

## **Existing Use Determination and Rationale:**

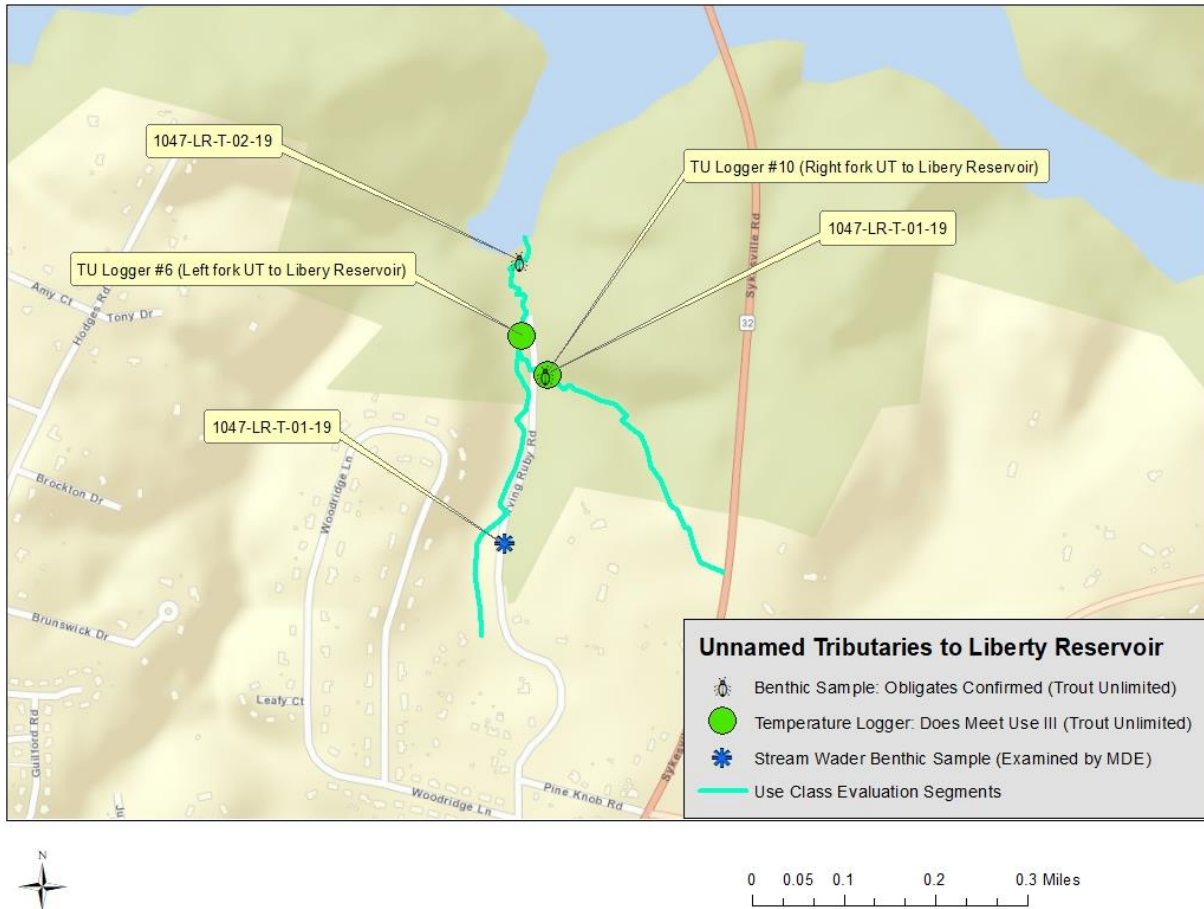
### **Unnamed Tributary to Liberty Reservoir (Carroll County)**

**June 30, 2021**

#### **Description of Setting and Data Sources**

Liberty Reservoir (8-digit 02130907) is located on the border of Carroll and Baltimore County and is currently designated as a Use Class I-P waterbody. Trout Unlimited and DNR Stream Waders volunteers conducted surveys of an unnamed tributary (and upstream reaches) to the Liberty Reservoir located in Eldersburg MD. The Maryland Department of the Environment subsequently reexamined a Stream Waders sample to determine the presence of cold water obligate taxa. Trout unlimited deployed temperature loggers in 2019 in two locations of the unnamed tributary. The figure below shows the location of the unnamed tributary relative to Liberty Reservoir along with relevant sampling stations. The data from these sampling stations (Tables 1 and 2) including water temperature and benthic macroinvertebrate information is summarized below.

Figure 1: Unnamed Tributary to Liberty Reservoir



**Temperature Data Summary for Unnamed Tributary to Liberty Reservoir**

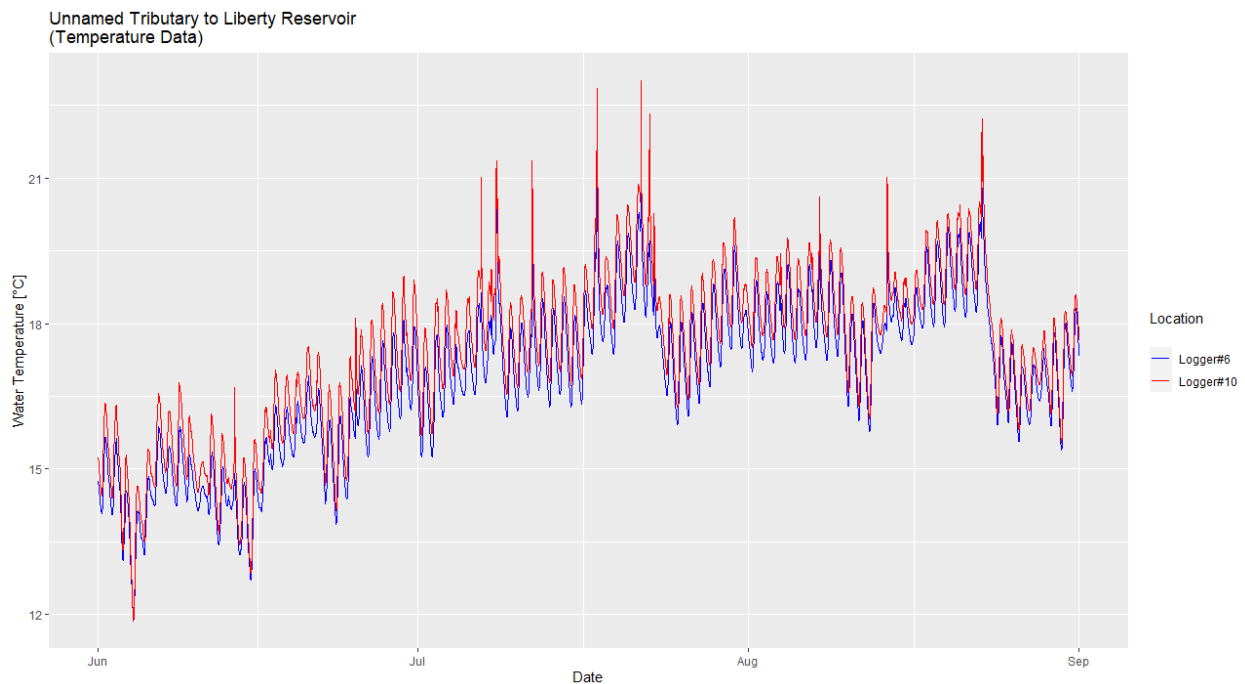
In 2019, Trout Unlimited collected water temperature data at two locations from this unnamed tributary. Logger number 10 was located in a smaller tributary that flows into the larger tributary at Irving Ruby Road. Logger number 6 was located about 75-meters downstream of the confluence. The temperature data show the tributary is achieving Use Class III temperature criteria. Summary temperature statistics are shown in Table 1 and the temperature profiles are displayed in Figure 2.

Table 1. Unnamed Tributary to Liberty Reservoir Temperature Logger Data

Date	Station ID	Stream	Data Submitter	# Temp Readings	Percent>20°C	Percent>24°C	Avg Daily Mean	Daily Max
2019	Logger# 6	UT Liberty Reservoir	Trout Unlimited	6624	0.009%	0%	16.89	21.103
2019	Logger# 10	UT Liberty Reservoir	Trout Unlimited	6624	4%	0%	17.4	23.02

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

Figure 2: Temperature profiles of Logger number 6 and 10.



### Biological Data Summary for Unnamed Tributary to Liberty Reservoir

Trout Unlimited conducted benthic macroinvertebrate sampling at two locations in 2019. Cold water obligate benthic macroinvertebrates (*Tallaperla* and/or *Sweltsa*) were observed during both sampling events, although the number of individuals in the sample was not recorded. Furthermore, Maryland Streamwaders volunteers conducted a survey in this tributary in 2012. A

reexamination of this sample showed that coldwater macroinvertebrates were present. The biological data in this tributary are summarized in Table 2.

Table 2. Unnamed Tributary to Liberty Reservoir Biological Data

Date	Station ID	Stream	Data Submitter	Species	Count	Maturity
2019	1047-LR-T-02-19	Unnamed Tributary to Liberty Reservoir	Trout Unlimited	<i>Sweltsa</i> <i>Tallaperla</i>	present	-
2019	1047-LR-T-01-19	Unnamed Tributary to Liberty Reservoir	Trout Unlimited	<i>Tallaperla</i>	present	-
2012	1047-01-2012	Unnamed Tributary to Liberty Reservoir	MDDNR Streamwaders (examined by MDE)	<i>Tallaperla</i>	present	-

### Existing Use Determination and Rationale for Unnamed Tributary to Liberty Reservoir

*Current Use Class:* Class I-P

*Existing Use Determination:* This unnamed tributary, from its confluence with Liberty Reservoir located at [39.432231°N, -76.940664°W] and all upstream waters, supports coldwater obligate macroinvertebrates and has water temperatures that have a 90<sup>th</sup> percentile below 20°C, an average daily mean below 20°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 I-P) designation. As a result, the existing use of this tributary to Liberty Reservoir 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 I-P.

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

*Rationale for the Existing Use Determination:* The unnamed tributary to Liberty Reservoir supports a self-sustaining cold-water obligate population and has water temperatures that meet the Use Class III-P criteria.

Figure 3: Existing Use Determination of Unnamed Tributary to Liberty Reservoir



**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.