



A report on common carp radio-tag tracking in Normandale Lake

Prepared for Nine Mile Creek Watershed District

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Summary

Carp Solutions was contracted to implant radio transmitters in 12 common carp from Normandale Lake and track their movement through the spring of 2019. This movement study would help understand carp migration patterns in the watershed, and possibly identify potential carp spawning locations

On April 16, 2019 Carp Solutions staff conducted an electrofishing survey to capture carp and implant them with radio tags. 15 carp were captured, of which 12 were implanted with radio tags (Table 1). Four separate surveys were conducted to locate radio-tagged fish in Normandale Lake and adjacent waterbodies. Surveys were conducted on May 14th, May 28th, June 7th and June 17th. One additional survey was completed on June 28th in other areas of the watershed to attempt to locate radio-tagged carp that were not found in previous surveys.

On May 14th, all 12 tagged carp were found in Normandale Lake (Figure 1). On May 28th, two of the tagged carp were found upstream in the adjacent wetlands, five were located in Normandale Lake, and another five were not detected (Figure 2). On June 7th, three of the five missing carp from the May 28th survey were located back in Normandale Lake, while the other two were still undetected. One radio-tagged carp was believed to be dead, as the radio tag gave off a mortality signal. In total, 9 radio-tagged carp were detected in Normandale Lake during the June 7th survey (Figure 3). The final survey occurred on June 17th, with 8 tagged carp being detected in Normandale Lake, including the one that was emitting mortality signal, and four radio-tagged carp were not detected (Figure 4). An additional survey was conducted on June 28th to try and locate the missing radio tagged carp from the previous surveys. Several locations upstream in the watershed were checked, but no radio tagged carp were detected. The locations checked included: Creekside Circle off of Nine Mile Creek, Creekside Trail, Norman Creek Trail, Covington Apartments, Green Valley Drive Pond, Smetana Lake and Delany Blvd by a residential area.

In conclusion, a portion of the carp in Normandale Lake migrated out of the lake in the spring of 2019. Carp were found in the wetland complex directly upstream of Normandale Lake, which could be a potential carp nursery location and warrants further investigation. Two radio tagged carp were never detected after the May 14th survey and could be at-large in the watershed, suggesting carp movement could be broader throughout the watershed. Three radio-tagged carp were detected in Normandale Lake all spring, suggesting not all carp migrate each year.

It is possible that the two radiotagged carp that were not found after May 14, migrated further upstream exploring more remote nurseries. Carp that exhibit such migrations often return to their lakes later in the season. Therefore, we recommend another telemetry surveys later in the season (November) to determine if the carp returned to Lake Normandale. If they did, that would suggest that there are additional carp nurseries located far upstream. Alternatively, those carp might have moved downstream through the barrier, at which point they would not be able to return to Lake

Normandale (vertical drop at the outlet). The late season survey would help answer that question too.

Management Recommendations

A previous fisheries assessment on Normandale Lake was completed in 2018 by staff from the Riley Purgatory Bluff Creek Watershed District. That assessment indicated carp biomass in Normandale Lake at 163.78 kg/ha, which would exceed the carp biomass threshold of 100 kg/ha where ecological damage can occur. It was noted the carp that were sampled were all greater than 500 mm in length. During that assessment, trap-net surveys were also completed and found a fish community dominated by bluegill sunfish and no young of year carp, indicating no carp recruitment occurred in Normandale Lake in 2018.

Pairing data from the 2018 assessment, with movement data from the Carp Solutions radio tag tracking study, further carp management efforts are warranted.

Carp Solutions recommends further investigation into the frequency and locations of carp recruitment. Aging a subsample of carp (~50) from Normandale Lake would provide data on how frequent carp recruitment has occurred in recent years. If recruitment occurs frequently, managing the carp nurseries would become a higher priority. If recruitment is sporadic, the population could potentially be managed through continued removal efforts. Pairing the aging data with trap-net surveys in the wetland complex just upstream would provide further data to better understand carp recruitment to Normandale Lake. The carp movement study clearly showed that carp move into this wetland complex in the spring, making this area a potential carp nursery. Trap-net surveys in this complex would sample for young of year carp, as well as native fish, including bluegill sunfish that can act as an effective biocontrol for carp recruitment by feeding on carp eggs and larvae. Finally, we recommend piloting carp removal efforts in Normandale Lake. Carp Solutions would setup two to three box-net traps early summer and conduct 2 to 3 removal efforts with them throughout the summer. Box-nets are rectangular nets with four sides and a bottom, connected to several posts and a triggering system. The nets lay flat on the bottom of the lake while cracked corn is placed on top of the net. Baiting with cracked corn over several days will condition the carp to feed in these locations. When enough carp are determined to be feeding, Carp Solutions would trigger the nets at night, raising the sides, and capturing the carp that are feeding at this location. If pilot removal efforts are successful, this could be a long-term management strategy to reduce carp abundance in Normandale Lake. This effort can be even more cost-effective by recruiting volunteers to conduct the baiting. In addition to evaluating removal efforts, box-net efforts could also help verify the carp biomass estimate in the lake by providing a mark-recapture estimate. Carp Solutions would mark a subsample of carp in the spring through electrofishing, and as the marked carp are recaptured through box-netting, we can use the data to verify the population estimate. Carp Solutions would welcome further discussion around these recommendations.

Figure 2. May 28, 2019 Radio Tag Tracking Survey

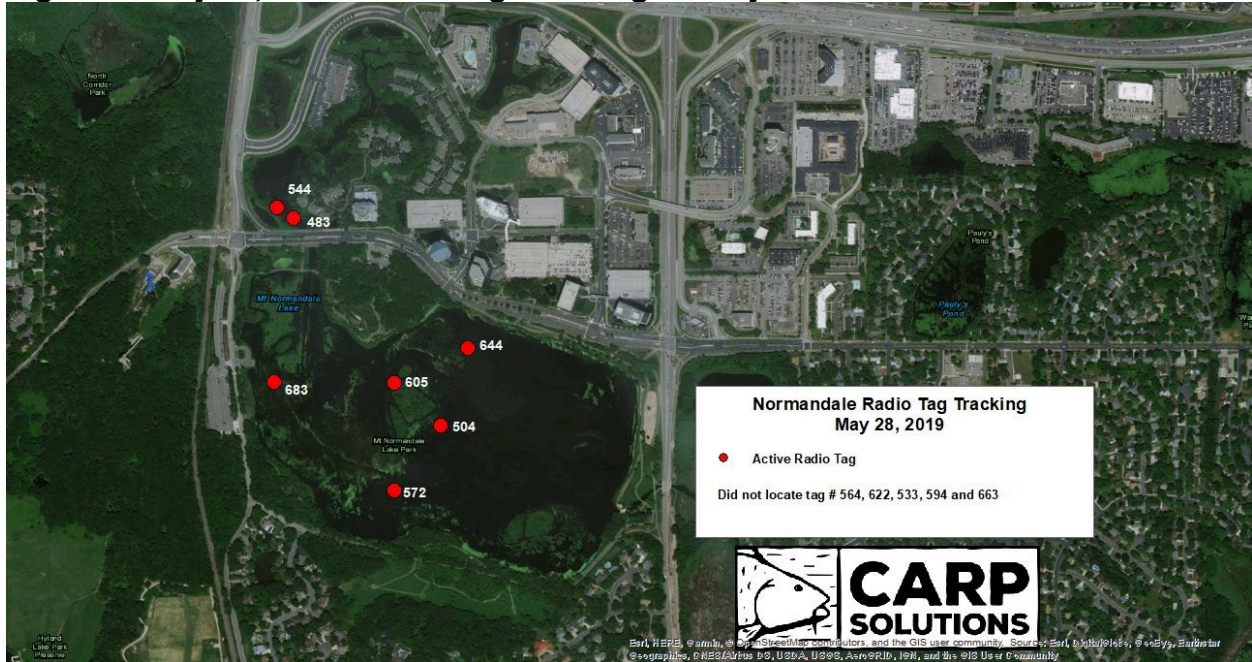


Figure 3. June 7, 2019 Radio Tag Tracking Survey

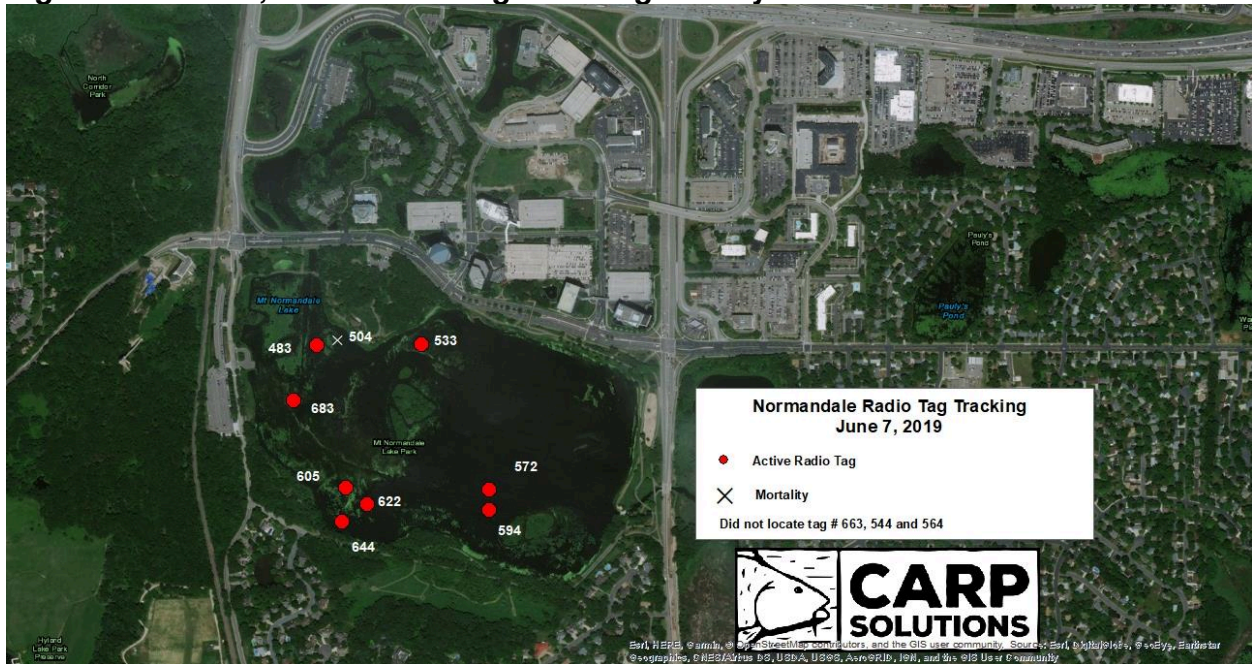


Figure 4. June 17, 2019 Radio Tag Tracking Survey

