

**Central Queens Branch of the PEI Wildlife Federation 2025  
West River Riverwatcher Summary**



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## **Introduction**

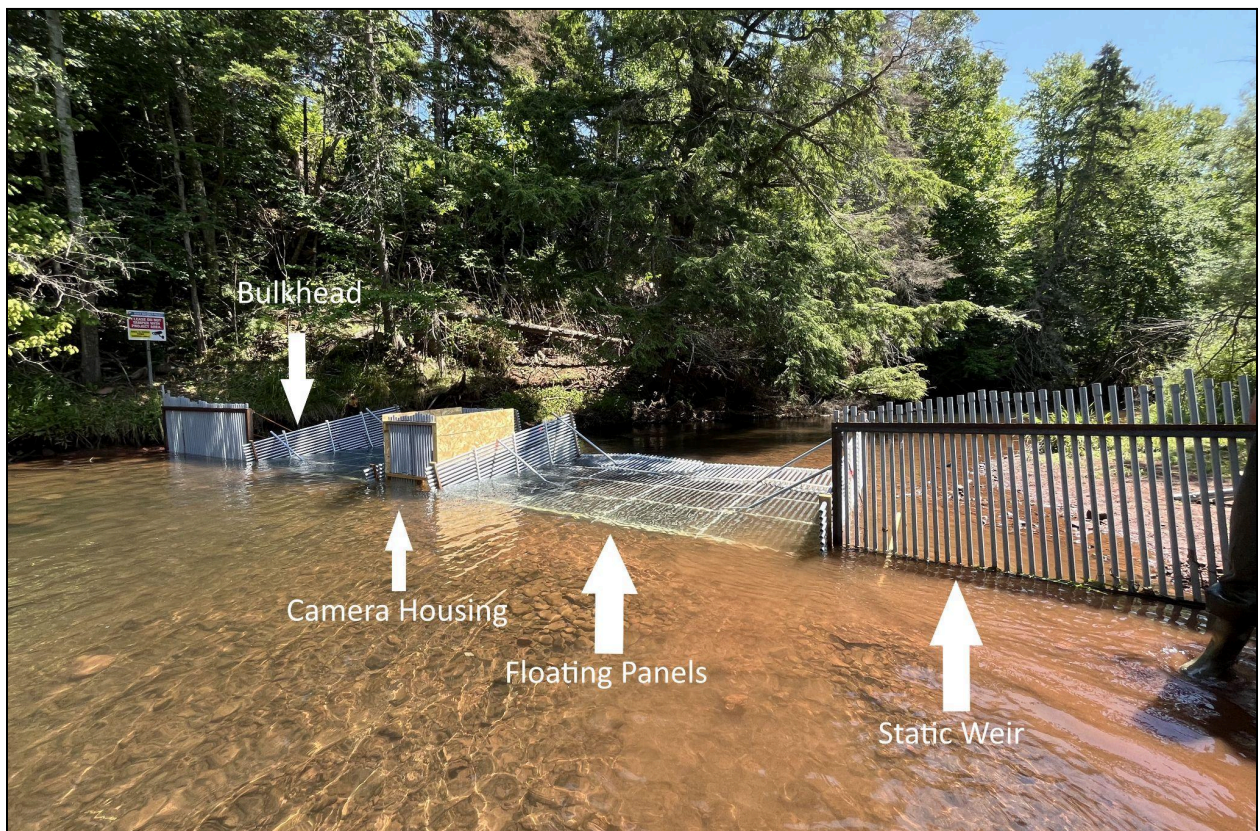
The Central Queens Branch of the PEI Wildlife Federation (CQWF) had an exciting development on the West River during the 2025 field season which involved the installation of a fish fence and Riverwatcher-CS unit to help gather a complete consensus on the adult fish populations within the West River. This unit was installed on the 23rd of July and was in operation until December 29th. This represents a significant leap forward in how we view our fish populations on PEI, as the various other life stages of salmonids within our river are studied. However, the adult class remains a large knowledge gap for our province. Juvenile recruitment can be surveyed through redd surveys & electrofishing; however, neither of these methods fills the knowledge gaps missing for adult counts within PEI rivers.

This piece of technology offers a relatively hands-free method of assessing the stocks within our river, as it does not contain any traps that hold the fish and allows them to pass freely upstream or downstream. The relative hands-free nature of the Riverwatcher system represents a step forward in stock assessment for adult migrating fish, as labor requirements to operate this system are a lot lower than a conventional fish trap and fence, whilst still providing crucial data to help assess the fish population and any other wildlife that may be observed travelling through the system. Because of the nature of this system, injuries are also reduced, as specimens are able to pass through without spending prolonged periods stuck in a trap before being handled and released to continue their migration downstream or upstream.

## **Methods**

The floating fish fence consists of four main components. The two pieces closest to the banks are called the static fences, which do not move with the water level changes. Next come the bulkheads, which run perpendicular to the static fence and the floating panels, and help in blocking any gaps between the floating panels and the static weir when the floating panels are changing their pitch to ensure the hinge area under water has a wall against each component of the fence to eliminate any circumnavigation. Bulkheads are placed between every component of this fence. Five floating panels were then placed and attached to a string of aircraft cable on the bottom of the stream using carabiners. This is the area that allows the floating panels to pitch and yaw with the water levels and with the aircraft cable effectively acting as the panels' hinge point. After the first set of floating panels, we then placed the camera housing box. This is the area where the riverwatcher camera was placed (see Figure 1). Three more panels and a static fence

secured the other side of the fence. A trench was dug for the power supply from the unit's computer, which could be run underground to the river, where it was encased in PVC tubing to help protect it from any damage in the river. Once the cord was in place and could reach the riverwatcher camera scanner unit, it was buried in the substrate to provide it with further protection. CQWF was able to borrow 12 floating panels from the Canadian Rivers Institute from a previous fish fence they had operational. All the floating panels needed to be repaired for further use, as they were broken in different areas. Daily cleaning needed to occur to make sure the camera lens and tunnel were free from any obstructions that may trigger the scanner to go off for a false recording, and to ensure the lens did not become dirty. The fence panels also had to be cleaned on a daily basis as the weight and flow obstruction the material imparted onto the floating panels could compromise the buoyancy of the panels or put excess stress on the aircraft cable and carabiner attachment areas. During late September to early November, two cleans a day were mandatory due to leaves falling and holding down the floating panels. Data from the riverwatcher was collected once every week and uploaded to the Winari software and put into an external drive as a backup.



**Figure 1. Parts of the Riverwatcher fence labeled**

## **Results**

Throughout the operating period from July 22nd to December 31st, we observed 1524 wildlife detections. Wildlife observed will be broken down into three separate size classes which will be small (0 - 25cm), medium (26 - 40cm) and large ( $\leq 60cm$ )

### **Brook Trout**

A total of 239 brook trout (*Salvelinus fontinalis*) were observed throughout the operating period of the fish fence and Riverwatcher camera unit, from July 23 to December 29th. Of the 245 fish observed, 68 of these fish were observed migrating upstream, and 177 were observed migrating downstream throughout the operational period. Trends observed throughout the operational period included an observed trend showing the highest volume of downstream migration through the months of September to December, with the peak observed amount through November being the largest downstream migration that occurred. There were no discernable trends to be observed with an upstream migration, but a slight uptake in migration was observed in November and December. Most of the migrants observed were within the small and medium size classes and some schooling behaviour was observed throughout the November and December months with schools of smaller trout being observed travelling downstream.

### **Rainbow Trout**

A total of 262 rainbow trout (*Oncorhynchus mykiss*) were observed throughout the operational period of the riverwatcher and fish fence. Of the 262 fish observed 131 of these fish were observed migrating downstream, and 131 were observed migrating upstream. Periods of peak upstream migration for rainbow trout occurred in the fall, with the majority of the large upstream migrants being observed throughout October to December, with the peak of the large upstream migrants occurring in November. Adults were observed travelling up and down through the system from the first week of installation to the end of the season and extended towards the end of the operating season. Most of the large upstream migrants observed appeared in good condition appearing very bright even through the infrared camera setting. Most of the upstream migration of larger fish also occurred mainly through nighttime hours.

### **Atlantic Salmon**

A total of 24 Atlantic salmon (*Salmo salar*) were observed throughout the operational period of the riverwatcher and fish fence. Of the 24 total fish observed, 14 were observed migrating downstream and 10 were observed migrating upstream. The first large salmon moving upstream occurred on October 9th, and the main upstream migration continued until the end of October. The first observed downstream migration of salmon occurred on October 28th, with four more downstream observations occurring, extending to November 5th. The main large observation of downstream migration was observed throughout the later period of November, starting on the 23rd, with the last downstream detection occurring on December 2nd. Due to technical difficulties experienced throughout October, it is conceivable that a portion of the upstream migration was missed as they travelled upstream through the system.

### **Striped Bass**

A total of 286 striped bass (*Morone saxatilis*) were observed throughout the operational period of the riverwatcher and fish fence. Of the 286 observations, 138 of the total observations were upstream migrations while 148 of the total observations were downstream. Striped bass was the first species observed passing through the system following installation. Trends observed with striped bass included a strong upstream and downstream migration throughout August. A strong correlation was also linked to the tidal cycle of the West River, with Striped bass pushing upstream in the tide and following the tide back down as it turned to an outgoing tide. Detections persisted from the installation date until November 29th.

### **Lesser Observed Species**

#### **Aquatic Mammals**

A total of 630 aquatic mammals were observed. Species observed included Common muskrat (*Ondatra zibethicus*), American mink (*Neogale vison*), and North American beaver (*Castor canadensis*). To date there have been no confirmed sightings through the riverwatcher system of River otters (*Lontra canadensis*) through the system. As the observations were all

lumped into aquatic mammals it is hard to get accurate numbers of each species however they remained the most numerous observation through the system with common muskrat being the most commonly observed followed by North American beaver and American mink being the least observed species

### **American Eel**

A total of five American eel (*Anguilla rostrata*) were observed travelling through the riverwatcher system. Of the observations through the riverwatcher, four were downstream detections with the other detection being an upstream detection. Detections occurred from August to November however with the small number of detections it remains hard to infer any trends related to the migrational timing of American eel.

### **Brown Trout**

A total of three brown trout (*Salmo trutta*) were observed throughout the operational period of the Riverwatcher and fish fence. All brown trout detections were downstream, indicating that these fish were already above the project location before the installation date.

### **Infected Fish (Saprolegnia)**

A total of nine fish were observed infected with Saprolegnia travelling through the riverwatcher system. Of the nine infected fish observed two of the detections were upstream migrations with the remaining seven being downstream detections. The first of these detections occurred November 11th and detections continued until December 5th.

### **Atlantic Tomcod**

A total of 31 Atlantic tomcod (*Microgadus tomcod*) were observed throughout the operational period of the riverwatcher and fish fence. Of the 31 detections, 10 of the detections were upstream movements with 21 total downstream detections. The first detection of this species occurred on the 19th of November and the final detection was on the 29th of December. Some fish were observed going to their side within the camera tunnel to create a spawning area which coincides with the timing of these fish heading upstream from the estuary regions to

spawn near the head of tide. Trends showed a higher amount of detections throughout the month of December.

### **Rainbow Smelt**

A total of five schools of Rainbow smelt (*Osmerus mordax*) were observed during the 2026 operating period. The first observed detection of rainbow smelt through the system occurred on December 12th, with detections extending to December 24th. Detections of smelt mainly occurred during nighttime hours with only one detection occurring during the daytime hours.

### **Blueback Herring & Stickleback**

The Riverwatcher detected one school of stickleback and one detection of Blueback herring (*Alosa aestivalis*). Due to the later installation date the Blueback herring run had already mainly run its course, leading to the riverwatcher only picking up one detection.

Species	Upstream Detections	Downstream Detections
Brook trout	68	177
Rainbow trout	131	131
Atlantic salmon	10	14
Striped bass	138	148
American eel	1	4
Aquatic Mammals	284	346
Brown trout	0	3
Stickleback	3	2
Herring/Alewife	0	1
Infected fish (saprolegnia)	2	7
Atlantic tomcod	10	21
Rainbow smelt	2	5

## **Discussion**

Due to certain unforeseen circumstances, we were not able to install the floating fence and river watcher system as early as anticipated, which led us to not be able to record the early summer run of brook trout and blueback herring and the early spring migration of rainbow smelt or the outgoing Atlantic salmon kelt and smolt migration. Our group is aiming to install the system earlier in the season for 2026, which should help us to achieve a more complete consensus on the adult fish population entering or leaving the West River due to the incomplete consensus that was achieved in 2026 it remains difficult to make any assumptions on the status of the stocks of fish species within the West River.

We were able to catch our river's Atlantic Salmon migration recording of ten salmon entering our river. We also experienced technical difficulties with the riverwatcher and recordings were not being properly taken which started on October 11th and the issue was only able to be resolved on October 22nd, this would have likely been the peak period of our upstream migration for Atlantic salmon and was a period with good tides along with some significant rainfall events which would have made it attractive for salmon to migrate from the estuary environment through the riverwatcher system towards their spawning grounds. We had a low amount of salmon captured on video swimming upstream, but that number does reflect the low amount of salmon redds that were recorded this year (see our annual Atlantic Salmon redd report)

We captured a long list of different species through the camera in 2025. This species included: brook trout, rainbow trout, Atlantic salmon, striped bass, brown trout, American eel, Atlantic tomcod, North American beaver, common muskrat, American mink, stickleback, rainbow smelt, and blueback herring. As this study's first year, we are unable to compare data to previous years, making it challenging to quantify this year's results. In addition this year did not serve as a complete seasons worth of data meaning that we missed a large chunk of some of the migrations which would have occurred prior to the installation date. In addition to the technical difficulties we had occur during one of the most important periods of the year left us with lots to improve upon going forward to ensure the study goes forward smoothly going forward for the remainder of the time period in which we have this system installed within the West River.



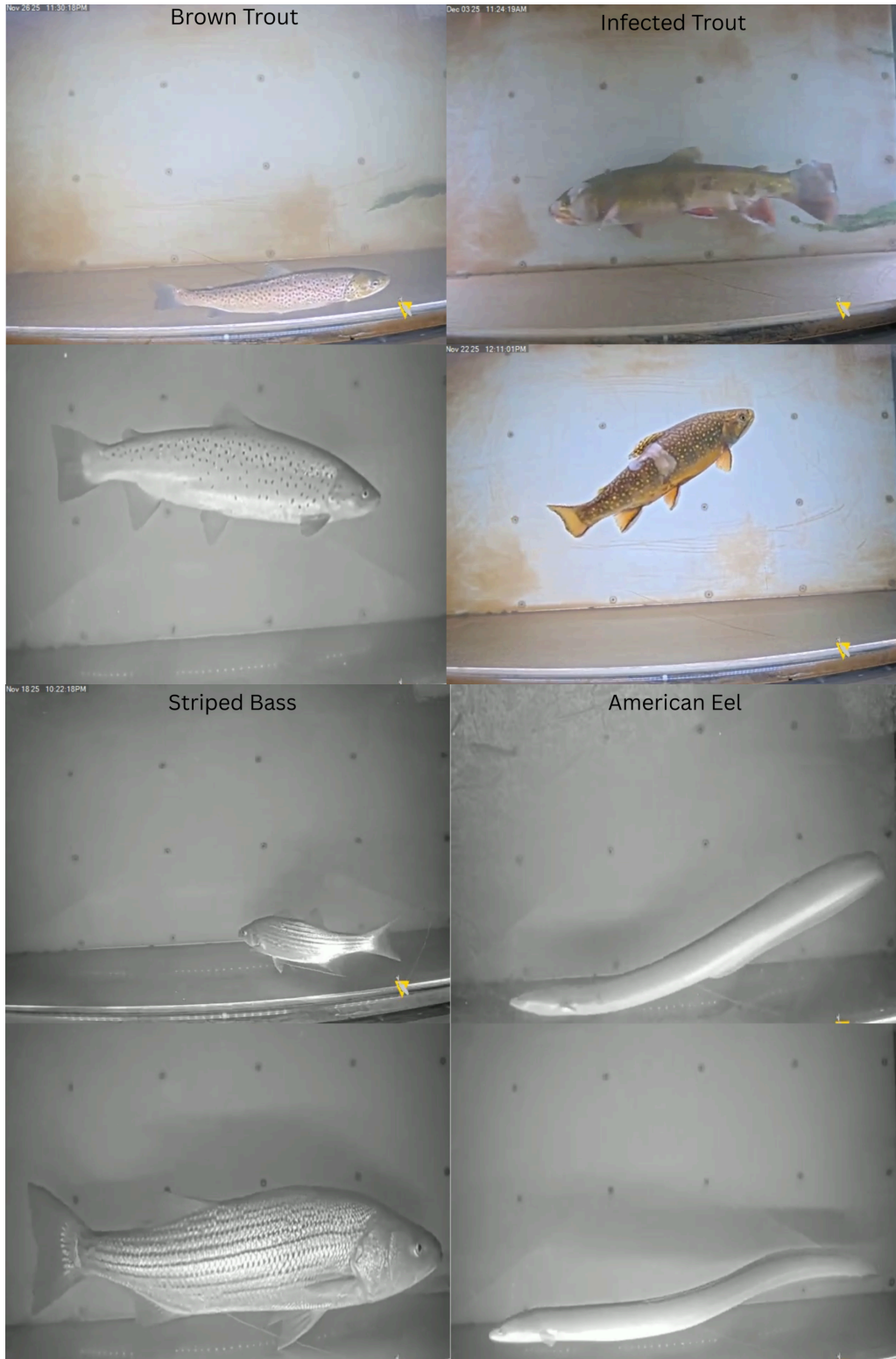
**Figure 2.** Pictures of the Riverwatcher and fish fence setup and location



**Figure 3.** A top down view of the Riverwatcher project location on a high and low tide



**Figure 4.** Pictures of observed species travelling through the camera tunnel



**Figure 5.** Pictures of more observed species as they travelled through the riverwatcher