



2025 Pleasant Lake System Report

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Summary

In 2025, Carp Solutions continued its management of common carp in the Pleasant Lake system. Monitoring of spawning migrations was continued using Passive Integrated Transponder (PIT) antennas at the Deep Lake outlet and Pleasant Culvert sites as well as a new site at the inlet of Charley Lake. Ten unique PIT tagged carp were detected at the outlet of Deep Lake, nine at the Charley inlet, and only one at the Pleasant Culvert site. Backpack electrofishing was used to remove 96 carp at the Deep Lake outlet trap, including three that had been implanted with PIT tags in 2019. Based on the total detections at the Deep Lake site (10) and those removed (3), 30% of the estimated 320 carp spawning run was removed. Based on the estimated population and biomass density from 2024 (592 carp, 16.5kg/ha), the carp population was reduced to approximately 500 carp with a biomass density of 14 kg/ha. Boat electrofishing was performed in 2025, but no carp were captured. From these results, there is a high confidence that the migration removals since 2022 have reduced the carp biomass density in Pleasant Lake below the management threshold of 100 kg/ha. We recommend continuing the operation and maintenance of the Deep Lake barrier/trap, continued monitoring via PIT antennas at all three sites, and exploring potential removal options for carp visiting the Charley Lake inlet during the spring.

Methods and Results

PIT Antennas

Three Passive Integrated Transponder (PIT) antennas were deployed throughout the system in 2025. These systems were used to understand the movement of carp within the system during the spring spawning run as well as assist with the timing of removals in one location. A map of all these PIT systems can be seen in Figure 1.

A PIT antenna was placed at the outlet of Deep Lake within the carp trap in order to determine when carp were aggregating and assist with trap closure timing. The antenna was installed on March 14th, 2025, 29 days before the first carp was detected on April 12th, 2025. A total of 10 unique PIT tagged carp were detected on the antenna. The carp were detected on several days between early April and late May (Figure 2). Up to four PIT tagged carp were detected per day. These PIT tagged carp were detected for 2.6 days on average. The outlet PIT antenna was removed on June 30th, 2025. All unique PIT detections over the duration of the spring-summer are displayed in Figure 2.

An additional PIT antenna was installed at a culvert to a pond on the northeast side of Pleasant Lake. This system was installed on March 26, 2025. The first PIT-tagged carp was detected at the Pleasant Lake culvert site on May 8th, 2025, 43 days after it was installed. Only a single PIT tagged carp was detected on the antenna, as well as 2 other tags not in our tag inventory. These other two tags could have been pets or other tagged wildlife. The single tagged carp was detected on six separate days between April 12 and May 26 (Figure 3). This tagged carp was also detected at the Deep Lake Outlet PIT system two days after it was last detected at the Pleasant Lake Culvert site. The outlet PIT antenna was removed on June 19th, 2025.

A PIT antenna was also placed at the inlet to Charley Lake downstream of the water control structure operated by the St. Paul Regional Water Service (SPRWS) on March 21st, 2025. Carp first appeared at the Charley Lake inlet site on May 6th, 2025, 46 days after it was installed. A total of 9 unique PIT tagged carp were detected on the antenna. The peak of activity occurred around May 8, when up to 7 tagged carp were detected per day for one week (Figure 4). Smaller numbers of carp were also detected in late May and early June. On average, individual carp were detected at the site for 3.8 days. Three of these nine PIT tagged carp were also detected at the Deep Lake Outlet trap. Two of these three PIT tagged carp were detected at Deep Lake Outlet three days (May 9) after they were detected at the Charley Lake inlet (May 6). The other carp was first detected at the outlet of Deep Lake and then 4 days later at the Charley Lake inlet and then again at the outlet of Deep Lake 11 days later. The inlet PIT antenna was removed on August 11th, 2025.

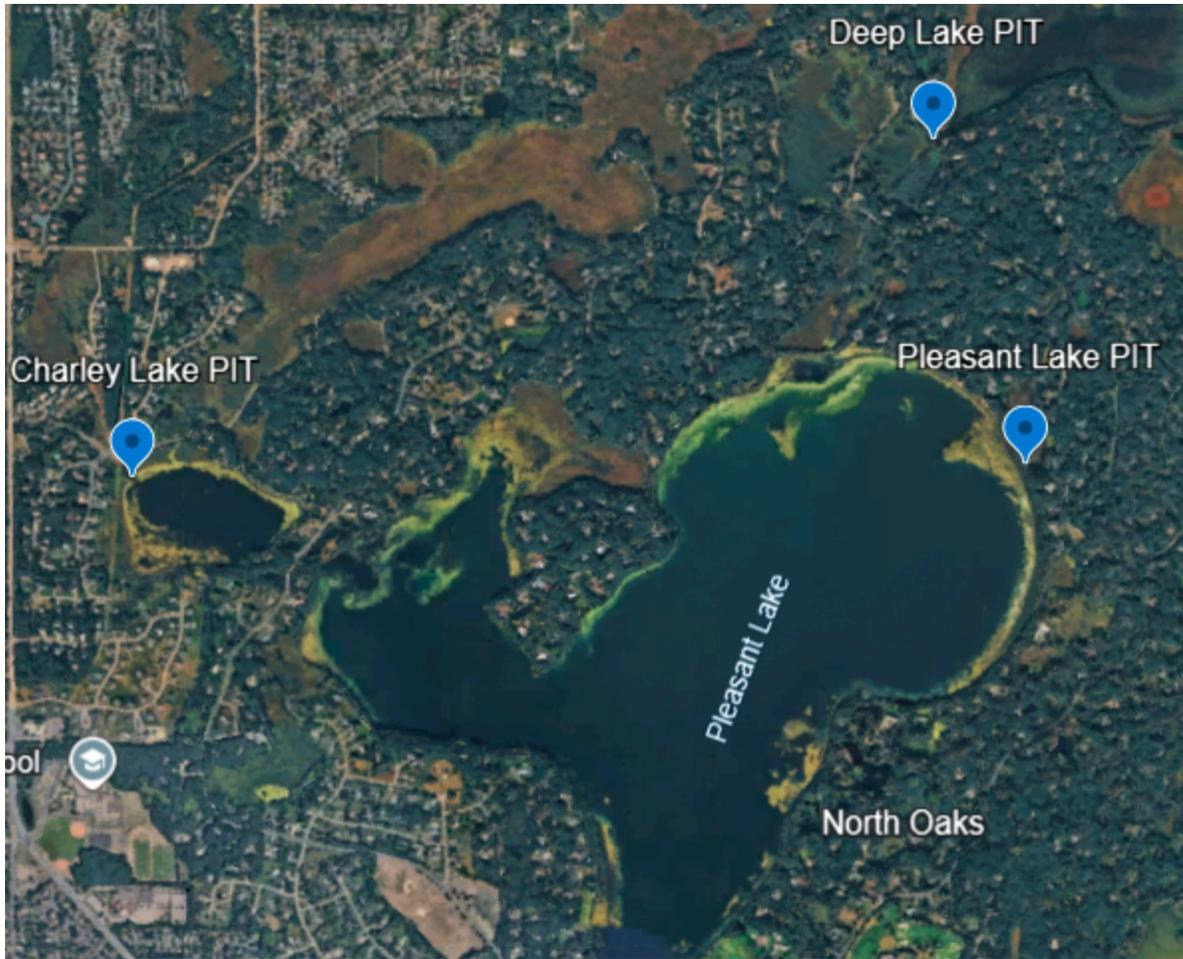


Figure 1: Map of Passive Integrated Transponder (PIT) antennas in 2025.

2025 Deep Lake Channel PIT Antenna Count

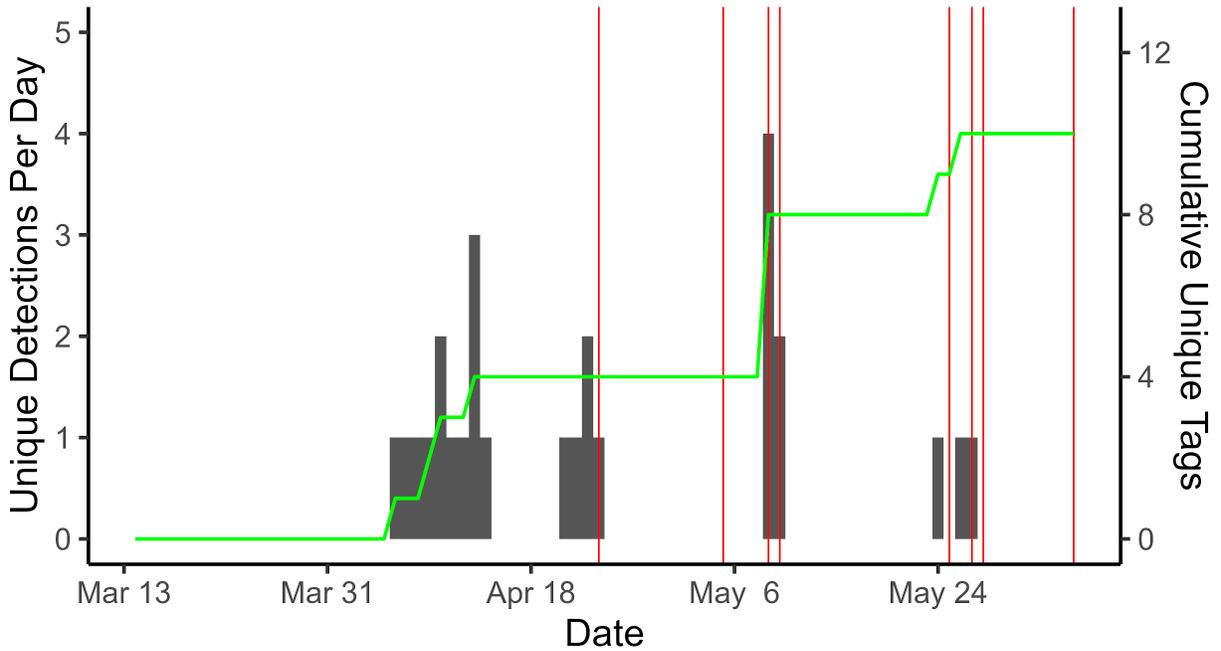


Figure 2: Number of tagged carp detected per day at the Deep Lake outlet PIT site. The red vertical lines indicate carp removal days. The green line indicates the cumulative unique tags detected.

2025 Pleasant Lake Culvert PIT Antenna Count

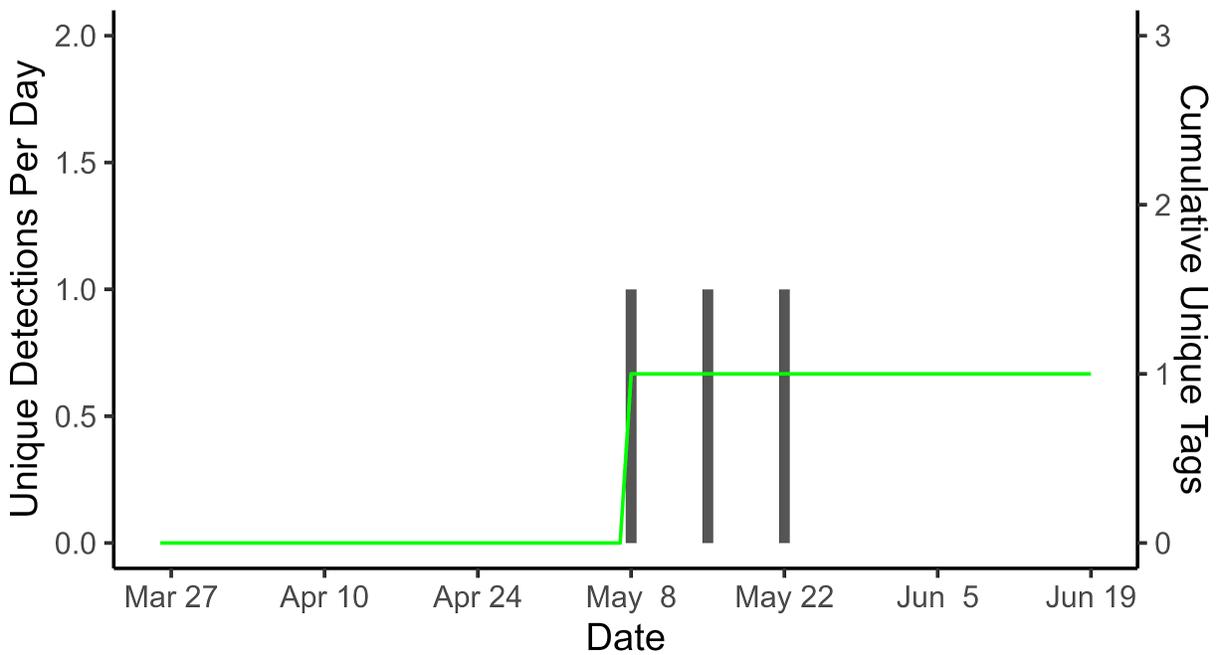


Figure 3: Number of tagged carp detected at the Pleasant Lake Outlet PIT site. The green line indicates the cumulative unique tags detected.

2025 Charley Lake Inlet PIT Antenna Count

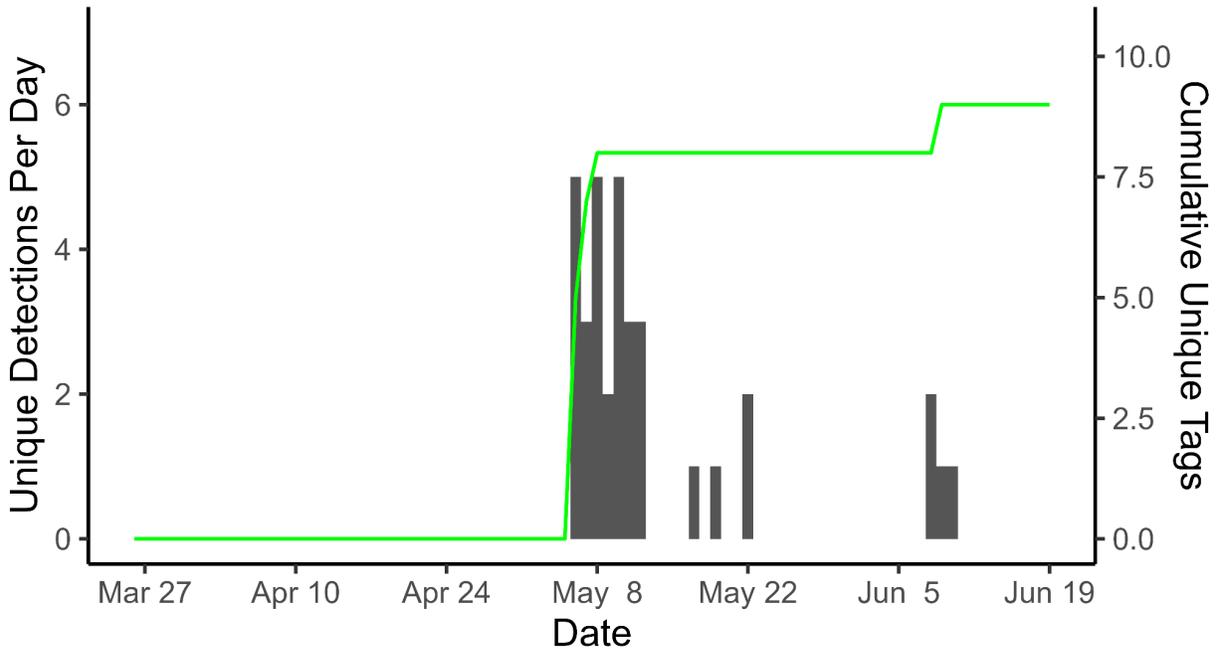


Figure 4: Number of tagged carp detected at the Charley Lake inlet PIT site. The green line indicates the cumulative unique tags detected.

Backpack Electrofishing

During the spring of 2025, 8 backpack electrofishing removals were conducted at the Deep Lake outlet trap. A total of 96 carp were removed throughout the course of the season. Three of the carp captured had previously been implanted with a PIT tag, 3.125% of the carp collected. A sample of 86 of the carp captured during these removals were measured for length prior to being euthanized and disposed of. A distribution of the sample of lengths is shown in Figure 5. The average length of captured carp was 32.4 in. The average estimated weight of the captured carp was 15 lbs. Based on the small sample size (3 recaptured carp), recapture rate of 1 tag per 32 carp removed and number of unique tags detected (10), the estimated spawning run in 2025 was approximately 320 carp, 96 of which were removed. Based on the estimated 592 carp and 16.5 kg/ha from 2024, we estimate that the carp population has been reduced to approximately 500 carp with a biomass density of 14 kg/ha. A summary of the removal efforts can be seen in Table 1.

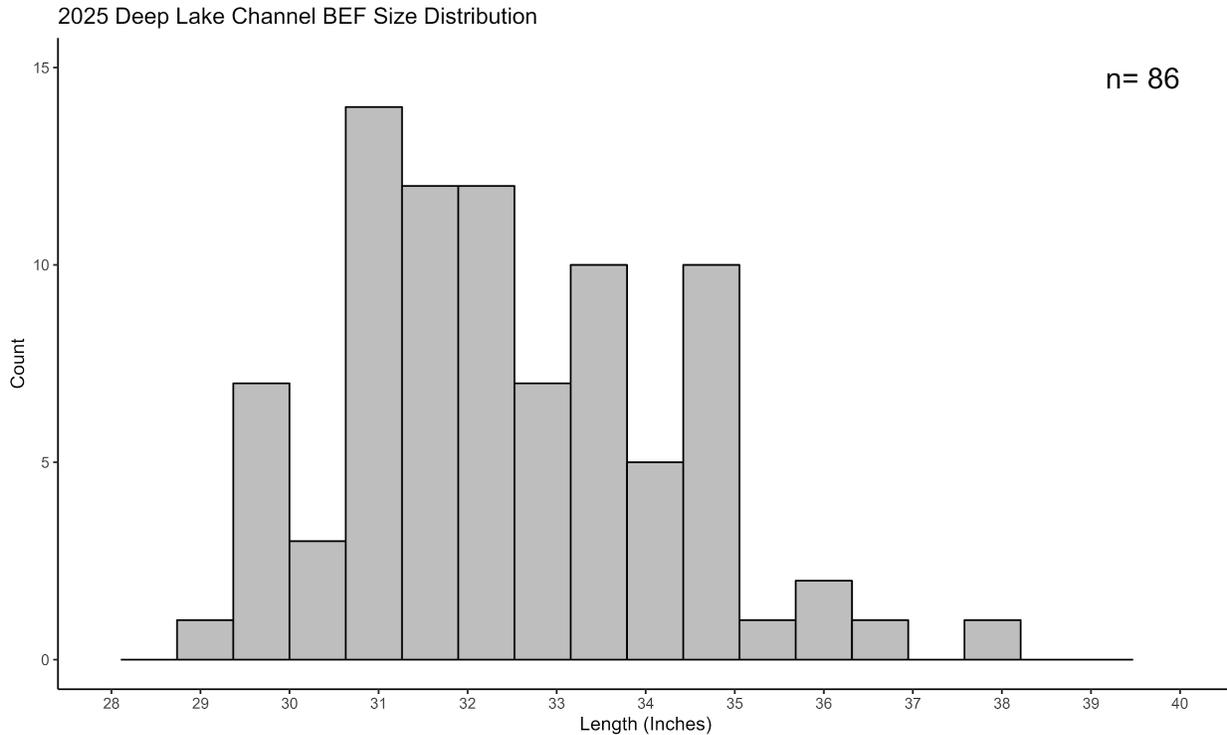


Figure 5: Histogram of length distribution of carp (n=86).

Table 1: Summary of removals at Deep Lake trap during the spring of 2025.

Date	Catch	PIT Recaps	Average Length (in)
4/24/2025	26	1	31.8
5/5/2025	18	0	32.2
5/9/2025	5	1	32.5
5/10/2025	1	1	0.0
5/25/2025	34	0	33.3
5/27/2025	7	0	32.2
5/28/2025	4	0	32.6
6/5/2025	1	0	29.7
Average	12	0.375	32.4
Total	96	3	

Boat Electrofishing

During the summer of 2025, three boat electrofishing surveys were conducted on Pleasant Lake to determine the biomass density and estimated population of common carp. Surveys consisted of four transects per day, each lasting approximately twenty minutes of effective electrofishing time. When current was passed through the water,

stunned fish would float to the surface where carp could be collected using dip nets. Other species were identified, but not collected during this process. Due to the size of Pleasant Lake, the lake was divided evenly into seven transect zones, out of which four were selected at random each survey day. During these surveys there were no carp sampled. Due to no carp being captured during these surveys, it was not possible to estimate the carp population or biomass density. A summary of the survey days can be seen in Table 2. Other species observed were bigmouth buffalo, bluegill sunfish, black crappie, bowfin, largemouth bass, muskellunge, northern pike, pumpkinseed sunfish, walleye, and yellow perch.

Table 2: Summary of boat electrofishing survey transect on Pleasant Lake in 2025.

Date	Transects	Carp caught	Time shocking (min)	CPUE
6/15/2025	4	0	80	0.00
7/8/2025	4	0	84	0.00
7/21/2025	4	0	80	0.00
Average	4	0	82	0.00
Total	12	0	245	

Discussion

The population of common carp in Pleasant Lake continues to decrease. No small/juvenile carp were captured in the stream trap at Deep Lake, and no carp of any size were captured during the three boat electrofishing surveys in Pleasant Lake. This supports our conclusions from prior years that the reproductive success of carp remaining in Pleasant Lake is very limited, likely due to native fish predation.

Boat electrofishing surveys captured no carp in Pleasant Lake, and thus a population estimate could not be generated using this method. However, given our mark-recapture estimate from 2024 (population of 592 carp) and carp removal in spring 2025 (96 carp removed), we estimate that the current population has been reduced to approximately 500 carp and approximately 14 kg/ha in terms of biomass density. These estimates are based on small sample sizes and need to be considered with caution. However, we do have high confidence that removal efforts have reduced the carp population in Pleasant Lake.

The 2025 spawning run dwindled significantly from the previous years, dropping to an estimated 320 carp (96 removed) from 1,150 carp (601 removed) in 2024 and 1,000 carp (384 removed) in 2023. There are several potential explanations for this decline:

1. Overall carp numbers are low due to continued removal, lack of recruitment, as well as natural mortality. Most carp in Pleasant Lake are old (two carp aged in 2022 were 46 and 47 years old) and may be reaching their natural life span.

2. Carp explore alternative migration routes - this conclusion is unlikely because only nine tagged carp were detected at Charley Inlet and one at the Pleasant Lake Culvert, and four of those were later detected at the Deep Lake barrier.
3. Carp did not migrate in 2025. We cannot exclude this possibility, but the lack of carp captured by boat electrofishing in Pleasant Lake in the summer of 2025 suggests that the overall population is down.
4. The highly variable temperature fluctuations in the spring of 2025 might have affected the carp migratory behavior. We have observed lower-than-expected carp spawning runs in multiple watersheds during the spring of 2025.

Systematic, continued monitoring of carp spawning runs, targeted removal of migrating carp, in combination with lack of recruitment and natural mortality may result in the functional extinction of the common carp population in Pleasant Lake in the future.

Management Recommendations

1. We recommend that monitoring of carp spawning runs and opportunistic removal of carp continues at the Deep Lake outlet to further reduce the population of carp within the Pleasant Lake system. Since the infrastructure already exists at this location, removals can be continued with relative ease.
2. The barrier at Deep Lake should continue to be maintained during the spring to reduce the risk of successful carp recruitment in that shallow lake.
3. Based on the significant number of detections at the Charley Lake inlet site, it is recommended that at minimum surveillance of this site using PIT antennas be continued. However, we recommend relocating the PIT antenna system from Charley Lake inlet to Charley Lake outlet (i.e. between Pleasant Lake and Charley Lake). If the carp intend to use Charley Lake as a spawning area, we expect that most would be detected at Charley Lake outlet. In addition, exploring options to target the population of carp visiting this site for opportunistic spring removals is recommended. A physical barrier in the channel may not be feasible due to frequent heavy water flows. However, a block net along the shoreline near the Charley Lake outlet might be feasible to target the staging carp.
4. Finally, we recommend boat electrofishing surveys in Pleasant Lake every other year to monitor carp abundance, size structure, and recruitment.