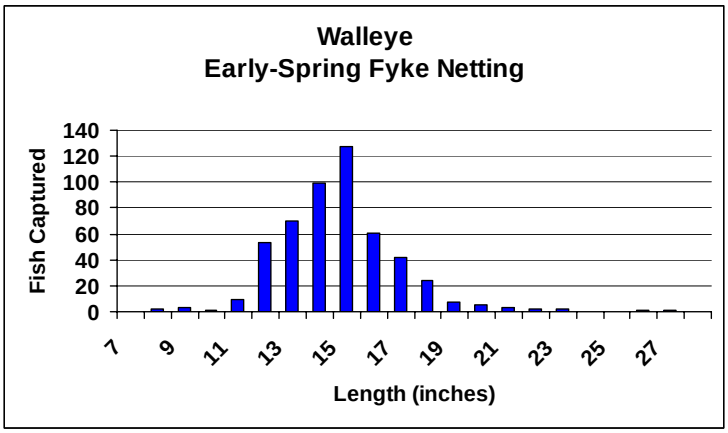
Early-Spring Fyke Netting Survey Summary
Turtle-Flambeau Flowage, Iron County, 2011

The Mercer DNR Fisheries Management Team conducted a fyke netting survey on the Turtle-Flambeau Flowage during April 25 - May 4, 2011 as part of our baseline monitoring program. Primary target species were walleye, yellow perch, muskellunge, and northern pike. Netting locations during the survey were focused on the Turtle River side (northwest portion of the flowage) and the Baraboo Lake area (central portion of the flowage). A total of 51 net-nights of effort occurred over the duration of the survey (one net set overnight equates to one net-night of effort). Walleye were targeted specifically with four net-nights of effort, while the other 47 net-nights of effort targeted yellow perch, muskellunge, and northern pike. 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.

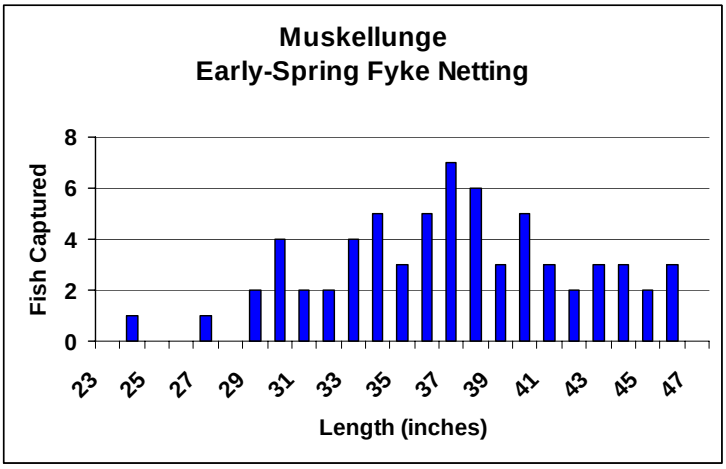
Walleye

Captured 81.3 per net-night ≥ 10”	
Quality Size ≥ 15”	57%
Preferred Size ≥ 20”	3%



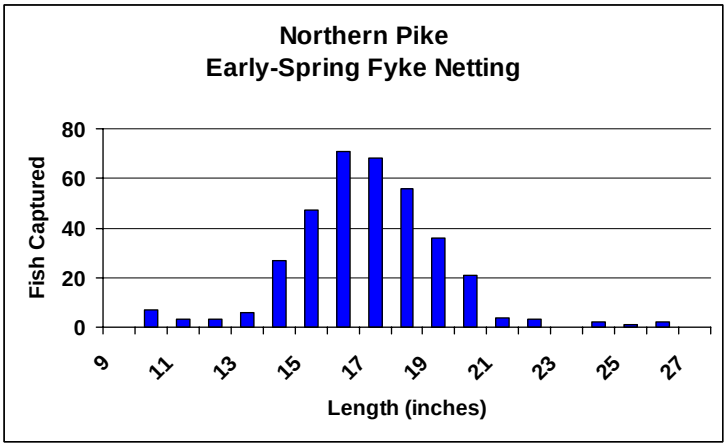
Muskellunge

Captured 1.4 per net-night ≥ 20”	
Quality Size ≥ 30”	94%
Preferred Size ≥ 38”	45%
Memorable Size ≥ 42”	20%



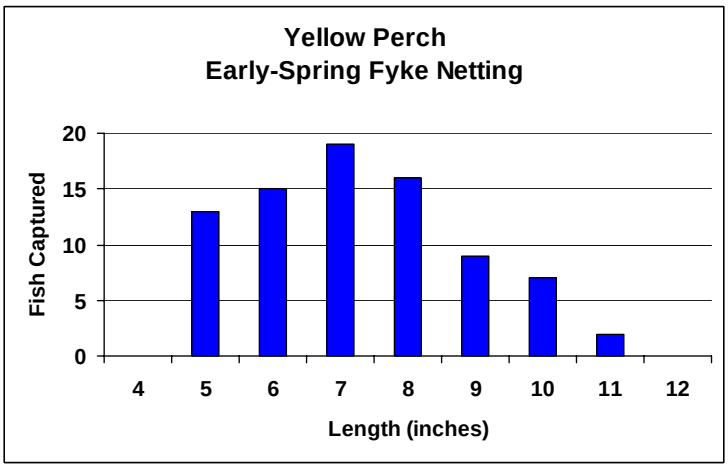
Northern Pike

Captured 7.1 per net-night ≥ 14”	
Quality Size ≥ 21”	4%
Preferred Size ≥ 28”	0%



Yellow Perch

Captured 1.7 per net-night ≥ 5”	
Quality Size ≥ 8”	42%
Preferred Size ≥ 10”	11%



Summary of Results

In early spring of 2011 the Turtle-Flambeau Flowage was just below full pool after a nearly 5-foot overwinter drawdown, but the majority of the high-quality spawning habitat for the targeted species was underwater. Fyke nets were set right after ice-out, and water temperatures typically ranged between the low and mid 40s throughout the survey, covering either a portion, or the entirety, of the preferred spawning temperature ranges for the species targeted.

We captured high numbers of walleye ≥ 10 inches in the four walleye-targeted net sets (81.3 per net-night). The proportion of quality-size fish (≥ 15 inches) in the targeted net sets was 57%, which was higher than what was observed in 2006 and 2009 (36% and 35%, respectively). The higher proportion of quality-size fish observed in 2011 may be a result of one or two relatively weak year classes produced between 2006 and 2008. In our 2007 Fishery Management Plan, we set an objective range of 30-50% for the proportion of quality-size fish. As the proportion of quality-size fish increases, it suggests that recruitment of young fish into the population may be a problem. Variation in year-class strength (e.g. one strong year-class followed by one or two weak year-classes) is typical even within healthy walleye populations. Therefore, although the current adult walleye population may be comprised proportionally of slightly fewer young adult

fish than we would prefer to see, it is not alarming. Survival of young-of-the-year walleye to fall (usually late September) is monitored annually on the Flowage by the Great Lakes Indian Fish & Wildlife Commission (GLIFWC). In 2009 and 2011, GLIFWC documented very strong walleye year-class production. Assuming those year classes contribute significantly to the adult population in upcoming years, we will expect the proportion of quality-size fish to fall back within our objective range.

Muskellunge capture rate (≥ 20 inches) was higher than average for northern Wisconsin at 1.4 per net-night. It should also be noted that capture rates began to increase near the end of the survey as water temperatures warmed towards more preferable spawning temperatures for muskellunge. An impressive 20% of the fish captured were of memorable size (≥ 42 inches), which was about the same as 2009 (22%), and up considerably from 1997 (6%). The current proportion of memorable size musky (20%) falls within the objective range of 20-30% identified in the Fishery Management Plan. Natural young-of-the-year muskellunge were captured in fall of 2011 (possibly for the first time in the Flowage) during a GLIFWC survey. Large fingerling muskies are currently stocked on an alternate-year basis to supplement the population. The relatively high capture rate we observed during this survey, along with average angler catch rates during a recent creel survey, suggest that there may be a higher density of muskellunge in the Flowage than previously thought.

Northern pike capture rate (≥ 14 inches) was moderately high for northern Wisconsin at 7.1 per net-night. It should also be noted that capture rates were highest during the first four days of the survey (14.3 per net-night) when pike were at (or near) the peak of spawning. Pike on the Flowage continue to exhibit very poor size structure; only 4% were of quality size (≥ 21 inches), which was less than the low values of 18% and 8% in 2009 and 1997, respectively. Although age analyses need to be performed in order to validate the following assumption, poor pike size structure in the Flowage is likely a result of slow growth rate and high natural mortality. Pike are a coolwater species with physiological requirements that dictate their need for coolwater habitats throughout the year. In the Flowage, pike likely have to spend a significant amount of time in warm water temperatures (e.g. foraging in relatively shallow waters) that subject them to increased physiological stress. This can shut down the growth process and may even lead to high natural mortality rates, possibly explaining why large, old pike are uncommon in relatively warm, shallow water bodies like the Flowage.

Yellow perch on the Flowage continue to exhibit characteristics of a population experiencing significant predation. We captured relatively few yellow perch ≥ 5 inches (1.7 per net-night) in 2011, which was similar to 2006 (1.5 per net-night) and 1995 (0.6 per net-night). The size structure of perch captured in spring of 2011 was good (11% of preferred size ≥ 10 inches), but it was lower than in 1995 and 2006 (both years being16%). The proportion of preferred-size perch was slightly below the objective range of 15-25% identified in the Fishery Management Plan. However, a number of factors affect the observed size structure at any given time (e.g. recent recruitment, sampling biases, etc.), and as long as we are at least near the objective range, there is no reason to take immediate action. Yellow perch are a preferred prey of walleye, northern pike, and muskellunge. Because the Flowage is a predator-dominant system (walleye and pike especially), predation on perch is undoubtedly high. Therefore, we should continue to expect a perch population of relatively low abundance with good size structure.

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Edited and Approved by Dave Neuswanger
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