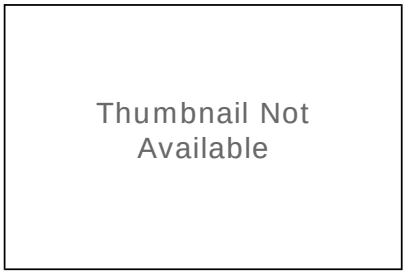
USEPA-Wadeable Streams Assessment Program-Chesapeake Bay Region Subset



Tags

WADEABLE STREAMS, Habitat, Watersheds, Streams, BENTHOS, WATER QUALITY, biota, environment, Biology, Ecology, Ecosystem, Environment, Indicator, Marine, Monitoring, Quality, Surface Water, Water, Benthos, Water Quality

Summary

The Wadeable Streams Assessment (WSA) is a first-ever statistically-valid survey of the biological condition of small streams throughout the U.S. EPA worked with the states to conduct the assessment in 2004-2005. The WSA is designed like an opinion poll: that is, 1,392 sites were selected at random to represent the condition of all streams in regions that share similar ecological characteristics. Wadeable streams were chosen for study because they are a critical natural resource and because we have a well-established set of methods for monitoring them. Participants used the same standardized methods at all sites, to ensure results that are comparable across the nation. The WSA establishes a national baseline we can use to compare to results from future studies. This information will help us evaluate the successes of our national efforts to protect and restore water quality. Along with upcoming studies of other water resource types - coastal waters, lakes, large rivers and wetlands - the WSA responds to criticisms that the nation's monitoring programs are not providing key answers about water quality. The WSA also provides funding and expertise that will enhance each state's ability to monitor and assess the quality of its waters in the future.

Description

The Wadeable Streams Assessment (WSA) is a first-ever, statistically-valid survey of the biological condition of streams throughout the U.S. Wadeable streams-streams and rivers that are shallow enough to sample without boats-were chosen for study because they are a critical natural resource, because we have a well-established set of methods for monitoring them, and because they are frequently under-sampled in traditional monitoring programs. This project was a collaborative effort involving states, EPA and other federal agencies, tribes, universities and other organizations. The WSA was designed using modern survey techniques; 1,392 random sites were sampled to represent the condition of all streams in regions that share similar ecological characteristics. Participants used the same standardized methods at all sites, to ensure results that are comparable across the nation. A rigorous quality control program included training all field crews, auditing field crews and labs, and re-sampling 10% of the sites. The sampling began with pilot work in the West in 2000 and was completed nationwide in 2004. The WSA used benthic macroinvertebrates to determine the biological condition of streams. Benthic macroinvertebrates are small creatures that live in streams attached to rocks and woody debris, or burrowed into the stream bottom. They include aquatic larval stages of insects such as flies and drag-onflies; crustaceans such as crayfish; and worms and snails. These organisms are found everywhere, even in the smallest streams that cannot support fish. Since some benthic mac-roinvertebrates are more sensitive to pollution than others, information on the abundance of the various types of organ-isms tells us whether a stream is healthy. The WSA supplemented information on the biological condition of streams by measuring key chemical and physical indicators that reveal stress or degradation of streams. The WSA reports on four chemical indicators (phosphorus, nitrogen, salinity, and acidity) and four physical condition indicators (streambed sediments, in-stream fish habitat, riparian vegetative cover, and riparian disturbance). The WSA was designed to provide regional and national assessments of stream quality, and findings are presented using three different reporting levels. The first level is the conterminous U.S. or lower 48 states; Alaska and Hawaii were not included in this assessment, but pilot projects are underway in those states. The secondlevel is three major climate and landform regions (the Eastern Highlands, Plains and Low-lands, and West). The third level is the nine ecological regions that

further divide the threemajor climate and landform regions. There were not enough sites in the survey to allow statistically-valid assessments of water quality at the state level.

Credits
There are no credits for this item.

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ArcGIS Metadata ►

Citation ►

TITLE USEPA-Wadeable Streams Assessment Program-Chesapeake Bay Region Subset

Hide Citation ▲

Resource Details ►

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Resource Constraints ►

CONSTRAINTS
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Metadata Details ►

* LAST UPDATE 2010-04-21

ARCGIS METADATA PROPERTIES
METADATA FORMAT ESRI-ISO

CREATED IN ARCGIS 2010-03-30T13:19:05
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HAVE BEEN PERFORMED No

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Identification ►

CITATION
CITATION INFORMATION
ORIGINATOR Office of Wetlands, Oceans and Watersheds

ORIGINATOR Susan Holdsworth

PUBLICATION DATE 2013-04-24

TITLE

USEPA-Wadeable Streams Assessment Program-Chesapeake Bay Region Subset

PUBLICATION INFORMATION

PUBLICATION PLACE Annapolis, MD

PUBLISHER Chesapeake Bay Program (CBP)

ONLINE LINKAGE http://data.chesapeakebay.net/?DB=CBP_NTBENDB

ONLINE LINKAGE

http://www.chesapeakebay.net/data/downloads/watershed_wide_benthic_invertebrate_database

ONLINE LINKAGE http://www.epa.gov/owow/streamsurvey/

DESCRIPTION

ABSTRACT

The Wadeable Streams Assessment (WSA) is a first-ever, statistically-valid survey of the biological condition of streams throughout the U.S. Wadeable streams-streams and rivers that are shallow enough to sample without boats-were chosen for study because they are a critical natural resource, because we have a well-established set of methods for monitoring them, and because they are frequently under-sampled in traditional monitoring programs. This project was a collaborative effort involving states, EPA and other federal agencies, tribes, universities and other organizations.

The WSA was designed using modern survey techniques; 1,392 random sites were sampled to represent the condition of all streams in regions that share similar ecological characteristics. Participants used the same standardized methods at all sites, to ensure results that are comparable across the nation. A rigorous quality control program included training all field crews, auditing field crews and labs, and re-sampling 10% of the sites. The sampling began with pilot work in the West in 2000 and was completed nationwide in 2004.

The WSA used benthic macroinvertebrates to determine the biological condition of streams. Benthic macroinvertebrates are small creatures that live in streams attached to rocks and woody debris, or burrowed into the stream bottom. They include aquatic larval stages of insects such as flies and drag-onflies; crustaceans such as crayfish; and worms and snails. These organisms are found everywhere, even in the smallest streams that cannot support fish. Since some benthic mac-roinvertebrates are more sensitive to pollution than others, information on the abundance of the various types of organ-isms tells us whether a stream is healthy.

The WSA supplemented information on the biological condition of streams by measuring key chemical and physical indicators that reveal stress or degradation of streams. The WSA reports on four chemical indicators (phosphorus, nitrogen, salinity, and acidity) and four physical condition indicators (streambed sediments, in-stream fish habitat, riparian vegetative cover, and riparian disturbance).

The WSA was designed to provide regional and national assessments of stream quality, and findings are presented using three different reporting levels. The first level is the conterminous U.S. or lower 48 states; Alaska and Hawaii were not included in this assessment, but pilot projects are underway in those states. The secondlevel is three major climate and landform regions (the Eastern Highlands, Plains and Low-lands, and West). The third level is the nine ecological regions that further divide the threemajor climate and landform regions. There were not enough sites in the survey to allow statistically-valid assessments of water quality at the state level.

PURPOSE

The Wadeable Streams Assessment (WSA) is a first-ever statistically-valid survey of the biological condition of small streams throughout the U.S. EPA worked with the states to conduct the assessment in 2004-2005. The WSA is designed like an opinion poll: that is, 1,392 sites were selected at random to represent the condition of all streams in regions that share similar ecological characteristics. Wadeable streams were chosen for study because they are a critical natural resource and because we have a well-established set of

methods for monitoring them. Participants used the same standardized methods at all sites, to ensure results that are comparable across the nation.

The WSA establishes a national baseline we can use to compare to results from future studies. This information will help us evaluate the successes of our national efforts to protect and restore water quality. Along with upcoming studies of other water resource types - coastal waters, lakes, large rivers and wetlands - the WSA responds to criticisms that the nation's monitoring programs are not providing key answers about water quality. The WSA also provides funding and expertise that will enhance each state's ability to monitor and assess the quality of its waters in the future.

TIME PERIOD OF CONTENT
- TIME PERIOD INFORMATION
  - RANGE OF DATES/TIMES
    - BEGINNING DATE 2004-07-04
    - ENDING DATE 2004-11-10
  - CURRENTNESS REFERENCE
    - Ground condition

STATUS
- PROGRESS Complete
- MAINTENANCE AND UPDATE FREQUENCY None Planned

SPATIAL DOMAIN
- BOUNDING COORDINATES
  - WEST BOUNDING COORDINATE -80.34805
  - EAST BOUNDING COORDINATE -74.62521
  - NORTH BOUNDING COORDINATE 42.56826
  - SOUTH BOUNDING COORDINATE 37.2227

KEYWORDS
- THEME
  - THEME KEYWORD THESAURUS None
  - THEME KEYWORD WADEABLE STREAMS
  - THEME KEYWORD Habitat
  - THEME KEYWORD Watersheds
  - THEME KEYWORD Streams
  - THEME KEYWORD BENTHOS
  - THEME KEYWORD WATER QUALITY
- THEME
  - THEME KEYWORD THESAURUS ISO 19115 Topic Category
  - THEME KEYWORD biota
  - THEME KEYWORD environment
- THEME
  - THEME KEYWORD THESAURUS EPA GIS Keyword Thesaurus
  - THEME KEYWORD Biology
  - THEME KEYWORD Ecology
  - THEME KEYWORD Ecosystem
  - THEME KEYWORD Environment
  - THEME KEYWORD Indicator
  - THEME KEYWORD Marine
  - THEME KEYWORD Monitoring

THEME KEYWORD Quality
THEME KEYWORD Surface Water
THEME KEYWORD Water

THEME
THEME KEYWORD THESAURUS User
THEME KEYWORD Benthos
THEME KEYWORD Water Quality

PLACE
PLACE KEYWORD THESAURUS None
PLACE KEYWORD Chesapeake Bay
PLACE KEYWORD Nationwide

STRATUM
STRATUM KEYWORD THESAURUS None
STRATUM KEYWORD Chesapeake Bay Region

ACCESS CONSTRAINTS
None

USE CONSTRAINTS
Use at your own risk

POINT OF CONTACT
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Not Available

SECURITY INFORMATION
SECURITY CLASSIFICATION SYSTEM FIPS Pub 199
SECURITY CLASSIFICATION No Confidentiality
SECURITY HANDLING DESCRIPTION Standard Technical Controls

Hide Identification ▲

Data Quality ►

LOGICAL CONSISTENCY REPORT
Not applicable

COMPLETENESS REPORT
Unknown

POSITIONAL ACCURACY
HORIZONTAL POSITIONAL ACCURACY
HORIZONTAL POSITIONAL ACCURACY REPORT
Data were collected using methods that are accurate to within 6-25 meters (EPA National Geospatial Data Policy [NGDP] Accuracy Tier 3). For more information, please see EPA's NGDP at http://epa.gov/geospatial/policies.html

LINEAGE
PROCESS STEP
PROCESS DESCRIPTION
Metadata imported.

PROCESS DATE 2010-03-30

PROCESS STEP
PROCESS DESCRIPTION
Data for Chesapeake Bay Region Extracted from National data set and loaded into CBPO Non-Tidal Benthic Database

PROCESS DATE 2010-03-30

Hide Data Quality ▲

Spatial Reference ►

HORIZONTAL COORDINATE SYSTEM DEFINITION
GEOGRAPHIC
LATITUDE RESOLUTION 0.000001
LONGITUDE RESOLUTION 0.000001
GEOGRAPHIC COORDINATE UNITS Decimal degrees

GEODETIC MODEL
HORIZONTAL DATUM NAME North American Datum of 1983
ELLIPSOID NAME Geodetic Reference System 1980
SEMI-MAJOR AXIS 6378137.000000
DENOMINATOR OF FLATTENING RATIO 298.257222

Hide Spatial Reference ▲

Distribution Information ►

DISTRIBUTOR
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RESOURCE DESCRIPTION Downloadable Data

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Metadata Reference ►

METADATA DATE 2013-04-24

METADATA FUTURE REVIEW DATE 2017-04-24

METADATA CONTACT
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METADATA STANDARD NAME NBII Content Standard for National Biological Information Infrastructure Metadata
METADATA STANDARD VERSION FGDC-STD-001-1998

METADATA SECURITY INFORMATION
METADATA SECURITY CLASSIFICATION SYSTEM None
METADATA SECURITY CLASSIFICATION Unclassified
METADATA SECURITY HANDLING DESCRIPTION
None

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