


MEMORANDUM

TO: Council, SSC and AP Members

FROM: Chris Oliver   
Executive Director

DATE: September 30, 2010

SUBJECT: BSAI Crab ACLs and Snow Crab Rebuilding Plan

ESTIMATED TIME 6 HOURS
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**ACTION REQUIRED**

Final action on amendment to establish BSAI crab ACLs and revise snow crab rebuilding plan.

**BACKGROUND**

At this meeting, the Council will take final action on an analysis of amendments to address BSAI Crab ACLs and the snow crab rebuilding plan. The executive summary of the ACL and snow crab rebuilding analysis is attached as Item C-3(1). The Council took preliminary review of this analysis in April 2010 and all recommendations from the SSC and Council were then included in the initial review draft. The Council subsequently took initial review on this analysis in June 2010. Further information on the Council's action and subsequent revisions to the analysis are highlighted below. The revised analysis was mailed to you on September 14<sup>th</sup>. Several additional documents are included here that either revise sections of the draft or provide additional information to assist the Council in their decision-making at this meeting.

The environmental assessment evaluates two actions to amend the BSAI Crab FMP.

Action 1: to amend the FMP to specify the method by which the Council will establish annual catch limits (ACLs) to meet the requirements of the revised Magnuson-Stevens Act. These ACLs are to be established based upon an acceptable biological catch (ABC) control rule which will be set forth in the FMP and will account for the uncertainty in the overfishing limit (OFL) point estimate. Two alternative means of establishing the ABC control rule are considered: 1) a constant buffer approach where the ABC for each stock would be set by application of a constant pre-specified buffer value below the OFL; and 2) a variable buffer approach where the ABC would be established based upon a pre-specified percentile of the distribution for the OFL which accounts for scientific uncertainty regarding the OFL. A range of constant buffers and probabilities are considered under each alternative approach.

Action 2: to prepare and implement an amended plan to rebuild the snow crab stock in compliance with the Magnuson-Stevens Act. Snow crab mature male biomass (MMB) was below  $B_{MSY}$  in 2008/09 and preliminary analysis indicates that it remained below  $B_{MSY}$  in 2009/10, the last year of the ten-year rebuilding period specified in the FMP. Therefore, this stock did not rebuild within the rebuilding period. This action is necessary to meet the requirement under section 304(e)(4) of the Magnuson-Stevens Act, which is to rebuild the stock in as short a time as possible while accounting for the needs of fishing communities and the status and biology of the snow crab stock. A range of alternative time frames are considered for rebuilding the stock.

The Council took initial review of the combined analysis in June 2010. With respect to Action 1, the Council indicated that its preliminary preferred alternative (PPA) was Alternative 1-Status quo (No ABC Control Rule). The Council requested that staff amplify the discussion of the MSA and NSI guidelines requirements and specifically where and how status quo addresses them. The analysis has been extensively revised to provide this information. This section is attached as Item C-3(2). Additional information to assist the Council in selecting their preferred alternative (PA) is included in the executive summary as well as section 2.3.5 of the analysis. The Council requested that staff also provide clarification at this meeting on the differential treatment of uncertainty in the ABC control rule under the groundfish tier system compared with the proposed treatment of uncertainty in the ABC control rule under the crab tier system. This has also been included in the document and will be further clarified in presentation by staff at the meeting. Some of the economic tables and figures contained errors (primarily in labelling of axes or captions). An economic errata document with strike-out notation on errors is attached as Item C-3(3). Further corrections and clarifications on three tables within the document are attached as Item C-3(4). As noted in Section 2.3.1.4 of the document, the distributions for some Tier 4 stocks (in particular Tanner crab and Pribilof red king crab) are not symmetric but are rather skewed to the right (lognormal distribution). This affects the calculation of the OFL depending on whether the mean or the median is employed. The mean is equal to the median for normal (non-skewed) distributions but is lower for such skewed distributions. Tables summarizing the difference in results (as presented in Chapter 2 of the analysis) for using both the mean and the median are attached as Item C-3(5). Finally, additional information provided by the State for documentation of the examples referenced under section 2.1.1.1 (TAC-setting considerations) is attached as Item C-3(6).

Action 2: The Council took initial review of the snow crab rebuilding plan (Action 2 of this combined analysis) in June 2010 in conjunction with the ACL analysis. For this rebuilding plan, the suite of alternatives are specified as year-end dates when the stock would be rebuilt and the associated probability of rebuilding by that end date. While the Council did not select a PPA for the rebuilding plan in June, it did indicate that the option to consider the stock rebuilt the first year the MMB is above the estimated  $B_{MSY}$  would be its preferred choice for the rebuilt definition. The current rebuilt definition dates back to the original rebuilding plan and considers the stock rebuilt the second consecutive year that estimated MMB is above  $B_{MSY}$ . The table below shows the alternative, the relative probability of rebuilding, year-end date in crab fishing year for rebuilding (one year above  $B_{MSY}$  definition), and resulting buffer value necessary to rebuild in this time frame for each alternative and option. The options described below are applied to each alternative to increase the probability of rebuilding by the selected  $T_{TARGET}$  date.

Alternative	Probability of rebuilding	$T_{TARGET}$ year-ending date	Buffer value of $F_{OFL}$ <sup>1</sup>
Alternative 1 (no action)	0.646 (50% probability)	2014/15	25%
Alternative 2 ( $T_{MIN}$ )	0.508 (50% probability)	2012/13	100%
Alternative 3	0.500 (50% probability)	2013/14	58%
Alternative 3-Option 2	0.751 (75% probability)	2013/14	85%
Alternative 3-Option 3	0.910 (90% probability)	2013/14	97%
Alternative 4 ( $T_{END}$ )	0.646 (50% probability)	2014/15	25%
Alternative 4-Option 2	0.756 (75% probability)	2014/15	53%
Alternative 4-Option 3	0.910 (90% probability)	2014/15	78%
Alternative 4-Option 1	0.864 (70% probability)	2019/20	25%

<sup>1</sup> This buffer value will vary annually to remain on the trajectory for rebuilding by the target date (and target probability level).

For all options, the values for the probability of rebuilding for each year of the rebuilding period and the associated rebuild fishing mortality rate would be calculated annually using the best assessment of the EBS snow crab stock, as recommended by the SSC. The CPT, SSC, and Council will annually review progress towards rebuilding and recommend annual adjustments to the fishing mortality rates on which management decisions are based consistent with the intent of the chosen alternative and progress towards rebuilding. If rebuilding to the proxy for  $B_{MSY}$  does not occur by  $T_{end}$ , then the maximum  $F$  will be the *rebuilding*  $F_1$ , the  $F$  of the final year, or 75% of  $F_{OFL}$ , whichever is lower, until a new rebuilding plan is developed. Section 4.2.2.5 "Community-level economic impacts of rebuilding" which was not included in the public review draft is attached as Item C-3(7). Corrected economic impacts tables for the snow crab rebuilding alternatives are attached as Item C-3(8). Final action on the snow crab rebuilding plan is scheduled for this meeting.

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