2017 Blue Crab Winter Dredge Survey Results--Preliminary Statement

Chesapeake Bay Stock Assessment Committee

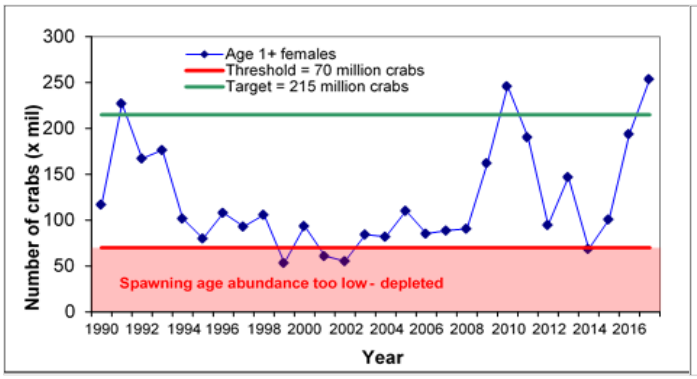
May 9th, 2017

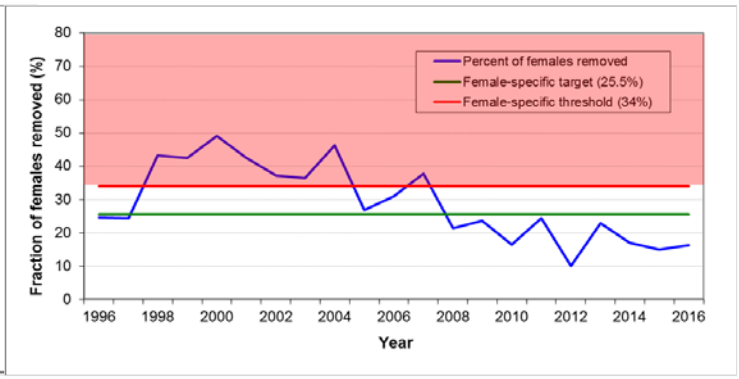
Background

At the request of the blue crab management jurisdictions, the Chesapeake Bay Stock Assessment Committee (CBSAC) has reviewed the 2017 Baywide winter dredge survey (WDS) data. This review is not meant to overshadow the full 2017 advisory report (coming in June), rather it provides jurisdictions with an initial overview of the survey results and scientific advice to be used when future management changes are being considered.

Current Management Framework and Stock Status

Based on the 2017 WDS results and the application of the female specific management approach, the Chesapeake Bay blue crab stock is not depleted and overfishing is not occurring. The blue crab stock status is determined by estimating the number of age 1+ female crabs which represent those crabs that will spawn. In 2017, the number of age 1+ females is estimated to be 254 million crabs, above the target level of 215 million age 1+ female crabs. The 2017 estimate is 31% higher than the level in 2016, and is the highest estimate in the 28-year time series. This is also the second time that the age-1+ female target has been exceeded since female-specific management was implemented in 2008. The survey data are also used to estimate the fraction of the female population that is harvested each year. The estimated female exploitation fraction for 2016 is 16%, which is below the target of 25.5%. The committee notes that this is the ninth consecutive year with a female exploitation fraction below the target.



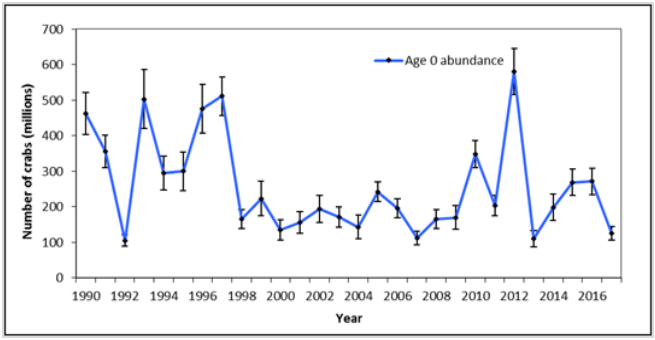


Exploitable Stock – Female Crabs Age 0+

Since it is assumed that all female crabs are either currently available or grow to become available to the fishery in 2017, the total number of female crabs (age 0 and age 1+ females) estimated in the WDS represents the female portion of the exploitable stock for the 2017 fishery. The estimated exploitable stock will form the basis for the calculation of the 2017 female exploitation fraction. In 2017, the exploitable stock of females is approximately 413 million crabs, compared to 539 million crabs in 2016. The drop in total female abundance occurred because, despite the increase in age-1+ females, the number of age-0 female crabs declined by 54%.

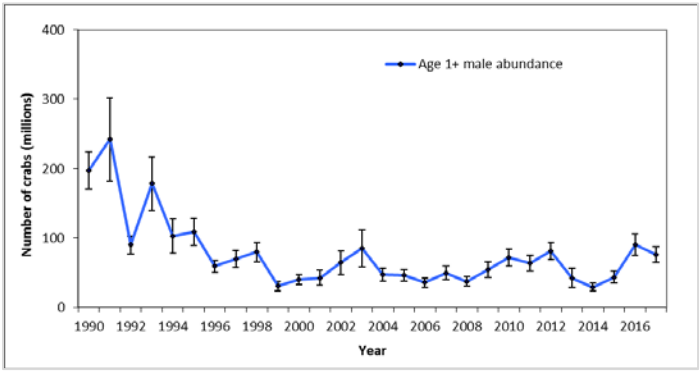
Age 0 Crabs (Recruitment)

The abundance of age 0 crabs (recruits) in 2017 was estimated at 125 million crabs, a 54% decrease from 271 million age 0 crabs in 2016. Juvenile abundance in 2017 is among the five lowest estimates of the time series, the most recent of which occurred in 2013. Although the drop in spawning success is of concern, it is not unexpected, and, given the variable nature of blue crab recruitment, will likely be a re-occurring event from time to time. This level of age 0 recruits will be of more concern if similar levels are observed in subsequent years, as was seen from 1998-2009.



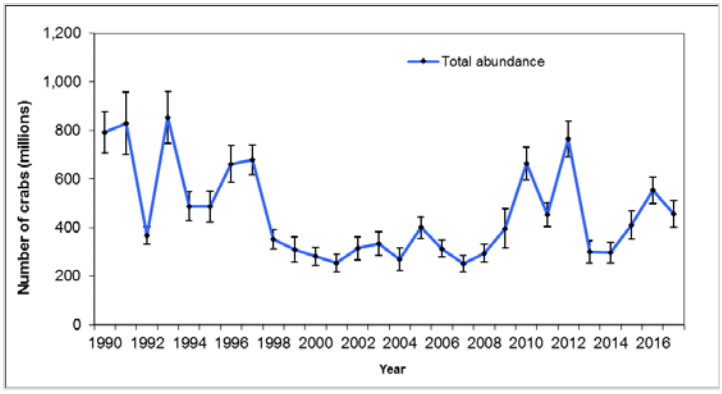
Age 1+ Male

The 2017 WDS estimated 76 million age 1+ male crabs, which decreased by about 16% from the 2016 estimate of 91 million age 1+ male crabs. Although age 1+ male abundance is above the mean level observed between 1995 and 2017, it remains approximately half that of the levels observed in the early 1990s.



Total Population Abundance

There was a decline of 18% in the total abundance (males and females) of crabs in 2017 compared to 2016. The decline in abundance was driven by the low 2017 estimates of age 0 crabs. The increase in age 1+ female abundance was offset by the large decrease in juvenile abundance and a drop in the number of age 1+ males.



Short Term Management Considerations

Based on analysis of the initial results of the 2017 winter dredge survey, CBSAC recommends the jurisdictions maintain the current cautious, risk-averse approach in the 2017 season. A particular challenge will be tailoring management that accounts for both the low abundance of age 0 crabs, that will become vulnerable to the fishery in late summer/early fall, and the high abundance of adult females, mostly located in the southern part of the Bay, that are available to harvest in early 2017. Because of this large imbalance in the distribution of crabs available to the fisheries, the benefits of the currently high adult female abundance will be disproportionate among jurisdictions. It will be important to ensure that removals during the second half of 2017 and the early part of 2018 are balanced with the small size of the incoming year class, which will comprise the majority of the spawners in 2018.

Large variations in recruitment (age 0 abundance) are a characteristic of blue crab biology and not unexpected. It should be the goal of management to maintain a robust spawning stock, thereby increasing the resiliency of the population to downturns in recruitment. The 2017 WDS results will be more thoroughly examined later in May, where the committee will address implications of the results on stock status and future management.