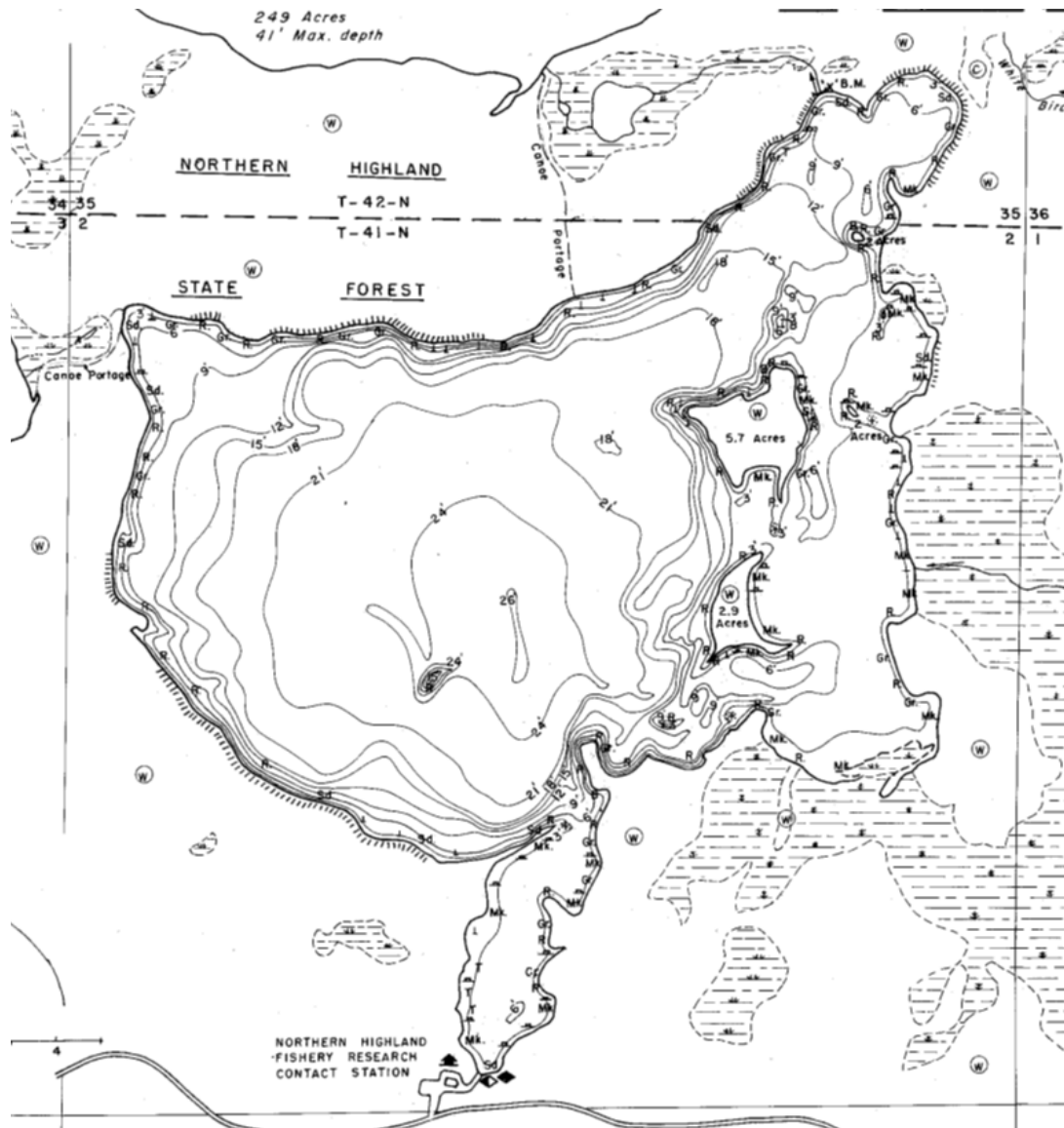


Canoeists, Anglers and Scientists: The Making of Escanaba Lake



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The Northern-Highlands American-Legion State Forest is located at the north end of Highway 51 in Wisconsin, just past Minocqua. The region is graced with a high density of lakes and crisscrossed with several canoe routes, allowing adventurers to remain in the forest for weeks at a time. If you were on such a journey, you might find yourself at the end of Lost Canoe Lake, needing to portage on. The passage involves about ten minutes of shuffling along the trail with a canoe grinding into your shoulders, but as you came to the shore of Escanaba, your eyes are greeted with an apparently pristine lake wreathed in towering pines, with no buildings in sight. You see the lake's resident pair of mating loons in the distance, and as you place your canoe in the clear waters, you see straight down to the rocky bottom. Paddling along the shore, every few minutes you startle up a few mergansers and you notice all the submerged trees that provide excellent refuge for young fish. At the southeastern end, where bog encroaches into the water, you send frogs frantically hopping out of your way as you creep through the submerged vegetation. Finally, as you make your way to the next portage trail, you even spot a bald eagle resting in a red pine.

Seeing all of this in one trip is not unheard of, and like many visitors you leave Escanaba Lake entranced by the northwoods charm. On a sunny day, especially a weekend, the only non-wilderness element in your way would be fishing boats dotting the water surface, but at 303 acres there is plenty of space for them to spread out, and you can easily ignore them.¹ Even if the lake were devoid of people, a details of the "untouched" landscape before you hint at human influence: the signs on the islands that declare "STATE OWNED ISLAND – NO CAMPING" serve as reminders that you have not escaped civilization completely. And unless you're able to distinguish between old and new growth forest, there's no hint that this land was deeply scarred within the past 100 years. The state government is managing the land to ensure that it retains its wilderness appearance.

¹ Wisconsin Department of Natural Resources. "Historical Lake Map, Escanaba – Vilas County, Wisconsin." July 1972. Dnr.gov/lakes/maps/DNR/2339909.pdf (accessed 1 Nov 2012).

In that regard, Escanaba Lake is like others in the region: it has been protected from permanent development. Another tiny observation indicates the wider extent of human contact with the lake: a few trees scattered around the shore are wrapped in flagging tape, with circular reflectors drilled into the trunk. These peculiar markers denote research sites, where samples are periodically taken. Unless you had some knowledge of the area's history, it's unlikely you would recognize that Escanaba Lake isn't just like the others you've passed on your journey. It is the site of the longest running fisheries monitoring program in the country, and represents the connection between the public, scientific research, and Wisconsin's conservation programs.²

But long before any fisheries biologist set foot on shore, even before the profession existed, the forests surrounding Escanaba Lake faced an abrupt disturbance. The logging industry slowly crept northward from Wausau and Merrill, and skid roads extended to Rhinelander by 1857.³ According to historical sources, the boom began shortly after the railroad reached the town of Minocqua, about fifteen miles south of Escanaba Lake, in 1880.⁴ Although no record specifically indicates how the land around the lake was affected, it is unlikely that those trees were spared the blade, as forests less than five miles south were completely leveled. Photographs at one site show a barren, lunar-like landscape, with stumps the only remains of the once majestic pines.⁵ The lumberjacks were able to dismantle the ecosystem without concern for the consequences because they harvested the resource and moved on. Unattached to the land, its long-term health was irrelevant to them. Production like this could not go on forever, and by 1900 most of the sawmills came to a grinding halt, with production dropping to nearly nothing in just one year.³ The lumber boom was over.

² Bussey, Melinda, and Steven Newman. *DNR Research: Northern Highland Fishery Research Area*. (Madison, WI: 1993). (pamphlet)

³ Rhinelander Logging Museum. *The Rhinelander Logging Museum*. (Rhinelander, WI: 1940), 3, 14.

⁴ Jones, George O., and Norman S. McLean. *History of Lincoln, Vilas, and Oneida Counties*. (Minneapolis: H.C. Cooper, Jr. & Co., 1924), 172.

⁵ Magnuson, John. *Interview with the author*, 1 Nov. 2012. (Unfortunately, these photographs were unavailable for publication.)

This took place before the federal or state government had any programs to regenerate forests.⁶ In 1903, less than five years after the lumber companies had moved elsewhere, the Wisconsin government established a forestry commission, and by 1904 a forester was appointed to the Northern Highlands district. Edward Merriam Griffith was crucial in establishing forestry practices in Wisconsin, using techniques modified from those he learned in Europe.⁷ The legislation also set aside the lands that would become the state forest we have today, primarily to protect the headwaters of the Wisconsin River. Although the boundaries have expanded, collapsed and shifted over the past century, Escanaba Lake and the surrounding forest have been protected under a state-managed plan ever since. By the 1980s it was also given “wild lake” status to insure its shoreline would remain undeveloped.⁸

The demand for lumber didn’t disappear, and we have no replacement for wood in paper, furniture, and countless other products – the trees certainly have commercial value. So why are today’s paddlers blessed with an unblemished view of soaring pine stands around Escanaba Lake? One might argue that the canoeists and campers, who do not stay on the land permanently and try to “leave no trace” as they pass through, nonetheless shape the landscape. They provide an incentive to keep the ecosystem whole, and are not the only ones with this interest but represent all those who value protected forests in Wisconsin. Our culture’s view of the forest shifted from an exploitable commons to an asset that ought to be sustained for future generations, a belief that arose with the conservation movement in the 1920s. Although it’s taken for granted now, the idea of the government managing resources was fairly new then, and emerged partially as a response to the destruction of open source goods like lumber.⁹

⁶ Wyman, Mark. *The Wisconsin Frontier*. (Bloomington: Indiana University Press, 1998), 278.

⁷ Wilson, F. G. E. M. *Griffith and the Early Story of Wisconsin Forestry (1903-1915)*. (Madison, WI: Wisconsin Department of Natural Resources, 1982), 7.

⁸ Bureau of Environmental Impact. *Draft Environmental Impact Statement for the Proposed Acquisition, Development, and Management of Northern Highland – American Legion State Forest, Iron Oneida and Vilas Counties*. (Madison, WI: Wisconsin Department of Natural Resources, 1981), 5.

⁹ Stradling, David. *Conservation in the Progressive Era: Classic Texts*. (Seattle: University of Washington Press, 2004), 6&7.

It is unthinkable for you, the canoeist of our tale, to make this journey past miles of stumps instead of living trees. Indeed, if other paddlers like you were not there to appreciate the scenery, the government may not see the need to protect it in its entirety. Perhaps you do take time to consider the conservation practices shaping the region as you enter the next portage trail, but Escanaba would still seem no different than the other lakes you've crossed. After all, it's difficult to perceive how deep the state's regulations and research programs extend into the waters.

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If you were a fisherman you would arrive at Escanaba Lake much differently than the canoeist, driving along a county highway to reach a dirt road that's so dusty and winding it seems to go on forever. You know to turn when you reach a large wooden sign declaring: "Fishery Contact Station, Escanaba Lake: Improving Fishing through Scientific Research." The driveway leads to a parking lot, a small building, and a boat ramp, located on the lake's southern inlet, tucked into the trees and invisible to a canoeist traveling from the portage route at the northern end. Although you begin preparing the boat for launching according to usual routine, you have an out-of-the-ordinary task before placing it in the water. Every angler must obtain a permit before casting a line into these waters, and you are no exception.¹⁰ You hope that the number of boats on the lake isn't limited – if you're turned away you've wasted precious fishing time.

The permit can be obtained free of charge in the checking station adjacent to the launch. The building is much like a small suburban home, and has solar panels because you are beyond the reach of the grid. The form asks for basic information and takes no more than five minutes to complete. You have no need to worry about driving elsewhere - they're just conducting a creel survey, collecting data from fishermen for scientific analysis. The researcher behind the desk repeats the rules you already read on the bright yellow sign outside – the permit must be returned at the end of the day, and any fish caught

¹⁰ Bussey, Melinda, and Steven Newman. *DNR Research: Northern Highland Fishery Research Area*. (Madison, WI: 1993). (pamphlet)

must be brought in for measurements to be taken. With a smile and nod, you're on your way, unless you pause to examine the walls. To your right you'll find a chart displaying fisheries data from the lake extending back to 1946 when the station first started, without a single year missing, compiled from little slips like the one you've filled out. The display includes variables on the fishing pressure, like the number of anglers, and on the fish caught, like the total weight of the harvest. Despite the overwhelming amount of information, it is but a fraction of the numbers that have been gleaned from this lake.

Once your eye catches the bulletin board plastered with polaroids and snapshots of those who have caught trophy fish on Escanaba, you're ready to test your own angling abilities, and return to your boat waiting patiently on the dock. The hum of the motor propels you out into the main portion of the basin, and at the sight of open water under a wide sky, you let out a sigh of awe and relief. You've escaped the tasks of daily life and can breathe easy for a few hours, soaking in the landscape - the same laws that ensured a scenic outlook for the canoeist are at work for you. Before your thoughts completely drift away, you may consider how unusual that check-in station is... what is such a permanent establishment doing all the way out here?

No definitive source describes how the checking station on Escanaba Lake came to be, and little was written down about those who originally worked there. An article printed in the *Wisconsin Conservation Bulletin* says it began with concerned members of the Vilas County Sportsmen's Club, who wanted to insure anglers weren't depleting the fish stock.¹¹ The station's employees say it was Aldo Leopold who had the foresight to recognize the need for long-term data.¹² Either way, in the summer of 1946 the lake became the site of a long-term experiment in angler behavior and impact, with the aim of discovering what would happen if a lake was allowed to be exploited with no regulation.¹¹ Fishermen were actually encouraged to take as much as possible. The rules were simple: each angler had to obtain a permit and return it at the end of the day, and all fish caught had to be kept regardless of size, then

¹¹ Waggoner, D.W., and A.A. Oehmcke. "Come and Get 'Em!" *Wisconsin Conservation Bulletin* 14, No. 5 (1949), 1.

¹² Sass, Greg. *Interview with the author*. 8 Nov 2012.

brought in for measurement before they could be taken home. Advertisements in local newspapers aimed to attract as many anglers as possible, and for a few years the station even provided guides who would coach anglers and maximize the number of fish harvested.

The project required more to get started than someone thinking, “let’s see what happens if...” At the time, the state government regulated fishing to prevent a free-for-all harvest, but decisions were made arbitrarily, without data or numbers. In 1853 gillnets were already banned, and the first closed season was in 1858. In 1892 a fish hatchery was founded in Woodruff to maintain the area’s fish stock by adding young to the lakes each year.¹³ Escanaba Lake itself was first stocked with walleye from that hatchery in 1933, and through 1966 had additions of muskellunge, northern pike, perch, shiners, and suckers, of various quantities and at different stages of development.¹⁴ Fishermen were beginning to question how effective and necessary these regulatory measures were. Who were these officials to decide how much could be taken or how many should be added?

Local anglers were not an isolated group worrying about their catch rates. Tourism began to rise in the 1920s and steadily increased to a peak in the 1970s.¹⁵ Satisfied fishermen came back each summer and brought their friends along too, which meant business for the unincorporated towns scattered throughout the state forest that had little else to survive on. To them, underutilizing the resource would be just as wasteful as annihilating it. The public was ready to listen to scientific opinion, and the fisheries management profession emerged to justify and inform state fishing restrictions.¹⁶ The creel survey at Escanaba Lake, like other management research projects cropping up at the time, was set in motion because the public was eager to hear the results.

¹³ Meyer, Fred ed. *Castling Light Upon the Waters: a Joint Fishery Assessment of the Wisconsin Ceded Territory*. (Minneapolis: U.S. Department of the Interior, 1991), 36.

¹⁴ “Escanaba Lake Fish Stocking History.” Unpublished data, Wisconsin Department of Natural Resources. Courtesy of Greg Sass, director of Northern Highlands Fishery Research Area.

¹⁵ Thompson, William Fletcher. Continuity and Change, 1940-1965. *The History of Wisconsin*. (Madison, WI: State Historical Society of Wisconsin, 1988), 236, 296.

¹⁶ Hewett, Steven, and Timothy Simonson. *Wisconsin’s Walleye Management Plan: Moving Management into the 21st Century*. (Madison, WI: Bureau of Fisheries Management and Habitat Protection, Wisconsin Department of Natural Resources, 1998), Appendix C, see also pg 3 – Management Goals.

A couple field seasons didn't give conclusive results, but ten years after the experiment began Warren Churchill, a scientist for the Wisconsin Department of Conservation, published an analysis of the data. He found that free-for-all fishing had no significant impact on the population, and even suggested that regulations in other lakes were reducing catches by almost fifty percent.¹⁷ Further analysis of the data in 1975 concluded that thirty years of take-all-you-can harvesting did not deplete fish populations either!¹⁸ Since lakes in the region today are still subject to bag limits and minimum size restrictions, such results are surprising. This lengthy study was carried out to see if regulation was necessary, only to have its results ignored? A complete answer lies beyond the scope of this paper in the politics behind how laws come into being, but a little imagination can help make sense of the situation. What if all fishing regulations were abolished across the state and everyone could take as many fish as they'd like? How might the public react? Fishermen have entrusted the government to keep the resource safe. What would it look like if they did nothing to protect it? Anglers who supported the experiment were probably not seeking to completely end regulation, but wanted to test the efficacy of state regulation.

Even though they haven't brought about the end of all fishing laws, the data from creel surveys in Escanaba Lake have been used several times to modify existing legislation.¹⁹ In one dramatic example, the long-term data record was crucial. In the early 1990s, courts ruled that the Ojibwa tribe still retained fishing rights in ceded territories. The State of Wisconsin had to adjust its management strategies to consider their claim to the fish stock, and decided to allocate a certain percentage of the harvestable catch to tribal members, leaving the rest for the general public.²⁰ But how to determine what proportion of the population could be harvested sustainably? In response, Michael Hansen, who served

¹⁷ Churchill, Warren. "Conclusions from a Ten-Year Creel Census on a Lake with No Angling Restrictions." *The Journal of Wildlife Management*, 21 No. 4 (April 1957), 188, 182-188.

¹⁸ Kempinger, James J., Warren S. Churchill, Gordon R. Priegel, and Lyle M. Christenson. *Estimate of Abundance, Harvest, and Exploitation of the Fish Population of Escanaba Lake, Wisconsin, 1946-69*. (Madison, WI: Wisconsin Department of Natural Resources, 1975), 25&26.

¹⁹ Sass, Greg. *Interview with the author*, 8 Nov 2012.

²⁰ Meyer, Fred ed. *Casting Light Upon the Waters: a Joint Fishery Assessment of the Wisconsin Ceded Territory*. (Minneapolis: U.S. Department of the Interior, 1991), 34.

as the state’s Treaty Fishery Specialist at the time, used the long-term record on Escanaba Lake to determine what percentage of the population could be taken each year without significantly reducing future catches.²¹ His conclusion, thirty-five percent, is still used as the baseline today when managers assign bag limits to each lake in the region. In this example alone the creel survey on Escanaba Lake was crucial to informing state legislation, and dozens of other studies conducted on the lake have been used as well.²²

These stories would be hidden from you, the angler out on the lake today, but the station and what it represents shape your fishing experience, not just here but wherever you go. This creel survey, though vast in length, is but a fraction of the research done by the Department of Natural Resources to protect its fisheries. You and the other 1.4 million anglers who buy licenses each year are the reason the state government is concerned about fish populations, and why professionals are hired to study them.²⁰ Unless anglers were out on lakes in the first place, the state would have no reason to regulate fishing or question the way it is regulated.

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After I spent hours digging through the station’s file cabinets of data sheets and scientific papers, I finally examined the lake itself. On that October day the bright sun compensated for the brisk wind. The trickle of tourists had dried up for the season, and with all the birds gone south, the lake felt empty and silent. I broke the still surface as I paddled toward the islands on the east side, noticing the tamarack trees had turned a rich gold color. Still, fisheries science dominated my mind, and instead of looking at the land I stared into the water hoping to spot a fish, as though it would whisper some secret about the rich record of data collected here. Instead, I noticed something else beneath the surface.

²¹ Hansen, M. J., M. D. Staggs, and M. H. Hoff. “Derivation of safety factors for setting harvest quotas on adult walleye from past estimates of abundance.” *Transactions of the American Fisheries Society* 120, No. 5 (1991): 620-628, 628.

²² Sass, Greg G., David Dreikosen, Gary Kubenik, Matt Lorenzoni, and Margaret Snyder. *Annual Report: Northern Highland Fishery Research Area Population and Harvest Monitoring*. (Madison, WI: Fisheries and Habitat Research Section of the Bureau of Integrated Sciences, Wisconsin Department of Natural Resources, 2012), appendix A.

Freshwater sponges were everywhere! The untrained eye would believe much of the fallen wood in the lake was covered by green algae, but a closer look at the organism reveals a rough, brittle, and porous encasing. It's a colony of thousands of tiny organisms filtering the water for particulate food, and they are so prolific I can see them from my kayak, without the aid of a snorkel. I've spent two summers doing field surveys in over fifty lakes in the state forest, but I've never seen anything even close to such an incredible density of sponges.

How could no record of Escanaba ever hint at such a marvel? Are fish the only species worth collecting data on? One could argue that the creel survey reduces the ecosystem to a holding tank for fish waiting to be caught and overlooks the diversity of life forms in the lake. The anglers just care about catching fish, and managers serve the fishermen instead of acting as stewards of the waters. The canoeists? If they really wanted the region to be wilderness, they should stay out of it. Our uses of the land are still utilitarian, just like the lumberjacks – how much have we really changed? We take what we want and leave, without any appreciation for the ecosystem as a whole, ignoring the little things of no commercial value like the sponges.

Such a view is overly cynical and ignores the changes in the landscape since the lumberjacks' time. If no anglers or canoeists came, what would the land look like? Perhaps it would be a wilderness devoid of people, but it could also be cleared to the ground, built with homes, and paved with concrete. Even if the tourists who recreate here are just using the land for their own enjoyment, they have a genuine interest in keeping the ecosystem whole, and their cries of protest would resound if the land were threatened. Legislation directly shapes how Escanaba Lake is used today, protecting the land because paddlers come to paddle, and fishermen come to fish.

Appendix A. Supplementary photographs, taken by the author.



View from the bog at the south end of the main basin.



Sign on the southernmost island:
government regulation at work



Note slogan hanging on the bottom: “Improving Fishing Through Scientific Research”



The checking station. Solar panels are located behind the building.



Close encounter with a freshwater sponge.



The landscape in October 2012.

Appendix B. Photographs of trophy catches, courtesy of the checking station. Captions denote the information recorded on the back of the original photo.



7-2-95 The Bull Bros 36"-32"-33"-28"



October 13th, 1991 "See you in spring!"



John Higgins 48" 10-20-07 Fall 64150 (released)



23" smallmouth caught 5-3-04
Escanaba Lake. John Stellflue,
Rhineland, WI

Appendix C. Copy of permits in use during October 2012. This sheet is the only information an angler is required to provide.

State of Wisconsin Department of Natural Resources	Northern Highland Fishery Permit Form 8100-006 (R 6/03)																										
<p>Notice: This mandatory form is required under s. NR 20.41(2) (a), Wis. Adm. Code. Failure to comply can result in forfeiture up to \$1000.00 [s. 29.971(1), Wis. Stats.]. Personally identifiable information on this form will be used for establishing the identity of the permit holder and for research purposes.</p>																											
Date _____																											
Name _____	Car License No. _____																										
Street or Route _____	Local Address _____																										
City, State, ZIP Code _____																											
Angler's Sex: <input type="checkbox"/> Male <input type="checkbox"/> Female Angler's Age: <input type="checkbox"/> Under 16 <input type="checkbox"/> 16 to 65 <input type="checkbox"/> over 65																											
is hereby authorized in accordance with s. NR 20.41(2), Wis. Adm. Code, to fish in the Northern Highland Fishery Research Area only in _____ Lake. Current Wisconsin fishing regulations apply, except that there shall be:																											
1. No size limit on any species except as posted at checking station and lake(s) 2. No bag limit on any species except as posted at checking station and lake(s) 3. No closed season on any species except as posted at checking station and lake(s) 4. No restriction against taking cisco with licensed seines and dip nets in Palette Lake																											
The permittee is required to exhibit all fish taken in these waters to the Department of Natural Resources at the checking station when the station is open, and the permit, good for only one day, MUST BE RETURNED AT THE END OF THE DAY'S FISHING , even if no fish were caught.																											
When the checking station is closed, each angler is required to report his catch below and to put permit in box at checking station.																											
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 70%;">Species</th> <th style="width: 30%;">Number</th> </tr> </thead> <tbody> <tr><td>Walleye</td><td>_____</td></tr> <tr><td>Perch</td><td>_____</td></tr> <tr><td>Rock Bass</td><td>_____</td></tr> <tr><td>Smallmouth Bass</td><td>_____</td></tr> <tr><td>Largemouth Bass</td><td>_____</td></tr> <tr><td>Pumpkinseed</td><td>_____</td></tr> <tr><td>Bluegill</td><td>_____</td></tr> <tr><td>Black Crappie</td><td>_____</td></tr> <tr><td>Northern Pike</td><td>_____</td></tr> <tr><td>Muskellunge</td><td>_____</td></tr> <tr><td>Cisco</td><td>_____</td></tr> <tr><td>Lake Trout</td><td>_____</td></tr> </tbody> </table>	Species	Number	Walleye	_____	Perch	_____	Rock Bass	_____	Smallmouth Bass	_____	Largemouth Bass	_____	Pumpkinseed	_____	Bluegill	_____	Black Crappie	_____	Northern Pike	_____	Muskellunge	_____	Cisco	_____	Lake Trout	_____	<input type="checkbox"/> Kept No Fish _____ Hours Fished <p style="text-align: center;">Fishing Hours as Posted at Checking Station</p> <p style="text-align: center;"><i>Your compliance is essential to our research efforts.</i></p> <p style="text-align: right;"><i>Thank You</i></p>
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