

Stream Temperature

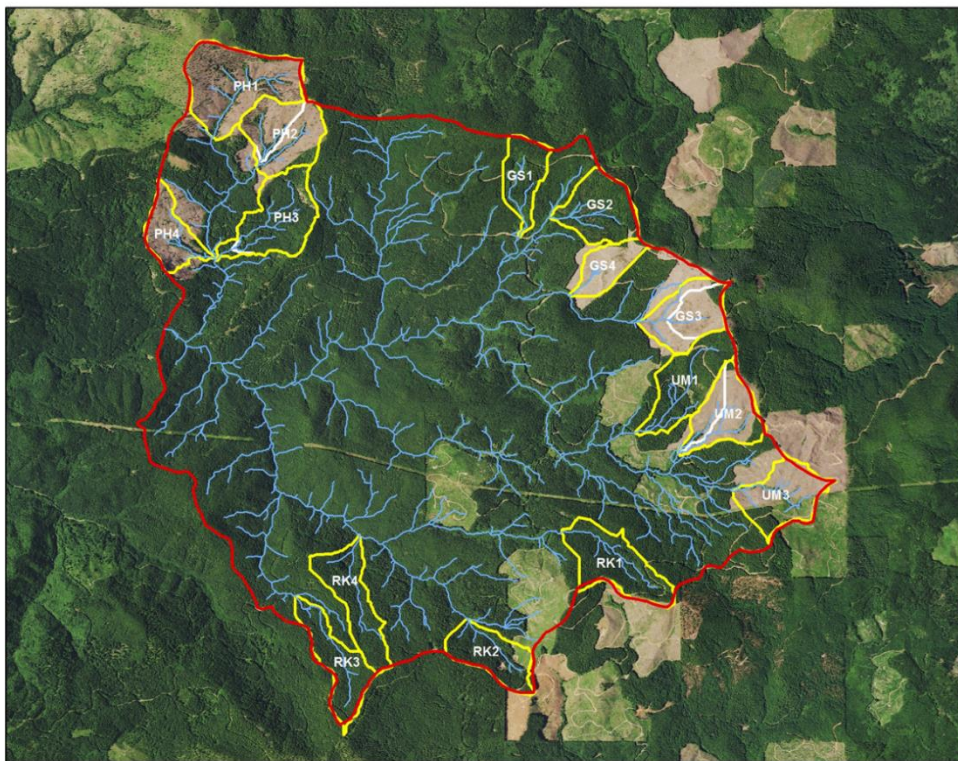
Trask River Watershed Study: Using the Entire Stream Temperature Data Distribution to Detect Changes from Forest Management

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The Trask Watershed Study, located in the northern Oregon Coast Range, was designed to examine physical, chemical and biological effects of contemporary forest management practices on aquatic ecosystems. One key physical measurement for the study was stream temperature, which was measured for 10 years in 15 small study streams as well as in downstream locations. Half of the small streams were harvested in 2012 with varying riparian buffer requirements depending on landowner. To fully characterize the summer thermal regime experienced by aquatic biota living in these small, fish-less streams, we examined shifts in the entire temperature data distribution before and after harvest. After harvest, sites without buffers showed the greatest shift in the upper end of the temperature distribution and the widest temperature ranges, while sites with narrow buffers showed little change. Using all the data, rather than a single metric to characterize stream temperature changes, allowed us to more accurately characterize shifts in thermal regime, quantify magnitude and duration of exposure to critical and non-critical temperatures, and help researchers and managers to better understand stream temperature responses to streamside vegetation manipulation.



Aerial view of Trask River Watershed Study after harvest of headwater watersheds.