

## SATELLITE CHANNEL

E.R. #67

**ORIGINAL PURPOSE** To conserve rich benthic communities typical of fine-grained, level-bottom environments in the southern Gulf of Georgia

### OVERVIEW

<b>Date established:</b>	24 October 1975	<b>Location:</b>	In central Satellite Channel, between the Saanich Peninsula and Salt Spring Island, 5 km NNW of Patricia Bay
<b>Order-in-Council number:</b>	3294		
<b>Application number:</b>	172		
<b>Map number:</b>	92 B/11		
<b>Marine chart number:</b>	3452		
		<b>Latitude:</b>	48°42'N
		<b>Longitude:</b>	123°29'W

<b>Total Area:</b>	340 ha	<b>Elevation:</b>	-82-0 m
<b>Land:</b>	0 ha		
<b>Marine:</b>	340 ha		

**Access:** Entire reserve is marine; accessible by boat through Satellite Channel

<b>Biogeodimatic Zone:</b>	Not applicable - subtidal
<b>Biogeodimatic Variant:</b>	Not applicable
<b>Marine Ecoregion:</b>	Strait of Georgia
<b>Region:</b>	Vancouver Island
<b>Management Area:</b>	Saanich/ Gulf Islands

### COMPOSITION

**Physical:** The reserve consists only of sea floor habitat. Most of the width of Satellite Channel is included, the northern boundary coming within 200 m of the Salt Spring Island shoreline at Cape Keppel, the southern edge within 200 m of the Saanich Peninsula on the north side of Moses Point. Most of the reserve has a relatively level bottom under water depths of 55 to 80 m. The shallowest areas, about 18 m, are at the southwest corner. The fine-grained bottom sediments consist of 62% sand, 24% silt, and 14% clay.

**Biological:** The benthic infauna is diverse in species and high in biomass. At least 67 species occur, of which bivalve and gastropod molluscs, errant and sedentary polychaetes, and echinoderms are particularly diverse. Repeated sampling has indicated nine species to be ecologically significant, based on defined criteria. These nine are errant polychaetes of the genera *Lumbrinereis* and *Nephtys*, the sedentary polychaetes *Maldane glebifex*, *Sternaspis fossor*, and a *Prionospio*; the pelecypods *Compsomyx subdiaphana*, *Macoma elimata*, and *Yoldia ensifera*; and the brittle star *Ophiura sarsi*. Studies over time have shown this community to be stable.

The benthic community has thousands of organisms per square metre largely due to thick masses of two tubicolous polychaetes, *Maldane glebifex* and *Prionospio* sp. It also has a heavy standing crop, with the dry-weight biomass of about 60 g/m<sup>2</sup>, largely attributable to the large pelecypod *Compsomyx subdiaphana* and other large species including *Lumbrinereis*, *Travisia*, *Macoma*,

*Yoldia*, and a holothurian, *Molpadia intermedia*. Standing crops to the east and west of the reserve tend to be lower.

## MANAGEMENT CONCERNS

### SIGNIFICANT SPECIES

None listed

### THREATS

#### Climate Change:

Impacts related to climate changes that will drive benthic communities in this reserve include increased ocean temperature, decreased pH, altered coastal hydrology (rainfall and peak hydrograph patterns) and increased sedimentation due to sea level rise and increased storm activity. Temperature, pH and sedimentation rates directly influence benthic community structure while coastal hydrology and storm activity influences primary productivity patterns which, through food webs, will influence benthic communities. The benthic species response to these changes is not well understood, though the changing environmental conditions will favour those species that can adapt to higher sedimentation rates, lower pH, and greater variability in food availability.

### RESEARCH OPPORTUNITIES

This is the only completely subtidal reserve in British Columbia. Very high diversity and production of benthic infauna exists here. Research on faunal stability, diversity and biomass has been undertaken by University of Victoria biologists since 1965.

## SCIENTIFIC NAMES OF SPECIES MENTIONED IN THE SATELLITE CHANNEL ER ACCOUNT

### Fauna

Macoma, Beveled (*Macoma elimata*)  
Polychaete (*Lumbrineris* sp.)  
Polychaete (*Maldane glebifex*)  
Polychaete (*Nephytys* sp.)  
Polychaete (*Prionospio* sp.)  
Polychaete (*Sternaspis fossor*)  
Polychaete (*Travisia* sp.)  
Sea Cucumber, Sweet Potato (*Molpadia intermedia*)  
Star, Brittle (*Ophiura sarsi*)  
Venus, Milky Pacific (*Compsomyax subdiaphana*)  
Yoldia (*Yoldia ensifera*)