

## Featured Stream: Upper Gunpowder River



The upper Gunpowder River watershed covers 31.68 km<sup>2</sup> (7,827.80 acres) in northern Carroll County and north-western Baltimore County. The watershed contains the upper Gunpowder River as well as numerous named and unnamed tributaries, totaling 74.82 stream kilometers (46.49 miles).

### **Brook Trout Life History Information:**

Brook trout populations are considered to be allopatric throughout the upper Gunpowder River watershed. Thirty-six brook trout surveys have been conducted within the watershed since 1992 with an average density of 762 adult brook trout per kilometer (473 trout per mile) across all sites. Streams in the lower half of the watershed are protected by the Prettyboy watershed (which also provides public fishing access) and have the strongest populations, although brook trout can be found scattered throughout the watershed. However, streams in the upper reaches of the watershed are impacted by more land use disturbances and generally have lower numbers of trout. Radio telemetry and survey information suggest that this watershed is fully connected and brook trout have the ability to move freely between the mainstem river and its tributaries. Therefore, the mainstem river is a great place to target quality size brook trout during the cooler months (October through April). Genetic information has been collected at two locations within the watershed with a maximum effective population size of 59.8 suggesting adequate genetic diversity to prevent inbreeding depression and/or genetic drift.

### **Buffer Assessment:**

Within a 50 meter buffer, the stream corridors are predominantly forested (57%) although agriculture and mowed turf are dominant disturbances. Many habitat improvement efforts within the 50 meter buffer would be beneficial for coldwater resources, but we would encourage a focus on riparian zone restoration through tree plantings and livestock exclusion fencing in the upper Gunpowder River watershed.

### **Additional Information:**

The upper Gunpowder River watershed has been the focus of brook trout conservation since the Upper Gunpowder Brook Trout Partnership was founded in 2014. Through this group, a significant effort has been made to collect biological and habitat

data throughout the watershed to better inform future habitat restoration projects. For more information about the upper Gunpowder River Brook Trout Partnership, please contact Scott Scarfone ([Scott.Scarfone@kimley-horn.com](mailto:Scott.Scarfone@kimley-horn.com)) or visit their website [here](#).

### **Management Recommendations:**

Although the upper Gunpowder River watershed provides quality angling, there are still water quality issues within the watershed that need addressed. Extensive temperature monitoring throughout the watershed by the upper Gunpowder Brook Trout Partnership has shown that temperatures in the mainstem river and many tributaries often exceed the thermal thresholds for brook trout. In light of this information and coupled with the provided land use data, we recommend focusing restoration efforts on areas with limited/no canopy cover within a 50 meter buffer and working with landowners to restore the riparian zone and ultimately decrease water temperatures. In addition to buffer restoration, inline ponds are abundant and scattered throughout the watershed. Runoff from inline



ponds following rain events in the summer can cause acute fish kills and extirpate brook trout from entire reaches of a stream. Working with landowners to bypass or remove these ponds would provide additional water temperature benefits. The Upper Gunpowder River watershed presents a rare opportunity to restore and protect an interconnected brook trout system and could be one of the greatest success stories of brook trout conservation in Maryland and nationally!

For more information about the upper Gunpowder River watershed, please contact:

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