Modeling Perennial Streams of Idaho

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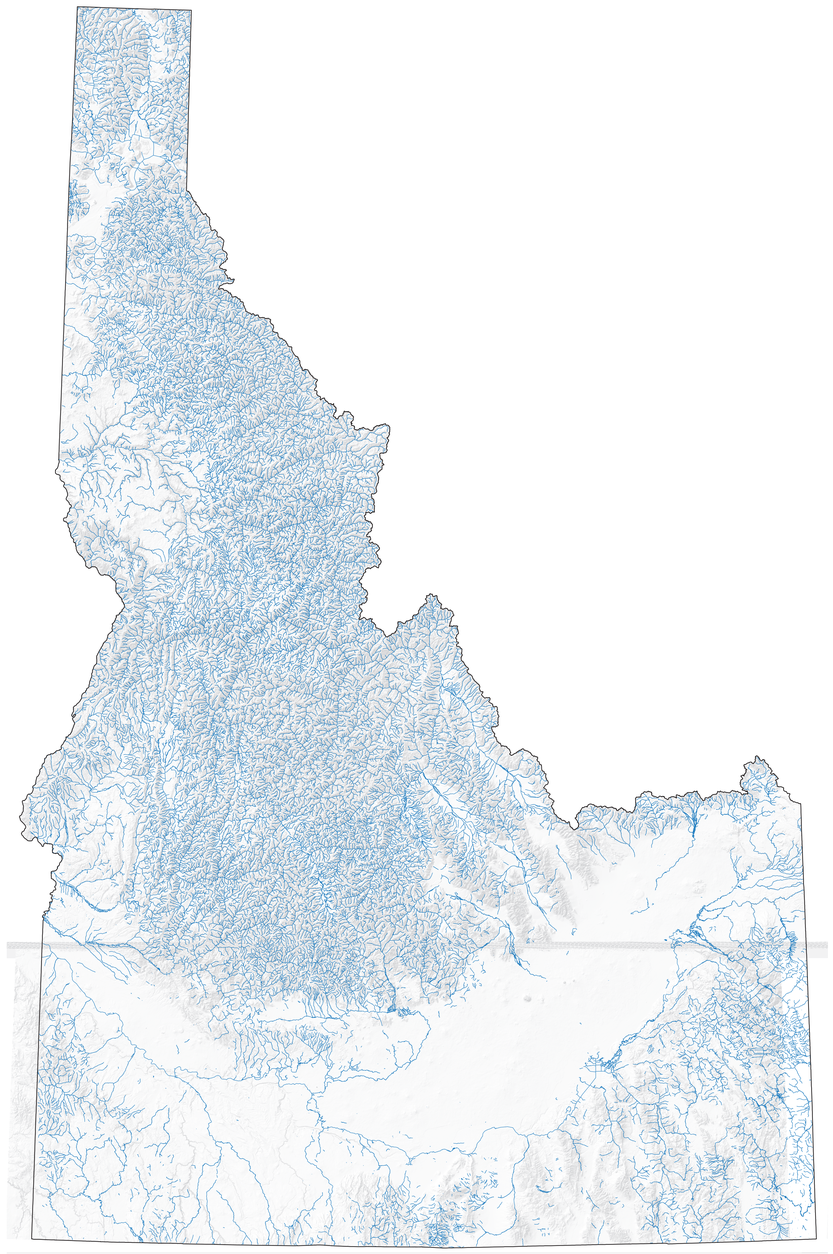
Conducted in cooperation with the Idaho Department of Environmental Quality

Local, State, and Federal agencies often use the intermittent or perennial status of a stream to determine regulatory or management requirements. The cartographic representation of stream status on USGS topographic maps frequently has not been as accurate or consistent as desired. This may be due to several factors such as differences in compilation dates and cartographic standards applied to adjacent maps, or data entry errors.

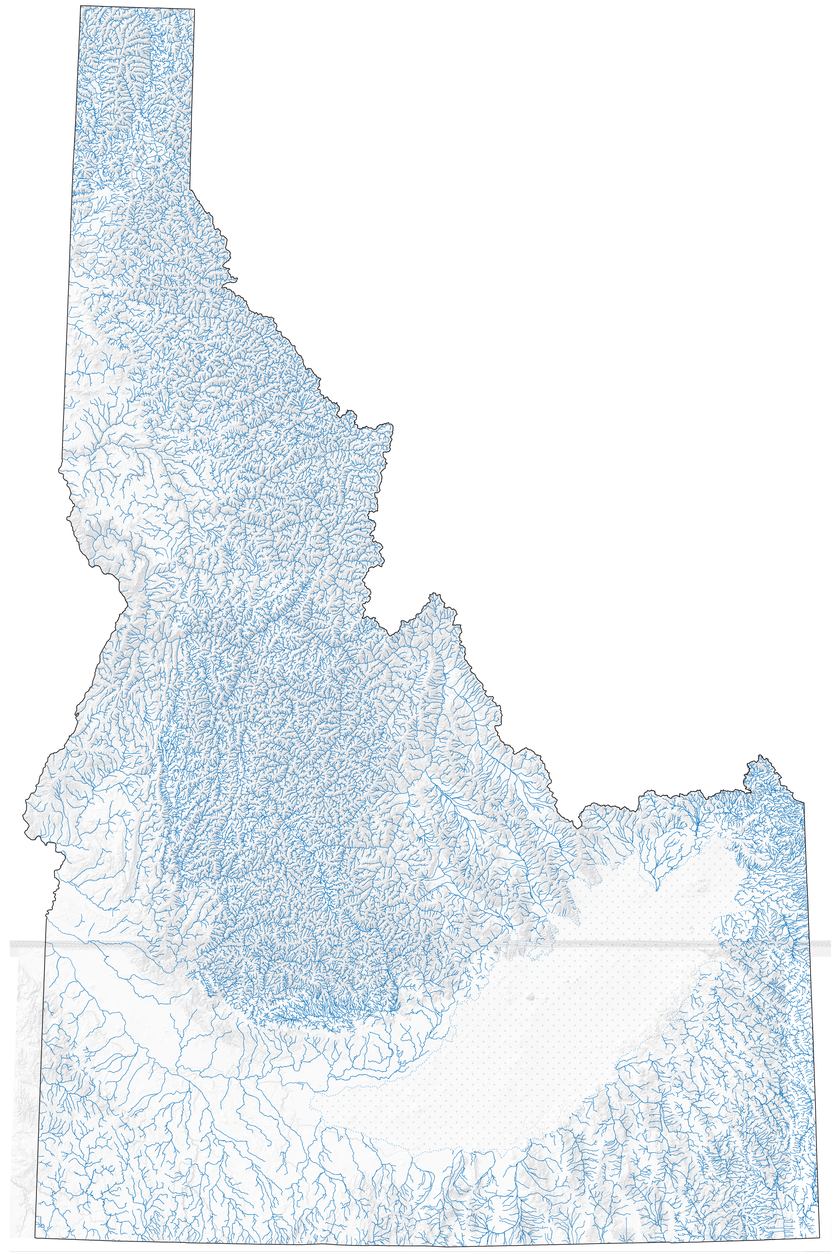
Idaho Administrative Code defines an intermittent stream as one having a 7-day, 2-year low flow ($7Q_2$) less than 0.1 ft^3/s. By extension, a perennial stream is defined as having greater flows, however, since no lower limit on flow is defined for intermittent streams, only perennial streams are completely defined by this standard.

The USGS has developed regional regression equations for Idaho streams for several low-flow statistics, including $7Q_2$. Using these regression equations, $7Q_2$ streamflow may be estimated for naturally flowing streams anywhere in Idaho.

The regression equations were applied to create continuous grids of $7Q_2$ estimates for the eight regression regions of Idaho. By applying Idaho's criterion, the perennial streams have been estimated in each low-flow region. A comparison of the 1:100,000-scale National Hydrography Dataset (NHD) and the results of the perennial streams model is shown here. The model has corrected many of the most obvious drainage-density problems in the NHD version; however, in some areas such as Rathdrum Prairie and Camas Prairie, the model appears to overestimate perennial streams.



NHD - Perennial Streams
1:100,000 Scale



$7Q_2$ Model - Perennial Streams

Explanation

Perennial Stream

25 12.5 0 25 50 75 100
Miles

Un-modeled Area

U.S. Department of the Interior
U.S. Geological Survey

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