Statewide Occurrence and Seasonal Abundance Patterns for Didymo in Maryland Waters

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Study Overview

Presence of the freshwater diatom Didymosphenia geminata in Gunpowder Falls was reported to the Maryland Department of Natural Resources (MDNR) in January 2008 by anglers. This set a series of monitoring events in motion:

- April 2008 - MDNR confirmed the finding and has been charting the extent and spread of Didymo ever since.
- In June 2008, nine stations along the middle region of Gunpowder Falls below Prettyboy Reservoir were established to determine the extent of the Didymo infestation and to describe seasonal abundance patterns. These stations are being visited monthly to visually survey for Didymo presence, collect substrate samples for microscopic examination, and measure water temperature, current velocity, and turbidity. The data reveal a seasonal pattern in the abundance and spatial distribution of the diatom in Gunpowder Falls. Peak monthly abundance occurs from January through May at the five most upstream stations.
- An additional station was added in the river above the dam in September 2009, but this location is still Didymo-free.
- In October, benthic macroinvertebrate sampling was included in the survey and a nearby stream without Didymo was set up as a control site, to provide insight into the effects of Didymo on invertebrates.
- In June 2009, Didymo was found in western Maryland’s Savage River, 1.8 km upstream from its confluence with the Potomac River.
- Through several control measures instituted by MDNR and an effort to educate the public, the spread of Didymo was halted until 2012, when new occurrences were confirmed in Hunting Creek and North Branch Potomac River.
- DNA testing has been done in numerous streams across the state since June 2009. Results point to the containment of Didymo to these four known areas.

Sampling Stations in Gunpowder Falls

Wader Wash Stations

Substrate size, stability, and availability is likely to also play a role in Didymo’s ability to colonize an area. A modified pebble count was conducted at four stations in Gunpowder Falls and one at the Didymo-free control site in Little Falls in late 2012. Results support observations that Didymo prefers larger, less transitory substrate such as cobble, boulder, and bedrock as seen at Bluemount, Masemore, and Falls Rd. stations. The large amount of sand at Glencoe Rd. station is likely to shift frequently and provide minimal stable habitat for Didymo.

The Maryland Department of Natural Resources has taken steps to reduce the likelihood of spreading Didymo and other unwanted organisms to uninfested waters:

- 45 Wader wash stations have been deployed, beginning in June 2008.
- Statewide felt-soled boot ban implemented in March 2011.