

## Crab Plan Team Report (excerpt) May 2007

[note the remainder of the CPT report will be posted the week of May 22<sup>nd</sup>]

### Tanner crab harvest strategy

The Alaska Board of Fisheries (Board) is considering updating the Tanner crab harvest strategy at its meeting on May 17 and 18. ADFG is preparing an analysis in response to the the Board's request. Ben Daly (ADFG) presented the elements the harvest strategy review team had been tasked with review meeting, and explained that the analysis is ongoing. If the Board adopts an updated harvest strategy at their May meeting, it could be implemented by the 2017/2018 Tanner crab fishing season.

The CPT discussed how the State spatially manages Tanner crab in the different subdistricts and areas in the Bering Sea district. ADFG uses area survey swept estimates of mature females and legal males in the harvest strategy. A core element of the harvest strategy is a district-level mature female threshold, currently based on knife-edged CW measurements vs. morphological determinations from the NMFS survey. ADFG closes the fishery when the female threshold is not met.

Rules for the TAC in the east area (east of 166°W longitude) and the TAC in the west area (west of 166°W longitude) are based on mature male biomass thresholds. The CPT discussed the evidence of differences in Tanner crab in the east and west areas. There is not enough evidence to suggest separate stocks, but there are sufficient differences to warrant separate management measures.

A female TAC penalty reduces the TAC by 50% from computed values in the first year that the stock is above threshold after having been below threshold. This penalty is a precautionary measure to 1) buffer against the effect of erroneously determining the stock to be above threshold due to random survey error, and 2) protect against a high harvest rate on preferred-sized legal males that could occur due to the lag in maturation of males behind females. It is possible that the ratio of preferred-sized legal male crab to mature male crab is likely to be low in the first year that the stock is above the female threshold. The provision protects against such conditions.

The CPT discussed how the harvest strategy switches between elements that apply at the district level and those that apply at the area level. An analysis that examines how these elements interact would be informative. The State harvest strategy is intended to be precautionary for Tanner crab because of its extremely volatile abundance trends, but since the strategy is multifaceted it is difficult to make an overall evaluation of the risks involved when applying the strategy. The CPT discussed the history of the harvest strategy and how it evolved through the changes in abundance and the concurrent Federal status determination and rebuilding efforts.

ADF&G has computed thresholds using the model outputs in addition to the area swept estimates for analysis. The State is open to considering how to use model outputs in the future; however, this impacts how the model output interacts with the threshold and needs further consideration. The model smooths out the survey data over time to reduce the effects of observation error. The CPT discussed the utility of further aligning the stock assessment model and Federal status determination criteria with the harvest strategy elements.

The CPT was interested in the State identifying why the model is not used and whether there are ways to improve the stock assessment model so that it can be used in the harvest strategy. The CPT noted that during the process to establish ACLs, the State had agreed to annually update the CPT on the TAC setting. This includes understanding how uncertainty and crab biology parameters feed into both the harvest strategy and the stock assessment model. The goal is to provide transparency and improve how these two processes work together.