A summary of CBSAC Male Reference Points Workshop

MARYLAND DEPARTMENT OF NATURAL RESOURCES

VIRGINIA MARINE RESOURCES COMMISSION

NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION U.S. DEPARTMENT OF COMMERCE

NATIONAL MARINE FISHERIES SERVICE

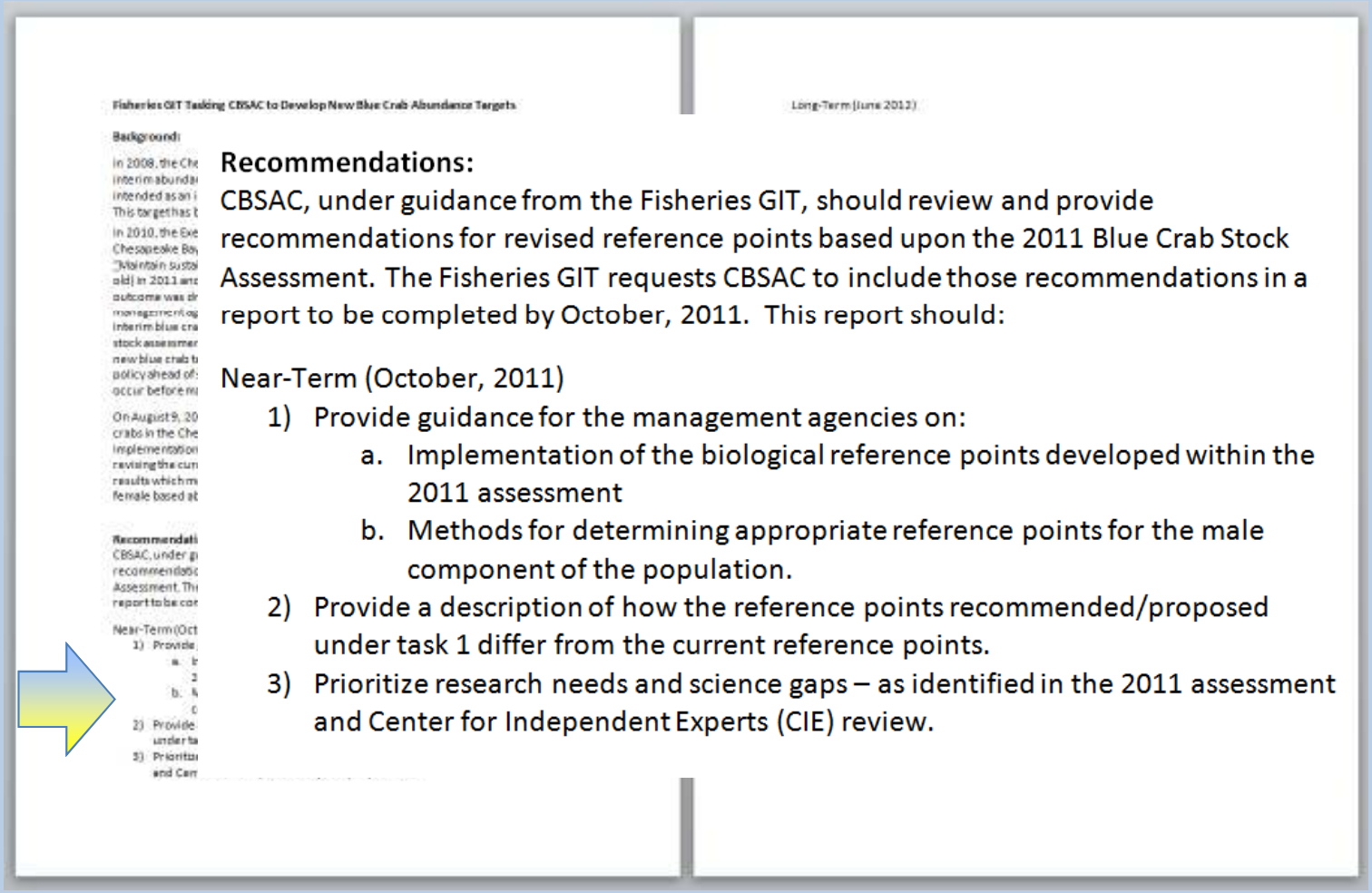
University of Maryland CENTER FOR ENVIRONMENTAL SCIENCE

Smithsonian Environmental Research Center

VIMS

The story so far…

- **CBSAC Charged with developing male reference points in August 2011.**



Fisheries GIT Tasking CBSAC to Develop New Blue Crab Abundance Targets

Background:

Long-Term (June 2012)

Recommendations:

CBSAC, under guidance from the Fisheries GIT, should review and provide recommendations for revised reference points based upon the 2011 Blue Crab Stock Assessment. The Fisheries GIT requests CBSAC to include those recommendations in a report to be completed by October, 2011. This report should:

Near-Term (October, 2011)

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.
2) Provide a description of how the reference points recommended/proposed under task 1 differ from the current reference points.
3) Prioritize research needs and science gaps – as identified in the 2011 assessment and Center for Independent Experts (CIE) review.

The story so far…

- There is a growing concern that the exploitation on male crabs may create a imbalance between number of mature male and female crabs.

- There is currently no evidence that suggests females are maturing without finding mates

- Managers and researchers can not yet determine the critical operational sex ratio that may create a situation of sperm limitation.

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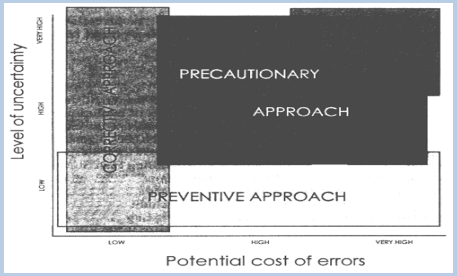
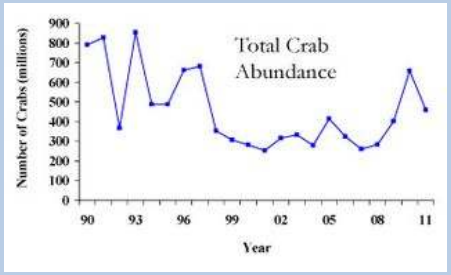
What we considered…

- Take a precautionary approach.



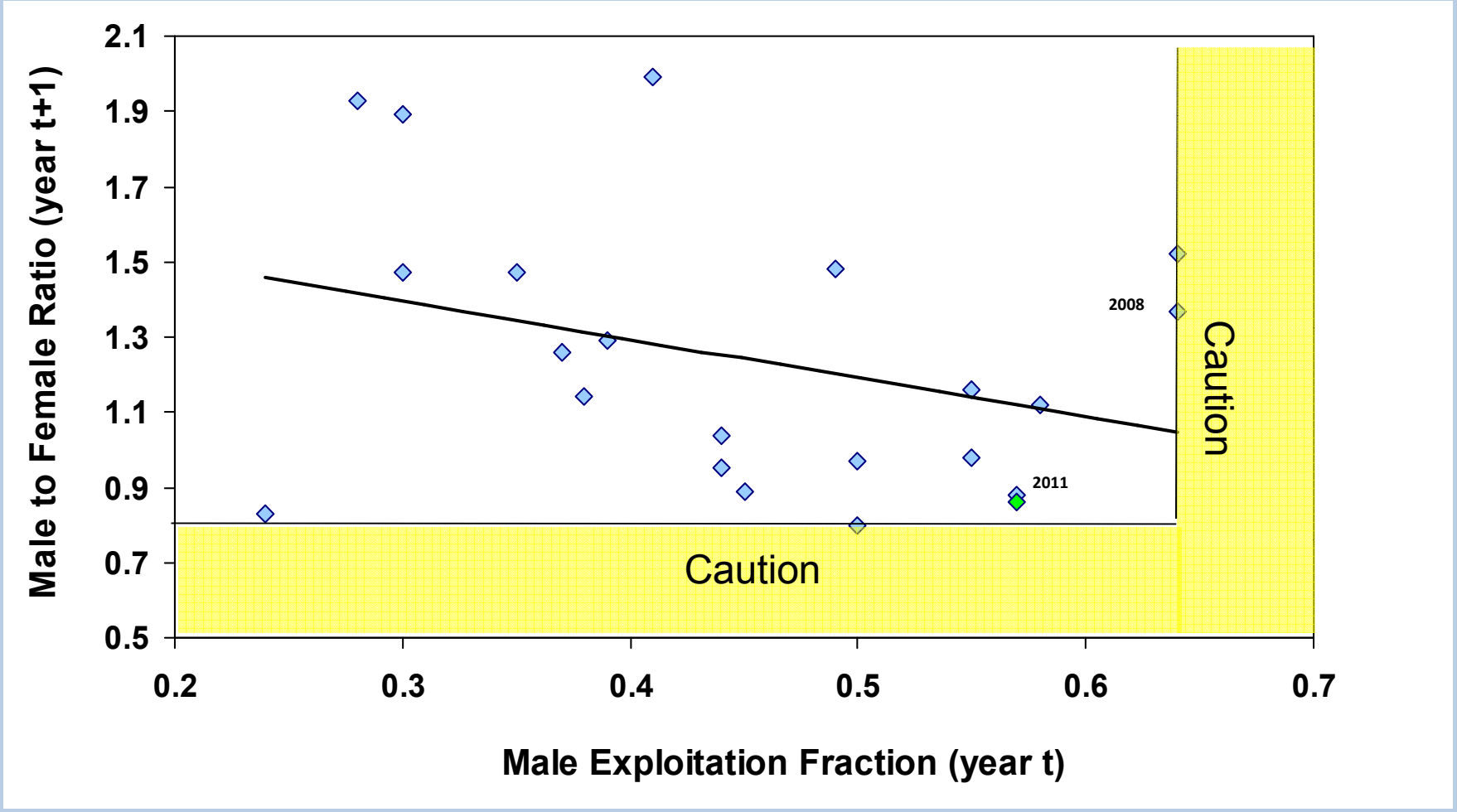
- Avoid uncharted territory.

- Clearly define historical bounds for managers.



Recommendation…

- If male exploitation is higher than 64% or the Male-Female ratio is below 0.8 then jurisdictions should carefully monitor subsequent recruitment events.



Relationship of male exploitation rate (year t) to projected M:F operational sex ratio (year t+1) using Bay-wide winter dredge survey data. Males 24-152 mm cw were considered to fit the criterion, while immature females ≥18 mm cw were considered.

Future Research Needs

1) An analysis of age composition of mature females over the history of the winter dredge survey to determine whether the proportion of females in their second reproductive year has increased.

2) Sensitivity runs within the current assessment model should be conducted that apply varying levels of age-specific reproductive potential to mature female crabs in order to determine the sensitivity of the population to sperm limitation

3) An analysis of all data sources for the operational sex ratio.

4) A field survey that samples female crabs from the over-wintering grounds and measures sperm levels within 1st and 2nd year females should be initiated. We anticipate that this project could be "piggy-backed" onto the existing winter dredge sampling platform.

Next Steps

- CBSAC will investigate projected operational sex ratio from past winter dredge survey results to see if trend level changes exist in the age structure of female crabs.
- CBSAC will determine the need for further investigation based off of outcomes from high priority research needs.
- The SFGIT will endorse the recommendation and state jurisdictions will begin to move forward with implementation of Male Conservation Threshold.
- Questions?

Acknowledgments

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