MEMORANDUM

TO: Council, SSC and AP Members

FROM: Chris Oliver
Executive Director

ESTIMATED TIME
2 HOURS

DATE: September 30, 2003

SUBJECT: Crab Management

ACTION REQUIRED

(a) Take final Action on Pribilof Islands Blue King Crab Rebuilding Plan.
(b) Receive report from Crab Plan Team, approve revised Terms of Reference, and approve SAFE.

BACKGROUND

Pribilof Islands blue king crab rebuilding plan:

The Pribilof Islands blue king crab stock was declared overfished on September 25, 2002 according to the criteria in the BSAI crab FMP. The biomass was below the MSST for this stock and there were no signs of recovery in the trawl survey data. A workgroup comprised of ADF&G, NMFS and Council staff prepared an EA of proposed alternative rebuilding plans. The draft analysis was presented to the Council for initial review at the June 2003 meeting. At that time the Council selected alternative 2D as their preliminary preferred alternative to forward to the Board of Fisheries for their October review. The revised public review draft was released in August. The executive summary of the EA (amendment 17 to the FMP) is attached as Item D-2(a). The full analysis was mailed to you on August 21, 2003. The Crab Plan Team reviewed the draft at their September 2003 meeting. Due to concerns regarding the stock's vulnerability to overfishing, the poor precision of survey estimates, and the limited bycatch information available for this stock, the Plan Team recommended alternative 3B as the preferred harvest strategy. The Board of Fisheries will review the rebuilding plan and select its preferred harvest strategy on October 4th. Staff will present an update on the Board of Fisheries decision. The Council must approve the rebuilding plan at this meeting in order to meet the timeline under the MSA for the development of a rebuilding plan for an overfished stock.

Crab Plan Team and Stock Assessment and Fishery Evaluation Report:

The Crab Plan Team met September 22-24, 2003, to review the status of stocks and to compile the annual Stock Assessment and Fishery Evaluation (SAFE) report. The SAFE report was mailed to you on September 29th, 2003. Minutes of the Crab Plan Team meeting are attached as Item D-2(b). The Crab Plan Team amended their Terms of Reference to allow for at least one additional annual meeting of the plan team in the spring, and to allow for the Team to review the status of stocks prior to the state's GHL determinations. The revised Terms of Reference are attached as Item D-2 (c) and the related changes to the meetings are summarized in the minutes. The Crab Plan Team also proposes to amend the overfishing definitions as currently defined in amendment 7 to the BSAI crab FMP. The rationale for the need to revise these definitions as well as a proposed workgroup and draft schedule for analysis are summarized in the attached Crab Plan Team minutes.

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, 1A and 1B:

- Alternative 1A:

1) Threshold: 0.77-million males ≥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 1B:

1) Threshold: 1.00-million males ≥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 1A 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 (see Section 2.2.2), however. Accordingly, Alternative 1B 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, 2A to 2D are:

- Alternative 2A

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 2B

1) Threshold: MSST (6.6-million pounds spawning biomass)
2) Opens: in 2nd consecutive year stock is above MSST
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 2C

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 2D

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

Alternative 3: A Rebuilding Plan with No Directed Harvest Prior to the Stock Being Rebuilt
Two options, 3A and 3B:

- Alternative 3A

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 3B

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 3B 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. By comparison, Alternatives 1B, 2B, 2C, and 2D provide shorter timeframes for rebuilding and lower proportions of years with the stock below MSST. Alternative 3B also has a short rebuilding time and low proportion of years below MSST, but Alternative 3B shows some reduction in yield relative to Alternatives 1B, 2B, 2C, and 2D. Given their short timeframes for rebuilding and low proportions of years below MSST coupled with relatively high mean yields Alternatives 1B, 2B, 2C, and 2D are strong candidates for the preferred option. 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.

DRAFT BSAI King and Tanner Crab Plan Team minutes
September 22-24, 2003

Members present:
Doug Pengilly (ADFG, chair)
Gretchen Harrington(NMFS)
Bob Otto(NMFS)
Forrest Bowers(ADFG)
Wayne Donaldson (ADFG)
Diana Stram (NPFMC)
Lou Rugolo (NMFS)
Tom Shirley (UAF)
Jack Turnock (NMFS)
Shareef Sideek (ADFG)

Members absent: Herman Savikko (ADFG), Joshua Greenberg (UAF)

Additional personnel attending: Jeff Stephens, Linda Kozac, John Boggs, Heather Brandon (UW student), Denby Lloyd, Doug Woodby, Jie Zheng, Steve Davis, Tom Casey (phone)

The Crab Plan Team meeting was convened at 1pm Monday September 22 at the Alaska Fisheries Research Center, Kodiak. The Bering Sea/Aleutian Islands(BSAI) Crab Plan Team meeting was convened at 1pm Monday, September 22 at the Alaska Fisheries Research Center, Kodiak.

The following agenda was approved for the meeting:

Review Plan Team Terms of Reference
Assemble SAFE and review GHLs
Review Pribilof Island blue king crab rebuilding plan
Review current overfishing definitions
Any additional business

Plan Team Terms of Reference:

The Plan Team reviewed their existing Terms of Reference and discussed the role of the Plan Team in the status of stocks process as well as the necessity for additional plan team meetings. Discussion focused upon the timing of plan team meetings with respect to the stock assessment process. Team members expressed the need for the team to play a more timely role in the stock assessment/status of stocks process. In recent years the plan team's primary role has been to address issues and analyses as tasked by the Council. Given the nature of the deferred state management under the Crab FMP, as well as the timing of GHL determinations, the plan team has not previously taken as large a role in the stock assessment and status of stocks determination as do the groundfish plan teams. The team discussed the fact that the terms of reference do not seem to limit the plan team from having a larger role in this process provided that this is in addition to the

currently tasked work of the plan team. The plan team came to the consensus that at least two regularly scheduled meetings per year would be necessary to adequately address both the status of stocks on an annual basis as well as the normal duties of the plan team work as assigned by the Council (e.g amendments to the FMP and any additional analyses and proposals as they come up). The team agreed that an additional meeting held in the spring of each year would provide for an opportunity to discuss the results of the year's fishery, preliminary stock assessment, assessment methodologies and any additional issues prior to the summer research surveys. In this way, the spring meeting would serve much the same role as with the BSAI and GOA groundfish plan teams' September meetings. The second plan team meeting would then be timed to occur prior to the State's GHL determinations, i.e., generally mid-August. This meeting would focus upon the status of stocks as well as any additional work undergone by the plan team.

It was the consensus of the plan team that adding an additional meeting as well as changing the timing of the fall meeting would allow for more timely status of stocks discussion by the plan team. Currently these issues are discussed at the plan team meeting in September, which generally occurs after the state has made it's GHL determination for all of the crab stocks. It is understood by the plan team that this would not preempt the normal inter-agency consultation process in determining the status of stocks prior to GHL determinations, rather it would allow for an additional advisory body forum, open to the public, to review the status of stocks in a more timely fashion. The plan team is aware that this would increase some of the workload on the team as this status of stocks review work would be in addition to the role already assumed by the plan team under their existing terms of reference. The SAFE report would still be compiled by the Plan Team, but would not be released immediately following the August meeting. Instead, by continuing to produce the report in time for the October Council meeting, there would be additional review time by the Plan Team and authors prior to its' release. The current time frame for compiling the SAFE report does not allow for any additional discussion or review of the report following the Plan Team meeting. The team discussed the practicality of an August meeting prior to determinations of fishery GHLs, some of which must necessarily be announced in mid-August. With regard to an August meeting to review stock status, the team discussed the issues of: 1) timing of availability of summer survey data; 2) time available for data analyses after the data becomes available, distribution of analyses to team members, and pre-meeting review of analyses; and 3) the need to provide 21 days of public notice for the meeting relative to the uncertainties of timing of data availability and the time requirements for analyses and review of analyses. Those issues may not make it practical to expect that the August meeting can be held prior to the determination of GHLs for all stocks in all years. Hence the team included the qualifier "in so far as is practicable" in describing the intended meeting schedule in the revised terms of reference. The team also discussed the additional need meet possibly via teleconference after the August meeting to review GHLs after they had been announced and to finalize the SAFE.

The plan team revised their terms of reference in accordance with these decisions. The revised terms of reference are attached. The changes are contained in Section 3: Organization, part b) Meetings. The revised text now reads (changes shown in bold):

(b) Meetings. A **minimum of two** Plan Team meetings will be held **annually in so far as practicable** to discuss guideline harvest levels, status and management of the BSAI crab stocks. **The timing and scope of meetings, in so far as practicable, will be as follows; a spring meeting will be held with the intention of reviewing the previous year's fishery catch data, the methodology for stock assessment modeling, preliminary stock assessment and any additional issues pertinent to the summer research schedule. A following summer/fall meeting will be held with the intention to discuss the status of stocks. This meeting would be intended to occur prior to the GHL determinations by the state. It is understood that this status of stocks meeting does not preclude additional Inter-agency meetings prior to GHL setting.** The Plan Team chairperson may call other meetings as necessary. The Crab Plan Team may meet

separately or jointly with the BSAI Groundfish Plan Team to discuss areas of joint concern. A draft agenda will be prepared in advance of each meeting by the Council staff in consultation with the chairperson, and may be revised by the Plan Team during the meeting. Minutes of each meeting will be prepared by the Council staff, distributed to Plan Team members, and revised as necessary at or before the subsequent Plan Team meeting. The Chairperson (or designee) will report the Team's finding to the Council.

The Plan Team further agreed to reassess this new system and timing of the two Plan Team meetings after one year to determine if the meetings meet the intentions expressed during the Plan Team meetings.

Stock Assessment Fishery Evaluation Report

The Crab SAFE report was compiled at the meeting. There was discussion of ways to improve the report in the future, including analyses for stocks under rebuilding plans that would show the percent recovery over time with respect to the projected recovery in the rebuilding plan. Additional information and analyses to each stock assessment could also improve the report. In as much as possible the team will strive to add such additional analyses and information presentation as staff time allows.

Review of GHLs

Wayne Donaldson reviewed the state GHL determinations for the following stocks: Pribilof red king crab, Pribilof blue king crab, St. Matthew blue king crab, snow crabs. Forrest Bowers updated the team on the GHL determinations for Bering Sea Tanner crabs and Bristol Bay red king crab. Of those stocks, fisheries will be prosecuted only for snow crab and Bristol Bay red king crab in the upcoming season; fisheries on the other stocks are closed. The information ADF&G used to base GHL determinations on is in the 2003 SAFE.

Pribilof Island blue king crab rebuilding plan

Doug Pengilly presented an overview of the Pribilof Island blue king crab rebuilding plan, amendment 17 to the BSAI crab FMP. The Council mailed the public review draft of the EA accompanying this amendment in late August. Given the compressed timeline for this amendment, this was the first opportunity for a full Plan Team review of the document, though individual plan team members were involved in writing and reviewing the draft. There was some discussion of the model methodology utilized in the analysis of alternative rebuilding plans, specifically the choice of M = 0.3 in the model. It was suggested that in the future there should be a related discussion of the sensitivity of M to model results, the necessity of utilizing biologically relevant life history parameters, and the selectivity and probability of rebuilding. There was discussion regarding the B_{MSY} and MSST used in the model, which are different from the FMP, and how these modeled values compare to those defined in the FMP. Jie Zheng explained that given the truncated age class modeled in the analysis, a lower MSST and B_{MSY} value were used to approximate the rebuilding population level had the entire population been simulated. There was discussion regarding the modeling of recruitment for this stock(cyclic versus random) and how sensitive the stock recovery is to the recruitment pattern.

Given concerns regarding the vulnerability of this stock to overfishing, the poor precision of survey estimates, poor estimates of recruitment and the exceedingly limited bycatch information available for this stock, the only option the Crab Plan Team had consensus on choosing was alternative 3B. This is the most conservative alternative examined, whereby there is no fishing until the stock has completely recovered, and the threshold for opening is such that the fishery is not opened until the second year that the stock is above B_{MSY}. The Crab Plan Team discussed the other alternatives, particularly alternative 2D which was identified by the Council in June as being their preliminary preferred alternative. However, in discussing threshold and harvest rates

the team's consensus was that the fishery should not be opened until the second year over the chosen threshold, that the threshold should not be less than 10 million lbs, and that the harvest rate selected should be less than 15%. Alternative 2D approaches a 15% harvest rate, and there were concerns that this would be too aggressive a harvest strategy for this vulnerable stock.

Dr. Robert Otto also presented Pribilof Islands blue king crab distribution information from the NMFS trawl survey, which indicates that the distribution of blue crab has changed in recent years following changes in water temperature. The water temperature in traditional areas of blue king crab habitat has increased, causing blue crab to move into pockets of colder water. This may inhibit rebuilding because these new cold water areas do not have the habitat characteristics blue crab are known to depend on, such as shell hash and rocky substrate. This information indicates a conservative rebuilding harvest strategy is warranted.

Review of overfishing definitions

The plan team reviewed the current overfishing definitions in the FMP for BSAI king and Tanner crab stocks. The current overfishing definitions were adopted under Amendment 7 as proposed by the Crab Plan Team and adopted by the council in 1998. During the development of Amendment 7 the plan team recommended that the overfishing definitions be reviewed five years after the adoption of Amendment 7.

Robert Otto presented a review of the current overfished/overfishing definitions. The 22 king and Tanner crab stocks managed under the FMP were classified into 3 tiers according to level of data availability: Tier 1 – unsurveyed stocks with minimal history of effort and harvest; Tier 2 – stocks with sporadic or limited years of survey data, but well documented history of catch and effort; Tier 3 – stocks with annual survey data, well documented history of catch and effort, and information pertaining to productivity parameters. Otto's presentation focused on definitions for the stocks classified as Tier 3. Those are the six stocks that are annually surveyed by the NMFS EBS trawl survey: Bristol Bay red king crab, Pribilof red king crab, St. Matthew blue king crab, Pribilof blue king crab, eastern Bering Sea Tanner crab, and eastern Bering Sea snow crab.

For the Tier 3 stocks, the MSY control rule, the maximum fishing mortality threshold, B_{MSY}, the minimum stock size threshold (MSST), and MSY were defined as functions of survey estimates of total (male and female) mature biomass (TMB), and a fishing mortality rate (F) set equal to an estimate of the natural mortality rate (set at M=0.2 for all species of king crab and M=0.3 for all *Chionoecetes* species).

The MSY control rule is

$$SY = TMB*F.$$

This MSY control rule was defined as Baranov's catch equation applied to TMB under the assumption that TMB estimated at the time of survey is the average TMB available for the year and because size, sex, and fishing season dates are optimum yield choices that can vary from stock to stock.

The maximum fishing mortality threshold is defined by the MSY control rule.
B_{MSY} for a stock is defined as the average annual estimated TMB for the 15-year period, 1983-1997.

MSST for a stock is defined as one-half of B_{MSY}.
MSY for a stock is defined as the average of the annually computed SY over the 15-year period, 1983-1997.

Alternative procedures for determining overfished/overfishing definitions were presented by Shareef Siddeek and Jack Turnock. Siddeek presented methods for estimating overfishing harvest rate thresholds, target harvest rates, and minimum spawning stock thresholds using a size-based, per- recruit simulation method. Turnock presented a method for annually determining MSST and overfishing rates in the context of a stock assessment model.

After discussion, the plan team concluded with consensus that an analysis of a new FMP amendment revising the current overfished/overfishing definitions was warranted. The team agreed that the present definitions in the FMP did not provide clear guidance for determining if overfishing is occurring or for developing harvest strategies that avoid overfishing. The MSY control rule was defined to allow for a range of possible OY choices that have not been made and are not likely to be made in the future. Sex and size limit restrictions for harvesting are applied to the fisheries for all FMP stocks and there are seasonal harvest restrictions for most stocks, including each of the six Tier 3 stocks. The MSY control rule and the maximum fishing mortality threshold as defined do not reflect those realities of crab fishery management. State harvest strategies are developed to control the harvest of the exploited portion of the stock; however, under the maximum fishing mortality threshold as defined, harvest strategies could be developed without such controls that would clearly result in overfishing while not exceeding the maximum fishing mortality threshold. Moreover, the work by plan team members in the years since adoption of Amendment 7 indicate the need to evaluate alternatives to the current practice of estimating F_{MSY} by setting equal to an estimate of M.

Given those considerations, the method for estimating B_{MSY} and MSST under Amendment 7 deserves review. Additionally, under Amendment 7 the overfished/overfishing definitions are fixed numbers that do not allow for inclusion of any new information. Work by plan team members since adoption of Amendment 7 indicate that overfished/overfishing definitions defined as a frameworked method, rather than a fixed number, need to be analyzed.

A work group was formed by the plan team to lead the analysis of a new FMP amendment to revise the overfished/overfishing definitions. The work group consists of three plan team members, Lou Rugolo, Jack Turnock, and Shareef Siddeek, and Jie Zheng of ADF&G. This workgroup plans to convene its' first meeting within the next two months and at that time they will draft preliminary alternatives for analysis as well as a detailed schedule and workplan for the FMP amendment. Preliminary guidance for the workgroup was provided by the Crab Plan Team and is attached to the minutes (see Attachment, "Draft Guidance to Workgroup"). This draft guidance also includes a preliminary schedule for analysis and presentation to the Crab Plan Team and Council. The team noted that the workgroup may also examine and offer advice on other issues related to overfishing and stock status in addition to the overfished/overfishing definitions; for example, determination of rebuilding timeframes. The Plan Team targets having an EA and overfishing/overfished amendment for Council initial review in June 2005.

Additional Items

The plan team discussed the lack of current genetic research being conducted and the need for emphasis in genetic research priorities. Tom Shirley noted that the CPT would benefit from CPT membership for a geneticist.

The meeting adjourned at 3pm on Wednesday September 24, 2003.

9/26/03 Draft guidance to working group on examining/revising BSAI crab FMP amendment 7 (overfishing definitions):

1- Workproduct:

- Overall product is an amendment to the FMP (amendment 18) which proposes to revise the overfishing definitions specified in amendment 7 to the BSAI crab FMP. Along with the amendment is an EA which analyzes the impact of the proposed preferred alternative in the amendment as well as a range of reasonable alternatives.
- The EA will include an analysis of the current overfishing definitions (specified in amendment 7) and their application under the FMP. This is the status quo management process and is one alternative under consideration in the EA (to retain the existing definitions).
- The EA will also consider a range of alternatives to status quo. There is no set number of alternatives that must be considered, but a "reasonable" range must be considered
- Alternatives should not be limited to only biomass-based MSY definitions. The range of alternatives should be broad enough to evaluate other methodologies for measuring overfishing and establishing biological reference points for indicators of stock status.

2- Additional ideas for consideration

- Frameworked methodologies rather than absolute numbers should be examined whenever possible to allow for greater flexibility for incorporation of the most recent scientific information on an annual basis(without constantly amending the FMP)
- Sensitivity analysis should be included when analyzing reference points. E.g., the 'robustness' of 'optimum' in relation to the assumptions etc.
- An examination of the distinction between 'target' and 'threshold or limit' reference points
- Be mindful of information availability versus seasons and dates that are included within the frameworks

3- Planning guidance for workgroup

- Stay current with National Standards review re: timing, findings, etc.
- Review SSC comments from March 2000 Council meeting(opilio rebuilding plan guidance)
- Keep Crab Plan Team members informed regularly of workgroup meetings and progress (progress reports and minutes as much as possible of workgroup meetings)
- Council, state and agency staff will assist the workgroup as necessary. Council staff will be available for workgroup meetings as much as possible.
- Written reports should be submitted to the CPT members at least 2 weeks prior to a meeting to insure that everyone has adequate review time
- The draft work schedule/timeline is as follows:
    - 1st meeting of workgroup Oct/Nov 2003 (schedule for workgroup, internal timelines)

- Progress report to CPT Sept 2004(verbal update at the proposed May 2004 meeting as well as regular updates as necessary in writing to CPT)
- Crab PT review of workgroup draft (includes amendment and EA for the amendment) January 2005
- Initial review by Council June 2005
- Final action by Council October 2005

AGENDA D-2(c)
OCTOBER 2003

PLAN TEAM FOR THE KING AND TANNER CRAB FISHERIES
OF THE BERING SEA/ALEUTIAN ISLANDS

TERMS OF REFERENCE
(as revised by the Plan Team 9/24/03, changes from 12/95 draft are in **bold**)

1. Establishment. The North Pacific Fishery Management Council (Council) shall establish a Plan Team for the king and Tanner crab fisheries of the Bering Sea/Aleutian Islands (BS/AI) area. The Plan Team will provide the Council with advice in the areas of regulatory management, natural and social science, mathematics, and statistics as they relate to the king and Tanner crab fisheries of the BS/AI area.

2. Membership. Plan Team members will be appointed from government agencies, academic institutions, and organizations having expertise relating to the crab fisheries of the BS/AI. Normally, the Plan Team will consist of at least one member from the Council staff, the National Marine Fisheries Service (NMFS), the Alaska Department of Fish & Game, the University of Alaska, and other universities and institutions. Alternate members may be assigned to participate in case a member cannot attend a meeting. With the consent of the sponsoring agency or institution, nominations may be made by the Council, the Scientific and Statistical Committee (SSC), the Advisory Panel (AP), or the Plan Team. All nominations will be subject to approval by the SSC, with the Council retaining final appointment authority. Appointments should reflect the Plan Teams' responsibility to evaluate and make recommendations on management, biological, economic and social conditions of the fisheries.

3. Organization. The Plan Team will be directed by a chairperson, and may divide some of its responsibilities among work groups organized according to subject matter. A work group may also include members from the BS/AI groundfish Plan Team. Each work group will be directed by a work group leader.

   (a) Rules of order. In general, rules of order will be informal. Plan Team decisions will be reached by consensus, whenever possible. If a decision is required and consensus cannot be reached, the opinion of the majority will prevail. In representing the Plan Team publicly, the spokesperson will take care to relate Plan Team opinions accurately, noting points of concern where consensus cannot be reached.

   (b) Meetings. A **minimum of two** Plan Team meetings will be held **annually in so far as practicable** to discuss guideline harvest levels, status and management of the BSAI crab stocks. **The timing and scope of meetings, in so far as practicable, will be as follows; a spring meeting will be held with the intention of reviewing the previous year's fishery catch data, the methodology for stock assessment modeling, preliminary stock assessment and any additional issues pertinent to the summer research schedule. A following summer/fall meeting will be held with the intention to discuss the status of stocks. This meeting would be intended to occur prior to the GHL determinations by the state. It is understood that this status of stocks meeting does not preclude additional Inter-agency meetings prior to GHL setting.** The Plan Team chairperson may call other meetings as necessary. The Crab Plan Team may meet separately or jointly with the BSAI Groundfish Plan Team to discuss areas of joint concern. A draft agenda will be prepared in advance of each meeting by the Council staff in consultation with the chairperson, and may be revised by the Plan Team during the meeting. Minutes of each meeting will be prepared by the Council staff, distributed to Plan Team members, and revised

as necessary at or before the subsequent Plan Team meeting. The Chairperson (or designee) will report the Team's finding to the Council.

(c) Selection of officers. Officers (Plan Team chairperson and work group leaders) will be selected at the meeting preceding the annual Plan Team meeting or as vacancies arise. The Plan Team chairperson will be selected at the annual meeting for two-year terms. Work group leaders will be selected for one-year terms. There will be no limit on the number of consecutive terms that officers may serve.

4. Functions. The Plan Teams' primary function is to provide the Council with the best available scientific information, including scientifically based recommendations regarding appropriate measures for the conservation and management of the BS/AI king and Tanner crab fisheries. All recommendations must be designed to prevent overfishing while achieving optimum yield (National Standard 1). All recommendations must also be scientifically based (National Standard 2), drawing upon the Plan Teams' expertise in the areas of regulatory management, natural and social science, mathematics, and statistics. Finally, uncertainty must be taken into account wherever possible (National Standard 6).

(a) SAFE report. The Plan Team compiles a SAFE report for the BS/AI king and Tanner crab fisheries on an annual basis. The SAFE report provides the Council with a summary of the most recent biological condition of the crab stocks and the social and economic condition of the fishing and processing industries. The SAFE report summarizes the best available scientific information concerning the past, present, and possible future condition of the crab stocks and fisheries, along with ecosystem concerns.

(b) Plan amendments. The Plan Team may also play a role in the development and evaluation of amendments to the BS/AI king and Tanner crab fishery management plan, as well as evaluate amendments to the groundfish fishery management plan that may affect the conservation and management of BS/AI crab resources.

(i) The Plan Team may evaluate amendment proposals and forward their recommendations to the Council.

(ii) In addition, the Plan Team may develop their own amendment proposals.

(iii) Once an amendment proposal has been accepted for consideration by the Council, an analytical team may be assembled by the responsible agencies. Every analytical team should include at least one member from the Plan Team, drawn from the appropriate working group(s), whenever possible.

(iv) Once an amendment analysis has been completed, it may be reviewed by the Plan Team. The Plan Team's comments, if any, are then forwarded to the SSC, AP, and Council.

PUBLIC TESTIMONY SIGN-UP SHEET FOR AGENDA ITEM D-2 Crab Management

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

	NAME	*AFFILIATION*
1.	Steve Minor	city of saint paul
~~2.~~	~~Frank Kelty~~	City of Unalaska
3.	Arni Thomson	A.C.C.
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		
21.		
22.		
23.		
24.		
25.		