

# Fish Habitat Improvement Project *at* Lake Nessmuk

## *Building a Better Fishery from the Lake Bottom Up*



photo-Ben Page

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No angler likes to see his or her favorite fishing lake dewatered. But, if it has to be drained for maintenance or other reasons, we should make the most of the rare opportunity. Lake Nessmuk, Tioga County, is one of 16 Pennsylvania Fish & Boat Commission (PFBC) owned reservoirs that were required to be dewatered due to their aging dams. While PFBC's Bureau of Engineering and Property Services worked hard to fix Lake Nessmuk's dam breast, PFBC's Division of Habitat Management took on the task of improving fish habitat. The empty lakebed presented a perfect opportunity to create a paradise of rock and wood cover for the future fishery of Lake Nessmuk. The PFBC Lake Habitat Section oversees fish habitat projects on reservoirs across Pennsylvania. One of the largest projects completed in 2015 was the habitat improvement project constructed at Lake Nessmuk. Lake Nessmuk, like most Pennsylvania reservoirs, lacked favorable habitat features, which made the lakebed comparable to a mud bath tub. The lake bottom was cleared by heavy machinery when it was created. No large woody debris was left behind for fish to use as cover. Fish need structure at various life stages for spawning, protection of young and enhanced feeding efficiency. Several species of fish still inhabited the lake, but population carrying capacity and fish growth rates were limited. For example, cavity spawners like Channel Catfish require a specific habitat to successfully propagate. If a body of water does not have the appropriate cavities, population retention relies on annual stockings.

The Tioga County Bass Anglers (TCBA) contacted PFBC looking to tackle the fish habitat issue at Lake Nessmuk. The TCBA has a strong history of being a quality habitat project partner. Since the 1990s, members of the bass club have completed several habitat projects at Hammond Lake and Cowanesque Lake. When the TCBA entered into the Cooperative Habitat Improvement Program at Lake Nessmuk, a fish habitat improvement design was completed in 2014. The habitat improvement plan was split into two phases. Phase One work was done during the drawdown, and Phase Two work will be finished when the lake is full. Phase One allowed PFBC to use heavy machinery to build bigger and more durable structures. Phase Two will allow lake habitat managers to utilize more volunteers. It will also permit PFBC to place structures by boat, where heavy machinery could not access during the drawdown. The PFBC provides all safety equipment, technical assistance, tools, boats and some financial assistance while TCBA provides volunteers. The National Reservoir Fisheries Habitat Partnership was also a critical partner in the project by administering grant funding and ordering all materials. The entire project would not have been possible without the generosity of Shell Appalachia's environmental grant funding.

Phase One construction started in February 2015. The weather was challenging with daytime high temperatures in the negatives. Volunteers were notified of the upcoming project, but the outlook for volunteer participation was not good due to



*Pennsylvania canopy structures are designed for juvenile gamefish and panfish cover.*

the inclement weather. Lake habitat managers were pleasantly surprised when six volunteers braved the weather to help better their local resource. Over a 2-week period, 1,039 wood and rock structures were constructed to change the landscape of the lake bottom. The Phase One portion of the project was valued at \$42,200. Project contributors included Tackle Shack, Pennsylvania Department of Natural Resources Bureau of Forestry, TCBA, Shell Appalachia and PFBC. Since the completion of Phase One, Shell Appalachia has been supportive in completing the Phase Two portion of the project. They contributed an additional \$20,000 to finish the Lake Nessmuk project plus \$20,000 more to advance habitat projects at Hammond Lake and Cowanesque Lake, just north of the town of Wellsboro.

The work on the dam is now complete, and the lake will return to full pool status in the upcoming months. Fish will return to the lake through a scheduled stocking plan. Phase Two of the project is scheduled for completion by the end of 2016. Volunteers from both the community and TCBA are expected to attend the remaining projects. An additional 200 short vertical plank structures and 25 Channel Catfish spawning boxes will be placed by boat.

A wayside kiosk was added near the boat launch to educate local anglers and boaters about the project. The kiosk is designed to highlight project partners, explain the importance



*A rootwad structure is designed for macroinvertebrate populations and young-of-year fish recruitment.*



*The Pennsylvania Fish & Boat Commission Division of Construction and Maintenance is often tasked with building large structures called spider humps. Habitat structure construction is executed quickly with heavy equipment like this excavator.*



*The addition of complex wood and rock cover will create a new fishing hotspot.*

of habitat improvement structures and display bulletin items regarding Lake Nessmuk.

The PFBC would like to thank the project partners who helped make the habitat project possible. The structures will enhance the aquatic resource of Lake Nessmuk for generations. A lake bottom that once was a “barren aquatic desert” is now a complex aquatic ecosystem, which will support an increased abundance, size and species richness of aquatic organisms. The increased fishing opportunities will provide anglers with a more enjoyable experience during their visit to the lake. All of the habitat structures that were placed in Lake Nessmuk are mapped with GPS waypoints on a habitat improvement plan map. The Lake Nessmuk habitat map and all other statewide habitat project lake maps can be found at [www.fishandboat.com/habitat.htm](http://www.fishandboat.com/habitat.htm). The habitat maps are great tools for anglers to dial in on fishing hot spots. ☐