Regional Hydraulic Geometry Curves Development and Use Regional curve – A regression of the relations among drainage area, selected cross-sectional parameters and streamflow:

Usually bankfull discharge, width, depth and area.

Used to assist in the determination of the dimensions of a channel reach in stream restoration ("natural" or "geomorphic" channel design).

Regional curves are created using peakflow frequency analysis and channel geometry measured in the field.



(From: Leopold, 1994, p 92)





Drainage Area (DA) (square miles)

10,000

NRCS Natural Resources

National Water Management Center

Regional Hydraulic Geometry Curves

Regional Hydraulic Geometry Curves are log-log plots comparing channel dimensions (top width, mean depth, and crosssectional area) at 'bankfull' or effective discharge (usually between the 1.1 and 1.9 year return interval) versus drainage area.

The National Water Management Center (NWMC) is working with other Federal, State, and Local agencies to develop Regional Hydraulic Geometry Curves across the country. We are organizing data by Physiographic Provinces (see map below). If you have data you would like to contribute and/or a link to a webpage you would like us to add, please contact us by clicking on the webmaster link.



Physiographic Map - Click on Image for larger version (182 KB)

Physiographic Map Reference: Fenneman, Nevin M., 1946, Physical Divisions of the United States: U.S. Geological Survey, scale 1:7,000,000.

SITES & DATA

NOTE: click on SECTION links to view regional curves or click on SITES links to view information on individual sites.

MAJOR DIVISION	PROVINCE	SECTION	SITES
Laurentian Upland	1. Superior Upland		
Atlantic Plain	2. Continental Shelf		
	3. Coastal Plain	a. Embayed Section	
		b. Sea Island Section	NC State University - NC Stream Restoration Institute

http://wmc.ar.nrcs.usda.gov/technical/HHSWR/Geomorphic/index.html



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

Development of Regional Curves of Bankfull-Channel Geometry and Discharge for Streams in the Non-Urban, Piedmont Physiographic Province, Pennsylvania and Maryland

by Peter J. Cinotto

Water-Resources Investigations Report 03-4014

In cooperation with the

PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

New Cumberland, Pennsylvania 2003



0 10 20 30 40 50 MILES

Figure 1. Locations of the Piedmont Physiographic Province, Sections, and U.S. Geological Survey streamflow-measurement stations selected for regional-curve development, Pennsylvania and Maryland.



DRAINAGE AREA, IN SQUARE MILES

40 50

3 4







Figure 8: Plot of Bankfull Discharge (cfs) versus Drainage Area (mi²) – Entire Data Set.



Figure 10: Plot of Bankfull Width (ft) versus Drainage Area (mi²) – Entire Data Set.



Figure 9: Plot of Cross-sectional Area (ft²) versus Drainage Area (mi²) – Entire Data Set.



Figure 11: Plot of Bankfull Depth (ft) versus Drainage Area (mi²) – Entire Data Set.



Baron Fork at Eldon looking downstream at USGS gage

Baron Fork at Eldon looking downstream (Dutnell)

Baron Fork at Eldon looking upstream from USGS gage

NIC

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Baron Fork at Eldon looking upstream (Dutnell)

BARON FORK AT ELDON, OKLAHOMA USGS STATION 07197000 - 307 SQ MILES - C4 STREAM CLASSIFICATION CROSS SECTIONS #1 @ Sta 1485 AND XS #2 @ STA 2017



STATIONING IN FEET - LOOKING DOWNSTREAM



Baron Fork at Dutch Mills





STATIONING IN FEET - LOOKING DOWNSTREAM

Baron Fork at Dutch Mills



Width (ft)

