

**September 19, 2013**

**Bluefish Monitoring Committee Recommendations for 2014**

**Attendees:**

James Armstrong (MC Chair, Council Staff), Paul Caruso (MA-DMF), Jason McNamee (RI-DFW), Beth Egbert (NCDMF), Mark Terceiro (NEFSC), Mike Celestino (NJ-F&W), Greg Wojcik (CT-DEEP), Joe Cimino (VMRC), Rich Wong (DNREC), Steve Doctor (MD-DNR), John Maniscalco (NY-DEC), Kurt Gottschall (CT-DEEP), Kiley Dancy (Council Staff), Rich Seagraves (Council Staff), Jose Montanez (Council Staff), Rick Robins (Council Chair), Kirby Rootes-Murdy (ASMFC), Toni Kerns (ASMFC), Tom Wadsworth (NCDMF), Moira Kelly (NERO)

**Discussion:** The Committee received an overview of the presentation provided to the SSC and was provided with the SSC recommendations for ABC in 2014. The Committee discussed the various sources of management uncertainty in considering an adjustment from ACL to the fishery- specific ACTs.

The sources of uncertainty considered by the Bluefish Monitoring Committee include:

History of management effectiveness – The Committee discussed the history of fishery landings relative to harvest limits. It was noted that since 2000 the combined commercial and recreational landings exceeded the allowable landings (formerly referred to as the TAL) only once. This occurred in 2007 and was specific to the recreational fishery which landed 113.7% of the RHL (overage of 2.6 M lb). In all other years the combined landings were less than the TAL. The commercial fishery has never exceeded the coastwide quota. Based on this observation, the Committee agreed that combined landings in the upcoming 2014 fishing years were likely to be under the harvest limits and therefore under the ACL. The Committee agreed that there is no need for an additional “buffer” to account for this source of management uncertainty.

**Calculation of Management Measures for 2014.**

The Committee reviewed the calculation of the 2014 commercial quota and recreational harvest limit and agreed with the methods used by staff for those measures. This included calculation of the maximum recreational-to-commercial transfer amount that the Council could recommend. To be clear, the Committee is not recommending the maximum transfer, but is in agreement that the calculation of the maximum transfer is correct.

## Monitoring Committee Recommendations

The table below identifies the Bluefish Monitoring Committee's recommended management measures for 2014.

| 2014 Management Measure        | mt     | lbs        | Basis                         |
|--------------------------------|--------|------------|-------------------------------|
| OFL                            | 16,506 | 36,389,501 | Yield at Fmsy (0.19)          |
| ABC                            | 11,082 | 24,431,628 | Risk Policy ( $P^* = 0.316$ ) |
| ACL                            | 11,082 | 24,431,628 | = ABC                         |
| Mgmt Uncertainty               | 0      | 0          | per MC                        |
| Comm Discards                  | 0      | 0          | from assessment               |
| Rec Discards                   | 1,520  | 3,351,026  | Three Year Average            |
| Comm ACT                       | 1,884  | 4,153,377  | (ACL - Mgmt Uncert) * 17%     |
| Rec ACT                        | 9,198  | 20,278,251 | (ACL - Mgmt Uncert) * 83%     |
| Comm TAL                       | 1,884  | 4,153,377  | Comm ACT - Disc               |
| Rec TAL                        | 7,678  | 16,927,225 | Rec ACT - Disc                |
| TAL (combined)                 | 9,562  | 21,080,602 | Comm + Rec TAL                |
| Expected Recreational Landings | 5,978  | 13,179,234 | Three Year Average            |
| Maximum Transfer               | 1,515  | 3,340,386  | Calculated                    |
| pre-RSA Comm Quota             | 3,399  | 7,493,762  | Comm TAL + transfer           |
| pre-RSA RHL                    | 6,163  | 13,586,839 | Rec TAL - transfer            |
| Comm RSA Deduction (3%)        | 102    | 224,813    | 3% of Comm Quota              |
| Rec RSA Deduction (3%)         | 185    | 407,605    | 3% of RHL                     |
| Adjusted Comm Quota            | 3,297  | 7,268,949  | Comm Quota - RSA              |
| Adjusted RHL                   | 5,978  | 13,179,234 | RHL - RSA                     |

## Additional Recreational Measures

The Bluefish MC recommends maintaining the recreational possession limit at 15 fish.

RSA: Up to 3%.

## 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.

## **2013 MAFMC Bluefish Fishery Performance Report**

The Mid-Atlantic Council's Bluefish Advisory Panel (AP) met from 9 AM – 10:20 AM August 29, 2013 via webinar to develop a Fishery Performance Report (FPR) for consideration during the upcoming bluefish specification cycle. After the meeting, the AP reviewed and approved the summary below as the FPR.

MAFMC Bluefish Advisers in attendance were: Fred Akers (NJ recreational), Noel Angelucci (NJ recreational), Arthur Brownell (NC recreational), Greg Hurley (VA recreational), and Arnold Leo (NY commercial). Also in attendance were ASMFC Bluefish Advisors George Geiger (FL recreational) and Don Swanson (NH recreational).

### **Recreational Fishery Issues**

Based on their representation at the meeting, most of the comments were from recreational fishermen and reflected experience and observations from the current year as compared to past years. Many of the advisors stated that they had not seen many smaller (20-40 cm) bluefish this year. It was stated that in New Jersey, the fish are just starting to show up and that bluefish tournaments had been held where not a single bluefish was landed. Offshore, however, larger bluefish have been abundant often being caught in pursuit of tuna and other larger species. In New York, a similar pattern was observed, although more nearshore, where smaller fish were scarce but larger fish were relatively easy to catch. In the lower Chesapeake Bay, the fish appeared later than they usually do. When they did arrive, it was in very large quantities, but the fish appeared to be smaller than typical.

### **Market / Economic Issues**

The cost of fuel was suggested as being a likely constraint on catches of fish that may be farther offshore.

### **Environmental Issues**

Hurricane Sandy was suggested to have been a major contributor to lower commercial and recreational effort in 2012.

The Indian River Lagoon ecosystem, which was characterized as representing approximately one third of the seacoast of eastern Florida, was said to be collapsing. As a result, there are severely decreased numbers of forage fish, locally, as well as loss of seagrass habitat for juvenile bluefish. It was suggested that this will have coastwide implications given that juvenile fish from Florida are eventually targeted by the fisheries that occur to the north.

Many of the advisors agreed that in the NY through VA region, the abundance of bait fish, especially menhaden, is currently much higher than usual.

The late arrival or offshore distribution of bluefish this year was largely attributed to cooler than normal water temperatures.

It was suggested that the abundance of striped bass and bluefish tend to offset each other, and it that lower striped numbers that are being observed currently in the lower Chesapeake Bay will result in corresponding increases in bluefish.

### **Management Issues**

The current 15 fish bag limit was considered to be excessive and the basis for it (attributed by one advisor to have been enacted to facilitate New York street sales of bluefish caught on headboats) to no longer be valid.

The retention of large numbers of bluefish, as allowed under the 15 fish bag limit, was stated to be in conflict with consumption advisories.

## **Bluefish AP Information Document - August 2013**

### **Management System**

The Bluefish Fishery Management Plan was implemented in 1990 establishing the Mid-Atlantic Fishery Management Council's management authority over the fishery in federal waters. Amendment 1, implemented in 2000, addressed stock rebuilding and created the Bluefish Monitoring Committee which meets annually make management measure recommendations to the Council. Amendment 3 (effective 1/1/2012) incorporated the development of annual catch limits (ACLs) and accountability measures (AMs) into the specification process. Specifying bluefish management measures is a joint process conducted by the Council and the Atlantic States Marine Fisheries Commission's Bluefish Management Board. The Council's Scientific and Statistical Committee (SSC) reviews assessment results, and the Advisory Panel's fishery performance report, and determines the acceptable biological catch (ABC) for the upcoming year. The Council's Bluefish Monitoring Committee develops and recommends specific coastwide management measures (commercial quota, recreational harvest limit) that will achieve the catch target and makes further adjustments to total catch as needed based on management uncertainty. Finally, the Council and Board meet jointly to develop recommendations to be submitted to the National Marine Fisheries Service. Table 1 below illustrates how the management measures for 2013 and 2014 were calculated.

**Table 1. Bluefish management measures for 2013.**

| <b>2013 Management Measure</b> | <b>Lbs</b> | <b>Basis</b>              |
|--------------------------------|------------|---------------------------|
| OFL                            | 38,627,193 | per SSC                   |
| ABC                            | 27,471,802 | Constant F (0.132)        |
| ACL                            | 27,471,802 | = ABC                     |
| Mgmt Uncertainty               | 0          | per MC                    |
| Comm Discards                  | 0          | from assessment           |
| Rec Discards                   | 3,611,172  | 2009-2011 MRFSS avg.      |
| Comm ACT                       | 4,670,206  | (ACL - Mgmt Uncert) * 17% |
| Rec ACT                        | 22,801,596 | (ACL - Mgmt Uncert) * 83% |
| Comm TAL                       | 4,670,206  | Comm ACT - Disc           |
| Rec TAL                        | 19,190,424 | Rec ACT - Disc            |
| TAL (combined)                 | 23,860,631 | Comm + Rec TAL            |
| Expected Recreational Landings | 14,068,836 | 2009-2011 average         |
| Maximum Transfer               | 4,686,470  | Calculated                |
| pre-RSA Comm Quota             | 9,356,676  | Comm TAL + transfer       |
| pre-RSA RHL                    | 14,503,955 | Rec TAL - transfer        |
| Comm RSA Deduction (3%)        | 280,700    | 3% of Comm Quota          |
| Rec RSA Deduction (3%)         | 435,119    | 3% of RHL                 |
| Adjusted Comm Quota            | 9,075,976  | Comm Quota - RSA          |
| Adjusted RHL                   | 14,068,836 | RHL - RSA                 |

**Table 1. (cont'd). Recommended bluefish management measures for 2014.**

| <b>2014 Management Measure</b> | <b>Lbs</b> | <b>Basis</b>              |
|--------------------------------|------------|---------------------------|
| OFL                            |            |                           |
| ABC                            | 27,057,333 | Constant F (0.132)        |
| ACL                            | 27,057,333 | = ABC                     |
| Mgmt Uncertainty               | 0          | per MC                    |
| Comm Discards                  | 0          | from assessment           |
| Rec Discards                   | 3,611,172  | 2009-2011 MRFSS avg.      |
| Comm ACT                       | 4,599,747  | (ACL - Mgmt Uncert) * 17% |
| Rec ACT                        | 22,457,587 | (ACL - Mgmt Uncert) * 83% |
| Comm TAL                       | 4,599,747  | Comm ACT - Disc           |
| Rec TAL                        | 18,846,415 | Rec ACT - Disc            |
| TAL (combined)                 | 23,446,162 | Comm + Rec TAL            |
| Expected Recreational Landings | 14,068,836 | 2009-2011 average         |
| Maximum Transfer               | 4,342,460  | Calculated                |
| pre-RSA Comm Quota             | 8,942,207  | Comm TAL + transfer       |
| pre-RSA RHL                    | 14,503,955 | Rec TAL - transfer        |
| Comm RSA Deduction (3%)        | 268,266    | 3% of Comm Quota          |
| Rec RSA Deduction (3%)         | 435,119    | 3% of RHL                 |
| Adjusted Comm Quota            | 8,673,941  | Comm Quota - RSA          |
| Adjusted RHL                   | 14,068,836 | RHL - RSA                 |

## **Bluefish Biology**

The bluefish, *Pomatomus saltatrix*, is distributed worldwide, but in the western North Atlantic ranges from Nova Scotia and Bermuda to Argentina. Bluefish travel in schools of like-sized individuals and undertake seasonal migrations, moving into the Middle Atlantic Bight (MAB) during spring and south or farther offshore during fall. Within the MAB they occur in large bays and estuaries as well as across the entire continental shelf. Juvenile stages have been recorded in all estuaries within the MAB, but eggs and larvae occur in oceanic waters (Able and Fahay 1998). Growth rates are fast and they may reach a length of 3.5 ft and a weight of 27 lbs (Bigelow and Schroeder 1953). Bluefish live to age 12 and greater (Salerno et al. 2001).

Bluefish eat a wide variety of prey items. The species has been described by Bigelow and Schroeder (1953) as “perhaps the most ferocious and bloodthirsty fish in the sea, leaving in its wake a trail of dead and mangled mackerel, menhaden, herring, alewives, and other species on which it preys.”

Bluefish born in a given year (young of the year) typically fall into two distinct size classes suggesting that there are two spawning events along the east coast. More recent studies suggest that spawning is a single, continuous event, but that young are lost from the middle portion resulting in the appearance of a split season. As a result of the bimodal size structure of juveniles, young are referred to as the spring-spawned cohort or summer-spawned cohort. In the



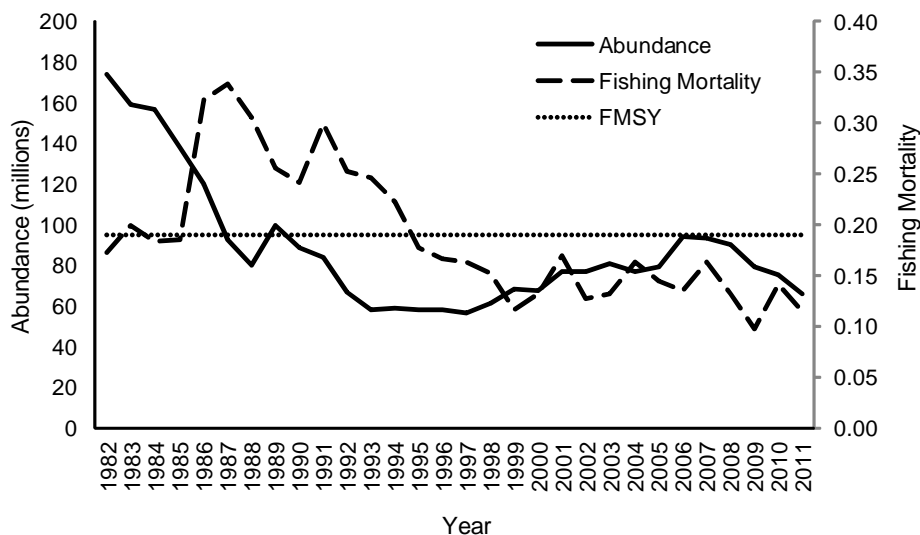
MAB, the spring cohort appears to be the primary source of fish that recruit into the adult population.

## Status of the Stock

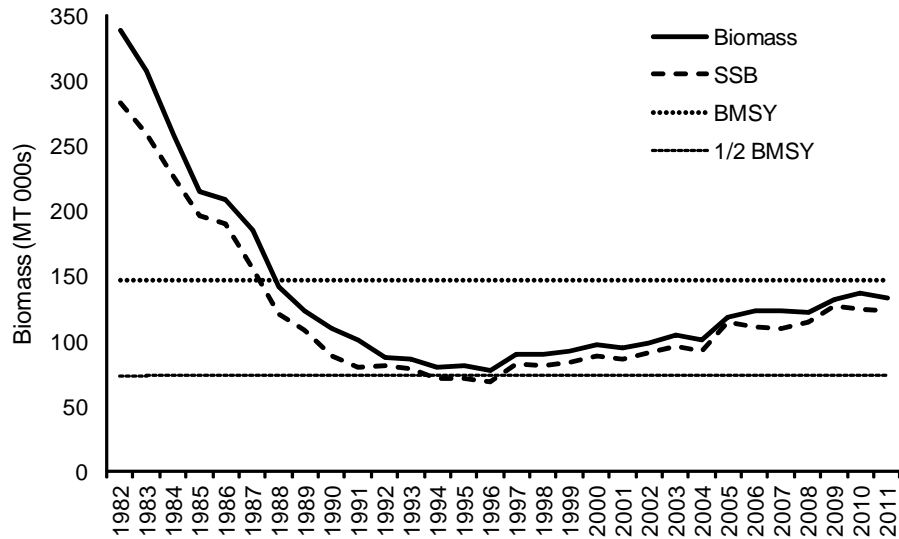
Bluefish stock status and biological reference points are based on output from a forward projecting statistical catch-at-age model called ASAP that was accepted by peer-reviewers in 2005. Overfishing is defined as occurring when the fishing mortality rate ( $F$ ) is above its threshold level, i.e.,  $F_{MSY}$  (0.19). The target stock size in weight (biomass), i.e.,  $B_{MSY}$  is currently estimated to be 324 M lb, and the level below which the stock is defined as being overfished ( $\frac{1}{2} B_{MSY}$ ) is 162 M lb.

The bluefish stock assessment has been updated recently (July 2013), however, as of this writing detailed results are still preliminary, and so only general conclusions of the updated assessment are presented here. The figures below are taken from the assessment update that was done in 2012. In the most recent model update, the estimate of fishing mortality for 2012 is below  $F_{MSY}$ . This supports the statement that for 2012 overfishing was not occurring. Model estimates of fishing mortality have been below the  $F_{MSY}$  threshold since 1997 (dashed line in Figure 1), consistent with catches that support growth in population biomass. Declines in abundance since around 2006 appear to be driven by poor recruitment. A retrospective pattern is evident for model estimates of recruitment, meaning that the model has a tendency to underestimate the number of fish born in the most recent year.

The time series of estimated stock biomass and spawning stock biomass have both generally increased since a low in 1996 (Figure 2). The estimate of total biomass for 2012 is below  $B_{MSY}$  but above the  $\frac{1}{2} B_{MSY}$  threshold. This supports the statement that for 2012 the stock was not overfished.



**Figure 1. Total bluefish abundance and fishing mortality as estimated in ASAP model in 2012.  $F_{MSY}$  is indicated by the solid horizontal line. (Source: 2012 Assessment Update)**



**Figure 2. Time series of bluefish total mean biomass (000s mt) and spawning stock biomass (000s mt) relative to Bmsy target and threshold. (Source: 2012 Assessment Update)**

### Fishery Performance

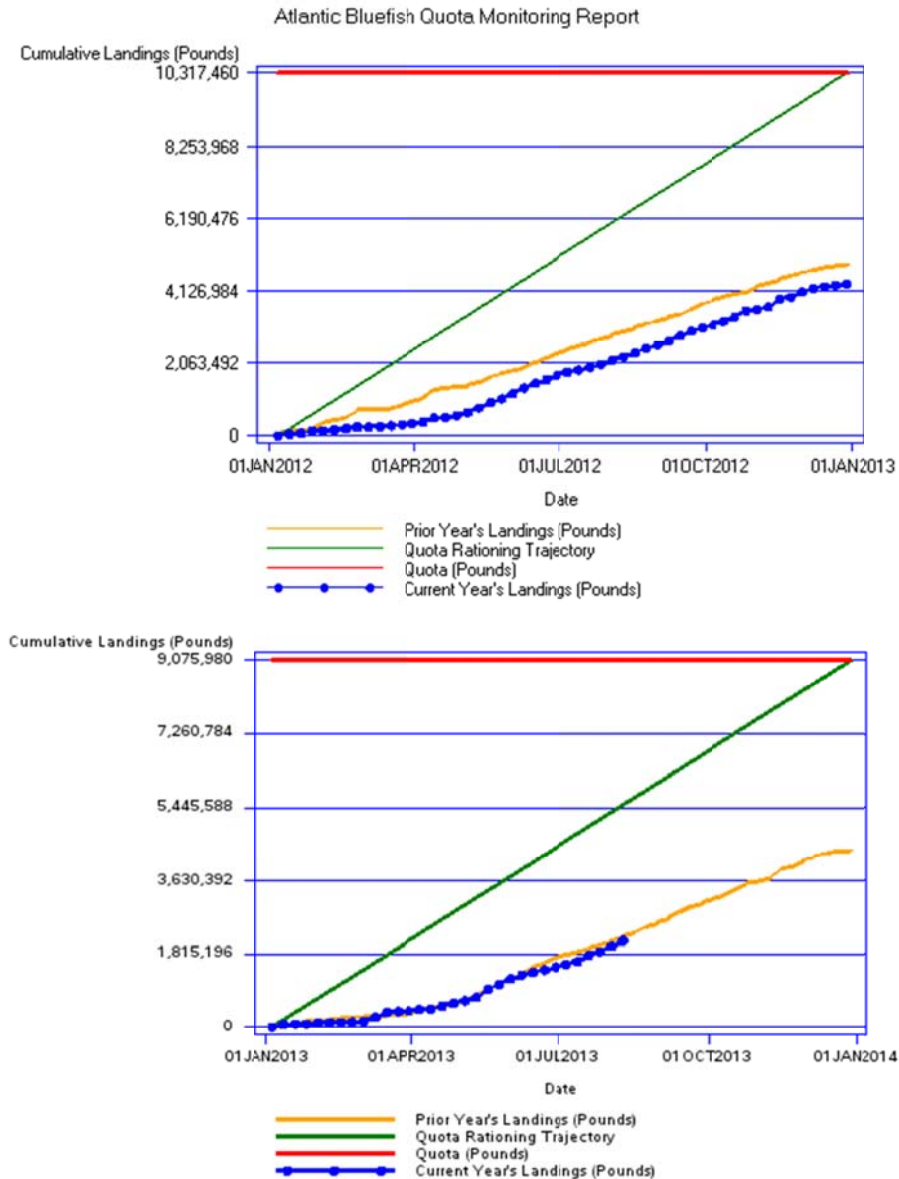
The performance of the fishery relative to specified management measures is provided in Table 2. Except for 2007, the bluefish fishery has never exceeded the Council-recommended harvest limits. In 2007, the recreational fishery exceeded the recreational harvest limit by about 2 million lbs. In 2012, the commercial and recreational fisheries greatly under-harvested bluefish. The recreational fishery landed 10.684 M lb compared to the 17.457 M lb RHL, and the commercial fishery landed 4.930 M lb compared to a quota of 10.317 M lb. The rate at which the commercial fishery is landings bluefish is on the same track in 2013 as in 2012 (Figure 3).

**Table 2. Summary of bluefish management measures, 2000 - 2011.**

| Management Measures     | 2000    | 2001    | 2002   | 2003    | 2004   | 2005   | 2006   | 2007   | 2008   | 2009   | 2010   | 2011    | 2012    |
|-------------------------|---------|---------|--------|---------|--------|--------|--------|--------|--------|--------|--------|---------|---------|
| TAL (M lb)*             | 35.328  | 37.841  | 26.866 | 37.293  | 31.85  | 30.853 | 24.797 | 27.762 | 28.156 | 29.356 | 29.264 | 27.293  | 28.267  |
| Comm. Quota (M lb)†     | 9.583   | 9.583   | 10.500 | 10.500  | 10.500 | 10.500 | 8.081  | 8.689  | 7.705  | 9.828  | 10.213 | 9.375   | 10.317  |
| Comm. Landings (M lb)   | 8.041   | 8.688   | 6.863  | 7.401   | 7.994  | 7.045  | 6.955  | 7.499  | 5.968  | 6.990  | 7.069  | 5.082   | 4.930   |
| Rec. Target†            | 25.745  | 28.258  | 16.365 | 26.793  | 21.35  | 20.353 | 16.718 | 19.073 | 20.451 | 19.528 | 18.631 | 17.813  | 17.457  |
| Rec. Landings (M lb)    | 10.606  | 13.23   | 11.371 | 13.136  | 15.203 | 16.162 | 16.894 | 21.163 | 18.900 | 13.583 | 18.042 | 11.499  | 10.684  |
| Rec. Possession Limit   | 10      | 15      | 15     | 15      | 15     | 15     | 15     | 15     | 15     | 15     | 15     | 15      | 15      |
| Total Landings          | 18.647  | 21.918  | 18.234 | 20.537  | 23.197 | 23.207 | 23.849 | 28.662 | 24.868 | 20.573 | 25.111 | 16.581  | 15.614  |
| Overage/Underage (M lb) | -16.681 | -15.923 | -8.632 | -16.756 | -8.653 | -7.646 | -0.948 | +0.900 | -3.288 | -8.826 | -4.153 | -10.712 | -12.653 |
| Target F                | N/A     | N/A     | N/A    | N/A     | N/A    | 0.15   | 0.15   | 0.15   | 0.15   | 0.15   | 0.15   | 0.15    | N/A     |
| ASAP F estimate         | 0.13    | 0.15    | 0.13   | 0.14    | 0.15   | 0.15   | 0.14   | 0.16   | 0.12   | 0.10   | 0.14   | 0.11    | -       |

\* Includes RSA

† RSA deducted



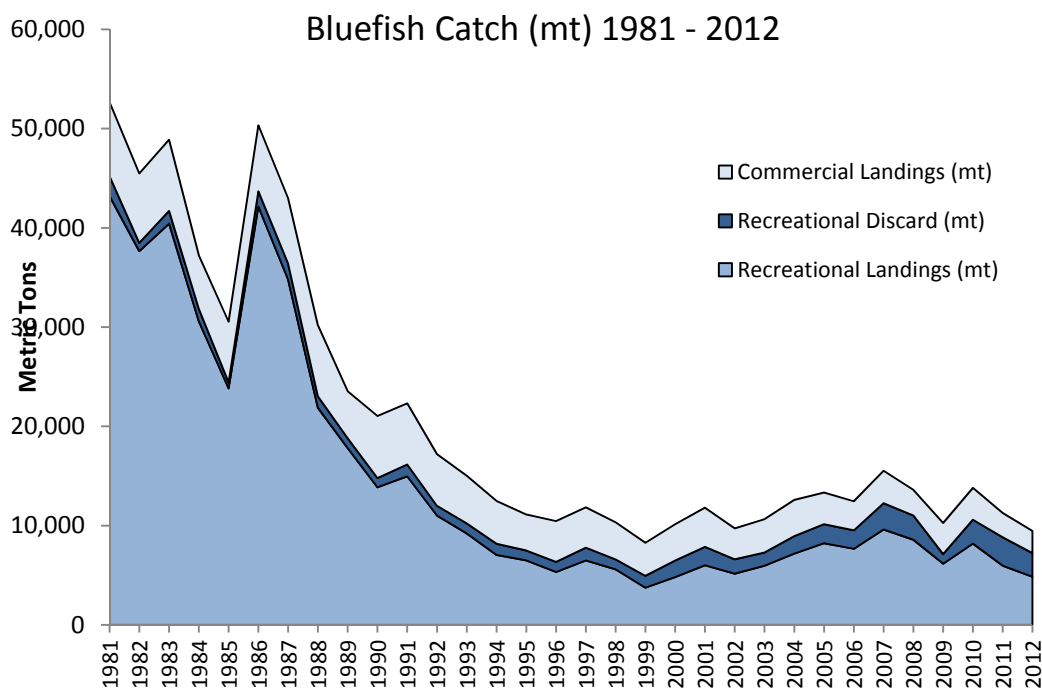
**Figure 3. Comparison of 2012(top) and 2013 (bottom) commercial landings from the NMFS quota monitoring website: [http://www.nero.noaa.gov/ro/fso/reports/reports\\_frame.htm](http://www.nero.noaa.gov/ro/fso/reports/reports_frame.htm)**

### *Landings History*

Given the importance of the recreational component of the bluefish fishery, the history of bluefish catches begins with the implementation of data collection via MRFSS in 1981 (Figure 4). From the early 1980s to the early 1990s, recreational landings declined by factor of about 70% (avg. 1981-1983 = 89.140 M lb; avg. 1991-1993 = 25.824 M lb). Recreational landings continued to decline at a somewhat slower rate until reaching their lowest level at 8.254 M lb in 1999. A rebuilding plan was implemented in 2000. Since then, population size has increased

(Figure 2) and recreational landings have grown to a peak of 21 M lb in 2007. There has been an overall decline of about 10 M lb in recreational landings since 2007 to roughly 11 M lb in 2012. Recreational discards have increased from less than 10% of the catch in the 1980s to more than 20% of the catch in the early 2000s.

Commercial landings have been relatively stable throughout the landings history. Commercial discards are treated as insignificant and are not estimated in the current assessment.



**Figure 4. Time series of bluefish recreational and commercial landings and discards (Source: 2011 Assessment Update).**

### *Recreational Fishery*

Trends in directed recreational fishing for bluefish from 1991 to 2012 are provided in Table 3. The lowest annual estimate of directed trips was 1.3 million in 1999 and the highest annual estimate of directed trips was 5.8 million trips in 1991. In 2011, anglers targeted bluefish on 1.6 million trips (the estimate of directed trips has not yet been conducted for 2012). Relative to total angler effort in 2011, bluefish were the primary target of recreational trips about 4% of the time (Table 4).

**Table 31. Number of bluefish recreational fishing trips, recreational harvest limit, and recreational landings from 1991 to 2012.**

| <b>Year</b> | <b>Number of Bluefish Trips<sup>a</sup></b> | <b>Recreational Catch (000s)</b> | <b>Recreational Catch per Directed Trip</b> |
|-------------|---|----------------------------------|---|
| <b>1991</b> | 5,811,446                                   | 18,291,823                       | 3.1   |
| <b>1992</b> | 4,261,811                                   | 11,400,060                       | 2.7   |
| <b>1993</b> | 3,999,487                                   | 9,925,254                        | 2.5   |
| <b>1994</b> | 3,414,337                                   | 11,920,226                       | 3.5   |
| <b>1995</b> | 3,409,966                                   | 10,493,882                       | 3.1   |
| <b>1996</b> | 2,523,984                                   | 9,520,909                        | 3.8   |
| <b>1997</b> | 2,021,713                                   | 12,573,548                       | 6.2   |
| <b>1998</b> | 1,838,525                                   | 9,204,267                        | 5.0   |
| <b>1999</b> | 1,316,939                                   | 11,487,687                       | 8.7   |
| <b>2000</b> | 1,526,554                                   | 16,260,385                       | 10.7  |
| <b>2001</b> | 2,156,043                                   | 20,412,006                       | 9.5   |
| <b>2002</b> | 1,893,640                                   | 15,217,195                       | 8.0   |
| <b>2003</b> | 2,100,057                                   | 15,049,303                       | 7.2   |
| <b>2004</b> | 2,178,373                                   | 19,344,309                       | 8.9   |
| <b>2005</b> | 2,511,295                                   | 20,353,080                       | 8.1   |
| <b>2006</b> | 2,050,409                                   | 19,571,624                       | 9.5   |
| <b>2007</b> | 2,636,900                                   | 23,380,319                       | 8.9   |
| <b>2008</b> | 2,210,230                                   | 19,954,717                       | 9.0   |
| <b>2009</b> | 1,532,445                                   | 13,644,474                       | 8.9   |
| <b>2010</b> | 1,745,312                                   | 16,142,140                       | 9.2   |
| <b>2011</b> | 1,602,659                                   | 14,691,648                       | 9.2   |
| <b>2012</b> | -   | 14,110,594                       | -   |

<sup>a</sup>Estimated number of recreational fishing trips (expanded) where the primary species targeted was bluefish, Maine – Florida's East Coast. Source: Scott Steinback, NMFS/NEFSC, <sup>b</sup>Atlantic coast from Maine through Florida's east coast, NA = Data not available.

**Table 4. Angler effort (number of trips) that targeted bluefish in 2011, Maine through Florida.**

| Mode           | Total Angler Effort | Angler Effort Targeting Bluefish <sup>a</sup> | Percent Angler Effort Targeting Bluefish |
|----------------|---------------------|---|--|
| Party/Charter  | 1,789,523           | 87,915  | 4.91%                                    |
| Private/Rental | 20,336,334          | 445,198                                       | 2.19%                                    |
| Shore          | 17,582,272          | 1,069,546                                     | 6.08%                                    |
| Total          | 39,708,129          | 1,602,659                                     | 4.03%                                    |

<sup>a</sup>Total effort targeting bluefish as primary species.

Source: Scott Steinback NMFS/NEFSC.

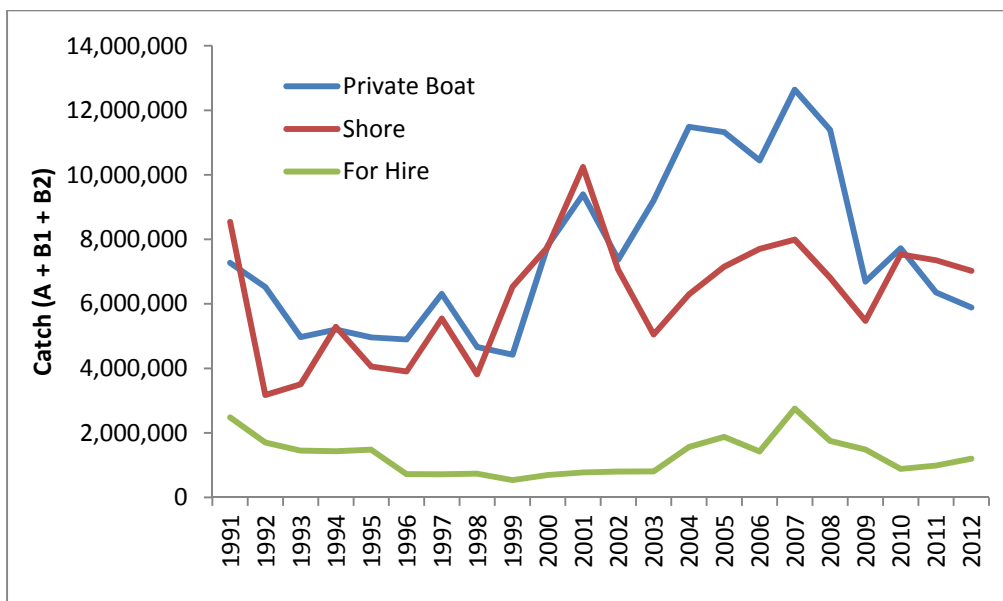
### Recreational Landings by State

Recreational catch and landings by state for 2012 are provided in Table 5. The greatest overall catches (includes discards) were in New Jersey and New York, both with about 3 million fish. The greatest harvest (retained catch) of bluefish occurred in Connecticut, New Jersey and New York with 2.5 - 3 million pounds. The lowest catches occurred in New Hampshire and Georgia. Average weights, based on dividing landings weight by number for each state, suggest that bluefish size tends to increase toward the north along the Atlantic coast.

**Table 5. MRIP estimates of 2012 recreational harvest and total catch for bluefish.**

| State           | Harvest        |                |                          | Catch          |
|-----------------|----------------|----------------|--------------------------|----------------|
|                 | Pounds of Fish | Number of Fish | Average wt of fish (lbs) | Number of Fish |
| ME              | 16,974         | 4,341          | 3.9                      | 130,437        |
| NH              | 32,055         | 9,446          | 3.4                      | 14,416         |
| MA              | 1,298,116      | 336,552        | 3.9                      | 1,050,305      |
| RI              | 235,507        | 672,541        | 0.4                      | 1,099,990      |
| CT              | 2,469,341      | 480,079        | 5.1                      | 1,158,811      |
| NY              | 3,287,619      | 1,149,529      | 2.9                      | 2,958,539      |
| NJ              | 2,684,049      | 1,190,391      | 2.3                      | 3,186,203      |
| DE              | 40,827         | 35,596         | 1.1                      | 153,547        |
| MD              | 122,293        | 113,698        | 1.1                      | 252,193        |
| VA              | 121,029        | 151,233        | 0.8                      | 359,031        |
| NC              | 1,007,992      | 888,888        | 1.1                      | 1,925,185      |
| SC              | 145,850        | 206,361        | 0.7                      | 375,011        |
| GA              | 2,568          | 6,312          | 0.4                      | 57,959         |
| FL (East Coast) | 378,444        | 278,318        | 1.4                      | 1,388,968      |
| Total           | 11,842,664     | 5,523,285      | 2.1                      | 14,110,595     |

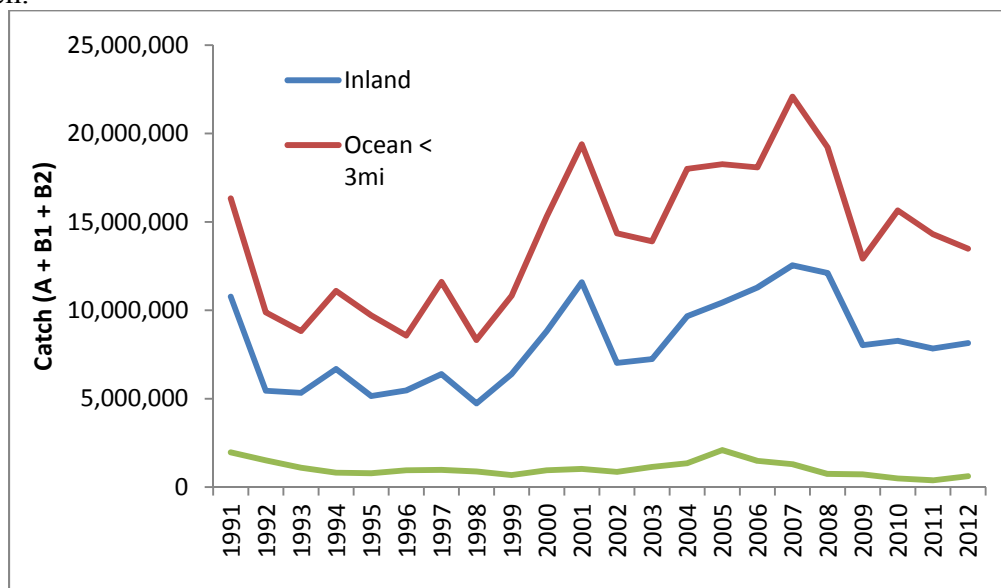
Figure 5 reflects MRFSS/MRIP-based estimates of catch and landings by mode (1991 through 2012) and indicates that the primary catch modes for bluefish are private boats and shore-based fishing. Less than 10 % of the catch came from for hire boats over the same time period.



**Figure 5. The bluefish catch (A + B1 + B2 in numbers of fish) by recreational fishermen by mode, Atlantic Coast, 1991-2012.**

#### Recreational Catches by Area

MRIP classifies catch into three fishing areas, inland, nearshore ocean (< 3 mi), and offshore ocean (> 3 mi). About 54% of the catch of bluefish on a coastwide basis came from inland waters, followed by nearshore ocean (39%) (Figure 4). Offshore ocean is only about 7% of the total catch.



**Figure 4. Bluefish recreational catch by area, Atlantic Coast, 1991-2012.**



## *Commercial Fishery*

### Vessel and Dealer Activity

Federal permit data indicate that 2,667 commercial bluefish permits were issued in 2012 (Table 6). A subset of federally-permitted vessels was active in 2012 with dealer reports identifying 573 vessels with commercial bluefish permits that actually landed bluefish.

Of the 391 federally permitted bluefish dealers, there were 175 dealers who actually bought bluefish in 2012 (Table 6).

**Table 6. Permitted and active bluefish vessels and dealers by state for 2012.**

| STATE | PERM<br>VESSELS | ACTIVE<br>VESSELS | PERM<br>DEALERS | ACTIVE<br>DEALERS |
|-------|-----------------|-------------------|-----------------|-------------------|
| MA    | 1007            | 136               | 115             | 49                |
| NJ    | 386             | 88                | 57              | 9                 |
| NY    | 271             | 128               | 84              | 43                |
| ME    | 258             | 6                 | 11              | 3                 |
| RI    | 183             | 88                | 45              | 28                |
| NC    | 153             | 53                | 24              | 20                |
| VA    | 120             | 21                | 19              | 11                |
| NH    | 111             | 16                | 8               | 1                 |
| FL    | 54              | 1                 | 6               | 6                 |
| CT    | 48              | 14                | 3               | 2                 |
| MD    | 37              | 17                | 9               | 3                 |
| OTHER | 39              | 5                 | 10              | 0                 |
| TOTAL | 2667            | 573               | 391             | 175               |

Source: NMFS Permit Database and Dealer Weighout Data.

### Effort/Landings by Gear

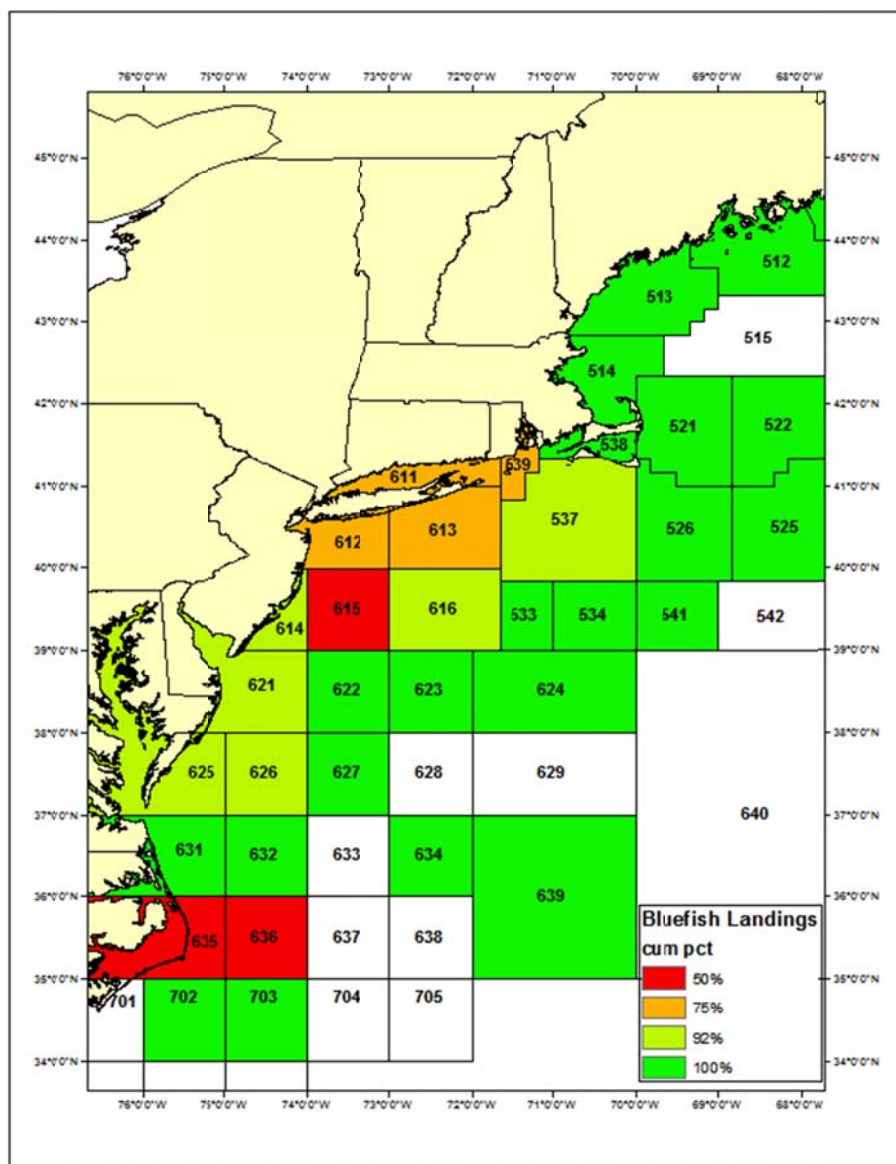
NMFS VTR data indicate that a total of 1,396 commercial trips targeted bluefish (bluefish  $\geq$  50 % of total catch) in 2012 (Table 7). Landings from directed trips (1.602 M lb) are approximately 32.5 % of coastwide commercial bluefish landings for 2012 (4.930 M lb). Gillnets accounted for 93 % of the directed catch while hook gear accounted for 5 %.

**Table 7. Commercial gear types associated with bluefish harvest in 2012.**

| Commercial Gear Type | Trips | Landings<br>(lbs) | Pct<br>Total |
|----------------------|-------|-------------------|--------------|
| GILL NET             | 821   | 1,493,402         | 93%          |
| HOOK AND LINE        | 554   | 73,634            | 5%           |
| OTHER                | 21    | 35,246            | 2%           |
| TOTAL                | 1,396 | 1,602,282         | 100%         |

## Effort/Landings by Area

The Northeast Region is divided into 46 statistical areas for Federal fisheries management. According to VTR data, bluefish were commercially harvest in 40 statistical areas in 2011 (Figure 5). Seven statistical areas, however, collectively accounted for 75.1 % of VTR-reported landings in 2011, with individual areas contributing 7% to 14% of the total. These areas also represented 69.6% of the trips that landed bluefish suggesting that resource availability as expressed by catch per trip is fairly consistent through the range where harvest occurs.



**Figure 5. NMFS Statistical Areas. Shading reflects the cumulative percentage of landings with red and orange being the primary areas where the commercial landings are taken.**

The top commercial landings ports for bluefish in 2012 are shown in Table 8. Twelve ports qualified as "top bluefish ports", i.e., those ports where 100,000 pounds or more of bluefish were landed. Wanchese, NC was the most important commercial bluefish port with over 2.170 M lb landed.

**Table 8. Top ports of bluefish landings (in pounds), based on NMFS 2012 dealer data. Since this table includes only the “top ports” (ports where landings of bluefish were > 100,000 lb), it does not include all of the landings for the year.**

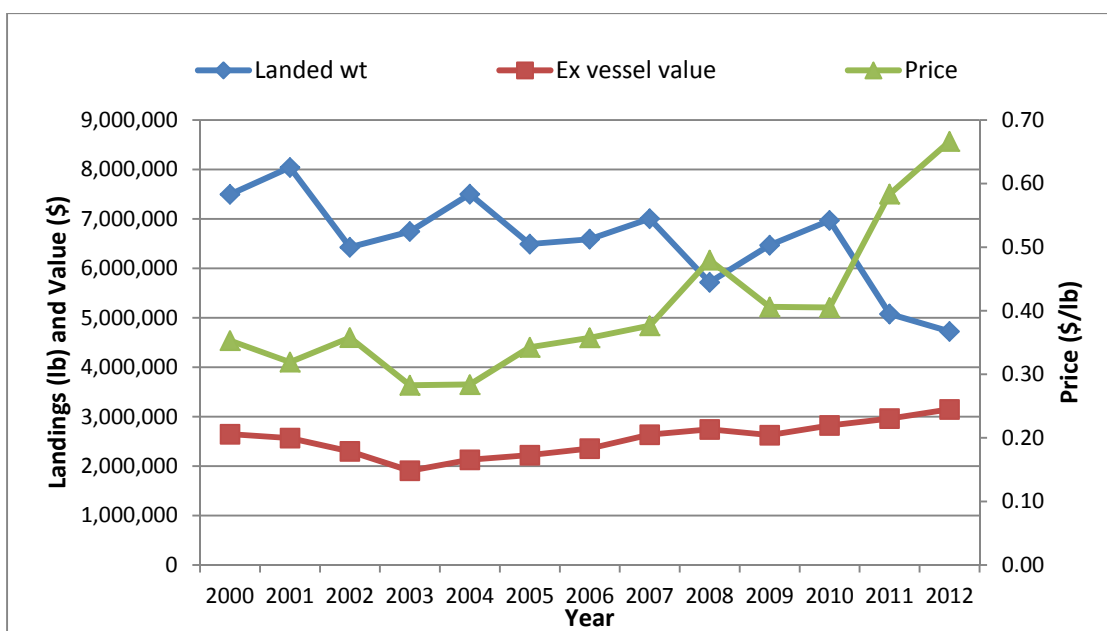
| <b>Port<sup>a</sup></b>                      | <b>Pounds</b> | <b>#<br/>Vessels</b> |
|--|---------------|----------------------|
| <b>POINT JUDITH, RHODE ISLAND</b>            | 452,544       | 75                   |
| <b>MONTAUK, NEW YORK</b>                     | 426,525       | 91                   |
| <b>WANCHESE, NORTH CAROLINA</b>              | 264,257       | 4                    |
| <b>BARNEGAT LIGHT/LONG BEACH, NEW JERSEY</b> | 264,003       | 24                   |
| <b>HAMPTON BAYS, NEW YORK</b>                | 219,351       | 33                   |
| <b>POINT PLEASANT, NEW JERSEY</b>            | 219,043       | 26                   |
| <b>PROVINCETOWN, MASSACHUSETTS</b>           | 184,358       | 8                    |
| <b>HATTERAS, NORTH CAROLINA</b>              | 157,583       | -                    |
| <b>CHATHAM, MASSACHUSETTS</b>                | 155,733       | 65                   |
| <b>OCEAN CITY, MARYLAND</b>                  | 146,176       | 18                   |
| <b>CHINCOTEAGUE, VIRGINIA</b>                | 141,859       | 29                   |
| <b>AMAGANSETT, NEW YORK</b>                  | 124,257       | -                    |
| <b>BELFORD, NEW JERSEY</b>                   | 123,364       | 18                   |
| <b>HAMPTON, VIRGINIA</b>                     | 122,723       | 18                   |
| <b>LITTLE COMPTON, RHODE ISLAND</b>          | 102,067       | 18                   |

<sup>a</sup>Ports with less than 3 vessels not reported for confidentiality issues.

Source: Dealer Weighout Data, as of June 24, 2013.

### Revenue

In 2012, commercial vessels landed about 4.723 M lb of bluefish valued at approximately \$3.14 million. Average coastwide ex-vessel price of bluefish was \$0.67/lb in 2012, a 14 % increase from the previous year (2011 price = \$0.58/lb). The relative value of bluefish is very low among commercially landed species, approximately 0.31 % and 0.17 % of the total weight and value, respectively of all finfish and shellfish landed along the U.S. Atlantic coast in 2012. For states where bluefish were commercially landed, the contribution of bluefish to the total value of all finfish and shellfish varied by state in 2012 (Table 9). Bluefish ranged from less than 0.01 % of total commercial landings in Maine to 2.39 % in North Carolina. Relative to total landings value, bluefish were most important in New York and North Carolina, contributing the largest percentage of ex-vessel value of all commercial landings in those states. This contribution did not change considerably from the previous complete fishing year (i.e., 2011).



**Figure 5. Landings, ex-vessel value, and price for bluefish, 2000-2012. Source: NMFS unpublished dealer data. Prices are unadjusted.**

**Table 9. Percent contribution of bluefish to the commercial landings and value of all species combined from Maine through North Carolina, 2012.**

| State        | Pounds of Bluefish<br>as a Percentage of all<br>Species | Value of Bluefish as<br>a Percentage of all<br>Species |
|--------------|---|--|
| ME           | 0.00%   | 0.00%  |
| NH           | 0.25%   | 0.07%  |
| MA           | 0.09%   | 0.09%  |
| RI           | 0.64%   | 0.49%  |
| CT           | 0.64%   | 0.41%  |
| NY           | 3.03%   | 1.87%  |
| NJ           | 0.13%   | 0.22%  |
| DE           | 0.30%   | 0.12%  |
| MD           | 0.20%   | 0.11%  |
| VA           | 0.10%   | 0.24%  |
| NC           | 2.39%   | 0.90%  |
| <b>Total</b> | <b>0.19%</b>  | <b>0.17%</b>   |

Source: Dealer Weighout Data, as of June 24, 2013.

## Bycatch

The commercial fishery for bluefish is primarily prosecuted with gillnets, otter trawls, and handlines. This fishery often harvests mixed species, including bonito, Atlantic croaker, weakfish, spiny dogfish, and other species. Among these species, weakfish are considered to be depleted; however, natural mortality rather than fishing mortality is implicated as constraining stock size. Atlantic croaker and spiny dogfish are not overfished, nor is overfishing occurring. Bonito are unregulated and stock status is unknown. Given the mixed-species nature of the bluefish fishery, incidental catch of non-target species is not directly attributable to the bluefish fishery.

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## 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:** Sept 17, 2013  
**TO:** Chris Moore, Executive Director  
**FROM:** Jim Armstrong  
**SUBJECT:** **Bluefish ABC and Management Measures for 2014** (containing corrected 2014 ABC)

### Executive Summary

The existing two-year bluefish specifications establish management measures for the 2013 and 2014 fishing years. Management measures for 2014 may remain unchanged if the previously recommended ABC for 2014 (12,273 mt) is determined by the SSC to still be appropriate for management measures following review of an updated assessment. The 2013 bluefish assessment update (Attachment A) indicates that, as in the 2012 update, the bluefish stock is not overfished and overfishing is not occurring. The estimate of stock biomass (125,808 mt) for 2012 is 85.6 % of  $B_{MSY}$  (147,052 mt) and realized  $F$  for 2012 (0.097) is approximately  $\frac{1}{2}$  of  $F_{MSY}$  (0.19).

The staff recommendation is to maintain the specified  $ABC = 12,273$  mt as the basis for management measures in 2014. ABC for 2014 was developed as part of multi-year ABC recommendations made by the SSC in 2012 and the value for ABC was derived by applying constant  $F = 0.132$  to bluefish projections through 2014.  $F=0.132$  corresponded to  $P^*$ -based ABC for 2013. The calculation of bluefish ABC for 2014 was also based on  $B_{2012}/B_{MSY} = 0.8676$ . The updated  $B_{2013}/B_{MSY}$  ratio (0.8113) represents a 6.5% decrease. Updated projections estimate  $F=0.138$  in 2014 if ABC is fully harvested, compared to  $F=0.132$  that was used to derive the 2014 ABC. Application of updated OFL and  $B/B_{MSY}$  inputs into the level 3 risk policy algorithm produces  $ABC = 11,082$  mt for 2014, a 9.7% decrease (corrected from previous value that was based on  $B_{2012}/B_{msy}$ ). A minor adjustment to ABC and corresponding management measures may be difficult to rationalize given that the fishery has harvested an average of 67.3% of allowable landings in the past three years (2010-2012). A benchmark assessment for bluefish is scheduled for the first half of 2014.

It is also recommended that exiting commercial and recreational Annual Catch Targets (ACTs) be maintained to sum to ACL (i.e., based on continued underharvest, no reduction in catch targets to accommodate management uncertainty). The previously specified adjustment to the ACT for discards (1,638 mt) accommodates the updated discard estimate of 1,389 mt (average of the last three years) and underharvest by the fishery suggests that any foregone yield will not affect fishing opportunity. As already specified, the maximum allowable transfer of landings to the commercial fishery is recommended and this would result in a recreational harvest limit (RHL) of 6,382 mt and a commercial quota of 3,934 mt before adjusting for RSA. No adjustment to the specified 3% reduction of the TALs (319 mt) for RSA is recommended. Although the Bluefish Advisory Panel expressed support for reduction of the current 15 fish recreational bag limit, staff does not recommend any changes to the bag

limit until new specifications are adopted for 2015.

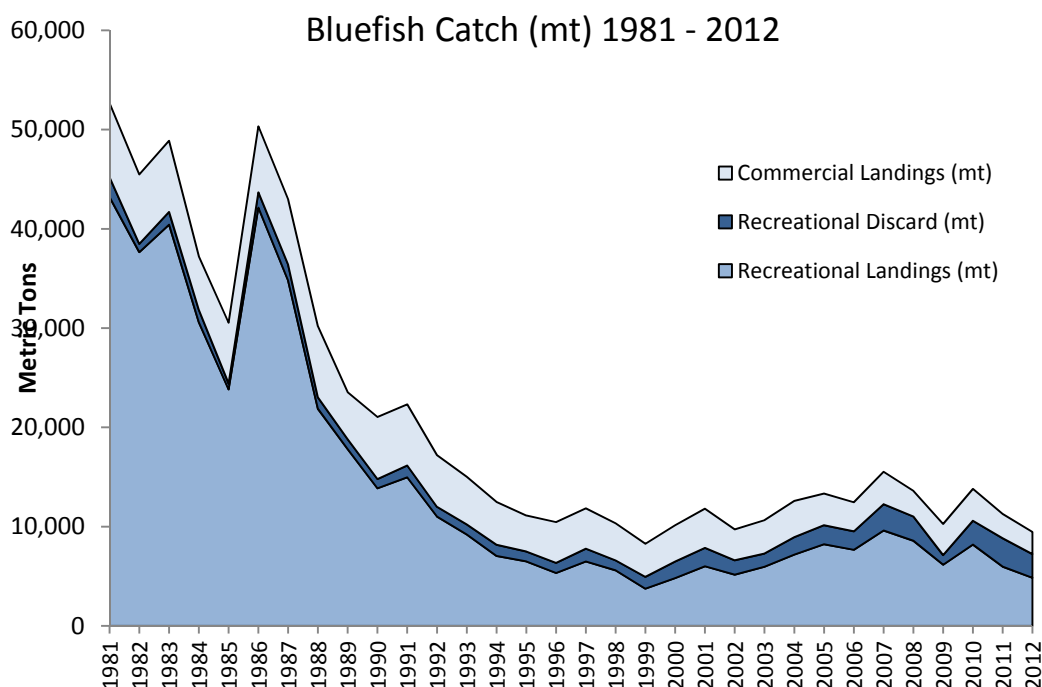
## **Introduction**

Specification of bluefish management measures is a joint process conducted annually by the Mid-Atlantic Fishery Management Council (Council) and the Atlantic States Marine Fisheries Commission's Bluefish Management Board (Board) with information and recommendations coming from their associated committees. The Commission's Bluefish Stock Assessment Sub-Committee (SASC) updates the bluefish assessment and conducts short term projections. The Council's Scientific and Statistical Committee (SSC) reviews assessment results and determines the acceptable biological catch (ABC) for the upcoming year. ABC is a reduction from the overfishing limit (OFL) based on the SSC's consideration of scientific uncertainty and serves as an upper limit on the catch target that management measures attempt to achieve. The Council's Bluefish Monitoring Committee (MC) develops and recommends specific coastwide (Maine – E. Coast Florida) management measures and allocations that will achieve target catch and make further adjustments to total catch as needed based on management uncertainty. Finally, the Council and Board meet jointly to develop recommendations to be submitted to the National Marine Fisheries Service.

In this memorandum, information is presented to assist the SSC and MC in their roles in the specification process. Assessment update results are presented briefly, and a more detailed summary prepared by the SASC is distributed under separate cover (i.e., Attachment A).

## **Catch and Landings**

Given the importance of the recreational component of the bluefish fishery, the history of bluefish catches begins with the implementation of data collection via MRFSS in 1981 (Figure 1). From the early 1980s to the early 1990s, recreational landings declined by factor of about 70% (avg. 1981-1983 = 89.140 M lb [40,433 mt]; avg. 1991-1993 = 25.824 M lb [11,727 mt]). Recreational landings continued to decline at a somewhat slower rate until reaching a low of 8.254 M lb (3,744 mt) in 1999. A rebuilding plan was implemented in 2000. Since then, population size has increased (Figure 2) and recreational landings have grown to a peak of 21 M lb in 2007. There has been an overall decline of about 10 M lb in recreational landings since 2007 to roughly 11 M lb in 2012. Recreational discards have increased from less than 10% of the catch in the 1980s to more than 20% of the catch in the early 2000s. Commercial landings have been relatively stable throughout the landings history. Commercial discards are treated as insignificant and are not estimated in the current assessment.



**Figure 1. Time series of bluefish recreational and commercial landings and discards (Source: 2013 Assessment Update).**

### **Regulatory Review (Current Management Measures)**

For the current 2013 fishing year, bluefish ABC (27.472 M lb; 12,461 mt) was based on  $P^* = 0.341$  which was calculated using  $OFL_{2013} = 17,521$  mt,  $B_{2012}/B_{MSY} = 0.8676$ , CV for OFL = 100%, and life history = “typical”.

Specific sources of uncertainty in the assessment that have been noted by the SSC include:

- Missing data in the age-length keys (ALKs)
- Calibration of Albatross vs. Bigelow trawl catches
- Previously sampled near shore areas unavailable to the BIGELOW.
- Commercial discards assumed insignificant
- Significant population biomass (~40%) aggregated in the 6+ age group
- Uncertainty in the MRFSS estimates, in general

According to the FMP, ACL is set equivalent to ABC and, given the historic underharvest of landings allowances by the fishery the Monitoring Committee concluded that no deduction to accommodate management uncertainty was needed, so  $ABC = ACL = ACT$ . Specifically, the recreational ACT (83%) is 22.802 M lb and the commercial ACT (17%) is 4.670 M lb. Estimated discards for the 2013 fishery are the average observed discards for the past three years and were 3.611 M lb for the recreational fishery and zero for the commercial fishery for which discards are not estimated in the assessment and considered inconsequential. The resulting recreational TAL for 2013 is 19.190 M lb and the commercial TAL is 4.670 M lb. The FMP stipulates that if 17% of the TAL is less than 10.5 M lb, then a transfer of landings could be made to increase the commercial quota to a limit of 10.5 M lb as long as the combined commercial and recreational landings would not exceed the TAL.



In the specification of management measures for 2013-2014, an estimate of recreational harvest for 2014 (14.069 M lb mt) was reported. Accordingly, a transfer of 4.686 M lb to the commercial fishery was made resulting in an adjusted commercial quota of 9.357 M lb and an adjusted RHL of 14.504 M lb). An adjustment for research set aside resulted in a final commercial quota of 9.076 M lb and a final RHL of 14.069 M lb.

### **Biological Reference Points**

Bluefish biological reference points were established in the most recent benchmark assessment (41<sup>st</sup> SARC; [NEFSC 2005](#)). The reference points are based on output from the ASAP model, a forward projecting statistical catch-at-age model that is used to estimate current and historic population size and fishing mortality (Legault and Restrepo 1998).

Overfishing is defined as occurring above  $F_{MSY}$  is 0.19, which was determined internally to the ASAP model. Overfishing is prevented by setting management measures based on ABC which is calculated using the Council's risk policy for a Tier 3 assessment (P\* method).

The estimate of  $B_{MSY}$  is 147,051 mt (324.192 M lb), and the level at which the stock is determined to be overfished ( $\frac{1}{2} B_{MSY}$ ) is 73,525.5 mt (162.096 M lb).  $B_{MSY}$  was estimated in the 2005 assessment using SSB and recruit estimates from ASAP, fit externally to a Beverton-Holt stock-recruit model and subsequently using Thompson-Bell Yield and SSB/R.

### **Stock Status and Projections**

The current update uses MRIP instead of MRFSS data as recreational inputs for 2004 forward. The effect is that of minor shifts in annual catches, but no significant change in recreational estimates.

The ASAP estimate of fishing mortality for 2012 is 0.097, well below the  $F$  threshold ( $F_{MSY} = 0.19$ ). This outcome supports the statement that for 2012 *overfishing was not occurring*. Relative to fishing mortality targets, model estimates of annual  $F$  have been below threshold levels since 1997 (see Figure 2), consistent with catches that support growth in population biomass.

Within the past 20 years, estimated population abundance peaked in 2006 at 94 million fish, but has declined since to 64 million fish in 2012 (Table 9 in Attachment A). The current low is due largely to model estimates of weak terminal year class strength such that as in previous updates, the most recent year class is the lowest in the time series. Retrospective analysis of age zero estimates shows underestimation of terminal year recruitment (Figure 10 in attachment A). Recreational catches of age zero fish have been lower in recent years (about 3% of the rec catch in 2009-2011) than the long term average (around 18% in 1982-2008).

The time series of estimated stock biomass has increased by about 158% since 1996 (See Figure 3 below and Table 10 in Attachment A). The estimate of total biomass for 2012 is 125,808 mt which is 85.55% of  $B_{MSY}$  (147,052 mt) and 171.11% of the  $\frac{1}{2} B_{MSY}$  threshold (73,526). As such, *the stock is not overfished*.

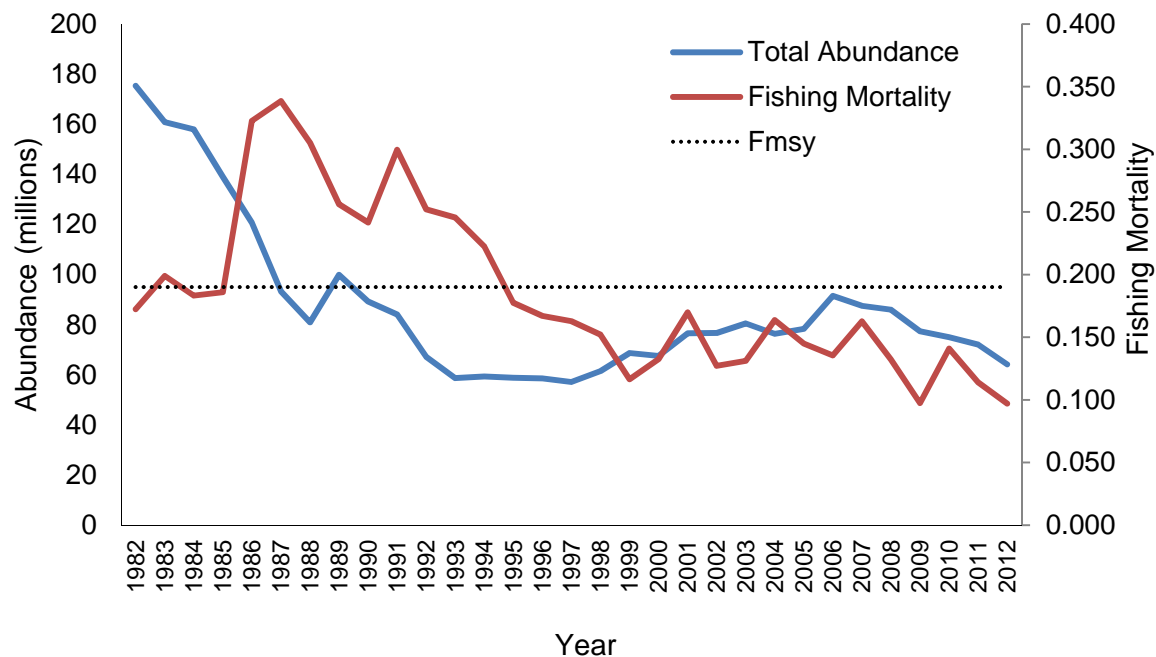


Figure 2. Total bluefish abundance and fishing mortality as estimated in ASAP model.  $F_{MSY}$  is indicated by the solid horizontal line.

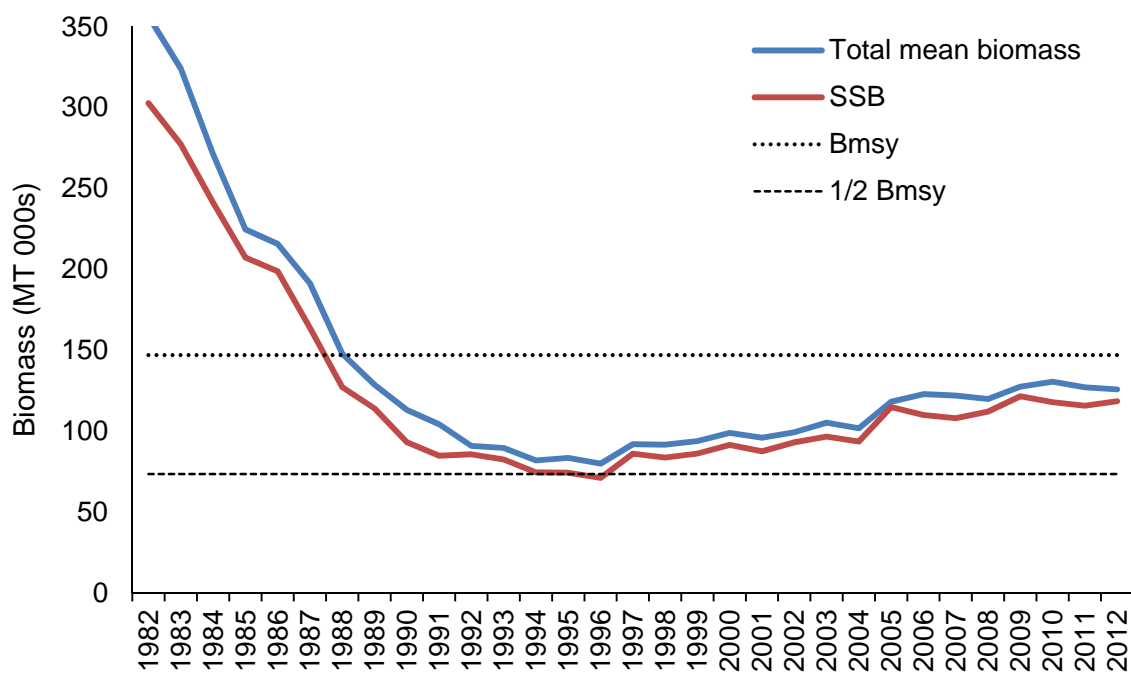


Figure 3. Time series of bluefish total mean biomass (000s mt) and spawning stock biomass (000s mt) relative to Bmsy target and threshold.

## **ABC Recommendation**

(Note: A concise presentation of the calculation of OFL, ABC, TAL and other management measures is provided in Table 1.)

ABC for 2014 was developed as part of multi-year ABC recommendations made by the SSC in 2012 and the value for ABC was derived by applying constant  $F = 0.132$  to bluefish projections through 2014.  $F=0.132$  corresponded to  $P^*$ -based ABC for 2013. The calculation of bluefish ABC for 2014 was also based on  $B_{2012}/B_{MSY} = 0.8676$ . The updated  $B_{2013}/B_{MSY}$  ratio (0.8113) represents a 6.5% decrease. Updated projections estimate  $F=0.138$  in 2014 if ABC is fully harvested, compared to  $F=0.132$  that was used to derive the 2014 ABC. Application of updated OFL and  $B/B_{MSY}$  inputs into the level 3 risk policy algorithm produces  $ABC = 11,082 \text{ mt}$  for 2014, a 9.7% decrease (corrected from previous value that was based on  $B_{2012}/B_{msy}$ ). A minor adjustment to ABC and corresponding management measures may be difficult to rationalize given that the fishery has harvested an average of 67.3% of allowable landings in the past three years (2010-2012). A benchmark assessment for bluefish is scheduled for the first half of 2014.

## **Other Management Measures**

### **Annual Catch Limit**

Under the Omnibus Amendment, an annual catch limit (ACL) is set equal to ABC. Accordingly, the recommended ACL for bluefish for 2014 is 27.057 M lb (12,273 mt).

**Table 1. Recommended bluefish management measures for 2014.**

| Management Measure             | LBS        | MT     | Basis                     |
|--------------------------------|------------|--------|---------------------------|
| OFL                            |            |        |                           |
| ABC                            | 27,057,333 | 12,273 | Constant F (0.132)        |
| ACL                            | 27,057,333 | 12,273 | = ABC                     |
| Mgmt Uncertainty               | 0          | 0      | per MC                    |
| Comm ACT                       | 4,599,747  | 2,086  | (ACL - Mgmt Uncert) * 17% |
| Rec ACT                        | 22,457,587 | 10,187 | (ACL - Mgmt Uncert) * 83% |
| Comm Discards                  | 0          | 0      | from assessment           |
| Rec Discards                   | 3,611,172  | 1,638  | 2009-2011 MRFSS avg.      |
| Comm TAL                       | 4,599,747  | 2,086  | Comm ACT - Disc           |
| Rec TAL                        | 18,846,415 | 8,549  | Rec ACT - Disc            |
| TAL (combined)                 | 23,446,162 | 10,635 | Comm + Rec TAL            |
| Expected Recreational Landings | 14,068,836 | 6,382  | 2009-2011 average         |
| Maximum Transfer               | 4,342,460  | 1,970  | Calculated                |
| pre-RSA Comm Quota             | 8,942,207  | 4,056  | Comm TAL + transfer       |
| pre-RSA RHL                    | 14,503,955 | 6,579  | Rec TAL - transfer        |
| Comm RSA Deduction (3%)        | 268,266    | 122    | 3% of Comm Quota          |
| Rec RSA Deduction (3%)         | 435,119    | 197    | 3% of RHL                 |
| Adjusted Comm Quota            | 8,673,941  | 3,934  | Comm Quota - RSA          |
| Adjusted RHL                   | 14,068,836 | 6,382  | RHL - RSA                 |

### ***ACT and TAL***

The FMP prescribes an initial allocation of 17% of the ACL to the commercial ACT and 83% to the recreational ACT (Table 1) which is based on the historic proportion of commercial and recreational landings for the period 1981-1989. Prior to this initial split, however, a reduction from ACL can be made in order to accommodate management uncertainty. The bluefish fishery has exceeded the combined (commercial + recreational) TAL once, in 2007 (Table 2) and has been below the TAL by an average of 5.2 M lb in the last five years (2007-2011; Table 2). Based on the historic performance of the bluefish fishery relative to specified management measures, no reduction from ACL is recommended such that the sum of the ACTs is equal to the ACL. A further reduction of the commercial and recreational ACTs to their respective TALs is calculated as ACT – discards for each fishery. No adjustment is made in calculating the commercial TAL since commercial discards are not currently estimated in the assessment and are assumed to be negligible. The previously specified adjustment to the ACT for discards (1,638 mt) accommodates the updated discard estimate of 1,389 mt (average of the last three years) and underharvest by the fishery suggests that any foregone yield will not affect fishing opportunity. The combined TAL is 23.446 M lb (10,635 mt; Table 1).

### ***Quota Transfer and Initial RHL and Commercial Quota***

The FMP stipulates that if 17% of the combined TAL (4.056 M lb) is less than 10.5 M lb then the commercial quota could be increased to as much as 10.5 M lb as long as the recreational fishery is projected to land less than 83% of the TAL (19.804 M lb) for the upcoming year. A transfer was already specified for 2014 that would accommodate a 14.069 M lb recreational fishery and an 8.674 M lb commercial fishery. Continued underharvest by both sectors suggests that these limits will not constrain fishing opportunity. Circumstances in both sectors would have to change dramatically for an accountability measure to be triggered, and this is not expected.

### ***RSA deduction and Adjusted RHL and Commercial Quota***

An adjustment allowing for research projects to utilize up to 3% of bluefish TAL has also been specified for 2014. No adjustment to that reduction from the TALs (total = 352 k lb; 319 mt) for RSA is recommended.

### ***Gear Regulations and Minimum Fish Size***

Although the Bluefish Advisory Panel expressed support for reduction of the current 15 fish recreational bag limit, staff does not recommend any changes to the bag limit until new specifications are adopted for 2015.

**Table 2. Summary of bluefish management measures, 2000 - 2012.**

| <b>Management Measures</b> | <b>2000</b> | <b>2001</b> | <b>2002</b> | <b>2003</b> | <b>2004</b> | <b>2005</b> | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> |
|----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| TAL (M lb) *               | 35.328      | 37.841      | 26.866      | 37.293      | 31.85       | 30.853      | 24.797      | 27.762      | 28.156      | 29.356      | 29.264      | 27.293      | 28.267      |
| Comm. Quota (M lb)†        | 9.583       | 9.583       | 10.5        | 10.5        | 10.5        | 10.5        | 8.081       | 8.689       | 7.705       | 9.828       | 10.213      | 9.375       | 10.317      |
| Comm. Landings (M lb)      | 8.040       | 8.697       | 6.869       | 7.403       | 8.041       | 6.694       | 6.706       | 7.182       | 5.699       | 6.947       | 7.069       | 5.413       | 4.930       |
| Rec. Target†               | 25.745      | 28.258      | 16.365      | 26.793      | 21.35       | 20.353      | 16.718      | 19.073      | 20.451      | 19.528      | 18.631      | 17.813      | 17.457      |
| Rec. Landings (M lb)       | 10.606      | 13.230      | 11.371      | 13.136      | 17.222      | 19.852      | 16.445      | 21.690      | 19.672      | 14.513      | 16.194      | 11.499      | 10.684      |
| Rec. Possession Limit      | 10          | 15          | 15          | 15          | 15          | 15          | 15          | 15          | 15          | 15          | 15          | 15          | 15          |
| Total Landings             | 18.646      | 21.918      | 18.234      | 20.537      | 23.197      | 23.207      | 23.849      | 28.662      | 24.868      | 20.573      | 25.111      | 16.581      | 15.614      |
| Overage/Underage (M lb)    | -16.682     | -15.923     | -8.632      | -16.756     | -8.653      | -7.646      | -0.948      | 0.900       | -3.288      | -8.783      | -4.153      | -10.712     | -12.653     |
| Target F                   | N/A         | N/A         | N/A         | N/A         | N/A         | 0.15        | 0.15        | 0.15        | 0.15        | 0.15        | 0.15        | 0.15        | N/A         |
| ASAP F estimate            | 0.13        | 0.15        | 0.13        | 0.14        | 0.15        | 0.15        | 0.14        | 0.16        | 0.12        | 0.1         | 0.14        | 0.11        | 0.097       |

\* includes RSA

† adjusted downward for RSA