

BC's Coast Region: Species & Ecosystems of Conservation Concern

Olympia Oyster (*Ostrea conchaphila*)

SCCP Species Profile 2010 Version

Global: G5, Provincial: S3, COSEWIC: SC, BC List: Blue



Notes on *Ostrea conchaphila*:

A member of the family Ostreidae ("true oysters"), Olympia oyster is British Columbia's only native oyster. Major population declines are believed to have taken place during a period of heavy harvest exploitation between the 1800's and 1930. Small populations still exist in the Strait of Georgia and larger populations are locally common off of Vancouver Island. This species also goes by the name "California" or "Western" oyster. More commonly it goes by the name 'Rock' oyster.

Description

Length 6-9 cm. The Olympia oyster is a small compared to commercial species which can be twice as long. The shell is circular and somewhat smooth. The valves of this oyster are different from side to side (top to bottom). The lower (left) valve is deeply cupped while the upper (right) valve is flat and fits inside the edges of its lower valve. The colour of the outer part of the shell ranges from white to purplish with the inside (nacre) being white to iridescent green to purple in colour. Olympia oysters are often attached by their lower valve to a stationary hard surface but can occur unattached singly or in clusters.

Diet

As with most shellfish, Olympia oysters are sedentary filter feeders drawing in a variety of plankton and other drifting organisms and nutrients.

Look's Like?

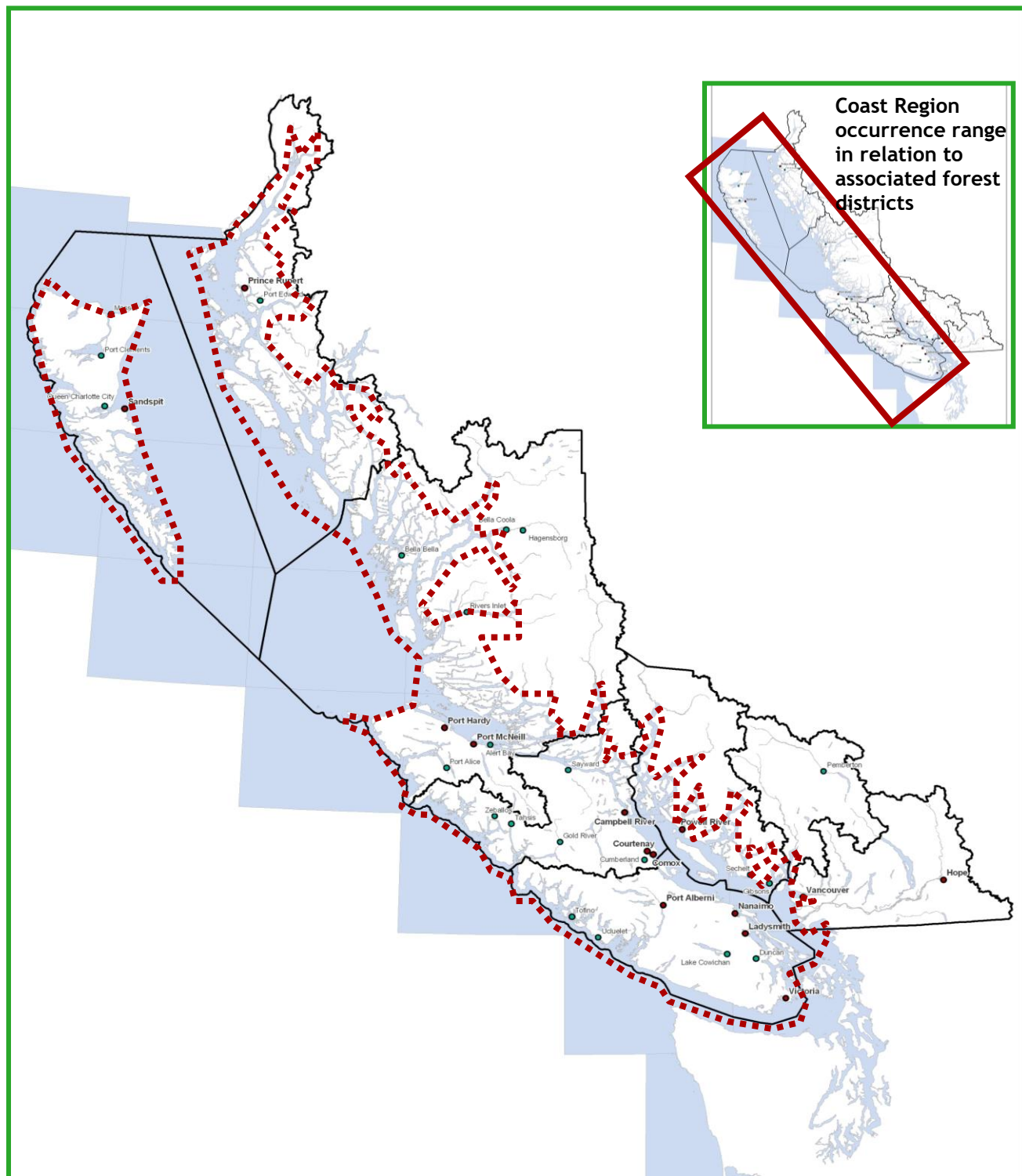
Though smaller than many commercial oyster species, Olympia oyster may be mistaken for Pacific oyster or European flat oyster juveniles. These two species are commercial introductions which have become naturalized along the coast. The scar left where the "adductor" (valve) muscle attaches to the inside of the shell is the same colour as the nacre in the Olympia oyster, while it is different (purple) in the Pacific oyster. The European oyster has a fringed valve lip, the Olympia has no discernable fringe.



Pacific Oyster

Distribution

The Olympia oyster is found on the west coast of North America from Alaska to Panama. As well as the west coast of Vancouver Island, it is known from a few locations in the Queen Charlotte Strait and the coastal mainland of Queen Charlotte Sound. Farther south on the Coast Region mainland it is known to occur in bays and inlets along the Strait of Georgia (Salish Sea) including Boundary Bay, Sechelt Peninsula, Jervis Inlet and Powell River Inlet. In BC it is assumed that Olympia oyster populations, though at low levels are currently stable.



Olympia Oyster (*Ostrea conchaphila*), potential occurrence range for the Coast Region

Habitat Preferences

Olympia oyster are typically found in the lower intertidal and shallow sub-tidal zones of saltwater lagoons and estuaries. They have also been found on tidal flats, tidal channels, bays and sounds, in splash pools and near freshwater seepages. This species also colonizes artificial structures such as wharfs and pilings

Critical Features

The presence of a hard substrate or anchor surface is a key component to colony development, in conjunction with other suitable features such as flushing flows and adequate nutrients and food organisms. On the outer coast, this oyster species is only found in protected locations (bays, coves and inlets).

Olympia oyster colonize the tidal zones of bays and inlets. Larval oysters tend to affixing to the undersides of horizontal surfaces. The young oyster (“spat”) crawl with the foot along the surface of substrate and secretes glue from a “byssus” gland, which attaches the shell to the substrate.

Seasonal Life Cycle

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
				Spawning is temperature dependent (14-16°C range).			Larvae are released 14-17 days after fertilization, then drift 2-3 weeks before anchoring on stationary hard surface				
Active throughout the year.											

Threats

- ♦ Olympia oyster are vulnerable to environmental extremes, cold winter temperatures likely contribute to limiting its distribution.
- ♦ Disease, which is thought to have played a role in the collapse of Olympia oyster stocks in the United States, could also be a limiting factor to population recovery in Canada.
- ♦ Competition from introduced shellfish species, as well as parasites could be adding to recovery challenges.
- ♦ Cumulative impacts from pesticides and water born contaminants (e.g. urban and agricultural runoff) may be effecting Canadian populations as it has in the US.
- ♦ Over harvesting and loss of natural surfaces to colonize on (from dredging and sediment infilling), has been the primary cause of historic declines. Olympia oysters have relatively low reproductive rates and low dispersal capacity and are not resilient to human harvests on a commercial scale.
- ♦ Misidentification of the Olympia oyster for commercially harvestable species adds to impacts from harvesting and non-permitted collection by the public.

Conservation & Management Objectives

- ♦ Apply conservation goals and objectives as set out in the “Management Plan for the Olympia oyster (*Ostrea conchaphila*) in Canada.” Integrate complimentary management objectives for ecosystem based management of shellfish aquaculture as recommended in the “National Aquaculture Strategic Action Plan Initiative. West Coast Shellfish Sector.”
- ♦ Inventory and asses using the RIC Coastal Task Force’s “Assessing shellfish culture capability in coastal British Columbia. Sampling Design Considerations for Extensive Data Acquisition Surveys.” Assessments should not discount or solely rely



As hermaphrodites, larvae of this species initially mature and spawn as a male, then alternate between genders in subsequent spawning cycles. Clusters of sperm are released into the mantle cavity by the males. These “sperm balls” disintegrate in seawater and release spermatozoa, which are then brought into the mantle cavity of the female with water pumped by the gills, fertilizing the eggs. An average brood of larvae is 250,000 to 300,000.

on existing scientific literature when scoping study areas for the potential presence of the Olympia oyster or other shellfish species of conservation concern.

Specific activities should include:

- ◆ Endeavour to protect sites of particular significance to Olympia oysters when considering proposals for tenures development or other intertidal activities *via* Habitat referral process.
- ◆ Collect and collate information on distribution, abundance and population structure of Olympia oysters in BC. Identify index sites for Olympia oysters to be used for long term monitoring.
- ◆ Maintain harvest restrictions on wild stocks of Olympia oysters.
- ◆ Ensure the integrity natural shoreline areas is maintained, degradation to preferred habitat is reduced, and the function of depositional areas such as mudflats and deltas are restored.
- ◆ Implement protection and improved management guidelines for populations that may be subject to water quality, recreational use or harvesting impacts.
- ◆ Work with the BC Shellfish Growers Association to raise awareness of Olympia oysters and threats to the species and encourage culturists to follow best environmental management practices.
- ◆ Increase public awareness and recognition of the role that native shellfish play in maintaining marine ecosystems.
- ◆ Stormwater should be appropriately managed to attenuate and intercept runoff and pollution that may impact marine receiving waters and estuarine environments.
- ◆ Maintain septic fields and other potential sources of contamination to marine receiving environments.

This species is federally listed under the Species at Risk Act (SARA), management and protection of habitat for this species is also governed under the Federal Fisheries Act, Pacific Aquaculture Regulations and the Navigable Waters Act. Harvesting of wild oysters requires permitting through DFO, permits which may impact listed species like Olympia oyster may be denied. This species may also be subject to protections and prohibitions under the BC Wildlife Act and BC Fish Protection Act and potentially Regional and local municipal bylaws.

Content for this Factsheet has been derived from the following sources

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Every effort has been made to ensure content accuracy. Comments or corrections should be directed to the South Coast Conservation Program: info@sccp.ca. Content updated August 2010.

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