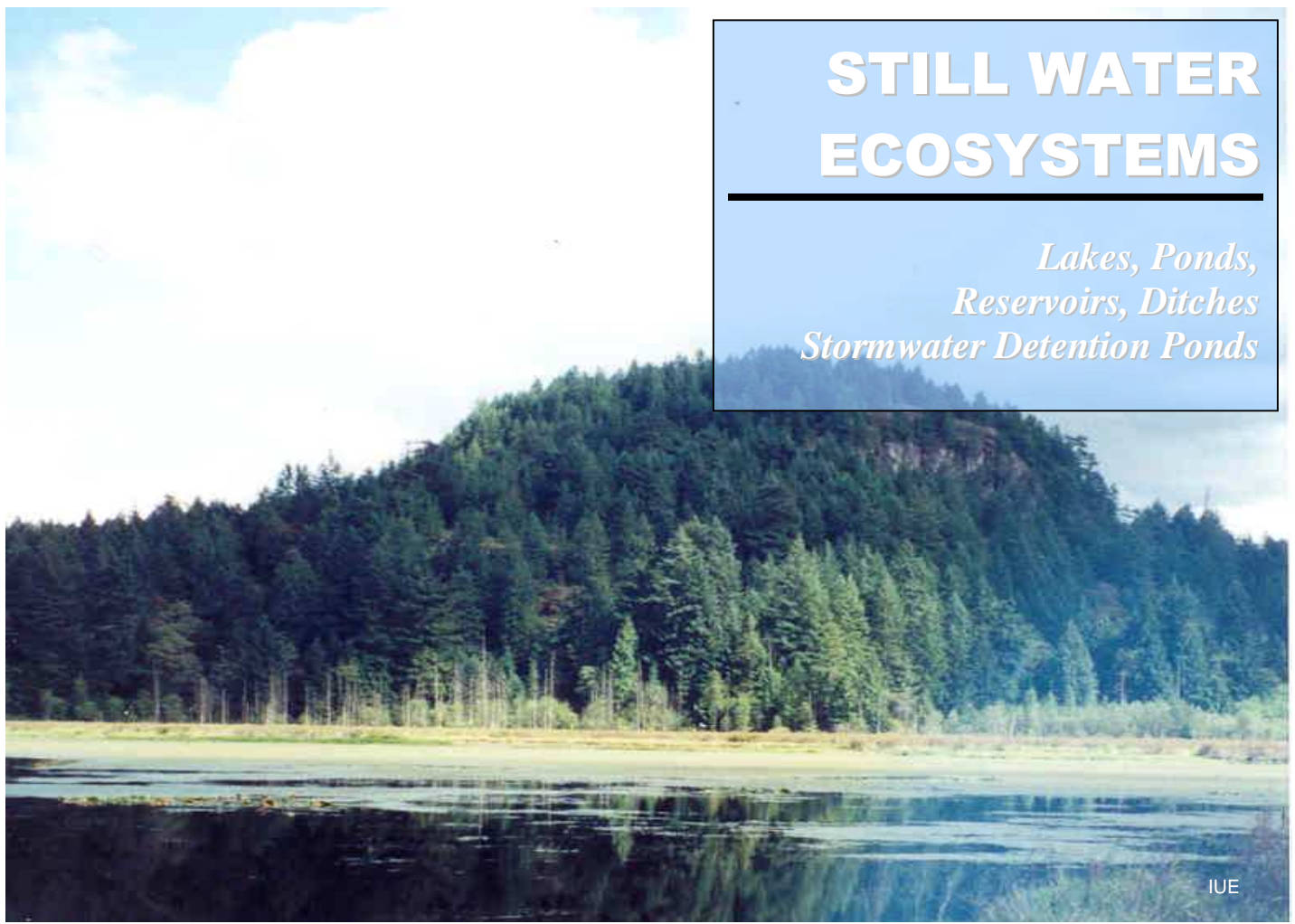


BIODIVERSITY

IN GREATER VANCOUVER



STILL WATER ECOSYSTEMS

*Lakes, Ponds,
Reservoirs, Ditches
Stormwater Detention Ponds*

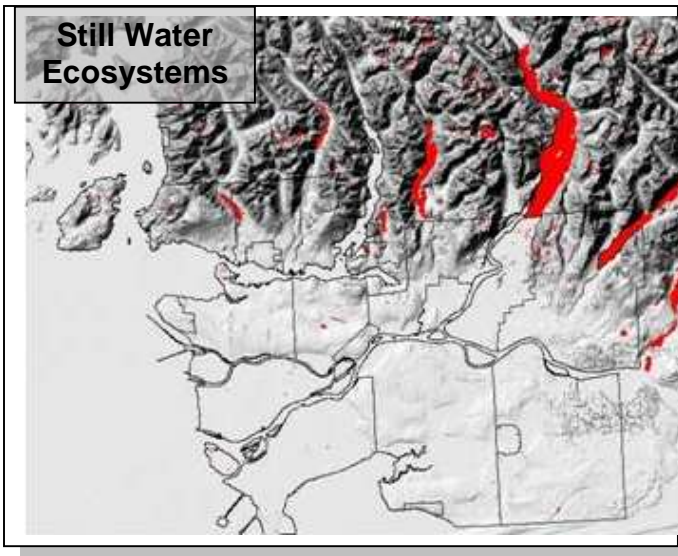
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Fact Sheet #3



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 Still Water Ecosystems?

Lakes are low points in the Earth's surface that collect water. Lakes receive inputs of freshwater from rivers and streams. In urban areas, lakes can be either natural or artificial. Like lakes, ponds can also be natural or artificial. The water in ponds is still and shallow.

Reservoirs are created when rivers and streams are dammed. These areas are used for drinking water and/or the generation of hydro-electric power.

Ditch and stormwater detention ponds are created to reduce the impacts of flooding from surface water runoff in agricultural and urban areas.

Where are they?

Examples of natural lakes in Greater Vancouver are Pitt Lake in Pitt Meadows and Burnaby Lake in Burnaby. Well known urban lakes are Como Lake and Lafarge Lake in Coquitlam, and Trout Lake in Vancouver. Ponds can be found in parks, residential yards and a variety of open spaces.

Three major drinking water reservoirs in Greater Vancouver Region are Capilano, Seymour and Coquitlam Lakes. Buntzen Lake is a reservoir used for hydro-electric power generation

Most ditches and stormwater detention ponds are now found mainly in the eastern part of the region in suburban/rural areas of Surrey, Langley and Maple Ridge.



Status

Water pollution, urban development and invasive species threaten the quality of Still Water Ecosystems. Their status is dependent on the amount of care and sensitivity shown in protecting and restoring these areas.

Many ditches have been filled in and replaced with storm sewers and impervious surfaces, increasing urban runoff.

Some restoration activities to maintain these vital features on the landscape include creating artificial lakes and ponds, removing invasive species, and restoring natural foreshore areas.

Threats

- **Urban/agricultural runoff**
- **Residential/Commercial Pollution**
- **Invasive species**
- **Recreational overuse**
- **Urban development**

Nature's Services

- **Beautification of urban areas**
- **Habitat reservoirs for a diverse array of flora and fauna.**
- **Water filtration and purification**

- Reservoirs provide drinking water and electricity
- Provide a wide array of recreational opportunities such as hiking, fishing, mountain biking, canoeing, and kayaking etc.
- Reduce the impact of flooding, erosion and urban runoff.

Regional Indicator Checklist

- Red-legged Frogs (*Rana aurora*)
- Pacific treefrogs (*Hyla regilla*)
- Northwestern Salamanders (*Ambystoma gracile*)
- American Bittern (*Botaurus lentiginosus*)
- Great Blue Heron (*Ardea herodias*)
- Northern Pintail (*Anas acuta*)
- Northern Harrier (*Circus cyaneus*)
- Short-eared Owl (*Asio flammeus*)
- River Otter (*Lontra canadensis*)
- Yellow Waterlily (*Nuphar luteum ssp. Polysepalum*)

The relatively slow flowing waters of lakes, ponds and reservoirs provide numerous habitat values for a diversity of wildlife. Several amphibians utilize these ecosystems along with wetlands as breeding sites. Birds also use these open water areas extensively for feeding. Aquatic and terrestrial insects that are critical to local foodchains are found in abundance near these areas.

The health of ponds and lakes often depend on the health and influence of adjacent vegetation and water quality. Disturbed still water ecosystems often become host habitat for introduced species such as bullfrogs, green frogs, largemouth bass and brown bullhead (catfish).

Red-legged Frog

Red-legged frogs are a native blue listed (vulnerable) species in BC. For breeding, they require cool-water ponds, lake edges or slow streams with canopy cover that shades them during breeding and larval development. As tadpoles they are entirely aquatic, feeding mostly on algae. As adults, they are more

terrestrial, preferring damp forests with logs and woody debris used for hiding and foraging for food. They can also be spotted in rural areas, open fields and habitats that are adjacent to canopied still waters with associated forest cover.

Like most other amphibians, red-legged frogs are highly connected and dependent on the health of their immediate environment and are extremely sensitive to disturbances in their habitat, particularly their spawning sites. Habitat degradation and loss, which displaces them, could contribute to their declining numbers.



The red-legged frog is having a tough survival time due to loss of critical habitat and competition from introduced species such as bullfrogs and greenfrogs.

Yellow Waterlily

This beautiful yellow flower can be seen floating on the surface of ponds, shallow lakes, and slow moving drainages in the summer months. The floating flower and lily pads provide cover for fish and substrate for aquatic invertebrates. Also, this plant species provides beavers and muskrats with a food source throughout the year.

Yellow Water lilies occur where still water areas are relatively undisturbed such as Como Lake, Colony Farm Regional Park, Burnaby Lake Regional Park and other open water areas.

The Yellow Water lily is sensitive to negative environmental stresses, such as toxic contaminants, metals and pesticides. These pollutants will decrease the abundance and vigour of this sensitive plant.



This native water lily has to compete for resources with a variety of introduced species such as the white pond lily and purple loosestrife.

Optimal form & function:

Clean, clear open water variable in depth with coarse woody debris and shorelines. Size of water body should be about 100 ha, or smaller water bodies in close proximity to each other with connected riparian areas. Underwater substrate can range from gravel to sediment. Emergent vegetation in a 50:50 water:emergent vegetation ratio. Surrounding upland forest communities should be up to 2000 ha in size depending on waterbody size. Adjacency to herbaceous, grassland or forested habitats are most desirable. A buffer strip of adjacent habitat should be 30 to 150 m wide to incorporate habitat requirements of most species.

What can we do?

- **Recognize biological, economic, and intrinsic values of ponds, lakes, reservoirs and stormwater ponds.**

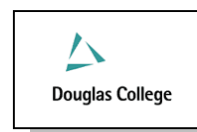
- **Help by volunteering with an organization that is restoring pond and lake habitats.**
- **Keep an eye on non-native vegetation to prevent it from entering these sensitive ecosystems.**
- **Prevent the deterioration of these ecosystems by disposing of hazardous materials properly.**



Burnaby Lake Regional Park in the Brunette Basin (Burnaby) is a major linkage in regional greenway planning and natural area conservation.

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/GBEL/index.htm>
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The Biodiversity Conservation Strategy for the Greater Vancouver Region - Project Steering Committee: Environment Canada, Province of British Columbia, Greater Vancouver Regional District, BIEAP/FREMP