

The 1998 FMP establishes a mortality threshold of 57,500 crabs, where if exceeded the Board is required to consider action. Based on an estimated total mortality of 78,798 crabs for 2014, this threshold has been exceeded. The PRT notes that estimated mortality from biomedical use is approximately 12% of the total horseshoe crab mortality (bait and biomedical) coastwide for 2014, up from 8% in 2013. Nevertheless, this represents 10% of coastwide mortality and the PRT recommends including biomedical mortality in the next benchmark stock assessment.

IV. Status of Research and Monitoring

The Horseshoe Crab FMP set forth an ambitious research and monitoring strategy in 1999 and again in 2004 to facilitate future management decisions. Despite limited time and funding there are many accomplishments since 1999. These accomplishments were largely made possible by forming partnerships between state, federal and private organizations, and the support of over a hundred public volunteers.

Addendum III Monitoring Program

Addendum III requires affected states to carry out three monitoring components. All states who do not qualify for *de minimis* status report monthly harvest numbers and subsample of portion of the catch for gender and harvest method. In addition, those states with annual landings above 5% of the coastwide harvest report all landings by sex and harvest method. Although states with annual landings between 1 and 5% of annual coastwide harvest are not required to report landings by gender, the PRT recommends all states require gender reporting for horseshoe crab harvest.

States with biomedical fisheries landings are required to monitor and report harvest numbers and mortality associated with the transportation and bleeding of the crabs. States must identify spawning and nursery habitat along their coasts. All states have completed this requirement and a few continue active monitoring programs.

Virginia Tech Research Projects

The VT benthic survey was not conducted in 2014, due to a lack of funding. The Adaptive Resource Management (ARM) Working Group will use a composite index from current state surveys to estimate horseshoe crab abundance for the ARM model. Funding sources for 2015 and beyond are being explored.

Spawning Surveys
The redesigned spawning survey was completed for the sixteenth year in 2014. No trend was detected in the state-specific or baywide indices of spawning activity (both male and female) for the time series. Most spawning activity was observed in May in 2014, coinciding with a period especially important for migratory shorebirds. The annual baywide sex ratio was 4.3:1, (Male: Female). The range of annual observed sex ratios on the Delaware Bay spawning beaches over the time series has varied from 3.1:1 to 5.2:1.

Egg Studies
Note that the Egg Study was not included in the 2014 Delaware Compliance Reports, as the egg survey is no longer a mandatory monitoring requirement for Delaware and New Jersey. New Jersey continued the survey in 2014 and recorded 2,332 eggs per m^2 in NJ Delaware Bay Beach in 2014.

Tagging Studies
The USFWS continues to maintain a toll-free telephone number as well as a website for reporting horseshoe crab tag returns and assists interested parties in obtaining tags. Tagging work continues to be conducted by biomedical companies, research organizations, and other parties involved in outreach and spawning surveys. Beginning with the 2013 tagging season, additional efforts were implemented to ensure that current tagging programs are providing data that benefits the management of the coast-wide horseshoe crab population. All existing and new tagging programs are required to submit an annual application to be considered for the tagging program and all participants must submit an annual report along with their tagging and resight data to indicate how their tagging program addresses at least one of the following objectives: determine horseshoe crab sub-population structure, estimate horseshoe crab movement and migration rates, and/or estimate survival and mortality of horseshoe crabs. The PRT recommends all tagging programs, approved by the state, coordinate with the USFWS tagging program, in order to ensure a consistent coastwide program for providing management input.

Since 1999, over 254,000 crabs have been tagged and released through the USFWS tagging program along the Atlantic coast. Over 12% of tagged crabs have been recaptured and reported. Crabs have been tagged and released from every state on the Atlantic Coast from Florida to New Hampshire. In the early years of the program, tagging was centered around Delaware Bay; however, in recent years, more tagging has occurred in the Long Island Sound and in the Southeast. The Technical Committee noted that recapture rates inside and outside Delaware Bay are likely not directly comparable due to increased re-sighting effort and spawning concentration in Delaware Bay compared to other areas along the coast. There may be data in the USFWS tagging database to determine differences in effort and recapture rates.

V. Status of Management Measures and Issues

ASMFC
Initial state-by-state harvest quotas were established through Addendum I. Addendum III outlined the monitoring requirements and recommendations for the states. Addendum IV set harvest closures and quotas, and other restrictions for New Jersey, Delaware, Maryland, and Virginia, which were continued in Addendums V and VI.

The Board approved Addendum VII, implementation of the ARM Framework, in February 2012 for implementation in 2013. Addendum VII includes an allocation mechanism to divide the Delaware Bay optimized harvest output from the ARM Framework among the four Delaware Bay states (New Jersey, Delaware, Maryland, and Virginia east of the COLREGS). Season closures and restrictions, present within Addendum VI, remain in effect as part of Addendum VII.

Included in this report are state-by-state charts outlining compliance and monitoring measures. The PRT recommends all jurisdictions were in compliance with the FMP and subsequent Addenda in 2014.

MASSACHUSETTS		
	2014 Compliance Report	**2015 Management Proposal**
***De minimis* status**	Did not qualify for *de miminis*	Does not qualify for *de miminis*
Bait Harvest Restrictions and Landings		
- ASMFC Quota (Voluntary State Quota)	330,377 (165,000)	330,377 (165,000)
- Other Restrictions	Bait: 300 crab daily limit year round; limited entry; Biomedical: 1,000 crab daily limit; Conch pot and eel fishermen: no possession limit All: May and June 5-day lunar closures; No mobile gear harvest Fri-Sat during summer flounder season; 7" PW minimum size; Pleasant Bay Closed Area	Bait: 300 crab daily limit year round; Biomedical: 1,000 crab daily limit; Conch pot and eel fishermen: no possession limit All: May and June 5-day lunar closures; No mobile gear harvest Fri-Sat during summer flounder season; 7" PW minimum size; Pleasant Bay Closed Area
- Landings	106,645	--
Monitoring Component A_1		
- Mandatory monthly reporting	Yes, plus weekly dealer reporting through SAFIS	Yes, plus weekly dealer reporting through SAFIS
- Characterize commercial bait fishery	Yes	Yes
Monitoring Component A_2		
- Biomedical harvest reporting	Yes	Yes
- Required information for biomedical use of crabs	Yes	Yes
Monitoring Component A_3 Identify spawning and nursery habitat	Yes	Yes
Monitoring Component B_1 Coastwide benthic trawl survey	No	Dependent on survey funding
Monitoring Component B_2 Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B_3 Implement spawning survey	Yes	Yes
Monitoring Component B_4 Tagging program	Yes – w/NPS and USFWS; Pleasant Bay, Monomy NWR, Waquoit Bay	Yes – w/NPS and USFWS; Pleasant Bay, Monomy NWR, Waquoit Bay

Note: The daily crab possession limit in the mobile gear fishery was changed to 300 crabs in 2014. This will continue into 2015.

RHODE ISLAND		
	2014 Compliance Report	**2015 Management Proposal**
***De minimis* status**	Did not qualify for *de minimis*	Does not qualify for *de minimis*
Bait Harvest Restrictions and Landings		
- ASMFC Quota (Voluntary State Quota)	26,053 (12,345)	26,053 (12,545)
- Other Restrictions	None	None
- Landings	13,319	--
Monitoring Component A_1		
- Mandatory monthly reporting	Yes, though exempt, with weekly call in and monthly on paper.	Yes, though exempt, with weekly call in and monthly on paper.
- Characterize commercial bait fishery	Yes	Yes
Monitoring Component A_2		
- Biomedical harvest reporting	Yes	Yes
- Required information for biomedical use of crabs	Yes, details within Massachusetts' reports	Captured in Massachusetts' reports
Monitoring Component A_3 Identify spawning and nursery habitat	Yes	Yes
Monitoring Component B_1 Coastwide benthic trawl survey	No	Dependent on survey funding
Monitoring Component B_2 Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B_3 Implement spawning survey	Yes, since 2000 (methods unspecified)	Yes
Monitoring Component B_4 Tagging program	RI DEM 2001-2004 only Outside, independent groups currently	No

CONNECTICUT		
	2014 Compliance Report	**2015 Management Proposal**
***De minimis* status**	Did not qualify for *de miminis*	Does not qualify for *de miminis*
Bait Harvest Restrictions and Landings		
- ASMFC Quota	48,689	48,689
- Other Restrictions	Limited entry program, possession limits, and seasonal and areas closures	Limited entry program, possession limits, and seasonal and area closures
- Landings	20,634	--
Monitoring Component A_1		
- Mandatory monthly reporting	Yes	Yes
- Characterize commercial bait fishery	No – exempt under Addendum III because landings are < 5% of coastwide total	No – exempt under Addendum III because landings are < 5% of coastwide total
Monitoring Component A_2		
- Biomedical harvest reporting	Not Applicable	Not Applicable
- Required information for biomedical use of crabs	Not Applicable	Not Applicable
Monitoring Component A_3 Identify spawning and nursery habitat	Yes	Yes
Monitoring Component B_1 Coastwide benthic trawl survey	No	Dependent on survey funding
Monitoring Component B_2 Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B_3 Implement spawning survey	Yes, since 1999 (methods differ from DE Bay survey)	Yes
Monitoring Component B_4 Tagging program	Yes, in collaboration with local universities	Yes

NEW YORK		
	2014 Compliance Report	**2015 Management Proposal**
***De minimis* status**	Did not qualify for *de miminis*	Does not qualify for *de miminis*
Bait Harvest Restrictions and Landings		
- ASMFC Quota (Voluntary State Quota)	366,272 (150,000)	366,272 (150,000)
- Other Restrictions	Ability to close areas to harvest; seasonal quotas and trip limits; 200 crab/harvester daily quota-reduced to 100 crab on 5/25 then 30 crabs on 6/1 and then increased to 250 from 9/1-12/1; W. Meadow Beach, Cedar Beach, and Fire Island National Seashore harvest closures	Ability to close areas to harvest; seasonal quotas and trip limits; 200 crab/harvester daily quota; W. Meadow Beach, Cedar Beach, and Fire Island National Seashore harvest closures
- Landings	133,887	--
Monitoring Component A_1		
- Mandatory monthly reporting	Yes (weekly April – July)	Yes
- Characterize commercial bait fishery	Yes	Yes
Monitoring Component A_2		
- Biomedical harvest reporting	Not Applicable	Not Applicable
- Required information for biomedical use of crabs	Not Applicable	Not Applicable
Monitoring Component A_3 Identify spawning and nursery habitat	Yes	Yes
Monitoring Component B_1 Coastwide benthic trawl survey	No	Dependent on survey funding
Monitoring Component B_2 Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B_3 Implement spawning survey	Yes – adapted from DE Bay survey	Yes
Monitoring Component B_4 Tagging program	Yes, since 2007	Yes

Note: Weekend closures that were in place for 2014 did not reduce harvest totals, only shifted effort, and therefore will not be continued in 2015. The Quota periods will be reduced from 5 to 4 to help streamline quota management; quota in period 4 will be TBD depending on harvest in previous 3 periods.

NEW JERSEY		
	2014 Compliance Report	**2015 Management Proposal**
***De minimis* status**	Qualified for *de miminis*	Qualifies but not requesting *de miminis*
Bait Harvest Restrictions and Landings		
- ASMFC Quota (Voluntary state quota)	162,136 [male only] (0)	162,136 [male only] (0)
- Other Restrictions	Bait harvest moratorium	Bait harvest moratorium
- Landings	0	--
Monitoring Component A_1		
- Mandatory monthly reporting	N/A	N/A
- Characterize commercial bait fishery	N/A	N/A
Monitoring Component A_2		
- Biomedical harvest reporting	Yes	Yes
- Required information for biomedical use of crabs	Yes	Yes
Monitoring Component A_3 Identify spawning and nursery habitat	Yes	Yes
Monitoring Component B_1 Coastwide benthic trawl survey	No	Dependent on survey funding
Monitoring Component B_2 Continue existing benthic sampling programs	Yes – lost funding for surf clam survey which was an indicator of HSC abundance	Yes
Monitoring Component B_3 Implement spawning survey	Yes – since 1999	Yes
Monitoring Component B_4 Tagging program	Outside, independent groups currently	No
Monitoring Component B_5 Egg abundance survey	Yes, but removed as a mandatory component	Yes
Monitoring Component B_6 Shorebird monitoring program	Yes	Yes

DELAWARE		
	2014 Compliance Report	**2015 Management Proposal**
***De minimis* status**	Did not qualify for *de miminis*	Does not qualify for *de miminis*
Bait Harvest Restrictions and Landings		
- ASMFC Quota (State-reduced quota for overage)	162,136 [male only] (160, 435)	162,136 [male only] (154,527)
- Other Restrictions	Closed season (January 1 – June 7)	Closed season (January 1 – June 7)
- Landings	168,044 males	--
Monitoring Component A_1		
- Mandatory monthly reporting	Yes (daily call-in reports & monthly logbooks)	Yes
- Characterize commercial bait fishery	Yes	Yes
Monitoring Component A_2		
- Biomedical harvest reporting	Not Applicable	Not Applicable
- Required information for biomedical use of crabs	Not Applicable	Not Applicable
Monitoring Component A_3 Identify spawning and nursery habitat	Yes – updates once every 5 years or as needed	Yes – updates once every 5 years or as needed
Monitoring Component B_1 Coastwide benthic trawl survey	No	Dependent on survey funding
Monitoring Component B_2 Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B_3 Implement spawning survey	Yes	Yes
Monitoring Component B_4 Tagging program	No state program but has assisted in the past with various Delaware Bay horseshoe crab tagging initiatives	No
Monitoring Component B_5 Egg abundance survey	Removed as component	Removed as component
Monitoring Component B_6 Shorebird monitoring program	Yes	Yes

Note: The egg abundance survey has been discontinued as a mandatory monitoring element. Delaware will include information on the survey if it continues, but is no longer required to perform the survey. Delaware exceeded its quota in 2014 by 7,609 crabs and will pay it back in 2015 with an adjusted quota of 154,527.

MARYLAND		
	2014 Compliance Report	**2015 Management Proposal**
***De minimis* status**	Did not qualify for *de miminis*	Does not qualify for *de miminis*
Bait Harvest Restrictions and Landings		
- ASMFC Quota	255,980 (male only)	255,980 (male only)
- Other Restrictions	Delayed harvest and closed season/area combinations	Delayed harvest and closed season/area combinations
- Landings	148,269	--
Monitoring Component A_1		
- Mandatory monthly reporting	Yes (weekly reports for permit holders; monthly for non-permit holders)	Yes (weekly reports for permit holders; monthly for non-permit holders)
- Characterize commercial bait fishery	Yes	Yes
Monitoring Component A_2		
- Biomedical harvest reporting	Yes	Yes
- Required information for biomedical use of crabs	Yes	Yes
Monitoring Component A_3 Identify spawning and nursery habitat	Yes	Yes
Monitoring Component B_1 Coastwide benthic trawl survey	No	Dependent on survey funding
Monitoring Component B_2 Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B_3 Implement spawning survey	Yes (Counts)	Yes
Monitoring Component B_4 Tagging program	Yes – through biomedical harvest	Yes – through biomedical harvest

POTOMAC RIVER FISHERIES COMMISSION		
	2014 Compliance Report	**2015 Management Proposal**
***De minimis* status**	*De minimis* status granted.	*De minimis* requested and meets criteria.
- Ability to close fishery if *de minimis*threshold is reached	No horseshoe crab fishery	No horseshoe crab fishery
- Daily possession limit <25 for *de minimis* state		
- HSC landing permit		
Bait Harvest Restrictions and Landings		
- ASMFC Quota	0	0
- Other Restrictions	None	None
- Landings	0	0
Monitoring Component A_1		
- Mandatory monthly reporting	Yes - weekly	Yes - weekly
- Characterize commercial bait fishery	Not Applicable	Not Applicable
Monitoring Component A_2		
- Biomedical harvest reporting	Not Applicable	Not Applicable
- Required information for biomedical use of crabs	Not Applicable	Not Applicable
Monitoring Component A_3 Identify spawning and nursery habitat	Not Applicable	Not Applicable
Monitoring Component B_1 Coastwide benthic trawl survey	No	No
Monitoring Component B_2 Continue existing benthic sampling programs	Not Applicable	Not Applicable
Monitoring Component B_3 Implement spawning survey	Not Applicable	Not Applicable
Monitoring Component B_4 Tagging program	Not Applicable	Not Applicable

VIRGINIA		
	2014 Compliance Report	**2015 Management Proposal**
***De minimis* status**	Did not qualify for *de miminis*	Does not qualify for *de miminis*
Bait Harvest Restrictions and Landings		
- ASMFC Quota (State-reduced quota for overage)	172,828 (81,331 male-only east of COLREGS line)	172,828 (81,331 male-only east of COLREGS line)
- Other Restrictions	Closed season (January 1 – June 7) for federal waters. Harvest east of COLREGS line must comprise 2 to 1 male to female ratio and make up no more than 40% of total landings.	Closed season (January 1 – June 7) for federal waters. Effective January 1, 2013 harvest of horseshoe crabs, from east of the COLREGS line, is limited to trawl gear and dredge gear only.
- Landings	139,228 (52,538)	--
Monitoring Component A_1		
- Mandatory monthly reporting	Yes – new permit system; limited entry to fishery and individual quotas established	Yes
- Characterize commercial bait fishery	Yes	Yes
Monitoring Component A_2		
- Biomedical harvest reporting	Yes	Yes
- Required information for biomedical use of crabs	Yes	Yes
Monitoring Component A_3 Identify spawning and nursery habitat	Yes – completed	No
Monitoring Component B_1 Coastwide benthic trawl survey	No	Dependent on survey funding
Monitoring Component B_2 Continue existing benthic sampling programs	No	No
Monitoring Component B_3 Implement spawning survey	No	No
Monitoring Component B_4 Tagging program	No	No

NORTH CAROLINA		
	2014 Compliance Report	**2015 Management Proposal**
***De minimis* status**	Did not qualify for *de miminis*	Does not qualify for *de minimis*
Bait Harvest Restrictions and Landings		
- ASMFC Quota	27,036	24,036
- Other Restrictions	Trip limit of 50 crabs; Proclamation authority to adjust trip limits, seasons, etc.	Trip limit of 50 crabs; Proclamation authority to adjust trip limits, seasons, etc.
- Landings	21,196	--
Monitoring Component A_1		
- Mandatory monthly reporting	Yes – trip level reporting each month	Yes – trip level reporting each month
- Characterize commercial bait fishery	Yes	Yes
Monitoring Component A_2		
- Biomedical harvest reporting	Not Applicable	Not Applicable
- Required information for biomedical use of crabs	Not Applicable	Not Applicable
Monitoring Component A_3 Identify spawning and nursery habitat	Little information available Survey discontinued after 2002 and 2003 due to low levels of crabs recorded	Not specified
Monitoring Component B_1 Coastwide benthic trawl survey	No	No
Monitoring Component B_2 Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B_3 Implement spawning survey	No	No
Monitoring Component B_4 Tagging program	No	No

SOUTH CAROLINA		
	2014 Compliance Report	**2015 Management Proposal**
***De minimis* status**	*De minimis* status granted.	*De minimis* requested and meets criteria.
- Ability to close fishery if *de minimis*threshold is reached	No horseshoe crab bait fishery	No horseshoe crab bait fishery
- Daily possession limit <25 for *de minimis* state		
- HSC landing permit		
Bait Harvest Restrictions and Landings		
- ASMFC Quota	0	0
- Other Restrictions	None	None
- Landings	0	--
Monitoring Component A_1		
- Mandatory monthly reporting	Yes (Biomedical)	Yes (Biomedical)
- Characterize commercial bait fishery	Yes (Biomedical)	Yes (Biomedical)
Monitoring Component A_2		
- Biomedical harvest reporting	Yes	Yes
- Required information for biomedical use of crabs	Yes	Yes
Monitoring Component A_3 Identify spawning and nursery habitat	Completed	No
Monitoring Component B_1 Coastwide benthic trawl survey	No	No
Monitoring Component B_2 Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B_3 Implement spawning survey	No	No
Monitoring Component B_4 Tagging program	Yes	Yes

GEORGIA		
	2014 Compliance Report	**2015 Management Proposal**
***De minimis* status**	*De minimis* status granted.	*De minimis* requested and meets criteria.
- Ability to close fishery if *de minimis*threshold is reached	Yes	Yes
- Daily possession limit <25 for *de minimis* state	25/person; 75/vessel with 3 licensees	25/person; 75/vessel with 3 licensees
- HSC landing permit	Must have commercial shrimp, crab, or whelk license; LOA permit required	Must have commercial shrimp, crab, or whelk license; LOA permit required
Bait Harvest Restrictions and Landings		
- ASMFC Quota	29,312	29,312
- Other Restrictions	None	None
- Landings	0	--
Monitoring Component A_1		
- Mandatory monthly reporting	Yes	Yes
- Characterize commercial bait fishery	No bait landings	Yes
Monitoring Component A_2		
- Biomedical harvest reporting	Not Applicable	Not Applicable
- Required information for biomedical use of crabs	Not Applicable	Not Applicable
Monitoring Component A_3 Identify spawning and nursery habitat	Completed	Not Applicable
Monitoring Component B_1 Coastwide benthic trawl survey	No	No
Monitoring Component B_2 Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B_3 Implement spawning survey	No	No
Monitoring Component B_4 Tagging program	No	No

FLORIDA		
	2014 Compliance Report	**2015 Management Proposal**
***De minimis* status**	*De minimis* status granted.	*De minimis* requested and meets criteria.
- Ability to close fishery if *de minimis*threshold is reached	Yes	Yes
- Daily possession limit <25 for *de minimis* state	25/person w/ valid saltwater products license; 100/person with marine life endorsement	25/person w/ valid saltwater products license; 100/person with marine life endorsement
- HSC landing permit	See above	See above
Bait Harvest Restrictions and Landings		
- ASMFC Quota	9,455	9,455
- Other Restrictions	None	None
- Landings	2,046	--
Monitoring Component A_1		
- Mandatory monthly reporting	Yes	Yes
- Characterize commercial bait fishery	No	Yes
Monitoring Component A_2		
- Biomedical harvest reporting	Not Applicable	Not Applicable
- Required information for biomedical use of crabs	Not Applicable	Not Applicable
Monitoring Component A_3 Identify spawning and nursery habitat	Yes	Yes
Monitoring Component B_1 Coastwide benthic trawl survey	No	No
Monitoring Component B_2 Continue existing benthic sampling programs	No	No
Monitoring Component B_3 Implement spawning survey	No	Yes
Monitoring Component B_4 Tagging program	No	Yes

Note: Florida reported an additional 3,318 crabs harvested along the east coast for 'marine life' use in 2014.

Alternative Baits
Delaware, Connecticut, Rhode Island and Massachusetts attempted to participate in field trials with the Ecobait, available from LaMonica Fine Foods in New Jersey. Massachusetts and Delaware were unable to conduct the trials due to difficulties in securing the Ecobait samples from LaMonica; Connecticut and Rhode Island were able to conduct trials but reports have not yet been finalized.

Shorebird
The USFWS received petitions in 2004 and 2005 to emergency list the red knot under the Endangered Species Act. In fall 2005, it determined that emergency listing was not warranted at the time. As part of a court settlement, the USFWS agreed to initiate proposed listings of over 200 species, including the red knot. In fall 2013, the USFWS released a proposal for listing the red knot as threatened. In December 2014 the USFWS determined that red knot be designated as threatened under the Endangered Species Act.

The red knot remains listed as an endangered species in the state of New Jersey (since 2012).

VI. Research Needs/PRT Recommendations

De Minimis
States may apply for *de minimis* status if, for the last two years, their combined average horseshoe crab bait landings (by numbers) constitute less than one percent of coastwide horseshoe crab bait landings for the same two-year period. States may petition the Board at any time for *de minimis* status, if their fishery falls below the threshold level. Once *de minimis* status is granted, designated States must submit annual reports to the Board justifying the continuance of *de minimis* status.

States that qualify for *de minimis* status are not required to implement any horseshoe crab harvest restriction measures, but are required to implement components A, B, E and F of the monitoring program (Section 3.5 of the FMP). Since *de minimis* states are exempt from a harvest cap, there is potential for horseshoe crab landings to shift to *de minimis* states and become substantial, before adequate action can be taken. To control shifts in horseshoe crab landings, *de minimis* states are encouraged to implement one of the following management measures:

1. Close their respective horseshoe crab bait fishery when landings exceed the *de minimis* threshold;
2. Establish a state horseshoe crab landing permit, making it only available to individuals with a history of landing horseshoe crabs in that state; or
3. Establish a maximum daily harvest limit of up to 25 horseshoe crabs per person per day. States which implement this measure can be relieved of mandatory monthly reporting, but must report all horseshoe crabs harvests on an annual basis.

The following states have been removed from the Management Board in recent years: Pennsylvania (2007), Maine (2011), and New Hampshire (2014). The Potomac River Fisheries Commission South Carolina, Georgia, and Florida are requesting *de minimis* status for the 2015 fishing season based on the 2013-2014 season landings and meet the FMP requirements for

achieving this status (Table 1). The PRT recommends granting these jurisdictions *de minimis* status with the provision that marine life landings from Florida be considered in determining future *de minimis* status.

Funding for Research and Monitoring Activities

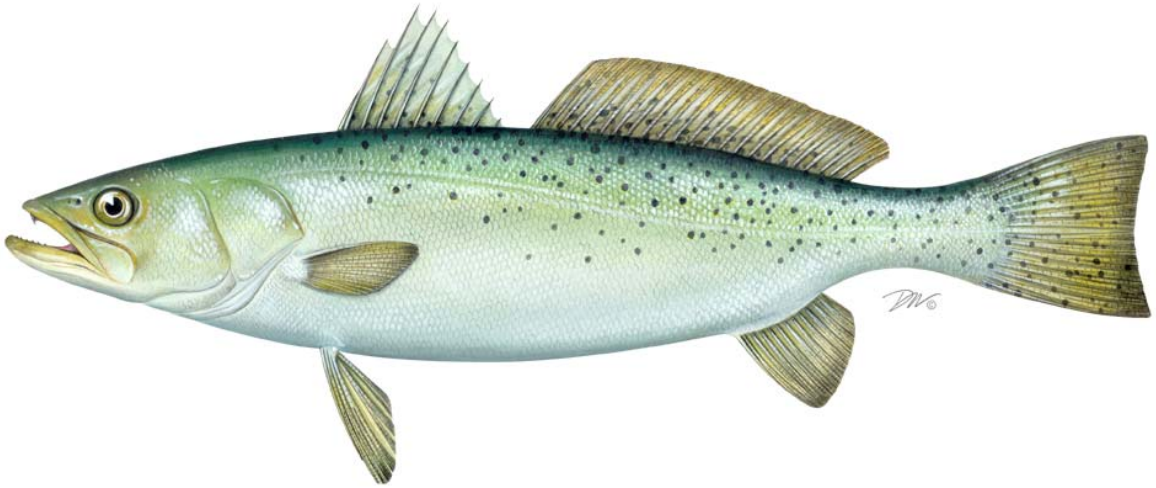
The PRT strongly recommends the continuation of the VT benthic trawl survey in order to provide the critical information for stock assessments and the ARM model. The survey is a necessity to continue ARM implementation. This effort provides a statistically reliable estimate of horseshoe crab relative abundance

Additionally, the PRT strongly supports a reevaluation of the utility functions, directed monitoring programs and alternative actions of the ARM model. Optimally, it would be based on stakeholder input which may require some workshop-like activities.

2015 REVIEW OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
FISHERY MANAGEMENT PLAN FOR

SPOTTED SEATROUT
(Cynoscion nebulosus)

2014 FISHING YEAR



The Spotted Seatrout Plan Review Team
Megan Ware, Atlantic States Marine Fisheries Commission, Chair
Chris Kalinowsky, Georgia Coastal Resources Division
Mike Murphy, Florida Fish & Wildlife Conservation Commission
Dr. Steve Arnott, South Carolina Department of Natural Resources

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I. Status of the Fishery Management Plan

Date of FMP Approval:	Original FMP – October 1984
Amendments:	Amendment 1 – November 1991 Omnibus Amendment to Spanish Mackerel, Spot, and Spotted Seatrout (Amendment 2)- August 2011
Management Area:	The Atlantic coast distribution of the resource from Maryland through the east coast of Florida
Active Boards/Committees:	South Atlantic State/Federal Fisheries Management Board; Spotted Seatrout Plan Review Team

The Atlantic States Marine Fisheries Commission (ASMFC) adopted the Fishery Management Plan (FMP) for spotted seatrout in 1984. The states of Maryland through Florida have a declared interest in the Commission's FMP for spotted seatrout. The ISFMP Policy Board approved Amendment 1 to this FMP in November 1991. In August of 2011, the South Atlantic State/Federal Management Board approved the Omnibus Amendment to Spanish Mackerel, Spot, and Spotted Seatrout FMPs. The Omnibus Amendment (Amendment 2) brought the Spotted Seatrout FMP under the authority of the Atlantic Coastal Fisheries Cooperative Management Act (1993) and the ASMFC Interstate Fishery Management Plan Charter (1995).

The goal of the management plan is "to perpetuate the spotted seatrout resource in fishable abundance throughout its range and generate the greatest possible economic and social benefits from its harvest and utilization over time." Plan objectives include: 1) attain over time optimum yield; 2) maintain a spawning potential ratio of at least 20% to minimize the possibility of recruitment failure; 3) promote conservation of the stocks in order to reduce the inter-annual variation in availability and increase yield per recruit; 4) promote the collection of economic, social, and biological data required to effectively monitor and assess management efforts relative to the overall goal; 5) promote research that improves understanding of the biology and fisheries of spotted seatrout; 6) promote harmonious use of the resource among various components of the fishery through coordination of management efforts among the various political entities having jurisdiction over the spotted seatrout resource; and 7) promote determination and adoption of standards of environmental quality and provide habitat protection necessary for the maximum natural protection of spotted seatrout. Amendment 2 to the Spotted Seatrout FMP added the following objectives in support of the compliance under the Act: 1) Manage the spotted seatrout fishery restricting catch to mature individuals; 2) manage the spotted seatrout stock to maintain sufficiently-high spawning stock biomass; 3) develop research priorities that will further refine the spotted seatrout management program to maximize the biological, social, and economic benefits derived from the spotted seatrout population.

Management measures include a minimum size limit of 12 inches total length (TL) with comparable mesh size regulations in directed fisheries, and data collection for stock assessments and monitoring the fishery. All states with a declared interest in spotted seatrout have implemented at least the recommended minimum size limit. In addition, each state has either initiated spotted seatrout data collection programs or modified other programs to collect

improved catch and effort data. Table 1 provides the states' recreational and commercial regulations for spotted seatrout through 2014.

II. Status of the Stock

A coastwide stock assessment of spotted seatrout has not been conducted given the largely non-migratory nature of the species and the lack of data on migration where it does occur. Instead, state-specific age-structured analyses of local stocks have been performed by several states. These stock assessments provide estimates of static spawning potential ratio (SPR), which is a measure of the effect of fishing pressure on the relative spawning power of the female stock. The FMP recommends a goal of 20% SPR; North Carolina, South Carolina, and Georgia have adopted this goal, and Florida has established a 35% SPR goal.

Florida's stock assessments are for separate northern and southern populations. Average static SPR estimates for Florida's spotted seatrout during 2007-2009 were 0.69 in the northeast region of the state's Atlantic coast and 0.51 in the southeast region (Murphy et al. 2011). This assessment provided the basis for some relaxation in the management of spotted seatrout in Florida (Table 1).

The South Carolina Department of Natural Resources packaged three state-specific assessments into a report in 2001; however, these assessments were not peer reviewed. This initial assessment of South Carolina spotted seatrout covered 1986-1992 and indicated that female SPR was just above the 20% goal in the terminal year (Zhao and Wenner 2001). This assessment led to an increase in the minimum size limit and decrease in the creel limit for spotted seatrout in South Carolina. A more recent assessment of the population of South Carolina spotted seatrout was conducted for the period 1981-2004, but not peer reviewed (de Silva, Draft 2005). Two modeling approaches were used, and both models indicated that the current spawning stock biomass is below what would be required to maintain 20% SPR.

Assessments in North Carolina and Georgia spotted seatrout covered 1981-1997 and 1986-1995, respectively, and both indicated that female SPR was below the 20% goal in the terminal year (Zhao and Burns 2001, Zhao *et al.* 2001). A more recent assessment of spotted seatrout in Georgia has been performed; however, it remains unpublished. This 2002 Georgia assessment is unpublished because the results were highly questionable due to data deficiencies and changing methodologies.

North Carolina completed a peer reviewed stock assessment of spotted seatrout covering 1991-2008, which included all spotted seatrout caught in North Carolina and Virginia (Jensen 2009). The assessment indicated that SPR has been below 20% SPR in recent years. Jensen (2009) recommended the implementation of management measures to account for recent increases of recreational fishing and discard mortality and maintain a sufficiently large spotted seatrout population to act as a buffer against the effects of future cold stun events. Based on the assessment, North Carolina developed a draft state FMP for spotted seatrout, with the final version approved in April 2012.

A peer-reviewed stock assessment of spotted seatrout in Virginia and North Carolina waters was completed in 2014, incorporating data from 1991-2013 (NCDMF 2014). The results of the

assessment suggest that the age structure of the spotted seatrout stock expanded during the last decade; however, there was a sharp decline in recruitment after 2010. Spawning stock biomass peaked in 2007 and then declined. These declines may be attributed to cold stun events. Spawning stock biomass in 2012 was greater than the currently defined threshold which suggests the stock is not overfished. Additionally, fishing mortality is below the threshold suggesting the stock is not experiencing overfishing.

A statewide assessment is scheduled in Florida for 2016.

III. Status of the Fishery

Both commercial and recreational fishermen regularly catch spotted seatrout from Maryland through the east coast of Florida (except in South Carolina where spotted seatrout has been declared a gamefish and can only be taken by recreational means). Landings from states north of Maryland are minimal and/or inconsistent from year to year. All catch estimates in this section include those in the management area only (MD-FL). Total recreational landings have surpassed total commercial landings every year since recreational landings have been recorded in 1981 (Figure 1). In 2009, recreational landings were more than five times the commercial landings. A coastwide (VA, NC, SC) winter mortality event in 2000/2001 likely contributed to the sudden decline in commercial and recreational landings in 2001 and 2002.

Commercial Fishery

The National Marine Fisheries Service (NMFS) compiles commercial spotted seatrout landings. The data are cooperatively collected by the NMFS and state fishery agencies from state mandated trip-tickets, landing weigh-out reports from seafood dealers, federal logbooks, shipboard and portside interviews, and biological sampling of catches. See Table 2.

Atlantic coast commercial landings of spotted seatrout (1960-2014) have ranged from 154,000 pounds to 1.38 million pounds (Figure 1). Historically, commercial landings primarily came from North Carolina and Florida, with Virginia and Georgia accounting for a small portion of the total. From 1960 to 1976, annual commercial landings of spotted seatrout averaged 1.07 million pounds, but then declined due to increased regulation and possible declines in abundance. Significant changes to regulations include the 1987 designation of spotted seatrout as a gamefish in South Carolina, and the 1995 prohibition on the use of entangling nets in Florida's coastal waters. From 2005 to 2014, commercial landings averaged approximately 339,311 pounds. North of Florida, variability in annual harvest was typical and paralleled the climatic conditions of the preceding winter and spring. In 2014 the commercial landings were estimated at 346,587 pounds, representing over a 100,000 lb decrease from 2013. North Carolina accounted for approximately 70% of the total coastwide commercial catch, with Virginia and Florida responsible for approximately 19% and 10% of the 2014 commercial landings, respectively.

Recreational Fishery

Recreational catch statistics are collected by the NMFS recreational fisheries survey. Effort data are collected through telephone interviews. Catch data are collected through access-point angler intercept surveys. Catch per trip estimates are produced for each type of fish encountered, either observed or reported, and these estimates are combined with the effort estimates by sampling stratum to produce the catch and harvest estimates. See Tables 3, 4, and 5.

Over the last 33 years, the recreational catch of spotted seatrout (kept and released) has shown an upward trend, increasing from 1.1 million fish in 1981 to a peak of 8.8 million fish in 2012. In 2014, recreational catch declined to 5.9 million fish (Figure 2). The recreational harvest of spotted seatrout has remained relatively stable throughout the time series with an average of 1.3 million fish. Recreational harvest in 2014 was 1.127 million fish with North Carolina (39%) and Florida (27%) making up the largest shares of this harvest. Due in part to recreational size and creel limits and closed seasons, as well as the encouragement of catch and release practices, the percentage of caught fish being released increased to 75-87 percent of the catch since 2000. In 2014, the release percentage (81.1%) was similar to the previous 10-year average (78.99%). Recreational catches are generally made with rod and reel, but some are taken by recreational nets and by gigging, where these methods are permitted. Most recreational fishing is conducted from private boats and the majority of the catch is taken from nearshore waters.

IV. Status of Assessment Advice

A coastwide stock assessment of spotted seatrout has not been conducted and the Plan Review Team (PRT) does not recommend that one be completed due to the life history of the fish and the availability of data. Several states have performed age-structured analyses on local stocks of spotted seatrout. Recent stock assessments for spotted seatrout provide divergent trends on the status of the species. The 2005 stock assessment in South Carolina indicated an increasing population trend but a status level that is still below target spawning stock biomass levels (de Silva 2005). The 2014 North Carolina and Virginia stock assessment showed declines in recruitment since 2010. The PRT supports the continuation of state-specific assessments, yet recognizes the difficulty most states face to attain sufficient data of a quality that can be used in the assessment process and personnel who can perform the necessary modeling exercises.

The lack of biological and fisheries data for stock assessment and effective management of the resource was recognized in the 1984 FMP and continues to be a hindrance. Some states are increasing their collection of biological and fisheries data, which should provide insight on stock status over time.

V. Status of Research and Monitoring

In addition to the commercial and recreational fishery-dependent data collected and/or compiled through the National Marine Fisheries Service, Fisheries Statistics Division, some states have implemented fishery-independent or additional fishery-dependent monitoring programs.

The Florida Fish and Wildlife Conservation Commission (FWC) implemented a juvenile finfish monitoring program in the northern Indian River Lagoon in the spring of 1990 and in the estuarine reaches of the St. Johns, St. Marys, and Nassau Rivers in northeast Florida in the spring of 2001 (FWC-FWRI 2013). Florida also initiated a stratified random sampling program in 1997 on the Atlantic coast that utilizes a 183-m haul seine to catch exploitable-sized fishes. This has been conducted in the northern Indian River and southern Indian River since initiation and in northeast Florida since 2001. Trends in the YOY abundance have seen a decline since a strong recruitment evident in 2011. Recent relative abundance of adults (>199 mm SL) have also declined in both the central and north regions since 2011 and 2012, respectively. Samples have not yet been processed for the 2014 sampling program.

Florida's fishery-dependent sampling includes commercial trip-ticket information and biostatistical sampling of the commercial and recreational catch. A voluntary angler logbook program was implemented in 2002 to collect information on the lengths of spotted seatrout released alive by anglers. Recently (2011) this program changed to 'postcard' program enlisting anglers encountered at sites visited during the MRIP angler intercept survey.

Georgia collects fishery-dependent data through a Marine Sportfish Carcass Recovery Program. Data collected through this survey are used to examine trends in the size and age composition of the recreationally harvested population, valuable information for future stock assessments. For 2014, a total of 3,659 fish carcasses were donated through the program. Approximately 60% (2,212) of the carcasses were seatrout, with an average centerline (CL) length of 365.9 mm CL (minimum: 247 mm CL; maximum: 554 mm CL), were reported from 11 recovery locations.

Georgia also collects fishery-independent data through the Marine Sportfish Population Health Study, was implemented in 2003 to provide age and sex specific estimates of relative abundance in two Georgia estuaries: Wassaw Sound and the Altamaha Sound region. This trammel net survey is conducted monthly, September through November, and utilizes a hybrid random-stratified and fixed station design in which each station is sampled once in a given month. For 2014, the average centerline length in Wassaw was 337.7 mm CL and 349.3 mm CL in Altamaha.

South Carolina has an extensive directed research program on this species. Current project objectives include determining the size and age composition of the recreational catch by sampling independent angler and fishing tournament catches as well as a carcass program, and producing fisheries independent relative abundance estimates from trammel net surveys along the South Carolina coast. The latter is a stratified random sampling design and has been conducted monthly since November 1990. South Carolina also has an electrofishing survey of upper estuarine waters. It uses a stratified random design and has been operating monthly since 2001. In 2014, a total of 87 spotted seatrout were captured by 286 random electrofishing sets, with a mean overall CPUE of 0.3 spotted seatrout per set. CPUE has generally declined in the electrofishing survey since 2009. In contrast to electrofishing, the trammel net survey, catches some YOY as well as older seatrout (S. Arnott, Personal Communication, 2011). During 2014, a total of 2580 spotted seatrout were captured in 857 random trammel net sets, with an overall mean CPUE of 3.0 spotted seatrout per trammel set. Additionally, South Carolina also has ongoing seatrout parasite studies (Moravec et al. 2006). Catch rates, size composition, and sub-samples of the catch on a bi-monthly basis are used for generating age-length keys for cohort specific indices of abundance. Roumillat and Brouwer (2004) have described the reproductive dynamics of female spotted seatrout in South Carolina.

North Carolina has collected age, growth, and maturity data for spotted seatrout caught in fishery-dependent and fishery-independent sampling programs since 1991. A fishery-independent monitoring program was initiated in May 2001, supported by USFWS Sports Fish Restoration funds. The program utilizes a stratified random, multi-mesh size gill net survey along North Carolina's Outer Banks, the bays of western Pamlico Sound, the Neuse, the Pamlico, Pungo, New and Cape Fear Rivers, and the Atlantic Ocean. Project objectives include

calculating annual indices of abundance for important recreational fish (spotted seatrout included); supplementing samples for age, growth, and reproductive studies; evaluating catch rates and species distribution for identifying and resolving bycatch problems; and characterizing habitat utilization. Additional areas of the Neuse and Pamlico-Pungo Rivers contribute to the Pamlico Sound Area Independent Gill Net Survey, with common objectives and sampling design. Hydrophone work was conducted in North Carolina to characterize critical spawning habitats for spotted seatrout in Pamlico Sound. For the 2013 surveying program, the overall spotted seatrout CPUE was 0.71 (n=209) for Pamlico Sound (second highest in the time series); 0.44 (n=138) for surveys in the Pamlico-Pungo, and Neuse rivers; and 0.60 (n=71) for surveys in the Cape Fear and New Rivers (second highest in time series). Hook-and-line and estuarine gill net discard mortality studies were conducted in North Carolina in 1998-2001, supported by Atlantic Coastal Fisheries Cooperative Management Act funds.

The VMRC Biological Sampling Program collects biological data from Virginia's commercial and recreational fisheries. In 2014 there were 885 lengths, 878 weights, and 300 otoliths taken from spotted seatrout sampled from Virginia's commercial fisheries. Of the 885 length samples, 57 were from the commercial hook-and-line gear, 475 from haul seine, 15 from pound nets, 295 from gill nets, and 43 by-hand. Sample lengths ranged from 8 to 33 inches total length (TL), with an average of 19 inches TL. The average weight of spotted seatrout sampled from the commercial landings was 2.7 pounds. The spotted seatrout sampled from the commercial fishery ranged in age from 0 to 8 years.

The VMRC introduced its Marine Sportfish Collection Project in June 2007. There were 62 spotted seatrout donated by recreational fishermen to the project in 2014. A total of 62 lengths, and 62 otoliths were taken from the recreational spotted seatrout donations. The lengths of spotted seatrout sampled from the recreational fishery ranged from 15 to 28 inches TL. The average length of the spotted seatrout recreational fishery samples was 20.0 inches TL. The spotted seatrout sampled from the recreational fishery ranged in age from 1 to 6 years. Virginia also has a Game Fish Tagging Program which tagged and released 5,659 spotted sea trout in 2014. 84 of those fish were recaptured to date.

MD DNR fisheries biologists sampled commercial pound nets weekly in Maryland's portion of the Chesapeake Bay from May 27, 2014 through September 2, 2014. Four spotted seatrout were encountered from the onboard pound net survey in 2014, with a mean length of 499 mm TL. A low number of juvenile spotted seatrout are encountered in the coastal bays seine survey and the Chesapeake Bay blue crab trawl survey as bycatch, indicating the species utilizes these areas as nursery habitat.

VI. Status of Management Measures and Issues

Changes to State Regulations
Maryland
On April 14, 2014 the regulations were modified to a 4 fish creel limit for recreational anglers, and a 14 inch TL minimum size limit and 150 pound per day or trip (whichever is longer) limit for commercial fishermen. The recreational size limit did not change.

Virginia

The VMRC recreational season was closed from March 1 through July 31. This season was a one-time event requested by the recreational fishing community to protect the stock, in response to an assumed large winter mortality event. The daily possession limits during the open seasons was 5 spotted seatrout per day from 14 to 24 inches total length, with one fish allowed over 24 inches.

North Carolina
Both the commercial and recreational fishery were closed from February 5 through June 14, 2014 as a result of a cold stun event. This was a one-time closure.

De minimis Guidelines
A state qualifies for *de minimis* status if its past 3-years' average of the combined commercial and recreational catch is less than 1% of the past 3-years' average of the coastwide combined commercial and recreational catch. Those states that qualify for *de minimis* are not required to implement any monitoring requirements, none of which are included in the plan.

De Minimis Requests
The states of New Jersey and Delaware requests continuation of *de minimis* status. The PRT notes these states meet the requirements of *de minimis*.

VII. Implementation of FMP Compliance Requirements for 2013

The PRT notes that all states have met the compliance requirements.

VIII. Recommendations of Plan Review Team

Management and Regulatory Recommendations
- Increase observer coverage in states that have a commercial fishery for spotted seatrout.

Prioritized Research Recommendations

High Priority
- Conduct state-specific stock assessments to determine the status of stocks relative to the plan objective of maintaining a spawning potential of at least 20%.
- Collect data on the size or age of spotted seatrout released alive by anglers and the size and age of commercial discards.
- Research release mortality and how this changes with season and depth.
- Continue work to examine the stock structure of spotted seatrout on a regional basis, with particular emphasis on advanced tagging techniques.
- Research effects of winter on the population.
- Utilize telemetry technology to better understand life history characteristics.
- More research is needed on the significance of age-specific fecundity changes (ie: environment impacts on spawning output of population)
- Develop state-specific juvenile abundance indices.
- Increase observer coverage in states that have a commercial fishery for spotted seatrout.

Medium Priority
- Identify essential habitat requirements.
- Initiate collection of social and economic aspects of the spotted seatrout fishery.

IX. References

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X. Figures

Figure 1. Commercial landings (1960-2014) and recreational landings (1981-2014), in pounds, from Maryland to Florida (See Tables 2 and 4 for values and sources)

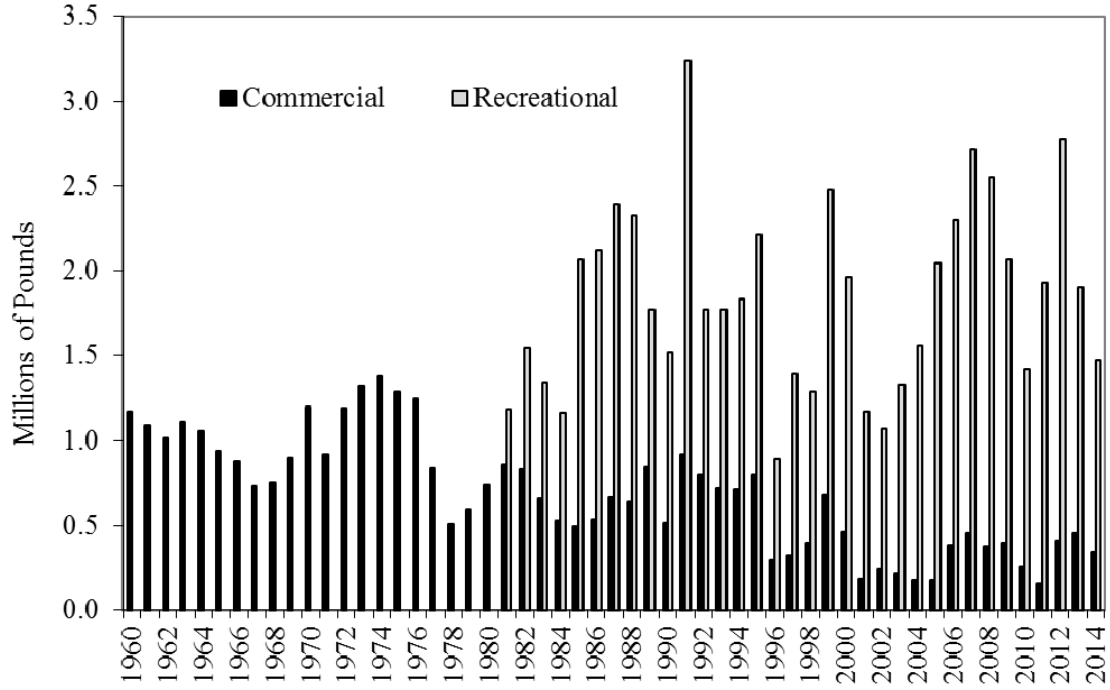
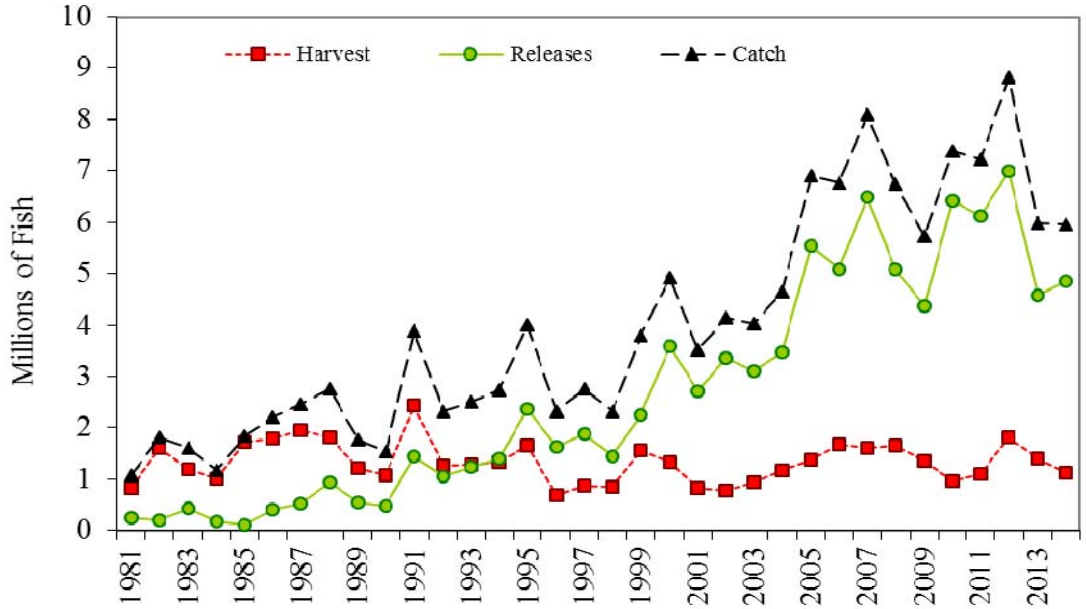


Figure 2. Recreational catch (numbers), 1981-2014, from Maryland to Florida
(See Tables 3 and 5 for values and sources)



XI. Tables

Table 1. Summary of state regulations for spotted seatrout in 2014

State	Recreational	Commercial
New Jersey	13" TL; 1 fish	Gill net: 13"; open 1/1-5/20 & 9/3-10/19 & 10/27-12/31; 100 lb possession limit; 100 lb bycatch limit; mesh ≥3.25" stretched except 2.75 - 3.25" stretched allowed within 2nm for permitted fishermen doing monthly reporting. Trawl: 13"; open 1/1-7/31 & 10/13-12/31; mesh ≥3.75" diamond or 3.375 square; 100 lb possession limit' 100 lb bycatch limit. Pound net: 13"; open 1/1/-6/6 & 7/1-12/31; 100 lb bycatch limit.
Delaware	12" TL	12" TL
Maryland	14" TL; 4 fish	14" TL. 150 pound limit per day or trip (whichever is longer)
PRFC	14" TL; 10 fish	14" TL
Virginia	5 fish per day between 14-24" TL; 1 fish per day over 24"	14" TL except pound nets and haul seines allowed 5% by weight less than 14". Hook & line - 5 fish limit between April 1- November 30. Quota: 51,104 lbs (Sept. 1-Aug. 31).
North Carolina	14" TL; 4 fish	14" TL; hook & line - 75 fish limit. Unlawful to possess or sell from midnight on Friday to midnight on Sunday
South Carolina	14" TL; 10 fish. May be taken by rod & reel year-round or gigging March-November.	Gamefish status since 1987: native caught fish may not be sold.
Georgia	13" TL; 15 fish	13" TL; 15 fish. Commercial fishing license to sell. BRD requirement for trawl; gear mesh regulations.
Florida	Slot limit: 15-20" TL with 1 fish >20" allowed; north region: 6 fish limit; south region: 4 fish limit; hook & line or cast net only	15-24" TL; May 1-September 30 season in south and June 1-November 30 in the north; 75 fish per day but 150 fish limit with two or more licensed fishermen on board

Note: A commercial fishing license is required to possess spotted seatrout for sale in all states with a fishery.

Table 2. Commercial landings (pounds) of spotted seatrout by state, 1981-2014
(Source: State Compliance Reports, 2015). Starred boxes represent confidential data.

Year	MD	VA	NC	SC	GA	FL	Total
1981	0	4,000	113,304		629	736,026	853,959
1982	0	3,400	83,847	1,944	4,994	732,278	826,463
1983	0	4,400	165,360	4,479	5,795	481,535	661,569
1984	0	3,000	152,934	2,374	4,348	367,541	530,197
1985	0	8,302	109,048	1,770	7,149	369,756	496,025
1986	0	18,500	191,514	12,214	8,691	307,261	538,180
1987	0	13,300	315,380	11,941	10,739	317,044	668,404
1988	0	15,500	296,538	486	9,110	315,947	637,581
1989	0	18,500	451,909	33	10,565	361,973	842,980
1990	0	21,435	250,634	1,095	5,942	236,453	515,559
1991	98	21,200	660,662	0	7,380	225,812	915,152
1992	0	10,395	526,271	0	11,310	247,189	795,165
1993	868	38,033	449,886	0	8,550	223,931	721,268
1994	690	44,636	412,458	0	5,112	247,666	710,562
1995	668	28,722	574,410	0	8,482	184,269	796,551
1996	12,742	3,897	226,668	0	7,501	48,254	299,062
1997	15,199	11,639	232,583	0	7,621	57,316	324,358
1998	16,993	21,235	307,777	0	2,845	41,556	390,346
1999	29,419	35,055	546,775	0	3,244	61,802	676,295
2000	18,419	15,463	376,657	0	1,997	45,392	457,928
2001	25,161	19,039	105,797	0		30,234	180,231
2002	*	8,792	175,643	*	*	44,640	240,357
2003	816	5,299	181,529	0		27,075	214,719
2004	*	10,705	130,961	*	*	29,605	172,487
2005	*	7,341	129,601	*	*	36,762	176,043
2006	*	30,218	312,620	*	*	36,687	379,820
2007	*	34,166	374,722	*	*	46,838	455,740
2008	*	44,275	304,430	*	*	20,887	369,861
2009	*	23,880	320,247	*	*	46,297	390,600
2010	*	17,271	200,822	*	*	39,374	258,492
2011	*	14,728	75,239	*	*	63,592	154,144
2012	*	76,963	265,017	*	*	61,664	405,534
2013	*	28,223	367,412	*	*	58,221	456,284
2014	*	66,504	241,995	*	*	37,710	346,587

Table 3. Recreational harvest (numbers of fish) of spotted seatrout by state, 1981-2014
(Source: NMFS Fisheries Statistics Division)

Year	MD	VA	NC	SC	GA	FL	Total
1981			30,037	20,934	189,080	576,847	816,898
1982			112,023	849,634	226,758	426,378	1,614,793
1983			91,956	121,940	325,655	645,120	1,184,671
1984			90,262	95,281	114,403	700,876	1,000,822
1985			263,878	347,851	251,764	866,162	1,729,655
1986	7,507	82,671	270,867	477,136	401,490	550,591	1,790,262
1987	29,295	17,415	320,977	392,329	439,782	744,330	1,944,128
1988	20,769	288,705	420,115	355,547	389,276	331,709	1,806,121
1989	151,986	66,033	181,149	174,011	448,767	198,617	1,220,563
1990	20,416	67,939	251,088	113,160	368,787	249,824	1,071,214
1991	17,995	69,032	316,895	438,502	1,204,116	385,817	2,432,357
1992	3,235	30,091	333,990	200,030	338,175	363,238	1,268,759
1993	7,038	103,131	206,523	222,144	463,702	274,118	1,276,656
1994	33,511	115,025	457,636	139,551	337,965	255,216	1,338,904
1995	19,198	90,838	325,927	223,751	607,095	381,884	1,648,693
1996	35,765	46,098	151,380	137,530	171,676	148,571	691,020
1997	19,951	92,725	256,719	111,576	167,287	228,096	876,354
1998	13,620	34,623	294,501	125,038	197,293	189,621	854,696
1999	2,112	138,492	410,321	101,260	655,407	241,096	1,548,688
2000	1,634	90,135	250,450	219,740	486,673	288,443	1,337,075
2001	0	13,447	182,124	63,452	309,487	250,987	819,497
2002	0	16,303	197,484	84,777	271,357	206,310	776,231
2003	2,091	102,484	106,415	123,027	425,993	169,587	929,597
2004	0	68,409	316,894	247,156	336,254	199,523	1,168,236
2005	1,954	22,062	512,262	268,467	231,429	337,744	1,373,918
2006	4,860	43,530	577,537	294,096	453,394	299,337	1,672,754
2007	0	159,244	525,156	122,419	499,709	302,625	1,609,153
2008		103,880	584,024	175,975	623,619	160,455	1,647,953
2009	7,933	22,635	509,416	147,266	478,895	182,752	1,348,897
2010	3,146	17,417	195,065	101,053	384,077	251,455	952,213
2011	3,058	247,736	215,922	66,207	289,950	286,501	1,109,374
2012	6,032	125,627	500,522	234,921	526,604	427,469	1,821,175
2013	0	55,151	649,158	126,351	237,551	335,547	1,403,758
2014	4,755	46,524	433,978	77,669	256,068	308,133	1,127,127

Table 4. Recreational harvest (pounds of fish) of spotted seatrout by state, 1981-2014
(Source: NMFS Fisheries Statistics Division)

Year	MD	VA	NC	SC	GA	FL	Total
1981			63,036	14,808	138,720	967,921	1,184,485
1982			120,045	588,999	177,847	660,295	1,547,186
1983			96,359	138,442	323,889	784,531	1,343,221
1984			39,861	116,118	141,306	866,077	1,163,362
1985			288,088	509,551	234,704	1,032,344	2,064,687
1986	4,960	64,394	328,439	587,570	440,774	695,168	2,121,305
1987	22,511	38,495	366,442	592,612	491,317	883,707	2,395,084
1988	36,629	460,378	390,836	448,473	536,959	453,063	2,326,338
1989	184,318	112,344	259,726	277,489	608,009	328,338	1,770,224
1990	39,059	121,136	282,872	174,845	423,815	475,045	1,516,772
1991	34,753	121,604	472,397	628,011	1,449,853	534,371	3,240,989
1992	7,802	56,685	508,760	227,210	430,946	543,491	1,774,894
1993	12,800	201,562	307,151	268,055	586,426	392,827	1,768,821
1994	26,764	175,184	679,996	183,343	412,392	357,441	1,835,120
1995	31,464	148,544	478,674	247,987	667,379	642,670	2,216,718
1996		77,269	197,261	171,727	196,487	249,898	892,642
1997	32,963	261,911	311,891	163,771	242,506	380,276	1,393,318
1998	37,189	61,888	444,441	151,718	262,896	329,793	1,287,925
1999		290,694	690,606	146,277	916,860	428,061	2,472,498
2000	2,972	195,544	385,190	267,297	565,903	545,202	1,962,108
2001		26,733	213,438	58,885	369,083	502,254	1,170,393
2002		28,882	274,100	111,954	302,559	353,693	1,071,188
2003	3,494	218,061	145,936	140,276	502,278	316,279	1,326,324
2004		138,841	386,918	168,468	383,237	482,853	1,560,317
2005	5,491	55,901	721,914	326,501	273,204	665,467	2,048,478
2006	10,674	107,770	794,372	369,165	444,228	574,081	2,300,290
2007	0	380,281	927,942	278,529	615,694	512,885	2,715,331
2008	0	239,743	936,652	242,405	777,690	354,409	2,550,899
2009	9,006	44,761	940,769	172,848	596,182	303,281	2,066,847
2010	6,724	30,176	404,438	138,514	425,854	411,495	1,417,201
2011	4,664	550,157	435,954	116,979	353,472	464,863	1,926,089
2012	10,257	226,556	810,589	388,105	518,189	819,009	2,772,705
2013		126,291	626,628	228,014	282,362	637,881	1,901,176
2014	10,633	84,838	433,978	111,194	283,282	546,335	1,470,260

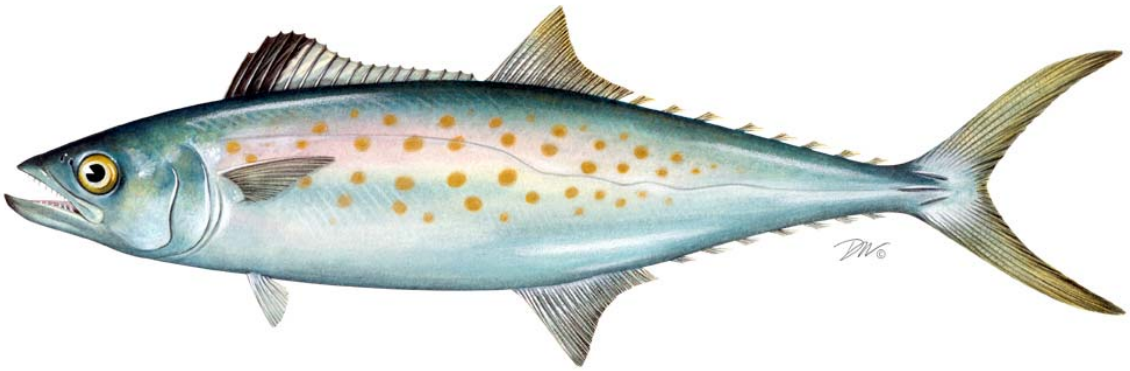
Table 5. Recreational releases (number of fish) of spotted seatrout by state, 1981-2014
(Source: NMFS Fisheries Statistics Division)

Year	MD	VA	NC	SC	GA	FL	Total
1981				5,522	36,853	209,059	251,434
1982				8,007	17,645	171,093	196,745
1983			16,579	32,860	12,038	367,881	429,358
1984			30,173	44,436	16,174	76,346	167,129
1985			16,578	6,409	22,917	66,960	112,864
1986	13,639	28,606	19,792	115,315	189,798	35,646	402,796
1987		30,070	136,104	130,253	176,415	41,391	514,233
1988	26,999	148,934	74,818	78,568	182,628	431,665	943,612
1989	52,859	11,977	82,909	54,279	167,025	187,406	556,455
1990	4,874	23,435	84,235	35,223	114,624	203,439	465,830
1991	21,811	40,550	169,921	51,415	369,972	789,779	1,443,448
1992	701	19,855	139,616	97,813	192,261	597,254	1,047,500
1993		65,605	149,744	92,101	146,665	780,573	1,234,688
1994	32,466	243,463	207,262	220,941	125,421	574,629	1,404,182
1995	157,530	327,643	277,896	194,996	327,835	1,074,703	2,360,603
1996	51,594	165,169	153,051	107,691	63,585	1,081,893	1,622,983
1997	4,826	168,964	98,377	89,147	61,148	1,449,278	1,871,740
1998	49,460	74,569	73,024	151,935	100,059	1,005,443	1,454,490
1999	7,082	152,120	253,442	92,792	160,801	1,577,378	2,243,615
2000	4,805	264,550	90,070	368,332	547,765	2,310,491	3,586,013
2001		110,308	194,982	38,709	365,140	1,995,635	2,704,774
2002		136,265	385,162	147,962	357,953	2,326,420	3,353,762
2003		207,270	131,619	314,642	737,730	1,707,957	3,099,218
2004	9,430	257,996	300,025	333,537	608,193	1,969,884	3,479,065
2005	4,612	192,091	817,036	395,483	678,057	3,446,336	5,533,615
2006	9,721	82,935	559,786	666,865	872,395	2,889,495	5,081,197
2007	2,231	362,809	973,516	560,272	957,682	3,623,247	6,479,757
2008		366,566	1,005,298	850,006	719,622	2,140,752	5,082,244
2009	30,381	171,028	1,213,526	398,971	915,301	1,641,702	4,370,909
2010	107,017	550,118	1,684,872	407,228	742,215	2,937,411	6,428,861
2011	7,685	1,214,620	1,916,249	279,969	552,123	2,141,212	6,111,858
2012	55,183	428,540	1,646,512	817,017	1,029,479	3,025,556	7,002,287
2013	0	291,070	1,427,410	600,607	321,461	1,939,475	4,580,023
2014	26,438	291,070	960,570	389,153	773,940	2,399,792	4,840,963

2015 REVIEW OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
FISHERY MANAGEMENT PLAN FOR

SPANISH MACKEREL
(*Scomberomorus maculatus*)

2014 FISHING YEAR



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I. Status of the Plan

Date of FMP Approval:	Original FMP – October 1990
Amendments:	Omnibus Amendment to Spanish Mackerel, Spot, and Spotted Seatrout (Amendment 2)- August 2011 Addendum I- August 2013
Management Area:	The Atlantic coast distribution of the resource from New York through the east coast of Florida
Active Boards/Committees:	South Atlantic State/Federal Fisheries Management Board; Spanish Mackerel Plan Review Team

The Fishery Management Plan (FMP) for the Coastal Migratory Pelagic Resources (1983 and subsequent amendments) and the Interstate Fishery Management Plan for Spanish Mackerel (1990) manage Atlantic group Spanish Mackerel in federal and state Atlantic waters from New York through the east coast of Florida. All states in that range, excluding Pennsylvania, have a declared interest in the Interstate FMP for Spanish Mackerel. The South Atlantic State/Federal Fisheries Management Board serves as the Commission's Spanish Mackerel Management Board. The Interstate FMP for Spanish Mackerel is a flexible document intended to track the federal FMP; thus, the South Atlantic Fishery Management Council (SAFMC) has the lead on Atlantic group Spanish mackerel management.

The SAFMC manages Atlantic group Spanish Mackerel based on guidance from its Scientific and Statistical Committee (SSC). The SAFMC determines needed adjustments to regulatory measures, including allowable catch, bag limits, size limits, and trip limits. The SAFMC deliberations are assisted by a Mackerel Committee that includes representatives from the Mid-Atlantic Fishery Management Council, and an Advisory Panel with South Atlantic and Mid-Atlantic industry representation. Since the Coastal Migratory Pelagic Resources FMP is a joint plan with the Gulf of Mexico Fishery Management Council (GMFMC), any amendments to this FMP must be approved by both Councils.

The SAFMC and GMFMC approved Amendment 18 to the Coastal Migratory Pelagic Resources FMP in December 2011 which established a new Allowable Biological Catch (ABC) based on the SSC recommendation of using median landings of the last 10 years (2001-2011). With this change, the ABC was set equal to the Annual Catch Limit (ACL) and Optimum Yield (OY) [ABC=ACL=OY] at approximately 5.29 million lbs. With this the commercial ACL was 3.13 million lbs and the recreational ACL was 2.56 million lbs.

Under the federal FMP, the 2013-2014 fishing year ran from March 1, 2013 to February 28, 2014. The 2014-2015 fishing year began on March 1st, 2014. The federal FMP divides the commercial fishery into a quota system between the Atlantic and Gulf migratory groups. Within the Atlantic migratory group, there are two zones- the Northern (consisting of the states from New York through North Carolina) and the Southern (South Carolina to Florida). For the Atlantic migratory group, the 2013/2014 year, the full quota was 3.13 million pounds and the adjusted quota was 2.88 million pounds. The adjusted quota is used to determine trip limit reductions. For the 2014/2015 fishing season, the full quota was increased to 3.33 million pounds following CMP Framework Amendment 1 (See *Section VI*).

The federal commercial trip limit was a year-round 3,500 pound daily possession/landings limit for the states from New York through Georgia, with Florida's commercial trip limit varying depending on the percent of quota remaining. Following the implementation of Amendment 20B and CMP Framework Amendment 2, the federal trip limit for the Southern zone (SC through FL) decreases as quota is caught. When 75% of the "adjusted" Southern Zone quota[1] (1,812,998 lbs ww) is caught, the trip limit is reduced from 3,500 lbs to 1,500 lbs. When 100% of the adjusted Southern Zone quota (2,417, 330 lbs ww) is caught, the commercial trip limit is further reduced to 500 lbs. When 100% of the Southern Zone quota is met, harvest is prohibited for the remainder of the fishing year. In both the Northern and Southern zones, the recreational bag limit is set at 15 fish. The minimum size limit for both fisheries is 12" fork length or 14" total length.

The goals of the interstate FMP are to complement federal management in state waters, to conserve the Atlantic group Spanish Mackerel resource throughout its range, and to achieve compatible management among the states that harvest Spanish Mackerel. In accordance with the 2011 Omnibus Amendment, the updated FMP's objectives are to: (1.) Manage the Spanish Mackerel fishery by restricting fishing mortality to rates below the threshold fishing mortality rates to provide adequate spawning potential to sustain long-term abundance of the Spanish Mackerel populations. (2.) Manage the Spanish Mackerel stock to maintain the spawning stock biomass above the target biomass levels. (3.) Minimize endangered species bycatch in the Spanish Mackerel fishery. (4.) Provide a flexible management system that coordinates management activities between state and federal waters to promote complementary regulations throughout Spanish Mackerel's range which minimizes regulatory delay while retaining substantial ASMFC, Council, and public input into management decisions; and which can adapt to changes in resource abundance, new scientific information and changes in fishing patterns among user groups or by area. (5.) Develop research priorities that will further refine the Spanish Mackerel management program to maximize the biological, social, and economic benefits derived from the Spanish Mackerel population. See Table 1 for state Spanish Mackerel regulations in 2014.

II. Status of the Stocks

The Atlantic coast Spanish Mackerel resource is not experiencing overfishing and the stock is not overfished (SEDAR. 2012). As updated in the SEDAR 28 Stock Assessment Report, the current stock biomass is estimated to be $SSB_{2011}/MSST=2.29$. The current level of fishing (exploitation rate) was $F_{2009\text{-}2011}/F_{MSY}=0.526$, with $F_{2011}/F_{MSY}=0.521$. The overfished ratio (B/B_{MSY}) shows that the biomass declined as a result of the high fishing mortality but has increased in recent years and remains above B_{MSY} (Figure 1). The overfishing ratio (F/Fmsy) shows that fishing mortality increased from the late 1970s through 1994 but has since declined (Figure 2). Fishery-dependent data also indicate an increasing biomass trend (except during the last four years which show a decline). The current fishing mortality rate does not seem to be inhibiting stock growth.

III. Status of the Fishery

Spanish Mackerel are an important recreational and commercial fishery in South Atlantic waters, with recreational landings north of Maryland limited and sporadic (Tables 2 and 4). Trip limits implemented in state and federal waters continue to prevent premature closure of the commercial fishery. Total landings of Spanish Mackerel in 2014 are estimated at 4.4 million pounds (compared to the 6.063 million pound ACL). The commercial fishery harvested approximately 70.7% of the total, and the recreational fishery about 29.3%.

[1] The adjusted quota is the Southern Zone quota minus 250,000 lbs.

From 1960 to 2014, commercial landings of Atlantic coast Spanish Mackerel have ranged between 1.9 and 11.1 million pounds, although that range is limited to between 1.9 and 6.0 million pounds if the unusually large harvests in 1976-77 and 1980 are excluded. Since 1981, total landings have averaged 5.12 million pounds. Coastwide commercial landings have generally been below 4 million pounds since 1995 (exception of 2010; landings of 4.53 million pounds); this coincided with the entanglement net ban in Florida. Gill nets were the dominant commercial gear in Florida prior to the ban. After the ban was instituted, the use of cast nets increased. The 2014 commercial landings were 3.272 million pounds (Figure 3), of which 2.585 million pounds were landed in Florida (79% of the harvest). North Carolina harvested approximately 21% of the total 2014 landings (Table 2).

Recreational anglers harvested an estimated 886,000 Spanish Mackerel (1.14 million pounds) in 2014, a decrease from the 1.19 million fish caught in 2013 (Tables 3 and 4). The number of recreationally harvested fish appears to show a cyclical trend, with low harvests in the early to mid 80s and mid to late 90s, interspersed with higher harvests (Figure 4). Florida and North Carolina continue to account for the majority of recreational landings in both number and weight. In 2014, Florida harvested 43% of the total number of fish and North Carolina 45%. The number of recreational releases of Spanish Mackerel has generally increased over time, reaching a peak of over 930,000 fish in 2008 (Table 5, Figure 4). Recreational releases in 2014 were an estimated 490,000 fish.

IV. Status of Assessment Advice

The most recent stock assessment was completed in 2012 through the Southeast Data, Assessment, and Review (SEDAR) process (SEDAR 2012). The input data (through 2011) were applied to two assessment models, with the primary model being a statistical catch at age model called the Beaufort Assessment Model (BAM); while a secondary surplus-production model (ASPIC) provided a comparison of model results. The Review Panel concluded that the statistical catch at age model was the most appropriate model to characterize the stock status for management purposes.

The SSC reviewed the assessment during its December 2012 meeting and accepted the SEDAR 28 Spanish Mackerel stock assessment as best available science. The SSC concurred with the Review Panel's conclusion that the stock is not experiencing overfishing and the stock is not overfished.

V. Status of Research and Monitoring

The National Marine Fisheries Service (NMFS) Southeast Fisheries Science Center (SEFSC) continues to monitor length and weight at age and size frequencies, fishing mortality, and migration; collect age data and catch per unit effort by area, season, fishery, and gear; monitor shrimp trawl bycatch; investigate methods to predict year class strength; calculate estimates of recruitment, and develop conservation gear to reduce bycatch. The NMFS is also collecting discard data through a bycatch logbook in the mackerel and snapper-grouper fisheries. The Gulf and South Atlantic Fisheries Development Foundation and several states (North Carolina, South Carolina, Georgia, and Florida) have evaluated finfish bycatch in the southeastern shrimp trawl fishery, including bycatch of Spanish Mackerel. The South Atlantic component of the Southeast Area Monitoring and Assessment Program (SEAMAP) collects Spanish Mackerel data in its coastal trawl survey from Cape Hatteras to Cape Canaveral. Additionally, the Northeast Area Monitoring

and Assessment Program (NEAMAP) began regular spring and fall surveys between Martha's Vineyard and Cape Hatteras in the fall of 2007.

Abundance trends continue to be monitored primarily through fishery-dependent sources. The states and the SEFSC monitor catch data through the cooperative commercial statistics collection program and the recreational fisheries survey. Commercial trip reports are tallied more frequently in the winter and early spring by the state of Florida and NMFS as the commercial quota is approached.

North Carolina also conducts fishery independent monitoring. Three fishery independent gill net surveys were initiated by the North Carolina Division of Marine Fisheries in May of 2001, 2003 and 2008, respectively. These surveys utilize a stratified random sampling scheme designed to characterize the size and age distribution for key estuarine species in Atlantic Ocean and Pamlico Sound as well as the Pamlico, Pungo, Neuse, Cape Fear and New rivers. The overall Spanish Mackerel CPUE was very low for all areas except the Atlantic Ocean where the 2014 CPUE was 0.64 (n=16).

VI. Status of Management Measures

2008 Framework Adjustment (Federal)
In February 2008, NOAA Fisheries finalized a framework adjustment to change the beginning date for trip limits in the Atlantic Spanish Mackerel fishery off the east coast of Florida. The 3,500 pound trip limit begins March 1 each year to correspond with the beginning of the fishing year (as changed in Amendment 15).

Omnibus Amendment (Interstate)
In August 2011, the Management Board approved an amendment to the Spanish Mackerel FMP to address three issues: compliance measures, consistency with federal management in the exclusive economic zone, and alignment with Commission standards. Through the Omnibus Amendment, the following fisheries management measures are required for states within the management unit range;

<u>Recreational Fishery</u>

- 12" Fork Length (FL) or 14" Total Length (TL) minimum size limit
- 15 fish creel limit
- Must be landed with head and fins intact
- Calendar year season
- Prohibited gear: Drift gill nets prohibited south of Cape Lookout, NC
- Decrease in the recreational quota the following year via reduced bag limits if the Total Annual Catch Limit (ACL) is exceeded and stock is overfished.

<u>Commercial Fishery</u>

- Prohibited: purse seines; drift gill nets south of Cape Lookout, NC
- 12" FL or 14" TL minimum size limit
- March 1 – end of February season
- Trip limits (per vessel, per day)
  NY-GA: 3500 lbs
  FL: 3500 lbs, 3/1-11/30;
  3500 lbs Mon-Fri & 1500 lbs Sat-Sun, 12/1 until 75% adjusted quota taken;

1500 lbs, when 75% adjusted quota taken until 100% adjusted quotas taken;
500 lbs after 100% of adjusted quotas taken (the adjusted quota compensates for estimated catches of 500 lbs per vessel per day to the end of the season)

- Commercial quotas decreased the following year if Total ACL is exceeded and stock is overfished

Amendment 18 (Federal)
In August 2011, the Gulf of Mexico and South Atlantic, Fishery Management Councils approved Amendment 18 to the joint FMP for Coastal Migratory Pelagics. The primary action under consideration established Annual Catch Limits (ACLs) and Accountability Measures (AMs) for the cobia, king mackerel, and Spanish Mackerel. The amendment designates ACLs and ACTs for each of the two migratory groups of Spanish Mackerel (Atlantic and Gulf). For the Atlantic migratory group, the commercial sector ACL is set equivalent to the commercial sector quota of 3.13 million pounds. The AM for the commercial sector is that the commercial sector will close when the commercial quota is reached or projected to be reached. In addition, current trip limit adjustments will remain in place. When the commercial sector closes, harvest and possession of Spanish Mackerel would be prohibited for persons aboard a vessel for which a commercial permit for Spanish Mackerel has been issued.

For the recreational sector, the ACT is set to 2.32 million pounds, while the ACL is set at 2.56 million pounds. Regarding the AM, if the stock ACL is exceeded in any year, the bag limit will be reduced the next fishing year by the amount necessary to ensure recreational landings achieve the recreational ACT, but do not exceed the recreational ACL in the following fishing year. A payback will be assessed if the Atlantic migratory group Spanish Mackerel is determined to be overfished and the stock ACL is exceeded. The payback will include a reduction in the sector ACL for the following year by the amount of the overage by that sector in the prior fishing year.

Addendum I
In August 2013, the Commission's South Atlantic State-Federal Fisheries Management Board approved Addendum I to the Omnibus Amendment to for Spanish Mackerel, Spot, and Spotted Seatrout.

Addendum I to the Omnibus Amendment establishes a pilot program that would allow states to reduce the Spanish Mackerel minimum size limit for the commercial pound net fishery to 11 ½ inches during the summer months of July through September for the 2013 and 2014 fishing years only. The measure is intended to reduce waste of these shorter fish, which are discarded dead in the summer months, by converting them to landed fish that will be counted against the quota.

The Addendum responds to reports about the increased incidence of Spanish Mackerel ¼ to ½ inch short of the 12 inch fork length minimum size limit in pound nets during the summer months. While the fish are alive in the pound, once the net is bunted and bailing commences, they die before being released. This may be due to a combination of temperature, stress and crowding. While individual fishermen have experimented with different wall or panel mesh sizes depending on the target species, there is no consistent use of cull panels. Those who have used cull panels have noted the difficulty and lack of success in being able to release the undersized fish quickly enough to prevent dead discards during this time of year.

The measures in Addendum I only applied for the 2013 and 2014 fishing seasons. In August 2015, the South Atlantic Board formally extended the provisions of Addendum I for the 2015 and 2016

fishing seasons. Reports by North Carolina, the only state to reduce their minimum size, will be reviewed annually.

Amendment 20A (Federal)
Effective July 2014, this Amendment addresses the sale of bag limit caught Spanish Mackerel. The amendment rose from concerns that the recreational sales of bag limit caught fish, which are counted toward commercial quotas, are contributing to early closures of the commercial sector. In addition potential double counting of these fish could be causing erroneous landings estimates. In response, the Amendment prohibits bag limit sales with the exception of recreationally caught fish from state permitted tournaments in the South Atlantic region. This amendment also included an action to remove income requirements for federal CMP permits.

South Atlantic CMP Framework Action (Federal)
Effective December 2014, this action allows Spanish Mackerel, harvested with gillnet gear in the South Atlantic in excess of the trip limit, to be transferred to another federally permitted vessel that has not yet harvested the trip limit. The Framework stipulates that the transfer can only occur if: 1) allowable gillnet gear was used to harvest Spanish Mackerel; 2) the transfer takes place in federal waters between vessels with valid commercial permits; 3) the receiving vessel does not have more than 3 gillnets aboard after the transfer; 4) all fish remain entangled in the meshes of the net until the transfer; 5) the quantity of the fish transferred does not exceed the daily trip limit; and 6) there is only one transfer per vessel per day.

CMP Framework Amendment 1 (Federal)
This Framework Amendment, effective December 2014, increases the Atlantic Spanish Mackerel ACL to 6.063 million pounds. The modification to the ACL followed the 2013 stock assessment which concluded that the stock is not overfished and overfishing is not occurring. The Amendment divides the ACL between the commercial sector (3.33 million pounds) and the recreational sector (2.727 million pounds).

Amendment 20B (Federal)
Effective March 2015, this Amendment separates commercial quotas of Atlantic Spanish Mackerel between a Northern zone (north of NC/SC line) and a Southern zone (South of NC/SC line). The Amendment rose from concerns that the commercial quota could be filled by fishermen in one state before fish are available to fishermen in another state. In order to prevent this from happening, a zone is closed when its respective quota is met. Quota for each zones was based on landings from 2002/2003-2011/2012.

CMP Framework Amendment 2 (Federal)
Implemented July 2015, this Amendment modifies the commercial trip limit system in the Southern zone. The rule establishes a trip limit of 3,500 lbs for Spanish Mackerel in Federal waters offshore of South Carolina, Georgia, and Florida. When 75% of the adjusted southern zone commercial quota is caught, the commercial trip limit is reduced to 1,500 lbs. When 100% of the adjusted southern zone commercial quota is met, the commercial trip limit is further reduced to 500 lbs. This limit remains until the end of the year or the quota is met.

VII. Implementation of FMP Compliance Requirements for 2013

All states must implement the requirements specified in section 5 (5.1 Mandatory Compliance Elements for States; 5.1.1 Mandatory Elements of State Programs; 5.1.1.1 Regulatory Requirements). The PRT finds all states in compliance.

De minimis Guidelines

A state qualifies for *de minimis* status if its past 3-years' average of the combined commercial and recreational catch is less than 1% of the past 3-years' average of the coastwide combined commercial and recreational catch. Those states that qualify for *de minimis* are not required to implement any monitoring requirements, none of which are included in the plan.

De Minimis Requests

The states of New Jersey, Delaware, and Georgia request *de minimis* status. The PRT notes these states meet the requirements of *de minimis*.

Regulation Changes

Georgia

As of January 1, 2014, Spanish Mackerel no longer have a fishing season. Size and bag limits will stay the same.

Florida

Effective October 12, 2015:

68B-23.006 Other Prohibitions.

(1) It is unlawful for any person to possess, transport, buy, sell, exchange or attempt to buy, sell or exchange any Spanish Mackerel harvested in violation of this chapter.

(2) The Commission shall issue a permit pursuant to Rule 68B-2.010, F.A.C., to authorize Spanish Mackerel caught in an organized tournament to be donated to a licensed wholesale dealer.

(3) The prohibitions of this chapter apply as well to any and all persons operating a vessel in state waters, who shall be deemed to have violated any prohibition which has been violated by another person aboard such vessel.

VIII. Recommendations of the Plan Review Team

Research and Monitoring Recommendations

High Priority

- Length, sex, age, and CPUE data are needed for improved stock assessment accuracy. Simulations on CPUE trends should be explored and impacts on VPA and assessment results determined. Data collection is needed for all states, particularly those north of North Carolina.
- Evaluation of weight and especially length at age of Spanish Mackerel.
- Development of fishery-independent methods to monitor stock size of Atlantic Spanish Mackerel (consider aerial surveys used in south Florida waters).
- More timely reporting of mid-Atlantic catches for quota monitoring.
- Provide better estimates of recruitment, natural mortality rates, fishing mortality rates, and standing stock. Specific information should include an estimate of total amount caught and distribution of catch by area, season, and type of gear.
- Develop methodology for predicting year class strength and determination of the relationship between larval abundance and subsequent year class strength.
- Commission and member states should support and provide the identified data & input needed to improve the SAFMC's SEDAR process.
- The full implementation of ecosystem-based management and the implementation of monitoring/research efforts needed to support ecosystem-based management needs should be conducted.

Medium Priority

- Yield per recruit analyses should be conducted relative to alternative selective fishing patterns.
- Determine the bycatch of Spanish Mackerel in the directed shrimp fishery in Atlantic Coastal waters (partially met: Branstetter, 1997; Ottley et al., 1998; Gaddis et al., 2001;Page et al., 2004).
- Evaluate potential bias of the lack of appropriate stratification of the data used to generate age-length keys for Atlantic and Gulf Spanish Mackerel.
- Evaluate CPUE indices related to standardization methods and management history, with emphasis on greater temporal and spatial resolution in estimates of CPUE.
- Consideration of MRFSS add-ons or other mechanisms for collection of socioeconomic data for recreational and commercial fisheries.
- Determine normal Spanish Mackerel migration routes and changes therein, as well as the climatic or other factors responsible for changes in the environmental and habitat conditions which may affect the habitat and availability of stocks.
- Determine the relationship, if any, between migration of prey species (i.e., engraulids, clupeids, carangids), and migration patterns of the Spanish Mackerel stock.

Low Priority

- Final identification of Spanish Mackerel stocks through multiple research techniques.
- Complete research on the application of assessment and management models relative to dynamic species such as Spanish Mackerel.
- Delineation of spawning areas and areas of larval abundance through temporal and spatial sampling.

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X. Figures

Figure 1. Estimated total biomass (metric tons) at start of year. Horizontal dashed line indicates B_{MSY}. (SEDAR 2012).

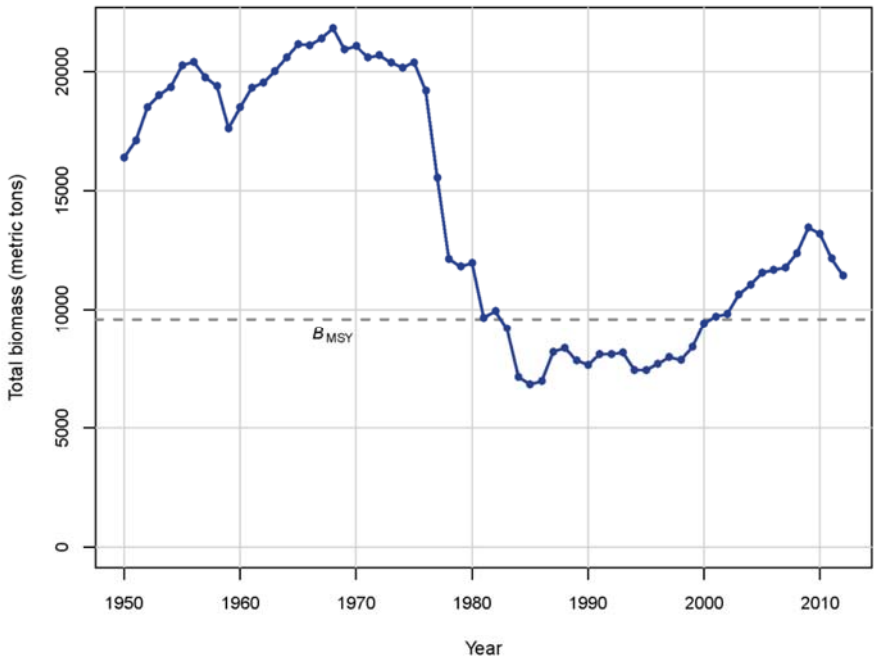


Figure 2. Estimated time series of Atlantic group Spanish mackerel fishing mortality rate (F) relative to F_{MSY} benchmark. Solid line indicates estimates from base run of the Beaufort Assessment Model; gray error bands indicate 5th and 95th percentiles of the Monte Carlo Bootstrap analysis trials (SEDAR 2012).

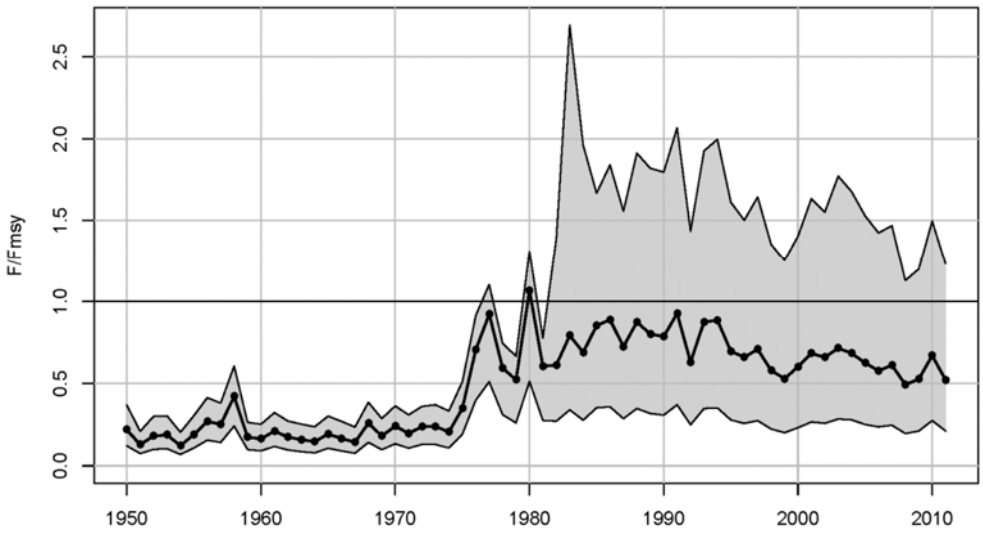


Figure 3. Commercial and recreational harvest (pounds) of Spanish mackerel, 1960-2014
(Recreational data available from 1981-present only; see Tables 2 and 4 for values and sources)

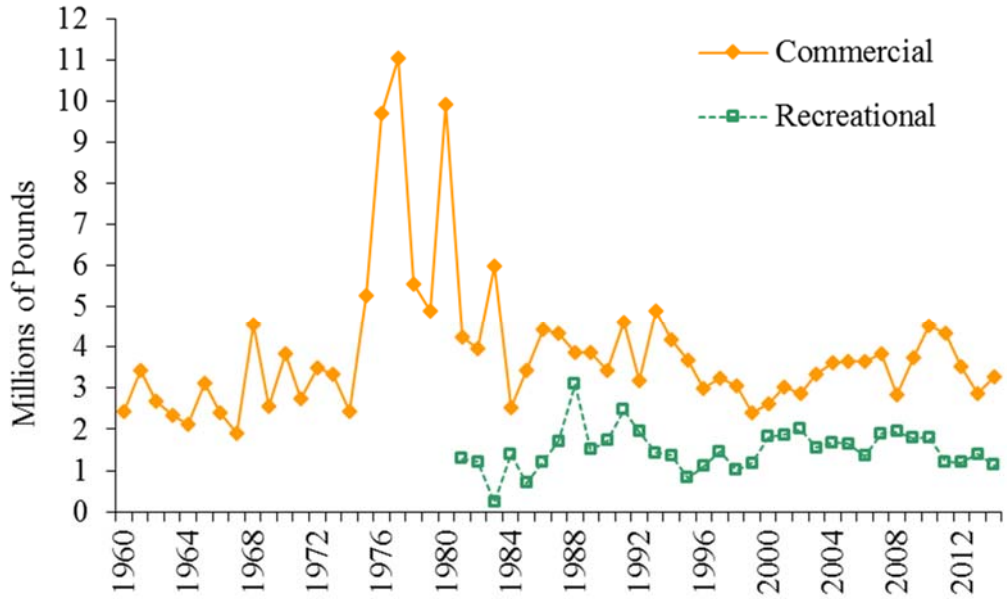
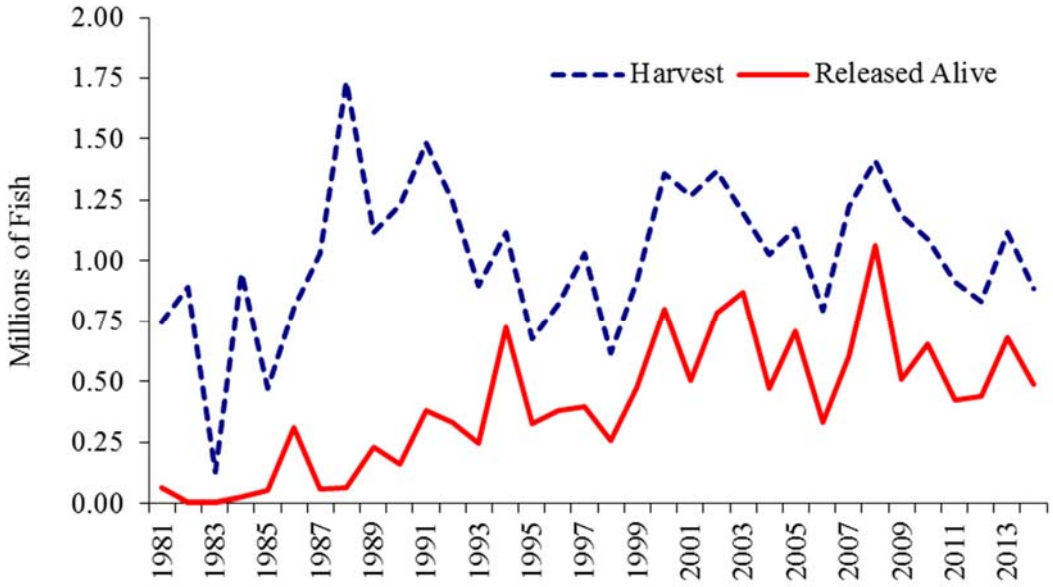


Figure 4. Recreational harvest and releases (numbers of fish) of Spanish mackerel, 1981-2014
(See Tables 3 and 5 for values and sources)



XI. Tables

Table 1. Summary of state regulations for Spanish mackerel in 2014
Notes: A commercial license is required to sell Spanish mackerel in all states; other general gear restrictions apply to the harvest of Spanish mackerel.

State	Recreational	Commercial
NY	14" TL, 15 fish	14" TL. 3,500 lb trip limit
NJ	14" TL, 10 fish	14" TL.
DE	14" TL, 15 fish	14" TL. 3,500 lb trip limit
MD	14" TL, 15 fish	14" TL. 3,500 lb trip limit
PRFC	14" TL, 15 fish	14" TL. Closure if/when federal waters close.
VA	14" TL, 15 fish	14" TL. 3,500 lb trip limit. Closure if/when federal waters close.
NC	12" FL, 15 fish	12" FL. 3,500 lb trip limit (Spanish and king mackerel combined). Purse gill nets prohibited. 11½" FL for pound net fishery July 3-Sept 30.
SC	12" FL, 15 fish	12" FL. 15 fish. Closure if/when federal waters close.
GA	12" FL, 15 fish	12" FL. 15 fish.
FL	12" FL, 15 fish. Transfer to other vessels at sea is prohibited. Cast nets less than 14' and beach or haul seines with no greater than 2" stretched mesh allowed	12" FL. Trip limits: April 1 until Nov. 30 - 3500 lb; Dec. 1 until 75% of adjusted quota reached – 3500 lb Mon-Fri. & 1500 lb Sat-Sun; >75% adjusted quota until quota filled -1500 lb; > 100% of adjusted quota - 500 lb. Restricted Species Endorsement Required Transfer of fish between vessels prohibited Allowed gear: beach or haul seine, cast net, hook and line, or spearing

Table 2. Commercial landings (pounds, calendar year) of Spanish mackerel by state, 1981-2014
(Source: NMFS Fisheries Statistics Division)

Year	NY	NJ	MD	VA	NC	SC	GA	FL	Total
1981	500	500		3,500	51,639		518	4,174,432	4,231,089
1982	1,000	200		12,700	189,217	1,081	745	3,758,603	3,963,546
1983	600	100		3,500	41,336	706		5,947,102	5,998,544
1984	300	100		10,000	127,467	1,321		2,397,373	2,536,561
1985	100			15,300	173,186	847		3,244,980	3,434,413
1986	3,200	1,500		168,400	232,197	6,375	1,335	4,003,738	4,417,345
1987	16,600	24,000	4,800	251,200	504,063	961	255	3,497,135	4,319,914
1988	19,200	16,900	4,300	291,600	438,222	1,029	726	3,071,687	3,847,064
1989	17,700	24,100	10,400	354,400	589,383	1,605		2,853,177	3,872,065
1990	24,329	28,336	43,411	491,651	838,914	384	491	1,979,081	3,418,712
1991	149,321	77,151	62,688	447,127	858,808	444	197	2,986,871	4,611,835
1992	31,873	51,751	37,930	271,313	738,362	1,952	71	2,022,961	3,159,098
1993	42,063	23,036	9,445	335,688	589,868	480	95	3,902,240	4,905,763
1994	124,733	19,915	3,363	376,818	531,355	362		3,099,780	4,160,492
1995	9,136	2,153	3,089	168,732	402,305			3,064,926	3,662,760
1996	17,980	40,821		283,750	401,546			2,244,667	2,991,287
1997	31,107	12,122	3,033	164,639	766,901			2,269,289	3,247,192
1998	37,238	13,242	13,204	121,109	372,440			2,498,461	3,055,874
1999	47,831	17,144	21,604	251,626	459,120			1,566,706	2,366,714
2000	35,825	11,757	26,607	168,679	659,431			1,675,473	2,577,960
2001	13,851	9,401	18,899	178,849	653,491			2,115,782	3,010,325
2002	18,741	11,196	20,725	102,454	698,463			1,995,212	2,846,856
2003	18,339	5,432	5,239	103,409	456,794			2,740,632	3,330,725
2004	16,921	3,060	4,881	66,482	456,243			3,066,186	3,619,942
2005	5,197	2,074	7,750	43,126	446,013			3,133,772	3,638,226
2006	5,720	1,456	290	43,192	470,669			3,142,721	3,665,534
2007	7,244	2,075	3,734	58,064	487,891			3,264,452	3,825,603
2008	2,513		6,192	156,011	415,416			2,262,661	2,844,947
2009	3,462	3,324	11,570	138,292	961,836			2,629,343	3,748,048
2010	3,713	829	4,939	47,562	911,878	0	0	3,553,155	4,522,605
2011	1,149	305	5,054	36,314	871,217			3,432,932	4,347,674
2012	2,294	2,806	3,630	18,317	916,439			2,596,981	3,542,602
2013	4,468	264	2,392	7,746	620,752	0	0	2,247,993	2,879,545
2014	3,081	292	1,644	7,859	673,974	17	0	2,585,473	3,272,352

Table 3. Recreational harvest (numbers) of Spanish mackerel by state, 1981-2014
(NMFS Fisheries Statistics Division)

Year	NY	NJ	DE	MD	VA	NC	SC	GA	FL	Total
1981	0	0	0	0	0	231,744	25,058	1,786	485,395	748,260
1982	0	0	0	0	0	694,420	21,092	408	173,648	889,568
1983	0	0	0	0	0	6,156	3,279	2,109	117,532	129,076
1984	0	0	0	0	0	618,313	79,855	3,718	248,047	949,933
1985	0	0	0	0	0	344,965	36,605	4,809	84,227	470,606
1986	0	1,479	0	457	6,942	431,020	147,358	25,257	195,385	807,898
1987	1,417	0	0	8,036	1,520	815,920	65,846	20,925	118,184	1,031,848
1988	0	0	0	0	101,691	1,312,070	82,135	4,404	233,582	1,733,882
1989	1,010	22,067	0	0	73,236	679,360	121,115	7,444	213,665	1,118,217
1990	1,725	2,495	319	1,355	63,821	821,334	81,375	31,568	225,263	1,229,658
1991	7,608	25,072	2,054	41,250	68,102	676,718	132,198	2,391	517,290	1,484,005
1992	1,325	10,549	210	4,847	71,265	701,974	62,546	25,737	370,808	1,249,261
1993	2,681	3,458	0	43,050	73,832	451,523	92,621	12,980	219,458	899,791
1994	0	7,910	0	43,710	145,871	535,949	113,991	15,235	252,668	1,115,334
1995	0	0	0	26,216	86,899	285,882	34,355	16,726	226,334	676,412
1996	0	1,172	0	0	69,399	355,036	134,282	16,948	245,085	821,922
1997	0	0	0	0	68,517	585,765	101,067	28,396	246,885	1,030,630
1998	0	4,046	186	3,633	33,139	239,051	65,584	28,002	244,235	617,876
1999	0	1,335	226	1,220	75,972	476,018	27,477	9,007	327,621	919,314
2000	4,453	923	0	15,220	71,249	671,353	28,282	20,545	547,315	1,360,868
2001	802	0	0	8,025	29,591	400,706	43,501	11,013	774,065	1,270,264
2002	0	0	0	0	17,433	401,981	24,235	1,927	926,599	1,372,175
2003	0	0	0	6,975	17,063	349,170	24,879	11,235	784,385	1,197,080
2004	0	813	0	4,180	28,300	326,780	56,524	7,412	368,998	794,345
2005	0	0	0	14,349	10,573	335,760	70,124	12,853	512,607	956,266
2006	0	1,079	0	4,408	40	306,273	23,529	1,555	322,789	659,673
2007	0	0	0	20,049	16	495,476	94,635	15,539	455,689	1,081,404
2008	0	344	0	7,515	83,904	744,140	52,726	14,682	503,398	1,406,709
2009	0	215	0	19,901	16,452	677,787	73,611	4,476	368,615	1,161,057
2010	0	0	0	5,580	20,524	483,956	70,350	4,956	512,295	1,097,661
2011	0	0	0	10,554	35,054	367,086	87,110	7,486	406,067	913,357
2012	0	0	0	2,962	11,847	491,238	80,204	2,119	246,865	835,235
2013	0	0	43	2,905	61,308	497,329	22,414	1,299	534,042	1,119,336
2014	0	0	0	5,494	17,521	398,398	80,935	1,903	381,839	886,235

Table 4. Recreational harvest (pounds) of Spanish mackerel by state, 1981-2014
(NMFS Fisheries Statistics Division)

Year	NY	NJ	DE	MD	VA	NC	SC	GA	FL	Total
1981						423,801	53,292	4,306	808,808	1,290,207
1982						928,201	29,546	483	251,115	1,209,345
1983						14,725	8,274	4,198	199,331	226,528
1984						848,537	116,083	5,540	427,501	1,397,661
1985						507,545	34,445	3,547	152,113	697,650
1986		2,500		1,008	9,709	639,105	256,157	47,941	251,673	1,208,093
1987	2,890			14,345	2,011	1,296,732	117,053	40,681	230,725	1,704,437
1988					160,407	2,136,806	140,896	5,141	656,047	3,099,297
1989	3,560	35,415			81,107	877,911	197,982	6,162	303,485	1,506,469
1990	2,332	3,320	470	1,790	86,932	1,084,167	153,932	45,748	346,585	1,725,276
1991	19,612	36,096	3,062	57,249	72,708	1,056,524	291,717	3,717	887,777	2,471,998
1992	3,880	16,526	302	9,634	76,411	947,065	145,451	79,818	669,160	1,948,247
1993	7,590	5,280		68,757	93,272	664,815	135,287	22,209	439,555	1,437,345
1994		8,614		44,969	160,610	588,035	152,836	66,949	350,679	1,372,692
1995		0		34,705	110,433	329,466	40,995	12,072	302,632	830,303
1996		0			80,505	385,922	184,655	31,856	413,687	1,096,625
1997		0			22,233	862,497	143,297	37,877	400,148	1,466,052
1998		9,189	379	5,725	57,467	305,630	106,209	112,562	408,872	1,006,033
1999		2,207	240	1,715	79,602	469,258	44,917	10,031	578,123	1,187,396
2000	10,798	1,119		20,642	83,297	671,616	30,543	47,137	946,395	1,816,600
2001	1,168	0		14,526	42,047	499,829	46,945	23,056	1,232,506	1,870,428
2002		0			12,163	475,742	47,057	4,795	1,475,232	2,014,989
2003		0		9,762	22,030	446,052	29,107	34,855	1,021,204	1,563,010
2004		2,150		14,434	36,497	558,968	147,609	11,799	915,099	1,686,556
2005		0		38,946	14,459	359,927	138,517	16,296	1,088,720	1,656,865
2006		2,914		6,400	70	454,749	83,069	2,487	807,327	1,357,016
2007		0	0	25,276	29	729,687	119,207	26,513	1,003,340	1,904,052
2008		513	0	11,550	112,619	783,330	75,583	31,041	930,923	1,945,559
2009		302	0	42,300	24,663	892,632	101,614	13,272	708,270	1,783,053
2010		0		13,995	26,338	582,550	136,648	5,168	1,034,480	1,799,179
2011		0		22,630	41,325	194,521	72,631	9,439	873,604	1,214,150
2012		0		5,223	17,806	665,168	98,316	4,536	412,001	1,203,050
2013			43	6,949	68,205	625,035	50,865	2,158	646,996	1,400,263
2014	0	0	0	12,440	19,522	441,511	126,345	2,356	534,575	1,136,749

Table 5. Recreational releases (numbers) of Spanish mackerel by state, 1981-2014
(NMFS Fisheries Statistics Division)

Year	NY	NJ	DE	MD	VA	NC	SC	GA	FL	Total
1981						5,616	0	0	56,374	61,990
1982						0	0	0	6,613	6,613
1983						0	0	515	4,929	5,444
1984						2,931	1,300	0	21,797	26,028
1985						27,753	3,862	0	23,316	54,931
1986		0		0	74	280,252	7,879	605	20,469	309,279
1987	0			0	13,947	28,136	5,506	2,916	7,197	57,702
1988					0	17,413	27,019	2,456	18,334	65,222
1989	0	0			10,286	64,749	73,983	391	83,682	233,091
1990	257	0	0	0	21,094	76,940	26,929	0	35,520	160,740
1991	0	2,674	1,092	1,747	28,777	133,601	19,331	57	190,602	378,740
1992	0	0	0	0	18,072	180,235	15,515	3,859	113,062	331,329
1993	0	1,160		2,684	70,081	81,927	15,966	0	74,052	246,454
1994	1,059	50,743		0	91,832	241,082	207,055	0	136,041	727,812
1995	7,297	1,269		1,562	24,467	145,845	14,159	2,594	129,469	326,662
1996		0			28,951	103,067	83,543	139	167,411	383,111
1997			338		22,658	140,704	62,356	0	168,815	394,871
1998		0	0	1,075	49,429	80,700	32,087	7,351	87,804	258,446
1999	1,415	2,670	0	0	36,276	205,870	46,400	495	185,106	478,232
2000	0	0	608	1,656	82,227	300,384	47,273	16,479	353,042	802,336
2001	1,657	4,907	825	7,265	30,158	160,591	9,711	3,188	285,738	506,311
2002				4,449	9,923	196,967	9,206	8,641	554,743	783,929
2003				6,994	20,539	164,787	223,116	6,501	445,965	867,902
2004		0		386	14,456	149,542	84,747	2,900	207,784	462,668
2005				2,169	0	180,326	184,637	4,056	248,636	619,824
2006		0		564	8,504	96,413	27,640	9,236	140,986	283,343
2007				8,461	279	257,841	96,779	54,044	197,529	614,933
2008		0		6,951	37,850	449,095	67,686	5,300	363,542	930,424
2009		26,741		3,630	20,980	313,030	55,600	982	149,825	570,788
2010				0	33,103	294,350	28,200	65	282,252	637,970
2011				0	28,526	170,926	67,144	10,131	147,399	424,126
2012				0	17,150	234,905	98,371	1,724	88,592	440,742
2013			94	0	5,583	289,216	24,862	0	365,107	684,862
2014		0	0	881	3,450	240,731	36,082	851	208,266	490,261