

# Climate Change in the Skokomish River

## A QUICK REFERENCE GUIDE FOR LOCAL DECISION-MAKERS



### RAIN INTENSITY

Increase in intensity of 24-hour rain events west of the Cascades by the 2080s. (+5 to +34%)



### STORM FREQUENCY

Increase in # days/year with heaviest 24-hour rain events west of the Cascades. Projected to go from 2 days currently to 7 days by the 2080s. (+2 to +7 days)



### SUMMER PRECIPITATION

Decrease in total summer precipitation in Puget Sound by the 2050s. (-2% to -50%)



### DOMINANT PRECIPITATION

The Skokomish Basin will remain a rain dominant system.



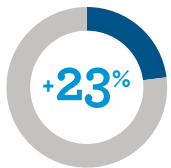
### SPRING SNOWPACK

Loss of snowpack for all mountains draining into Puget Sound by the 2040s. (-4% to -47%)



### STREAMFLOW TIMING

Change in timing of peak spring flows by the 2080s. (38 to 56 days earlier)



### STREAMFLOW 100-YEAR FLOOD

Increase in streamflow volume by the 2080s. (+4 to +59%)



### STREAMFLOW 10-YEAR MINIMUM

Decrease in the lowest summer streamflow volume (7Q10 flows) projected by the 2080s. (-8 to -22%)



### SEA LEVEL RISE

Projected sea level rise for the Skykomish estuary by the 2050s. (+4 to +14 in.)



### STREAM TEMPERATURE

Increase in mean August water temperature by the 2040s.



### RIVER MILES EXCEEDING SALMON THERMAL TOLERANCES

River miles with average August temperatures above 64°F projected by the 2040s.

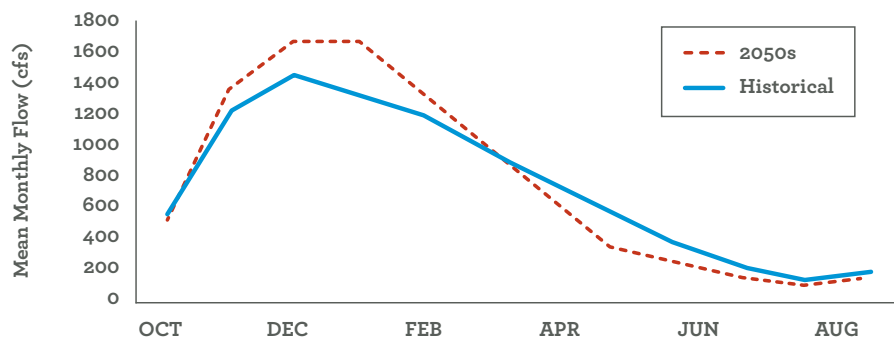


### GROWING DEGREE DAYS (GDD)

Increase in number of growing degree days—accumulated heat over the growing season—by the 2050s. (+500 to +1300°F days)

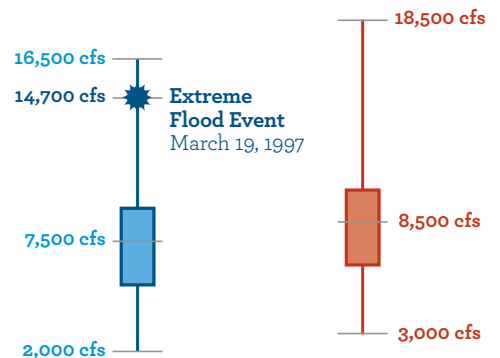
## S. FORK SKOKOMISH RIVER NEAR UNION

### MONTHLY FLOWS

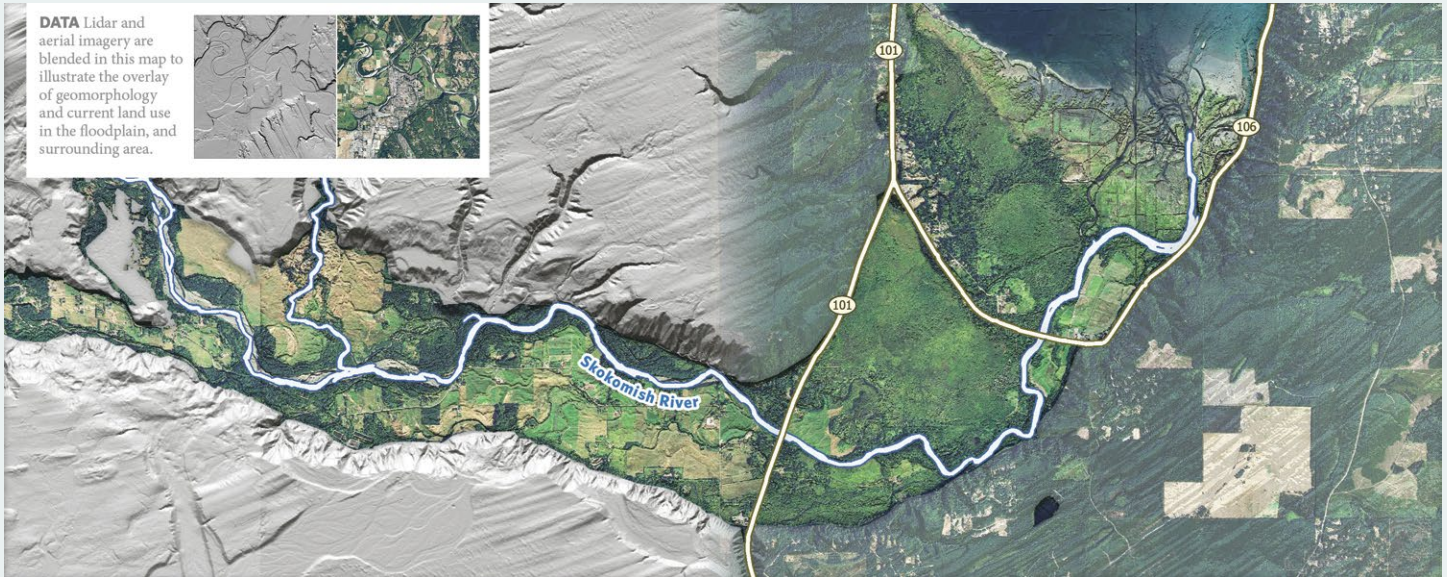


Peak flows of the Skokomish River could see increases in winter peak flows by mid-century.

### PEAK ANNUAL FLOWS



Mean peak flows and minimum/maximum ranges observed (1950-2017) and projected for future (2050s).



### The Skokomish Estuary Will Continue to See Increases in Sea Level

- > Continued sea level rise will increase the extent, depth and duration of coastal flooding and accelerate erosion along the shoreline. It will also permanently inundate low-lying areas.
- > In 30 years, there is a 90% probability that sea level will rise at least 0.5 ft at the mouth of the Skokomish River, if greenhouse gas emissions continue to rise at a rapid pace.
- > Although storm surge and waves are not expected to get bigger, higher sea level means that the same storm events would result in higher water levels and more damage.



### Rain Storms are Expected to Become More Frequent and Severe

- > Atmospheric rivers will bring more rain. **Preliminary research** suggests that the 2-year extreme in hourly rain intensity could increase by +18% over the next 30 years.
- > Heavier rain events could exceed the capacity of urban stormwater systems, culverts, and drainage ditches that are not designed to accommodate projected increases in rain intensity.



### Flooding to Become More Frequent and Severe

- > The Skokomish Valley will see increased winter flooding, due to a combination of more severe rainstorms, sea level rise, and earlier peak flows, as winter snowpack declines.
- > Increasing temperatures could drive a shift from snow to rain, leading to less snow accumulation and greater peak streamflows in winter.
- > Sea level rise, heavier rainstorms, and increased winter streamflows would all combine to make floods bigger and more frequent.

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