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Salish Sea Ecosystem Conference

2018 Salish Sea Ecosystem Conference
(Seattle, Wash.)

Apr 6th, 2:00 PM - 2:15 PM

Is natural recovery occurring at historic log storage sites in Howe Sound?

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Is natural recovery occurring at historic log storage sites in Howe Sound?

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Salish Sea Ecosystem Conference

Seattle, April 4-6, 2018



Fisheries and Oceans
Canada

Pêches et Océans
Canada

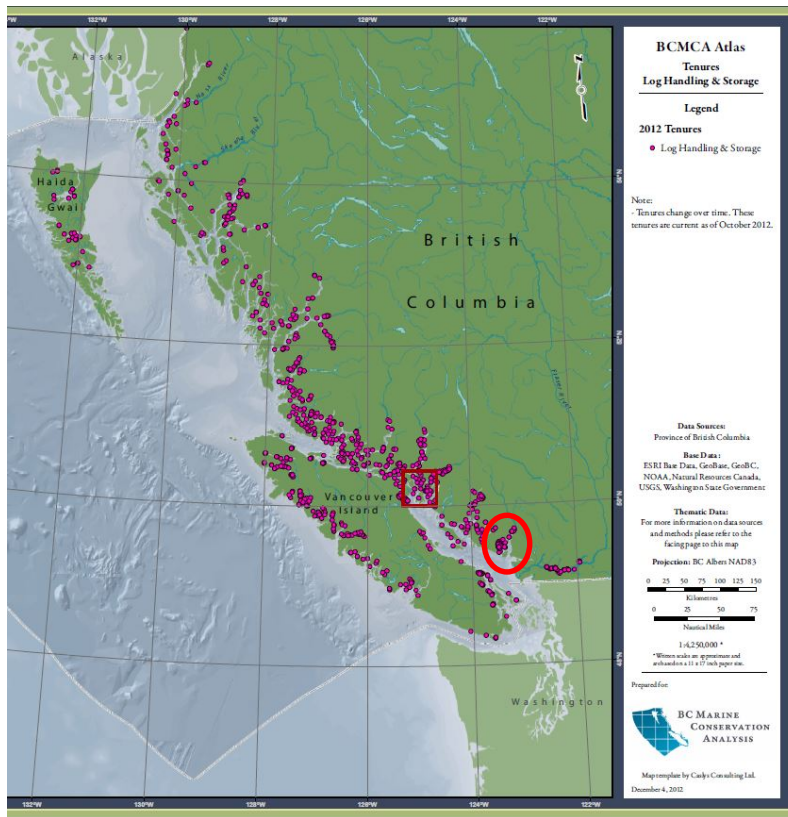
Canada



Log Handling Areas

- Log dumps
- Boom assembly areas
- Boom storage

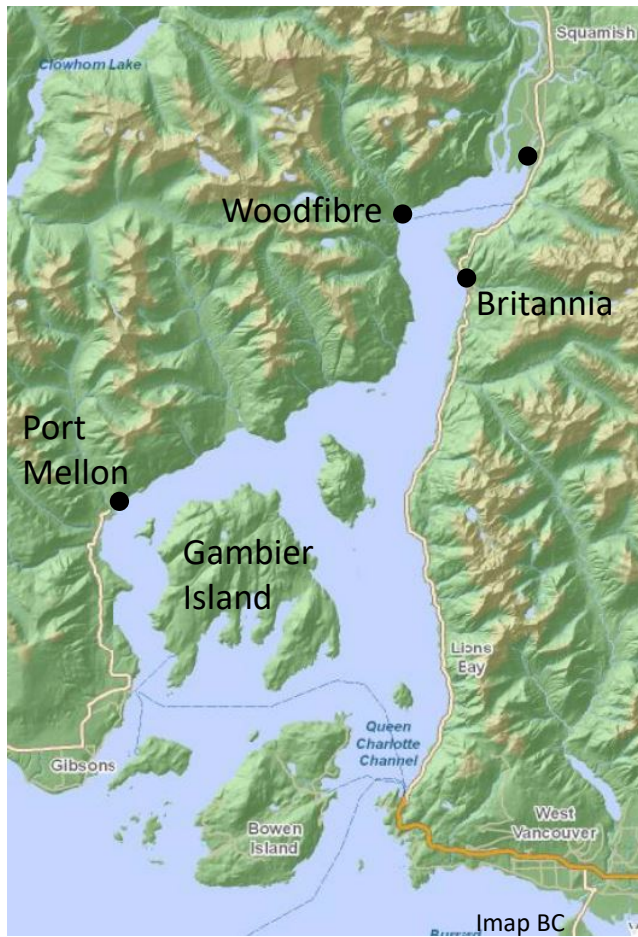




Wide spread on the BC coast

- over 940 LHA leases
- ~9000 hectares of coastal nearshore

Log Handling and Storage Tenures of BC
-from BCMCA atlas



Howe Sound Industrial History

- Britannia Copper Mine (1900-1974)
 - largest copper mine in British Empire
- Squamish chlor-alkali plant (1965-1991)
- Port Mellon pulp mill 1909-present
- Woodfibre pulp mill (1912-2006)
 - Liquefied Natural Gas proposal
- Logging since the 1880s
- Gambier Island log storage since 1940s



Gambier Island 1987

Active storage sites

- Halkett
- Port Graves
- Center Bay
- West Bay
- Mariners Rest



Gambier Island 2016

Active storage sites

- Mariners Rest

Cessation of use

- Halkett 1987
- West Bay 1984
- Center Bay 1998
- Port Graves 2006



Gambier Island Preliminary Study Sites

Reference

- Halkett Dock
- Smugglers Cove

Years since cessation

- Halkett (30Y)
- Tug Boat Bay (20Y)
- Port Graves (12Y)

Active

- Mariners Rest (0Y)

Q1: is wood debris present?

Q2: are there measurable gradients?

Methods



Drop camera

- Wood waste cover
- Epifauna



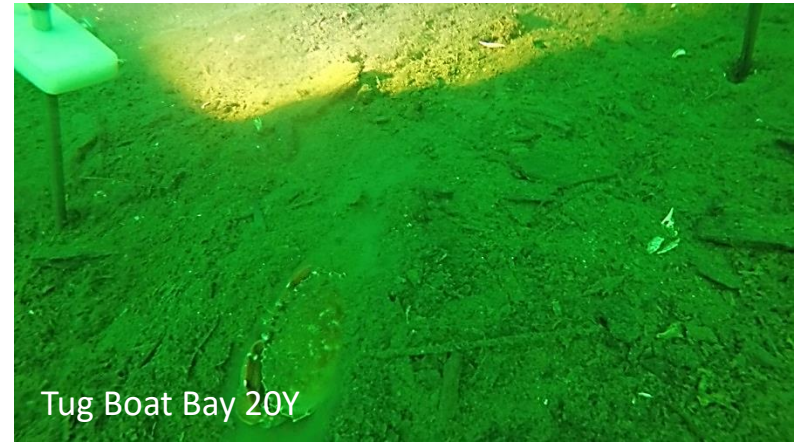
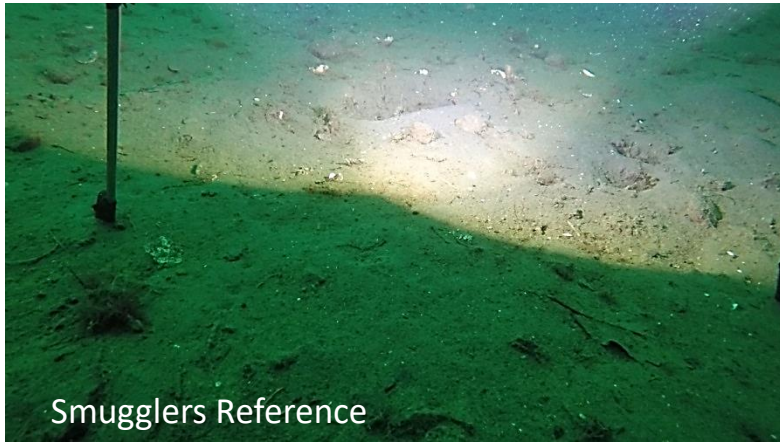
Sonar

- Sidescan
 - Debris presence
 - Sea floor rugosity
- Knudsen Pinger
 - Debris layer depth



Benthic Grab

- Grain size & % wood
- Organic Carbon
- Oxidation-Reduction Potential
- Sulfides
- Carbon-Nitrogen ratios
- Infauna



Drop Camera



Smugglers Cove Ref



Tug Boat Bay 20Y



Sidescan Sonar

Port Graves 12Y

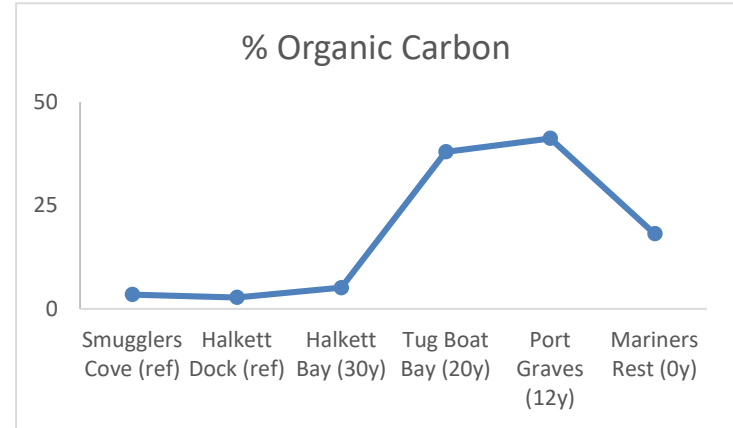
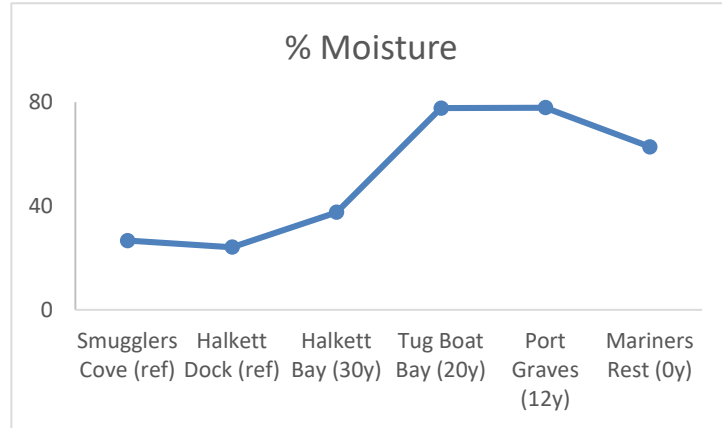


Mariners Rest 0Y



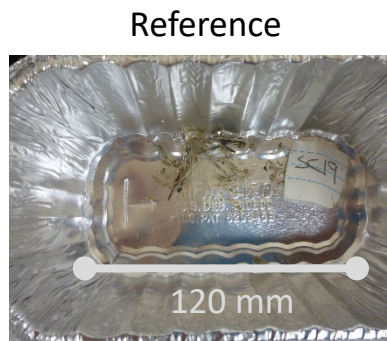
Q1: is wood debris present? ✓

Q2: are there measurable gradients?



Wood Debris Size Fraction

>19mm



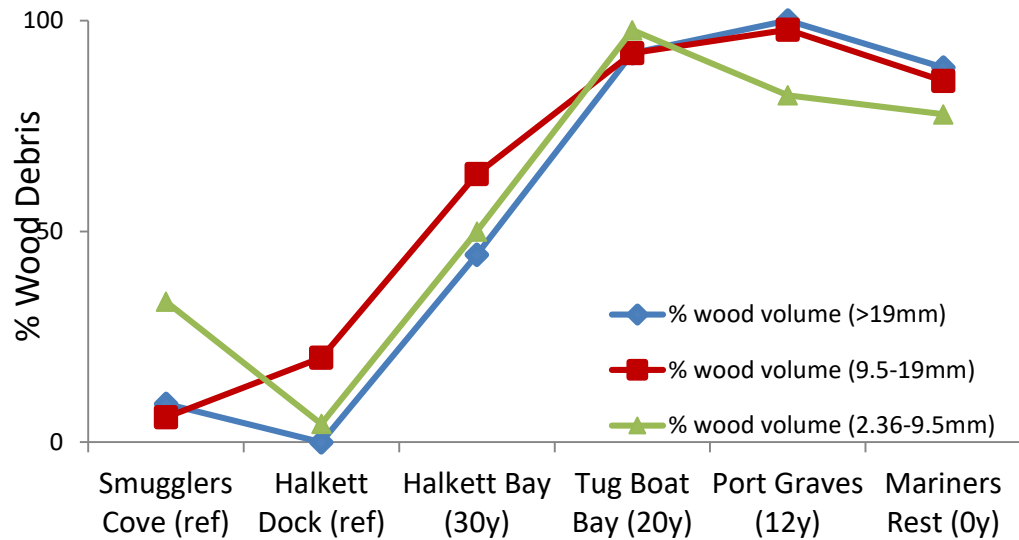
9.5-19mm



2.36-9.5mm



Wood debris by volume



Preliminary Conclusions

Q1: is wood debris present? ✓

Q2: are there measurable gradients? ✓

Future sampling will include:

- Replicates and increased geographic and temporal scope
- Pore water quality
- Epifauna/Infauna
- Low frequency sonar

An underwater photograph showing a large, pale pink sea anemone with a white, feathery oral disc, standing on a dark, rocky substrate. To its left is a smaller, yellowish-green anemone. The water is a deep greenish-blue, and sunlight filters down from the top, creating a shimmering effect. A vertical black pole is visible on the left side of the frame.

Thank you

Acknowledgements

Brian Hendriks

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