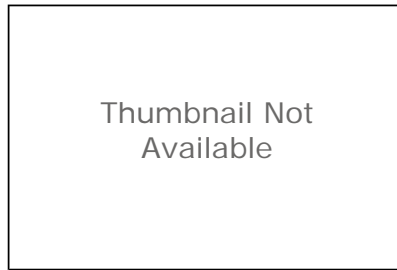


Virginia Department of Environmental Quality- Water Quality Monitoring and Assessment Programs for Non-Tidal Waters in the Commonwealth of Virginia



Tags

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

Summary

To assess the condition of freshwater streams and rivers in the Commonwealth of Virginia.

Description

The Virginia Department of Environmental Quality's (DEQ) Freshwater Biological Monitoring Program uses the benthic macroinvertebrate community to assess the ecological health of freshwater streams and rivers. Benthic macroinvertebrates are organisms such as insects, crustaceans, snails or worms that live on the bottom of streams and rivers which are large enough to be seen with the naked eye. Because many of the organisms that make up these biological communities are extremely sensitive to pollutants, they often respond to changes in water quality caused by the introduction of various contaminants into a water body from point or non-point source pollution. In essence, benthic macroinvertebrates are considered to be virtual "living recorders" of water quality conditions over time. Analysis of the community of these organisms provides a measure of the overall water quality of a particular water body segment. The assessment is made by comparing the community of benthic macroinvertebrates collected at a "reference" stream where there are no significant disturbances, to the community of benthic macroinvertebrates collected at the stream under consideration. DEQ began biological monitoring in the 1970's and the program has continued to change and evolve over time. Historically, the biological monitoring program consisted of two types of stations: repeated sampling at fixed (permanent) stations each year during the spring and fall seasons and targeted stations. These fixed stations were comprised of a reference network of ecoregional, watershed or upstream stations, selected to be representative of natural, least impaired conditions characteristic of specific stream types, against which benthic communities from targeted streams were compared to determine overall water quality. Targeted stations typically were selected to investigate specific areas or problems; for example, stream reaches below point source discharges that were generally a component of special studies designed to measure the effects of the point source. Where significant problems were found, these stream segments are placed on the 303(d) List of Impaired Water Bodies. Biological assessments were based on Rapid Bioassessment Protocol (RBP) II procedures. These follow specific guidelines in the USEPA document "Rapid Bioassessment Protocols for Use in Streams and Rivers" (Plafkin et al. 1989).

Credits

There are no credits for this item.

Use limitations

Use at your own risk

ArcGIS Metadata ►

Citation ►

TITLE Virginia Department of Environmental Quality- Water Quality Monitoring and Assessment Programs for Non-Tidal Waters in the Commonwealth of Virginia

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Resource Details ►

CREDITS

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Resource Constraints ►

CONSTRAINTS

LIMITATIONS OF USE

Use at your own risk

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Metadata Details ►

* LAST UPDATE 2011-05-17

ARCGIS METADATA PROPERTIES

METADATA FORMAT ESRI-ISO

CREATED IN ARCGIS 2010-03-30T13:19:05

LAST MODIFIED IN ARCGIS 2011-05-17T12:22:19

AUTOMATIC UPDATES

HAVE BEEN PERFORMED No

[Hide Metadata Details ▲](#)

FGDC Metadata (read-only) ►

Identification ►

CITATION

CITATION INFORMATION

ORIGINATOR Virginia Department of Environmental Quality

ORIGINATOR Division of Water and Waste Management

ORIGINATOR Watershed Assessment Branch

PUBLICATION DATE 2013-04-24

TITLE

Virginia Department of Environmental Quality- Water Quality Monitoring and Assessment Programs for Non-Tidal Waters in the Commonwealth of Virginia

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.deq.state.va.us/water/homepage.html>

DESCRIPTION

ABSTRACT

The Virginia Department of Environmental Quality's (DEQ) Freshwater Biological Monitoring Program uses the benthic macroinvertebrate community to assess the ecological health of freshwater streams and rivers. Benthic macroinvertebrates are organisms such as insects, crustaceans, snails or worms that live on the bottom of streams and rivers which are large enough to be seen with the naked eye. Because many of the organisms that make up these biological communities are extremely sensitive to pollutants, they often respond to changes in water quality caused by the introduction of various contaminants into a water body from point or non-point source pollution. In essence, benthic macroinvertebrates are considered to be virtual "living recorders" of water quality conditions over time. Analysis of the community of these organisms provides a measure of the overall water quality of a particular water body segment. The assessment is made by comparing the community of benthic macroinvertebrates collected at a "reference" stream where there are no significant disturbances, to the community of benthic macroinvertebrates collected at the stream under consideration.

DEQ began biological monitoring in the 1970's and the program has continued to change and evolve over time. Historically, the biological monitoring program consisted of two types of stations: repeated sampling at fixed (permanent) stations each year during the spring and fall seasons and targeted stations. These fixed stations were comprised of a reference network of ecoregional, watershed or upstream stations, selected to be representative of natural, least impaired conditions characteristic of specific stream types, against which benthic communities from targeted streams were compared to determine overall water quality. Targeted stations typically were selected to investigate specific areas or problems; for example, stream reaches below point source discharges that were generally a component of special studies designed to measure the effects of the point source. Where significant problems were found, these stream segments are placed on the 303(d) List of Impaired Water Bodies. Biological assessments were based on Rapid Bioassessment Protocol (RBP) II procedures. These follow specific guidelines in the USEPA document "Rapid Bioassessment Protocols for Use in Streams and Rivers" (Plafkin et al. 1989).

PURPOSE

To assess the condition of freshwater streams and rivers in the Commonwealth of Virginia.

TIME PERIOD OF CONTENT

TIME PERIOD INFORMATION

SINGLE DATE/TIME

CALENDAR DATE 19920520-Present

CURRENTNESS REFERENCE

Ground condition

STATUS

PROGRESS In work

MAINTENANCE AND UPDATE FREQUENCY Annually

SPATIAL DOMAIN

BOUNDING COORDINATES

WEST BOUNDING COORDINATE -79.13022

EAST BOUNDING COORDINATE -78.565069

NORTH BOUNDING COORDINATE 38.967753

SOUTH BOUNDING COORDINATE 38.43139

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 Macro Invertebrates
THEME KEYWORD Water Quality

PLACE

PLACE KEYWORD THESAURUS None
PLACE KEYWORD Virginia

ACCESS CONSTRAINTS

None

USE CONSTRAINTS

Use at your own risk

POINT OF CONTACT

CONTACT INFORMATION

CONTACT PERSON PRIMARY

CONTACT PERSON Rick Browder

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CONTACT POSITION Biological Monitoring Program Coordinator

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 CONTACT INSTRUCTIONS
 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-Data voluntarily reported

COMPLETENESS REPORT

Unknown

POSITIONAL ACCURACY

HORIZONTAL POSITIONAL ACCURACY

HORIZONTAL POSITIONAL ACCURACY REPORT

Data were collected using methods that are accurate to within 26-100 meters (EPA National Geospatial Data Policy [NGDP] Accuracy Tier 4). 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 was extracted from National Dataset and loaded into the CBPO Non-Tidal Benthic Data base.

PROCESS DATE 2010-03-30

PROCESS STEP

PROCESS DESCRIPTION

2008-2010 Data for Chesapeake Bay Region was extracted from provided and loaded into the CBPO Non-Tidal Benthic Data base.

PROCESS DATE 2011-12-31

Hide Data Quality ▲

Spatial Reference ►

HORIZONTAL COORDINATE SYSTEM DEFINITION

GEOGRAPHIC

LATITUDE RESOLUTION 0.000001

LONGITUDE RESOLUTION 0.000001

GEOGRAPHIC COORDINATE UNITS Decimal degrees

GEODETTIC 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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unavailavle

RESOURCE DESCRIPTION Downloadable Data

DISTRIBUTION LIABILITY

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Metadata Reference ►

METADATA DATE 2013-04-24

METADATA FUTURE REVIEW DATE 2017-04-24

METADATA CONTACT

CONTACT INFORMATION

CONTACT ORGANIZATION PRIMARY

CONTACT ORGANIZATION U.S. Environmental Protection Agency, Chesapeake Bay Program
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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

Hide Metadata Reference ▲