

# **Existing Use Determination and Rationale:**

## **North Branch Potomac River (Allegany County)**

**August 7, 2020**

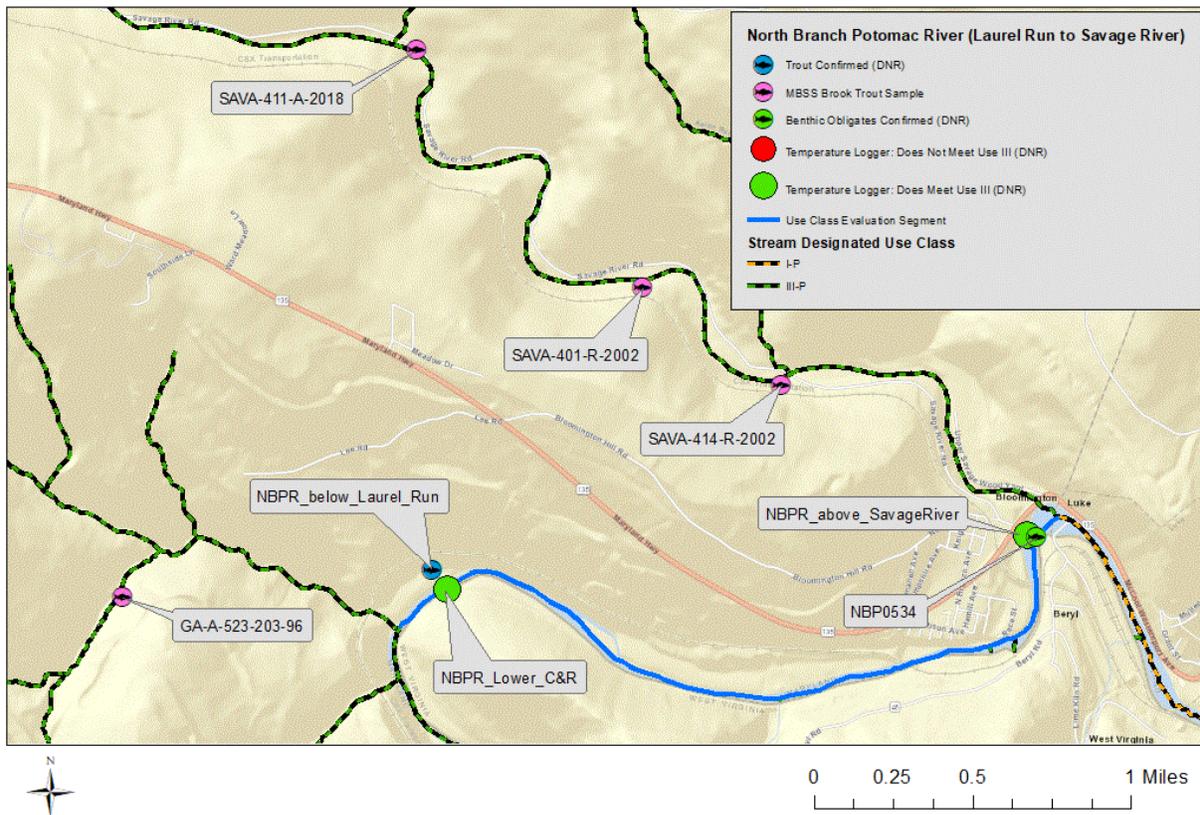
### **Description of Setting and Data Sources**

From 2013 to 2017, the MDDNR Freshwater Fisheries Program conducted fishery surveys in the North Branch Potomac River from Jennings-Randolph Lake Dam downstream to Cumberland, MD in Allegany County. The portion of the North Branch Potomac River from Jennings-Randolph Lake to Laurel Run is currently designated as Class III-P, while segments downstream of this point are currently designated as Class I-P. A number of waterbody segments along these portions of the North Branch Potomac River are actively stocked with brown and rainbow trout by the MDDNR to support a recreational fishery. In addition, the segment of the North Branch Potomac River between the confluence of Laurel Run and downstream to its confluence with Piney Swamp Run (a tributary in West Virginia) is reported to support natural reproduction of brook trout, brown trout and rainbow trout. The fishery management areas sampled during the survey include the Lower, and Upper Catch and Release Area (C&R) Trout Fishing Management Area (TFMA), Westernport Put and Take (P&T) TFMA, McCoolle Zero Creel Limit (ZCL) TFMA, and Gary Yoder (Black Oak) ZCL TFMA (Figure 1 and 2). Also, the MDDNR Core Trend conducted a benthic macroinvertebrate survey from 1974 to 2018.

**North Branch Potomac River Existing Use Determination (from Laurel Run to Savage River)**

Biological and temperature logger data were taken in the North Branch Potomac River from the confluence with Laurel run to the confluence with Savage River. The locations of these sampling stations are shown in Figure 1. Figure 1 also displays Maryland Biological Stream Survey samples that are located in Savage River and Laurel Run that confirm the presence of self-sustaining brook trout. These data suggest this stream section is achieving Use Class III-P temperature criteria and supports cold water obligate species. Piney Swamp Run is a tributary that flows into the Potomac from West Virginia and is not shown in Figure 1.

**Figure 1**



**Temperature Data Summary for North Branch Potomac River (from Laurel Run to Savage River)**

Water temperature data were collected in the Lower C&R TFMA in 2015 and 2017 by the Maryland Department of Natural Resources Fisheries Program. A separate temperature logger located just upstream of the Savage River was also deployed in 2014. Summary statistics of these data are provided in Table 1 and suggest that this portion of the North Branch Potomac River achieves Use Class III temperature criteria.

Table 1. North Branch Potomac River (from Laurel Run to Piney Swamp Run) Temperature Logger Data

Date	Station ID	Stream	Data Submitter	# Temp Readings	Percent>20°C	Percent>24°C	Avg Daily Mean	Daily Max
2017	NBPR_Lower_C&R	NB Potomac River	MDDNR Fisheries Program	5616	0%	0%	15.20	19.0
2015	NBPR_Lower_C&R	NB Potomac River	MDDNR Fisheries Program	6300	0%	0%	14.82	19.1
2014	NBPR_above_SavageRiver	NB Potomac River	MDDNR Fisheries Program	5616	5%	0%	15.80	20.1

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

### Biological Data Summary for North Branch Potomac River (from Laurel Run to Savage River)

A 2015 sampling event conducted by the Maryland Department of Natural Resources confirmed the presence of self-sustaining brown and rainbow trout. Because of the recent stocking of these species in this area, the presence of brown and rainbow trout cannot be used to identify an existing use or justify a reclassification. Nevertheless, it is likely that this section of the Potomac supports self-sustaining brown and rainbow trout. Experienced field biologists can distinguish between wild origin trout and hatchery origin trout. Steve Reeser (Regional Aquatic Manager of the Virginia Department of Game and Inland Fisheries) has developed guidelines for identifying wild trout<sup>1</sup>. Furthermore, recreational trout fishermen have also provided guidance<sup>2</sup>. Other peer reviewed studies also describe how wild origin trout can be distinguished from hatchery trout<sup>3</sup>. Because the fish sampling was conducted by experienced professional fishery biologists, Table 2 specifies the number of wild brown and rainbow trout collected at each station.

Additionally, during that 2015 sampling event, a young-of-year brook trout was observed. Furthermore, self-sustaining brook trout populations have been confirmed in Laurel Run and the Savage River (Figure

<sup>1</sup> <https://dwr.virginia.gov/blog/wild-or-hatchery-trout/>

<sup>2</sup> <https://flylordsmag.com/how-to-tell-the-difference-between-stocked-and-wild-trout/>

<sup>3</sup> Pulcini, D., et al. "Domestication shapes morphology in rainbow trout *Oncorhynchus mykiss*." *Journal of Fish Biology* 82.2 (2013): 390-407;

Bosakowski, Thomas, and Eric J. Wagner. "Assessment of fin erosion by comparison of relative fin length in hatchery and wild trout in Utah." *Canadian Journal of Fisheries and Aquatic Sciences* 51.3 (1994): 636-641;

Aparicio, E., et al. "Body pigmentation pattern to assess introgression by hatchery stocks in native *Salmo trutta* from Mediterranean streams." *Journal of Fish Biology* 67.4 (2005): 931-949;

Tiffan, Kenneth F., and William P. Connor. "Distinguishing between natural and hatchery Snake River fall Chinook salmon subyearlings in the field using body morphology." *Transactions of the American Fisheries Society* 140.1 (2011): 21-30.

1). The one young-of-year brook trout sampled in 2015 provides evidence that the brook trout habitat extends into this section of the Potomac River.

The cold water macroinvertebrate *Tallaperla* was observed during multiple years at the NBP0534 Core Trend site. MDDNR Core Trend also provided supplemental data from previously unpicked preserved samples in which they noted the presence or absence of coldwater obligate benthic macroinvertebrate species. The biological data for this section of the Potomac River are summarized in Table 2.

Table 2: North Branch Potomac River (from Laurel Run to Savage River) Biological Data

Date	Location	Stream	Data Submitter	Species	Count	Maturity
1996	GA-A-523-203-96	Laurel Run	MDDNR MBSS	brook trout	16	Multiple Year Classes of Adults
2002	SAVA-401-R-2002	Savage River	MDDNR MBSS	brook trout	26	Multiple Year Classes of Adults
2002	SAVA-414-R-2002	Savage River	MDDNR MBSS	brook trout	29	Multiple Year Classes of Adults
2015	Piney Swamp Run to Savage River P&T TFMA (near NBP0534 station)	Piney Swamp Run to Pinto, MD	MDDNR Fisheries Program	brook trout	-	-
				brown trout	10	Multiple Year Classes of Adults
				rainbow trout	8 (4 wild origin, 4 hatchery origin)	Multiple Year Classes with YOY <sup>1</sup>
2015	NBPR_below_Laurel_Run	NBPR Laurel Run to Piney Swamp Run	MDDNR Fisheries Program	brook trout	1	YOY <sup>1</sup>
				brown trout	12 (8 wild origin, 4 hatchery origin)	Multiple Year Classes of Adults
				rainbow trout	27 (16 wild origin with YOY, 11 hatchery origin)	Multiple Year Classes with YOY <sup>1</sup>
2018	SAVA-411-A-2018	Savage River	MDDNR MBSS	Brook Trout	9	Multiple Year Classes of Adults <sup>1</sup>

Date	Location	Stream	Data Submitter	Species	Count	Maturity
7/30/2018	NBP0534	Piney Swamp Run to Pinto, MD	MDDNR Core Trend	<i>Tallaperla</i>	3	-
8/24/1998	NBP0534	Piney Swamp Run to Pinto, MD	MDDNR Core Trend	<i>Tallaperla</i>	7	-
8/24/1998	NBP0534	Piney Swamp Run to Pinto, MD	MDDNR Core Trend Supplemental	<i>Tallaperla</i>	Present	-
7/28/1997	NBP0534	Piney Swamp Run to Pinto, MD	MDDNR Core Trend	<i>Tallaperla</i>	3	-
7/28/1996	NBP0534	Piney Swamp Run to Pinto, MD	MDDNR Core Trend Supplemental	<i>Tallaperla</i>	Present	-

1. YOY - young-of-year

## DNR Fish Stocking

The Maryland Department of Natural Resources stocks the North Branch Potomac River with brown trout and rainbow trout. Brook trout have not been stocked or relocated to this section of the Potomac.

## Existing Use Determination and Rationale for North Branch Potomac River (from Laurel Run to Savage River)

*Current Use Class:* Class I-P

*Existing Use Determination:* This section of the Potomac River, from the confluence with Laurel Run located at [39.474297° N, -79.105566° W] to the confluence with the Savage River located at [39.480398° N, -79.067187° W] supports cold water obligate benthic macroinvertebrates and self-sustaining brook trout 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 section of this section of the North Branch of the Potomac River, 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 section of this section of the North Branch Potomac River requires protections to maintain the coldwater temperatures currently found in this tributary and different than those afforded by the current use class designation of I-P.

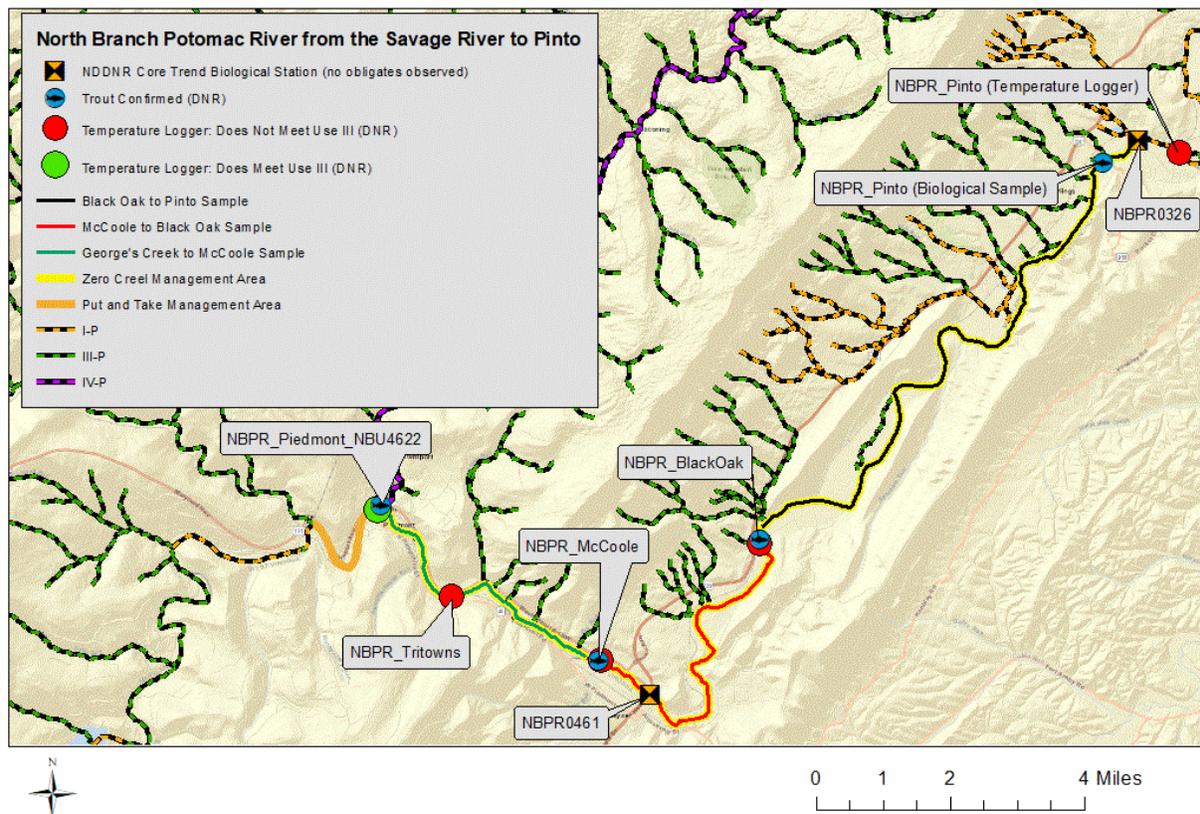
*Changes Proposed to the Currently Designated Use Class:* As shown in Figure 4, the Department recommends that the portion of the Potomac River be redesignated, to Class III-P.

*Rationale for the Existing Use Determination:* Temperature logger data in this portion of the North Branch Potomac River attains Use Class III-P temperature criteria. Although the presence of a naturalized reproducing brown and rainbow trout population cannot justify the reclassification of this portion of the river (because of ongoing stocking of these species), the presence of Tallaperla at the NBP0534 station which is located in the downstream section of the Use Class Evaluation segment over multiple sampling events demonstrates the continued presence of a non-stocked coldwater obligate species. Providing further justification for the redesignation of this portion of the North Branch Potomac was the collection of a young-of-year brook trout from this stream and the nearby presence of reproducing brook trout populations in the Savage River and Laurel Run which may suggest that the brook trout population extends into this river segment. Therefore, the Department has determined that this unnamed tributary has an existing use consistent with Use Class III-P.

## North Branch Potomac River Existing Use Determination (from Savage River to Pinto)

Biological and temperature logger data are available for this section of the North Branch Potomac River. Brown and rainbow trout have been confirmed in this stream section, and field biologists have stated that many individuals are of wild origin. Brook trout have not yet been observed. Sampling at two CORE trend sites have not demonstrated the presence of cold water obligate macroinvertebrates. Upstream portions of this section of the Potomac River appear to attain Use Class III temperature criteria. Figure 2 shows the locations of these sampling events.

Figure 2



## Temperature Data Summary for North Branch Potomac River (from Savage River to Pinto)

Water temperature data were collected by the Maryland Department of Natural Resources Fisheries program in this section of the Potomac River, and only the most upstream temperature logger demonstrated the attainment of Use Class III criteria. The temperature data are summarized in Table 3.

Table 3: North Branch Potomac River (from Savage River to Pinto) Temperature Logger Data

Date	Station ID	Stream	Data Submitter	# Temp Readings	Percent>20° C	Percent>24° C	Avg Daily Mean	Daily Max
2017	NBPR_Piedmont_NBUP4622	NB Potomac River	MDDNR Fisheries Program	5616	7%	0%	17.10	21.6
2017	NBPR_BlackOak	NB Potomac River	MDDNR Fisheries Program	5616	55%	2%	19.96	25.1
2017	NBPR_Pinto	NB Potomac River	MDDNR Fisheries Program	5616	64%	7%	20.90	26.1
2015	NBPR_Piedmont_NBUP4622	NB Potomac River	MDDNR Fisheries Program	6300	3%	0%	16.64	21.1
2015	NBPR_Tritowns	NB Potomac River	MDDNR Fisheries Program	6300	22%	0%	18.34	23.1
2015	NBPR_McCoole	NB Potomac River	MDDNR Fisheries Program	6300	33%	0%	18.86	23.5
2015	NBPR_BlackOak	NB Potomac River	MDDNR Fisheries Program	6300	47%	1%	19.58	24.9

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

### **Biological Data Summary for North Branch Potomac River (from Savage River to Pinto)**

Biological sampling conducted by the Maryland Department of Natural Resources Fisheries Program has confirmed the presence of reproducing brown and rainbow trout. The fisheries biologists that carried out the sampling were able to confirm visually that many of the young-of-year were of wild origin. No brook trout have been observed. Fishery biologists also anecdotally reported active spawning by rainbow trout and brown trout. The biological data in this section of the Potomac River are summarized in Table 4.

Table 4: North Branch Potomac River (from Savage River to Pinto) Biological Data

Date	Location	Stream	Data Submitter	Species	Count	Maturity
2017	Black Oak to Pinto (NBPR_Pinto)	Savage River to Pinto, MD	MDDNR Fisheries Program	brook trout	-	-
				brown trout	1	Adult
				rainbow trout	12	Multiple Year Classes of Adults
2016	Georges Creek to Black Oak sample (NBPR_BlackOak)	Savage River to Pinto, MD	MDDNR Fisheries Program	brook trout	-	-
				brown trout	20	Multiple Year Classes of Adults
				rainbow trout	103	Multiple Year Classes with YOY <sup>1</sup>
2015	McCooles to Black Oak Sample (NBPR_BlackOak)	Savage River to Pinto, MD	MDDNR Fisheries Program	brook trout	-	-
				brown trout	3	Multiple Year Classes of Adults
				rainbow trout	53	Multiple Year Classes with YOY <sup>1</sup>
2015	George's Creek to McCooles Sample (NBPR_McCooles)	Savage River to Pinto, MD	MDDNR Fisheries Program	brook trout	-	-
				brown trout	17	Multiple Year Classes of Adults
				rainbow trout	50	Multiple Year Classes of Adults
2015	Georges Creek to Westernport Wastewater Effluent P&T TFMA (NBPR_Piedmont_NBU4622)	Savage River to Pinto, MD	MDDNR Fisheries Program	brook trout	-	-
				brown trout	3	Multiple Year Classes of Adults
				rainbow trout	2	Multiple Year Classes of Adults
2015	Piney Swamp Run to Savage River P&T TFMA	Savage River to Pinto, MD	MDDNR Fisheries Program	brook trout	-	-
				brown trout	10	Multiple Year Classes of Adults
				rainbow trout	8 (4 wild origin, 4	Multiple Year Classes with YOY <sup>1</sup>

Date	Location	Stream	Data Submitter	Species	Count	Maturity
					hatchery origin)	
2013	Zero Creel Management Area (NBPR_Pinto)	Savage River to Pinto, MD	MDDNR Fisheries Program	brook trout	-	-
				brown trout	27	Multiple Year Classes of Adults
				rainbow trout	127	Multiple Year Classes with YOY <sup>1</sup>
Annual sampling from 1997 to present	NBPR0461	Savage River to Pinto, MD	MDDNR Core Trend	-	-	-
	NBPR0326	Savage River to Pinto, MD	MDDNR Core Trend	-	-	-

1. YOY - young-of-year

## DNR Fish Stocking

The Maryland Department of Natural Resources stocks the North Branch Potomac River with brown trout and rainbow trout.

### Existing Use Determination and Rationale for for North Branch Potomac River (from Laurel Run to Savage River)

*Current Use Class:* Class I-P

*Existing Use Determination:* The existing use of this section of the Potomac River is no different from the current designated use class of I-P.

*Is this Existing Use Determination Consistent with the Current (July 2020) Designated Use Class?* **Yes.** Temperature logger data have shown that this section of the Potomac River achieves colder temperature than what is found in Use Class I-P waters. However, this waterbody is stocked with brown and rainbow trout, therefore it cannot be reclassified based on the presence of brown or rainbow trout alone.

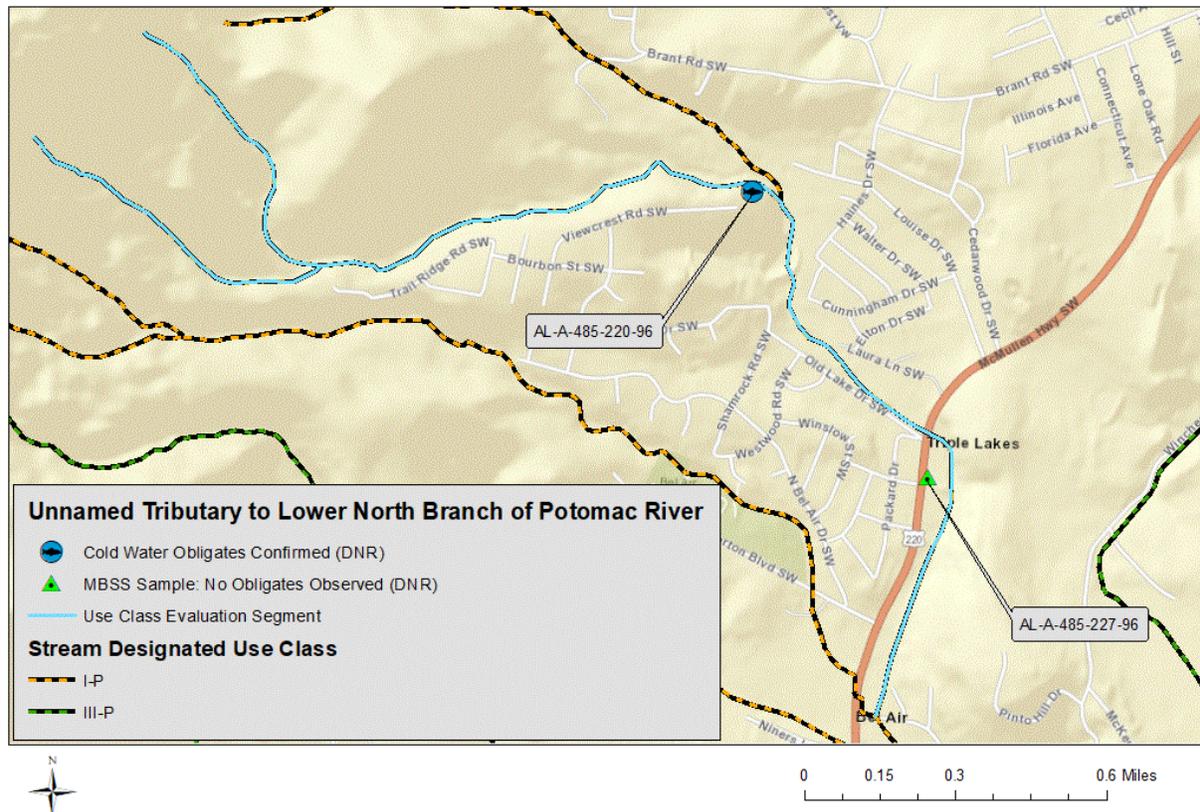
*Changes Proposed to the Currently Designated Use Class:* No designated use class changes are proposed at this time. Although this waterbody is actively stocked with trout, the Department is not currently reclassifying any waterbody to Use Class IV or Use Class IV-P.

*Rationale for the Existing Use Determination:* Although data show that brown and rainbow trout are present in this section of the Potomac River, the fact that these waters are continually stocked with these species precludes the determination that they are self-sustaining populations. Additionally, no cold water obligate benthic macroinvertebrates have yet been found in this stretch of the river.

Though this portion of the North Branch Potomac River is currently being stocked, MDE is not currently adding any new waters to Use Class IV or IV-P until the definitions of Class IV and IV-P waters are better defined in regulation. The Department will be working with the Cold Water Advisory Committee to refine the current designated use classification structure that may include a new 'cool water' use class and further subdivide the current Class IV/IV-P use class. At that time, MDE will reconsider the classification of this part of the North Branch Potomac River.

## Unnamed Tributary to the Lower North Branch of the Potomac River Existing Use Determination

An unnamed tributary to the Potomac River Lower North Branch (12-digit 021410010057) in the North Branch Potomac River watershed, located south of Cresaptown in Allegany County, is currently designated as Use Class I-P. The waterbody segment currently supports the coldwater obligate benthic macroinvertebrate species, *Sweltsa*. The MDDNR MBSS conducted a survey of the waterbody segment in 1996. The figure below shows the location and sampling stations of the waterbody evaluation segment. Biological data results are provided in Table 5. No temperature data are available for this tributary.



### **Biological Data Summary for Unnamed Tributary to Potomac River Lower North Branch**

Biological sampling conducted by the Maryland Department of Natural Resources MBSS Program has confirmed the presence of the cold water obligate *Sweltsa*.

Table 5: Unnamed Tributary to the Potomac River Lower North Branch Biological Data

Date	Station ID	Stream	Data Submitter	Species	Count	Maturity
4/10/1996	AL-A-485-220-96	Potomac River LNB UT1	MDDNR MBSS	<i>Sweltsa</i>	3	-
4/10/1996	AL-A-485-227-96	Potomac River LNB UT1	MDDNR MBSS	-	-	-

### **DNR Fish Stocking**

The Maryland Department of Natural Resources stocks the North Branch Potomac River with brown trout and rainbow trout.

### **Existing Use Determination and Rationale for Unnamed Tributary to Potomac River Lower North Branch**

*Current Use Class:* Class I-P

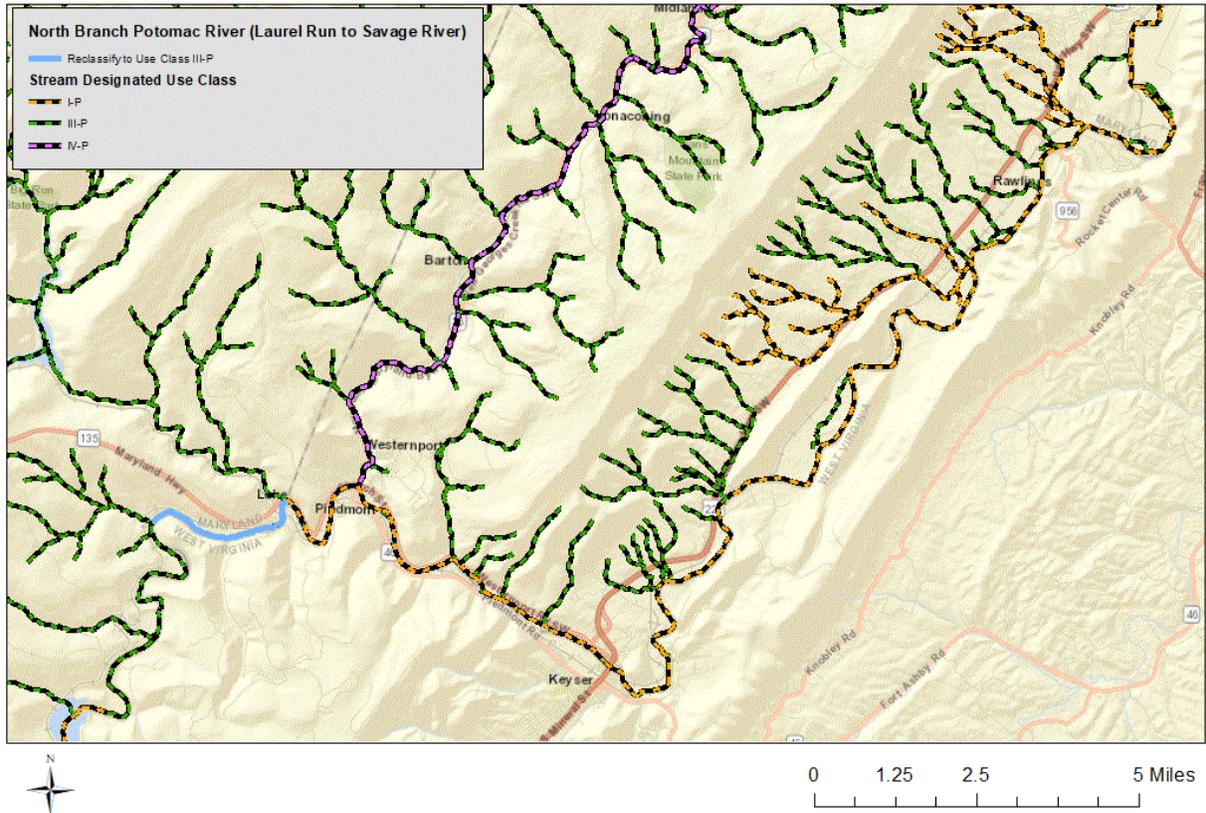
*Existing Use Determination:* The existing use of this tributary is unknown. Although this tributary has been shown to support coldwater obligate benthic macroinvertebrates, no temperature data are available.

*Is this Existing Use Determination Consistent with the Current (July 2020) Designated Use Class?*  
**Unknown.** Temperature logger data are needed to determine the existing use of this tributary.

*Changes Proposed to the Currently Designated Use Class:* No changes are proposed at this time. If future temperature monitoring shows that this tributary attained Use Class III-P criterion, this tributary could be reclassified to Use Class III-P.

*Rational for Existing Use Determination:* The existing use of this tributary cannot be determined without temperature logger data.

Figure 4: Final Existing Use Determination and Redesignations for the North Branch Potomac River.



**Public Review Process:** These existing use determinations were 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.