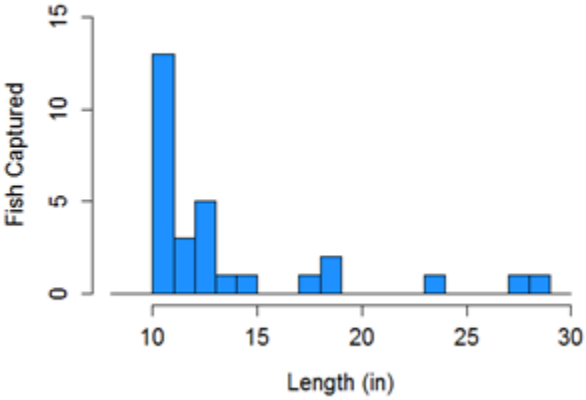
Spring Fisheries Survey Summary
Moose Lake, Sawyer County, 2013

The Hayward DNR Fisheries Management Team conducted a fyke netting survey at Moose Lake on May 16, 2013 to assess the adult walleye, muskellunge, northern pike, yellow perch, and black crappie populations. Eight nets were set overnight for one night, resulting in eight net-nights of effort. A nighttime electrofishing survey was conducted along four miles of shoreline on June 10, 2013 in order to document the status of smallmouth bass, largemouth bass and bluegill. Quality, preferred, and memorable sizes referenced in this summary are based on standard proportions of world record lengths developed for each species by the American Fisheries Society.

Moose Lake is a very shallow, dark-stained 1,708-acre impoundment of the West Fork Chippewa River that lies several miles downstream of Lower Clam Lake and several miles upstream of the Chippewa Flowage. A rocky shoreline strewn with abundant large woody debris and relatively few aquatic plants along a mostly undeveloped shoreline in the Chequamegon-Nicolet National Forest provides good spawning habitat for walleye and muskellunge. An annual winter drawdown of 5 feet reduces winter pool area significantly and concentrates young fish into a much-reduced volume, exposing them to intense predation by adult walleye.

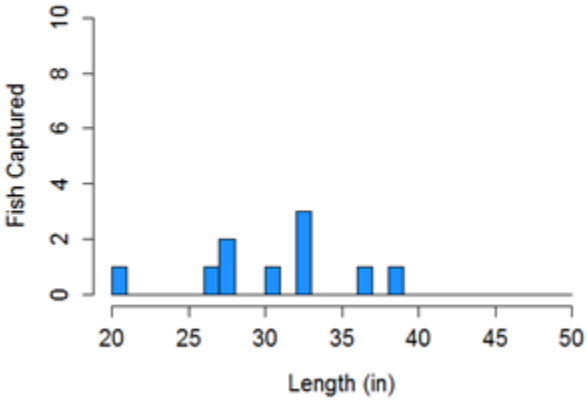
Walleye

Captured 3.6 per net-night ≥ 10 inches	
Quality Size ≥ 15"	21%
Preferred Size ≥ 20"	10%



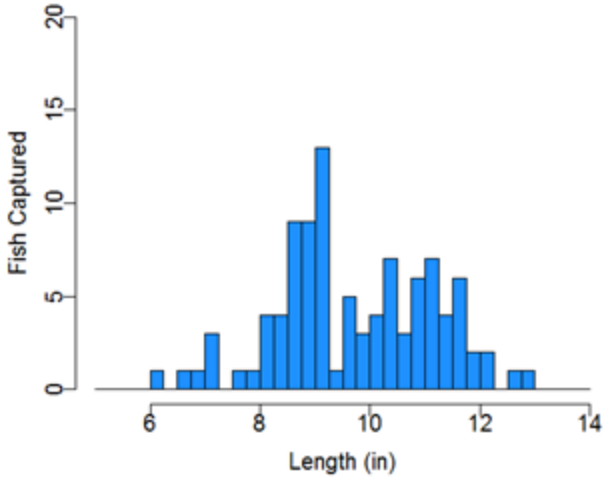
Muskellunge

Captured 1.3 per net-night ≥ 20 inches	
Quality Size ≥ 30"	60%
Memorable Size ≥ 42"	0%



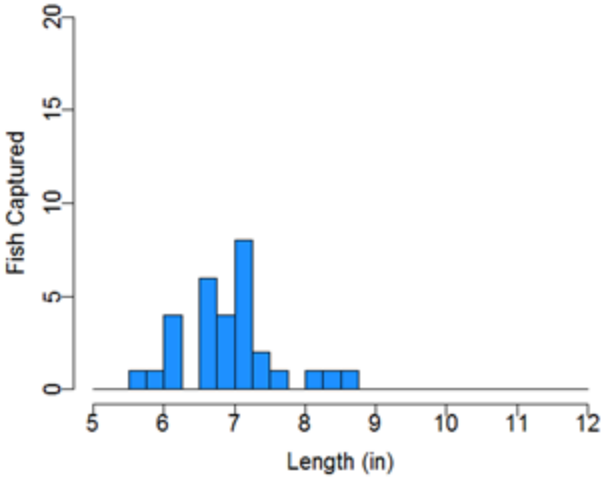
Black Crappie

Captured 12.4 per net-night ≥ 5 inches	
Quality Size ≥ 8"	92%
Preferred Size ≥ 10"	43%



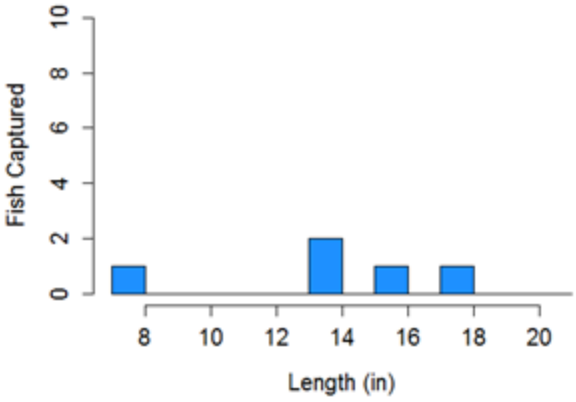
Yellow Perch

Captured 3.8 per net-night ≥ 5 inches	
Quality Size ≥ 8"	10%
Preferred Size ≥ 10"	0%



Smallmouth bass

Captured 1.3 per mile ≥ 7 inches	
Quality Size ≥ 11"	80%
Preferred Size ≥ 14"	40%
Memorable Size ≥ 17"	20%



Summary of Results

Our netting survey occurred near the end of the walleye spawning season at a time when muskellunge and crappie were exhibiting pre-spawn behavior. Some walleyes may still have been upriver where a significant spawning run takes place. Our electrofishing effort resulted in low capture rates because of the dark water in Moose Lake, difficulty navigating through shallow water full of boulders and large woody debris, and a smallmouth bass population that probably migrates upriver to spawn in significant numbers also.

Walleyes were captured at a relatively low rate that probably does not reflect their actual density in Moose Lake based on reliable angler reports. However, the size structure we observed is probably representative. Moose Lake has always been known for having a dense population of small, slow-growing walleyes (6 years for males to reach 12 inches). We found many small adults in the 10-14 inch range. But we also captured some larger adults that had either grown faster than average or lived a very long time. Forage for smaller walleye may be limited as a result of intense competition for food in a system with poor nutrient availability (dark, humic-stained water). But individual fish that are able to grow out of the small size range have much forage available to them in the form of intermediate-size yellow perch, small suckers and redhorse, and juvenile crappies. A growth rate analysis has confirmed that the best harvest regulation for Moose Lake is one that still allows a thinning harvest of small, slow-growing walleyes (as occurs currently under no length restriction of any kind), but restricts the harvest of fish that reach 14 inches to just one fish daily. This "1-over-14" regulation has been proposed and, if approved, would take effect in spring of 2016.

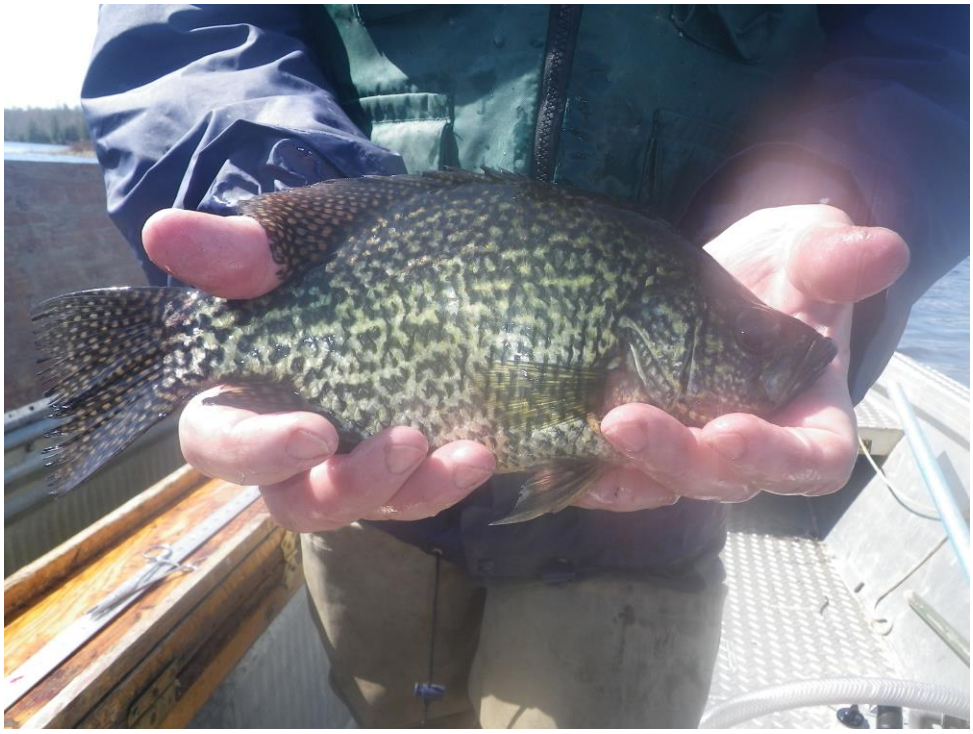
The muskellunge population in Moose Lake has always been sustained by natural reproduction and has been dominated by relatively abundant fish 30-40 inches long. The forage base for muskellunge in Moose Lake seems sufficient, so slow growth is likely the result of competition among similar-size fish for which visual conditions may be darker than optimal for foraging. The effect of dark water may be especially significant for large fish that rely on encountering and capturing large, bottom-feeding prey such as suckers and redhorse in a dimly lit environment.

Black crappies were captured at a moderate rate with a high proportion of preferred-size fish 10 inches and longer. Like most northern Wisconsin waters, Moose Lake has inconsistent (and probably weather-dependent) crappie recruitment that leads to a fluctuating adult population and cyclic fishing quality. But for now the population appears to be up. Moose Lake currently has a 10-daily bag limit on panfish. This regulation seems appropriate given their high vulnerability to over-harvest, particularly in late fall and winter when concentrated near deep-water cribs.

Yellow perch were captured in low numbers and small sizes. They are likely an important item in the diets of muskellunge (which selectively prey upon larger perch) and larger walleye.

Bluegills were very scarce in both the netting and electrofishing survey (less than 1 fish per net-night and 1 fish per mile of shoreline, respectively). These numbers are probably reflective of the current status of bluegill in the lake. Despite interest from anglers in having bluegill as a significant component of the fishery, the conditions in Moose Lake are not favorable for this species. Dark water, few aquatic plants, annual 5-foot winter drawdowns, and abundant walleyes all contribute to the scarcity of bluegill in Moose Lake. Stockings of 4-6 inch bluegill transferred from other area lakes had been a popular and successful program in the past, but field transfers have become almost impossible to perform under new disease prevention guidelines. Privately funded stocking of bluegills could be continued (and would be permitted) if private funds and a source of certified, disease-free bluegill were available.

A low number of smallmouth bass were captured during our electrofishing survey. Issues with the effectiveness of our electrofishing gear and the movement of smallmouth between the lake and connected rivers prevented us from obtaining a representative sample of this population. The smallmouth fishery in Moose Lake is known to be better than is represented here.



A nice Moose Lake crappie from the netting survey.

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Edited and Approved By: Dave Neuswanger, Fisheries Supervisor, Hayward Field Unit, 1/26/14