Puget Sound Georgia Basin Ecosystem Indicator Report

Executive Summary

River, Stream and Lake Quality

Conditions Worsening

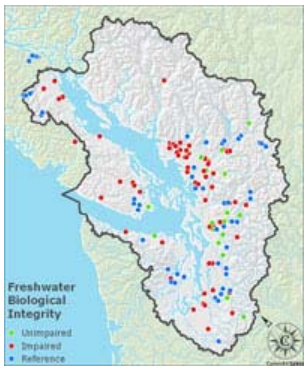
The Puget Sound Georgia Basin Ecosystem Indicators give a glimpse into the health of our ecosystem, which includes the interactions among seven million people, their health, local economies and a complex system of water, land, plants, animals and microorganisms. This indicator describes the quality of freshwater found in water bodies such as rivers, streams, lakes, creeks and sloughs in 2003. Stream quality is measured by a water quality index (physical and chemical properties) and an index of biological integrity (health of biological organisms at the base of the food chain). As water travels over hard surfaces such as compacted soils, asphalt and the thousands of acres of human-made surfaces, it picks up oils, grease, chemicals, and human and animal wastes. All of it, unless physically filtered by the processes of wetlands, soils and plants, will find its way, untreated, to both freshwater and saltwater sources.

What Is Happening?

Measuring Water Quality: Water quality is measured by combining different aspects (*parameters)* of water quality into a numerical *water quality index.* The indexing calculations differ slightly between BC and Washington although both systems measure temperature, pH, dissolved oxygen, phosphorous and nitrogen (nutrients) and suspended solids (turbidity or cloudiness). These indexes are tied to meeting "beneficial uses" under the Clean Water Act such as drinking, swimming or fishing in Washington State and are similarly linked to these same types of water use in BC. In addition, the Index of Biological Integrity (IBI) measures the health of bugs and critters in the streams such as caddis flies, mayflies, stoneflies, freshwater shrimp and worms. Streams are tested for the number and type of organisms found and expected in different healthy habitats.

Maps: CommEn Space

Puget Sound: In 2003, 50 percent of Puget Sound's permanent monitoring stations reported good water quality and 50 percent fair water quality. The stations reporting fair water quality results were typically located near urbanized areas such as Port Angeles, Mount Vernon, and Tukwila, or adjacent to farming areas such as the Skagit and Puyallup. For the 22 rotating basin stations (e.g. Nooksack, White River, Dungeness, Snoqualmie, Union rivers) 14 had fair water quality, seven rated good, and one had poor water quality. The Nooksack River received the poor rating and has cost roughly $4.5 million to clean up.



In addition to these water quality chemistry tests, 59 percent of the streams tested for biological health were considered impaired. While water quality, as indicated by chemistry sampling, remains good in many areas, an equal number of areas are at risk of degradation. Water quality as indicated by biological conditions shows a much broader pattern of impairment affecting streams on both sides of the border.

Georgia Basin: In 2003, of the 16 sites measures, five were rated excellent, five good, three fair, two marginal and one poor. The Fraser River, home to some of the most abundant and delicious salmon in the world, was monitored at five locations and, of those, two were excellent, two good and one fair. The Fraser River is the largest salmon producing river in the world. Of the 300 important salmon spawning streams in the Fraser River system, about half are found in urbanized areas of the Lower Fraser Valley.

In addition to these water quality chemistry results, BC also reported fairly broad impairment of their biological condition with 85 percent of streams tested for biological health considered impaired.

continued

Why Is It Happening?

Stream water quality is affected by two major sources: point discharges under permit for sewage treatment plants and industrial facilities; and non-point sources (eg. polluted runoff that carries soil, chemicals, oil, debris and other untreated pollutants into water). These problems are exacerbated by impervious surfaces and compacted soil that cannot slow or biologically inactivate the pollutants. Polluted runoff comes from manure and chemicals from agriculture, failing septic systems, vehicles, urbanization and construction activities.

How Does This Affect Me?

Poor stream quality can affect drinking water quality, lead to loss of recreational uses and commercial fishing revenue, impair nature-based tourism revenue and waste valuable public funding to clean up dirty rivers. BC nature-based tourism creates over $2 billion in revenue each year and Washington is fifth in the nation for revenues from watching wildlife -- and fishing for salmon is priceless. Poor stream quality also affects water quantity and flow, both critical for fish migration, irrigation and industrial manufacturing. We put future generations at risk by allowing streams to become degraded with water quality problems in the first place.

What Are We Doing About It?

Citizens, businesses and communities work with government agencies in many productive ways:

- Farm planning and manure/chemical management
- Use of low-impact development and native landscaping
- Stormwater planning
- Technical assistance to businesses
- Community engagement and learning through septic socials, gardening classes and celebrations of success in restoring stream health

What Can I Do?

Your Tool Box

- Use natural landscaping techniques: Seattle Public Utilities Conservation Index www.ci.seattle.wa.us/seattle/util/rescons/, Washington Native Plant Society www.wnps.org and Nature Scape British Columbia www.hctf.ca/nature.htm
- Support low impact development: Puget Sound Action Team www.psat.wa.gov/Programs/LID.htm
- Pick up after Rover
- If you are a farmer, work with the Conservation Districts to fence your animals properly. See USDA Natural Resources Conservation Service | Washington www.wa.nrcs.usda.gov or call (509) 323-2900
- Check out the BC Ministry of the Environment's information on protecting water quality: www.env.gov.bc.ca/wat/wq/nps/Home/npshome.htm
- Properly install and maintain septic systems: See Washington State Department of Health, Wastewater Management Program at www.doh.wa.gov/ehp/ts/waste.htm or call (888) 586-9427

Learn more **http://www.epa.gov/region10/psgb/indicators/freshwater_quality/**

Share what's important to you and your community

http://www.epa.gov/region10/psgb/contact/

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The Puget Sound Georgia Basin Ecosystem Indicators Report is a collaborative effort brought to you by Federal, State, Provincial and Local partners from the United States and Canada.