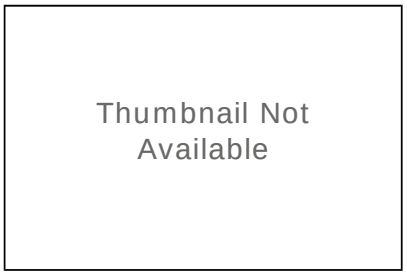
Biological Monitoring of Surface Waters in New York State



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

The state of New York conducts a biological monitoring program through the NYSDEC, Division of Water (DOW) in support of the following DOW programs and reporting:1)Rotating Intergrated Basin Studies (RIBS) water quality assessments; 2) Water Body Inventory and Priority Waterbody List (WI/PWL) documentation of water quality; 3)40 CFR 303(d) listing of impaired waters; 4) 40 CFR 305 (b) reporting of water quality assessments; 5) State Permit Discharge Elimination System (SPDES) permit writing, compliance and enforcement determinations, setting permit limitations protective of aquatic life use support; 6)Trend Monitoring Reports which are planned at 10 year intervals; 7)Non point source discharges to appropriate department personnel; and 8)Tissue analysis results for contaminants track down used by the Division of Fish, Wildlife, and Marine Resources or the Division of Environmental Remediation.

Description

The biological monitoring program for the State of New York, was initiated in May, 1972 as mandated by the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500). The main objective of the program is to evaluate the relative biological health of the State's surface waters through the collection and analysis of macro invertebrate communities. Community assessments are conducted to determine water quality impairment and the attainment of aquatic life use support. Parameters such as species richness and percent model affinity are used to assess overall water quality. Macro invertebrate tissue assessment provides information on levels of toxic substances in the aquatic food chain. Macro invertebrates' bioconcentrate many contaminants to concentrations several times that found in the water and many serve as primary food organisms for fish. Analysis of macroinvertebrate communities is a reliable and cost-effective approach to water quality monitoring because: 1)They are sensitive to environmental impacts; 2) They are less mobile than fish, and thus cannot avoid discharges; 3) They can indicate effects of spills, intermittent discharges, and lapses in treatment; 4) They are indicators of overall, integrated water quality, including synergistic effects and substances lower than detectable limits;5) They are abundant in most streams and are relatively easy and inexpensive to sample; 6) They are able to detect non-chemical impacts to the habitat, such as siltation or thermal changes; 7) They are readily perceived by the public as tangible indicators of water quality; 8) They can often provide an on-site estimate of water quality ; 9) They bioaccumulate many contaminants, so that analysis of their tissues is a good monitor of toxic substances in the aquatic food chain, and 10) They provide a suitable endpoint to water quality objectives. The Stream Biomonitoring Unit divides its biological assessment sampling into three major categories: 1) trend monitoring, 2) site assessments and 3) water body assessments. Trend monitoring and single site assessments account for the majority of the sampling and are mainly conducted as part of the Rotating Intergraded Basin Studies (RIBS) program. Trend and single site assessments involve sampling targeted sites of regional reference conditions, long-term temporal trend monitoring locations, unassessed waters, and sites that are of department, regional and/or public interest. Water body assessment surveys involve sampling several sites along the length of a river or reach, and are usually conducted at the request of a DEC Regional office or to collect baseline water quality information. Reasons for requesting a survey include: documentation of severity of a perceived problem, documentation of possible improvement following upgraded treatment, problem track-down, or collection of baseline data on a stream of unknown water quality.

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Citation ►

TITLE Biological Monitoring of Surface Waters in New York State

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Resource Details ►

CREDITS

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Resource Constraints ►

CONSTRAINTS
LIMITATIONS OF USE
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Metadata Details ►

* LAST UPDATE 2010-03-31

ARCGIS METADATA PROPERTIES
METADATA FORMAT ESRI-ISO

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HAVE BEEN PERFORMED No

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Identification ►

CITATION
CITATION INFORMATION
ORIGINATOR New York State Department of Environmental Conservation
ORIGINATOR Division of Water
PUBLICATION DATE 2013-04-24
TITLE

Biological Monitoring of Surface Waters in New York State

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.dec.ny.gov/lands/60135.html

DESCRIPTION

ABSTRACT

The biological monitoring program for the State of New York, was initiated in May, 1972 as mandated by the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500). The main objective of the program is to evaluate the relative biological health of the State's surface waters through the collection and analysis of macro invertebrate communities. Community assessments are conducted to determine water quality impairment and the attainment of aquatic life use support. Parameters such as species richness and percent model affinity are used to assess overall water quality. Macro invertebrate tissue assessment provides information on levels of toxic substances in the aquatic food chain. Macro invertebrates' bioconcentrate many contaminants to concentrations several times that found in the water and many serve as primary food organisms for fish.

Analysis of macroinvertebrate communities is a reliable and cost-effective approach to water quality monitoring because: 1)They are sensitive to environmental impacts; 2) They are less mobile than fish, and thus cannot avoid discharges; 3) They can indicate effects of spills, intermittent discharges, and lapses in treatment; 4) They are indicators of overall, integrated water quality, including synergistic effects and substances lower than detectable limits;5) They are abundant in most streams and are relatively easy and inexpensive to sample; 6) They are able to detect non-chemical impacts to the habitat, such as siltation or thermal changes; 7) They are readily perceived by the public as tangible indicators of water quality; 8) They can often provide an on-site estimate of water quality ; 9) They bioaccumulate many contaminants, so that analysis of their tissues is a good monitor of toxic substances in the aquatic food chain, and 10) They provide a suitable endpoint to water quality objectives.

The Stream Biomonitoring Unit divides its biological assessment sampling into three major categories: 1) trend monitoring, 2) site assessments and 3) water body assessments. Trend monitoring and single site assessments account for the majority of the sampling and are mainly conducted as part of the Rotating Intergraded Basin Studies (RIBS) program. Trend and single site assessments involve sampling targeted sites of regional reference conditions, long-term temporal trend monitoring locations, unassessed waters, and sites that are of department, regional and/or public interest. Water body assessment surveys involve sampling several sites along the length of a river or reach, and are usually conducted at the request of a DEC Regional office or to collect baseline water quality information. Reasons for requesting a survey include: documentation of severity of a perceived problem, documentation of possible improvement following upgraded treatment, problem track-down, or collection of baseline data on a stream of unknown water quality.

PURPOSE

The state of New York conducts a biological monitoring program through the NYSDEC, Division of Water (DOW) in support of the following DOW programs and reporting:1) Rotating Intergrated Basin Studies (RIBS) water quality assessments; 2) Water Body Inventory and Priority Waterbody List (WI/PWL) documentation of water quality; 3)40 CFR 303(d) listing of impaired waters; 4) 40 CFR 305 (b) reporting of water quality assessments; 5) State Permit Discharge Elimination System (SPDES) permit writing, compliance and enforcement determinations, setting permit limitations protective of aquatic life use support; 6)Trend Monitoring Reports which are planned at 10 year intervals; 7)Non point source discharges to appropriate department personnel; and 8)Tissue analysis results for contaminants track down used by the Division of Fish, Wildlife, and Marine Resources or the Division of Environmental Remediation.

TIME PERIOD OF CONTENT
TIME PERIOD INFORMATION
SINGLE DATE/TIME
CALENDAR DATE 20020729-Present
CURRENTNESS REFERENCE
Ground condition

STATUS
PROGRESS In work
MAINTENANCE AND UPDATE FREQUENCY Annually

SPATIAL DOMAIN
BOUNDING COORDINATES
WEST BOUNDING COORDINATE -77.7403
EAST BOUNDING COORDINATE -74.7537
NORTH BOUNDING COORDINATE 42.8841
SOUTH BOUNDING COORDINATE 42.0016

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 New York

ACCESS CONSTRAINTS
None

USE CONSTRAINTS
Use at your own risk

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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 was loaded into the CBPO Non-Tidal Benthic Data base.

PROCESS DATE 2020-03-30

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 ►

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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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