

Marine Invertebrates – Sponge Occurrences II – Trawl Fishery Observer Data

description

Sponges are sessile (immobile) aquatic animals that can be found in a range of habitats from shallow subtidal waters to the deep abyss. Sponges tend to form diverse habitat structures used by many other marine species and are sometimes referred to as foundation species for this reason. Their role as rich and protective habitats for other organisms makes them hotspots of biodiversity and, therefore, ecologically important. There are more than 250 species of sponges in the Canadian Pacific (Gardner, 2009) but relatively few data available to map the full extents of their habitat.

Occurrences illustrated here are cumulative observations from Trawl Fishery Observer data, from 2004 to February 2010. Although all biota from each tow is recorded in Observer data, sponges are generally not identified to species level and thus all sponge observations are lumped together here for illustration.

Data were provided by Fisheries and Oceans Canada (DFO) as tallied observations for BC Marine Conservation Analysis (BCMCA) planning units and are classified for illustration into 6 classes based on Jenks natural breaks classification. The Jenks' natural breaks classification scheme (automated in ESRI ArcGIS software) (Jenks, 1977 and Fisher, 1958) determines the best arrangement of values into classes by iteratively comparing sums of the squared difference between observed values within each class and class means. The "best" classification identifies breaks in the ordered distribution of values that minimizes within-class sum of squared differences, and thus identifies classes that are most homogenous within.

The distribution of observations per planning unit, in which sponge was observed, is highly skewed (Figure 1) and the vast majority recorded 1 sponge observation over the last six years.



PHOTO: LIVING OCEANS SOCIETY

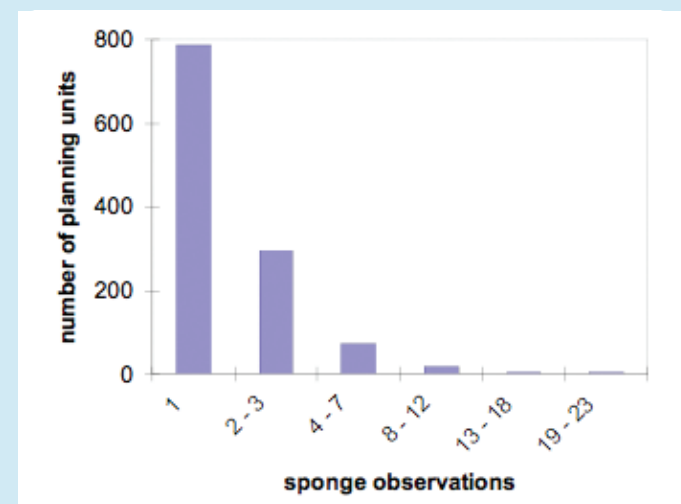


FIGURE 1. DISTRIBUTION OF SPONGE OBSERVATIONS BY PLANNING UNIT.

data sources

- Fisheries and Oceans Canada, Pacific Region, Science Branch, Groundfish Section

data resolution

- Source data is collected by tow and GPS locations are recorded. DFO summarized the data illustrated here into 2 kilometre by 2 kilometre planning units.

date collected

- 2004 – Feb. 2010

reviewers

- Reviewed for accuracy and presentation by data providers and industry representative.

reviewer comments

- Information on the total number of tows performed in each planning unit would help to give context to the number of sponge observations in each planning unit.

caveats of use

- Spatial extents of the trawl fishery are limited. Lack of data outside these areas should not be interpreted as absence of sponges.
- Data were compiled for the BCMCA by planning unit and are illustrated as such. However, sponge observations recorded within a planning unit should not be interpreted as meaning that the entire area of that planning unit is habitat for sponges.
- 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

- Fisher, W. D. On grouping for maximum homogeneity. *Journal of the American Statistical Association*. 1958. 53, 789-798.
- Gardner, J. *Coldwater corals and sponge conservation on Canada's Pacific coast: Perspectives on issues and options*. Background paper to support discussions toward a conservation strategy. Submitted to the Organizing Committee for the Workshop, Developing a Conservation Strategy for Coldwater Corals and Sponges on the Pacific Coast. DFO, Vancouver, BC. 2009. 49pp.
- Jenks, G. F. Optimal data classification for choropleth maps. *Occasional paper No. 2. Lawrence, Kansas: University of Kansas, Department of Geography*. 1977.

BCMCA Atlas
Marine Invertebrates
Sponge Occurrences II

Legend

Number of Sponge Observations in Observer Data from the Trawl Fishery 2004 - Feb. 2010

- 1
- 2 - 3
- 4 - 7
- 8 - 12
- 13 - 18
- 19 - 23

Depth (m)
 \ / 100 \ / 200

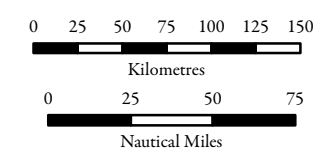
Note:
 - Represents the number of tows in which sponge was recorded in each 2 km x 2 km planning unit.
 - Classification based on 6 natural breaks.

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



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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