

## Idaho Applications of the NorWeST Stream Temperature Database, Model, and Climate Scenarios

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The diverse topography of Idaho, where elevations range from 600 – 13,600 feet, creates an equally diverse stream thermalscape for aquatic organisms. It is now possible to accurately describe that thermalscape for all of Idaho's >100,000 stream kilometers using a consistent set of digital temperature maps developed by the NorWeST (Northwest Stream Temperature) project. NorWeST was initiated in 2011 to develop a comprehensive, interagency stream temperature database, accurate temperature model ( $R^2 \sim 90\%$ ;  $RMSE < 1.0^\circ C$ ), and high-resolution (1 kilometer) climate scenarios across the Northwest U.S. (~400,000 stream kilometers in Washington, Oregon, Idaho, Montana, and Wyoming). Those products, which include temperature measurements from >6,000 unique sites and >17,000 summers of monitoring effort, are completed for Idaho and available for download through the project website as ArcGIS geospatial layers (<http://www.fs.fed.us/rm/boise/AWAE/projects/NorWeST.shtml>). This presentation will review some aspects of temperature characteristics across Idaho and describe how the information is being used to facilitate various research, management, and monitoring projects. The analytical infrastructure used to develop the stream temperature model and maps consists of a new type of spatial statistical network model (SSNM) that can also be used with water chemistry data, biological surveys, or habitat measurements. In addition to predictive performance that is better than traditional statistical models, SSNMs enable a suite of powerful new analyses for data on stream networks that are discussed in a related paper.