

ALASKA BOARD OF FISHERIES  
Findings for Bering Sea Tanner Crab Management Plan  
Incorporating a New Harvest Strategy  
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The Board of Fisheries considered a new harvest strategy for Bering Sea/Aleutian Islands (BSAI) Tanner crab (*Chionoecetes bairdi*) under Proposal 281. The Board took staff reports, heard public testimony and Fish and Game Advisory Committee reports, and then submitted this proposal to Committee A for discussion and recommendations.

Two written staff reports were submitted as supporting documentation for this proposal: "Bering Sea Bairdi Tanner Crab Fishery, 1998" (RC4, Tab 4) by Rance Morrison, and "Overview of Population Dynamics and Recommended Harvest Strategy for Tanner Crabs in the Eastern Bering Sea" (RC4, Tab 18) by Jie Zheng and Gordon Kruse.

Two oral staff reports were presented relevant to this proposal: "Stock and Fishery History and Current Status of Tanner Crabs in the Eastern Bering Sea" (RC4, Tab 31), by Gordon Kruse, Rance Morrison and Jie Zheng, and "Review of harvest strategies for Tanner crabs" (RC4, Tab 33) by Gordon Kruse, Dan Urban and Jie Zheng. ADF&G Staff Comments were presented in RC 4, Tab 37, and Page 8. The advisory committee comments (RC 110), public comments (RC 69, 85, 102, 111), staff comments (RC 4, Tab 37), and record copies (RC 102) related to the various proposals are identified in attachments to the committee report.

This proposal intended to establish a Tanner crab management plan for the Eastern Bering Sea Subdistrict of Area J. The plan is intended to improve fishery management by linking harvest rates to changes in stock productivity indexed by recruitment strength. Higher harvest rates are applied during an upward recruitment cycle and lower harvest rates are applied during a downward recruitment cycle. Moreover, a threshold is established below which no fishing is allowed to protect the breeding population. These features foster the rebuilding of the Eastern Bering Sea Tanner crab stock that was classified as "overfished" by the Secretary of Commerce in March 1999 under the federal Fishery Management Plan. There are seven key points to the harvest strategy, as described below.

- (1) Establish a threshold level of abundance of 21.0 million pounds of mature (>79 mm carapace width) female Tanner crab biomass. The commercial fishery for Tanner crabs in the Eastern Subdistrict of the Bering Sea District may open only if an analysis of preseason survey data indicates that the population has met or exceeded this index of abundance. The commercial fishery for Tanner crabs in the Eastern Subdistrict of the Bering Sea District will not open if preseason survey data indicates that the population is below this index of abundance. The public asked for clarification of definitions of several terms related to the proposal. They asked the Department to indicate in what years would the Tanner crab season have been closed under this

plan. The department indicated that the fishery would have been closed in 1985, 1986, 1996, 1997 and 1998, if this plan had been in effect.

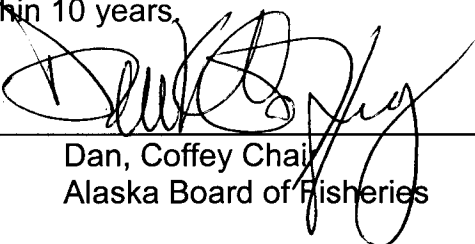
- (2) Establish a 4.0 million pound minimum threshold level for any harvest occurring incidental to the Bristol Bay red king crab fishery and in any directed Tanner crab fishery in the area east of 168° W. The department stated that this level was indicated on the basis of harvest levels that were manageable as bycatch in the Bristol Bay red king crab fishery. The public was concerned about why this harvest strategy utilizes mature female biomass rather than number of animals in calculating threshold levels. The department stated that this was due to the fact that reproductive output and, ultimately, recruitment to the fishery is more closely related to parental biomass rather than number of animals.
- (3) Establish the exploitation rate when the stock is greater than or equal to 21.0 million pounds of mature female biomass but less than 45.0 million pounds of mature female biomass. In this case the harvest rate will be 10% of the molting mature male abundance or 50% of the exploitable legal size male abundance, whichever is less. The public asked the Department to define legal size (5.5" width or greater) and molting, mature males (100% of newshell and 15% of oldshell crabs 113 mm or greater width) as well as exploitable legal size males (100% of newshell and 32% of oldshell crabs 5.5" or greater in width). The department also explained that the National Marine Fisheries Service annual trawl survey is used to collect data for abundance estimation using a length-based analysis (LBA) model. Public suggested that perhaps the 50% cap on legal male harvest mentioned above is too high and that perhaps 20-30% would be more appropriate.
- (4) Establish the exploitation rate when mature female biomass is equal to or greater than 45.0 million pounds. Under this scenario, the harvest rate is set at 20% of the molting mature male abundance or 50% of the exploitable legal size abundance, whichever is less. The public asked why the maximum allowable harvest rate is greater for Tanner crabs than for red king crabs in Bristol Bay. The department stated that this is due to differences in rate of reproduction, mortality, and biology of the two species. The public also asked how this harvest rate compares to those utilized in prior fisheries. The department responded that this is generally a lower harvest rate, except that it is higher when the stock is increasing in abundance. The public indicated its support for this part of the strategy.
- (5) Establish separate guideline harvest levels for both sections of the Eastern Bering Sea Sub-District based on the respective abundance of animals in those areas. The western portion is between 168° W. long. to 173° W. long., and the eastern portion is defined as waters east of 168° W. long. Based on the respective abundances of molting mature male crabs, the guideline harvest level for the Eastern Subdistrict of the Bering Sea District would equal

the sum of the guideline harvest levels for the areas east and west of 168° W. long. if both areas are opened to fishing. This language was supported by industry.

- (6) Add a provision dealing with the situation when any portion of the Eastern Sub-District is reopened to fishing after being closed to all commercial fishing due to low abundance in the preceding season. The reopening will occur when one-half the computed GHL is greater than or equal to four million pounds. If the fishery remains closed because the calculated GHL does not reach 4 million pounds due to a precautionary 50% reduction, then the following season may open if the calculated GHL is at least four million pounds. There was some public confusion as to when a fishery could occur under this scenario, so the Department clarified that the 4.0 million pound threshold need only be reached one year for a fishery to occur the next year.
- (7) The final part of the strategy states that the Department will consider the reliability of the estimates, the manageability of the fishery, and other factors necessary to be consistent with the sustained yield principles, and the best scientific information available. There was support for this section. The public asked how the harvest strategy fit in to the federal Fishery Management Plan's requirements for rebuilding the Eastern Bering Sea Tanner crab stock. The Department stated that the harvest strategy is one of three parts; the other parts are by-catch reduction measures and habitat protection. To describe these requirements, RC 104 was introduced.

In considering staff reports, the status of the resource, and committee and public support for the proposal, the Board of Fisheries adopted the proposed new harvest strategy including all seven points listed above. This adoption was made in the belief that this harvest strategy has a rebuilding capability that complies with federal requirements to rebuild the Eastern Bering Sea Tanner crab stock to levels capable of supporting maximum sustainable yields within 10 years.

ADOPTED: 10/29, 1999  
Fairbanks, Alaska

  
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Dan, Coffey Chair  
Alaska Board of Fisheries

VOTE: 60-1  
one abstention