



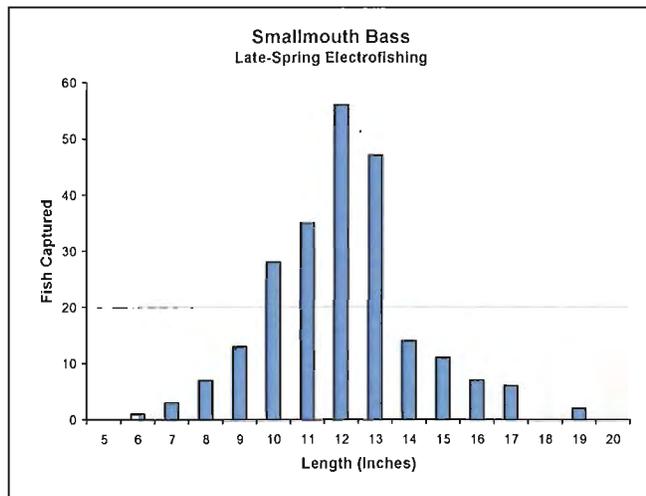
## Late-Spring Electrofishing Survey Summary Chippewa Flowage (East Basin), Sawyer County, 2010

The Hayward DNR Fisheries Management Team conducted an electrofishing survey on the Chippewa Flowage (East Basin) during May 18-20, 2010 as part of our baseline monitoring program. A total of 8.2 miles of shoreline were sampled (1.2 miles sub-sampled for panfish). Primary target species were smallmouth bass, largemouth bass and bluegill. We also obtained useful data on the status of black crappie. A fyke netting survey conducted by our team in early April documented the status of the adult walleye, muskellunge, northern pike, yellow perch and black crappie populations. Those results are presented in a separate survey summary. 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.

### Smallmouth Bass



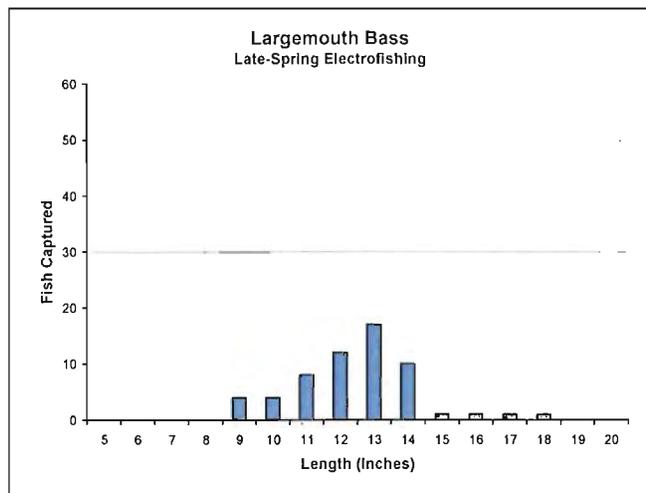
Captured 28 per mile $\geq 7''$	
Quality Size $\geq 11''$	78%
Preferred Size $\geq 14''$	17%
Memorable Size $\geq 17''$	3%



### Largemouth Bass



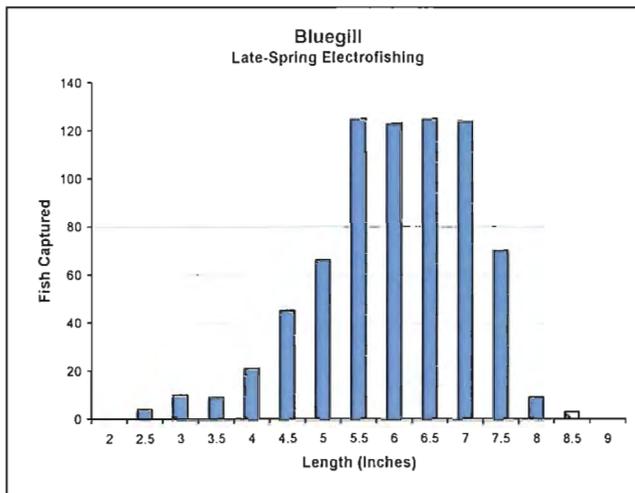
Captured 7.2 per mile $\geq 8''$	
Quality Size $\geq 12''$	73%
Preferred Size $\geq 15''$	7%
Memorable Size $\geq 20''$	0%



### Bluegill



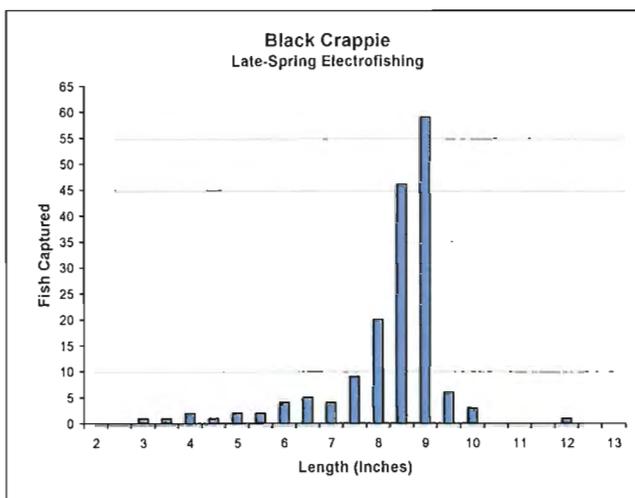
Captured 608 per mile $\geq 3''$	
"Keeper" Size $\geq 7''$	28%
Preferred Size $\geq 8''$	2%



### Black Crappie



Captured 134 per mile $\geq 5''$	
Quality Size $\geq 8''$	84%
Preferred Size $\geq 10''$	3%



## A Note on Basin Habitat Characteristics

When interpreting these results, it is important to recognize the differences between the eastern and western basins of the Chippewa Flowage, which are connected by a narrow, navigable channel spanned by the County Highway CC bridge at The Landing.

In general, the East Basin has darker, tannin-stained water, fewer aquatic plants except during times of drought, firmer substrates (more gravel and cobble), and is more heavily influenced by the many rivers and creeks that flow into it. Because of these habitat characteristics, the East Basin provides the best habitat on the Flowage for walleye, smallmouth bass, and muskellunge. In contrast, the West Basin has clearer water, more aquatic plants, and softer substrates (more silt-bottomed bays); and it functions like a group of interconnected lakes. These habitat characteristics provide some advantages to largemouth bass and northern pike. Important panfish species (yellow perch, black crappie, and bluegill) thrive throughout the Flowage.

## Summary of Results

In late spring of 2010 the Chippewa Flowage was still slightly below full pool, yet an abundance of high-quality bass and sunfish spawning habitat was available. With water temperature in the mid-to-upper 60s, our survey was well-timed for purposes of obtaining a representative sample of all sizes of target species in likely near-shore spawning areas.

We sampled smallmouth bass at or very near their peak in spawning activity (observed many nesting males and some coupled pairs). Capture rate of smallmouth bass  $\geq 7$  inches was 28 per mile, more than doubling the 2008 capture rate in the East Basin (12 per mile  $\geq 7$  inches). Increased capture rate may be partially due to slightly better sample site location and timing compared with the 2008 survey; but it is most likely due to recruitment of large numbers of young produced in 2005 (averaged 12.5 inches in May 2010) and 2006 (averaged 10.8 inches in May 2010). As bass increase to adult size, their vulnerability to capture by electrofishing increases notably. High recruitment of young fish has produced the desired number of smallmouth bass in the East Basin, but it also caused the proportion of preferred-size fish ( $\geq 14$  inches) to decrease from 37% in 2008 to 17% in 2010. Growth rate remained acceptable (exceeding 12 inches in 5 years), so a couple more years of regulatory protection and voluntary release of legal-size smallmouth bass may soon lead to attainment of our 2007 Management Plan objective to have 5-15% of all 7-inch and larger smallmouths of memorable size  $\geq 17$  inches.

Largemouth bass  $\geq 8$  inches were captured at a rate almost four times greater in 2010 (7.2 per mile) than during a similar survey of the East Basin in 2008 (1.9 per mile). This increase occurred despite sub-optimal habitat for largemouth bass in the East Basin, suggesting high survival (due to low angler harvest) of immigrants from the West Basin where our 2009 electrofishing capture rate of largemouth bass  $\geq 8$  inches was 15 per mile – a level likely to adversely affect recruitment of young walleye due to predation. Most largemouth bass in the East Basin were 12 to 14 inches long; only 7% were of preferred size  $\geq 15$  inches. Age analysis of largemouth bass captured in the West Basin in 2009 revealed these increasingly abundant predators were growing very slowly (averaged 11.3 inches at age 5). Fish starting the year  $\geq 11$  inches grew less than one inch annually. Because of slow growth rate, we propose to exempt largemouth bass (but not smallmouths) from the 14-inch length limit starting in June of 2011.

Bluegills were abundant along 1.2 miles of sub-sampled shoreline. Our capture rate of bluegills  $\geq 3$  inches was 608 per mile. While the proportion of “keeper-size” fish  $\geq 7$  inches was 28%, only 2% were of preferred size  $\geq 8$  inches, probably due to high, size-selective harvest by anglers participating in this increasingly popular fishery. Our 2007 Management Plan objective is to have 5-15% of bluegills  $\geq 3$  inches exceeding the preferred size of 8 inches. Achieving that objective may require a combination of increased predation on young bluegill by higher numbers of better-protected walleye, and decreased exploitation of harvestable-size bluegill by anglers.

Electrofishing capture rate of black crappie  $\geq 5$  inches was very high (134 per mile). The proportion of quality-size fish  $\geq 8$  inches was 54% compared with 95% in early spring fyke nets; and only 3% were of preferred size  $\geq 10$  inches compared with 17% in early spring fyke nets. These differences likely reflect the size selectivity of the different sampling gears. High size-selective harvest of larger crappies by anglers may pose a challenge to achieving our 2007 Management Plan objective to sustain the proportion of black crappies  $\geq 10$  inches at 20-40%.

David J. Neuswanger and Joseph H. Krahn  
October 15, 2010