Central Queens Branch of the PEI Wildlife Federation 2025 Electrofishing Summary on the West and Clyde Rivers

Prepared by
Knowlton Parkman
Project Coordinator
Isaac Arsenault-Saunders
Field Coordinator
December 2025

Funding provided in part by
Atlantic Salmon Conservation Foundation

Introduction

The Central Queens Branch of the PEI Wildlife Federation (CQWF) carried out its annual electrofishing surveys in 2025 to assess juvenile salmonid abundance throughout the West River and Clyde River watersheds. The surveys assessed Atlantic salmon *(Salmo salar*) and brook trout (*Salvelinus fontinalis*) juvenile densities but also rainbow trout (*Oncorhynchus mykiss*), which are considered non-native to PEI.

Surveys targeted juvenile habitats to determine spawning success and recruitment from year to year at long-term index sites. These index sites were established in order to help monitor long-term population trends in salmonid communities and are assessed on an annual basis. Index sites are located on major tributaries (2nd and 3rd order streams) and also include sites along the main river (3rd and 4th order streams). Sites were strategically chosen to represent stream habitat and cover areas where there have been historical records of Atlantic salmon or brook trout spawning efforts. Site selection typically focuses on juvenile habitat that contains shallow waters (<60cm) with a lack of deep pools (>60cm) and coarse stream bottom substrate.

The main objectives for 2025 electrofishing surveys were to determine local juvenile abundances for salmonid species and also to determine which sections of river habitat are currently being utilized by Atlantic salmon. Another goal during these surveys is to conduct an inventory for salmonids present at the sites. This includes monitoring for juvenile brown trout as adults have been recorded on the West and Clyde Rivers by anglers. To date, no successful spawning of brown trout has been recorded (ie- recruitment of juveniles).

Methods

A battery-powered Smith-Root LR-24 electrofisher was used to conduct surveys. An electrical current is produced to immobilize fish and a crew is nearby to capture the stunned fish using dip nets. Captured fish are placed in a bucket and held until processed.

In order to measure density, a site is enclosed with barrier nets to prevent any immigration or emigration of fish during the survey. Barrier nets were used on the 14 sites surveyed on the main West River other than the new index site at Howells Junction where barrier nets were not used. Normally 3 sweeps (sometimes 4) are carried out through the entire site to establish a diminishing return of captured fish. Captured fish are identified by species and then measured to fork length to determine age class. Once all the captured fish are processed they are

released back to the stream. Population estimates are produced with the Zippin Three Sample method and in combination with the total area surveyed provides a measurement of fish per unit. The population estimate is used to determine the number of fish per 100m^2 and will be presented in that format for the purpose of this report. Other measurements also taken at each site include water temperature and GPS location.

Results

In 2025, between July 28th and August 1st, on the West River and Clyde River, a total of 15 sites were assessed by the CQWF field crew. The site at Howells Junction was conducted at a later date due to time constraints with the electrofisher. Of the 15 sites, 13 were on the West River and 2 were on the Clyde River.

During our 2025 electrofishing surveys, brook trout were present at all 15 sites surveyed. Brook trout spawning occurs more frequently on tributaries rather than along the main river and extends into the headwater regions. Abundances ranged from 12 to 193 fish per 100 m^2 and averaged 74 fish per 100 m^2 (Table 1). There was no significant relationship between the number of brook trout and other salmonids at any site. In 2025, brook trout densities were very similar to those observed at survey sites in 2024. The average density went from 73.1 fish per 100 m^2 in 2024 to 74 per 100 m^2 in 2025.

In 2025, Atlantic salmon were present at 6 of the 15 sites surveyed, while abundances ranged from 0 to 30 per 100 m^2 with an average of 14 salmon per 100 m^2 (Table 1). These results indicate many sites have moderate populations of salmon, four sites had 0.1-25 fish/100 m^2, two sites had 25-50 fish/100 m^2, and nine sites had 0 fish/100 m^2. In 2025, no juvenile Atlantic salmon were detected on the Clyde River, and they were last recorded on this river in 2012 (Figure 2). Stocking of salmon fry occurred each year from 2015 to 2022 however, it did not occur in 2023, 2024, or 2025, resulting in all the young-of-the-year salmon captured being native spawned fish. Sites along the West River main branch (W-Main3) are representative of native-spawned fish and produced the highest densities of salmon found during the 2025 surveys (30 fish per 100m^2).

Rainbow trout were present at all 15 sites surveyed. Abundances ranged from 6 to 172 per 100m^2 and averaged 38 fish per 100 m^2 during 2025 electrofishing surveys (Table 1). Rainbow trout are an introduced species and are considered to be nonnative and may compete

with Atlantic salmon for habitat usage in tributary areas since both species prefer swift riffle habitats. Rainbow trout were the dominant fish at the Carragher's site on Quinn's Brook (W-Quinn1). Several factors may contribute to the rainbows success in specific reaches such as warmer water temperatures on Quinn's Brook which may reduce the competitive advantage brook trout have with an earlier emergence.

In 2025, the Howell's Junction site (W-Main4) was surveyed again to target the spawning efforts by adult salmon and was previously surveyed in 2019, 2020, 2023, and 2024. Surveying had to be scheduled later in the season due to equipment availability. Howell's junction site is to be surveyed annually to help monitor the spawning recruitment of Atlantic salmon as redds are regularly recorded nearby this electrofishing site. No barrier nets were used at this site, therefor the Zippin formula may have inaccuracies as an assumption is there is no immigration or emigration within the site while the survey is being conducted.

General trends indicate that the overall juvenile populations in Brook Trout and Atlantic Salmon indicated a slight increase from 2025 when compared to 2024 as the average number of fish captured went from 67 per 100m2 to 74 per 100m2 in Brook Trout, and 6 per 100m2 to 14 per 100m2 in Atlantic Salmon. The overall juvenile population in Rainbow trout seemed to slightly decrease. The average number of Rainbow trout captured went from 54 per 100m2 to 38 per 100m2.

The overall population increased at 4 of the 15 sites surveyed in 2025 compared to the 2024 survey data, which is a decrease from the previous year. It is difficult to make accurate assumptions about the reasons behind these population changes, but it could be the result of many compounding factors. The lack of rain during the 2025 field season may have contributed to a slight decline in fish population due to possible habitat loss or fragmentation, migration disruption, and warmer water temperatures. Three sites had a significant change in total fish populations. (W-Main 1, W-Main 2, and W-Main 3) All had severe differences when compared to the 2024 survey data. (W-Main1) decreased by 55, (W-Main2) increased by 61, and (W-Main3) decreased by 45.

Recommendations

Moving forward, additional index sites along the main branch may be considered to be monitored in future endeavors to better represent the spawning population due to the bulk of spawning efforts being located along the main branch of the West River. It would be beneficial to have these index sites away from areas that are influenced by stocking efforts to have an adequate representation of population trends on the main West River. CQWF has followed this recommendation in 2023, 2024, and 2025 as it surveyed a site established in 2019 for a UPEI research study and will continue to do so as it serves as an important Atlantic salmon index site.

Additional recommendations include consulting with PEI professionals in order to standardize methods to monitor main branch sites without barrier nets. Main branch sites pose difficulties as the flow volume makes it difficult to maintain barrier nets during surveys. A standardized method approach will ease the process of monitoring main branch sites and increase our ability to monitor several sites.

A major discrepancy during our electrofishing survey is the lack of time with equipment. This impedes CQWF's ability to conduct electrofishing surveys. The electrofisher we use is provided to us through the PEI Watershed Alliance and use is limited to a maximum of three days, along with the necessary gear to conduct the surveys. Only having one backpack unit for the majority of island watersheds causes time restraints and irregular survey times during the season. Finding funding sources to help us obtain our foundation's own electrofishing gear to improve our efficiency has been talked about and may be brought up in future funding applications. Both recommendations are still relevant in 2025.

Table 1. Juvenile salmonid abundance calculations as fish per 100m^2 for 15 sites that had electrofishing surveys conducted in 2025 by CQWF.

Site Location	Site Category	Brook Trout	Rainbow Trout	Atlantic Salmon	Total (2025)	Total (2024)
Brookvale (Main branch)	W-Main1	39	32	3	73	128
Cudmores (Main River)	W-Main2	54	84	17	155	94
Bolger Park Rd (Main River)	W-Main3	25	20	30	75	120
Howells Junction (Main branch)	W-Main 4	12	21	29	62	71
Curleys (Brookvale)	W-Bvale1	193	16		209	206
Patsy Arsenaults (Brookvale)	W-Bvale2	60	6		66	82
Skye Bk (Brookvale)	W-Bvale3	91	8		99	99
Below Hatchery (Brookvale)	W-Bvale4	57	9	3	69	68
Carraghers (Quinn's Brook)	W-Quinns1	42	172	2	216	218
Riverdale Rd (Howell's Brook)	W-Howells1	106	84		190	210
MacDonald's (Howell's Brook)	W-Howells2	56	25		81	106
Wynn Road (Howell's Brook)	W-Howells3	94	41		136	~~0~~
Quinn Road (Howell's Brook)	W-Howells4	60	17		78	~~0~~
Dixon's Dam (Clyde River)	C-Main	145	23		167	164
Alex Dixon's (Clyde River)	C-North	76	16		92	86

Table 2. Range densities for salmonids captured during electrofishing surveys.

0	
0.1 - 24.9	
25-49.9	
50-70	
>70	
Didn't Survey	~~0~~

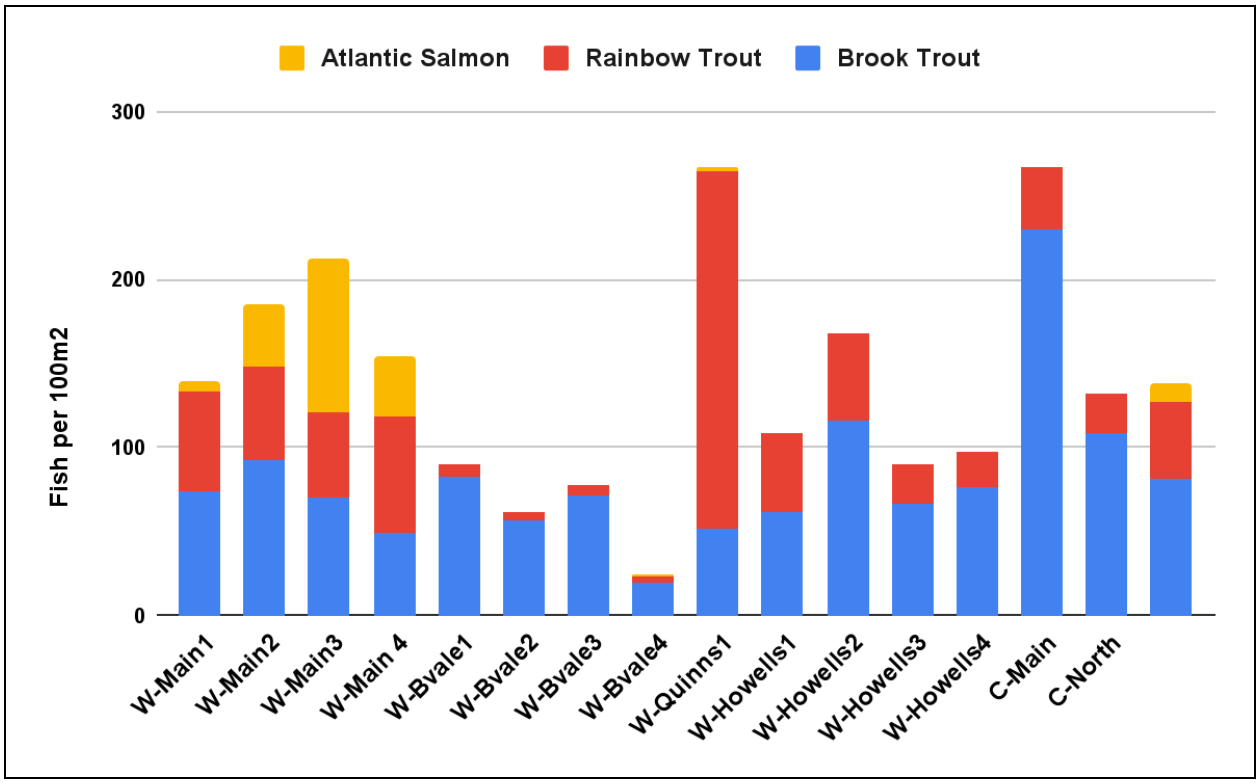

Figure 1. Electrofishing results from 2025 West River and Clyde River sites with fish captured calculated fish/100 m^2.

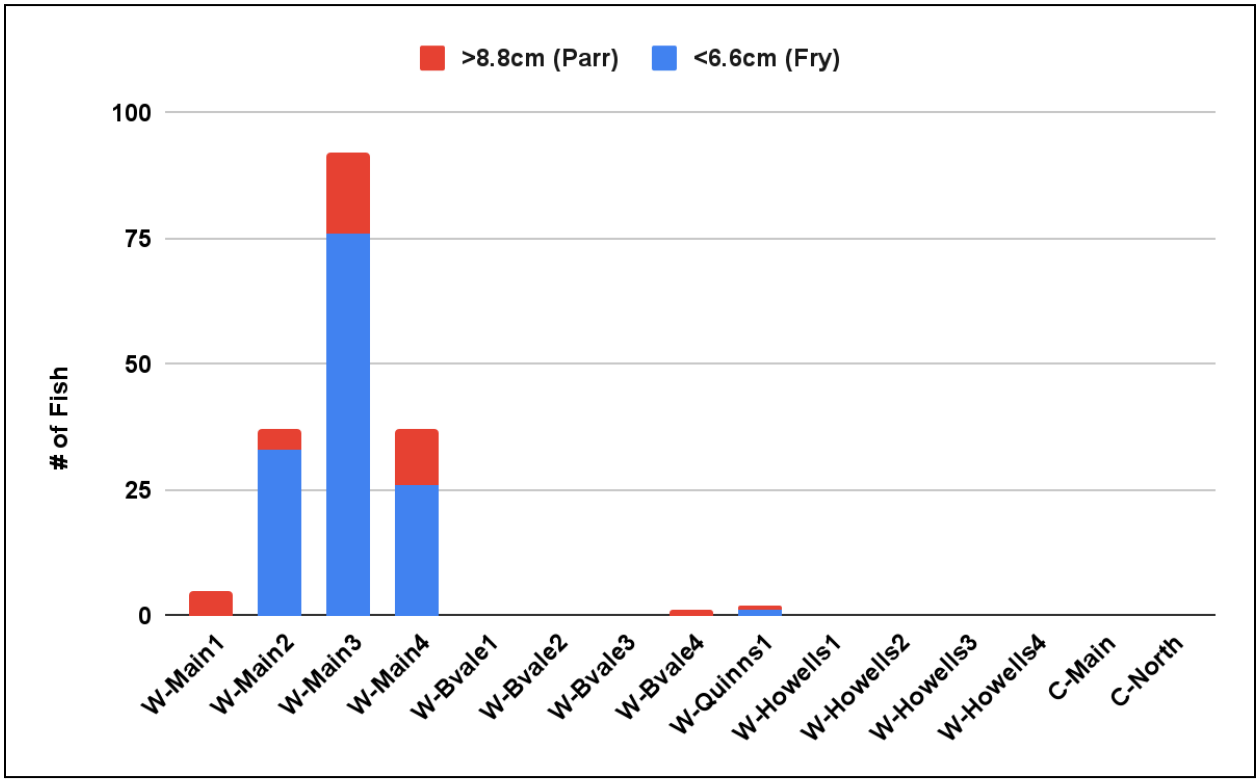

Figure 2. Age class distribution of Atlantic salmon for electrofishing sites surveyed in 2025.

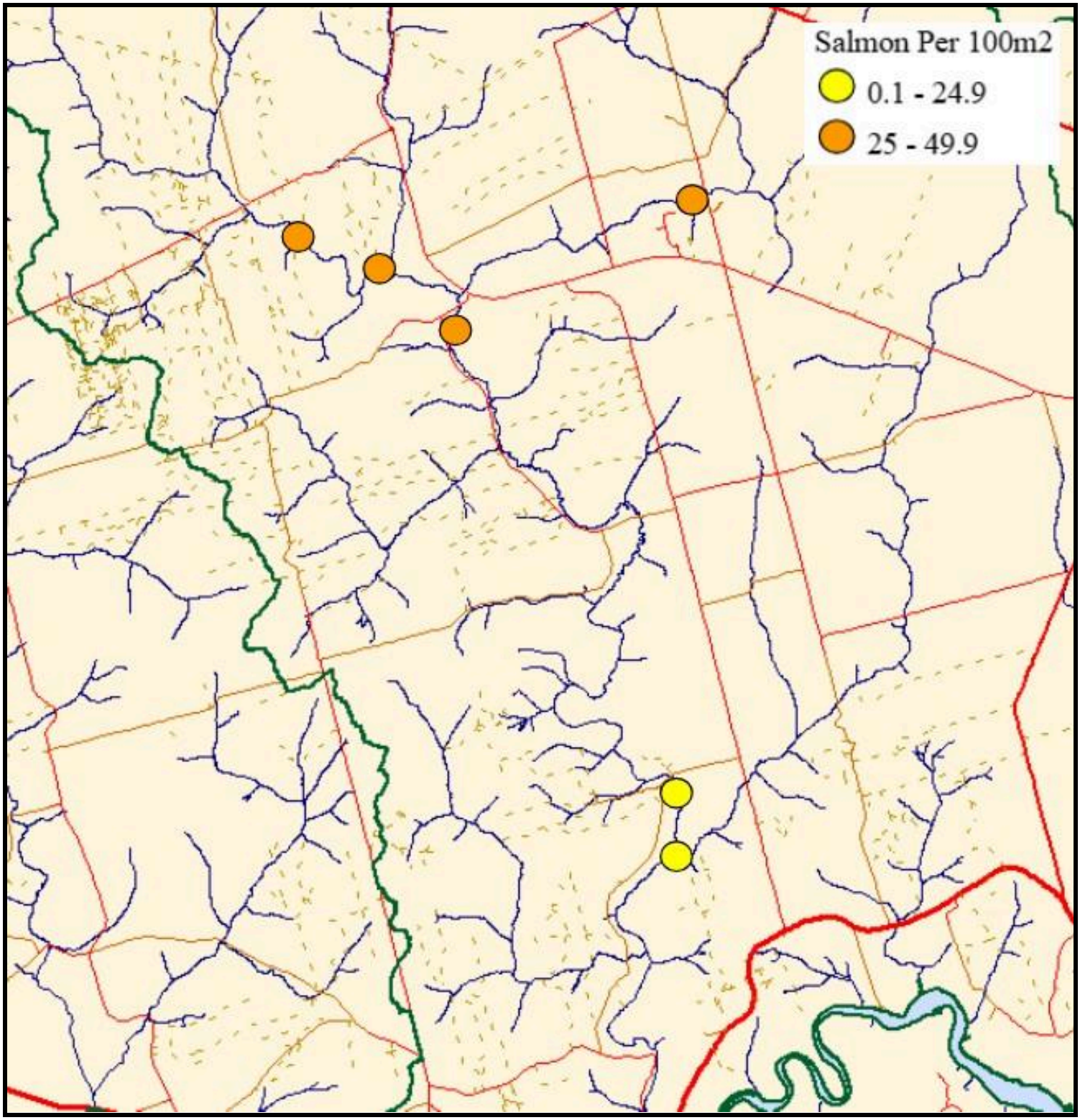

Figure 3. West River 2025 electrofishing survey sites with Atlantic salmon densities.