

SECTION II

PRAIRIE ISLAND NUCLEAR GENERATING PLANT
ENVIRONMENTAL MONITORING PROGRAM
2014 ANNUAL REPORT

SUMMARY OF THE 2014 FISH POPULATION STUDY

Report
by
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Environmental Services
Water Quality Department



SUMMARY OF THE 2014 FISH POPULATION STUDY

INTRODUCTION

To fulfill part of the continuing environmental monitoring requirements of the Prairie Island Nuclear Generating Plant, (PINGP), the Mississippi River fisheries population was sampled near Red Wing, Minnesota, May through October, 2014. The study area extends from 3.6 miles upstream of the plant (River mile 802) to 10.8 miles downstream of the plant (River mile 787.5), (Figure 1). The original objective of the study was to “determine existing ecological characteristics before plant operation and to assess any significant changes to the aquatic environment after operation” (NSP 1972). The objective was changed slightly after the plant became operational in 1973; to “determine environmental effects of the PINGP on the fish community in the Mississippi River and its backwaters” (Hawkinson 1973). Presently, the objective is to monitor and assess the status of the fishery in the vicinity of the PINGP (Mueller 1994). Parameters analyzed include species composition, length-weight regressions, length-frequency distributions, and catch per unit effort (CPUE). Starting in 2012, fish species, length and weights were entered into the Minnesota Department of Natural Resources (MNDNR) fisheries software program. The data was then downloaded into the MNDNR database. This annual report includes the Standard Lake Survey Reports created by the MNDNR (Attachment 1 and 2) for Mississippi River Pools 3 and 4. Pool 3 is a combination of sectors 1 and 2, while Pool 4 is a combination of sectors 3 and 4.

METHODS AND MATERIALS

Fish were collected using a Smith-Root SR-18 Electrofishing boat equipped with a 5.0 GPP electrofishing unit (Figure 6). The power source was a 5.0 GPP generator. The 5000 watt generator has a maximum output of 16 amps, and a range of 0-1000 volts. The generator has the capability to be either pulsed AC or DC with a pulse frequency of 7.5, 15, 30, 60, and 120 Hz. The anode consists of two umbrella arrays, each with six dropper cables. The 18 foot boat and dropper cables hung from the front of the boat serve as the cathode. Collection occurred during daylight hours with a pulsed direct current. Due to the constantly changing river conditions, Electrofisher output was varied to enhance the effectiveness.

Sampling was done monthly, May through October, within four established sectors of the study area (Figures 1-5). The runs within each sector are similar to previous years sampling to ensure a similar set of relative data indices. At the end of each “run”, the elapsed shocking time was recorded from a digital timer, which only tallied the seconds that the electrical field was energized. A run was terminated after approximately 450 seconds shocking time or when the end of the prescribed run was reached.

Stunned fish were captured with one-inch stretch mesh landing nets equipped with eight-foot insulated handles. Fish were placed in live-wells, supplied with river water constantly, until the end of each run. At the end of each run fish were identified, measured to the nearest millimeter (total length), weighed to the nearest 10 grams, and released. Parameters used to describe the fisheries include species composition, length-weight regressions, total numbers of each species collected, length-frequency distributions, and catch per unit effort (CPUE). It is assumed that population dynamics and spatial distribution is represented by CPUE.

Electrofishing CPUE was computed as numbers of fish per hour. Length frequency distributions are reported for all fish species. Length-weight relationships were calculated using the length-weight formula:

$$\log W = \log a + b \log L,$$

where W is the weight in grams, a is the y axis intercept, b is the slope of the regression line, and L is the total length in millimeters.

RESULTS

Initial PINGP preoperational annual environmental reports simply listed all data collected without discussion or analysis (NSP 1972). Individual species were not discussed, due to the amount of data collected during initial sampling efforts. This report will include, total number of each species, mean length and length range, CPUE comparison between Mississippi River Pools 3 and 4, length frequency distribution, and length weight regressions.

Electrofishing collection methods changed before the 1982 sampling season. The mesh size of the dip nets was increased to one inch stretch mesh. The larger mesh size enabled small adult fish and some young of the year fish of certain species to avoid collection. Currently, individual gizzard shad, freshwater drum, and white bass less than 160 mm are not collected. Also, logperch and cyprinids (other than carp) are no longer collected, due to their small size (Donkers 1987). Therefore, a direct comparison of electrofishing CPUE prior to 1982 is inappropriate to later years.

Species collected in 2014 are compared to previous years in Table 1. A total of 4,859 fish, comprising 41 species, was collected in the 2014 survey (Table 2).

All species collected in 2014 are ranked according to electrofishing CPUE and listed in Table 2. Table 3 lists the length-weight regressions calculated for each species.

All other parameters can be found in Attachments 1 and 2 (MNDNR Standard Lake Survey Report).

The top three abundant species, based on CPUE, was determined for each river pool (Table 2).

Pool 3;	freshwater drum, shorthead redhorse, carp
Pool 4;	freshwater drum, carp, white bass
Overall CPUE Average;	freshwater drum, carp, shorthead redhorse

DISCUSSION

When dealing with a large river environment, a high degree of natural variability exists in habitat conditions and therefore, in fish distribution. Palmquist (1982) proposed the wide range in species abundance between study areas was largely due to habitat preferences of a species rather than PINGP induced. Differences in collection efficiency and year class strengths may also explain this variability.

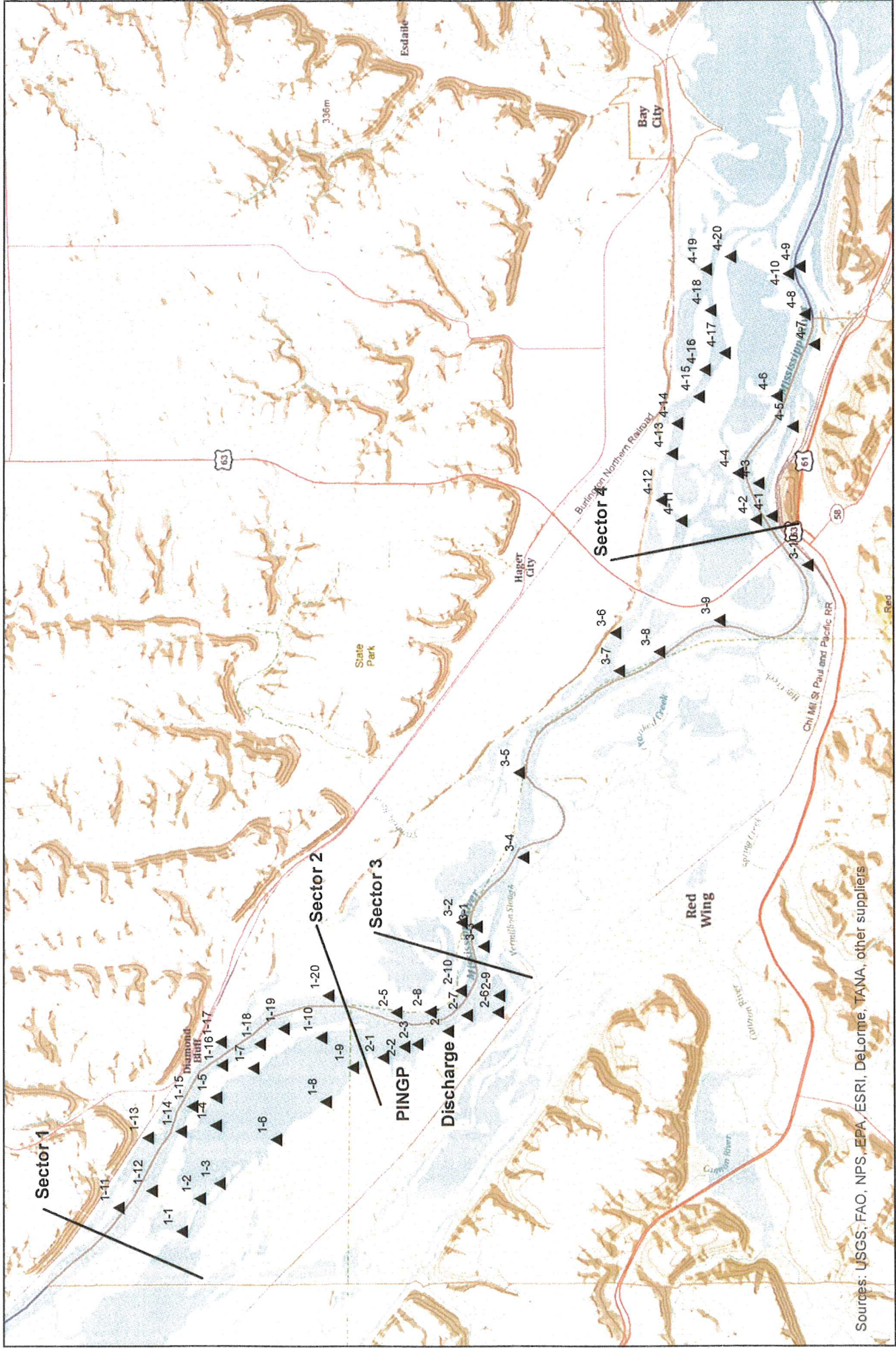
GENERAL

The ten most abundant species collected during 2014 in descending order, based on average CPUE for both pools combined were: 1) freshwater drum, 2) carp, 3) shorthead redhorse, 4) white bass, 5) smallmouth bass, 6) quillback, 7) largemouth bass, 8) sauger, 9) walleye, and 10) silver redhorse (Table 2).

Total average CPUE for all species and pools combined for 2014 was 107.85 fish/hour, a decrease from 2013 (133.66 fish/hr) (Table 2).

LITERATURE CITED

- Donkers, C. A. 1987. Summary of the 1987 fish population study. IN: Prairie Island Nuclear Generating Plant Environmental Monitoring Program 1987 Annual Report. Northern States Power Company, Minneapolis, MN.
- Hawkinson, B. W. 1973. 1973 Fish Population Study Progress Report of the Mississippi River Near Prairie Island July 1973-February 1974. IN: Environmental Monitoring and Ecological Studies Program, Prairie Island Nuclear Generating Plant, 1973 Annual Report. Northern States Power Company, Minneapolis, MN.
- Mueller, K. N. 1994. Summary of the 1994 fish population study. IN: Prairie Island Nuclear Generating Plant Environmental Monitoring Program 1994 Annual Report. Northern States Power Company, Minneapolis, MN.
- NSP. 1972. Environmental Monitoring and Ecological Studies Program for the Prairie Island Nuclear Generating Plant Near Red Wing, Minnesota. Prepared by: engineering Vice Presidential Staff Department, Northern States Power Company. February 1, 1970, revised May 1, 1972. Northern States Power Company, Minneapolis, MN.
- Palmquist, P. R. 1982. Summary of the 1982 fish population study. IN: Prairie Island Nuclear Generating Plant Environmental Monitoring Program 1982 Annual Report. Northern States Power Company, Minneapolis, MN.



Sources: USGS, FAO, NPS, EPA, ESRI, DeLorme, TANA, other suppliers



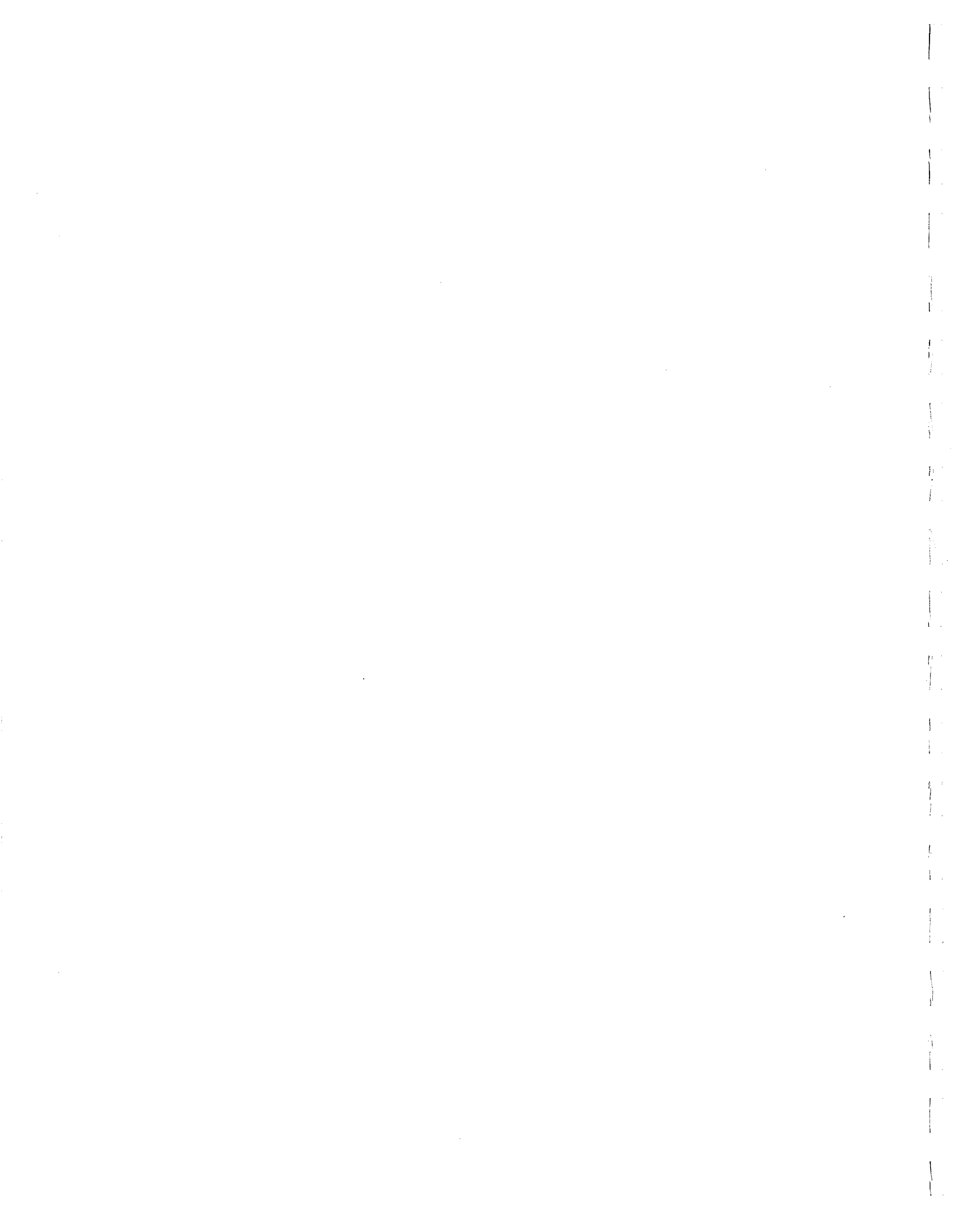
▲ Electrofishing Locations

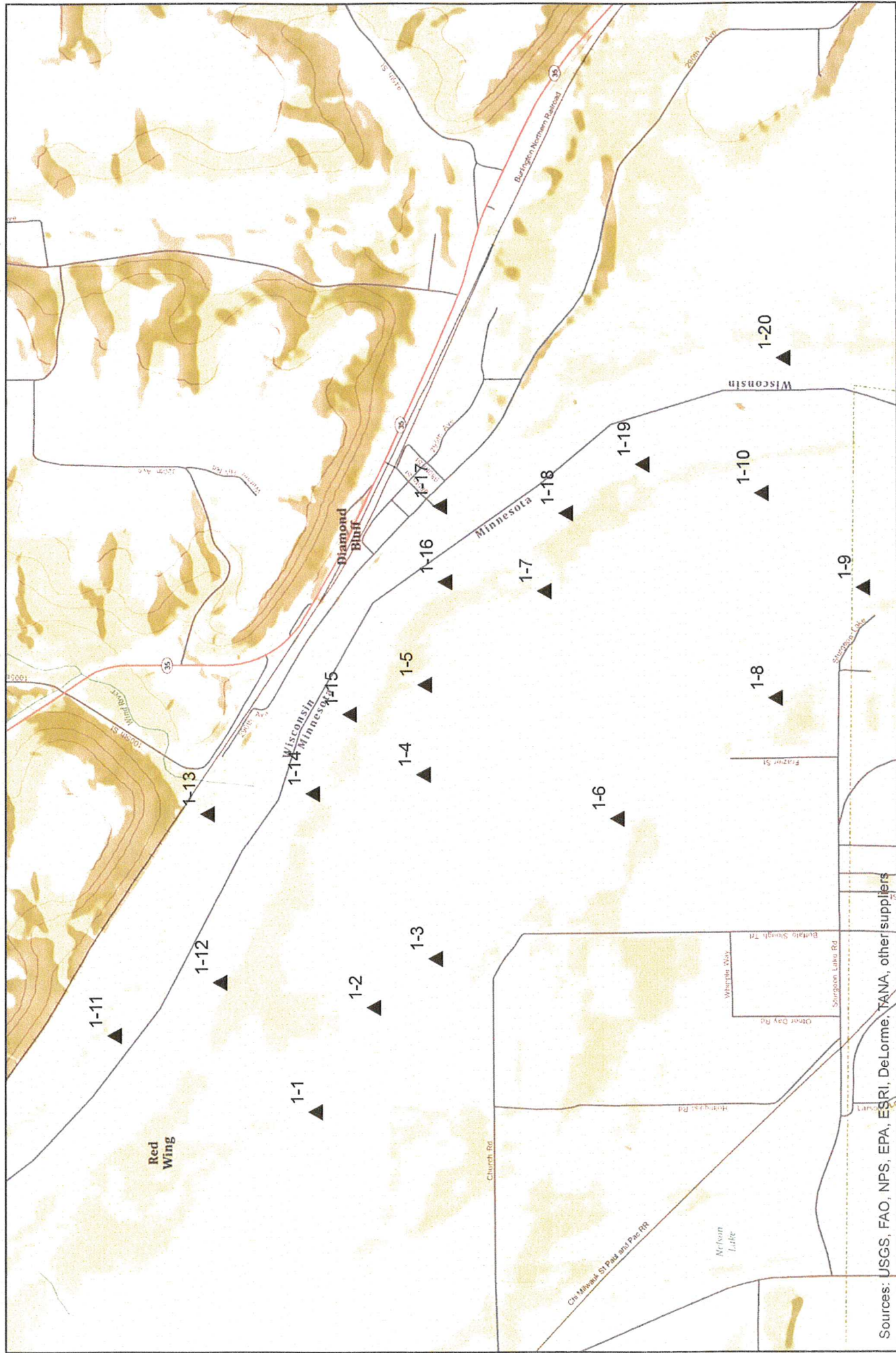


Figure 1

Prairie Island Fisheries Population Survey – Study area







Sources: USGS, FAO, NPS, EPA, ESRI, DeLorme, TANA, other suppliers

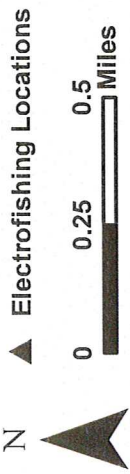
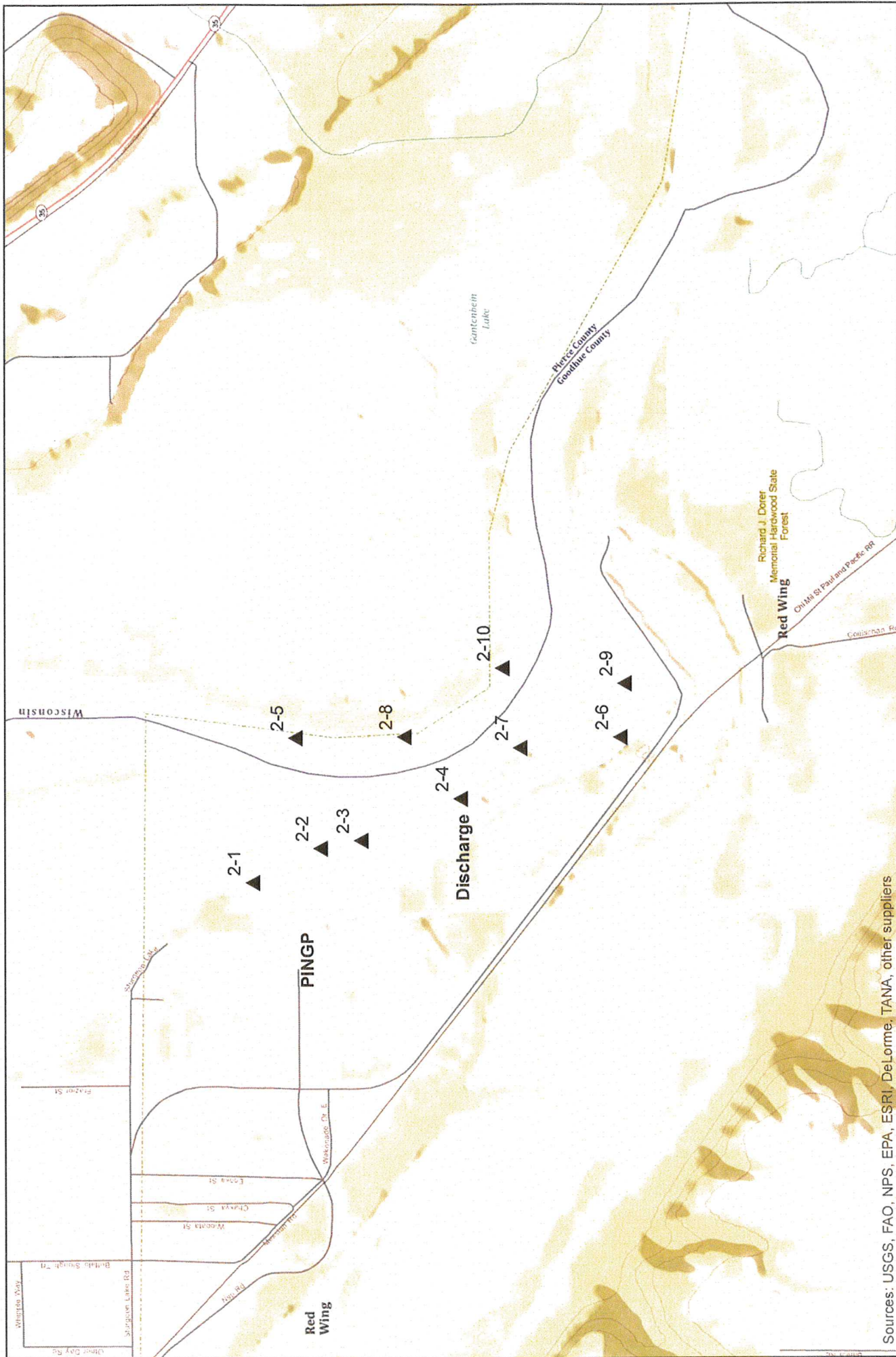


Figure 2

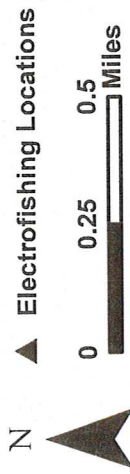
Prairie Island Fisheries Population Survey – Upstream







Sources: USGS, FAO, NPS, EPA, ESRI, DeLorme, TANA, other suppliers



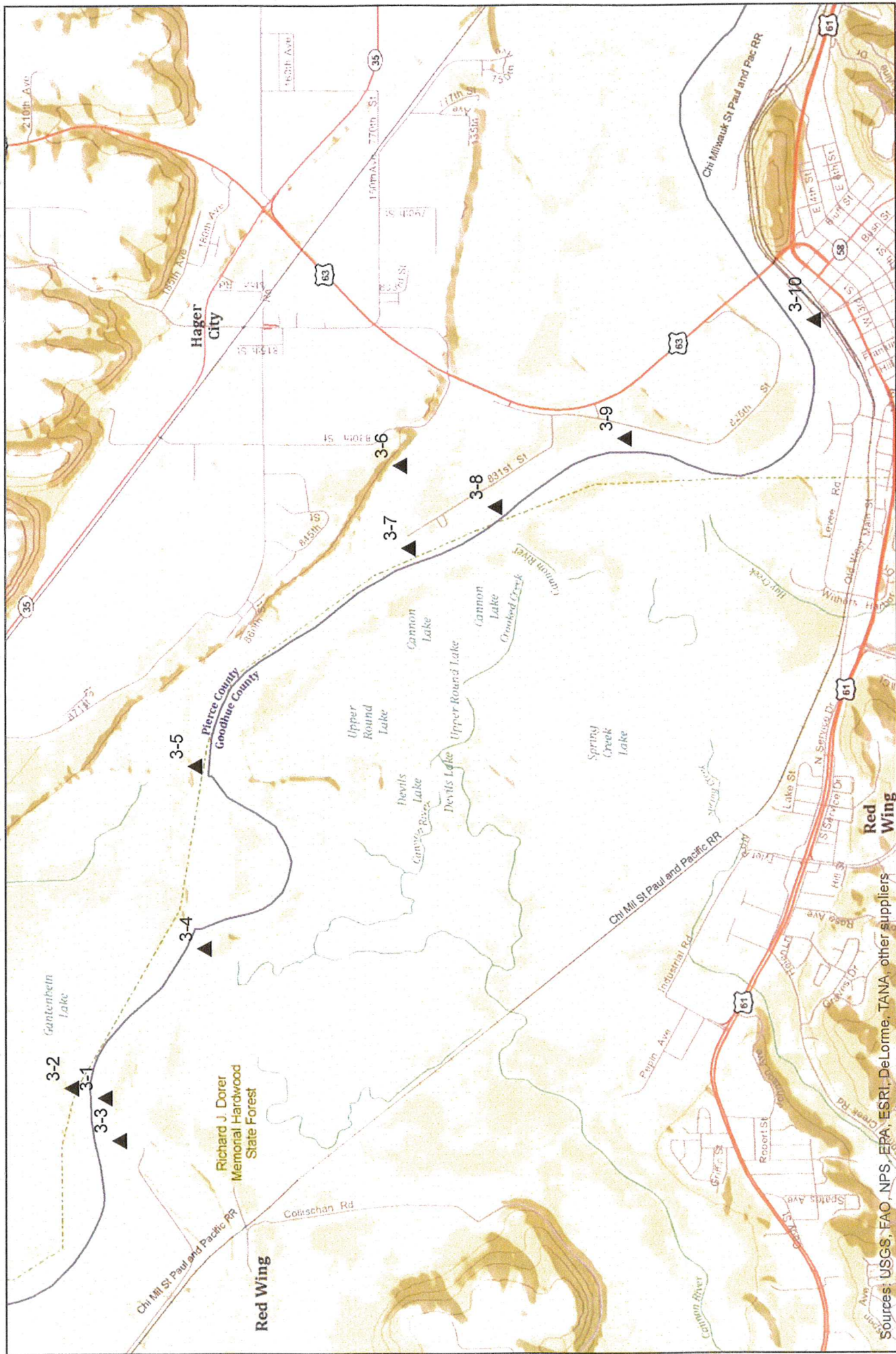
▲ Electrofishing Locations

Figure 3

Prairie Island Fisheries Population Survey – Plant Area







▲ Electrofishing Locations



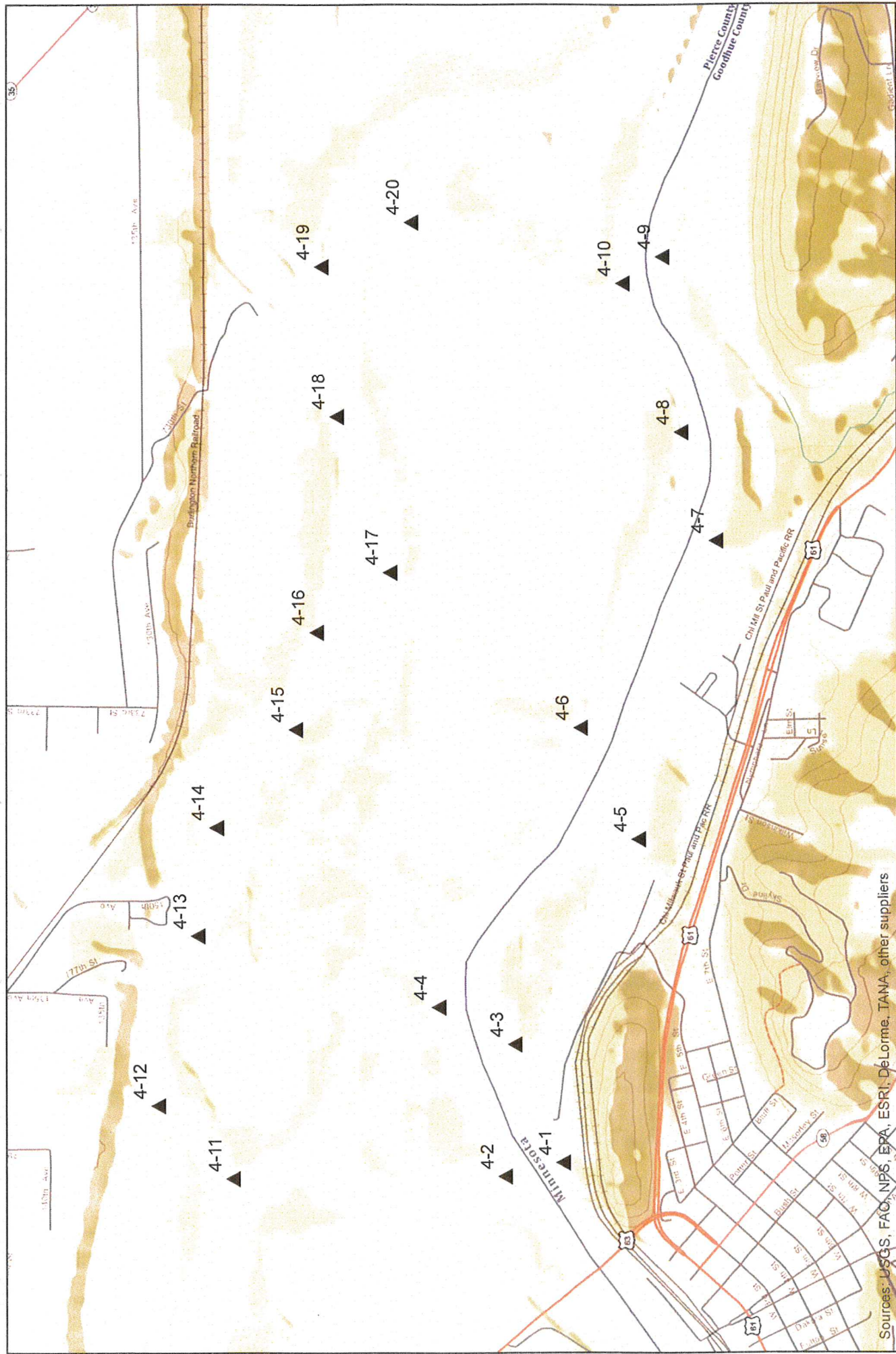
Figure 4

Prairie Island Fisheries Population Survey – Downstream

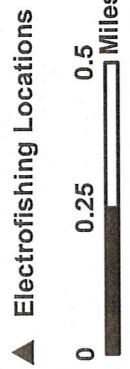


Sources: USGS, FAO, NPS, EPA, ESRI, DeLorme, TANA, other suppliers





Sources: USGS, FAO, NPS, EPA, ESRI, DeLorme, TANA, other suppliers



▲ Electrofishing Locations

Figure 5



Prairie Island Fisheries Population Survey – Downstream



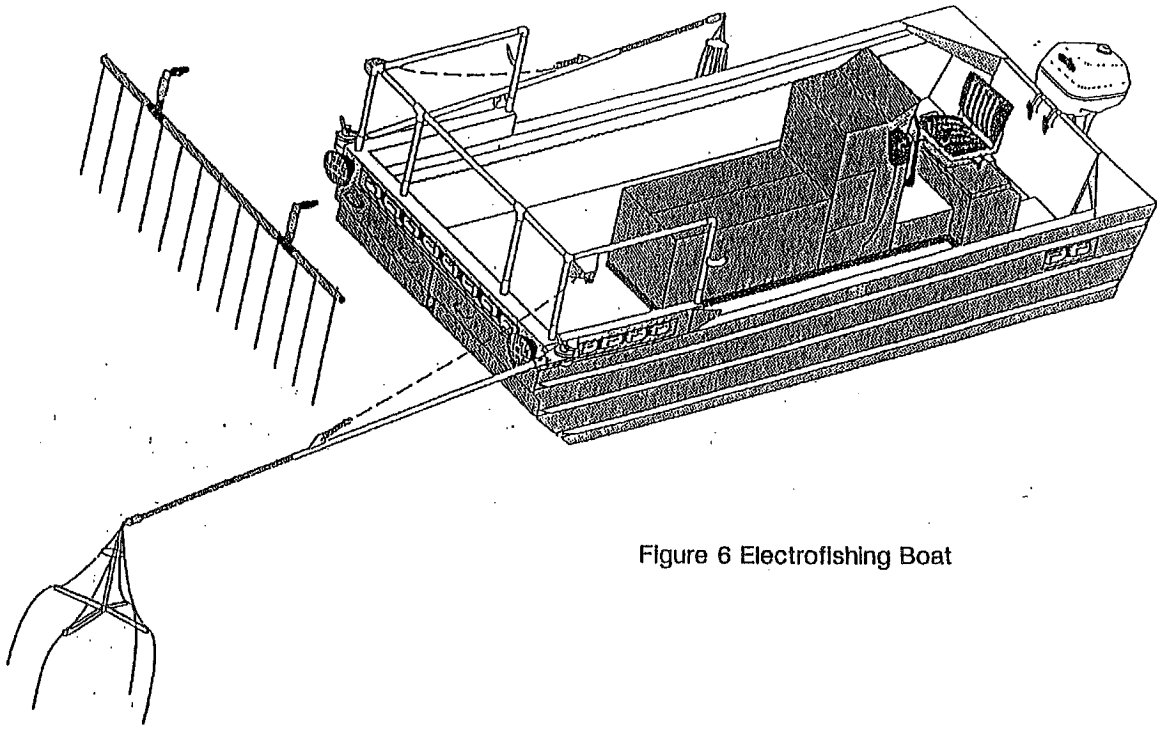
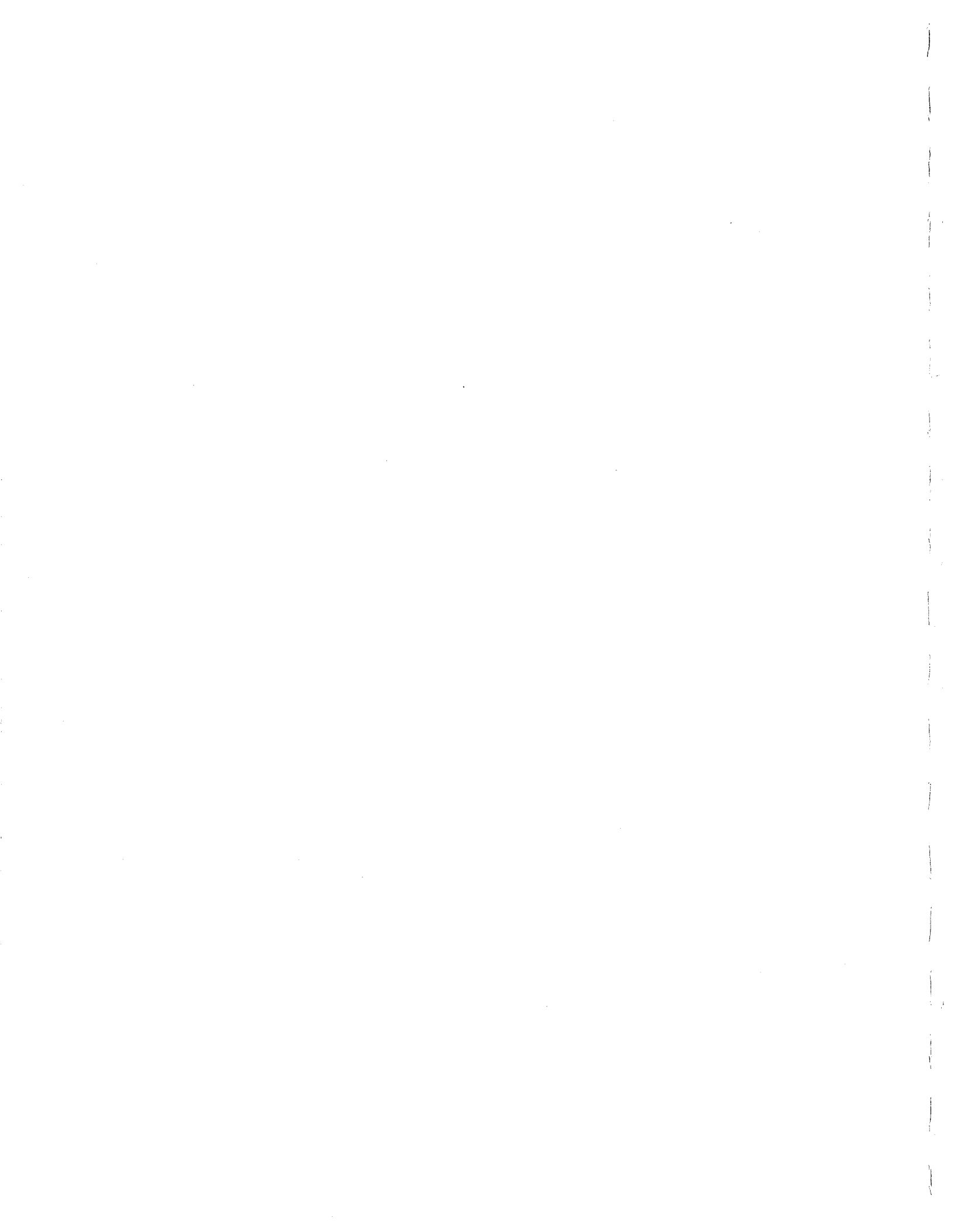


Figure 6 Electrofishing Boat



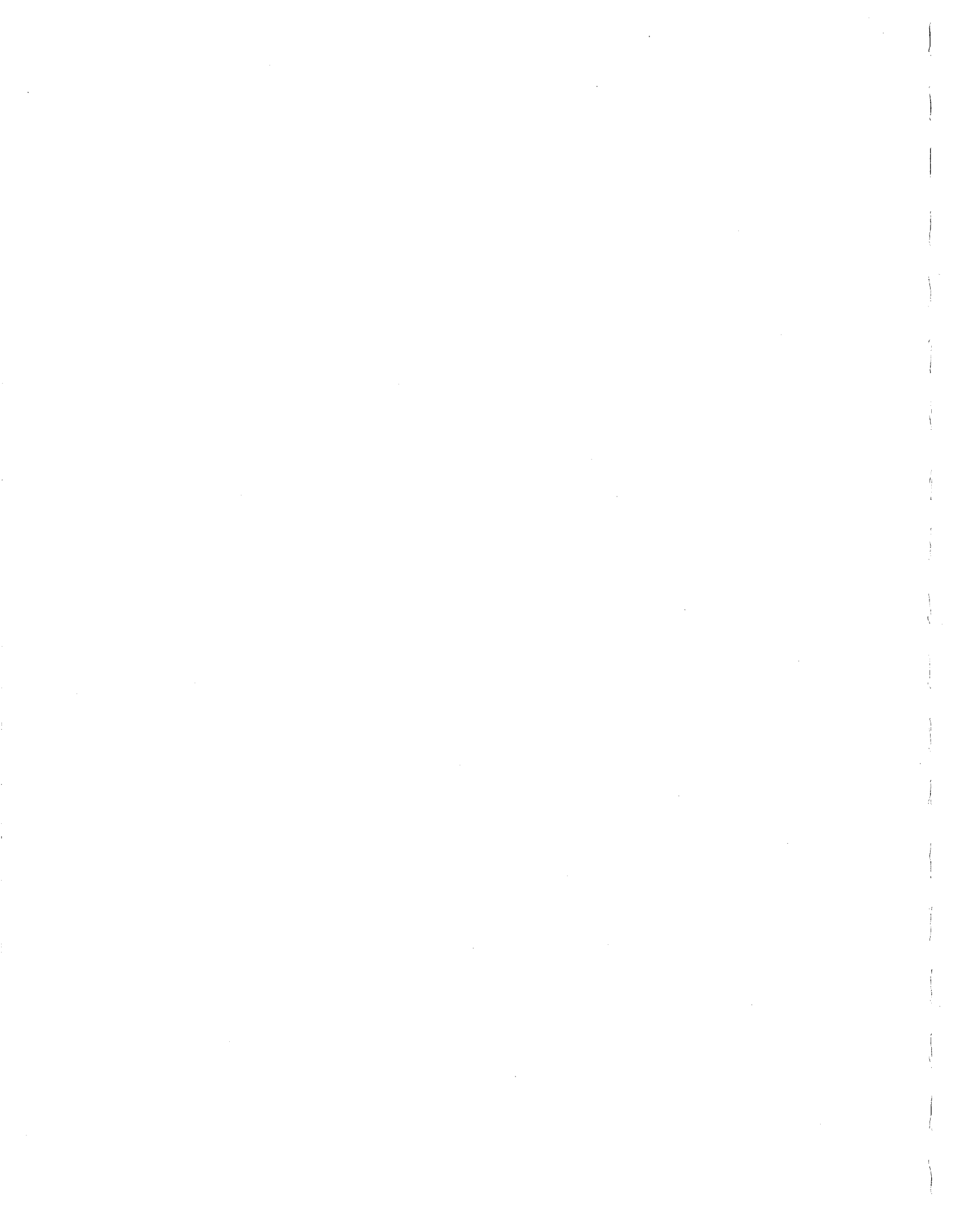
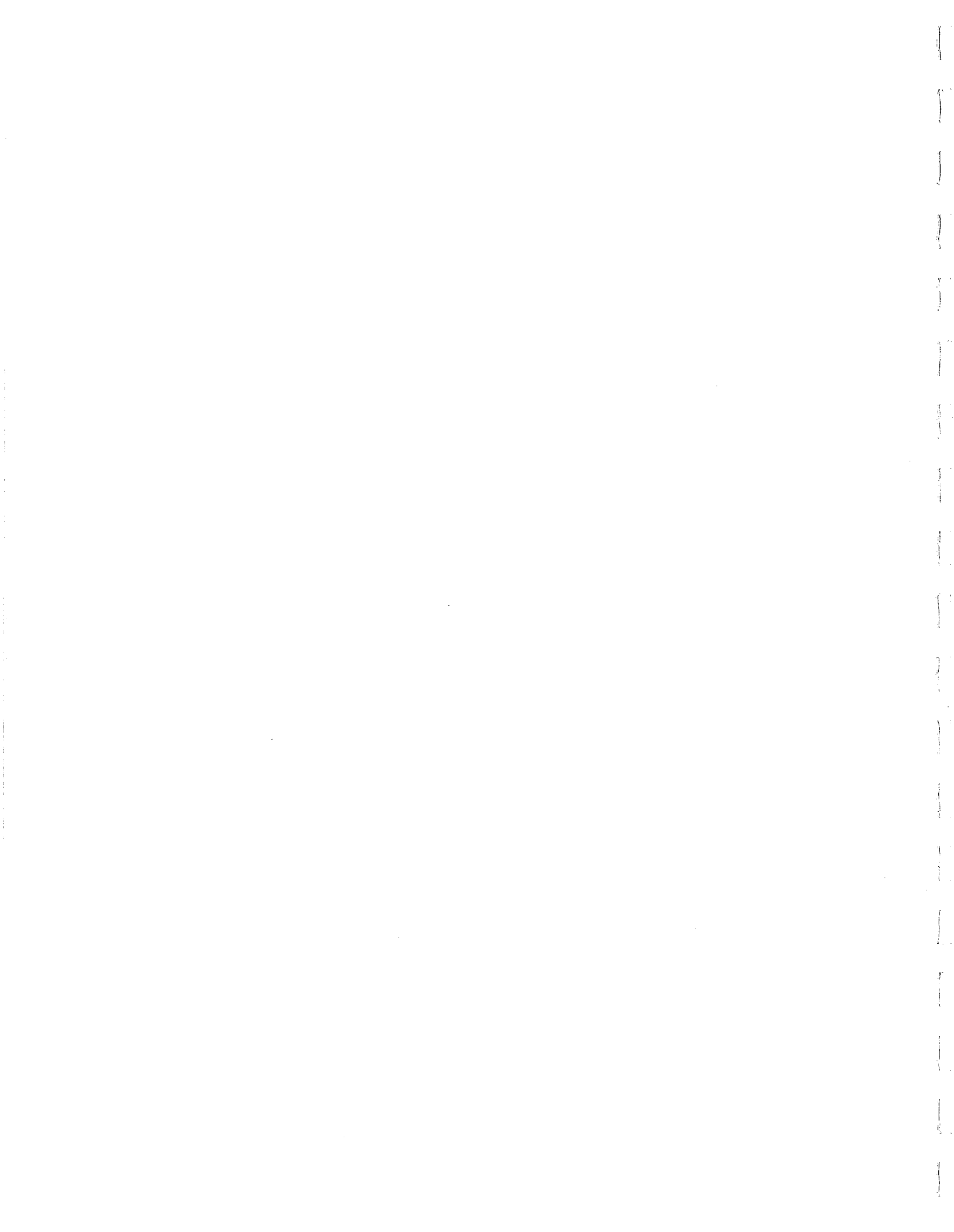


Table 2. Electrofishing CPUE (fish/hour) for each Mississippi River Pool in the vicinity of PINGP and total number of each species collected during 2014. Species are listed in descending order according to average CPUE.

Rank	Species	CPUE			Total number collected		
		Pool 3	Pool 4	Average	Pool 3	Pool 4	
1	Freshwater drum	26.84	26.62	26.73	1204	603	601
2	Carp	11.44	15.73	13.59	612	257	355
3	Shorthead redhorse	16.24	6.96	11.60	522	365	157
4	White bass	7.08	14.71	10.90	491	159	332
5	Smallmouth bass	5.16	7.62	6.39	288	116	172
6	Quillback	5.61	2.97	4.29	193	126	67
7	Largemouth bass	0.58	7.80	4.19	189	13	176
8	Sauger	3.16	4.74	3.95	178	71	107
9	Walleye	4.36	3.23	3.80	171	98	73
10	Silver redhorse	5.34	1.86	3.60	162	120	42
11	Mooneye	2.67	3.19	2.93	132	60	72
12	Bluegill	2.71	2.22	2.47	111	61	50
13	Flathead catfish	2.98	1.59	2.29	103	67	36
14	Longnose gar	2.18	1.11	1.65	74	49	25
15	Smallmouth buffalo	1.91	0.71	1.31	59	43	16
16	Bigmouth buffalo	0.93	1.64	1.29	58	21	37
17	Channel catfish	1.74	0.44	1.09	49	39	10
18	Bowfin	0.00	1.64	0.82	37	0	37
19	Black crappie	0.58	0.93	0.76	34	13	21
20	Northern pike	0.18	0.84	0.51	23	4	19
21	Gizzard shad	0.58	0.40	0.49	22	13	9
22	River redhorse	0.93	0.00	0.47	21	21	0
23	Yellow perch	0.89	0.00	0.45	20	20	0
24	Blue sucker	0.53	0.31	0.42	19	12	7
25	Shortnose gar	0.45	0.35	0.40	18	10	8
26	River carpsucker	0.53	0.04	0.29	13	12	1
27	Rock bass	0.18	0.31	0.25	11	4	7
28	Silver lamprey	0.27	0.18	0.23	10	6	4
29	Golden redhorse	0.13	0.31	0.22	10	3	7
30	Green sunfish	0.13	0.22	0.18	8	3	5
31	Pumpkinseed	0.18	0.00	0.09	4	4	0
32	American eel	0.13	0.00	0.07	3	3	0
33	Burbot	0.00	0.09	0.05	2	0	2
34	White crappie	0.00	0.04	0.02	1	0	1
35	Brown trout	0.00	0.04	0.02	1	0	1
36	White sucker	0.04	0.00	0.02	1	1	0
37	Hybrid sunfish	0.04	0.00	0.02	1	1	0
38	Goldeye	0.04	0.00	0.02	1	1	0
39	Muskellunge	0.04	0.00	0.02	1	1	0
40	Walleye/sauger	0.04	0.00	0.02	1	1	0
41	Yellow bullhead	0.04	0.00	0.02	1	1	0
	Totals	106.86	108.84	107.85	4859	2402	2457





Minnesota Department of Natural Resources
Fisheries Management



STANDARD LAKE SURVEY REPORT

DRAFT VERSION - PRELIMINARY DATA (AS OF 02/13/2015)

Lake Name: U.S. Lock & Dam #3 Pool

Survey Type: External Management Survey

DOW Number: 25-0017-00

Survey ID Date: 05/01/2014

Lake Identification

Alternate Lake Name: N/A
Primary Lake Class ID:

DNR Sounding Map Number: C2439
Alternate Lake Class ID: N/A

Lake Location

Primary County: Goodhue

Nearest Town: Etter

All Counties: Dakota, Goodhue, Washington.

Legal Descriptions

Lake Center: Township - 114N Range - 16W Section - 13
PLS Section Lake Center: 11401613

All Legal Descriptions:

Dakota County:	Township - 114N	Range - 16W	Section - 4
	Township - 115N	Range - 16W	Sections - 29, 30, 31, 32, 33
	Township - 115N	Range - 17W	Sections - 16, 21, 22, 23, 24, 25, 27
Goodhue County:	Township - 113N	Range - 15W	Sections - 4, 9, 10
	Township - 114N	Range - 15W	Sections - 19, 28, 29, 30, 33
	Township - 114N	Range - 16W	Sections - 3, 10, 11, 13, 14, 24
Washington County:	Township - 26N	Range - 20W	Sections - 7, 8, 9
	Township - 26N	Range - 21W	Sections - 1, 12

Area Office

Area Name: Lake City
Region Name: Central

ORG Code: F317
Region Number: 3

Lake Characteristics

Lake Area (planimetered acres):	N/A	GIS Shoreline Length (miles):	56.73
GIS Lake Area (acres):	1548.93	Maximum Fetch (miles):	N/A
DOW Lake Area (acres):	7426.00	Fetch Orientation (degrees):	N/A
Littoral Area (acres):	0.00	USGS Quad Map Number:	T19b
Area in MN (acres):	1548.92	USGS Quad 24K GIS Index:	3837
Maximum Depth (feet):	N/A		
Mean Depth (feet):	N/A		

Watershed Characteristics

Major Watershed

Name: Miss R-Lake Pepin
Watershed Number: 38
Watershed size (acres): 382,780

Minor Watershed

Name: Mississippi R
Watershed Number: 14
Watershed size (acres): 40,075

Surveys And Investigations

- Re-Survey:** 11/01/1993, 07/07/1980.
 - Population Assessment:** 10/16/2014, 10/29/2013, 10/28/2013, 06/11/2013, 10/17/2012, 10/15/2012, 10/21/2011, 10/20/2011, 10/22/2010, 08/06/2010, 05/24/2010, 11/05/2009, 10/27/2009, 11/05/2008, 10/31/2008, 11/07/2007, 08/23/2006, 08/14/2006.
 - Special Assessment:** 04/30/2014, 04/30/2013, 03/27/2012, 09/23/2008, 11/14/2006, 10/23/2006.
 - Natural Reproduction Check:** 09/02/2014, 09/03/2013, 08/30/2013, 08/13/2012, 08/06/2012, 09/02/2011, 08/30/2011, 08/18/2010, 08/09/2010, 08/20/2009, 08/14/2009, 08/15/2008, 08/14/2008, 08/15/2007, 08/14/2007.
 - Investigational Survey:** 09/01/2006.
 - External Management Survey:** 05/01/2014, 05/01/2013, 05/01/2012, 05/01/2011, 05/01/2010, 05/01/2009, 05/01/2008, 05/01/2007, 05/01/2006, 05/01/2005, 05/01/2004, 05/01/2003.
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STANDARD LAKE SURVEY REPORT

DRAFT

EXTERNAL MANAGEMENT SURVEY DATED 05/01/2014 FOR DOW NUMBER 25-0017-00

Natural Reproduction Catch Summary for SEF

Special sampling, electrofishing

Total run-time for all stations: 49999999:57:00

Total on-time for all stations: 22:28:10

First Sampling Date: 05/21/2014

Last Sampling Date: 10/09/2014

Daylight Sampling: Yes

Target Species: N/A

Abbr	Species	Age	Total Number	Number Measured	Mean Length (inches)	Length Range (inches)		Catch Rates (number per hour)	
						Min	Max	Run-Time	On-Time
AME	American Eel	All	3	3	26.18	21.06	30.71	0.00	0.13
BIB	Bigmouth Buffalo	All	21	21	21.60	16.57	31.10	0.00	0.93
BLC	Black Crappie	All	13	13	9.62	5.59	12.72	0.00	0.58
BLS	Blue Sucker	All	12	12	26.66	21.46	30.31	0.00	0.53
BLG	Bluegill	All	61	61	5.37	3.50	8.74	0.00	2.71
CCF	Channel Catfish	All	39	39	17.34	4.80	26.77	0.00	1.74
CAP	Common Carp	All	257	257	23.72	17.68	31.89	0.00	11.44
FCF	Flathead Catfish	All	67	67	11.50	5.79	38.19	0.00	2.98
FRD	Freshwater Drum	All	603	603	15.41	6.50	31.10	0.00	26.84
GIS	Gizzard Shad	All	13	13	15.29	7.40	18.90	0.00	0.58
GLR	Golden Redhorse	All	3	3	15.89	13.27	17.80	0.00	0.13
GOE	Goldeye	All	1	1	18.19	18.19	18.19	0.00	0.04
GSF	Green Sunfish	All	3	3	4.41	4.33	4.57	0.00	0.13
HSF	Hybrid Sunfish	All	1	1	6.89	6.89	6.89	0.00	0.04
LMB	Largemouth Bass	All	13	13	10.58	4.72	16.18	0.00	0.58
LNG	Longnose Gar	All	49	49	31.14	23.54	44.49	0.00	2.18
MOE	Mooneye	All	60	60	11.65	8.86	14.25	0.00	2.67
MUE	Muskellunge	All	1	1	32.28	32.28	32.28	0.00	0.04
NOP	Northern Pike	All	4	4	21.41	8.94	27.24	0.00	0.18
PMK	Pumpkinseed	All	4	4	5.91	4.72	8.07	0.00	0.18
QBS	Quillback	All	126	126	18.67	10.31	21.46	0.00	5.61
RCS	River Carpsucker	All	12	12	18.70	9.37	24.53	0.00	0.53
RRH	River Redhorse	All	21	21	22.07	20.16	25.47	0.00	0.93
RKB	Rock Bass	All	4	4	6.25	4.53	7.40	0.00	0.18
SAR	Sauger	All	71	71	11.05	5.20	17.32	0.00	3.16
SHR	Shorthead Redhorse	All	365	365	15.36	6.02	20.08	0.00	16.24
SNG	Shortnose Gar	All	10	10	26.37	23.70	29.06	0.00	0.45
SIL	Silver Lamprey	All	6	6	11.19	6.10	18.50	0.00	0.27
SLR	Silver Redhorse	All	120	120	20.71	6.38	24.57	0.00	5.34
SMB	Smallmouth Bass	All	116	116	10.68	5.16	18.50	0.00	5.16
SAB	Smallmouth Buffalo	All	43	43	22.27	13.86	27.56	0.00	1.91
WAE	Walleye	All	98	98	16.71	5.00	28.11	0.00	4.36
WAS	Walleye/Sauger	All	1	1	9.65	9.65	9.65	0.00	0.04
WHB	White Bass	All	159	159	12.40	6.65	16.14	0.00	7.08
WTS	White Sucker	All	1	1	15.16	15.16	15.16	0.00	0.04
YEB	Yellow Bullhead	All	1	1	4.53	4.53	4.53	0.00	0.04
YEP	Yellow Perch	All	20	20	4.66	3.23	7.17	0.00	0.89

Length Frequency Distribution For SEF (for fish < 36.00 inches)

Special sampling, electrofishing

(Field work conducted between 05/21/2014 and 10/09/2014)

	<u>AME</u>	<u>BIB</u>	<u>BLC</u>	<u>BLG</u>	<u>BLS</u>	<u>CAP</u>	<u>CCF</u>	<u>FCF</u>	<u>FRD</u>	<u>GIS</u>	<u>GLR</u>	<u>GOE</u>	<u>GSF</u>	<u>HSF</u>	<u>LMB</u>
< 3.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00 - 3.49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.50 - 3.99	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-
4.00 - 4.49	-	-	-	19	-	-	-	-	-	-	-	-	2	-	-
4.50 - 4.99	-	-	-	10	-	-	1	-	-	-	-	-	1	-	1
5.00 - 5.49	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-
5.50 - 5.99	-	-	1	1	-	-	-	1	-	-	-	-	-	-	1
6.00 - 6.49	-	-	-	2	-	-	-	7	-	-	-	-	-	-	-
6.50 - 6.99	-	-	1	3	-	-	-	10	1	-	-	-	-	1	1
7.00 - 7.49	-	-	1	2	-	-	1	5	2	1	-	-	-	-	-
7.50 - 7.99	-	-	-	6	-	-	3	1	3	-	-	-	-	-	-
8.00 - 8.49	-	-	1	2	-	-	-	1	2	-	-	-	-	-	-
8.50 - 8.99	-	-	-	2	-	-	-	7	4	-	-	-	-	-	-
9.00 - 9.49	-	-	1	-	-	-	-	-	2	-	-	-	-	-	1
9.50 - 9.99	-	-	1	-	-	-	-	3	5	-	-	-	-	-	1
10.00 - 10.49	-	-	2	-	-	-	1	1	5	-	-	-	-	-	3
10.50 - 10.99	-	-	1	-	-	-	-	2	14	-	-	-	-	-	-
11.00 - 11.49	-	-	1	-	-	-	-	3	18	-	-	-	-	-	-
11.50 - 11.99	-	-	2	-	-	-	-	4	34	-	-	-	-	-	-
12.00 - 12.99	-	-	1	-	-	-	1	4	82	-	-	-	-	-	1
13.00 - 13.99	-	-	-	-	-	-	1	4	60	-	1	-	-	-	2
14.00 - 14.99	-	-	-	-	-	-	1	4	81	5	-	-	-	-	1
15.00 - 15.99	-	-	-	-	-	-	1	1	56	2	-	-	-	-	-
16.00 - 16.99	-	3	-	-	-	-	3	-	42	2	1	-	-	-	1
17.00 - 17.99	-	1	-	-	-	2	5	2	57	2	1	-	-	-	-
18.00 - 18.99	-	1	-	-	-	3	5	1	43	1	-	1	-	-	-
19.00 - 19.99	-	1	-	-	-	11	5	1	26	-	-	-	-	-	-
20.00 - 20.99	-	3	-	-	-	22	2	-	26	-	-	-	-	-	-
21.00 - 21.99	1	4	-	-	1	34	4	-	16	-	-	-	-	-	-
22.00 - 22.99	-	2	-	-	-	48	2	-	11	-	-	-	-	-	-
23.00 - 23.99	-	1	-	-	1	23	1	-	1	-	-	-	-	-	-
24.00 - 24.99	-	1	-	-	-	34	-	1	4	-	-	-	-	-	-
25.00 - 25.99	-	2	-	-	2	27	-	1	2	-	-	-	-	-	-
26.00 - 26.99	1	1	-	-	2	21	2	-	4	-	-	-	-	-	-
27.00 - 27.99	-	-	-	-	-	13	-	-	-	-	-	-	-	-	-
28.00 - 28.99	-	-	-	-	5	7	-	-	1	-	-	-	-	-	-
29.00 - 29.99	-	-	-	-	-	6	-	1	-	-	-	-	-	-	-
30.00 - 30.99	1	-	-	-	1	4	-	1	-	-	-	-	-	-	-
31.00 - 31.99	-	1	-	-	-	2	-	-	1	-	-	-	-	-	-
32.00 - 32.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33.00 - 33.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34.00 - 34.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35.00 - 35.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
= > 36.00	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
	<u>AME</u>	<u>BIB</u>	<u>BLC</u>	<u>BLG</u>	<u>BLS</u>	<u>CAP</u>	<u>CCF</u>	<u>FCF</u>	<u>FRD</u>	<u>GIS</u>	<u>GLR</u>	<u>GOE</u>	<u>GSF</u>	<u>HSF</u>	<u>LMB</u>
Total	3	21	13	61	12	257	39	67	603	13	3	1	3	1	13
Min. Length	21.06	16.57	5.59	3.50	21.46	17.68	4.80	5.79	6.50	7.40	13.27	18.19	4.33	6.89	4.72
Max. Length	30.71	31.10	12.72	8.74	30.31	31.89	26.77	38.19	31.10	18.90	17.80	18.19	4.57	6.89	16.18
Mean Length	26.18	21.60	9.62	5.37	26.66	23.72	17.34	11.50	15.41	15.29	15.89	18.19	4.41	6.89	10.58
# Measured	3	21	13	61	12	257	39	67	603	13	3	1	3	1	13
No Lengths for	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: Unless all fish were measured in the catch, totals shown for some length-frequency distributions may differ from the total number of fish in the catch, due to rounding of fractions used in the estimation of length frequency from a subsample of measured fish

Length Frequency Distribution For SEF (for fish < 36.00 inches) (Continued)

Special sampling, electrofishing

(Field work conducted between 05/21/2014 and 10/09/2014)

	<u>LNG</u>	<u>MOE</u>	<u>MUE</u>	<u>NOP</u>	<u>PMK</u>	<u>QBS</u>	<u>RCS</u>	<u>RKB</u>	<u>RRH</u>	<u>SAB</u>	<u>SAR</u>	<u>SHR</u>	<u>SIL</u>	<u>SLR</u>	<u>SMB</u>
< 3.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00 - 3.49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.50 - 3.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.00 - 4.49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.50 - 4.99	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-
5.00 - 5.49	-	-	-	-	1	-	-	-	-	-	3	-	-	-	3
5.50 - 5.99	-	-	-	-	1	-	-	1	-	-	3	-	-	-	4
6.00 - 6.49	-	-	-	-	-	-	-	-	-	-	1	1	1	1	10
6.50 - 6.99	-	-	-	-	-	-	-	-	-	-	3	-	-	-	6
7.00 - 7.49	-	-	-	-	-	-	-	2	-	-	5	-	1	-	11
7.50 - 7.99	-	-	-	-	-	-	-	-	-	-	-	1	1	-	3
8.00 - 8.49	-	-	-	-	1	-	-	-	-	-	1	3	-	-	4
8.50 - 8.99	-	2	-	1	-	-	-	-	-	-	3	6	1	-	4
9.00 - 9.49	-	2	-	-	-	-	1	-	-	-	4	2	-	-	2
9.50 - 9.99	-	2	-	-	-	-	-	-	-	-	4	2	-	-	8
10.00 - 10.49	-	4	-	-	-	1	-	-	-	-	2	2	-	-	2
10.50 - 10.99	-	12	-	-	-	-	1	-	-	-	7	1	-	-	2
11.00 - 11.49	-	11	-	-	-	-	-	-	-	-	2	2	-	-	7
11.50 - 11.99	-	3	-	-	-	-	-	-	-	-	4	-	-	-	3
12.00 - 12.99	-	10	-	-	-	-	-	-	-	-	10	14	-	-	12
13.00 - 13.99	-	13	-	-	-	-	-	-	-	1	7	17	-	-	10
14.00 - 14.99	-	1	-	-	-	-	-	1	-	-	2	61	-	-	11
15.00 - 15.99	-	-	-	-	-	1	-	-	-	1	5	104	-	-	4
16.00 - 16.99	-	-	-	-	-	11	-	-	-	2	4	91	-	2	7
17.00 - 17.99	-	-	-	-	-	25	1	-	-	1	1	47	-	5	2
18.00 - 18.99	-	-	-	-	-	31	2	-	-	2	-	9	2	17	1
19.00 - 19.99	-	-	-	-	-	32	2	-	-	3	-	1	-	14	-
20.00 - 20.99	-	-	-	-	-	22	1	-	6	-	-	1	-	27	-
21.00 - 21.99	-	-	-	-	-	3	2	-	5	8	-	-	-	15	-
22.00 - 22.99	-	-	-	1	-	-	1	-	5	4	-	-	-	23	-
23.00 - 23.99	1	-	-	-	-	-	-	-	2	5	-	-	-	10	-
24.00 - 24.99	1	-	-	-	-	-	1	-	1	9	-	-	-	6	-
25.00 - 25.99	2	-	-	-	-	-	-	-	2	3	-	-	-	-	-
26.00 - 26.99	5	-	-	1	-	-	-	-	-	1	-	-	-	-	-
27.00 - 27.99	2	-	-	1	-	-	-	-	-	3	-	-	-	-	-
28.00 - 28.99	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29.00 - 29.99	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.00 - 30.99	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31.00 - 31.99	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32.00 - 32.99	3	-	1	-	-	-	-	-	-	-	-	-	-	-	-
33.00 - 33.99	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34.00 - 34.99	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35.00 - 35.99	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
= > 36.00	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	<u>LNG</u>	<u>MOE</u>	<u>MUE</u>	<u>NOP</u>	<u>PMK</u>	<u>QBS</u>	<u>RCS</u>	<u>RKB</u>	<u>RRH</u>	<u>SAB</u>	<u>SAR</u>	<u>SHR</u>	<u>SIL</u>	<u>SLR</u>	<u>SMB</u>
Total	49	60	1	4	4	126	12	4	21	43	71	365	6	120	116
Min. Length	23.54	8.86	32.28	8.94	4.72	10.31	9.37	4.53	20.16	13.86	5.20	6.02	6.10	6.38	5.16
Max. Length	44.49	14.25	32.28	27.24	8.07	21.46	24.53	7.40	25.47	27.56	17.32	20.08	18.50	24.57	18.50
Mean Length	31.14	11.65	32.28	21.41	5.91	18.67	18.70	6.25	22.07	22.27	11.05	15.36	11.19	20.71	10.68
# Measured	49	60	1	4	4	126	12	4	21	43	71	365	6	120	116
No Lengths for	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: Unless all fish were measured in the catch, totals shown for some length-frequency distributions may differ from the total number of fish in the catch, due to rounding of fractions used in the estimation of length frequency from a subsample of measured fish

Length Frequency Distribution For SEF (for fish < 36.00 inches) (Continued)

Special sampling, electrofishing

(Field work conducted between 05/21/2014 and 10/09/2014)

	<u>SNG</u>	<u>WAE</u>	<u>WAS</u>	<u>WHB</u>	<u>WTS</u>	<u>YEB</u>	<u>YEP</u>
< 3.00	-	-	-	-	-	-	-
3.00 - 3.49	-	-	-	-	-	-	2
3.50 - 3.99	-	-	-	-	-	-	7
4.00 - 4.49	-	-	-	-	-	-	4
4.50 - 4.99	-	-	-	-	-	1	-
5.00 - 5.49	-	1	-	-	-	-	1
5.50 - 5.99	-	3	-	-	-	-	1
6.00 - 6.49	-	2	-	-	-	-	3
6.50 - 6.99	-	5	-	3	-	-	1
7.00 - 7.49	-	3	-	1	-	-	1
7.50 - 7.99	-	1	-	3	-	-	-
8.00 - 8.49	-	1	-	1	-	-	-
8.50 - 8.99	-	1	-	3	-	-	-
9.00 - 9.49	-	-	-	2	-	-	-
9.50 - 9.99	-	2	1	7	-	-	-
10.00 - 10.49	-	1	-	11	-	-	-
10.50 - 10.99	-	-	-	9	-	-	-
11.00 - 11.49	-	-	-	14	-	-	-
11.50 - 11.99	-	2	-	13	-	-	-
12.00 - 12.99	-	2	-	19	-	-	-
13.00 - 13.99	-	-	-	32	-	-	-
14.00 - 14.99	-	4	-	25	-	-	-
15.00 - 15.99	-	8	-	15	1	-	-
16.00 - 16.99	-	2	-	1	-	-	-
17.00 - 17.99	-	12	-	-	-	-	-
18.00 - 18.99	-	14	-	-	-	-	-
19.00 - 19.99	-	5	-	-	-	-	-
20.00 - 20.99	-	6	-	-	-	-	-
21.00 - 21.99	-	6	-	-	-	-	-
22.00 - 22.99	-	8	-	-	-	-	-
23.00 - 23.99	2	2	-	-	-	-	-
24.00 - 24.99	1	1	-	-	-	-	-
25.00 - 25.99	1	2	-	-	-	-	-
26.00 - 26.99	1	2	-	-	-	-	-
27.00 - 27.99	3	1	-	-	-	-	-
28.00 - 28.99	1	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>SNG</u>	<u>WAE</u>	<u>WAS</u>	<u>WHB</u>	<u>WTS</u>	<u>YEB</u>	<u>YEP</u>
Total	10	98	1	159	1	1	20
Min. Length	23.70	5.00	9.65	6.65	15.16	4.53	3.23
Max. Length	29.06	28.11	9.65	16.14	15.16	4.53	7.17
Mean Length	26.37	16.71	9.65	12.40	15.16	4.53	4.66
# Measured	10	98	1	159	1	1	20
No Lengths for	0	0	0	0	0	0	0

Note: Unless all fish were measured in the catch, totals shown for some length-frequency distributions may differ from the total number of fish in the catch, due to rounding of fractions used in the estimation of length frequency from a subsample of measured fish

STANDARD LAKE SURVEY REPORT
EXTERNAL MANAGEMENT SURVEY DATED 05/01/2014 FOR DOW NUMBER 25-0017-00

DRAFT

Length Frequency Distribution For SEF (for fish \geq 36.00 inches)

Special sampling, electrofishing

(Field work conducted between 05/21/2014 and 10/09/2014)

	<u>AME</u>	<u>BIB</u>	<u>BLC</u>	<u>BLG</u>	<u>BLS</u>	<u>CAP</u>	<u>CCF</u>	<u>FCF</u>	<u>FRD</u>	<u>GIS</u>	<u>GLR</u>	<u>GOE</u>	<u>GSF</u>	<u>HSF</u>	<u>LMB</u>
< 36.00	3	21	13	61	12	257	39	66	603	13	3	1	3	1	13
36.00 - 36.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37.00 - 37.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38.00 - 38.99	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
39.00 - 39.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40.00 - 40.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41.00 - 41.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42.00 - 42.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43.00 - 43.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44.00 - 44.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45.00 - 45.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46.00 - 46.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47.00 - 47.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
48.00 - 48.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
49.00 - 49.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50.00 - 50.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
51.00 - 51.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
52.00 - 52.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
53.00 - 53.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
54.00 - 54.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
55.00 - 55.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
56.00 - 56.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
57.00 - 57.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
58.00 - 58.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
59.00 - 59.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60.00 - 60.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
61.00 - 61.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
62.00 - 62.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
63.00 - 63.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
64.00 - 64.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65.00 - 65.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
66.00 - 66.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
67.00 - 67.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
68.00 - 68.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
69.00 - 69.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70.00 - 70.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
71.00 - 71.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72.00 - 72.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
73.00 - 73.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
74.00 - 74.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75.00 - 75.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
76.00 - 76.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
77.00 - 77.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
= > 78.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	3	21	13	61	12	257	39	67	603	13	3	1	3	1	13
Min. Length	21.06	16.57	5.59	3.50	21.46	17.68	4.80	5.79	6.50	7.40	13.27	18.19	4.33	6.89	4.72
Max. Length	30.71	31.10	12.72	8.74	30.31	31.89	26.77	38.19	31.10	18.90	17.80	18.19	4.57	6.89	16.18
Mean Length	26.18	21.60	9.62	5.37	26.66	23.72	17.34	11.50	15.41	15.29	15.89	18.19	4.41	6.89	10.58
# Measured	3	21	13	61	12	257	39	67	603	13	3	1	3	1	13
No Lengths for	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: Unless all fish were measured in the catch, totals shown for some length-frequency distributions may differ from the total number of fish in the catch, due to rounding of fractions used in the estimation of length frequency from a subsample of measured fish

Length Frequency Distribution For SEF (for fish ≥ 36.00 inches) (Continued)

Special sampling, electrofishing

(Field work conducted between 05/21/2014 and 10/09/2014)

	<u>LNG</u>	<u>MOE</u>	<u>MUE</u>	<u>NOP</u>	<u>PMK</u>	<u>QBS</u>	<u>RCS</u>	<u>RKB</u>	<u>RRH</u>	<u>SAB</u>	<u>SAR</u>	<u>SHR</u>	<u>SIL</u>	<u>SLR</u>	<u>SMB</u>
< 36.00	42	60	1	4	4	126	12	4	21	43	71	365	6	120	116
36.00 - 36.99	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37.00 - 37.99	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38.00 - 38.99	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39.00 - 39.99	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40.00 - 40.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41.00 - 41.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42.00 - 42.99	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43.00 - 43.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44.00 - 44.99	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45.00 - 45.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46.00 - 46.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47.00 - 47.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
48.00 - 48.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
49.00 - 49.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50.00 - 50.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
51.00 - 51.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
52.00 - 52.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
53.00 - 53.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
54.00 - 54.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
55.00 - 55.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
56.00 - 56.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
57.00 - 57.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
58.00 - 58.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
59.00 - 59.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60.00 - 60.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
61.00 - 61.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
62.00 - 62.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
63.00 - 63.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
64.00 - 64.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65.00 - 65.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
66.00 - 66.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
67.00 - 67.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
68.00 - 68.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
69.00 - 69.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70.00 - 70.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
71.00 - 71.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72.00 - 72.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
73.00 - 73.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
74.00 - 74.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75.00 - 75.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
76.00 - 76.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
77.00 - 77.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
= > 78.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	49	60	1	4	4	126	12	4	21	43	71	365	6	120	116
Min. Length	23.54	8.86	32.28	8.94	4.72	10.31	9.37	4.53	20.16	13.86	5.20	6.02	6.10	6.38	5.16
Max. Length	44.49	14.25	32.28	27.24	8.07	21.46	24.53	7.40	25.47	27.56	17.32	20.08	18.50	24.57	18.50
Mean Length	31.14	11.65	32.28	21.41	5.91	18.67	18.70	6.25	22.07	22.27	11.05	15.36	11.19	20.71	10.68
# Measured	49	60	1	4	4	126	12	4	21	43	71	365	6	120	116
No Lengths for	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: Unless all fish were measured in the catch, totals shown for some length-frequency distributions may differ from the total number of fish in the catch, due to rounding of fractions used in the estimation of length frequency from a subsample of measured fish

Length Frequency Distribution For SEF (for fish \geq 36.00 inches) (Continued)

Special sampling, electrofishing

(Field work conducted between 05/21/2014 and 10/09/2014)

	<u>SNG</u>	<u>WAE</u>	<u>WAS</u>	<u>WHB</u>	<u>WTS</u>	<u>YEB</u>	<u>YEP</u>
< 36.00	10	98	1	159	1	1	20
36.00 - 36.99	-	-	-	-	-	-	-
37.00 - 37.99	-	-	-	-	-	-	-
38.00 - 38.99	-	-	-	-	-	-	-
39.00 - 39.99	-	-	-	-	-	-	-
40.00 - 40.99	-	-	-	-	-	-	-
41.00 - 41.99	-	-	-	-	-	-	-
42.00 - 42.99	-	-	-	-	-	-	-
43.00 - 43.99	-	-	-	-	-	-	-
44.00 - 44.99	-	-	-	-	-	-	-
45.00 - 45.99	-	-	-	-	-	-	-
46.00 - 46.99	-	-	-	-	-	-	-
47.00 - 47.99	-	-	-	-	-	-	-
48.00 - 48.99	-	-	-	-	-	-	-
49.00 - 49.99	-	-	-	-	-	-	-
50.00 - 50.99	-	-	-	-	-	-	-
51.00 - 51.99	-	-	-	-	-	-	-
52.00 - 52.99	-	-	-	-	-	-	-
53.00 - 53.99	-	-	-	-	-	-	-
54.00 - 54.99	-	-	-	-	-	-	-
55.00 - 55.99	-	-	-	-	-	-	-
56.00 - 56.99	-	-	-	-	-	-	-
57.00 - 57.99	-	-	-	-	-	-	-
58.00 - 58.99	-	-	-	-	-	-	-
59.00 - 59.99	-	-	-	-	-	-	-
60.00 - 60.99	-	-	-	-	-	-	-
61.00 - 61.99	-	-	-	-	-	-	-
62.00 - 62.99	-	-	-	-	-	-	-
63.00 - 63.99	-	-	-	-	-	-	-
64.00 - 64.99	-	-	-	-	-	-	-
65.00 - 65.99	-	-	-	-	-	-	-
66.00 - 66.99	-	-	-	-	-	-	-
67.00 - 67.99	-	-	-	-	-	-	-
68.00 - 68.99	-	-	-	-	-	-	-
69.00 - 69.99	-	-	-	-	-	-	-
70.00 - 70.99	-	-	-	-	-	-	-
71.00 - 71.99	-	-	-	-	-	-	-
72.00 - 72.99	-	-	-	-	-	-	-
73.00 - 73.99	-	-	-	-	-	-	-
74.00 - 74.99	-	-	-	-	-	-	-
75.00 - 75.99	-	-	-	-	-	-	-
76.00 - 76.99	-	-	-	-	-	-	-
77.00 - 77.99	-	-	-	-	-	-	-
= > 78.00	-	-	-	-	-	-	-

	<u>SNG</u>	<u>WAE</u>	<u>WAS</u>	<u>WHB</u>	<u>WTS</u>	<u>YEB</u>	<u>YEP</u>
Total	10	98	1	159	1	1	20
Min. Length	23.70	5.00	9.65	6.65	15.16	4.53	3.23
Max. Length	29.06	28.11	9.65	16.14	15.16	4.53	7.17
Mean Length	26.37	16.71	9.65	12.40	15.16	4.53	4.66
# Measured	10	98	1	159	1	1	20
No Lengths for	0	0	0	0	0	0	0

Note: Unless all fish were measured in the catch, totals shown for some length-frequency distributions may differ from the total number of fish in the catch, due to rounding of fractions used in the estimation of length frequency from a subsample of measured fish

Survey Crew Notes

Ongoing monitoring of fish populations by Northern States Power (Xcel Energy) staff as part of Prairie Island Nuclear Generating Plant Monitoring Program

Field Notes - General Field

This sampling was conducted to fulfill part of the continuing environmental monitoring requirements of the Prairie Island Nuclear Generating Plant (PINGP), the Mississippi River fisheries population was sampled near Red Wing, Minnesota, May through October. The study area extends from 3.6 miles upstream of the plant (River Mile 802) to 10.8 miles downstream of the plant (River Mile 787.5). The original objective of the study was to "determine existing ecological characteristics before plant operation and to assess any significant changes to the aquatic environment after operation" (NSP 1972). The Objective was changed slightly after the plant became operational in 1973; to "determine environmental effects of the PINGP on the fish community in the Mississippi River and its backwaters" (Hawkinson 1973). Presently, the objective is to monitor and assess the status of the fishery in the vicinity of the PINGP (Mueller 1994). All included citations can be found in the "Prairie Island Nuclear Generating Plant Environmental Monitoring and Ecological Studies Program □ 2012 Annual Report" available in the Lake City Fisheries Office

Attachment 2: Pool 4





Minnesota Department of Natural Resources
Fisheries Management



STANDARD LAKE SURVEY REPORT

DRAFT VERSION - PRELIMINARY DATA (AS OF 02/13/2015)

Lake Name: U.S. Lock & Dam #4 Pool

Survey Type: External Management Survey

DOW Number: 79-0005-00

Survey ID Date: 05/01/2014

Lake Identification

Alternate Lake Name: N/A
Primary Lake Class ID:

DNR Sounding Map Number: N/A
Alternate Lake Class ID: N/A

Lake Location

Primary County: Wabasha

Nearest Town: Wabasha

Legal Descriptions

Lake Center: Township - 111N Range - 10W Section - 35
PLS Section Lake Center: 11101035

All Legal Descriptions:

Wabasha County: Township - 110N	Range - 10W	Sections - 1, 2, 3, 12
Township - 110N	Range - 9W	Sections - 7, 17, 18
Township - 111N	Range - 10W	Sections - 19, 20, 28, 29, 30, 32, 33, 34, 35
Township - 111N	Range - 11W	Sections - 13, 14, 23, 24

Area Office

Area Name: Lake City
Region Name: Central

ORG Code: F317
Region Number: 3

Lake Characteristics

Lake Area (planimetered acres): N/A	GIS Shoreline Length (miles): 49.52
GIS Lake Area (acres): 2612.35	Maximum Fetch (miles): N/A
DOW Lake Area (acres): 5660.00	Fetch Orientation (degrees): N/A
Littoral Area (acres): 0.00	USGS Quad Map Number: U22c
Area in MN (acres): 2612.34	USGS Quad 24K GIS Index: 4143
Maximum Depth (feet): N/A	
Mean Depth (feet): N/A	

Watershed Characteristics

Major Watershed

Name: Miss R-Winona
Watershed Number: 40
Watershed size (acres): 419,200

Minor Watershed

Name: Mississippi R
Watershed Number: 1
Watershed size (acres): 36,523

Surveys And Investigations

Population Assessment: 06/30/2014, 06/13/2011.

Special Assessment: 04/30/2013, 05/01/2011, 05/10/2010, 06/03/2009, 08/04/2008, 06/04/2008, 08/08/2007,
10/05/2006.

Dissolved Oxygen Check: 02/01/2007.

Investigational Survey: 09/06/2006.

External Management Survey: 05/01/2014, 05/01/2013, 05/01/2012, 05/01/2011, 05/01/2010, 05/01/2009, 05/01/2008,
05/01/2007, 05/01/2006, 05/01/2005, 05/01/2004, 05/01/2003.

Natural Reproduction Catch Summary for SEF

Special sampling, electrofishing

Total run-time for all stations: 49999999:57:00
 Total on-time for all stations: 22:34:22
 First Sampling Date: 05/19/2014
 Last Sampling Date: 10/07/2014
 Daylight Sampling: Yes
 Target Species: N/A

Abbr	Species	Age	Total Number	Number Measured	Mean Length (inches)	Length Range (inches)		Catch Rates (number per hour)	
						Min	Max	Run-Time	On-Time
BIB	Bigmouth Buffalo	All	37	37	22.87	14.41	32.68	0.00	1.64
BLC	Black Crappie	All	21	21	9.86	3.94	12.40	0.00	0.93
BLS	Blue Sucker	All	7	7	21.37	17.36	27.36	0.00	0.31
BLG	Bluegill	All	50	50	7.02	4.53	9.45	0.00	2.22
BOF	Bowfin (Dogfish)	All	37	37	23.32	15.16	29.06	0.00	1.64
BNT	Brown Trout	All	1	1	11.85	11.85	11.85	0.00	0.04
BUB	Burbot	All	2	2	12.97	11.22	14.72	0.00	0.09
CCF	Channel Catfish	All	10	10	22.20	16.54	26.57	0.00	0.44
CAP	Common Carp	All	355	355	24.34	17.91	36.42	0.00	15.73
FCF	Flathead Catfish	All	36	36	13.69	5.91	38.58	0.00	1.59
FRD	Freshwater Drum	All	601	601	14.49	6.38	29.53	0.00	26.62
GIS	Gizzard Shad	All	9	9	14.71	12.60	17.52	0.00	0.40
GLR	Golden Redhorse	All	7	7	15.59	13.46	18.03	0.00	0.31
GSF	Green Sunfish	All	5	5	5.01	3.62	6.38	0.00	0.22
LMB	Largemouth Bass	All	176	176	14.36	3.62	18.90	0.00	7.80
LNG	Longnose Gar	All	25	25	30.10	17.40	37.80	0.00	1.11
MOE	Mooneye	All	72	72	11.77	8.94	13.86	0.00	3.19
NOP	Northern Pike	All	19	19	24.12	8.98	33.86	0.00	0.84
QBS	Quillback	All	67	67	18.64	14.37	21.57	0.00	2.97
RCS	River Carpsucker	All	1	1	18.70	18.70	18.70	0.00	0.04
RKB	Rock Bass	All	7	7	5.71	4.13	7.36	0.00	0.31
SAR	Sauger	All	107	107	9.16	5.91	17.05	0.00	4.74
SHR	Shorthead Redhorse	All	157	157	15.85	6.14	19.61	0.00	6.96
SNG	Shortnose Gar	All	8	8	24.09	21.10	27.60	0.00	0.35
SIL	Silver Lamprey	All	4	4	8.45	7.44	10.63	0.00	0.18
SLR	Silver Redhorse	All	42	42	20.55	15.59	24.06	0.00	1.86
SMB	Smallmouth Bass	All	172	172	11.03	5.16	20.47	0.00	7.62
SAB	Smallmouth Buffalo	All	16	16	23.62	18.94	28.74	0.00	0.71
WAE	Walleye	All	73	73	18.05	4.72	28.19	0.00	3.23
WHB	White Bass	All	332	332	13.03	6.69	17.40	0.00	14.71
WHC	White Crappie	All	1	1	11.50	11.50	11.50	0.00	0.04

Length Frequency Distribution For SEF (for fish < 36.00 inches)

Special sampling, electrofishing

(Field work conducted between 05/19/2014 and 10/07/2014)

	<u>BIB</u>	<u>BLC</u>	<u>BLG</u>	<u>BLS</u>	<u>BNT</u>	<u>BOF</u>	<u>BUB</u>	<u>CAP</u>	<u>CCF</u>	<u>FCF</u>	<u>FRD</u>	<u>GIS</u>	<u>GLR</u>	<u>GSF</u>	<u>LMB</u>
< 3.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00 - 3.49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.50 - 3.99	-	1	-	-	-	-	-	-	-	-	-	-	-	1	2
4.00 - 4.49	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
4.50 - 4.99	-	-	2	-	-	-	-	-	-	-	-	-	-	1	1
5.00 - 5.49	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
5.50 - 5.99	-	-	4	-	-	-	-	-	-	1	-	-	-	1	2
6.00 - 6.49	-	1	1	-	-	-	-	-	-	1	2	-	-	1	1
6.50 - 6.99	-	-	11	-	-	-	-	-	-	-	1	-	-	-	-
7.00 - 7.49	-	-	9	-	-	-	-	-	-	2	3	-	-	-	-
7.50 - 7.99	-	1	11	-	-	-	-	-	-	3	-	-	-	-	-
8.00 - 8.49	-	1	3	-	-	-	-	-	-	2	3	-	-	-	1
8.50 - 8.99	-	1	3	-	-	-	-	-	-	1	4	-	-	-	2
9.00 - 9.49	-	2	2	-	-	-	-	-	-	-	1	-	-	-	1
9.50 - 9.99	-	3	-	-	-	-	-	-	-	1	7	-	-	-	1
10.00 - 10.49	-	3	-	-	-	-	-	-	-	2	10	-	-	-	-
10.50 - 10.99	-	2	-	-	-	-	-	-	-	1	29	-	-	-	-
11.00 - 11.49	-	1	-	-	-	-	1	-	-	1	39	-	-	-	4
11.50 - 11.99	-	1	-	-	1	-	-	-	-	1	51	-	-	-	3
12.00 - 12.99	-	4	-	-	-	-	-	-	-	1	75	1	-	-	18
13.00 - 13.99	-	-	-	-	-	-	-	-	-	6	75	1	1	-	23
14.00 - 14.99	1	-	-	-	-	-	1	-	-	6	87	5	3	-	46
15.00 - 15.99	2	-	-	-	-	1	-	-	-	2	56	1	1	-	23
16.00 - 16.99	2	-	-	-	-	-	-	-	1	-	32	-	-	-	27
17.00 - 17.99	1	-	-	1	-	-	-	1	-	1	31	1	1	-	17
18.00 - 18.99	1	-	-	-	-	3	-	4	1	-	25	-	1	-	4
19.00 - 19.99	3	-	-	1	-	-	-	10	1	-	23	-	-	-	-
20.00 - 20.99	4	-	-	2	-	3	-	23	-	-	20	-	-	-	-
21.00 - 21.99	6	-	-	1	-	5	-	43	2	-	15	-	-	-	-
22.00 - 22.99	3	-	-	1	-	4	-	45	-	-	5	-	-	-	-
23.00 - 23.99	3	-	-	-	-	9	-	51	2	-	3	-	-	-	-
24.00 - 24.99	-	-	-	-	-	2	-	45	-	-	2	-	-	-	-
25.00 - 25.99	1	-	-	-	-	2	-	46	2	1	1	-	-	-	-
26.00 - 26.99	1	-	-	-	-	4	-	28	1	1	-	-	-	-	-
27.00 - 27.99	1	-	-	1	-	3	-	20	-	-	-	-	-	-	-
28.00 - 28.99	3	-	-	-	-	-	-	17	-	-	-	-	-	-	-
29.00 - 29.99	-	-	-	-	-	1	-	7	-	-	1	-	-	-	-
30.00 - 30.99	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-
31.00 - 31.99	4	-	-	-	-	-	-	3	-	-	-	-	-	-	-
32.00 - 32.99	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-
33.00 - 33.99	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-
34.00 - 34.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35.00 - 35.99	-	-	-	-	-	-	-	2	-	1	-	-	-	-	-
= > 36.00	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-
Total	37	21	50	7	1	37	2	355	10	36	601	9	7	5	176
Min. Length	14.41	3.94	4.53	17.36	11.85	15.16	11.22	17.91	16.54	5.91	6.38	12.60	13.46	3.62	3.62
Max. Length	32.68	12.40	9.45	27.36	11.85	29.06	14.72	36.42	26.57	38.58	29.53	17.52	18.03	6.38	18.90
Mean Length	22.87	9.86	7.02	21.37	11.85	23.32	12.97	24.34	22.20	13.69	14.49	14.71	15.59	5.01	14.36
# Measured	37	21	50	7	1	37	2	355	10	36	601	9	7	5	176
No Lengths for	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: Unless all fish were measured in the catch, totals shown for some length-frequency distributions may differ from the total number of fish in the catch, due to rounding of fractions used in the estimation of length frequency from a subsample of measured fish

STANDARD LAKE SURVEY REPORT
EXTERNAL MANAGEMENT SURVEY DATED 05/01/2014 FOR DOW NUMBER 79-0005-00

DRAFT

Length Frequency Distribution For SEF (for fish < 36.00 inches) (Continued)

Special sampling, electrofishing

(Field work conducted between 05/19/2014 and 10/07/2014)

	<u>LNG</u>	<u>MOE</u>	<u>NOP</u>	<u>QBS</u>	<u>RCS</u>	<u>RKB</u>	<u>SAB</u>	<u>SAR</u>	<u>SHR</u>	<u>SIL</u>	<u>SLR</u>	<u>SMB</u>	<u>SNG</u>	<u>WAE</u>	<u>WHB</u>
< 3.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00 - 3.49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.50 - 3.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.00 - 4.49	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
4.50 - 4.99	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-
5.00 - 5.49	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
5.50 - 5.99	-	-	-	-	-	-	-	2	-	-	-	1	-	2	-
6.00 - 6.49	-	-	-	-	-	1	-	1	1	-	-	9	-	1	-
6.50 - 6.99	-	-	-	-	-	2	-	4	-	-	-	12	-	1	2
7.00 - 7.49	-	-	-	-	-	1	-	9	1	2	-	13	-	-	1
7.50 - 7.99	-	-	-	-	-	-	-	17	-	-	-	10	-	-	9
8.00 - 8.49	-	-	-	-	-	-	-	18	1	1	-	7	-	1	4
8.50 - 8.99	-	1	1	-	-	-	-	18	1	-	-	5	-	-	6
9.00 - 9.49	-	3	-	-	-	-	-	7	-	-	-	14	-	-	3
9.50 - 9.99	-	3	-	-	-	-	-	6	1	-	-	6	-	1	4
10.00 - 10.49	-	6	-	-	-	-	-	5	1	-	-	9	-	-	11
10.50 - 10.99	-	12	-	-	-	-	-	3	1	1	-	8	-	-	16
11.00 - 11.49	-	9	-	-	-	-	-	1	1	-	-	4	-	-	17
11.50 - 11.99	-	5	-	-	-	-	-	4	-	-	-	3	-	-	22
12.00 - 12.99	-	16	-	-	-	-	-	3	4	-	-	12	-	3	34
13.00 - 13.99	-	17	-	-	-	-	-	3	10	-	-	16	-	1	72
14.00 - 14.99	-	-	-	2	-	-	-	3	11	-	-	12	-	6	87
15.00 - 15.99	-	-	1	1	-	-	-	2	38	-	2	11	-	2	32
16.00 - 16.99	-	-	-	2	-	-	-	-	40	-	3	7	-	6	11
17.00 - 17.99	1	-	2	14	-	-	-	1	34	-	1	8	-	8	1
18.00 - 18.99	-	-	-	21	1	-	1	-	9	-	5	2	-	5	-
19.00 - 19.99	-	-	-	19	-	-	-	-	3	-	5	-	-	7	-
20.00 - 20.99	-	-	-	6	-	-	1	-	-	-	6	1	-	8	-
21.00 - 21.99	-	-	-	2	-	-	3	-	-	-	4	-	2	7	-
22.00 - 22.99	-	-	3	-	-	-	-	-	-	-	7	-	2	2	-
23.00 - 23.99	1	-	3	-	-	-	4	-	-	-	8	-	-	2	-
24.00 - 24.99	-	-	2	-	-	-	2	-	-	-	1	-	1	4	-
25.00 - 25.99	-	-	-	-	-	-	3	-	-	-	-	-	1	2	-
26.00 - 26.99	1	-	2	-	-	-	1	-	-	-	-	-	1	2	-
27.00 - 27.99	4	-	-	-	-	-	-	-	-	-	-	-	1	-	-
28.00 - 28.99	3	-	-	-	-	-	1	-	-	-	-	-	-	1	-
29.00 - 29.99	2	-	2	-	-	-	-	-	-	-	-	-	-	-	-
30.00 - 30.99	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31.00 - 31.99	5	-	1	-	-	-	-	-	-	-	-	-	-	-	-
32.00 - 32.99	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-
33.00 - 33.99	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-
34.00 - 34.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35.00 - 35.99	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
= > 36.00	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	<u>LNG</u>	<u>MOE</u>	<u>NOP</u>	<u>QBS</u>	<u>RCS</u>	<u>RKB</u>	<u>SAB</u>	<u>SAR</u>	<u>SHR</u>	<u>SIL</u>	<u>SLR</u>	<u>SMB</u>	<u>SNG</u>	<u>WAE</u>	<u>WHB</u>
Total	25	72	19	67	1	7	16	107	157	4	42	172	8	73	332
Min. Length	17.40	8.94	8.98	14.37	18.70	4.13	18.94	5.91	6.14	7.44	15.59	5.16	21.10	4.72	6.69
Max. Length	37.80	13.86	33.86	21.57	18.70	7.36	28.74	17.05	19.61	10.63	24.06	20.47	27.60	28.19	17.40
Mean Length	30.10	11.77	24.12	18.64	18.70	5.71	23.62	9.16	15.85	8.45	20.55	11.03	24.09	18.05	13.03
# Measured	25	72	19	67	1	7	16	107	157	4	42	172	8	73	332
No Lengths for	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: Unless all fish were measured in the catch, totals shown for some length-frequency distributions may differ from the total number of fish in the catch, due to rounding of fractions used in the estimation of length frequency from a subsample of measured fish

Length Frequency Distribution For SEF (for fish < 36.00 inches) (Continued)

Special sampling, electrofishing

(Field work conducted between 05/19/2014 and 10/07/2014)

	<u>WHC</u>
< 3.00	-
3.00 - 3.49	-
3.50 - 3.99	-
4.00 - 4.49	-
4.50 - 4.99	-
5.00 - 5.49	-
5.50 - 5.99	-
6.00 - 6.49	-
6.50 - 6.99	-
7.00 - 7.49	-
7.50 - 7.99	-
8.00 - 8.49	-
8.50 - 8.99	-
9.00 - 9.49	-
9.50 - 9.99	-
10.00 - 10.49	-
10.50 - 10.99	-
11.00 - 11.49	-
11.50 - 11.99	1
12.00 - 12.99	-
13.00 - 13.99	-
14.00 - 14.99	-
15.00 - 15.99	-
16.00 - 16.99	-
17.00 - 17.99	-
18.00 - 18.99	-
19.00 - 19.99	-
20.00 - 20.99	-
21.00 - 21.99	-
22.00 - 22.99	-
23.00 - 23.99	-
24.00 - 24.99	-
25.00 - 25.99	-
26.00 - 26.99	-
27.00 - 27.99	-
28.00 - 28.99	-
29.00 - 29.99	-
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>WHC</u>
Total	1
Min. Length	11.50
Max. Length	11.50
Mean Length	11.50
# Measured	1
No Lengths for	0

Note: Unless all fish were measured in the catch, totals shown for some length-frequency distributions may differ from the total number of fish in the catch, due to rounding of fractions used in the estimation of length frequency from a subsample of measured fish

STANDARD LAKE SURVEY REPORT
EXTERNAL MANAGEMENT SURVEY DATED 05/01/2014 FOR DOW NUMBER 79-0005-00

DRAFT

Length Frequency Distribution For SEF (for fish \geq 36.00 inches)

Special sampling, electrofishing

(Field work conducted between 05/19/2014 and 10/07/2014)

	<u>BIB</u>	<u>BLC</u>	<u>BLG</u>	<u>BLS</u>	<u>BNT</u>	<u>BOF</u>	<u>BUB</u>	<u>CAP</u>	<u>CCF</u>	<u>FCF</u>	<u>FRD</u>	<u>GIS</u>	<u>GLR</u>	<u>GSF</u>	<u>LMB</u>
< 36.00	37	21	50	7	1	37	2	354	10	35	601	9	7	5	176
36.00 - 36.99	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
37.00 - 37.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38.00 - 38.99	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
39.00 - 39.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40.00 - 40.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41.00 - 41.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42.00 - 42.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43.00 - 43.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44.00 - 44.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45.00 - 45.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46.00 - 46.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47.00 - 47.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
48.00 - 48.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
49.00 - 49.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50.00 - 50.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
51.00 - 51.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
52.00 - 52.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
53.00 - 53.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
54.00 - 54.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
55.00 - 55.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
56.00 - 56.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
57.00 - 57.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
58.00 - 58.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
59.00 - 59.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60.00 - 60.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
61.00 - 61.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
62.00 - 62.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
63.00 - 63.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
64.00 - 64.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65.00 - 65.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
66.00 - 66.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
67.00 - 67.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
68.00 - 68.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
69.00 - 69.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70.00 - 70.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
71.00 - 71.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72.00 - 72.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
73.00 - 73.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
74.00 - 74.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75.00 - 75.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
76.00 - 76.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
77.00 - 77.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
= > 78.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	37	21	50	7	1	37	2	355	10	36	601	9	7	5	176
Min. Length	14.41	3.94	4.53	17.36	11.85	15.16	11.22	17.91	16.54	5.91	6.38	12.60	13.46	3.62	3.62
Max. Length	32.68	12.40	9.45	27.36	11.85	29.06	14.72	36.42	26.57	38.58	29.53	17.52	18.03	6.38	18.90
Mean Length	22.87	9.86	7.02	21.37	11.85	23.32	12.97	24.34	22.20	13.69	14.49	14.71	15.59	5.01	14.36
# Measured	37	21	50	7	1	37	2	355	10	36	601	9	7	5	176
No Lengths for	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: Unless all fish were measured in the catch, totals shown for some length-frequency distributions may differ from the total number of fish in the catch, due to rounding of fractions used in the estimation of length frequency from a subsample of measured fish

Length Frequency Distribution For SEF (for fish ≥ 36.00 inches) (Continued)

Special sampling, electrofishing

(Field work conducted between 05/19/2014 and 10/07/2014)

	<u>LNG</u>	<u>MOE</u>	<u>NOP</u>	<u>QBS</u>	<u>RCS</u>	<u>RKB</u>	<u>SAB</u>	<u>SAR</u>	<u>SHR</u>	<u>SIL</u>	<u>SLR</u>	<u>SMB</u>	<u>SNG</u>	<u>WAE</u>	<u>WHB</u>
< 36.00	22	72	19	67	1	7	16	107	157	4	42	172	8	73	332
36.00 - 36.99	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37.00 - 37.99	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38.00 - 38.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39.00 - 39.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40.00 - 40.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41.00 - 41.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42.00 - 42.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43.00 - 43.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44.00 - 44.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45.00 - 45.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46.00 - 46.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47.00 - 47.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
48.00 - 48.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
49.00 - 49.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50.00 - 50.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
51.00 - 51.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
52.00 - 52.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
53.00 - 53.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
54.00 - 54.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
55.00 - 55.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
56.00 - 56.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
57.00 - 57.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
58.00 - 58.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
59.00 - 59.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60.00 - 60.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
61.00 - 61.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
62.00 - 62.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
63.00 - 63.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
64.00 - 64.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65.00 - 65.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
66.00 - 66.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
67.00 - 67.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
68.00 - 68.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
69.00 - 69.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70.00 - 70.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
71.00 - 71.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72.00 - 72.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
73.00 - 73.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
74.00 - 74.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75.00 - 75.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
76.00 - 76.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
77.00 - 77.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
= > 78.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	25	72	19	67	1	7	16	107	157	4	42	172	8	73	332
Min. Length	17.40	8.94	8.98	14.37	18.70	4.13	18.94	5.91	6.14	7.44	15.59	5.16	21.10	4.72	6.69
Max. Length	37.80	13.86	33.86	21.57	18.70	7.36	28.74	17.05	19.61	10.63	24.06	20.47	27.60	28.19	17.40
Mean Length	30.10	11.77	24.12	18.64	18.70	5.71	23.62	9.16	15.85	8.45	20.55	11.03	24.09	18.05	13.03
# Measured	25	72	19	67	1	7	16	107	157	4	42	172	8	73	332
No Lengths for	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: Unless all fish were measured in the catch, totals shown for some length-frequency distributions may differ from the total number of fish in the catch, due to rounding of fractions used in the estimation of length frequency from a subsample of measured fish

Length Frequency Distribution For SEF (for fish \geq 36.00 inches) (Continued)

Special sampling, electrofishing

(Field work conducted between 05/19/2014 and 10/07/2014)

	<u>WHC</u>
< 36.00	1
36.00 - 36.99	-
37.00 - 37.99	-
38.00 - 38.99	-
39.00 - 39.99	-
40.00 - 40.99	-
41.00 - 41.99	-
42.00 - 42.99	-
43.00 - 43.99	-
44.00 - 44.99	-
45.00 - 45.99	-
46.00 - 46.99	-
47.00 - 47.99	-
48.00 - 48.99	-
49.00 - 49.99	-
50.00 - 50.99	-
51.00 - 51.99	-
52.00 - 52.99	-
53.00 - 53.99	-
54.00 - 54.99	-
55.00 - 55.99	-
56.00 - 56.99	-
57.00 - 57.99	-
58.00 - 58.99	-
59.00 - 59.99	-
60.00 - 60.99	-
61.00 - 61.99	-
62.00 - 62.99	-
63.00 - 63.99	-
64.00 - 64.99	-
65.00 - 65.99	-
66.00 - 66.99	-
67.00 - 67.99	-
68.00 - 68.99	-
69.00 - 69.99	-
70.00 - 70.99	-
71.00 - 71.99	-
72.00 - 72.99	-
73.00 - 73.99	-
74.00 - 74.99	-
75.00 - 75.99	-
76.00 - 76.99	-
77.00 - 77.99	-
= > 78.00	-

	<u>WHC</u>
Total	1
Min. Length	11.50
Max. Length	11.50
Mean Length	11.50
# Measured	1
No Lengths for	0

Note: Unless all fish were measured in the catch, totals shown for some length-frequency distributions may differ from the total number of fish in the catch, due to rounding of fractions used in the estimation of length frequency from a subsample of measured fish

Survey Crew Notes

Ongoing monitoring of fish populations by Northern States Power (Xcel Energy) staff as part of Prairie Island Nuclear Generating Plant Monitoring Program

Field Notes - General Field

This sampling was conducted to fulfill part of the continuing environmental monitoring requirements of the Prairie Island Nuclear Generating Plant (PINGP), the Mississippi River fisheries population was sampled near Red Wing, Minnesota, May through October. The study area extends from 3.6 miles upstream of the plant (River Mile 802) to 10.8 miles downstream of the plant (River Mile 787.5). The original objective of the study was to "determine existing ecological characteristics before plant operation and to assess any significant changes to the aquatic environment after operation" (NSP 1972). The Objective was changed slightly after the plant became operational in 1973; to "determine environmental effects of the PINGP on the fish community in the Mississippi River and its backwaters" (Hawkinson 1973). Presently, the objective is to monitor and assess the status of the fishery in the vicinity of the PINGP (Mueller 1994). All included citations can be found in the "Prairie Island Nuclear Generating Plant Environmental Monitoring and Ecological Studies Program □ 2012 Annual Report" available in the Lake City Fisheries Office
