Stream Temperatures in Hudson Brook Summer 2022

As part of the Hoosic River Watershed Association's continuing assessment of the Hoosic River, we (Dan, Lauren, and Dick) focused on the Massachusetts portion of Hudson Brook. This brook drains an area of 7.5 square miles in Vermont and Massachusetts. It is 83 percent forested, especially the Vermont portion, while just over 5 percent is developed, mostly in Massachusetts. The brook joins the north branch of the Hoosic River at the entrance to Natural Bridge State Park off Route 8 in North Adams.

Temperature data loggers were placed at four locations in the brook and one location in the north branch of the Hoosic. The loggers were started at noon on July 15, set to record hourly, and retrieved on Sept. 3. As in past years, the primary variable used to compare locations and to assess the status of a cold water fishery is the maximum 7-day mean daily temperature. In 2022, these maximums occurred on August 7.

The sample location farthest upstream (6.36 kilometers from the mouth) is on a tributary (Bear Swamp Brook) and 0.14 km from this tributary's confluence with another tributary (Cowan Brook). This confluence is the official beginning of Hudson Brook. The maximum at this location was 64.8 degrees F. Further downstream at a location off West Rd. and 5.22 km from the mouth of Hudson Brook, the maximum was warmer at 65.4 degrees.

The next section of the brook showed a significant amount of warming, 3 full degrees over a distance of about 3 km. The brook upstream of this location, just off Cross Rd., is initially shaded, but then for 1.5 km flows through developed areas including a large gravel extraction area. The temperature of 68.4 is likely uncomfortable for cold water fish.

The final section of Hudson Brook shows some cooling, dropping 0.9 degrees over that final 2 km. Much of the brook is shaded through this section, but there is an impoundment that might be expected to counter any cooling. Just upstream of the confluence of Hudson Brook with the Hoosic, the temperature was almost 71.9 degrees F., so 3.5 degrees warmer than Hudson Brook. As with other tributaries we have studied, this tributary does help cool the main river. The other time we sampled those two locations, in 2005, Hudson Brook was 1.7 degrees cooler. That year, the precipitation during the summer months was above normal and the maximums occurred on Aug. 11.

The Manomet Center for Conservation Sciences and the National Wildlife Federation study in 2013, entitled CLIMATE CHANGE AND RIVERINE COLD WATER FISH HABITAT IN THE NORTHEAST: A VULNERABILITY ASSESSMENT REVIEW concluded that riverine cold water fish habitat in the Northeast is indeed vulnerable to climate change, but may not be as vulnerable as earlier studies may have suggested. Extreme events are likely important, but we think that our expanding temperature data base will also contribute to our understanding of how and where climate change may affect our cold water fishery.

September 30, 2022