



## Fishing Access

While there are no boat ramps located on Mortimer Slough, some shore fishing spots are available on the south shore in the State Park. Ice fishing access would also be available from the State Park property.

## Field Observations of Water Quality and Aquatic Vegetation

No water quality or aquatic vegetation observations were recorded in 2012.

## **BIOLOGICAL DATA**

### Methods:

Mortimer Slough was sampled on July 30-Aug. 1, 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**

Common carp, yellow perch, black bullhead and walleye made up the majority of the gill net catch in 2012 (Table 1). Lesser numbers of bigmouth buffalo, orange-spotted sunfish and green sunfish were also sampled.

**Table 1.** Total catch from two overnight gill net sets at Mortimer Slough, Brookings County, July 30-Aug. 1, 2012.

Species	Number	Percent	CPUE <sup>1</sup>	80% C.I.	PSD	RSD-P	Mean Wr
<b>Common Carp</b>	375	68.9	187.5	<u>+54.5</u>	0	0	--
<b>Yellow Perch</b>	99	18.2	49.5	<u>+21.1</u>	5	0	92
<b>Black Bullhead</b>	50	9.2	25.0	<u>+9.0</u>	80	0	93
<b>Walleye</b>	16	2.9	8.0	<u>+3.8</u>	0	0	84
<b>Green Sunfish</b>	2	0.4	1.0	<u>+0.0</u>	--	--	--
<b>Bigmouth Buffalo</b>	1	0.2	0.5	<u>+0.6</u>	--	--	--
<b>O. S. Sunfish</b>	1	0.2	0.5	<u>+0.6</u>	--	--	--

2012 was the first survey for Mortimer Slough

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

**Table 2.** Catch per unit effort by length category for various fish species captured with gill nets in Mortimer Slough July 30-Aug. 1, 2012.

Species	Substock	Stock	S-Q	Q-P	P+	All sizes	80% C.I.
<b>Common Carp</b>	181.5	6.0	6.0	--	--	187.5	+54.5
<b>Yellow Perch</b>	17.5	32.0	30.5	1.5	--	49.5	+21.1
<b>Black Bullhead</b>	15.0	10.0	2.0	8.0	--	25.0	+9.0
<b>Walleye</b>	4.5	3.5	3.5	--	--	8.0	+3.8
<b>Green Sunfish</b>	--	1.0	1.0	--	--	1.0	+0.0
<b>Bigmouth Buffalo</b>	0.5	--	--	--	--	0.5	+0.6
<b>O. S. Sunfish*</b>	--	--	--	--	--	0.5	+0.6

\*No length categories established. Length categories can be found in Appendix A.

### Trap Net Catch

Over 80% the fish sampled in the trap nets were black bullheads (Table 3).

**Table 3.** Total catch from five overnight trap net sets at Mortimer Slough, Brookings County, July 30-Aug. 1, 2012.

Species	Number	Percent	CPUE	80% C.I.	PSD	RSD-P	Mean Wr
<b>Black Bullhead</b>	3,151	82.7	630.2	428.5	62	0	90
<b>Common Carp</b>	500	13.1	100.0	79.2	50	50	102
<b>Yellow Perch</b>	104	2.7	20.8	11.0	4	0	89
<b>Walleye</b>	24	0.6	4.8	2.9	0	0	84
<b>Green Sunfish</b>	22	0.6	4.4	4.4	0	0	113
<b>Tadpole Madtom</b>	7	0.2	1.4	0.5	--	--	--
<b>White Sucker</b>	1	0.0	0.2	0.3	--	--	--

2012 was the first survey for Mortimer Slough

**Table 4.** Catch per unit effort by length category for various fish species captured with trap nets in Mortimer Slough July 30-Aug. 1, 2012.

Species	Substock	Stock	S-Q	Q-P	P+	All sizes	80% C.I.
<b>Black Bullhead</b>	415.6	214.6	82.4	132.2	--	630.2	428.5
<b>Common Carp</b>	96.8	3.2	1.6	--	1.6	100.0	79.2
<b>Yellow Perch</b>	--	20.8	20.0	0.8	--	20.8	11.0
<b>Walleye</b>	--	4.8	4.8	--	--	4.8	2.9
<b>Green Sunfish</b>	--	4.4	4.4	--	--	4.4	4.4
<b>Tadpole Madtom*</b>	--	--	--	--	--	1.4	0.5
<b>White Sucker</b>	--	0.2	--	--	0.2	0.2	0.3

\*No length categories established. Length categories can be found in Appendix A.

## **Other Species**

Rough fish abundance is slowly increasing and will likely become a problem unless another winterkill occurs (Table 8).

## **MANAGEMENT RECOMMENDATIONS**

1. Stock walleye and yellow perch for the primary purpose of rearing fish for restocking other waters and for the secondary purpose of providing fishing opportunity.

**Table 5.** Stocking record for Mortimer Slough, Brookings County, 1991-2012.

<b>Year</b>	<b>Number</b>	<b>Species</b>	<b>Size</b>
2006	18,480	Walleye	Fingerling
2007	48,800	Walleye	Fingerling
2008	17,940	Walleye	Fingerling
2010	200,000	Walleye	Fry
2011	42,500	Walleye	Fingerling
2012	178,000	Walleye	Fry

**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.