

US EPA ARCHIVE DOCUMENT

MARYLAND BIOLOGICAL STREAM SURVEY (MBSS)

REMAP project with Maryland Department of Natural Resources, EPA Region 3, MAIA and ORD assesses the health of Maryland's freshwater streams.

Data from about 1,000 randomly-selected sites were used to assess Maryland's non-tidal freshwater streams from the Appalachian Mountains of Garrett County to the Lower Eastern Shore. Aquatic animals, physical habitat, and water chemistry were assessed at each site as well as land use in the upstream watershed. The overall ecological health of the sampled streams was evaluated. For the first time, a comprehensive and scientifically-defensible tool is available to determine how many stream miles (either within specific river basins or statewide) are healthy, threatened, or degraded.

Major findings include:

- Urbanization is a major threat to Maryland's streams.
 - If upstream impervious land cover exceeds 2%, pollution sensitive brook trout are never found.
 - At 15% watershed imperviousness, stream quality is never rated good.
 - When watershed imperviousness exceeds 25%, only hardy, pollution tolerant reptiles and amphibians can thrive.
 - Some sites with greater than 50% agricultural land use upstream contain nitrate concentrations exceeding the human health standards for safe drinking water.
- The loss of high-quality physical habitat, such as forested riparian (streamside) buffers is widespread in Maryland streams.
 - Only 20% of all stream miles in Maryland have good physical habitat quality, while 52% are in poor condition.
 - 27% Of Maryland's stream miles have no vegetated riparian buffers to protect against stormwater runoff.
 - More than 1,000 migration barriers across Maryland streams and rivers make habitat once available to migratory fish unassessable.
- Acid rain is the most important and widespread source of acidity in Maryland streams, affecting nearly one fifth of the state's stream miles.
 - Streams with pH greater than 6 have more than 9,000 fish per stream mile, those with pH less than 5 contain NO fish.
- Based on fish and the benthic community in Maryland:
 - 12% of all stream miles are in good condition;
 - 42% are fair; and
 - 46% are poor.
- In spite of the stressors on Maryland's streams, they are still habitat for an incredible diversity of animal life.
 - 45 species of amphibians and reptiles occur in Maryland streams (91% of all stream miles have at least one).
 - About 350 types of benthic macroinvertebrates inhabit Maryland's streams.
 - About 100 fish species swim in Maryland streams.
 - Six fish species are listed as rare, threatened, or endangered.

Results of the Survey can help answer important management questions about the relative impacts and geographical extent of different stressors on Maryland streams. The final report will be published jointly by MAIA and MBSS in August. There will be a Maryland Biological Stream Survey Symposium at St. Mary's College of Maryland, August 4-6, 1999. A flyer and registration form can be obtained from the MD DNR web site – www.dnr.state.md.us/baysandstreams/Maryland Streams.

POC – Tom Pheiffer, MAIA Team, 410-305-2740