



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**

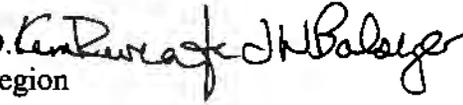
National Marine Fisheries Service

P.O. Box 21668

Juneau, Alaska 99802-1668

January 24, 2013

MEMORANDUM FOR: Samuel D. Rauch III  
Deputy Assistant Administrator  
for Regulatory Programs,  
performing the functions and duties of the  
Assistant Administrator for Fisheries

FROM: James W. Balsiger, Ph.D.   
Administrator, Alaska Region

SUBJECT: Stock Status Determination for Southern Tanner Crab  
(*Chionoecetes bairdi*) in the Eastern Bering Sea - DECISION  
MEMORANDUM

I recommend that you concur in the status determination of the Southern Tanner Crab (*Chionoecetes bairdi*) stock in the Eastern Bering Sea, which is no longer overfished and is rebuilt.

Tanner crabs are distributed on the continental shelf of the North Pacific Ocean and Bering Sea from Kamchatka, Russia, to the state of Oregon. Off Alaska, Tanner crabs are concentrated around the Pribilof Islands and immediately north of the Alaska Peninsula and in the Bering Sea. Management of Tanner crabs in the Bering Sea is governed under the Fishery Management Plan for Bering Sea/Aleutian Islands King and Tanner Crabs (Crab FMP). The Crab FMP establishes a State of Alaska and Federal cooperative management regime. State regulations are subject to the goals and objective of the Crab FMP, the Magnuson-Stevens Fishery Conservation and Management Act national standards, and other applicable federal laws.

#### BACKGROUND

Tanner crab are caught in the directed Tanner crab fishery and incidentally caught in the Bering Sea snow crab fishery, the Bristol Bay red king crab fishery, the Bering Sea groundfish fishery, and the Bering Sea scallop fishery. Management of the directed Tanner crab fisheries under the Crab FMP is split into two distinct fisheries that are divided east and west of 166 degrees W longitude. The State of Alaska sets separate catch limits and the National Marine Fisheries Service (NMFS) issues separate individual fishing quotas for these two fisheries when open. However, a single overfishing limit is set for the entire stock.



The directed fisheries for Tanner crab were closed from 1997 to 2005 due to low abundance. The stock was declared overfished by NMFS in 1999 and the North Pacific Fishery Management Council (Council) developed a rebuilding plan. In 2005, abundance had increased to a level to support a fishery in the area west of 166 degrees W longitude. The State of Alaska opened both fisheries for the 2006/2007 to 2008/2009 crab seasons and to the area east of 166 degrees W longitude only in 2009/2010. The stock was determined to be rebuilt in 2007 because the survey estimate of mature male biomass (MMB) was above maximum sustainable yield ( $B_{MSY}$ ) for two consecutive years.

The Southern Tanner crab in the eastern Bering Sea was declared overfished again in 2010 due to the survey estimate of MMB being below the minimum stock size threshold (MSST). Tanner crab was assessed in Tier 4b using a proxy MSST of one half of MMB biomass at maximum sustainable yield ( $B_{MSY \text{ Proxy}}$ ) based on the average estimate of MMB biomass at mating. For the 2010 status determination,  $B_{MSY \text{ Proxy}}$  was 83.33 kt and the MSST was 41.67 kt. After deduction for stock losses from natural mortality and fisheries mortality, the MMB at the time of mating was 28.44 kt and therefore less than MSST. The stock remained in an overfished condition in 2010/2011 as indicated by a MMB at the time of mating in 2011 of 26.73 kt, well below the MSST of 41.67 kt.

In May 2012, the Council's Crab Plan Team (CPT) recommended a revised Tanner crab stock assessment model, moving Tanner crab from Tier 4 to Tier 3 based on adequate information on maturity and selectivity. At its June 2012 meeting, the Council's Statistical Science Committee (SSC) reviewed and recommended use of an improved model that follows a Tier 3 control rule specified in the Crab FMP and recommended by the CPT. Tier 3 models use maturity and other life history parameters to estimate proxy limit reference points; however, unlike Tiers 1 and 2, reliable estimates of spawner/recruit relationships are not available. Thus, status determination under Tier 3 hinges heavily on the choice of a time period to calculate mean recruitment.

---

## CURRENT ISSUES

At its September 2012 meeting, the SSC reviewed different recruitment periods to be used as input into the Tier 3 model. To accommodate potential changes in productivity during recent years, while recognizing ecological conditions in the late 1970's and changes in productivity in recent years, the SSC recommended a recruitment period of 1982-2012.

The SSC recommend a Tier 3a control rule for the stock, which establishes proxy reference points of  $F_{35\%}$  for  $F_{MSY}$  and  $B_{35\%}$  for  $B_{MSY \text{ Proxy}}$ . The 2012/2013 stock specification results in an  $F_{OFL}$  of 0.61 and a  $B_{MSY \text{ Proxy}}$  of 33.45 kt; this is a downward revision of the previous estimate of  $B_{MSY \text{ Proxy}}$ , which was 83.33 kt. The estimated MMB for 2012/2013 is 42.74 kt, resulting in a  $MMB/B_{MSY \text{ Proxy}}$  ratio of 1.28 (42.74/33.45), indicating the stock is 128% of  $B_{MSY \text{ Proxy}}$ . The corresponding overfishing limit (OFL) for 2012/2013 is 19.00 kt and the allowable biological catch (ABC) is 8.17 kt.

The SSC also reviewed overfishing status during the 2011/2012 fishing season. Fishing mortality was well below overfishing limits. The total catch of Tanner crabs during the 2011/2012 fishing

season was 1.24 kt, which is well below the ABC of 2.48 kt and the OFL of 2.75 kt. No directed fishing will occur in 2012/2013.

Finally, the Tier 3a status and associated recruitment period represents the best available science to model and specify limits for the Southern Tanner Crab stock. Previous estimates of  $B_{MSY}$  would have required a rebuilding plan by October 2012; however, new science on stock productivity and improved modeling techniques show the stock to be above  $B_{MSY}$  and the stock does not require a rebuilding plan.

#### RECOMMENDATION

I recommend that you concur in the status determination for Southern Tanner Crab (*Chionoecetes bairdi*) in the eastern Bering Sea, which is not in an overfished condition.

1. I concur.

\_\_\_\_\_

Date

2. I do not concur.

\_\_\_\_\_

Date