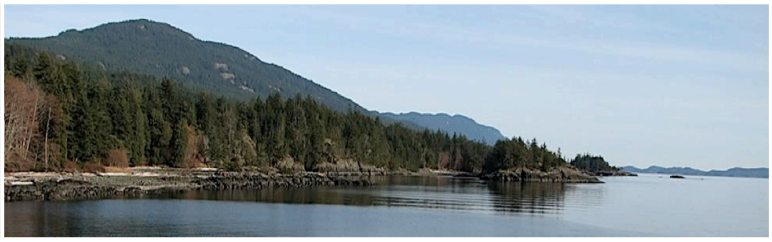
**F R I E N D S  O F  D A V I E  B A Y .**



BY E-MAIL TO:
Hon John Baird, Minister of Transport, Infrastructure, and Communities.
Hon Jim Prentice, Minister of the Environment.
Hon Gail Shea, Minister of Fisheries and Oceans.

**Department of Fisheries and Oceans.**
**CEAR reference number 09-01-49595.**

January 26, 2010.

Dear Ministers,

**Review of Critical Fish Habitat in Davie Bay, Texada Island, BC.**

Friends of Davie Bay welcome the opportunity to present to Transport Canada at the upcoming meeting in Vancouver. We have provided here a preview summary of our research and findings, Members of our research team will present this material at the meeting in some detail. We hope the DFO will be able to respond.

Davie Bay is a biologically important and sensitive marine environment, already designated by the DFO as a Rockfish Conservation Area (RCA). There is no precedent in British Columbia for a barge loading facility, such as the one proposed by Lehigh, operating in an RCA. This fact, as well as an appreciation of the critical fish habitat and important species present in Davie Bay, should have persuaded the DFO to evoke a HADD and a full environmental assessment.

The environmental assessment completed by the marine environmental consultants for Lehigh was egregiously incomplete, missing at least one major designated DFO “species of importance”: eelgrass beds. As you are aware, eelgrass beds are protected in Canada as a critical fish habitat under Fisheries and Oceans Canada “no-net” loss policy (Federal Fisheries Act).

The presence of eelgrass alone should have been enough to trigger further site assessments by the DFO. In fact no further site evaluation was undertaken even when biologists from Friends of Davie Bay met with Scott Northrup from the DFO in October 2009 and presented evidence of extensive eelgrass beds. Since October Friends have consulted notable fisheries and marine ecology professionals and gathered site assessment data that was ignored or omitted in the

environmental evaluation reports filed by Lehigh and accepted by the DFO. Had the DFO conducted its own assessment under conducive conditions, it would have appreciated the presence of sensitive and critical fish habitat; it would have been in a position to challenge the environmental evaluation reports submitted by the applicant, and to judge objectively that a harmful alteration, disruption or destruction of fish habitat would occur.

**DATA TO SUPPORT DAVIE BAY AS CRITICAL FISH HABITAT**

Ramona C. de Graaf, of Emerald Sea Education and Research (ESEAR), has provided Friends of Davie Bay with evidence that Davie Bay is an important habitat for forage fish (see ecological impact of forage fish habitat below). According to Ms. De Graaf, *" the Davie Bay beaches have potential for spawning forage fish (surf smelt and sand lance). From everything I know about sediment drive cells, these beaches would be worthy of monitoring for spawn. Fisheries and Oceans Canada recognizes the need to obtain information on the habitat requirements of forage fishes."*

Important marine habitats found in Davie Bay include eelgrass beds, sand/mud flats, gravel beaches, and a large lagoon and bay protected by small islets. Of primary importance for spawning is the mixture of gravels with a sand base. Shoreline modifications and barge loading will negatively impact the near shore marine food web in numerous ways, including the spawning habitat of surf smelt and Pacific sand lance. Shoreline modification is the primary threat to surf smelt and sand lance spawning beaches (Penttila 2005).

The beaches at Davie Bay are intact shorelines supporting a variety of functions for use by wildlife. Generally, Davie Bay has several outstanding natural features.

1 Erosion processes are intact (eroding bluff face for sediment supply to the beach). Existing erosion processes allow transport of sediments from the bluffs to the beach face.

2. Beach character is that of clean, well-sorted gravel and sand. The region of the upper intertidal, composed of sand/gravels is utilized by Pacific sand lance and surf smelt for spawning and is critical fish habitat. These gravels are derived from land-based sources from eroding cliffs, river born sediments and other coastal processes. The loss of these sediments due to development is of concern due to the destruction of vital intertidal spawning grounds for forage fishes.

3. Shading is provided by intact natural shrubs and trees. Overhanging vegetation (trees of both <2m and >2 m height) and shrubs (both < 2m and >2m height) in the supralittoral zone provide shade and reduce temperatures of beach sediments, critical for successful incubation/hatching of forage fish eggs. Washington Department Fish and Wildlife staff have noted that areas protected from direct sunlight with over-hanging vegetation are often most heavily used for spawning (Moulton and Penttila 2000).

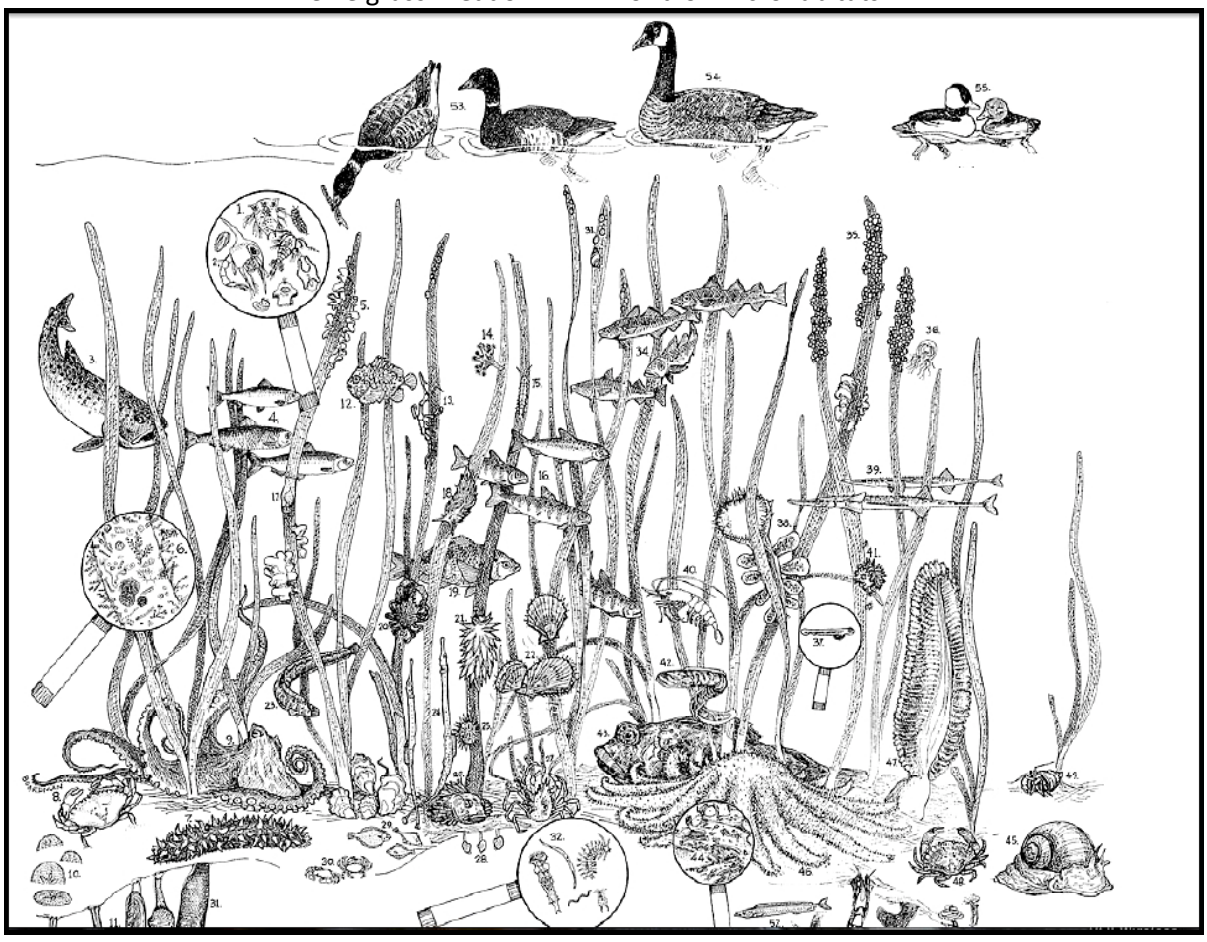
4 Protected attributes that help support a healthy eelgrass bed seaward. Eelgrass, which is a flowering plant adapted to the marine environment, roots in sand or mud in shallow waters where waves and currents are not too severe. Eelgrass needs fairly high light levels to grow and reproduce, so they are found only in shallow waters (mostly 10 meters). Hence, they are totally dependent on the near shore environment.

5. Shellfish, such as crabs and bivalves, use eelgrass beds for habitat and nursery areas and feed indirectly on the carbon fixed by the plants. Fishes such as juvenile salmonids use eelgrass beds as migratory corridors; the beds provide both protection from predators and abundant food, such as the small crustaceans associated with eelgrass.

   The Great Blue Heron and other marine-associated birds feed extensively on the many small invertebrates and fishes that inhabit eelgrass beds. Some forage fish species, critical in other near shore food webs, lay their eggs selectively on eelgrass.

   A variety of human impacts affect eelgrass growth. These include docks, which shade the bottom, and increased nutrient inputs to the near shore, which can cause plankton blooms or excess growth of eelgrass epiphytes (both of which can reduce the ability of eelgrass to get enough light). Toxics, such as metals and crude oil, directly impact eelgrass. Light levels are often decreased by an increase in suspended sediments, i.e., turbidity. Other direct stressors to eelgrass include damage from propellers and boat wakes.

The Eelgrass Meadow — A World of Microhabitats



1. Zooplankton
2. Larval crab
3. Salmon
4. Herring
5. Epiphytic macroalgae
6. Epiphytic microalgae, Hydozoa, and bryozoa
7. Sea cucumber
8. Dungeness crab
9. Octopus
10. Sand dollars
11. Clams and cockles
12. Pacific spiny Lumpsucker
13. Caprellid amphipod
14. Stalked jellyfish
15. Eelgrass isopod
16. Juvenile salmon
17. Bubble shell
18. Opalescent nudibranch
19. Perch
20. Juvenile kelp crab
21. Alabaster nudibranch
22. Scallop
23. Gunnel
24. Bay pipefish
25. Sea urchin
26. Juvenile sculpin
27. Decorator crab
28. Juvenile clams
29. Juvenile flounder And sole
30. Juvenile crab
31. Geoduck
32. Sediment microfauna
33. Snail and snail eggs
34. Juvenile cod, tomcod And wall-eyed pollock
35. Herring eggs
36. Jellyfish
37. Larval fish
38. Melibae-hooded nudibranch
39. Tubesnout
40. Shrimp
41. Brooding anemone
42. Prickleback
43. Sculpin
44. Bacteria on detritus
45. Moonsnail
46. Sunflower seastar
47. Sea pen
48. Red rock crab
49. Hermit crab
50. Worms
51. Ghost shrimp
52. Sand lance
53. Black Brant
54. Canada Goose
55. Bufflehead

*Figure 2.* The eelgrass meadow: A world of microhabitats (© permission Port Townsend Marine Science Center, Port Townsend, WA).

**ECOLOGICAL IMPACT OF FORAGE FISH HABITAT**

- Ramona C. de Graaf (ESEAR)

"Forage fish species are small, schooling fishes (herring, sand lance, surf smelt and capelin) that are important prey for fish (e.g. salmon, rockfish, and lingcod), marine mammals (including the endangered humpback whale), and seabirds (e.g. marbled murrelets, puffins, auklets and others). In turn, forage fish predators like salmon, ling cod and rockfish become prey for larger animals such as seals, sea lions, killer whales and form commercial fisheries important to the economic sustainability of coastal communities. From their eggs, larvae to adults, forage fish fuel our coastal marine food chain and may be important to the recovery of local salmon runs. For example, Washington Department of Fish and Wildlife (1997) report that the 35% of the diet of juvenile salmon and 60% of the diet of Chinook were comprised of sand lance. These fish are direct prey for many marine mammals (dolphins, porpoises, minke and humpback whales, seals and sea lions) while killer whales, including the endangered southern resident killer whales, prey on salmon. Of particular interest to citizens of the Southern Strait of Georgia/CRD, is the recovery of the southern resident killer whale population and rebuilding salmon stocks. Protecting spawning habitat for surf smelt and sand lance is directly linked to improving the food supply of this endangered population of killer whale as well as endangered seabird species such as the marbled murrelet. Surf smelt (Hypomesus pretiosus) make up an important part of the diet of our coastal cutthroat trout and bull trout. Surf smelt and sand lance spawn in gravel/sand beach habitats in the upper one third of the intertidal zone."

Submitted by Richard Fletcher
On behalf of Friends of Davie,
26th January 2010

http://daviebay.com/

cc Linda Sullivan, Robert Sisler, TC
Rebecca Reid , Scott Northrup DFO