

## Commercial Fisheries – Sardines

### description

The Pacific sardine (*Sardinops sagax*) fishery in British Columbia has a long history dating back to 1917 when a fishery developed to provide food for the European war effort. This fishery is considered an opportunistic fishery and is dependent on the migration rate of sardines into Canadian waters. Sardine migration and population levels are heavily influenced by oceanic conditions that determine the survival and recruitment of juveniles into the adult stock. From 1996 to 2001 there was a limited experimental harvest of Pacific sardines by a small number of harvesters. Based on the results of the experimental fishery, and the de-listing of Pacific sardines by the Federal-Provincial Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in 2002, the Pacific sardine fishery moved from an exploratory/experimental phase to a commercial fishery consistent with the New Emerging Fisheries Policy (NEFP) established by Fisheries and Oceans Canada (DFO) (Fisheries and Oceans Canada, 2008). From 2003 to 2006, DFO developed a fishing plan that allowed for an incremental approach to development of the fishery while continuing to follow the principles of the NEFP. Since 2007, DFO has prepared an annual Integrated Fisheries Management Plan (IFMP) to support growth of the fishery. IFMPs provide a planning framework for the conservation and sustainable use of fisheries resources and the process by which a given fishery will be managed for a period of time (Fisheries and Oceans Canada, 2010).

With the exception of time and area closures, the fishery is open from June 1 to the following February 9 each year and is managed through individual quotas. Vessels are authorized to harvest to the Individual Vessel Quota (IVQ) as per the conditions of their Pacific sardine licence. A communal commercial Pacific sardine licence, category “ZSF”, or a commercial Pacific sardine licence, category “ZS”, is required to commercially harvest Pacific sardine. Pacific sardine licences are party based licences, meaning eligibilities are issued to a person or company rather than a vessel.

The Pacific sardine is a small pelagic fish, a member of the herring family with an iridescent, silvery body and a single dorsal fin located over the middle of the body. The linear bony ridges on its gill cover distinguish this species from other members of the herring family. While the Pacific sardine is the commercially targeted species, chub mackerel (*Scomber japonicus*) and jack mackerel (*Trachurus symmetricus*) are caught incidentally through this fishery.

All harvest of Pacific sardine is currently made using purse seine or trap net gear. Vessels are generally 60 – 70 feet in length with 4 or 5 crew members. Seiners use large nets to encircle the fish, which are then drawn together into a “purse” so that the fish cannot escape. A vessel geared with purse seine gear may use a trap net, meaning a net that is set so as to enclose an area of water into which fish are guided through an opening or openings by one or more leaders. Traps allow fish to be held for the fresh market.

The total estimated catch (metric tonnes) for the sardine fishery was assembled by DFO into 4 kilometre x 4 kilometre grid cells directly from the Sardine harvest log database located at the Pacific Biological Station (PBS) and includes the cumulative 2001-2008 fishing seasons. Information provided by DFO was modified to meet confidentiality requirements. Grid cells with information from less than three vessels are shown as a presence of sardine fishing.

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 sardine fishery were compiled based on the Integrated Fisheries Management Plan (IFMP) for Pacific Sardine dated June 15, 2008 – February 9, 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.)



PHOTO: BREAKERS FISH COMPANY

### data sources

- Fishery data: Fisheries and Oceans Canada, Sardine 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 collected

- Fishery data: 2001-2008
- 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 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.
- 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.
- The catch weight values are based on estimated total catch from harvesters logs and do not necessarily reflect the validated landed weight.
- 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](http://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](http://www.bcmca.ca/document-library)
- Fisheries and Oceans Canada. *Annual Integrated Fisheries Management Plans*. [www.ops2.pac.dfo-mpo.gc.ca/snet/content/MPLANS/MPlans.htm?&lang=en](http://www.ops2.pac.dfo-mpo.gc.ca/snet/content/MPLANS/MPlans.htm?&lang=en)
- Fisheries and Oceans Canada. *New Emerging Fisheries Policy*. 2008. [www.dfo-mpo.gc.ca/fm-gp/policies-politiques/efp-pnp-eng.htm](http://www.dfo-mpo.gc.ca/fm-gp/policies-politiques/efp-pnp-eng.htm)
- Fisheries and Oceans Canada. *Preparing an Integrated Fisheries Management Plan (IFMP)*. Retrieved from Internet 10 November 2010. [www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/guidance-guide/preparing-ifmp-pgip-elaboration-eng.htm](http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/guidance-guide/preparing-ifmp-pgip-elaboration-eng.htm)
- Robb C.K., K.M. Bodtke, 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**  
**Sardines 2001 - 2008**

**Legend**

**Metric Tonnes of Sardine**

**Caught**

- 10 - 250 (63.64%)
- 251 - 500 (25.25%)
- 501 - 750 (5.05%)
- 751 - 1,000 (5.05%)
- 1,001 - 1,250 (1.01%)
- Presence of Sardines
- Year-round Sardine Closures

**Notes:**

- The number in brackets in the legend above is the percent of polygons that fell into the given category.
- Presence areas are fished but catch weight was not provided due to confidentiality requirements (minimum 3 vessels reporting).
- Closures obtained from the Jun. 15, 2008-Feb. 9, 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 \*

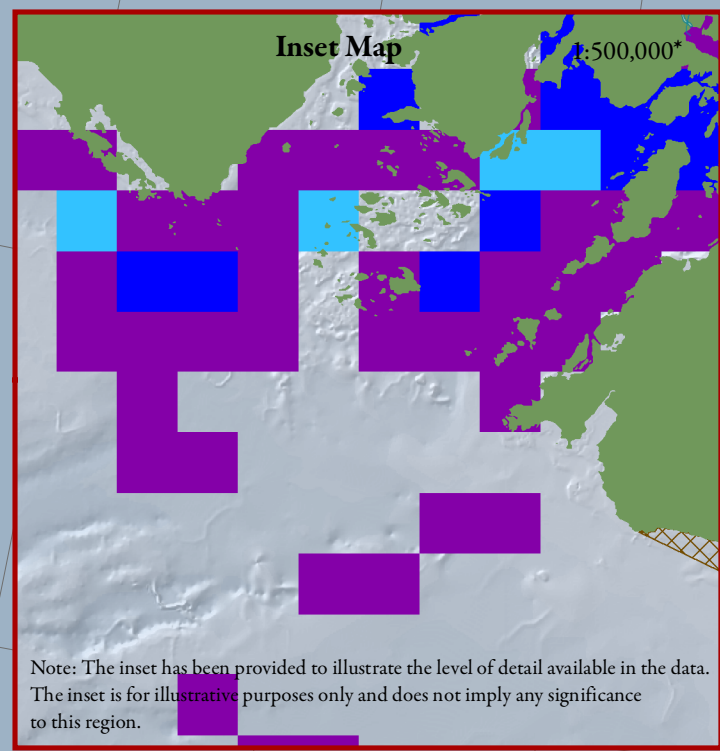
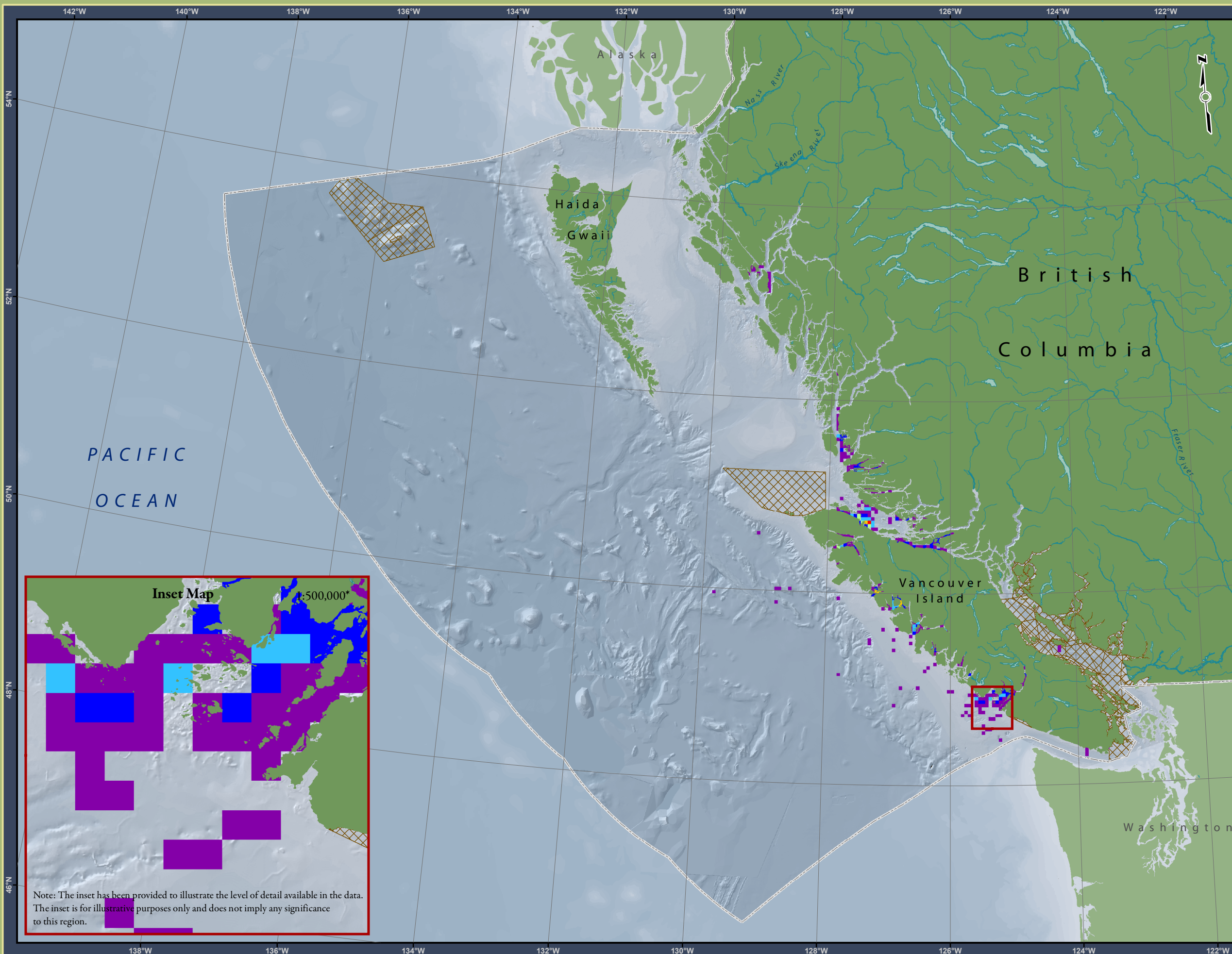
\* Written scales are approximate and  
 are based on a 11 x 17 inch paper size.

Prepared for:



Map template by Caslys Consulting Ltd.

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Note: The inset has been provided to illustrate the level of detail available in the data. The inset is for illustrative purposes only and does not imply any significance to this region.