

## **Shoreline Armour - Direct and Indirect Impacts Affecting Fish and Fish Habitat**

Morgan Tidd, MSc, PGeo

Nearshore Geomorphologist

Salmon Habitat Restoration Centre of Expertise

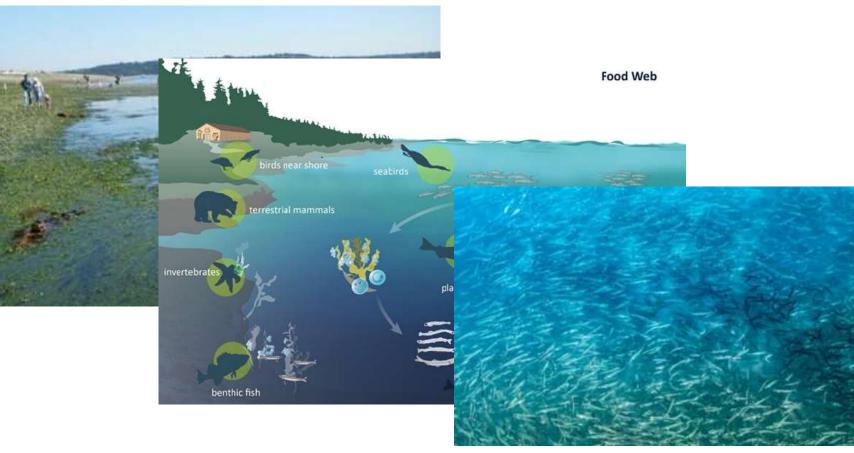


### Why is the Nearshore Important for Salmon?



Source: NOAA, 2023

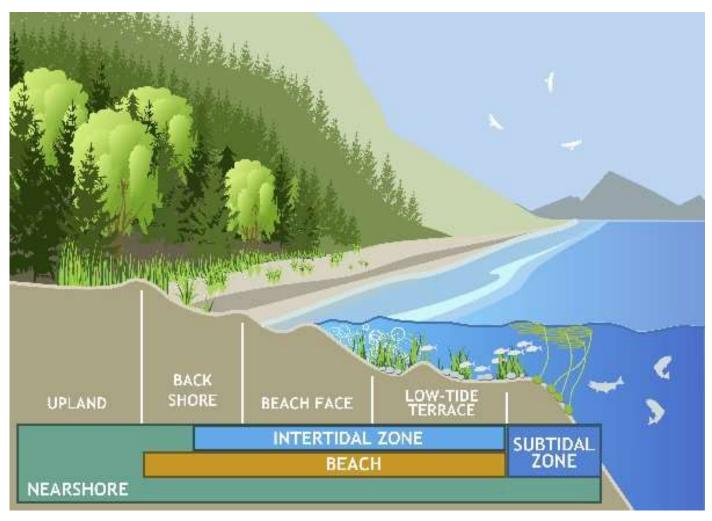
# Why the Nearshore is Important?



Source: MidSound Fisheries Enhancement Group, 2023



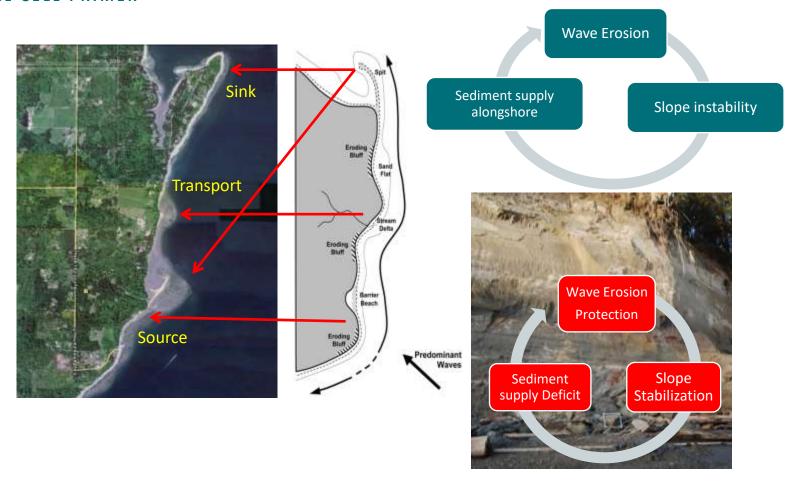
### What makes a healthy nearshore?



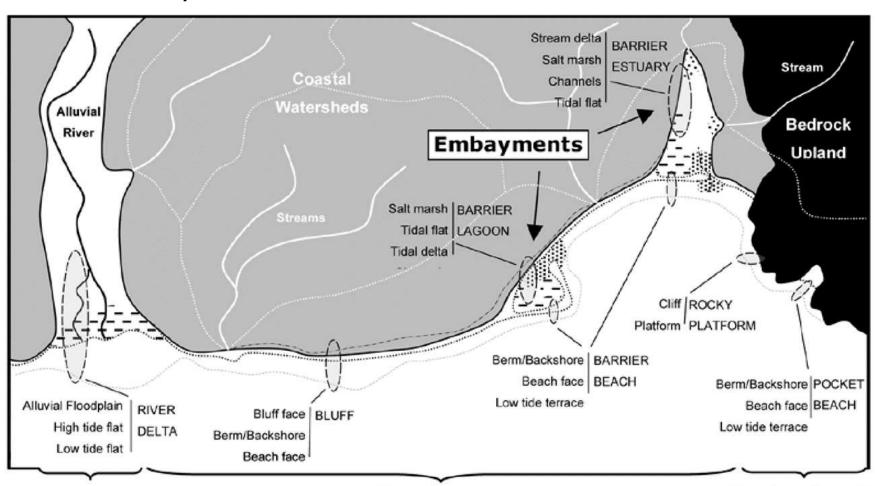
Source: Mid Vancouver Island Enhancement Society, 2024. https://www.mvihes.bc.ca/current-initiatives/36-general-current/121-nearshore

### **Coastal Processes**

#### A LITTORAL CELL PRIMER



### What makes a healthy nearshore?



Delta Beaches Rocky Coast



### Why do we need shoreline armour?







### **Erosion**



# **Flooding**

- Types of armour used for flooding include:
  - dikes,
  - jetties, and,
  - breakwaters

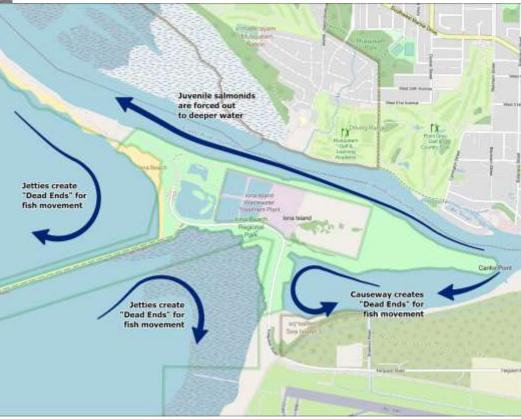






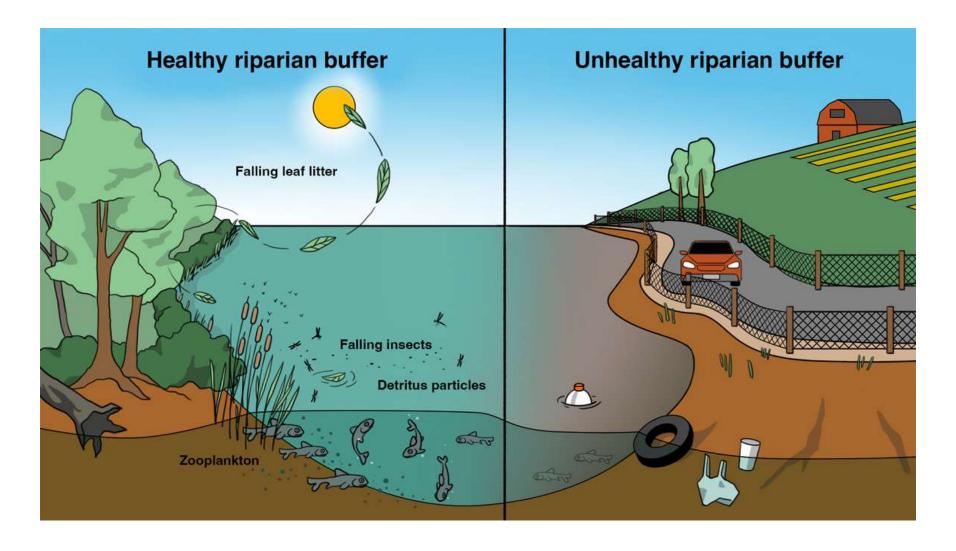
# Sources: Vancouver Port Authority and Raincoast, 2024.

# **Navigation**



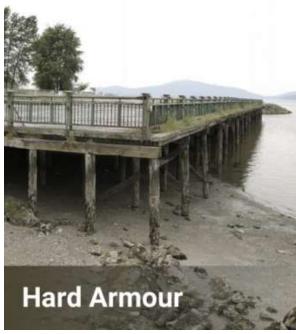


### Impacts of Armour to Habitat: Loss of Riparian Habitat



Impacts of Armour to Habitat: loss of upland habitat, habitat fragmentation

# Source of contaminants





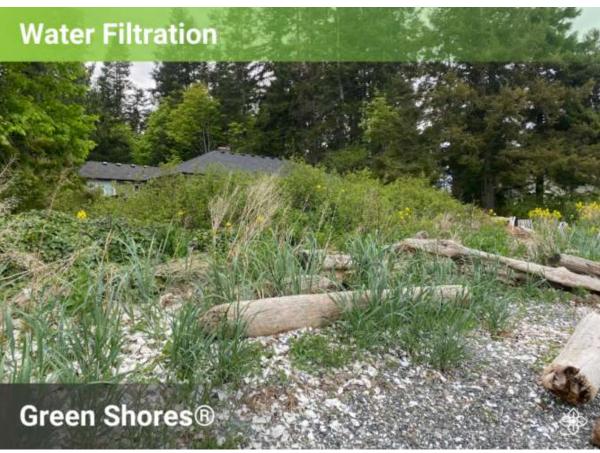
### Impacts of Armour to Habitat:





#### **Impacts of Armour to Habitat:**





### Impacts of Armour to Habitat: Changes to the Sediment Transport Regime



Photo Credit: Brenda Padgham



### Impacts of Armour to Habitat: Changes to the Sediment Transport Regime





#### Impacts of Armour to Habitat: Changes to the Sediment Transport Regime

