



ECOLOGICAL RESEARCH PROGRAM

CADDIS WEB-BASED TOOL DEVELOPED TO DIAGNOSE IMPAIRMENTS TO NATION'S WATERWAYS

Issue:

More than 2,800 of our nation's lakes, rivers, streams, and estuaries are unfriendly environments for aquatic life because of pollutants from industrial water, municipal sewage, agricultural runoff, and other contaminants. To properly analyze and identify the likely cause of degradation of aquatic life, risk assessors need to know a waterway's natural characteristics and the ways it reacts to specific stressors resulting from pollution.

CADDIS, a Web-based tool developed by the U.S. Environmental Protection Agency's Office of Research and Development, enables environmental managers to get the information they need to assess the health of a waterway. By using CADDIS, state and local groups are better able to ensure that their local bodies of water meet water quality standards.

Science Objective:

The Causal Analysis/Diagnosis Decision Information System or CADDIS provides a step-by-step guide, worksheets, and examples to locate and use environmental information and evaluate the probable causes of biological impairments in waterways. CADDIS is based on EPA's Stressor Identification (SI) Guidance Document which provides a structure for organizing the scientific evidence used in a water body analysis. CADDIS has been updated to quantify the relationships between stressors and aquatic systems, and to include relevant literature on sediments and toxic metals.

Application and Impact:

At least 15 states have used either the Stressor ID or CADDIS to identify and diagnose probable causes of impairment in streams and then return those streams to compliance with quality standards.

The tools also have been used to identify the maximum amount of a pollutant that a body of water can receive and still stay within regulatory compliance, known as Total Maximum Daily Loads, or TMDLs. The Mississippi Department of Environmental Quality alone developed numerous stressor identification reports to support more than 750 court-ordered TMDLs. The tool's formal methods allowed Mississippi to rapidly and successfully complete this work.

References:

U.S. Environmental Protection Agency. "Stressor Identification Guidance Document." Office of Water, Washington, DC. EPA/822-B-00-025. 2000.

For more information visit:
www.epa.gov/caddis.

Contact:

Susan Norton, ecologist, EPA's Office of Research and Development, 202-564-2346
norton.susan@epa.gov

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