ALASKA
Bering Sea Crabbers

206.783.0188 | 5470 Shilshole Ave. NW, Suite 505 | Seattle, WA 98107
alaskaberingseacrabbers.com

North Pacific Fishery Management Council
605 W. 4th Avenue, Suite 306
Anchorage, AK 99501

September 29, 2015

Dear Chairman Hull and members of the North Pacific Fishery Management Council:

RE: Agenda Item C1 BSAI Crab SAFE/Specifications

The Alaska Bering Sea Crabbers (ABSC) is a 501c(5) non-profit seafood industry trade association representing approximately 70% of the crab harvesters in the Rationalized Bering Sea/Aleutian Islands crab fisheries. As long-time participants in the king and tanner crab fisheries, our members have a significant stake in the long-term health of Bering Sea crab stocks and their supporting ecosystem and are actively concerned with future access to the important crab resources upon which they depend. As such, we would like to take this opportunity to express our great concern and extreme disappointment with this season's specifications process specifically as it relates to Eastern Bering Sea snow crab.

As noted in both a letter submitted to the SSC and in public testimony provided to the Council during the October 2014 meeting, the BSAI crab industry had concerns about the functioning of and lack of transparency in the EBS snow crab model. These concerns have only been amplified and heightened this year. During discussion and review of the assessment model at the most recent Crab Plan Team meeting (September 14-17, 2015), questions were not satisfactorily answered and concerns were not adequately addressed regarding errors found between model scenario comparisons. The lack of clarity on the multiple changes within each of the individual scenarios and their incremental impact upon final model outcomes left too much doubt about the differing results. As such, the CPT was left with very little data with which to make an informed choice on model selection and it defaulted to selecting the same model that was adopted last year regardless of the fact that it clearly is not functioning as expected. While we understand that the SSC has the capacity to select a different EBS snow crab model and adopt different OFL/ABC catch specifications at their upcoming meeting on October 5, 2015, our primary concern with the utter lack of transparency, knowledge for answering questions and providing clarity, and willingness to work towards solutions remains regardless of model selection.

The lack of confidence expressed by the CPT in its snow crab model choice naturally leads to serious apprehension and anxiety with the possible effects that those model outputs will have upon the TAC-setting process undertaken by the Alaska Department Fish and Game. ABSC has a very strong concern about the potential negative economic impacts an artificially reduced TAC could have upon harvesters, processors, and communities. The EBS snow crab fishery is the largest crab fishery in Alaska in terms of both volume and value. According to the McDowell Group, in 2014 the commercial snow crab fishery generated approximately $121.45 million in ex-vessel revenue and $194.73 million in first wholesale revenue. Annually, the State of Alaska collects a Fisheries Business Tax of approximately 3 percent of the ex-vessel value and the Alaska Seafood Marketing Institute collects a fee of approximately 0.5 percent of the ex-vessel value for snow crab.

The BSAI commercial crab industry fully supports improved science and assessment models for ensuring the long-term sustainability of our resource and continues its investment in achieving this goal. The Bering Sea Fisheries Research Foundation, which is voluntarily funded by both the harvesting and processing sectors, has spent approximately $1,000,000 since 2009 on specific snow crab research projects (e.g., trawl selectivity, discard handling mortality, growth increment studies) specifically designed to answer gaps in the current knowledge base such that the data gathered is used for improving the precision of the assessment model. With the choice of assessment model, the resulting OFL, and the 25% ABC buffer recommended by the CPT (increased from a 10% buffer due to the uneasiness and uncertainty associated with their model selection) for the upcoming 2015/2016 commercial season, EBS snow crab has gone from a Tier 3 stock, with the best and richest data, to being on par with a Tier 5 crab stock for which little information is available thereby necessitating a 25% buffer between the OFL and ABC. To this end, the labor and monetary investments undertaken by the crab industry over the last several years towards reducing uncertainty, improving the science that serves as the basis for the stock assessment model, and maintaining the stock's true Tier 3 management status have all been diminished and their many positive benefits negated.

Taking into consideration the natural biological fluctuations all BSAI crab stocks go through, the commercial harvesting sector fully believes that the EBS snow crab stock is robust and healthy. **As Alaska's largest commercial crab fishery and the economic lifeblood of the commercial harvest sector, this stock should be given the absolute highest priority in terms of both time and personnel.** ABSC believes that the issues and concerns we have raised need to be adequately addressed so that this unfortunate scenario can be avoided in the future. As fully invested and dedicated stakeholders, we are committed to our cooperative research partners and to ensuring the continued use and improvement of the best science for the long-term sustainability of this precious resource.

In conclusion, ABSC is seeking the Council's guidance and assistance in taking whatever steps are deemed necessary in order to return EBS snow crab to its true status as one of the most informationally sound and best managed crab fisheries in the world. Thank you for your time and consideration of this very important issue.

Sincerely,

Ruth Christiansen

Ruth Christiansen, Science Advisor/Policy Analyst
Alaska Bering Sea Crabbers
5470 Shilshole Ave NW, Suite 505
Seattle, WA 98107

BSFRF
Bering Sea Fisheries Research Foundation

BERING SEA FISHERIES RESEARCH FOUNDATION
23929 22ND DR SE BOTHELL, WA. 98021
FORGING COOPERATIVE RESEARCH PARTNERSHIPS IN THE BERING SEA

September 22, 2015

Dr. Farron Wallace (Chair, NPFMC Science and Statistical Committee)
Alaska Fisheries Science Center, NMFS/NOAA
7600 Sandpoint Way NE
Seattle, WA 98115

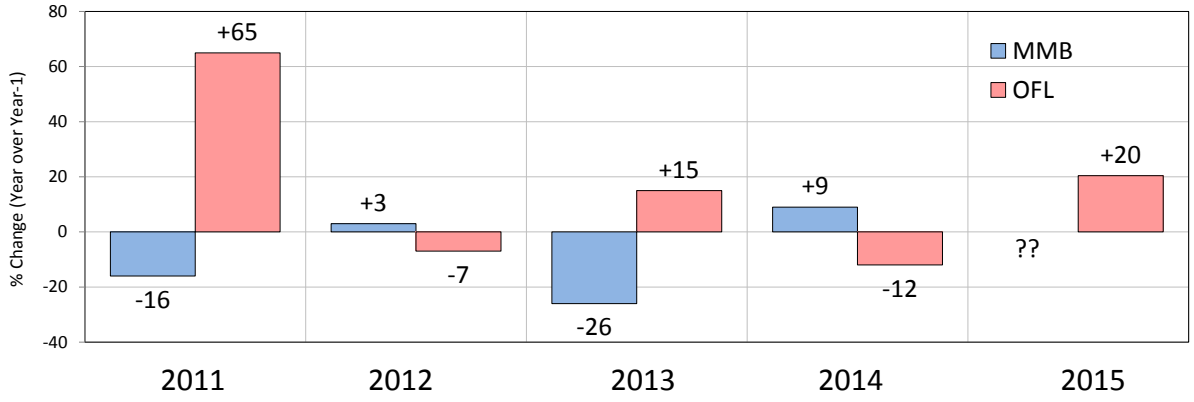
Hello Dr. Wallace and SSC members,

The Bering Sea Fisheries Research Foundation (BSFRF) is a non-profit research foundation formed in 2003 by the Bering Sea crab industry to help improve the science and sustainability of Bering Sea crab stocks. Our work has been primarily funded from voluntary industry-sponsored (both the harvesting and processing sectors) support and conducted as cooperative research partnering with the National Marine Fisheries Service Alaska Fisheries Science Center (AFSC) and the Alaska Department of Fish and Game (ADF&G). Through these partnerships we have developed a best-practices approach to conducting effective research in a cooperative effort. Some of these methods include: conducting repeatable experiments, obtaining large sample sizes to increase precision, collaborating with agency scientists, avoiding sensationalism, having agency scientists lead analyses, maintaining objectivity, and, most importantly, working in a transparent manner.

We submitted a letter to the SSC last fall noting concerns with transparency and our understanding of 2014 crab stock assessments. Improvements in transparency and updates to biological data presented at the recent (September 14-17, 2015) CPT meeting addressed many of the concerns raised in our 2014 letter – with the exception of the snow crab assessment and our inability to fully understand the final outcomes. The BSFRF has spent significant funds and effort to provide information directly into the snow crab assessment (experiments for trawl selectivity 2009-10, discard mortality 2011-12 and growth increments 2011). The level of uncertainty in the results from the September 2015 CPT recommended snow crab model do not match expectations for the highest Tier level (3) and most data rich model for Bering Sea crab stocks. The uncertainty was greater than needed to be because of errors found in the various snow crab model comparisons and the potential confounding of multiple model changes within individual model scenarios, which is in direct contradiction to CPT and SSC instructions to stock assessment authors. While the peer review among crab researchers and modeling experts typically finds small corrections, there appeared to be no satisfactory resolution available during the CPT for fundamental issues raised with the snow crab assessment.

As we pointed out in our 2014 letter, for recent snow crab assessment comparisons of current year to last, the last four years reflect an inverse relationship between biomass (MMB) and OFL - model estimates of OFL go up each year as model estimates of MMB go down and vice-versa (see figure below). While there has been variability in the recent trend

in survey abundance for the snow crab stock, we noted that the current model did not help to clarify 2014 survey results (+82% MMB) with corresponding OFL recommendations (-12%). The 2015 information to fully update and evaluate the trends of this figure were not available prior to submission of this letter. However, we understand that the CPT approved a 2015 OFL of 83.1 thousand metric tons for snow crab with a 25% buffer resulting in an ABC of 62.3 metric tons. This OFL recommendation represents a 20% increase over the 2014 OFL (69.0 mt). In contrast, the 2015 NMFS survey results showed a decline of >50% for mature male biomass of snow crab. The continued mismatch in these two trends and the recently adopted 25% buffer (increased from the 10% buffer applied over the last several years) are cause for concern.



The primary role of BSFRF as a cooperative research foundation is to assist with improving science. Importantly, this includes the ability to raise valid concerns and ask questions about potentially mis-specified models and their effects on sustainable management. It also includes the ability to raise issues of transparency where we feel they exist. We note last week that in addition to our questions, CPT members closely scrutinized the snow crab model and questioned its accuracy as presented. CPT members and BSFRF science advisors strive to track some continuity from one modeling cycle to the next. The most recent CPT process as observed and results from 2015 snow crab assessment have, however, raised significant concerns as briefly outlined above.

We are available to discuss these concerns further with you at any time. Thank you for your time and consideration.

Sincerely,

BSFRF Executive Director
Scott Goodman

BSFRF President
Gary L. Painter

cc:
SSC members
Jeff Napp AFSC Seattle
Bob Foy AFSC Kodiak
Ruth Christiansen ABSC
BSFRF Board of Directors

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Alaska Fisheries Science Center
REFM Division
7600 Sand Point Way N.E.
Seattle, Washington 98115-6349

Dr. Scott Goodman and Mr. Gary Painter
Bering Sea Fisheries Research Foundation
23929 22nd Dr. SE
Bothell, WA. 98021

September 29, 2015

We are writing to respond to your letter dated September 22, 2015 to the North Pacific Fishery Management Council's (NPFMC) Scientific and Statistical Committee (SSC). We thank you for raising your concerns to the Council. The Alaska Fisheries Science Center (AFSC) shares your mission to provide the best available scientific information available to the NPFMC. We agree that sound fisheries management is founded on strong science and we are working daily to do our part to deliver stock assessments that will pass peer review. Consistent with the provisions of National Standard 2, the Council process provides for transparency in the review of our scientific information and we welcome comments from the public. We gratefully acknowledge the many contributions that the Bering Sea Fisheries Research Foundation has made to improve the information used in crab stock assessments.

We recognize that the information regarding the proposed new model contained in the 2015 final snow crab SAFE document could have been more fully documented. We also agree that our assessment analysts should be prepared to fully explain the outcomes of the model runs that are presented to the CPT. In the future we will work to advance new assessment methods in a step-wise manner in the spring to facilitate interpretation of changes introduced by different specifications. We will work together to ensure the author identifies and explains major shifts in model results that arise from proposed new model specifications and updates in the survey data. We acknowledge that this year's presentation of the performance of the new snow crab model did not meet this threshold and we will work together to do better going forward. Specific efforts will include improved communication about the number of model runs that are feasible, heightened oversight by supervisors and additional review by colleagues prior to the spring CPT meeting to ensure readiness for the plan team meetings, and potentially hiring additional personnel to conduct the snow crab assessment. It should be recognized that it is not unprecedented for a new model configuration to not be accepted in the year that it is advanced. Fortunately, the author did bring forward the necessary information based on the last accepted model configuration that allowed the CPT to set biological reference points for this important commercial resource.

The timing of the annual assessment cycle is a contributing factor to many of the issues that have arisen, and we believe that in addition to the AFSC efforts described above, some process improvements through the Crab Plan Team (CPT) and SSC could also decrease the chance that assessments are not approved at the fall meeting. The NPFMC has adopted one of the most ambitious stock assessment cycles in the Nation to insure that crab stock assessment advice is based on the most recent fishery dependent and fishery independent data. To comply with this request, the NPFMC adopted guidelines for requests for new models that attempt to balance the workload of the assessment scientist in a very short time period against the burden of incorporating new survey data. In the case of the snow crab stock assessment, the guidelines recommend that new models should be brought forward in May for consideration by the CPT. Based on scientific review of the new models, the CPT and SSC should winnow the suite of candidate models to a small suite of viable models that would be selected for consideration during the fall cycle of meetings.

In 2015 the CPT recommend that all final assessments consider stepwise changes to data and individual model runs, such that the effects of a single change to the model structure or data elements on estimates of stock status and catch recommendations can be evaluated. The SSC endorsed this recommendation during its June meeting. This request is clearly logical and prudent, however, given the number of model permutations that would have had to be run, documented and explained within a very short timeline after 2015 survey data were provided, the author did not fully abide by the SSC's recommendation. The six models that were brought forward included more than one variant in each, and as a result created confusion regarding the source of the variation in model results presented.

We believe that in addition to improving our own internal oversight, working with the CPT and SSC to limit their requests for new models to a small number (e.g., no more than three) during the fall cycle will decrease the likelihood of this issue arising in the future. The AFSC supports the CPT and SSC request for stepwise progressions to new models, however we request that these types of exploratory runs are requested for the May meeting rather than the fall cycle. This will also give the analyst more time to investigate the cause of notable changes in model output and how they pertain to the use of the new survey data.

Your question regarding the apparent inverse relationship between the OFL and the survey estimate of Mature Male Biomass is one in which we have great interest. Observed survey male mature biomass declined from 167,400 t in 2011 to 96,100 t in 2013. Biomass then increased to 156,900 t in 2014 then decreased to 79,000 t in 2015. While the overall trend in biomass appears to be declining (except for 2014), the large increase in observed survey biomass in 2014 and then large decline in 2015 introduces uncertainty in the overall assessment.

All models presented to the CPT in September 2015 estimated increasing biomass from 2013 to 2015. The models estimated lower biomass than the survey in 2014 and higher than the survey in 2015 (biomass estimates without catchability). This increasing trend is a result of the length data from the survey which indicates recruitment to the stock in 2009-2010 that enters the male mature biomass class about 4 to 5 years later. The models are using the survey length data, survey biomass and fishery data to inform trends in stock size. The fishery has reported higher discard relative to the retained catch in the last two years of the fishery. The effect of the higher discards is to lower recruitment estimates in 2009 and 2010, which results in lower estimates of mature biomass in 2015 than would be estimated by the survey data alone. The 2015/16 ABC recommendation by the CPT is about the same as 2014/15. Future data will hopefully shed light on which survey biomass estimate (2014 or 2015) is more useful in evaluating biomass trends.

Sincerely,

Ron Felthoven, Ph.D., Director, REFM Division, Alaska Fisheries Science Center
Anne Hollowed, Ph.D., Program Manager, SSMA Program, Alaska Fisheries Science Center
Robert Foy, Ph.D., Kodiak Laboratory Director, Alaska Fisheries Science Center

cc:
SSC members
Ruth Christiansen, ABSC
BSFRF Board of Directors
Jim Balsiger, Regional Administrator, Alaska Regional Office
Doug Demaster, Director for Science and Research, Alaska Fisheries Science Center
Steve Ignell, Deputy Director for Science and Research, Alaska Fisheries Science Center
Jeff Napp, Director, RACE Division, Alaska Fisheries Science Center