

NOAA Fisheries Service

Alaska Fisheries Science Center

Southern Tanner Crab

Chionoecetes bairdi

Width 138 mm (5.4 in) legal

Weight 603 g (22 oz) legal

Age 12 years (maximum)



Range/Habitat

Tanner crab are distributed on the continental shelf of the North Pacific Ocean and Bering Sea from Kamchatka to Oregon. Off Alaska, they are concentrated immediately north of the Alaska Peninsula and around the Pribilof Islands, and are found in lower abundance in the Gulf of Alaska. They live from subtidal depths down to 437 m. The Tanner crab stock of the Aleutian Islands is very small, and populations are found in only a few large bays and inlets.

Diet/Role in Ecosystem

The diet of Tanner crab depends on the life stage. Larvae feed primarily on phytoplankton. Juveniles and adults are opportunistic omnivores and will eat almost anything. Major components of their diet include bivalves, polychaete worms, gastropods, crabs (including other Tanner crab), shrimp, and fish. Small Tanner crab (CW < 30 mm) are consumed by a wide variety of predators, including groundfish, bearded seals, sea otters, octopus, Pacific cod, Pacific halibut and other flatfish, eelpouts, sculpins, and tom cod.

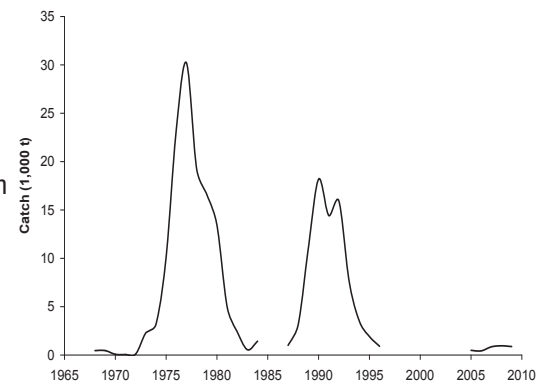
Reproduction

Pubescent Tanner crab females undergo their terminal molt to maturity and mate in solitary pairings in shallow water. Older, multiparous females form high-density mating aggregations, or pods, consisting of hundreds of crab per pod. These pods may provide protection from predators and also attract males for mating. Mating occurs from January through June. Mating need not occur every year, as female Tanner crab can retain viable sperm in spermathecae for up to 2 years. Females carry clutches of 30,000 to 400,000 eggs for approximately a year. Larvae hatch between April and June.

Population

Fishery and Catch History

The domestic fishery has been a pot fishery since the late 1960s, though the stock was also harvested by the Japanese and Russian tanglenet fishery in the 1960s and 1970s. The stock has been closed several times, once from 1985-1986, and once from 1997-2004, due to low population levels. Landings have been low from a historic perspective since 2004. Since 2005 the fishery has been managed according to the Crab Rationalization program under which qualified participants are issued individual fishing quotas.

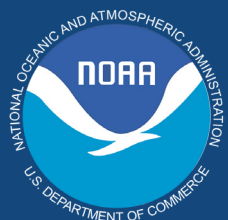


Resource Status

2009 saw a large decline in the mature male biomass and the stock is considered to be approaching an overfished status in 2009/2010. A new rebuilding plan will be developed for implementation by 2011/2012 fishing year.

Protecting
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The Alaska Fisheries Science Center is a scientific research organization responsible for the development and implementation of NOAA's scientific research on marine resources in Alaska waters. Our research focuses on more than 250 fish and 42 marine mammal stocks off the coasts of the Bering Sea, Gulf of Alaska and Aleutian Islands.



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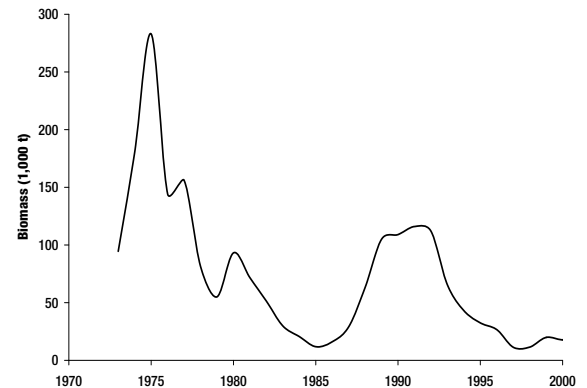
RESEARCH

Research, funded through the National Marine Fisheries' Essential Fish Habitat program, is examining the relationship between juvenile tanners and worm tube habitat in Kodiak. Another group is using crab reflexes to predict mortality of crab caught as bycatch. The RACE Pathobiology group out of Seattle studies black matt disease, systemic infection of the fungus *Trichomaris invadens*, and Bitter Crab Syndrome, a 100% fatal disease of North Pacific Chionoecetes crab that is caused by an undescribed parasitic dinoflagellate of the genus *Hematodinium*.

A collaborative North Pacific Research Board (NPRB) funded project of the Marine Conservation Alliance Foundation and AFSC is to quantify the unobserved injury and mortality of crab due to encounters with trawls on the seafloor. Another NPRB funded project will examine the effects of ocean acidification on Tanner crab embryogenesis and larval fitness.

Stock Assessment

Abundance estimates for the eastern Bering Sea (EBS) are obtained through the National Marine Fisheries Service (NMFS) annual bottom trawl surveys every summer using an area-swept method. NMFS and the Alaska Department of Fish and Game (ADFG) use this information to determine the status of stocks and set the harvest levels.



Management

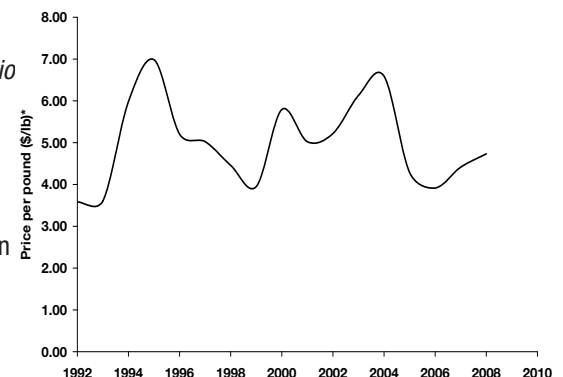
Tanner crab stocks in the Bering Sea are cooperatively managed by NMFS and the State of Alaska through the North Pacific Fishery Management Council's (NPFMC) fisheries management plan (FMP) for Bering Sea/Aleutian Islands (BSAI) King and Tanner crabs. State harvest regulations comply with the FMP and the national standards of the Magnuson-Stevens Act. Tanner crab are managed as three separate stocks: EBS, eastern Aleutian Islands, and western Aleutian Islands. An overfishing limit is set for the population as a whole and a total allowable catch is defined for each of the individual stocks. The State of Alaska institutes minimum size and sex restrictions, vessel registration, licenses and permits, observer coverage, and gear requirements.

The Crab Rationalization program applies to the BSAI Tanner crab fisheries, and was implemented in 2005 by the NPFMC to limit access by decreasing fishing capacity (number of vessels and processors in Alaska) to improve conservation and management. In addition, the Community Development Quota (CDQ) Program allocates 10 percent of the total allowable catch to CDQ groups (community interests), and is managed by the State of Alaska with federal oversight.

State of Alaska regulations for BSAI crab fisheries include vessel registration with the State of Alaska and a requirement of licenses and permits; registration for each fishery and each area; observer coverage; and gear restrictions, such as pot limits, degradable escape mechanisms, and web specifications. Season opening dates are set to maximize meat yield and minimize handling of softshell crab. The State of Alaska sets pre-season guideline harvest levels for Tanner crab based on a mature male harvest rate of 40%. Minimum legal size for Bering Sea Tanner crab, *C. bairdi*, is 5.5 inches carapace width. Only male crabs are harvested. In years when no guideline harvest level is established for the Bristol Bay red king crab stock, the Tanner crab fishery is restricted to the area west of 163° W longitude.

Economics

Snow crab is the market name for both *C. opilio* and *C. bairdi*. In 1995, the average weight of a Tanner crab landed was 2.3 pounds, valued at \$2.80 per pound exvessel, and total value of the fishery was \$11.7 million. In 2007, total harvest was 1.87 million pounds at \$1.29 per pound for a total exvessel value of \$2.41 million (data obtained from ADFG Alaska Commercial Shellfish Catches & Exvessel Value webpage: <http://www.cf.adfg.state.ak.us/geninfo/shellfish/06value.php>).



For more information

Most recent stock assessment:

<http://www.fakr.noaa.gov/npfmc/SAFE/SAFE.htm>

Research:

http://www.afsc.noaa.gov/RACE/shellfish/default_sf.php

Management:

<http://www.fakr.noaa.gov/sustainablefisheries/crab/default.htm>

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Questions or Comments?

email: afsc.outreach@noaa.gov

* The inflation-adjusted prices shown in the graph are 1st wholesale (2008 U.S. currency). Numbers are from NMFS and ADF&G price data.

