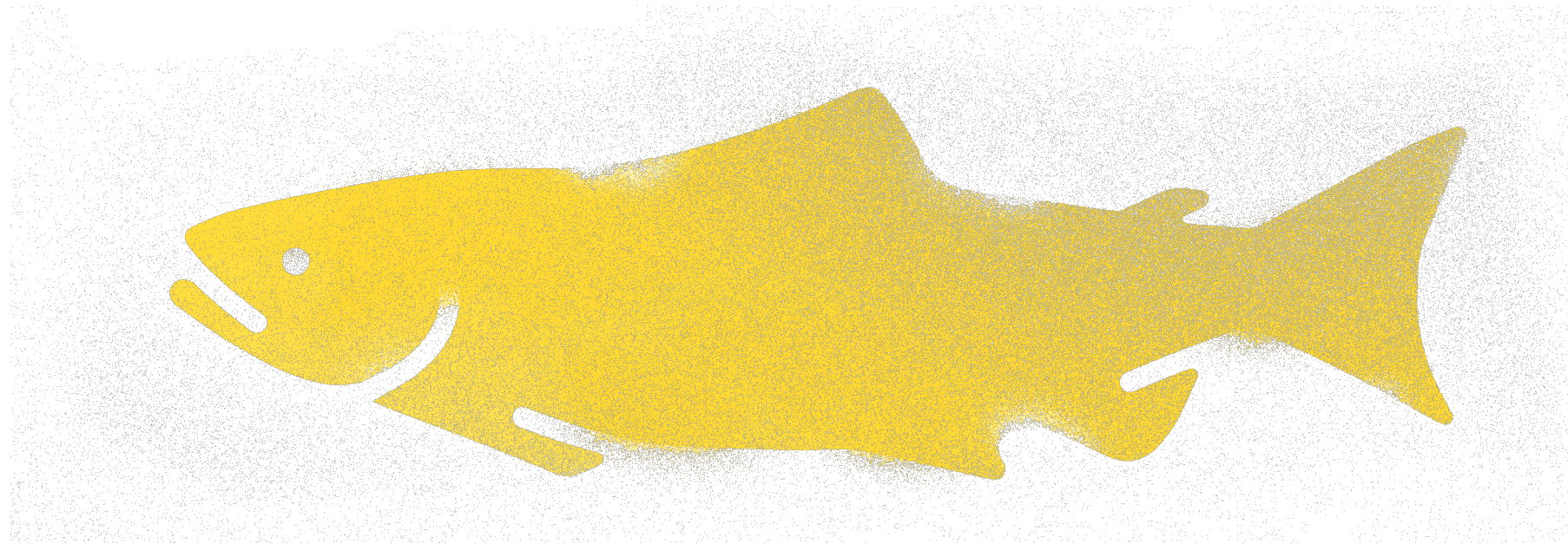


The Strait of Georgia Data Centre

Overview & Marine Reference Guide



Ben Skinner, Pacific Salmon Foundation, Strait of Georgia Data Centre

Presented to: Baynes Sound Ecoforum – Nov 24, 2023



THE STRAIT OF GEORGIA DATA CENTRE

Data Centre Objectives

- Identify and obtain information resources relevant to the Strait of Georgia.
- Create a secure archive for the data (bibliographic, data systems, and data files).
- Create a web-based, open access data system that makes the archived documents and data accessible.
- Provide map-based displays that allow for spatial query of the data system.



Data Centre Components

- Atlas of Oceanographic Conditions
- Marine Data BC Portal
- Spatial Data Layer Services
- Map Catalogue
- List of Salish Sea Researchers
- List of Publications
- Educational Webpages
- SOG Marine Reference Guide



Type	Title	Name	Common Formats	All Formats
DeltaPortActivePass	cite:DeltaPortActivePass	OpenLayers KML	Select one	
Canada Base Map - Transportation	gn:CBMT	OpenLayers KML	Select one	
National View	gn:National	OpenLayers KML	Select one	
Regional View	gn:Regional	OpenLayers KML	Select one	
Sub-national View	gn:Sub_national	OpenLayers KML	Select one	
Sub-regional View	gn:Sub_regional	OpenLayers KML	Select one	
NatEarth_10m_rivers_lake_centerlines	gn:ne_10m_rivers_lake_centerlines	OpenLayers GML KML	Select one	
ne_10m_rivers_north_america	gn:ne_10m_rivers_north_america	OpenLayers GML KML	Select one	
Admin 0 - Breakaway, disputed areas	gn:ne_50m_boundary_da	OpenLayers GML KML	Select one	
Admin 0 - Boundary Lines	gn:ne_50m_boundary_lines_land	OpenLayers GML KML	Select one	
Coastline-world, 1:50million	gn:ne_50m_coastline	OpenLayers GML KML	Select one	
rivers_bc_alb	gn:rivers_bc_alb	OpenLayers GML KML	Select one	



ATLAS OF OCEANOGRAPHIC CONDITIONS IN THE STRAIT OF GEORGIA

Home About the Atlas CitiSci Program Methods Hydrography Nutrients Harmful Algae Zooplankton

A JAR FULL OF CRITTERS

The contents of a zooplankton net. Always fun to look at!



TO SEARCH

literature" will search the entire citation (title, author, year, abstract, journal name etc). Please specify if your search is an "AND" or "OR" or just a simple text string search. You can use as many terms as you wish for the "AND" and "OR" searches. No punctuation is necessary.

Example, you type: Hornby Island Kelp

AND" search this will provide any literature that has each of the terms Hornby, Island and Kelp within the citation.

OR" search this will provide any literature that has the term Hornby or Island or Kelp within the citation.

String search this will provide any literature that has the full text string "Hornby Island Kelp" within the citation.

Year: 2022

2022

Marine and freshwater regime changes impact a community of migratory Pacific salmonids in decline (Kyle L. Wilson, Colin J. Bailey, Trevor D. Davies, Jonathan W. Moore). *In Global Change Biology*, John Wiley and Sons Inc, volume 28, 2022. Look for this document on [Google Scholar](#) or [Google](#) or [locate using its doi](#)

Geospatial Assessment of Trace-Level Benzophenone-3 in a Fish-Bearing River Using Direct Mass Spectrometry (G. W. Vandergrift, T. R. Rodgers, J. B. Atkinson, E. T. Krogh, C. G. Gill). *In ACS ES&T Water*, volume 2, 2022. Look for this document on [Google Scholar](#) or [Google](#) or [locate using its doi](#)

An ecological carrying capacity assessment for shellfish aquaculture in Baynes Sound, British Columbia (T. F. Sutherland, Ramon Filgueira, Thomas Guyondet, Maxim V. Krassovski, M. G. G. Foreman, Canadian Science Advisory Secretariat, Canada, Department of Fisheries Region, Oceans - Pacific), Fisheries and Oceans Canada, Canadian Science Advisory Secretariat, volume 2022.003., 2022. Look for this document on [Google Scholar](#) or [Google](#)

Pacific herring (*Clupea pallasii*) as a key forage fish in the southeastern Gulf of Alaska (Szymon Surma, Evgeny A. Pakhomov, Tony J.

Field session

NonGeographicalDat
aset

Service


news

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Comments

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Sea Bioregion Land



Mainland and islands within the Salish Sea Bioregion with a database of island names, small island chain names, and larger archipelago names. Island names were derived from the British Columbia Freshwater Atlas or transcribed from Google Maps. Where no name could be found, the name field was left blank. Coastlines were defined using the Washington ShoreZone Shoreline and British Columbia Freshwater Atlas shoreline. ShoreZone was given precedence where the datasets overlapped. ShoreZone gaps like river mouths were bridged with a straight line. Shoreline line features were converted to polygons. Multipart polygons were split and inland islands were removed. The entire dataset was clipped to Salish Sea Bioregion boundary.

Dataset

Marine Data BC Portal

- ~1650 datasets referenced within the portal.
- Either direct data downloads or linkage to the source portal.
- Spatial and non-spatial data available, useful for ‘mappers’ and ‘modellers’.
- Provides a map tab in which you can load datasets for a visual representation.



Marine Data BC Portal Cont'd

Image-below: Metadata record
Image-left: Make-your-own-map

Search for a place

Manage layers

- dem_ssea_80m [Show legend](#)

Background map: OpenStreetMap

Back to search | < Previous | Next >

Bull Kelp Surface Extent at Select Sites in the Southern Gulf Islands 2010-2021

This dataset contains a record of surface extent of bull kelp at select sites in the Southern Gulf Islands. All of the 2010-2018 data was recorded in the nearshore waters of Mayne Island. In 2019 and 2020 the monitoring program was expanded in collaboration with the Galiano Conservancy Association, Pender Islands Conservancy Association, and Saturna Island Marine Research and Education Society to include additional sites around those islands. We anticipate annual monitoring of select sites will continue on an annual basis.

ongoing

Download and links

- Guidelines and Methods for Mapping and Monitoring Canopy-forming Kelp in British Columbia [Download](#)
Guidelines and Methods PDF Report
Guidelines and Methods PDF Report
https://soggy2.zoology.ubc.ca/geonetwork/srv/api/records/1e92e7a8-b7d6-47bc-ad97-18887397108b/attachments/Kelp_mapping_methods_Mayne_Island_Conservancy_2021.pdf
- Kelp Attribute Table Summary [Download](#)
PDF Document with Attribute Table Description
PDF Document with Attribute Table Description
https://soggy2.zoology.ubc.ca/geonetwork/srv/api/records/1e92e7a8-b7d6-47bc-ad97-18887397108b/attachments/Kelp_Attribute_Table_Summary.pdf

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Overview

Spatial extent

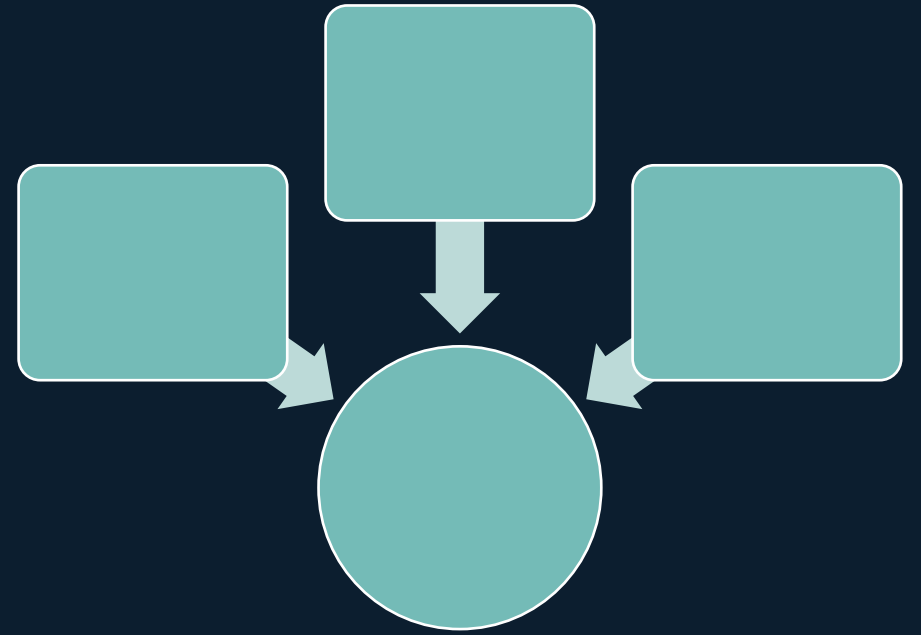
Resource events

SoGDC Data Sources

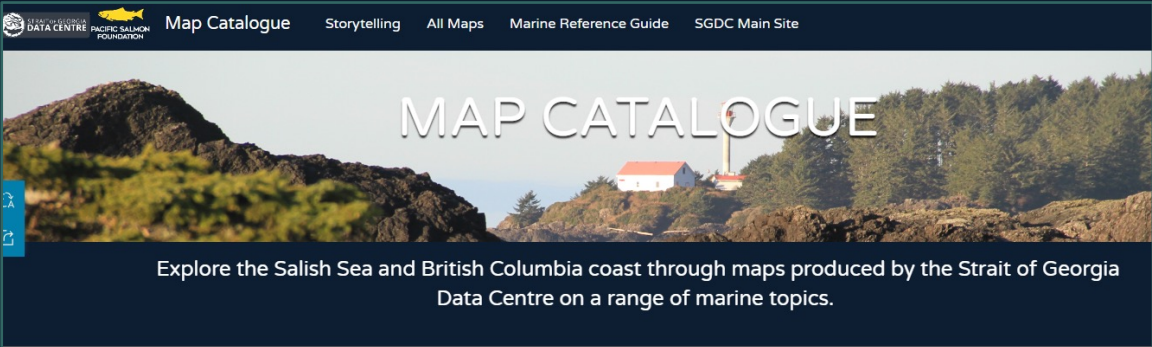
- Data are catalogued from various sources.

For example:

- Province of BC Data Catalogue (e.g., *Obstacles to Fish Passage*)
- Government of Canada Open Data Portal (e.g., *Herring Spawn Events – DFO*)
- Municipal data portals (e.g., *Zoning – City of Nanaimo*)
- Partner non-for-profits (e.g., *Hazardous Debris in Estuaries - Rugged Coast Research Society*)
- Pacific Salmon Foundation (e.g., *Sea Temperature - the Citizen Science Oceanography Program*)

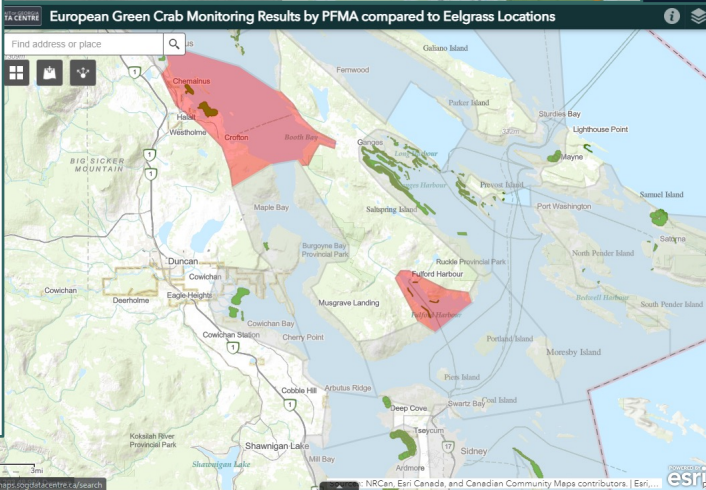
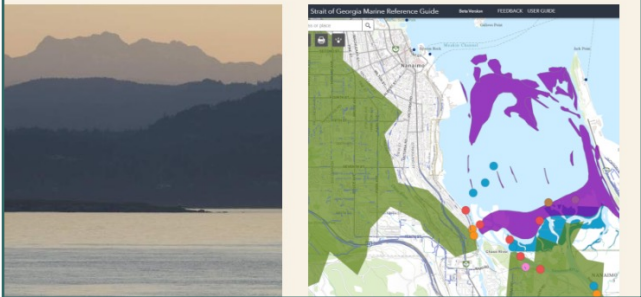
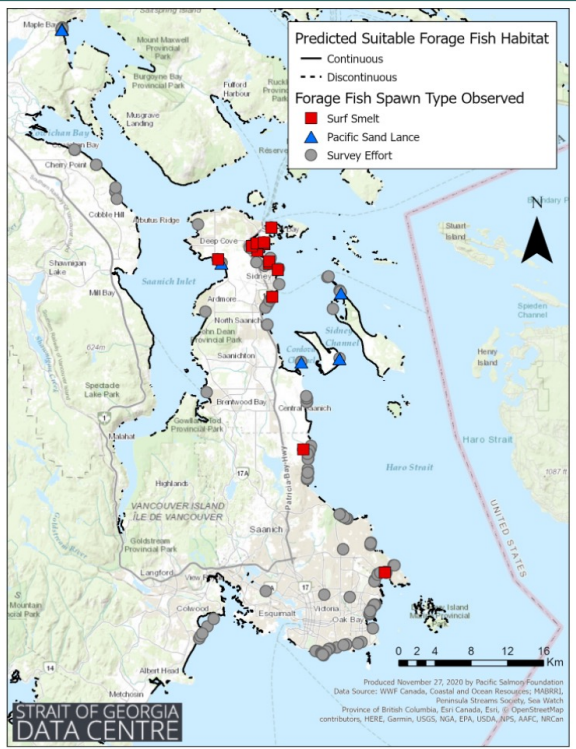


Map Catalogue



- ~75 pre-configured maps on a variety of marine topics.
- Three types of map:

- Non-interactive maps - PDF, PNG, JPG format maps created using desktop GIS software.
- Interactive maps - Interactive displays of geographic information available in diverse styles.
- Story maps – Utilize various forms of media (e.g., videos, interactive maps, text) to form a narrative.



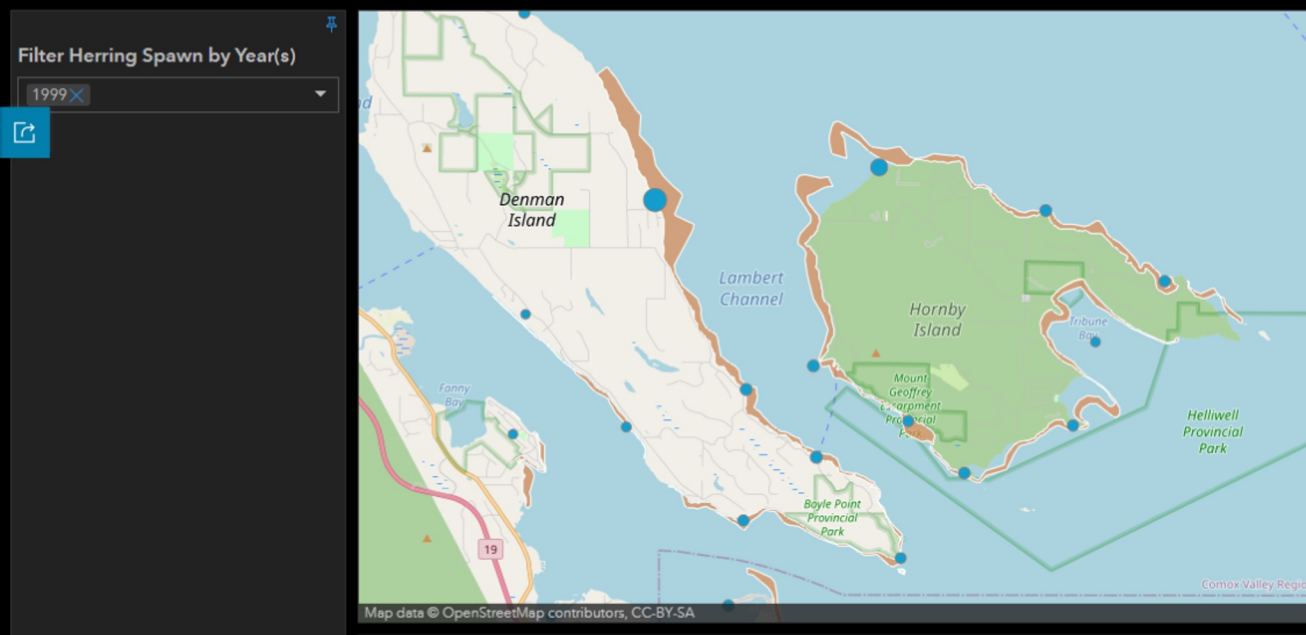
PACIFIC SALMON FOUNDATION

MAP CATALOGUE (CONT'D)

Image-right: Non-interactive map

Image-below: Interactive dashboard map

Dashboard Map of Herring Spawn in the Strait of Georgia, 1951 - 2019

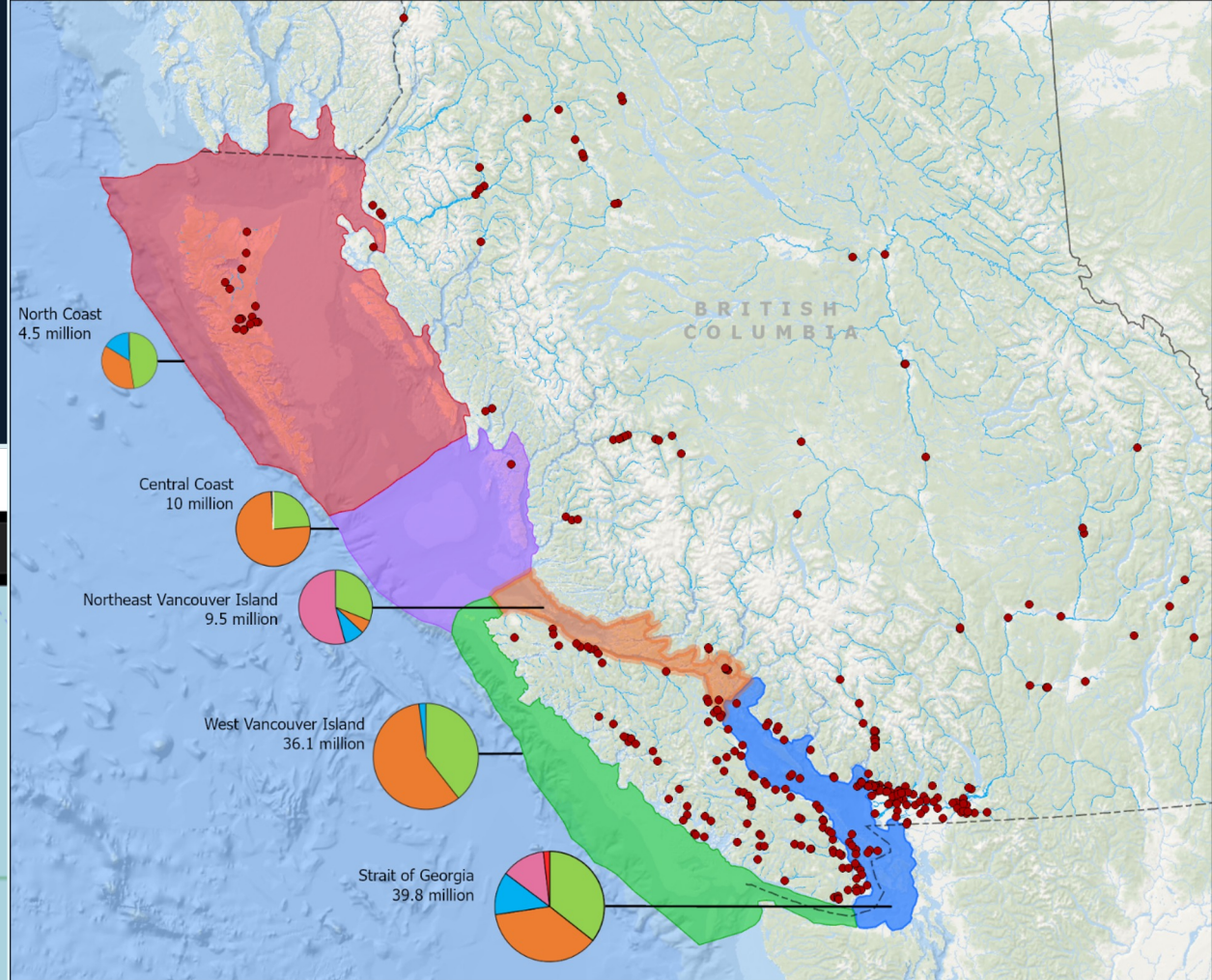


This map allows you to compare how herring spawn location and density has changed in the Strait of Georgia over time. Expand menu in the left of your screen to select the year or years you are interested in. Pan and zoom around the map to your area of interest.

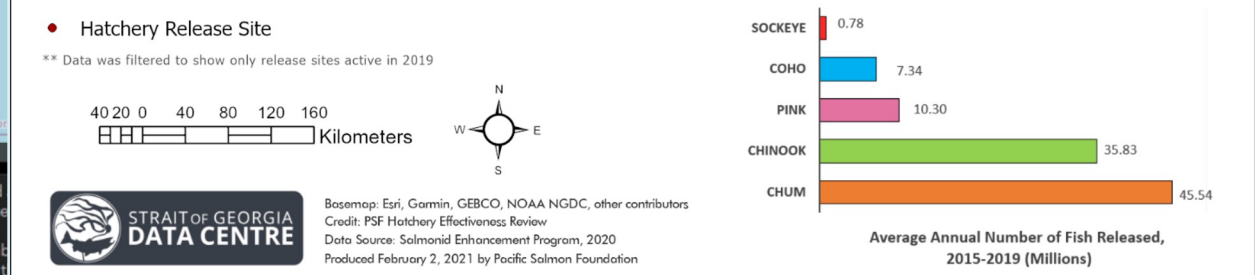
Fisheries and Oceans Canada has been collecting records on location of Pacific herring spawn for over 70 years in British Columbia. Data was collected primarily by Officers on field patrol, with observations being made from beaches, patrol vessels and, occasionally, through SCUBA diver surveys, which proved to provide more accurate measurements, became the Standard methodology (McCarter et al., 2005).

Data Information - Herring Spawn Density and General Location

Notes (Fisheries and Oceans Canada, 2020):



Salmonid Enhancement Program (SEP) Fish Releases by Region from 2015 to 2019 excluding Spawning Channel Facilities



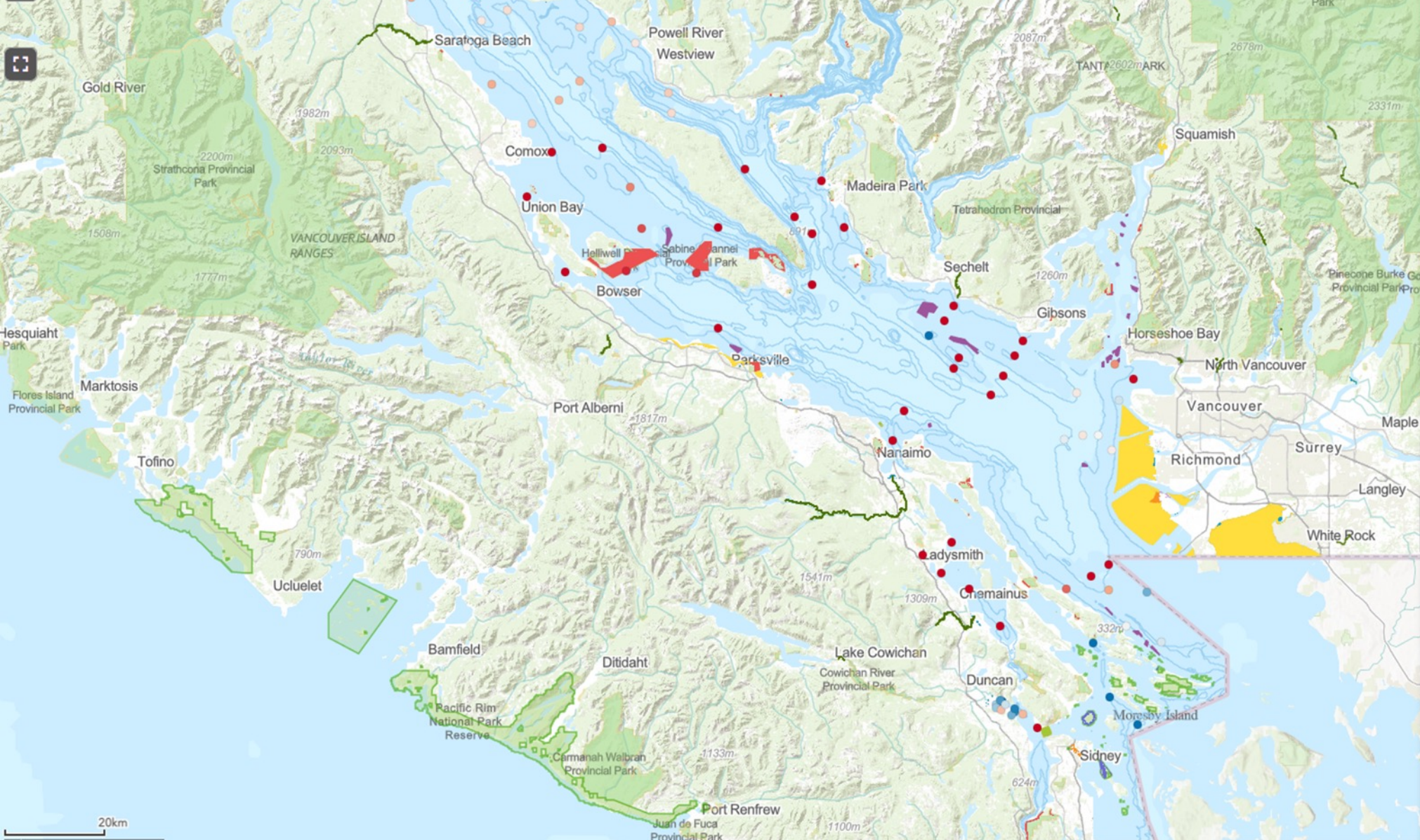
Strait of Georgia Marine Reference Guide (SOG MRG)

- An interactive map with over 400 layers of marine information.
- Visualize and compare layers to form an increasingly comprehensive image of the Strait.
- Serves as a digital mapping library for educational & decision-making purposes.
- Data topics range from ecology to human use to oceanography.
- Submerge into the data while helping us shape this expansive tool.



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Find address or place

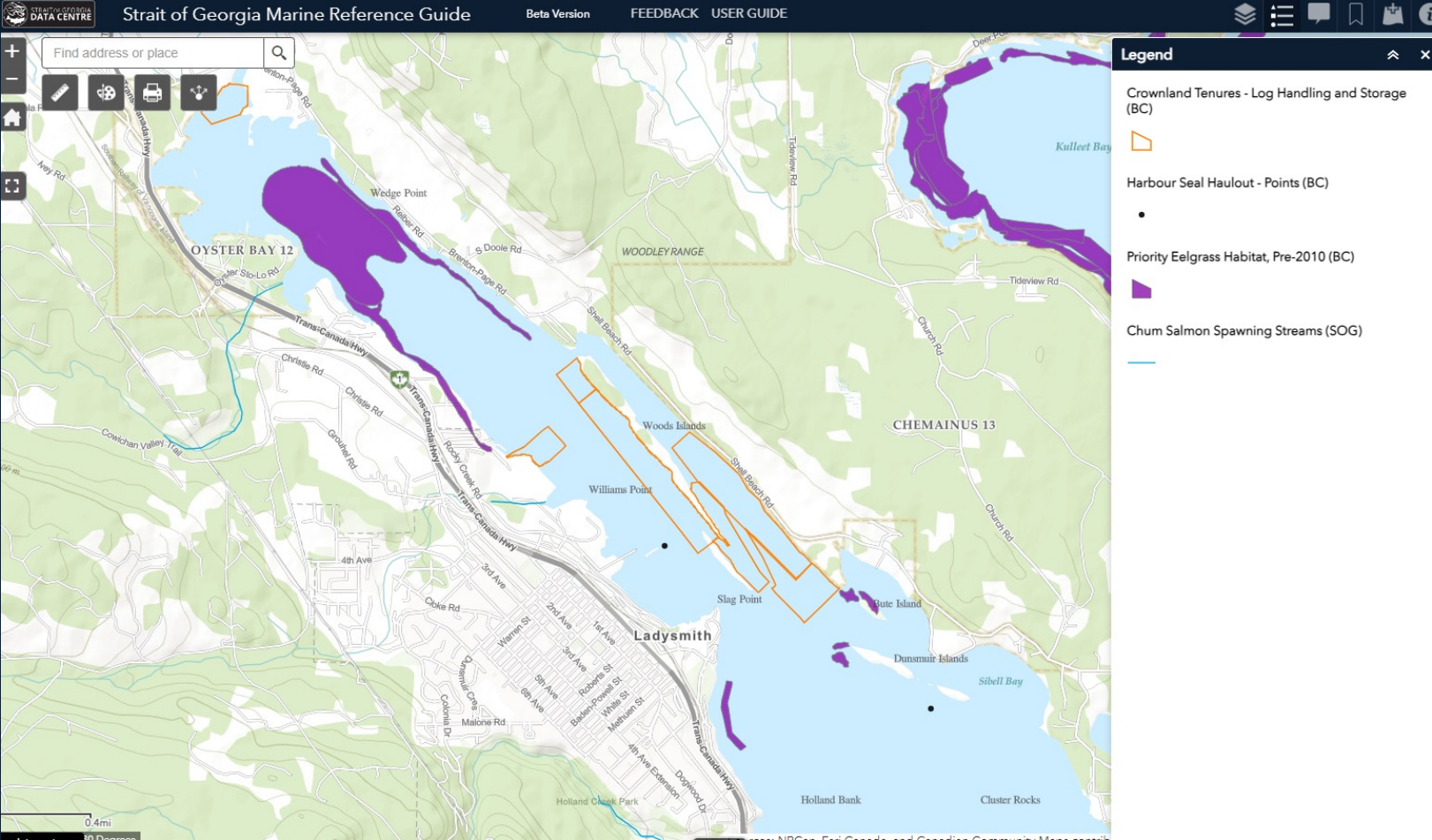


Layer List

Operational layers

- BOUNDARIES
 - ADMINISTRATIVE
 - MARINE REFERENCE GUIDE
 - PARKS AND PROTECTED AREAS
 - ZONING
- ECOLOGY
- HUMAN USE
- MUNICIPAL INFRASTRUCTURE
- PHYSICAL
 - LANDSCAPE AND HYDROLOGY
 - SEASCAPE
 - Bathymetry Basemap (Salish Sea Bioregion) ...
 - Coastline Fetch Estimates (SOG) ...
 - Oceanographic Data Collected at Lighthouses (BC) ...
 - Marine Ecosystem Classifications, 2008 (BC) ...
 - Depth Contours (m) - Generalized (SOG) ...
 - Tidal Energy Resources (BC) ...
 - Intertidal Flat Types (CRD) ...
 - Shore Types (CRD) ...
 - Mean Spring Water Temperature (0-1 m), 2015-2019 (SOG) ...
 - Mean Spring Water Temperature (0-10 m), 2015-2019 (SOG) ...

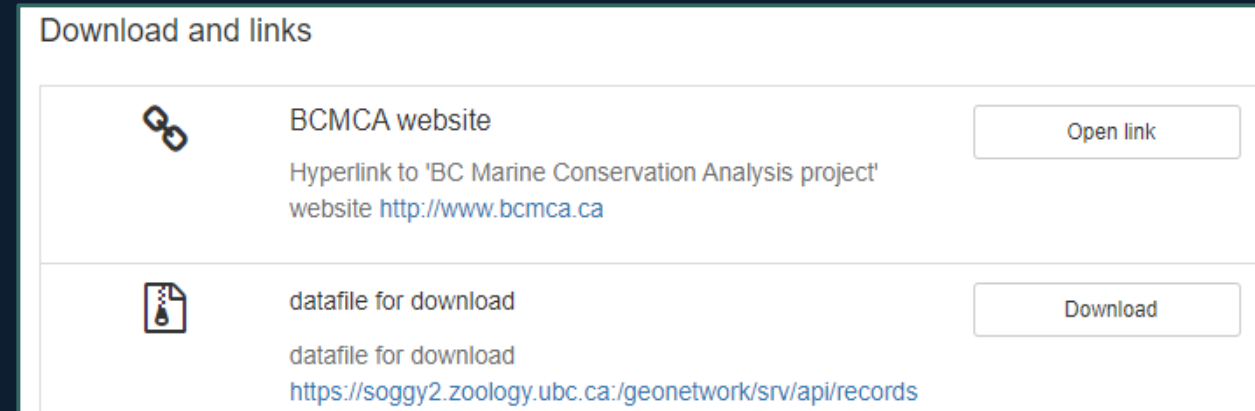
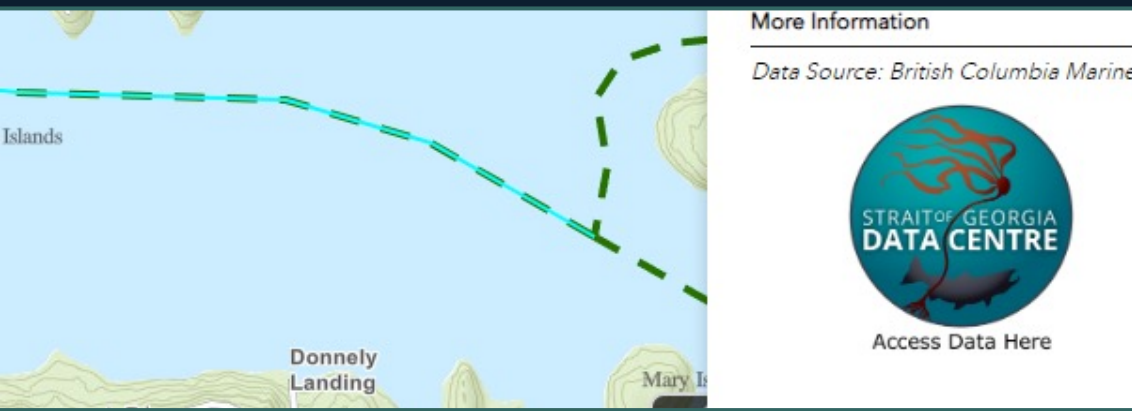
SOG MRG - Juvenile Salmon Habitat & Nearshore Threats



SOG MRG Data Search Capability

- SOG MRG serves as a search engine for marine geospatial data:
 - Layers in the SOG MRG have been referenced in the SoGDC Marine Data BC portal.
 - Allows for the option to find spatial data through both the SOG MRG and the data portal.
 - Increased search capability simplifies access to raw data essential to decision making surrounding the conservation of British Columbia's waters.

Link from the SOG MRG directly to the SoGDC Marine Data BC Portal:



Baynes Sound Snapshot

Summary of SOG MRG layers (by category) which directly overlap with Baynes Sound & Lambert Channel:

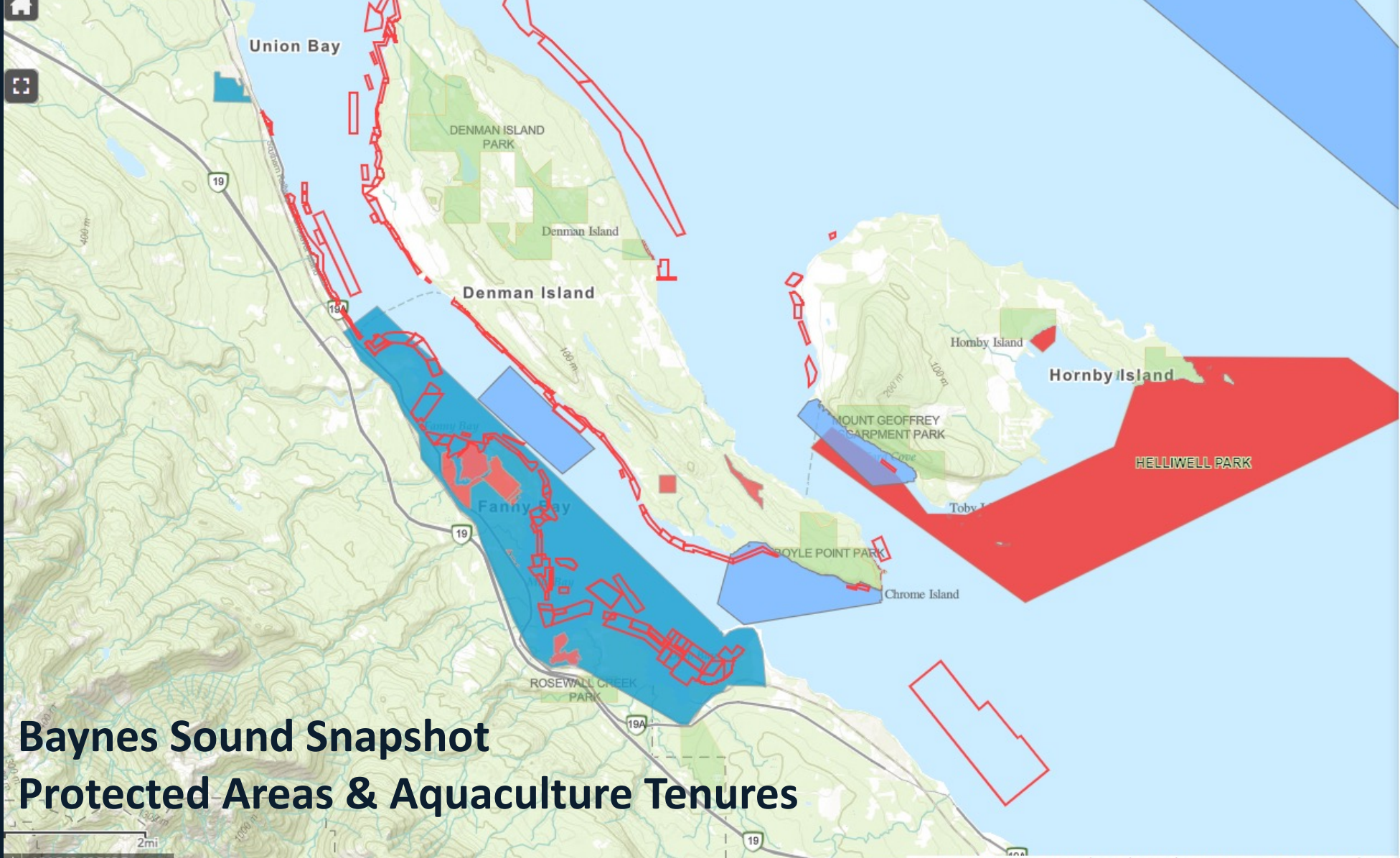
<ul style="list-style-type: none">• Boundaries – 15 layers<ul style="list-style-type: none">• <i>Crownland Tenures, Province of BC</i>• <i>Land Use Designation, Islands Trust</i>• <i>Protected Areas, e.g, Rockfish Conservation Areas – DFO</i>	<ul style="list-style-type: none">• Ecology – 60 layers + more sub layers<ul style="list-style-type: none">• <i>Salmon Diet Study, PSF / UVic</i>• <i>Eelgrass Habitat, e.g., BCMCA</i>• <i>Locations of Marine Bird Colonies, Province of BC</i>
<ul style="list-style-type: none">• Human Use (+Restoration) – 52 layers<ul style="list-style-type: none">• <i>Vessel Traffic Routes, DFO</i>• <i>Docks, Islands Trust</i>• <i>Predicted Year 2100 Coastal Floodplain, Kerr Wood Leidal</i>	<ul style="list-style-type: none">• Physical – 30 layers + more sub layers<ul style="list-style-type: none">• <i>Watersheds, Province of BC</i>• <i>Sea Surface Temperature, PSF</i>• <i>Shorezone Photo and Video, Seachange Marine Conservation Society</i>

Total = 157 layers for Baynes Sound & Lambert Channel



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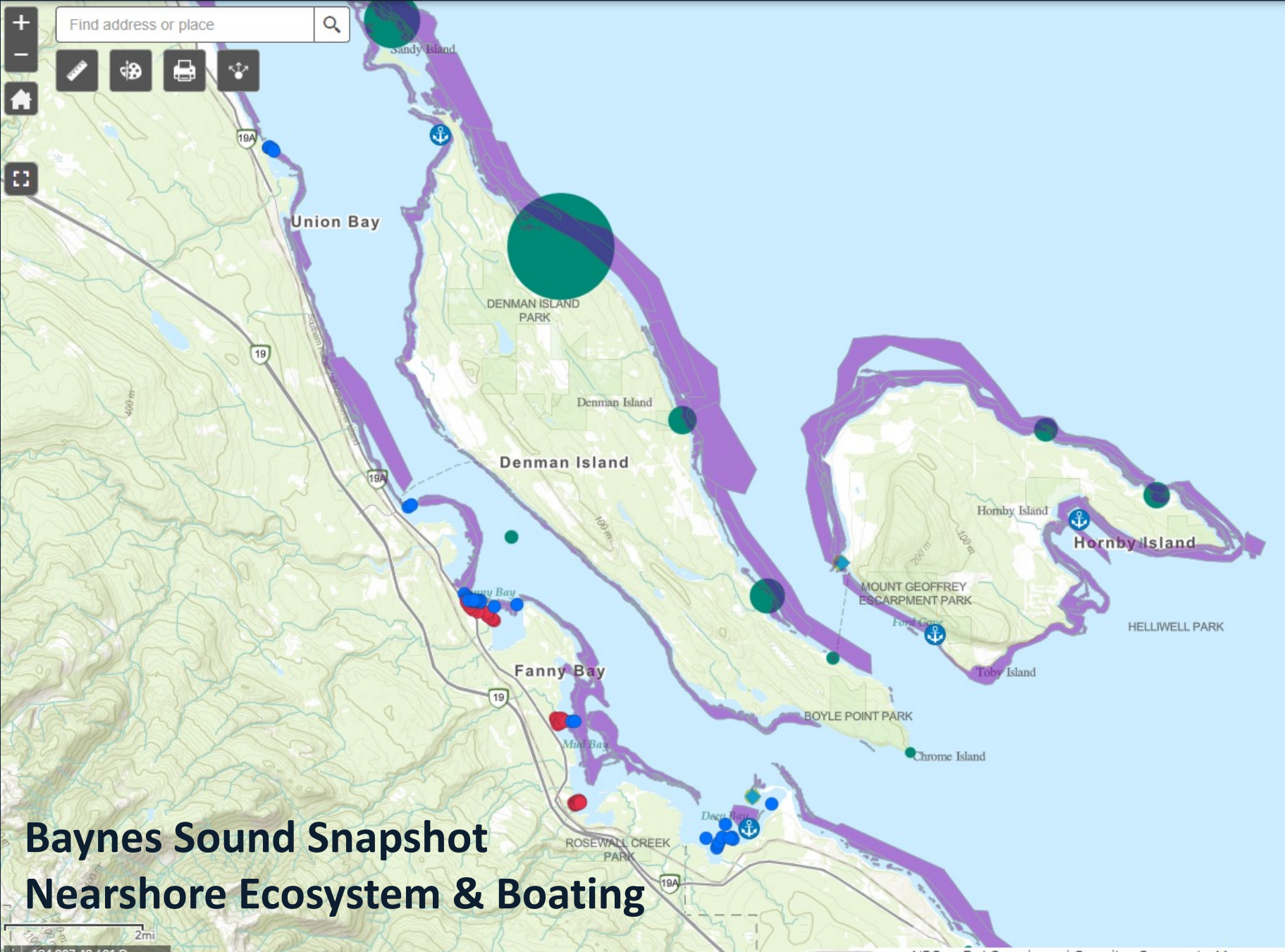
Find address or place



Legend

- Crownland Tenures - Aquaculture (BC)**
 - SHELL FISH
 - FIN FISH
 - PLANTS
- Rockfish Conservation Areas (BC)**
- Protected and Conserved Areas - Marine (SOG)**
 - A - Park
 - C - Park
 - National Park
 - Conservation Area
 - Privately Owned Conservation Area
 - Other Effective Area-Based Conservation Measure
 - Ecological Reserve
 - Nature Reserve
 - Wildlife Management Area
 - National Wildlife Area
 - Migratory Bird Sanctuary
- Regional and Municipal Parks (SOG)**
- Conservation Lands (BC)**
 - Administered Lands
 - Reserve Lands
 - Wildlife Management Areas

Baynes Sound Snapshot Protected Areas & Aquaculture Tenures



Legend

Coastal Moorings (BC)

- Buoy
- Dolphin
- Pile
- Wharf
- Mooring Buoy
- Float
- Mooring Buoy (public)
- Mooring Buoy (private)
- Wharf - Ruins
- Seaplane Float
- Breakwater

Recreational Anchorages (BC)

- Anchorage

Priority Eelgrass Habitat, Pre-2010 (BC)

- Eelgrass Habitat

Forage Fish Spawning Beach Monitoring (SOG)

- Pacific sand lance
- Surf smelt
- Both
- Survey effort did not detect presence of spawn

Herring Spawn Events for 2020 (BC)

Combined Spawn Index

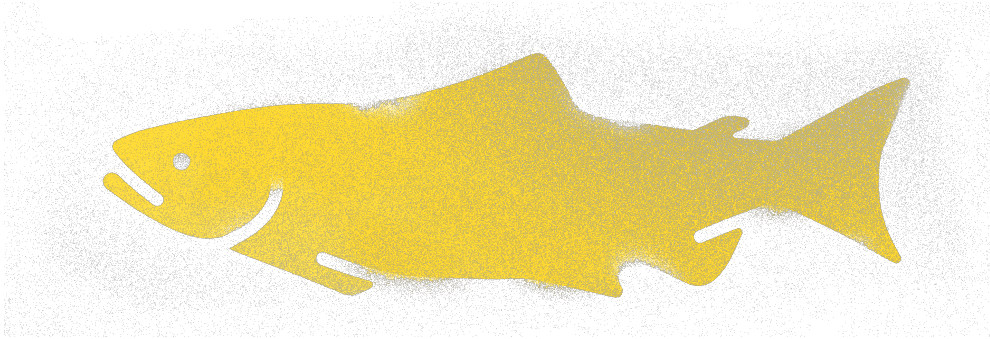
- > 12,289

Baynes Sound Snapshot Nearshore Ecosystem & Boating

Conclusion

- The Strait of Georgia Data Centre is an open-access portal to marine information for B.C.
- Data can be accessed:
 - directly through the Marine Data BC Portal,
 - through first viewing them in the SOG MRG.
- Additional resources such as an Atlas of Oceanographic Conditions and Map Catalogue are available.
- Therein, we strive to ensure marine conservation efforts have the information needed for success.





**THANK
YOU**

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