



Mid-Atlantic Fishery Management Council
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Richard B. Robins, Jr., Chairman | Lee G. Anderson, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

DATE: September 24, 2013

TO: Council

FROM: Kiley Dancy, Staff

SUBJECT: Summer Flounder Management Measures for 2014-2016

The following materials are enclosed for Council consideration of the above subject:

- 1) Summary of Monitoring Committee Recommendations (includes summary table of SSC and Monitoring Committee recommended catch and landings limits)
- 2) September 2013 Scientific and Statistical Committee Meeting Report
- 3) Staff Recommendation Memo
- 4) Memo from North Carolina Division of Marine Fisheries on Flynet Fishery
- 5) Summer Flounder, Scup, and Black Sea Bass Fishery Performance Reports
- 6) Summer Flounder Advisory Panel Information Document

Links to the following additional reference materials can be found on the October 2013 briefing book page on the Council's website, at <http://www.mafmc.org/briefing/october-2013>:

- 1) Summer Flounder Assessment Summary Report for 2013
- 2) Summer Flounder Benchmark Stock Assessment Full Report
- 3) Summer Flounder Assessment Peer Review Panel Summary Report and Individual Reviewer Reports



Summer Flounder, Scup, and Black Sea Bass Monitoring Committee
Meeting Summary
September 19, 2013

Attendees: Paul Caruso (MA-DMF), Jason McNamee (RI-DFW), Mark Terceiro (NEFSC), Tom Baum (NJ-F&W), Greg Wojcik (CT-DEEP), Joe Cimino (VMRC), Rich Wong (DNREC), Steve Doctor (MD-DNR), Moira Kelly (NMFS NERO), John Maniscalco (NY-DEC), Tom Wadsworth (NC-DMF), Kiley Dancy (Council Staff), José Montañez (Council Staff), Rich Seagraves (Council Staff), Rick Robins (Council chair), Kirby Rootes-Murdy (ASMFC), Toni Kerns (ASMFC), Kurt Gottschall (CT-DEEP), Greg DiDomenico (GSSA)

Summer Flounder Monitoring Committee Comments and Recommendations

The Monitoring Committee does not currently have any formal control rules for the recommendation of ACTs. The Committee recognizes the need to develop ACT control rules or guidelines for addressing management uncertainty in the future, and plans to review the ASMFC's Management and Science Committee's forthcoming report on management uncertainty. This will be applicable to all three species. The Committee recognizes that management uncertainty exists for the summer flounder fisheries, but due to the recent performance of the fisheries, does not recommend a reduction from the ACLs for 2014-2016.

Preliminary MRIP estimates for 2013 Waves 2 and 3 indicate that recreational landings are comparable to 2012. The performance of the recreational fishery in recent years has resulted in substantial underharvest. The commercial landings monitoring and fishery closure system is timely and successful in holding the landings close to the quota. No additional reduction is needed from the commercial and recreational ACLs to the ACTs to address management uncertainty.

The Committee agreed with the staff recommendations for commercial fishery measures and RSA (no changes to the current minimum size (14 in), gear requirements, or exemption programs, and that up to 3% of TAL be made available to RSA program).

Scup Monitoring Committee Comments and Recommendations

The performance of the recreational and commercial fisheries for the past two years has resulted in substantial underharvest. The ABCs have increased significantly since 2010, however, the Committee noted that current multi-year specifications include decreasing ABCs for 2014-2015. The commercial landings monitoring and fishery closure system is timely and successful in managing the landings. No additional reduction is needed from the commercial and recreational ACLs to the ACTs to address management uncertainty.

The Winter II fishery possession limit is currently at 8,000 lb, and has not changed despite significant increases in quota. Currently three or fewer vessels are landing 10% or less of the Winter II allocation

(based on the threshold analysis presented in the AP Information Document). Industry sees potential to better utilize the full allocation and avoid regulatory discards if the possession limit were increased. The Monitoring Committee recommends a 30,000 lb possession limit, with a trigger that would reduce the possession limit to 1,000 lb once 80% of the Winter II quota is landed. It was noted that large possession limits, like the one recommended above and the 50,000 lb limit currently in place during Winter I, are possible in part because the SSB is currently estimated to be greater than 200% of SSB_{MSY}.

The industry request to move October from the Summer season to the Winter II season will require further analysis before the Monitoring Committee can make a recommendation on this issue.

The Committee agreed with the staff recommendation that no modifications are necessary for the gear requirements, minimum fish size, net mesh requirements, or scup pot escape vent size requirements. The Committee also recommended that up to 3% of TAL be made available to RSA program.

Black Sea Bass Monitoring Committee Comments and Recommendations

The Monitoring Committee notes that the commercial fishery has been under the commercial quota by an average of 2% over the last five years. Additionally, the commercial quota monitoring system is timely and is successful in managing the landings. Therefore, the Committee does not recommend any reduction in the commercial ACL to the commercial ACT.

The recreational fishery has had a history of large overages and moderate underages for the past five years. Realistically, the black sea bass recreational measures have not constrained the fishery to the recreational harvest limit during that time frame. Some of the management approaches put in place in recent years have increased management uncertainty in the fishery due to the application of the data available, for example, use of state estimates at the mode and wave level. To address management uncertainty in the recreational fishery, the data used while setting recreational measures later this year should be considered carefully by the Technical Committee and Management Board of the Atlantic States Marine Fisheries Commission. The Committee recommends no reduction in the recreational ACL to the recreational ACT.

The Monitoring Committee noted that by opening Wave 1 in the recreational fishery, an additional element of management uncertainty was added due to lack of catch accounting in all states except North Carolina. Federal VTR data from 2013 Wave 1 in the for-hire sector includes reported landings of black sea bass that account for approximately 5% of the 2013 recreational harvest limit. This data is self-reported, and does not include private vessels, and therefore should be considered a minimum estimate. The Committee recommends that the Council and Commission recommend to NOAA that Wave 1 VTR data be used in addition to the MRIP Wave 2-6 data when determining total 2013 recreational black sea bass catch, including for assessment use. The Committee also recommends that in future years if Wave 1 is to be open, that there be catch monitoring in place.

The Committee recommends no changes to the current commercial fishery measures, including size limits and gear restrictions, consistent with the staff recommendation. The Committee also recommended that up to 3% of TAL be made available to RSA program.

Table A. Summary of the SSC and Monitoring Committee recommendations for commercial and recreational catch and landings limits for summer flounder (2014-2016), scup (2014-2015), and black sea bass (2014-2015), compared to 2013 measures.

Resource	Year	ABC¹	Comm. ACL²	Rec. ACL²	Comm. ACT³	Rec. ACT³	Comm. Quota⁴	Rec. Harvest Limit⁴
Summer Flounder	2013 (current)	22.34 mil lb (10,133 mt)	12.11 mil lb (5,941 mt)	10.23 mil lb (4,642 mt)	12.11 mil lb (5,941 mt)	10.23 mil lb (4,642 mt)	11.44 mil lb (5,189 mt)	7.63 mil lb (3,459 mt)
	2014	21.94 mil lb (9,950 mt)	12.87 mil lb (5,837 mt)	9.07 mil lb (4,113 mt)	12.87 mil lb (5,837 mt)	9.07 mil lb (4,113 mt)	10.51 mil lb (4,767 mt)	7.01 mil lb (3,178 mt)
	2015	22.77 mil lb (10,329 mt)	13.34 mil lb (6,049 mt)	9.44 mil lb (4,280 mt)	13.34 mil lb (6,049 mt)	9.44 mil lb (4,280 mt)	10.74 mil lb (4,870 mt)	7.16 mil lb (3,247 mt)
	2016	24.25 mil lb (10,999 mt)	14.20 mil lb (6,439 mt)	10.05 mil lb (4,560 mt)	14.20 mil lb (6,439 mt)	10.05 mil lb (4,560 mt)	11.38 mil lb (5,163 mt)	7.59 mil lb (3,442 mt)
Scup	2013 (current)	38.71 mil lb (17,557 mt)	30.19 mil lb (13,694 mt)	8.52 mil lb (3,863 mt)	30.19 mil lb (13,694 mt)	8.52 mil lb (3,863 mt)	23.53 mil lb (10,671 mt)	7.55 mil lb (3,425 mt)
	2014	35.99 mil lb (16,325 mt)	28.07 mil lb (12,734 mt)	7.92 mil lb (3,592 mt)	28.07 mil lb (12,734 mt)	7.92 mil lb (3,592 mt)	21.95 mil lb (9,955 mt)	7.03 mil lb (3,188 mt)
	2015	33.78 mil lb (15,320 mt)	26.34 mil lb (11,950 mt)	7.43 mil lb (3,370 mt)	26.34 mil lb (11,950 mt)	7.43 mil lb (3,370 mt)	20.60 mil lb (9,342 mt)	6.60 mil lb (2,992 mt)
Black Sea Bass	2013 (current)	5.50 mil lb (2,495 mt)	2.60 mil lb (1,179 mt)	2.90 mil lb (1,315 mt)	2.60 mil lb (1,179 mt)	2.90 mil lb (1,315 mt)	2.17 mil lb (986 mt)	2.26 mil lb (1,024 mt)
	2014	5.50 mil lb (2,495 mt)	2.60 mil lb (1,179 mt)	2.90 mil lb (1,315 mt)	2.60 mil lb (1,179 mt)	2.90 mil lb (1,315 mt)	2.17 mil lb (986 mt)	2.26 mil lb (1,024 mt)
	2015	5.50 mil lb (2,495 mt)	2.60 mil lb (1,179 mt)	2.90 mil lb (1,315 mt)	2.60 mil lb (1,179 mt)	2.90 mil lb (1,315 mt)	2.17 mil lb (986 mt)	2.26 mil lb (1,024 mt)

¹The SSC report provides additional details of the basis for the multi-year ABC recommendations which address scientific uncertainty ²The sum of the commercial and recreational ACLs are equal to the ABC. ³Monitoring Committee-recommended ACTs to address management uncertainty. ⁴Landings only; a maximum RSA of 3% has been deducted.

Table B: Basis for summer flounder catch and landings limits, 2014-2016.

2014	Management Measure	MIL LBS	MT	Basis
	OFL	26.76	12,138	Projections
	ABC	21.94	9,950	Projections/Council risk policy
	ABC Landings Portion	18.06	8,191	Projections
	ABC Discards Portion	3.88	1,759	Projections
	Comm Discards Portion	2.03	923	52% of ABC discards portion, based on 2010-2012 average, from assessment
	Rec Discards Portion	1.84	836	48% of ABC discards portion, based on 2010-2012 average, from assessment
	Comm ACL	12.87	5,837	60% of ABC landings portion (per FMP) + 52% of ABC discards portion
	Rec ACL	9.07	4,113	40% of ABC landings portion (per FMP) + 48% of ABC discards portion
	Deduction for Mgmt Uncertainty	0	0	Monitoring Committee recommendation
	Comm ACT	12.87	5,837	Comm ACL - Mgmt Uncert
	Rec ACT	9.07	4,113	Rec ACL - Mgmt Uncert
	pre-RSA Comm Quota	10.84	4,915	Comm ACT – Comm Disc
	pre-RSA RHL	7.22	3,276	Rec ACT – Rec Disc
	Comm RSA Deduction (3%)	0.33	147	3% of Comm Quota
	Rec RSA Deduction (3%)	0.22	98	3% of RHL
	Adjusted Comm Quota	10.51	4,767	Comm Quota - RSA
	Adjusted RHL	7.01	3,178	RHL - RSA

2015	Management Measure	MIL LBS	MT	Basis
	OFL	27.06	12,275	Projections
	ABC	22.77	10,329	Projections/Council risk policy
	ABC Landings Portion	18.45	8,368	Projections
	ABC Discards Portion	4.32	1,961	Projections
	Comm Discards Portion	2.27	1,028	52% of ABC discards portion, based on 2010-2012 average, from assessment
	Rec Discards Portion	2.06	933	48% of ABC discards portion, based on 2010-2012 average, from assessment
	Comm ACL	13.34	6,049	60% of ABC landings portion (per FMP) + 52% of ABC discards portion
	Rec ACL	9.44	4,280	40% of ABC landings portion (per FMP) + 48% of ABC discards portion
	Deduction for Mgmt Uncertainty	0	0	Monitoring Committee recommendation
	Comm ACT	13.34	6,049	Comm ACL - Mgmt Uncert
	Rec ACT	9.44	4,280	Rec ACL - Mgmt Uncert
	pre-RSA Comm Quota	11.07	5,021	Comm ACT – Comm Disc
	pre-RSA RHL	7.38	3,347	Rec ACT – Rec Disc
	Comm RSA Deduction (3%)	0.33	151	3% of Comm Quota
	Rec RSA Deduction (3%)	0.22	100	3% of RHL
	Adjusted Comm Quota	10.74	4,870	Comm Quota - RSA
	Adjusted RHL	7.16	3,247	RHL - RSA

Table B, continued: Basis for summer flounder catch and landings limits, 2014-2016.

2016	Management Measure	MIL LBS	MT	Basis
	OFL	28.08	12,739	Projections
	ABC	24.25	10,999	Projections/Council risk policy
	ABC Landings Portion	19.56	8,871	Projections
	ABC Discards Portion	4.69	2,128	Projections
	Comm Discards Portion	2.46	1,116	52% of ABC discards portion, based on 2010-2012 average, from assessment
	Rec Discards Portion	2.23	1,012	48% of ABC discards portion, based on 2010-2012 average, from assessment
	Comm ACL	14.20	6,439	60% of ABC landings portion (per FMP) + 52% of ABC discards portion
	Rec ACL	10.05	4,560	40% of ABC landings portion (per FMP) + 48% of ABC discards portion
	Deduction for Mgmt Uncertainty	0	0	Monitoring Committee recommendation
	Comm ACT	14.20	6,439	Comm ACL - Mgmt Uncert
	Rec ACT	10.05	4,560	Rec ACL - Mgmt Uncert
	pre-RSA Comm Quota	11.73	5,323	Comm ACT – Comm Disc
	pre-RSA RHL	7.82	3,548	Rec ACT – Rec Disc
	Comm RSA Deduction (3%)	0.35	160	3% of Comm Quota
	Rec RSA Deduction (3%)	0.24	106	3% of RHL
	Adjusted Comm Quota	11.38	5,163	Comm Quota - RSA
	Adjusted RHL	7.59	3,442	RHL - RSA



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Richard B. Robins, Jr., Chairman | Lee G. Anderson, Vice Chairman

Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

DATE: 23 September 2013

TO: Richard M. Robins, Jr., MAFMC Chairman

FROM:  John Boreman, Ph.D., Chair, MAFMC Scientific and Statistical Committee

SUBJECT: Report of the September 2013 Meeting of the MAFMC SSC

The SSC met in Baltimore, MD, on 17-18 September 2013 for the purposes of developing ABC recommendations for Bluefish, Spiny Dogfish, Summer Flounder, Scup, and Black Sea Bass in response to terms of reference provided by the MAFMC (Attachment 1). All five species were under a multi-year ABC specification in which the SSC reserved the right to revisit the ABC recommendation each year during the multi-year period. The SSC also discussed a report from the Scientific Uncertainty Subcommittee on criteria for setting multi-year ABCs, the outcome of the workshop held by the MAFMC last winter, potential topics for the next National SSC Workshop, the suggested list of research priorities that will be submitted to the MAMFC at the upcoming meeting. The meeting agenda is attached (Attachment 2).

A total of 14 SSC members were in attendance (Attachment 3), and a quorum was present for both days. Also in attendance were staff from the NMFS Northeast Fisheries Science Center and Northeast Regional Office, Council members and staff, representatives from the fishing industry, environmental advocacy groups, and the public.

Updated assessments were available for Bluefish and Spiny Dogfish, and a benchmark assessment was available for Summer Flounder. Because no predetermined tolerance limits were set for the degree of change in biological reference points that would trigger a new ABC, the SSC decided to follow the generic terms of reference for Bluefish and Spiny Dogfish, since the updated assessments constituted the best scientific information available. The generic terms of reference were also used for Summer Flounder due to the recent benchmark assessment that was cleared by the SARC. For Scup and Black Sea Bass, the SSC determined that there was no compelling scientific evidence to support changing the previously recommended ABCs for the 2014 and 2015 fishing years.

All documents cited in this report can be accessed via the MAFMC SSC website (<http://www.mafmc.org/ssc-meetings/september-2013>).

Bluefish

The SSC will provide a written report that identifies the following for up to two fishing years (i.e., 2014-2015):

1) The materials considered in reaching its recommendations;

- Wood, A. D. 2013. Bluefish 2013 stock assessment update. Coastal Pelagic Working Group, Northeast Fisheries Science Center, NOAA Fisheries. 38 pp.
- Armstrong, J. 2013. Staff memorandum to Chris Moore, dated 11 September 2013, entitled: “Bluefish ABC and Management Measures for 2014.” 8 pp.
- Armstrong, J. 2013. Staff memorandum to Chris Moore, dated 17 September 2013, entitled: “Bluefish ABC and Management Measures for 2014 - revised.” 8 pp.
- MAFMC Staff. 2013. Bluefish AP information document – August 2013. Mid-Atlantic Fishery Management Council. 15 pp.
- MAFMC Staff. 2013. 2013 Bluefish fishery performance report. Mid-Atlantic Fishery Management Council. 2 pp.

2) The level (1-4) that the SSC deems most appropriate for the information content of the most recent stock assessment, based on criteria listed in the Omnibus Amendment;

The SSC designated the assessment as **Level 3**, because the structure of the assessment was unchanged from previous specification. There were no new estimates of uncertainties associated with maximum fishing mortality rate (OFL).

3) If possible, the level of catch (in weight) and the probability of overfishing associated with the overfishing limit (OFL) based on the maximum fishing mortality rate threshold or, if appropriate, an OFL proxy;

The **OFL = 16,506 mt**, based on an F_{msy} of 0.19.

4) The level of catch (in weight) and the probability of overfishing associated with the acceptable biological catch (ABC) for the stock, the number of fishing years for which the ABC specification applies and, if possible, interim metrics that can be examined to determine if multi-year specifications need adjustment prior to their expiration;

The SSC recommends an **ABC = 11,082 mt** (24.4 million lb) for the 2014 fishing year, based on the control rule for Level 3 assessments. The SSC used an assumed CV of the OFL with a lognormal distribution of 100%, noting that the ratio of B/BMSY, based on mid-year estimates from 2013, is 0.8113, and that Bluefish exhibit a typical life history. The SSC applied the Council's policy of $P^* = 0.316$. The projection is 67.1% of the catch at OFL. Since a benchmark assessment of Bluefish is scheduled for 2014, the SSC does not recommend ABCs for fishing years beyond 2014.

5) The most significant sources of scientific uncertainty associated with determination of OFL and ABC;

- There is a significant level of missing data involved in the age-length keys (ALKs), which are critical for development of the catch-at-age matrix;
- Concern exists about the application of aggregate trawl calibration coefficients (ALBATROSS IV vs BIGELOW), and their influence on the selectivity pattern and results of the assessment.

Also, some near shore areas previously sampled by the ALBATROSS IV are unavailable for sampling by the BIGELOW;

- Commercial discards are assumed to be insignificant, which may not be the case;
- Much of population biomass (~40%) is in the aggregated 6+ age group for which there is relatively little information;
- Questions have been raised about the uncertainty in the historical MRFSS/MRIP estimates in general, and are particularly relevant here given the highly episodic nature of Bluefish catches in the recreational fisheries coast wide; and
- The basis for the unusual bimodal selectivity curve used in the ASAP model is not well understood.
- The updated assessment shows a retrospective bias resulting in the model underestimating recruitment by upwards of 50% near the end of the time series.

6) Ecosystem considerations accounted for in the stock assessment, and any additional ecosystem considerations that the SSC took into account in selecting the ABC, including the basis for those additional considerations;

No additional information pertinent to ecosystem considerations was explicitly included in selecting the ABC.

7) Prioritized research or monitoring recommendations that would reduce the scientific uncertainty in the ABC recommendation;

- Evaluate amount and length frequency of discards from the commercial and recreational fisheries;
- Collect data on size and age composition of the fisheries by gear type and statistical area;
- Initiate fishery-dependent and fishery-independent sampling of offshore populations of Bluefish during the winter months (consider migration, seasonal fisheries, and unique selectivity patterns resulting in the bimodal partial recruitment pattern; consider if the migratory pattern results in several recruitment events); and
- Develop Bluefish index surveys (proof of concept), including abundance/biomass trend estimates for the offshore populations in winter.

8) A certification that the recommendations provided by the SSC represent the best scientific information available.

To the best of the SSC's knowledge, these recommendations are based on the best available scientific information.

Spiny Dogfish

The SSC will provide a written report that identifies the following for up to two fishing years (i.e., 2014-2015):

1) The materials considered in reaching its recommendations;

- Rago, P., and K. Sosebee. 2013. Update on the Status of Spiny Dogfish in 2013 and Projected Harvests at the Fmsy Proxy and Pstar of 40%. Northeast Fisheries Science Center, NOAA Fisheries. 51 pp.

- MAFMC staff memorandum from Jim Armstrong to Chris Moore: “Spiny dogfish ABC and Management Measures for 2014,” dated September 12, 2013. 9 pp.
- MAFMC Staff. 2013 Spiny Dogfish AP information document – 2013. Mid-Atlantic Fishery Management Council. 14 pp.
- MAFMC Staff. 2013. 2013 Spiny Dogfish fishery performance report. Mid-Atlantic Fishery Management Council. 2 pp.

2) The level (1-4) that the SSC deems most appropriate for the information content of the most recent stock assessment, based on criteria listed in the Omnibus Amendment;

Level 3. The assessment provides plausible estimates of the absolute levels of biomass and abundances, and the assessment also provides a plausible set of reference points that together represent the best available science. The SSC notes that the biological reference points were calculated outside of the assessment model. The SSC also believes that important sources of uncertainty were not incorporated into estimates for the biological reference points. Both concerns prevent this assessment from achieving a higher rank.

3) If possible, the level of catch (in weight) and the probability of overfishing associated with the overfishing limit (OFL) based on the maximum fishing mortality rate threshold or, if appropriate, an OFL proxy;

The F_{msy} proxy is calculated from a projection model for which the finite rate of population increase = 1.0. For Spiny Dogfish, the F_{msy} proxy = 0.2439. This is equivalent to a catch of **OFL = 32,166 mt**, based on the projected biomass in 2014 and the assumption that the catch in 2013 will be equal to 24,709 mt (the ABC = ACL from last year).

4) The level of catch (in weight) and the probability of overfishing associated with the acceptable biological catch (ABC) for the stock, the number of fishing years for which the ABC specification applies and, if possible, interim metrics that can be examined to determine if multi-year specifications need adjustment prior to their expiration;

The SSC applied the Council's risk policy for a typical life history¹, an estimated B_{2014}/B_{msy} ratio > 1, and a CV of the OFL distribution of 100% assuming a lognormal distribution. Using these parameters, the Council's risk policy implies a $P^* = 0.40$. Applying this P^* to the OFL produces an **ABC = 27,596 mt**.

The SSC notes that the stock biomass is projected to decline in the future because of poor recruitment in earlier years, before recovering again. Current projections suggest that the ratio of (median $B_{current}$)/ B_{msy} may be <1 for 2018-2023. As a result, the P^* value developed by the Council's risk policy will be lower, thereby leading to a reduced ABC for these years.

The SSC recommends a 2-year ABC specification. The SSC recommends that ABC be calculated based on a constant F policy, which translates to an ABC in the subsequent year 2015 of **28,310 mt**.

The SSC will examine Spiny Dogfish discard rates, survey abundance trends (size composition, sex ratio and pup size), average size and sex in commercial landings, agreement between observed and predicted catch and survey forecasts, changes in Canadian landings, and the spatial distributions of catch and survey abundances each year of the specification to determine if the multiyear ABC should be abandoned.

¹ The SSC notes that the assessment for Spiny Dogfish has been structured to account for many aspects of the unique life

history of this species.

5) The most significant sources of scientific uncertainty associated with determination of OFL and ABC;

- The assessment relies heavily on an assumed efficiency of the survey gear in developing minimal swept area estimates of biomass.
- Inter-annual differences in availability of the stock to the survey gear.
- F_{msy} proxy is based on a projection model that relies on a time-invariant selectivity estimated from data up to 2008. The assessment assumes selectivity has not changed subsequently, but may be variable.
- Both the F_{msy} proxy and the projections rely on a model that assumes constant pup survival and pup production rates. Empirical evidence suggests pup survival correlates positively with maternal size.
- Inconsistency between the estimation model and the projection model.
- Potential changes in fishery selectivity. Large increases in catches could induce changes in the overall selectivity pattern in the fishery.
- Potential inconsistency between the life history-based estimates of fishing mortality rates and the biomass reference points derived from the Ricker stock recruitment curve.
- Total discard estimates and estimated mortality of discarded dogfish.
- The revised estimate of biomass reference point is uncertain with an asymptotic CV of about 30%.
- The updated assessment shows a retrospective bias resulting in the model underestimating recruitment by upwards of 50% near the end of the time series.

6) Ecosystem considerations accounted for in the stock assessment, and any additional ecosystem considerations that the SSC took into account in selecting the ABC, including the basis for those additional considerations;

No explicit or specific ecosystem considers were included in the assessment. Furthermore, no additional ecosystem considerations were applied in calculating the ABC.

7) Prioritized research or monitoring recommendations that would reduce the scientific uncertainty in the ABC recommendation;

- Revise the assessment model to investigate the effects of stock structure or distribution, sex ratio, and size of pups on birth rate and first year survival of pups.
- Continue large scale (international) tagging programs, including conventional external tags, data storage tags, and satellite pop-up tags, to help clarify movement patterns and migration rates.
- Investigate the distribution of spiny dogfish beyond the depth range of current NEFSC trawl surveys, possibly by using experimental research or supplemental surveys.
- Continue aging studies for Spiny Dogfish age structures (e.g., fins, spines) obtained from all sampling programs (include additional age validation and age structure exchanges), and conduct an aging workshop for Spiny Dogfish, encouraging participation by NEFSC, Canada DFO, other interested state agencies, academia, and other international investigators with an interest in dogfish aging (US and Canada Pacific Coast, ICES).
- Evaluate ecosystem effects on Spiny Dogfish acting through changes in dogfish vital rates.

8) A certification that the recommendations provided by the SSC represent the best scientific information available.

To the best of the SSC's knowledge, these recommendations are based on the best available scientific information.

Summer Flounder

The SSC will provide a written report that identifies the following for up to two fishing years (i.e., 2014-2015):

1) The materials considered in reaching its recommendations;

- Southern Demersal Working Group. 2013. Summer Flounder stock assessment report for 2013. Northeast Fisheries Science Center, NOAA Fisheries. 474 pp.
- Southern Demersal Working Group. 2013. Summer Flounder assessment summary for 2013. Northeast Fisheries Science Center, NOAA Fisheries. 11 pp.
- MAFMC Staff. 2013. Summer Flounder Advisory Panel information document. Mid-Atlantic Fishery Management Council. 16 pp.
- MAFMC Staff. 2013. Summer Flounder, Scup, and Black Sea Bass fishery performance reports September 2013. Mid-Atlantic Fishery Management Council. 6 pp.
- Dancy, K. 2013. Staff memorandum to Chris Moore, dated 5 September 2013, entitled: "Summer Flounder Management Measures for 2014 and 2015." 10 pp.
- Wadsworth, T. 2013. Memo to Jessica Coakley, dated 7 August 2013, entitled: "Species composition and landings from the 2012 North Carolina flynet fishery." North Carolina Department of Environment and Natural Resources. 1 pp.
- Jones, C. M., R. Cook, J. Simmonds, and H. Sparholt. 2013. Summary report of the 57th Northeast Regional Stock Assessment Review Committee (SARC 57). Northeast Fisheries Science Center, NOAA Fisheries. 47 pp.
- Cook, R. 2013. Report on the 57th North East Regional Stock Assessment Review Committee (SARC 57). Prepared for Center for Independent Experts. 41 pp.
- Simmonds, E. J. 2013. Center for Independent Experts (CIE) Peer Review Report of: 57th Northeast Regional Stock Assessment Review Committee (SARC 57) on striped bass and summer flounder. Center for Independent Experts. 38 pp.
- Sparholt, H. 2013. Center for Independent Experts (CIE) Peer Review Report of the 57th Northeast Regional Stock Assessment Review Committee (SARC 57). Center for Independent Experts. 40 pp.

2) The level (1-4) that the SSC deems most appropriate for the information content of the most recent stock assessment, based on criteria listed in the Omnibus Amendment;

The SSC determined the Summer Flounder assessment should be considered as a Level 3 assessment.

In a Level 1 assessment, the SSC would use the uncertainty around the OFL directly from the assessment. In a Level 2 assessment, the assessment provides an alternative level of uncertainty. In a Level 3 assessment, the SSC provides its own estimate of uncertainty. The SSC was not comfortable with defining the assessment as Level 1. Because no alternative level of uncertainty in OFL was provided in the assessment, the SSC is constrained to determine the Summer Flounder assessment as Level 3.

3) *If possible, the level of catch (in weight) and the probability of overfishing associated with the overfishing limit (OFL) based on the maximum fishing mortality rate threshold or, if appropriate, an OFL proxy;*

The OFL for 2014 is **12,138 mt**, based on an F_{MSY} proxy of $F_{35\%}=0.309$. The probabilities of overfishing are provided in the response to TOR 4.

4) *The level of catch (in weight) and the probability of overfishing associated with the acceptable biological catch (ABC) for the stock, the number of fishing years for which the ABC specification applies and, if possible, interim metrics that can be examined to determine if multi-year specifications need adjustment prior to their expiration;*

The SSC determined the 2014 ABC to be **9,950 mt**.

In past Level 3 assessments, the SSC used a default CV for the OFL of 100%, based on a meta-analysis of statistical catch-at-age models. However, the SSC notes that, in contrast to other assessments presented to it, the Summer Flounder assessment has multiple sources of data, which are largely internally consistent, and it does a thorough job of exploring the impacts of sources of uncertainty on the estimated model fits. As a result, the SSC believes that the Summer Flounder stock assessment is considerably more accurate than other assessments of mid-Atlantic stocks and, therefore, considers use of the default CV=100% not appropriate. Accordingly, the SSC determined that it should use a CV = 60%. The SSC adopted this CV based on a presentation of the distribution of CVs in published simulation experiments in which the assessment model did fully reflect the underlying population dynamics.

The SSC recommends a three-year ABC specification. The approach to specifying ABC assumes the ABC was caught in the preceding year. The SSB in the current year is then updated based on the presumed catch, and the resulting SSB estimate is multiplied by the F_{MSY} proxy to provide the OFL for the current year. The Council's risk policy is applied to the OFL by using a 60% CV to calculate the ABC. Using this procedure, the relevant ABCs are:

Year	SSB	F	OFL	P* Value	ABC	Presumed Catch
2014	58,974	0.248	12,138	0.360	9,950	9,950
2015	61,709	0.255	12,275	0.378	10,329	10,329
2016	63,879	0.263	12,739	0.396	10,999	10,999

5) *The most significant sources of scientific uncertainty associated with determination of OFL and ABC;*

The most significant sources of uncertainty are:

- The potential for sex-specific differences in life history parameters.
- The existence of spatially distinct size distributions.
- NEFSC surveys and PMAFS fishery sampling confirm sexually-dimorphic and time-varying spatial differences in growth that are not fully accounted for in the stock assessment because not all fishery and survey catches are fully and independently sampled by sex.

- Landings from commercial fishery assume no under-reporting of Summer Flounder landings and so should be considered minimal estimates.
- The current assumption for M remains an ongoing source of uncertainty. M is highly influential on assessment results and impacts nearly all aspects of the assessment and evaluation of status.
- The stock-recruitment relationship could not be defined internally in the model and thus an F_{MSY} proxy was used to calculate the OFL.

6) Ecosystem considerations accounted for in the stock assessment, and any additional ecosystem considerations that the SSC took into account in selecting the ABC, including the basis for those additional considerations;

No explicit or specific ecosystem considerations (for example, trophic interactions or habitat) were included in the assessment. No additional information pertinent to ecosystem considerations was included in selecting the ABC.

7) Prioritized research or monitoring recommendations that would reduce the scientific uncertainty in the ABC recommendation;

The SSC recognizes the research recommendations provided in the assessment report. In addition, the SSC recommends research is conducted to:

- Evaluate uncertainties in biomass to determine potential modifications to OFL CV employed;
- Evaluate fully the sex- and size distribution of landed and discarded fish, by sex, in the Summer Flounder fisheries;
- Evaluate past and possible future changes to size regulations on retention and selectivity in stock assessments and projections; and
- Incorporate sex-specific differences in size at age into the stock assessment.

8) A certification that the recommendations provided by the SSC represent the best scientific information available.

To the best of the SSC's knowledge, these recommendations are based on the best available scientific information.

Scup

Review the extant multiyear ABC recommendations for Scup to determine if any changes are necessary based on the current best available science. If changes are deemed necessary, then the generic terms of reference would be followed.

The SSC determined that the available scientific evidence was not compelling enough to warrant a change to its ABC recommendations for 2014 and 2015. The SSC recommends an ABC of **16,325 mt** for 2014 and an ABC of **15,320 mt for 2015**.

The written materials the SSC considered in reaching this conclusion:

- MAFMC Staff. 2013. Scup Advisory Panel information document. Mid-Atlantic Fishery Management Council. 20 pp.

- MAFMC Staff. 2013. Summer Flounder, Scup, and Black Sea Bass fishery performance reports September 2013. Mid-Atlantic Fishery Management Council. 6 pp.
- Dancy, K. 2013. Staff memorandum to Chris Moore, dated 5 September 2013, entitled: “Scup Management Measures for 2014 and 2015.” 10 pp.
- Linton, B., and M. Terceiro. 2013. Data Update of Scup (*Stenotomus chrysops*) for 2013. Northeast Fisheries Science Center. NOAA Fisheries. 99 pp.

Black Sea Bass

Review the extant multiyear ABC recommendations for Black Sea Bass to determine if any changes are necessary based on the current best available science. If changes are deemed necessary, then the generic terms of reference would be followed.

The SSC determined that the available scientific evidence was not compelling enough to warrant a change to its ABC recommendations for 2014 (ABC = **2,494 mt**). The SSC recommends extending this ABC level through the 2015 fishing season as well. The SSC also decided that the committee’s responses to the last set of terms of reference for Black Sea Bass (Miller 2013) are still valid.

The written materials the SSC considered in reaching this conclusion:

- MAFMC Staff. 2013. Black Sea Bass Advisory Panel information document. Mid-Atlantic Fishery Management Council. 17 pp.
- MAFMC Staff. 2013. Summer Flounder, Scup, and Black Sea Bass fishery performance reports September 2013. Mid-Atlantic Fishery Management Council. 6 pp.
- Dancy, K. 2013. Staff memorandum to Chris Moore, dated 5 September 2013, entitled: “Black Sea Bass Management Measures for 2014 and 2015.” 9 pp.
- Miller, T. 2013. Memorandum to Richard B. Robins, Jr., dated 30 January 2013, entitled: “Report of the January 23, 2013 Meeting of the MAFMC Scientific and Statistical Committee.” 9 pp.

Additional SSC Comments Related to the ABC Recommendations

1. In light of the SSC’s discussion of quality of the recent Summer Flounder assessment, the SSC tasked the Scientific Uncertainty Subcommittee with drafting additional guidance on how an assessment can be moved from a Level 3 to a Level 2. The current guidance is insufficient.
2. The SSC decided that more consistency is needed in how projections of stock biomass are done for the various species. The SSC Chair will name an *ad hoc* subcommittee to develop draft guidance for discussion at the winter 2014 meeting.
3. An *ad hoc* subcommittee was formed to investigate how to develop a satisfactory OFL for black sea bass, given that the recent assessment attempts have not been able to pass SARC review. The species is more model-challenged (or model-resistant) than data poor, but methods being considered by other SSCs for data poor stocks may be informative to the subcommittee’s work. Members of the SSC who volunteered for the subcommittee are Tom Miller, Doug Vaughan, Olaf Jensen, and Mike Wilberg. The subcommittee is also hoping to add a member from the Northeast Fisheries Science Center who is familiar with stock assessment and data issues related to black sea bass (Jon Deroba or Gary Shepherd?).

Other Topics

Development of Criteria for Setting Multi-year ABCs

The SSC discussed the “rumble strip” approach developed by the SUN Subcommittee for evaluating the performance of multi-year ABC advice (<http://www.mafmc.org/s/SUN-multi-year-report-8-30-13.pdf>). The approach uses upper and lower bounds on multiple indices to determine if a stock is following an expected trajectory, similar to rumble strips along the sides of a road. The proposed indices for inclusion were kg/tow from the NMFS trawl survey, relative fishing mortality (catch divided by the trawl survey CPUE), and mean length in the NMFS trawl survey. Bounds are constructed for each index by calculating confidence intervals about a mean that represents the target value. If too many indices are outside their bounds, a re-evaluation is conducted to determine if any changes or responses are necessary with regard to the ABC recommendation. If a response is deemed necessary, it could include multiple options, such as alerting the Council that the stock is outside the expectations from the original ABC determination, requesting a new or updated stock assessment, or changing the ABC.

There was general agreement among the SSC members in attendance that the rumble strip approach looks promising, but several aspects could use refinement. Technical concerns were raised about the use of a potential default action of decreasing ABC if the stock appears worse than expected, with no symmetrical increase if stock conditions appear better than expected. Discussion revolved around the concern that the proposed ABC protocol would not address the National Standard 1 requirement of the Magnuson Stevens Act to achieve OY (i.e., the Council might miss taking advantage of situations where yield could be increased if rumble strips are triggered for positive reasons). Another issue raised was that, if ABC is constraining the catch, many of the indices could be highly correlated causing multiple indices to simply mirror the NMFS trawl survey. Other issues identified as requiring closer examination included choosing the appropriate confidence interval for rumble strip bounds (by species); identifying the base period when the stock was considered to be in a good condition (especially for data poor stocks); considering information from additional sources (i.e., NEAMAP, state surveys, etc.); identifying the number of rumble strips that, if triggered, would result in some response or action; and identifying the appropriate response or action.

There was general consensus on following points: during interim years of multi-year ABC specifications the SSC would evaluate the rumble strip analysis and, if triggered, the SSC would re-examine the multi-year ABC specification (i.e., take a closer look). [A suggested modification to the presented approach was that there would be no action required unless at least a 25% change in the ABC appeared to be warranted; if less than a 25% change was warranted, there would be no change to ABC but the SSC could request a new or updated stock assessment.] The SSC agreed that the SUN Subcommittee should continue work to refine the rumble strip analysis and identify appropriate responses based on the outcome of additional analysis. Next steps are to provide an update to the Council on work accomplished to date and to continue to refine the analysis. The SSC will review additional work conducted by the SUN at its winter 2014 meeting and a final report for Council consideration will be completed by April 2014.

Forage Workshop Overview and EAFM Update

The Council convened a workshop at its 11 April 2013 meeting in Raleigh, NC, to discuss the key issues relevant to forage fish assessment and management under the Magnuson-Stevens Act. Council staff

provided the SSC with an overview of the main points discussed at the workshop where a panel of experts discussed the role of forage species within ecosystems and best practices with respect to the harvest of forage species, taking their role(s) within ecosystems into account. This was the first of four workshops the Council intends to convene to discuss the major challenges it faces with respect to ecosystems approach to fisheries management (EAFM).

Understanding the roles that forage species play within ecosystems has emerged in the scientific literature as a key element in the development of EAFM. Forage species provide an important link between primary productivity and upper trophic levels within marine ecosystems. At the same time, forage species often support economically valuable fisheries through direct harvest. Recent scientific findings suggest that forage stocks may warrant special management consideration, especially with respect to achieving ecosystem level management goals and objectives. In addition, current National Standard 1 (NS1) guidelines recommend that consideration should be given to managing forage stocks for higher biomass than traditional MSY-based reference points (B_{msy}) to enhance and protect the marine ecosystem.

Dr. Ellen Pikitch (Stony Brook University) introduced the forage management issue and described the results of the Lenfest task force and other scientific research relative to forage fish exploitation and management. The Lenfest task force recommended reducing exploitation rates for forage stocks to about half of traditional MSY based reference points and to maintain forage stock biomass at about 40% of the unfished biomass to maintain their vital role in the ocean. Research published in *Science* (supported by the Marine Stewardship Council) reached similar conclusions.

Dr. Edward Houde (University of Maryland, SSC member) summarized the current scientific consensus on the need to manage forage fish more conservatively to preserve ecosystem structure and function, and then placed the issue within the context of Mid-Atlantic ecosystems. He briefly described Mid-Atlantic ecosystems and species that are likely important forage stocks (both managed and unmanaged). He also discussed options the Council should consider relative to the special management of forage species and described approaches to forage fish management taken by other Councils. The panel then discussed generic forage species definitions and concluded that it would be difficult to specify a universal forage fish definition, but endorsed the definition proposed by the Council's SSC. The panel also discussed the range of exploitation rates the Council should consider in development of an exploitation policy for forage stocks and the trade-offs between a more conservative exploitation policy for forage species and potential benefits for the ecosystem and higher trophic level predator species.

Dr. Robert Latour (Virginia Institute for Marine Studies, SSC member) discussed potential approaches the Council could take to assess and manage forage stocks. He noted the importance of articulating key ecosystem level objectives, as well as the limits of the data and science to support ecosystem-based management. He recommended that the Council build on current single species stock assessment models and incorporate predation mortality and climate drivers in stock assessments for forage species (this could be accomplished through stock assessment terms of reference). He also stressed the need for the Council to develop the science and policy aspects of forage fish assessment and management in harmony, and that the Council should carefully separate scientific and policy issues when developing its forage fish exploitation policy.

Dr. Sarah Gaichas (Northeast Fisheries Science Center) noted that the state of information, models, etc., currently available are sufficient to support an ecosystem approach to management and the development or forage management policy in the Mid-Atlantic. These models range from single species assessments, which treat predation mortality explicitly, to complex "end-to-end" ecosystem models. The challenge will be to bridge from single-species stock assessment models to multi-species models and, eventually,

to more sophisticated ecosystem level models. She also described other potential approaches to insuring adequate forage by managing at the level of functional groups. A key consideration that must be examined is an estimation of predator demands within the system and whether or not those demands are being met. The Council will be faced with a new level of policy when determining tradeoffs in predator consumption requirements when managing forage fish.

The workshop concluded with a discussion of possible paths forward for the Council in the development of forage fish management policy. Incorporation of consumption estimates by predators and species interactions in stock assessments could be accomplished through the addition of ecosystem terms of reference at the stock assessment level. The Council should also consider modification of its ABC control rules and risk policy with respect to forage species.

Based on the outcome of the discussion at the workshop, the Council has begun development of a forage exploitation policy, which will guide Council decision making at the FMP level as part of its EAFM Guidance Document. The EAFM Working Group reviewed and endorsed the following ABC control rule framework for forage species:

1. OFL determined based on MSA defined F_{msy} (or OFL Proxy)
2. SSC specifies ABC based on current risk policy with respect to "atypical" species ($P^* = 0.35$) if M2 is not included in the stock assessment, otherwise set $P^* = 0.4$.
3. Based on ecological/social/economic evaluation, Council could add additional ecosystem consideration buffer when specifying OY (aka "ecological set-aside") for forage stocks. The bounds for the ABC/OFL ratio under proposed OY framework for forage stocks become:
 - a. $0.25 - 0.5 > ABC/OFL > 0.81$ if M2 is adequately incorporated into stock assessment, else
 - b. $0.25 - 0.5 > ABC/OFL > 0.726$ (i.e., M2 is not adequately addressed). The Council could add additional buffers during specification of OY, but the lower bound would be $0.25 - 0.5$.

The SSC reviewed the draft ABC protocol for forage species and generally endorsed the approach, but made several suggestions for the Council to consider as it moves forward on this issue. First, the Council should consider a range of ABC buffers for forage stocks in addition to the one proposed (i.e., apply the current ABC protocol for species with atypical life histories to forage species). For example, the 5% buffer for atypical stocks could be applied to forage stocks regardless of how M2 (predation mortality) is treated in the stock assessment, or even set larger buffers if appropriate. In addition, the Council could also consider modifying the biological reference points for forage stocks (i.e., establish more conservative fishing mortality rates that define overfishing). Regardless of the approach taken, the primary goal would be to maintain forage stocks at levels higher than B_{msy} as per the limited guidance provided in National Standard 1.

Next, staff provided an update on EAFM Guidance Document development. The Council has convened an EAFM working group whose members include S. Gaichas (NEFSC), J. Hare (NEFSC), T. Lederhouse (NMFS Habitat Division), K. Abrams (NMFS HQ), G. Depiper (NEFSC), and R. Seagraves (MAFMC) to assist in the development of the ecosystem guidance document. The EAFM WG has met once and discussed the major areas of emphasis within the EAFM Guidance Document. The current plan is to focus on four areas relevant to EAFM: species interactions (including forage fish assessment and management policy), climate change impacts, more fully incorporating habitat science in assessment and management, and incorporating social and economic considerations in future OY specifications and at the broader level of EAFM.

The next EAFM workshop is currently scheduled to be held in February 2014, and will examine issues related to climate change. The purpose of the workshop will be to provide the Council with the current state of knowledge relative to climate change and the expected range of impacts on living marine resources to assist the Council in the development of an adaptive fishery management framework that will effectively deal with ecosystem responses related to climate change. Results of the workshop will also inform the EAFM document concerning potential mechanisms to more fully account for climate change within the existing assessment and management system.

The SSC generally endorsed the current EAFM approach, but noted that the issue of fisheries within the context of the larger ecosystem and relative to competing uses of the ecosystem (offshore wind power development, petroleum extraction, etc.) was lacking in the current outline. One potential remedy would be to include examination of these issues under the social/economic section of the document. There was also considerable support by the SSC for the elevation of habitat science within the current process and especially within an ecosystem context.

cc: SSC Members, Lee Anderson, Chris Moore, Rich Seagraves, Kiley Dancy, Jim Armstrong, Jessica Coakley, Paul Rago, Mark Terceiro, Brian Linton, Tony Wood, Toni Kerns

Mid-Atlantic Fishery Management Council
Scientific and Statistical Committee
September 17-19, 2013
Terms of Reference

A. Special Terms of Reference

Using information provided by September 3, 2013, the SSC will provide a written report that:

1) Reviews the extant multiyear ABC recommendations for spiny dogfish, bluefish, scup, black sea bass, and summer flounder to determine if any changes are necessary based on the current best available science. If changes are deemed necessary, then the generic terms of reference would be followed.

B. Generic Terms of Reference

The SSC will provide a written report that identifies the following for up to two fishing years (i.e., 2014-2015):

- 1) The materials considered in reaching its recommendations;
- 2) The level (1-4) that the SSC deems most appropriate for the information content of the most recent stock assessment, based on criteria listed in the Omnibus Amendment;
- 3) If possible, the level of catch (in weight) and the probability of overfishing associated with the overfishing limit (OFL) based on the maximum fishing mortality rate threshold or, if appropriate, an OFL proxy;
- 4) The level of catch (in weight) and the probability of overfishing associated with the acceptable biological catch (ABC) for the stock, the number of fishing years for which the ABC specification applies and, if possible, interim metrics that can be examined to determine if multi-year specifications need adjustment prior to their expiration;
- 5) The most significant sources of scientific uncertainty associated with determination of OFL and ABC;
- 6) Ecosystem considerations accounted for in the stock assessment, and any additional ecosystem considerations that the SSC took into account in selecting the ABC, including the basis for those additional considerations;
- 7) Prioritized research or monitoring recommendations that would reduce the scientific uncertainty in the ABC recommendation;
- 8) A certification that the recommendations provided by the SSC represent the best scientific information available.

Mid-Atlantic Fishery Management Council
Scientific and Statistical Committee
September 17-19, 2013
Admiral Fell Inn, Baltimore, MD; (410) 522-7380
Draft Agenda

Tuesday Sept 17, 2013

- 0900 SUN Subcommittee Report on interim multi-year specification metrics (Wilberg/Linton)
- 1200 Lunch
- 1300 Bluefish Multi-year ABC Evaluation (Jones/Armstrong/Wood)
- 1500 Spiny Dogfish Multi-year ABC Evaluation (Yiao/Armstrong/Rago)
- 1700 Adjourn

Wednesday September 18, 2013

- 0900 Summer flounder Multi-year ABC specification (Terceiro/Wilberg/Dancy)
- 1200 Lunch
- 1300 Scup Multi-year ABC evaluation (Gabriel/Dancy/Linton)
- 1430 Black sea bass ABC evaluation and future research/assessment (Miller/Dancy/Linton)
- 1630 Adjourn

Thursday September 19, 2013

- 0900 Review Forage Species ABC Protocol (Seagraves/Houde) and EAFM Progress Report
- 1000 Research needs prioritization (Seagraves)
- 1100 National SSC V – potential topics (Boreman/Seagraves)
- 1200 Meeting adjourns

MAFMC Scientific and Statistical Committee
17-18 September 2013 Meeting
Baltimore, MD

<u>Name</u>	<u>Affiliation</u>
<i>SSC Members in Attendance:</i>	
John Boreman (SSC Chairman)	North Carolina State University
Tom Miller (SSC Vice-Chair)	University of Maryland - CBL
Mike Wilberg	University of Maryland - CBL
Doug Lipton	NMFS
Ed Houde	University of Maryland - CBL
Doug Vaughan	NMFS (retired)
Olaf Jensen	Rutgers
Tom Noji	NMFS Northeast Fisheries Science Center
Dave Secor	University of Maryland – CBL
Yan Jiao	Virginia Tech
Wendy Gabriel	NMFS Northeast Fisheries Science Center
Cynthia Jones	Old Dominion University
David Tomberlin (9/17 AM only)	NMFS Office of Science and Technology
Mark Holliday	NMFS Office of the Assistant Administrator
<i>Others in attendance:</i>	
Rich Seagraves	MAFMC staff
Kiley Dancy	MAFMC staff
Jose Montañez	MAFMC staff
Jim Armstrong (9/17 only)	MAFMC staff
Jessica Coakley (9/18 only)	MAFMC staff
Toni Kerns	ASMFC staff
Marin Hawke	ASMFC staff
Brian Linton	NMFS Northeast Fisheries Science Center
Mark Terceiro (9/18 only)	NMFS Northeast Fisheries Science Center
Paul Rago (9/17 only)	NMFS Northeast Fisheries Science Center
Tony Wood	NMFS Northeast Fisheries Science Center
Moiria Kelly	NMFS Northeast Regional Office
Jenny Thompson	NMFS Sea Grant Fellow
Andrea Salute	University of Maryland – CBL
Rick Robins	MAFMC Chair
Lee Anderson	MAFMC Vice-chair
Greg DiDomenico	Garden State Seafood Association
Adam Nowalski (9/18 only)	MAFMC Advisor
Mike Luisi (9/18 only)	MAFMC member – MD DNR
Michael Schmidtke (9/18 only)	Old Dominion University
Antranik Kajajian (9/18 only)	Old Dominion University
Kristen Arnstead (9/18 only)	Old Dominion University
James Reinhardt (9/18 only)	Pew
Kirby Rootes-Murdy (9/18 only)	ASMFC staff
John Maniscalco (9/18 only)	NYDEC



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Richard B. Robins, Jr., Chairman | Lee G. Anderson, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

DATE: September 5, 2013

TO: Chris Moore, Executive Director

FROM: Kiley Dancy, Staff

SUBJECT: Summer Flounder Management Measures for 2014 and 2015

Executive Summary

Based on the results of the benchmark stock assessment conducted in July 2013, the summer flounder stock is not overfished and overfishing is not occurring. The model estimated spawning stock biomass (SSB) was 112.96 million lb (51,238 mt) in 2012 (82% of the biomass at maximum sustainable yield, SSB_{MSY}). Staff recommend that current 2014 summer flounder specifications be revised to reflect the results of the latest benchmark stock assessment, and additionally that specifications be set for 2015. Based on the projections for summer flounder and the Council risk policy on overfishing a "typical" stock, the staff recommendation for acceptable biological catch (ABC) is 19.85 million lb (9,006 mt) in 2014, and 21.45 million lb (9,732 mt) in 2015.

For 2014, staff recommend a commercial ACL of 11.71 million lb (5,313 mt), and a recreational ACL of 8.14 million lb (3,693 mt). Staff also recommend a commercial annual catch target (ACT) of 11.71 million lb (5,313 mt), a commercial quota less discards and 3% research set-aside (RSA) of 9.52 million lb (4,317 mt), a recreational ACT of 8.14 million lb (3,693 mt), and a recreational harvest limit less discards and 3% RSA of 6.34 million lb (2,878 mt).

For 2015, staff recommend a commercial ACL of 12.64 million lb (5,734 mt), and a recreational ACL of 8.81 million lb (3,998 mt). Staff also recommend a commercial annual catch target (ACT) of 12.64 million lb (5,734 mt), a commercial quota less 3% research set-aside (RSA) of 10.13 million lb (4,596 mt), a recreational ACT of 8.81 million lb (3,998 mt), and a recreational harvest limit less 3% RSA of 6.76 million lb (3,064 mt).

Staff do not recommend any change to the current minimum fish size (14 inch-TL), gear requirements, or exemption programs (small mesh and North Carolina flynet). States that allocate 15% of their commercial quota to bycatch fisheries should continue to do so, and all other states should consider measures which reduce bycatch. Staff recommend up to 3% of the total allowable landings (TAL) be made available to the RSA Program.

Introduction

The Magnuson-Stevens Act (MSA) requires each Council's Scientific and Statistical Committee (SSC) to provide ongoing scientific advice for fishery management decisions, including recommendations for ABC, preventing overfishing, and maximum sustainable yield. The Council's catch limit recommendations for the upcoming fishing year(s) cannot exceed the ABC recommendation of the SSC. In addition, the Monitoring Committees established by the Fishery Management Plan (FMP) are responsible for developing recommendations for management measures designed to achieve the recommended catch limits.

The SSC will recommend an ABC for summer flounder that addresses scientific uncertainty, and the Monitoring Committee will recommend an annual catch target (ACT) and management measures to address management uncertainty. Based on the SSC and Monitoring Committee recommendations, the Council will make a recommendation to the National Marine Fisheries Service (NMFS) Northeast Regional Administrator. Because the FMP is cooperatively managed with the Atlantic States Marine Fisheries Commission, the Commission's Summer Flounder, Scup, and Black Sea Bass Board will meet jointly with the Council to recommend summer flounder management measures. In this memorandum, information is presented to assist the SSC and Monitoring Committee in developing recommendations for the Council and Board to consider for the 2014 and 2015 fishing years for summer flounder.

Additional relevant information about the fishery and past management measures is presented in the Fishery Performance Report for summer flounder developed by the Council and Commission Advisory Panels, as well as in the corresponding Summer Flounder Fishery Information Document prepared by Council staff.

Catch and Landings Update

Based on the 2013 benchmark stock assessment for summer flounder,¹ the 2012 commercial and recreational landings were 13.33 million lb (6,047 mt) and 6.29 million lb (2,853 mt), respectively. The 2012 commercial landings as of the week ending August 17, 2013, indicate that 81% of the coastwide commercial quota has been landed (Table 1).

¹ Northeast Fisheries Science Center. 2013. 57th Northeast Regional Stock Assessment Workshop (57th SAW) Assessment Summary Report. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 13-14; 39 p.

Table 1: The 2013 state-by-state quotas and the amount of summer flounder landed by commercial fishermen, in each state as of week ending August 17, 2013.

State	Commercial			Research
	Cumulative Landings (lb)	Quota (lb) ^a	Percent of Quota (%)	Set-Aside Landings (lb)
ME	0	5,441	0	0
NH	5	53	9	0
MA	758,141	791,236	96	780
RI	1,528,453	1,839,824	83	125,513
CT	244,714	258,205	87	8,031
NY	692,147	842,605	82	73,932
NJ	1,279,162	1,972,066	65	0
DE	0		0	0
MD	55,178	233,269	24	0
VA	4,544,788	5,040,501	90	0
NC	169,617	422,360	40	0
Other	0	0	0	0
Totals	9,252,205	11,405,560	81	208,256

^a Quotas adjusted for research set-aside and overages. Source: NMFS Weekly Quota Report for week ending August 17, 2013.

Regulatory Review

In July 2012, the SSC met to specify an ABC for summer flounder for fishing year 2013, and consider specifying multi-year ABCs for up to three years. The SSC recommended two-year ABCs for summer flounder, for fishing years 2013 and 2014, given the expectation of new scientific information from the benchmark stock assessment in summer 2013.

The overfishing limit (OFL) was determined to be 29.81 million lb (13,523 mt), based on a threshold $F = 0.310$ ($F_{0.35}$) and 2012 projected biomass. The 2013 ABC associated with the OFL was 22.34 million lb (10,133 mt), based on the 2012 projected $B/B_{msy} = 92\%$, Council risk policy $P^* = 0.364$, and a lognormal distribution with of $CV = 100\%$. The associated 2013 commercial quota was 11.44 million lb (5,189 mt) and the recreational harvest limit was 7.63 million lb (3,461 mt). To derive a 2014 ABC, the SSC applied a constant $F=0.224$, resulting in a 2014 ABC of 22.24 million lb (10,088 mt). The associated 2014 commercial quota is 11.39 million lb (5,166 mt) and the recreational harvest limit is 7.59 million lb (3,443 mt).

The SSC considered summer flounder to be a level 3 assessment and considered the following to be the most significant sources of uncertainty: strong annual retrospective pattern in recruitment for recent year

classes; uncertainty in stock status because of lack of uncertainty estimation for the biological reference points (proxy used for F_{MSY}); uncertainty with respect to the estimate of natural mortality (M); no uncertainty characterization for the OFL; uncertainties resulting from the application of trawl calibration coefficients (ALBATROSS IV vs BIGELOW) and their influence on the selectivity pattern and results of the assessment; projections used to calculate ABC being based on the assumption that the quota would be landed in 2012 and 2013; and the assumption of constant distribution (based on the 1982-2011 period) in recruitment used in the 2013 and 2014 stock projections.

Management measures in the commercial fishery other than quotas and harvest limits (i.e., minimum fish size, gear requirements, etc.) have remained generally constant since 1999.

Biological Reference Points

The benchmark 2013 SAW 57 assessment (NEFSC 2013) included updated biological reference points for summer flounder. The new fishing mortality threshold is $F_{MSY} = F_{35\%}$ (as the F_{MSY} proxy) = 0.309. The new biomass reference point, $SSB_{MSY} = SSB_{35\%}$ (as the SSB_{MSY} proxy) = 137.56 million lb (62,394 mt). The minimum stock size threshold, one-half SSB_{MSY} , is estimated to be 68.78 million lb (31,197 mt).

Stock Status and Projections

The most recent benchmark peer-reviewed assessment for summer flounder resulted from the July 2013 Stock Assessment Workshop/Stock Assessment Review Committee (SAW/SARC 57).² The assessment utilizes an age-structured assessment model called ASAP. Documentation on this assessment and previous stock assessments, such as reports on stock status, including annual assessment and reference point update reports, Stock Assessment Workshop (SAW) reports, and Stock Assessment Review Committee (SARC) panelist reports, are available online at the NEFSC website: <http://www.nefsc.noaa.gov/saw/>.

Results of the July 2013 benchmark assessment indicate that the summer flounder stock was not overfished and overfishing was not occurring in 2012 relative to the biological reference points from the 2013 SAW/SARC 57. The fishing mortality rate has been below 1.0 since 1997 and was estimated to be 0.285 in 2012, below the threshold fishing mortality reference point $F_{MSY} = 0.309$. SSB was estimated to be 113.0 million lb (51,238 mt) in 2012, about 82% of $SSB_{MSY} = 137.6$ million lb (62,394 mt). NMFS declared the summer flounder stock rebuilt in 2010, based on the 2011 assessment update.

Projections indicate that if the stock is fished at the fishing mortality threshold of $F_{MSY} = F_{35\%}$ (as F_{MSY} proxy) = 0.309 in 2014, median landings are projected to be 21.96 million lb (9,961 mt), with median discards of 4.80 million lb (2,177 mt), and median total catch 26.76 million lb (12,138 mt). This projected median total catch is equivalent to the Overfishing Limit (OFL) for 2014, and is less than the new MSY proxy of 28.54 million lb (12,945 mt).

² Northeast Fisheries Science Center. 2013. 57th Northeast Regional Stock Assessment Workshop (57th SAW) Assessment Summary Report. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 13-14; 39 p.

Basis for 2014 and 2015 ABC Recommendation

Input from the Council's Visioning and Strategic Planning processes as well as from the Advisory Panel Fishery Performance Reports highlight stakeholder interest in increasing the stability of fishery management measures. Last year, multi-year specifications were set for summer flounder for 2013 and 2014. However, given the availability of a new benchmark stock assessment, the 2014 measures currently in place should be revised to reflect the updated assessment information, consistent with National Standard 2 of the Magnuson-Stevens Act. Two-year specifications are recommended in order to align the timeline for multi-year specifications for summer flounder, scup, and black sea bass. Because scup specifications are currently set through 2015, two-year specifications for each species at this stage would increase efficiency and promote stability by syncing the multi-year specifications schedule. Therefore, staff recommend summer flounder specifications be set for 2 years (revised for 2014, and set for 2015).

There are several methods that can be used to project multi-year OFLs and ABCs. The Stock Assessment Summary Report includes projections resulting in a slightly different set of ABCs than those recommended by staff, due to a different set of starting assumptions about the level of catch that will be taken in 2013. The projections made for the assessment summary report assume that a catch level associated with $F_{MSY} = 0.309$ will be taken in 2013, while the projections from which the staff recommendations are derived were made under the assumption that the removals in 2013 will be equal to the ABC of 10,133 mt. However, both sets of projections are arrived at using an iterative approach, where the “feedback” from a given level of removals influences the projected stock size for the following year, which is incorporated to update the OFLs and ABCs in those subsequent years.

For 2014, the OFL is 26.76 million lb (12,138 mt), and is defined by the fishing mortality threshold of $F=0.309$ and projected biomass in 2013 (124.92 million lb or 56,662 mt; 91% of SSB_{MSY}). It is clear that a recommendation for an ABC equal to the OFL would not account for any scientific uncertainty associated with estimation of OFL and the assessment of the summer flounder stock. Last year, the SSC classified the summer flounder assessment as level 3 and applied the Council risk policy for a typical stock using a lognormal OFL distribution with a CV equal to 100%. Staff recommend the same approach be applied to derive the 2014 ABC. Based on the 2013 projected $SSB/SSB_{MSY} = 91\%$, Council risk policy $P^* = 0.360$, and a lognormal distribution with a CV = 100%, staff recommend an ABC of 19.85 million lb (9,006 mt) in 2014.

For 2015, the OFL would be 27.53 million lb (12,489 mt). Based on the 2015 projected $SSB/SSB_{MSY} = 96\%$, Council risk policy $P^* = 0.382$, and a lognormal distribution with a CV = 100%, staff recommend of an ABC of 21.46 million lb (9,732 mt) (Table 2).

Other Management Measures

Recreational and Commercial ACLs

As defined in the Omnibus ACLs and AMs Amendment, the ABC is equivalent to the total allowable catch (TAC), and is equal to the sum of the commercial and recreational ACLs (Figure 1).

Summer Flounder Flowchart

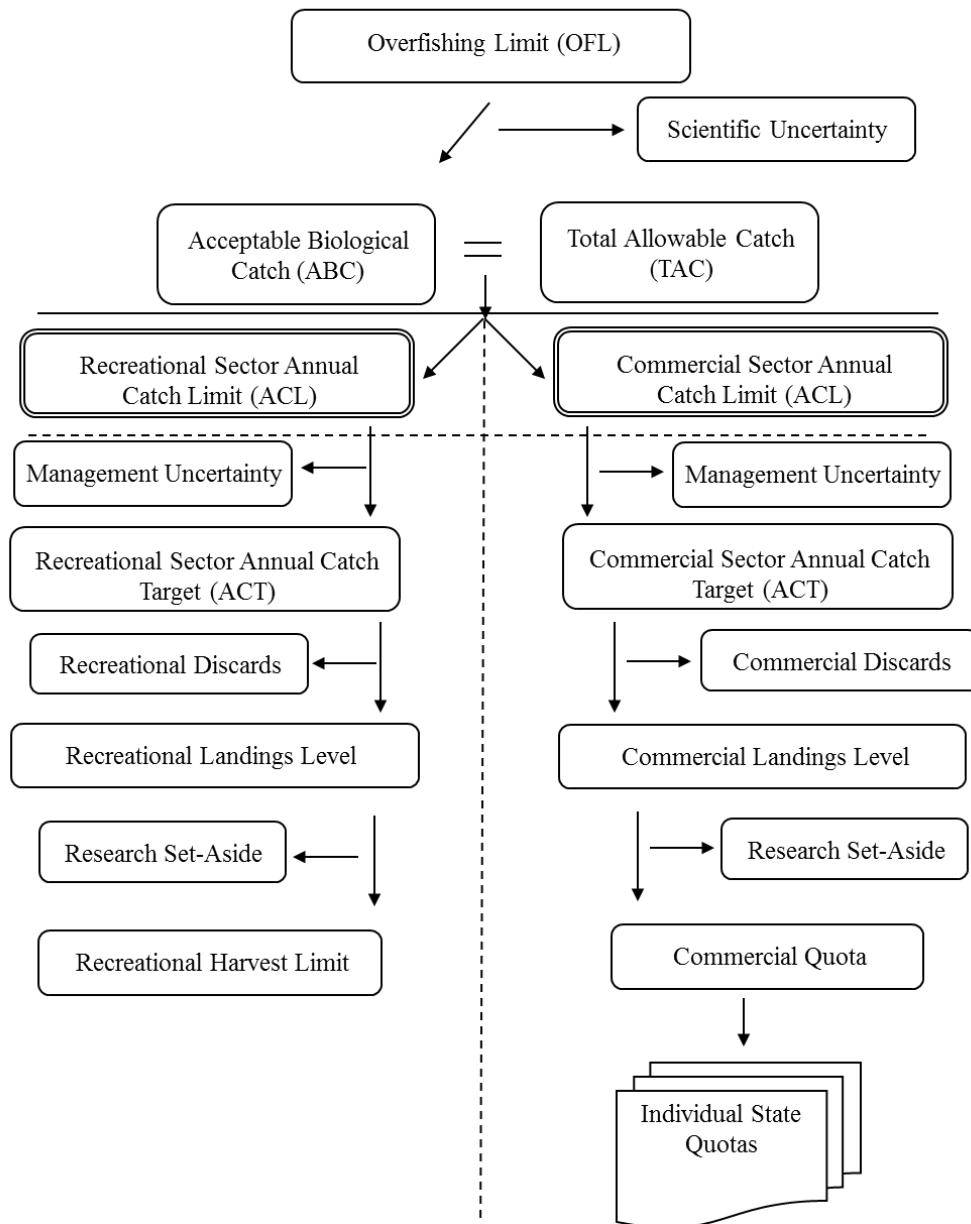


Figure 1: Flowchart for summer flounder catch and landings limits.

The ABCs for 2014 and 2015 are comprised of both landings and discards. Based on the allocation percentages in the FMP, 60% of the landings are allocated to the commercial fishery, and 40% to the recreational fishery (Table 2). Discards are apportioned based on the contribution from each fishing sector using the 2010-2012 average ratios; 46% of dead discards are attributable to the recreational fishery, 54% to the commercial.

Table 2: Allocation of the summer flounder ABC to the commercial and recreational ACLs for 2014 and 2015 (staff recommended).

		Catch (Landings + Discards)	Landings Portion	Discards Portion
2014	ABC	19.85 mil lb (9,006 mt)	16.35 mil lb (7,417 mt)	3.64 mil lb (1,649 mt)
	Commercial ACL	11.71 mil lb (5,313 mt)	9.81 mil lb (4,450 mt)	1.90 mil lb (862 mt)
	Recreational ACL	8.14 mil lb (3,693 mt)	6.54 mil lb (2,967 mt)	1.60 mil lb (727 mt)
2015	ABC	21.46 mil lb (9,732 mt)	17.41 mil lb (7,897mt)	4.05 mil lb (1,835 mt)
	Commercial ACL	12.64 mil lb (5,734 mt)	10.45 mil lb (4,738 mt)	2.20 mil lb (996 mt)
	Recreational ACL	8.81 mil lb (3,998 mt)	6.96 mil lb (3,159 mt)	1.85 mil lb (839 mt)

Considerations for ACTs

The Summer Flounder Monitoring Committee will be responsible for recommending annual catch targets (ACTs) for the Council to consider. The relationships between the recreational and commercial ACTs and other catch components are given in Figure 1. The Monitoring Committee may provide other recommendations relevant to setting catch limits consistent with the Magnuson-Stevens Act. The Monitoring Committee should consider all relevant sources of management uncertainty in the summer flounder fishery and provide the technical basis, including any formulaic control rules, for any reduction in catch when recommending an ACT. The ACTs, technical basis for ACT recommendations, and sources of management uncertainty would be described and provided to the Council.

Management uncertainty is comprised of two parts: uncertainty in the ability of managers to control catch and uncertainty in quantifying the true catch (i.e., estimation errors). Management uncertainty can occur because of a lack of sufficient information about the catch (e.g., due to late reporting, underreporting, and/or misreporting of landings or bycatch) or because of a lack of management precision (i.e., the ability to constrain catch to desired levels).

The sector-specific landings performance for recent years indicates that although the recreational fishery has been somewhat variable in its performance, recreational landings have been under the recreational harvest limits for the past four years (Table 3). The commercial fishery has reported landings levels very

near the commercial quotas for the last several years, indicating that quota monitoring systems in place are effective in allowing timely reactions to landings levels that approach quotas (Table 3). Staff recommend no reduction in catch from the recreational or commercial ACL, so that each sector's ACT would be set equal to the ACL.

Table 3: Commercial and recreational fishery performance relative to quotas and harvest limits, 2008-2012.

Year	Commercial Landings (mil lb) ¹	Commercial Quota (mil lb)	Percent Overage(+)/ Underage(-)	Recreational Landings (mil lb)	Recreational Harvest Limit (mil lb)	Percent Overage(+)/ Underage(-)
2008	9.13	9.32	-2%	8.13	6.21	+31%
2009	10.69	10.74	0%	5.99	7.16	-16%
2010	13.07	12.79	+2%	5.11	8.59	-41%
2011	16.56	17.38	-5%	5.95	11.58	-49%
2012	13.31	12.73	5%	6.29	8.49	-26%
5-yr Avg.	-	-	0%	-	-	-20%

Commercial Quota, Recreational Harvest Limit, and Research Set-Aside

The landings-based allocations (i.e., commercial 60%, recreational 40%) were maintained in the derivation of the sector-specific ACLs and ACTs, such that the sum of the sector-specific landings levels (TALs) will be equal to overall TAL (Table 2). Based on the staff recommended ACLs and ACTs given above and a 3% research set-aside deduction, the commercial quota in 2014 would be 9.52 million lb (4,317 mt) and the recreational harvest limit is 6.34 million lb (2,878 mt). In 2015, the commercial quota would be 10.13 million lb (4,596 mt) and the recreational harvest limit would be 6.76 million lb (3,064 mt). The commercial quota would be divided amongst the states based on the allocation percentages given in Table 4.

Table 4: The summer flounder allocation formula for the commercial fisheries in each state.

State	Allocation (%)
ME	0.04756
NH	0.00046
MA	6.82046
RI	15.68298
CT	2.25708
NY	7.64699
NJ	16.72499
DE	0.01779
MD	2.03910
VA	21.31676
NC	27.44584
Total	100

Specific management measures that will be used to achieve the harvest limit for the recreational fishery in 2014 and 2015 will not be determined until after the first four waves of the previous year's recreational landings are reviewed. These data will be available in October 2013 (for fishing year 2013) and October 2014 (for fishing year 2014). The Monitoring Committee will meet in November of each year to review these landings data and make recommendations regarding changes in the recreational management measures (i.e., possession limit, minimum size, and season). Given the performance of the recreational fishery relative to the recreational harvest limit in recent years, management measures (i.e., minimum size, possession limits, and seasons) should be implemented that are designed to prevent the recreational ACL from being exceeded.

Gear Regulations and Minimum Fish Size - Commercial Fishery

Amendment 2 to the Summer Flounder FMP contains provisions that allow for changes in the minimum fish size and minimum net mesh provisions. Current regulations require a 14 inch-TL minimum fish size in the commercial fishery and a 5.5 inch diamond or 6 inch square minimum mesh in the entire net for vessels possessing more than the threshold amount of summer flounder, i.e., 200 lb in the winter and 100 lb in the summer. The minimum fish size and mesh requirements may be changed through specifications based on the recommendations of the Monitoring Committee. Staff do not recommend any changes to the minimum fish size or mesh provisions.

Exemption Programs

Vessels landing more than 200 lb of summer flounder, east of longitude 72° 30.0'W, from November 1 through April 30, and not using a 5.5" minimum mesh (diamond) or 6" minimum mesh (square) net, are required to obtain a small mesh exemption program (SMEP) permit from NMFS. The FMP requires that sea sampling data be reviewed annually to determine if vessels fishing seaward of the line, with smaller

than the required minimum mesh size and landing more than 200 lb of summer flounder, are discarding more than 10% of their summer flounder catch. Staff evaluated the available Northeast Fisheries Observer Program (NEFOP) data for the period from November 1, 2012 to April 30, 2013. These data indicate that a total of 374 trips were observed east 72° 30.0'W; 158 of these trips landed summer flounder (Table 5). Of those 158 trips that landed summer flounder, 81 reported using small mesh and 50 landed more than 200 lb of summer flounder. Of those 50 trips, 6 trips discarded more than 10% of their catch. The percentage of trips that met all these criteria relative to the total number of observed trips east of 72° 30.0'W is 1.6% (6 trips/374 trips). The prior year percentage of trips that met the criteria was about 1%. Based on this information, staff recommend no change in the SMEP program.

In addition, vessels fishing with a two-seam otter trawl flynet are exempt. Specifically, flynets have large mesh in the wings that measure 8 to 64 inches, the belly of the net has 35 or more meshes that are at least 8 inches, and the mesh decreases in size throughout the body of the net to 2 inches or smaller. Only North Carolina has a flynet fishery at present. The supplemental memo from Tom Wadsworth dated August 7, 2013 indicates that summer flounder comprised less than 0.05% of the total landings by flynet in North Carolina in 2012. Therefore, staff recommend no change to this exemption program.

Table 5: Numbers of trips that meet specific criteria based on observer trips from November 1, 2012 to April 30, 2013.

November 1, 2012 – April 30, 2013	Trips
<i>Trips with tows east of 72° 30' W Longitude</i>	374
<i>That landed summer flounder</i>	158
<i>That used small mesh</i>	81
<i>That landed more than 200 lb of summer flounder</i>	50
<i>Number that discarded >10% of summer flounder catch</i>	6
<i>Total discards (lb) from those 3 trips</i>	657
<i>Total landings (lb) from those 3 trips</i>	3,133
<i>Total catch (lb) from those 3 trips</i>	3,790

Bycatch

Fishermen from a few states have indicated that the commercial regulatory discards associated with the summer flounder quotas are a problem. As such, the states that allocate 15% of their quota to bycatch fisheries should continue to do so, and all other states should consider measures to reduce bycatch.



North Carolina Department of Environment and Natural Resources

Division of Marine Fisheries

Pat McCrory
Governor

Dr. Louis B. Daniel III
Director

John E. Skvarla, III
Secretary

Memorandum

To: Jessica Coakley, MAFMC

From: Tom Wadsworth, NCDMF

Date: August 7, 2013

Subject: Species composition and landings from the 2012 North Carolina flynet fishery

Table 1 provides the species composition and landings in pounds from the North Carolina flynet fishery in 2012. Individual landings listed as "other species" are not reported because the data are confidential and cannot be distributed to sources outside the NC Division of Marine Fisheries (North Carolina General Statute 113-170.3 (c)). Confidential data can only be released in a summarized format that does not allow the user to track landings or purchases to an individual. Summer flounder flynet landings were among the confidential data but less than 2,000 lb were landed, trips landing summer flounder had less than 200 lb per trip, and the landings accounted for less than 0.05% of the total flynet landings. Note that flynet landings for all species were markedly lower than in 2011. This is largely due to shoaling of Oregon Inlet and the consequent lack of access to important landing ports in 2012. Many 2012 flynet landings by the NC fleet were instead made in Virginia or other states.

Table 1. Species and landings for 2012 NC flynet fishery

Species	Weight (lb)	Percent
Croaker	314,244	97.28%
Squid, Loligo	1,143	0.35%
Other Species	7,628	2.36%
Total	323,015	

Other Species

Bluefish
Butterfish
Dogfish, Smooth
Drum, Black
Flounders (Paralichthid)*
Monkfish (Whole)
Sea Bass, Black
Sea Mullet (whiting, kingfish)
Triggerfish
Trout (Gray Trout)

* Landings of Flounders (including summer flounder)
were < 2,000 lb and < 0.05% of total flynet landings



Summer Flounder, Scup, and Black Sea Bass Fishery Performance Reports September 2013

The Mid-Atlantic Fishery Management Council's (Council's) Summer Flounder, Scup, and Black Sea Bass Advisory Panel met jointly with the Atlantic States Marine Fisheries Commission's (Commission's) Summer Flounder, Scup, and Black Sea Bass Advisory Panels on September 10, 2013 to review fishery information documents for all three species and develop Fishery Performance Reports (FPRs) based on advisor perspectives on catch and landings patterns and other trends in these fisheries.

Council Advisory Panel members present: Joan Berko (NJ), Carl Benson (NJ), Ross Pearsall (RI), Adam Nowalsky (NJ), Robert Allen (VA), Greg DiDomencio* (NJ), Skip Feller* (VA), Monty Hawkins (MD), Harry Doernte (VA), Jim Lovgren* (NJ), James Fletcher (NC), Willy Hatch (MA), Joe O'Hara (MD)

Commission Advisory Panel members present: James Tietje (MA), Robert Busby (NY), John Conway (CT), Marc Hoffman (NY), Paul Risi (NY), Paul Forsberg (NY), Skip Feller* (VA), Jim Lovgren* (NJ), Victor Bunting (MD), Bill Shillingford (NJ), Bob Meimbresse (NJ), James Craddock (NC), Greg DiDomencio* (NJ)

Others present: Michael Luisi (MAFMC/ASMFC), David Tomberlin (MAFMC SSC)

*Serve on both Council and Commission Advisory Panels.

Summer Flounder

Market and Economic Issues

Advisors are concerned about the proposed reduction in quota from 2013 to 2014 compared to what was expected when 2014 specifications were set last year. The advisors commented that a quota reduction of this magnitude will have devastating economic impacts. Due to economic losses sustained due to Hurricane Sandy, many marinas and tackle stores are relying on the summer flounder fishery to finance rebuilding and repair costs. Advisors noted that abundance and availability observed on the water is not what is reflected in the biomass estimates in the 2013 assessment. Catch per unit effort is not adequately taken into account and used to judge the health of the stock. Observations on the water indicate that the stock appears to be robust and availability is high. The advisors would like an explanation of what triggered a change in stock size estimates and changes in reference points in the assessment. The advisors would like the Scientific and Statistical Committee (SSC) to address these issues by exploring a potential elevation of the stock level designation of the 2013 stock assessment, and exploring the use of a Coefficient of Variation (CV) narrower than the 100% that has been used in the past.

The overall economy and increasing costs, such as the cost of fuel, continue to be a concern for the summer flounder fisheries.

Environmental and Ecological Issues

The effects of Hurricane Sandy continue to have negative impacts on the fisheries in New York and New Jersey. Advisors are concerned that this has not been reflected in any of the catch estimates.

Summer flounder biomass appears to be shifting increasingly to the northeast, which is not being picked up by the surveys, in part due to the elimination of the winter survey. The winter commercial fishery has observed a large shift in biomass of fish to the east and to deeper and colder waters, which is not being reflected in the Science Center surveys. These shifts in biomass could reflect a potential range expansion, given that the fishery in the south is still robust.

Sand sharks, dogfish, and skates are competing with summer flounder for prey, particularly for sand eels. The biomass of dogfish is high and having a negative impact on summer flounder via competition for prey. Ecosystem-based management is often discussed but has not been implemented, and advisors continue to be concerned about the use of single-species management. Additionally, scientists and managers should incorporate more information about potential effects of cyclical and long-term changes in environmental conditions.

Management Issues & Management Induced Effort Shifts

Advisors are concerned that the high recreational size limits are resulting in an increase in the targeting of larger females, a trend that is harmful to the stock.

The advisors expressed concern that the transition from the Marine Recreational Fisheries Statistical Survey (MRFSS) to the Marine Recreational Information Program (MRIP) for recreational data was supposed to facilitate more timely and accurate estimates of recreational catch, but estimates are in fact coming out later. MRIP does not use the number of fishermen in each state, and effort estimates could be improved by using the angler registry.

The advisors are concerned that the change from MRFSS to MRIP is not resulting in improved estimates of effort. Effort for this year is expected to be down in New York and New Jersey due to loss of infrastructure as the result of Hurricane Sandy. The MRIP survey has not advanced to the point where it can adequately capture reductions in effort relative to any potential increase in success rates (catch per angler trip). This will result in estimated landings which could be inflated due to the inability of MRIP to reflect the reduction in effort. The advisors would like the SSC to consider how varying levels of harvest in 2013 could impact the 2014 Acceptable Biological Catch (ABC) recommendation and beyond. The recreational landings have been under the recreational harvest limit for several years, yet the ABC recommendation for the subsequent year is made assuming that the full ABC will be taken.

Since the majority of the recreational fishery occurs in state waters, and given potential shifts in biomass, the issue of outdated state allocations needs to be addressed, or coastwide or regional measures should be considered.

Other Issues

Advisors perceive a lack of commitment to multi-year specifications given that multi-year specifications were set last year that now are being changed (due to the timing of the benchmark stock assessment).

Research Recommendations

In regards to the draft RSA research recommendation reading:

Evaluate the length, weight, and age compositions of landed and discarded fish in the summer flounder fisheries (recreational and commercial) by sex. Focus should be placed on age sampling of summer flounder 24 inches or larger in total length, using paired hard part samples (i.e., scales, and when possible, otoliths).

The advisors questioned the benefit of this recommendation to the recreational community from the mid-to-southern range of the management unit. Advisors commented that there are other priorities that would provide more benefit to the fisheries.

Additionally, advisors suggested adding research recommendations for:

- Performing a search of available data to determine whether summer flounder school by sex and area.
- Further promotion of the sex-specific modeling work introduced during the last assessment that was not fully utilized.
- An evaluation of the impacts of predation on summer flounder, particularly by spiny dogfish.

Scup

Market and Economic Issues

Given the past reductions in quota, the commercial industry expects that the market and the demand for scup will increase. Concerns remain about the market share for scup being overtaken by tilapia.

The overall economy and increasing costs, such as the cost of fuel, continue to be a concern for the scup fishery. The cost of fishing trips has increased significantly due to rising fuel costs.

Environmental and Ecological Issues

The effects of Hurricane Sandy continue to have negative impacts on the fisheries in New York and New Jersey. Advisors are concerned that this has not been reflected in any of the catch estimates.

The advisors are concerned that the change from MRFSS to MRIP is not resulting in improved estimates of effort. Effort for this year is expected to be down in New York and New Jersey due to loss of infrastructure as the result of Hurricane Sandy. The advisors commented that the MRIP survey has not advanced to the point where it can adequately capture reductions in effort relative

to any potential increase in success rates (catch per angler trip). This will result in estimated landings which could be inflated due to the inability of MRIP to reflect the reduction in effort.

One advisor commented that black sea bass may be displacing scup from habitat in some areas near Cape Cod.

Management Issues & Management Induced Effort Shifts

Advisors commented that a complete and thorough re-evaluation of the scup Gear Restricted Areas (GRAs) is needed. One of the main goals of the GRAs was to rebuild scup, and that has been successful. The GRAs are currently in locations that are not useful. This analysis should also include an evaluation of lost revenue for squid and whiting fisheries.

Advisors question the justification for the decrease in quotas from 2013-2015 despite high stock size and increasing biomass. The advisors commented that the decreasing trend in quota combined with an expected increasing trend in effort could eventually result in quota overages and fishery closures. The SSC should consider how varying levels of harvest in 2013 could impact the 2014 ABC recommendation and beyond. The commercial and recreational landings have been under the harvest limits and quotas for several years, yet the ABC recommendation for the subsequent year is made assuming that the full ABC will be taken.

The Winter II fishery possession limit is currently 8,000 lb, and has not changed despite significant increases in quota. The Monitoring Committee (MC) should analyze what an appropriate trip limit should be (one recommendation from an advisor is 30,000 lb and/or a weekly cumulative trip limit of 30,000 lb). An increase in the Winter II possession limit would reduce regulatory discards.

The MC should also re-evaluate the timing and duration of the Summer fishery, and explore a reduction in the duration of the Summer fishery to May to September (shifting October into the Winter II fishery).

Recreational effort has increased for scup in Long Island Sound, in part because of the increased availability of larger scup. Scup are abundant and heavily targeted by the recreational fishery, benefitting other fisheries (such as striped bass) by relieving pressure on those fisheries. In Massachusetts, effort has also shifted to scup as the result of more restrictive regulations in other fisheries such as black sea bass.

Black sea bass

Market and Economic Issues

For the pot and trap fishery, the prices of sink rope and buoys are increasing with increasing fuel prices. Sink ropes must be replaced after disturbances like Hurricane Sandy.

In the for-hire sector, the combination of higher size limits and shorter seasons has resulted in vessels having to fish farther offshore to find retainable fish in some states. Increasing fuel costs

and other costs have made black sea bass trips less economically beneficial to the for-hire sector than in past years.

Environmental and Ecological Issues

The effects of Hurricane Sandy have been numerous, including bottom disturbances, and spring southerly winds contributing to colder waters, causing black sea bass to show up later in the season for some fisheries.

One of the advisors noted that observed discard mortality due to barotrauma is increasing as the result of having to fish farther offshore in deeper water.

The advisors also noted that although there has been no contraction observed at the southern end of the black sea bass range, an expansion into more northern waters has been observed. Advisors are concerned that the fish now being observed north of Cape Cod are missed in the trawl surveys and are not taken into account in the stock assessment.

Management Issues & Management Induced Effort Shifts

Advisors conveyed a lack of confidence in the recreational MRIP estimates provided for black sea bass. The large fluctuations in the estimates from year to year are a problem, as is the variability in the regulations. Some advisors expressed concern that the current regulations are suppressing opportunities to harvest a stock that they understand to be very abundant.

In the recreational fishery, the advisors commented that moving toward regional measures rather than state by state would be beneficial to the fishery. There is a desire to see the fishery open year-round, especially for the southern states. The southern states would benefit from a winter fishery, from November-February. In the north, the winter fishery has a relatively small overall impact on the stock, and it is good for business to keep the fishery going during that time.

Some advisors noted that management measures are impacting the ability to land the commercial quotas in some states. For example, in New Jersey, the trip limits are preventing full utilization of the quota by druggers.

One advisor noted that in the pot/trap fishery, fishing under lobster regulations causes complications when trap tags need to be changed. Decisions must be made in advance about how many tags are allocated to lobster vs. sea bass traps, so any changes in black sea bass regulations or quota result in a difficult and time-consuming process to change tags.

In some states such as Maryland and Delaware, black sea bass regulations are putting increased pressure on slow-growing Tautog stocks.

Other Issues

One advisor requested an examination of the effects of residual rocket fuel on black sea bass in the mid-Atlantic.

Advisors also commented that proceeds from black sea bass RSA should contribute more directly to black sea bass-related research.

Research Recommendations

The advisors discussed the list of RSA and other research recommendations and suggested:

- A study of the fish that being observed in increasing numbers at the northern end of the range. Advisors recommended that another coastwide tagging study be conducted, with a focus on migration and on the northern portion of the stock.
- Advisors expressed support for the existing research recommendation to explore a spatially-structured stock assessment model for black sea bass.
- An evaluation of the site fidelity of black sea bass.
- A review of potential fishery-induced modifications in the genetics of the black sea bass population, including changes in reproductive ability and growth rates.



Summer Flounder Advisory Panel Information Document¹

August 2013

Management System

The Fishery Management Plan (FMP) for summer flounder became effective in 1988, and established the management unit for summer flounder (*Paralichthys dentatus*) as the U.S. waters in the western Atlantic Ocean from the southern border of North Carolina northward to the U.S.-Canadian border. The FMP also established measures to ensure effective management of the summer flounder resource. There are two management entities that work cooperatively to develop fishery regulations for this species: the Atlantic States Marine Fisheries Commission (ASMFC) and the Mid-Atlantic Fishery Management Council (MAFMC), in conjunction with the National Marine Fisheries Service (NMFS) as the federal implementation and enforcement entity. This cooperative management endeavor was developed because a significant portion of the catch is taken from both state (0-3 miles offshore) and Federal waters (3-200 miles offshore).

The commercial and recreational fisheries are managed using catch and landings limits, commercial quotas, recreational harvest limits, minimum fish sizes, gear regulations, permit requirements, and other provisions as prescribed by the FMP. Summer flounder was under a stock rebuilding strategy beginning in 2000 until it was declared rebuilt in 2011. The Summer Flounder FMP, including subsequent Amendments and Frameworks, are available on the Council website at: <http://www.mafmc.org/fisheries/fmp/sf-s-bsb>.

Basic Biology

Detailed information on summer flounder life history and habitat requirements can be found in the document titled "Essential Fish Habitat Source Document: Summer Flounder, *Paralichthys dentatus*, Life History and Habitat Characteristics" (Packer et al. 1999), available at: <http://www.nefsc.noaa.gov/nefsc/habitat/efh/>. Information contained in that document is summarized below.

Summer flounder spawn during the fall and winter over the open ocean areas of the continental shelf. From October to May, larvae and postlarvae migrate inshore, entering coastal and estuarine nursery areas. Juveniles are distributed inshore and in many estuaries throughout the range of the species during spring, summer, and fall. Adult summer flounder exhibit strong seasonal inshore-offshore movements, normally inhabiting shallow coastal and estuarine waters during the warmer months of the year and remaining offshore during the colder months.

¹ Data employed in the preparation of this document are from unpublished National Marine Fisheries Service (NMFS) Dealer, Vessel Trip Reports (VTRs), Permit, and Marine Recreational Statistics (MRFSS/MRIP) databases, as of July 2013, unless otherwise noted.

Summer flounder habitat includes pelagic waters, demersal waters, saltmarsh creeks, seagrass beds, mudflats, and open bay areas from the Gulf of Maine through North Carolina. They are opportunistic feeders, and their prey includes a variety of fish and crustaceans. While the natural predators of adult summer flounder are not fully documented, larger predators (e.g., large sharks, rays, and monkfish) probably include summer flounder in their diets.

Male and female growth rates vary substantially, with males growing more slowly. Males rarely live longer than 10 years, whereas females may live for up to 20 years (Bolz et al. 1999) and attain weights of about 25 lbs. Based on an analysis of NEFSC Fall Survey maturity data from 1992-1997, the median length at maturity (50th percentile, L_{50}) was estimated as 27.0 cm (10.6 inches) for male summer flounder, 30.3 cm (11.9 inches) for female summer flounder, and 27.6 cm (10.9 inches) for the sexes combined (NEFSC 2008). The median age of maturity (50th percentile, A_{50}) for summer flounder was determined to be 1.1 years for males, 1.4 years for females, and 1.2 years for both sexes combined (NEFSC 2008).

Status of the Stock

An age-structured assessment program (ASAP) was used in the 2013 peer-reviewed summer flounder stock benchmark stock assessment (57th Stock Assessment Workshop; NEFSC 2013). As of August 2013, the Stock Assessment Workshop (SAW) Report is undergoing the final steps of the peer review and publication processes. The finalized report, along with the Stock Assessment Review Committee (SARC) panelist reports, will be available in September 2013, online at the NEFSC website: <http://www.nefsc.noaa.gov/saw/>. Previous stock assessment reports, assessment updates, and peer review panelist reports are also available at the site above.

Preliminary results of the 2013 benchmark assessment indicate that the summer flounder stock was not overfished or subject to overfishing in 2012, relative to the new biological reference points derived from the SAW 57 assessment. Fishing mortality (F) was estimated to be 0.285 in 2012, below the updated threshold fishing mortality reference point of $F_{MSY} = 0.309$ (Figure 1). Spawning Stock Biomass (SSB) was estimated to be 113.0 million lb (51,238 mt) in 2012, 18% below the updated $SSB_{MSY} = 137.6$ million lb (62,394 mt). The summer flounder stock was previously under a rebuilding plan, but was declared rebuilt in 2010 based on the 2011 assessment update.

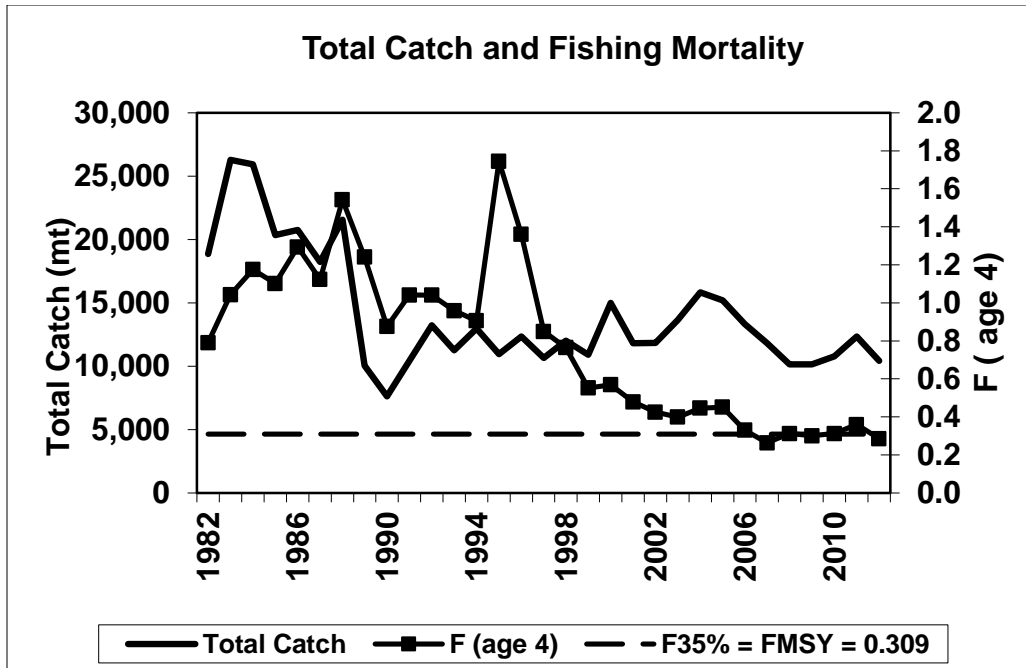


Figure 1: Total fishery catch and fully-recruited fishing mortality (F, peak at age 4) of summer flounder. The horizontal dashed line is the 2013 SAW/SARC57 fishing mortality reference point proxy. Source: NEFSC 2013.

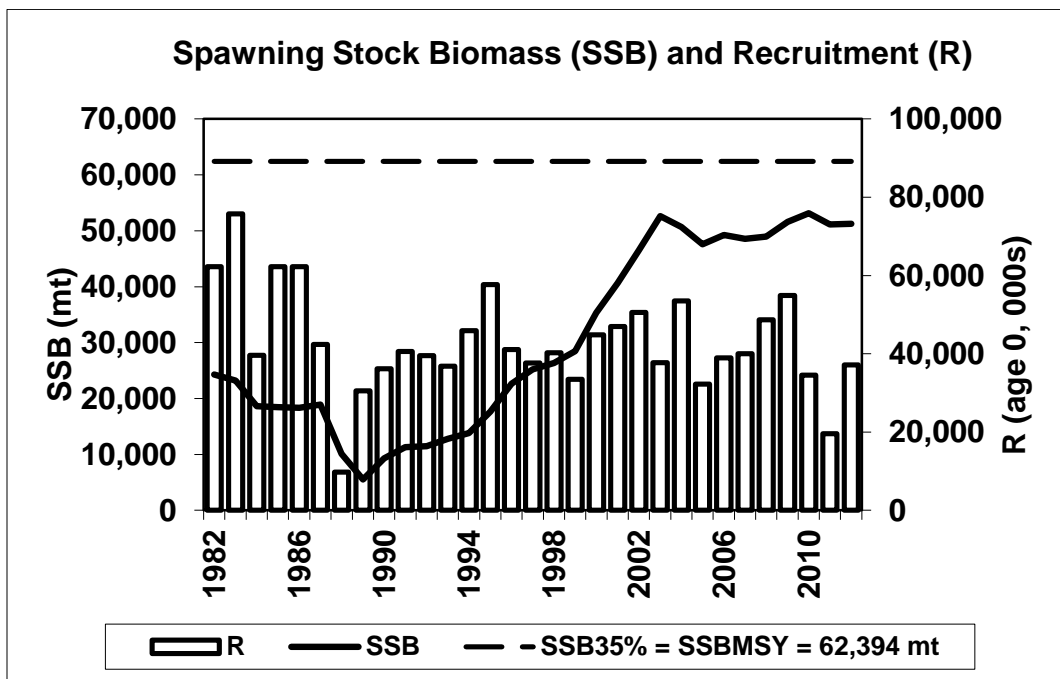


Figure 2: Summer flounder spawning stock biomass (SSB; solid line) and recruitment at age 0 (R; vertical bars) by calendar year. The horizontal dashed line is the 2013 SAW/SARC57 biomass reference point proxy. Source: NEFSC 2013.

Fishery Performance

There are significant commercial and recreational fisheries for summer flounder. The summer flounder stock is managed primarily using output controls (catch and landings limits), with 60 percent of the landings being allocated to the commercial fishery as a commercial quota and 40 percent allocated to the recreational fishery as a recreational harvest limit.

Commercial Fishery

In Federal waters, commercial fishermen holding a moratorium permit may fish for summer flounder. Permit data for 2012 indicates that 870 vessels held commercial permits for summer flounder. Total (commercial and recreational) landings declined in the early 1980's to a low of 14.4 million lb in 1990, and in 2012 were about 20 million lb total (Figure 3).

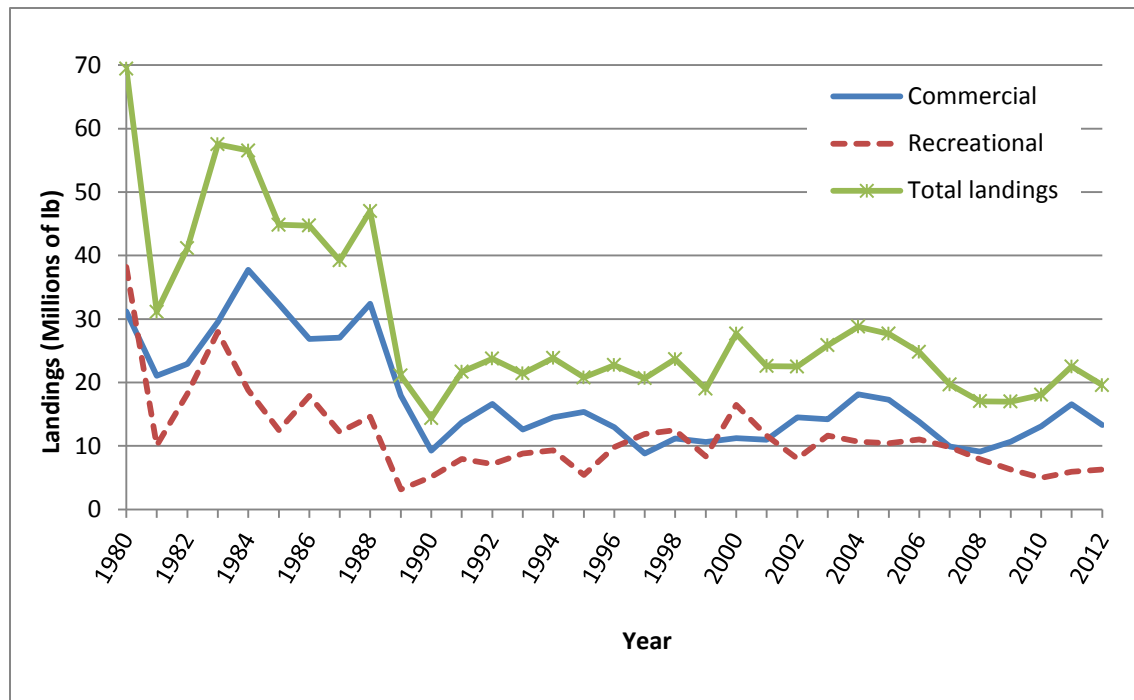


Figure 3: Commercial and Recreational U.S. Summer Flounder Landings (Pounds) from Maine-North Carolina, 1980-2012.

Table 1 summarizes the summer flounder management measures for the 2003-2014 fishing years. Acceptable biological catch (ABC) levels have been identified for this stock since 2009, and recreational and commercial annual catch limits (ACLs), with a system of overage accountability for each ACL, were first implemented in 2012. It should be noted that catch limits include both projected landings and discards, whereas the commercial quotas and recreational harvest limits are landings based (i.e., harvest). The commercial quota is divided among the states based on the allocation percentages given in Table 2, and each state sets measures to achieve their state-specific commercial quotas.

Table 1: Summary of summer flounder management measures and landings for 2003 through 2014.

Management measures	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014 ^d
ABC (m lb)	NA	NA	NA	NA	NA	NA	21.50	25.5	33.95	25.58	22.34	22.24
TAC (m lb)	NA	NA	NA	NA	NA	NA	20.90	25.5	33.95	25.58	22.34	22.24
Commercial ACL	NA	NA	NA	NA	NA	NA	NA	NA	NA	14.00	12.11	12.05
Com. quota-adjusted (m lb) ^c	13.87	16.76	17.90	13.94	9.79	9.32	10.74	12.79	17.38	12.73	11.44	11.39
Com. landings	14.22	18.14	17.25	13.81	9.90	9.13	10.69	13.07	16.57	13.31	NA	NA
Recreational ACL	NA	NA	NA	NA	NA	NA	NA	NA	NA	11.58	10.23	10.19
Rec. harvest limit-adjusted (m lb) ^c	9.28	11.21	11.98	9.29	6.68	6.21	7.16	8.59	11.58	8.49	7.63	7.59
Rec. landings	11.64	10.65	10.42	11.00	9.80	7.90	6.30	4.97	5.96	6.29	NA	NA
Com. fish size (in)	14	14	14	14	14	14	14	14	14	14	14	14
Com. Min. mesh size (in, diamond)	5.5 ^a	5.5 ^a	5.5 ^a	5.5 ^a	5.5 ^a	5.5 ^a	5.5 ^a	5.5 ^a	5.5 ^a	5.5 ^a	5.5 ^a	5.5 ^a
Recreational measures	CE ^b	CE ^b	CE ^b	CE ^b	CE ^b	CE ^b	CE ^b	CE ^b	CE ^b	CE ^b	CE ^b	NA

^aWhole Net. ^bState-specific conservation equivalency (CE) measures. ^cAdjusted for Research Set-Aside and projected discards. NA=Not applicable or not yet available. ^dThese reflect the regulations currently set for summer flounder in 2014, however, the Council and ASFMC will review new stock assessment information in October 2013 and may revise as necessary.

Table 2: State-by-state percent share of commercial summer flounder allocation.

State	Allocation (%)
ME	0.04756
NH	0.00046
MA	6.82046
RI	15.68298
CT	2.25708
NY	7.64699
NJ	16.72499
DE	0.01779
MD	2.03910
VA	21.31676
NC	27.44584
Total	100

NMFS statistical areas are shown in Figure 4. VTR data suggest that statistical area 616, which includes Hudson Canyon, was responsible for the highest percentage of the catch, with statistical area 612 having the majority of trips that caught summer flounder (Table 3).

Table 3: Statistical areas that accounted for at least 5 percent of the summer flounder catch in 2012 and associated number of trips, NMFS VTR data.

Statistical Area	Summer Flounder Catch (percent)	Summer Flounder Trips (N)
616	18.55	511
537	18.15	1578
613	11.36	1956
612	9.79	2550
626	6.85	170
622	6.32	199

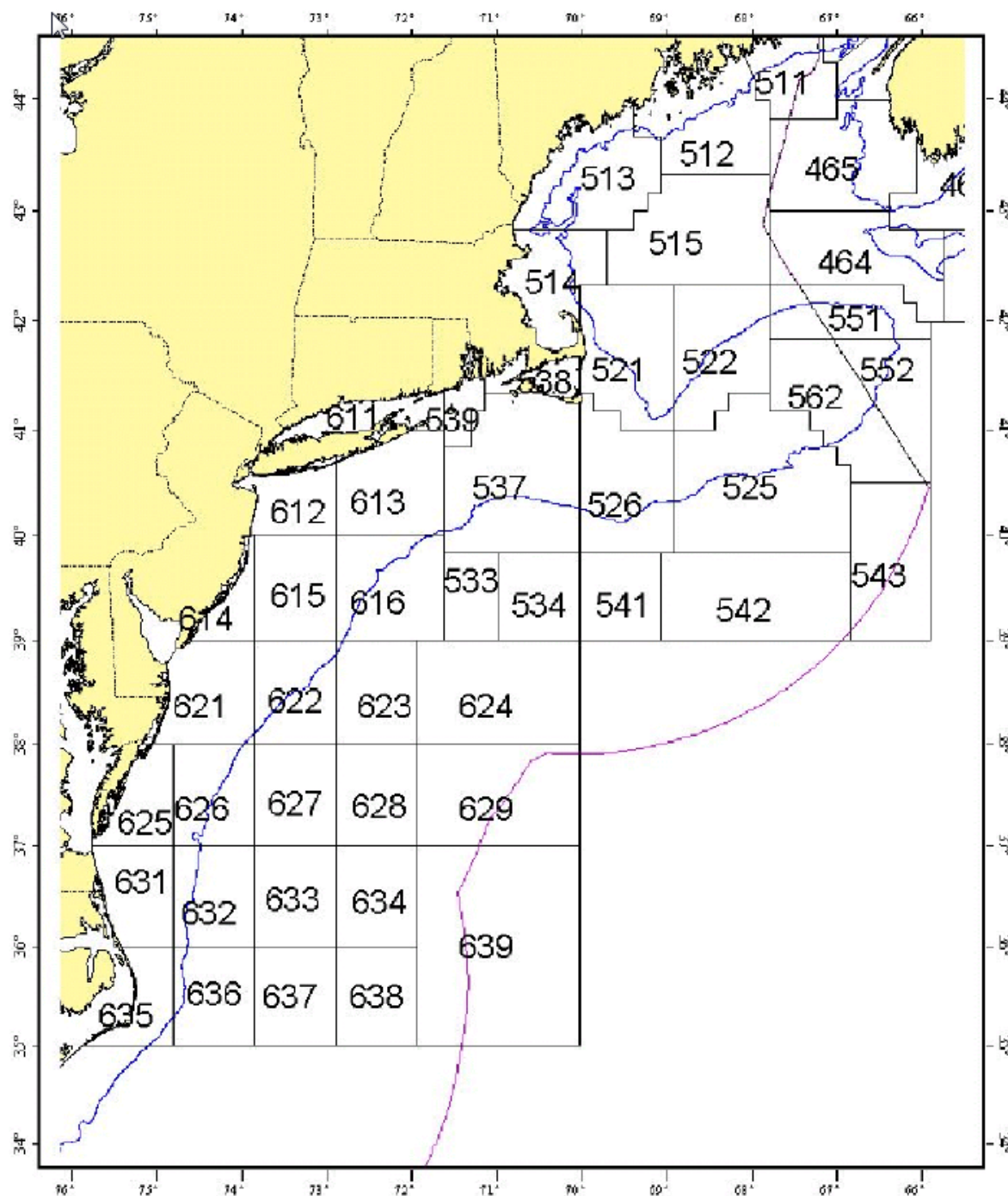


Figure 4: National Marine Fisheries Service Statistical Areas.

Based on VTR data for 2012, the bulk of the summer flounder landings were taken by bottom otter trawls (over 97 percent), with other gear types (e.g. hand lines, scallop dredges, sink gill nets) each accounting for less than 1 percent of landings. Current regulations require a 14 inch total length minimum fish size in the commercial fishery and a 5.5 inch diamond or 6 inch square

minimum mesh in the entire net for vessels possessing more than the threshold amount of summer flounder, i.e., 200 lb in the winter and 100 lb in the summer.

Summer flounder ex-vessel revenues based on dealer data have ranged from \$14.3 to \$30.4 million for the 1994 through 2012 period. The mean price for summer flounder (unadjusted) has ranged from a low of \$1.34/lb in 2002 to a high of \$2.39/lb in 2008 (Figure 5). In 2012, 13.3 million pounds of summer flounder were landed generating \$30.4 million in revenues (\$2.28/lb).

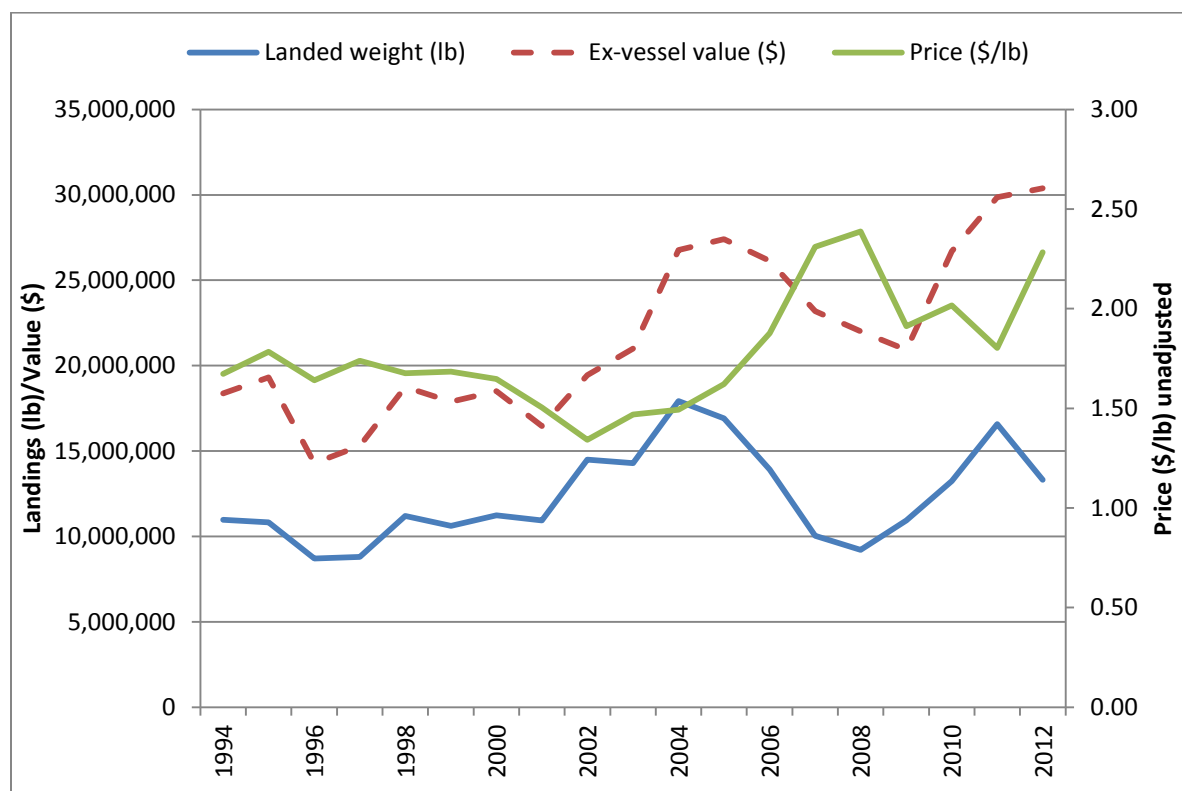


Figure 5: Landings, ex-vessel value, and price (unadjusted) for summer flounder, Maine through North Carolina, 1994-2012.

The ports and communities that are dependent on summer flounder are fully described in Amendment 13 to the FMP. Additional information can be found in the document titled "Community Profiles for the Northeast US Fisheries":

<http://www.nefsc.noaa.gov/read/socialsci/pdf/communityProfiles/introduction.pdf>.

To examine recent landings patterns among ports, 2012 NMFS dealer data are used. The top commercial landings ports for summer flounder by pounds landed are shown in Table 4. A "top port" is defined as any port that landed at least 100,000 lb of summer flounder. Related data for the recreational fisheries are shown in subsequent sections. However, due to the nature of the recreational database, it is inappropriate to desegregate to less than state levels.

Table 4: Top ports of landing (in lb) for summer flounder (FLK), based on NMFS 2012 dealer data. Since this table includes only the “top ports,” it may not include all of the landings for the year.

Port	Landings of FLK (lb)	# FLK Vessels
PT. JUDITH, RI	2,096,432	116
NEWPORT NEWS, VA	2,070,498	43
HAMPTON, VA	1,558,804	40
PT. PLEASANT, NJ	1,083,671	45
CHINCOTEAGUE, VA	900,431	38
CAPE MAY, NJ	579,144	53
MONTAUK, NY	573,699	75
BELFORD, NJ	480,688	22
STONINGTON, CT	445,142	20
NEW BEDFORD, MA	429,116	80
BEAUFORT, NC	362,190	11
WANCHESE, NC	283,975	16
ENGELHARD, NC	204,792	9
HAMPTON BAY, NY	160,051	32
MATTITUCK, NY	150,942	4
OCEAN CITY, MD	139,841	25
WOODS HOLE, MA	138,629	27
HOBUCKEN, NC	116,417	48
NANTUCKET, MA	107,560	12

Among the states from Maine through North Carolina, New York had the highest number of Federally permitted dealers (53) who bought summer flounder in 2012 (Table 5). All dealers bought approximately \$30.4 million worth of summer flounder in 2012.

Table 5: Dealers reporting buying summer flounder, by state in 2012. Note: C = Confidential.

Number of Dealers	MA	RI	CT	NY	NJ	DE	MD	VA	NC
	36	40	10	53	31	C	4	17	21

Recreational Fishery

There is a significant recreational fishery for summer flounder in state waters, which occurs seasonally when the fish migrate inshore during the warm summer months. To manage this fishery, state-specific conservation equivalency was developed and has been used every year since 2001 (Table 1). Under conservation equivalency, state-specific measures are developed through the ASMFC, and are submitted to NMFS. If NMFS considers the combination of the state-specific measures to be "equivalent" to the coastwide measures, they may then waive the coastwide regulation in Federal waters. Those fishermen fishing in Federal waters are then subject to the measures of the state in which they land summer flounder. The 2013 recreational fishing measures are given in Table 6.

Table 6: Summer flounder recreational fishing measures in 2013, by state, under conservation equivalency.

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*	17.5	5 fish	May 15-October 31
*At 46 designated shore sites	16		
New York	19	4 fish	May 1-September 29
New Jersey	17.5	5 fish	May 18-September 16
Delaware	17	4 fish	All year
Maryland	16	4 fish	March 28-December 31
Potomac River Fish. Commission	16	4 fish	All year
Virginia	16	4 fish	All year
North Carolina	15	6 fish	All year

Recreational data have been available through the Marine Recreational Information Program (MRIP) since 2004, and prior to 2004 were available through the Marine Recreational Fishery Statistics Survey (MRFSS). Recreational catch and landings for summer flounder peaked in 1983 and were at the lowest levels in 1989 (Table 7).

Table 7: Recreational summer flounder landings data from the NMFS recreational statistics databases, 1981-2012.

Year	Catch ('000 of fish)	Landings ('000 of fish)	Landings ('000 lb)
1981	13,579	9,567	10,081
1982	23,562	15,473	18,233
1983	32,062	20,996	27,969
1984	29,785	17,475	18,765
1985	13,526	11,066	12,490
1986	25,292	11,621	17,861
1987	21,023	7,865	12,167
1988	17,171	9,960	14,624
1989	2,677	1,717	3,158
1990	9,101	3,794	5,134
1991	16,075	6,068	7,960
1992	11,910	5,002	7,148
1993	22,904	6,494	8,831
1994	17,725	6,703	9,328
1995	16,308	3,326	5,421
1996	18,994	6,997	9,820
1997	20,027	7,167	11,866
1998	22,086	6,979	12,477
1999	21,378	4,107	8,366
2000	25,384	7,801	16,468
2001	28,187	5,294	11,637
2002	16,674	3,262	8,008
2003	20,532	4,559	11,638
2004	20,336	4,316	10,966
2005	25,806	4,027	10,867
2006	21,400	3,950	10,589
2007	20,732	3,108	9,256
2008	22,897	2,350	8,134
2009	24,085	1,806	5,987
2010	23,722	1,501	5,108
2011	21,559	1,840	5,954
2012	16,180	2,199	6,289

When anglers are intercepted through the surveys conducted for the recreational statistics programs, they are asked about where the majority of their fish were caught (i.e., inland, state

waters (≤ 3 miles), exclusive economic zone (EEZ; > 3 miles)). While these data are somewhat imprecise, they do provide a general indication of where the majority of summer flounder are landed recreationally, and indicate that about 90 percent of the landings (in numbers of fish) occur in state waters (Table 8).

Table 8: Percentage of summer flounder recreational landings (MRIP Type A+B1 in number of fish) by area (state vs. Federal waters), Maine through North Carolina, 2003-2012. Area information is self-reported based on where the majority of fishing activity occurred per angler trip.

Year	State ≤ 3 mi	EEZ > 3 mi
2003	91.7	8.3
2004	87.7	12.3
2005	81.2	18.8
2006	90.4	9.6
2007	88.9	11.1
2008	96.8	3.2
2009	90.8	9.2
2010	92.3	7.7
2011	95.4	4.6
2012	88.0	12.0
Avg. 2003 - 2012	90.3	9.7
Avg. 2010 - 2012	91.2	8.1

Table 9: State contribution (as a percentage) to total recreational landings of summer flounder, (MRIP Type A+B1 in number of fish), from Maine through North Carolina, 2011 and 2012.

State	2011	2012
Maine	0.0	0.0
New Hampshire	0.0	0.0
Massachusetts	3.2	3.4
Rhode Island	8.8	4.7
Connecticut	2.6	2.8
New York	20.4	22.3
New Jersey	40.0	49.3
Delaware	3.6	1.9
Maryland	0.8	1.0
Virginia	17.3	11.8
North Carolina	3.3	2.9
Total	100%	100%

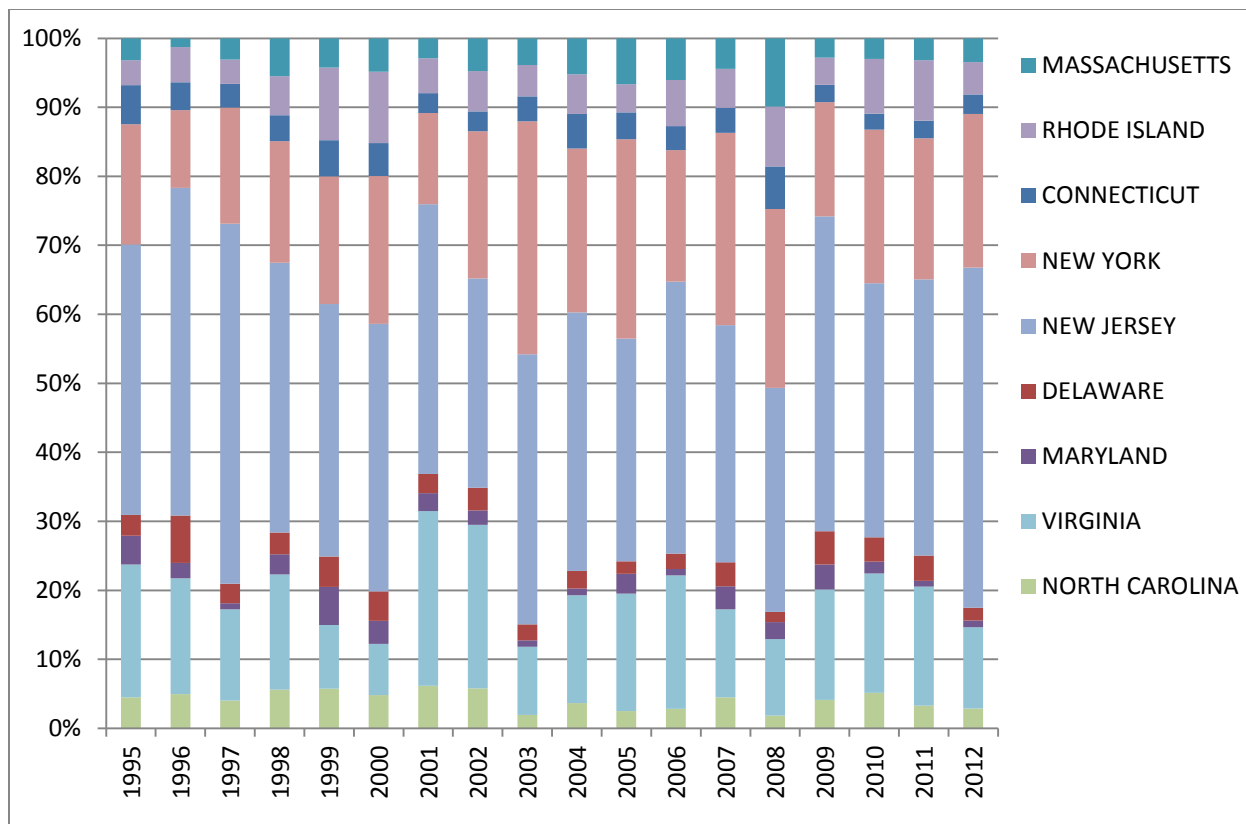


Figure 6: State contribution (as a percentage) of total recreational landings of summer flounder (MRIP Type A + B1 in number of fish), from Massachusetts through North Carolina, 1995-2012.

The states of New Jersey and New York land the majority of fish, followed by Virginia (Table 9; Figure 6). Since the mid-1990s, the state contributions of landings (in numbers of fish) have fluctuated from year to year but remained relatively consistent (Figure 6).

In 2012, there were 826 recreational vessels (i.e., party and charter vessels) that held summer flounder Federal recreational permits. Many of these vessels also hold recreational permits for scup and black sea bass. Landings by mode indicate that private/rental fishermen are responsible for the majority of summer flounder landings (Table 10).

Table 10: The number of summer flounder landed from Maine through North Carolina by mode, 1981-2012.

Year	Shore	Party/Charter	Private/Rental
1981	3,145,683	1,362,252	5,058,639
1982	1,120,521	5,936,006	8,416,173
1983	3,963,680	3,574,229	13,458,398
1984	1,355,595	2,495,733	13,623,843
1985	786,185	1,152,247	9,127,759
1986	1,237,033	1,608,907	8,774,921
1987	406,095	1,150,095	6,308,572
1988	945,864	1,134,353	7,879,442
1989	180,268	141,320	1,395,177
1990	261,898	413,240	3,118,447
1991	565,404	597,610	4,904,637
1992	275,474	375,245	4,351,387
1993	342,225	1,013,464	5,138,352
1994	447,184	836,362	5,419,145
1995	241,906	267,348	2,816,460
1996	206,927	659,876	6,130,182
1997	255,066	930,633	5,981,121
1998	316,314	360,777	6,302,004
1999	213,447	300,807	3,592,741
2000	569,612	648,755	6,582,707
2001	226,996	329,705	4,736,910
2002	154,958	261,554	2,845,647
2003	203,717	389,142	3,965,811
2004	200,368	463,776	3,652,354
2005	104,295	498,614	3,424,557
2006	154,414	315,935	3,479,934
2007	98,418	499,160	2,510,000
2008	79,339	171,951	2,098,583
2009	62,691	176,997	1,566,490
2010	59,812	160,109	1,281,546
2011	34,849	137,787	1,667,240
2012	106,342	96,386	1,996,407
% of Total, 1981-2012	9%	14%	77%
% of Total, 2008-2012	3%	8%	89%

The NMFS angler expenditure survey summarizes a variety of costs associated with recreational fishing in the Northeast (Table 11). In addition, Steinback et al., 2009 summarized the reasons for fishing, with a majority of anglers (about 85 percent) fishing either mostly or fully for recreational purposes (Table 12).

Table 11: Average daily trip expenditures (\$ unadjusted) by recreational fishermen in the Northeast region by mode, in 2006. Source: Gentner and Steinback (2008)

Expenditures	\$		
	Party/Charter	Private/Rental	Shore
Private transportation	13.88	11.03	12.94
Public transportation	0.26	0.07	0.40
Auto rental	0.27	0.02	0.10
Food from grocery stores	7.40	4.92	7.33
Food from restaurants	8.70	3.42	9.28
Lodging	10.0	2.64	14.90
Boat fuel	0	9.54	0
Boat or equipment rental	0.05	0.19	0.03
Charter fees	57.76	0	0
Charter crew tips	3.0	0	0
Catch processing	0.02	0	0
Access and parking	0.44	1.11	1.32
Bait	0.31	3.42	3.25
Ice	0.39	0.59	0.39
Tackle used on trip	1.87	2.04	3.98
Tournament fees	1.10	0.04	0.02
Gifts and souvenirs	1.67	0.10	1.45
Total	107.13	39.14	55.39

Table 12: Purpose of Marine Recreational Fishing in the Northeast. Source: Steinback et al., 2009.

	Percent	Number of anglers in 2005 (thousands)
All for food or income	2.1	92.4
Mostly for food or income	<1.0	34.3
Both for recreation and for food or income	11.7	514.8
Mostly for recreation	13.2	580.8
All for recreation	72.2	3,176.8

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