



Puget Sound Georgia Basin Ecosystem Indicator Report

Executive Summary



Photo: Nat'l. Science Foundation

Urbanization and Forest Change

Conditions Worsening



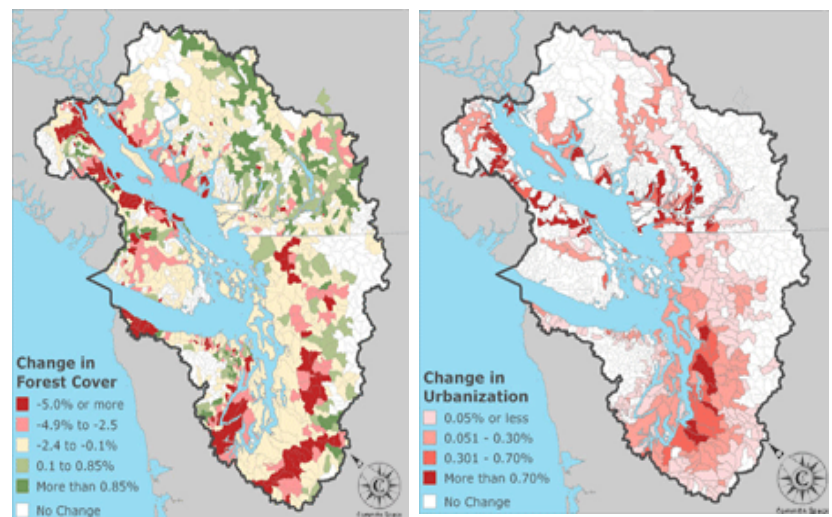
The Puget Sound Georgia Basin Ecosystem Indicators give a glimpse into the health of our ecosystem, which includes the interactions among seven million people, their health, local economies and a complex system of water, land, plants, animals and microorganisms. This indicator describes changes in land use between 1995 and 2000 in Puget Sound and 1992 and 1999 in the Georgia Basin. These changes include loss of forest, as well as increase in urbanization and accompanying impervious surface cover. Results are presented for approximately 2,725 local watersheds within the international basin. Patterns of land use and land cover, in conjunction with the socioeconomic profile of the seven million people who live in the Puget Sound Georgia Basin, are the driving forces behind overall ecosystem health.

What Is Happening?

Forest Cover: Within the 5-7 year assessment period, 452 watersheds had at least 1 percent of their total area converted from mature forest cover to some other land cover, often bare ground, immature vegetation, or industrial/urban uses. At the same time, another group of 205 watersheds, mostly occurring above 2,000 feet in elevation and generally within public ownership, indicated a net increase in forest cover as young stands or cleared areas re-grow into more mature forest cover.

Urbanization: During the same period, urbanization increased across many low elevation watersheds and shoreline areas. One hundred fifty-eight local watersheds gained impervious surfaces by between 0.7 and 2 percent of their total area. Another 58 local watersheds showed increases in urban land cover of between 2 and 19 percent of their total drainage area. While these percentages may seem small, they represent fairly dramatic change over a relatively short period of time.

Urbanization is defined as the *transformation of natural landscapes, such as wetlands and forests, to built environments*. These built environments typically contain large amounts of impervious surfaces such as concrete, asphalt, roofs, lawns and other materials that quickly carry pollutants to the inland waters of the Puget Sound Georgia Basin. The watersheds showing more rapid rates of conversion loss were mostly in low and mid-elevation areas



containing large proportions of private land. *Low elevation watersheds* typically include those that are below approximately 2,000 ft/609 meters in elevation. These watersheds contain valuable gentle-gradient aquatic habitats that sustain important species. These watersheds are also important for the high quality water that they provide and also for their flood-buffering functions.

Why Is It Happening?

Threats to the agricultural land base include: speculative buying (in hopes of influencing land use and zoning changes), taking land out of production, fragmentation of agricultural lands, incompatible adjacent land uses and lawsuits (odor, noise, drift of pesticides); incompatible regulations, difficulties associated with irrigation, and appraisal at "highest and best use" which raises property taxes.

continued

Why Is It Happening? *continued*

We are losing forest lands for similar reasons: development pressure and migration to suburban areas that make land use conversion attractive, depressed market prices for forest products, fire suppression policies, development of Real Estate Investment Trusts (including out of state buyers such as insurance companies) and pressure on state trust land to produce income in the face of decreased state revenue.

How Does This Affect Me?

- Higher energy costs because of the “heat island effect”: impervious surfaces can raise local temperatures.
- Increased flooding and stream pollution: impervious surfaces can quickly transport pollutants and increases the potential for downstream flooding.
- Fragmented wildlife habitat stresses local plant and animal populations.
- Reduced quality and quantity of water: impervious surfaces increase the rate at which pollutants and oil reach streams and estuaries and can interrupt the natural cycle in which water is replenished for future use.
- Lost farms and forests means loss of history, aesthetic beauty and lost economic opportunities for local food and forestry products.

Impervious Surfaces in Watersheds: Research has shown that once watersheds have developed roughly **10 percent** of their drainage area into an impervious or paved condition, there is a high potential for physical, chemical, and biological impairments to both water quality conditions and other resources such as shoreline erosion, downstream flooding, and scoured and smothered fish eggs.

What Are We Doing About It?

Responses to loss of farm and forest land include: **Smart Growth and community planning:** make density and urban living more attractive, comfortable, and accessible while protecting forests, farms and green spaces. Smart Growth includes mixed land use, compact designs, housing option types, walkable neighborhoods, alternative transportation options, and protects farms, forests and natural beauty; **Low Impact Development and natural landscaping** (use native plants, good soil, green roofs and pervious surfaces

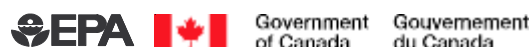
What Can I Do?

Your Tool Box

- Support smart and well planned communities: support beautiful, more convenient and vibrant neighborhoods.
- *Stretch:* Consider using bicycles, skateboards, carpools, telecommuting, buses or FlexCars for a different way to travel.
- *Buy:* Use your pocketbook to keep your family and community safe through green purchasing. Visit the National Institutes of Health Household Products Database at householdproducts.nlm.nih.gov/
- *Garden:* Use natural landscaping and low impact development: www.ci.seattle.wa.us/seattle/util/rescons/; www.wnps.org and www.metrokc.gov/wlr/PI/Go-Native/. Nature Scape British Columbia: hctf.ca/nature.htm. Support low impact development (www.psat.wa.gov/Programs/LID.htm)
- *Act Local:* Support and protect local farms and forests: www.agf.gov.bc.ca; <http://www.farmland.org> and www.nnrg.org

to allow water to slowly seep into the ground and slow polluted runoff into waterways); **Farmland** through agricultural protection districts and local farm/food initiatives; **Forest protection** through market tools and progressive laws.

Learn more http://www.epa.gov/region10/psgb/indicators/urbaniz_forest_change/
Share what's important to you and your community
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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.