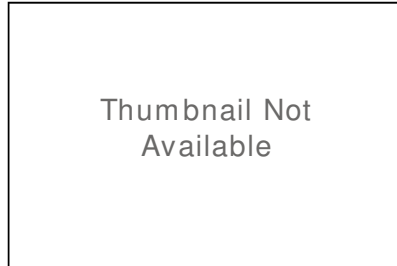


## Maryland Biological Stream Survey



### Tags

WADEABLE STREAMS, BENTHOS, WATER QUALITY, biota, environment, Biology, Ecology, Ecosystem, Environment, Indicator, Marine, Monitoring, Quality, Surface Water, Water, Benthos, Fish, Macro Algae, Macro Invertebrates, Water Quality, Watershed

### Summary

The goal and objectives of Maryland Biological Stream Survey (MBSS) is to provide the best possible information for ensuring the protection and restoration of Maryland's stream ecological resources. There are four objectives of the MBSS used to attain this goal. 1) Assess, with known confidence, the current condition of ecological resources in Maryland's streams and rivers; 2) Identify causes of adverse effects (stressors) to ecological resources; 3) Provide an inventory of biodiversity in Maryland's streams; and 4) Document changes (improvements and degradation) over time in Maryland's stream ecological conditions and biodiversity status. Rounds One provided Maryland's first statewide assessment of ecological conditions (Objective 1). The information from Rounds one and two was also useful in identifying many of the most pervasive stressors (Objective 2) and providing a preliminary inventory of Maryland's stream biodiversity (Objective 3). Although changes in ecological conditions (Objective 4) between the first two rounds were examined, information available from only two statewide rounds is not sufficient to conclude if any observed changes reflect actual trends. The Round Three MBSS will again provide information on all four objectives. However, a portion of the sampling effort for Round Three has shifted away from assessing statewide conditions to identifying stressors and providing biodiversity inventories. Although the condition of Maryland's individual watersheds will not be provided from Round Three, a statewide assessment of stream ecological conditions will be available and can be compared to results from Rounds one and two.

### Description

The Maryland Biological Stream Survey (MBSS) was started by the Maryland Department of Natural Resources in 1993 as a small pilot study in three watersheds. A second, larger demonstration project, expanded statewide, was conducted in 1994. The MBSS was Maryland's first probability-based or random design stream sampling program intended to provide unbiased estimates of stream conditions with known precision at various spatial scales ranging from large 6-digit river basins and medium-sized 8-digit watersheds to the entire state. The basis of the MBSS design is lattice or multi-stratification sampling that ensures all 1st through 3rd order (now 1st through 4th order), non-tidal streams in the sampling frame have a non-zero and known probability of being sampled. A stratified random design is a cost-effective way to characterize Maryland's 15,000+ miles of freshwater streams.

### Credits

Maryland Department of Natural Resource-Maryland Biological Stream Survey

### Use limitations

Use at your own risk

### ArcGIS Metadata ►

#### Citation ►

TITLE Maryland Biological Stream Survey

[Hide Citation ▲](#)

## Resource Details ►

CREDITS Maryland Department of Natural Resource-Maryland Biological Stream Survey

[Hide Resource Details ▲](#)

## Resource Constraints ►

CONSTRAINTS

LIMITATIONS OF USE

Use at your own risk

[Hide Resource Constraints ▲](#)

## FGDC Metadata (read-only) ►

### Identification ►

CITATION

CITATION INFORMATION

ORIGINATOR MARYLAND DEPARTMENT OF NATURAL RESOURCE

PUBLICATION DATE 2008-05-30

TITLE

Maryland Biological Stream Survey

GEOSPATIAL DATA PRESENTATION FORM spreadsheet

PUBLICATION INFORMATION

PUBLICATION PLACE Annapolis, MD

PUBLISHER Maryland Department of Natural Resources

ONLINE LINKAGE [http://data.chesapeakebay.net/?DB=CBP\\_NTBENDB](http://data.chesapeakebay.net/?DB=CBP_NTBENDB)

ONLINE LINKAGE

[http://www.chesapeakebay.net/data/downloads/watershed\\_wide\\_benthic\\_invertebrate\\_database](http://www.chesapeakebay.net/data/downloads/watershed_wide_benthic_invertebrate_database)

ONLINE LINKAGE <http://www.dnr.state.md.us/streams/MBSS.asp>

DESCRIPTION

ABSTRACT

The Maryland Biological Stream Survey (MBSS) was started by the Maryland Department of Natural Resources in 1993 as a small pilot study in three watersheds. A second, larger demonstration project, expanded statewide, was conducted in 1994. The MBSS was Maryland's first probability-based or random design stream sampling program intended to provide unbiased estimates of stream conditions with known precision at various spatial scales ranging from large 6-digit river basins and medium-sized 8-digit watersheds to the entire state. The basis of the MBSS design is lattice or multi-stratification sampling that ensures all 1st through 3rd order (now 1st through 4th order), non-tidal streams in the sampling frame have a non-zero and known probability of being sampled. A stratified random design is a cost-effective way to characterize Maryland's 15,000+ miles of freshwater streams.

PURPOSE

The goal and objectives of Maryland Biological Stream Survey (MBSS) is to provide the best possible information for ensuring the protection and restoration of Maryland's stream ecological resources. There are four objectives of the MBSS used to attain this goal. 1) Assess, with known confidence, the current condition of ecological resources in Maryland's streams and rivers; 2) Identify causes of adverse effects (stressors) to ecological resources; 3) Provide an inventory of biodiversity in Maryland's streams; and 4)

Document changes (improvements and degradation) over time in Maryland's stream ecological conditions and biodiversity status. Rounds One provided Maryland's first statewide assessment of ecological conditions (Objective 1). The information from Rounds one and two was also useful in identifying many of the most pervasive stressors (Objective 2) and providing a preliminary inventory of Maryland's stream biodiversity (Objective 3). Although changes in ecological conditions (Objective 4) between the first two rounds were examined, information available from only two statewide rounds is not sufficient to conclude if any observed changes reflect actual trends. The Round Three MBSS will again provide information on all four objectives. However, a portion of the sampling effort for Round Three has shifted away from assessing statewide conditions to identifying stressors and providing biodiversity inventories. Although the condition of Maryland's individual watersheds will not be provided from Round Three, a statewide assessment of stream ecological conditions will be available and can be compared to results from Rounds one and two.

## TIME PERIOD OF CONTENT

## TIME PERIOD INFORMATION

## SINGLE DATE/TIME

CALENDAR DATE 20000301-Present

## CURRENTNESS REFERENCE

Ground condition

## STATUS

PROGRESS In work

MAINTENANCE AND UPDATE FREQUENCY Annually

## SPATIAL DOMAIN

## BOUNDING COORDINATES

WEST BOUNDING COORDINATE -79.43228

EAST BOUNDING COORDINATE -75.25543

NORTH BOUNDING COORDINATE 39.7222

SOUTH BOUNDING COORDINATE 38.01461

## KEYWORDS

## THEME

THEME KEYWORD THESAURUS NONE

THEME KEYWORD WADEABLE 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 Fish

THEME KEYWORD Macro Algae

THEME KEYWORD Macro Invertebrates

THEME KEYWORD Water Quality

THEME KEYWORD Watershed

PLACE

PLACE KEYWORD THESAURUS NONE

PLACE KEYWORD MARYLAND

PLACE

PLACE KEYWORD THESAURUS None

PLACE KEYWORD Chesapeake Bay

PLACE KEYWORD Maryland

ACCESS CONSTRAINTS

None

USE CONSTRAINTS

Use at your own risk

POINT OF CONTACT

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unavailable

DATA SET CREDIT

Maryland Department of Natural Resource-Maryland Biological Stream Survey

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

Data was 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** ▶

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<http://www.chesapeakebay.net>

RESOURCE DESCRIPTION Available upon Request

DISTRIBUTION LIABILITY

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STANDARD ORDER PROCESS

DIGITAL FORM

DIGITAL TRANSFER INFORMATION  
 FORMAT NAME ASCII

DIGITAL TRANSFER OPTION

ONLINE OPTION

COMPUTER CONTACT INFORMATION  
 NETWORK ADDRESS

NETWORK RESOURCE NAME [www.chesapeakebay.net](http://www.chesapeakebay.net)

FEES None

TURNAROUND On demand

*Hide Distribution Information* ▲

**Metadata Reference** ►

METADATA DATE 2012-06-28

METADATA FUTURE REVIEW DATE 2016-06-28

METADATA CONTACT

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METADATA STANDARD NAME NBII Content Standard for National Biological Infrastructure

METADATA STANDARD VERSION FGDC-STD-001-1998

METADATA ACCESS CONSTRAINTS None

METADATA USE CONSTRAINTS

None

*Hide Metadata Reference* ▲