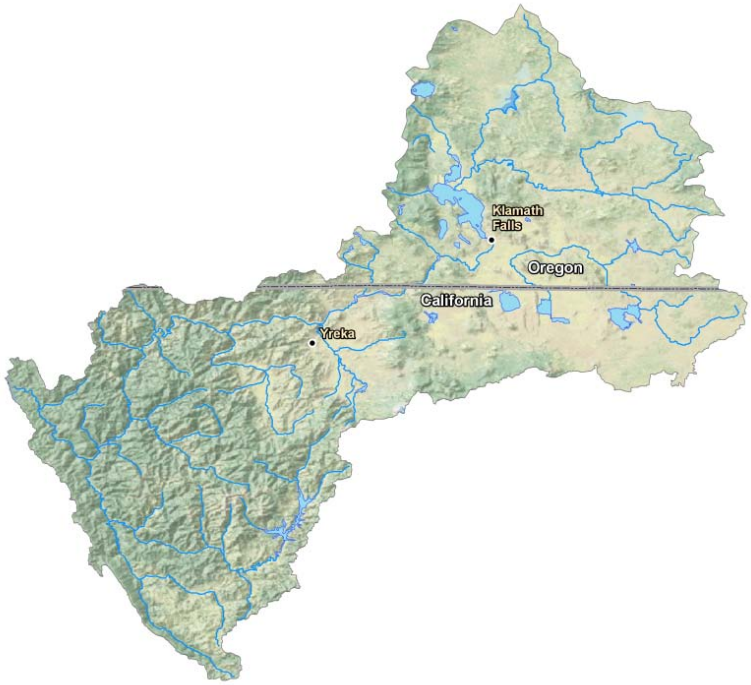
Basin Report: Klamath River

The Klamath River originates in headwater streams of south-central Oregon, eventually flowing southwest through the Cascade Range and picking up runoff from the Shasta, Scott, Salmon and Trinity Rivers in California before flowing to the Pacific Ocean. Reclamation's Klamath Project provides irrigation water to approximately 210,000 acres of cropland and is an important recreation area for residents of northern California and southern Oregon, providing myriad boating, water skiing, fishing, hunting, camping and picnicking opportunities. Surplus water from the Trinity River is stored, regulated and diverted through a system of dams, reservoirs, tunnels and powerplants into the Sacramento River for use in water-deficient areas of the Central Valley of California. To protect these critical resources, Reclamation must continually evaluate and report on the risks and impacts from a changing climate and to identify appropriate adaptation and mitigation strategies utilizing the best available science in conjunction with stakeholders.



Future Changes in Climate and Hydrology

Reclamation's 2011 SECURE Water Act Report identifies climate challenges the Klamath River Basin could likely face:

- Climate change models indicate temperatures throughout the Klamath River Basin may increase by approximately 5–6 °F over the 21st century, with a projected increase of from 2.2 to 2.7% in precipitation by 2050.
- Increased warming is expected to reduce snowpack and snowmelt, resulting in less runoff during the late spring through early autumn. Snowpack decreases are projected to be more substantial in the warmer parts of the basin.
- Mean annual runoff is projected to increase by from 2.9 to 9.6% by 2050.
- Projected warming might also change runoff timing, with more rainfall-runoff during the winter and less runoff during the late-spring and summer.

Future Impacts for Water and Environmental Resources

These historical and projected climate changes have potential impacts for the basin:

- Spring and early summer runoff decreases likely translate into water supply reductions for meeting irrigation demands, adversely impacting hydropower operations and increasing wintertime flood control challenges.
- Warmer conditions might result in increased fishery stress, reduced salmon habitat, increased electricity demand, increased water demands for instream ecosystems and increased likelihood of invasive species infestations.

- Water demands for endangered species and other fish and wildlife could increase due to increased air and water temperatures and runoff timing changes.

Adequate and safe water supplies are fundamental to the health, economy and ecology of the United States and global climate change poses a significant challenge to the protection of these resources. Reclamation is taking a leading role in assessing risks to Western U.S. water resources and is dedicated to mitigate risks to ensure long-term water resource sustainability through its WaterSMART Program.

Where opportunities exist, Reclamation has begun adaptation actions in response to climate stresses as well as land use, population growth, invasive species and others. These activities include extending water supplies, water conservation, hydropower production, planning for future operations and supporting rural water development. For example, the Trinity River Fishery Restoration Program is appraising alternatives that would improve the current cold water transmission through the Lewiston Reservoir, therefore increasing the adaptability for future climate change stressors that may impact cold water yield to the reservoir from the drainage basin. Finally, the Department of the Interior High Priority Goal for Climate includes activities of the Landscape Conservation Cooperatives and Climate Science Centers, assessing vulnerabilities to the natural and cultural resources management by the Department and activities to adapt to the stresses of climate change.

This fact sheet contains information from the SECURE Water Act Section 9503(c) - Reclamation Climate Change and Water 2011, Section 4 - Basin Report: Klamath. The full report may be read online at www.usbr.gov/climate.