

INTEGRATING MARYLAND'S TIDAL AND NONTIDAL ECOLOGICAL ASSESSMENTS

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ABSTRACT

The Maryland Department of Natural Resources (DNR) has a long history of conducting rigorous assessments of ecological conditions in both tidal and nontidal waters. The Long-Term Benthic (LTB) Monitoring Program and the Maryland Biological Stream Survey (MBSS) both use reference-based indicators of benthic invertebrate communities to provide areawide estimates of condition status and trends. While these programs are comparable in approach, their assessments have remained independent. The management goals for Maryland DNR, U.S. Environmental Protection Agency (EPA), National Oceanic and Atmospheric Administration (NOAA), and other agencies are increasingly watershed based and would benefit from an integration of tidal and nontidal assessments. Small-scale studies have demonstrated that upstream land uses can have profound effects on both nontidal and tidal waters downstream, but the prevalence of these effects over large areas have not been effectively studied. We analyzed a decade's worth of synoptic data on the condition of Maryland tidal and nontidal waters to determine the range of concurrence in condition assessments between upstream and downstream waters. The results indicate that a consistent report card of ecological condition across tidal and nontidal waters is practicable, and has implications for improving our understanding of the dynamics of freshwater tidal and nearshore ecosystems.

KEYWORDS

Chesapeake Bay, estuaries, streams, Index of Biotic Integrity (IBI), water quality, watersheds