Charge to CBSAC

- October 2011
  - (TOR 1) Provide guidance for the management agencies on:
    - (a) Implementation of the biological reference points developed within the 2011 assessment
    - (b) Methods for determining appropriate reference points for the male component of the population.
  - (TOR 2) Provide a description of how the reference points recommended/proposed under task 1 differ from the current reference points.
  - (TOR 3) Prioritize research needs and science gaps – as identified in the 2011 assessment and Center for Independent Experts (CIE) review.
- June 2012
  - (TOR 4) Recommend decision rules to be implemented to address abundances that fall outside recommended thresholds.
  - (TOR 5) Begin developing a means to attribute ecological parameters affecting blue crab abundance and attempt to quantify their impacts on targets and thresholds.

Reference Points (TOR 1a)

- The CBSAC recommends that the jurisdictions adopt the female-specific target and threshold reference points developed in the 2011 Benchmark Blue Crab Stock Assessment.

- The CBSAC recommends that the jurisdictions place primary management focus on managing for the female-specific target exploitation fraction.

- The CBSAC stresses the importance of updating benchmark assessments every four to six years.

Male Reference Points (TOR 1b)

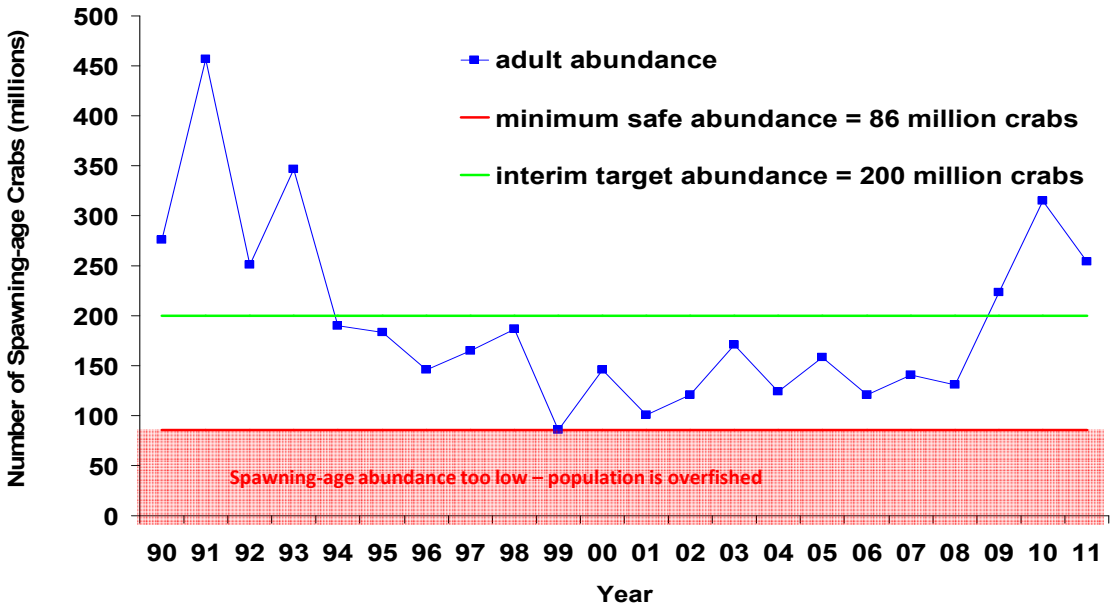
- The CBSAC recommends development of threshold reference points for male crabs that would provide management with a trigger for male conservation.
  - The CBSAC suggests addressing analytical issues and working to further explore appropriate male reference points during a workshop which could be convened in late May or early June of 2012.
  - In the near term, the CBSAC recommends that management jurisdictions monitor the ratio of the number male crabs greater than 60mm to the number of immature female crabs greater than 60mm as calculated from the dredge survey to ensure that annual ratios stay within the range observed since 1990.
- CBSAC recommends maintaining current male conservation measures such as size limits.

Reference Point Comparison (TOR 2)

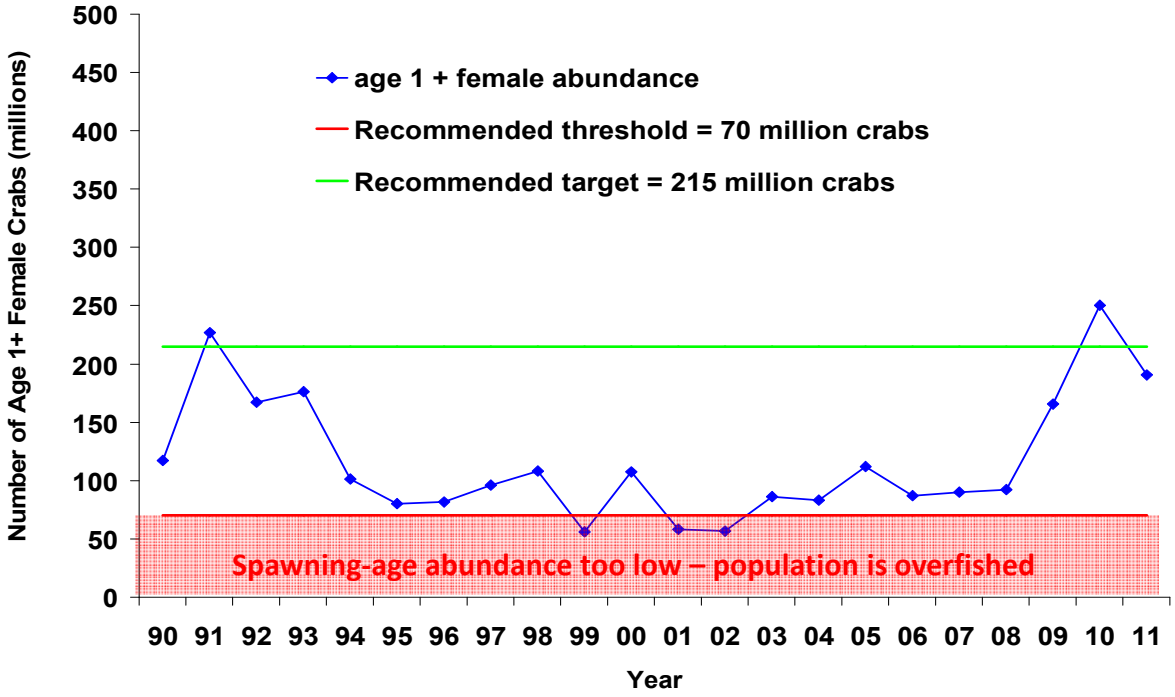
		Target	Threshold	2010 Stock Status	2011 Stock Status
Exploitation Fraction	Current	46%	53%	39%	*To be determined*
	Recommended female-specific	25.5%	34%	18%	*To be determined*
Abundance (millions of crabs)	Current	200	86	315	254
	Recommended female-specific	215	70	251	190

2011 Stock Status

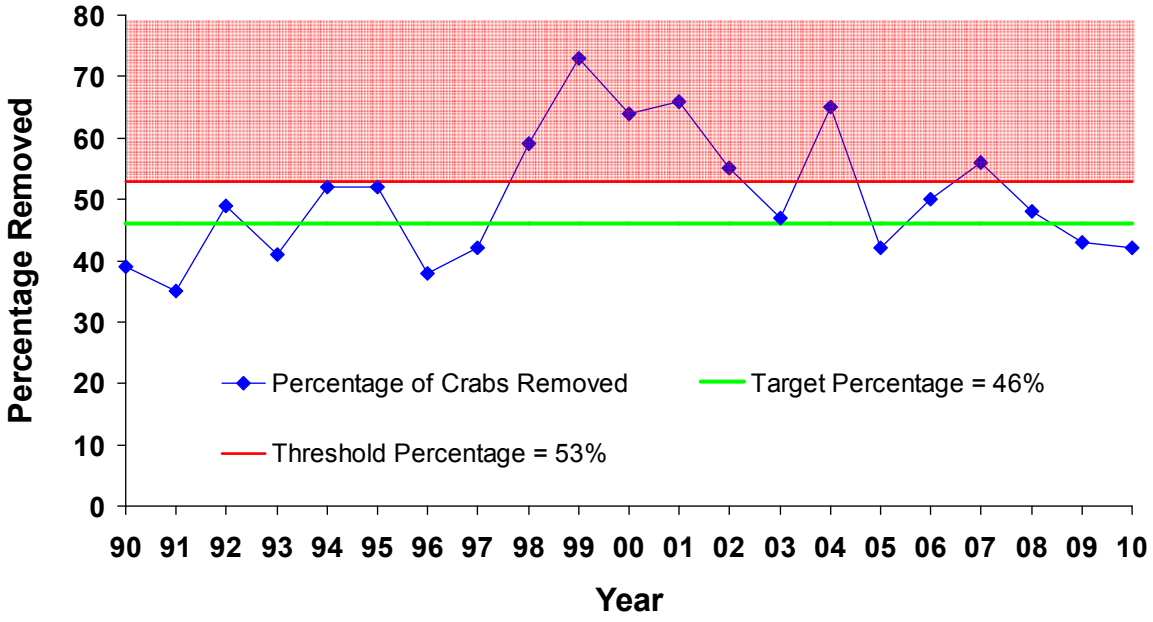
The Chesapeake Bay blue crab stock is currently not overfished and overfishing is not occurring. This is true according to both the current management framework and the recommended, female-only framework developed in the 2011 Benchmark assessment.



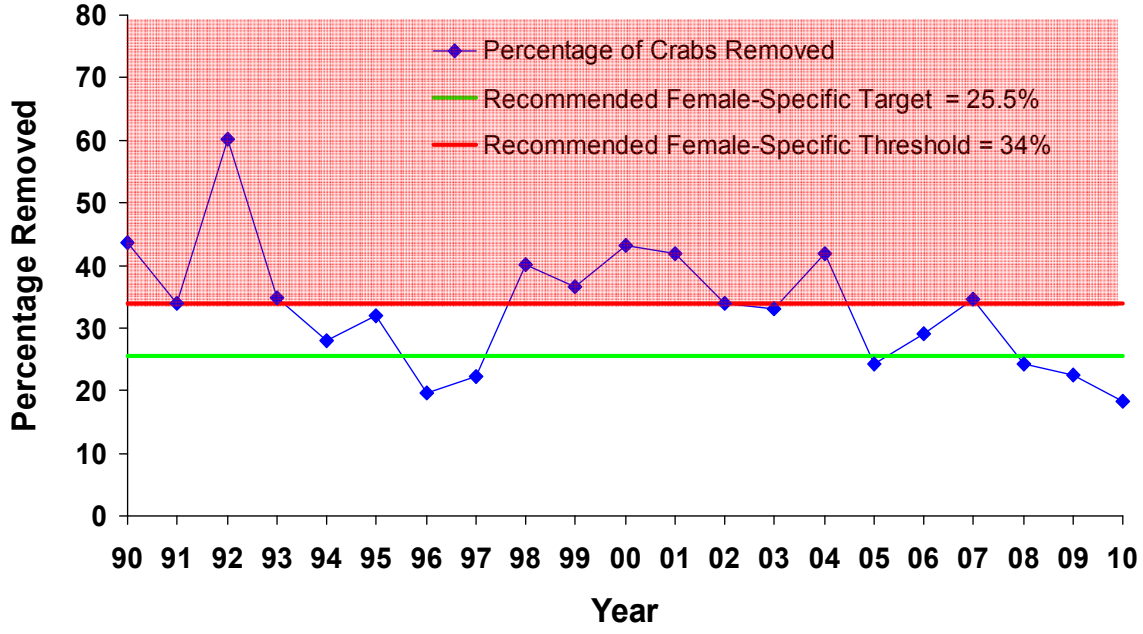
Winter dredge survey estimate of **abundance of male and female blue crabs age one year and older (age 1+) 1990-2011.**



Winter dredge survey estimate of **abundance of female blue crabs age one year and older** (age 1+) 1990-2011 with recommended reference points.

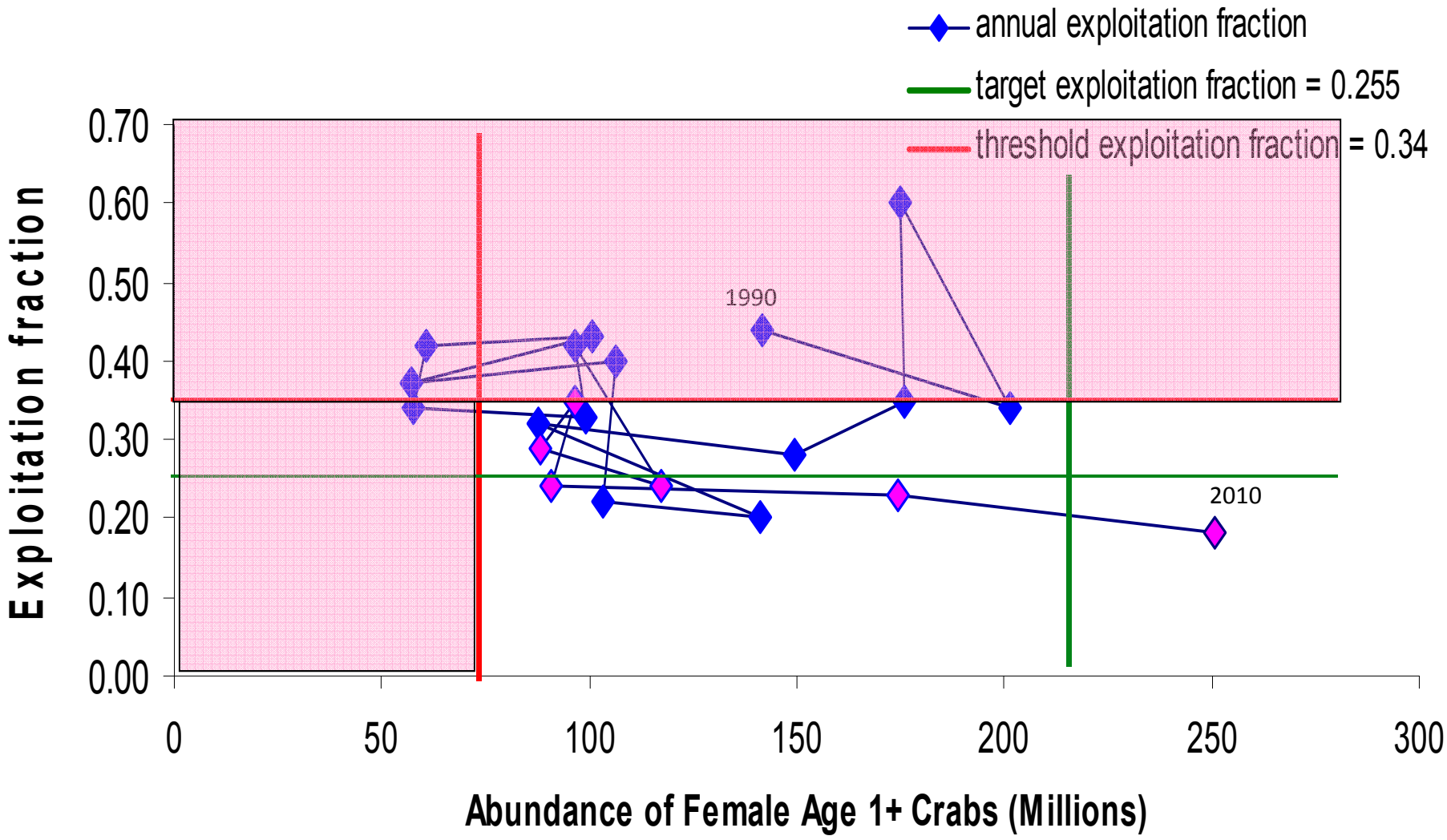


The percentage of crabs removed from the population each year by fishing relative to previous target and threshold levels between 1990 and 2010



The percentage of female crabs removed from the population each year by fishing relative to recommended female-specific target and threshold levels between 1990 and 2010.

Figure 10. The recommended control rule for the Chesapeake Bay blue crab fishery. An abundance of 70 million age 1+ female crabs represents the overfished threshold. In 2010, abundance was above the overfished target and the exploitation rate was below the overfishing target.



Research Recommendations (TOR 3)

- The three highest priorities for research and surveys are:
  - Implement fishery-dependent surveys to characterize the sex, size, and life-stage composition of the commercial harvest Bay-wide. *(This is of the highest priority given the sex-specific nature of the current management framework.)*
  - A recreational survey is high priority as it is likely that recreational effort may be increasing with improved stock status.
  - Continuation of the winter dredge survey and work to refine gear efficiency and over-winter mortality calculations as this could impact reference point values. The CBSAC recommends that before a reference point based on a sex-ratio is implemented that there be a workshop to address issues such as gear efficiency, dredge survey sex ratios as a reference point, selectivity of the dredge gear, and crab reproductive biology.

Next Steps

- Final CBSAC Advisory Report for Fisheries Goal Team Review– end of October 2011.
  - Acceptance November 2011 Goal Team call
- Plan for workshop – May/June 2012
- CBSAC meeting / 2012 Advisory Report – June 2012
  - Address TOR 4 and 5