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**FISH COLLECTION AND REMOVAL  
102<sup>nd</sup> STREET EMBAYMENT**

**Prepared for**

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&  
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**by**

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**Fish Collection and Removal  
102<sup>ND</sup> Street Embayment**

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## 1.0 INTRODUCTION

Remedial activities in the 102<sup>nd</sup> Street embayment include erection of a silt curtain and construction of a cofferdam around the area of the embayment that will be dredged. The silt curtain was installed during the week of June 10, 1996 and the cofferdam is currently under construction (in stages). Enclosure of the 102<sup>nd</sup> Street embayment has resulted in entrapment of fish that were utilizing the embayment at the time the silt curtain was installed. Dewatering within the area of the cofferdam will result in the loss of fish enclosed within the cofferdam without specific efforts to recover them. To minimize impacts to important fish that may result from enclosure and dewatering of the embayment, Occidental Chemical Corporation and the Olin Corporation (the Companies), in conjunction with the New York State Department of Environmental Conservation (NYSDEC, Region 9 Fisheries Unit) and U.S. Fish and Wildlife Service (USFWS, New York Field Office, Cortland), conducted a two day effort to collect and remove fishes trapped within the silt curtain and cofferdam.

Based on the results of the collection effort, both NYSDEC and USFWS agree that additional collection and removal is not necessary. This report summarizes the results of collection effort conducted on July 2-3, 1996. This report also provides contingency measures for collection and removal of important fishes that are observed during dewatering of the remaining area within the cofferdam.

## 2.0 METHODS

### 2.1 Prioritization

Prior to conducting field work, a list of species likely to be entrapped within the silt curtain was developed. Each species on the list was assigned a priority based on gear catchability and importance to the ecology and sport fishing interests in the Niagara River. The species list and priority for each species is provided in Table 1.

<b>High Priority Species</b>	
muskellunge	largemouth bass
northern pike	smallmouth bass
trout	
<b>Moderate Priority Species</b>	
sheepshead	rockbass
redhorse sucker	bluegill sunfish
pumpkinseed sunfish	yellow perch
crappie	white sucker

Table 1: List of Fish Species Likely to be Entrapped Within the Silt Curtain and Priorities	
Low Priority Species	
goldfish	carp
minnow	brown bullhead
shiner	rudd

Collection and removal focused on high and moderate priority species.

## 2.2 Collection Areas

The area enclosed within the silt curtain was divided into four collection areas. The locations of the four collection areas are shown on Figure 1. Water depth in all four collection areas was 2 to 3 feet. Area 1, which is approximately 2 acres, is the area within the western cell of the cofferdam. At the time of July 2-3 collection, the western cell of the cofferdam was essentially constructed. A 30 foot opening allowed access by the electrofishing boat. Area 1 is characterized by a monotypic stand of submerged aquatic vegetation that provides approximately 85 percent aerial coverage. A small stand of cattail is in the western end of the area, adjacent to the 102<sup>nd</sup> Street site. Water temperature at the surface was 27 C.

Area 2 is the area between the outer berm of the western cell of the cofferdam and the silt curtain. This area is approximately 700 feet in length and 60 feet wide, an area of approximately 1 acre. Area 2 is characterized by a monotypic stand of submerged aquatic vegetation that provides 60 to 80 percent aerial coverage. Water temperature at the surface was 26 C.

Area 3 is the remaining area that will be enclosed by the cofferdam. At the time of the July 2-3 collection, this area was staked within the embayment but construction of the cofferdam had not been initiated. Area 3 is approximately 5.5 acres. Area 3 includes the outfall for the stormwater sewer for the City of Niagara Falls. Vegetative cover in Area 3 is generally 85 percent or more, with the exception of the immediate area of the stormwater sewer outfall. Water temperature at the surface was 22 C.

Area 4 is the area that will be between the central and eastern portion of the cofferdam and the silt curtain. This area is approximate 1,200 feet in length and 60 to 120 feet in width, an area of approximately 2.5 acres. The physical and biological characteristics of Area 4 are similar to Area 3.

## 2.3 Collection and Removal

Fish were collected and removed on July 2-3, 1996. Areas 1 and 2 were sampled on July 2; Areas 3 and 4 were sampled on July 3. Collections were made during daylight hours using a Smith-Root 18E electrofishing boat. Fish were temporarily immobilized with a DC current at 10 amps and 120 pulses per second. Individuals of the high and moderate priority species were collected with scap nets and placed in onboard live wells. Low priority species were not collected. A minimum of two runs was made in each area, each run consisting of at least two passes through the collection area. Within a collection area, each run was approximately the same length of time, with the exception of the third run in Area 1.

Fish collected and stored in the live wells were measured to the nearest millimeter. Fish were released in other shallow habitats of the Niagara River downstream of the 102<sup>nd</sup> street embayment. Release sites were selected by the NYSDEC.

## 2.4 Data Analysis

Population sizes were estimated for the high priority species within each of the four collection areas. With the exception of Area 1, the method of Seber-LeCren as described in Everhart and Youngs (1989) was used. This method requires two runs of similar effort and a high percentage of the total catch collected in the first run. Use of this method for Area 1 is marginal because the first run yielded only a slightly higher percentage of the total catch than the second run.

Linear regression (Everhart and Youngs, 1989) was used to estimate the population of high priority species in Area 1. In this method, catch per effort for each run is the independent variable and cumulative catch is the dependent variable. Using least squares linear regression, the y-intercept provides an estimate of population size.

## 3.0 RESULTS

### 3.1 Overview

Largemouth bass is the primary high priority species entrapped within the silt curtain and cofferdam. One dead muskellunge, three northern pike, and one smallmouth bass were the only other high priority species observed. One of the three northern pike was collected and removed. Pumpkinseed is the predominant moderate priority species. A few individuals of yellow perch, rockbass, and bluegill were collected and removed. Table 2 summarizes the species observed or collected in each of the four areas. Detailed results for each area are provided below. Data on the length of individuals collected and removed from the 102<sup>nd</sup> Street embayment are provided in Appendix A.

Species	Priority	Area 1	Area 2	Area 3	Area 4
Largemouth Bass	High	X	X	X	X
Smallmouth Bass	High			X	
Muskellunge	High			X	
Northern Pike	High			X	X
Bluegill	Moderate			X	
Pumpkinseed	Moderate	X	X	X	X
Yellow Perch	Moderate	X	X	X	X
Rockbass	Moderate		X	X	X
Sheepshead	Moderate			X	

Table 2: Species Observed or Collected Within the Silt Curtain and Cofferdam					
Species	Priority	Area 1	Area 2	Area 3	Area 4
Redhorse Sucker	Moderate	X	X	X	
White Sucker	Moderate	X	X	X	
Brown Bullhead	Low	X	X	X	N/R
Carp	Low	X	X	X	N/R
Goldfish	Low	X	X	X	N/R
Banded Killifish	Low			X	N/R
Bluntnose Minnow	Low	X		X	N/R
Minnow sp.	Low	X	X		N/R
Rudd	Low	X	X		
Common Shiner	Low		X		N/R
Golden Shiner	Low	X	X	X	N/R
Spottail Shiner	Low	X	X		N/R

N/R - Observations of low priority species were not recorded for Area 4.

### 3.2 Area 1

Area 1 is dominated by carp and goldfish, both low priority species. Largemouth bass is the only high priority species observed in Area 1. Eleven and 10 largemouth bass were collected on the first and second runs, respectively. The length of each of the first two runs was approximately 25 minutes. Because only a slightly higher percentage of the cumulative catch was collected in the first run, the applicability of the Seber-LeCren method for estimating population size is marginal. A third run of 10 minutes was made immediately following the second run. This third run, which yielded only one additional largemouth bass, provides sufficient data for use of linear regression to estimate population size.

Table 3 summarizes collection of largemouth bass in Area 1. Using the results of the first two runs and the method of Seber-LeCren, the population of largemouth bass in Area 1 is estimated to be 121 with a variance of 254,000. Using data from all three runs and the method of linear regression, the population of largemouth bass is estimated to be 25. The upper 95 percent confidence limit of this estimate is 133. Having collected 22 individual largemouth bass in Area 1, the percentage of the population collected and removed ranges from 18 percent to 88 percent.

Table 3: Summary of Collection of Largemouth Bass From Area 1				
Run	Time (Sec)	Catch (Number)	Catch Per Effort (Number Per Minute)	Cumulative Catch (Number)
1	1501	11	0.4396	11
2	1508	10	0.3953	21
3	600	1	0.1000	22
<b>Population Estimates</b>				
Seber-LeCren			121	(Variance = 254,100)
Linear Regression			25	(Upper 95% CI = 133)

Upon approval of both NYSDEC and USFWS, the opening for Area 1 was closed and dewatering was initiated on July 2. On July 6, dewatering was completed. Personnel at the 102<sup>nd</sup> Street site collected and identified fish that were not removed on July 2. Fish collected in Area 1 on July 6 are summarized in Table 4. Eight additional largemouth bass were collected in Area 1, bringing the total population for largemouth bass to 30. The estimate of 25 using linear regression provided a more accurate estimate of population size than the 121 using the method of Seber-LeCren. It is important to note that the applicability of the method of Seber-LeCren is marginal because only a slightly higher percentage of the cumulative total for the first two runs was collected in the first run.

Table 4: Species Collected in Area 1 Following Dewatering		
Species	Priority	Number Collected
Largemouth Bass	High	8
Bluegill	Moderate	36
Pumpkinseed	Moderate	19
Rockbass	Moderate	1
Brown Bullhead	Low	56
Shiner sp.	Low	6

No other high priority species were collected July 6. Moderate priority species collected included pumpkinseed, bluegill, and rockbass.

### 3.3 Area 2

Fish were collected in Area 2 using two runs. The length of each run was approximately 15 minutes. Turbidity was noticeably higher during the second run. The higher turbidity was due to earth moving activities associated with closing of the cofferdam in Area 1.

Goldfish and carp are the predominant species in Area 2. Both are low priority species. Largemouth bass is the only high priority species collected in Area 2. Moderate priority species collected in Area 2 include pumpkinseed (2), rockbass (1), and yellow perch (2). Other moderate priority species observed but not collected include white sucker and redhorse sucker. Because moderate priority species were collected and removed only during the second run, estimates of population size were not made for these species.

Table 5 summarizes the collection of largemouth bass in Area 2. Nine and 5 individuals were collected in the first and second runs, respectively. Using the method of Seber-LeCren, the population of largemouth bass in Area 2 is estimated at 20. Based on this estimate, 70 percent of the largemouth bass in Area 2 were removed.

Table 5: Summary of Collection of Largemouth Bass From Area 2				
Run	Time (Sec)	Catch (Number)	Catch Per Effort (Number Per Minute)	Cumulative Catch (Number)
1	920	9	0.5870	9
2	929	5	0.3230	14
<u>Population Estimate</u> Seber-LeCren			20	(Variance = 111)

### 3.4 Area 3

Fish were collected in Area 3 using two runs. The length of each run was approximately 64 minutes. Three high priority species were observed in Area 3. One dead muskellunge (sub-adult) was observed and two northern pike were stunned by the electroshocking unit but were not collected. A total of 67 largemouth bass were collected during the two runs: 36 in the first run and 31 in the second run. Four additional largemouth bass were collected and removed from Area 3, but were not used to estimate population size.

Moderate priority species collected in Area 3 include pumpkinseed (40), yellow perch (6), rockbass (3), and bluegill (1). Of these species, an estimate of population size could be made only for pumpkinseed. In addition to the 40 individuals used to estimate population size, 15 other pumpkinseed were removed from Area 3, for a total of 55 individuals.

Table 6 summarizes the collection of largemouth bass and pumpkinseed in Area 3. The method of Seber-LeCren was used to estimate population size for both species. Populations of largemouth bass and pumpkinseed are estimated at 259 and 56, respectively. Base on these estimates, 27 percent and 98 percent of largemouth bass and pumpkinseed were removed from Area 3, respectively.



Table 6: Summary of Collection of Largemouth Bass and Pumpkinseed From Area 3				
Run	Time (Sec)	Catch (Number)	Catch Per Effort (Number Per Minute)	Cumulative Catch (Number)
<b>Largemouth Bass</b>				
1	3852	36	0.5607	36
2	3846	31	0.4829	67
<u>Population Estimate</u>				
Seber-LeCren			259	(Variance = 133,513)
<b>Pumpkinseed</b>				
1	3852	26	0.4050	26
2	3846	14	0.2184	40
<u>Population Estimate</u>				
Seber-LeCren			56	(Variance = 256)

### 3.5 Area 4

Area 4 was the last area sampled. Due to time constraints, two abbreviated runs were made. In the other three areas, runs were conducted at least one hour apart (with the exception of the second and third runs in Area 1). The two runs in Area 4, approximately 7 minutes each, were made consecutively.

High priority species collected and removed in Area 4 include 18 largemouth bass and one northern pike. Fourteen of the largemouth bass were collected in the first run; three were collected in the second run. One individual each of pumpkinseed, yellow perch, and rockbass, all moderate priority species, were collected in Area 4.

Table 7 summarizes the collection of largemouth bass in Area 4. Using the method of Seber-LeCren, the population of largemouth bass in Area 4 is estimated to be 19. Based on this estimate, 95 percent of the largemouth bass in Area 4 were collected and removed.

Table 7: Summary of Collection of Largemouth Bass From Area 4				
Run	Time (Sec)	Catch (Number)	Catch Per Effort (Number Per Minute)	Cumulative Catch (Number)
1	420	15	2.1429	15
2	420	3	0.4286	18
<u>Population Estimate</u>				
Seber-LeCren			19	(Variance = 2)

#### **4.0 SUMMARY**

Largemouth bass is the predominant high priority species entrapped within the 102<sup>nd</sup> Street embayment. Pooling data from all four collection areas, an estimated 328 largemouth bass were enclosed by the silt curtain. This estimate is based on the assumption that the 30 largemouth bass collected in Area 1 represent the entire population for that area. The two day collection effort resulted in removal of 133, or 40 percent, of the estimated number of largemouth bass. Only four live individuals of other high priority species were observed. An estimated 195 largemouth bass and a negligible number of other high priority species remain within the silt curtain.

The loss of largemouth bass as a result of dewatering should be substantially less than the estimated 195. Not all of the area enclosed by the silt curtain will be enclosed by the cofferdam and dewatered. It is the opinion of the representatives of NYSDEC and USFWS that participated in the July 2-3 effort that some of the high priority species may be using the silt curtain as cover and venture into the open areas of the embayment primarily to forage. Water quality appears to be more favorable along the silt curtain than within the cofferdam. The area adjacent to the silt curtain is enhanced by water exchange with the Niagara River, which helps maintain favorable water temperatures and levels of dissolved oxygen. This is supported by observations made in Area 1, which is dominated by species that are typically associated with high temperatures and low dissolved oxygen (i.e., carp, goldfish). As long as water quality along the silt curtain remains favorable to the high quality species, fish remaining within the 102<sup>nd</sup> Street embayment should be able to leave the areas of lower water quality within the cofferdam and seek out the high quality habitats along the silt curtain. As discussed below, reasonable efforts will be made to remove high quality species within the cofferdam during dewatering.

Based on the relatively low number of high priority species estimated to be trapped within the silt curtain and the availability of suitable habitat that will not be dewatered, representatives of NYSDEC and USFWS have stated that additional large scale collection and removal events are not necessary.

#### **5.0 CONTINGENCY MEASURES**

Even though no additional large scale collection and removal efforts are anticipated, the Companies are committed to continued monitoring of the fish communities within the 102<sup>nd</sup> Street embayment. As additional areas of the embayment are enclosed by the cofferdam and dewatered, onsite personnel will look for high priority species that might be impacted. Reasonable efforts will be made to remove high priority species from areas enclosed by the cofferdam during dewatering procedures. Any individuals of high priority species that are collected during dewatering will be transferred to the river side of the silt curtain.

#### **6.0 REFERENCES**

Everhart, W.H. and Youngs, W.D. 1989. Principles of Fishery Science. Comstock Publishing Associates, Ithaca, NY.

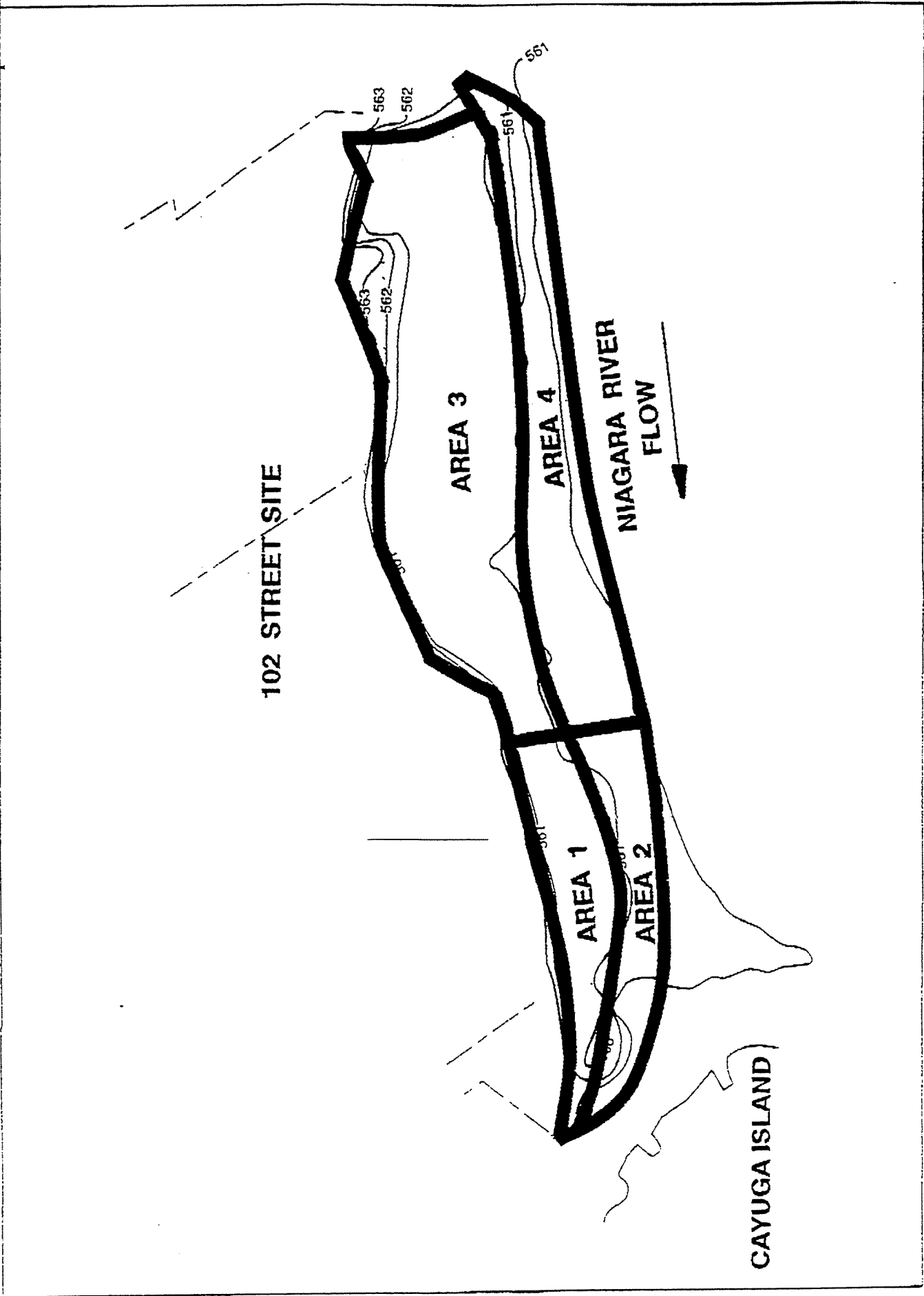


Figure 1:  
Location of Collection Areas

**APPENDIX A:**  
**LENGTHS OF FISH**  
**COLLECTED FROM THE 102<sup>ND</sup> STREET EMBAYMENT**

## Lengths of Fish Collected from the 102nd Street Embayment

<u>Area</u>	<u>Run</u>	<u>Species</u>	<u>Length (mm)</u>	<u>Area</u>	<u>Run</u>	<u>Species</u>	<u>Length (mm)</u>
1	1	Largemouth Bass	305	3	1	Largemouth Bass	404
1	1	Largemouth Bass	288	3	1	Largemouth Bass	396
1	1	Largemouth Bass	265	3	1	Largemouth Bass	395
1	1	Largemouth Bass	250	3	1	Largemouth Bass	381
1	1	Largemouth Bass	244	3	1	Largemouth Bass	380
1	1	Largemouth Bass	242	3	1	Largemouth Bass	377
1	1	Largemouth Bass	241	3	1	Largemouth Bass	376
1	1	Largemouth Bass	227	3	1	Largemouth Bass	369
1	1	Largemouth Bass	202	3	1	Largemouth Bass	359
1	1	Largemouth Bass	193	3	1	Largemouth Bass	355
1	1	Largemouth Bass	186	3	1	Largemouth Bass	355
1	2-3	Largemouth Bass	386	3	1	Largemouth Bass	338
1	2-3	Largemouth Bass	375	3	1	Largemouth Bass	330
1	2-3	Largemouth Bass	321	3	1	Largemouth Bass	330
1	2-3	Largemouth Bass	296	3	1	Largemouth Bass	325
1	2-3	Largemouth Bass	294	3	1	Largemouth Bass	322
1	2-3	Largemouth Bass	235	3	1	Largemouth Bass	318
1	2-3	Largemouth Bass	231	3	1	Largemouth Bass	315
1	2-3	Largemouth Bass	221	3	1	Largemouth Bass	293
1	2-3	Largemouth Bass	221	3	1	Largemouth Bass	290
1	2-3	Largemouth Bass	217	3	1	Largemouth Bass	279
1	2-3	Largemouth Bass	198	3	1	Largemouth Bass	276
2	1	Largemouth Bass	322	3	1	Largemouth Bass	254
2	1	Largemouth Bass	243	3	1	Largemouth Bass	247
2	1	Largemouth Bass	243	3	1	Largemouth Bass	242
2	1	Largemouth Bass	238	3	1	Largemouth Bass	236
2	1	Largemouth Bass	238	3	1	Largemouth Bass	228
2	1	Largemouth Bass	235	3	1	Largemouth Bass	219
2	1	Largemouth Bass	232	3	1	Largemouth Bass	218
2	1	Largemouth Bass	220	3	1	Largemouth Bass	213
2	1	Largemouth Bass	218	3	1	Largemouth Bass	213
2	2	Largemouth Bass	278	3	1	Largemouth Bass	209
2	2	Largemouth Bass	263	3	1	Largemouth Bass	207
2	2	Largemouth Bass	202	3	1	Largemouth Bass	202
2	2	Largemouth Bass	195	3	1	Largemouth Bass	177
2	2	Largemouth Bass	147	3	1	Largemouth Bass	165
2	2	Pumpkinseed	185	3	2	Largemouth Bass	382
2	2	Pumpkinseed	160	3	2	Largemouth Bass	377
2	2	Yellow Perch	185	3	2	Largemouth Bass	375
2	2	Yellow Perch	180	3	2	Largemouth Bass	375
2	2	Rockbass	142	3	2	Largemouth Bass	370
				3	2	Largemouth Bass	367
				3	2	Largemouth Bass	363
				3	2	Largemouth Bass	353

## Lengths of Fish Collected from the 102nd Street Embayment

<u>Area</u>	<u>Run</u>	<u>Species</u>	<u>Length (mm)</u>	<u>Area</u>	<u>Run</u>	<u>Species</u>	<u>Length (mm)</u>
3	2	Largemouth Bass	352	3	1	Pumpkinseed	138
3	2	Largemouth Bass	327	3	1	Pumpkinseed	135
3	2	Largemouth Bass	318	3	1	Pumpkinseed	135
3	2	Largemouth Bass	310	3	1	Pumpkinseed	125
3	2	Largemouth Bass	308	3	1	Pumpkinseed	122
3	2	Largemouth Bass	303	3	2	Pumpkinseed	157
3	2	Largemouth Bass	303	3	2	Pumpkinseed	152
3	2	Largemouth Bass	301	3	2	Pumpkinseed	151
3	2	Largemouth Bass	301	3	2	Pumpkinseed	150
3	2	Largemouth Bass	281	3	2	Pumpkinseed	143
3	2	Largemouth Bass	258	3	2	Pumpkinseed	141
3	2	Largemouth Bass	245	3	2	Pumpkinseed	135
3	2	Largemouth Bass	242	3	2	Pumpkinseed	133
3	2	Largemouth Bass	239	3	2	Pumpkinseed	131
3	2	Largemouth Bass	236	3	2	Pumpkinseed	130
3	2	Largemouth Bass	218	3	2	Pumpkinseed	130
3	2	Largemouth Bass	217	3	2	Pumpkinseed	128
3	2	Largemouth Bass	216	3	2	Pumpkinseed	74
3	2	Largemouth Bass	213	3	2	Pumpkinseed	70
3	2	Largemouth Bass	212	3	1	Yellow Perch	180
3	2	Largemouth Bass	183	3	1	Yellow Perch	156
3	2	Largemouth Bass	133	3	2	Yellow Perch	175
3	2	Largemouth Bass	121	3	2	Yellow Perch	162
3	1	Pumpkinseed	184	3	2	Yellow Perch	160
3	1	Pumpkinseed	180	3	2	Yellow Perch	156
3	1	Pumpkinseed	176	3	1	Rockbass	177
3	1	Pumpkinseed	175	3	1	Rockbass	173
3	1	Pumpkinseed	174	3	2	Rockbass	89
3	1	Pumpkinseed	163	3	2	Bluegill	131
3	1	Pumpkinseed	162	4-Misc	n/a	Largemouth Bass	392
3	1	Pumpkinseed	162	4-Misc	n/a	Largemouth Bass	389
3	1	Pumpkinseed	161	4-Misc	n/a	Largemouth Bass	386
3	1	Pumpkinseed	156	4-Misc	n/a	Largemouth Bass	380
3	1	Pumpkinseed	156	4-Misc	n/a	Largemouth Bass	379
3	1	Pumpkinseed	156	4-Misc	n/a	Largemouth Bass	376
3	1	Pumpkinseed	155	4-Misc	n/a	Largemouth Bass	364
3	1	Pumpkinseed	155	4-Misc	n/a	Largemouth Bass	361
3	1	Pumpkinseed	153	4-Misc	n/a	Largemouth Bass	323
3	1	Pumpkinseed	152	4-Misc	n/a	Largemouth Bass	311
3	1	Pumpkinseed	152	4-Misc	n/a	Largemouth Bass	306
3	1	Pumpkinseed	146	4-Misc	n/a	Largemouth Bass	299
3	1	Pumpkinseed	145	4-Misc	n/a	Largemouth Bass	270
3	1	Pumpkinseed	144	4-Misc	n/a	Largemouth Bass	270
3	1	Pumpkinseed	140	4-Misc	n/a	Largemouth Bass	249

## Lengths of Fish Collected from the 102nd Street Embayment

<u>Area</u>	<u>Run</u>	<u>Species</u>	<u>Length (mm)</u>	<u>Area</u>	<u>Run</u>	<u>Species</u>	<u>Length (mm)</u>
4-Misc	n/a	Largemouth Bass	240	4-Misc	n/a	Bluegill	87
4-Misc	n/a	Largemouth Bass	236	4-Misc	n/a	Bluegill	85
4-Misc	n/a	Largemouth Bass	234	4-Misc	n/a	Rockbass	170
4-Misc	n/a	Largemouth Bass	230	4-Misc	n/a	Northern Pike	533
4-Misc	n/a	Largemouth Bass	225	4-Misc	n/a	Yellow Perch	199
4-Misc	n/a	Largemouth Bass	221	4-Misc	n/a	Yellow Perch	148
4-Misc	n/a	Largemouth Bass	218				
4-Misc	n/a	Pumpkinseed	186				
4-Misc	n/a	Pumpkinseed	165				
4-Misc	n/a	Pumpkinseed	157				
4-Misc	n/a	Pumpkinseed	156				
4-Misc	n/a	Pumpkinseed	155				
4-Misc	n/a	Pumpkinseed	149				
4-Misc	n/a	Pumpkinseed	145				
4-Misc	n/a	Pumpkinseed	136				
4-Misc	n/a	Pumpkinseed	135				
4-Misc	n/a	Pumpkinseed	135				
4-Misc	n/a	Pumpkinseed	133				
4-Misc	n/a	Pumpkinseed	129				
4-Misc	n/a	Pumpkinseed	104				
4-Misc	n/a	Pumpkinseed	82				
4-Misc	n/a	Pumpkinseed	77				
4-Misc	n/a	Pumpkinseed	72				

### Notes

- 2-3: Fish collected during Run 2 and Run 3 in Area 1 were not separated in the onboard live wells
- 4-Misc: Fish collected in Area 4 and miscellaneous fish not associated with a specific collection area or run were not separated in the onboard live wells