



Summary of Fishery Surveys Shearer Lake, Taylor County, 2010

WDNR's Fisheries Management Team from Park Falls completed fyke netting and electrofishing surveys in 2010 to assess the status of important fish populations in Shearer Lake. Fyke nets set two weeks after the spring thaw targeted walleye, northern pike, and yellow perch. A late-spring electrofishing survey documented the abundance and size structure of largemouth bass and bluegill populations. 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 April 13th, 2010 we set three fyke nets at locations chosen to intercept early spring spawners and fished them overnight for two nights (six net-nights of effort) when water temperature was 49°F. Comparing measured water temperature with the optimal spawning temperature range of the target species, our spring fyke netting was well-timed to capture spawning pike, perch, and walleye. Similarly, the 67°F water temperature in our May 18th electrofishing survey corresponded well with the temperature range of largemouth bass and bluegill spawning activities. We sampled the entire shoreline (1.11 miles) in 0.70 hour and collected all fish species.

Habitat Characteristics

Shearer Lake is a 22-acre seepage lake located about 15 miles north of Medford, WI. The average depth is 12 feet, and maximum depth is 25 feet. Water color has a moderate brown stain (Secchi depth = 7 feet). The lakebed is 20% sand, 30% gravel, and 50% muck and supports a moderate density of submergent and emergent vegetation. Approximately 80% of the shoreland is upland hardwood forest and 20% is tag alder swamp. Submerged woody structure was plentiful along the south shoreline, and substrates were mostly silt and muck along the north shore. The Chelsea Conservation Club maintains a boat landing for public use on the west shore.

Summary of Results

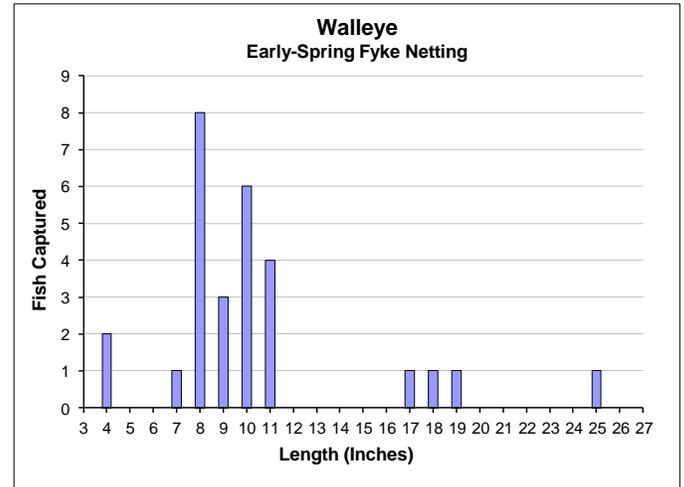
We captured seven fish species in our netting and electrofishing surveys. Largemouth bass and walleyes were the principal predators with bluegills, black crappies, and yellow perch as their principal prey. We also documented the presence of the invasive rusty crayfish.

Walleye



Early Spring Fyke Nets

Captured 2.7 per net-night $\geq 10"$	
Quality Size $\geq 15"$	29%
Preferred Size $\geq 20"$	7%
Memorable Size $\geq 25"$	7%



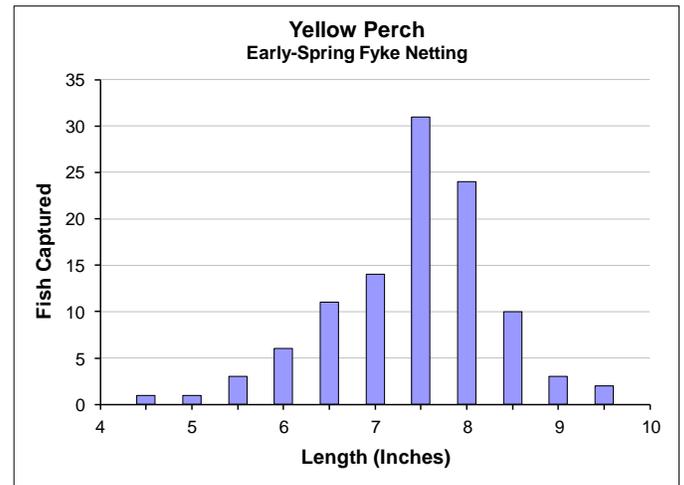
Walleyes in early spring fyke nets were captured at a rate that indicated low population abundance. Because Shearer Lake's habitat, fish community, and moderately high water clarity are not particularly well-suited to support a walleye population sustained by natural reproduction, regular stocking is most likely the only source of new recruits to the adult population. With WDNR approval, local groups purchased and planted large walleye fingerlings (6 – 8 inches) annually in 1992 – 1996, 1999, 2004, and 2006 – 2009. Since this survey, the Rib Lake Area Fish and Game Association, with support from neighboring sportsmen's organizations, has reared and stocked 1,045 large fingerling walleyes in 2011-2014. Their continued cooperation in stocking walleyes offers bonus walleye angling opportunity and helps to control panfish abundance, minimize food competition, and assure that panfish can grow at satisfactory rates in Shearer Lake and 13 nearby lakes.

Yellow Perch



Early Spring Fyke Nets

Captured 26 per net-night $\geq 5"$	
Quality Size $\geq 8"$	37%
Preferred Size $\geq 10"$	0%
Memorable Size $\geq 12"$	0%



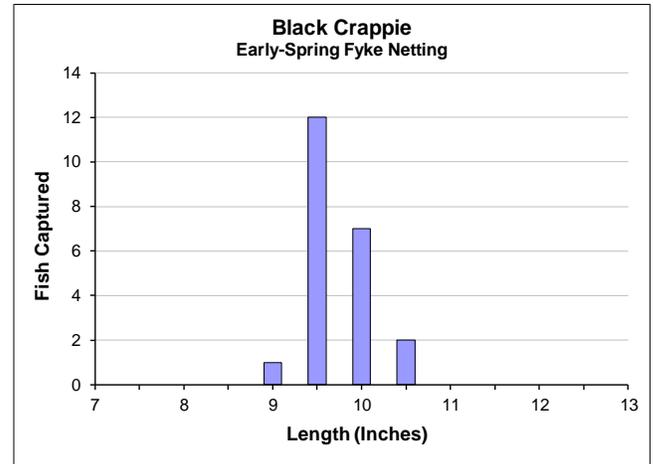
The capture rate and length distribution of perch in our early spring fyke nets indicated moderately low population abundance and a high proportion of quality-size fish. Yellow perch serve as important forage for bass and walleyes; they help to control panfish abundance by eating young bluegills in winter; and they are great table fare for anglers as well. With more than a third of our sample at least 8 inches long, panfish anglers have an opportunity to add a few keeper-size perch to their creel.

Black Crappie



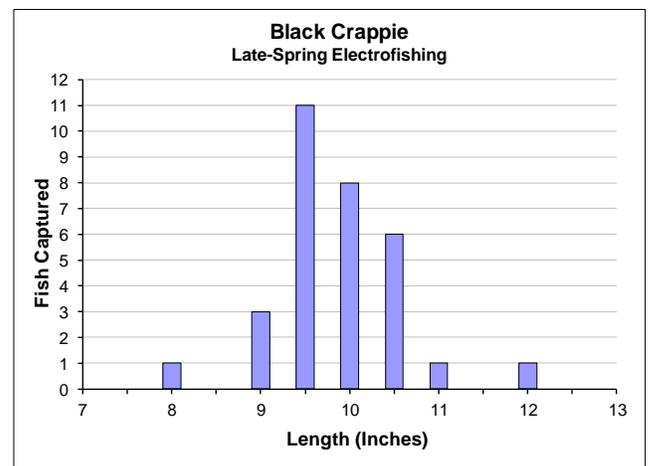
Early Spring Fyke Nets

Captured 3.7 per net-night $\geq 5''$	
Quality Size $\geq 8''$	100%
Preferred Size $\geq 10''$	41%
Memorable Size $\geq 12''$	0%



Late-Spring Electrofishing

Captured 28 per mile or 44 per hour $\geq 5''$	
Quality Size $\geq 8''$	100%
Preferred Size $\geq 10''$	52%
Memorable Size $\geq 12''$	3%



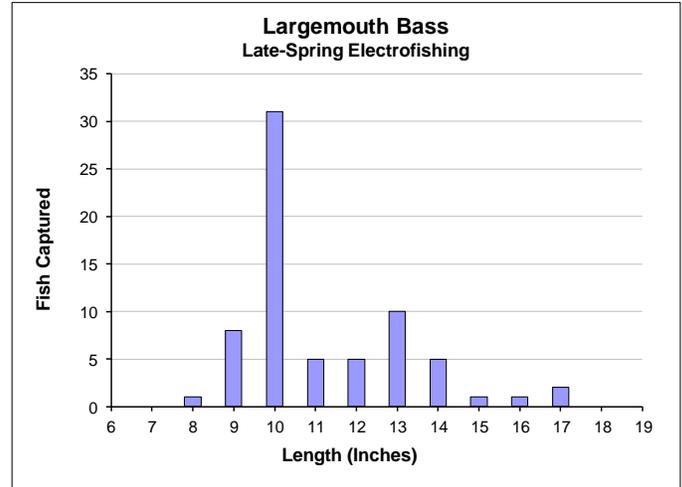
We did not use our traditional method, fall fyke netting, to assess black crappies in Shearer Lake, but capture rates and lengths of crappies in spring netting and electrofishing surveys point toward a population in moderate abundance with favorable size structure. Based on what we know about biases stemming from sampling gear and timing that are highly selective for certain sizes and gear with highly variable catches, we caution that these spring surveys, even in combination, probably still do not represent the entire crappie population. Electrofishing while water temperature was within the optimal range of black crappie spawning activities (64 - 68°F) most likely captured the larger, mature individuals and underrepresented or excluded juveniles and sub-adults. At 49°F, water temperature may have not yet increased enough to prompt adult crappies to move toward shallow water where they would be vulnerable to capture in fyke nets. Age analysis using scales revealed that crappies in Shearer Lake grew to 9.6 inches in 5 years (range 9.2 – 9.8; n = 6), 10.6 inches in 6 years (range 10.2 – 10.4; n = 5), and 10.6 inches in 7 years (range 10.3 – 10.8; n = 3), trending near or just above the regional average lengths at those ages (9.3, 10.1, and 10.7 inches, respectively). With adequate predatory pressure to control abundance and maintain a better-than-average growth rate, at least some crappies can live long enough to attain memorable size. However, even under presumed low to moderate fishing pressure, selective harvest of the largest individuals may be limiting the proportion of crappies 11 inches and longer in this small lake. Local groups could promote a voluntary daily bag limit of 5 crappies to possibly increase the share of memorable-size fish.

Largemouth Bass



Late Spring Electrofishing

Captured 62 per mile or 99 per hour $\geq 8"$	
Quality Size $\geq 12"$	35%
Legal Size $\geq 14"$	13%
Preferred Size $\geq 15"$	6%



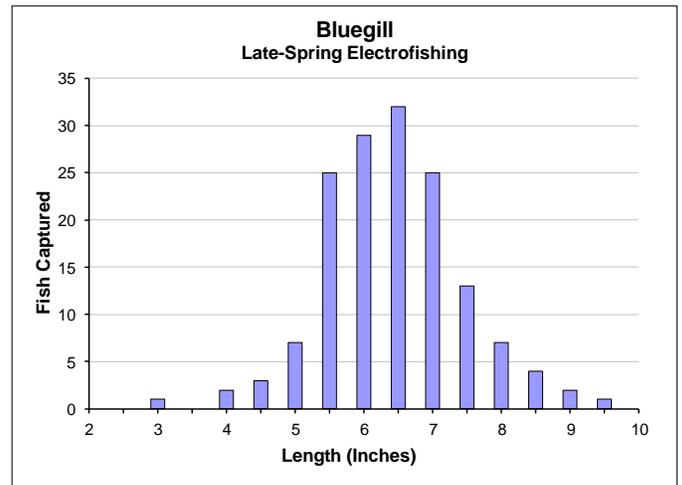
We observed largemouth bass guarding their nests during our survey, so we are confident that the timing of our sample was right and that our high electrofishing capture rate represents a high-density largemouth bass population. Although we did not collect bony structures to estimate their age, we suspect that high abundance leads to food competition and impaired growth, allowing few bass to attain legal size ≥ 14 inches. At a high level of abundance, the largemouth bass population undoubtedly cannot produce a desirable proportion of preferred-size fish $\geq 15"$ (usually described as 20 – 40%). Nonetheless, abundant bass are apparently successful in exerting effective predatory control needed for good crappie and bluegill fishing.

Bluegill



Late Spring Electrofishing

Captured 136 per mile or 216 per hour $\geq 3"$	
Quality Size $\geq 6"$	75%
Keeper Size $\geq 7"$	34%
Preferred Size $\geq 8"$	9%



Our electrofishing survey showed a bluegill population at moderate density which allows individuals to grow fast enough to maintain a satisfactory proportion of preferred-size fish 8 inches or longer (generally 5 – 10%). Age analysis using scales revealed that bluegills in Shearer Lake attained 6.5 inches at age 5 (range 6.2-6.9, n=3), narrowly surpassing the regional and statewide average length at

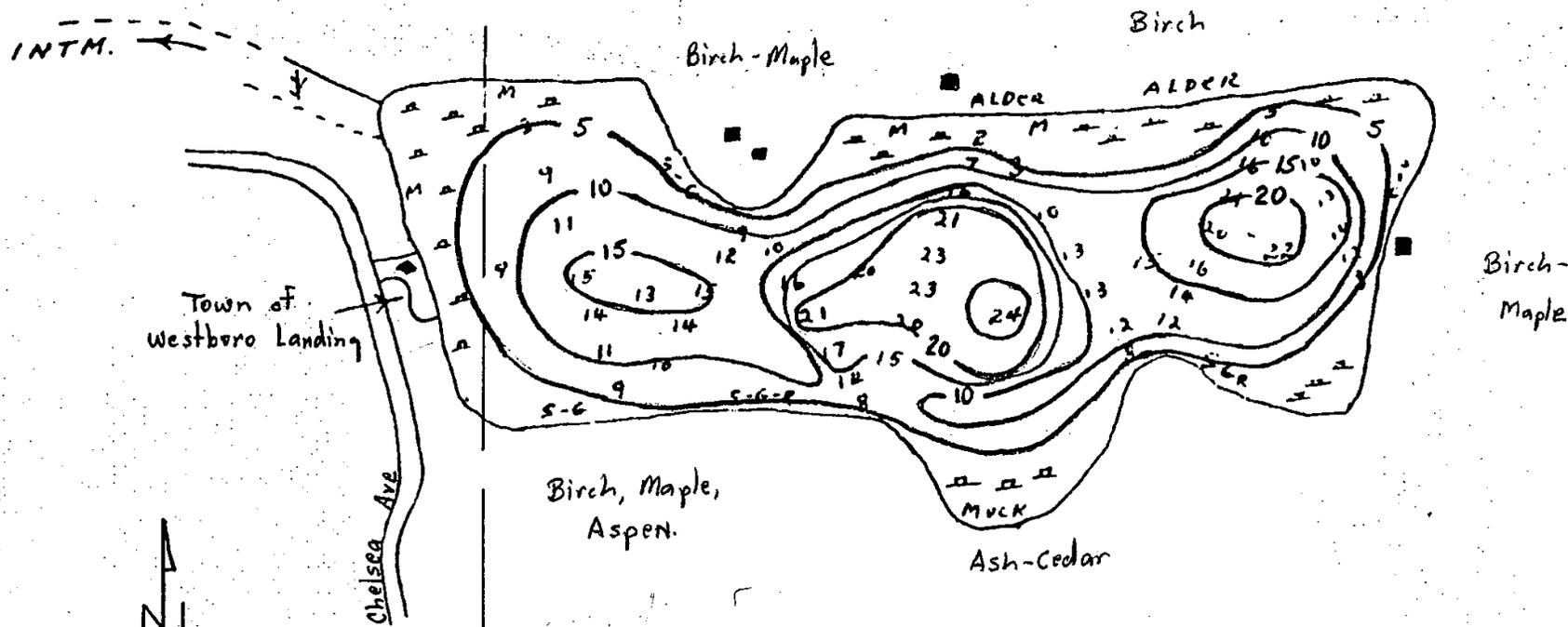
that age (6.4 inches). Age-6 bluegills averaged 8.5 inches (range 8.3-8.6, n=2), exceeding the regional and statewide averages by about 1½ inches. The population's favorable growth rate and size structure are the anticipated result of effective predatory control by abundant largemouth bass with help from stocked walleyes. Spring fyke nets captured unusually few bluegills, suggesting that the water was still too cold to trigger bluegill movement to shallow water.

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Shearers Lake
 S.34 + 35 - T33N - 1E
 Area - 21.0 Acres
 Max Depth - 24 Ft.
 Shoreline - 1.05 mi.

Bottom Types:
 S - sand
 G - gravel
 R - rubble
 M - muck
 □ - Floating veg.