



Commercial Fisheries – Humpback Shrimp

description

The Pacific coast shrimp fishery developed in earnest in British Columbia in the 1960s with the use of trawl bottom gear. Prior to the 1990s, the fishery was open year round and few management and assessment programs were in place. In the mid 1990s a rapid increase in effort and landings in the shrimp trawl fishery was the result of a number of coinciding factors: changes in the management of groundfish fisheries, poor salmon returns and retirement of salmon licences, a peak abundance of offshore shrimp and high shrimp prices. In addition, shrimp landings increased significantly in 1996 as fishermen expanded their fishing areas to include previously unexploited areas, including the offshore areas of the central coast. Significant changes in management strategies were implemented in 1997 with the establishment of a total allowable catch (TAC) for most areas, the development of industry-funded programs to monitor catches and a stock assessment program.

Humpback shrimp (*Pandalus hypsinotus*) get their name because of the arched shape of the carapace. The conspicuous mottling on the abdomen is also distinctive. Humpback shrimp are protandrous hermaphrodites, spending the early part of their life cycle as males and the later part as females. Most individuals attain maturity as a male in the second year and become a female during the third year, however some individuals develop directly into mature females in their second year. Subsequent survival into the fourth year is very low. Female shrimps carry eggs from November to April. Please see the atlas page “Commercial Fisheries – Shrimp Trawl” for additional information about species of shrimp, harvesting methods, and management and assessment in the shrimp fishery.

The total estimated catch (pounds) for the humpback shrimp fishery was assembled by Fisheries and Oceans Canada (DFO) into 10 kilometre x 10 kilometre grid cells directly from the Shellfish Stock Assessment harvest log database located at the Pacific Biological Station (PBS) and provided as individual datasets by year for the 1997-2004 fishing seasons. All fishing locations were derived from coordinates provided by fishermen. The percentage of data with latitude and longitude coordinates varied by year and ranged between 85.2% and 99.1% from 1997 to 2004. BCMCA merged the eight datasets together and summed values across years to produce aggregate catch values. 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 humpback shrimp fishery were compiled based on the Integrated Fisheries Management Plan (IFMP) for Shrimp Trawl dated April 1, 2008 – March 31, 2009 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

- 10 kilometre by 10 kilometre grid cells

date compiled

- Fishery data: 1997-2004
- 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 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.

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. The percentage of data held by DFO that met confidentiality requirements varied by year and ranged between 62.3% to 94.7% from 1997 to 2004.
- 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. Bodtger, 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
Humpback Shrimp 1997 - 2004

Legend

Pounds of Humpback Shrimp Caught

- 1 - 14,000 (96.45%)
- 14,001 - 28,000 (2.13%)
- 28,001 - 42,000 (0%)
- 42,001 - 56,000 (0.71%)
- 56,001 - 70,000 (0.71%)

Year-round Shrimp Trawl Closures

Notes:

- The number in brackets in the legend above is the percent of polygons that fell into the given category.
- Between 0.9% and 14.8% (percent varies by year) of data did not have coordinates and is not displayed.
- This map represents 62.3% to 94.7% (percent varies by year) of the data from this fishery that meet confidentiality requirements (minimum 3 vessels reporting).
- Trawl closures obtained from the Apr. 1, 2008-Mar. 31, 2009 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

0 25 50 75 100 125 150

Kilometres

0 25 50 75

Nautical Miles

1:4,250,000 *

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

Prepared for:



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