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Data, Data Everywhere: Turning DATA into Useful Information Through Analysis and Visualization

S.L. Moore

Southern California Coastal Water Research Project, Costa Mesa, CA USA

Abstract

Environmental data has been collected for years and many organizations have large, comprehensive data sets available; however, most lack the capability to analyze and visualize these data sets without using large amounts of staff time and other resources. In addition, many types of data require specialized knowledge and statistical tools that may not be available to all. Southern California Coastal Water Research Project (SCCWRP) scientists and collaborators have developed a number of tools that use environmental data to indicate the health of an ecosystem based on indices developed by field experts. Many of these tools are documented in published papers, but using them often requires interpretation and programming skills. To make it easier to use these tools, SCCWRP has developed a set of web-based calculators and data visualization tools that allow users to upload their data and get results quickly and consistently. Examples of these tools include both the Benthic Response Index and algaeMetrics calculator, the first of which uses ocean benthic invertebrate data and the second, uses freshwater algae data to calculate scores that indicate site ecosystem health. Web-based tools such as these are important to ensuring tool availability and consistency in analysis. SCCWRP is working to develop more of these tools, as well as using new technologies to develop data dashboards, 3D visualizations and scenario tools to help environmental managers in the decision-making and report writing processes.