

MEMORANDUM

TO: Council, SSC, and AP Members

FROM: Chris Oliver *CO*
Executive Director

ESTIMATED TIME
2 HOURS

DATE: May 30, 2003

SUBJECT: Crab Management

ACTION REQUIRED

Initial review of Pribilof blue king crab rebuilding plan (Crab FMP Amendment 17).

BACKGROUND

On September 25, 2002, NMFS informed the Council that the Pribilof Islands blue king crab is overfished according to the criteria in the Fishery Management Plan for the Bering Sea/Aleutian Islands King and Tanner Crab (FMP). The recent stock assessment showed that the stock was below minimum stock size threshold (MSST), and there were no signs of recovery in the trawl survey data. This fishery has been closed since 1999, and the Pribilof red king crab fishery has also been closed to eliminate the bycatch of blue king crab. The stock has also been protected from potential trawling effects since 1994 by the Pribilof Islands habitat conservation area. The Council is required to prepare and submit a rebuilding plan for this crab stock within one year, i.e., by September 25, 2003.

An environmental assessment was prepared to evaluate alternatives for rebuilding the Pribilof Islands blue king crab stock. Alternative approaches to harvest strategies for Pribilof blue king crab were analyzed as rebuilding plans. Three alternative rebuilding strategies were examined: Alternative 1, the status quo management of this fishery; Alternative 2, a rebuilding plan which allows for some directed harvest prior to the stock being rebuilt; and Alternative 3, a rebuilding plan which allows for no directed harvest prior to the stock being rebuilt. Options under each alternative include a range of thresholds for opening the fishery, a range of harvest strategies for the directed fishery, and conservative time periods above the designated threshold for opening the fishery. No additional habitat or bycatch measures are proposed in any of the alternatives because neither habitat nor bycatch measures were expected to have a measurable impact in rebuilding.

An executive summary of the analysis is attached as Item D-2(a). The full analysis was sent to you on May 21. Initial review is scheduled for this meeting, with final action scheduled for October.

In addition to preparing the rebuilding plan as outlined above, the Crab Plan Team is concurrently examining the adequacy of the existing MSST for this stock. A progress report on this work will be presented at this meeting. A formal report by the Crab Plan Team on the reevaluation of the MSSTs for all managed crab stocks will be presented at the October Council meeting.

Executive Summary

The spawning biomass of the Pribilof Island blue king crab stock has been declining since reaching its most recent peak in 1995. In 2001 the spawning biomass (7.0 million pounds) was just above its MSST (6.6 million pounds). Abundance continued to decline into 2002, resulting in a spawning biomass value (4.5 million pounds) that falls below the MSST established for this stock (6.6 million pounds). On September 25, 2002, NMFS informed the Council that the stock was declared overfished. According to regulations under the Magnuson Stevens Act a rebuilding plan must be developed within one year.

This environmental analysis addresses alternatives for rebuilding the Pribilof Islands blue king crab stock. Alternative approaches to harvest strategies, including status quo management, for Pribilof blue king crab were analyzed as rebuilding plans. Three alternative rebuilding strategies are examined: Alternative 1, the status quo management of this fishery; Alternative 2, a rebuilding plan which allows for some directed harvest prior to the stock being rebuilt; and Alternative 3, a rebuilding plan which allows for no directed harvest prior to the stock being rebuilt. Options under each alternative include a range of thresholds for opening the fishery, a range of harvest strategies for the directed fishery, and conservative time periods above the designated threshold for opening the fishery. No additional habitat or bycatch measures are proposed in any of the alternatives because neither habitat nor bycatch measures were expected to have a measurable impact in rebuilding. Habitat is thoroughly protected from fishing impacts by the existing Pribilof Islands Habitat Conservation Zone. Bycatch of blue king crab in both crab and groundfish fisheries is an extremely small proportion of the total population abundance. At least two options for each alternative were proposed and examined.

The three alternatives are:

Alternative 1: Status Quo Management of the fishery.

Two options, 1.A and 1.B:

- Alternative 1.A:
 - 1) Threshold: 0.77-million males \geq 120-mm CL
 - 2) Opens: in 1st year stock is above threshold
 - 3) Harvest rate on mature males: 20% of survey estimate
 - 4) Cap on harvest of legal males: 60% of survey estimate
 - 5) Minimum GHL: 0.5 million pounds

- Alternative 1.B:
 - 1) Threshold: 1.00-million males \geq 120-mm CL
 - 2) Opens: in 2nd consecutive year stock is above threshold
 - 3) Harvest rate on mature males: 10% of survey estimate
 - 4) Cap on harvest of legal males: 20% of survey estimate
 - 5) Minimum GHL: 0.5 million pounds

Alternative 1.A is the harvest strategy for Pribilof blue king crab developed by ADF&G in 1990 and described by Pengilly and Schmidt (1995). Actual management of the Pribilof blue king crab stock since development of the harvest strategy for Pribilof blue king crab has been more conservative than Alternative 1.A (see Section 2.2.2), however. Accordingly, Alternative 1.B was also examined as an alternative that more closely reflects the more conservative "status quo management in practice."

Alternative 2: A Rebuilding Plan with Some Directed Harvest Prior to the Stock Being Rebuilt

Four options, 2.A to 2.D are:

- Alternative 2.A
 - 1) Threshold: MSST (6.6-million pounds spawning biomass)
 - 2) Opens: in 1st year stock is above MSST
 - 3) Harvest rate on mature males: 10% of survey estimate at MSST, increases linearly with survey estimate of spawning biomass (or proxy thereof) to 20% at B_{MSY}
 - 4) Cap on harvest of legal males: 40% of survey estimate
 - 5) Minimum GHL: 0.5 million pounds

- Alternative 2.B
 - 1) Threshold: MSST
 - 2) Opens: in 2nd consecutive year stock is above MSST (6.6-million pounds spawning biomass)
 - 3) Harvest rate on mature males: 5% of survey estimate at MSST, increases linearly with survey estimate of spawning biomass (or proxy thereof) to 10% at B_{MSY}
 - 4) Cap on harvest of legal males: 20% of survey estimate
 - 5) Minimum GHL: 0.5 million pounds

- Alternative 2.C
 - 1) Threshold: 7.5-million pounds of males ≥ 120 -mm CL and females ≥ 100 -mm CL
 - 2) Opens: in 2nd consecutive year stock is above threshold
 - 3) Harvest rate on mature males: 10% of model estimate at threshold, increases linearly with the estimates of total mature biomass to 20% at 25-million pounds of males ≥ 120 -mm CL and females ≥ 100 -mm CL
 - 4) Cap on harvest of legal males: 30%
 - 5) Minimum GHL: 0.5 million pounds

- Alternative 2.D
 - 1) Threshold: 7.5 million pounds of males ≥ 120 -mm CL and females ≥ 100 -mm CL
 - 2) Opens: in 2nd year stock is above threshold
 - 3) Harvest rate on mature males: 10% of model estimate at threshold, increases linearly with the estimates of total mature biomass to 15% at 25-million pounds of males ≥ 120 -mm CL and females ≥ 100 -mm CL
 - 4) Cap on harvest of legal males: 30%
 - 5) Minimum GHL: 0.5 million pounds

Alternatives 2.A and 2.B allow for directed harvest when the stock is above the MSST overfished level, 6.6-million pounds of spawning biomass (total mature male and female biomass). Alternative 2.B is more conservative than Alternative 2.A, however, with stricter criteria for a fishery opening, and lower harvest rates when the fishery opens. Alternatives 2.C and 2.D have a higher stock threshold than MSST: 7.5-million pounds of males ≥ 120 -mm CL and females ≥ 100 -mm CL. Alternative 2.C and 2.D differ from each other in the harvest rate applied to mature male abundance, with Alternative 2.D having the lower harvest rate.

Alternative 3: A Rebuilding Plan with No Directed Harvest Prior to the Stock Being Rebuilt

Two options, 3.A and 3.B:

- Alternative 3.A
 - 1) Threshold: B_{MSY} (13.2-million pounds of spawning biomass)
 - 2) Opens: in 1st year stock is above B_{MSY}
 - 3) Harvest rate on mature males: 20% of survey estimate
 - 4) Cap on harvest of legal males: 40% of survey estimate
 - 5) Minimum GHL: 0.5 million pounds

- Alternative 3.B
 - 1) Threshold: B_{MSY} (13.2-million pounds of spawning biomass)
 - 2) Opens: in 2nd year stock is above B_{MSY}
 - 3) Harvest rate on mature males: 10% of survey estimate
 - 4) Cap on harvest of legal males: 20% of survey estimate
 - 5) Minimum GHL: 0.5 million pounds

Alternative 3 allows for no fishery on the Pribilof blue king crab stock until the stock level returns to the B_{MSY} level, defined as 13.2-million pounds of spawning biomass in the FMP. Two options are examined. Option 3.B is the more conservative of the two options, with a stricter criteria for a fishery reopening and a lower harvest rate when the fishery reopens.

The alternatives and options for alternatives differ from each other in: (1) the stock threshold criteria for opening the fishery; (2) the harvest rate applied to what are considered mature males for management purposes (i.e., males ≥ 120 -mm carapace length, CL); and (3) the maximum allowed harvest rates on legal-sized males (6.5-inches carapace width, corresponding to approximately 135-mm CL). Threshold criteria differ among alternatives and options for alternatives in the stock level defined as threshold and in the number of consecutive years that the stock is above threshold. Some options require that the stock be above threshold for two consecutive years before a fishery opening; that criteria is intended to provide greater assurance that the stock is above threshold before reopening the fishery. In each alternative and option for each alternative a minimum GHL of 0.5 million pounds is used as a measure to promote manageability of the fishery.

The minimum time period for rebuilding with a 50% probability is 9 years (T_{min}) and the maximum time period is 10 years (T_{max}). Alternatives 1A and 2A provided for the highest possible mean annual yield in a 10, 20 and 35 year time horizon. However, these alternatives also had a much higher proportion of potential years with the stock below MSST for the same time horizon. Alternatives 1B, 2B, 2C and 2D provide the shortest timeframe for rebuilding with the lowest corresponding proportion of years with the stock below MSST, coupled with a relatively high mean annual yield. Those alternatives are all strong candidates for the preferred option and each provides for some directed harvest prior to the stock being rebuilt which may alleviate some of the financial burden on the affected communities.

None of the alternatives are likely to significantly affect the quality of the human environment, and the preparation of an environmental impact statement for the proposed action is not required by Section 102(2)(C) of the National Environmental Policy Act or its implementing regulations. The rebuilding plan does not contain implementing regulations so a regulatory impact review under E.O. 12866 and initial regulatory flexibility analysis under the Regulatory Flexibility Act are not required.

PUBLIC TESTIMONY SIGN-UP SHEET FOR

AGENDA ITEM D-2 CRAB Mgmt.

PLEASE SIGN ON THE NEXT BLANK LINE.
LINES LEFT BLANK WILL BE DELETED.

	NAME	AFFILIATION
1.	John Kelly	CITY OF UNALASKA
2.	Armi Thomson	ACC
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		
21.		
22.		
23.		
24.		
25.		