

NOAA Fisheries Service

Alaska Fisheries Science Center

Blue King Crab

Lithodes aequispinus

Width 140 mm (5.5 in) legal

Weight 1.4 kg (22 oz) legal

Age unknown (maximum)



Range/Habitat

Blue king crab (BKC) does not have a continuous distribution throughout their range (Hokkaido, Japan, to Southeast Alaska). In the Bering Sea, discrete populations exist around the Pribilof Islands, St. Matthew Island, and St. Lawrence Island. Smaller populations have been found around Nunivak and King Island. They live in shallow water < 200 m.

Diet/Role in Ecosystem

BKC diet varies with size and depth inhabited. Larval crab consume phytoplankton and zooplankton; juveniles feed on diatoms, protozoa, hydroids, crab, and other benthic organisms; and adults eat an assortment of worms, clams, mussels, snails, brittle stars, sea stars, sea urchins, sand dollars, barnacles, fish, and algae. King crabs fall prey to a wide variety of species, including Pacific cod, rock sole, yellowfin sole, pollock, octopus, and other king crab.

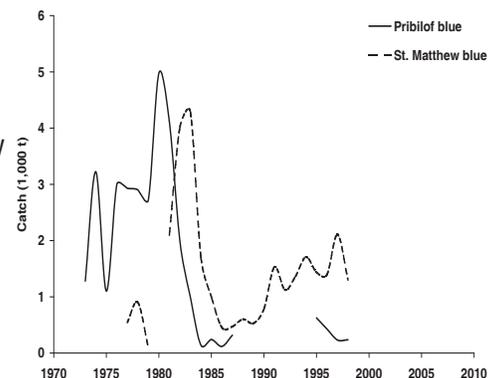
Reproduction

BKC have a 2-year or biennial ovarian cycle. In January-February of their spawning year, female crabs molt, mate, and extrude about 150,000 eggs that are then fertilized and attached to the female's abdomen. The females carry the developing fertilized embryos for approximately 14 months and hatching occurs from February to May of the next year. Larvae are released but the crab do not molt or mate that year, unlike red king crabs, which hatch, molt, mate, and extrude each year.

Population

Fishery and Catch History

BKC have been taken by a domestic pot fishery which started in the 1970s. Both the Pribilof and St. Matthew fisheries' landings peaked in the early 1980s. This was followed by lower landings until 1998 when the fisheries were closed. Since 2005 all Bering Sea crab fisheries have been managed according to the Crab Rationalization program under which qualified participants are issued individual fishing quotas.



Resource Status

The fishery for the Pribilof District stock has not been opened since 1998/1999 due to low stock abundance. The St. Matthew stock was also closed in 1998/1999 due to low stock abundance, but was reopened to fishing for the 2010 season.

Protecting
Conserving
Managing
Marine Resources
in
Alaska

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.



National Marine Fisheries Service
National Oceanic and Atmospheric Administration
U.S. Department of Commerce

RESEARCH

In addition to basic biology conducted during the NMFS annual eastern Bering Sea (EBS) assessment survey, a variety of biological questions are being researched by biologists from various agencies and educational institutions. The Alaska Fisheries Science Center's (AFSC) Resource Assessment and Conservation Engineering (RACE) Division Shellfish Assessment Program in Kodiak, Alaska, conducts field and laboratory research into early life history of BKC.

Initial AFSC Kodiak Laboratory research funded by 2003 and 2005 North Pacific Research Board grants established cultivation methods for Pribilof Island BKC, described embryonic development and the effects of temperature, density, and diet on cultivation. This has become the springboard for a collaborative enhancement study, Alaska King Crab, Rehabilitation and Biology Program (AKCRRAB) among federal and state agencies, industry, and the University of Alaska. Current research continues to optimize culture techniques for king crab larvae.

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>

cover photo credit: NOAA Fisheries Service

Questions or Comments?

email: afsc.outreach@noaa.gov

Stock Assessment

Abundance estimates for the Pribilof Islands and St. Matthew BKC stocks 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 based on a mature male harvest rate of 20%. ADFG conducts a triennial pot survey for St. Matthew stocks to sample abundance in areas that the NMFS trawl survey does not sample adequately due to BKC preferring rocky, untrawlable habitat.

Management

BKC 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 regulations comply with the FMP and the national standards of the Magnuson-Stevens Act. Two discrete stocks of BKC are actively managed in the Bering Sea/Aleutian Islands (BSAI) region the Pribilof Islands and St. Matthew Island stocks. Other, smaller populations of BKC are found in the vicinity of St. Lawrence Island and Nunivak Island, as well as in isolated locations in the Gulf of Alaska. BKC stocks are managed separately to accommodate different life histories and fishery characteristics. 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 BKC 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 soft shell crabs. Current minimum legal size for the Pribilof District BKC is 6.5" (165mm) carapace width (CW) and for St. Matthew Island area is 5.5" (140mm) CW. Only male crabs are harvested.

Economics

During 1992-1998 the average first wholesale product price was \$8.49/lb, reaching a high of \$13.90/lb in 1994. After 1994, prices have steadily declined. Data after 1998 can not be included in this report because of confidentiality constraints. The primary product from blue king crab is shellfish sections, which allow for more than 90% of total value processed. Other product forms include whole crab and shellfish meat.

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

