WATER QUALITY

Puget Sound Vital Signs
A dashboard of indicators on Puget Sound's health and vitality

Fresh Water Quality

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Rivers and streams link our watersheds to Puget Sound

We live in a rainy climate, and dozens of rivers and thousands of streams drain our watersheds into Puget Sound. Clean water is vital to people and key to healthy fish and wildlife populations. But when our rivers and streams pick up pollutants, toxic contaminants, or excessive sediments and nutrients, it not only affects the health of our watersheds, but impacts our marine waters, swimming beaches, and shellfish beds as well. Our fresh waters should be safe for drinking and swimming, able to support farms, fish, and wildlife, and not harm our beaches, shellfish beds, or marine waters.

In 2010, 26% of our monitored beaches failed to meet water quality standards and were unsafe for swimming.

Healthy streams support healthy biological communities

Walk along a small stream or creek in the region, and on the rocks and sediments of the streambed you may find a lively community of aquatic insect larvae, snails, and other small invertebrates. These small creatures thrive in clean, cool waters and form a critical part of the aquatic food chain. But this unique biological community is sensitive to many things, including pollution and runoff from agricultural and developed lands, reduced water levels and high temperatures in the summer, and the clearing of trees and vegetation along streambanks. Scientists often measure the condition of the aquatic community as an indicator of overall water quality and stream health.

2020 Targets for Fresh Water:

To improve the quality of freshwater that flows into Puget Sound, the Leadership Council established three major targets:

- At least half of all monitored streams should score 80 or above on the fresh water quality index
- Reduce the number of "impaired" waters
- Protect (i.e. allow no degradation of) any small streams that are currently ranked "excellent" for biological condition, and improve water quality in streams ranked "fair" so their average scores become "good"

2020 Target: Fresh Water Quality Index

Scientists who monitor our streams and rivers have developed an index of fresh water quality. A score of 80 or higher (out of 100) indicates that water quality is generally meeting our goals for sediments, nutrients, temperature, dissolved oxygen, fecal coliform bacteria, and other conventional pollutants (the index does not address toxic contaminants for a number of technical reasons). In general, fresh water quality index scores for the major rivers in Puget Sound have slowly improved since the index was first established in 1995 and now average in the mid-70's range. Scores in small urban streams are lower.

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Water Quality Index

Annual, 2000-2010

Meeting Goals	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Avg
Duckabush	93	95	94	90	74	94	89	85	88	96	86	89
Elwha	86	88	83	76	73	74	86	67	66	81	81	78
Skokomish	95	95	94	85	70	67	92	89	89	94	86	87
Snohomish	92	91	89	81	74	75	89	75	81	85	79	83
Borderline	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Avg
Cedar	87	76	60	78	72	84	81	79	79	81	77	78
Upper Skagit	87	86	59	85	64	81	84	75	75	81	56	76
Lower Skagit	89	91	71	76	61	73	77	77	75	76	74	76
Deschutes	62	72	70	73	61	83	88	88	83	76	74	75
Nisqually	40	60	79	79	69	71	74	75	91	74	83	72
Not Meeting Goals	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Avg
Green	82	73	66	67	75	49	72	68	60	69	63	68
Nooksack	65	68	58	57	52	54	61	51	60	69	56	59
Puyallup	60	58	57	55	51	58	59	58	61	49	62	57
Samish	86	75	32	49	34	71	67	74	59	80	63	63
Stillaguamish	81	60	44	72	55	67	71	69	75	75	71	67

Source: River and Stream Ambient Monitoring Program, Washington State Department of Ecology

The Water Quality Index (WQI) is an aggregation of monthly measurements of typical water pollutants reported on a scale of 1 to 100. A higher number indicates better quality. An index score of 80 or above indicates that water quality is generally meeting our goals; between 70 and 80 is considered "fair" or "borderline"; 40-70 is failing to meet water quality goals and less than 40 is "poor".

Stations meeting water quality goals are all in the relatively undeveloped Olympic Peninsula (except for the Snohomish River). Stations not meeting water quality goals tend to be in watersheds with more people and more agricultural development.

2020 Target: Impaired Waters

Under the federal Clean Water Act, waters are considered "impaired" when they fail water quality standards (for conventional or toxic pollutants) and/or do not meet minimum requirements for certain uses (e.g. safe for swimming and not harmful to fish). All states are required to periodically report the number of impaired waters and whether or not actions are underway to address the impairments.

Washington's most recent complete list (2008) shows 1,272 "listings" on 501 different rivers and streams in Puget Sound (note that an individual stream may be listed as impaired for more than one pollutant or impaired in more than one location - e.g. a stream could be listed for both bacteria and dissolved oxygen violations - which would then be reported as two or more "listings"). Since 2008, 54 listings (about 4.2 percent) have so far been addressed by formal Clean-Up Plans. An additional five listings were removed for other reasons. Since about 1998, a total of 570 listings in Puget Sound have been addressed (about 31 percent) by formal Clean-Up Plans.

2020 Target: Biological Condition

Scientists studying small streams have developed a way to summarize the overall condition of the aquatic biological community using a measure called the Benthic Index of Biological Integrity, or "B-IBI" for short. Data for this measure are more sparse than for conventional water pollutants, but King County recently reported that, for small wadeable lowland streams, 37 percent of sites ranked "good" or "excellent" and 63 percent ranked "fair or poor."

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What you can do:

- ☑ Use Low Impact Development (LID) techniques to manage stormwater runoff such as natural landscaping using native vegetation, rain gardens, rain barrels and permeable paving, especially if you are a streamside property owner.
- ☑ Let the Rain Soak In: Slow stormwater runoff by directing downspouts into lawns, beds or rain gardens.
- ☑ Plant a tree: increase the number of trees to help capture rainwater.
- ☑ Wash your car at a commercial car wash so wastewater plants can treat the water before it enters local waterways.
- ☑ Dispose of oil and other auto wastes at your local recycling location or hazardous waste collection facility.

What are our partners doing?

- ☑ The Washington State Department of Transportation (WSDOT) is implementing new stormwater permit requirements to reduce the impacts of stormwater from state highways on fresh water streams.
- ☑ Local governments are beginning to implement new stormwater permit requirements including the use of Low Impact Development (LID) Stormwater techniques to reduce the impact of stormwater on fresh waters. The Department of Ecology provides partial financial assistance to local governments to implement these new requirements.
- ☑ The Department of Natural Resources implements the Forest Practices Program to regulate timber harvest to protect water quality.
- ☑ The Department of Ecology regulates and monitors local wastewater treatment plants to protect freshwater water quality
- ☑ The Partnership, with Washington State University (WSU) Puyallup and partners, is updating technical guidance on LID (the LID Technical Guidance Manual for PS).
- ☑ The Partnership, with WSU Puyallup, provides state of the art professional training on LID (the WSU/Partnership LID Technical Workshop Series).
- ☑ The Partnership, working with Ecology and partners, is developing a guidebook to help local government staff add LID to local codes and regulations.
- ☑ The Washington State Department of Ecology, working with regional partners, is developing LID and monitoring requirements and preparing to reissue municipal National Pollutant Discharge Elimination System (NPDES) stormwater permits.
- ☑ Permittees (WSDOT, municipalities, industries and project proponents) are working to implement their NPDES stormwater permits.
- ☑ The Stormwater Work Group is working to develop a coordinated stormwater monitoring andassessment program for the region.
- ☑ The Washington Stormwater Center at WSU Puyallup is working to provide the region with a research, monitoring, product review and assistance center.
- ☑ Stormwater Outreach Regional Municipalities (STORM), Puget Sound Starts Here (PSSH) and

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others educate Puget Sound residents about a number of topics related to stormwater runoff and management.

- ☑ Stewardship Partners is collaborating with WSU Extension and others to reach a goal of 12,000 rain garden installations by 2016.
- ☑ DNR's Aquatic Restoration Program identifies aquatic sites that need clean up and enhancement, including estuaries, riverbeds, and lakes.
- ☑ DNR's Creosote Removal Program identifies aquatic sites that need derelict creosote-treated wood, pilings, piers, docks and bulkheads removed to restore the aquatic environment. (Creosote is a chemical preservative that is harmful to plants and animals).
- ☑ The Aquatic Habitat Conservation Plan (HCP) will help DNR protect sensitive, threatened, and endangered species that are native to Washington State and depend on aquatic habitat. The aquatic HCP will also ensure that lawful day-to-day activities authorized by DNR, such as leasing for marinas and aquaculture, can continue while avoiding and minimizing impacts to endangered species.
- ☑ The Puget Sound Partnership is working with local partners to increase awareness of stormwater issues, and to foster beneficial landowner actions related to pet waste, yard care, vehicle maintenance and other pollution sources.

If you would like to let us know what your organization is doing, send us an email at vitalsigns@psp.wa.gov

Join the Discussion

You can join the public discussion on Fresh Water Quality on My Puget Sound.

Links for further information

Washington State Department of Ecology: River and Stream Water Quality Monitoring Program
http://www.ecy.wa.gov/programs/eap/fw_riv/rv_main.html

Washington State Department of Ecology: Stream Biological Monitoring
http://www.ecy.wa.gov/programs/eap/fw_benth/index.htm

United States Geological Survey: Washington Water Science Center
http://wa.water.usgs.gov/

Northwest Indian Fisheries Commission: Coordinated Tribal Water Quality Program
http://nwifc.org/about-us/habitat/coordinated-tribal-water-quality-program/