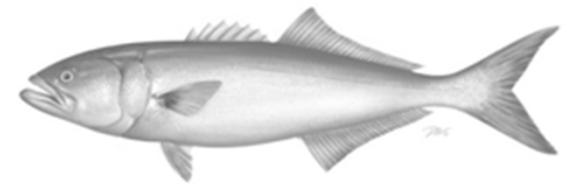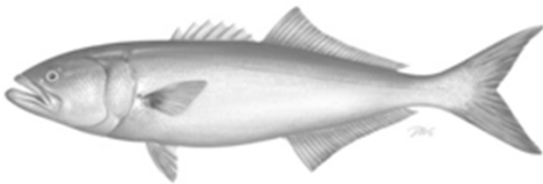*Working towards healthy, self-sustaining populations for all Atlantic coast fish species or successful restoration well in progress by 2015*

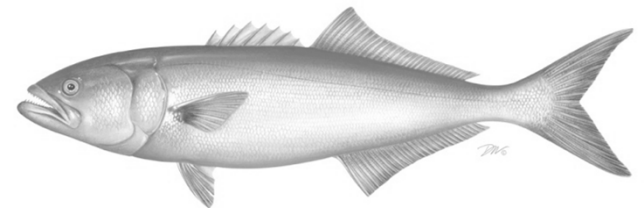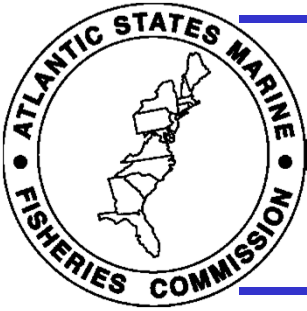# Draft Terms of Reference for 2014 Bluefish Stock Assessment

## Philadelphia, PA
October 9, 2013

Terms of Reference

- These TORs were developed by the ASMFC Bluefish Stock Assessment Subcommittee and Technical Committee
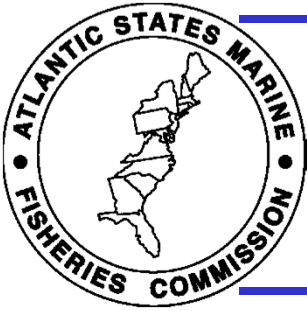
Terms of Reference

1. Estimate catch from all sources including landings and discards. Evaluate and if necessary update the discard mortality estimate. Describe the spatial and temporal distribution of landings, discards, and fishing effort. Characterize the uncertainty in these sources of data.

2. Present and evaluate data on life history information including, age, growth, natural mortality, and maturity.
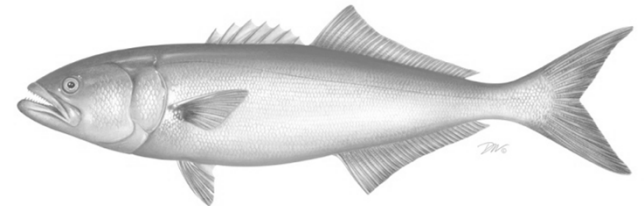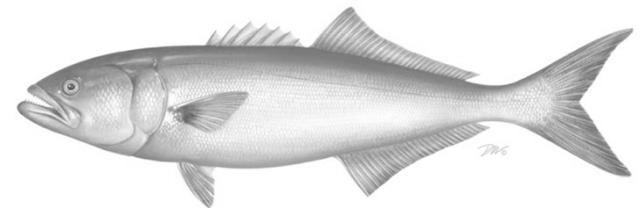
Terms of Reference

3. Present the survey data available for use in the assessment (e.g., indices of relative or absolute abundance, recruitment, state surveys, age-length data, etc.), and explore standardization of fishery independent indices.

   Investigate the utility of commercial or recreational LPUE as a measure of relative abundance. Characterize the uncertainty and any bias in these sources of data. Describe the spatial distribution of the stock over time.
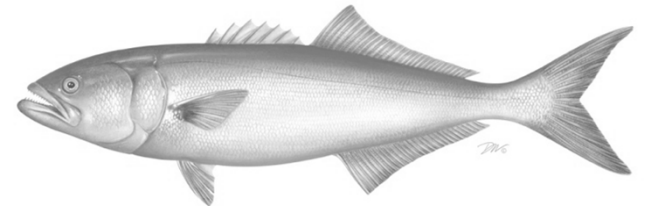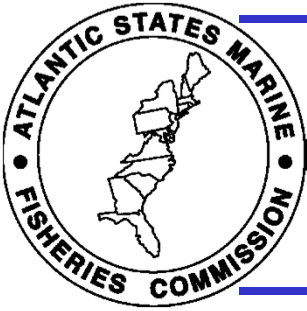
Terms of Reference

4. Estimate relative fishing mortality, annual fishing mortality, recruitment, total abundance, and stock biomass (both total and spawning stock)for the time series, and estimate their uncertainty.

   Explore inclusion of multiple fleets in the model. Include both internal and historical retrospective analyses to allow a comparison with previous assessment results and previous projections. Explore alternative modeling approaches if feasible.
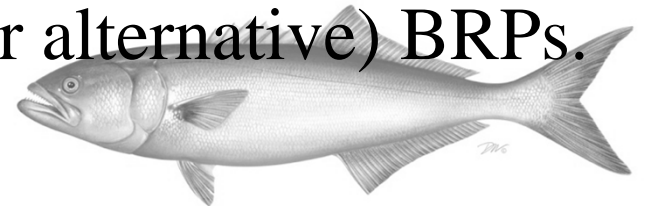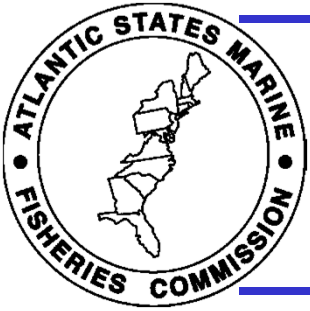
Terms of Reference

5. State the existing stock status definitions for "overfished" and "overfishing". Then update or redefine biological reference points(BRPs; point estimates or proxies for B MSY, $B_{THRESHOLD}$, F_{MSY} and MSY) and provide estimates of their uncertainty.

    If analytic model-based estimates are unavailable, consider recommending alternative measurable proxies for BRPs. Comment on the scientific adequacy of existing BRPs and the "new" (i.e. updated , redefined, or alternative) BRPs.
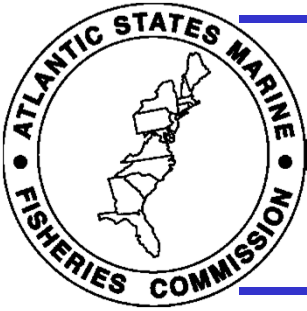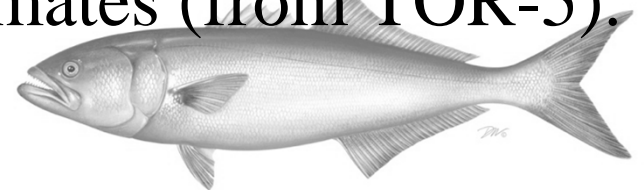
Terms of Reference

6. Evaluate stock status with respect to the existing model (from previous peer reviewed accepted assessment) and with respect to a new model developed for this peer review.

    When working with the existing model, update it with new data and evaluate stock status (overfished and overfishing) with respect to the existing BRP estimates. Then use the newly proposed model and evaluate stock status with respect to "new" BRPs and their estimates (from TOR-5).
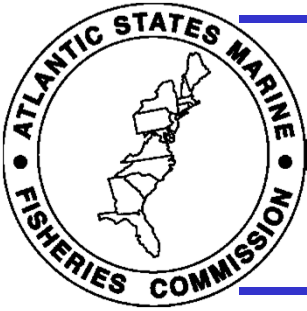
7. Develop approaches and apply them to conduct stock projections and to compute the statistical distribution (e.g., probability density function) of the OFL (overfishing level) and candidate ABCs (Acceptable Biological Catch; see Appendix to the SAW TORs).

   a. Provide annual projections (3 years). For given catches, each projection should estimate and report annual probabilities of exceeding threshold BRPs for F, and probabilities of falling below threshold BRPs for biomass. Use a sensitivity analysis approach in which a range of assumptions about the most important uncertainties in the assessment are considered (e.g., terminal year abundance, variability in recruitment).

Terms of Reference

7. Cont'd

b. Comment on which projections seem most realistic. Consider the major uncertainties in the assessment as well as sensitivity of the projections to various assumptions.

c. Describe this stock's vulnerability (see "Appendix to the SAW TORs") to becoming overfished, and how this could affect the choice of ABC.

8. Review, evaluate and report on the status of the SARC and Working Group research recommendations listed in most recent SARC reviewed assessment and review panel reports, as well as MAFMC SSC model recommendations from 2005. Identify new research recommendations.
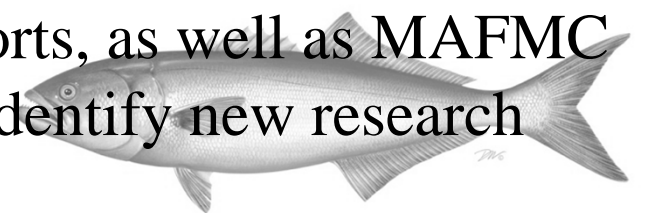
Tentative Schedule

Meeting Description	Meeting Dates	Meeting Time	Meeting Location
Pre-Assessment Webinar	September 2013		Virtual
Bluefish Pre-Assessment Technical Committee Meeting	January 2014	TBA	TBA
Bluefish Data Workshop	April 2014	TBA	NEFSC, Woods Hole, MA
Bluefish Models/BRP Meeting	April 2014	TBA	NEFSC, Woods Hole, MA
SAW/SARC Review	June 2014	TBA	NEFSC, Woods Hole, MA
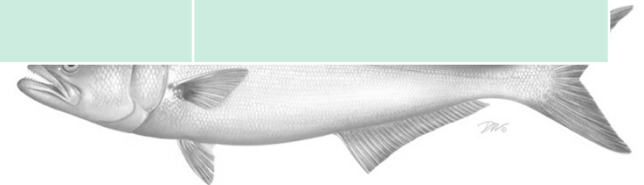
Motions

- Motion to move to approve the 2014 TORs for the Bluefish Benchmark Assessment
- Motion by Simpson/Liusi