

Introduction to the Strait of Georgia ^[1]

Submitted by Clio Bonnett Thu, 2013-08-15 12:08



Strait of Georgia at a Glance:

- **Region:** Between southern Vancouver Island and the Fraser River Delta of B.C., in the southern portion of the Strait of Georgia, a major shipping route along the Pacific Northwest coast.
- **Instrument Platforms:** 6 (3 at Central node and 3 at East node)
- **Depths:**
 - Central node: 300 m
 - East node: 170 m
- **Locations:**
 - Central node: Latitude: 49° 02.419' N, Longitude: 123° 25.554' W
 - East node: Latitude: 49° 02.569' N, Longitude: 123° 19.032' W
- **Seafloor Composition:** Silt and sand sediment beds.
- **Principal Research:** Estuarine circulation, tides, marine mammals, salmon, sediment transport.

Map of Ocean Networks Canada's installations in the Salish Sea, which comprise the Strait of Georgia portion of the VENUS observatory.

Environment/Ecosystems:

Situated in one of the busiest shipping routes of the Pacific Northwest coast, and near to Vancouver, the busiest port in Canada, ONC's Strait of Georgia observatory is located in the midst of a vibrant biological marine environment.

The freshwater discharge from the Fraser River drives regional estuarine circulations. Modulated by tidal mixing in the Gulf Islands and upwelling at the mouth of Juan de Fuca Strait, the seasonal influx of Pacific nutrients support blooms of plankton growth and helps maintain a healthy Salish Sea. Iconic resident species include cetaceans (Whales and Dolphins) and salmon.

While incredibly rich with marine life, and home to a number of fisheries, the Strait of Georgia lies in close proximity to B.C.'s Lower Mainland and Southern Vancouver Island, two major population centres which together account for roughly 70% of the entire population of B.C.

The southern Strait of Georgia then is acutely influenced by the actions of humans, with recreational boating, shipping, and industry affecting the acoustic environment of the ocean. Monitoring the ambient sound and the impacts of anthropogenic noise on marine mammal communications is an active research area.

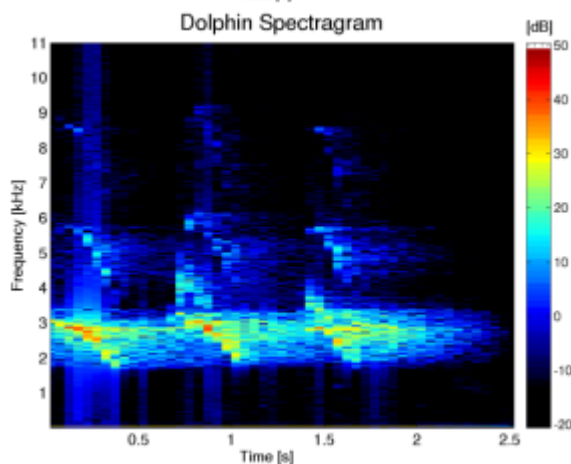
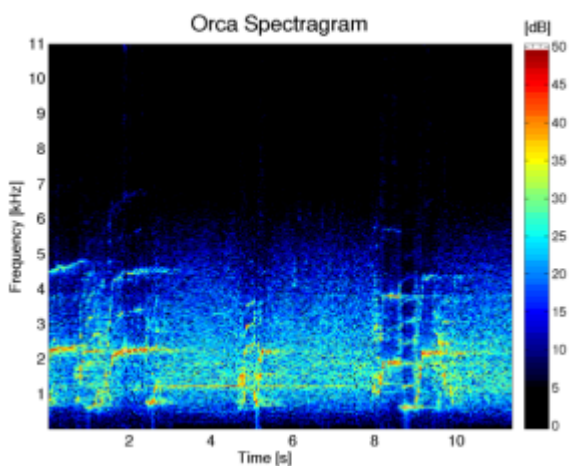
What Makes the Strait of Georgia Observatory Unique?

The Strait of Georgia is a vibrant dynamic in-land sea, strongly influenced by both river discharge and strong tidal currents. Ocean Networks Canada's VENUS observatory is strategically located in the central southern Strait to monitor and study estuarine dynamics, tidal mixing, sediment transport, marine mammals, plankton variations, important salmon

rearing habitat and delta slope instability. The proximity to Vancouver and industrial infrastructures naturally lends itself to assessments of human impacts on coastal marine environments.

Principal Research

Anthropogenic Effects on Marine Mammal Communication: One of the primary research applications of the Strait of Georgia observatory in the Salish Sea, researchers such as John Ford are using hydrophones to assess the large-scale acoustic ecology in the southern Strait of Georgia and determine what levels of noise are tolerable to these marine mammals and how they may be adapting.



[3]

- Low-frequency iListen Hydrophone are used to reveal ship sounds.
- Averaging underwater noise levels [4] determined to be most relevant for assessing impact.

Other Research

- Multi-frequency Echosounders [5] are used to identify both large (salmon, seals etc.) and small (zooplankton) targets.
- Coastal Ocean Dynamics Application Radar, or CODAR, is utilized in the Strait of Georgia to provide total current vectors [6] as they shift with the ebb and flood tides.

Videos

[Killer Whales and ONC?s Strait of Georgia Observatory](#) [7]

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