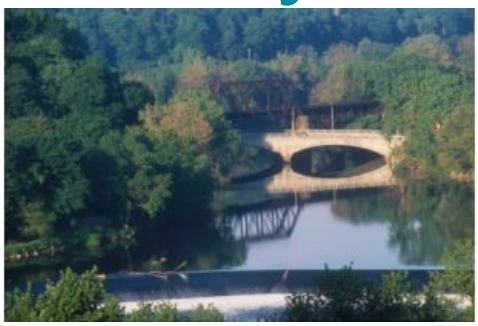
Tool Estimates Streamflow for Pennsylvanian Waterways



Water resource managers in the US can estimate daily baseline streamflows in a matter of minutes for any location along Pennsylvania's waterways. The Baseline Streamflow Estimator, called 'BaSE', provides users with estimated daily mean streamflow, minimally altered by human activities, for locations on Pennsylvanian streams that do not have stream gauges. Pennsylvania is one of the first states in the US to have such a tool.

In a matter of minutes, BaSE provides water-resource managers with nearly 50 years of daily mean streamflow for ungauged sites that they can use for their projects. These daily values can then be used to generate a number of streamflow statistics that may be needed for decision -making.

Estimate daily mean streamflow

Water-resource managers use daily mean streamflow to evaluate withdrawal, allocation, and wastewater permit applications and to assess the health of the Commonwealth's streams. Historically, it has been difficult, costly, and time intensive to estimate daily mean streamflow for stream locations that were not gauged, or monitored. Now, BaSE allows users to estimate daily mean streamflow values and daily hydrographs by entering a few basic basin characteristics in an easy-to-use tool. The output is a summary spreadsheet, containing information about the location of interest, including daily mean streamflow for every day from 1960 to 2008.

Flow-duration curves

BaSE relies on a methodology that uses flow-duration curves, which illustrate the percentage of time, or probability, that a flow value in a stream will equal or exceed a particular value. Flow-duration curves are generated for reference streamgage locations with monitored streamflow and the curves are transferred to ungauged locations to estimate daily mean streamflow.

Regression equations

BaSE chooses the most appropriate reference stream gauge for the ungauged location and applies newly developed regression equations to convert the transferred flow duration curve to streamflow at the ungauged location.

A **USGS Scientific Investigations Report** describing BaSE can be found online.

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