



Department of  
Environmental  
Conservation

# Biomonitoring

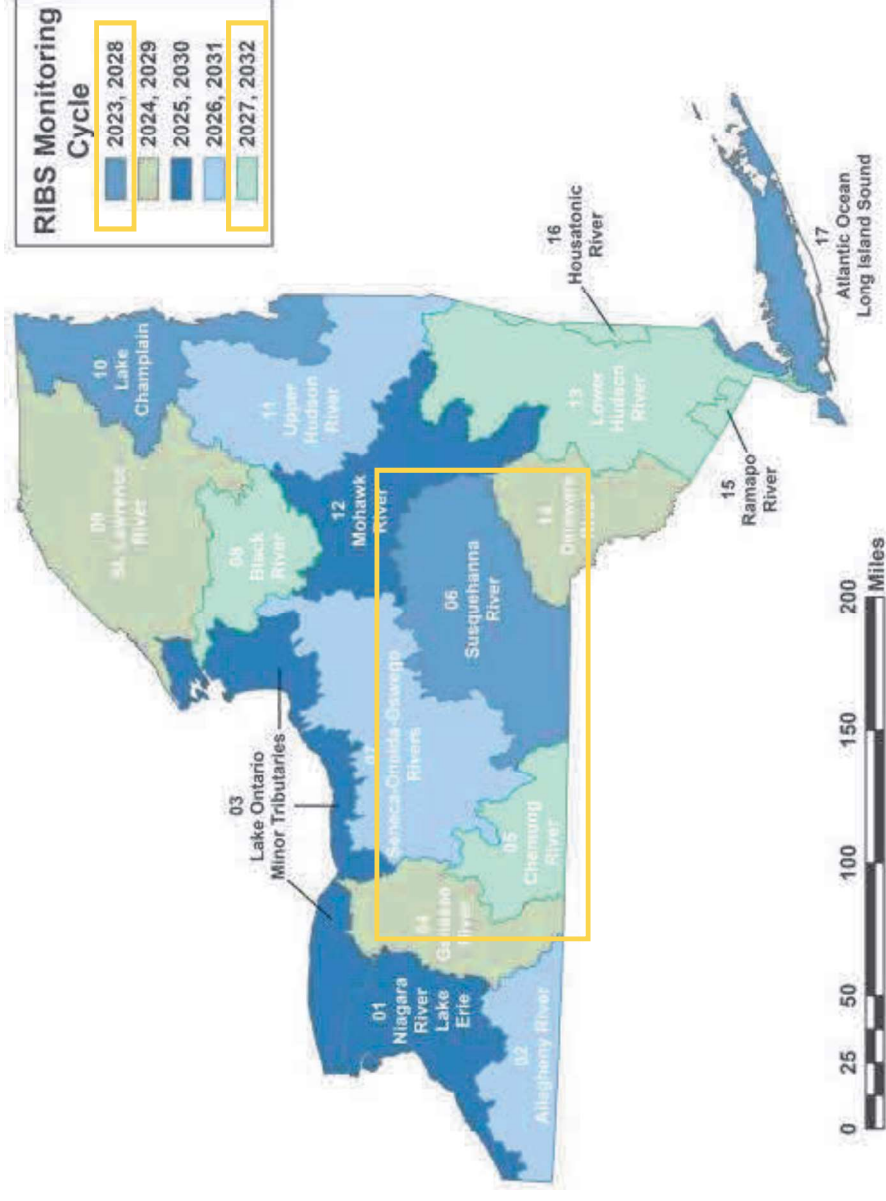
Stream Health Workgroup

8/15/2025

# NYS DEC Biomonitoring

## Biomonitoring

- Each major watershed in the state is monitored on a five-year schedule as a part of our Rotating Integrated Basin Studies (RIBS) program.
- Each sampling season (June-September), three or more basins are sampled following this schedule.
- Currently collecting water quality and physical habitat data at every site to determine potential impacts to the macroinvertebrate community



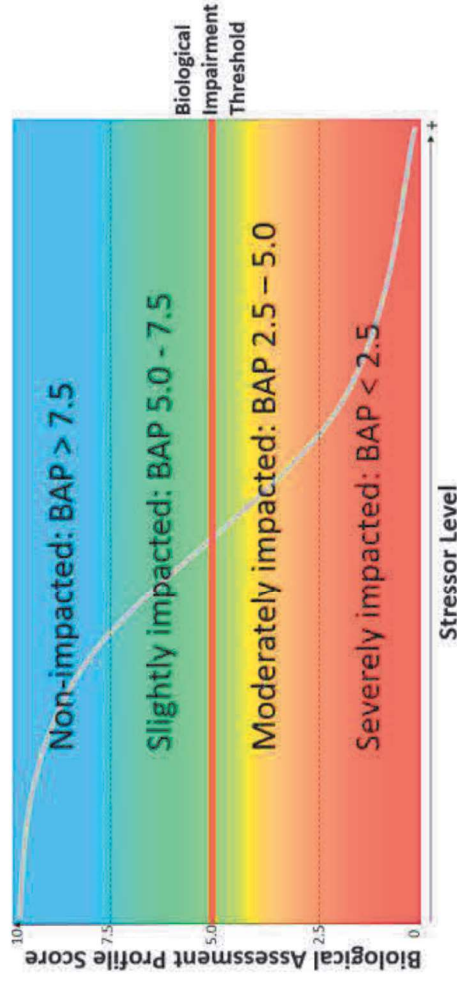
# Water Quality Impact in Streams and Rivers

## Biological Assessment Profile

- Individual community metrics on a common 10-scale and the averaging them to yield a determination known as the Biological Assessment Profile (BAP) score.
- Various combinations of individual metrics are used to calculate the BAP score and are dependent upon the type of surface water and the method of sample collection

## Example of Non-Impacted Riffle Habitats:

- Species Richness is  $\geq 26$
- Hilsenhoff Biotic Index is  $\leq 4.5$
- EPT (Ephemeroptera, Plecoptera and Trichoptera) Richness is  $\geq 15$
- Percent Model Affinity is  $\geq 64$
- Nutrient Biotic Index is  $\leq 5.0$



# Impact Source Determination

## Previous approach

- Series of impact source determination models that were based on macroinvertebrate community structure from known stressor sources
- The approach would identify impacts from impoundments, siltation, sewage effluent and animal waste, toxic, municipal/industrial, and nonpoint nutrients combined with a physical habitat evaluation to provide a basis.

“Impact Source Determination (ISD) is the procedure for identifying types of impacts that exert deleterious effects on a waterbody. While the analysis of benthic macroinvertebrate communities has been shown to be an effective means of determining severity of water quality impacts, it has been **less effective in determining what kind of pollution is causing the impact**. Impact Source Determination uses community types or models to ascertain the primary factor influencing the fauna. It may be seen as an elaboration of Percent Model Affinity (Novak and Bode, 1992), which is based on class and order.”

# 2025 Draft Phosphorus Guidance Values

- New draft [phosphorus guidance values](#) to protect human health and aquatic life in both flowing and ponded waterbodies.
- Because phosphorus is naturally occurring and an essential nutrient for most aquatic systems, the guidance also includes linked biological response variables (BAP Scores) that aid in identifying when phosphorus concentrations have become excessive.

## Examples:

Water Classes	Water Type/Eco Region	Total Phosphorus (ug/l)	Response Variable	Best Use Protected
A, A-S, AA, AA-S, B, C	Flowing waters / Aggregated Nutrient Ecoregions 8 & 11	30	Biological Assessment Profile (BAP) shall not be less than or equal to 5	Fishing (Aquatic Life)
A, A-S	Flowing waters (Statewide)	25	Chlorophyll-a 6 µg/L	Drinking Water (Human Health)