United States Environmental Protection Agency

Office of Research and Development Washington, DC 20460

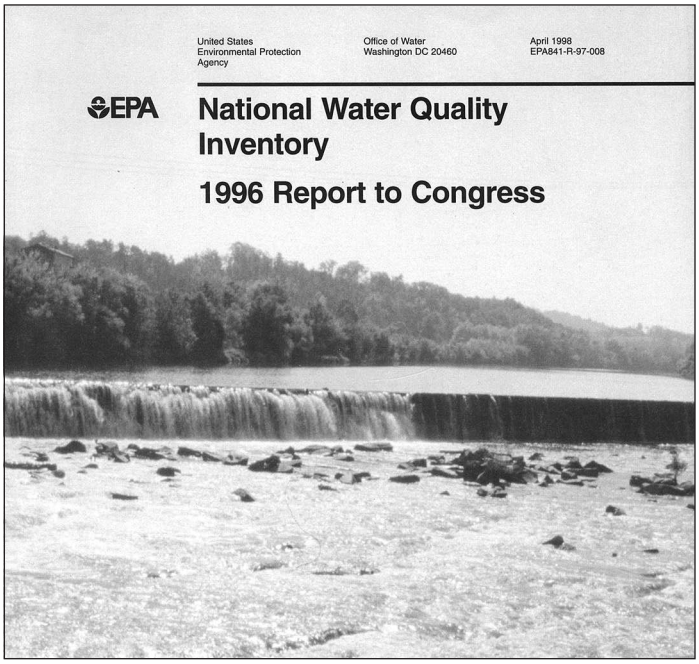
EPA A620/R-01/004a
September 2001

EMAP-West Communications

Monitoring the Condition of Surface Waters in the Western U.S.

The Challenge *and* Opportunity

The Clean Water Act (Section 305b) requires the Environmental Protection Agency to report biennially on the status of water quality throughout the U.S. This report, prepared in partnership with the States and Tribal Nations, is intended to provide a snapshot of the condition of all the Nation's waters and trends in those conditions over time. EPA aggregates the data provided into a report to Congress. In addition to describing condition of the waters, the report includes a discussion of the relative importance of the various stresses or causes of degraded water quality. In the past, the interpretation of this report has been challenging because each state and tribe uses different sampling methods.

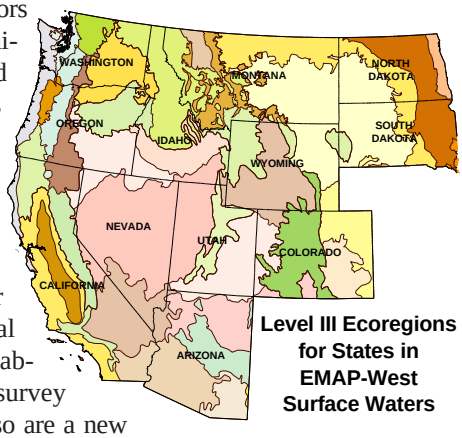


Solutions Found

In a unique collaborative effort between EPA's Office of Research and Development (ORD), the Office of Water (OW) and the ten EPA regional offices, the Environmental Monitoring and Assessment Program (EMAP) has focused on providing creative and scientifically defensible solutions to this challenge. This program is developing effective indicators of ecological condition and environmental stressors that are practical enough to be used routinely by the States and Tribal Nations. ORD also mounted a critical research focus on survey design – the science behind how one can make statements about the entire aquatic resource by sampling a select subset of sites. While these concepts have been successfully developed and tested in the Mid-Atlantic states, their testing and calibration for use in the West must be done.

Moving West

EMAP-West, begun in 1999, encompasses EPA regions 8, 9, and 10 (see figure). The West represents a particularly diverse array of settings for streams and rivers from the Northwest with its abundant rainfall to the deserts of the Southwest and the great plains of the upper Missouri River Basin. A key to the success of the program will be the adaptation and application of indicators, both biological indicators of condition and chemical, physical, and watershed indicators of stress. Special emphasis is being placed on biological measurements and the process by which the "reference" or "expected" biological conditions are established. The sample survey design applications also are a new challenge. The natural density of streams/rivers across the West obviously varies greatly as does the quality of the maps that depict the extent of these systems.



Level III Ecoregions for States in EMAP-West Surface Waters

Good Progress

Over 100 people representing all the states and several tribes have completed the 4 to 5 day training sessions prior to the first two field seasons. These specially trained field crews have successfully sampled over 500 sites and the data are analyzed and quality assured. The data will be made publicly available on the EMAP web site and will be archived in STORET, EPA's water quality database. Final reports for each state will be completed in 2005.

The success envisioned in EMAP-West will insure that the U.S. EPA in partnership with the States and Tribal Nations is able to produce reliable descriptions of our Nation's aquatic resources, track trends over time, and determine spatial patterns and use this monitoring data as a foundation for sound management decisions.

For further information, contact:

John Stoddard
Surface Water Lead
Stoddard.John@epa.gov
(541)754-4441