Summary of Fishery Surveys
Fireside Lakes, Rusk County, 2009 – 2010

WDNR’s Fisheries Management Team from Park Falls completed fyke netting and electrofishing surveys in 2009 and 2010 to assess the status of important fish populations in Fireside Lakes. Fyke netting in October 2009 yielded useful information on black crappie. Fyke nets set shortly after the spring thaw targeted walleye, muskellunge, 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 October 7, 2009 we set seven fyke nets for one night to intercept fall movements of black crappies. On April 8, 2010 we set seven fyke nets at locations chosen to intercept early-spring spawning species and fished them overnight for two nights when water temperature was 51°F. Comparing measured water temperature with the optimal spawning temperature range of the target species, our spring fyke netting probably occurred during the peak spawning activity for muskellunge but after the peak spawning activity of pike, perch, and walleye. With water temperatures at 74-75°F, our early June electrofishing survey was a little late to represent the relative abundance and size structure of largemouth bass during their peak spawning activities. We sampled the entire 3.60 miles of shoreline in 1.58 hours, including one mile sub-sampled for panfish in 0.45 hour.

Habitat Characteristics

Fireside Lakes is a 302-acre, two-basin, drainage lake (Mud Lake & Rice Lake) located about 13 miles south of Bruce, WI. Maximum depth is 30 feet. Water color is moderately clear (Secchi disk visibility = 6 feet). The lakebed is comprised of 60% sand, 10% gravel, and 30% muck substrates that support a moderate density of submersed and emergent vegetation. Two intermittent streams flow into the southwest basin (Mud Lake), and Rice Creek discharges to the Chippewa River from the northeastern basin (Rice Lake). The shore-land vegetation is made up of upland hardwoods, conifers, and tag alder. Aquatic invasive species include Chinese mystery snails and curly-leaf pondweed. Visitors have access to the lake through the public boat landing maintained by Rusk County on the northeast shore.
Summary of Results

We captured 21 fish species in our netting and electrofishing surveys. High fish species diversity can be attributed to Fireside Lakes’ direct connection with the Chippewa River. Largemouth bass were the principle predators with bluegill as their principle prey. Yellow perch, white suckers, and redhorse complemented the forage base. Our samples included black crappie, northern pike and muskellunge in low abundance. We also observed a dead sturgeon about 6 feet long in the southwest basin in early spring.

**Walleye**

Early Spring Fyke Nets

<table>
<thead>
<tr>
<th>Captured 1.1 per net-night ≥ 10&quot;</th>
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<tr>
<td>Quality Size ≥ 15&quot;</td>
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<tr>
<td>Preferred Size ≥ 20&quot;</td>
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<tr>
<td>Memorable Size ≥ 25&quot;</td>
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Our low fyke-net capture rate of walleyes reflects very low adult density and very low survival of young fish in recent years. Walleye captured during this survey were most likely remnants from the stocking of small fingerlings (1-3 inches) in 1999, 2000, 2001, and 2005 as well as movement from the connected Chippewa River. Poor reproductive success in the walleye population may be due to poor spawning habitat. The walleyes captured showed capabilities of reaching near trophy size with a number of fish in the memorable size range (≥ 25 inches) offering anglers a unique fishing opportunity.

Since the conclusion of this survey, walleye stocking has resumed. Walleyes from WDNR hatcheries were stocked as 2-inch fingerlings in summer 2011 (10,667) and as large fingerlings (6-8 inches), in fall 2013 (4,525). We believe that survivors of these stockings will be helpful in maintaining predatory control over abundant bluegill, allowing these panfish to grow fast and reach angler-preferred sizes.

**Muskellunge**

Early Spring Fyke Nets

<table>
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<tr>
<th>Captured 0.6 per net-night ≥ 20&quot;</th>
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<tbody>
<tr>
<td>Quality Size ≥ 30&quot;</td>
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<tr>
<td>Preferred Size ≥ 38&quot;</td>
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Though sample size was small, our capture rate of muskellunge ≥ 20 inches long in early spring fyke nets indicated a low-density adult population that included some fish of preferred size. Recruitment stems from a combination of in-lake natural reproduction and movement from the Chippewa River. Adult muskellunge are probably not full-time residents in Fireside Lakes; they undoubtedly move between these lakes and the river seasonally, and more frequently.

**Northern Pike**

Early Spring Fyke Nets

<table>
<thead>
<tr>
<th>Captured 1.0 per net-night ≥ 14&quot;</th>
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<tbody>
<tr>
<td>Quality Size ≥ 21&quot;</td>
<td>86%</td>
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<tr>
<td>Preferred Size ≥ 28&quot;</td>
<td>57%</td>
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Northern pike in several age classes were captured at a low rate in spring fyke nets, suggesting a low-density pike population with above-average size structure. In low abundance pike can avoid competition and grow quickly to preferred and memorable sizes. There is a moderate abundance of perch (northern pike’s preferred prey) and suckers to promote satisfactory growth. Compared with many waters where small pike in high abundance are often considered a nuisance, anglers can expect slower-than-average catch rates and better-than-average size structure.

**Yellow Perch**

Early Spring Fyke Nets

<table>
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<tr>
<th>Captured 10 per net-night ≥ 5&quot;</th>
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<tbody>
<tr>
<td>Quality Size ≥ 8&quot;</td>
<td>1%</td>
</tr>
<tr>
<td>Preferred Size ≥ 10&quot;</td>
<td>0%</td>
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Yellow perch in early spring fyke nets were captured at a moderate rate with below average size structure. Quality-size perch ≥ 8 inches were rare throughout the lake, suggesting that muskellunge, northern pike, and anglers are eating the largest perch from the population. Young perch are also the preferred food of walleye and largemouth bass.
Our low capture rates of black crappies in both spring and fall fyke nets point toward low population abundance. Our catch did represent a variety of age classes indicating consistent, yet low recruitment. Age analysis using scales revealed that black crappie in Fireside Lakes are 10.2 inches long at age 6 (range 10.0-10.4; n=7), nearly identical to the regional average length of 10.1 inches at that age.
The late spring electrofishing survey revealed a largemouth bass population in low to moderate abundance with most fish in the 8-13 inch range. We suspect that bass suffer high mortality, either from angling or natural causes, once they reach legal size (14 inches).

**Bluegill**

**Early Spring Fyke Nets**

<table>
<thead>
<tr>
<th>Captured 27 per net-night ≥ 3”</th>
<th>Quality Size ≥ 6”</th>
<th>60%</th>
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<tbody>
<tr>
<td></td>
<td>Keeper Size ≥ 7”</td>
<td>10%</td>
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<tr>
<td></td>
<td>Preferred Size ≥ 8”</td>
<td>0.3%</td>
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**Late Spring Electrofishing**

<table>
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<tr>
<th>Captured 145 per mile or 336 per hour ≥ 3”</th>
<th>Quality Size ≥ 6”</th>
<th>42%</th>
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<tbody>
<tr>
<td></td>
<td>Keeper Size ≥ 7”</td>
<td>3%</td>
</tr>
<tr>
<td></td>
<td>Preferred Size ≥ 8”</td>
<td>0%</td>
</tr>
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Bluegills captured in early spring fyke nets and by electrofishing indicate a moderately high population abundance with few fish ≥7 inches.

Age analysis using scales collected from spring fyke nets suggest that bluegill in Fireside Lakes grow to 6.2 inches in 6 years (range 5.4-7.2, n=14), 0.7 inch below the regional average length at that age. Slow growth and poor size structure may be attributed to insufficient predatory control by relatively low-density populations of largemouth bass and walleye. Increased predator abundance could help to “thin out” intermediate-size bluegill, allowing more fish to reach angler-preferred sizes.

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