

BIODIVERSITY

IN GREATER VANCOUVER



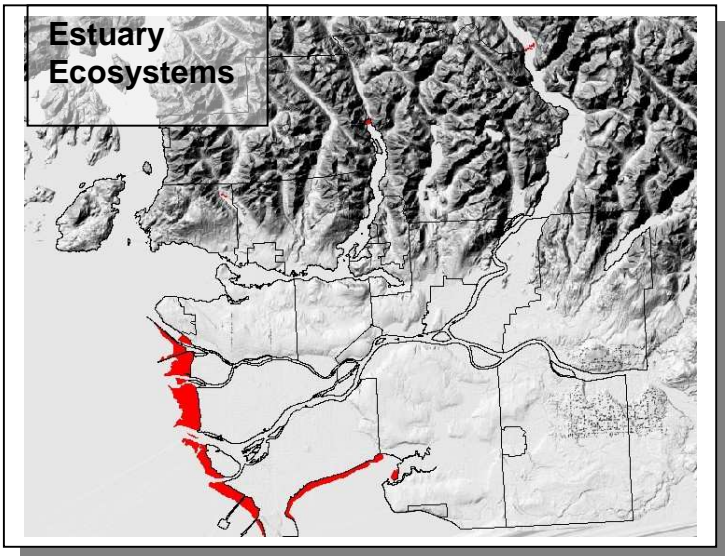
Photo by Charles Simenstad, Washington Sea Grant Program

Fact Sheet #9



BIODIVERSITY CONSERVATION STRATEGY FOR THE GREATER VANCOUVER REGION

GEORGIA BASIN ECOSYSTEM INITIATIVE



Ministry of Sustainable Resource Management-Baseline Thematic Mapping. *Data may not be complete for some areas

What are Estuary Ecosystems?

Estuaries are areas where freshwater meets the saltwater of the sea. The result is brackish waters that support a high diversity of life. Estuaries trap nutrients coming into the environment from the ocean, land and inflowing rivers. These nutrients are dispersed throughout the estuary through tidal movement, wind and currents. This constant mixing creates a productive environment that provides important habitat for many plants and animals. Estuaries themselves can incorporate many other habitat types including salt marshes and scrub forests.

Status

The most significant estuary in this region is that of the Fraser River. This area ranks globally in its ecological value for both fish and wildlife providing habitat to hundreds of species of resident and migratory birds. The Fraser watershed itself is the most important salmon producing river in the world. Estuaries like the Fraser, Mud Bay and Indian Arm are all keystone habitat gateways for outmigrating and returning pacific salmon in Greater Vancouver. Though several major estuaries existed throughout Vancouver Harbour and Burrard Inlet, the contribution and function of these

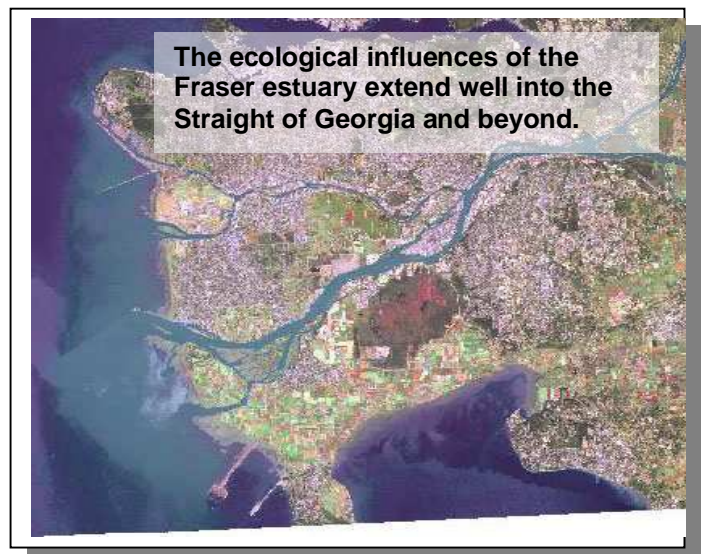
areas has been significantly reduced due to human modifications, habitat loss and impaired water quality. The health of our remaining estuaries is also in question from these same threats.

Threats

- Industrial and urban development
- Habitat conversion
- Elimination of wetlands in proximity to estuaries.
- Pollution, toxins entering the estuary
- Dredging
- Logging activities
- Pulp and paper mills
- Fish processing
- Ocean transport and navigation corridor maintenance.

Nature's Services:

- Provide important habitat to plants, shorebirds and other wildlife.
- Stop over areas for migratory birds.
- Food source for wildlife (due to the high productivity of the ecosystem).
- Sequesters and detoxifies wastes.
- Cycles nutrients
- Supports and provides opportunities for fisheries.
- Recreation opportunities, relaxation, and tourism opportunities.



Regional Indicator Checklist:

- White Sturgeon (*Acipenser transmontanus*)
- Coho Salmon (*Oncorhynchus kisutch*)
- Coastal Cutthroat Trout (*Oncorhynchus clarki clarki*)
- Steelhead Trout (*Oncorhynchus mykiss*)
- American Bittern (*Botaurus lentiginosus*)
- Great Blue Heron (*Ardea herodias*)
- Northern Pintail (*Anas acuta*)
- Black-bellied Plover (*Pluvialis squatarola*)
- Short-eared Owl (*Asio flammeus*)
- Townsend's Warbler (*Dendroica townsendi*)
- River Otter (*Lontra canadensis*)
- Common Eel Grass (*Zostera marina*)
- Dune Grass (*Elymus mollis*)

Estuaries are highly productive areas and therefore attract a multitude of wildlife. Small mammals use the marshes and grasslands associated with estuaries for their abundant forage. Predators use the estuaries for hunting fish, birds and smaller mammals. Many migratory bird species use estuaries as stop over feeding and breeding refuges during their migration. Salmonids use estuaries as a rearing ground before they head to the Pacific Ocean. The plant species that are found in estuaries are highly adapted to the brackish waters, constant spray from the ocean, tides, and exposure to the elements.

Great Blue Heron

One of our most easily recognized estuary residents, this long legged slender necked bird is considered endangered and is blue listed in BC. Great blue's are year round residents of the Greater Vancouver Region.

Hérons require the expansive foraging habitat found in our local estuaries. Fish, amphibians, insects, bird, and small mammals all form part of their diet.

They also need large undisturbed mature treed areas within easy flying distance of feeding areas for nesting. Threats to these birds are eagle predation, human disturbance, and loss of foraging sites.



The great blue heron is one of our most easily recognized and charismatic bird species. Its importance as a regional indicator for the health of a variety of ecosystems is only now being recognized.

Eel Grass

There are also plant species such as common eel grass that are important to estuary ecosystems. Eel grass communities provide food, refuge, substrate to live on, and spawning areas for fish and other aquatic organisms. Insects, bugs, and algae are all dependent upon the existence of Eel Grass communities.

Loss of eel grass communities can contribute to declines in fish populations, and so on up the food web for hosts of species.



Preserving and restoring eel grass communities are vital to the function of our estuaries and contribute to the overall health and richness of these systems.



Estuaries support a diverse array of life that has value globally as well as regionally .

Optimal form & function

Its not easy to explicitly state what is needed to ensure estuary health. As an ecosystem the complexity of relationships between the species that live there and those that depend upon their existence is vast and indirect. They require natural cyclical inputs of sediment, nutrients and tidal/freshwater flushing. Substrate and inter-tidal plant and animal communities are extremely sensitive to disturbance and take long periods to recover.

What can we do?

- **Recognize and appreciate the ecological role of estuary ecosystems.**
- **Enhance and restore riparian/wetlands areas, their waters eventually enter into your local estuary.**
- **Decrease the amount of toxic or harmful substances entering water ways, i.e. your local stream, household drains, and stormwater drains.**

- **Advocate for better alternatives to estuary management that reduce the impacts of growth and commerce.**



Perhaps we must simply recognize that the role estuaries play in the Vancouver Region is key not to just our marine resources but to our freshwater and terrestrial ones as well.

More detailed information on this ecosystem and associated species can be obtained from the report: "Conserving Biodiversity in Greater Vancouver –Indicator Species and Habitat Quality". Available from the Ministry of Water, Land & Air Protection at: <http://wlapwww.gov.bc.ca/sry/fwh/GBE1/index.htm>
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