



## BIOLOGICAL DATA

### Methods:

Nelson WPA was sampled on June 28-29, 2012 with two overnight gill-net sets and five overnight trap-net sets. The trap nets are constructed with 19-mm-bar-mesh ( $\frac{3}{4}$  in) netting, 0.9 m high x 1.5 m wide (3 ft high x 5 ft wide) frames and 18.3 m (60 ft) long leads. The gill nets are 45.7 m long x 1.8 m deep (150 ft long x 6 ft deep) with one 7.6 m (25 ft) panel each of 13, 19, 25, 32, 38 and 51-mm-bar-mesh ( $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1,  $1\frac{1}{4}$ ,  $1\frac{1}{2}$ , and 2 in) monofilament netting.

### Results and Discussion:

#### Gill Net Catch

Yellow perch comprised the majority of the gill net sample (Table 1). Black bullhead was the only other species sampled.

**Table 1.** Total catch from two overnight gill net sets at Nelson WPA, Brookings County, June 28-29, 2012.

Species	Number	Percent	CPUE <sup>1</sup>	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
<b>Yellow Perch</b>	47	97.9	23.5	$\pm 16.0$		11	0	100
<b>Black Bullhead</b>	1	2.1	0.5	$\pm 0.6$		--	--	--

**Table 2.** Catch per unit effort by length category for various fish species captured with gill nets in Nelson WPA June 28-29, 2012.

Species	Substock	Stock	S-Q	Q-P	P+	All sizes	80% C.I.
<b>Yellow Perch</b>	--	23.5	21.0	2.5	--	23.5	$\pm 16.0$
<b>Black Bullhead</b>	--	0.5	0.5	--	--	0.5	$\pm 0.6$

Length categories can be found in Appendix A.

#### Trap Net Catch

Yellow perch, black bullheads, and green sunfish were the only species sampled in the trap nets.

**Table 3.** Total catch from five overnight trap net sets at Nelson WPA, Brookings County, June 28-29, 2012.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
<b>Yellow Perch</b>	164	68.6	32.8	$\pm 16.6$		4	0	95
<b>Black Bullhead</b>	58	24.3	11.6	$\pm 7.5$		0	0	102
<b>Green Sunfish</b>	17	7.1	3.4	$\pm 3.8$		0	0	115

<sup>1</sup> See Appendix A for definitions of CPUE, PSD, and mean Wr.

**Table 4.** Catch per unit effort by length category for various fish species captured with trap nets in Nelson WPA June 28-29, 2012.

Species	Substock	Stock	S-Q	Q-P	P+	All sizes	80% C.I.
<b>Yellow Perch</b>	--	32.8	31.4	1.4	--	32.8	<u>+16.6</u>
<b>Black Bullhead</b>	1.4	10.2	10.2	--	--	11.6	<u>+7.5</u>
<b>Green Sunfish</b>	--	3.4	3.4	--	--	3.4	<u>+3.8</u>

Length categories can be found in Appendix A.

## **Discussion**

Nelson WPA is managed by GFP as a “trap and transfer” fishery for yellow perch. Yellow perch are stocked annually (Table 5) for the primary purpose of rearing perch for stocking into other waters. However, the lake is also open to fishing to fulfill the secondary objective of providing fishing opportunity.

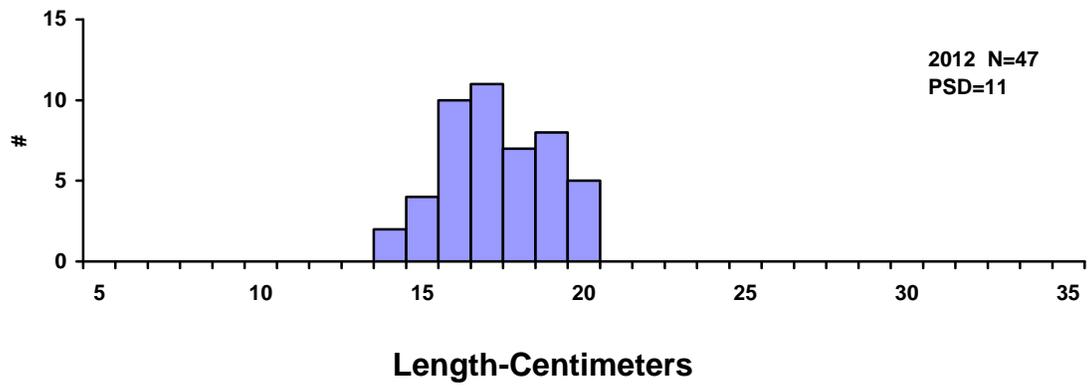
In 2011 and 2012, yellow perch fry have been stocked in an attempt to evaluate fry stockings as a potential tool for increasing perch abundance. These attempts have been relatively unsuccessful so far.

## **MANAGEMENT RECOMMENDATIONS**

1. Continue to monitor the Nelson WPA fishery by conducting lake surveys every other year with the next occurring in 2014.
2. Continue management as a yellow perch trap and transfer fishery by stocking yellow perch as needed.

**Table 5.** Stocking record for Nelson WPA, Brookings County, 1995-2012.

Year	Number	Species	Size
1995	1,467	Yellow Perch	Adult
1996	1,300	Yellow Perch	Adult
2003	43,620	Walleye	Fingerling
2004	42,700	Walleye	Fingerling
2010	749	Yellow Perch	Adult
2011	250,000	Yellow Perch	Fry
2012	180,000	Yellow Perch	Fry



**Figure 1.** Length frequency histograms for yellow perch sampled with gill nets in Nelson WPA, Brookings County, 2012.

**Appendix A.** A brief explanation of catch per unit effort (CPUE), proportional stock density (PSD), relative stock density (RSD) and relative weight (Wr).

**Catch Per Unit Effort (CPUE)** is the catch of animals in numbers or in weight taken by a defined period of effort. Can refer to trap-net nights of effort, gill-net nights of effort, catch per hour of electrofishing, etc.

**Proportional Stock Density (PSD)** is calculated by the following formula:

$$\text{PSD} = \frac{\text{Number of fish} > \text{quality length}}{\text{Number of fish} \geq \text{stock length}} \times 100$$

**Relative Stock Density (RSD-P)** is calculated by the following formula:

$$\text{RSD-P} = \frac{\text{Number of fish} > \text{preferred length}}{\text{Number of fish} \geq \text{stock length}} \times 100$$

PSD and RSD-P are unitless and usually calculated to the nearest whole digit.

Size categories for selected species found in Region 3 lake surveys, in centimeters (Inches in parenthesis).

<b>Species</b>	<b>Stock</b>	<b>Quality</b>	<b>Preferred</b>	<b>Memorable</b>	<b>Trophy</b>
Walleye	25 (10)	38 (15)	51 (20)	63 (25)	76 (30)
Yellow perch	13 (5)	20 (8)	25 (10)	30 (12)	38 (15)
Black crappie	13 (5)	20 (8)	25(10)	30 (12)	38 (15)
White crappie	13 (5)	20 (8)	25(10)	30 (12)	38 (15)
Bluegill	8 (3)	15 (6)	20 (8)	25 (10)	30 (12)
Largemouth bass	20 (8)	30 (12)	38 (15)	51 (20)	63 (25)
Smallmouth bass	18 (7)	28 (11)	35(14)	43 (17)	51 (20)
Northern pike	35 (14)	53 (21)	71 (28)	86 (34)	112 (44)
Channel catfish	28 (11)	41 (16)	61 (24)	71 (28)	91 (36)
Black bullhead	15 (6)	23 (9)	30 (12)	38 (15)	46 (18)
Common carp	28 (11)	41 (16)	53 (21)	66 (26)	84 (33)
Bigmouth buffalo	28 (11)	41 (16)	53 (21)	66 (26)	84 (33)

For most fish, 30-60 or 40-70 are typical objective ranges for “balanced” populations. Values less than the objective range indicate a population dominated by small fish while values greater than the objective range indicate a population comprised mainly of large fish.

**Relative weight (Wr)** is a condition index that quantifies fish condition (i.e., how much does a fish weigh for its length). A Wr range of 90-100 is a typical objective for most fish species. When mean Wr values are well below 100 for a size group, problems may exist in food and feeding relationships. When mean Wr values are well above 100 for a size group, fish may not be making the best use of available prey.