Defining, assessing and monitoring blackwater streams and rivers of the United States

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Blackwater streams and rivers are generally characterized as shallow, slow-moving, sandy bottom systems; with waters stained various hues from tannins leached to them from decaying vegetation. Waters of these systems are typically acidic, low in nutrients, conductivity, and DO, and having higher levels of DOC and color. Their ionic composition can also differ significantly when compared to non-blackwater systems. Taken collectively, these features function to create a unique habitat that is home to a suite of equally uniquely adapted plants and animals. For those charged with the protection of flowing waters, this presents challenges. For example, water quality measurements may be outside limits considered acceptable, yet completely normal; accepted bioassessment and monitoring approaches may be inadequate; traditional physical habitat measures may fail to capture the state of key habitats.

The goal of this workshop is to learn more about the approaches currently used for the assessment and monitoring of blackwater streams and rivers in the southeastern United States. How are organizations dealing with blackwater streams and rivers? What needs exist? What type of research products would be of most benefit? Who is interested in collaboration on research? To support discussions, a series of questions have been prepared to generate thought and facilitate productive discussion. Ideally, one person from each state would provide a cross-agency response to these questions.

Workshop Discussion Question

1. In general, how has your organization been dealing with blackwater systems?
    - Are they treated the same as other systems?
        - Are they sampled using the same methods as other streams and rivers?
    - Are they somewhat dismissed due to being rare/different/non-target?
    - Are they assessed/monitored as unique habitats?
2. Does your organization have guidance on how blackwater systems are defined?
    - Do you have an operational definition of blackwater systems?
    - Best professional judgement?
    - WQ parameters
        - What parameters?
    - Biotic parameters
        - How?
    - Other
3. What field methods are used for sampling blackwater systems?
    - Same methods used for other systems
    - Do not currently have effective approaches for evaluating blackwater systems
    - WQ (same as other systems?)
    - Biotic (same as other systems?)
        - Algae
        - Benthic macroinvertebrates
        - Fish
        - Other
    - Terrestrial Assessment (riparian)
    - Physical habitat (same as other systems?)
4. How is the blackwater system condition evaluated?
    - Index? (same as other systems?)
    - Existing criteria?
    - other
5. What might EPA do that will be of use to states and tribes in dealing with these systems?
    - Information on appropriate field methods?
    - Guidance on what biotic communities to assess (other than typical)?
        - And what each can tell us in this unique habitat?
    - What unique water quality parameters might be informative (humic and fulvic acids)?
    - What physical habitat methods are most appropriate/needed?
        - Methods for roots/root wads?
    - Identification of biggest threats/stressors?
    - Identification of threats/stressors unique to blackwater streams and rivers?
6. How have you observed people interacting with blackwater systems? (e.g., fishing, boating, swimming)