



Department of
Environmental
Conservation



2018 PROGRESS REPORT: CREEL 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**

March 15, 2019

Delaware Tailwaters Fisheries Investigation Plan, 2018 - 2020
Delaware Tailwaters Creel Survey Plan, 2018 - 2019
2018 Progress Report Creel Survey
March 15, 2019

Introduction

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 Plan¹ (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. A creel survey during the 2018 season was conducted to characterize the fishery-dependent aspect of the Delaware Tailwaters trout population². 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.

Methods

A roving-roving creel survey design was employed to collect angler catch and effort in the Delaware Tailwaters (Pollack *et al.* 1994). Three creel clerks canvased the West Branch (Cannonsville Dam downriver to confluence with East Branch; 18 miles), East Branch (Pepacton Dam outlet to confluence with West Branch; 32 miles) and Delaware River (confluence East and West Branches downriver to Callicoon, NY; 27 miles); one creel clerk per river. Creel clerks collected angler use (i.e., from discrete vantage points) and angler catch, effort, and demographics (i.e., interview questionnaire) on each day of the census. Anglers interviewed before they were done fishing received a “catch card” to allow them to document the remainder of their trip. Survey period was defined from 1 April 2018 through 14 October 2018, (197 total days), corresponding to the opening and closing of trout season within New York State. Days included in the census, were all weekend (N = 57) and holidays (N = 4) and two randomly selected weekdays (N = 58), representing 60.4 % of the total days within the survey period. Either a morning or afternoon work shift was randomly (50 % probability for either) selected for each census day, with either work shift representing an 8-hour day creel clerks were on the water. Morning shifts started one hour prior to sunrise. Afternoon shifts ended one hour after sunset. Data presented in this progress report focuses solely on angler catch, effort and demographics gathered via the angler interviews conducted by the creel clerks. To improve the quality of estimates, information from catch cards was combined with the corresponding interviews to convert incomplete trips to completed trips wherever possible. Without these catch card data the vast majority of the interviews would not have been completed trips. Expansion of angler catch and effort based on estimated angler use will be presented in a future progress report.

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

² http://www.dec.ny.gov/docs/fish_marine_pdf/dfipcreel.pdf

Results

Angler Trips

An angler trip was defined as the duration an angler fished in a single day, inclusive if they fished multiple rivers of the Delaware Tailwaters. A total of 4,166 records were collected with the majority (67 %) originating from anglers fishing the West Branch (Table 1). A few interviews (N = 22) pertained only to angler opinion demographics and are not usable for assessing angler catch and effort. Most (77 %) anglers indicated fishing a single river during their trip. Some anglers who fished multiple rivers (36 %), were able to accurately separate their catch and effort by river when queried at the time of the interview. This permitted the division of their multiple river trip into its individual river components. Thus, a total of 3,536 single river trips, 292 double river trips, and 1 triple river trip summing to 3,851 total trips were captured by the creel clerks over the course of the entire survey period.

Angler behavior

Commonality among angler behaviors can be gleaned from information gathered during the angler interviews (Table 2). A total of 1,936 trips (50 %) were considered completed. While the roving-roving creel design is based on incomplete trip information, the concern of overwhelming reliance on incomplete trips was not realized. Fly terminal tackle predominated (N = 2,947; 77 %), with anglers preferentially targeting strictly trout (3,649; 95 %) within Delaware Tailwaters. Nearly two-thirds (N = 2,278; 59 %) were wade fishing mode trips. Five hundred forty-five trips (14 %) of the 3,851 total trips documented were professionally guided. Guide services, however, were nearly ubiquitously (N = 528; 97 %) boat fishing mode trips (Table 3). Only 17 (3 %) of the 545 total guided trips were guided wade fishing trips (Table 3).

During plan development, concern arose for potentially differing angler catch and effort relative to observed angler behavior. For example, bass anglers might have an entirely different angling behavior than trout anglers. However, trips not exclusively targeting trout were so rare (N = 202; 5 %) that further investigation of angling behavior differences relative to targeted species is unnecessary. Non-trout targeted trips should be removed from future calculations of angler catch and effort for characterizing Delaware Tailwaters trout fishery. Variation in angler behaviors may be strongly influenced by fishing mode. Wade anglers can more easily move throughout the Delaware Tailwaters than boat anglers; whereas boat anglers can access reaches of river, which may be inaccessible to wade anglers. Future investigation of angler behavior separated by fishing mode is likely warranted; given the observed disparity among the frequency of fishing mode trips. Given the rarity of guided wading anglers, any future investigations towards angler behaviors regarding guide services could be limited to boat fishing mode only.

Angler Catch

Incomplete records preclude the use of all 3,851 unique trips for the determination of angler catch and effort. The original data dataset was reduced to a total of 2,500 usable trips for the Delaware Tailwaters in its entirety (Table 4). Further reductions of usable angler trips occur at the river-specific (Del. R.: N = 323; East Br.: N = 377; West Br.: N = 1,673) and reach-specific (Stilesville: N = 454; No Kill: N = 308; Hale Eddy: N = 140; Border Water: N = 629) resolutions. Overall, a total of 11,522 angler hours were expended (Table 5), with most occurring in the West Branch (7,973 hrs.; 69 %). Estimation of total trip hours and mean trip duration are biased towards under-representation of angler effort, given 50 %

of the trips are incomplete. Collectively, anglers caught 2,645 Brown Trout, releasing 2,578 (97.5 %) fish and harvesting 67 (2.5 %) fish of their total catch. Similarly, of the 709 Rainbow Trout total caught, 700 (99 %) fish were released and nine (1 %) fish were harvested. The nominal harvest of trout suggests it is a relatively minor component of the Delaware Tailwaters fishery, in 2018. Mean angler catch rates for the Delaware Tailwaters overall were 0.25 trout/hr. for Brown Trout and 0.06 trout/hr. for Rainbow Trout.

Timing of angler effort and harvest

Timing of angler effort within the day can be inferred from angler interviews. Frequency of angler trip start times (Table 6), coupled with their associated trip duration (i.e., hours fished per trip), suggested peak angler effort occurring 1400 hours (i.e., 2 pm; Figure 1). While many anglers were fishing during the early morning (0400 – 0600 hours; N = 346; 3 %) and evening (1900 – 2200 hours; N = 626; 5 %) hours, the majority (79 %) of the angler effort occurred during mid-day (0900 – 1700) hours. In several instances, some anglers (N = 85) indicated exceptionally long trips (≥ 13 hours), who tended to start their trips in the early morning hours. Potentially, work shifts for future creel census, may need to consider principal focus on 0900 – 1700 hours, with less sampling effort in the early morning/evening hours. Estimation of the daily hour angler effort, however, is likely biased towards earlier in the day (i.e., time-of-interview). Approximately half of the trips (N = 1,915; 50 %; Table 2) were considered incomplete, signifying anglers from those incomplete trips continued fishing after completing the interview process. Thus, angling effort is likely higher in the afternoon and/or evening hours than represented.

The 2018 survey design was based, in part, on fishery participants *a priori* concern of anglers specifically fishing during early morning hours, who were perceived as tending towards harvest of trout. As such, the morning work shift was designed to quantify this component of the fishery. Results are summarized in table 7, where harvest of trout would be implied to occur between the time-of-day the trip started to the time-of-day the interview occurred. A total of 229 (9.3 %) Brown Trout were caught prior to 0800 hours in the morning, during which approximately one-third (N = 26; 37 %) of the total harvest (N = 70) of Brown Trout occurred. Similarly, three (30 %) of the 10 Rainbow Trout harvested were taken prior to 0800 hours. A significant component of the trout harvest occurs during the early morning hours, but the total trout harvest remains exceptionally low.

Size of trout caught and harvested

The Delaware Tailwater fishery reputation is a commonly acknowledged availability of athletic trophy-sized trout. Catch data from angler interviews indicated all sizes of trout were caught (Table 8). The 14 – 16-inch and 16 – 20-inch size-classes of Brown Trout were the most common size-classes reported caught; whereas, no apparent pattern was evident of anglers predominantly catching a particular size-class of Rainbow Trout (Figure 2). Harvest of either trout species, however, tended to target the 16 – 20-inch size class (Brown Trout: 25 %; Rainbow Trout: 40 %), with 14 – 16-inch sized Brown Trout also preferentially (23 %) being harvested. Several (N=130; 5 %) ≥ 20 -inch Brown Trout were reported being caught, of which seven (5 %) were harvested, suggesting anglers are not preferentially harvesting exceptionally large-sized trout. The harvest of trophy-sized Brown Trout is suggestive, if an angler does harvest a trout, they generally take the 16 – 20-inch size trout, rather than the largest trout. Rainbow Trout, within the Delaware Tailwaters, typically do not attain ≥ 20 -inch sizes. Thus, harvest of the 16 – 20-inch size-class, suggests, anglers are preferentially harvesting the largest

sized Rainbow Trout. Any harvest of trout, during any angler trip, was a rare occurrence during the 2018 season.

Estimation of total angler catch, harvest, and effort rely on applying angler catch and effort from the angler interviews to the observed angler use as estimated by the creel clerk vantage point counts. Depending on the scale of resolution, such as, entire Delaware Tailwater, river-specific, or reach-specific, the total number of usable angler trips will vary (Table 4). Additionally, paucity of usable trips through the survey period may not be adequately representative of angler behavior and/or use (Table 9). Based on frequency of interviews gathered across the survey period, the months of May, June and July represent peak angler use. After July, frequency of interviews become scarce ($N < 10$) or unavailable ($N = 0$). Previous expansions of angler creel data considered splitting the survey period into three separate components McBride (2003), which delineated the peak season (i.e., 1 April – 4 July) based on the date of hatchery trout stocking into the East Branch. Relative to the 2018 datasets, using two temporal components, 1 April – 4 July and 5 July 15 October, will likely suffice. Expansion at the entire tailwaters scale may be considered as relatively more conclusive (i.e., inclusive of the greatest number of interviews), than at finer river or reach-specific expansions. Yet, future work will attempt eight initial expansions: entire tailwater, one each at the river-specific resolution, and one each for the four reach-specific resolution of the West Branch only, to enable direct comparisons to reach-specific historic findings (McBride, 2003). Expansions may also need to be separated by fishing mode dependent on any strongly disparate findings of angler behaviors among wade vs. boat angler behaviors.

Angler Demographics

Tabularization of angler demographics yielded interesting findings (Table 10). Most anglers encountered were male ($N = 3,697$; 96 %), which is typical of fishing participants throughout the states of New York and Pennsylvania. Angler origin, as indicated by solicited zipcodes, indicated a total of 1,276 unique zipcodes ($N = 213$ were unrecorded). Considering those zipcodes that intersect the Delaware Tailwaters and their neighboring zipcodes as “local” to the Delaware Tailwaters ($N = 37$), most anglers ($N = 3,326$; 86 %) were not local. Thus, the Delaware Tailwaters is principally a destination fishery, drawing anglers outside of the immediate vicinity of the Delaware Tailwaters. If the individual trip was indicated as being guided (i.e., paid guide outfitter services), guide origin, via their solicited zipcodes, were also collected. Nearly half ($N = 248$; 45 %) of the total guided trips ($N = 545$) were guided by “local” guide services. Further scrutiny is warranted for characterizing regional population centers from which angler and guide services originate.

Angler Opinions

During the interview process, angler opinion responses were solicited via a series of four questions (Table 11). These questions were focused on determining angler satisfaction with the Delaware Tailwater fishery. Responses were limited to only those anglers who were not previously asked for their opinions ($N = 2,414$) or were unsure if previously asked ($N = 16$). Overall, majority of angler responses indicated either being very satisfied ($N = 1,040$; 43 %) or satisfied ($N = 814$; 34 %) with their fishing experiences over the last three years. Some were neutral ($N = 235$; 10 %), dissatisfied ($N = 57$; 2%), or very dissatisfied ($N = 12$; 0.5 %). No single component, catching many trout regardless of size ($N = 652$; 27 %), catching large trout ($N = 889$; 37 %), catching at least one ≥ 20 -inch sized trout (634; 26 %), was overwhelming singularly evident for generating angler satisfaction when asked to pick their top choice; although, a slightly more propensity was given towards importance of catching large trout. Anglers clearly indicated harvest was not of any importance ($N = 75$; 3 %) for a satisfactory fishing trip.

River flow influences on angler participation

River conditions can strongly influence angler behaviors. High flows/river stage may tend to favor boat angling over wade angling and *vice versa* during low flows. Reservoir releases supporting the Delaware Tailwater fisheries are regulated, as per the 1954 U.S. Supreme Court Decree³ and subsequent agreements among the Parties-to-the-Decree. Most recently, a newly adopted 10-year Flexible Flow Management Plan (FFMP)⁴ is the current management mechanism. Managed seasonal reservoir releases generally keep bank-to-bank river stage with summertime highest target flow of 525 cubic-feet-per-second (cfs), under normal operations (i.e., L2). Yet, these reservoirs can have un-managed spill during periods of high rainfall. During 2018, springtime high flows successively declined through July, when reservoir release were increasingly restricted (< 525 cfs), until August, when un-managed spill from excessive within-basin rainfall accumulations created springtime like flows (> 1,000 cfs; Figure 3). Plotting monthly percent frequencies of angler fishing modes (i.e., boat and wade), over monthly mean river flows is suggestive wade angling fishing mode did indeed increase during periods of low flow and declined during the later season under the higher rain-induced flows. The opposite appears to be evident for anglers fishing from boats. This pattern of observed angler behavior further lends credence to evaluation of angler behaviors separately by fishing mode.

Observations

- Census of angler use via kayaking the tailwaters was considered exceptionally successful. Census agents were easily able to visually assess angler use; however, the trade-off was a need for a large census crew (N > 5 paddlers) in addition to the original three creel clerks.
 - A kayak census crew of six people and four vehicles (N = 2 NYSDEC vehicles, N = 2 PFBC vehicles) was optimal. Given multiple agency involvement, having drivers for their respective state vehicle most efficiently allowed staging drop-off/pick-up of paddlers.
 - A kayak census crew of four (4) to five (5) people is inadequate to fully cover all East Branch and Delaware River main stem reaches, forcing the combining of census reaches (Delaware River, only) or outright exclusion from the day's census (East Branch, only). On the Delaware River, the short census reaches were combined into longer lengths. Exclusion of East Branch census reaches via kayaking targeted downriver reaches (i.e., Fishs Eddy & Peas Eddy), which were censused via vehicle, as best as possible. Substitute vehicle counts for excluded kayak census reaches, however, are inferior and likely need to be discounted when evaluating comparisons to the paired creel clerk vehicle counts.
 - Kayak crews of less than four paddlers will force cancellation of that day's angler use kayak census.
 - Under typical discharge conditions, paddlers were able to cover one river mile per 15-minute interval and achieve a 7-minute per mile rate under high discharge conditions. Overall, each count took approximately three (3) hours to complete, inclusive of travel to/from the staging area to the assigned river reaches and paddling.

³ 1954 New Jersey v. New York. U.S. Supreme Court Decree. Summarized by the Delaware River Basin Commission. <https://www.state.nj.us/drbc/programs/flow/decree.html>

⁴ Office of the Delaware River Master. 2017. Agreement for a Flexible Flow Management Program. U.S. Geological Survey. <https://webapps.usgs.gov/odrm/ffmp/FFMP2017.pdf>; <https://webapps.usgs.gov/odrm/ffmp/index.html>

- The use of a designated meeting location (either Fireman's Launch or SR 30 NYSDEC Access) aided in logistical organization of paddlers and ensuring all paddlers safely completed their assigned river reach.
- Exceptionally high flows were encountered during the 2018 census. Experienced gained has determined cancelation of kayak counts should occur when discharge becomes excessive. Resultant standing waves in areas of riffles/rapids are capable of swamping slack-water kayaks.
 - West Branch: USGS Hale Eddy gage exceed 2,200 cfs.
 - East Branch: USGS Harvard gage exceed 1,400 cfs.
 - Delaware R.: Automatic cancelation if either the WB or EB is canceled.
- Use of hand-held GPS unit(s) with waypoint navigation will eliminate guess-work of count start/stop points. Yet, once paddlers gained experience with each census reach, this concern was reduced, especially aided by flagged points of interest.
- Incomplete records, while unavoidable in certain instances, tended to exclude a considerable number of potentially usable interviews.
 - Quality control procedures will allow reclamation of some incomplete interviews; however, a robust electronic inputting form (e.g., Access) will greatly aid in consistency of entry and insurance of all fields collected. An electronic data entry form will also allow for some capacity of instantaneous error checking to avoid common mistakes.

Table 1. Frequency of gathered angler interviews reduced into potentially available individual angler trips, 2018 Delaware Tailwaters creel census.

| Water | Interviews | Opinion only | Potentially Available | Fish Mult. Water | | Accurately Split Trip | | Potential Angler Trips Available | | | | | |
|----------|------------|--------------|-----------------------|------------------|-------|-----------------------|-------|----------------------------------|--------------|--------------|---------|-------|------|
| | | | | Yes | No | Yes | No | Single River | Double River | Triple River | Unknown | Total | |
| Del. R. | 715 | 2 | 713 | 411 | 302 | 136 | 275 | 438 | | | | 12 | 450 |
| East Br. | 655 | 6 | 649 | 104 | 545 | 48 | 56 | 593 | 20 | | | 6 | 619 |
| West Br. | 2796 | 14 | 2782 | 434 | 2348 | 157 | 277 | 2505 | 272 | 1 | | 4 | 2782 |
| Total | 4166 | 22 | 4144 | 949 | 3195 | 341 | 608 | 3536 | 292 | 1 | | 22 | 3851 |
| Percent | | | | 22.9% | 77.1% | 35.9% | 64.1% | 91.8% | 7.6% | <0.1% | | 0.6% | |

Table 2. Summary tabularization of individual angler trips relative to various angler behaviors, 2018 Delaware Tailwaters creel census.

| | Delaware R. | | East Branch | | West Branch | | Total | |
|-------------------------|-------------|--------|-------------|--------|-------------|--------|-------|--------|
| | N | % | N | % | N | % | N | % |
| Completed Trips | | | | | | | | |
| Yes | 306 | 68.00% | 307 | 49.60% | 1323 | 47.56% | 1936 | 50.27% |
| No | 144 | 32.00% | 312 | 50.40% | 1459 | 52.44% | 1915 | 49.73% |
| Total | 450 | | 619 | | 2782 | | 3851 | |
| Fishing Mode | | | | | | | | |
| Boat | 229 | 50.89% | 145 | 23.42% | 1189 | 42.74% | 1563 | 40.59% |
| Wade | 221 | 49.11% | 470 | 75.93% | 1587 | 57.05% | 2278 | 59.15% |
| Unknown | 0 | 0.00% | 4 | 0.65% | 6 | 0.22% | 10 | 0.26% |
| Total | 450 | | 619 | | 2782 | | 3851 | |
| Guided Trip | | | | | | | | |
| Yes | 83 | 18.44% | 73 | 11.79% | 389 | 13.98% | 545 | 14.15% |
| No | 353 | 78.44% | 540 | 87.24% | 2336 | 83.97% | 3229 | 83.85% |
| Unknown | 14 | 3.11% | 6 | 0.97% | 57 | 2.05% | 77 | 2.00% |
| Total | 450 | | 619 | | 2782 | | 3851 | |
| Terminal Tackle | | | | | | | | |
| Fly | 327 | 72.67% | 420 | 67.85% | 2200 | 79.08% | 2947 | 76.53% |
| ALO ¹ | 79 | 17.56% | 111 | 17.93% | 342 | 12.29% | 532 | 13.81% |
| Bait | 16 | 3.56% | 23 | 3.72% | 104 | 3.74% | 143 | 3.71% |
| Combo ² | 26 | 5.78% | 58 | 9.37% | 82 | 2.95% | 166 | 4.31% |
| Unknown | 2 | 0.44% | 7 | 1.13% | 54 | 1.94% | 63 | 1.64% |
| Total | 450 | | 619 | | 2782 | | 3851 | |
| Targeted Species | | | | | | | | |
| Trout ³ | 396 | 88.00% | 586 | 94.67% | 2667 | 95.87% | 3649 | 94.75% |
| Combo ⁴ | 31 | 6.89% | 13 | 2.10% | 46 | 1.65% | 90 | 2.34% |
| Non-Trout ⁵ | 21 | 4.67% | 12 | 1.94% | 9 | 0.32% | 42 | 1.09% |
| Unknown | 2 | 0.44% | 8 | 1.29% | 60 | 2.16% | 70 | 1.82% |
| Total | 450 | | 619 | | 2782 | | 3851 | |

1 – Artificial Lure Only, other than a wet/dry fly

2 – Interchanged among multiple types of terminal tackle during the trip

3 – Inclusive of Brown Trout, Rainbow Trout and Brook Trout

4 – Inclusive of multiple targeted trout and warmwater species (i.e., basses, Am. Shad)

5 – Inclusive of warm-water species only (i.e., basses, Am. Shad)

| Table 3. Frequency of guided trips by fishing mode, 2018 Delaware Tailwaters creel census. | | | | | | | | |
|--|---------|--------|----------|--------|----------|--------|-------|--------|
| Guided | Del. R. | | East Br. | | West Br. | | Total | |
| | N | % | N | % | N | % | N | % |
| Boat | | | | | | | | |
| Yes | 83 | 36.24% | 66 | 45.52% | 379 | 31.88% | 528 | 33.78% |
| No | 143 | 62.45% | 79 | 54.48% | 760 | 63.92% | 982 | 62.83% |
| Unknown | 3 | 1.31% | 0 | 0.00% | 50 | 4.21% | 53 | 3.39% |
| Total | 229 | | 145 | | 1189 | | 1563 | |
| Wade | | | | | | | | |
| Yes | 0 | 0.00% | 7 | 1.49% | 10 | 0.63% | 17 | 0.75% |
| No | 210 | 95.02% | 458 | 97.45% | 1571 | 98.99% | 2239 | 98.29% |
| Unknown | 11 | 4.98% | 5 | 1.06% | 6 | 0.38% | 22 | 0.97% |
| Total | 221 | | 470 | | 1587 | | 2278 | |
| Unknown | | | | | | | | |
| Yes | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| No | 0 | 0.00% | 3 | 75.00% | 5 | 83.33% | 8 | 80.00% |
| Unknown | 0 | 0.00% | 1 | 25.00% | 1 | 16.67% | 2 | 20.00% |
| Total | 0 | | 4 | | 6 | | 10 | |
| Overall | | | | | | | | |
| Yes | 83 | 18.44% | 73 | 11.79% | 389 | 13.98% | 545 | 14.15% |
| No | 353 | 78.44% | 540 | 87.24% | 2336 | 83.97% | 3229 | 83.85% |
| Unknown | 14 | 3.11% | 6 | 0.97% | 57 | 2.05% | 77 | 2.00% |
| Total | 450 | | 619 | | 2782 | | 3851 | |

Table 4. Unique individual angler trips available for calculation of angler catch and effort. Trips are removed from further consideration at finer resolutions due to incomplete, conflicting or short trip duration, 2018 Delaware Tailwaters creel census.

| Water | Original Total | Missing Start Time | Missing End or Interview Time | End or Interview Time Prior to Start Time | Unknown Reach Fished | Total Fishing Duration < 0.5 hours | Total No. Trips Removed | Total No. Trips Retained |
|---|----------------|--------------------|-------------------------------|---|----------------------|------------------------------------|-------------------------|--------------------------|
| Overall¹ | | | | | | | | |
| Total | 3851 | 480 | 35 | 442 | NA | 394 | 1351 | 2500 |
| Percent | | 12.46% | 0.91% | 11.48% | NA | 10.23% | 35.08% | 64.92% |
| River-specific² | | | | | | | | |
| Del. R. | 438 | 7 | 3 | 43 | 4 | 58 | 115 | 323 |
| East Br. | 593 | 12 | 11 | 41 | 18 | 134 | 216 | 377 |
| West Br. | 2505 | 432 | 16 | 232 | 6 | 144 | 830 | 1675 |
| Total | 3536 | 451 | 30 | 316 | 28 | 336 | 1161 | 2375 |
| Percent | | 12.75% | 0.85% | 8.94% | 0.79% | 9.50% | 32.83% | 67.17% |
| Reach-specific, West Branch only³ | | | | | | | | |
| Stilesville | 454 | 40 | 6 | 42 | 0 | 52 | 140 | 314 |
| No Kill | 308 | 50 | 1 | 34 | 0 | 9 | 94 | 214 |
| Hale Eddy | 140 | 11 | 2 | 12 | 0 | 18 | 43 | 97 |
| Border | 629 | 89 | 3 | 85 | 0 | 50 | 227 | 402 |
| Within – WB ⁴ | 893 | 169 | 2 | 59 | 648 | 15 | 893 | 0 |
| Unknown | 81 | 73 | 2 | 0 | 4 | 2 | 81 | 0 |
| Total | 2505 | 432 | 16 | 323 | 652 | 146 | 1569 | 1027 |
| Percent | | 17.25% | 0.64% | 12.89% | 26.03% | 5.83% | 62.63% | 41.00% |

- 1 – Considers the Delaware Tailwaters as a whole. Includes all trips regardless of fishing multiple waters, or unknown reaches fished. Cause for removal of trips relies solely on incomplete fishing times or short trip durations.
- 2 – Considers each river separately. Cause for removal of individual angler trips relies on incomplete catch and/or effort data, but also if the angler fished multiple rivers, and cannot accurately split their catch and effort at the time of the interview.
- 3 – McBride (2003), considered each reach of the West Branch separately for expansion of angler catch and effort to total angler use. Cause for removal of individual angler trips relies on incomplete catch and/or effort, or those trips not identified as having fidelity to one of the four specific reaches within the West Branch. In other words, only those trips when anglers did not move among reaches within the West Branch.
- 4 – Anglers fishing solely with the West Branch, but moved among the four reaches of the West Branch, such that, trip catch and effort cannot be accurately split among the reaches.

Table 5. Angler catch and effort gathered from the angler interviews, 2018 Delaware Tailwaters creel census.

| Water | Total | | Mean Trip Duration (hours) ¹ | Brown Trout | | | | | | Rainbow Trout | | | | | |
|------------------------|---------|--------------------|---|------------------------|------|-------|-----------------------------|-------|-------|------------------------|------|-------|-----------------------------|-------|-------|
| | | | | Total (N) ² | | | Mean Catch Rates (fish/hr.) | | | Total (N) ² | | | Mean Catch Rates (fish/hr.) | | |
| | Anglers | Hours ¹ | | Rel. | Har. | Catch | Rel. | Har. | Total | Rel. | Har. | Catch | Rel. | Har. | Total |
| Delaware River | | | | | | | | | | | | | | | |
| Junction P. River Rd. | 108 | 378.47 | 3.50 | 33 | 0 | 33 | 0.096 | 0.000 | 0.096 | 30 | 0 | 30 | 0.057 | 0.000 | 0.057 |
| Buckingham | 1 | 1.92 | 1.92 | 1 | 0 | 1 | 0.522 | 0.000 | 0.522 | 0 | 0 | 0 | 0.000 | 0.000 | 0.000 |
| Lordville | 29 | 77.43 | 2.67 | 15 | 0 | 15 | 0.228 | 0.000 | 0.228 | 12 | 0 | 12 | 0.140 | 0.000 | 0.140 |
| Long Eddy | 6 | 9.58 | 1.60 | 1 | 0 | 1 | 0.133 | 0.000 | 0.133 | 0 | 0 | 0 | 0.000 | 0.000 | 0.000 |
| Hankins | 10 | 44.42 | 4.44 | 7 | 0 | 7 | 0.100 | 0.000 | 0.100 | 18 | 0 | 18 | 0.481 | 0.000 | 0.481 |
| Callicoon | 2 | 5.33 | 2.67 | 0 | 0 | 0 | 0.000 | 0.000 | 0.000 | 0 | 0 | 0 | 0.000 | 0.000 | 0.000 |
| Within-DR ³ | 13 | 37.78 | 2.91 | 3 | 0 | 3 | 0.097 | 0.000 | 0.097 | 4 | 3 | 7 | 0.191 | 0.060 | 0.251 |
| Total | 154 | 854.08 | 5.55 | 105 | 1 | 106 | 0.134 | 0.001 | 0.134 | 47 | 0 | 47 | 0.051 | 0.000 | 0.051 |
| Total | 323 | 1409.02 | 4.36 | 165 | 1 | 166 | 0.127 | 0.000 | 0.128 | 111 | 3 | 114 | 0.079 | 0.002 | 0.081 |
| East Branch | | | | | | | | | | | | | | | |
| Downsville | 62 | 177.95 | 2.87 | 13 | 13 | 26 | 0.085 | 0.119 | 0.203 | 1 | 0 | 1 | 0.004 | 0.000 | 0.004 |
| Corbett | 25 | 63.83 | 2.55 | 37 | 7 | 44 | 0.599 | 0.082 | 0.681 | 1 | 0 | 1 | 0.027 | 0.000 | 0.027 |
| Shinhopple | 77 | 255.38 | 3.32 | 42 | 5 | 47 | 0.151 | 0.025 | 0.176 | 2 | 0 | 2 | 0.006 | 0.000 | 0.006 |
| Harvard | 18 | 64.03 | 3.56 | 5 | 0 | 5 | 0.085 | 0.000 | 0.085 | 4 | 0 | 4 | 0.046 | 0.000 | 0.046 |
| Fish Eddy ⁴ | | | | | | | | | | | | | | | |
| Peas Eddy ⁴ | | | | | | | | | | | | | | | |
| Within-EB ⁵ | 194 | 864.45 | 4.46 | 178 | 5 | 183 | 0.178 | 0.004 | 0.182 | 44 | 3 | 47 | 0.037 | 0.007 | 0.044 |
| Total | 377 | 1428.15 | 3.79 | 275 | 30 | 305 | 0.180 | 0.032 | 0.212 | 52 | 3 | 55 | 0.025 | 0.003 | 0.028 |

Table 5. Continued.

| Water | Total | | Mean Trip Duration (hours) ¹ | Brown Trout | | | | | | Rainbow Trout | | | | | |
|--|---------|--------------------|---|------------------------|------|-------|-----------------------------|-------|-------|------------------------|------|-------|-----------------------------|-------|-------|
| | Anglers | Hours ¹ | | Total (N) ² | | | Mean Catch Rates (fish/hr.) | | | Total (N) ² | | | Mean Catch Rates (fish/hr.) | | |
| | | | | Rel. | Har. | Catch | Rel. | Har. | Total | Rel. | Har. | Catch | Rel. | Har. | Total |
| West Branch | | | | | | | | | | | | | | | |
| Stilesville | 314 | 910.98 | 2.90 | 312 | 14 | 326 | 0.400 | 0.017 | 0.417 | 59 | 2 | 61 | 0.059 | 0.002 | 0.061 |
| Hale Eddy | 215 | 867.78 | 4.04 | 304 | 1 | 305 | 0.370 | 0.002 | 0.372 | 29 | 0 | 29 | 0.047 | 0.000 | 0.047 |
| No Kill | 97 | 349.33 | 3.60 | 134 | 7 | 141 | 0.477 | 0.021 | 0.498 | 39 | 0 | 39 | 0.110 | 0.000 | 0.110 |
| Border Wat. | 402 | 1572.58 | 3.91 | 354 | 1 | 355 | 0.179 | 0.000 | 0.180 | 225 | 0 | 225 | 0.135 | 0.000 | 0.135 |
| Within-WB ⁶ | 648 | 4272.25 | 6.59 | 866 | 12 | 878 | 0.239 | 0.004 | 0.243 | 116 | 1 | 117 | 0.028 | 0.000 | 0.028 |
| Total | 1675 | 7958.43 | 4.75 | 1965 | 35 | 2000 | 0.285 | 0.006 | 0.292 | 468 | 3 | 471 | 0.067 | 0.001 | 0.067 |
| Non-river specific data⁷ | | | | | | | | | | | | | | | |
| Among | 103 | 639.45 | 6.21 | 158 | 1 | 159 | 0.287 | 0.005 | 0.292 | 56 | 0 | 56 | 0.100 | 0.000 | 0.100 |
| Unknown | 22 | 74.55 | 3.39 | 10 | 0 | 10 | 0.275 | 0.000 | 0.275 | 13 | 0 | 13 | 0.196 | 0.000 | 0.196 |
| Overall | 2500 | 11521.60 | 4.61 | 2548 | 67 | 2645 | 0.249 | 0.009 | 0.258 | 700 | 9 | 709 | 0.064 | 0.001 | 0.065 |

1 – Are estimations based on both complete and incomplete trips, which results in an under-representation of angler effort.
 2 – Totals represent fish caught used for calculation of angler effort. A few fish caught were excluded (Table 6), due to incomplete records and short trip durations when calculating angler effort.
 3 – Trips that fished multiple reaches only within the Delaware River.
 4 – No interviews collected from anglers fishing these reaches.
 5 – Trips that fished multiple reaches only within the East Branch.
 6 – Trips that fished multiple reaches only within the West Branch.
 7 – Anglers indicating fishing multiple rivers or unable to identify reaches fished.

Table 6. Angler fishing pressure based on individual trip start time and duration of the trip gathered from the angler interviews, 2018 Delaware Tailwaters creel census.

| Hour of the day ¹ | | 0400 | 0500 | 0600 | 0700 | 0800 | 0900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 ⁵ | 2200 ⁵ |
|---|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------------------|-------------------|
| Trip Duration (Total hours fished) ² | 1 | 2 | 18 | 25 | 43 | 29 | 29 | 49 | 63 | 41 | 50 | 50 | 37 | 27 | 25 | 26 | 8 | 5 | | |
| | 2 | 0 | 15 | 27 | 29 | 30 | 49 | 49 | 28 | 22 | 34 | 20 | 33 | 19 | 24 | 24 | 9 | 1 | | |
| | 3 | 3 | 16 | 19 | 12 | 24 | 17 | 8 | 25 | 28 | 39 | 22 | 19 | 22 | 5 | 18 | 0 | 0 | | |
| | 4 | 0 | 17 | 4 | 21 | 27 | 26 | 35 | 28 | 23 | 37 | 61 | 23 | 8 | 12 | 4 | 0 | 0 | | |
| | 5 | 0 | 7 | 5 | 11 | 14 | 18 | 25 | 21 | 36 | 35 | 24 | 11 | 24 | 1 | 0 | 0 | 0 | | |
| | 6 | 0 | 5 | 13 | 10 | 5 | 9 | 41 | 27 | 68 | 28 | 25 | 7 | 1 | 0 | 0 | 0 | 0 | | |
| | 7 | 0 | 4 | 6 | 4 | 9 | 14 | 28 | 35 | 19 | 16 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | 8 | 0 | 1 | 12 | 6 | 11 | 14 | 38 | 42 | 56 | 20 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | 9 | 0 | 2 | 12 | 8 | 8 | 17 | 24 | 35 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | 10 | 1 | 3 | 7 | 6 | 7 | 12 | 23 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | 11 | 0 | 1 | 1 | 4 | 4 | 11 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | 12 | 1 | 3 | 2 | 4 | 8 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | 13 | 0 | 1 | 0 | 5 | 9 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | 14 | 1 | 3 | 2 | 9 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | 15 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | 16 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | 17 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Total ³ | | 11 | 99 | 137 | 172 | 186 | 226 | 331 | 318 | 307 | 259 | 217 | 130 | 101 | 67 | 72 | 17 | 6 | | |
| Total Freq ⁴ | | 11 | 108 | 227 | 356 | 456 | 588 | 837 | 1002 | 1125 | 1250 | 1293 | 1219 | 1097 | 922 | 662 | 423 | 187 | 14 | 2 |
| Percent | | 0.09% | 0.92% | 1.93% | 3.02% | 3.87% | 4.99% | 7.11% | 8.51% | 9.56% | 10.62% | 10.98% | 10.36% | 9.32% | 7.83% | 5.62% | 3.59% | 1.59% | 0.06% | 0.02% |

1 – Top of the hour (military), within a day
 2 – A trip duration of 1 hour indicated the angler trip was initiated sometime in that hour of the day. For example, 25 anglers started fishing during 0600 hours.
 3 – Total number of trips with valid trip starting times and trip durations, representing a subset of the original potentially available total number of trips (N = 3,851).
 4 – Total number of angler trips occurring at the top of each day hour. For example, the 19 anglers who started fishing at 0600 hours and fished for 3 hours, contribute to the total frequency of anglers for 0600 hours through 0800 hours (i.e., 0600, 0700, 0800 hours).
 5 – No angler trips were encountered starting at these times of a day. Any angler fishing during these hours, are from trips initiated earlier within the Day.

Table 7. Frequency of angler catch by hour of completed angler interviews, 2018 Delaware Tailwaters creel census.

| Hour | Brown Trout | | | | | | Rainbow Trout | | | | | |
|--------------------|-------------|--------|---------|--------|-------|-------|---------------|--------|---------|--------|-------|--------|
| | Released | | Harvest | | Total | | Released | | Harvest | | Total | |
| | N | % | N | % | N | % | N | % | N | % | N | % |
| 0500 | 46 | 1.93% | 8 | 11.43% | 54 | 2.20% | 8 | 1.29% | 1 | 10.00% | 9 | 1.43% |
| 0600 | 71 | 2.97% | 13 | 18.57% | 84 | 3.42% | 7 | 1.13% | 2 | 20.00% | 9 | 1.43% |
| 0700 | 86 | 3.60% | 5 | 7.14% | 91 | 3.70% | 12 | 1.94% | 0 | 0.00% | 12 | 1.91% |
| 0800 | 168 | 7.04% | 6 | 8.57% | 174 | 7.08% | 54 | 8.74% | 0 | 0.00% | 54 | 8.60% |
| 0900 | 135 | 5.65% | 6 | 8.57% | 141 | 5.74% | 29 | 4.69% | 0 | 0.00% | 29 | 4.62% |
| 1000 | 165 | 6.91% | 10 | 14.29% | 175 | 7.12% | 45 | 7.28% | 4 | 40.00% | 49 | 7.80% |
| 1100 | 219 | 9.17% | 1 | 1.43% | 220 | 8.95% | 47 | 7.61% | 0 | 0.00% | 47 | 7.48% |
| 1200 | 106 | 4.44% | 2 | 2.86% | 108 | 4.39% | 33 | 5.34% | 0 | 0.00% | 33 | 5.25% |
| 1300 | 72 | 3.02% | 2 | 2.86% | 74 | 3.01% | 28 | 4.53% | 0 | 0.00% | 28 | 4.46% |
| 1400 | 122 | 5.11% | 3 | 4.29% | 125 | 5.09% | 46 | 7.44% | 0 | 0.00% | 46 | 7.32% |
| 1500 | 244 | 10.22% | 0 | 0.00% | 244 | 9.93% | 75 | 12.14% | 0 | 0.00% | 75 | 11.94% |
| 1600 | 191 | 8.00% | 2 | 2.86% | 193 | 7.85% | 54 | 8.74% | 0 | 0.00% | 54 | 8.60% |
| 1700 | 169 | 7.08% | 2 | 2.86% | 171 | 6.96% | 25 | 4.05% | 0 | 0.00% | 25 | 3.98% |
| 1800 | 232 | 9.72% | 8 | 11.43% | 240 | 9.76% | 53 | 8.58% | 0 | 0.00% | 53 | 8.44% |
| 1900 | 190 | 7.96% | 2 | 2.86% | 192 | 7.81% | 51 | 8.25% | 3 | 30.00% | 54 | 8.60% |
| 2000 | 98 | 4.10% | 0 | 0.00% | 98 | 3.99% | 26 | 4.21% | 0 | 0.00% | 26 | 4.14% |
| 2100 | 73 | 3.06% | 0 | 0.00% | 73 | 2.97% | 23 | 3.72% | 0 | 0.00% | 23 | 3.66% |
| 2200 | 1 | 0.04% | 0 | 0.00% | 1 | 0.04% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| 2300 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 2 | 0.32% | 0 | 0.00% | 2 | 0.32% |
| Total ¹ | 2388 | | 70 | | 2458 | | 618 | | 10 | | 628 | |

1 – Totals represent all fish released and harvested of all trips, which will be different from those totals of fish caught used for calculation of angler effort (Table 4), due to incomplete records and short trip durations.

Table 8. Length frequencies of trout caught that were reported during the interview process, 2018 Delaware Tailwaters creel census.

| Length Size-class (inches) | Released | | Harvested | | Total | |
|----------------------------------|----------|--------|-----------|--------|-------|--------|
| | N | % | N | % | N | % |
| Brown Trout | | | | | | |
| 0 - 9 | 323 | 11.83% | 1 | 1.49% | 324 | 11.58% |
| 9 - 12 | 441 | 16.15% | 0 | 0.00% | 441 | 15.76% |
| 12 - 14 | 501 | 18.34% | 8 | 11.94% | 509 | 18.19% |
| 14 - 16 | 636 | 23.29% | 24 | 35.82% | 660 | 23.59% |
| 16 - 20 | 707 | 25.89% | 27 | 40.30% | 734 | 26.23% |
| ≥ 20 | 123 | 4.50% | 7 | 10.45% | 130 | 4.65% |
| Total | 2731 | | 67 | | 2798 | |
| Rainbow Trout | | | | | | |
| 0 - 9 | 151 | 19.69% | 0 | 0.00% | 151 | 13.73% |
| 9 - 12 | 168 | 21.90% | 0 | 0.00% | 168 | 15.27% |
| 12 - 14 | 111 | 14.47% | 0 | 0.00% | 111 | 10.09% |
| 14 - 16 | 173 | 22.56% | 3 | 30.00% | 176 | 16.00% |
| 16 - 20 | 153 | 19.95% | 7 | 70.00% | 160 | 14.55% |
| ≥20 | 11 | 1.43% | 0 | 0.00% | 11 | 1.00% |
| Total | 767 | | 10 | | 777 | |

Table 9. Frequency of angler trips by reach fished, month and day type, 2018 Delaware Tailwaters creel census.

| Water | April | | May | | June | | July | | August | | September | | October | | Total |
|------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------|
| | WkDay ¹ | WkEnd ² | WkDay ¹ | WkEnd ² | WkDay ¹ | WkEnd ² | WkDay ¹ | WkEnd ² | WkDay ¹ | WkEnd ² | WkDay ¹ | WkEnd ² | WkDay ¹ | WkEnd ² | |
| Delaware River | | | | | | | | | | | | | | | |
| Junction P. | 6 | 9 | 7 | 10 | 18 | 15 | 6 | 10 | 6 | 3 | 1 | 13 | 0 | 4 | 108 |
| River Rd. | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Buckingham | 0 | 2 | 6 | 2 | 4 | 9 | 0 | 2 | 0 | 0 | 0 | 3 | 0 | 1 | 29 |
| Lordville | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| Long Eddy | 0 | 2 | 0 | 0 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| Hankins | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Callicoon | 0 | 0 | 4 | 1 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| Within-DR | 6 | 31 | 28 | 39 | 11 | 20 | 1 | 3 | 3 | 1 | 2 | 5 | 2 | 2 | 154 |
| Sub-Total | 15 | 47 | 45 | 52 | 41 | 55 | 7 | 15 | 9 | 4 | 3 | 21 | 2 | 7 | 323 |
| East Branch | | | | | | | | | | | | | | | |
| Downsville | 1 | 12 | 2 | 4 | 3 | 9 | 3 | 10 | 3 | 4 | 1 | 6 | 0 | 4 | 62 |
| Corbett | 4 | 3 | 0 | 5 | 5 | 1 | 3 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 25 |
| Shinhopple | 9 | 15 | 7 | 14 | 10 | 6 | 0 | 0 | 1 | 1 | 1 | 8 | 0 | 5 | 77 |
| Harvard | 0 | 3 | 2 | 0 | 1 | 3 | 0 | 7 | 1 | 0 | 0 | 1 | 0 | 0 | 18 |
| Fish Eddy ³ | | | | | | | | | | | | | | | |
| Peas Eddy ³ | | | | | | | | | | | | | | | |
| Within-EB | 18 | 56 | 30 | 37 | 12 | 4 | 0 | 6 | 1 | 6 | 0 | 15 | 0 | 9 | 194 |
| Sub-Total | 32 | 89 | 41 | 60 | 31 | 23 | 6 | 23 | 6 | 11 | 2 | 33 | 0 | 19 | 376 |

| Table 9. Continued. | | | | | | | | | | | | | | | |
|---|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------|
| Water | April | | May | | June | | July | | August | | September | | October | | Total |
| | WkDay ¹ | WkEnd ² | WkDay ¹ | WkEnd ² | WkDay ¹ | WkEnd ² | WkDay ¹ | WkEnd ² | WkDay ¹ | WkEnd ² | WkDay ¹ | WkEnd ² | WkDay ¹ | WkEnd ² | |
| West Branch | | | | | | | | | | | | | | | |
| Stilesville | 21 | 31 | 18 | 28 | 28 | 35 | 31 | 31 | 24 | 22 | 8 | 26 | 5 | 6 | 314 |
| No Kill | 3 | 8 | 24 | 11 | 29 | 20 | 36 | 48 | 5 | 7 | 4 | 19 | 0 | 1 | 215 |
| Hale Eddy | 5 | 5 | 1 | 10 | 20 | 14 | 9 | 31 | 1 | 0 | 0 | 1 | 0 | 0 | 97 |
| Border Wat. | 8 | 34 | 61 | 22 | 50 | 65 | 25 | 85 | 10 | 2 | 4 | 24 | 4 | 8 | 402 |
| Within-WB | 25 | 65 | 73 | 58 | 39 | 55 | 25 | 93 | 40 | 21 | 32 | 67 | 12 | 43 | 648 |
| Sub-Total | 62 | 143 | 177 | 129 | 166 | 189 | 126 | 288 | 80 | 52 | 48 | 137 | 21 | 58 | 1676 |
| Among | 2 | 6 | 11 | 13 | 29 | 19 | 4 | 6 | 0 | 3 | 6 | 2 | 0 | 2 | 103 |
| Unknown | 0 | 0 | 0 | 6 | 5 | 3 | 1 | 4 | 0 | 0 | 1 | 0 | 0 | 2 | 22 |
| Grand Total | 111 | 285 | 274 | 260 | 272 | 289 | 144 | 336 | 95 | 70 | 60 | 193 | 23 | 88 | 2500 |
| Monthly Total | 396 | | 534 | | 561 | | 480 | | 165 | | 253 | | 111 | | |
| <p>1 – All trips occurring during Monday – Friday, except holidays.</p> <p>2 – All trips occurring during Saturday – Sunday, inclusive of holidays (Memorial Day, July 4th, Labor Day, and Columbus Day).</p> <p>3 – No interviews collected from anglers fishing these reaches.</p> | | | | | | | | | | | | | | | |

Table 10. Angler demographics, 2018 Delaware Tailwaters creel census.

| | Del. R. | | East Br. | | West Br. | | Total | |
|----------------------|---------|--------|----------|--------|----------|--------|-------|--------|
| | N | % | N | % | N | % | N | % |
| Local | 57 | 12.67% | 71 | 11.47% | 185 | 6.65% | 313 | 8.13% |
| Non-local | 373 | 82.89% | 509 | 82.23% | 2443 | 87.81% | 3325 | 86.34% |
| Unknown | 20 | 4.44% | 39 | 6.30% | 154 | 5.54% | 213 | 5.53% |
| Total | 450 | | 619 | | 2782 | | 3851 | |
| Guide Origin | | | | | | | | |
| Local | 51 | 61.45% | 28 | 38.36% | 169 | 43.44% | 248 | 45.50% |
| Non-local | 30 | 36.14% | 31 | 42.47% | 187 | 48.07% | 248 | 45.50% |
| Unknown | 2 | 2.41% | 14 | 19.18% | 33 | 8.48% | 49 | 8.99% |
| Total | 83 | | 73 | | 389 | | 545 | |
| Angler Gender | | | | | | | | |
| Female | 13 | 2.89% | 26 | 4.20% | 109 | 3.92% | 148 | 3.84% |
| Male | 435 | 96.67% | 592 | 95.64% | 2670 | 95.97% | 3697 | 96.00% |
| Unrecorded | 2 | 0.44% | 1 | 0.16% | 3 | 0.11% | 6 | 0.16% |
| Total | 450 | | 619 | | 2782 | | 3851 | |

Table 11. Solicited angler responses to four opinion questions at the time of interview by the creel clerk, 2018 Delaware Tailwaters creel census.

| Question 1 - Have you previously been interviewed for your opinion? | | | | | | | | |
|--|-------------------------------------|----------|----------------------------|--------|--|--------|---------------------------------|--------|
| Response | N | % | | | | | | |
| No | 2414 | 0.623289 | | | | | | |
| Yes | 1411 | 0.364317 | | | | | | |
| Unsure | 16 | 0.004131 | | | | | | |
| Unknown | 32 | 0.008262 | | | | | | |
| Total | 3873 | | | | | | | |
| Question 2 - How satisfied were you with your overall fishing experience(s) in the Delaware Tailwaters in the last three years? | | | | | | | | |
| Response | N | % | | | | | | |
| Very satisfied | 1040 | 42.80% | | | | | | |
| Satisfied | 814 | 33.50% | | | | | | |
| Neutral | 235 | 9.67% | | | | | | |
| Dissatisfied | 57 | 2.35% | | | | | | |
| Very dissatisfied | 12 | 0.49% | | | | | | |
| No response | 164 | 6.75% | | | | | | |
| Unknown | 1 | 0.04% | | | | | | |
| Unasked | 107 | 4.40% | | | | | | |
| Total | 2430 | | | | | | | |
| Question 3 - How Important are the below descriptions to you for a satisfactory experience? | | | | | | | | |
| Response | Catch many trout regardless of size | | Commonly catch large trout | | Catch at least one 20-inch sized or larger trout | | Harvest – To catch trout to eat | |
| | N | % | N | % | N | % | N | % |
| Extremely important | 98 | 4.03% | 284 | 11.69% | 340 | 13.99% | 38 | 1.56% |
| Very important | 327 | 13.46% | 832 | 34.24% | 623 | 25.64% | 67 | 2.76% |
| Somewhat important | 879 | 36.17% | 785 | 32.30% | 704 | 28.97% | 159 | 6.54% |
| Not important | 1019 | 41.93% | 417 | 17.16% | 646 | 26.58% | 2051 | 84.40% |
| No Response | 12 | 0.49% | 12 | 0.49% | 18 | 0.74% | 14 | 0.58% |
| Unknown | 7 | 0.29% | 7 | 0.29% | 8 | 0.33% | 12 | 0.49% |
| Unasked | 88 | 3.62% | 93 | 3.83% | 91 | 3.74% | 89 | 3.66% |
| Total | 2430 | | 2430 | | 2430 | | 2430 | |
| Question 4 - Of the four characteristics listed in question 3, which is the most important? | | | | | | | | |
| Response | N | % | | | | | | |
| Catch many trout regardless of size | 652 | 26.83% | | | | | | |
| Commonly catch large trout | 889 | 36.58% | | | | | | |
| Catch at least one 20-inch sized or larger trout | 634 | 26.09% | | | | | | |
| Harvest – To catch trout to eat | 75 | 3.09% | | | | | | |
| Unknown | 180 | 7.41% | | | | | | |
| Total | 2430 | | | | | | | |

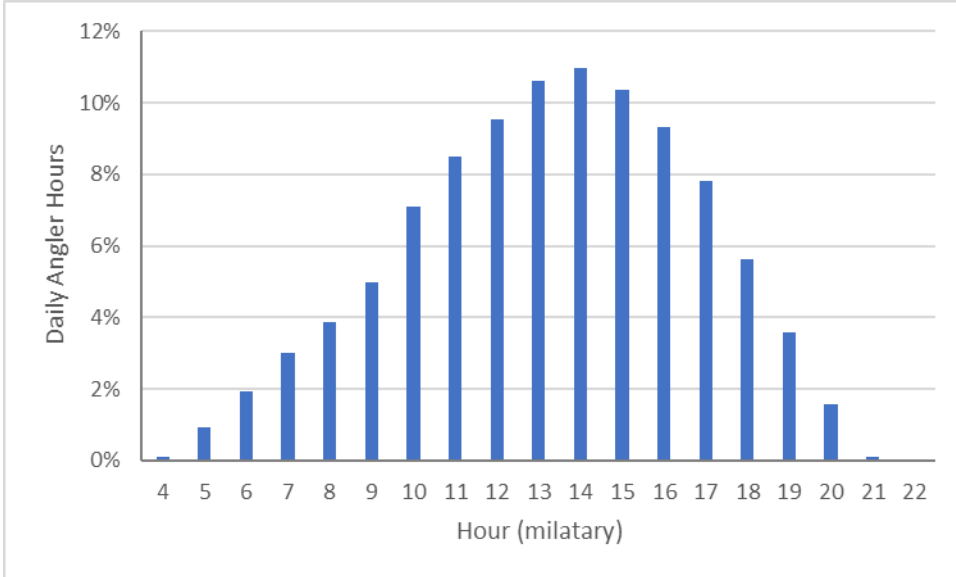


Figure 1. Estimated daily angler effort (anglers actively fishing) per hour of the day, 2018 Delaware Tailwaters creel census.

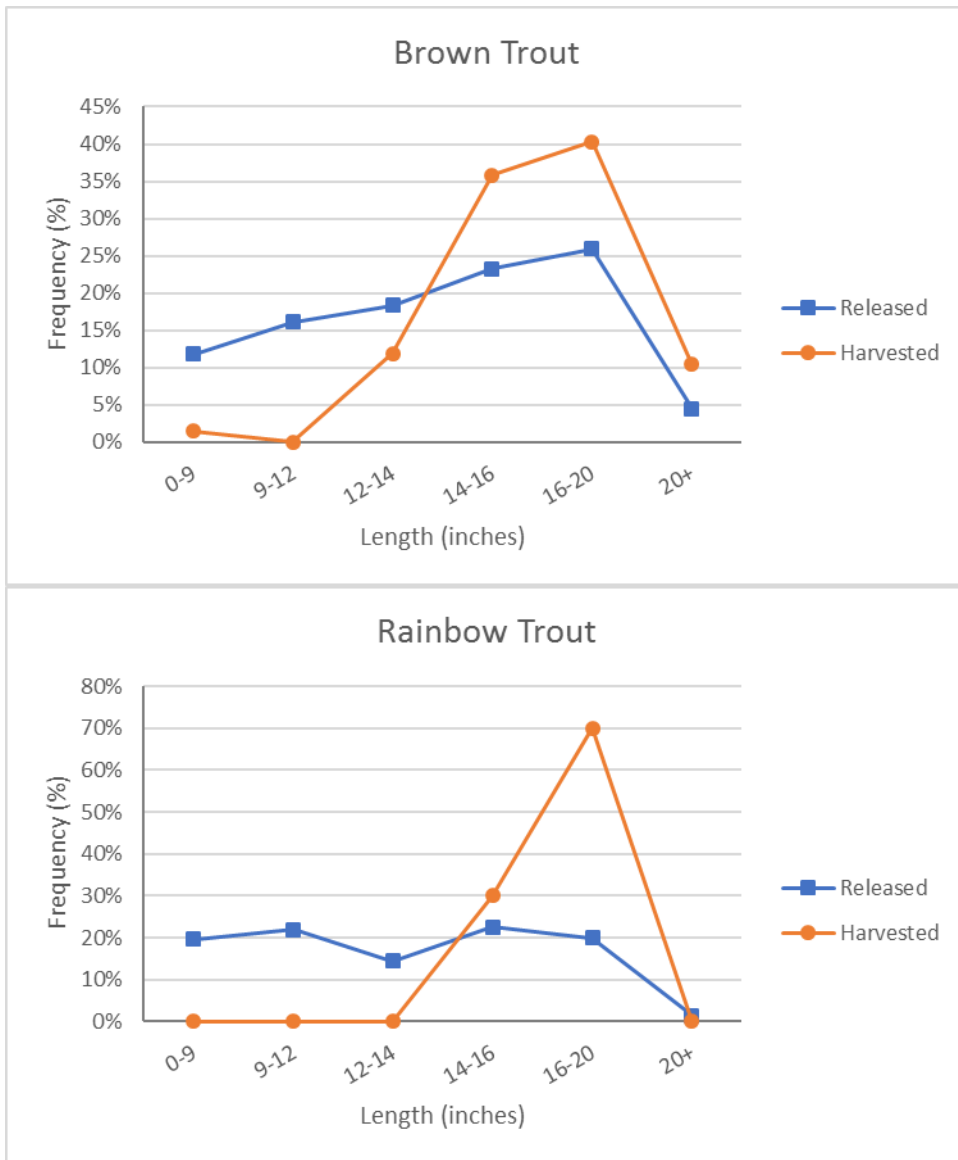


Figure 2. Length frequency of released and harvested trout reported during the angler interviews, 2018 Delaware Tailwaters creel census.

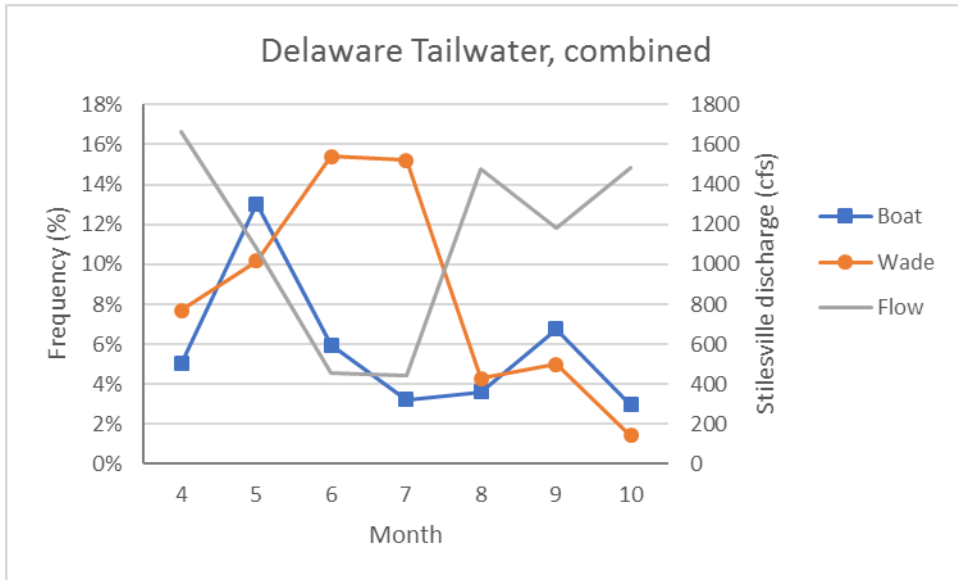


Figure 3. Monthly percent frequencies of boat and wade angler fishing modes relative to monthly mean flow rates as measured at the USGS Stilesville gage, 2018.