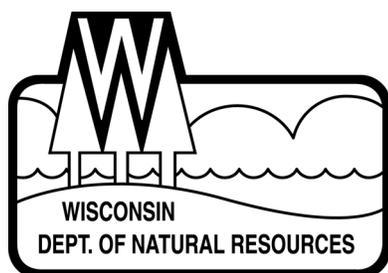


# Comprehensive Fisheries Survey of Rainbow Flowage, Oneida County Wisconsin during 2012.

Waterbody Identification Code 1595300



John Kubisiak  
Senior Fisheries Biologist  
Rhinelander  
June, 2013



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# Comprehensive Fisheries Survey of Rainbow Flowage, Oneida County Wisconsin during 2012.

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Senior Fisheries Biologist  
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## EXECUTIVE SUMMARY

A comprehensive fisheries survey of Rainbow Flowage was conducted during spring and fall, 2012. We found good numbers of walleye (population estimate, PE = 3.3 adults per acre) and northern pike (PE = 1.3 adults per acre), with lower catches of largemouth and smallmouth bass and a few muskellunge. The game species had good size and appeared to be in excellent condition, with growth rates generally at or above regional averages. Panfish species had low to moderate abundance, with moderate to good size structure and generally fast growth. We found moderate catches of black crappie, yellow bullhead, bluegill and yellow perch, with lower numbers of pumpkinseed, black bullhead, rock bass and bluegill x pumpkinseed hybrids. Non-game species in the catch include burbot, cisco, golden redhorse, golden shiner, greater redhorse, northern hog sucker, shorthead redhorse, silver redhorse, troutperch and white sucker. I recommend continuing to manage Rainbow Flowage for quality size potential and a diverse fishery dominated by walleye, with lower numbers of northern pike, largemouth bass, smallmouth bass, muskellunge and panfish.

### Lake and location:

Rainbow Flowage, north-central Oneida County, T39N R08E Sec30. Rainbow Flowage is in the town of Newbold, about 2.5 miles northwest of the Village of Lake Tomahawk. The Flowage is a storage reservoir, formed by impounding the Wisconsin River at Highway D. The upstream end of the Rainbow is designated at Wilderness Trail, which heads north where the river channel runs parallel to Hwy 70 in Vilas County. Rainbow Flowage includes a large embayment on Swamp Creek just south of Highway D and Sugar Camp Creek downstream of the dam at Dam Lake. This survey was conducted during low water, but we were able to sample fish to about 1.5 river miles upstream of Highway O. A dam constructed in 1935 and owned by Wisconsin Valley Improvement Company (WVIC) forms the flowage with 29 feet of head (full pool to the stream bed). The reservoir is filled with spring runoff, which is then released to augment summer flows on the Wisconsin River. In fall, the reservoir is refilled when Three Lakes and Eagle Chains are drawn down for winter. Reservoir levels are gradually drawn down during the winter, and refilled again in spring.

### Physical/Chemical attributes (Andrews and Threinen 1966):

**Morphometry:** 2,035 acres with maximum depth of 28 feet (WVIC gives 4,165 acres at maximum elevation and 175 acres at minimum elevation).

**Watershed:** 750 square miles, including 83 acres of adjoining wetlands.

**Lake type:** Drainage.

**Basic water chemistry:** Soft – alkalinity 36 mg/l, conductance 122  $\mu$ mhos.

**Water clarity:** Clear water of low transparency.

**Littoral substrate:** 65% sand, 25% muck and some gravel.

**Aquatic vegetation:** generally low amounts due to fluctuating water levels, but some beds developed after extended low water during 2012.

**Winterkill:** none.

**Boat landing:** Five boat ramps with parking for 51 vehicles with trailers and 38 additional vehicles.

**Other features:** Shoreline 95% upland with bog wetlands adjoining a limited portion of the lake.

Purpose of Survey: Assess status of game and panfish species and develop management recommendations.

Dates of fieldwork: Walleye netting, March 26 – April 10, 2012. Panfish netting, September 10 – 14, 2012. Electrofishing April 4 (supplemental marking), April 12-13 and October 3, 2012. Angler creel survey, May 5, 2012 through March 3, 2013 (reported separately).

## BACKGROUND

Four nets were lifted on April 14-17, 1948. The catch per net-night included 1.9 northern pike, 0.31 largemouth bass, 0.06 walleye, 54 perch, 11.6 crappie, 3.5 bluegill, 0.25 suckers, 1.1 “sunfish” and 0.31 bullheads.

Four large-mesh fyke nets (likely  $\frac{3}{4}$  inch mesh) were fished during April 20-25, 1957 in Wisconsin River, Oneida Co, just above Rainbow Flowage (Klingbeil 1957). The current upstream boundary of Rainbow Flowage is in Vilas County where water depth and velocity make it difficult or impossible to set nets, so it is likely that the location is in the upper reaches of the pool. Catch per net-night included 12.5 walleye (9.4 – 25.6 inches), 3.7 northern pike (14.5 – 34.9 inches), 0.75 largemouth bass (11.8 – 18.1 inches), 0.3 smallmouth bass (7.5 – 19.9 inches) and 1 muskellunge (24.5 inches). Panfish and nongame species (in decreasing catch) were perch, suckers, crappie, redhorse, bullheads and burbot.

Contract and State Fisherman’s Daily Reports show an unspecified number of net lifts on June 13 and 17 (250 pounds of bullheads), and a total of 460 lifts on 7 dates between September 18 and October 3, 1963. The net mesh was quite large at 2.25 inches. The June reports list 180 pounds of 10-13 inch bullheads and 70 pounds of 8-10 inch bullheads removed. Incidental catch was 30 walleye, 19 northern pike, 101 crappies, 58 bluegill, 110 perch and 162 suckers. The September-October reports list 1,900 pounds of 10-12 inch bullheads removed. Incidental catch was 288 walleye, 30 northern pike, 2 smallmouth bass, 1,047 crappie, 188 perch, 137 bluegill and 729 suckers.

A 1994 survey is labeled “ORW” (Outstanding Resource Water). The survey visited ten stations on the flowage using electrofishing with fine-mesh dip nets (1/4-inch mesh, bar measure) on July 25 (100-meter reaches), triplicate seine hauls at each site (40-foot seine with 3/16-inch mesh) on July 26 and mini-fyke nets (2-foot frame openings and 1/4-inch mesh) on July 27. They listed 26 species of fish including all the species documented in 2012 except cisco, greater redhorse, hybrid bluegill x pumpkinseed, hybrid northern pike x muskellunge and northern hog sucker. Additional species captured in 1994 but not in 2012 include common shiner, mimic shiner, bluntnose minnow, fathead minnow, blacknose dace, johnny darter, logperch and mottled sculpin.

Panfish netting surveys were conducted during May 19-22 and September 21-25, 1998 by Wisconsin Valley Improvement Company (WVIC), in conjunction with a spring gamefish survey by DNR. Water levels during the spring panfish survey ranged 4 to 4.5 feet below full pool, while in fall they were 10.9 to 11.4 feet below full. Catch per net night in spring and fall, respectively, were 1.9 and 1.2 bluegill, 3.8 and 7.5 black crappie and 8.5 and 2.1 pumpkinseed. Bluegill size had a mode at 4.3 inches with only 2 of 80 fish over 5 inches in length. Pumpkinseed size was centered on 3.8 inches, with 22 of 144 fish 6 to 7.9 inches in length. Black crappie had two modes in abundance, with a group of 3.5-4.5 inch age-0 fish and a 10-11.5 inch group showing stockpiling of ages 3 through 6 (WVIC 2001).

Adult walleye populations were estimated at 4.3 per acre in 1990 and 4.0 per acre in 1998.

Fall electrofishing surveys to assess walleye recruitment were conducted by DNR in 1986, 87, 98, 2008 and 2012, and by Great Lakes Indian Fish & Wildlife Commission (GLIFWC) in 1991, 92, 93, 97, 99, 2000, 01, 02, 03, 04, 05, and 10.

## METHODS

The ice went out in late March, 2012, several days before 5 standard fyke nets (¾-inch mesh, bar measure) were set on March 26. Another 3 were set on March 27 and 2 on April 1. These nets targeted walleye and northern pike. On April 5 and 7, three nets (each date) were moved to upper reaches of the Flowage, around Highway O. The four remaining nets were pulled from the main flowage on April 9, and the 6 upper nets were pulled on April 10. Spring effort totaled 130 net-nights. Eight standard ¾-inch nets (except one 3/8-inch mesh was set to target smaller fish) targeting panfish were set September 10 and pulled September 14 for a total of 32 net-nights.

A single electrofishing boat was used on April 4 to mark additional gamefish. Three electrofishing boats were used to collect gamefish on April 12. On April 13, a single boat electrofished the upper flowage around Highway O and combined April 12 and 13 catch from four boats was the recapture sample for a mark-recapture walleye population estimate. Two boats electrofished the main flowage on October 3, 2012, targeting juvenile gamefish (the northwest shoreline was omitted due to extensive mud flats and stumps). All electrofishing boats used alternating current.

Length or length category (nearest half-inch) was recorded for all gamefish and for panfish in September. Adult gamefish captured in spring were given a left-ventral fin clip (main Flowage) or right-ventral fin clip (upper Flowage) and juveniles were given a top-tail clip for use in mark-recapture population estimates. Age structures (scales or spines) were removed from ten fish per species, per half-inch group.

## RESULTS AND DISCUSSION

### Walleye

During walleye marking, 2,143 walleye were captured in 15 nights and one night of supplemental electrofishing, including 223 recaptures and 164 juvenile fish, at a rate of 15.5 walleye per net night (Table 1). The electrofishing sample on May 12-13 yielded 1,033 walleye (41.7 fish per mile), including 126 juveniles. Adult walleye showed good size centered on about 16 inches (Figure 1). Walleye length-at-age was about average for females, while males were a year ahead through age 5 (15 inches), then slowed to a little below average at older ages (Appendix A). Walleye carrying capacity was likely diminished in the Flowage during drought and exceptionally low water levels in recent years, especially during a prolonged period of 6 to 15 feet below full pool from August of 2008 through August of 2010. The mark-recapture population estimate of 6,768 adult walleye ( $\pm$  470 SD), or 3.3 per acre, is similar to the predicted value of 3.25 per acre for a 2,035-acre lake supported by natural reproduction, but lower than 4.3 per acre in 1990 and 4.0 per acre in 1998.

Fall surveys provide an index of walleye recruitment, the number of young fish moving into the population. Since 1987, 16 fall surveys have averaged 57.8 young-of-year (yoy, born the previous spring and typically 4-8 inches in length) and 8.6 age-1 walleye (two summers old, typically 8-11 inches) per mile of shoreline. The fall, 2012 survey found 117.3 yoy and 29.6 age-1 walleye per mile, showing very strong yearclasses in 2011 and 2012.

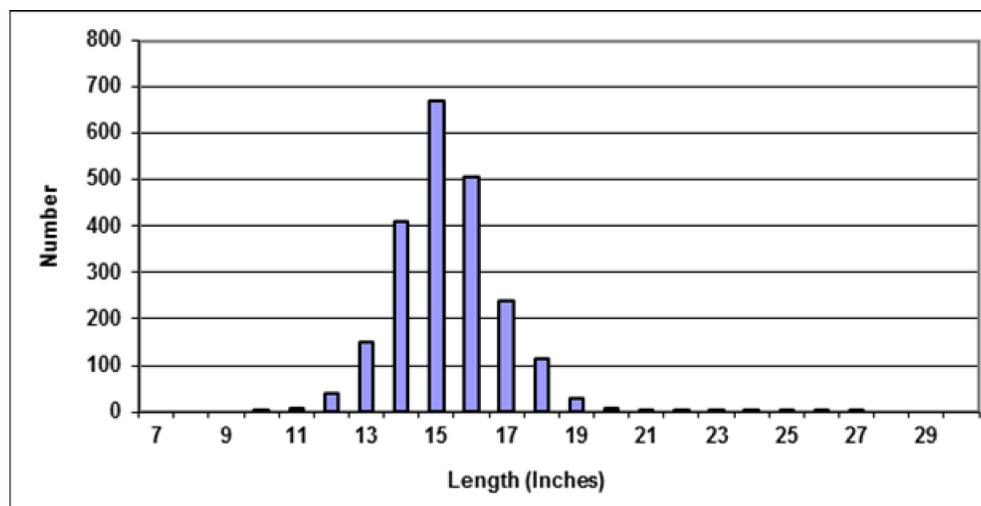
Table 1. Catch per unit effort during a 2012 survey of Rainbow Flowage, Oneida County WI. Netting catch rates are reported as number of fish per net night, while electrofishing catch rates are number of fish per mile of shoreline. Blank cells during electrofishing runs indicate a species was not targeted.

species	walleye netting	April 4 shocking	April 12-13 shocking	fall panfish netting
walleye	15.5	13.3	41.7	8.1
largemouth bass	0.085	0.21	0.40	0.94
smallmouth bass	0.31	0.32	4.7	0.72
muskellunge	0.015	0.11	0.31	0.031
northern pike	2.6	3.0	2.8	1.3
hybrid pike x muskellunge	0.015	0	0	0
black bullhead	0.88			2.1
black crappie	7.9			17.7
bluegill	1.8			6.7
hybrid bluegill x pumpkinseed	0.069			0.19
burbot	0.015			0
cisco	0.0077			0
golden redhorse	0.15			0
golden shiner	0.085			0.13
greater redhorse	0.0077			0
northern hog sucker	0.038			0
pumpkinseed	0.41			2.6
rock bass	1.0			0.69
shorthead redhorse	0.23			1.7
silver redhorse	0.26			0.47
troutperch	0.015			0
white sucker	1.2			1.7
yellow bullhead	1.5			21.8
yellow perch	4.6			4.4

Table 2. Fish stocking record during 1986 through 2012 in Rainbow Flowage, Oneida County Wisconsin. Fry stockings were surplus production from Art Oehmcke State Fish Hatchery and can no longer be stocked due to rules to prevent the spread of Viral Hemorrhagic Septicemia.

Year	Species	Size	Number	Comments
1986	muskellunge	lg fingerling (8 inch)	2,500	Sept 18-23 & Oct 7-14
1995	muskellunge	fry	125,000	May 23
1996	muskellunge	fry (1.4 inch)	227,270	June 16 & 27
1996	muskellunge	sm fingerling (1.5 inch)	10,000	June 26
1998	walleye	fry	2,000,000	
1998	muskellunge	fry	49,000	
1999	muskellunge	fry	2,000,000	
2000	walleye	fry (0.3 inch)	4,000,000	
2001	walleye	fry (0.3 inch)	8,200,000	
2002	muskellunge	fry (0.5 inch)	950,400	May 29 – June 2
2003	muskellunge	fry (0.5 inch)	850,400	May 22-27
2004	muskellunge	fry (0.8 inch)	1,040,512	
2005	muskellunge	fry (0.5 inch)	888,300	

Figure 1. Length-frequency of adult walleye during 2012 in Rainbow Flowage, Oneida County WI.



### Largemouth and Smallmouth Bass

We captured 23 largemouth and 161 smallmouth bass during spring sampling, including 1 and 6 recaptures of previously-marked fish. Both species showed good size structure, with over  $\frac{3}{4}$  exceeding 14 inches and dominated by 15 to 18 inch fish (Figures 2 and 3). The longest smallmouth was 20.3 inches; 79% were 14 inches and larger, while 3.2% were 18 inches and larger. Largemouth showed similar percentages, although the 23-fish sample is fairly small. Growth rates were about average for both species (Appendix A). Too few of either species were handled to attempt a population estimate.

Figure 2. Length-frequency of adult largemouth bass during 2012 in Rainbow Flowage, Oneida County Wisconsin.

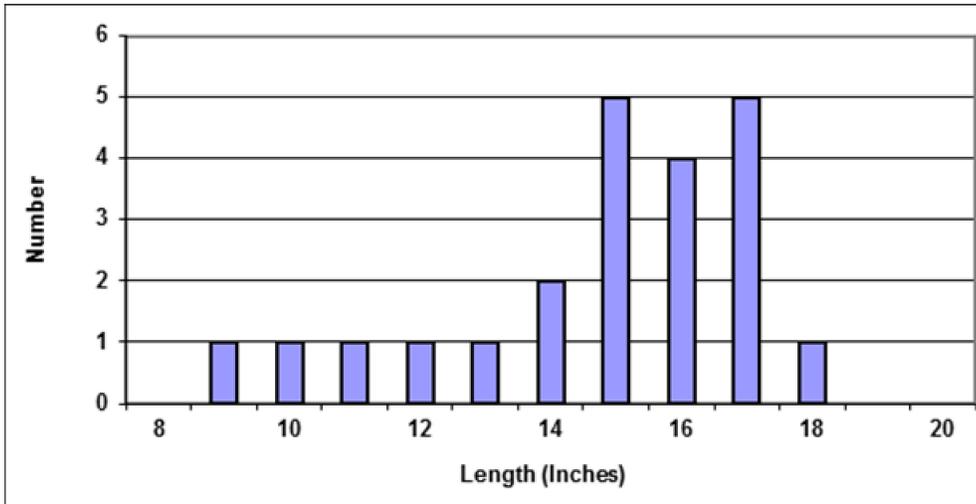
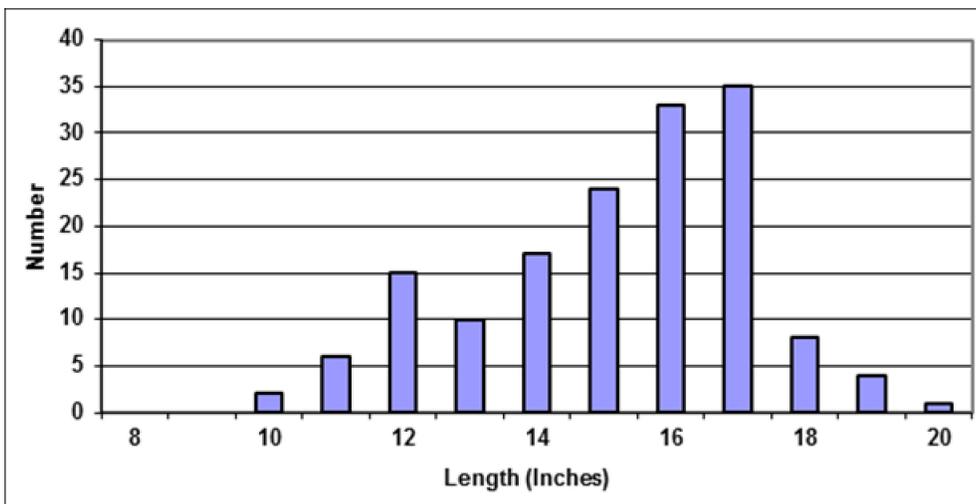


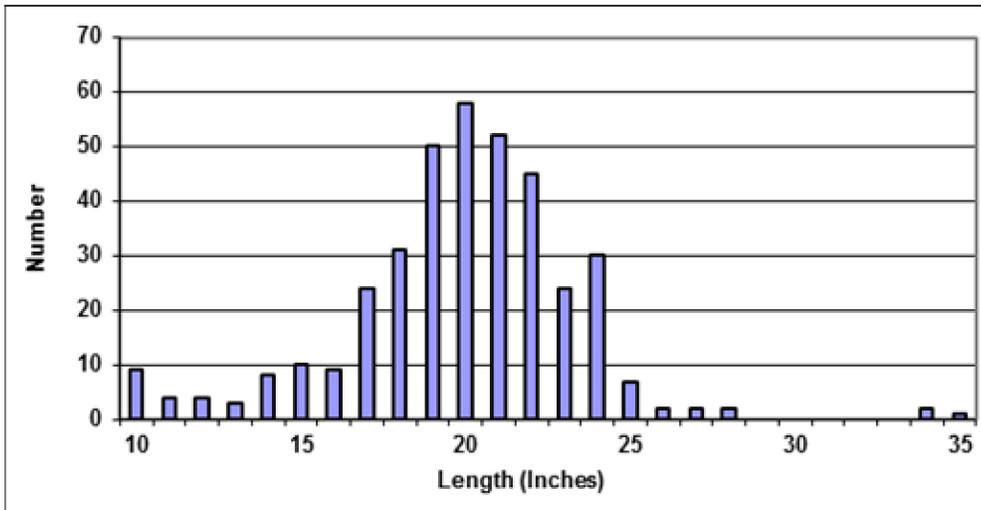
Figure 3. Length-frequency of adult smallmouth bass during 2012 in Rainbow Flowage, Oneida County Wisconsin.



### Northern Pike

We captured 435 northern pike (including 27 recaptures of previously-marked fish and 45 immature fish less than 12 inches in length). The northern pike population (including sexually mature fish and all fish over 12 inches) was estimated at 2,581 ( $\pm 506$  SD), or 1.3 per acre, using the Schnabel multiple-capture method (Ricker 1975). This is considered low density for a northern pike population. Pike are vegetation-spawners, and reproduction may be inhibited during low water levels, such as the drought years of 2003-2010. Average size of northern pike was 19.6 inches; 2.3% of pike were 26 inches or larger and only 3 fish (0.8%) exceeded 30 inches (Figure 4). Pike length-at-age was average or a little behind (Appendix A). The largest northern pike was a 35.8 inch female aged at 12 years from a scale.

Figure 4. Length-frequency of northern pike during 2012 in Rainbow Flowage, Oneida County Wisconsin.



### Muskellunge

Muskellunge spawn later than walleye and northern pike, and we did not perform targeted muskellunge netting. We captured only 6 muskellunge and 2 northern pike x muskellunge hybrids (“tiger muskies”) during the survey. The largest muskellunge was a 49.0-inch female that weighed 36.8 pounds; while a 42.4-inch tiger weighed 22.2 pounds.

As recently as 2005, surplus muskellunge fry from Art Oehmcke state fish hatchery were stocked in Rainbow Flowage (Table 2). Extra eggs are collected by the hatchery in case of poor survival, and Rainbow Flowage provided a convenient location where surplus fry could be stocked. This practice was discontinued after Viral Hemorrhagic Septicemia (VHS) was documented in Wisconsin in 2007, because VHS test results arrive too late for fry stocking. Some natural reproduction may occur in upstream portions of the flowage when water levels are up, and it is likely that some recruitment spills over from upstream populations in Muskellunge Lake, North Nokomis Lake, Pickerel Lake, and the Sugar Camp and Eagle chains. A substantial investment in stocking would be required to increase the muskellunge population to a more prominent part of the fish community. Given the high-quality, multi-species fishery already reproducing naturally in the flowage, an increase in muskellunge numbers is not warranted.

### Panfish

Rainbow Flowage is regulated for water storage, which results in fluctuating water levels. This provides poor conditions for panfish spawning during most years. Beds of invasive Eurasian water milfoil have expanded with recent drought accompanied by low summer water levels, and provide increased cover for juvenile panfish. We found high September catches of yellow bullhead and black crappie, moderate to low catches of bluegill, yellow perch, pumpkinseed and black bullhead and low numbers of rock bass and bluegill x pumpkinseed hybrids (Table 1).

September bluegill catch of 6.7 per net night is low, as is typical in the large reservoirs. Bluegill size was centered on about 6.5 inches, with 20% of bluegill 7 inches and larger and only 3.7% reaching 8 inches (Figure 5). Even when fall age samples from Rainbow are compared to length-at-age the following spring in regional lakes, bluegill growth rates are above regional averages. These results

indicate that poor size in the Flowage is caused by a lack of older individuals, not by poor growth (Appendix A). Pumpkinseed size was a little smaller than bluegills, partly because of a higher catch of 5-inch fish (Figure 6). About 10% of pumpkinseed were at least 7 inches, with a single, 8-year-old fish reaching 8 inches.

We captured 4.6 perch per net night during spring, and most of these were quite large. Some anglers also reported good catches of 10-12 inch perch. However, the September netting catch was centered on 7 inches, with low numbers over 10 inches (Figure 7). Black crappie showed an upper size of 13.4 inches in September, with a strong peak at 8.5 to 10 inches likely reflecting very strong yearclasses in 2009 and 2010 (Figure 8). However, we also captured a large number of 6-inch crappies during a short window in spring. This suggests that another large yearclass is coming up.

Yellow bullhead were the most abundant species in September at 21.8 per net night (Table 1). Size of yellow bullhead showed two peaks, centered on 9.75 and 13 inches, and the largest bullhead exceeded 14.5 inches (Figure 9). We also captured a lower number of black bullhead centered on 11 inches.

Figure 5. Length-frequency of bluegill during 2012 in Rainbow Flowage, Oneida County Wisconsin.

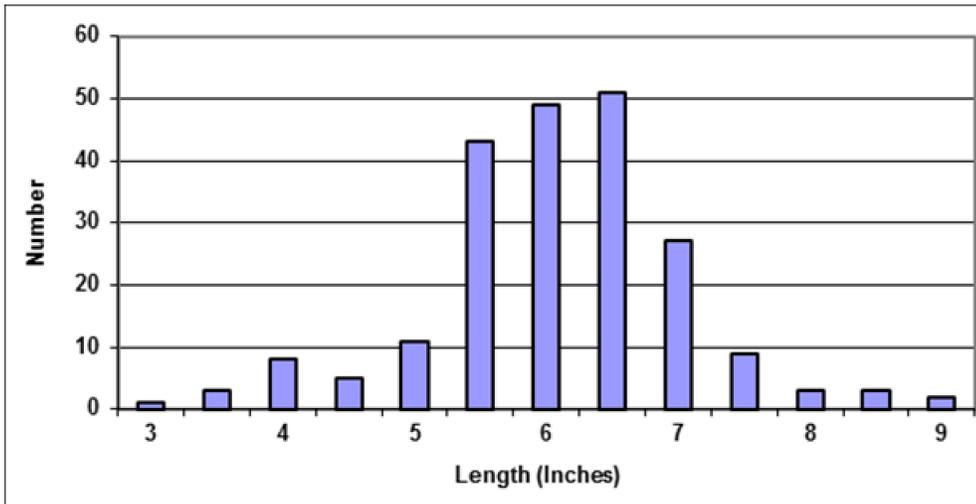


Figure 6. Length-frequency of pumpkinseed during 2012 in Rainbow Flowage, Oneida County WI.

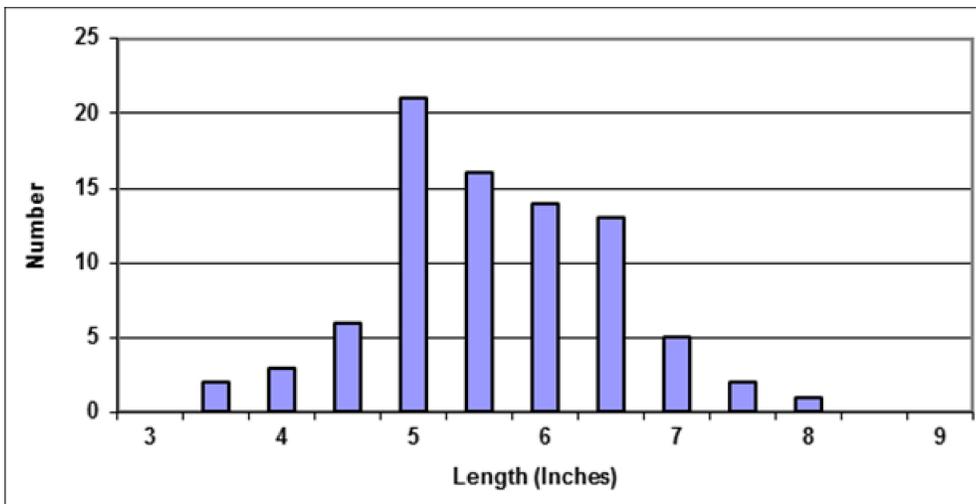


Figure 7. Length-frequency of yellow perch during 2012 in Rainbow Flowage, Oneida County WI.

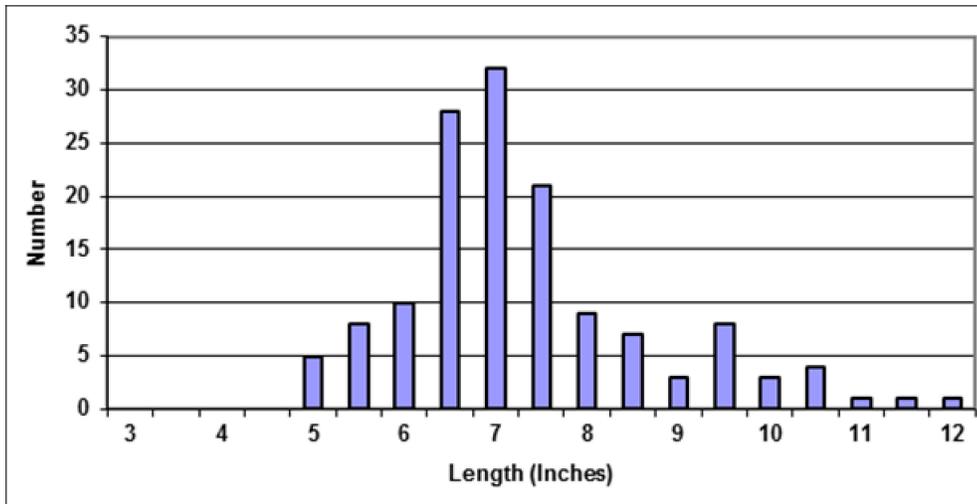


Figure 8. Length-frequency of black crappie during 2012 in Rainbow Flowage, Oneida County WI.

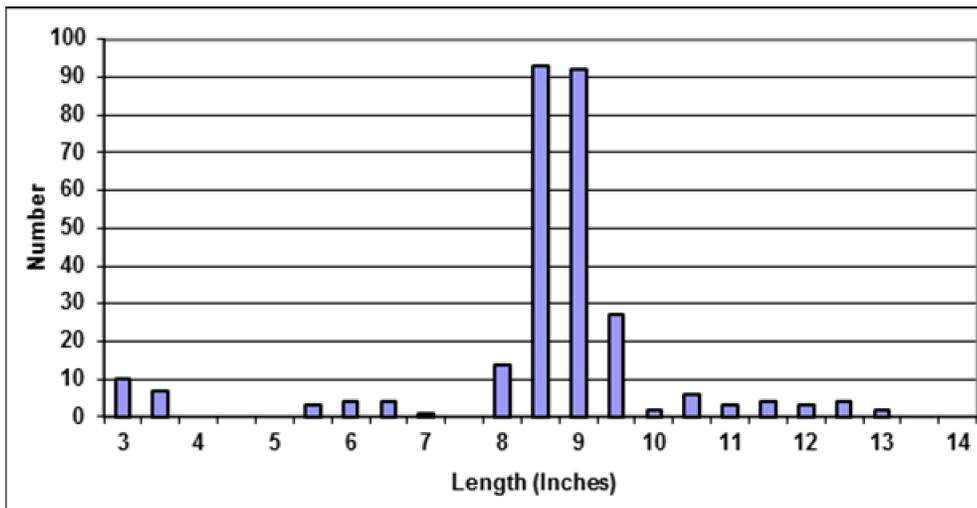
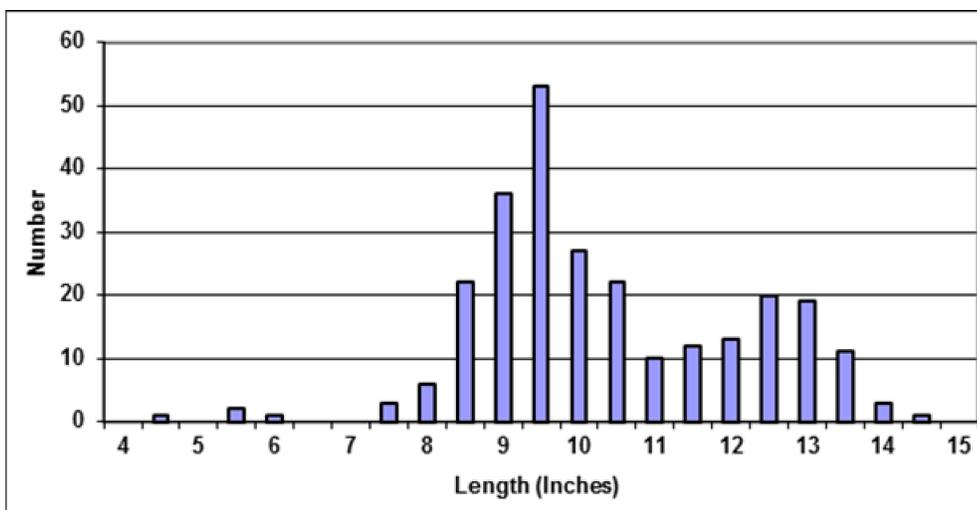


Figure 9. Length-frequency of yellow bullhead during 2012 in Rainbow Flowage, Oneida Co. WI.



## MANAGEMENT RECOMMENDATIONS

Rainbow Flowage supports a diverse fishery. Walleye, northern pike, largemouth bass and smallmouth bass are all important parts of the gamefish community, with walleye dominating. Muskellunge are present at low abundance but very good size potential. Muskellunge recruitment is low in the flowage due to fluctuating water levels, but it is likely that muskies spill over dams from multiple upstream sources. A very large stocking commitment would be required to increase muskellunge numbers and is not being recommended. In the absence of stocking, the Flowage provides a low density muskellunge fishery with trophy size potential. Size structure of game species was excellent and individual fish were robust. Yellow bullhead and black crappie dominated the September panfish catch, with moderate to low catches of bluegill, yellow perch, pumpkinseed, black bullhead and rock bass. We found 55% of black crappies were at least 9 inches, 20% of bluegill were at least 7 inches, 26% of perch were at least 8 inches and 53% of yellow bullhead were 10 inches or larger. Forage and non-game species include burbot, cisco, golden redhorse, golden shiner, greater redhorse, northern hog sucker, shorthead redhorse, silver redhorse, troutperch and white sucker. It is unlikely that cisco can persist in the Flowage through the warm summer months. The single cisco in our catch likely originated from an upstream source like North Nokomis or Dam Lake. Rainbow is managed as a mixed fishery dominated by walleye, with low density but quality size potential for other gamefish. Black crappies and yellow perch are the panfish species most targeted by anglers.

## ACKNOWLEDGEMENTS

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Cover image courtesy of Oneida County website. [www.co.oneida.wi.gov](http://www.co.oneida.wi.gov)

## APPENDIX A FISH AGE RESULTS

An age-length key was created from the aged subsample and applied against the full length-frequency to estimate averages. Note that panfish samples were collected in September, at the end of the growing season. Northern WI average values are generally from spring, at the beginning of the growing season.

Table A.1. Male walleye length at age in Rainbow Flowage, Oneida County Wisconsin during 2012.

Age	Number of fish	avg. length	Northern WI avg.
2	3	11.8	11.3
3	15	13.3	11.9
4	10	14.4	13.3
5	7	15.1	14.2
6	12	15.4	15.6
7	12	16.1	16.6
8	4	16.5	17.6
9	5	17.6	18.7
10	5	18.5	19.2
11	3	19.1	19.4
12	3	18.7	20.0

Table A.2. Female walleye length at age in Rainbow Flowage, Oneida County Wisconsin during 2012.

Age	Number of fish	avg. length	Northern WI avg.
3			13.3
4	4	15.4	15.0
5	15	16.6	16.2
6	11	17.4	17.8
7	17	18.2	19.6
8	10	19.4	21.0
9	1	23.6	22.5
10	1	21.4	23.5
11	3	24.3	24.7
12	1	25.7	25.4
16	1	27.0	

Table A.3. Largemouth bass length at age in Rainbow Flowage, Oneida County Wisconsin during 2012.

Age	Number of fish	avg. length	Northern WI avg.
2			6.6
3			8.9
4	1	9.9	10.5
5	1	12.7	12.1
6	1	13.6	13.6
7	2	15.0	14.9
8	8	16.0	15.8
9	3	17.0	16.2
10	2	17.6	17.1
11	1	17.5	17.8
13	1	18.5	18.3

Table A.4. Smallmouth bass length at age in Rainbow Flowage, Oneida County Wisconsin during 2012.

Age	Number of fish	avg. length	Northern WI avg.
2			6.9
3	1	10.8	9.3
4	4	12.2	11.8
5	13	13.3	13.5
6	14	14.9	15.2
7	8	16.4	16.1
8	15	17.0	17.1
9	10	17.5	17.7
10	7	18.2	18.3
11	2	19.1	18.5

Table A.5. Male northern pike length at age in Rainbow Flowage, Oneida County Wisconsin during 2012.

Age	Number of fish	avg. length	Northern WI avg.
2	3	15.7	13.4
3	14	16.9	16.2
4	18	18.3	18.9
5	19	20.2	20.6
6	19	21.2	22.3
7	1	22.0	23.4
8			24.8
9			23.9

Table A.6. Female northern pike length at age in Rainbow Flowage, Oneida County Wisconsin during 2012.

Age	Number of fish	avg. length	Northern WI avg.
3	3	17.4	16.9
4	11	18.9	20.4
5	22	21.1	23.1
6	25	22.9	24.4
7	15	24.8	27.3
8	1	26.5	28.8
9	2	28.3	32.1
10	2	34.3	
12	1	35.8	

Table A.7. Male muskellunge length at age in Rainbow Flowage, Oneida County Wisconsin during 2012.

Age	Number of fish	avg. length	Northern WI avg.
10	1	38.5	37.3
11	2	40.5	37.9

Table A.8. Female muskellunge length at age in Rainbow Flowage, Oneida County Wisconsin during 2012.

Age	Number of fish	avg. length	Northern WI avg.
12	1	45.3	43.7
14	1	45.2	

Table A.9. Bluegill length at age in Rainbow Flowage, Oneida County Wisconsin during 2012.

Age	Number of fish	September avg. length	Spring Northern WI avg.
1	10	4.1	2.5
2	25	5.9	3.9
3	33	6.5	5.0
4	2	7.5	6.2
5	5	7.5	6.8
6	4	8.5	7.8
7	1	9.2	8.2
8	1	7.5	8.7

Table A.10. Pumpkinseed length at age in Rainbow Flowage, Oneida County Wisconsin during 2012.

Age	Number of fish	September avg. length	Spring Northern WI avg.
1	2	3.9	2.2
2	30	5.6	3.6
3	16	5.9	4.8
4	7	7.1	5.7
5			6.5
6			6.8
7			7.3
8	1	8.3	7.3

Table A.11. Hybrid bluegill x pumpkinseed length at age in Rainbow Flowage, Oneida County Wisconsin during 2012.

Age	Number of fish	September avg. length
3	3	6.8
4	2	6.5
9	1	7.6

Table A.13. Black crappie length at age in Rainbow Flowage, Oneida County Wisconsin during 2012.

Age	Number of fish	September avg. length	Spring Northern WI avg.
0	19	3.4	
1	11	6.4	3.4
2	24	8.8	5.3
3	14	9.4	7.1
4	6	10.0	9.0
5	7	11.3	10.0
6	4	11.4	10.7
7	7	12.7	11.6
8	1	13.2	11.7

Table A.12. Rock bass length at age in Rainbow Flowage, Oneida County Wisconsin during 2012.

Age	Number of fish	September avg. length	Spring Northern WI avg.
3	3	5.8	5.1
4	9	7.3	6.4
5	3	7.5	7.2
6	4	8.1	7.9
7	2	8.7	8.4

Table A.14. Yellow perch length at age in Rainbow Flowage, Oneida County Wisconsin during 2012.

Age	Number of fish	September avg. length	Spring Northern WI avg.
1	3	5.2	
2	20	6.3	4.6
3	31	7.3	6.0
4	11	8.7	6.9
5	21	9.9	7.9
6	1	12.0	9.0