Existing Use Determination and Rationale:

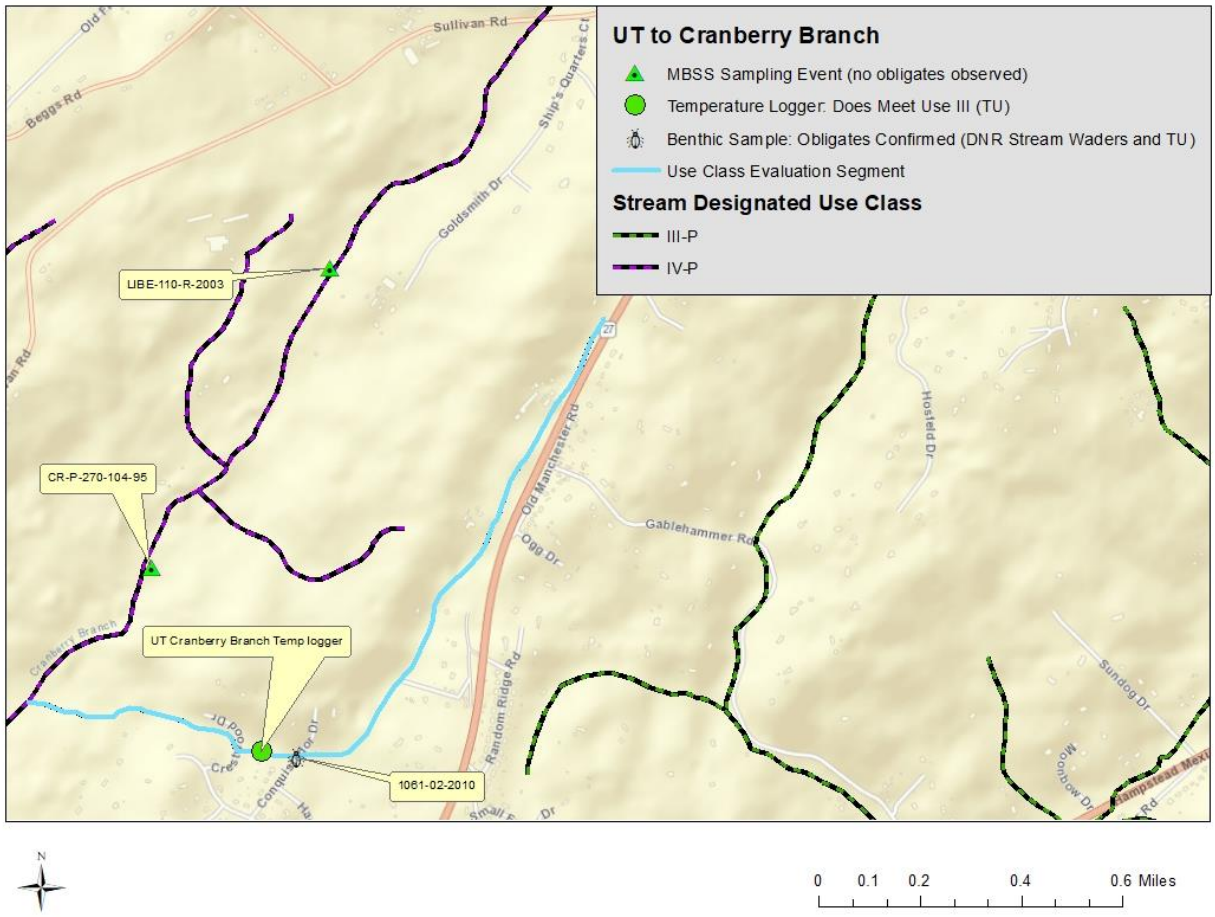
Unnamed Tributary to Cranberry Branch (Carroll County)

June 30, 2021

Description of Setting and Data Sources

Cranberry Branch (8-digit 02130907) is a tributary to the West Branch North Branch Patapsco River and is located in Carroll County. This stream is currently designated as a Use Class IV-P waterbody. Trout Unlimited conducted surveys of a tributary to Cranberry Branch located in Westminster, MD. Trout unlimited deployed temperature loggers in 2019 in one location of the tributary and Maryland Stream Waders volunteers collected a benthic macroinvertebrate sample in 2010. This biological sample was subsequently re-examined by Trout Unlimited biologists. The figure below shows the location of the unnamed tributary to Cranberry Branch along with relevant sampling stations. The data from these sampling stations (Tables 1 and 2) including water temperature and taxa information are summarized below.

Figure 1. Unnamed Tributary to Cranberry Branch



Temperature Data Summary for the Unnamed Tributary to Cranberry Branch

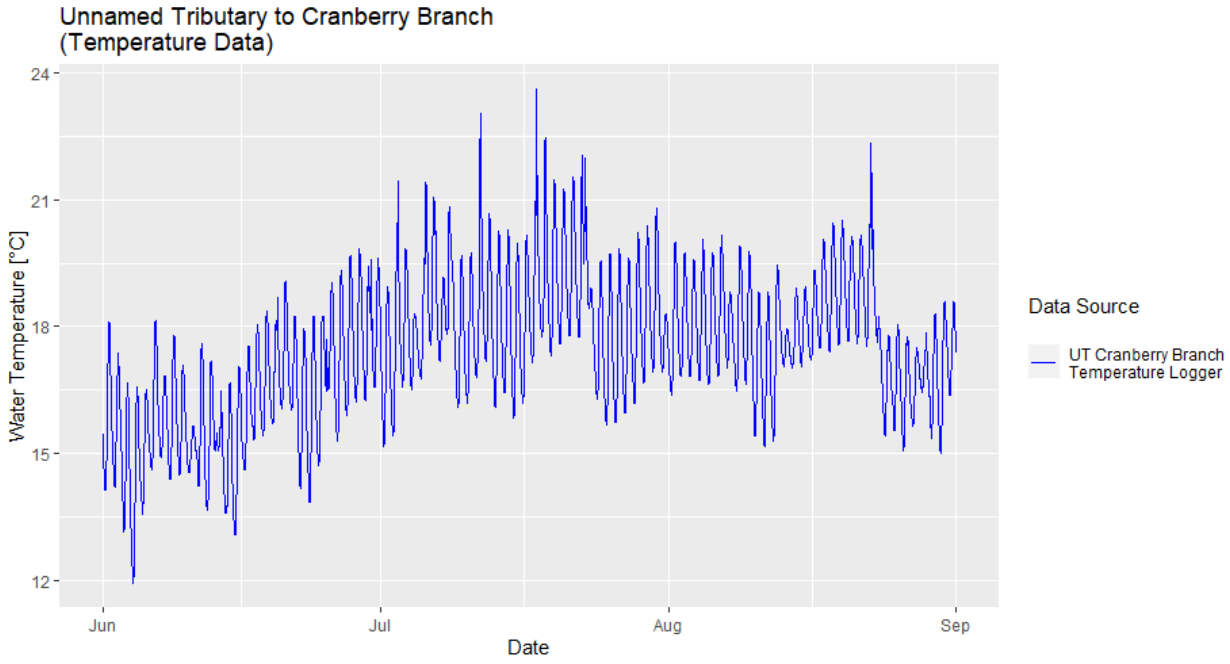
Water temperature data were collected by Trout Unlimited at one location in 2019 from this unnamed tributary. The temperature data show the tributary is achieving Use Class III temperature criteria. Summary temperature statistics are shown in Table 1 and the temperature profile is displayed in Figure 2.

Table 1. Water Temperature Logger Data from Unnamed Tributary to Cranberry Branch

Date	Station ID	Stream	Data Submitter	# Temp Readings	Percent>20°C	Percent>24°C	Avg Daily Mean	Daily Max
2019	UT Cranberry Branch Temperature logger	Unnamed Tributary to Cranberry Branch	Trout Unlimited	6624	6.2%	0%	17.4	23.6

*Water temperature logger data assessed from June to August. The "Daily Max" represents the maximum temperature from June to August.

Figure 2: Temperature profile of Unnamed Tributary to Cranberry Branch



Biological Data Summary for Unnamed Tributary to Cranberry Branch

Maryland DNR Streamwaders conducted a survey of this unnamed tributary in 2010, with DNR taxonomists identifying benthic macroinvertebrates to family level. Unfortunately, family level identifications do not allow the State to positively identify either *Tallaperla* or *Sweltsa*, the two formally identified cold water benthic macroinvertebrates. To help with this, a certified

taxonomist with Trout Unlimited subsequently re-examined the sample in 2019 and identified this benthic macroinvertebrate sample down to genus level. This additional identification effort revealed that this tributary supports *Tallaperla*, a cold water benthic macroinvertebrate taxon.

Table 2. Unnamed Tributary to Cranberry Branch Biological Data

Date	Station ID	Stream	Data Submitter	Species	Count	Maturity
2010	1061-02-2010	Unnamed Tributary to Cranberry Branch	Streamwaders and Trout Unlimited	*Tallaperla*	present	-

Existing Use Determination and Rationale for Unnamed Tributary to Cranberry Branch

Current Use Class: Class IV-P

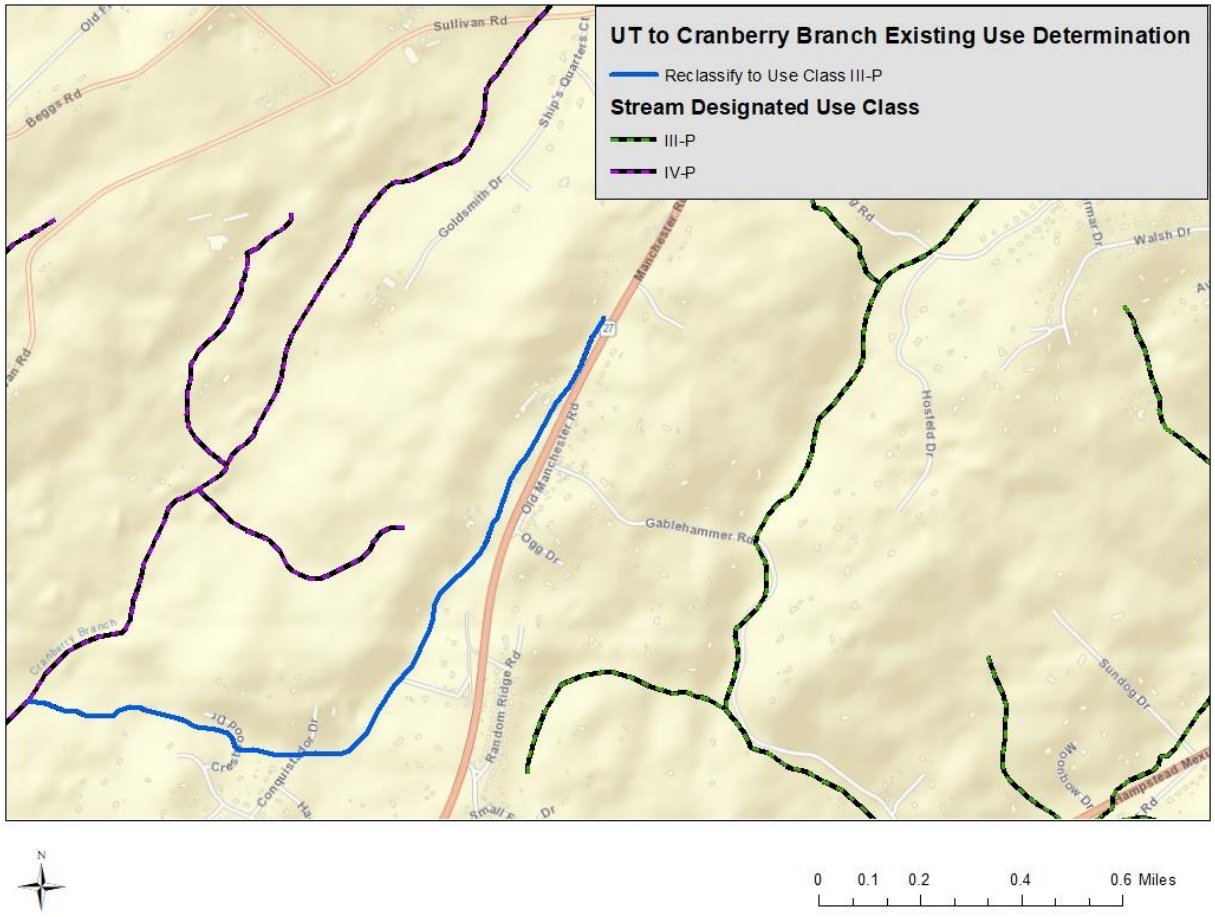
Existing Use Determination: This unnamed tributary, from its confluence with Cranberry Branch located at [39.608109°N, -76.958926°W] and all upstream waters, supports coldwater obligate macroinvertebrates and has water temperatures that have a 90^{th} percentile below 20°C, an average daily mean below 18°C, and daily max below 24°C.

Is this Existing Use Determination Consistent with the Current (March 2020) Designated Use Class? **No.** The existing use of this tributary, as described above, requires that water temperatures remain significantly colder than the water quality criterion established to protect the current use class (Class IV-P) designation. As a result, the existing use of this tributary to Cranberry Branch requires protections to maintain the cold water temperatures currently found in this tributary and different from those afforded by the current use class designation of IV-P.

Changes Proposed to the Currently Designated Use Class: As shown in Figure 3, the Department recommends that the unnamed tributary to Cranberry Branch be redesignated to Class III-P.

Rationale for the Existing Use Determination: The unnamed tributary to Cranberry Branch supports cold-water obligate macroinvertebrates and has water temperatures that meet the Use Class III-P criteria.

Figure 3: Existing Use Determination of Unnamed Tributary to Cranberry Branch



Public Review Process: This existing use determination was provided for public review and comment with Maryland's 2019 Triennial Review of Water Quality Standards which went public with the March 11, 2022 edition of the Maryland Register.