

Back to Basics – Using Hydrology to Communicate Data as Information

Bruce Cleland

America's Clean Water Foundation, 750 First Street NE – Suite 1030, Washington, DC 20002,
b.cleland@acwf.org

Biographical Sketch of Author

Bruce Cleland is a TMDL “Circuit Rider” for the Clean Water Foundation, where he specializes in providing detailed technical assistance, technical education, and information transfer to States to assist them in their efforts to develop TMDLs. He is currently on loan to ACWF from EPA's Seattle Office where he worked in the water quality program, including over 10 years as the Region's TMDL Coordinator. At Region 10, Bruce was also involved with the ambient water quality monitoring program, the nonpoint source program, and the permits / compliance program.

Abstract

With the wide array of issues facing water quality managers, limited resources, and the complex, inter-related nature of water programs – the “two Ps”: practical approaches and partnerships – are critical to successful watershed planning and implementation. Dependable tools are needed, which promote effective communication between analysts, planners and implementers, so that actions will lead to measurable water quality improvements. Over the past several years, basic hydrology in the form of flow duration curves has been used to support the development of TMDLs.

Flow duration curve analysis identifies intervals, which can be used as a general indicator of hydrologic condition (i.e. wet versus dry and to what degree). Duration curves help refine assessments by expanding the characterization of water quality concerns, linking concerns to key watershed processes, and prioritizing source evaluation efforts. The extended use of monitoring information using duration curves offers an opportunity for enhanced targeting, both in field investigation efforts and implementation planning.

Duration curves provide another way of presenting water quality data, which characterizes concerns and describes patterns associated with impairments. This framework can help elevate the importance of monitoring information to stakeholders, which in turn can encourage locally driven data collection efforts (e.g. through watershed groups, conservation districts, point sources). As an assessment and communication tool, duration curves can also help narrow potential debates, as well as inform the public and stakeholders so they become engaged in efforts to improve water quality. This presentation will use several examples to illustrate opportunities where duration curves can strengthen watershed assessments and enhance the water quality management process.