



**Minnesota Department of Natural Resources**  
**Fisheries Management**  
**STANDARD LAKE SURVEY REPORT**



**Lake Name: Minnewawa**  
**DOW Number: 01-0033-00**

**Survey Type: Population Assessment**  
**Survey ID Date: 07/23/2007**

**Lake Identification**

Alternate Lake Name: Rice	DNR Sounding Map Number: B0003
Primary Lake Class ID: 41	Alternate Lake Class ID: 41

**Lake Location**

Primary County: Aitkin	Nearest Town: McGregor
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**Legal Descriptions**

Lake Center: Township - 49N	Range - 23W	Section - 28
PLS Section Lake Center: 4902328		

**All Legal Descriptions:**

Aitkin County: Township - 49N	Range - 23W	(Eleven various sections)
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**Area Office**

Area Name: Aitkin	ORG Code: F211
Region Name: Northeast	Region Number: 2

**Lake Access**

(Information based on Re-Survey dated 07/21/1997)

<u>Station ID</u>	<u>Ownership</u>	<u>Public Use</u>	<u>Type</u>	<u>Location / Comments</u>
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(Data excludes records where public use is not designated or is designated "No Public Use")

**Lake Characteristics**

Lake Area (planimetered acres): 2512.00	GIS Shoreline Length (miles): 18.64
GIS Lake Area (acres): 2355.15	Maximum Fetch (miles): 2.92
DOW Lake Area (acres): 2451.00	Fetch Orientation (degrees): 225
Littoral Area (acres): 2286.00	USGS Quad Map Number: L16a
Area in MN (acres): 2355.15	USGS Quad 24K GIS Index: 2232
Maximum Depth (feet): 21.0	
Mean Depth (feet): 8.2	

**Watershed Characteristics**

**Major Watershed**

Name: Miss R-Grand Rapids  
Watershed Number: 9  
Watershed size (acres): 1,327,683

**Minor Watershed**

Name: Minnewawa Cr  
Watershed Number: 77  
Watershed size (acres): 15,251

**Surveys And Investigations**

**Initial Survey:** 07/10/1946.  
**Re-Survey:** 07/21/1997, 08/02/1982, 08/16/1976, 07/29/1956.

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**Surveys And Investigations (Continued)**

Population Assessment: 07/23/2007, 07/22/2002, 07/15/1992, 07/20/1987.

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**Aquatic Vegetation And Shoalwater Substrates**

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Vegetation Notes:

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**Dissolved Oxygen And Temperature Profile Of Lake Water**

<u>Station ID</u>	<u>Sampling Date</u>	<u>Bottom Depth (Feet)</u>	<u>Sample Depth (Feet)</u>	<u>Water Temperature (°F)</u>	<u>Dissolved Oxygen (ppm)</u>
WQ - 1	07/23/2007	17.0	Surface	89.4	6.8
			3.0	85.8	7.6
			6.0	83.5	7.1
			9.0	82.0	6.2
			12.0	81.3	5.6
			15.0	80.4	5.4

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**Field Measurements Of Water Quality**

<u>Station ID</u>	<u>Sampling Date</u>	<u>Sample Depth (Feet)</u>	<u>Secchi Depth (Feet)</u>	<u>Field pH</u>	<u>Alkalinity (ppm)</u>	<u>Water Color</u>	<u>Color Cause</u>
WQ - 1	07/23/2007	Surface	6.0	N/A	N/A	Green	Algae

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**STANDARD LAKE SURVEY REPORT**  
**POPULATION ASSESSMENT DATED 07/23/2007 FOR DOW NUMBER 01-0033-00**

**Net Catch Summary by Numbers for GN**

Standard gill net sets

Number of Sets: 15  
 First Set Date: 07/23/2007  
 Last Lift Date: 07/27/2007  
 Target Species: N/A

Abbr	Species	Total Fish	Number Per Set	Quartiles for Lake Class 41*		
				25%	50%	75%
BLB	Black Bullhead	2	0.13	4.56	23.42	83.00
BLC	Black Crappie	127	8.47	0.83	2.63	11.10
BLG	Bluegill	80	5.33	N/A	N/A	N/A
BOF	Bowfin (Dogfish)	1	0.07	0.10	0.17	1.00
BRB	Brown Bullhead	33	2.20	0.60	1.80	7.67
HSF	Hybrid Sunfish	33	2.20	N/A	N/A	N/A
LMB	Largemouth Bass	12	0.80	0.26	0.78	1.77
NOP	Northern Pike	199	13.27	1.20	3.50	7.79
PMK	Pumpkinseed	62	4.13	N/A	N/A	N/A
WAE	Walleye	56	3.73	3.22	7.67	15.33
WTS	White Sucker	1	0.07	0.75	2.00	5.88
YEB	Yellow Bullhead	243	16.20	0.33	1.17	3.58
YEP	Yellow Perch	120	8.00	3.00	8.94	22.50
Total Fish/Set:			64.60	* Quartiles for Number Per Set		

**Net Catch Summary by Weight for GN**

Standard gill net sets

Abbr	Species	Total Weight (Pounds)	Pounds Per Set	Mean Weight	Quartiles for Lake Class 41*		
					25%	50%	75%
BLB	Black Bullhead	1.72	0.11	0.86	0.21	0.38	0.60
BLC	Black Crappie	26.57	1.77	0.21	0.17	0.25	0.37
BLG	Bluegill	16.17	1.08	0.20	N/A	N/A	N/A
BOF	Bowfin (Dogfish)	6.34	0.42	6.34	3.33	4.35	5.50
BRB	Brown Bullhead	29.56	1.97	0.90	0.38	0.63	1.07
HSF	Hybrid Sunfish	11.83	0.79	0.36	N/A	N/A	N/A
LMB	Largemouth Bass	8.20	0.55	0.68	0.25	0.50	1.09
NOP	Northern Pike	470.44	31.36	2.36	1.53	2.12	2.95
PMK	Pumpkinseed	11.53	0.77	0.19	N/A	N/A	N/A
WAE	Walleye	125.68	8.38	2.24	0.88	1.37	1.90
WTS	White Sucker	2.32	0.15	2.32	1.44	1.87	2.20
YEB	Yellow Bullhead	177.18	11.81	0.73	0.45	0.70	0.93
YEP	Yellow Perch	14.24	0.95	0.12	0.14	0.24	0.36
Total Pounds Fish/Set:			60.12	* Quartiles for Mean Weight			

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**Net Catch Summary by Numbers for TN**

Standard 3/4-in mesh, double frame trap net sets

Number of Sets: 15  
 First Set Date: 07/23/2007  
 Last Lift Date: 07/26/2007  
 Target Species: N/A

Abbr	Species	Total Fish	Number Per Set	Quartiles for Lake Class 41*		
				25%	50%	75%
BLC	Black Crappie	23	1.53	0.98	2.96	12.33
BLG	Bluegill	364	24.27	1.05	3.00	14.93
BOF	Bowfin (Dogfish)	13	0.87	0.13	0.30	0.68
BRB	Brown Bullhead	10	0.67	0.38	2.47	9.80
HSF	Hybrid Sunfish	27	1.80	N/A	N/A	N/A
LMB	Largemouth Bass	15	1.00	0.13	0.40	0.75
NOP	Northern Pike	18	1.20	N/A	N/A	N/A
PMK	Pumpkinseed	64	4.27	0.43	1.10	4.47
WAE	Walleye	1	0.07	0.31	0.73	1.69
YEB	Yellow Bullhead	151	10.07	0.50	1.60	4.05
YEP	Yellow Perch	3	0.20	0.25	0.81	2.62
Total Fish/Set:			45.93	* Quartiles for Number Per Set		

**Net Catch Summary by Weight for TN**

Standard 3/4-in mesh, double frame trap net sets

Abbr	Species	Total Weight (Pounds)	Pounds Per Set	Mean Weight	Quartiles for Lake Class 41*		
					25%	50%	75%
BLC	Black Crappie	5.90	0.39	0.26	0.23	0.34	0.49
BLG	Bluegill	59.16	3.94	0.16	0.16	0.25	0.38
BOF	Bowfin (Dogfish)	68.07	4.54	5.24	3.65	4.57	5.08
BRB	Brown Bullhead	8.76	0.58	0.88	0.36	0.58	0.91
HSF	Hybrid Sunfish	7.65	0.51	0.28	N/A	N/A	N/A
LMB	Largemouth Bass	21.86	1.46	1.46	0.41	1.00	1.54
NOP	Northern Pike	29.22	1.95	1.62	N/A	N/A	N/A
PMK	Pumpkinseed	9.97	0.66	0.16	0.10	0.15	0.26
WAE	Walleye	4.52	0.30	4.52	0.85	1.63	2.41
YEB	Yellow Bullhead	103.71	6.91	0.69	0.40	0.60	0.84
YEP	Yellow Perch	0.54	0.04	0.18	0.13	0.20	0.31
Total Pounds Fish/Set:			21.29	* Quartiles for Mean Weight			

**STANDARD LAKE SURVEY REPORT**  
**POPULATION ASSESSMENT DATED 07/23/2007 FOR DOW NUMBER 01-0033-00**

**Length Frequency Distribution For GN**

**Standard gill net sets**

(Field work conducted between 07/23/2007 and 07/27/2007)

	<u>BLB</u>	<u>BLC</u>	<u>BLG</u>	<u>BOF</u>	<u>BRB</u>	<u>HSF</u>	<u>LMB</u>	<u>NOP</u>	<u>PMK</u>	<u>WAE</u>	<u>WTS</u>	<u>YEB</u>	<u>YEP</u>
< 3.00	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00 - 3.49	-	-	-	-	-	-	-	-	5	-	-	-	-
3.50 - 3.99	-	-	-	-	-	-	-	-	1	-	-	-	-
4.00 - 4.49	-	1	-	-	-	1	-	-	1	-	-	-	-
4.50 - 4.99	-	5	3	-	-	-	-	-	1	-	-	-	-
5.00 - 5.49	-	15	5	-	-	-	-	-	6	-	-	-	11
5.50 - 5.99	-	15	15	-	-	1	-	-	17	-	-	-	41
6.00 - 6.49	-	12	19	-	-	5	-	-	15	-	-	-	35
6.50 - 6.99	-	11	18	-	-	8	-	-	15	-	-	-	14
7.00 - 7.49	-	16	17	-	-	4	-	-	1	-	-	1	11
7.50 - 7.99	-	13	2	-	-	8	-	-	-	-	-	-	2
8.00 - 8.49	-	21	-	-	-	3	1	-	-	-	-	2	2
8.50 - 8.99	-	7	-	-	1	3	2	-	-	-	-	8	1
9.00 - 9.49	-	6	-	-	1	-	1	-	-	-	-	16	2
9.50 - 9.99	-	1	-	-	-	-	1	-	-	-	-	15	-
10.00 - 10.49	-	-	-	-	2	-	1	-	-	-	-	40	1
10.50 - 10.99	2	-	-	-	9	-	1	-	-	-	-	57	-
11.00 - 11.49	-	2	-	-	4	-	2	-	-	-	-	34	-
11.50 - 11.99	-	1	-	-	3	-	1	-	-	-	-	20	1
12.00 - 12.99	-	-	-	-	4	-	-	1	-	1	-	36	-
13.00 - 13.99	-	-	-	-	7	-	2	1	-	-	-	12	-
14.00 - 14.99	-	-	-	-	2	-	-	1	-	1	-	2	-
15.00 - 15.99	-	-	-	-	-	-	-	3	-	3	-	-	-
16.00 - 16.99	-	-	-	-	-	-	-	3	-	5	1	-	-
17.00 - 17.99	-	-	-	-	-	-	-	12	-	14	-	-	-
18.00 - 18.99	-	-	-	-	-	-	-	12	-	11	-	-	-
19.00 - 19.99	-	-	-	-	-	-	-	16	-	11	-	-	-
20.00 - 20.99	-	-	-	-	-	-	-	21	-	4	-	-	-
21.00 - 21.99	-	-	-	-	-	-	-	27	-	2	-	-	-
22.00 - 22.99	-	-	-	-	-	-	-	35	-	-	-	-	-
23.00 - 23.99	-	-	-	-	-	-	-	15	-	4	-	-	-
24.00 - 24.99	-	-	-	-	-	-	-	11	-	-	-	-	-
25.00 - 25.99	-	-	-	-	-	-	-	12	-	-	-	-	-
26.00 - 26.99	-	-	-	1	-	-	-	10	-	-	-	-	-
27.00 - 27.99	-	-	-	-	-	-	-	10	-	-	-	-	-
28.00 - 28.99	-	-	-	-	-	-	-	2	-	-	-	-	-
29.00 - 29.99	-	-	-	-	-	-	-	4	-	-	-	-	-
30.00 - 30.99	-	-	-	-	-	-	-	1	-	-	-	-	-
31.00 - 31.99	-	-	-	-	-	-	-	1	-	-	-	-	-
32.00 - 32.99	-	-	-	-	-	-	-	-	-	-	-	-	-
33.00 - 33.99	-	-	-	-	-	-	-	-	-	-	-	-	-
34.00 - 34.99	-	-	-	-	-	-	-	-	-	-	-	-	-
35.00 - 35.99	-	-	-	-	-	-	-	1	-	-	-	-	-
= > 36.00	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>2</b>	<b>126</b>	<b>79</b>	<b>1</b>	<b>33</b>	<b>33</b>	<b>12</b>	<b>199</b>	<b>62</b>	<b>56</b>	<b>1</b>	<b>243</b>	<b>121</b>
Min. Length	10.51	4.13	4.65	26.57	8.50	4.49	8.23	12.05	3.31	12.76	16.46	7.36	5.31
Max. Length	10.71	11.61	7.56	26.57	14.72	8.66	13.11	35.83	7.05	23.86	16.46	14.37	11.61
Mean Length	10.61	7.09	6.38	26.57	11.74	7.17	10.50	22.19	5.81	18.60	16.46	10.95	6.38
# Measured	2	124	77	1	33	33	12	199	62	56	1	243	105
No Lengths for	0	3	3	0	0	0	0	0	0	0	0	0	15

**STANDARD LAKE SURVEY REPORT**  
**POPULATION ASSESSMENT DATED 07/23/2007 FOR DOW NUMBER 01-0033-00**

**Length Frequency Distribution For TN**

**Standard 3/4-in mesh, double frame trap net sets**

(Field work conducted between 07/23/2007 and 07/26/2007)

	<u>BLC</u>	<u>BLG</u>	<u>BOF</u>	<u>BRB</u>	<u>HSF</u>	<u>LMB</u>	<u>NOP</u>	<u>PMK</u>	<u>WAE</u>	<u>YEB</u>	<u>YEP</u>
< 3.00	-	-	-	-	-	-	-	-	-	-	-
3.00 - 3.49	-	-	-	-	-	-	-	5	-	-	-
3.50 - 3.99	-	7	-	-	2	-	-	7	-	-	-
4.00 - 4.49	-	15	-	-	1	-	-	2	-	-	-
4.50 - 4.99	-	30	-	-	-	-	-	1	-	-	-
5.00 - 5.49	1	33	-	-	1	1	-	5	-	-	-
5.50 - 5.99	4	85	-	-	2	1	-	23	-	-	2
6.00 - 6.49	-	104	-	-	3	-	-	12	-	-	-
6.50 - 6.99	-	59	-	-	10	-	-	7	-	-	-
7.00 - 7.49	2	26	-	-	5	-	-	2	-	-	-
7.50 - 7.99	4	4	-	-	-	2	-	-	-	1	-
8.00 - 8.49	4	1	-	-	1	-	-	-	-	5	-
8.50 - 8.99	4	-	-	-	1	1	-	-	-	9	-
9.00 - 9.49	2	-	-	-	1	1	-	-	-	13	1
9.50 - 9.99	1	-	-	-	-	-	-	-	-	12	-
10.00 - 10.49	1	-	-	2	-	3	-	-	-	19	-
10.50 - 10.99	-	-	-	1	-	-	-	-	-	23	-
11.00 - 11.49	-	-	-	1	-	-	-	-	-	26	-
11.50 - 11.99	-	-	-	2	-	-	-	-	-	18	-
12.00 - 12.99	-	-	-	2	-	-	-	-	-	21	-
13.00 - 13.99	-	-	-	-	-	-	2	-	-	4	-
14.00 - 14.99	-	-	1	1	-	1	-	-	-	-	-
15.00 - 15.99	-	-	-	1	-	1	-	-	-	-	-
16.00 - 16.99	-	-	-	-	-	-	1	-	-	-	-
17.00 - 17.99	-	-	-	-	-	2	2	-	-	-	-
18.00 - 18.99	-	-	-	-	-	2	2	-	-	-	-
19.00 - 19.99	-	-	-	-	-	-	2	-	-	-	-
20.00 - 20.99	-	-	-	-	-	-	3	-	-	-	-
21.00 - 21.99	-	-	-	-	-	-	2	-	-	-	-
22.00 - 22.99	-	-	3	-	-	-	2	-	-	-	-
23.00 - 23.99	-	-	1	-	-	-	2	-	1	-	-
24.00 - 24.99	-	-	2	-	-	-	-	-	-	-	-
25.00 - 25.99	-	-	1	-	-	-	-	-	-	-	-
26.00 - 26.99	-	-	2	-	-	-	-	-	-	-	-
27.00 - 27.99	-	-	1	-	-	-	-	-	-	-	-
28.00 - 28.99	-	-	1	-	-	-	-	-	-	-	-
29.00 - 29.99	-	-	1	-	-	-	-	-	-	-	-
30.00 - 30.99	-	-	-	-	-	-	-	-	-	-	-
31.00 - 31.99	-	-	-	-	-	-	-	-	-	-	-
32.00 - 32.99	-	-	-	-	-	-	-	-	-	-	-
33.00 - 33.99	-	-	-	-	-	-	-	-	-	-	-
34.00 - 34.99	-	-	-	-	-	-	-	-	-	-	-
35.00 - 35.99	-	-	-	-	-	-	-	-	-	-	-
= > 36.00	-	-	-	-	-	-	-	-	-	-	-

	<u>BLC</u>	<u>BLG</u>	<u>BOF</u>	<u>BRB</u>	<u>HSF</u>	<u>LMB</u>	<u>NOP</u>	<u>PMK</u>	<u>WAE</u>	<u>YEB</u>	<u>YEP</u>
Total	23	364	13	10	27	15	18	64	1	151	3
Min. Length	5.43	3.54	14.65	10.00	3.50	5.31	13.66	3.27	23.46	7.87	5.87
Max. Length	10.39	8.11	29.49	15.31	9.21	18.98	23.39	7.09	23.46	13.35	9.13
Mean Length	7.82	5.95	24.43	12.06	6.56	11.94	19.43	5.46	23.46	10.76	6.99
# Measured	23	364	13	10	27	15	18	64	1	151	3
No Lengths for	0	0	0	0	0	0	0	0	0	0	0

**STANDARD LAKE SURVEY REPORT**  
**POPULATION ASSESSMENT DATED 07/23/2007 FOR DOW NUMBER 01-0033-00**

**Length At Capture With Last Incremental Length**

(Body-Scale constant, all lengths, and all length increments in inches)

**Species:** Black Crappie  
**Body-Scale Constant:** 0.79  
**Total Sample Size:** 62

Length at Capture in 2007 for Each Age Class, with Incremental Lengths for 2007

Year Class	Age	Sample Size	Length At Capture			Standard Error	Length Increments	
			Average Length	Maximum Length	Minimum Length		Increment	Standard Error
2005	2	19	5.30	6.26	4.65	0.097	1.23	0.066
2004	3	6	6.27	6.69	5.91	0.128	1.23	0.053
2003	4	18	7.51	9.29	6.30	0.196	0.92	0.040
2002	5	16	8.33	9.29	7.09	0.183	0.72	0.049
2001	6	0	-	-	-	-	-	-
2000	7	0	-	-	-	-	-	-
1999	8	2	11.10	11.14	11.06	0.039	0.33	0.064
1998	9	0	-	-	-	-	-	-
1997	10	1	11.61	11.61	11.61	N/A	0.32	N/A

**Species:** Bluegill  
**Body-Scale Constant:** 0.79  
**Total Sample Size:** 55

Length at Capture in 2007 for Each Age Class, with Incremental Lengths for 2007

Year Class	Age	Sample Size	Length At Capture			Standard Error	Length Increments	
			Average Length	Maximum Length	Minimum Length		Increment	Standard Error
2004	3	3	3.75	3.86	3.54	0.105	0.54	0.055
2003	4	17	4.49	5.71	3.82	0.124	0.70	0.045
2002	5	20	5.91	6.77	5.00	0.124	0.65	0.038
2001	6	8	6.81	7.17	6.38	0.118	0.44	0.052
2000	7	1	7.72	7.72	7.72	N/A	0.48	N/A
1999	8	4	7.63	8.11	7.20	0.217	0.30	0.055
1998	9	2	7.76	7.80	7.72	0.039	0.32	0.018

**Species:** Northern Pike  
**Body-Scale Constant:** 2.09  
**Total Sample Size:** 125

Length at Capture in 2007 for Each Age Class, with Incremental Lengths for 2007

Year Class	Age	Sample Size	Length At Capture			Standard Error	Length Increments	
			Average Length	Maximum Length	Minimum Length		Increment	Standard Error
2005	2	16	17.17	21.06	13.78	0.490	3.29	0.193
2004	3	46	20.57	25.31	16.97	0.341	2.04	0.101
2003	4	36	23.57	28.98	19.57	0.378	1.43	0.075
2002	5	13	26.92	31.46	24.06	0.565	1.22	0.135
2001	6	8	27.94	30.04	26.26	0.487	1.06	0.113
2000	7	5	29.27	35.83	26.30	1.765	0.92	0.222
1999	8	1	26.89	26.89	26.89	N/A	0.57	N/A

**STANDARD LAKE SURVEY REPORT**  
**POPULATION ASSESSMENT DATED 07/23/2007 FOR DOW NUMBER 01-0033-00**

**Length At Capture With Last Incremental Length (Continued)**

**Species:** Walleye

**Body-Scale Constant:** 1.10

**Total Sample Size:** 49

Length at Capture in 2007 for Each Age Class, with Incremental Lengths for 2007

Year Class	Age	Sample Size	Length At Capture			Standard Error	Length Increments	
			Average Length	Maximum Length	Minimum Length		Increment	Standard Error
2005	2	1	12.76	12.76	12.76	N/A	2.42	N/A
2004	3	1	16.38	16.38	16.38	N/A	1.68	N/A
2003	4	14	16.99	19.49	14.57	0.390	1.58	0.112
2002	5	18	18.71	20.71	17.09	0.266	1.29	0.075
2001	6	0	-	-	-	-	-	-
2000	7	1	23.31	23.31	23.31	N/A	0.56	N/A
1999	8	2	20.45	21.69	19.21	1.240	0.76	0.113
1998	9	3	20.51	23.82	17.72	1.780	0.53	0.109
1997	10	4	20.28	23.86	18.11	1.243	0.46	0.068
1996	11	2	22.05	23.07	21.02	1.024	0.43	0.110
1995	12	0	-	-	-	-	-	-
1994	13	3	19.45	20.39	18.23	0.640	0.42	0.004

**STANDARD LAKE SURVEY REPORT**  
**POPULATION ASSESSMENT DATED 07/23/2007 FOR DOW NUMBER 01-0033-00**

**Back-Calculated Lengths for Each Age Class and Average Annual Increments of Back-Calculated Lengths**

**Species:** Black Crappie

**Gear Type:** Combined Gear Types (GN)

Class	Age	N	1	2	3	4	5	6	7	8	9	10
2005	2	19	2.30	4.07	-	-	-	-	-	-	-	-
			2.30	1.77	-	-	-	-	-	-	-	-
2004	3	6	2.31	3.85	5.03	-	-	-	-	-	-	-
			2.31	1.54	1.19	-	-	-	-	-	-	-
2003	4	18	2.16	3.59	5.11	6.58	-	-	-	-	-	-
			2.16	1.43	1.52	1.48	-	-	-	-	-	-
2002	5	16	2.42	4.19	5.70	6.76	7.61	-	-	-	-	-
			2.42	1.77	1.51	1.07	0.85	-	-	-	-	-
1999	8	2	2.97	5.22	7.21	8.35	9.32	9.91	10.36	10.78	-	-
			2.97	2.25	2.00	1.14	0.97	0.59	0.45	0.42	-	-
1997	10	1	2.83	4.97	6.46	7.61	8.88	9.75	10.17	10.53	10.92	11.29
			2.83	2.14	1.49	1.15	1.27	0.87	0.42	0.36	0.39	0.37
Mean Length			2.32	3.99	5.45	6.79	7.86	9.86	10.29	10.69	10.92	11.29
			2.32	1.67	1.49	1.27	0.88	0.68	0.44	0.40	0.39	0.37
			62	62	43	37	19	3	3	3	1	1

**Species:** Bluegill

**Gear Type:** Combined Gear Types (TN)

Class	Age	N	1	2	3	4	5	6	7	8	9
2004	3	3	1.66	2.46	3.21	-	-	-	-	-	-
			1.66	0.80	0.75	-	-	-	-	-	
2003	4	17	1.58	2.22	2.92	3.79	-	-	-	-	-
			1.58	0.63	0.70	0.87	-	-	-	-	
2002	5	20	1.70	2.56	3.49	4.44	5.25	-	-	-	-
			1.70	0.86	0.94	0.94	0.82	-	-	-	
2001	6	8	1.75	2.77	3.84	4.79	5.71	6.37	-	-	-
			1.75	1.03	1.07	0.95	0.91	0.66	-	-	
2000	7	1	1.85	2.58	3.87	5.12	6.25	6.68	7.23	-	-
			1.85	0.73	1.29	1.25	1.13	0.43	0.55	-	-
1999	8	4	1.88	2.85	3.89	4.88	5.67	6.25	6.94	7.33	-
			1.88	0.97	1.03	0.99	0.80	0.58	0.69	0.39	-
1998	9	2	1.79	2.81	3.72	4.68	5.31	5.90	6.52	7.04	7.44
			1.79	1.02	0.92	0.96	0.63	0.59	0.62	0.53	0.40
Mean Length			1.69	2.51	3.39	4.34	5.44	6.29	6.86	7.23	7.44
			1.69	0.82	0.89	0.93	0.83	0.61	0.65	0.44	0.40
			55	55	55	52	35	15	7	6	2

**STANDARD LAKE SURVEY REPORT**  
**POPULATION ASSESSMENT DATED 07/23/2007 FOR DOW NUMBER 01-0033-00**

**Back-Calculated Lengths for Each Age Class and Average Annual Increments of Back-Calculated Lengths (Continued)**

**Species:** Northern Pike

**Gear Type:** Combined Gear Types (GN)

Class	Age	N	1	2	3	4	5	6	7	8
2005	2	16	7.61	13.88	-	-	-	-	-	-
			7.61	6.27	-	-	-	-	-	-
2004	3	46	8.32	14.65	18.53	-	-	-	-	-
			8.32	6.33	3.88	-	-	-	-	-
2003	4	36	8.67	16.38	20.24	22.14	-	-	-	-
			8.67	7.71	3.86	1.90	-	-	-	-
2002	5	13	9.55	17.49	21.26	23.75	25.70	-	-	-
			9.55	7.94	3.77	2.50	1.95	-	-	-
2001	6	8	9.37	16.45	21.76	23.90	25.46	26.87	-	-
			9.37	7.08	5.31	2.14	1.56	1.42	-	-
2000	7	5	8.85	16.61	21.85	24.02	25.48	27.13	28.35	-
			8.85	7.76	5.24	2.17	1.46	1.65	1.22	-
1999	8	1	10.87	15.42	19.84	22.29	23.53	24.83	25.60	26.32
			10.87	4.55	4.42	2.45	1.24	1.30	0.77	0.72
Mean Length			8.57	15.54	19.82	22.85	25.51	26.82	27.89	26.32
			8.57	6.98	4.03	2.09	1.71	1.49	1.14	0.72
			125	125	109	63	27	14	6	1

**Species:** Walleye

**Gear Type:** Combined Gear Types (GN)

Class	Age	N	1	2	3	4	5	6	7	8	9	10	11	12
2005	2	1	5.32	10.34	-	-	-	-	-	-	-	-	-	-
			5.32	5.02	-	-	-	-	-	-	-	-	-	-
2004	3	1	5.66	9.94	14.69	-	-	-	-	-	-	-	-	-
			5.66	4.28	4.75	-	-	-	-	-	-	-	-	-
2003	4	14	5.43	8.99	12.63	15.42	-	-	-	-	-	-	-	-
			5.43	3.56	3.64	2.79	-	-	-	-	-	-	-	-
2002	5	18	5.57	9.27	12.54	15.43	17.43	-	-	-	-	-	-	-
			5.57	3.70	3.27	2.89	2.00	-	-	-	-	-	-	-
2000	7	1	5.72	9.48	14.06	17.33	21.28	22.10	22.74	-	-	-	-	-
			5.72	3.76	4.58	3.27	3.95	0.82	0.64	-	-	-	-	-
1999	8	2	5.26	8.36	11.54	13.96	15.71	17.40	18.63	19.69	-	-	-	-
			5.26	3.10	3.19	2.42	1.75	1.69	1.23	1.07	-	-	-	-
1998	9	3	4.96	8.41	11.19	13.32	15.35	16.88	18.41	19.34	19.98	-	-	-
			4.96	3.45	2.78	2.13	2.03	1.53	1.53	0.93	0.64	-	-	-
1997	10	4	5.20	8.09	10.33	12.27	14.23	15.80	17.31	18.38	19.29	19.82	-	-
			5.20	2.90	2.24	1.94	1.96	1.57	1.52	1.07	0.91	0.53	-	-
1996	11	2	5.70	8.97	12.13	14.50	16.29	17.86	19.14	19.91	20.55	21.07	21.62	-
			5.70	3.27	3.17	2.37	1.79	1.57	1.29	0.77	0.65	0.52	0.55	-
1994	13	3	4.76	7.53	9.90	11.67	12.91	13.89	14.97	15.84	16.48	17.26	17.90	18.52
			4.76	2.77	2.37	1.77	1.24	0.97	1.08	0.87	0.64	0.78	0.64	0.61
Mean Length			5.40	8.93	12.15	14.72	16.38	16.54	17.84	18.45	18.97	19.24	19.39	18.52
			5.40	3.52	3.26	2.62	1.96	1.41	1.31	0.95	0.73	0.61	0.60	0.61
			49	49	48	47	33	15	15	14	12	9	5	3

**Back-Calculated Lengths for Each Age Class and Average Annual Increments of Back-Calculated Lengths (Continued)**

(Continued from above table)

Class	Age	N	13
1994	13	3	19.03
			0.51
Mean Length			19.03
			0.51
			3

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**STANDARD LAKE SURVEY REPORT**  
**POPULATION ASSESSMENT DATED 07/23/2007 FOR DOW NUMBER 01-0033-00**

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**Age Class Frequency Distribution**

Species and Gear (1)	Number of Fish (2)			Number of Fish in Year Class ('yy) and Age Class																
	Aged	Keyed	Unaged	'07 0	'06 1	'05 2	'04 3	'03 4	'02 5	'01 6	'00 7	'99 8	'98 9	'97 10	'96 11	'95 12	'94 13	'93 14	<'93 15+	
<b>Black Crappie</b>																				
GN	62	63	2	0	0	36	11	38	37	0	0	2	0	1	0	0	0	0	0	
<b>Bluegill</b>																				
TN	55	309	0	0	0	0	3	71	204	71	1	12	2	0	0	0	0	0	0	
<b>Northern Pike</b>																				
GN	125	73	1	0	0	20	84	64	15	9	5	1	0	0	0	0	0	0	0	
<b>Walleye</b>																				
GN	49	7	0	0	0	1	1	15	22	0	1	2	4	4	2	0	4	0	0	

**(1) Key to sampling gear abbreviations:**

GN = Standard gill net sets  
 TN = Standard 3/4-in mesh, double frame trap net sets

**(2) Notes:**

Number of Fish Aged: Fish that were aged from bony parts.  
 Number of Fish Keyed: Fish assigned an age with an age-length key or by expansion of mesh or station age distributions.  
 Number of Fish Unaged: Fish that were not aged and were not assigned an age.

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## Survey Crew Notes

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Area Signed by user 'ribuese' on 03/27/2008

Region Signed by user 'jomix' on 05/09/2008

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## Discussion

Gillnet indices for black bullhead, bowfin and white sucker are below their respective lake class 41 first quartiles. Gillnet indices for northern pike and yellow bullhead are above their respective lake class 41 third quartiles. Trapnet indices for bluegill, largemouth bass and yellow bullhead are above their respective lake class 41 third quartiles.

Black crappie (62 of 150 aged) ranged from 2 to 10 years of age with strong year classes indicated for 2002, 2003 and 2005. Growth rates for the second and third annual increments were slower than normal.

Bluegill (55 of 364 aged) ranged from 3 to 9 years of age with a strong year class indicated for 2002. Growth rates for the second, third and fourth annual increments were slower than normal.

Northern pike (125 of 199 aged) ranged from 2 to 8 years of age with stronger year classes indicated for 2003 and 2004. Growth rates for the second and third annual increments were faster than normal.

Walleye (49 of 56 aged) ranged from 2 to 13 years of age with strong year classes indicated for 2002 and 2003, and a total of ten year classes represented. Growth rates were normal.

Northern pike, black crappie and yellow bullhead have significantly increased in abundance since 2002 (Wilcoxon Signed Rank Test: NOP,  $P=0.0007$ ,  $n=15$ ; BLC,  $P=0.0277$ ,  $n=13$ ; YEB, gill net,  $P=0.0007$ ,  $n=15$ , trap net,  $P=0.0119$ ,  $n=13$ ). Pumpkinseed sunfish significantly decreased in abundance since 2002 (Wilcoxon Signed Rank Test:  $P=0.0120$ ,  $n=14$ ).

Although there was little change in yellow perch abundance (as observed in gill nets) since the 2002 survey, abundance in the last three assessments is about one-half of what was observed in previous surveys. This decrease in abundance of perch was also evident in trap net catch rates. Concurrently, there has been a trend of increasing abundance in bluegill and pumpkinseed (although PMK were significantly lower this year than last), as well as northern pike (highest observed). Although there has been no definable trend in abundance of black crappie, their catches were the highest observed.

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**STANDARD LAKE SURVEY REPORT**  
**POPULATION ASSESSMENT DATED 07/23/2007 FOR DOW NUMBER 01-0033-00**

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### **Status Of The Fishery**

Minnewawa is a large, relatively shallow, dark water lake located in east central Aitkin County. The lake is comprised of three basins of varying habitats, ranging from extensive wild rice beds or marshy shorelines, to a large windswept bowl with sand, gravel, and rubble shorelines. Maximum depth is 21 feet and shoreline topography ranges from gentle slopes to steep drop offs. There are two concrete public accesses located along the south side of the lake off of county road 6 and another one on the north side off of county road 14. There are also some unimproved township access points located around the lake. Historically Minnewawa has been noted for its open water and winter panfish and walleye fisheries.

The gillnet catches for crappie were the highest ever documented on the lake at 8.4 per net, while the trap net catches were about normal at 1.5 per net. Crappies up to 11.6 inches were sampled with a mean size of 7.4 inches. The 2002 and 2003 year classes are strong, with fish from these year classes averaging between 7.5 and 8.5 inches at the time of the survey.

Bluegill trap net catch rates were slightly lower than in 2002; however, biomass was the highest we've observed. There has been an overall trend of increasing abundance since the first trap net assessment in 1956. Along with the increased densities has come a reduction in growth rate. In previous surveys, fish reached 6 inches after four years; whereas, in the 2007 sample, bluegill were less than 4.5 inches at the same age. Currently, the 2002-year class of bluegill, which is very strong, had a mean length of 5.9 inches. Fish of this age in previous samplings would have averaged about 7.5 inches. The decrease in growth rate is likely the primary reason only one fish was sampled that was over 8 inches long. The younger year classes do appear to be weaker, so there may be an increase in growth rates as the 2002 year class leaves the system by angler harvest or natural mortality and then the younger fish will have less competition among themselves.

The walleye population appears to have been very stable over the years, ranging from a low of 2.2 to a high of 4.7 walleye per gill net. In 2007, the gill net catch per unit effort for walleye was 3.7 fish per net. Although this index was very near the long-term mean (3.2 fish per net), the index of biomass for walleye was the highest observed (8.4 pounds per net vs. mean of 4.1 pounds per net). Mean weight of walleye in the gill net was 2.25 pounds, which was also the highest observed. Much of these increases in weight/biomass can be attributed to strong 2002 and 2003 year classes, as well as good recruitment for much of the later 1990s. The walleyes from these year classes, (2002 and 2003), are providing fish to anglers in the 16 to 20 inch range. Walleye management on Minnewawa dates back to 1917. Until 1982, both fry and fingerling stocking were used in an attempt to enhance walleye abundance. Evaluations of these methods indicated that neither methods of stocking appreciably contributed to the abundance of walleye.

The northern pike population, like the walleye population, has been stable over the years, ranging between 2 to 5 fish per net, back to 1946; however, in 2007 pike numbers increased significantly jumping to 13.2 fish per net. This was more than twice as high as previously observed, and well above the 75th percentile for similar lakes. Although the numbers were very high, growth rates were still good, and size distribution indicated a quality fishery. The northern pike had a mean weight of 2.36 pounds and maximum length of 35 inches.

Anglers are encouraged to release larger fish to help maintain the desirable size distribution presently exhibited by the fish populations in Lake Minnewawa.

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**STANDARD LAKE SURVEY REPORT**  
**POPULATION ASSESSMENT DATED 07/23/2007 FOR DOW NUMBER 01-0033-00**

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**Approval Dates And Notices**

Date Approved By Aitkin Area Fisheries Supervisor: 03/27/2008

Date Approved By Northeast Region Fisheries Manager: 05/09/2008



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(Standard Lake Survey Report revision: 05/05/2008-RJE. Printed on 06/03/2008 at 11:54:57AM )

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## SUBREPORTS WITH NO DATA

(This page is not part of the Standard Lake Survey Report and should be discarded )

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**Lake Name: Minnewawa**  
**DOW Number: 01-0033-00**

**Survey Type: Population Assessment**  
**Survey ID Date: 07/23/2007**

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**Survey Status:** Region Signed

The following 14 report components are not included in this report:

1. Current Water Level
2. Benchmark And Gauge Descriptions / Locations
3. Water Level History
4. Lake Inlets
5. Additional Inlet Information
6. Lake Outlets
7. Additional Outlet Information
8. Water Control Structure (Dam)
9. Surrounding Watershed Characteristics And Shoreline Characteristics
10. Resorts And Campgrounds
11. Fish Spawning Conditions
12. Erosion And Pollution
13. Fish Diseases And Parasites
14. Laboratory Analysis Of Water Chemistry

**Note: The data source for Length and Age Class Frequency Distribution tables is updated twice daily - once at noon and once overnight. Any changes to the data made before noon on 06/03/2008 may not be reflected in the Distribution tables until after 12:30PM on 06/03/2008.**