Fish and Invertebrates – Feature Count

description

One of the goals of BC Marine Conservation Analysis (BCMCA) is to collaboratively identify areas of high conservation value and areas important to human use in Canada's Pacific Ocean. The BCMCA project has been designed to make these products available for use in marine planning. In order to identify areas of high conservation value, the BCMCA ran Marxan analyses using a wide range of ecological data, recommended by subject matter experts, as conservation features. These and other data are illustrated in the BCMCA Atlas.

Fish and invertebrates are both important components of the marine environment because they play important roles in ecosystem function, and they represent major portions of the biodiversity in the Canadian Pacific. Lambert (1994) reports that there are an estimated 6,555 species of invertebrates and 400 species of fish in Canada's Pacific waters, and that the marine fauna off of British Columbia is much more diverse than other temperate marine regions of the world. Marine and anadromous fish are important taxonomic groups in general, as their presence may be indicative of productive, functioning ecosystems, and functional groups are integral to marine food webs. Marine invertebrates are an important for many of the same reasons, but they are also sensitive to physical anthropogenic disturbance and are commonly used as indicators for the health and condition of the marine environment. Marine invertebrates are also an important focal taxonomic group whose presence may be indicative of specific oceanographic conditions and unique ecological communities.

This map was generated by overlaying all the fish and invertebrate features that the BCMCA collated to go into the Marxan analysis features. The map illustrates the number of different fish and invertebrate features that inform each 2 kilometre by 2 kilometre planning unit. There were a total of 45 different fish and invertebrate features used in the Marxan analysis. Two of these are fish features, 15 are invertebrate features, and 28 represent fish and invertebrate survey data. As the facing map shows, up to 15 of them overlapped in some of the planning units. Feature count values were classified for illustration using 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.)

Forty-five fish and invertebrate features were included in this tally:

- Herring Spawn – Cumulative Habitat Index
- Selected Corals and Sponges
- Coral Occurrences II - Trawl Fishery Observer Data
- Sponge occurrences II - Trawl Fishery Observer Data
- Selected Molluscs and Crustaceans
- Important Invertebrate Habitat 1 - Rock Platform Submerged at High Tides
- Important Invertebrate Habitat 3 – Sandy Substrate in the Intertidal Zone
- Groundfish Trawl Survey Species Richness – 2003
- Groundfish Trawl Survey Species Richness - 2005
- Groundfish Trawl Survey Species Richness - 2007
- Groundfish Trawl Survey Species Richness - 2009
- Groundfish Trawl Survey Observed Catch Density - 2004
- Groundfish Trawl Survey Observed Catch Density - 2006
- Groundfish Trawl Survey Observed Catch Density - 2008
- Groundfish Fishery Observer Data – Species Richness, Jan 2004 – Feb 2010
- Shrimp Trawl Survey Species Richness - 2004
- Shrimp Trawl Survey Species Richness - 2006
- Shrimp Trawl Survey Species Richness - 2008
- Shrimp Trawl Surveys Observed Catch Density - 2004
- Shrimp Trawl Surveys Observed Catch Density - 2006
- Shrimp Trawl Surveys Observed Catch Density - 2008
- Habitat Based Estimates of Salmon Productivity
- Coral Occurrences I - Groundfish Trawl Surveys
- Sponge occurrences I - Groundfish Trawl Surveys
- Sponge Reefs
- Selected Echinoderms and Segmented Worms
- Important Invertebrate Habitat 2 - Rock Substrate with High Current
- Important Invertebrate Habitat 4 - Mudflats Adjacent To Estuaries
- Groundfish Trawl Survey Species Richness - 2004
- Groundfish Trawl Survey Species Richness - 2006
- Groundfish Trawl Survey Species Richness - 2008
- Groundfish Trawl Survey Observed Catch Density - 2003
- Groundfish Trawl Survey Observed Catch Density - 2005
- Groundfish Trawl Survey Observed Catch Density - 2007
- Groundfish Trawl Survey Observed Catch Density - 2009
- Groundfish Fishery Observer Data - Total Observed Catch, Jan 2004 – Feb 2010
- Shrimp Trawl Survey Species Richness - 2005
- Shrimp Trawl Survey Species Richness - 2007
- Shrimp Trawl Survey Species Richness - 2009
- Shrimp Trawl Surveys Observed Catch Density - 2005
- Shrimp Trawl Surveys Observed Catch Density - 2007
- Shrimp Trawl Surveys Observed Catch Density - 2009

data sources

- Fisheries and Oceans Canada
- University of Montana - Flathead Lake Biological Station
- Natural Resources Canada
- Province of British Columbia
- Royal British Columbia Museum

(Note: Please see individual feature atlas pages and/or metadata for feature specific data sources.)

data resolution

- Features were tallied by their presence in 2 kilometre by 2 kilometre planning units.

date compiled

- 2010

reviewers

- Not reviewed.

reviewer comments

- None provided.

caveats of use

- Survey effort is not consistent across all planning units or across all areas of the coast. Areas with no data may not have been surveyed and these data gaps are not indicative of an absence of fish or invertebrates.
- This map is a compilation of data collected by many people, for different purposes, using different survey techniques with different methodologies within each technique and, therefore, it should not be used beyond the purpose it was created for which is to illustrate the distribution of fish and invertebrate features that the BCMCA collated to go into the Marxan analysis.
- Please see individual feature atlas pages and metadata for feature or species specific caveats.
- 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

- Lambert, Philip. "Biodiversity of Marine Invertebrates in British Columbia." In *Biodiversity in British Columbia,* edited by L. Harding and E. McCullum. Ottawa: Environment Canada. 1994. Pp. 57 - 69.

BCMCA Atlas

Fish and Invertebrates

Feature Count

Legend

Feature count
(by planning unit)

- 1
- 2
- 3
- 4
- 5 - 6
- 7 - 15

Note:
- Classification based on 6 quantiles.

Data Sources:
Fisheries and Oceans Canada,
University of Montana -
Flathead Lake Biological Station,
Natural Resources Canada,
Province of British Columbia,
Royal British Columbia Museum

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.

September 13, 2010

Inset Map 1:500,000*

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.