



Baseline Fish and Crayfish Survey at Schoolhouse Branch

Lower Fish River Watershed Restoration

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**Submitted to**  
Mobile Bay National Estuary Program  
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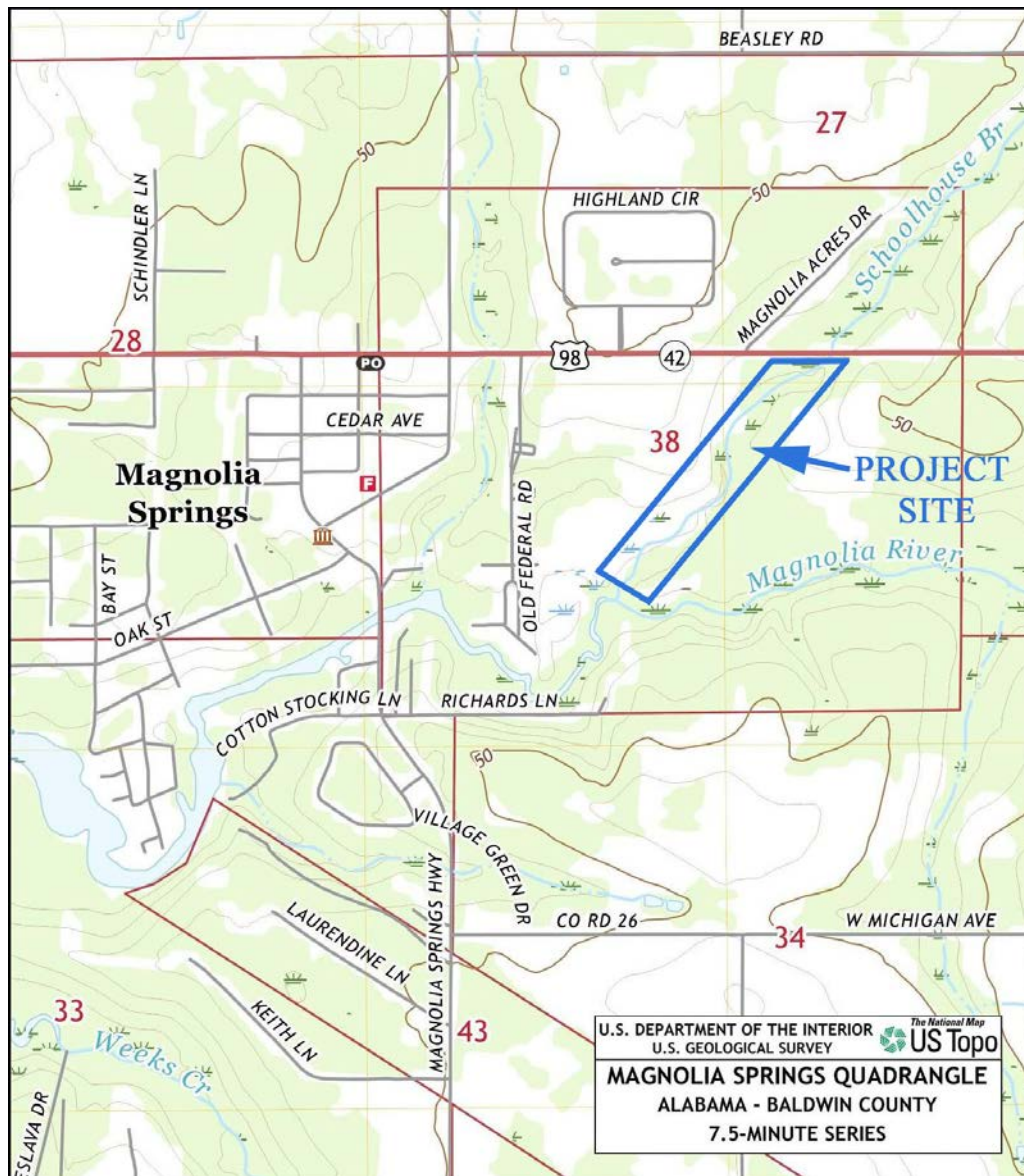
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**BASELINE FISH AND CRAYFISH SURVEY AT SCHOOLHOUSE BRANCH  
LOWER FISH RIVER WATERSHED RESTORATION**

1.0 INTRODUCTION

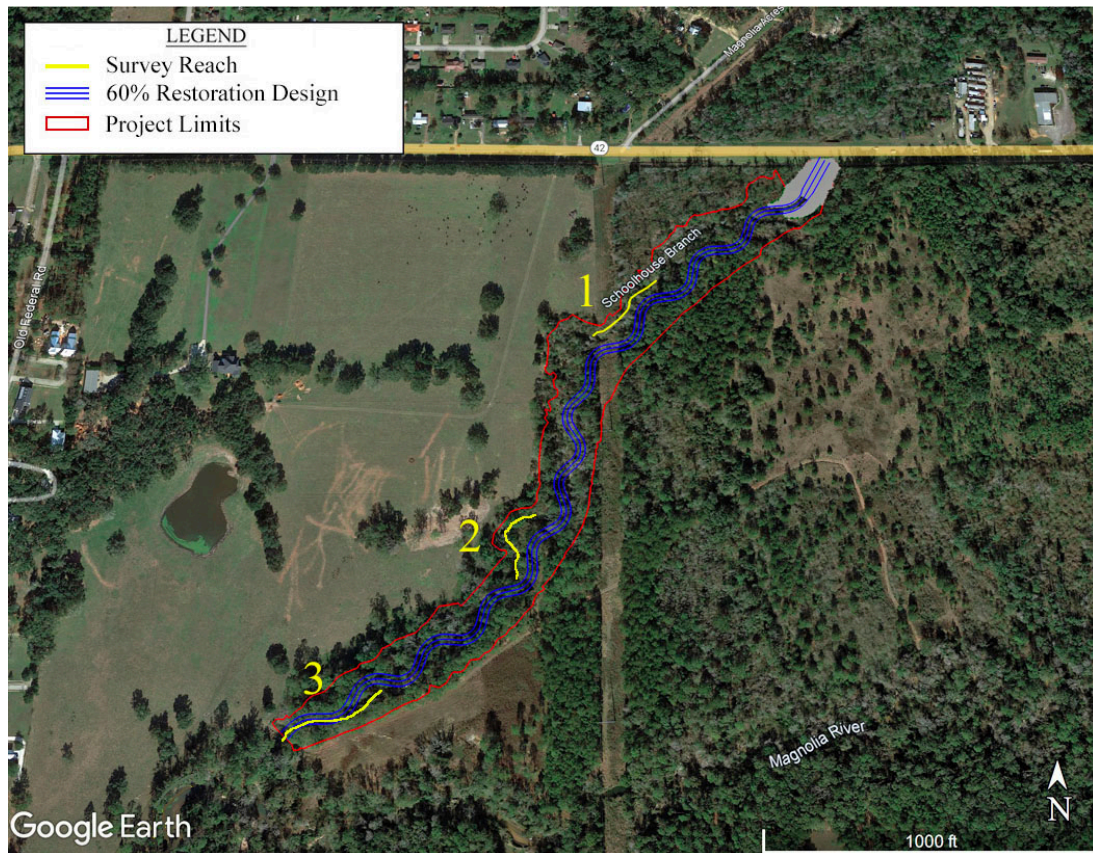
The Mobile Bay National Estuary Program funded the project entitled “Lower Fish River Watershed Restoration” through a grant provided by the National Fish and Wildlife Foundation Gulf Environmental Benefit Fund, to address sediment and nutrient issues in a coastal watershed discharging into Weeks Bay. As part of the project, Thompson Engineering, Inc. performed a pre-restoration survey for fish and crayfish at Schoolhouse Branch, a tributary of the Magnolia River. The site is located south of U.S. Highway 98 in Baldwin County (**Figure 1**). Schoolhouse Branch has been experiencing heavy erosion between Highway 98 and the Magnolia River. The restoration project will include the rehabilitation of approximately 3,300 linear feet of stream channel and floodplain. This survey was performed August 6, 2024 to provide baseline information on resident fish and crayfish populations, for comparison with future post-restoration conditions.



**Figure 1.** Location of the Schoolhouse Branch survey.

## 2.0 METHODS

Fish and crayfish were collected from three Schoolhouse Branch stream reaches, shown in **Figure 2**. Sampling was accomplished using a Smith-Root Electrofisher, which produces a mild shock that stuns fish and crayfish so they can be easily netted, without causing them permanent harm. Beginning at the downstream end of each reach, the sampler was worked upstream, electrofishing areas likely to hold fish and crayfish (deep pools, undercut banks, under logs and leaf packs, fast running riffles). Stunned individuals were gently netted and placed in a 5-gal. bucket with site water. In habitats with thick root mats, some individuals were stunned by the electrofisher but were caught in the habitat itself. In these situations, habitats were swept using a D-frame net to ensure collection of as many individuals as possible. Approximately the same period of time was spent sampling each reach to standardize the level of effort.



**Figure 2.** Location of the Schoolhouse Branch survey transects.

Once sampling in a reach was completed, collected individuals were examined for identification. As much as possible, individuals were identified, enumerated, and released on site. Representative individuals that could not be confidently identified in the field were placed in a jar with formalin preservative and transported back to the laboratory for identification. Photographs of each of the species collected included in **Appendix A**. In the laboratory, the primary literature source for identification of fish species was Boschung and Mayden, 2004. Identification of crayfish species was accomplished primarily with Schuster, et. al., 2022. This survey did not involve endangered or protected species.

**BASELINE FISH AND CRAYFISH SURVEY AT SCHOOLHOUSE BRANCH  
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**3.0 RESULTS**

Survey results are presented in **Table 1**. A total of 11 fish species was collected from the three survey reaches. Six different species were collected from Reach 1, Eight species from Reach 2, and seven species from Reach 3. Three species (*Gambusia affinis*, *Lepomis macrochirus*, and *Noturus leptacanthus*) were collected at all three survey reaches. One crayfish species (*Procambarus spiculifer*) was collected during the survey, collected from all three reaches.

**Table 1.** Sample contents for each stream reach at Schoolhouse Branch.

Scientific Name	Common Name	Reach 1	Reach 2	Reach 3
<b>Fish</b>				
<i>Erimyzon tenuis</i>	Sharpfin chubsucker	4	2	
<i>Gambusia affinis</i>	Western mosquitofish	7	3	9
<i>Lepomis cyanellus</i>	Green sunfish		1	
<i>Lepomis macrochirus</i>	Bluegill	3	8	2
<i>Lepomis mineatus</i>	Redspotted sunfish			2
<i>Micropterus salmoides</i>	Largemouth bass	1		1
<i>Notropis taxanus</i>	Weed shiner		4	3
<i>Noturus funebris</i>	Black madtom		1	
<i>Noturus leptacanthus</i>	Speckled madtom	1	4	1
<i>Percina nigrofasciata</i>	Blackbanded darter		4	5
<i>Pteronotropis hypselopterus</i>	Sailfin shiner	2		
<b>Crayfish</b>				
<i>Procambarus spiculifer</i>	White tubercled crayfish	4	3	7

**4.0 CONCLUSIONS**

Several of the species collected in the Schoolhouse Branch survey are commonly found in other stream systems of Baldwin County. The Geological Survey of Alabama (GSA) conducted instream fish sampling in Fish River, Cowpen Creek, and Green Branch tributary in 2004, where weed shiner and bluegill were among the most abundant species (O'Neil et al., 2004). GSA fish sampling in Fish River (AL Highway 104 and AL Highway 90) and Cowpen Creek (Baldwin Co. Highway 33) in 2010 and 2011 found blackbanded darter to be the most abundant species at all three locations, with weed shiner also abundant at the Fish River Highway 90 location (O'Neil and Shepard, 2012). Colvin et al. (2016) sampled at Baker Branch, Cowpen Creek, Magnolia River, Pensacola Branch, and Perone Branch and found a characteristic assemblage that included blackbanded darter, bluegill, green sunfish, largemouth bass, and weed shiner. White tubercled crayfish has been documented at several locations in the Magnolia and Fish River drainages (Schuster et al., 2022). The Schoolhouse Branch survey provides background information on resident fish and crayfish populations for comparison with post-restoration conditions.

5.0 REFERENCES CITED

Boschung, H.T., Jr., and R.L. Mayden, 2004. *Fishes of Alabama*. Smithsonian Institution.

Colvin, S., B. Helms, D. DeVries, and J. Feminella, 2016. Environmental and fish assemblage differences between blackwater and clearwater streams of coastal Alabama. Research Symposium at Weeks Bay National Estuarine Research Reserve, August 4-5, 2016.

O'Neil, P.E. and T.E. Shepard, 2012. *Calibration of the Index of Biotic Integrity for the Southern Plains Ichthyoregion in Alabama*. Geological Survey of Alabama, Open-File Report 1210. Prepared in cooperation with the Alabama Department of Environmental Management and the Alabama Department of Conservation and Natural Resources. Tuscaloosa, AL. 93 pp + appendices.

O'Neil, P.E., T.E. Shepard, M.F. Mettee, and S.W. McGregor, 2004. *A Survey of Alabama's Coastal Rivers and Streams for Fishes of Conservation Concern*. Geological Survey of Alabama, Open-File Report 0502. Prepared in cooperation with the Alabama Department of Conservation and Natural Resources, Wildlife and Freshwater Fisheries Division. Tuscaloosa, AL. 41 pp.

Schuster, G.A., C.A Taylor, and S.W. McGregor, 2022. *Crayfishes of Alabama*. University of Alabama Press.

Appendix A – Specimen Photographs

**BASELINE FISH AND CRAYFISH SURVEY AT SCHOOLHOUSE BRANCH  
LOWER FISH RIVER WATERSHED**

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Sharpfin chubsucker (*Erimyzon tenuis*)



Western mosquitofish (*Gambusia affinis*)\*

**\*Internet stock photo**



**BASELINE FISH AND CRAYFISH SURVEY AT SCHOOLHOUSE BRANCH  
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Green sunfish (*Lepomis cyanellus*)



Bluegill (*Lepomis macrochirus*)\*

**\*Internet stock photo**

**BASELINE FISH AND CRAYFISH SURVEY AT SCHOOLHOUSE BRANCH  
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Redspotted sunfish (*Lepomis microlophus*)



Largemouth bass (*Micropterus salmoides*)

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Weed shiner (*Notropis texanus*)



Black madtom (*Noturus funebris*)

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Speckled madtom (*Noturus leptacanthus*)



Blackbanded darter (*Percina nigrofasciata*)

**BASELINE FISH AND CRAYFISH SURVEY AT SCHOOLHOUSE BRANCH  
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Sailfin shiner (*Pteronotropis hypselopterus*)



White tubercled crayfish (*Procambarus spiculifer*)