Join us each Monday as the Clean Water Team shares information and resources on water quality monitoring. This Monday we will look at bankfull stage.

Earlier we shared some online training resources (SWAMP Field Methods Course) and this Monday's message is about another online training resource, **A Guide for Field Identification of Bankfull Stage in the Western United States.**

Bankfull discharge is important because the bankfull stage is the level at which water begins to flow over the floodplain. When water flows over the floodplain, then it is by definition a flood. Bankfull discharge is also important because of its role in forming the physical dimensions of the channel. Flows near bankfull stage move the most sediment over the long-term and the processes of sediment transport and deposition are most active in forming the channel.

However, a majority of streams have degraded or down cut, through natural processes or induced by civilization, where the discharge to fill the stream to the top of banks is a misnomer of bankfull discharge. In 1978, Dunne and Leopold provided a generally accepted definition of bankfull discharge: The bankfull stage corresponds to the discharge at which channel maintenance is the most effective, that is, the discharge at which moving sediment, forming or removing bars, forming or changing bends and meanders, and generally doing work that results in the average morphologic characteristics of channels.

Bankfull stage is often difficult to identify in the field. This video resource discusses key steps and demonstrates techniques that can be used to consistently identify bankfull levels for a variety of different streams and rivers in the western United States.

> **A Guide for Field Identification of Bankfull Stage in the Western United States** (video recording - 1995) Luna B. Leopold, William W. Emmett, Hilton L. Silvey, David L. Rosgen
> Downloadable version MP4 - (no captions)
> DVD version: Closed captions, contact Dave Levinson.
> YouTube Version here

Additional Resources:

Water in environmental planning, Thomas Dunne and Luna Leopold, 1978, W. H. Freeman & Co. San Francisco. 818p.
https://books.google.com/books/about/Water_in_Environmental_Planning.html?id=d7WEkcTNk6EC

Bankfull: What It Is and How To Locate It
www.waterboards.ca.gov/water_issues/programs/swamp/docs/cwt/guidance/413.pdf

Stream Habitat Measurement Techniques - Identifying Bankfull
https://nctc.fws.gov/courses/csp/csp3200/resources/documents/Bankful_AFG2013.pdf

Bankfull Regional Curve
https://www.nrcs.usda.gov/wps/portal/nrcs/detail/?cid=nrcs143_014925

Method Manual for Stream Segment Identification
www.dnr.wa.gov/publications/fp_tfw_mm_stm_id_1998.pdf

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