

Physical Representation – High Rugosity

description

Rugosity is a measure of the roughness of terrain, in this case, seafloor terrain. Technically, rugosity is defined as the ratio of surface area to planar area. Areas of high rugosity, illustrated here, are indicative of areas with high biodiversity, depending on the scale of the input bathymetry.

To develop this map, bathymetric data from several sources were combined to create a comprehensive 75 metre grid covering the study area. The natural logarithm of rugosity was calculated before classifying the values into five quantiles (a quantile is established by dividing the frequency distribution of a variable into equal groups: that is, each quantile contains the same fraction of the total number of values being measured). The top quantile, or top 20% of the values, were identified as ‘high’ rugosity, and these areas are identified here.



PHOTO: LIVING OCEANS SOCIETY

data sources

- Living Oceans Society – Bathymetry Data
- Marine Geoscience Data System – Bathymetry Data
- Natural Resources Canada – Bathymetry Data
- Parks Canada – Rugosity analysis

data resolution

- Source bathymetric data was obtained at scales ranging from 1:250,000 to very fine scale multibeam bathymetry provided in a 2 metre grid for limited areas. The rugosity calculations were performed on a 75 metre by 75 metre grid. Appropriate scale for use of these data should not be finer than 1:250,000.

date of analysis

- 2009

reviewers

- Kim Conway, Natural Resources Canada
- Zach Ferdana, The Nature Conservancy
- Krista Royle, Greg MacMillan, Parks Canada

reviewer comments

- Bathymetry is not great; normally, rugosity would not be calculated from bathymetry data coarser than 30 metres.
- The scale of the whole BC margin, and depths from shallow to deep sea, make it difficult to get at any feature that is not the continental slope, a seamount or the fiord sidewalls becoming the main feature of interest. As long as other criteria to map terrain are being used, this model of rugosity might have some utility. Like everything scale is critical. Many Strait of Georgia features do become apparent. There is not too much more that can be done when examining the whole of the margin using rugosity. So while the map may have limited utility, there are no suggestions for improvement. It is a question of scale. For most organisms, habitat works at a very different scale than this map.

caveats of use


- The classification was done at a coast wide scale and therefore results should be used at a coast wide scale only. They are not necessarily relevant at regional or finer scales.
- Be advised that this data set is a mosaic of several data sets each of which has been ‘cleaned’ somewhat. This mosaic is a long way from the source data and was created only to allow bathymetric terrain modelling. It must NOT be used for navigation.
- 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.

BCMCA Atlas
Physical Representation
High Rugosity

Legend

 High Rugosity

Data Sources:

Living Oceans Society, Marine Geoscience Data System, Natural Resources Canada, Parks 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

0 25 50 75 100 125 150

Kilometres

0 25 50 75

Nautical Miles

1:4,250,000 *

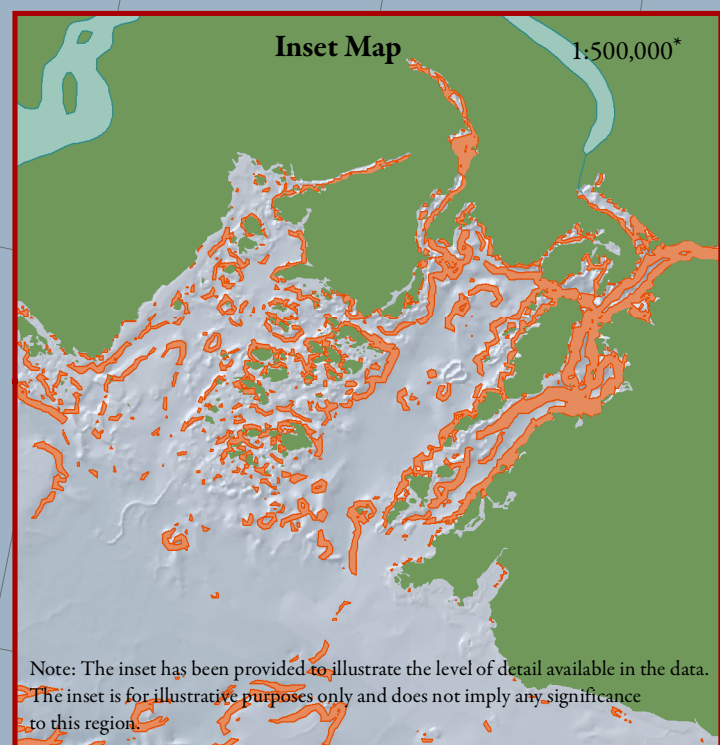
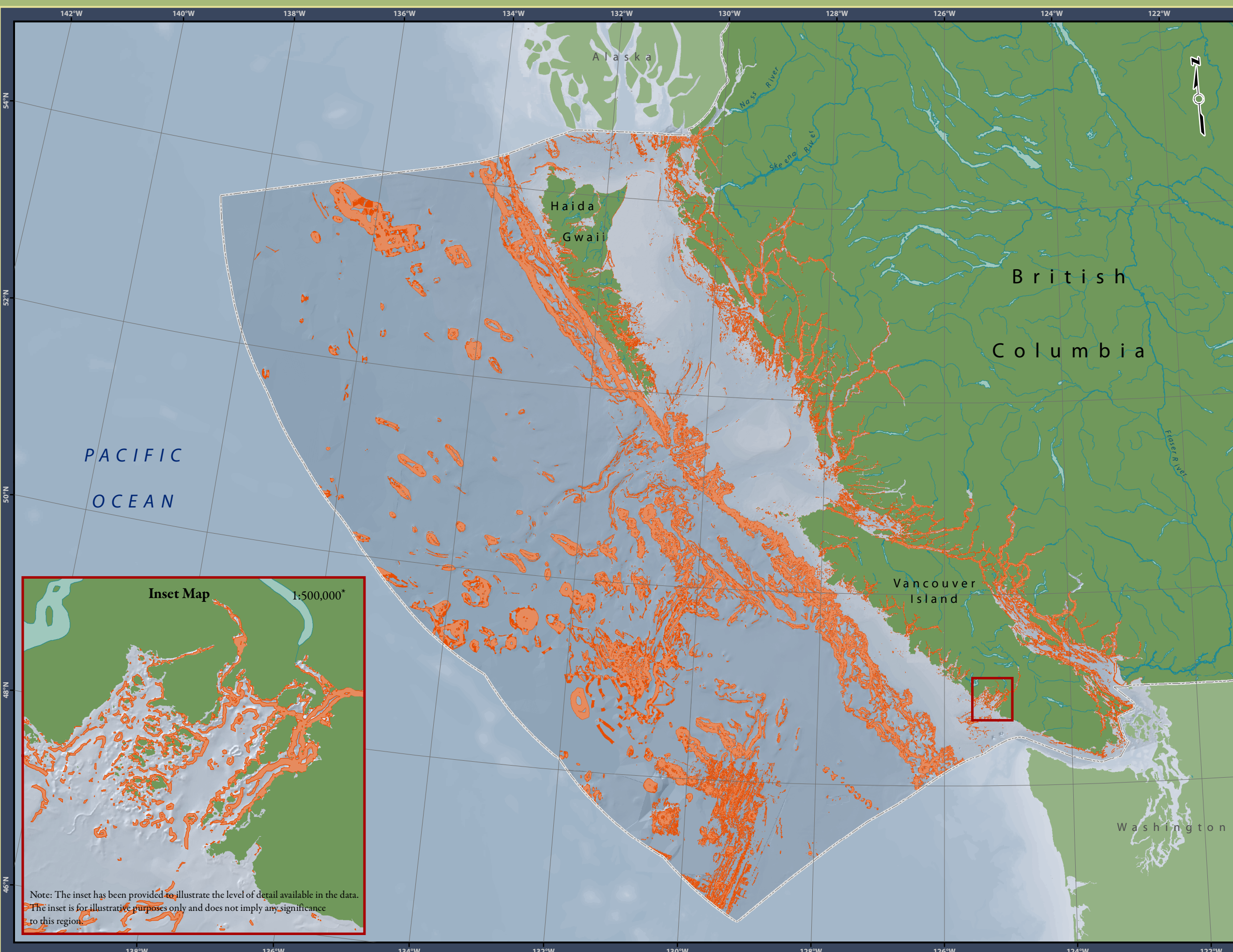
* Written scales are approximate and are based on a 11 x 17 inch paper size.

Prepared for:



Map template by Caslys Consulting Ltd.

June 2, 2010



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.