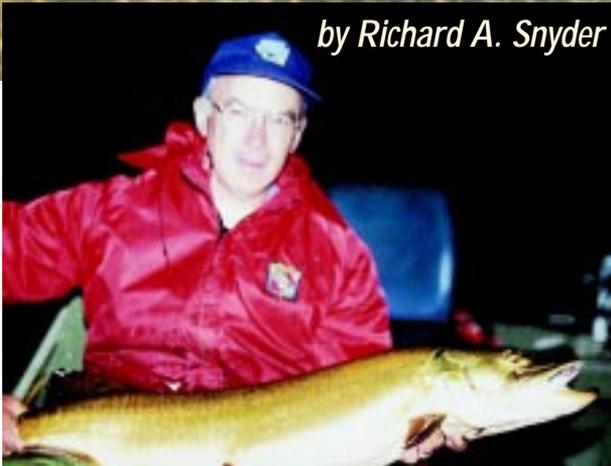


Fish Salvage at Tamarack Lake



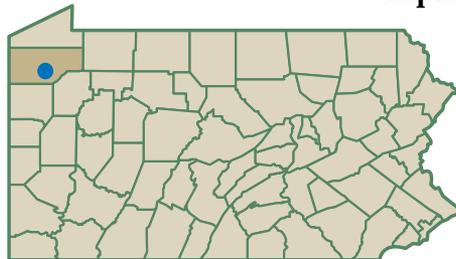
by Richard A. Snyder



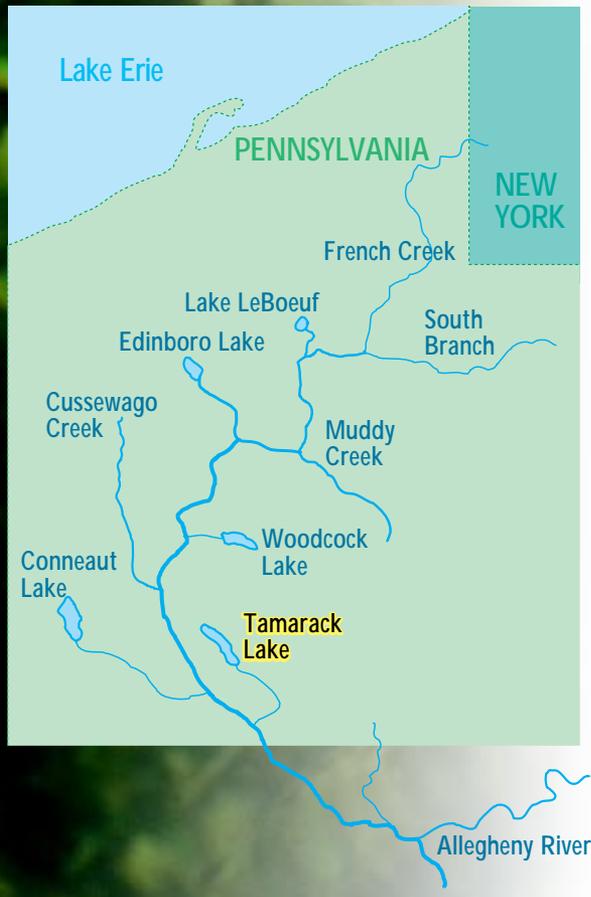
Chief, Fisheries Management Division

In March 1999 the Commission began one of the largest fish salvage operations in Commission history with the draining of Tamarack Lake, Crawford County. The Commission had to re-engineer the two outlet structures to bring the facility into compliance with the Dam Safety Act.

The effort was extra complicated because Tamarack Lake actually has two outlets.



large photo: Richard A. Snyder; small photo: Tom Greene



Tamarack Lake was constructed in 1963 by the Soil Conservation Service under the P.L. 566 Small Watershed Protection Program. The lake is unique because it is located on the headwaters of two small streams, Mill Run on the Meadville side and Mud Run on the Pettis side. Thus, the center of the lake is the highpoint, or ridge, between the two watersheds. The lake center, or saddle, is relatively shallow with about 6 feet of water. When the lake was built, standing timber was removed but stumps were left intact. The acres and acres of stumps gave the center of the lake a unique character as well as outstanding habitat for the mixed warmwater/coolwater fish community. The 562-acre lake was first stocked in the spring of 1964 when it was also opened to the public. Bass, walleyes, muskellunge and panfish were the major components of the early management plan.

The lake was known to have a very good fish population. A 1989 Commission angler use, harvest and opinion survey from early April through late October showed bluegills, crappies and largemouth bass were the most popular and were also the three dominant species of fish harvested. Some 6,300 pounds of fish were estimated harvested during the study period. And 1.5 percent of the anglers interviewed reported having caught a muskellunge. In addition to bass, bluegills, crappies and muskellunge, we also knew from biological sampling that the lake had a good population of yellow perch, walleyes and golden shiners.

Various alternatives were considered concerning manipulating water levels to accomplish repairs to both outlet towers. The final decision was to drain the entire lake so



A temporary road built into the Meadville end of Tamarack Lake allowed salvage work.

top photo Wally Ebenhart/nap graphic Ted Walke bottom photo Richard A. Snyder



Personnel unloaded cages with live fish for transport to hatchery trucks or holding areas. Workers saved an incredible number of fish (see the table on page 41).

both towers could be repaired during the same construction season. The idea was that once the saddle was exposed, each half of the lake could then be worked separately, particularly to salvage fish in each half.

Several factors complicated draining the lake. First, there was the extent of the fish population. We knew it would be sizable with many quality-size fish including muskellunge in the 50-inch class. Second, two or more old roadways crossed the lake and could prevent water (and fish) from moving to the outlet towers. Third, access to fish near the later stages of draining would be handicapped by deep muck. During dam construction, areas near both dam breasts were not scraped clear of top soil, and as such presented a unique challenge not only in bringing hatchery trucks to the water's edge, but also for launching and retrieving boats used in salvage work. And weather had to be considered. Fish handle better when water temperatures are on the low side. But sufficient time had to be built into the schedule for the lake to drain before the construction season. From past experience, we knew fish do not leave a lake being drained until the very end. But in lake salvage, netting could not begin until the ice melted. Fortunately, we already had a good start on draining with the lake down 4 feet as part of an overwinter drawdown intended to freeze out areas of aquatic vegetation, which in this shallow lake had become a problem.

Coordination, work begins

Coordinating sessions involving Law Enforcement, Environmental Services, Engineering, Fisheries Management, and Warmwater/Coolwater Production soon ironed out many details, and things began to happen in mid-March 1999. Construction Section personnel acquired stone fill and began roads near both dam breasts for access into the lake, in addition to one downstream of the Mud Run dam breast for access to the outlet basin. Periodically, roadways were extended into the lake as water levels dropped. The muck on either side of these temporary roadways was waist-deep in

spots as more than one employee discovered. Also, two disposal pits were dug for fish that died during salvage work.

Only the outlet valve at the Mud Run tower was opened. It was feared that the Mill Run valve, once opened, might not be closable and lake level control was very crucial at this point in the process.

On March 29, Area Fisheries Manager Ron Lee and his crew began salvage work by setting trap nets and electrofishing the Mud Run side of the lake. Emphasis was on capturing muskellunge and walleyes because they are highly mobile during the spawning season and are much easier to handle and transport when water temperatures are cool. Catches were separated by species and temporarily stored in live cages near the access road for pickup by hatchery trucks. Spring is a very busy time for Commission fish culture station personnel with trout stocking, walleye/muskellunge netting and spawning, walleye fry stocking, and steelhead stocking in Lake Erie tributaries. But the Warmwater/Coolwater Production personnel, particularly from Union City and Tionesta, rose to the challenge. Early in the salvage period, a Tionesta stocking truck would deliver its cargo of steelhead smolts to a Lake Erie tributary, take on fresh water either at the Fairview or Union City Fish Culture Station (depending on which side of Erie it was stocking), and swing by Tamarack Lake and pick up fish for one of several destination waters for salvaged fish. Or a truck from Union City would make a trip to Tamarack to pick up muskellunge. These fish were taken to the fish culture station and used in spawning for muskellunge or the hybrid tiger muskellunge. Then, spent 'lunge were shipped to Conneaut Lake.

Soon the Union City gang set nets in the Mill Creek side of Tamarack Lake to capture additional 'lunge with fish of other species added with the Mud Run contingent. Spectators were often thrilled to see the many, many nice fish taken from the nets. Some people even visited the Union City Fish Culture Station to check on the muskellunge taken from Tamarack Lake.

Tons of fish

By mid-April, 216 muskellunge (all 30 inches or longer), 382 walleyes (some in the 8- to 9-pound range), 1,536 largemouth bass and 2.68 tons of panfish (crappies, yellow perch, bullheads, bluegills, pumpkinseeds and golden shiners) had been removed through trap netting and electrofishing. The effort was involving more and more personnel. Crews from Fisheries Management area offices at Somerset, Pleasant Gap, Sweet Valley and Linesville were eventually called in to Area 2. A three-man electrofishing team from the Division of Environmental Services located at Pleasant Gap provided valuable assistance. The Fisheries Management Division's Coldwater Unit and division chiefs worked Tamarack Lake for several days.

Even a boat crew from the Department of Environmental Protection's Meadville office rendered assistance. Behind the scenes, the Area 7 Fisheries Management staff was taking up slack elsewhere so central office personnel at Pleasant Gap could provide more assistance at Tamarack. Meanwhile, other fish culture stations were ready to jump in as needed, either to provide additional trucking or to assist the Tionesta team as necessary.

As water temperatures climbed, panfish and bass moved into the shallows and catches greatly increased. Daily net catches of 1,000 pounds or more of panfish were not uncommon in early May. As water levels receded, it became increasing difficult to work the stump fields, but bass electrofishing catches of 500 or more individuals from yearlings to "whoppers" occurred.

Electrofishing crews, accustomed to seeing a handful of muskellunge during a typical spring season, were handling that many in a half-day outing. One crew had three nice-size 'lunge at the boat simultaneously but could not react quickly enough to get the third one. Scenes of a large "torpedo"-shaped fish streaking through the shallows became common as the lake got smaller and smaller. The daily routine at the lake provided opportunity for even non-fisheries personnel to go out on the boats. Tales and stories came out of the "cross-training" and will help foster closer bonds among Commission personnel.



Fisheries Biologist Aide Chris Ploski (left) and Fisheries Technician Al Woomer used a musky sock net to transfer muskies to live cages. Electrofishing crews, accustomed to seeing a handful of muskellunge during a typical spring season, were handling that many in a half-day outing.

Fish barrier

As the Meadville pool receded, it was obvious an old road bed, or temporary dam built during initial construction, was forming a barrier for fish attempting to move downlake. A Construction/Maintenance backhoe was sent out across the exposed lake bed only to get stuck in the muck. A private contractor working on a nearby home ventured his heavy-tracked earth-mover onto the lake bottom but abandoned the trek when it became apparent it, too, would get stuck. The backhoe was rescued later in the day with the use of chains and a second unit.

Fortune was with the Commission as a larger-tracked earth mover was traveling from Erie to Pleasant Gap and was diverted to Tamarack Lake. Its wide tracks enabled it to negotiate the

soft spots, and the road bed was quickly breached. Many fish moved into the lower lake, which otherwise would have been lost as the pool slowly seeped away. It was somewhat ironic to watch schools of minnows finally able to negotiate the breached roadway only to fall prey to hungry bass cruising the downstream side of the previous barrier.

Meanwhile, the Construction crew kept extending the roadways for boats and trucks. By Sunday, May 9, 307 muskellunge, 760 walleyes, 5,039 bass and 10.7 tons of panfish had been removed and stocked elsewhere. The gate was successfully closed on the Meadville pool so enough water would be there the last day to pass fish through the dam into the outlet pool. Personnel gathered to dip fish trapped with a blocking seine in the outflow stream. Trucks from the Tionesta Fish

Culture Station were used to shuttle fish over to nearby French Creek. Volunteers helped carry, and tally, fish as they were loaded. Volunteers also assisted Fisheries and Area Maintenance personnel in whatever way possible. When the day was done, another 138 'lunge, 93 walleyes, 711 largemouth bass and 1.9 tons of panfish were saved and sent to other waters.

Despite these efforts, many fish succumbed to the stress and were disposed of in the burial pit. Many were panfish with quite a few carp and a few smaller 'lunge. According to staff, fish could be seen in the muck in the now drained lake but could not be reached because of the incredibly deep muck. Per-



Coldwater Unit Leader Tom Greene shows a nice musky taken during night electrofishing.

Stockings by waterway of fish salvaged from Tamarack Lake, Crawford County, spring 1999.

<i>Waterway</i>	<i>Number of Muskellunge</i>	<i>Number of Walleyes</i>	<i>Number of Largemouth Bass</i>	<i>Number of Pounds of Panfish</i>
Allegheny River (Forest Co.)	0	89	--	--
Canadohta Lake (Crawford Co.)	3	27	408	7,995
Clear Lake (Crawford Co.)	--	--	956	545
Conneaut Lake (Crawford Co.)	131	262	948	--
French Creek (Crawford Co.)	106	21	388	1,475
Tionesta Lake (Forest Co.)	26	--	140	4,180
Woodcock Lake (Crawford Co.)	187	609	3,469	10,940
TOTALS	453	1,008	6,309	25,135

sonnel worked well into the evening picking up dead fish, including those farther downstream in the small stream.

The next day, besides additional cleanup work at the Mill Run site, staff resumed electrofishing on the pool at the Cochranon end of Tamarack Lake. Earlier, a net set in the Mud Run outlet to retain fish moving through the dam was removed to permit free passage. Reports from trout fishermen catching many bass and other fish in Sugar Creek indicated that Tamarack Lake fish were successful in moving downstream with the high flows as the lake drained. Also, a pesky muskrat and an abundance of dislodged aquatic vegetation were wrecking the usefulness of the net. Thus, it was removed and later reset the last day of salvage work. As the lake receded, an old beaver dam was noted as another barrier for fish to negotiate as the lake drained. Staff eventually used hand tools to breach the old dam. Also, a grate across the inlet pipe was removed to increase the flow of water and, of course, fish passage.

A few days later, Mother Nature added another impediment to fish salvage operations. Heavy rains flushed fish carcasses from the Meadville end of the lake through the now-open outlet structure. These bodies plugged the grate at the culvert under the township road, causing the stream to overtop the road. Fortunately, Commission construction personnel quickly cleared the blockage, and the carcasses, mostly carp, were added to the disposal pit.

At the Cochranon end of the lake, draining continued. It was soon learned that the lake would not drain completely because the outlet pipe was located some 18 inches higher than the lowest part of the lake bottom. This was somewhat attributed to a "borrow" area from the initial construction of the dam breast. A two-foot pool of some five acres remained. Water temperatures soon warmed to the point of being lethal for muskellunge. Deep muck greatly reduced access to the isolated pool. Use of a small boat and canoes was only partially successful. Even then, fish could not be carried let alone bucketed the distance involved across the muddy shoreline. Some eight dozen muskellunge died because of the stressed conditions.

On May 21, as the water level dropped a few more inches, dead fish around the shoreline were no longer accessible by canoe, nor could they be retrieved by foot access because of the deep mud. Several large carp were seen cruising the small pool.

At the time of this writing, construction of both outlet towers is complete and the lake is beginning to refill. Refilling has been slower than expected because of a lack of heavy rain. Fish stocking (minnows, shiners and muskellunge) will not occur until sufficient water depth is available to minimize freezing out during the winter.

In the year 2000, walleyes and panfish such as bluegills, crappies and yellow perch will be added with additional bass and muskellunge. To provide opportunity for these species to become well-established and to take advantage of the "new lake" effect concerning good growth, Tamarack Lake will be closed to public fishing until the opening of bass season in the year 2001. In addition, efforts are under way to construct one or more fishing piers to improve angling opportunity at Tamarack Lake.

Topsoil removal, through Commission-issued permits, by local private citizens and contractors should provide for deeper areas near certain access areas. This work may facilitate use of launch ramps during times of the year when aquatic vegetation has typically been a problem at Tamarack Lake.

Fish salvage is never completely successful. But the combined efforts of many Commission employees representing a cross-section of disciplines made the best of a bad situation. As the "new" Tamarack Lake fishery gets established, considerable recreational angling will continue to occur as a result of salvaged fish stocked in other waters. □

This article is dedicated to the Area 2 Fisheries Management personnel—Area Fisheries Manager Ron Lee, Fisheries Technician Al Woomey, Fisheries Biologist Aide Chris Ploski and citizen volunteer Ray Harbaugh, Titusville, for the many days and nights they spent at Tamarack Lake in 1999.