

Shipping & Transport –Tanker Vessel Density Winter 2007

description

This atlas page illustrates the relative density of tanker vessels in transit in the winter months (January to April and October to December) of 2007. It is based on ship monitoring data from the Canadian Coast Guard's Marine Communications and Traffic Services (MCTS). Tanker vessels include those carrying oil and liquid chemicals, including petroleum and natural gas. These vessels are estimated to account for 1% of the annual vessel movements in Canada's Pacific waters (BC Ministry of Environment et al. 2006). The map also shows the Tanker Exclusion Zone (TEZ) which defines an area off Canada's west coast where a disabled tanker would likely drift ashore prior to the arrival of salvage tugs in unfavourable weather conditions. The TEZ was adopted in 1988 by the U.S. Coast Guard, Canadian Coast Guard and representatives from the U.S. Tanker industry user group. Adherence is voluntary but the map shows that unless tankers are entering a BC port they transit away from the landward side of the TEZ.

All ships operating in Canadian waters must obtain Vessel Traffic Services (VTS) clearance before beginning a voyage from a Canadian location or before entering Canadian waters. The Coast Guard monitors ship traffic using radio communication, radar detection and an Automatic Identification System. The Coast Guard documents ship position, direction and speed approximately every 4 minutes with ship-identification (Lloyd's Register name and number), flag-state (country of registry), type of ship and size. All ships over 20 metres in length, and ships engaged in towing or pushing any vessel or object more than 20 metres in length (other than fishing gear) that had a combined length of more than 45 metres are required to report their position to the VTS. Vessels towing or pushing inside a log booming ground, pleasure yachts less than 30 metres, or fishing vessels less than 24 metres and 150 tons gross are not required to report their position to the VTS.

Vessel observations were reduced to one uniquely identifiable vessel observation per hour per 5 kilometre by 5 kilometre grid cell. For each grid cell, data were summarized by calculating total number of uniquely identifiable ship observations per hour that either moved into or out of the focal cell (i.e., ensuring ships were moving).

The data is displayed on the main map using equal interval categories, meaning that the data is divided into nine equally spaced classes where each class may contain a different number of grid cells. The inset map shows the same information as nine quantiles, meaning each classification contains the same number of grid cells.



PHOTO: MICHAEL CHU

data sources

- Vessel Density: Canadian Coast Guard - Marine Communications and Traffic Services vessel tracking database; Analysis of Canadian Coast Guard data by Patrick O'Hara (Canadian Wildlife Service).
- Tanker Exclusion Zone: Canadian Coast Guard

data resolution

- 5 kilometre by 5 kilometre grid cells

date collected

- Vessel Density: Winter 2007
- Tanker Exclusion Zone: 2006

reviewers

- Brian Simms and Captain Phillip Nelson, Council of Marine Carriers
- Kevin Obermeyer, Pacific Pilotage Authority Canada

reviewer comments

- From 2009, with the startup of the larger (80,000 ton DWT) tankers bringing in condensate, the Pacific Pilotage Authority changed the routing to the less constricted Browning Entrance via Principe Channel, Squally Channel, Whale Channel and then Douglas Channel into Kitimat for vessels approaching from the north and via Caamano Sound, Squally Channel, Whale Channel and Douglas Channel for vessels approaching from south.

caveats of use

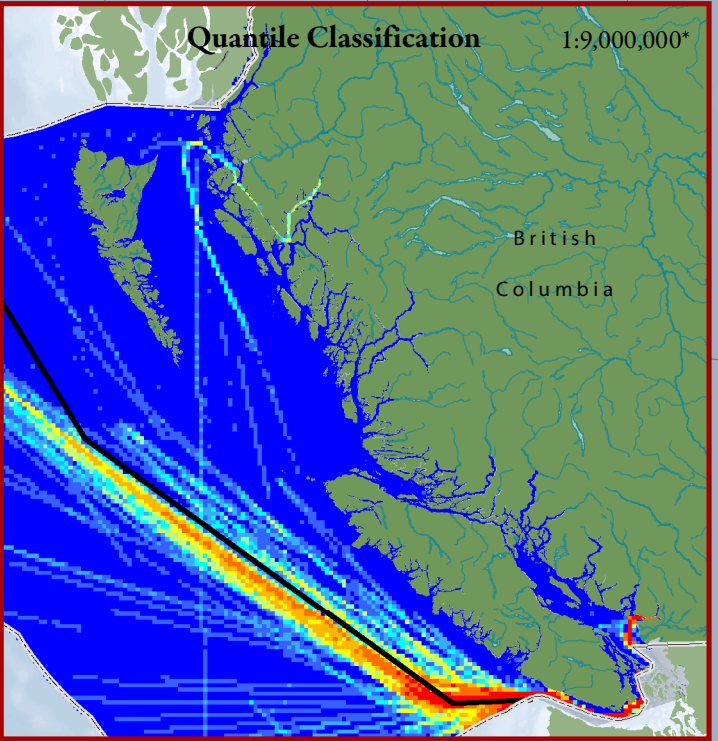
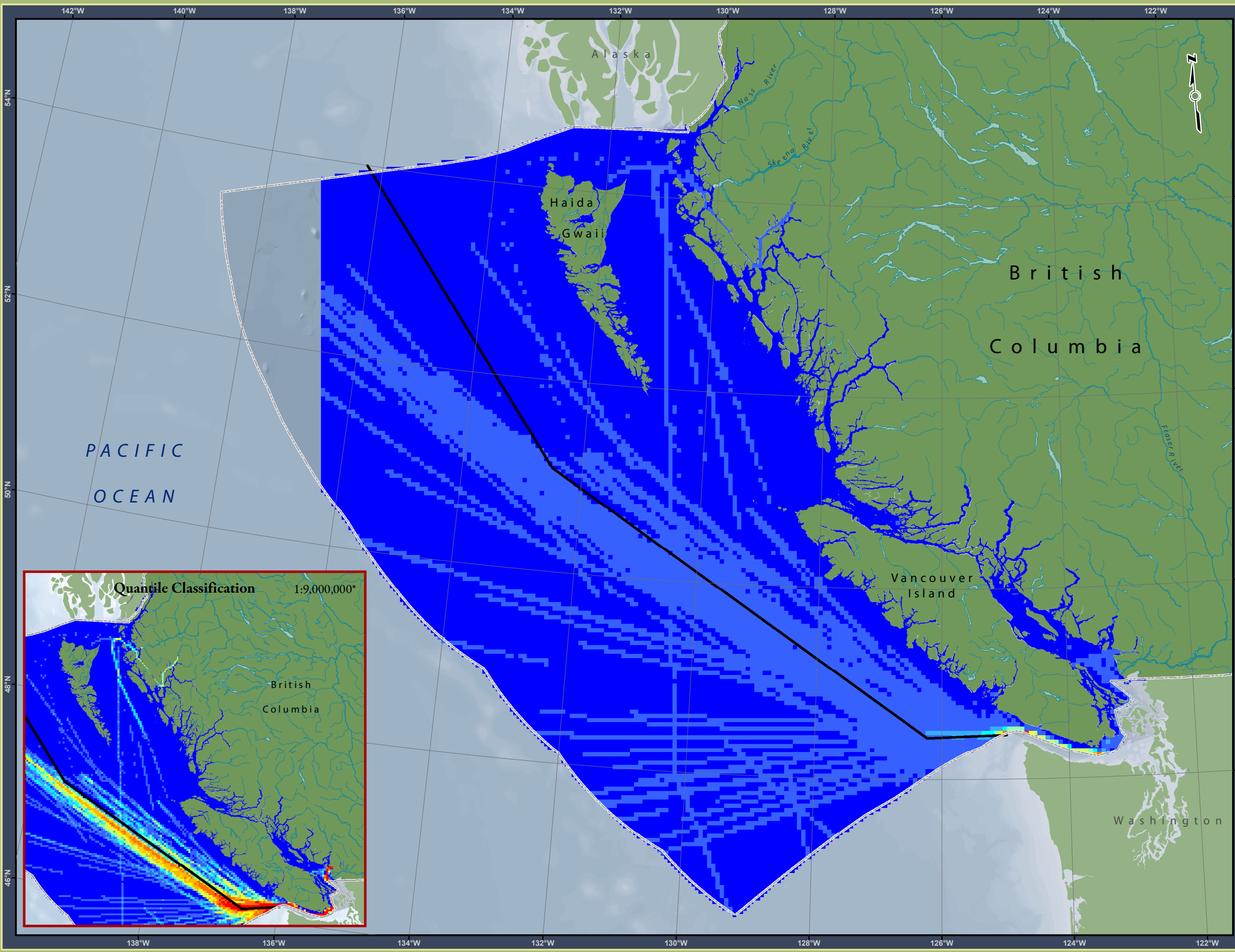
- This map shows only the relative density of tanker vessel movements for the winter of 2007. Other maps from the vessel density series showing the same vessel type in a different season or different vessel types cannot be compared directly to this map since the range in number of vessel movements will vary from season to season and vessel type to vessel type.
- There is radar coverage of most of Georgia Strait and a radar station with 90 nautical mile range in the vicinity of Tofino. The radar coverage extends from Juan de Fuca in the south to an area just north of Kyuquot Sound on the west coast of Vancouver Island. All the other areas are tracked by vessels using the established call-in points indicated on the charts. This means that all of the northern area off Vancouver Island, both coasts of Haida Gwaii and the North Coast mainland are without radar coverage.
- The information used to create this map does not include vessels transiting the portion of the Juan de Fuca Strait, which is the responsibility of the US Coast Guard.
- The map provides minimum estimates of vessel traffic densities for the various traffic types included here and likely underestimates vessel traffic, particularly west of Haida Gwaii. Reasons for this include: 1) limited extents of Coast Guard radar coverage; 2) many of the vessels transiting the area west of Haida Gwaii are not bound for Canadian destinations and therefore not required to report to the Coast Guard; and 3) the Automatic Identification System is still in process of being brought in by VTS.
- Recommended date of expiry for use of these data in a marine planning context: Data should be refreshed every 4 to 5 years.

map, feature data and metadata access

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

references

- BC Ministry of Environment, Fisheries and Oceans Canada, University of Victoria, University of British Columbia, and Environment Canada. *Alive and Inseparable: British Columbia's Coastal Environment*. 2006. www.env.gov.bc.ca/soe/bcce/
- For more detailed information on the Tanker Exclusion Zone history and rationale for development, see: www.ccg-gcc.gc.ca/e0003909



BCMCA Atlas

Shipping & Transport

Tanker Vessel Density

Winter 2007

Legend

Tanker Vessel Density
(# of vessel movements)

■ zero density
■ low
■ high

— Tanker Exclusion Zone

Notes:

- The number of vessel movements in a 5 km x 5 km grid cell ranges from 0 to 651.
- The main map shows the data classified in 9 equal intervals.
- The inset map shows the same data classified in 9 quantiles.

Data Sources:
Canadian Coast Guard

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:

 **BC MARINE CONSERVATION ANALYSIS**

Map template by Caslys Consulting Ltd.
January 27, 2011