

Commercial Fisheries – Dungeness Crab

description

The inception of the commercial crab fishery in British Columbia occurred prior to 1900 and today is managed under a precautionary regime coined the three “S’s”; Size, Sex and Season. That is, the fishery is managed based on size limits, a sex restriction and seasonal closures, in addition to limited entry licensing, area licensing, trap limits, soak limits and gear restrictions. In order to commercially harvest crab by trap, a licence category “R” or “FR” is required. Category “R” crab licence eligibilities are limited entry and vessel based while the communal commercial “FR” eligibilities are party based (issued to a person or company). There are a total of 221 licence eligibilities for this fishery and harvesters are required to select a licensing area for three years at a time. Licensing areas (“Area”) for the commercial crab fishery are defined by Pacific Fisheries Management Areas (PFMAs) (see www.pac.dfo-mpo.gc.ca/fm-gp/maps-cartes/areas-secteurs/index-eng.htm) and described in Table 1.

TABLE 1. CRAB TRAP FISHERY LICENCE AND CORRESPONDING MANAGEMENT AREAS IN BRITISH COLUMBIA.

Area	Description	Management Area
A	Queen Charlotte Islands	Areas 1, 2, 101 to 110 inclusive, 130 and 142
B	North and Central Coast Mainland	Areas 3 to 10 inclusive
E	West Coast Vancouver Island	Areas 20 to 27 inclusive, 121 and 123 to 127 inclusive
G	Johnstone Strait	Areas 11, 12, 13, 15 and 111
H	Strait of Georgia	Areas 14, 16 to 19 inclusive and Subarea 29-5
I	Fraser River	Areas 28 and 29 excluding Subareas 29-5 and 29-8
J	Boundary Bay	Subarea 29-8



PHOTO: NATALIE BAN

Although four crab species are commercially targeted for harvest in British Columbia [Dungeness crab (*Cancer magister*), red rock crab (*Cancer productus*), golden king crab (*Lithodes aequispinus*) and red king crab (*Paralithodes camtschaticus*)] Dungeness crab are the most important commercial species of crab in BC and are harvested by commercial, First Nations, and recreational fishers coast-wide.

Crabs are harvested commercially using either traps or ring nets. Traps are frames covered with webbing that form an enclosure. Crabs gain access to the enclosure through a tunnel or door, which may be triggered to form a one-way entrance. Ring nets consist of a circular frame holding a bag of webbing. Crabs are captured in the web bag when they cross the edge of the frame and the frame is lifted. Both traps and ring nets are baited with fish, squid, offal or pellets. Crab traps can be set on single lines or on ground lines containing multiple traps, however ring nets are only fished on single lines.

The total estimated catch (pounds) for the Dungeness crab fishery was assembled by Fisheries and Oceans Canada (DFO) into 4 kilometre x 4 kilometre grid cells directly from the Shellfish Stock Assessment harvest log database located at the Pacific Biological Station (PBS) and includes the 2000-2004 fishing seasons. Information provided by DFO was modified to meet confidentiality requirements.

The data are displayed using equal interval categories, meaning that the data are divided into 5 equally spaced classes where each class may contain a different number of grid cells. The percent of grid cells that fall in a given category is shown in the legend.

Permanent, year-round closures for the crab fishery were compiled based on the Integrated Fisheries Management Plan (IFMP) for Crab by Trap dated January 1, 2008 – December 31, 2008 and 2008 Fisheries Notices (up to Oct. 2, 2008). Areas identified as closures may also include areas not licensed for this fishery. (Please read caveats of use for more information on closures.)

data sources

- Fishery data: Fisheries and Oceans Canada, Shellfish Stock Assessment Harvest Log Database, Pacific Biological Station
- Year-round commercial fishing closures: Living Oceans Society (see Robb *et al.*, 2010)

data resolution

- 4 kilometre by 4 kilometre grid cells

date compiled

- Fishery data: 2000-2004
- Year-round commercial fishing closures: 2008

reviewers

- Commercial fishing industry representatives (who may or may not be experts for this specific fishery), assembled with the support of the commercial fisheries representatives on the BC Marine Conservation Analysis (BCMCA) Human Use Data Working Group.
- Fisheries and Oceans Canada data providers.

reviewer comments

- Generally, reviewers wanted to see catch for longer time periods, and closures that matched the time periods shown for the fishery.
- Due to the confidentiality requirements (three vessel rule) there are areas missing from the map where crab have been harvested. Several of these have been exploratory fisheries with less than three vessels, including several areas in southern Haida Gwaii and the north area of the Goose Island Bank, west of Milbanke Sound in Queen Charlotte Sound. It is important to the crab fishermen who have explored these areas that their previous and potential future use be recognized in the planning process.
- Important areas may be missed due to the use of old data. For example the area between the closed area in Skidegate Inlet and the more northerly areas of use around Haida Gwaii is heavily fished by Area A users but is shown on the map as not being fished.
- More recent electronic monitoring catch data (2003-2008) should be used due to the known inaccuracy of logbook data. Logbook data have generally poor accuracy compared to electronic monitoring data.

caveats of use

- In the case of discrepancies, catch information from DFO takes precedence over commercial fisheries information portrayed by BCMCA.
- This map should be interpreted as showing only where fishing has taken place; it does not represent economic valuations or biological trends. Neither should it be inferred that species are more abundant where fished and less abundant in areas closed to commercial harvest.
- Data displayed should not be assumed to match current or future conditions due to ongoing changes in the environment and management.
- Data on this fishery have been screened to meet confidentiality requirements. The count of commercial fishing vessels for each spatial unit the data are provided in must be greater than 2 for information to be made public. This screen was set for each year before data were binned across years. This map represents 90.01% of the data from this fishery that met confidentiality requirements.
- The effort expended to capture targeted species differs among fisheries. Therefore it is difficult to compare weight caught for a low volume fishery versus a high volume fishery.
- Closures illustrated are permanent, year-round closures. Seasonal, temporary and voluntary closures were not included, all of which may impact catch. Areas identified as closures may also include areas not licensed for this fishery.
- Due to a lack of available spatial data regarding fisheries closures, the time period for closures does not match the time period for catch illustrated on the map. Many of the closures were implemented after the period for which catch is shown. As a result, the map may show harvesting in the closed areas, while in reality they did not overlap in time. Because the closure data are compiled in irregular polygons, closures may overlap the square grid cells delineating areas of commercial harvesting. Harvesting does not occur consistently throughout each grid cell and may not have occurred within the closure.
- Recommended date of expiry for use of these data in a marine planning context: None provided.

map, feature data and metadata access

- Visit www.bcmca.ca/data for more information.

references

- BC Marine Conservation Analysis. *Workshop Report on Commercial Fisheries Data Review*. March 2010. www.bcmca.ca/document-library
- Fisheries and Oceans Canada. *Annual Integrated Fisheries Management Plans*. www-ops2.pac.dfo-mpo.gc.ca/xnet/content/MPLANS/MPlans.htm?lang=en
- Robb C.K., K.M. Bodtker, K. Wright and J. Lash. “Commercial fisheries closures in marine protected areas on Canada’s Pacific coast: The exception, not the rule.” *Marine Policy* (2010), doi:10.1016/j.marpol.2010.10.010

BCMCA Atlas
Commercial Fisheries
Dungeness Crab 2000-2004

Legend

Pounds of Dungeness Crab Caught

- 115 - 300,000 (90.67%)
- 300,001 - 600,000 (7.67%)
- 600,001 - 900,000 (1.17%)
- 900,001 - 1,200,000 (0.33%)
- 1,200,001 - 1,500,000 (0.17%)
- Year-round Crab Closures

Notes:

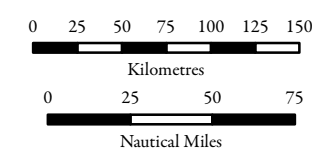
- The number in brackets in the legend above is the percent of polygons that fell into the given category.
- This map represents 90.0% of the data from this fishery that meet confidentiality requirements (minimum 3 vessels reporting).
- Crab closures obtained from the Jan. 1-Dec. 31, 2008 Integrated Fisheries Management Plan and from the 2008 Fisheries Notices to Oct. 2, 2008.

Data Sources:
 Fisheries and Oceans Canada,
 Living Oceans Society

Base Data:
 ESRI Base Data, GeoBase, GeoBC,
 NOAA, Natural Resources Canada,
 USGS, Washington State Government

Thematic Data:
 For more information on data sources and methods please refer to the facing page to this map

Projection: BC Albers NAD83



1:4,250,000 *

* Written scales are approximate and are based on a 11 x 17 inch paper size.

Prepared for:



Map template by Caslys Consulting Ltd.
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