Terms of Reference for 2016-17 Blue Crab Stock Assessment

CBSAC Stock Assessment Subcommittee

Presented by Joe Grist, Rom Lipcius and Lynn Fegley

June 2, 2015



Background

- Benchmark blue crab stock assessments have been conducted every 3-5 years since 1992.
- The most recent 2011 stock assessment recommended female-specific reference points for abundance and exploitation rate.

Process

- Next benchmark stock assessment is planned for 2016-17.
- CBSAC Stock Assessment Subcommittee developed draft Terms of Reference (TORs) in late 2014 through early 2015.
- CBSAC and the management jurisdictions discussed and refined the TORs in April 2015.

What's new this time?

- ✓ Evaluate possible assessment models operating on finer time scales and/or finer spatial resolutions. (TOR 1)
- ✓ Guidance for the male population. Note that male-specific reference points could not be derived with the same empirical rigor as female reference points, which are directly tied to Maximum Sustainable Yield (MSY). (TOR 2)
- ✓ Evaluation of the utility of additional fishery independent surveys (ex. summer trawl surveys). (TOR 6)
- ✓ Potential analysis of bycatch and/or discard mortality for certain fishery sectors where adequate data are available. (TOR 7)
- ✓ Modeling the effect of depensatory exploitation on stock dynamics (TOR 9)
- ✓ Synthesis of potential impacts of ecosystem factors on the population, including on past fishery performance. (TOR 10)

TOR 1:

Evaluate the feasibility of assessment models for the blue crab fishery that operate on sub annual time steps and/or at spatial resolutions lower than that of the entire Chesapeake Bay.

TOR 2:

Evaluate and recommend sex-specific (male and female) and aggregate biological reference points for the Chesapeake Bay blue crab population.

TOR 3:

Provide an evaluation of the status of the stock relative to recommended reference points.

TOR 4:

Characterize uncertainty in assessment estimates.

TOR 5:

Critically review and estimate life history parameters and vital rates of blue crab in the Chesapeake Bay that are relevant to an assessment of the stock. In particular, the assessment should evaluate the extent and scale of inter-annual variation in life history parameters and vital rates of blue crab in Chesapeake Bay.

TOR 6:

Describe and quantify patterns in fishery-independent surveys. Analyses should include

- an evaluation of the efficacy of fishery-independent surveys not included in previous stock assessments, and
- an evaluation of the impacts of environmental and abiotic factors on survey catches, to maximize the information content of resultant survey time series.

TOR 7:

Describe and quantify patterns in catch and effort by sector and region, including analyses that examine the impacts of reporting changes and trends in CPUE. Use available data from the jurisdictions to evaluate and quantify bycatch and/or discard mortality where possible.

TOR 8:

Evaluate the utility of incorporating a commercial CPUE index in the assessment.

TOR 9:

Update with relevant new data assessment models used previously in assessing the Chesapeake blue crab stock.

TOR 10:

Evaluate the potential for ecosystem-based considerations, including habitat, environmental drivers and predation/cannibalism, to explain past fishery performance.

What's new this time?

- ✓ Evaluate possible assessment models operating on finer time scales and/or finer spatial resolutions. (TOR 1)
- ✓ Guidance for the male population. Note that male-specific reference points could not be derived with the same empirical rigor as female reference points, which are directly tied to Maximum Sustainable Yield (MSY). (TOR 2)
- ✓ Evaluation of the utility of additional fishery independent surveys (ex. summer trawl surveys). (TOR 6)
- ✓ Potential analysis of bycatch and/or discard mortality for certain fishery sectors where adequate data are available. (TOR 7)
- ✓ Modeling the effect of depensatory exploitation on stock dynamics (TOR 9)
- ✓ Synthesis of potential impacts of ecosystem factors on the population, including on past fishery performance. (TOR 10)

Next Steps

2015: Develop a cost estimate and secure funding.

Late 2015-2016: Complete assessment model runs and analyses.

Late 2016: Peer review.

Early 2017: Present results to Fisheries GIT.