

PUGET SOUND VITAL SIGNS

VITAL SIGN SUMMER STREAM FLOWS

Summer flows in streams and rivers occur at the time of year characterized by warm temperatures, little rainfall, and depleted snow packs, and when water demands are greatest yet supply is lowest. Some seasonal variation in summer stream flows is normal, but exceptionally low flows exacerbated by development that draws water away from streams in the summer can cause problems for salmon and people. This Vital Sign helps us track the effects of climate change and variability on stream flows and whether or not management actions intended to reduce withdrawals and increase recharge in developed areas are working to restore summer flows.

Reporting Lead

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VITAL SIGN > INDICATOR	PROGRESS	STATUS
Summer Stream Flows		
Summer low flows	MIXED RESULTS	BELOW 2020 TARGET

Key Messages

- Patterns in the trends in **summer low flows** generally did not change much over the last few years. Most rivers with stable summer low flows a few years ago continue to have stable flows, rivers with decreasing trends continue to show decreasing trends, and rivers with increasing trends, continue to show increasing trends.
- Five out of the seven rivers evaluated without dams have been on a declining trend since the 1970s. Regulated rivers have had relatively stable or even increasing flows, an expected result given the license-based requirements to release agreed upon instream flows.
- Summer low flows in the Puget Sound basin respond to a variety of drivers including rainfall, snowfall, temperature, evapotranspiration, land-use conversion, forest practices, and human water use. This indicator aims to describe the change pattern in summer low flow based on the net effects of all factors combined; it does not evaluate the potential impact of individual factors on a trend.
- Climate change is expected to impact aspects of the water cycle, including streamflow and snowpack ([UW Climate Impacts Group 2015](#)). Summer streamflow is projected to decrease along with declines in summer precipitation and winter snow accumulation.
- The current **Regional Priority** for summer stream flows is to develop an **Implementation Strategy** in close collaboration with LIOs and tribal partners. Preparatory work on this Implementation Strategy has begun.



Strategies, Actions, And Effectiveness

- Development of an Implementation Strategy to define recovery priorities for Summer Stream Flows is a **priority focus area** for the Partnership's 2018 Action Agenda.
- **Actions proposed in the Action Agenda** that advance this Vital Sign (*let us know if we missed any!*):
 - [Simulate Summer Streamflows in Response to Groundwater Pumping and Climatic Effects](#)
 - [Regional In-stream Flow Coordination for Watershed Restoration and Enhancement Planning](#)
 - [San Juan County Select Watersheds Instream Flow study](#)
 - [Technical Leadership for Developing an Implementation Strategy for Summer Stream Flows](#)
- What's working to restore Puget Sound? [Answers from effectiveness evaluations](#)

Background Documents

- Leadership Council Resolution 2011-07, Adopting a 2020 ecosystem recovery target for summer stream flow
- Summer Low Flows Target Briefsheet

Other Resources

- State of our Watersheds Report by the Northwest Indian Fisheries Commission
- Articles related to water quantity in the Encyclopedia of Puget Sound
- State of Salmon
- State of Knowledge: Climate Change in Puget Sound (UW Climate Impacts Group, November 2015)
- Are low flows changing in Puget Sound Streams? A re-assessment of the indicator for Summer Stream Flows (Georgiadis et al. 2018)

Contributing Partners

