

THE SCIENCENTER 2019 NANFA CORCORAN GRANT REPORT

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Ithaca, New York

The Sciencenter is a community-built, hands-on science museum located in Ithaca in the Finger Lakes region of New York State. We have been in operation for almost 40 years, and our current facility, which we've been in since 2002, has over 250 interactive exhibits developed for children and families of all ages. Each year, we welcome approximately 110,000 guests to our museum and provide thousands of hours of educational programming, both at our museum and out in the community. Some of the most popular exhibits and programs at the museum are those that allow guests to interact with our live animal collection. In the Saltonstall Animal Room and at the Touch Tank in the Ocean Gallery, which together showcase the majority of our collection, we facilitate over 46,000 interactions with our guests annually. Over the past year, we've completed a renovation of an exhibit showcasing the biodiversity of an upstate New York waterway that includes native Brook Trout *Salvelinus fontinalis*. We're excited to share our experience working on this project.

Our animal collection was first assembled in the early to mid-1990s and initially focused on exotic species. Since 2014, we have intentionally shifted our focus towards featuring animals that are within reach of our guests, both figuratively and literally. We have renovated our Touch Tank to mimic a Northeast tide pool, replacing previously displayed Pacific creatures with a number of Atlantic species. We have also created a vestibule to our Animal Room, called the New York Natives room, which showcases life from the Finger Lakes region. These changes have allowed for more tangible lessons and meaningful conversations with our guests around conservation and how the choices and activities our guests engage in impact the world in which we live.

While the exhibits in the Animal Room are geographically focused, the exhibits in our New York Natives room are modeled after specific regional habitats. We feature four habitats: a "pond" with Eastern Newts *Notophthalmus viridescens*; a "forest" with Spotted Salamanders *Ambystoma maculatum*; and a "creek" exhibit with a Green Frog *Rana clamitans*, a Bullfrog



Figure 1. The 400-gallon aquarium. (Photo by Dave Burbank)

Lithobates catesbeianus, a Painted Turtle *Chrysemys picta*, and a Musk Turtle *Sternotherus odoratus*. The last habitat and the flagship exhibit of the space is the 400-gallon Brook Trout Aquarium, viewable from both sides, which was made possible, in part, through the 2019 Gerald C. Corcoran Education Grant from the North American Native Fishes Association (NANFA).

When the New York Natives room was first unveiled in 2016, the 400-gallon aquarium was initially stocked with Bluegill *Lepomis macrochirus*, Yellow Perch *Perca flavescens*, and Channel Catfish *Ictalurus punctatus*. However, it did not take long for it to become just a Channel Catfish tank. While the cat grew into a glorious fish, the aquarium was being underutilized with just the sole occupant. We became interested in converting the tank into an aquarium for Brook Trout to highlight the New York State fish, but given our museum's ambient temperatures, the tank was typically in the mid- to upper 70s, far too warm for trout, particularly Brook Trout. With support from NANFA, we were able to purchase and install a 1/2-hp inline Tradewinds chiller, which has easily been able to keep the aquarium in the upper 50s, far more suitable for our native trout.

The installation of the chiller presented several challenges. Besides the financial investment, reducing the temperature of such a large volume of water requires a physically large chilling unit that produces a substantial amount of heat. Space is fairly limited in the cabinet underneath the aquarium and keeping the heat generated by the chiller in such close proximity to the tank would have been self-defeating. To isolate

Photos by the author.

Colin Meeks is the Curator of Live Exhibits at the Sciencenter in Ithaca, NY. While maintaining aquaria and terraria has been a lifelong passion, completing his BA in Biology at Earlham College in Richmond, IN, and studying *Cyclura* under Dr. John Iverson has led to a career both in the zoo/aquarium field and private animal propagation. When he's not perfecting the exhibits at the Sciencenter, he can be found exploring the natural world with his children on his small organic farm.



Figure 2. The ½-hp inline chiller.

the chiller and its heat from the cool water in the aquarium, we ran the plumbing through the floor under the tank, into a small crawl space, through a concrete block side wall, and into the basement workshop of the museum. Here, the chiller was mounted near the ceiling, out of the way, where the heat could easily dissipate.

Since the aquarium is “double-sided” (i.e., viewable from both the New York Natives Room, as well as from the entrance to the Animal Room) there was already decent flow across the length of the tank, with the overflow on one end and the return lines on the other. In an attempt to create an even more natural habitat for the trout, we also purchased and installed two Turbelle Stream 6105 Controllable powerheads. With this level of cross-tank flow churning the aquarium, the trout are happy and active, constantly darting in and around the natural wood features while the algae on the logs waves gently in the current.

We had hoped to source our Brook Trout from the local Trout in the Classroom (TIC) program run by Discover Cayuga Lake and the Leon Chandler Chapter of Trout Unlimited. However, the permit held by the Sciencenter from the New York State Department of Environmental Conservation stipulates that all of our native species must be held for the duration of their lives. The permits for the TIC program, however, require that all fish must be released at the end of the school year. Ultimately, the 15 Brook Trout that now live in our aquarium were donated by the nearby hatchery at SUNY Cobleskill run by Brent Lehman.



Figure 3. Convoluted plumbing in the basement.

While we were disappointed to not establish this connection with local fourth-grade classrooms, the effort did lead to a collaboration with the TIC program. Our museum now displays and maintains a separate aquarium of Brown Trout *Salmo trutta* eggs that visitors, including students on field trips, can watch develop into fingerlings. In July 2020, we invited the community to help us release the fish into our nearby stream and learn about stream ecology and conservation through a public trout release event.

The final step in this aquarium conversion was to attempt to increase the species diversity. A few invasive Rusty Crayfish, which are widespread in New York and naturally found in the Ohio River basin, already resided in the aquarium, but we wanted to add more fishes. With the help of Casey Dillman, the Curator of Fishes, Amphibians, and Reptiles at the Cornell University Museum of Vertebrates, we were able to collect a number of Creek Chubs *Semotilus atromaculatus*, Fallfish *S. corporalis*, Longnose *Rhinichthys cataractae* and Blacknose dace *R. atratulus*, and Tessellated Darters *Etheostoma olmstedti* from nearby streams. As was expected, as the trout have grown, many of these fishes have been eaten, but the dace have proved resilient and most still survive, hiding under and around the rocks in the aquarium. This season, we hope to collect some larger Creek Chubs or Fallfish that may be able to survive alongside the trout.

We're thrilled with the final exhibit, which is far more active, entertaining, and engaging than the previous catfish aquarium. In the months following the renovations, observations of excited guests and higher traffic through the Animal Room would indicate that our guests are enjoying the new exhibit as well. The movement and biodiversity within the tank captures guests' attention and new interpretive signs promote greater knowledge and appreciation for Brook Trout and the conservation of native species. Exhibits such as this are vital in creating opportunities to have meaningful and impactful conversations with our guests about coldwater stream ecology and conservation. In recent months, visitors have been able to appreciate the exhibit virtually through a rotating live stream of our live collection. We appreciate the support of NANFA and others who made this unique exhibit possible.

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