

**White Clay Creek Fish Passage Assessment  
December 2022 Interim Progress Report  
Stroud Water Research Center**

**Project Goal:**

The purpose of this study is to evaluate river habitat conditions between the Delaware-White Clay Creek confluence and Dam #2 on the White Clay and identify any potential limiting factors preventing American Shad migration.

**Task 1 Objective:** Conduct a visual survey of channel and riparian conditions in the fall/winter of 2022 from Dam #2 on White Clay Creek to the confluence of the Christina River conducted by wading, floating, or combination thereof, to identify reaches for intensive study to include all reaches of stream supporting  $\leq 2'$  of depth at baseflow or any other possible physical elements that could be barriers to fish passage or create conditions unfavorable for alosine passage. Intensive study reaches will be located using GPS coordinates for future springtime fieldwork.

**Task 1 Results:** The visual survey of the channel below Dam 2 was completed in November, 2022, during typical Fall baseflow discharge conditions (Figure 1). In many reaches of substantial length, the thalweg depth is shallower than the minimum (2 feet) considered suitable for American Shad passage. No complete physical barriers were identified.

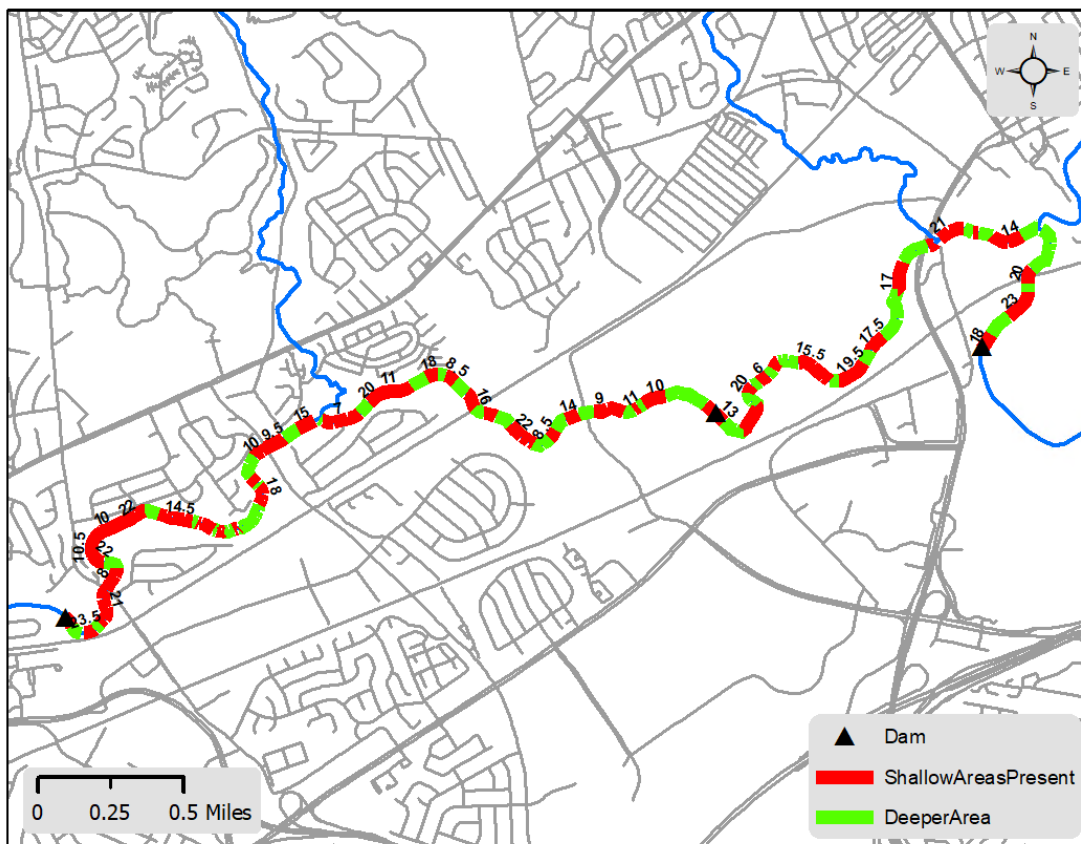


Figure 1. Map of lower White Clay Creek thalweg depth below Dam 2. Red areas indicate thalweg depths shallower than two feet.

**Task 3: Survey water temperature with discrete measurements during task #1 to identify any thermal discontinuities in the study reach main channel outside the suitable range for Shad migration (40-65F) and in all observed tributaries/outflows joining the reach.**

The temperature survey during Task 1 measured downstream warming of approximately 5°C (9-14°C) from Dam 2 to the inflatable dam. Several tributaries are warmer than the main channel, but none exceeded 14°C. These temperatures are well below thermal stress limits for American Shad. However, these are also well below the species' ideal spawning temperature (18°C).