

## **Courtney Lake**

Ontonagon County, T.50N., R. 37W., Sec. 4  
Firesteel River Watershed, Last Surveyed October 2021

**George Madison, Fisheries Biologist**

### **Environment**

Courtney Lake is a small inland lake located in northeastern Ontonagon County, in the Western Upper Peninsula of Michigan. This lake is located midway between the villages of Ontonagon and Baraga and is accessed one mile south of State highway M-38. Courtney is a 33 acre lake with a maximum depth of 41 feet and has no inlet or outlet. Water clarity is clear and colorless with sunlight penetration of depths of approximately 10-feet. The shoreline substrate comprises primarily sand with sparse aquatic vegetation consisting of bullrush and water lilies. The riparian shoreline surrounding Courtney Lake is predominantly an upland mature forest consisting of a mix of pine, aspen, and maple. There is very minimal human development along the perimeter of the lake. Most of the lake is situated within the Ottawa National Forest. There is a U.S. Forest Service campground along the south shore of the lake and a popular summer swimming beach located on the west shore. This seasonal campground includes twenty camp sites and a gravel boat launch. The local Ottawa Sportsmen's Club also has a 15 acre campground and pavilion on the north shore of the lake.

### **History**

Management of Courtney Lake has occurred as far back as the late 1930's. Largemouth Bass, Smallmouth Bass, and Bluegill were stocked intermittently in the years 1939-1944. Stocking was ceased between 1944 -1950 after the panfish were firmly established but resumed in 1951 when 1,500 adult Rainbow Trout were planted. Stocking had continued from 1951 to the present time whereby Courtney Lake had been managed for a variety of trout species. The survey reports from the 1950's reflect that this was a fairly good Rainbow Trout lake, which may be attributable to the stocking of legal size fish on an annual basis (Table 1). From the period of 1990 - 2010 Courtney Lake was primarily managed for a Brook Trout fishery. The first fisheries survey of Courtney Lake was using gill nets in 1949. A similar gill net survey was conducted again in 1955. In the years 1956 and 1959, a combination of a hook and line surveys followed by a gill net survey was used to assess chemical reclamation actions.

Chemical reclamations using toxaphene (1965 and 1959), and more commonly rotenone (1976, 1991, and 1999), have been performed in Courtney Lake to remove competing warmwater fish species so that the lake could continually be managed for trout communities. Despite these repeated treatments, Courtney Lake has had a persistent reoccurrence of coolwater species that either compete with or forage upon the stocked trout. Fisheries survey data shows that when the catch-per-unit-effort (CPUE) of non-trout fish in fisheries survey nets is high, the comparative CPUE of trout in nets during the same survey event is low (Figure 1). When reviewing survey data since 1987, the lake's fish assemblage of trout versus non-trout shows a decline in CPUE of trout from survey nets when coolwater fish species became dominant.

This lake does not have any inlet or outlet waters that connect to other fish communities, so it is believed that coolwater fish species are brought to the lake via angler's bait buckets. Anglers who are sportfishing for trout often use minnows as a bait choice. There are no minnow bait dealers nearby, therefore it is likely that anglers use minnow traps in other lakes to collect minnows for fishing at Courtney Lake. Often, small size fish, believed to be minnows that are caught in minnow traps, include juvenile size gamefish species such as Largemouth Bass, Yellow Perch, or White Sucker. It was once a common practice that at the conclusion of an angler's fishing trip that the unused minnows were simply released into the respective lake where they were fishing.

In the years 1961, 1966, 1967, 1970, 1975, 1987, 1995, 1998, 2001, 2004, 2008, 2018, and 2021, a combination of electrofishing, inland gill nets and fyke nets were used to conduct stocking evaluation surveys. Eleven fisheries surveys and three limnological profiles were conducted in Courtney Lake since 1987. Results of these surveys have indicated a mix of trout management successes over the years, along with data indicating that the lake has marginal habitat in terms of dissolved oxygen and temperature suitable for trout (water temperatures below 68F and oxygen above 6 ppm).

Fisheries survey summaries since 1987:

1. July 1987: Evaluate stocking of 3,500 yearling Rainbow Trout, 2 spring stocked rainbows were captured. White Sucker, Pumpkinseed Sunfish, and Yellow Perch present in low numbers.
2. September 1987: Evaluate stocking of 3,500 yearling Rainbow Trout, 9 Rainbow Trout between 10-20 inches were captured. Yellow Perch (N=29) present.
3. July 1990: Evaluate abundance of small Yellow Perch and first allocation of 3,500 yearling Brook Trout. One 7-inch Brook Trout caught, 105 Yellow Perch averaging 4.8 inches were captured.
4. May 1995: Evaluate annual stocking of 3,500 yearling Brook Trout (survey conducted before the 1995 fish were stocked). Two Brook Trout captured, one at 8-inches and one at 17 inches. Yellow Perch (N=14) were captured.
5. September 1995: Evaluate annual stocking of 3,500 yearling Brook Trout. Thirty-five Brook Trout between 8-19 inches, 11.9 inch average, captured. Yellow Perch (N=122) also collected.
6. October 1998: Survey conducted to check fishing complaints. Survey analysis states: "Contamination from Perch, Pumpkinseed Sunfish and even a Northern Pike are the probable cause. A reclamation project is to be conducted in the fall of 1999 and should enable the lake to once again provide a good Brook Trout fishery." Seventeen Brook Trout between 5-11 inches, 101 Yellow Perch, 1 Brown Trout, and 1 Northern Pike (17-inches) were captured.
7. October 2001: Trout evaluation after chemical reclamation: Following the spring stocking of 3,500 yearling Brook Trout, survey analysis states; "Courtney, since being treated has been producing an acceptable fishery, this survey shows good carry over and no contamination at present." Eighty-six Brook Trout between 9-18 inches captured.
8. October 2004: Survey analysis states; "Brook Trout catch per unit of effort was still relatively high, there is substantial carryover in this lake. Nearly 95% of the Brook Trout collected were of legal size, and 28% of the fish were 15 inches or larger. Two Creek Chubs were the only other fish captured, so contamination appears to be minimal."
9. November 2008: Largemouth Bass abundant (N=122). Brook Trout numbers fair (N=24) with sizes between 8-17 inches.
10. October 2018: This 2018 fall survey documented a fishery consisting of Black Crappie, Largemouth Bass, and Golden Shiner. Three nights of netting here did not result in any trout being captured. Anglers report that catches of Brook Trout are very scarce and uncommon.

11. October 2021: In addition to Largemouth Bass being caught, Black Crappie have become relatively abundant with 46 individuals captured, averaging 5.4 inches in length. Adult Lake Trout (N=16) from the previous year's stocking (October 2020) were present with fish between 26-31 inches being collected. Three Brook Trout from the previous stocking of adult fish from the Keweenaw Bay Indian Community were caught with fish ranging from 13-16 inches.

Limnology survey summaries:

1. August 2007: Water column suitable for trout occupancy (temp below 68F and oxygen above 6 ppm) is from 23 - 25 feet.
2. March 2019: Water column suitable for trout from the surface down to just past the 4-foot depth level.
3. August 2019: Dissolved oxygen suitable for trout occurs from the surface of the lake to the 14-foot depth, however temperatures below 68F occur from the 14-foot depth to the 39-foot depth at the bottom of the lake. Combined, the water column suitable for both dissolved oxygen and temperature for trout exists only at the 14-foot depth level and may be considered marginal between 13-15 feet.

### **Current Status**

Courtney Lake is designated as a Type-B trout lake. Lakes classified as Type-B trout lakes are open to fishing year-round with a daily possession limit of 5 fish, with no more than 3 fish 15" or larger being allowed for daily harvest. The minimum size limits for trout are as follows; Brook Trout 10", Brown and Rainbow Trout 12", and Lake Trout 15". The Type-B regulation allows anglers to ice fish at Courtney Lake and the lake's proximity to a county road provides for good angling access during the iced over time of year. Since ice fishing opportunities on Lake Superior do not develop until late February when ice forms on Keweenaw Bay, Courtney Lake provides area anglers with an ideal inland fishing opportunity in the early winter months.

Since 2008, Largemouth Bass have dominated the fish assemblage of this lake. Because the Bass are easy to catch, the lake has been designated as a Family Friendly Fishing Water. The term "Family Friendly Fishing Water" is a Michigan DNR waterbody classification designated to indicate to angling enthusiasts that this is a place where fishing catch rates are successful and there are amenities such as vault toilets, drinking water, picnic tables, swim beach, and day-use area.

Survey nets employed in this lake have low selectivity for Largemouth Bass. Consequently, only one Largemouth Bass was collected during the netting portion of the 2008 survey while 121 Largemouth Bass were collected during the electrofishing portion of the survey. Visually in 2008, abundant numbers of Largemouth Bass were seen swimming in the shallow shoal portions of the lake. Brook Trout, which was the target species of the 2008 survey, ranged in size from 8-17 inches with 24 trout being caught. The presence of Largemouth Bass is not surprising, as the lake has a long history of being recolonized by species such as Largemouth Bass that compete with trout.

A hook-and-line survey conducted in September 2021 further documented the abundant presence of Largemouth Bass with these fish typically in the 8-12 inch size range and were easily caught

throughout the lake. Anglers who were encountered at the boat landing commented that they were enjoying catching large trout, but sparsely and only on occasion.

As mentioned in the survey summary notes, the October 2021 netting survey found that Black Crappie have become relatively abundant, with a few Lake Trout and Brook Trout also present. Habitat conditions are favorable for Black Crappie, with good shoreline woody structure for egg deposition, and aquatic vegetation for nursery and juvenile life stage development, therefore Black Crappie will become a large component of the fish assemblage for the future.

### **Analysis and Discussion**

Management between 2010 - 2021: Due to the abundant presence of Largemouth Bass, annual allocations of yearling trout were discontinued beginning in 2010 with a change in stocking strategy to use larger life stage fish such as adult Brook Trout and adult Lake Trout. Currently, with the colonization of Black Crappie, this gives further rationale to not stock fingerling trout, as the stocked fish would easily be preyed upon.

The stocking of legal-size fish was the style of management in the 1950's (Table 1), and this seemed to work during those years in providing fish to the sport creel. The stocking of adult trout between 2010 and present has also been successful with anglers commenting about good fish catches, particularly during the winter ice fishery.

### **Management Direction**

Management here will continue to utilize adult trout as a stocking tool. With the limited late winter and late summer availability of trout suitable habitable water (temperature and dissolved oxygen) care should be exercised to not overstock the lake. Trout stocking will not be requested to occur on an annual basis, but only requested when retired adult stock are available from Federal, State, or Tribal hatcheries. Stocking allocations should remain at levels of 35 fish per acre (1,100 fish) or less.

### **References**

No references were provided.

Table 1.-List of species stocked at Courtney Lake in the 1950's.


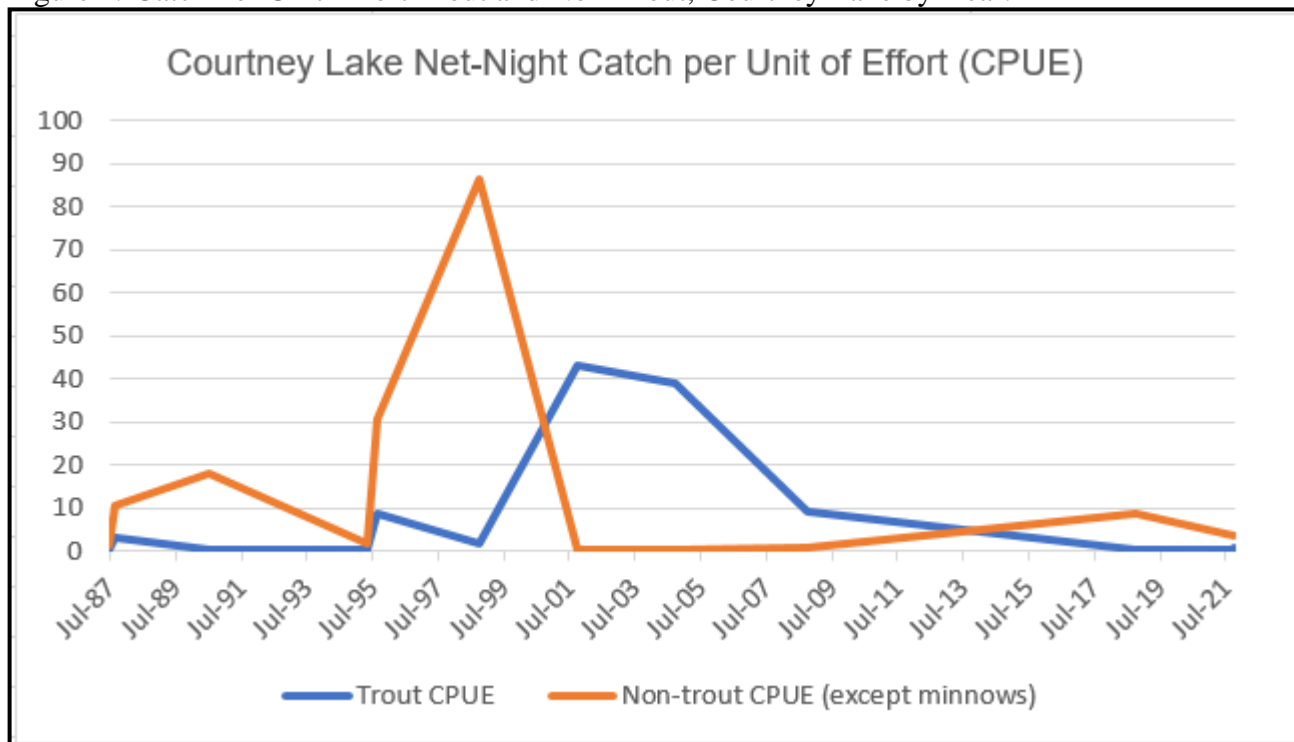
 Michigan Dept. of Natural Resources Fisheries Division		Historical Stockings by Water 01/01/1950 - 12/31/1960 Courtney Lake					
County	Water Site	T/R/S Township	Species Strain	Date Year	Number	Length (inches)	Life Stage
Ontonagon	Courtney Lake Courtney Lake	T50N-R37W	4	RAINBOW TROUT	1951	1,500	8.4
Ontonagon	Courtney Lake Courtney Lake	T50N-R37W	4	RAINBOW TROUT	1952	1,500	7.6
Ontonagon	Courtney Lake Courtney Lake	T50N-R37W	4	RAINBOW TROUT	1953	1,500	7.6
Ontonagon	Courtney Lake Courtney Lake	T50N-R37W	4	RAINBOW TROUT	1954	1,500	9.7
Ontonagon	Courtney Lake Courtney Lake	T50N-R37W	4	RAINBOW TROUT	1956	7,500	Fingerling
Ontonagon	Courtney Lake Courtney Lake	T50N-R37W	4	RAINBOW TROUT	1956	1,500	Legal
Ontonagon	Courtney Lake Courtney Lake	T50N-R37W	4	RAINBOW TROUT	1957	7,500	Legal
Ontonagon	Courtney Lake Courtney Lake	T50N-R37W	4	RAINBOW TROUT	1958	7,500	Sublegal
Ontonagon	Courtney Lake Courtney Lake	T50N-R37W	4	RAINBOW TROUT	1960	2,500	Legal

Figure 1.-Catch Per Unit Effort Trout and Non-Trout, Courtney Lake by Year.



Received January 12, 2022; published February 14, 2022

Patrick Hanchin, Unit Review and Approval

Shawn Sitar, External Reviewer

Tim Cwalinski, SFR Facilitator

Randall M. Claramunt, Desktop Publisher and Approval