Commercial Fisheries – Chum Salmon (seine)

description

Pacific salmon *(Oncorhynchus spp.)* have been an important part of the diet and culture of First Nations on Canada's west coast for thousands of years, and since the late 1800s, following the arrival of Europeans in British Columbia, salmon have been the target of a large-scale commercial fishery.

Canada's Pacific salmon management is based on integrated plans that focus on conservation, allocation, sustainable use, improved decision making, and obligations to First Nations and international treaties. These integrated plans are guided by legislative mandates and policy and operational initiatives, including the Pacific Salmon Commission, established by treaty between Canada and the United States in 1985, and the Wild Salmon Policy, approved in 2005.

Chum salmon *(Oncorhynchus keta)* have the most extensive geographic distribution of all Pacific salmon species. Chum fry migrate to the ocean shortly after emerging from the gravel of their natal streams, but spend time rearing in estuaries before migrating to offshore feeding grounds in the northeastern Pacific Ocean. Adults return along coastal routes to their natal rivers to spawn and die after two to five years at sea, with ages three to five predominating. Chum salmon appear metallic blue and silver in salt water, with occasional black speckling on the back. As they near fresh water on the return to their natal streams, their flesh quality and visual appearance deteriorate rapidly. The males also develop a sharply hooked nose and dog-like teeth (hence the common name "dog salmon").

In BC, commercial salmon fishing by seine is authorized by one of two licence types: category "A" (issued to a vessel); or category "F" (party based and issued under the Aboriginal Communal Fishing Licences Regulations). Salmon may be commercially fished by seine net in Salmon Area A (north coast) and Salmon Area B (south coast) (see Figure 1 below). Not all areas are open in a given year. The setting of a seine net begins when a school of salmon is located. One end of the seine net is secured to a skiff, which moves a short distance from the vessel until a few fathoms (one fathom is 1.8 metres) of net have entered the water. The seiner then runs in a large circle around the school of salmon letting out net along the way and returning to the skiff where the two ends of the net are joined. When set into position, the seine net stands like a circular fence in the water and when hauled in by the vessel, the bottom of the net is drawn together forming a huge purse under the fish. Once the net is pursed, salmon are generally brought aboard the vessel by means of a dip-net or "brailer", scooping the fish and transferring them into a hold on the vessel.
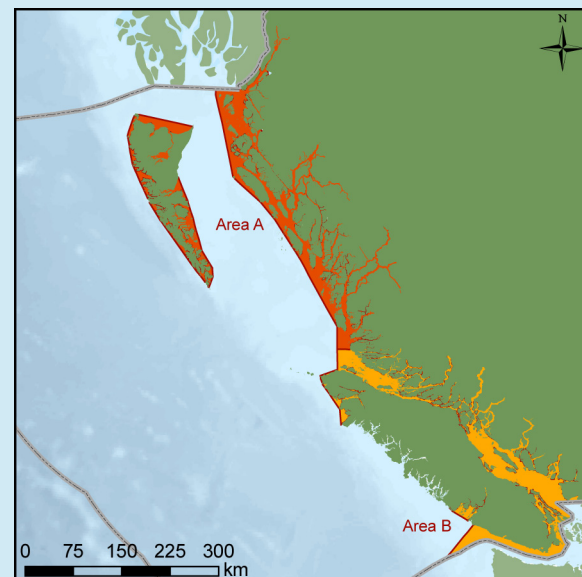

FIGURE 1: LICENCE AREAS

The salmon catch data are displayed in a geographic unit called a Salmon Catch Estimate Area (SCEA). DFO started to use SCEAs in 2001 to represent areas that can be open for commercial salmon fishing, recognizing that salmon openings are not static and can vary over time. SCEAs have been refined over time to exclude areas that are consistently not opened for any gear type (e.g., ribbon boundary around a creek mouth, protected area etc.).

This map is one of a series that represents the spatial distribution of commercial salmon fishing by different gear types. Source data were provided by Fisheries and Oceans Canada (DFO) for each gear type (gillnet, troll, and seine) and year (2001-2007) and included information on total effort (boat days) and total salmon catch by species. BCMCA aggregated the data by SCEAs for each gear type and species, summing all years of available data as recommended by participants in the BCMCA Commercial Fisheries Workshop (March 2010). The data are displayed on the main map using equal interval categories, meaning that the data are divided into five equally spaced classes where each class may contain a different number of SCEAs. The inset map shows the same data, but uses quantiles for display, meaning each class contains roughly the same number of SCEAs.

data sources

- Fisheries and Oceans Canada

data resolution

- Data was provided by Salmon Catch Estimate Area

date collected

- 2001-2007

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

- Reviewers at the BCMCA Commercial Fisheries Workshop (March 2010) felt the information shown was too coarse to be a useful representation of the fishery. They suggest that data be presented by Fishery Management Subareas, which DFO indicated was not possible since the data was not collected using those areas.
- It is more important to separate the maps by gear type used than by species caught.
- Number of boat days is less relevant than catch information.
- Generally reviewers wanted to see catch for longer time periods and closures that matched the time periods displayed on the map.
- Reviewers recommended using catch statistics for consecutive years in multiple of 4 years (4, 8 or 12) for salmon to match the spawning cycle. DFO responded, "Although some species have a 4 year cycle, other don't (Pink and Chum). Also 3 year and 5 year olds are common in both Chinook and Sockeye."
- Information from earlier (e.g. the mid/early 1990s) would be useful as more salmon were caught in that time period. DFO responded that data were only collected in this format starting in 2001.
- For allocation purposes, DFO uses an average weight per fish. This could be requested from DFO and used to calculate a cumulative weight caught by species, therefore creating a similar metric to other commercial fisheries.
- 2001 was the first year data were compiled in the SCEA format; 2001 data should be discarded since many refinements to collection methods and the SCEA have since been made.

caveats of use

- This map shows only where fishing has taken place; it does not represent economic valuations or biological trends. The catch and effort shape files provided by DFO for the BCMCA are not to be used as a proxy for stock health or dynamics or to infer any biological trends.
- Data displayed should not be assumed to match current or future conditions due to ongoing changes in the environment and management.
- Catch is influenced by seasonal and annual closures, which are not displayed on the map due to a lack of available spatial data.
- This map represents numbers of fish reported as caught; some catch may not have been reported. In the case of discrepancies, catch information from DFO takes precedence over commercial fisheries information portrayed by the BCMCA.
- SCEA boundaries have changed over time, and are generally smaller after 2001. The BCMCA combined data for multiple years within SCEAs only when boundaries matched.
- Some areas within a SCEA are more heavily fished than others; and not every SCEA contains reported catch for each year between 2001 and 2007. Where SCEAs overlap, the one with the highest value is displayed on the map.
- Data on this fishery have been screened to meet confidentiality requirements. The count of commercial fishing vessels for each spatial unit within which data are provided 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 number of years each SCEA had an active fishery that met privacy standards varies from 1 to 6.
- 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*

BCMCA Atlas
Commercial Fisheries
Chum Salmon (seine)
2001-2007

Legend

Number of Chum Salmon
Caught by Seine

- ■ 26 - 300,000 (90.16%)
- ■ 300,001 - 600,000 (1.64%)
- ■ 600,001 - 900,000 (4.92%)
- ■ 900,001 - 1,200,000 (0%)
- ■ 1,200,001 - 1,500,000 (1.64%)

Notes:
- The number in brackets in the legend above is the percent of Salmon Catch Estimate Areas (SCEA) that fell into this category.
- When SCEAs overlap, the areas with the highest catch are displayed on top.
- The main map shows the data classified in 5 equal intervals. The inset map shows the same data classified in 5 quantiles.

Data Sources:
Fisheries and Oceans Canada

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

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0  25  50  75  100 125 150
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Kilometres

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0      25      50      75
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Nautical Miles
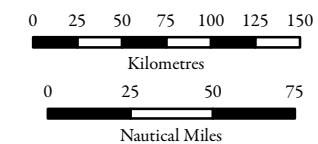
1:4,250,000 *
* Written scales are approximate and are based on a 11 x 17 inch paper size.

Prepared for:

BC MARINE CONSERVATION ANALYSIS

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Alaska

Nass River

Skeena River

Haida Gwaii

B r i t i s h   C o l u m b i a

Fraser River

P A C I F I C

O C E A N

Vancouver Island

Washington

Inset Map

Quantile Classification
1:9,000,000*

British Columbia

Number of Chum Salmon
Caught by Seine

- ■ 26 - 3,419
- ■ 3,420 - 20,260
- ■ 20,261 - 60,565
- ■ 60,566 - 186,600
- ■ 186,601 - 1,412,808