



Department of  
Environmental  
Conservation



# 2019 PROGRESS REPORT: REDD COUNT SURVEY

**Delaware Tailwaters Fisheries Investigation Plan: A  
Joint Project of the New York State Department of  
Environmental Conservation and the Pennsylvania  
Fish and Boat Commission 2018-2020**

May 18, 2020

Delaware Tailwaters Fisheries Investigation Plan, 2018 - 2020  
 Delaware Trout Redd Count Survey Plan, 2018 - 2020  
 2019 Progress Report Redd Count Survey  
 January 13, 2020

The New York City (NYC) reservoir tailwaters in the upper Delaware River Basin (Delaware Tailwaters) are an increasingly popular destination water for wild trout fishing. The New York State Department of Environmental Conservation (NYSDEC) and Pennsylvania Fish and Boat Commission (PFBC) have agreed supporting a Joint Fisheries Investigation Plan<sup>1</sup> (Plan). This Plan identifies information most urgently needed to inform a new fisheries management plan and a set of strategies to collaboratively obtain that information over the next three years, 2018 – 2020. Brown trout redd counts were conducted in the West Branch during the fall of 2017 & 2019 and in the East Branch Delaware River during the fall of 2019. Rainbow trout redd counts were conducted in the tributaries during the spring of 2018-19 and canceled for main stem reaches due to high water in 2018-19. Brown trout redd counts scheduled for fall 2018 were canceled due to persistent high water<sup>2</sup>. Tributary fall redd counts were conducted in 2019. Findings within this progress report are considered provisional and subject to modification pending additional analysis, scrutiny and review over the duration of the Plan lifespan.

Brown trout redds formed in the West Branch during the 2017 & 2019 fall spawning season were documented by NYSDEC and PFBC fisheries staff. Kayaks were used to access the entire river; probable spawning areas were checked by wading riffle/runs until it was believed that all redds were counted or no redds were found. It is unknown when the river was last surveyed using this method. A total of 756 redds were recorded between Stilesville and the Hale Eddy bridge at 48 locations in 2017, 763 redds were recorded at 48 locations in 2019. Between the Hale Eddy bridge and Balls Eddy Launch 315 redds were observed at 20 locations in 2017, 183 redds were observed at 11 locations in 2019. Five redds were observed at two locations between the Balls Eddy launch and Junction Pool on the Delaware River in 2017 and 18 redds were observed at 5 locations in 2019 (Table 1). It should be noted that the fall of 2017 & 2019 was extremely dry and very few fish were observed spawning in the West Branch tributaries, which might account for the high number of redds observed in the West Branch. Historical records showed a majority of spawning was occurring within the no-kill section in Deposit and very few redds were observed downstream of the Balls Eddy launch. The last extensive redd count occurred on the West Branch during the fall of 1997 from the Stilesville bridge to Balls Eddy launch, accessing just the sites where historically redds were observed. A total of 184 red were counted at 12 sites from Stilesville to the Hale Eddy bridge and 100 redds were counts at 7 sites between Hale Eddy and the Balls Eddy launch.

Table 1. Counts of brown trout redds on the West Branch, November 2017 & 2019.

<b>Section</b>	<b>2017</b>	<b>2019</b>
Stilesville - Hale Eddy Bridge	756	763
Hale Eddy Bridge - Balls Eddy Launch	315	183
Balls Eddy Launch - Junction Pool	5	18
<b>Total</b>	<b>1076</b>	<b>964</b>

<sup>1</sup> <http://www.dec.ny.gov/outdoor/112782.html>

<sup>2</sup> [http://www.dec.ny.gov/docs/fish\\_marine\\_pdf/dfipcreel.pdf](http://www.dec.ny.gov/docs/fish_marine_pdf/dfipcreel.pdf)

Brown trout redds formed in the East Branch during the 2019 fall spawning season were documented by NYSDEC and PFBC fisheries staff using the same methods as on the West Branch. A total of 32 redds were recorded between Downsville and the Corbett at 10 locations. Between Corbett and Shinhopple 287 redds were observed at 18 locations. A total of 48 redds were recorded between Shinhopple and Long Flats at 7 locations. Between Long Flats and Harvard 51 redds were observed at 6 locations. A total of 10 redds were observed between Harvard and the Beaver Kill at 2 locations and one redd was observed between the Beaver Kill and Cadosia Creek (Table 2). On the East Branch, the last extensive redd count found a total of 271 redds at 25 locations during the fall of 1994. There was no attempt to count redds during the fall of 2017 on the East Branch.

**Table 2. Counts of brown trout redds on the East Branch, November 2019.**

<b>Section</b>	<b># redds</b>
Downsville - Corbett	32
Corbett - Shinhopple	287
Shinhopple - Long Flats	48
Long Flat's - Harvard	51
Harvard - Beaver Kill	10
Beaver Kill - Cadosia Creek	1
<b>Total</b>	<b>429</b>

Brown trout redd counts in the tributaries and in the East and West branch main stem reaches were to be counted during the fall of 2018. Unfortunately, all fall redd counts were canceled due to unfavorable river conditions (i.e., high flows). Reservoir releases (Pepacton & Cannonsville Reservoirs) were maxed out for the entire month of November, canceling any ability to conduct redd counts on the East and West Branch Delaware Rivers. Additionally, Pepacton Reservoir was spilling, at times, during the month of November. Occurrences of brown trout redds formed during the 2019 fall spawning season were documented in tributaries to the East Branch, West Branch and Delaware River as a voluntary collaboration with interested sportsmen's clubs and individual citizens. A total of 28 tributaries were assessed for redd occurrences, between 0.4 and 1.25 miles of each tributary were checked. Seventeen redds were observed in total in 2019 (Table 3).

Occurrences of rainbow trout redds formed during the 2018 and 2019 spring spawning season were documented by volunteers. Based on previous experiences of presumed rainbow trout spawning locations, potential spawning locations were identified within the first 0.5 miles of tributaries to the upper Delaware River tailwaters. A total of 21 tributaries were assessed for redd occurrences within the first half mile of each tributary in 2018. In 2019, 21 tributaries were surveyed for redd occurrences within the first half mile of each tributary, unless unsuitable bottom substrates were noted in 2018 (Table 3). Eighty-two redds were observed in total in 2018. Oquaga Creek, tributary to the West Branch, had the single highest redd count in 2018. Unfortunately, turbidity issues in Oquaga Creek inhibited a proper redd count in 2019. Read Creek, tributary to East Branch, had the second highest redd count in 2018. Most of the other tributaries surveyed typically had less than 10 redds observed. Abe Lord Creek, tributary to the Delaware River, had the single highest redd count in 2019. Trout Brook, tributary to the East Branch, had the second highest redd count in 2019. All other tributaries sampled had less than 8 redds observed. Assessment of potential rainbow trout redd construction in the East and West branches main stem reaches were not completed. Unfavorable river conditions (i.e., high flows) prevented any possibility for positive redd identification. Volunteers noted several tributaries surveyed had unsuitable bottom substrates (i.e., large cobble) for redd construction

within the first 0.5 miles surveyed. This condition was found in Roods Creek, Sands Creek, Cadosia Creek, Campbell Brook, and Hoolihan Creek. All future redd assessments within these tributaries will exclude the first 0.5 mile of stream, allowing the volunteers to focus on more favorable redd habitats further upstream.

Table 3. Counts of trout redds in tributaries to the Delaware River Tailwaters, 2018-19.

West Branch	2018				2019				East Branch	2018				2019				Delaware	2018				2019			
	RT	BT	RT	BT	RT	BT	RT	BT		RT	BT	RT	BT	RT	BT	RT	BT		RT	BT	RT	BT				
Cold Spring Creek	1	-	5	1					Downs Brook	-	-	0	0					Pea Brook	-	-	1	1				
Oquaga Creek	22	-	0*	4					Campbell Brook	0	-	0	1					Bouchoux Brook	4	-	1	2				
Sherman Creek	0	-	0	0					Trout Brook	2	-	8	0					Abe Lord Creek	9	-	13	1				
Roods Creek	0	-	0	0					Baxter Brook	4	-	1	2					Humphries Brook	-	-	0	0				
Laurel Creek	-	-	0	1					Morrison Brook	1	-	0	0					Cooley Creek	-	-	-	0				
Balls Creek	5	-	6	0					Read Creek	17	-	7	0					Hankins Creek	0	-	-	0				
Sands Creek	0	-	4	2					Fish Creek	6	-	2	0					Hoolister Creek	-	-	-	0				
Shehawken Creek	1	-	5	2					Peas Eddy Brook	0	-	0	0					Hoolihan Creek	0	-	-	0				
									Cadosia Creek	6	-	0	0					Basket Creek	4	-	-	0				
																		Little Equinunk Creek	-	-	-	0				
																		Equinunk Creek	0	-	-	0				
<b>Total</b>	<b>29</b>	<b>-</b>	<b>20</b>	<b>10</b>					<b>36</b>	<b>-</b>	<b>18</b>	<b>3</b>						<b>17</b>	<b>-</b>	<b>15</b>	<b>4</b>					

- Did not sample

\* Turbidity issues

## Observations

- Fall redd counts occurred when flows at the USGS Hale Eddy gauge were 154 cfs in 2017 and 310 cfs in 2019. Flows should not exceed 500 cfs at the USGS Hale Eddy gauge.
- We predicted that presumed adequate wadable flows at the USGS Hale Eddy (using 2011-present data) might occur roughly 50% of the time during the spring and fall redd count periods.
- It takes 2-3 days for two staff to adequately count redds on the West Branch, it takes 3-4 days on the East Branch.
- Timing of peak redds varies from year to year, utilize a known spawning area to gauge when peak redd development has occurred.
- Volunteer redd counts on tributaries yielded useful data that could not have been otherwise obtained.