Summary of Fishery Surveys
Bass Lake, Price County, 2015

WDNR's Fisheries Management Team from Park Falls completed electrofishing and fyke netting surveys in spring 2015 to assess the abundance and size structure of largemouth bass and bluegill populations in Bass Lake, the largest and western-most of five Price County lakes that share the name. Be careful not to confuse this Bass Lake (located entirely within the Flambeau River State Forest about 25 miles northwest of Phillips, WI) with the 58-acre Bass Lake (located entirely within the private property of Boyd's Mason Lake Resort) less than 3 miles away. 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. "Keeper size" is based on known angler behavior.

Survey Effort

On the night of June 1, 2015, when water temperature was about 66˚F, we completed a circuit of Bass Lake's entire shoreline (2.08 miles) in 0.90 hours with our large electrofishing boat. With high water clarity largemouth bass and bluegills were visible on their nests, so our survey occurred near the peak of their spawning activity when adults are most vulnerable to capture by electrofishing. However, extremely low conductivity produced only a weak electrical current that alerted fish to our approach, but did not immobilize them enough to be dip-netted. We saw many more fish swimming away than we captured. Because electrofishing capture efficiency was low, our sample may not properly represent the bass and bluegill population status. Therefore, on June 9, 2015 we returned to further evaluate their abundance and size structure in a late spring fyke netting survey. We fished four fyke nets for three nights, tending them daily in 12 net-nights of survey effort. Water temperature ranged from 67 to 68˚F, approaching the optimum range at which bluegills typically spawn (67–80°F).

Habitat Characteristics

Bass Lake, the only designated Wilderness Lake in the Flambeau River State Forest, is a remote 94-acre seepage lake surrounded entirely by public land, which is passively managed in a natural, undeveloped condition for old-growth forest characteristics and low-impact, non-motorized recreation. The average depth is 21 feet, and maximum depth is 45 feet. Compared to most drainage lakes in the area, water clarity is quite high with an average Secchi depth of 11 feet. With such clear water we can indirectly classify Bass Lake as mesotrophic, having moderate nutrient concentrations that lead to moderate rates of biomass production. The substrate is composed of 80% gravel, 10% rock, and 10% muck, supporting a moderate density of submergent and emergent vegetation. Submerged woody cover is plentiful along the shorelines. Shorelands are largely covered with upland forest (60%) comprised of mature hemlock, white pine, and hardwoods connected to acid peatlands and other wetlands (40%). A gated, half-mile-long trail provides

walk-in only access from the end of Tower Hill Road. Use of electric- or gasoline-powered motorboats is prohibited to preserve the wilderness aesthetics.

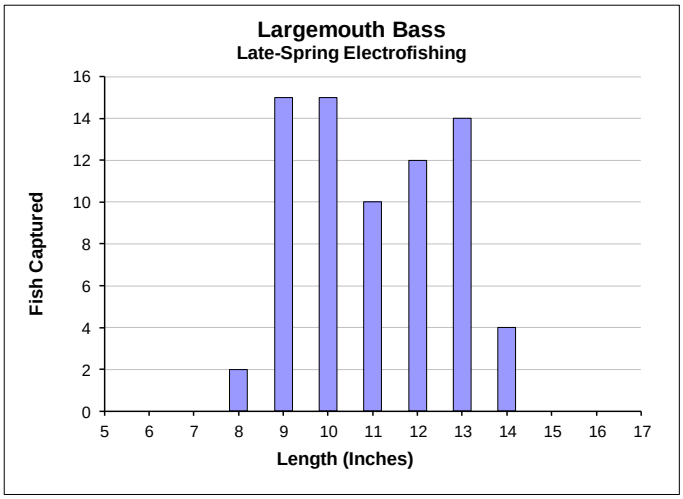
Summary of Results

We captured only three fish species in our 2015 netting and electrofishing surveys. Largemouth bass were the only predators found, and bluegills were their main prey. We also captured three yellow perch, suggesting they're present in low abundance. We found an identical species count and fish community composition in our September 2014 angling survey.

Largemouth Bass

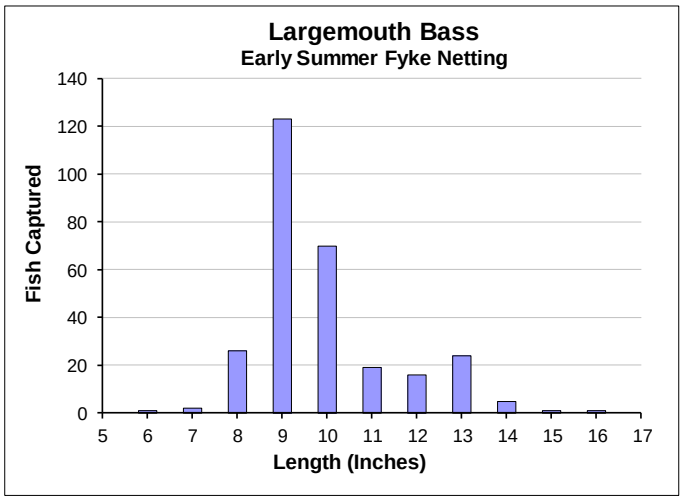
Late Spring Electrofishing

Captured 35 per mile or 80 per hour ≥ 8"	
Quality Size ≥ 12"	42%
Preferred Size ≥ 15"	0%
Legal Size ≥ 18"	0%



Late Spring Fyke Nets

Captured 24 per net-night ≥ 8"	
Quality Size ≥ 12"	16%
Preferred Size ≥ 15"	0.7%
Legal Size ≥ 18"	0%



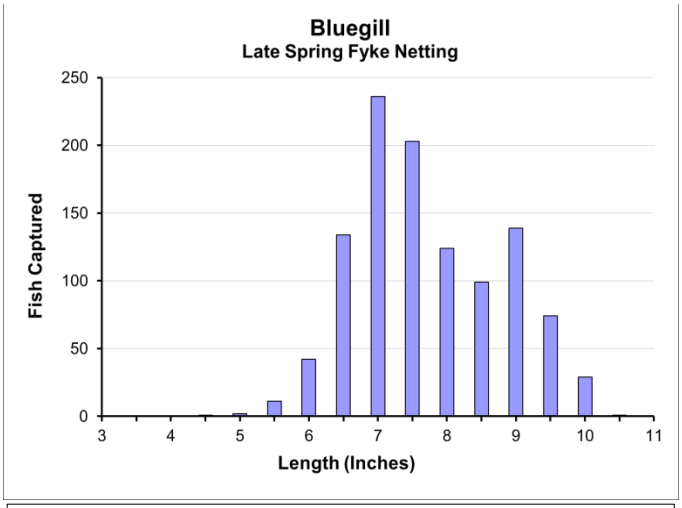
Our 2015 netting and electrofishing catch rates confirmed our suspicion fueled by angler reports that Bass Lake has a high-density largemouth bass population with poor size structure. Our electrofishing capture rate of 80 bass per hour indicated high abundance, especially when our efficiency was low and many fish evaded capture. Our netting survey directed toward bluegills also captured largemouth bass at an unusually high rate, even though fyke nets typically do not capture many largemouth bass. In 2014 we used otoliths to estimate the ages of 17 largemouth bass from Bass Lake and found that they grew

much slower that the statewide and regional averages (see September 2014 angling survey summary). Intense competition for food and space among crowded bass clearly impairs largemouth bass growth rate, and most fish die of natural causes before they can reach 15 inches long. We caught no legal-size bass under the special regulation in effect since 1991 to provide quality fishing opportunity: "*Only one largemouth or smallmouth bass may be kept and it must be at least 18 inches.*" The existing 18-inch minimum length limit protects the entire population from angling harvest, and reinstating the statewide 14-inch size limit would safeguard nearly all bass. Only 5.6%, 2.5%, 0% of the bass that we captured by electrofishing, netting, and angling in 2014–2015 were ≥ 14 inches long. Regulating angling harvest in remote Bass Lake will probably never affect largemouth bass abundance and size distribution, regardless of which rule option is applied. Even with liberal or no harvest restrictions, the few anglers who are willing to walk-in would not be able to harvest enough bass to reduce their abundance to the low levels required to improve their size structure. Nonetheless, the quality bluegill fishing that anglers presently enjoy in Bass Lake relies heavily on the high-density, slow-growing largemouth bass population to control bluegill abundance by predation, so bluegills can keep growing at a satisfactory rate and continue to produce plenty of large fish in a lake of this size.

Bluegill

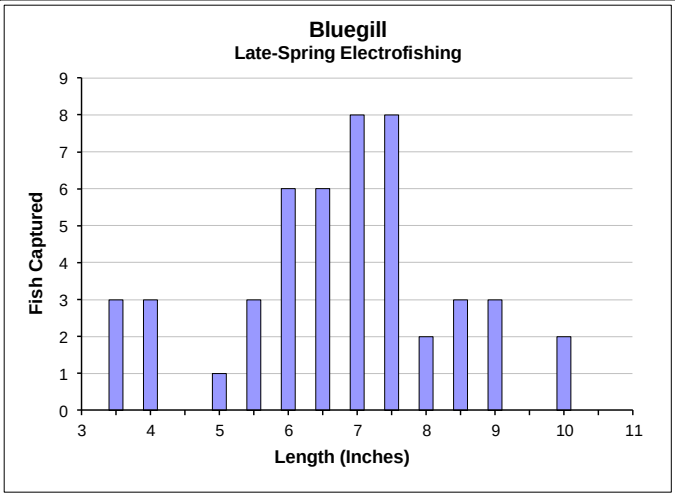
Late Spring Fyke Nets

Captured 91 per net-night ≥ 3"	
Quality Size ≥ 6"	99%
Keeper Size ≥ 7"	83%
Preferred Size ≥ 8"	43%
Memorable Size ≥ 10"	3%



Late Spring Electrofishing

Captured 23 per mile or 53 per hour ≥ 3"	
Quality Size ≥ 6"	79%
Keeper Size ≥ 7"	54%
Preferred Size ≥ 8"	21%
Memorable Size ≥ 10"	4%



The excellent size structure of the bluegill population in Bass Lake exceeded the objectives we set for many lakes in the Upper Chippewa River Basin. Our electrofishing and netting capture rates indicated

moderate population abundance, even after taking into account our low electrofishing capture efficiency. We did not take any bony structures to age bluegills from Bass Lake, but we can safely assume that growth rate was adequate, based on the higher-than-average proportions of fish reaching preferred and memorable size before succumbing to natural mortality. In an ideal combination under low fishing pressure and harvest, Bass Lake's bluegill population apparently has enough predatory pressure from abundant largemouth bass coupled with intact social mechanisms among male bluegill that self-regulate reproductive success, to control bluegill recruitment, prevent crowding and competition that leads to impaired growth, and produce more large bluegills than we found elsewhere in our surveys.

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Written by: Chad Leanna—LTE Fisheries Technician, February 2016.

Reviewed and edited by: Jeff Scheirer—Fishery Biologist, February 2016.

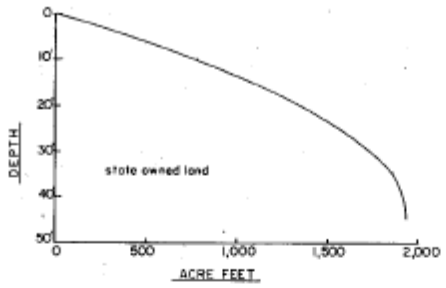
Approved for web posting by: Mike Vogelsang—Northern Administrative District Supervisor, February 2016.

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

LAKE SURVEY MAP

BASS LAKE — PRICE COUNTY

SEC. 18 T. 38 N. R. 2 W.



Department of Natural Resources Bench Mark.
Spike in the base of a 10" oak, 3' west of trail and 5' north of water's edge.
Assumed Elevation 100.00'
Water Elevation 97.55'

SAWYER COUNTY
PRICE COUNTY

R.3 W.
R.2 W.

Section 13
Section 18

Tamarack
Spruce
Leatherleaf

Mixed Hardwood
Mixed Hardwood & Pine
Mixed Hardwood & Pine
Mixed Hardwood & Pine
Mixed Hardwood & Pine
Mixed Hardwood & Pine
Tamarack
Tamarack Spruce Leatherleaf
Pine
18 Miles to Phillips
B.M.
N

EQUIPMENT RECORDING SONAR MAPPED OCTOBER 1969 (MONTH YEAR)

TOPOGRAPHIC SYMBOLS

- (B) Brush
- (PW) Partially wooded
- (W) Wooded
- (C) Cleared
- (P) Pastured
- (A) Agricultural
- B.M. Bench Mark
- Dwelling
- Resort
- Steep slope
- Indefinite shoreline
- Marsh
- Spring
- Intermittent stream
- Permanent inlet
- Permanent outlet
- Dam
- D.N.R. State owned land

LAKE BOTTOM SYMBOLS

- P. Peat
- Mk. Muck
- C. Clay
- M. Marl
- Sd. Sand
- St. Silt
- Gr. Gravel
- R. Rubble
- Br. Bedrock
- B Boulders
- Stumps & Snags
- Rock danger to navigation
- T Submergent vegetation
- Emergent vegetation
- Floating vegetation
- Brush shelters

SCALE
200' 0 200' 400' 600' 800'

- Access
- Access with Parking
- Boat Livery

Drawn by: J. Roth
Field work by: C. Busch, G. Lund, S. Johnson

SPECIES OF FISH	Abundant	Common	Present
Muskie			
N. Pike			
Walleye			
L.M. Bass			X
S.M. Bass			
Panfish			X
Trout			

WATER AREA 94.0 ACRES
UNDER 3 FT. 7 %
OVER 20 FT. 52 %
MAX. DEPTH 45 FEET.
TOTAL ALK. 50 P.P.M.
VOLUME 1,934.7 ACRE FT.
SHORELINE 1.97 MILES