



ISLANDS TRUST FUND

# News Release

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## **NEW REPORT HIGHLIGHTS LANDOWNERS' ROLE IN PROTECTING FORAGE FISH SPAWNING HABITAT**

VICTORIA — Marine biologists and volunteers travelled the coastlines of Thetis, Hornby and Denman Islands over the last year to map shorelines where forage fish start their lives. Of the 276 beaches surveyed, 196 were found to support the habitat and conditions needed for forage fish spawning. The study informs waterfront landowners and governments about the habitats of these cornerstone species, and how to protect them.

Forage fish are small schooling fishes on which larger animals and birds feed. At least 50% of the diet of Chinook salmon is made up Pacific sand lance, one species that was the focus of this study. Surf smelt, another forage fish, is an important dietary source for the Pacific cutthroat trout.

“The Salish Sea food web relies on abundant forage fish, which support hundreds of predators, from salmon and Marbled Murrelet to our resident killer whales,” said biologist and study author Ramona de Graaf. “The beaches where surf smelt and pacific sand lance lay their eggs are critical to the ecological, recreational and commercial value of the Salish Sea (Strait of Georgia).”

Surf smelt and Pacific sand lance spawn on sand and pebble beaches. They leave their eggs on the upper beach near the high tide levels, a few meters below the log line. The eggs need overhanging vegetation in order to keep the sand cool and moist.

“Seawalls and riprap are one of the threats to these species. These structures make the waves scour the fine sand and pebbles the embryos need,” said Kate Emmings of the Islands Trust Fund. “Another threat is the loss of overhanging vegetation, making beaches too hot for the eggs to survive.”

Other foreshore activities that can alter beach sediment, such as shellfish aquaculture, can impact beach spawning habitat. Point sources of oil, such as land-based oil leaks or small but chronic oil spills from boats can also be detrimental to forage fish eggs.

The forage fish habitat surveys were completed by the BC Marine Conservation and Research Society and community volunteers, and funded by the Islands Trust Council and Pacific Salmon Foundation. The Islands Trust Fund hopes local trust committees will use the new data when considering shoreline development setbacks and other planning tools that could preserve spawning habitat on the islands. They also hope waterfront property owners will check the new mapping to see if nearby beaches might be home to spawning forage fish, and take steps to ‘soften’ or green their shoreline so that populations remain strong. The maps and report are available at <http://www.islandstrustfund.bc.ca/initiatives/marineconservation/foragefish.aspx>.

– 30 –

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"A Conservancy for Canada's Islands in the Salish Sea"

Bowen, Denman, Hornby, Gabriola, Galiano, Gambier, Lasqueti, Mayne, N. Pender, Salt Spring, Saturna, S. Pender, Thetis

# Backgrounder

## Highlights from the *Thetis, Hornby, Denman Islands Beach Spawning Forage Fish Habitat Suitability Assessments*

### Thetis Island

- 53 beaches on Thetis Island were deemed suitable for surf smelt and Pacific sandlance spawning, for a total of 3.18 km of shoreline (11.9% of the Thetis Island coastline)
- Opportunity for habitat restoration and enhancement included increasing overhanging shade vegetation
- Threats to those beaches deemed suitable included
  - 20 had foreshore modifications (docks, breakwaters, boat ramps, stairs)
  - 47 had modified backshore zones (buildings and upland structures)

### Hornby Island

- 34 beaches on Hornby Island were deemed suitable for surf smelt and Pacific sandlance spawning, for a total of 7.25 km of shoreline (21.7% of the Hornby Island coastline)
- Opportunity for habitat restoration and enhancement included increasing overhanging shade vegetation
- Threats to those beaches deemed suitable included
  - 6 had foreshore modifications
  - 31 had modified backshore zones
  - Aquaculture infrastructure was present on suitable spawning beaches

### Denman Island

- 109 beaches on Denman were deemed suitable for surf smelt and Pacific sandlance spawning, for a total of 26.3 km of shoreline (59.7% of the Denman Island coastline)
- Opportunity for habitat restoration and enhancement included increasing overhanging shade vegetation
- Threats to those beaches deemed suitable included
  - 24 had foreshore modifications
  - 76 had modified backshore zones
  - 2.6 km of upper beach habitat was lost due to aquaculture roads and co-occurrence of invasive *Spartina* species (Cordgrass)

### What are Hard Shorelines?

Hard shoreline options are immovable barriers to wave energy. “Hard armouring” includes seawalls, riprap, retaining walls or any shore hardening structure. Rather than resisting erosion, hard armouring can increase erosion and damage shorelines.

### What are Soft Shorelines?

Soft shoreline options, also known as bioengineering, use natural vegetation, logs and low slopes to stabilize soils, provide upland drainage and habitat. Raised foreshores, or beach nourishment, add fine beach sediments to dissipate wave energy. Soft shore designs work with nature to resist erosion and protect shorelines.