

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-44

Name: Herman Park Pond

County: Lake

Legal Description: T106N- R53W- Sec.14

Location from nearest town: 2 miles west of Madison, SD.

Dates of present survey: July 20-21, 2011

Dates of last survey: June 19-20, 2007

Management classification: Warmwater Marginal

Primary Game and Forage Species	Secondary and Other Species
Northern Pike	Common Carp
Yellow Perch	Bigmouth Buffalo
Black Crappie	White Sucker
Black Bullhead	Green Sunfish

PHYSICAL DATA

Surface Area: 5 acres

Watershed: Unknown

Maximum depth: 9 feet

Mean depth: 5.5 feet

Pond elevation observed during the survey: Full

Ownership of Lake and Adjacent Lakeshore Properties

Herman Park Pond is listed as meandered public water in the State of South Dakota Listing of Meandered Lakes. The South Dakota Department of Game, Fish, and Parks (GFP) owns and manages a State Park that contains the pond.

Fishing Access

Shoreline access is limited due to trees along the shore. There is a handicapped accessible fishing dock on the south side of the pond.

Field Observations of Water Quality and Aquatic Vegetation

The water in Herman Park Pond was slightly turbid with a Secchi depth measurement of 0.9 meter (3.0 feet). No aquatic vegetation except cattails (*Typha spp.*) were observed.

BIOLOGICAL DATA

Methods:

Herman Park Pond was sampled on July 20-21, 2011 with one overnight gill net set 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 net was 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

Black bullhead was the most abundant species sampled with the gill net. Yellow perch and common carp were also sampled.

Table 1. Total catch from one overnight gill net set at Herman Park Pond, Lake County, July 20-21, 2011.

Species	<u>Number</u>	<u>Percent</u>	CPUE ¹	Mean CPUE*	PSD	RSD-P	Mean Wr
Black Bullhead	22	91.7	22.0	0.5	0	0	97
Common Carp	1	4.2	1.0	10.5	--	--	--
Yellow Perch	1	4.2	1.0	1.0	--	--	--

One year (2005)

Table 2. Catch per unit effort by length category for various fish species captured in one gill net in Herman Park Pond, Lake County, July 20-21, 2011.

Species	Substock	Stock	S-Q	Q-P	P+	All sizes
Black Bullhead	16.0	6.0	6.0	--	--	22.0
Common Carp	1.0	--	--	--	--	1.0
Yellow Perch	--	1.0	1.0	--	--	1.0

Length categories can be found in Appendix A.

Trap Net Catch

Black bullhead and common carp were the most abundant species sampled with the trap nets. Four other species were also sampled (Table 3).

Table 3. Total catch from five overnight trap nets set at Herman Park Pond, Lake County, July 20-21, 2011.

Species	Number	Percent	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Black Bullhead	1,810	96.8	362.0	<u>±103.1</u>	13.1	18	0	95
Common Carp	46	2.5	9.2	<u>±6.0</u>	4.3	--	--	--
Black Crappie	7	0.4	1.4	<u>±1.8</u>	12.6	--	--	--
Yellow Perch	2	0.1	0.4	<u>±0.3</u>	3.6	--	--	--
Bigmouth Buffalo	2	0.1	0.4	<u>±0.3</u>	1.5	--	--	--
Green Sunfish	2	0.1	0.4	<u>±0.3</u>	0.6	--	--	--

*Two years (2005, 2006)

¹ See Appendix A for definitions of CPUE, PSD, RSD-P, and mean Wr.

Table 4. Catch per unit effort by length category for various fish species captured with trap nets in Herman Park Pond, Lake County, July 20-21, 2011.

Species	Substock	Stock	S-Q	Q-P	P+	All sizes	80% C.I.
Black Bullhead	215.8	146.2	120.0	26.2	--	362.0	+103.1
Common Carp	8.8	0.4	0.4	--	--	9.2	+6.0
Black Crappie	--	1.4	1.2	0.2	--	1.4	+1.8
Yellow Perch	--	0.4	0.4	--	--	0.4	+0.3
Bigmouth Buffalo	0.4	--	--	--	--	0.4	+0.3
Green Sunfish	--	0.4	0.2	0.2	--	0.4	+0.3

Length categories can be found in Appendix A.

All Species

Black bullhead CPUE is at the highest level recorded since 2004. Regular stocking of game fish will be necessary to maintain a fishery (Table 5).

Table 5. Gill-net (GN) and trap-net (TN) CPUE for all fish species sampled in Herman Park Pond, Lake County, 2004-2011.

Species	2004	2005	2006	2007	2008	2009	2010	2011
COC (GN)		10.5		--				1.0
COC (TN)		8.4		0.2				9.2
WHS (GN)		--		--				--
WHS (TN)		0.4		--				--
BIB (GN)		--		--				--
BIB (TN)		3.0		--				0.4
BLB (GN)		0.5		--				22.0
BLB (TN)		3.6		22.6				362.0
NOP (GN)		10.0		--				--
NOP (TN)		10.4		3.0				--
GSF (GN)		--		--				--
GSF (TN)		--		1.2				0.4
BLG (GN)		--		--				--
BLG (TN)		--		3.4				--
BLC (GN)		0.5		--				--
BLC (TN)		6.8		18.4				1.4
YEP (GN)		1.0		--				1.0
YEP (TN)				7.2				0.4

MANAGEMENT RECOMMENDATIONS

1. Stock available gamefish as needed to create and maintain a fishery with high catch rates.

Table 6. Stocking record for Herman Park Pond, Lake County, 1999-2011.

Year	Number	Species	Size
1999	21,450	Fathead Minnow	Adult
2000	1,168	Yellow Perch	Adult
2002	325	Yellow Perch	Adult
2003	760	Yellow Perch	Adult
2004	407	Northern Pike	Adult
	500	Yellow Perch	Adult
2005	111	Northern Pike	Adult
2009	15,080	Largemouth Bass	Fingerling
2011	803	Yellow Perch	Adult

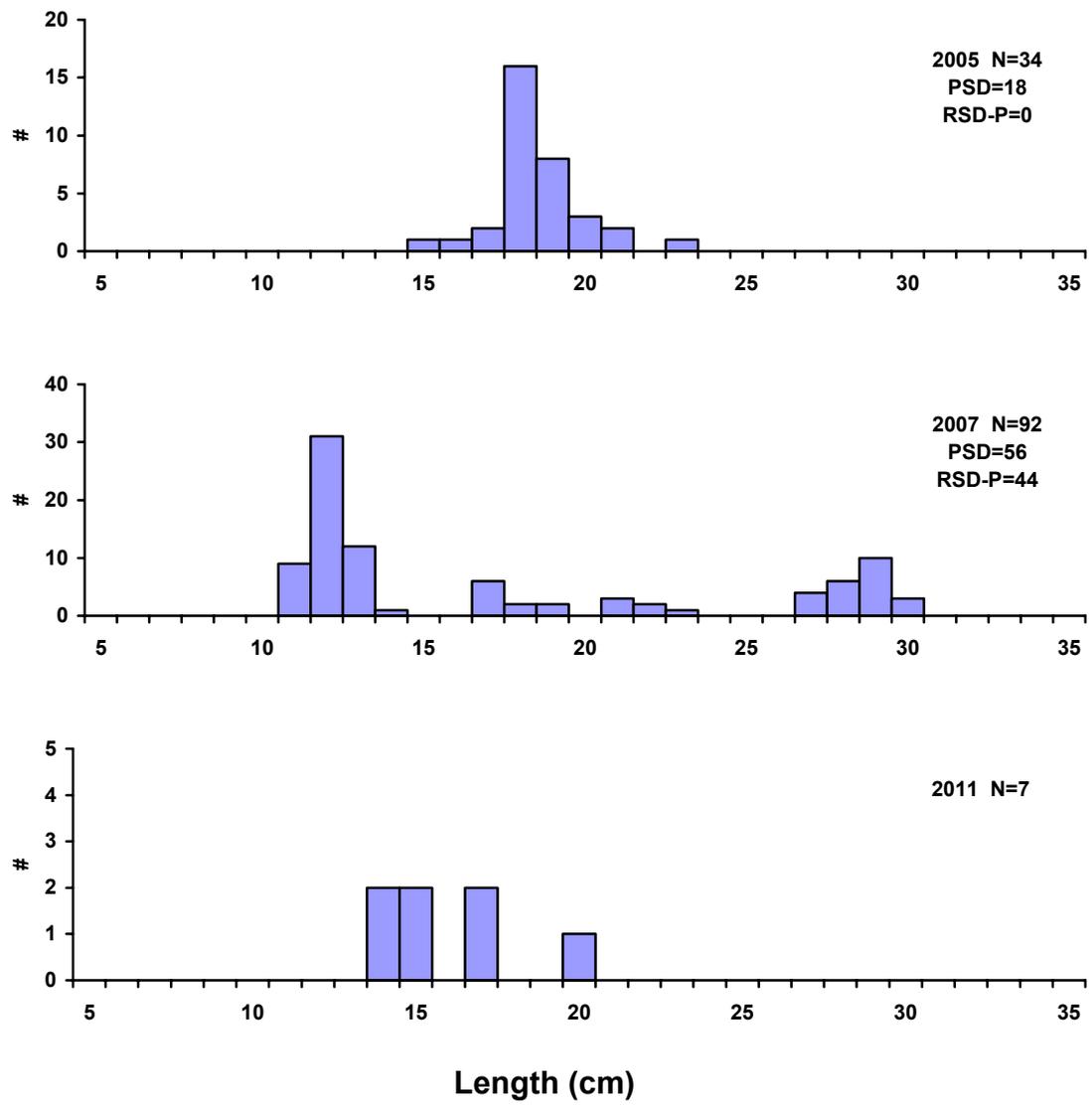


Figure 1. Length-frequency histograms for black crappies sampled with trap nets in Herman Park Pond, Lake County, 2005, 2007, 2011.

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.

Species	Stock	Quality	Preferred	Memorable	Trophy
Walleye	25	38	51	63	76
Sauger	20	30	38	51	63
Yellow perch	13	20	25	30	38
Black crappie	13	20	25	30	38
White crappie	13	20	25	30	38
Bluegill	8	15	20	25	30
Largemouth bass	20	30	38	51	63
Smallmouth bass	18	28	35	43	51
Northern pike	35	53	71	86	112
Channel catfish	28	41	61	71	91
Black bullhead	15	23	30	38	46
Common carp	28	41	53	66	84
Bigmouth buffalo	28	41	53	66	84
Smallmouth buffalo	28	41	53	66	84

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.