

Resilience planning for a changing climate requires innovative collaborations and useable scientific information. We describe and demonstrate a new visualization tool for monthly and extreme streamflow at 19 locations in the Skagit River watershed in north central Washington that was developed through a government-university-private partnership. This tool displays projected changes between historical (1962-2009) and future (2010-2099) time periods for the monthly average streamflow and daily maximum and minimum for the month calculated from daily streamflow data. Extremes data are displayed as projected annual daily high (peak) streamflows and annual 7-day average low streamflows for six different return intervals. These high and low flows are compared to historical streamflows for three future 50-year time periods. Streamflows are modeled using meteorological data from 9-10 global climate models (GCMs) from the 5th Climate Model Intercomparison Project (CMIP5) and include projections from two future emission scenarios of greenhouse gas scenarios: a lower (RCP 4.5) and higher (RCP 8.5) scenario. Streamflows are modeled using a calibrated, fine-scale, routed hydrologic model (DHSVM) that includes a glacier sub-model to simulate glacier meltwater runoff. These streamflows projections were assembled into an easy to use visualization tool on the Tableau platform hosted for public access by the Skagit Climate Science Consortium (SC2). It is designed for scientists, resource managers, and decision makers to interactively explore the data and better understand future changes in streamflow. Seattle City Light is using the tool and modeling to guide hydroelectric dam operations and long-term energy planning that is more resilient to changing climate.