

Indicators for Assessing Watershed Conditions

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Abstract

The USDA Natural Resources Conservation Service (NRCS) is designing the *Indicators of Watershed Conditions* web site. The purpose of the site is to provide field staffs with screening level tools aimed at watershed scale assessments. The Indicators tool component is the focal point of the site and lists and describes indicators for issues commonly addressed by natural resource managers. Another feature of the web site is the training link that provides several modules on indicators and watershed functions and processes. Field testing of the indicators in addition to continued refinement and development of the site is planned.

Keywords: watershed assessment, watershed conditions, watershed indicators

Introduction

A web site is being developed by USDA-NRCS to provide field staffs with screening level tools aimed at watershed scale assessments. The site's framework is based on a variety of issues commonly addressed by resource managers. It also provides an introduction and guidance for using indicators to address resource issues in watersheds and other large planning areas. The major component of the site is the indicator selection tool, but training, references and contacts links are also provided. The training link provides background material on watershed functions and processes and how

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indicators are used to evaluate these. The references link lists references pertaining to watersheds watershed assessment, and indicators. The contacts link aids the user in selecting and evaluating indicators.

The following discussion provides an overview of the *Indicators for Assessing Watershed Conditions* web site framework including the resource issues, indicators tool, watershed assessment indicators, and the training site components.

Indicators tool and resource issues

Figure 1 depicts the framework of the Indicators tool web site component. The Indicators tool component lists and describes indicators for resource issues commonly addressed by planners. The six resource issues in Table 1 provide the framework for the web site. These issues were selected because they define a majority of watershed issues addressed by natural resource managers. To use the web site a user selects a resource issue of concern for a watershed. Under each resource issue are a selection of indicators that could be used to address that issue. The user may then elect to use this indicator or modify it to suit the attributes of the watershed.

Watershed assessment indicators

A total of 24 indicators are provided in the web site. Most of the indicators are screening tool type indicators that are designed to target sub-areas within a watershed. The design team created many of the indicators and a few are links to other indicator web sites. Some indicators pertain to more than one resource issue. For example, the indicator freshwater consumption is listed under five resource issues- quality of life, social and economic well being, habitat, water supply and availability, and sustainable food and fiber. Each indicator also has a discussion of what the indicator can tell you, the time requirement to apply the indicator, methodology, and case examples of how to apply the indicator in a watershed.

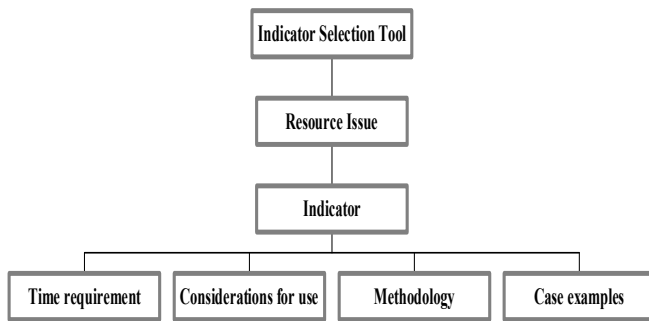


Figure 1. Flow chart depicting framework of the *Indicators for Watershed Conditions* web site.

Field testing of the indicators in addition to continued refinement and development of the site is planned. The web site is currently located under the Watershed Science Institute selection located at the USDA-NRCS homepage <http://www.nrcs.usda.gov>.

Training modules

The site also contains a link to ten training modules. These modules are being developed to provide the user with an overview of watershed process and functions and indicators. Topics include indicators and indicator selection, watershed processes and functions, relationship of indicators to the planning process, and strategies for using indicators within USDA NRCS, sampling and aggregation for indicator measurements, selection of indicators related to soil, air, animal/plant, and human resources.

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Table 1. Framework of the Indicators of Watershed Conditions web site.

Resource Issue Indicator

Resource Issue Indicator	
<i>Quality of Life</i>	Cropland Conversion Flooding Potential Ratio Freshwater Consumption Percent Open Water Flooding River and Stream Density Index of Watershed Health Indicators
<i>Pollutants and Contaminants</i>	Acid Precipitation Clean Air Act Criteria Cropland Conversion Greenhouse Gases Odor Phosphorus Source to Sink Ratio Index of Watershed Health Indicators Wetland Change U.S. EPA Contaminated Sites
<i>Social and Economic Well-Being</i>	Average Farm Size Flooding Potential Ratio Freshwater Consumption Gross Farm Sales Household Income Median Non-Metropolitan Percent Open Water River and Stream Density
<i>Sustainable Food and</i>	Acid Precipitation Cropland Conversion Cropland Soil Quality Impairment Flooding Potential Ratio Freshwater Consumption HEL/COVER/No-till Ratio Percent Open Water River and Stream Density Survey of Accelerated Erosion Features
<i>Water Supply and</i>	Freshwater Consumption Percent Open Water River and Stream Density Saltwater Intrusion Subsidence Fish and Mussels at Risk in U.S.
<i>Habitat</i>	Flooding Potential Ratio Habitat Quality Percent Open Water River and Stream Density Threatened and Endangered Species Freshwater Consumption Wetland Change