

NA87AA-D-CZ080

TASK VI.D.

SUPERIOR HARBOR DREDGED MATERIALS DISPOSAL REPORT

San Francisco Coastal Zone Management Program

COASTAL ZONE
INFORMATION CENTER

TC
187
A55
1989
V.2



Economic Development District
1 Street, San Francisco, CA 94104 • 756-2107

TECHNICAL APPENDIX

**SUPERIOR HARBOR
DREDGED MATERIALS
DISPOSAL REPORT**

TECHNICAL APPENDIX

1989

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Appendix I

Temperature and Oxygen Profiles

Bunge Slip Site

Sample form

November 15, 1988
Water Depth 5.5-8m

No ice

Bunge Slip Sampling Site

Physical/Chemical Data

Sample Depth (m)	Temperature °C	Oxygen (ppm)
Surface	3.0	12.2
1	2.5	12.2
2	2.5	12.3
3	2.5	12.3
4	2.4	12.3
5	2.5	12.3
5.5 (bottom)	2.6	12.3

December 9, 1988

Bunge Slip Sampling Site

Water Depth 5.5-8m

12 cm ice

Physical/Chemical Data

Sample Depth (m)	Temperature °C	Oxygen (ppm)
Surface	0.4	11.0
1	0.4	10.9
2	0.5	10.8
4	0.5	10.6
6	1.0	10.5
7	1.0	8.6
(bottom)		

December 22, 1988
Water Depth 5.5-7.8m

Bunge Slip Sampling Site
31.2 cm ice

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature (C)</u>	<u>Oxygen (ppm)</u>
Surface	0.1	10.8
1	0.0	10.8
2	0.0	10.6
3	0.0	10.6
4	0.0	10.5
5	0.1	10.4
6	0.1	10.3
7	0.1	10.2
7.8 (bottom)	0.1	10.2

December 29, 1988
Water Depth 5.5-7.5m

Bunge Slip Sampling Site
42 cm ice

Physical/Chemical Data

Sample Depth (m)	Temperature (C)	Oxygen (ppm)
Surface	0.0	10.3
1	0.0	10.6
2	0.0	10.4
3	0.0	10.2
4	0.0	10.0
5	0.0	10.0
6	0.0	9.9
7	0.1	9.8
7.5 (bottom)	0.1	9.8

January 11, 1989
Water Depth 5.5-7.8m

Bunge Slip Sampling Site
46 cm ice

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	0.0	10.4
1	0.0	10.3
2	0.0	10.2
3	0.0	10.2
4	0.0	10.2
5	0.0	10.2
6	0.0	10.1
7	0.0	10.0
7.8 (bottom)	0.0	8.8

January 26, 1989
Water Depth 7.5 - 8m

Bunge Slip Sampling Site
Ice 53-60cm

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	-1.0	10.4
1	-1.0	10.4
2	-1.0	10.2
3	-0.8	10.0
4	-0.8	10.0
5	-0.8	9.8
6	-0.5	9.7
7	-0.5	9.3
8	-0.2	5.9

February 16, 1989

Bunge Slip Sampling Site

Water Depth 4.0 - 7.5 m

Ice Depth - 68 cm

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	0.0	12.4
1	0.0	12.2
2	0.0	12.2
3	0.0	12.0
4	0.0	11.9
5	0.0	11.8
6	0.0	11.8
7	0.0	11.6
(bottom)	0.0	11.2

March 10, 1989

Bunge Slip Sampling Site

Water Depth 3.5 - 7.5 m

Ice Thickness - 64 cm

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	0.0	11.4
1	0.0	11.6
2	0.0	11.6
3	0.0	11.5
4	0.0	11.4
5	0.0	11.4
6	0.0	11.4
7	0.0	11.2
(bottom)	0.0	11.2

April 24, 1989

Bunge Slip Sampling Site

Water Depth 4.5 - 7.5 m

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	3.0	11.9
1	3.0	11.9
2	3.0	11.9
3	3.0	11.8
4	3.0	11.8
5	3.0	12.0
6	3.0	12.0
7	3.0	12.0
(bottom)	3.0	12.0

May 6, 1989

Bunge Slip Sampling Site

Water Depth 5.0 - 6.0 m

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	6.9	11.0
2	6.9	11.0
4	6.5	10.4
6	6.5	10.0
(bottom)		

May 8, 1989

Bunge Slip Sampling Site

Water Depth 5.0 - 7.5 m

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	8.2	11.3
1	8.0	11.2
2	7.8	10.5
3	7.2	10.6
4	7.0	10.4
5	6.8	10.4
6	6.0	10.0
7	6.0	10.0
(bottom)	6.0	10.0

May 13, 1989

Bunge Slip Sampling Site

Water Depth 5.0 - 8.0 m

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	11.9	9.6
1	10.3	9.6
2	10.0	9.4
3	10.0	9.3
4	9.9	9.4
5	9.8	9.4
6	9.5	9.2
7	9.0	9.2
(bottom)	8.9	9.0

May 16, 1989

Bunge Slip Sampling Site

Water Depth 8.0 m

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	15.5	10.4
1	15.1	10.3
2	14.0	10.1
3	12.5	9.5
4	11.4	9.5
5	11.2	9.3
6	11.0	9.4
7	10.5	9.4
8	10.2	9.5

May 20, 1989

Bunge Slip Sampling Site

Water Depth 7.0 m

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	13.9	9.4
1	13.9	9.5
2	13.1	9.3
3	12.5	10.2
4	12.2	10.1
5	12.1	10.2
6	12.0	10.1
7	11.9	10.1

May 22, 1989

Bunge Slip Sampling Site

Water Depth 7.5 m

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	16.1	9.6
1	15.3	9.6
2	14.2	9.3
3	13.8	9.0
4	13.5	9.0
5	13.0	8.8
6	12.5	8.7
7	12.0	8.4
7.5	12.0	8.4

May 25, 1989

Bunge Slip Sampling Site

Water Depth 5.5m

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	12.8	8.6
1	12.8	8.6
2	12.8	8.6
3	12.5	8.6
4	12.4	8.6
5	12.3	8.6
5.5	12.2	8.7

June 1, 1989

Bunge Slip Sampling Site

Water Depth 5.0 - 8.0 m

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	13.5	10.8
1	12.0	10.6
2	11.5	10.4
3	11.0	10.8
4	11.0	10.6
5	10.9	10.5
6	10.2	10.5
7	10.2	10.4
8	10.2	11.4

June 5, 1989

Bunge Slip Sampling Site

Water Depth 7.5m

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	13.9	10.6
1	13.9	10.7
2	13.9	10.7
3	12.9	10.8
4	12.1	10.6
5	12.1	10.6
6	12.0	10.5
7	11.8	10.4
7.5	11.4	10.0

June 8, 1989

Bunge Slip Sampling Site

Water Depth 8.0m

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	9.8	12.4
1	9.5	12.4
2	9.2	12.3
3	9.2	12.4
4	9.2	12.4
5	9.0	12.3
6	9.0	12.4
7	9.0	12.2
8	8.8	11.9

June 9, 1989

Bunge Slip Sampling Site

Water Depth 7.0m

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	10.9	11.8
1	10.5	11.2
2	10.0	11.0
3	10.0	11.8
4	9.9	10.7
5	9.9	10.4
6	10.0	10.5
7	9.8	10.4

June 15, 1989

Bunge Slip Sampling Site

Water Depth 8.0m

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	10.0	10.5
1	9.9	10.8
2	9.8	10.7
3	9.6	10.5
4	9.5	10.6
5	9.5	10.7
6	9.5	10.7
7	9.2	10.6
8	9.2	10.6

Physical/Chemical Data

July 10, 1989

Bunge Slip Sampling Site

Water Depth 6.5 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	18.2	10.2
1	17.4	10.0
2	16.2	9.5
3	15.5	9.5
4	15.2	9.6
5	15.0	9.5
6	14.7	9.9
(bottom)	14.2	9.7

Physical/Chemical Data

July 14, 1989

Bunge Slip Sampling Site

Water Depth 7.0 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	16.5	9.9
1	16.5	9.8
2	16.2	9.7
3	14.0	9.2
4	13.5	9.5
5	12.7	10.2
6	12.3	10.4
(bottom)	12.0	9.5

Physical/Chemical Data

July 17, 1989

Bunge Slip Sampling Site

Water Depth 6.0 - 9.0 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	17.5	10.6
1	15.0	10.5
2	14.0	10.5
3	14.0	10.2
4	13.5	9.9
5	13.0	9.9
6	13.0	10.2
7	12.8	9.9
(bottom)	12.5	9.7

Physical/Chemical Data

July 24, 1989

Bunge Slip Sampling Site

Water Depth 7.3 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	19.6	10.4
1	17.5	10.5
2	16.8	10.3
3	16.2	10.0
4	15.5	9.3
5	14.5	7.6
6	13.8	7.8
7	13.2	7.2
(bottom)	13.0	6.3

Physical/Chemical Data

July 28, 1989

Bunge Slip Sampling Site

Water Depth 7.2 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	17.0	10.2
1	17.0	10.1
2	17.0	9.8
3	16.5	9.7
4	15.0	10.5
5	14.6	10.5
6	14.5	10.6
7	14.0	10.4
(bottom)	14.0	10.2

Physical/Chemical Data

August 1, 1989

Bunge Slip Sampling Site

Water Depth 8.0 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	15.5	10.2
1	15.5	10.0
2	14.5	10.0
3	14.0	10.0
4	14.0	9.9
5	14.0	10.2
6	14.0	9.8
7	13.5	8.6
(bottom)	13.5	8.3

Physical/Chemical Data

August 2, 1989

Bunge Slip Sampling Site

Water Depth 6.0 - 7.5 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	16.0	9.8
1	16.0	9.9
2	15.5	10.0
3	15.0	10.0
4	14.8	9.9
5	14.0	9.5
(bottom)	10.8	9.1

Physical/Chemical Data

August 4, 1989

Bunge Slip Sampling Site

Water Depth 7.0 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	16.0	10.2
1	15.3	10.3
2	15.0	10.6
3	14.5	10.8
4	14.2	10.9
5	14.1	11.0
6	14.0	11.0
(bottom)	13.9	11.4

Physical/Chemical Data

August 7, 1989

Bunge Slip Sampling Site

Water Depth 7.6 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	14.2	10.2
1	14.0	10.2
2	13.5	9.8
3	13.2	9.8
4	13.1	9.8
5	13.0	9.8
6	13.0	9.7
7	13.0	9.8
(bottom)	13.0	9.4

Physical/Chemical Data

August 14, 1989

Bunge Slip Sampling Site

Water Depth 7.5 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	19.0	8.7
1	18.7	8.5
2	18.3	8.5
3	17.5	8.6
4	17.0	8.7
5	15.9	8.8
6	15.2	8.8
7	13.5	8.8
(bottom)	12.8	8.2

Physical/Chemical Data

August 16, 1989

Bunge Slip Sampling Site

Water Depth 4.5 - 7.0 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	18.0	8.4
1	17.5	7.8
2	17.0	8.2
3	17.0	8.0
4	16.5	8.0
5	16.5	8.2
6	16.0	7.8
7	15.0	7.5
(bottom)	15.5	7.5

Physical/Chemical Data

August 21, 1989

Bunge Slip Sampling Site

Water Depth 7.5 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	18.8	8.6
1	17.8	8.6
2	18.7	7.8
3	18.2	7.7
4	18.0	7.4
5	17.5	7.3
6	17.2	7.0
7	17.2	6.7
(bottom)	17.2	6.2

Physical/Chemical Data

August 24, 1989

Bunge Slip Sampling Site

Water Depth 5.5 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	18.3	8.3
1	18.0	8.2
2	18.0	8.2
3	17.7	8.1
4	17.7	7.9
5	17.5	7.5
(bottom)	17.5	7.5

Physical/Chemical Data

August 28, 1989

Bunge Slip Sampling Site

Water Depth 7.0 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	21.0	8.5
1	21.0	8.3
2	20.8	8.3
3	20.2	7.7
4	20.0	7.6
5	19.8	7.7
6	19.5	6.9
(bottom)	19.5	6.7

Physical/Chemical Data

August 29, 1989

Bunge Slip Sampling Site

Water Depth 5.0 - 7.0 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	20.0	7.6
1	20.0	7.6
2	20.0	7.5
3	20.0	7.8
4	20.0	7.8
5	19.8	7.4
(bottom)	19.5	7.9

Physical/Chemical Data

September 5, 1989

Bunge Slip Sampling Site

Water Depth 7.3m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	18.2	7.8
1	18.0	7.8
2	17.8	7.7
3	17.8	7.7
4	17.8	7.6
5	17.8	7.7
6	17.5	7.6
7	17.5	7.6
(bottom)	17.5	7.6

Physical/Chemical Data

September 8, 1989

Bunge Slip Sampling Site

Water Depth 7.6 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	20.5	9.0
1	19.5	8.5
2	19.3	8.3
3	19.0	8.2
4	19.0	8.2
5	19.0	8.2
6	18.5	7.9
7	18.5	7.9
(bottom)	18.5	7.9

Physical/Chemical Data

September 12, 1989

Bunge Slip Sampling Site

Water Depth 7.5 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	16.5	7.4
1	16.4	7.3
2	16.2	7.4
3	16.2	7.4
4	16.0	7.4
5	16.0	7.6
6	15.8	7.8
7	15.8	7.9
(bottom)	15.6	8.0

Physical/Chemical Data

September 14, 1989

Bunge Slip Sampling Site

Water Depth 6.0 - 7.0 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	15.2	8.6
1	15.2	8.4
2	15.2	8.6
3	14.9	8.5
4	15.0	8.8
5	13.5	8.9
6	13.2	9.0
(bottom)	13.3	8.9

Appendix II
Temperature and Oxygen Profiles
Interstate Hole Site

November 17, 1988

Interstate Island Sampling Site

Water Depth 9 - 10m

No ice

Physical/Chemical Data

Sample Depth (m)	Temperature °C	Oxygen (ppm)
Surface	2.0	13.1
1	2.0	13.1
2	2.0	13.1
3	1.9	13.0
4	2.0	13.0
5	2.0	13.0
6	2.0	12.9
7	2.0	12.8
8	2.0	12.8
9	2.0	12.8
9.5 (bottom)	2.0	12.8

November 28, 1988

Interstate Island Sampling Site

Water Depth 8-10m

Ice 3/4 to 1/2" at sampling site

Physical/Chemical Data

Sample Depth (m)	Temperature °C	Oxygen (ppm)
Surface	0.8	11.6
1	0.8	11.4
2	0.8	11.4
3	0.8	11.4
4	0.8	11.4
5	0.8	11.4
6	0.9	11.4
7	0.9	11.4
8	1.0	11.4
(bottom)		

January 5, 1989
Water Depth 8 - 9m

Interstate Sampling Site
27 cm ice

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature (C)</u>	<u>Oxygen (ppm)</u>
Surface	0.0	10.4
1	0.0	10.3
2	0.0	10.0
3	0.0	10.1
4	0.0	10.2
5	0.0	10.1
6	0.0	10.0
7	0.0	10.1
8	0.0	10.1
9 (bottom)	0.0	10.1

January 15, 1989
Water Depth 8.5 - 10m

Interstate Sampling Site
Ice depth 40cm

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	0.0	8.4
1	0.0	8.2
2	0.0	9.2
3	0.0	9.4
4	0.0	9.6
5	0.0	9.6
6	0.0	9.6
7	0.0	9.5
8	0.0	9.4
(bottom)	0.0	9.8

February 6, 1980
Water Depth 9.0m

Interstate Island Sampling Site
Ice Thickness 48cm

Physical/Chemical Data

Sample Depth (m)	Temperature °C	Oxygen (ppm)
Surface	-1.0	10.1
1	-1.0	10.1
2	-1.0	10.05
3	-0.9	10.0
4	-0.9	9.9
5	-0.9	9.9
6	-0.8	9.9
7	-0.8	9.9
8	-0.8	9.5
9 (bottom)	-0.8	9.0

February 23, 1989

Interstate Sampling Site

Water Depth 5.5 - 9 m

Ice Depth - 58 cm

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	0.0	11.6
1	0.0	11.5
2	0.0	11.6
3	0.0	11.6
4	0.0	11.5
5	0.0	11.5
6	0.0	11.5
7	0.0	11.4
8	0.0	11.4
(bottom)	0.0	11.4

March 9, 1989

Interstate Sampling Site

Water Depth 5.5-8.5

Ice Thickness - 60 cm

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	0.0	11.6
1	0.0	11.6
2	0.0	11.6
3	0.0	11.6
4	0.0	11.6
5	0.0	11.6
6	0.0	11.6
7	0.0	11.6
8	0.0	11.6
(bottom)	0.0	11.6

April 17, 1989

Interstate Sampling Site

Water Depth 10 m

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	1.5	12.4
1	1.5	12.5
2	1.5	12.6
3	1.5	12.6
4	1.5	12.7
5	1.5	12.7
6	1.5	12.7
7	1.5	12.7
8	1.5	12.7
9	1.5	12.7
10	1.5	12.7

May 1, 1989

Interstate Sampling Site

Water Depth 6.5 - 9.5 m

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	6.9	10.1
1	6.9	10.1
2	6.9	10.1
3	6.9	9.9
4	6.9	9.9
5	6.9	9.9
6	6.9	9.9
7	6.9	9.9
8	6.5	9.8
9	6.5	9.8
(bottom)	6.5	9.8

May 7, 1989
Water Depth 6.5-11m

Interstate Sampling Site

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	8.8	9.9
1	8.5	9.9
2	8.1	10.0
3	8.0	10.0
4	7.8	10.0
5	7.5	10.1
6	7.0	10.2
7	6.9	10.3
8	6.8	10.4
9	6.8	10.2
10	6.7	10.0
11	6.5	8.0

May 11, 1989

Interstate Sampling Site

Water Depth 6.5 - 9.0m

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	10.3	10.05
1	10.1	10.05
2	10.1	10.10
3	10.0	10.10
4	10.0	10.20
5	9.9	10.20
6	9.5	10.40
7	9.5	10.40
8	9.5	10.60
9	9.8	10.60

May 13, 1989

Interstate Sampling Site

Water Depth 6.5 - 10m

Physical/Chemical Data

<u>Sample depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	11.0	10.2
1	11.0	10.2
2	11.0	10.2
3	10.9	10.2
4	10.8	10.2
5	10.5	10.2
6	10.2	10.5
7	10.2	10.4
8	10.0	10.4
9	9.5	10.4
10	9.5	10.5

May 15, 1989

Interstate Sampling Site

Water Depth 5.5 - 9 m

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	13.4	9.6
1	13.0	9.4
2	12.8	9.6
3	12.3	9.6
4	11.4	9.8
5	10.4	9.8
6	10.3	9.8
7	10.0	9.8
8	9.8	9.9
(bottom)	9.7	9.6

May 20, 1989

Interstate Sampling Site

Water Depth 8.5m

Physical/Chemical Data

Sample depth (m)	Temperature °C	Oxygen (ppm)
Surface	14.1	9.4
1	14.1	9.4
2	14.1	9.3
3	14.0	9.2
4	14.0	9.2
5	14.0	9.2
6	14.0	9.2
7	13.9	9.2
8	12.5	9.1
8.5	11.9	9.0

May 22, 1989

Interstate Sampling Site

Water Depth 8.5m

Physical/Chemical Data

Sample depth (m)	Temperature °C	Oxygen (ppm)
Surface	15.0	8.8
1	15.0	8.8
2	14.8	8.8
3	14.8	8.7
4	14.5	8.7
5	14.5	8.5
6	14.0	8.5
7	13.0	8.4
8	12.9	8.3
8.5	12.9	8.3

May 25, 1989

Interstate Sampling Site

Water Depth 9m

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	14.6	8.1
1	14.6	8.1
2	14.5	8.1
3	14.5	8.1
4	14.5	8.1
5	14.5	8.1
6	14.4	8.2
7	14.4	8.2
8	14.4	8.4
9	14.3	8.6

May 30, 1989

Interstate Sampling Site

Water Depth 6.5 - 9.0m

Physical/Chemical Data

<u>Sample depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	12.0	9.9
1	12.0	9.7
2	12.0	9.7
3	12.0	9.7
4	12.0	9.7
5	12.0	9.7
6	12.0	9.5
7	12.0	9.6
8	12.0	9.4
9	12.0	9.0

June 1, 1989

Interstate Sampling Site

Water Depth 9.0m

Physical/Chemical Data

<u>Sample depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	13.2	10.2
1	13.1	10.2
2	13.0	10.3
3	12.2	10.3
4	12.0	10.2
5	12.0	10.3
6	12.0	10.3
7	12.0	10.4
8	12.0	10.4
9	12.0	10.4

June 5, 1989

Interstate Sampling Site

Water Depth 10.0m

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	14.0	9.8
1	14.4	9.7
2	14.2	9.6
3	14.1	9.6
4	14.0	9.5
5	14.0	9.5
6	14.0	9.5
7	14.0	9.5
8	13.9	9.5
9	13.7	9.6
10	13.5	9.5

June 9, 1989

Interstate Sampling Site

Water Depth 8.5m

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	12.2	9.6
1	12.2	9.6
2	12.0	9.6
3	11.9	9.6
4	11.9	9.6
5	11.9	9.5
6	11.9	9.6
7	11.9	9.5
8	11.8	9.3
8.5	11.8	9.6

June 14, 1989

Interstate Sampling Site

Water Depth 10.0m

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	11.0	10.2
1	11.0	10.1
2	11.0	10.2
3	11.0	10.1
4	11.0	10.0
5	11.0	10.1
6	11.0	10.1
7	11.0	10.1
8	11.0	10.1
9	11.0	10.0
10	11.0	9.8

June 15, 1989

Interstate Sampling Site

Water Depth 11.7m

Physical/Chemical Data

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	11.3	10.8
1	11.2	10.3
2	11.1	10.2
3	10.1	11.1
4	10.1	11.1
5	11.0	10.0
6	11.0	10.0
7	11.0	10.0
8	11.0	10.0
9	11.0	9.9
10	11.0	9.9
11	11.0	9.9
11.7	11.0	9.7

Physical/Chemical Data

July 10, 1989

Interstate Sampling Site

Water Depth 8.8 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	18.6	8.9
1	18.5	8.6
2	18.5	8.9
3	18.5	8.9
4	18.3	9.2
5	18.1	9.0
6	18.0	8.9
7	18.0	8.8
8	18.0	8.8
9	18.0	8.8
(bottom)	18.0	8.8

Physical/Chemical Data

July 12, 1989

Interstate Sampling Site

Water Depth 7.0 - 10.0 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	16.5	9.6
1	16.5	9.3
2	16.5	9.1
3	16.4	9.0
4	16.4	9.0
5	16.3	8.9
6	16.2	8.9
7	16.2	8.9
8	16.2	8.9
9	16.2	8.9
10	16.2	8.9
(bottom)	16.2	8.8

Physical/Chemical Data

July 14, 1989

Interstate Sampling Site

Water Depth 8.8 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	16.4	9.5
1	16.4	9.3
2	16.2	9.4
3	16.0	9.4
4	16.0	9.5
5	16.2	9.5
6	16.3	9.4
7	16.1	9.4
8	16.0	9.5
9	15.8	9.6
(bottom)	15.8	9.9

Physical/Chemical Data

July 17, 1989

Interstate Sampling Site

Water Depth 8.5 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	13.5	9.5
1	13.5	9.2
2	13.5	9.2
3	13.3	9.1
4	13.2	9.1
5	13.0	9.1
6	13.0	9.0
7	13.0	9.0
8	13.0	9.1
(bottom)	13.0	9.3

Physical/Chemical Data

July 24, 1989

Interstate Sampling Site

Water Depth 8.5 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	19.0	10.3
1	19.0	10.4
2	18.0	10.0
3	17.0	9.5
4	17.0	9.4
5	16.5	8.7
6	16.0	8.6
7	16.0	8.5
8	16.0	8.2
9	16.0	8.2
(bottom)	16.0	8.2

Physical/Chemical Data

July 25, 1989

Interstate Sampling Site

Water Depth 7.0 - 10.0 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	18.9	10.2
1	19.0	10.0
2	18.9	10.2
3	17.5	9.8
4	17.2	9.6
5	16.7	9.2
6	17.2	8.6
7	17.2	8.6
8	15.9	8.2
(bottom)	15.8	7.5

Physical/Chemical Data

July 28, 1989

Interstate Sampling Site

Water Depth 8.8 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	16.3	8.8
1	16.4	8.8
2	16.4	8.8
3	16.4	8.9
4	16.2	8.9
5	16.2	8.9
6	16.2	9.0
7	16.2	9.1
8	16.0	9.1
(bottom)	16.0	9.1

Physical/Chemical Data

August 1, 1989

Interstate Sampling Site

Water Depth 10.0 m

Sample Depth (m)	Temperature °C	Oxygen (ppm)
Surface	15.2	9.5
1	15.2	9.5
2	15.2	9.5
3	15.0	9.5
4	15.0	9.3
5	15.0	9.2
6	15.0	9.1
7	15.0	9.2
8	14.5	9.2
9	14.5	8.4
(bottom)	14.5	8.5

Physical/Chemical Data

August 4, 1989

Interstate Sampling Site

Water Depth 11.0 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	17.0	9.5
1	17.0	9.5
2	17.0	9.4
3	17.0	9.6
4	17.0	9.6
5	17.0	9.7
6	16.5	9.6
7	16.5	9.7
8	16.0	9.1
9	16.0	8.6
10	15.5	8.5
(bottom)	15.5	8.0

Physical/Chemical Data

August 9, 1989

Interstate Sampling Site

Water Depth 7.0 - 10.0 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	16.0	12.0
1	15.5	12.0
2	14.0	11.0
3	13.5	10.8
4	13.5	10.4
5	13.2	10.4
6	13.0	10.0
7	13.0	10.0
8	13.0	9.4
9	13.0	9.2
(bottom)	13.0	9.4

Physical/Chemical Data

August 14, 1989

Interstate Sampling Site

Water Depth 8.8 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	18.5	8.9
1	18.5	9.2
2	18.5	9.3
3	18.7	9.1
4	18.7	8.4
5	18.7	8.6
6	18.5	8.5
7	18.5	8.5
8	18.5	8.4
9	18.4	8.5
(bottom)	18.2	8.6

Physical/Chemical Data

August 21, 1989

Interstate Sampling Site

Water Depth 8.5 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	18.9	8.4
1	18.8	8.4
2	18.8	8.3
3	18.8	8.3
4	18.5	8.1
5	18.2	8.0
6	18.2	8.0
7	18.2	8.0
8	18.1	8.0
(bottom)	18.0	8.3

Physical/Chemical Data

August 23, 1989

Interstate Sampling Site

Water Depth 4.5 - 9.5 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	18.8	8.4
1	18.7	8.3
2	18.7	8.3
3	18.7	8.2
4	18.5	8.1
5	18.3	8.0
6	18.2	8.0
7	18.2	8.0
(bottom)	18.1	8.3

Physical/Chemical Data

August 24, 1989

Interstate Sampling Site

Water Depth 8.8 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	18.5	8.0
1	18.5	7.9
2	18.5	8.0
3	18.5	7.9
4	18.5	8.2
5	18.5	8.0
6	18.5	7.8
7	18.5	7.8
8	18.5	8.0
9	18.5	7.9
(bottom)	18.5	7.7

Physical/Chemical Data

August 28, 1989

Interstate Sampling Site

Water Depth 9.5 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	20.2	7.6
1	20.2	7.5
2	20.2	7.4
3	20.2	7.4
4	20.2	7.6
5	20.2	7.5
6	20.2	7.5
7	20.2	7.4
8	20.0	7.6
9	20.0	7.5
(bottom)	20.0	7.3

Physical/Chemical Data

September 5, 1989

Interstate Sampling Site

Water Depth 11.0 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	19.0	7.7
1	19.0	7.6
2	19.0	7.6
3	19.0	7.6
4	18.8	7.4
5	18.8	7.5
6	18.8	7.6
7	18.8	7.7
8	18.8	7.7
9	18.8	7.7
10	18.8	8.1
11	18.8	8.0
(bottom)	19.0	8.0

Physical/Chemical Data

September 8, 1989

Interstate Sampling Site

Water Depth 9.8 m

Sample Depth (m)	Temperature °C	Oxygen (ppm)
Surface	20.0	8.1
1	20.0	8.1
2	20.0	8.1
3	20.0	8.0
4	20.0	8.1
5	20.0	8.1
6	20.0	8.2
7	20.0	8.1
8	20.0	8.1
9	20.0	8.1
10	20.0	8.2
(bottom)	20.0	8.2

Physical/Chemical Data

September 12, 1989

Interstate Sampling Site

Water Depth 11.5 m

<u>Sample Depth (m)</u>	<u>Temperature °C</u>	<u>Oxygen (ppm)</u>
Surface	17.2	7.7
1	17.2	7.7
2	17.2	7.6
3	17.2	7.6
4	17.2	7.5
5	17.2	7.6
6	17.2	7.6
7	17.2	7.7
8	17.2	8.0
9	17.2	8.2
10	17.0	7.8
11	17.0	7.8
(bottom)	17.0	7.9

Appendix III

Gill Net Catch Records

Bunge Slip Site

Catch data from 24 hr gill net set

Bunge Slip - November 15, 1988

Number caught (in parentheses) and lengths

Mesh Size	Troutperch	Bullhead	Rock Bass	White Sucker	Yellow Perch	Spottail Shiner
1"	(48) 7 90-99mm 19 100-109mm 21 110-119mm 1 120-129mm					(1) 110mm
1 1/2"		(1) 163mm		(2) 147 mm 157 mm	(5) 3 140mm 2 145mm	
2"					(1) 227mm	
2 1/2"		(7) 2 210-219mm 3 220-229mm 1 240mm 1 254mm				
3"		(3) 232, 245, 275mm			(1) 280 mm	
3 1/2"		(8) 2 240-249mm 2 250-259mm 2 260-269mm 2 270-279mm	(1) 215mm	(3) 390mm 401mm 411mm	(1) 274mm	
4"		(2) 280, 301mm	(1) 250mm	(2) 408, 419mm		
Total	48	21	2	7	8	1
Grand total = 67 fish						

Catch data from 24 hr gill net set

Bunge Slip - December 9, 1988

Number caught (in parentheses) and lengths

Mesh Size	Troutperch	Burbot	White Sucker
1"	(9)		
		6 100-109mm	
		3 110-119mm	
1 1/2"			
2"			
2 1/2"		(1) 355mm	
3"			
3 1/2"			
4"			(3) 421, 429, 444mm
Total	9	1	3
Grand Total = 13 fish			

Catch data from 24 hr gill net set

Bunge Slip - December 22, 1988

Number caught (in parentheses) and lengths

Mesh Size	Troutperch	Walleye	White Perch
1"	(8) 6 100-109mm 1 110-119mm 1 120-129mm		
1 1/2"			
2"			
2 1/2"			
3"		(1) 333 mm	
3 1/2"			(1) 247 mm
4"			
Total	8	1	1

Grand Total = 10 fish

Catch data from 24 hr gill net set

Bunge Slip - December 29, 1988

Number caught (in parentheses) and lengths

Mesh Size	Troutperch	Northern	White Sucker	Ruffe
1"	(16) 5 90- 99mm 11 100-109mm			
1 1/2"				
2"				(1) 157 mm
2 1/2"				
3"		(1) 496 mm		
3 1/2"			(2) 420, 451 mm	
4"			(1) 404 mm	
Total	16	1	3	1
Grand Total = 21 fish				

Catch data from 24 hr gill net set

Bunge Slip - January 11, 1989

Number caught (in parentheses) and lengths

Mesh Size	Troutperch	Burbot	White Sucker	Northern Pike	Ruffe
1"	(24)				
	2	90- 99mm			
	12	100-109mm			
	9	110-119mm			
	1	120-129mm			
1 1/2"					(1) 155 mm
2"					
2 1/2"					
3"				(1) 632 mm	
3 1/2"		(1) 480 mm			
4"			(1) 427 mm	(1) 715 mm	
Total	24	1	1	2	1

Grand Total = 29 fish

Catch data from 24 hr gill net set

Bunge Slip - January 26, 1989

Number caught (in parentheses) and lengths

Mesh Size	Troutperch	Burbot	White Sucker	Northern Pike	Yellow Perch
1"	(12) 1 90-100mm 7 100-110mm 4 110-120mm				
1 1/2"					
2"					
2 1/2"					
3"			(1) 315mm	(1) 550mm	
3 1/2"		(1) 555mm	(4) 2 380-390mm 1 390-400mm 1 400-410mm		(1) 265mm
4"			(4) 1 390-400mm 1 400-410mm 2 410-420mm		
Total	12	1	9	1	1
Grand Total = 24 fish					

Catch data from 24 hr gill net set

Bunge Slip - February 16, 1989

Number caught (in parentheses) and lengths

Mesh Size	Troutperch	Northern	White Sucker
1"	(16) 3 90-99 mm 11 100-109mm 2 110-119mm		
1 1/2"			
2"			
2 1/2"		(1) 618mm	
3"			
3 1/2"			
4"			(2) 405, 428 mm
Total	16	1	2
Grand Total = 19 fish			

Catch data from 24 hr gill net set

Bunge Slip - March 10, 1989

Number caught (in parentheses) and lengths

Mesh Size	Troutperch	Ruffe	White Sucker	Smelt	Northern Pike
1"	(15) 6 90-99 mm 9 100-109mm			(3) 139, 142, 150 mm	
1 1/2"		(1) 114 mm			
2"					
2 1/2"					
3"					
3 1/2"			(1) 147 mm		(1) 741 mm
4"			(1) 147 mm		
Total	15	1	2	3	1
Grand Total = 22 fish					

Catch data from 24 hr gill net set

Bunge Slip - April 24, 1989

Number caught (in parentheses) and lengths

Mesh Size	Troutperch	Ruffe	Long Nose Sucker	Smelt	Spottail Shiner	Yellow Perch	Lake Chub
1"	(40)	(1)		(11)	(9)		
1 1/2"				(4)		(5) 130-145 mm	(1)
2"		(1)	(1) 380 mm			(1) 180 mm	
2 1/2"				(1)			
3"			(1) 340 mm				
3 1/2"							
4"							
Total	40	2	2	16	9	6	1

Grand Total = 76 fish

Catch data from 24 hr gill net set

Bunge Slip - May 8, 1989

Number caught (in parentheses) and lengths

Mesh Size	Troutperch	Yellow Perch	Burbot	Walleye	Black Bullhead
1"	(6)				
1 1/2"		(1) 143 mm			
2"					
2 1/2"			(1) 356 mm		
3"				(2) 328, 340 mm	
3 1/2"					
4"					(1) 255 mm
Total	6	1	1	2	1

Grand Total = 11 fish

Catch data from 24 hr gill net set

Bunge - May 23, 1989

Number caught (in parentheses) and lengths

Mesh Size	White Sucker	Longnose Sucker	Yellow Perch	Trout-Perch	Emerald Shiner	Ruffe
1"				(9) 4 90-109 mm 5 110-129 mm	(1) 122 mm	
1 1/2"		(1) 160 mm	(4) 138, 140, 149, 150 mm			(1) 135 mm
2"			(1) 187 mm			
2 1/2"	(5) 2 270-289 mm 3 290-309 mm		(1) 231 mm			
3"	(3) 341, 370, 425 mm					
3 1/2"	(1) 305 mm					
4"						
Total	9	1	6	9	1	1

Grand Total = 27 fish

Catch data from 24 hr gill net set

Bunge Slip - June 8, 1989

Number caught (in parentheses) and lengths

Mesh Size	Burbot	White Sucker	Troutperch	Black Bullhead	Yellow Perch
1"			(9) 9 95-105 mm	(1) 98 mm	
1 1/2"				(1) 135 mm	(1) 130 mm
2"					(1) 225 mm
2 1/2"					(1) 228 mm
3"				(1) 231 mm	(3) 265, 270 286 mm
3 1/2"		(1) 437 mm			
4"	(1) 574 mm				
Total	1	1	9	3	6

Grand Total = 20 fish

Catch data from 24 hr gill net set

Bunge Slip - June 20-21, 1989

Number caught (in parentheses) and lengths

Mesh Size	Burbot	White Sucker	Redhorse Sucker	Yellow Perch	Troutperch
1"					(1) 101 mm
1 1/2"				(1) 142 mm	
2"				(2) 148, 184 mm	
2 1/2"					
3"		(2) 349, 430 mm	(1) 410 mm	(1) 292 mm	
3 1/2"	(1) 469 mm	(2) 377, 414 mm			
4"		(1) 414 mm			
Total	1	5	1	4	1

Grand Total = 12 fish

Catch data from 24 hr gill net set

Bunge Slip - July 5-6, 1989

Number caught (in parentheses) and lengths

Mesh Size	Walleye	Redhorse Sucker	Yellow Perch	Lake Herring	Sturgeon
1"					
1 1/2"					
2"		(1) 224 mm	(1) 200 mm	(1) 286 mm	
2 1/2"					
3"	(1) 364 mm	(5) 344, 379, 379 381, 396 mm			
3 1/2"		(3) 421, 436, 441 mm			(1) 435 mm
4"		(3) 469, 474, 475 mm			
Total	1	12	1	1	1
Grand Total = 16 fish					

Catch data from 24 hr gill net set

Bunge Slip - July 17-18, 1989

Number caught (in parentheses) and lengths

Mesh Size	Trout Perch	Redhorse	Ruffe	Black Bullhead	Yellow Perch	White Sucker
1"	(1) 104 mm					
1 1/2"					(10) 3 120-139mm 7 140-159mm	
2"			(1) 172 mm		(1) 180 mm	(1) 280 mm
2 1/2"					(4) 215, 226mm 226, 262mm	
3"		(1) 407 mm				(1) 429 mm
3 1/2"				(1) 267 mm	(2) 294, 395mm	(2) 336, 340mm
4"		(2) 435, 440 mm				(2) 398, 475mm
Total	1	3	1	1	17	6

Grand Total = 29 fish

Catch data from 24 hr gill net set

Bunge Slip - August 2-3, 1989

Number caught (in parentheses) and lengths

Mesh Size	Yellow Perch	Walleye	Black Bullhead	Carp	White Sucker
1"	(1) 100 mm				
1 1/2"	(1) 144 mm				
2"	(9) 145, 172, 173, 190, 195, 199, 203, 215, 221 mm		(2) 149, 167 mm		
2 1/2"	(2) 230, 239 mm	(1) 348 mm		(1) 237 mm	
3"	(1) 282 mm		(4) 220, 250, 255, 264 mm		
3 1/2"					
4"					(1) 405 mm
Total	14	1	6	1	1
Grand Total = 23 fish					

Catch data from 24 hr gill net set

Bunge Slip - August 15-16, 1989

Number caught (in parentheses) and lengths

Mesh Size	Yellow Perch	Smelt	Walleye	Ruffe	Black Bullhead	Redhorse Sucker	White Sucker
1"	(1) 127mm	(1) 125mm					
1 1/2"	(1) 137mm			(1) 128mm	(1) 125mm		
2"	(3) 180, 204, 206mm		(2) 240, 271mm		(5) 137, 140, 150, 160, 182mm		(1) 245mm
2 1/2"	(6) 223, 232, 248, 275, 294, 295mm						
3"	(1) 254mm					(1) 360mm	
3 1/2"							
4"						(2) 432, 446mm	
Total	12	1	2	1	6	3	1

Grand Total = 26 fish

Catch data from 24 hr gill net set

Bunge Slip - August 29-30, 1989

Number caught (in parentheses) and lengths

Mesh Size	Spottail Shiner	White Perch	North. Pike	Trout Perch	Ruffe	Yellow Perch	Black Bullhead	White Sucker
1"	(2) 104, 107mm			(2) 109, 109mm		(2) 107, 109mm		
1 1/2"					(2) 124mm 155mm	(5) 142, 145, 157, 165, 188mm		
2"		(1) 191mm				(3) 183, 216, 244mm	(3) 170, 173, 185mm	
2 1/2"		(1) 216mm				(9) 208, 218, 229, 244, 251, 254, 264, 279, 282mm		
3"			(1) 660mm					
3 1/2"						(5) 254, 267, 279, 284, 292mm		
4"						(2) 284, 300mm	(2) 417, 434mm	
Total	2	2	1	2	2	19	10	2
Grand Total = 40 fish								

Catch data from 24 hr gill net set

Bunge Slip - September 13-14, 1989

Number caught (in parentheses) and lengths

Mesh Size	Trout Perch	White Bass	Black Bullhead	Red-horse	Yel. Perch	White Sucker	Ruffe
1"	(2) 106, 126mm						
1 1/2"		Bl. crappie (1) 142mm			(4) 140, 145 147, 161mm		(2) 130, 135mm
2"	LN Sucker (1) 207mm	(3) 180, 192mm	(13) 6 160-179mm 3 180-199mm 3 200-219mm 1 295mm		(9) 106, 160, 170, 171, 196, 207, 211, 232, 240mm	(2) 203, 273mm	
2 1/2"		(5) 195, 200, 200 201, 219mm	(1) 225mm	(1) 277mm	(6) 205, 211, 220 232, 248, 257mm	(2) 275, 277mm	
3"		(2) 200, 215mm	(9) 7 240-260mm 220, 282mm	L. Trout (1) 603mm		(2) 352, 360mm	
3 1/2"				(3) 404, 405 414mm	(1) 294mm	(1) 440mm	
4"		No. Pike (1) 685mm		(1) 415mm			
Total	2 1	1 10	1	23	5 1	20	7 2
Grand Total = 73 fish							

Appendix IV
Gill Net Catch Records
Interstate Hole Site

Catch data from 24 hr gill net set
 Interstate Island - November 17, 1988

Number caught (in parentheses) and lengths

Mesh Size	Troutperch	Walleye	Yellow Perch	Ruffe	Spottail Shiner
1"				124 mm	(1)
1 1/2"	(1) 105 mm				(1) 116 mm
2"					
2 1/2"		(1) 280 mm	(1) 266 mm		
3"					
3 1/2"					
4"					
Total	1	1	1	1	1

Grand Total = 5 fish

Catch data from 24 hr gill net set
Interstate Island - November 28, 1988

Number caught (in parentheses) and lengths

Mesh Size	Troutperch	Burbot	Spottail Shiner
1"	(2) 106 mm		(1) 105 mm
1 1/2"			
2"			
2 1/2"			
3"			
3 1/2"			
4"		(2) 470, 560 mm	
Total	2	2	1

Grand total = 5 fish

Catch data from 24 hr gill net set
Interstate Island - January 5, 1989

Number caught (in parentheses) and lengths

Mesh Size	Troutperch
1"	(1) 104 mm
1 1/2"	
2"	
2 1/2"	
3"	
3 1/2"	
4"	
Total	1
Grand Total	= 1 fish

Catch data from 24 hr gill net set
Interstate site - January 15, 1989

Number caught (in parentheses) and lengths

Mesh Size	Ruffe	Walleye
1"	(1) 93mm	
1 1/2"		
2"		
2 1/2"		(1) 313mm
3"		
3 1/2"		
4"		
Total	1	1
Grand Total =	2 fish	

Catch data from 24 hr gill net set
Interstate Island - February 6, 1989

Number caught (in parentheses) and lengths

Mesh Size	Troutperch
1"	(2) 110mm, 115mm
1 1/2"	
2"	
2 1/2"	
3"	
3 1/2"	
4"	
Total	2
Grand Total = 2 fish	

Catch data from 24 hr gill net set

Interstate - February 23, 1989

Number caught (in parentheses) and lengths

Mesh Size	Smelt
1"	(1) 156 mm
1 1/2"	
2"	
2 1/2"	
3"	
3 1/2"	
4"	
Total	1
Grand Total	= 1 fish

Catch data from 24 hr gill net set

Interstate - March 9, 1989

Number caught (in parentheses) and lengths

Mesh Size	Smelt
1"	(1) 149 mm
1 1/2"	
2"	
2 1/2"	
3"	
3 1/2"	
4"	
Total	1
Grand Total	= 1 fish

Catch data from 24 hr gill net set

Interstate - April 17-19, 1989

Number caught (in parentheses) and lengths

Mesh Size	Smelt	Walleye	Ruffe	Burbot	White Sucker
1"	(55)				
1 1/2"	(1) 195 mm		(1) 131 mm		
2"					(1) 256 mm
2 1/2"					
3"					
3 1/2"		(1) 358 mm			
4"		(1) 415 mm		(3) 520, 552, 470 mm	
Total	56	2	1	3	1
Grand Total = 63 fish					

Catch data from 48 hr gill net set

Interstate - May 1, 1989

Number caught (in parentheses) and lengths

Mesh Size	Troutperch	Ruffe	White Sucker	Smelt
1"	(2) 118, 115 mm			(427) 18 71- 90 mm 116 91-100 mm 137 101-120 mm 125 121-140 mm 45 141-160 mm 36 161-180 mm
1 1/2"				(29) 3 161-180 mm 14 181-200 mm 7 201-220 mm 3 221-260 mm 2 281-300 mm
2"		(1) 160 mm	(4) 205-230 mm	
2 1/2"				
3"				
3 1/2"				
4"				
Total	2	1	4	456
Grand Total = 463 fish				

Catch data from 24 hr gill net set

Interstate - May 15, 1989

Number caught (in parentheses) and lengths

Mesh Size	Smelt	Troutperch	Yellow Perch	Longnose Sucker	White Sucker
1"	(23) 1 121-140 mm 7 141-160 mm 15 161-180 mm	(6)			
1 1/2"					
2"			(1) 188 mm	(1) 377 mm	
2 1/2"					(1) 280 mm
3"				(3) 365, 385, 411 mm	(1) 364 mm
3 1/2"					
4"					
Total	23	6	1	4	2
Grand Total = 36 fish					

Catch data from 24 hr gill net set

Interstate - May 30, 1989

Number caught (in parentheses) and lengths

Mesh Size	Walleye	White Sucker	Yellow Perch	Troutperch
1"			(1) 110 mm	(1) 92 mm
1 1/2"				
2"	(1) 360 mm			
2 1/2"				
3"		(1) 353 mm	(1) 310 mm	
3 1/2"		(5) 397, 400, 405 420, 434 mm		
4"		(4) 410, 432, 437 460 mm		
Total	1	10	2	1
Grand Total = 14 fish				

Catch data from 24 hr gill net set

Interstate - June 15, 1989

Number caught (in parentheses) and lengths

Mesh Size	Walleye	Ruffe	White Sucker	Yellow Perch	Troutperch
1"		(1) 103 mm	(1) 115 mm		(3) 100, 101 105 mm
1 1/2"				(1) 144 mm	
2"					
2 1/2"	(1) 315 mm				
3"					
3 1/2"			(2) 405, 410 mm		
4"			(1) 423 mm		
Total	1	1	4	1	3

Grand Total = 10 fish

Catch data from 24 hr gill net set

Interstate - June 29-30, 1989

Number caught (in parentheses) and lengths

Mesh Size	Walleye	White Sucker	Redhorse Sucker	Yellow Perch	Trout-perch	Black Bullhead
1"					(1) 105 mm	
1 1/2"				(1) 141 mm		
2"		(3) 223, 224, 239 mm				
2 1/2"	(1) 300 mm			(2) 225, 262 mm		
3"		(1) 368 mm		(3) 265, 271, 279 mm		(1) 160 mm
3 1/2"			(2) 356, 417 mm	(2) 257, 278 mm		
4"			(2) 402, 437 mm			
Total	1	4	4	8	1	1

Grand Total = 19 fish

Catch data from 24 hr gill net set

Interstate - July 12-13, 1989

Number caught (in parentheses) and lengths

Mesh Size	Yellow Perch	Walleye	Black Bullhead	Redhorse	White Sucker
1"	(1) 109 mm				
1 1/2"	(3) 145, 156 181 mm				
2"	(1) 282 mm		(1) 234 mm		(1) 238 mm
2 1/2"	(2) 238, 265 mm	(1) 301mm			(1) 229 mm
3"					
3 1/2"				(1) 410 mm	
4"				(1) 430 mm	
Total	7	1	1	2	2
Grand Total = 13 fish					

Catch data from 24 hr gill net set

Interstate - July 25 - 26, 1989

Number caught (in parentheses) and lengths

Mesh Size	Yellow Perch	Walleye	Ruffe	Redhorse	White Sucker
1"					
1 1/2"		(1) 323 mm	(4) 122, 127 mm 135, 135 mm		
2"					
2 1/2"	(1) 264 mm				(1) 279 mm
3"				(2) 365, 390 mm	
3 1/2"					
4"					
Total	1	1	4	2	1
Grand Total = 9 fish					

Catch data from 24 hr gill net set

Interstate - August 8-9, 1989

Number caught (in parentheses) and lengths

Mesh Size	Yellow Perch	Walleye	Ruffe	Redhorse	White Sucker
1"					
1 1/2"		(2) 275, 301 mm	(2) 137, 143 mm		
2"		(1) 297 mm			(2) 236, 250 mm
2 1/2"	(2) 226, 247 mm				(4) 254, 278, 280, 280 mm
3"		(2) 376, 380 mm			
3 1/2"					
4"				(2) 410, 422 mm	
Total	2	5	2	2	6
Grand Total = 17 fish					

Catch data from 24 hr gill net set

Interstate - August 22-23, 1989

Number caught (in parentheses) and lengths

Mesh Size	Trout Perch	Walleye	Ruffe	Yellow Perch	Yellow Bullhead	White Sucker
1"	(1) 112mm					
1 1/2"		(1) 224mm	(2) 143,150mm			
2"		(2) 253,324mm				
2 1/2"				(2) 239,255mm		(1) 312mm
3"						(1) 343mm
3 1/2"					(2) 268,286mm	(1) 416mm
4"						
Total	1	3	2	2	2	3

Grand Total = 13 fish

Catch data from 24 hr gill net set

Interstate - September 6-7, 1989

Number caught (in parentheses) and lengths

Mesh Size	Yellow Perch	Walleye	Ruffe	Black Bullhead	Redhorse	White Sucker
1"						
1 1/2"	(2) 148, 151mm		(2) 125, 128mm			(1) 170mm
2"		(1) 370mm		(1) 160mm		
2 1/2"	(3) 167, 221, 230mm					(2) 176, 369mm
3"					(1) 392mm	
3 1/2"						
4"						
Total	5	1	2	1	1	3
Grand Total = 13 fish						

Appendix V
Trawl Catch Records
Bunge Slip Site

Trawl Summary

Bunge Slip Sampling Site

May 6, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	8 minutes	1 minute	
Average Speed	1.3 mph	1.2 mph	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(26)	(23)	54
Spottail Shiner	(13)	(5)	20
Emerald Shiner	(8)	(2)	10
Black Bullhead	(7)	(1)	8
	1 20-39 mm		
	2 40-59 mm		
	1 60-79 mm		
	1 80-99 mm		
	1 100-119 mm		
Yellow Perch	(5)	(2)	7
	40,48,71,74,85 mm	78,41 mm	
White Sucker	(5)		5
	70,79,84,85,90 mm		
Johnny Darter	(2) 54,65 mm		2
Carp	(2) 54,70 mm		2
Walleye	(1) 198 mm		1
White Perch	(1) 104 mm		1
Total	70	33	113

Trawl Summary

Bunge Slip Sampling Site

May 11, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>
Length of Trawl	6 minutes	No Second Trawl
Average Speed	1.0 mph	

Abundance () and Lengths of Fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(11)		18
Emerald Shiner	(5) 46,55,78,81,105mm		8
Spottail Shiner	(3) 60,63,65mm		5
Ruffe	(1) 102mm		2
Total	<hr/> 20		<hr/> 33

Trawl Summary

Bunge Slip Sampling Site

May 13, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>
Length of Trawl	6.5 minutes	5 Minutes
Average Speed	0.7 mph	0.7 mph

Abundance () and Lengths of Fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(21)		18
Emerald Shiner	(226)	(14)	209
		8 60-79mm	
		6 80-99mm	
Spottail Shiner	(1) 89mm	(2) 60,79mm	3
Carp	(1) 118mm		1
White Sucker	(1) 92mm		1
Yellow Bullhead	(1) 92mm	(3) 123,130,160mm	3
Yellow Perch		(1) 143mm	1
Total	<hr/> 251	<hr/> 20	<hr/> 236

Trawl Summary

Bunge Slip Sampling Site

May 16, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>
Length of Trawl	5.0 min.	0.83 min.
Average Speed	1.0 mph	1.6 mph

Abundance () and Lengths of Fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	-	(1)	2
Spottail Shiner	(3) 58,63,71mm	-	5
Yellow Perch	(1) 93mm	-	2
Johnny Darter	(1) 42mm	-	2
Total	<u>(5)</u>	<u>(1)</u>	<u>11</u>

Trawl Summary

Bunge Slip Sampling Site

May 20, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Trawl 3</u>
Length of Trawl	4.75 min.	1.50 min.	1.50 min.
Average Speed	1.4 mph	1.0 mph	1.0 mph

Abundance () and Lengths of Fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Trawl 3</u>	<u>Avg/10 min.</u>
Trout Perch	(15)	(5)	(3)	30
	2 50-69mm			
	2 70-89mm	2 70-89mm		
	6 90-109mm	2 90-109mm	2 90-109mm	
	5 110-129mm	1 110-129mm	1 110-129mm	
Emerald Shiner	(6)	(2)	(6)	18
	5 70-99mm	78 & 84mm	6 70-99mm	
	1 178mm			
Black Bullhead	(3)	(1) 171mm	(1) 139mm	5
	115, 116, 127mm			
Brown Bullhead	(1) 143mm			1
Rainbow Smelt	(1) 72mm			1
Spottail Shiner	(1) 62mm	(1) 63mm		2
Total	(27)	(9)	(10)	57

Trawl Summary

Bunge Slip Sampling Site

May 22, 1989

Trawl 1

Length of Trawl 8.0 min.
Average Speed 0.8 mph

Abundance () and Lengths of Fish

	<u>Trawl 1</u>	<u>Avg/10 min.</u>
Trout Perch	(76)	95
	50-69mm 6	
	70-89mm 10	
	90-109mm 46	
	110-129mm 13	
	130-149mm 1	
Black Bullhead	(2) 110,140mm	3
Emerald Shiner	(1) 56mm	1
Spottail Shiner	(1) 66mm	1
Total	<u>(80)</u>	<u>100</u>

Trawl Summary

Bunge Slip Sampling Site

May 25, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>
Length of Trawl	5.0 min.	5.0 min.
Average Speed	1.4 mph	1.4 mph

Abundance () and Lengths of Fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(48)	(34)	82
	40-59mm 3	40-59mm 2	
	60-79mm 14	60-79mm 12	
	80-99mm 18	80-99mm 7	
	100-119mm 13	100-119mm 13	
Emerald Shiner	(8)	(45)	53
	40-59mm 5	40-59mm 22	
	60-79mm 2	60-79mm 16	
	80-99mm 7		
		100-119mm 1	
Spottail Shiner	(15)	(4)	19
	40-59mm 1		
	60-79mm 11	60-79mm 4	
	80-99mm 2		
	100-119mm 1		
Black Bullhead	(2) 111,112mm	(1) 115mm	3
Rainbow Smelt	(1) 56mm	(1) 49mm	2
White Sucker		(1) 231mm	1
Yellow Perch	(2) 134,233mm		2
Total	(76)	(86)	162

Trawl Summary

Bunge Slip Sampling Site

June 1, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>
Length of Trawl	5.0 min.	5.0 min.
Average Speed	1.0 mph	1.0 mph

Abundance () and Lengths of Fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(73)	(27)	100
	40-59mm 4	40-59MM 1	
	60-79mm 21	60-79mm 2	
	80-99mm 28	80-99mm 13	
	100-119mm 18	100-119mm 10	
	120-139mm 2	120-139mm 1	
Spottail Shiner	(5)	(4)	9
	40-59mm 2	40-59mm 2	
	60-79mm 3	60-79mm 1	
		100-119mm 1	
Emerald Shiner	(2) 60,74mm	(1) 76mm	3
Black Bullhead	(1) 140mm	(1) 115mm	2
Rainbow Smelt	(1) 68mm	(1) 68mm	2
White Sucker	(1) 326mm		1
Yellow Perch		(1) 118mm	1
Ruffe		(1) 88mm	1
Sculpin		(1) 48mm	1
Total	(83)	(37)	120

Trawl Summary

Bunge Slip Sampling Site

June 5, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>
Length of Trawl	5.1 min.	5.0 min.
Average Speed	1.0 mph	1.0 mph

Abundance () and Lengths of Fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(63)	(8)	71
	40-59mm 3	40-59MM 1	
	60-79mm 25	60-79mm 2	
	80-99mm 18	80-99mm 5	
	100-119mm 17		
Spottail Shiner	(2) 64,67mm		2
Emerald Shiner	(1) 56		1
Black Bullhead	(1) 134mm	(1) 178mm	2
Rainbow Smelt	(1) 59mm		1
White Sucker	(1) 69mm		1
Sculpin	(1) 81mm		1
Total	<u>(70)</u>	<u>(9)</u>	<u>79</u>

Trawl Summary

Bunge Slip Sampling Site

June 9, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>
Length of Trawl	5.0 min.	5.0 min.
Average Speed	1.0 mph	1.0 mph

Abundance () and Lengths of Fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(21) 50-69mm 7 70-89mm 10 90-109mm 3 110-129mm 1	(3) 70-89mm 3	24
Black Bullhead	(6) 100-119mm 2 120-139mm 2 140-159mm 2	(1)	7
Spottail Shiner	(2) 62,90mm	(4) 65,68,70,75mm	6
Emerald Shiner	(1) 57mm	(1) 80mm	2
Rainbow Smelt	(2) 57,59mm		2
Yellow Bullhead		(1) 97mm	1
White Sucker	(1) 146mm		1
Total	<u>(34)</u>	<u>(10)</u>	<u>43</u>

Trawl Summary

Bunge Slip Sampling Site

June 15, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5.0 min.	5.0 min.	
Average Speed	1.1 mph	1.2 mph	
Abundance () and Lengths of Fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(12) 50-69mm 9 70-89mm 3	(18) 50-69mm 4 70-89mm 9 90-109mm 3 110-129mm 2	30
Emerald Shiner	(4) 50-69mm 2 70-89mm 2 90-109mm	(3) 70-89mm 1 90-109mm 2	7
Black Bullhead	(3) 110-129mm 3	(10) 110-129mm 6 130-149mm 4	13
Rainbow Smelt	(1) 68mm	(1) 62mm	2
Spottail Shiner	(1) 63mm	(1) 60mm	2
Yellow Bullhead	(1) 108mm		1
Yellow Perch	(1) 136mm		1
Total	(23)	(32)	56

Trawl Summary

Bunge Slip Sampling Site

June 19, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>
Length of Trawl	5 minutes	5 minutes
Average Speed	0.9 mph	0.9 mph

Abundance () and lengths of fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 minutes</u>
Trout Perch	(16)	(17)	33
	1 40-59mm	1 40-59 mm	
	8 60-79 mm	12 60-79 mm	
	3 80-99 mm	3 80-99 mm	
	4 100-119 mm	1 100-119 mm	
Smelt	(2) 56, 70 mm		2
Black Bullhead	(1) 135 mm	(1) 115 mm	2
Lake Chub		(1) 160 mm	1
Sculpin		(1) 50 mm	1
<hr style="width: 20%; margin: 0 auto;"/>			
Total	19	20	39

Trawl Summary

Bunge Slip Sampling Site

June 22, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>
Length of Trawl	5 minutes	5 minutes
Average Speed	1.0 mph	0.9 mph

Abundance () and lengths of fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 minutes</u>
Trout Perch		(18)	36
		2 40-59 mm	
CLAY		11 60-79 mm	
		2 80-99 mm	
BALL		2 100-119 mm	
		1 120-139 mm	
Emerald Shiners		(1) 81 mm	2
Smelt		(2) 57, 60 mm	4
Burbot		(1) 98 mm	2
	<hr/>	<hr/>	<hr/>
Total		22	44

Trawl Summary

Bunge Slip Sampling Site

June 26, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>
Length of Trawl	5.0 minutes	5.0 minutes
Average Speed	1.0 mph	1.0 mph

Abundance () and lengths of fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 minutes</u>
Trout Perch	(14)	(9)	23
	1 40-59 mm		
	11 60-79 mm	4 60-79 mm	
	2 80-99 mm	5 80-99 mm	
Black Bullheads	(8)	(20)	28
	5 100-119 mm	8 100-119 mm	
	3 120-139 mm	10 120-139 mm	
		2 140-159 mm	
Sculpins	(3) 40-59 mm	(1) 40 mm	4
Emerald Shiners		(1) 79 mm	1
Lake Chub		(1) 49 mm	1
Smelt		(2) 69, 72 mm	2
Total	25	34	59

Trawl Summary

Bunge Slip Sampling Site

June 30, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>
Length of Trawl	5 minutes	5 minutes
Average Speed	1.6 mph	1.7 mph

Abundance () and lengths of fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 minutes</u>
Trout Perch	(66)	(32)	98
	13 40-59 mm	3 40-59 mm	
	35 60-79 mm	20 60-79 mm	
	16 80-99 mm	8 80-99 mm	
	2 100-119 mm	1 100-119 mm	
 Emerald Shiners	 (1) 90 mm		 1
Smelt	(3) 55, 59, 60 mm		3
White Sucker	(1) 77 mm		1
Sculpin	(1) 40 mm	(2) 44, 69 mm	3
Black Bullhead	(3) 70, 105, 128 mm		3
	-----	-----	-----
Total	75	34	109

Trawl Summary

Bunge Slip Sampling Site

July 3, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>
Length of Trawl	5 minutes	5 minutes
Average Speed	1.7 mph	1.7 mph

Abundance () and lengths of fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 minutes</u>
Trout Perch	(19)	(26)	45
	1 20-39 mm	1 20-39 mm	
	1 40-59 mm	4 40-59 mm	
	12 60-79 mm	14 60-79 mm	
	3 80-99 mm	4 80-99 mm	
	2 100-119 mm	3 100-119 mm	
Spottail Shiners		(1) 61 mm	1
Smelt	(5)	(2) 55, 73 mm	7
	2 40-59 mm		
	3 60-79 mm		
Emerald Shiners	(2) 44, 55 mm	(1) 41 mm	3
Sculpin	(2) 45, 55 mm	(1) 58 mm	3
Black Bullhead	(2) 123, 140 mm		2
Yellow Perch	(1) 150 mm		1
Burbot	(1) 60 mm		1
	-----	-----	-----
Total	32	31	63

Trawl Summary

Bunge Slip Sampling Site

July 7, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>
Length of Trawl	5 minutes	5 minutes
Average Speed	1.5 mph	1.6 mph

Abundance () and lengths of fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 minutes</u>
Trout Perch	(70)	(50)	120
	5 20-39 mm	0 20-39 mm	
	3 40-59 mm	2 40-59 mm	
	41 60-79 mm	26 60-79 mm	
	15 80-99 mm	13 80-99 mm	
	6 100-119 mm	7 100-119 mm	
		2 120-139 mm	
Smelt	(2) 58, 62 mm	(1) 65 mm	3
Emerald Shiners	(17)	(2) 66, 78 mm	19
	10 60-79 mm		
	7 80-99 mm		
Sculpin	(1) 63 mm	(3) 40,51,61 mm	4
Black Bullhead		(1) 128 mm	1
Yellow Perch		(1) 234 mm	1
Spottail Shiner	(1) 73 mm		1

Total	91	58	149

Trawl Summary

Bunge Slip Sampling Site

July 10, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	900 rpm	900 rpm	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(9) 2 40-59mm 6 60-79mm 1 120-139mm	(12) 2 40-59mm 8 60-79mm 2 80-99mm	21
Rainbow Smelt	(4) 1 20-39mm 2 60-79mm 1 160-179mm	(3) 61, 75, 124mm	7
Emerald Shiners	-	(1) 45 mm	1
Total	<hr/> 13	<hr/> 16	<hr/> 29

Trawl Summary

Bunge Slip Sampling Site

July 14, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	800 rpm	800 rpm	
	Abundance () and lengths of fish		
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(30)	(13)	43
	1 20-39mm	1 20-39mm	
	1 40-59mm	2 40-59mm	
	19 60-79mm	6 60-79mm	
	8 80-99mm	2 80-99mm	
	1 100-119mm	2 100-119mm	
Slimey Sculpin	(10)	(5)	15
	3 40-59mm	1 20-39mm	
	6 60-79mm	4 40-59mm	
	1 80-99mm		
Emerald Shiners	-	(7)	7
		1 40-59mm	
		5 60-79mm	
		1 80-99mm	
Ruffe	(2)	-	2
	29, 155mm		
Yellow Perch	(1)	-	1
	129mm		
Rainbow Smelt	-	(1)	1
		37mm	
Burbot	-	(1)	1
		215mm	
Redhorse sucker	-	(1)	1
		392mm	
Total	43	28	71

Trawl Summary

Bunge Slip Sampling Site

July 17, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	800 rpm	856 rpm	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(28)	(13)	41
	15 20-39mm	5 20-39mm	
	3 40-59mm	2 40-59mm	
	5 60-79mm	4 60-79mm	
	4 80-99mm	2 80-99mm	
	1 100-119mm		
Black Bullhead	(2)	(1)	3
	120, 128mm	151mm	
Emerald Shiners	(1)	(4)	5
	57mm	90, 96, 101, 102mm	
Slimey Sculpin	(1)	(3)	4
	48mm	51, 56, 57mm	
Yellow Perch	(1)	(1)	2
	141mm	188mm	
Total	<u>33</u>	<u>22</u>	<u>55</u>

Trawl Summary

Bunge Slip Sampling Site

July 21, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	850 rpm	900 rpm	
	Abundance () and lengths of fish		
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(9) 2 20-39mm 2 40-59mm 3 60-79mm 2 80-99mm	(9) 5 20-39mm 1 40-59mm 2 60-79mm 1 80-99mm	18
Rainbow Smelt	(1) 68mm	(2) 31, 48mm	3
Black Bullhead	(1) 155mm	-	1
Walleye	(1) 247mm	-	1
Slimey Sculpin	-	(1) 55mm	1
Total	<hr/> 12	<hr/> 12	<hr/> 24

Trawl Summary

Bunge Slip Sampling Site

July 24, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	825 rpm	900 rpm	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(6) 28, 74, 85 89, 95, 101mm	No catch	6
Rainbow Smelt	(1) 66mm		1
Emerald Shiners	(1) 86mm		1
Ruffe	(2) 126, 145mm		2
Slimey Sculpin	(2) 64, 65mm		2
Total	<u>12</u>	<u>0</u>	<u>12</u>

Trawl Summary

Bunge Slip Sampling Site

July 28, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	4.75 minutes	5.25 minutes	
Average Speed	739 rpm	750 rpm	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(25) 8 20-39mm 2 40-59mm 8 60-79mm 3 80-99mm 4 100-119mm	(8) 5 20-39mm 3 60-79mm	33
Ruffe	(2) 131, 142mm	(1) 107mm	3
Emerald Shiners	(2) 59, 66mm	(2) 65, 97mm	4
Slimey Sculpin	(2) 48, 50mm	-	2
Black Bullhead	(2) 144, 155mm	(1) 162mm	3
Redhorse Sucker	(1) 453mm	-	1
Walleye	(1) 280mm	(1) 292mm	2
Yellow Perch	-	(1) 155mm	1
Total	35	14	49

Trawl Summary

Bunge Slip Sampling Site

August 1, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	805 rpm	800 rpm	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Black Bullhead	(34) 2 80-99mm 7 100-119mm 13 120-139mm 11 140-159mm 1 235mm	(61) 3 80-99mm 8 100-119mm 29 120-139mm 15 140-159mm 5 160-179mm 1 254mm	95
Trout Perch	(4) 79, 89 90, 125mm	(28) 7 20-39mm 5 60-79mm 12 80-99mm 4 100-119mm	32
Rainbow Smelt	-	(1) 140mm	1
Emerald Shiners	(3) 68, 82, 93mm	-	3
Yellow Perch	(1) 138mm	-	1
Brown Bullhead	-	(2) 169, 182mm	2
Slimey Sculpin	-	(1) 89mm	1
White Sucker	-	(1) 188mm	1
Channel Catfish	-	(1) 33mm	1
Total	<hr/> 42	<hr/> 95	<hr/> 137

Trawl Summary

Bunge Slip Sampling Site

August 4, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	800 rpm	800 rpm	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(22) 4 20-39mm 5 40-59mm 6 60-79mm 4 80-99mm 3 100-119mm	(25) 11 20-39mm 3 40-59mm 5 60-79mm 3 80-99mm 1 100-119mm 2 120-139mm	47
Rainbow Smelt	-	(8) 4 20-39mm 2 40-59mm 1 60-79mm 1 180-199mm	8
Emerald Shiners	(1) 83mm	(1) 80mm	2
Black Bullhead	(4) 104, 125 127, 153mm	(3) 130, 134 147mm	7
Johnny Darter	-	(1) 32mm	1
Total	<hr style="width: 50%; margin: 0 auto;"/> 27	<hr style="width: 50%; margin: 0 auto;"/> 38	<hr style="width: 50%; margin: 0 auto;"/> 65

Trawl Summary

Bunge Slip Sampling Site

August 7, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	800 rpm	800 rpm	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(85) 36 20-39mm 13 40-59mm 14 60-79mm 17 80-99mm 3 100-119mm 1 120-139mm 1 140-159mm	(76) 1 0-19mm 51 20-39mm 9 40-59mm 8 60-79mm 6 80-99mm 1 100-119mm	161
Black Bullhead	(56) 8 80-99mm 7 100-119mm 20 120-139mm 15 140-159mm 6 160-179mm	(10) 1 60-79mm 2 80-99mm 2 100-119mm 3 120-139mm 2 140-159mm	66
Rainbow Smelt	(7) 7 20-39mm	(3) 35, 36, 37mm	10
Emerald Shiners	(5) 26, 79, 80 85, 88mm	(1) 54mm	6
Ruffe	(1) 52mm	-	1
Yellow Perch	(1) 172mm	-	1
Redhorse Sucker	(1) 413mm	-	1
Johnny Darter	-	(2) 31, 50mm	2
Channel Catfish	(1) 20mm	(1) 27mm	2
Total	<hr/> 157	<hr/> 93	<hr/> 250

Trawl Summary

Bunge Slip Sampling Site

August 14, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	3 minutes	7 minutes	
Average Speed	800 rpm	800 rpm	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(11) 5 20-39mm 1 40-59mm 3 60-79mm 2 80-99mm	(24) 1 0-19mm 3 20-39mm 1 40-59mm 11 60-79mm 3 80-99mm 2 100-119mm 3 120-139mm	35
Emerald Shiners	(6) 4 60-79mm 2 80-99mm	(11) 1 40-59mm 7 60-79mm 3 80-99mm	17
Spottail Shiners	-	(1) 76mm	1
Johnny Darter	(1) 25mm	(1) 25mm	2
Slimey Sculpin	-	(1) 51mm	1
White Sucker	(1) 191mm	-	1
Redhorse Sucker	-	(1) 432mm	1
Total	<hr/> 19	<hr/> 39	<hr/> 58

Trawl Summary

Bunge Slip Sampling Site

August 21, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5.25 minutes	
Average Speed	750 rpm	750 rpm	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(12)	(16)	27
	4 20-39mm	5 20-39mm	
	2 40-59mm	5 40-59mm	
	1 60-79mm	0 60-79mm	
	4 80-99mm	2 80-99mm	
	1 120-139mm	4 100-119mm	
Rainbow Smelt	-	(9)	9
		1 20-39mm	
		6 40-59mm	
		1 60-79mm	
		1 80-99mm	
Emerald Shiner	(9)	(13)	21
	2 60-79mm	3 60-79mm	
	7 80-99mm	10 80-99mm	
Ruffe	(1) 152mm	(1) 151mm	2
Johnny Darter	(1) 28mm	-	1
Slimey Sculpin	-	(1) 30mm	1
Total	<hr/> 23	<hr/> 40	<hr/> 61

Trawl Summary

Bunge Slip Sampling Site

August 24, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	900 rpm	900 rpm	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(5) 28, 37, 40 67, 88mm	(8) 4 20-39mm 1 40-59mm 2 60-79mm 1 80-99mm	13
Rainbow Smelt	(15) 1 20-39mm 14 40-59mm	(12) 4 20-39mm 8 40-59mm	27
Emerald Shiners	(1) 85mm	(3) 77, 77, 79mm	4
Slimey Sculpin	(1) 25mm	-	1
Ruffe	(1) 21mm	-	1
Total	<hr/> 23	<hr/> 23	<hr/> 46

Trawl Summary

Bunge Slip Sampling Site

August 28, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	1.4 mph	1.4 mph	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(22)	(36)	58
	5 20-39mm	14 20-39mm	
	9 40-59mm	11 40-59mm	
	0 60-79mm	2 60-79mm	
	5 80-99mm	5 80-99mm	
	3 100-119mm	4 100-119mm	
Ruffe	(3)	(3)	6
	122, 137, 160mm	131, 132, 158mm	
Rainbow Smelt	(1)	(3)	4
	40mm	32, 39, 42mm	
Slimey Sculpin	-	(3)	3
		32, 53, 65mm	
Spottail Shiners	(1)	-	1
	113mm		
Black Bullhead	-	(1)	1
		223mm	
Yellow Perch	-	(2)	2
		145, 275mm	
Total	27	48	75

Trawl Summary

Bunge Slip Sampling Site

September 1, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	1.3 mph	1.4 mph	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(54) 27 20-39mm 19 40-59mm 1 60-79mm 6 80-99mm 1 100-119mm	(36) 14 20-39mm 15 40-59mm 0 60-79mm 4 80-99mm 3 100-119mm	90
Rainbow Smelt	(3) 33, 40, 45mm	(1) 48mm	4
Emerald Shiner	(6) 37, 45, 45 66, 68, 101mm	(3) 44, 59, 89mm	9
Spottail Shiners	(4) 69, 85 89, 90mm	(3) 82, 96, 100mm	7
Ruffe	(2) 114, 153mm	(4) 125, 127 140, 141mm	6
Yellow Perch	(2) 145, 152mm	(1) 111mm	3
Black Bullhead	(1) 165mm	-	1
Johnny Darter	-	(1) 31mm	1
White Bass	-	(1) 220mm	1
White Sucker	-	(1) 189mm	1
Carp (unidentified)	(1) 69mm	-	1
Channel Catfish	-	(1) 46mm	1
Total	<hr style="width: 50%; margin: 0 auto;"/> 73	<hr style="width: 50%; margin: 0 auto;"/> 52	<hr style="width: 50%; margin: 0 auto;"/> 125

Trawl Summary

Bunge Slip Sampling Site

September 5, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	1.5 mph	1.6 mph	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(17) 1 20-39mm 11 40-59mm 1 60-79mm 3 80-99mm 1 100-119mm	(26) 5 20-39mm 5 40-59mm 2 60-79mm 12 80-99mm 2 100-119mm	43
Ruffe	(3) 120, 129, 130mm	(4) 87, 117 132, 141mm	7
Spottail Shiners	(7) 3 80-99mm 4 100-119mm	(2) 99, 109mm	9
Johnny Darter	(1) 57mm	-	1
Black Bullhead	(3) 157, 159, 284mm	(1) 160mm	4
Yellow Perch	(3) 139, 149, 174mm	(4) 105, 136 157, 165mm	7
White Sucker	(1) 132mm	-	1
Emerald Shiner	-	(1) 55mm	1
Yellow Bullhead	-	(1) 221mm	1
Total	<hr/> 35	<hr/> 39	<hr/> 74

Trawl Summary

Bunge Slip Sampling Site

September 8, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	1.6 mph	1.5 mph	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(40) 3 20-39mm 10 40-59mm 3 60-79mm 15 80-99mm 8 100-119mm 1 120-139mm	(6) 28, 91, 91 95, 97, 102mm	46
Ruffe	(5) 109, 113, 129 131, 146mm	(1) 133mm	6
Black Bullhead	(8) 27, 30, 156 158, 183, 197 232, 237mm	-	8
Yellow Perch	(3) 106, 144, 145mm	-	3
Burbot	-	(1) 172mm	1
Spottail Shiners	(2) 86, 99mm	-	2
Channel Catfish	(2) 39, 42mm	(1) 128mm	3
Rainbow Smelt	(1) 49mm	-	1
White Sucker	(1) 149mm	-	1
Total	<hr/> 62	<hr/> 9	<hr/> 71

Trawl Summary

Bunge Slip Sampling Site

September 12, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	1.5 mph	1.5 mph	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(4) 42, 95 111, 117mm	(35) 8 20-39mm 13 40-59mm 2 60-79mm 8 80-99mm 2 100-119mm 2 120-139mm	39
Rainbow Smelt	(5) 33, 41, 42 45, 59mm	(6) 35, 36, 37 37, 41, 47mm	11
Spottail Shiners	(2) 100, 101mm	(6) 86, 87, 93 97, 100, 103mm	8
Johnny Darter	(1) 56mm	(1) 40mm	2
Burbot	(1) 165mm	-	1
Emerald Shiner	-	(4) 42, 60, 80, 90mm	4
Channel Catfish	-	(1) 46mm	1
Yellow Perch	-	(1) 166mm	1
Total	13	54	67

Appendix VI
Trawl Catch Records
Interstate Hole Site

Trawl Summary

Interstate Sampling Site

May 7, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>
Length of Trawl	5 minutes	5 minutes
Average Speed	1.0 mph	0.8 mph

Abundance () and lengths of fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(81)	(32)	113
Rainbow Smelt	(12)	(6)	18
	5 120-139mm	5 140-159mm	
	6 140-159mm	1 180-199mm	
	1 160-179mm		
Spottail Shiners	(19)	(14)	33
Johnny Darter	(2)		2
Yellow Perch	(2) 66, 84mm		2
Ruffe	(1) 133mm	(1) 130mm	2
Yellow Bullhead	(1) 102mm		1
White Sucker		(3) 262,336,354mm	3
Total Catch	<u>118</u>	<u>56</u>	<u>174</u>

Trawl Summary

Interstate Sampling Site

May 11, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	6 minutes	4.5 minutes	
Average Speed	1.0 mph	1.0 mph	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(20)	(5)	24
Rainbow Smelt	(18)	(8)	25
	7 120-139mm	1 120-139mm	
	9 140-159mm	6 140-159mm	
	1 160-179mm	1 160-179mm	
	1 180-199mm		
Spottail Shiner	(3) 58,68,74mm		3
Johnny Darter	(3) 45,48,63mm		3
Yellow Bullhead	(2) 90,100mm	(1) 109mm	3
White Sucker	(1) 140mm	(2) 315,366mm	3
Channel Catfish	(1)		1
Long Nose Sucker		(1) 435mm	1
Total	48	17	62

Trawl Summary

Interstate Sampling Site

May 13, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	3.5 minutes	
Average Speed	1.4 mph	1.0 mph	
Abundance () and Lengths of Fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Rainbow Smelt	(8)	(8)	19
	1 100-119mm		
	5 120-139mm	1 120-139mm	
	2 140-159mm	5 140-159mm	
		2 160-179	
Trout Perch	(7)	(6)	15
Spottail Shiner	(3) 55,65,66mm		4
White Sucker	(2) 45,170mm		2
Johnny Darter	(2) 58,64mm		2
Ruffe		(1) 95mm	1
Total	22	15	43

Trawl Summary

Interstate Sampling Site

May 16, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>
Length of Trawl	4.25 min.	4.75 min.
Average Speed	0.9 mph	1.0 mph

Abundance () and Lengths of Fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(5)	(8)	14
White Sucker	(1) 235mm		1
Yellow Perch	(1) 135mm	(1) 186mm	2
Ruffe		(1) 123mm	1
Rainbow Smelt		(1) 145mm	1
Total	<hr/> (7)	<hr/> (11)	<hr/> 19

Trawl Summary

Interstate Sampling Site

May 20, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	4.0 min.	5.0 min.	
Average Speed	1.2 mph	1.0 mph	
Abundance () and Lengths of Fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(7)	(9)	18
	60-79mm 3	40-59mm 2	
	80-99mm 1	60-79mm 5	
	100-119mm 3	80-99mm 2	
White Sucker	(1) 269mm	(1) 279mm	2
Emerald Shiner	(4)	(23)	30
	79,82,82,83,mm	60-79mm 10	
		80-99mm 13	
Spottail Shiner	(1) 63mm	(2) 66,68mm	3
Rainbow Smelt		(1) 135mm	1
Johnny Darter	(1) 35mm		1
Black Crappie	(1) 78mm		1
Channel Catfish		(1) 61mm	1
Total	<hr/> (15)	<hr/> (37)	<hr/> 58

Trawl Summary

Interstate Sampling Site

May 22, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>
Length of Trawl	5.0 min.	4.0 min.
Average Speed	0.9 mph	1.0 mph

Abundance () and Lengths of Fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(4) 64,64,98,-,mm	(9) 50-69mm 5 70-89mm 1 90-109mm 3	14
Spottail Shiner	(1) 63mm	(3) 60,66,69mm	4
Emerald Shiner	(1) 80mm	(2) 79,83mm	3
Johnny Darter		(2) 33,57mm	2
Yellow Perch	(1) 68mm		1
Total	<u>(7)</u>	<u>(16)</u>	<u>24</u>

Trawl Summary

Interstate Sampling Site

May 25, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>
Length of Trawl	5.0 min.	4.0 min.
Average Speed	1.0 mph	1.4 mph

Abundance () and Lengths of Fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(14)	(12)	28
	40-59mm 1	40-59mm 2	
	60-79mm 4	60-79mm 7	
	80-99mm 5	80-99mm 1	
	100-119mm 4	100-119mm 2	
White Sucker	(1) 111mm	(1) 200mm	2
Yellow Bullhead	(2) 65,90mm	(2) 76,81mm	4
Spottail Shiner	(1) 63mm	(2) 66,67mm	3
Emerald Shiner		(1) 75mm	1
Johnny Darter	(1) 38mm		1
Total	<u>(21)</u>	<u>(19)</u>	<u>39</u>

Trawl Summary

Interstate Sampling Site

June 1, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>
Length of Trawl	6.5 min.	6.0 min.
Average Speed	0.9 mph	0.9 mph

Abundance () and Lengths of Fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(22)	(28)	40
	40-59mm 1	40-59MM 2	
	60-79mm 18	60-79mm 15	
	80-99mm 2	80-99mm 7	
	100-119mm 1	100-119mm 4	
Yellow Perch	(1) 129mm	(3) 124,129,137mm	3
White Sucker		(2) 101,111mm	2
Yellow Bullhead		(2) 90,92mm	2
Spottail Shiner	(1) 62mm		1
Rainbow Smelt		(1) 64mm	1
Johnny Darter	(1) 47mm		1
Total	(25)	(36)	50

Trawl Summary

Interstate Sampling Site

June 5, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>
Length of Trawl	5.0 min.	5.0 min.
Average Speed	1.1 mph	1.1 mph

Abundance () and Lengths of Fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(10)		10
	40-59mm 1		
	60-79mm 7		
	80-99mm 1		
	100-119mm 1		
Yellow Bullhead	(1) 47mm	(4) 47,59,81,91mm	5
Johnny Darter	(1) 33mm		1
Yellow Perch		(1) 66mm	1
Total	(12)	(5)	17

Trawl Summary

Interstate Sampling Site

June 9, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>
Length of Trawl	5.0 min.	5.0 min.
Average Speed	1.0 mph	1.2 mph

Abundance () and Lengths of Fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(8)	(13)	21
	50-69mm 5	50-69mm 3	
	70-89mm 1	70-89mm 6	
	90-109mm 2	90-109mm 4	
Spottail Shiner	(1) 69mm		1
Yellow Perch	(1) 129mm		1
Yellow Bullhead		(1) 78mm	1
Total	<u>(10)</u>	<u>(14)</u>	<u>24</u>

Trawl Summary

Interstate Sampling Site

June 15, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>
Length of Trawl	5.0 min.	5.0 min.
Average Speed	1.0 mph	1.0 mph

Abundance () and Lengths of Fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(24) 50-69mm 9 70-89mm 13 90-109mm 2 -	(6) 50-69mm 2 70-89mm 3 - 110-129mm 1	30
Spottail Shiner		(2) 66,68mm	2
White Sucker	(1) 133mm		1
Black Bullhead	(1) 62mm		1
Lake Chub	(1) 94mm		1
Ruffe		(1) 133mm	1
Rainbow Smelt		(1) 55mm	1
Total	(27)	(10)	37

Trawl Summary

Interstate Sampling Site

June 19, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>
Length of Trawl	5 minutes	5 minutes
Average Speed	1.0 mph	1.0 mph

Abundance () and lengths of fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 minutes</u>
Trout Perch	(8)	(12)	20
	6 60-79 mm	6 60-79 mm	
	1 80-99 mm	5 80-99 mm	
	1 100-119 mm	1 100-119 mm	
Smelt	(1) 89 mm		1
Emerald Shiners		(1) 85 mm	1
Johnny Darter	(1) 42 mm		1
White Sucker		(1) 390 mm	1
Total	10	14	24

Trawl Summary

Interstate Sampling Site

June 22, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>
Length of Trawl	5 minutes	5 minutes
Average Speed	1.0 mph	1.0 mph

Abundance () and lengths of fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 minutes</u>
Trout Perch	(11)	(3)	14
	9 60-79 mm	3 60-79 mm	
	1 80-99 mm		
	1 100-119 mm		
Emerald Shiners	(1) 84 mm	(3) 80,80,81 mm	4
Johnny Darter	_____	(1) 37 mm	1
Total	12	7	19

Trawl Summary

Interstate Sampling Site

June 26, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>
Length of Trawl	4.5 minutes	5.5 minutes
Average Speed	1.1 mph	1.2 mph

Abundance () and lengths of fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 minutes</u>
Trout Perch	(11)	(24)	35
	4 60-79 mm	12 60-79 mm	
	5 80-99 mm	9 80-99 mm	
	2 100-119 mm	3 100-119 mm	
Emerald Shiners	(1) 76 mm	(1) 76 mm	2
Spottail Shiners	(1) 75 mm	(1) 85 mm	2
Yellow Bullhead		(1) 95 mm	1
	-----	-----	-----
Total	13	27	40

Trawl Summary

Interstate Sampling Site

June 30, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>
Length of Trawl	4.5 minutes	5.5 minutes
Average Speed	1.6 mph	1.7 mph

Abundance () and lengths of fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 minutes</u>
Trout Perch	(10)	(15)	25
	3 20-39 mm	1 20-39 mm	
	4 60-79 mm	1 40-59 mm	
	3 80-99 mm	10 60-79 mm	
		2 80-99 mm	
		1 100-119 mm	
Spottail Shiners	(1) 86 mm		1
Ruffe	(2) 109, 136 mm	(3) 95, 112, 139 mm	5
Walleye	(2) 241, 268 mm	(1) 270 mm	3
Total	15	19	34

Trawl Summary

Interstate Sampling Site

July 3, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>
Length of Trawl	4.5 minutes	5.5 minutes
Average Speed	1.6 mph	1.7 mph

Abundance () and lengths of fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 minutes</u>
Trout Perch	(14)	(20)	34
	2 20-39 mm	4 20-39 mm	
	1 40-59 mm	1 40-59 mm	
	9 60-79 mm	12 60-79 mm	
	2 80-99 mm	3 80-99 mm	
Spottail Shiners	(1) 98 mm	(2) 56, 95 mm	3
Ruffe		(1) 137 mm	1
Smelt		(1) 64 mm	1
	-----	-----	-----
Total	15	24	39

Trawl Summary

Interstate Sampling Site

July 7, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>
Length of Trawl	5 minutes	5 minutes
Average Speed	1.8 mph	1.6 mph

Abundance () and lengths of fish

	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 minutes</u>
Trout Perch	(75)	(44)	119
	22 20-39 mm	18 20-39 mm	
	0 40-59 mm	0 40-59 mm	
	41 60-79 mm	14 60-79 mm	
	6 80-99 mm	11 80-99 mm	
	6 100-119 mm	1 100-119 mm	
Smelt	(2) 57, 73 mm	(2) 56, 79 mm	4
Emerald Shiners		(1) 85 mm	1
Ruffe	(1) 144 mm	(4)	5
		3 100-119 mm	
		1 140-159 mm	
Walleye	(1) 215 mm		1
	-----	-----	-----
Total	79	51	130

Trawl Summary

Interstate Sampling Site

July 10, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	950 rpm	975 rpm	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(30)	(50)	80
	11 20-39mm	21 20-39mm	
	1 40-59mm	0 40-59mm	
	11 60-79mm	27 60-79mm	
	5 80-99mm	2 80-99mm	
	2 100-119mm		
Ruffe	(7)	(6)	13
	5 20-39mm	6 20-39mm	
	91, 102mm		
Emerald Shiners	(2)		2
	82, 94mm		
Spottail shiners	(1)		1
	100mm		
Walleye	(1)	(1)	2
	317mm	245mm	
Total	<u>41</u>	<u>57</u>	<u>98</u>

Trawl Summary

Interstate Sampling Site

July 14, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	4.33 minutes	5.67 minutes	
Average Speed	944 rpm	900 rpm	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(33)	(17)	50
	17 20-39mm	5 20-39mm	
	15 60-79mm	8 60-79mm	
	1 80-99mm	4 80-99mm	
Ruffe	(15)	(7)	22
	13 20-39mm	6 20-39mm	
	2 40-59mm	1 40-59mm	
Rainbow Smelt	-	(1)	1
		80mm	
Total	<hr/> 48	<hr/> 25	<hr/> 73

Trawl Summary

Interstate Sampling Site

July 17, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	990 rpm	1000 rpm	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(14) 9 20-39mm 3 60-79mm 2 80-99mm	(13) 8 20-39mm 2 60-79mm 2 80-99mm 104mm	27
Ruffe	(4) 36, 108, 117, 127mm	(3) 30, 44, 108mm	7
Emerald Shiners	(1) 95mm	-	1
Rainbow Smelt	(1) 45mm	-	1
Walleye	(1) 368mm	(1) 304mm	2
Total	<u>21</u>	<u>17</u>	<u>38</u>

Trawl Summary

Interstate Sampling Site

July 21, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	995 rpm	1000 rpm	
	Abundance () and lengths of fish		
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(14) 11 20-39mm 2 60-79mm 1 100-119mm	(18) 16 20-39mm 2 60-79mm	32
Ruffe	(5) 2 20-39mm 1 40-59mm 1 100-119mm 1 140-159mm	(2) 29, 39 mm	7
Walleye	(4) 266, 283, 313, 353mm	-	4
Total	<u>23</u>	<u>20</u>	<u>43</u>

Trawl Summary

Interstate Sampling Site

July 24, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	900 rpm	900 rpm	
	Abundance () and lengths of fish		
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(34) 19 20-39mm 4 40-59mm 8 60-79mm 3 80-99mm	(32) 15 20-39mm 6 40-59mm 8 60-79mm 3 80-99mm	64
Ruffe	(4) 41, 46 112, 126mm	(3) 36, 39 128mm	7
Spottail Shiners	-	(1) 78mm	1
Total	<hr/> 38	<hr/> 36	<hr/> 74

Trawl Summary

Interstate Sampling Site

July 28, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	795 rpm	800 rpm	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(53)	(30)	83
	22 20-39mm	16 20-39mm	
	7 40-59mm	4 40-59mm	
	16 60-79mm	5 60-79mm	
	7 80-99mm	4 80-99mm	
	1 100-119mm	1 100-119mm	
Ruffe	(9)	(5)	14
	1 20-30mm	42, 42, 46	
	8 40-59mm	115, 123mm	
Channel catfish	(1)	(1)	2
	75mm	19mm	
Total	<u>63</u>	<u>36</u>	<u>99</u>

Trawl Summary

Interstate Sampling Site

August 1, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	790 rpm	820 rpm	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(158)	(86)	244
	39 20-39mm	16 20-39mm	
	46 40-59mm	32 40-59mm	
	39 60-79mm	19 60-79mm	
	31 80-99mm	19 80-99mm	
	3 100-119mm		
Ruffe	(7)	(10)	17
	1 0-19mm	7 40-59mm	
	1 20-39mm	3 120-139mm	
	5 40-59mm		
Spottail Shiners	-	(1) 70mm	1
Johnny Darter	(1) 47mm	(2) 52, 57mm	3
Slimey Sculpin	-	(1) 25mm	1
Channel Catfish	-	(2) 25, 29mm	2
Black Bullhead	-	(1) 15mm	1
Total	<hr/> 166	<hr/> 103	<hr/> 269

Trawl Summary

Interstate Sampling Site

August 4, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	800 rpm	800 rpm	
	Abundance () and lengths of fish		
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(102)	(202)	304
	29 20-39mm	1 0-19mm	
	33 40-59mm	46 20-39mm	
	9 60-79mm	64 40-59mm	
	29 80-99mm	38 60-79mm	
	2 100-119mm	47 80-99mm	
		5 100-119mm	
		1 120-139mm	
Ruffe	(5)	(6)	11
	37, 43, 49	19, 38, 38	
	53, 135mm	49, 50, 51mm	
Spottail Shiners	(1)	-	1
	82mm		
Black Bullhead	(2)	-	2
	23, 28mm		
Yellow Perch	-	(1)	1
		230mm	
Total	110	209	319

Trawl Summary

Interstate Sampling Site

August 7, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	995 rpm	1000 rpm	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(3) 40, 46, 86mm	(4) 41, 76 86, 89mm	7
Ruffe	(1) 43mm	-	1
Yellow Bullhead	-	(1) 30mm	1
Walleye	-	(1) 310mm	1
Total	<hr/> 4	<hr/> 6	<hr/> 10

Trawl Summary

Interstate Sampling Site

August 14, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	800 rpm	800 rpm	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(57) 20 20-39mm 13 40-59mm 4 60-79mm 16 80-99mm 4 100-119mm	(36) 2 0-19mm 16 20-39mm 13 40-59mm 1 60-79mm 3 80-99mm 1 100-119mm	93
Ruffe	(7) 38, 38, 51 57, 57, 114 127mm	(6) 19, 25, 32 44, 51, 127mm	13
Johnny Darter	(2) 32, 44mm	-	2
Channel Catfish	(2) 19, 38mm	-	2
Slimey Sculpin	(1) 32mm	-	1
White Sucker	(1) 279mm	-	1
Walleye	(5) 108, 292, 311 336, 362mm	(2) 305, 356mm	7
Yellow Perch	-	(1) 241mm	1
Total	<hr style="width: 20%; margin: 0 auto;"/> 75	<hr style="width: 20%; margin: 0 auto;"/> 45	<hr style="width: 20%; margin: 0 auto;"/> 120

Trawl Summary

Interstate Sampling Site

August 21, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	750 rpm	750 rpm	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(6) 1 20-39mm 5 40-59mm	(30) 2 20-39mm 16 40-59mm 1 60-79mm 11 80-99mm	36
Rainbow Smelt	-	(3) 54, 74, 88mm	3
Emerald Shiner	-	(3) 78, 80, 82mm	3
Ruffe	(1) 120mm	(1) 26mm	2
Black Bullhead	(1) 22mm	(1) 35mm	2
Black Crappie	(2) 110, 120mm	-	2
Walleye	(1) 115mm	(1) 310mm	2
White Sucker	-	(1) 363mm	1
Total	<hr style="width: 50%; margin: 0 auto;"/> 11	<hr style="width: 50%; margin: 0 auto;"/> 40	<hr style="width: 50%; margin: 0 auto;"/> 51

Trawl Summary

Interstate Sampling Site

August 24, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	800 rpm	900 rpm	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(50) 8 20-39mm 28 40-59mm 7 60-79mm 6 80-99mm 1 100-119mm	(45) 6 20-39mm 28 40-59mm 3 60-79mm 7 80-99mm 1 100-119mm	95
Johnny Darter	(1) 52mm	(2) 50, 53mm	3
Ruffe	(1) 59mm	(2) 27, 136mm	3
Spottail Shiners	(1) 48mm	-	1
Black Bullhead	-	(1) 24mm	1
Yellow Perch	-	(1) 207mm	1
Total	53	51	104

Trawl Summary

Interstate Sampling Site

August 28, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	1.9 mph	1.7 mph	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(28)	(28)	56
	20 40-59mm	1 20-39mm	
	3 60-79mm	19 40-59mm	
	5 80-99mm	2 60-79mm	
		5 80-99mm	
		1 100-119mm	
Emerald Shiners	-	(9)	9
		1 60-79mm	
		8 80-99mm	
Ruffe	-	(3)	3
		20, 28, 33mm	
Total	<hr style="width: 50%; margin: 0 auto;"/> 28	<hr style="width: 50%; margin: 0 auto;"/> 40	<hr style="width: 50%; margin: 0 auto;"/> 68

Trawl Summary

Interstate Sampling Site

September 1, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	1.8	1.6 mph	
	Abundance () and lengths of fish		
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(6) 48, 49, 52 61, 63, 107mm	(10) 1 20-39mm 7 40-59mm 2 80-99mm	16
Yellow Bullhead	(1) 73mm	(1) 102mm	2
Spottail Shiners	-	(1) 52mm	1
Ruffe	-	(1) 130mm	1
Channel Catfish	-	(1) 42mm	1
Yellow Perch	-	(1) 163mm	1
Total	<hr/> 7	<hr/> 15	<hr/> 22

Trawl Summary

Interstate Sampling Site

September 5, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	1.6 mph	1.5 mph	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(7) 41, 51, 52 56, 61, 64 98mm	(27) 4 20-39mm 13 40-59mm 3 60-79mm 5 80-99mm 2 100-119mm	34
Ruffe	(2) 74, 137mm	(3) 29, 114, 127mm	5
Johnny Darter	(2) 40, 61mm	-	2
Spottail Shiners	-	(1) 51mm	1
Yellow Bullhead	-	(1) 26mm	1
Total	<hr style="width: 20%; margin: 0 auto;"/> 11	<hr style="width: 20%; margin: 0 auto;"/> 32	<hr style="width: 20%; margin: 0 auto;"/> 43

Trawl Summary

Interstate Sampling Site

September 8, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	1.6 mph	1.6 mph	
	Abundance () and lengths of fish		
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(6) 50, 58, 59 60, 91, 92mm	(3) 56, 78, 85mm	9
Rainbow Smelt	(1) 44mm	(3) 44, 46, 55mm	4
Ruffe	(1) 138mm	(2) 128, 149mm .	3
Johnny Darter	-	(1) 35mm	1
Black Bullhead	-	(1) 28mm	1
Total	<hr/> 8	<hr/> 10	<hr/> 18

Trawl Summary

Interstate Sampling Site

September 12, 1989

	<u>Trawl 1</u>	<u>Trawl 2</u>	
Length of Trawl	5 minutes	5 minutes	
Average Speed	1.4 mph	1.6 mph	
Abundance () and lengths of fish			
	<u>Trawl 1</u>	<u>Trawl 2</u>	<u>Avg/10 min.</u>
Trout Perch	(11) 1 20-39mm 7 40-59mm 2 60-79mm 1 80-99mm	(4) 46, 62 63, 106mm	15
Ruffe	(7) 64, 67, 68 72, 73, 77 115mm	(9) 1 20-39mm 7 60-79mm 1 100-120mm	16
Rainbow Smelt	(3) 36, 39, 52mm	-	3
Spottail Shiners	-	(1) 51mm	1
Channel Catfish	-	(3) 25, 27, 37mm	3
Yellow Perch	-	(1) 115mm	1
Total	<hr/> 21	<hr/> 18	<hr/> 39