

# Estuary Ecosystems

## Information Sheet

### Environmental Protection and Stewardship

#### What are estuaries?

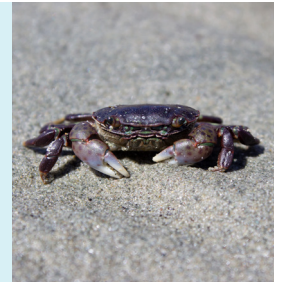
Estuaries are ecosystems where a freshwater river or stream meets the ocean. As the freshwater and seawater combine, the water becomes brackish, or slightly salty. Nutrients and sediment from the land are mixed with those from the sea as the tides rise and fall, resulting in one of the most dynamic and vibrant ecosystems on Earth. Estuaries can take a variety of forms and may include features like mud flats, tidal lagoons, and salt marshes.

#### Where are estuaries?

As a coastal community, Greater Victoria is home to many estuaries including:

- Esquimalt Lagoon, also a Migratory Bird Sanctuary, in Colwood;
- Witty's Lagoon, a regional park, in Metchosin;
- Millstream Creek estuary in Esquimalt Harbour;
- Cecilia Creek estuary in the Gorge Waterway;
- Colquitz and Craigflower estuaries in Portage Inlet.

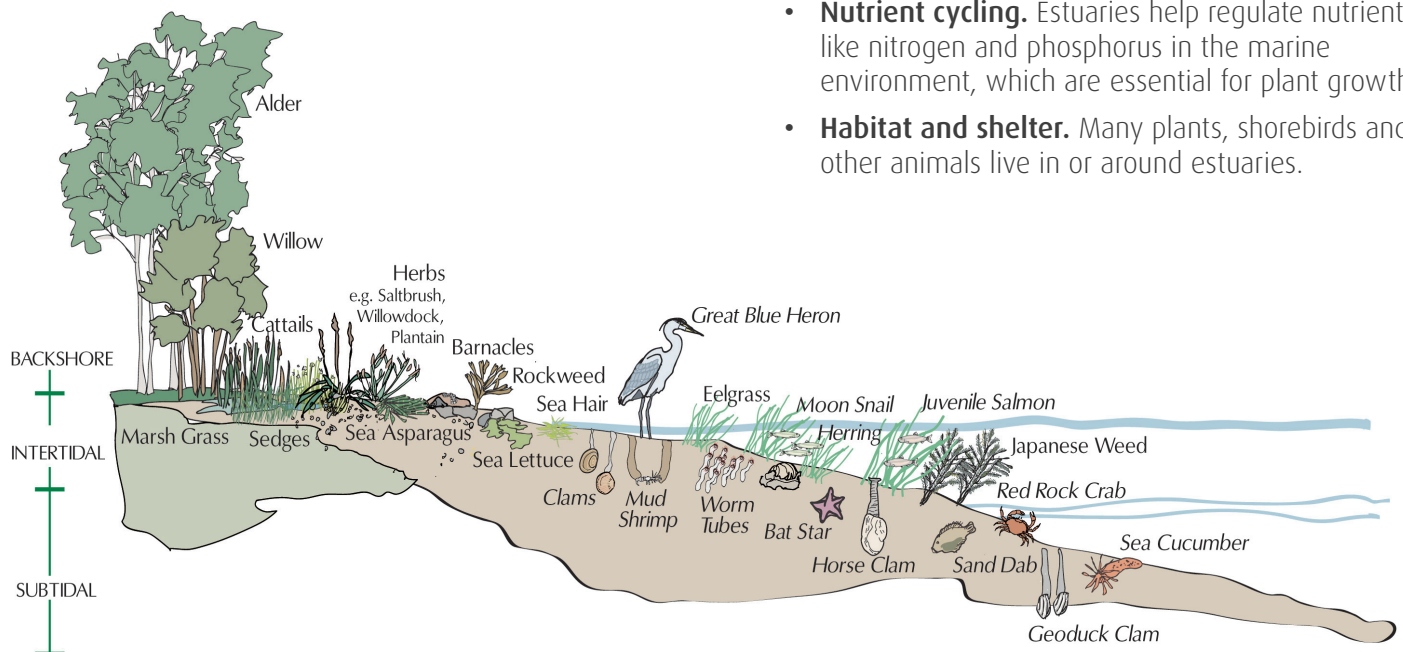
Although estuaries make up only 3% of coastlines in BC, they are used by about 80% of all wildlife species along the coast.



#### Importance of estuaries.

Estuaries are one of Earth's most productive ecosystems. Their essential ecosystem services include:

- **Erosion control.** Vegetation in estuaries helps to anchor sediment and soil.
- **Storm surge protection.** Estuary ecosystems provide a natural barrier to protect land from storm and wave action.
- **Water purification.** Estuary vegetation and sediments filter water as it flows from the land to the ocean.
- **Carbon capture.** Estuaries store carbon in plants, helping to reduce the effects of climate change.
- **Nutrient cycling.** Estuaries help regulate nutrients like nitrogen and phosphorus in the marine environment, which are essential for plant growth.
- **Habitat and shelter.** Many plants, shorebirds and other animals live in or around estuaries.



## Estuaries support biodiversity.

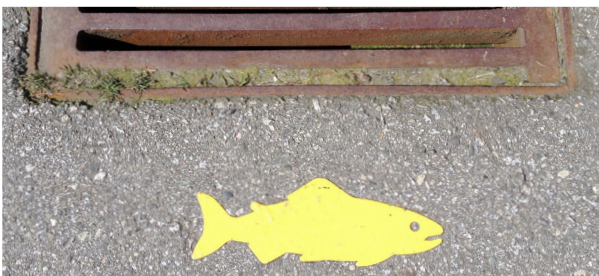
Estuaries are highly productive ecosystems, supporting a great abundance of life. Although estuaries make up only 3% of the coastline in BC, they are used by about 80% of all wildlife species on the coast. Plants and animals found in estuaries include:

- Aquatic plants, like eelgrass, and salt tolerant terrestrial plants like dune grass, sea asparagus and some sedges;
- Shellfish, like mussels, clams, snails and oysters;
- Crustaceans, like shrimp and crabs;
- Fish, like Pacific salmon, herring, cutthroat trout and stickleback;
- Birds, such as great blue herons, sandpipers, black oystercatchers, surf scoters, mergansers, eagles, ospreys, and owls;
- Mammals like bears, cougars, river otters, harbour seals and sea lions.

## Threats to estuaries.

Although estuaries are highly valuable and productive ecosystems, they are also vulnerable to a number of threats:

- Draining or filling for agriculture, industry and urban development.
- Recreational activities such as boating and dog-walking may disturb wildlife and vegetation.
- Spread of invasive species which may crowd and out compete native species.
- Pollution such as heavy metals, pesticides, sewage, oils and gas which reduce water quality.
- Erosion and excess sediment from logging and construction can smother eelgrass and bottom-dwelling animals.
- Sea level rise due to climate change can cause erosion and reduce shoreline habitat.



## We all have a role to play in protecting the environment.

There are simple ways you can help estuaries:

1. Learn about estuary ecosystems and how to recognize them.
2. Visit and enjoy estuaries.
  - If you boat near an estuary, give space to eelgrass beds and wildlife.
  - Stay on designated paths or trails.
  - Keep pets under control.
3. Take Action.
  - Clean, drain, and dry your boat, trailer and equipment if moving between bodies of water.
  - Prevent pollution from your vehicle, yard and home, and report any spills that you see.
  - Join a local community stewardship group and help with invasive plant removal, restoration activities, or other community events.
  - Remove invasive species from your yard to prevent their spread.

Visit [crd.bc.ca/biodiversity](http://crd.bc.ca/biodiversity) for more resources.

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Environmental Services

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**CRD**

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