

Lake Norman Hybrid Striped Bass Project Update

Lawrence Dorsey

Piedmont Fisheries Research Coordinator

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Overview

On May 11-14, 2020, 50 Hybrid Striped Bass were implanted with an acoustic receiver tag (Vemco V9TP) that contained depth and temperature sensors. Each fish was also implanted with a radio tag (Lotek MCFT2). All fish were collected using angling and released at a private dock in Stumpy Creek.

In order to track these fish, staff employed active and passive tracking techniques. Prior to the release of the telemetered fish, staff installed 42 Vemco VR-2 receivers in the reservoir and two receivers immediately downstream of Cowans Ford Dam. Receivers are downloaded during each active tracking event. Active tracking began in late June 2020 and continues to present time. From mid-July through late August 2020, active tracking occurred weekly. Since then, tracking has occurred monthly.

At present, only 14 fish of the original 50 fish are alive in the reservoir. Most of the mortalities have been documented through the retrieval of the radio tags from deceased fish. A smaller number have not been detected either by active or passive tracking over an extended period suggesting that they are in fact dead.

Total Detections

As of May 2021, over 700,000 individual detections have been recorded from telemetered fish. Figure 1 illustrates the patterns in detections throughout the reservoir during this period; acoustic tag detections from tags shed by dead fish were eliminated after the date when the fish appeared to die. The largest number of detections were recorded in the Cowans Ford Dam forebay, Davidson Creek, and Mountain Creek areas. It is interesting to note that hybrid Striped detections in the uplake sections (above the Long Island area) were low during this yearlong period. This may be because fish telemetered in 2020 were caught in Mountain

Creek as well as between Windemere Island and Stumpy Creek on the main channel and were released in Stumpy Creek post-surgery. These fish appeared to be in post-spawn condition and therefore likely would not return to the riverine section of the reservoir for spawning purposes. Initial observations suggest that hybrid Striped Bass are present throughout the year in Mountain Creek; the second year of data collection will determine if this pattern is consistent over multiple years. Finally, detections at the Marshall Steam Station discharge and the McGuire Nuclear Station discharges were low throughout the first year of the study.

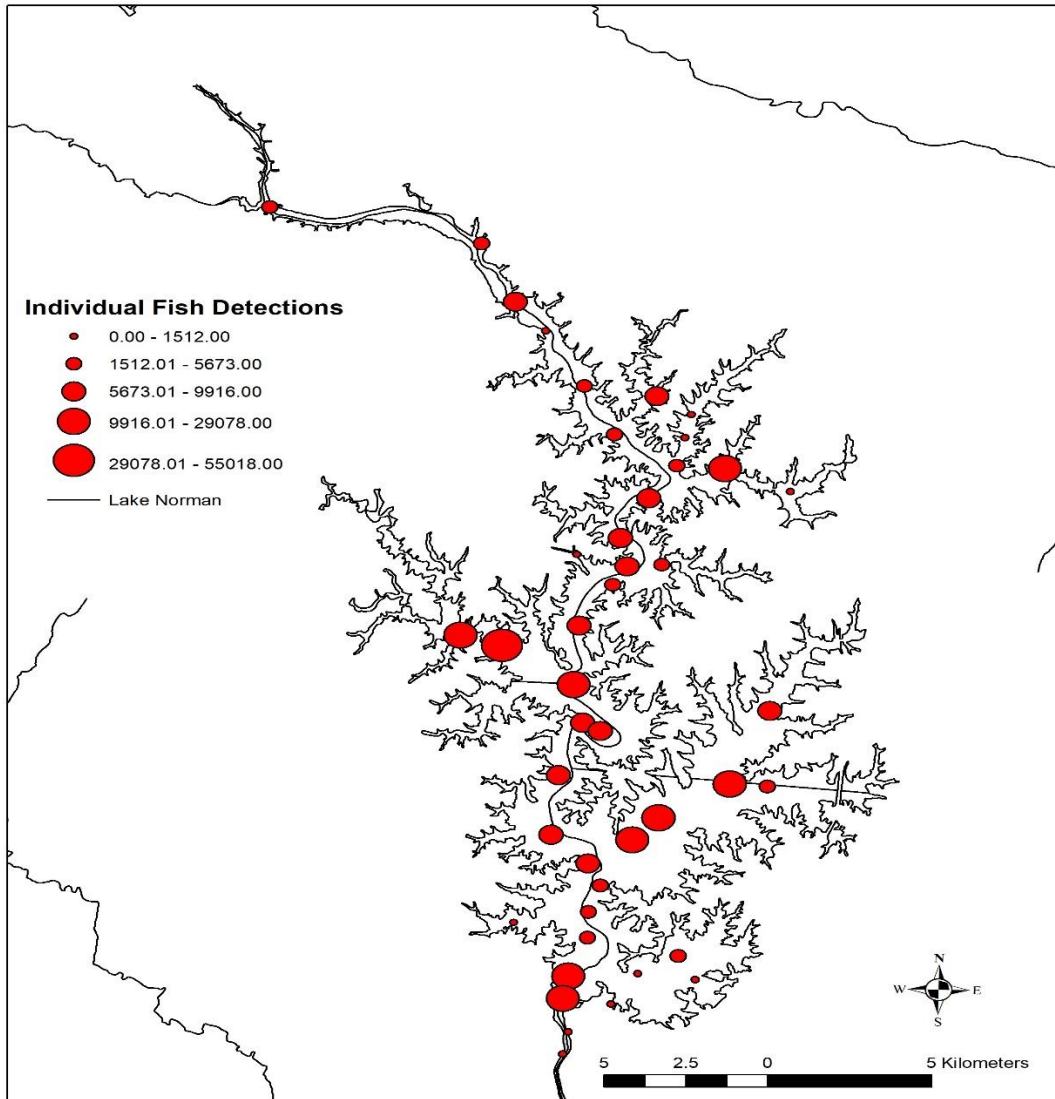


Figure 1. Individual fish detections by receiver location from May 2020 – April 2021.

Distribution of Hybrid Striped Bass During Summer Months

One of the primary goals of this study is to identify hybrid Striped Bass habitat use during the summer months when physical habitat may be limited in certain areas of Lake Norman. Figure 2 illustrates the individual fish detections from July 15 – August 15, 2020, for receivers located at markers 2A, 2, 1A, 1 and at the WQ1 buoy. This section of the lake is the area where physical habitat becomes the most affected in the summer months and previous fish kills have been documented when Striped Bass were stocked in the reservoir. Data collected from these receivers illustrates the avoidance of the metalimnion by hybrid Striped Bass as the metalimnion becomes more anoxic throughout the summer. After August 12, 2021, only one fish is registered in the hypolimnion, and that fish was determined to be dead. These data coincide with Duke Energy water quality data from this period as well as the observance of a small fish kill of hybrid Striped Bass during this time.

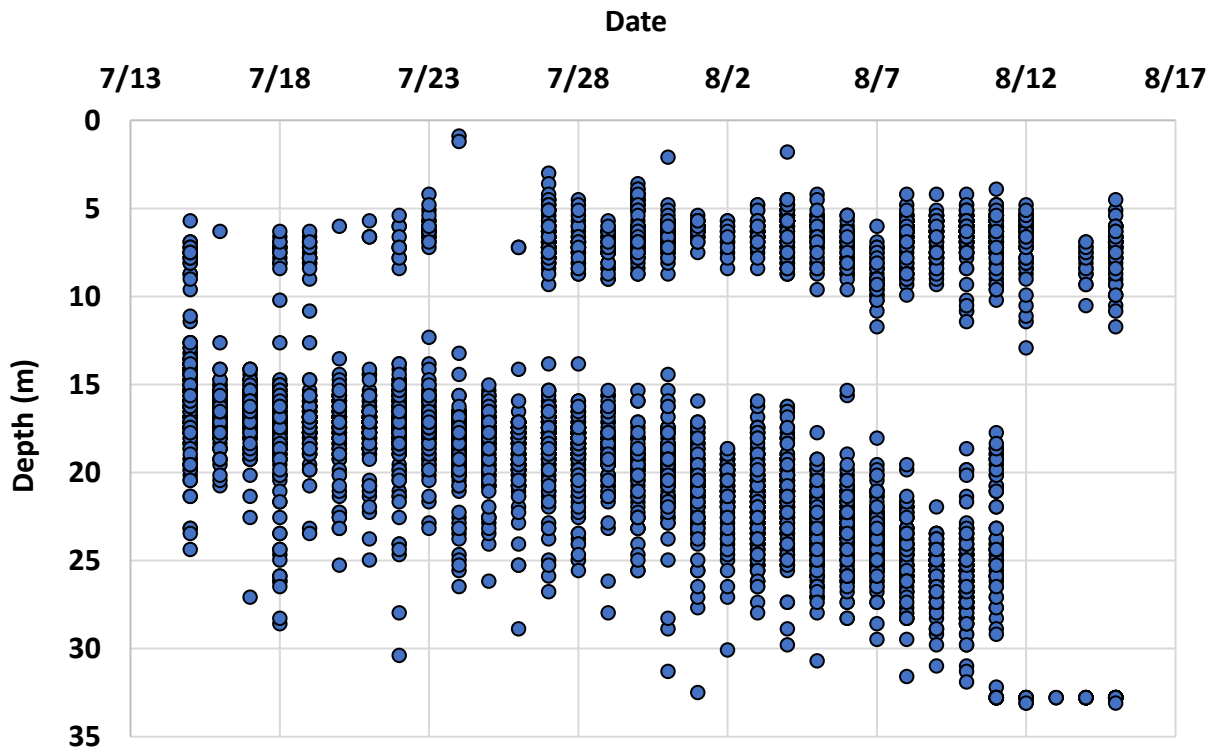


Figure 2. Individual hybrid Striped Bass detections by depth (m) for fish in the lower portion of Lake Norman from July 15 – August 15, 2020.

Future Plans

- Staff telemetered an additional 64 fish in early May 2021 and have already begun data collection on this cohort. These fish were also collected via angling but were released at Long Island, Lyles Creek, and below Lookout Shoals Dam.
- Staff have received raw water quality data from Duke Energy and will begin to examine in relation to our telemetry observations.
- Staff will also begin the process of compiling movement data and determining vertical and longitudinal movement patterns for hybrid Striped Bass in Lake Norman.