

Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

**RESEARCH AND DEVELOPMENT
DEPARTMENT**

REPORT NO. 92-17

COMPREHENSIVE WATER QUALITY EVALUATION

FISH SURVEY OF THE

CHICAGO WATERWAY SYSTEM

DURING 1991

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DISCLAIMER

Mention of proprietary equipment and chemicals in this report does not constitute endorsement by the Metropolitan Water Reclamation District of Greater Chicago.

SUMMARY AND CONCLUSIONS

The Illinois Pollution Control Board ruled in Docket R87-27 that a Comprehensive Water Quality Evaluation of the Chicago Waterway System and its influence on the Lower Des Plaines and Upper Illinois Rivers would be carried out by the Metropolitan Water Reclamation District of Greater Chicago and would be completed by January 15, 1992. The ruling stated that the evaluation should be conducted over the three-year period of January 1, 1989 through December 31, 1991.

As part of the Comprehensive Water Quality Evaluation, an electrofishing survey was conducted to monitor the distribution and abundance of fish populations in the Chicago Waterway System. Fish were sampled at each of 20 stations located within the waterway system from the waterway controlling works near Lake Michigan to Lockport, Illinois. These stations were sampled at a scheduled frequency of four times per year during the period of compliance.

This report contains information on the numbers and weights of fish collected, including fish of harvestable size of angler interest, and on the quality of the stream for fish as estimated by the Index of Biotic Integrity (IBI).

Fish populations integrate both chemical and physical perturbations which affect stream quality. Stream quality for fish is affected by the chemical and physical quality of the

water, the quality of the physical habitat and the variability of stream flow.

The IBI assesses the health of a fish community using 12 fish community measures, or metrics, which fall into three broad categories: (1) species composition, (2) trophic composition, and (3) fish abundance and condition. The Illinois Department of Conservation (IDOC) and the Illinois Environmental Protection Agency (IEPA) have used the IBI to develop a five-tiered stream classification system predicated largely on the type and condition of the fishery resource. The five-tiered classification system will be used in this report to describe the stream quality of the Chicago Waterway System. The five categories of the stream classification system developed by the IDOC and the IEPA which describe stream quality as a function of IBI are:

Class A. Excellent stream quality for fish, IBI of 51 to 60, a unique aquatic resource, comparable to the best situations without human disturbance.

Class B. Good stream quality for fish, IBI of 41 to 50, a highly valued aquatic resource, a good sport fishery.

Class C. Fair stream quality for fish, IBI of 31 to 40, a moderate aquatic resource, a bullhead, sunfish, and carp fishery.

Class D. Poor stream quality for fish, IBI of 21 to 30, a limited aquatic resource, carp or other less desirable species support fishery.

Class E. Very poor stream quality for fish, IBI less than or equal to 20, a restricted use aquatic resource, no sport fishery, few fish of any species present.

1991

Twelve thousand nine hundred ten fish weighing 2,138 kilograms (4,713 pounds) composed of 37 species were collected with electrofishing gear from the Chicago Waterway System during 1991. These fish were distributed among the branches of the Chicago Waterway System as follows:

1. The North Shore Channel total catch was 6,027 fish (377 fish per sample) composed of 25 fish species. The total weight of the catch was 152 kilograms (10 kilograms per sample). The major species by number was the bluntnose minnow and the major species by weight was the carp. Harvestable size fish included black bullhead, black crappie, bluegill, carp, and white sucker.
2. The North Branch of the Chicago River total catch was 568 fish (71 fish per sample) composed

of 16 fish species. The total weight of the catch was .176 kilograms (22 kilograms per sample). The major species by number was the goldfish and the major species by weight was the carp. Harvestable size fish included black bullhead, carp, white sucker, and bluegill.

3. The Chicago Sanitary and Ship Canal total catch was 2,111 fish (106 fish per sample) composed of 19 fish species. The total weight of the catch was 722 kilograms (36 kilograms per sample). The major species by number was the bluntnose minnow, and the major species by weight was the carp. Harvestable size fish included black bullhead, carp, largemouth bass, and black crappie.

4. The Calumet River total catch was 1,150 fish (144 fish per sample) composed of 26 fish species. The total weight of the catch was 227 kilograms (28 kilograms per sample). The major species by number was the gizzard shad, and the major species by weight was the carp. Harvestable size fish included black crappie, bluegill, carp, green sunfish x pumpkinseed hybrid, largemouth bass, white sucker, quillback, black buffalo, black bullhead,

channel catfish, white bass, green sunfish, pumpkinseed, and freshwater drum.

5. The Little Calumet River total catch was 963 fish (120 fish per sample) composed of 15 fish species. The total weight of the catch was 228 kilograms (28 kilograms per sample). The major species by number was the gizzard shad, and the major species by weight was the carp. Harvestable size fish included black bullhead, carp, and largemouth bass.
6. The Cal-Sag Channel total catch was 347 fish (43 fish per sample) composed of 14 fish species. The total weight of the catch was 93 kilograms (12 kilograms per sample). The major species by number was the gizzard shad, and the major species by weight was the carp. Harvestable size fish included bluegill, carp, and largemouth bass.
7. The Chicago River total catch was 1,744 fish (145 fish per sample) composed of 26 fish species. The total weight of the catch was 540 kilograms (45 kilograms per sample). The major species by number was the bluntnose minnow, and the major species by weight was the carp. Harvestable size fish included black bullhead,

bluegill, carp, green sunfish, smallmouth bass, largemouth bass, rock bass, and black crappie.

The following conclusions can be reached as to the stream quality of the Chicago Waterway System based on the maximum IBI achieved at each sample location:

1. North Shore Channel: Station 1 had a maximum IBI of 34 with a stream class rating of C. Stations 2 and 3 had maximum IBIs of 32 with a stream class rating of C. Station 4 had a maximum IBI of 34 with a stream class rating of C. The North Shore Channel is a moderate aquatic resource with fair stream quality for fish.
2. North Branch of the Chicago River: Stations 5 and 6 had maximum IBIs of 24 with a stream class rating of D. The North Branch of the Chicago River is a limited aquatic resource with poor stream quality for fish.
3. Chicago Sanitary and Ship Canal: Stations 7 to 11 had maximum IBIs of 30 to 16 with a stream class rating of D and E. The Chicago Sanitary and Ship Canal is a limited aquatic resource with poor stream quality for fish.
4. Calumet River: Stations 12 and 13 had maximum IBIs of 32 and 34 with a stream class rating of

- C. The Calumet River is a moderate aquatic resource with fair stream quality for fish.
5. Little Calumet River: Stations 14 and 15 had maximum IBIs of 28 and 32 with a stream class rating of D and C. The Little Calumet River is a limited aquatic resource with poor stream quality for fish.
 6. Cal-Sag Channel: Stations 16 and 17 had maximum IBIs of 22 and 24 with a stream class rating of D. The Cal-Sag Channel is a limited aquatic resource with poor stream quality for fish.
 7. Chicago River: Station 18 had a maximum IBI of 38 with a stream class rating of C. The Inner Harbor portion of the Chicago River is a moderate aquatic resource with fair stream quality for fish. Stations 19 to 20 had maximum IBIs of 30 to 22 with a stream class rating of D. The lower portion of the Chicago River is a limited aquatic resource with poor stream quality for fish.

INTRODUCTION

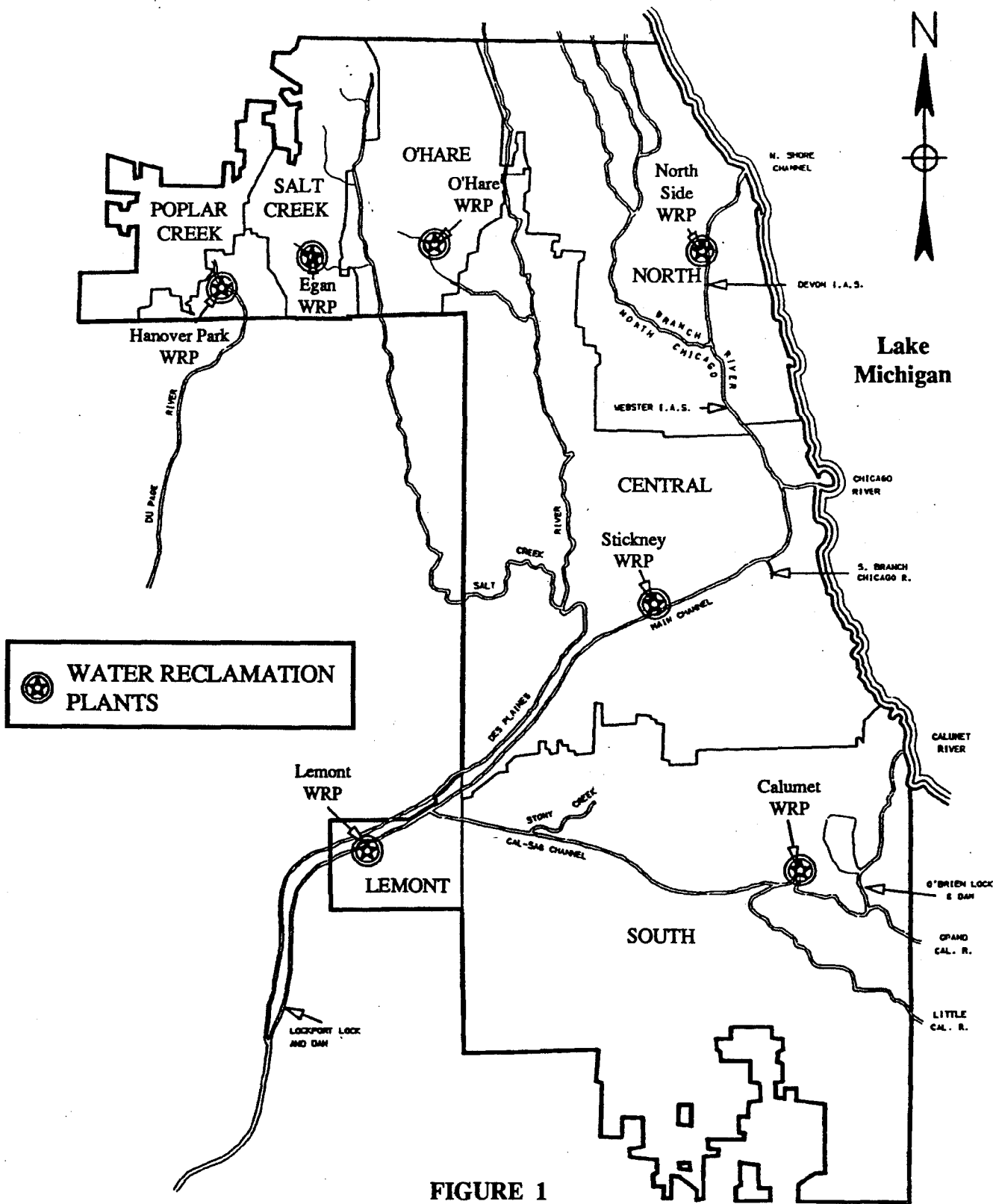
In October 1987, the Metropolitan Water Reclamation District of Greater Chicago (District) and the Illinois Environmental Protection Agency (IEPA) submitted a joint proposal to the Illinois Pollution Control Board (IPCB) seeking to upgrade 11.1 miles of Chicago area waterways, change existing IPCB limitations for certain pollutants discharged from the Calumet and North Side Water Reclamation Plants (WRPs), and change the dissolved oxygen standard for the Cal-Sag Channel. Figure 1 shows the location of District WRPs, service areas, and major waterways within metropolitan Chicagoland. The IPCB ruled favorably on the joint District/IEPA petition in May 1988, but as a part of the ruling, the District was also required to conduct a comprehensive water quality study, as follows:

"The Metropolitan Sanitary District of Greater Chicago shall complete and submit to the Board a comprehensive water quality evaluation of the Chicago Waterway System and its influence on the lower [sic] Des Plaines and Upper Illinois Rivers by January 15, 1992. Such evaluation shall include assessment of performance levels for the North Side, Calumet, and Stickney wastewater [sic] reclamation plants and the extent of sewer overflow reduction through The Metropolitan Sanitary District of Greater Chicago's Tunnel and Reservoir Plan."

The ruling stated that the evaluation should be conducted over the three-year period of January 1, 1989 through December 31, 1991.

In implementing the IPCB's Ruling, the District engaged the services of three outside consultants to supplement District

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO



MAP OF MAJOR FACILITIES AND SERVICE AREAS

efforts and perform various aspects of the evaluation. Their reports, and separate District reports covering discrete aspects of the study, will be submitted to the IEPA.

The objective of this report is to present the results of fish collections from the District waterways and to describe the water quality of these waterways as reflected by their fish populations. Fish collections and analyses give the most meaningful index of water quality to the public. Fish occupy the upper levels of the aquatic food chain as the ultimate aquatic consumer. Therefore, changes in water quality that significantly affect the other kinds of organisms within the aquatic community will also affect the species composition and abundance of the fish population.

A knowledge of the assemblage of fish species in a stream and the numerical relationships of these species provides an excellent biological picture of the watercourse and its well-being. When such information is available over a long period of time, fish can be one of the most sensitive indicators of the quality of the aquatic environment (Smith, 1971).

STUDY AREA

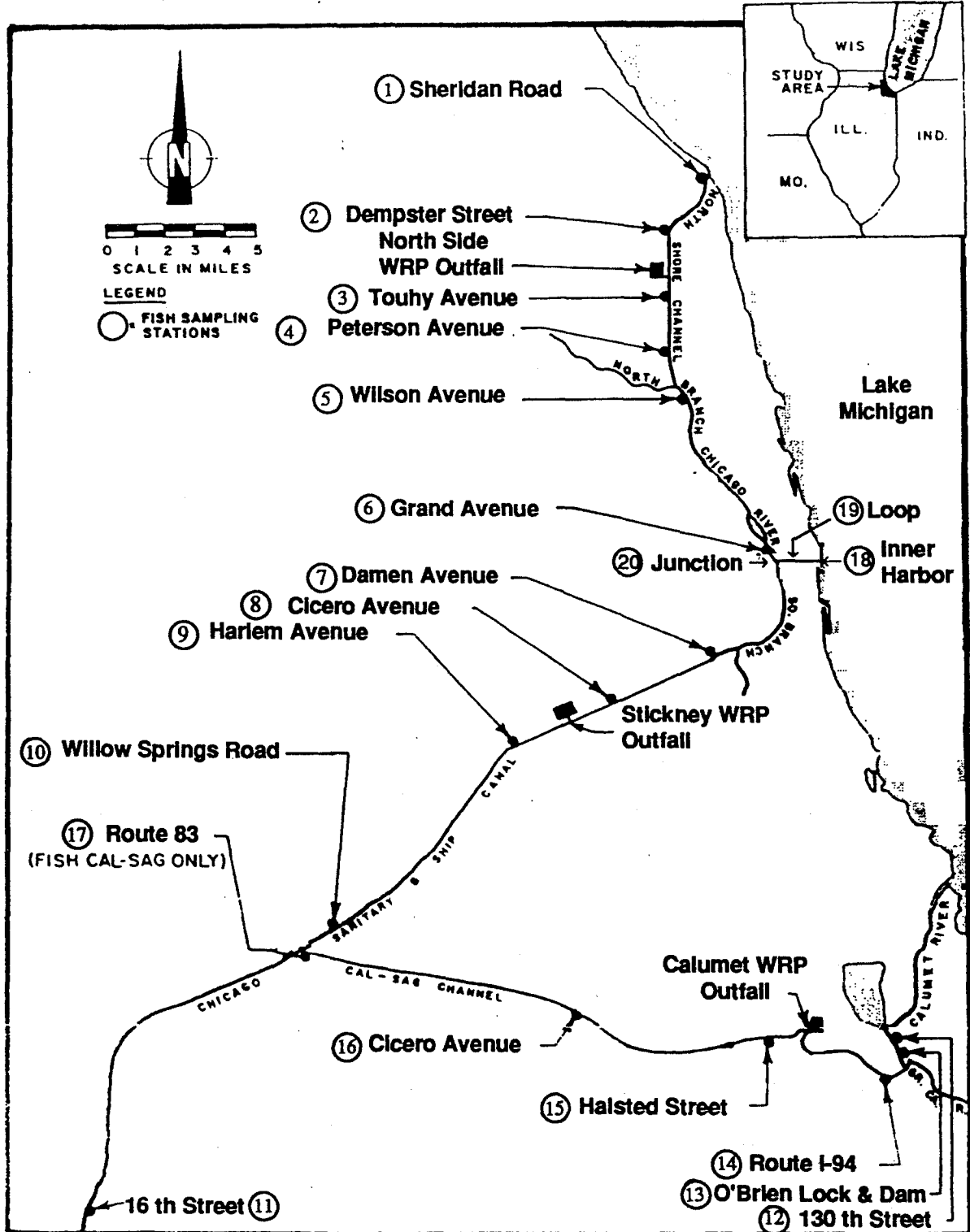
The study area is located in the Metropolitan Chicago Area in Northeastern Illinois (Figure 2). The Biology Section of the Research and Development Department collected fish, using a boat electrofisher, from 20 locations on the deep draft waterways in the Chicago Waterway System from April through December 1991. A list of waterway fish sampling stations, including the distance of each station upstream or downstream from a major WRP is shown in Table 1.

The Chicago Waterway System, consisting of 82 miles of canals constructed during the period from 1892 to 1928, as well as dredged deep draft portions of natural streams, is tributary to the Illinois River via the lower Des Plaines River.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

FIGURE 2

LOCATION OF SAMPLING STATIONS FOR FISH



METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 1

WATERWAY FISH SAMPLING STATIONS

Fish Sampling Station Number and Location	Miles from Water Reclamation Plant (WRP) Outfall
<u>North Shore Channel</u>	
<u>Miles From North Side WRP</u>	
1. Sheridan Road	6.3 Upstream
2. Dempster Street	1.7 Upstream
3. Touhy Avenue	1.0 Downstream
4. Peterson Avenue	2.7 Downstream
<u>North Branch Chicago River</u>	
5. Wilson Avenue	3.8 Downstream
6. Grand Avenue	10.3 Downstream
<u>Chicago Sanitary and Ship Canal</u>	
<u>Miles From Stickney WRP</u>	
7. Damen Avenue	5.2 Upstream
8. Cicero Avenue	1.2 Upstream
9. Harlem Avenue	1.8 Downstream
10. Willow Springs Road	7.9 Downstream
11. 16th Street, Lockport	23.7 Downstream
<u>Calumet River</u>	
<u>Miles From Calumet WRP</u>	
12. 130th Street	5.6 Upstream
13. O'Brien Lock and Dam	5.0 Upstream
<u>Little Calumet River</u>	
14. Route I-94	3.3 Upstream
15. Halsted Street	1.3 Downstream

Table continued on the following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 1 (Continued)

WATERWAY FISH SAMPLING STATIONS

Fish Sampling Station Number and Location	Miles from Water Reclamation Plant (WRP) Outfall
<u>Cal-Sag Channel</u> <u>Miles From Calumet WRP</u>	
16. Cicero Avenue	6.6 Downstream
17. Route 83	17.2 Downstream
<u>Chicago River</u> <u>Miles From Stickney WRP</u>	
18. Inner Harbor	11.2 Upstream
19. Loop	10.2 Upstream
20. NBCR/SBCR Junction	9.7 Upstream

MATERIALS AND METHODS

Fish Collections

Fish were collected at a scheduled frequency of four times a year at each of 20 locations. The gear used to collect the fish was a boat mounted electrofisher. The electrofisher was powered by a 230-volt, 3,000-watt, 180-cycle, 3-phase, alternating-current generator. The water was electrified with 8 to 15 amps of current. Stunned fish were picked out of the water with long handled dip nets by either of two netters who were positioned on the bow of the boat.

In most cases, the section of canal sampled extended for 400 meters. Whenever possible, both sides of this canal section were electrofished. Total time of electrofishing (the time, in minutes, that the current was actually on) was noted for each collection.

Large fish were identified to species, weighed to the nearest 0.5 gram or ounce, measured for maximum standard length and maximum total length to the nearest millimeter, and checked for signs of parasites, disease or other anomalies. Generally, large fish were identified, weighed and measured at the sampling site and returned alive to the canal. Small fish were preserved in ten percent (v/v) formalin and identified, weighed to the nearest 0.01 gram, and measured to the nearest millimeter later in the laboratory.

ABUNDANCE OF FISH

Catch per unit of effort by electrofishing is a useful, easily obtained index to the abundance of the populations of many fish species. This relative measure is more useful when applied to adult fish because of size selectivity. Data regarding the relative abundance of small fish are probably biased too low, but trends in the abundance of young fish can be monitored if electrofishing equipment and procedures are evaluated with this objective in mind (Reynolds, 1983).

In the present study, numbers and weights of fish collected per electrofishing sample are the catch per unit of effort data used for comparisons among the waterways. These data are listed along with the total numbers and weights of fish collected. For more detailed comparisons, the numbers and weights of fish collected per 30 minutes of electrofishing effort are listed for each separate collection at each location in the Appendix.

SIZE OF FISH

Average, minimum and maximum total lengths (in millimeters) and weights (in grams) for each fish species may be compared with those species listed as being of harvestable size and, therefore, of interest to anglers (Table 2). These data are listed by the Illinois Department of Conservation (Bertrand, 1984).

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 2

HARVESTABLE SIZE FISH IN ILLINOIS^a

Fish Species	Minimum Total Length		Average Weight	
	Inches	Millimeters	Pounds	Grams
Walleye, Sauger	12	305	1	454
Northern pike	18	457	3	1,361
Black bass	10	254	1	454
Largemouth bass ^b	10	254		
Smallmouth bass ^b	10	254		
Panfish			0.4	181
Sunfish	6	152		
Rock bass ^b	6	152		
Warmouth	6	152		
Hybrid sunfish ^b	6	152		
Green sunfish ^b	6	152		
Bluegill ^b	6	152		
Misc. sunfish	6	152		
Black bullhead ^b	7.5	191		
Yellow bullhead	7.5	191		
Brown bullhead	7.5	191		
Black crappie ^b	8	203		
White crappie	8	203		
White bass ^b	8	203		
Yellow bass	8	203		
Channel catfish ^b	12	305	1	454
Flathead catfish	12	305	1	454
Non-game			1.5	680
Carp ^b	12	305		
Drum ^b	10	254		
Suckers ^b	12	305		
Smallmouth buffalo	12	305		
Bigmouth buffalo	12	305		
Black buffalo ^b	12	305		

Table continued on the following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 2 (Continued)

HARVESTABLE SIZE FISH IN ILLINOIS^a

Fish Species	<u>Minimum Total Length</u>		<u>Average Weight</u>	
	Inches	Millimeters	Pounds	Grams
Golden redbhorse	12	305		
Silver redbhorse	12	305		
Shorthead redbhorse	12	305		
Paddlefish	24	610		
Yellow perch	10	254		

^a From Bertrand, 1984.

^b Species found in harvestable size in the Chicago Waterway System during 1991.

INDEX OF BIOTIC INTEGRITY

The accurate assessment of biotic integrity requires a method that integrates biotic responses through an examination of patterns and process from individual to ecosystem levels. One tactic is to define an array of biological metrics much like the economic indicators used in econometric analyses. The Index of Biotic Integrity (IBI) developed by Karr (1981) and Karr et al. (1986) adopts this tactic, incorporating data from the study of entire fish communities in 12 metrics in three categories. The value of each metric is then compared to the value expected at a site located in a similar geographical region on a stream of similar size where human influences have been minimal (Weber, 1981). Ratings of 5, 3, and 1 are assigned to each metric according to whether its value approximates, deviates somewhat from, or deviates strongly from the value expected at the relatively undisturbed site. The sampling site is then assigned to one of six quality classes based on the total of the 12 metric ratings. The highest score, 60, indicates a site without perturbation; sites of reduced quality have lower scores.

The calculation procedure for the IBI for use in Northeastern Illinois in the present study was obtained from the Illinois Environmental Protection Agency (IEPA) (Robert Schacht and Robert Hite, personal communication). The same procedure is being used by other investigators throughout the state for classifying the biotic integrity of Illinois streams. An example of the calculation of the IBI is given in Table 3.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 3

AN EXAMPLE OF SCORING OF METRICS FOR CALCULATION OF THE INDEX OF BIOTIC INTEGRITY (IBI) FOR A FISH COLLECTION FROM THE NORTH SHORE CHANNEL AT SHERIDAN ROAD, WILMETTE ON MAY 21, 1991 (STREAM ORDER = 2, NORTHEAST ILLINOIS BASIN)

IBI Metric	Sample Value	Score ^a
Total Number of Species	15	5
Number of Sucker Species	0	1
Number of Sunfish Species	2	5
Number of Darter Species	0	1
Number of Intolerant Species	3	3
Percent of Total As Green Sunfish	0.56	5
Percent of Individuals As Hybrids	0.09	3
Percent of Individuals Diseased or Abnormal	0.01	3
Percent of Omnivores	97.76	1
Percent of Insectivorous Cyprinids	0.37	1
Percent of Carnivores	0.37	1
Number of Fish Caught per Hour ^b	2,074	<u>5</u>
		IBI = 34

^aScores based on sample value ranges listed in Hite and Bertrand, 1989.

^bProduct of the number of fish per 30 minutes (1,037) multiplied by 2.

The IEPA gave these IBI scores qualitative labels so that they could be used for the classification of Illinois streams (IEPA, 1988; Hite and Bertrand, 1989). The biological stream characterization criteria for the classification of Illinois streams used by the IEPA are listed in Table 4. Because the metrics are differentially sensitive to various perturbations, for example siltation or toxic chemicals, as well as to various portions of the range of integrity, conditions at a site can be determined with considerable accuracy.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 4

BIOLOGICAL STREAM CHARACTERIZATION CRITERIA FOR THE CLASSIFICATION OF ILLINOIS STREAMS*

Stream Class	Total IBI Score	Aquatic Resource Category	Stream Quality Description
A	51-60	Unique Aquatic Resource	EXCELLENT. Comparable to the best situations without human disturbance; threatened and endangered species may be present. All regionally expected species for the habitat and stream size, including the most tolerant forms, are present with a full array of age (size) classes; balanced trophic structure.
B	41-50	Highly Valued Aquatic Resource	GOOD. Sport Fishery. Good fishery for important gamefish species, such as walleye, sauger, smallmouth, spotted, or largemouth bass, northern pike, white bass, crappie, catfish, rock bass. Species richness may be somewhat below expectations for stream size or geographic region.
C	31-40	Moderate Aquatic Resource	FAIR. Fishery consists predominantly of bullhead, sunfish, and carp. Species diversity and number of intolerant fish reduced. Diverse forage community may be present. Trophic structure skewed with increased frequency of omnivores, green sunfish and/or tolerant species. Nursery or rearing area for common sport fish. Young of year or juveniles of above species common in fish samples.

Table continued on the following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 4 (Continued)

BIOLOGICAL STREAM CHARACTERIZATION CRITERIA FOR THE CLASSIFICATION OF ILLINOIS STREAMS*

Stream Class	Total IBI Score	Aquatic Resource Category	Stream Quality Description
D	21-30	Limited Aquatic Resource	POOR. Carp or other less desirable species support fishery. Fish community dominated by omnivores and tolerant forms. Few if any fish of other species caught. Few if any young of year or juveniles of any sport species present.
E	≤ 20	Restricted Use Aquatic Resource	VERY POOR. Few fish of any species present. No sport fishery exists. No young of year or juveniles of sport species present.
		No fish	Repeated sampling finds no fish (from Karr et al., 1986).

*Classification as listed in Illinois Environmental Protection Agency, 1988, Hite and Bertrand, 1989, and Karr et al., 1986.

RESULTS

1991

Twelve thousand nine hundred ten fish weighing 2,138 kilograms (3,088 pounds) comprised of 37 species were collected with electrofishing gear from the Chicago Waterway System from April through December 1991. These fish were distributed among the branches of the Chicago Waterway System as follows: North Shore Channel - 6,027 fish, 25 species; North Branch of the Chicago River - 568 fish, 16 species; Chicago River - 1,744 fish, 26 species; Chicago Sanitary and Ship Canal - 2,111 fish, 19 species; Calumet River - 1,150 fish, 26 species; the Little Calumet River - 963 fish, 15 species; and the Cal-Sag Channel - 347 fish, 14 species.

NORTH SHORE CHANNEL

Abundance of Fish. Electrofishing results for the North Shore Channel fish catch are listed in Table 5 for number of fish collected and in Table 6 for weight of the total catch. Twenty-five species and a total of 6,027 fish were collected from the North Shore Channel.

Bluntnose minnows (3,202), fathead minnows (766), golden shiners (606), and goldfish (357) made up 82 percent of the fish collected from the North Shore Channel. Carp (46,052 grams), carp x goldfish hybrids (39,759 grams), and goldfish (29,709 grams), made up 76 percent of the weight of fish collected from the North Shore Channel.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 5

NUMBER OF FISH COLLECTED FROM THE NORTH SHORE CHANNEL
DURING 1991

Fish Species	Total Number	Number Per Sample		
		Average	Minimum	Maximum
Alewife	234	14.63	0	222
Gizzard shad	244	15.25	0	148
Rainbow trout	1	0.06	0	1
Brown trout	5	0.31	0	2
Rainbow smelt	1	0.06	0	1
Central mudminnow	3	0.19	0	3
Grass pickerel	1	0.06	0	1
Goldfish	357	22.31	0	78
Carp*	41	2.56	0	18
Carp x goldfish hybrid	59	3.69	0	21
Golden shiner	606	37.88	0	324
Spottail shiner	195	12.19	0	118
Bluntnose minnow	3202	200.13	0	1226
Fathead minnow	766	47.88	0	276
White sucker*	12	0.75	0	8
Oriental weatherfish	4	0.25	0	2
Black bullhead*	26	1.63	0	5
Threespine stickleback	1	0.06	0	1
Rock bass	13	0.81	0	7
Green sunfish	167	10.44	0	42
Pumpkinseed sunfish	21	1.31	0	12
Orangespotted sunfish	3	0.19	0	2
Bluegill*	47	2.94	0	8
Largemouth bass*	6	0.38	0	2
Black crappie*	8	0.50	0	2
Green sunfish x pumpkinseed hybrid	2	0.13	0	2
Yellow perch	2	0.13	0	2
Number of Fish	6,027	376.69		
Number of Species	25			
Number of Hybrids	2			

*Species found in harvestable size during 1991.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 6

WEIGHT OF TOTAL CATCH OF FISH COLLECTED FROM THE NORTH SHORE CHANNEL DURING 1991

Fish Species	Total Weight (grams)	Weight (grams) Per Sample		
		Average	Minimum	Maximum
Alewife	428.96	26.81	0.00	211.81
Gizzard shad	14,366.96	897.94	0.00	4,472.34
Rainbow trout	1,890.00	118.13	0.00	1,890.00
Brown trout	962.90	60.18	0.00	590.00
Rainbow smelt	0.89	0.06	0.00	0.89
Central mudminnow	36.75	2.30	0.00	36.75
Grass pickerel	72.00	4.50	0.00	72.00
Goldfish	29,708.50	1,856.78	0.00	7,851.58
Carp	46,052.46	2,878.28	0.00	16,020.70
Carp x goldfish hybrid	39,758.61	2,484.91	0.00	18,241.14
Golden shiner	2,065.43	129.09	0.00	626.05
Spottail shiner	333.59	20.85	0.00	204.73
Bluntnose minnow	2,582.10	161.38	0.00	1,146.51
Fathead minnow	993.93	62.12	0.00	237.76
White sucker	4,724.50	295.28	0.00	2,742.00
Oriental weatherfish	32.26	2.02	0.00	20.10
Black bullhead	3,410.44	213.15	0.00	693.00
Threespine stickleback	1.30	0.08	0.00	1.30
Rock bass	17.52	1.10	0.00	10.47
Green sunfish	1,986.09	124.13	0.00	383.10
Pumpkinseed sunfish	87.47	5.47	0.00	57.89
Orangespotted sunfish	34.75	2.17	0.00	21.00
Bluegill	1,264.26	79.02	0.00	312.00
Largemouth bass	489.02	30.56	0.00	224.00
Black crappie	767.00	47.94	0.00	278.50
Green sunfish x pumpkinseed hybrid	2.23	0.14	0.00	2.23
Yellow perch	9.26	0.58	0.00	9.26
Total Weight of Fish Catch	152,079.18	9,504.95		

Size of Fish. Average, minimum and maximum lengths and weights for fish collected from the North Shore Channel are listed in Tables 7 and 8, respectively. Harvestable size fish included black bullhead (maximum of 270 mm total length), black crappie (maximum of 224 mm), bluegill (maximum of 176 mm), carp (average of 338 mm, maximum of 802 mm), largemouth bass (maximum of 255 mm), and the white sucker (average of 314 mm, maximum of 379 mm).

Index of Biotic Integrity (IBI). The IBI for the North Shore Channel (Table 9) ranged from 20 (very poor stream quality, a restricted use aquatic resource) to 34 (fair stream quality, a moderate aquatic resource).

NORTH BRANCH OF THE CHICAGO RIVER

Abundance of Fish. Electrofishing results for the North Branch of the Chicago River fish catch are listed in Table 10 for number of fish collected, and in Table 11 for weight of the total catch. Sixteen fish species and a total of 568 fish were collected from the North Branch of the Chicago River.

Goldfish (106), carp (85), gizzard shad (77), and green sunfish (67), made up 59 percent of the fish collected from the North Branch of the Chicago River. Carp (110,638 grams), carp x goldfish hybrids (40,476 grams) and goldfish (16,399 grams) made up 95 percent of the weight of fish collected from the North Branch of the Chicago River.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 7

LENGTH OF FISH COLLECTED FROM THE NORTH SHORE CHANNEL
DURING 1991

Fish Species	Number	Total Length (millimeters)		
		Average	Minimum	Maximum
Alewife	234	47	27	188
Gizzard shad	244	155	80	347
Rainbow trout	1	611	611	611
Brown trout	5	257	132	337
Rainbow smelt	1	59	59	59
Central mudminnow	3	92	84	106
Grass pickerel	1	235	235	235
Goldfish	357	121	24	277
Carp	41	338	34	802
Carp x goldfish hybrid	59	276	42	495
Golden shiner	606	57	25	165
Spottail shiner	195	56	28	98
Bluntnose minnow	3,202	41	15	90
Fathead minnow	766	46	26	84
White sucker	12	314	215	379
Oriental weatherfish	4	99	85	114
Black bullhead	26	186	30	270
Threespine stickleback	1	54	54	54
Rock bass	13	38	24	53
Green sunfish	167	73	28	151
Pumpkinseed	21	53	32	100
Orangespotted sunfish	3	75	49	97
Bluegill	47	94	30	176
Largemouth bass	6	145	75	255
Black crappie	8	180	115	224
Green sunfish x pumpkinseed hybrid	2	41	40	41
Yellow perch	2	77	68	86

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 8

WEIGHT OF FISH COLLECTED FROM THE NORTH SHORE CHANNEL
DURING 1991

Fish Species	Number	Fish Weight (grams)		
		Average	Minimum	Maximum
Alewife	234	1.83	0.16	56.34
Gizzard shad	244	58.88	3.41	449.00
Rainbow trout	1	1,890.00	1,890.00	1,890.00
Brown trout	5	192.58	23.40	390.00
Rainbow smelt	1	0.89	0.89	0.89
Central mudminnow	3	12.25	8.05	15.86
Grass pickerel	1	72.00	72.00	72.00
Goldfish	357	83.22	0.15	533.50
Carp	41	1,123.23	0.56	9,610.00
Carp x goldfish hybrid	59	673.87	1.24	2,257.50
Golden shiner	606	3.41	0.12	48.88
Spottail shiner	195	1.71	0.18	6.99
Bluntnose minnow	3,202	0.81	0.05	9.32
Fathead minnow	766	1.30	0.12	11.18
White sucker	12	393.71	127.50	673.50
Oriental weatherfish	4	8.07	4.41	14.12
Black bullhead	26	131.17	0.44	284.00
Threespine stickleback	1	1.30	1.30	1.30
Rock bass	13	1.35	0.31	3.20
Green sunfish	167	11.89	0.48	84.00
Pumpkinseed	21	4.17	0.57	19.00
Orangespotted sunfish	3	11.58	2.75	21.00
Bluegill	47	26.90	0.36	122.00
Largemouth bass	6	81.50	5.40	224.00
Black crappie	8	95.88	19.00	173.00
Green sunfish x pumpkinseed hybrid	2	1.12	1.07	1.16
Yellow perch	2	4.63	3.14	6.12

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 9

METRICS USED IN THE CALCULATION OF THE INDEX OF BIOTIC INTEGRITY (IBI) FOR THE NORTH SHORE CHANNEL DURING 1991

IBI Metric	Average	Minimum	Maximum
Number of Species Per Sample	11	7	16
Number of Sucker Species	0	0	1
Number of Sunfish Species	3	1	5
Number of Darter Species	0	0	0
Number of Intolerant Species	1	0	3
Percent of Total as Green Sunfish	7	0	37
Percent of Individuals as Hybrids	3	0	14
Proportion Diseased	2	0	7
Percent of Omnivores	80	50	98
Percent of Insectivorous Cyprinids	4	0	25
Percent of Carnivores	1	0	3
Total Abundance	377	23	1989
Electrofishing Time (Minutes)	37	30	50
Stream Order	2	2	2
Stream Basin	2	2	2
Species Metric Factor	4	3	5
Sucker Metric Factor	1	1	1
Sunfish Metric Factor	4	0	5
Darter Metric Factor	1	1	1
Intolerant Metric Factor	1	1	3
Green Sunfish Metric Factor	4	1	5
Hybrid Metric Factor	3	1	5
Disease Metric Factor	2	1	5
Omnivore Metric Factor	1	1	1
Insectivorous Metric Factor	1	1	3
Carnivore Metric Factor	2	1	3
Abundance Metric Factor	2	1	5
IBI	27	20	34

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 10

NUMBER OF FISH COLLECTED FROM THE NORTH BRANCH OF THE CHICAGO RIVER DURING 1991

Fish Species	Total Number	Number Per Sample		
		Average	Minimum	Maximum
Alewife	5	0.63	0	3
Gizzard shad	77	9.63	0	53
Goldfish	106	13.25	1	51
Carp*	85	10.63	3	23
Carp x goldfish hybrid	44	5.50	0	10
Golden shiner	55	6.88	0	44
Emerald shiner	2	0.25	0	2
Spottail shiner	4	0.50	0	2
Bluntnose minnow	59	7.38	0	28
Fathead minnow	4	0.50	0	2
White sucker*	2	0.25	0	1
Black bullhead*	4	0.50	0	1
Green sunfish	67	8.38	1	18
Pumpkinseed	10	1.25	0	7
Bluegill*	34	4.25	0	10
Largemouth bass	4	0.50	0	3
Black crappie*	2	0.25	0	2
Green sunfish x bluegill hybrid	3	0.38	0	2
Pumpkinseed x bluegill hybrid	1	0.13	0	1
Number of Fish	568	71.00		
Number of Species	16			
Number of Hybrids	3			

*Species found in harvestable size during 1991.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 11

WEIGHT OF TOTAL CATCH OF FISH COLLECTED FROM THE NORTH BRANCH OF
THE CHICAGO RIVER DURING 1991

Fish Species	Total Weight (grams)	Weight (grams) Per Sample		
		Average	Minimum	Maximum
Alewife	82.89	10.36	0.00	57.06
Gizzard shad	3,961.25	495.16	0.00	1,211.75
Goldfish	16,398.57	2,049.82	20.00	4,807.79
Carp	110,638.09	13,829.76	3,618.06	32,973.00
Carp x goldfish hybrid	40,476.35	5,059.54	0.00	10,390.00
Golden shiner	401.81	50.23	0.00	187.93
Emerald shiner	19.28	2.41	0.00	19.28
Spottail shiner	8.64	1.08	0.00	5.62
Bluntnose minnow	138.22	17.28	0.00	59.01
Fathead minnow	8.98	1.12	0.00	5.07
White sucker	749.00	93.63	0.00	559.00
Black bullhead	691.94	86.49	0.00	238.50
Green sunfish	1,096.04	137.01	10.07	247.61
Pumpkinseed	118.01	14.75	0.00	88.00
Bluegill	1,261.61	157.70	0.00	357.80
Largemouth bass	35.01	4.38	0.00	23.01
Black crappie	176.38	22.05	0.00	176.38
Green sunfish x bluegill hybrid	50.22	6.28	0.00	31.00
Pumpkinseed x bluegill hybrid	29.50	3.69	0.00	29.50
Total Weight of Fish Catch	176,341.79	22,042.72		

Size of Fish. Average, minimum and maximum lengths and weights for fish collected from the North Branch of the Chicago River are listed in Tables 12 and 13, respectively. Harvestable size fish included black bullhead (average of 213 mm, maximum of 235 mm), carp (average of 369 mm, maximum of 780 mm), white sucker (maximum of 377 mm), bluegill (maximum of 194 mm) and black crappie (maximum of 217 mm).

Index of Biotic Integrity (IBI). The IBI for North Branch of the Chicago River (Table 14) ranged from 18 (very poor stream quality, a restricted use aquatic resource) to 24 (poor stream quality, a limited aquatic resource).

CHICAGO SANITARY AND SHIP CANAL

Abundance of Fish. Electrofishing results for the Chicago Sanitary and Ship Canal fish catch are listed in Table 15 for number of fish collected, and in Table 16 for weight of the total catch. Nineteen fish species and a total of 2,111 fish were collected from the Chicago Sanitary and Ship Canal.

Bluntnose minnows (657), goldfish (648), and carp (496), made up 85 percent of the fish collected from the Chicago Sanitary and Ship Canal. Carp (578,638 grams), goldfish (118,243 grams), and carp x goldfish hybrids (16,420 grams) made up 98.7 percent of the weight of fish collected from the Chicago Sanitary and Ship Canal.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 12

LENGTH OF FISH COLLECTED FROM THE NORTH BRANCH OF THE
CHICAGO RIVER DURING 1991

Fish Species	Number	Total Length (millimeters)		
		Average	Minimum	Maximum
Alewife	5	102	75	172
Gizzard shad	77	148	90	312
Goldfish	106	151	26	302
Carp	85	369	65	780
Carp x goldfish hybrid	44	314	68	565
Golden shiner	55	79	43	176
Emerald shiner	2	108	100	115
Spottail shiner	4	63	52	67
Bluntnose minnow	59	55	29	92
Fathead minnow	4	58	50	63
White sucker	2	314	250	377
Black bullhead	4	213	183	235
Green sunfish	67	87	43	131
Pumpkinseed	10	70	45	131
Bluegill	34	101	35	194
Largemouth bass	4	84	72	100
Black crappie	2	141	65	217
Green sunfish x bluegill hybrid	3	97	95	99
Pumpkinseed x bluegill hybrid	1	113	113	113

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 13

WEIGHT OF FISH COLLECTED FROM THE NORTH BRANCH OF THE
CHICAGO RIVER DURING 1991

Fish Species	Number	Fish Weight (grams)		
		Average	Minimum	Maximum
Alewife	5	16.58	2.79	57.06
Gizzard shad	77	51.44	6.68	381.00
Goldfish	106	154.70	0.27	686.50
Carp	85	1,301.62	4.64	9,733.50
Carp x goldfish hybrid	44	919.92	5.82	4,120.00
Golden shiner	55	7.31	0.69	59.00
Emerald shiner	2	9.64	7.64	11.64
Spottail shiner	4	2.16	1.03	2.84
Bluntnose minnow	59	2.34	0.19	13.10
Fathead minnow	4	2.25	1.48	3.29
White sucker	2	374.50	190.00	559.00
Black bullhead	4	172.99	89.00	238.50
Green sunfish	67	16.36	1.68	56.00
Pumpkinseed	10	11.80	1.66	46.00
Bluegill	34	37.11	0.68	185.50
Largemouth bass	4	8.75	5.72	12.00
Black crappie	2	88.19	3.38	173.00
Green sunfish x bluegill hybrid	3	16.74	15.00	19.22
Pumpkinseed x bluegill hybrid	1	29.50	29.50	29.50

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 14

METRICS USED IN THE CALCULATION OF THE INDEX OF BIOTIC INTEGRITY
(IBI) FOR THE NORTH BRANCH OF THE CHICAGO RIVER
DURING 1991

IBI Metric	Average	Minimum	Maximum
Number of Species Per Sample	9	3	14
Number of Sucker Species	0	0	1
Number of Sunfish Species	2	1	4
Number of Darter Species	0	0	0
Number of Intolerant Species	0	0	0
Percent of Total as Green Sunfish	13.40	1.96	35.56
Percent of Individuals as Hybrids	9.43	0.00	17.65
Proportion Diseased	4.58	0.00	6.70
Percent of Omnivores	67.23	40.00	83.33
Percent of Insectivorous Cyprinids	0.54	0.00	3.20
Percent of Carnivores	1.00	0.00	4.84
Total Abundance	71	6	183
Electrofishing Time (Minutes)	39	36	44
Stream Order	3	3	3
Stream Basin	2	2	2
Species Metric Factor	3	1	5
Sucker Metric Factor	1	1	1
Sunfish Metric Factor	4	1	5
Darter Metric Factor	1	1	1
Intolerant Metric Factor	1	1	1
Green Sunfish Metric Factor	3	1	5
Hybrid Metric Factor	2	1	5
Disease Metric Factor	2	1	5
Omnivore Metric Factor	1	1	3
Insectivorous Metric Factor	1	1	1
Carnivore Metric Factor	2	1	3
Abundance Metric Factor	1	1	1
IBI	21	18	24

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 15

NUMBER OF FISH COLLECTED FROM THE CHICAGO SANITARY AND SHIP
CANAL DURING 1991

Fish Species	Total Number	Number Per Sample		
		Average	Minimum	Maximum
Alewife	1	0.05	0	1
Gizzard shad	66	3.30	0	31
Brown trout	1	0.05	0	1
Rainbow smelt	1	0.05	0	1
Central mudminnow	1	0.05	0	1
Goldfish	648	32.40	1	157
Carp*	496	24.80	1	134
Carp x goldfish hybrid	22	1.10	0	7
Golden shiner	49	2.45	0	16
Emerald shiner	19	0.95	0	15
Spottail shiner	19	0.95	0	18
Bluntnose minnow	657	32.85	0	217
Fathead minnow	24	1.20	0	12
Black bullhead*	2	0.10	0	1
Threespine stickleback	1	0.05	0	1
Green sunfish	18	0.90	0	3
Pumpkinseed	17	0.85	0	4
Bluegill	13	0.65	0	5
Largemouth bass*	54	2.70	0	19
Black crappie*	1	0.05	0	1
Green sunfish x pumpkinseed	1	0.05	0	1
Number of Fish	2,111	105.55		
Number of Species	19			
Number of Hybrids	2			

*Species found in harvestable size during 1991.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 16

WEIGHT OF TOTAL CATCH OF FISH COLLECTED FROM THE CHICAGO
SANITARY AND SHIP CANAL DURING 1991

Fish Species	Total Weight (grams)	Weight (grams) Per Sample		
		Average	Minimum	Maximum
Alewife	0.79	0.04	0.00	0.79
Gizzard shad	2,149.86	107.49	0.00	995.68
Brown trout	454.00	22.70	0.00	454.00
Rainbow smelt	5.51	0.28	0.00	5.51
Central mudminnow	20.00	1.00	0.00	20.00
Goldfish	118,243.80	5,912.19	9.92	27,705.43
Carp	578,637.82	28,931.89	8.15	133,322.14
Carp x goldfish hybrid	16,419.64	820.98	0.00	6,076.50
Golden shiner	432.86	21.64	0.00	164.16
Emerald shiner	92.66	4.63	0.00	68.39
Spottail shiner	29.17	1.46	0.00	27.08
Bluntnose minnow	1,088.78	54.44	0.00	271.82
Fathead minnow	47.99	2.40	0.00	14.36
Black bullhead	298.68	14.93	0.00	296.50
Threespine stickleback	1.41	0.07	0.00	1.41
Green sunfish	187.37	9.37	0.00	46.00
Pumpkinseed	148.73	7.44	0.00	63.00
Bluegill	35.42	1.77	0.00	16.48
Largemouth bass	3,898.99	194.95	0.00	1,546.00
Black crappie	216.00	10.80	0.00	216.00
Green sunfish x pumpkinseed hybrid	19.00	0.95	0.00	19.00
Total Weight of Fish Catch	722,428.48	36,121.42		

Size of Fish. Average, minimum and maximum lengths and weights for fish collected from the Chicago Sanitary and Ship Canal are listed in Tables 17 and 18, respectively. Harvestable size fish included black bullhead (maximum of 260 mm total length), carp (average of 342 mm, maximum of 823 mm), largemouth bass (maximum of 277 mm), and one black crappie (231 mm).

Index of Biotic Integrity (IBI). The IBI for the Chicago Sanitary and Ship Canal (Table 19) ranged from 16 (very poor stream quality, a restricted use aquatic resource) to 30 (poor stream quality, a limited aquatic resource).

CALUMET RIVER

Abundance of Fish. Electrofishing results for the Calumet River fish catch are listed in Table 20 for number of fish collected, and in Table 21 for weight of the total catch. Twenty-six fish species and a total of 1,150 fish were collected from the Calumet River.

Gizzard shad (218), bluntnose minnow (204), green sunfish (143), bluegill (135), and largemouth bass (129) made up 72 percent of the fish collected from the Calumet River. Carp (153,709 grams), gizzard shad (20,768), and largemouth bass (15,754 grams) made up 84 percent of the weight of fish collected from the Calumet River.

Size of Fish. Average, minimum and maximum lengths and weights for fish collected from the Calumet River are listed in

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 17

LENGTH OF FISH COLLECTED FROM THE CHICAGO SANITARY AND SHIP
CANAL DURING 1991

Fish Species	Number	Total Length (millimeters)		
		Average	Minimum	Maximum
Alewife	1	43	43	43
Gizzard shad	66	137	85	248
Brown trout	1	336	336	336
Rainbow smelt	1	92	92	92
Central mudminnow	1	120	120	120
Goldfish	648	187	25	312
Carp	496	342	54	823
Carp x goldfish hybrid	22	307	66	455
Golden shiner	49	83	47	157
Emerald shiner	19	85	58	110
Spottail shiner	19	56	45	69
Bluntnose minnow	657	51	27	92
Fathead minnow	24	53	38	80
Black bullhead	2	157	53	260
Threespine stickleback	1	54	54	54
Green sunfish	18	78	44	110
Pumpkinseed	17	68	43	117
Bluegill	13	50	38	104
Largemouth bass	54	144	65	277
Black crappie	1	231	231	231
Green sunfish x pumpkinseed hybrid	1	90	90	90

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 18

WEIGHT OF FISH COLLECTED FROM THE CHICAGO SANITARY AND SHIP
CANAL DURING 1991

Fish Species	Number	Fish Weight (grams)		
		Average	Minimum	Maximum
Alewife	1	0.79	0.79	0.79
Gizzard shad	66	32.57	5.95	170.00
Brown trout	1	454.00	454.00	454.00
Rainbow smelt	1	5.51	5.51	5.51
Central mudminnow	1	20.00	20.00	20.00
Goldfish	648	182.48	0.19	827.00
Carp	496	1,166.61	2.47	11,884.00
Carp x goldfish hybrid	22	746.35	4.68	1,628.50
Golden shiner	49	8.83	0.87	44.69
Emerald shiner	19	4.88	1.34	9.43
Spottail shiner	19	1.54	0.60	2.92
Bluntnose minnow	657	1.66	0.10	9.38
Fathead minnow	24	2.00	0.50	6.00
Black bullhead	2	149.34	2.18	296.50
Threespine stickleback	1	1.41	1.41	1.41
Green sunfish	18	10.41	1.55	27.08
Pumpkinseed	17	8.75	1.06	33.00
Bluegill	13	2.72	0.92	16.48
Largemouth bass	54	72.20	3.00	375.00
Black crappie	1	216.00	216.00	216.00
Green sunfish x pumpkinseed hybrid	1	19.00	19.00	19.00

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 19

METRICS USED IN THE CALCULATION OF THE INDEX OF BIOTIC INTEGRITY
(IBI) FOR THE CHICAGO SANITARY AND SHIP CANAL
DURING 1991

IBI Metric	Average	Minimum	Maximum
Number of Species Per Sample	6	3	12
Number of Sucker Species	0	0	0
Number of Sunfish Species	1	0	3
Number of Darter Species	0	0	0
Number of Intolerant Species	0	0	1
Percent of Total as Green Sunfish	3	0	20
Percent of Individuals as Hybrids	2	0	6
Percent Diseased	13	3	53
Percent of Omnivores	87	56	100
Percent of Insectivorous Cyprinids	2	0	10
Percent of Carnivores	4	0	22
Total Abundance	106	14	339
Electrofishing Time (Minutes)	34	30	45
Stream Order	3	3	4
Stream Basin	2	2	2
Species Metric Factor	2	1	3
Sucker Metric Factor	1	1	1
Sunfish Metric Factor	2	1	5
Darter Metric Factor	1	1	1
Intolerant Metric Factor	1	1	1
Green Sunfish Metric Factor	5	3	5
Hybrid Metric Factor	3	1	5
Disease Metric Factor	1	1	1
Omnivore Metric Factor	1	1	1
Insectivorous Metric Factor	1	1	1
Carnivore Metric Factor	2	1	5
Abundance Metric Factor	2	1	3
IBI	22	16	30

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 20

NUMBER OF FISH COLLECTED FROM THE CALUMET RIVER
DURING 1991

Fish Species	Total Number	Number Per Sample		
		Average	Minimum	Maximum
Alewife	1	0.13	0	1
Gizzard shad	218	27.25	0	83
Chinook salmon	1	0.13	0	1
Goldfish	7	0.88	0	4
Grass carp	1	0.13	0	1
Carp*	57	7.13	1	16
Carp x goldfish hybrid	1	0.13	0	1
Golden shiner	7	0.88	0	3
Emerald shiner	91	11.38	0	87
Spottail shiner	2	0.25	0	1
Bluntnose minnow	204	25.50	1	54
Fathead minnow	8	1.00	0	5
Quillback*	2	0.25	0	2
White sucker*	2	0.25	0	1
Black buffalo*	1	0.13	0	1
Black bullhead*	1	0.13	0	1
Channel catfish*	2	0.25	0	1
White bass*	1	0.13	0	1
White perch	53	6.63	0	17
Green sunfish*	143	17.88	2	64
Pumpkinseed*	69	8.63	1	35
Bluegill*	135	16.88	0	52
Smallmouth bass	1	0.13	0	1
Largemouth bass*	129	16.13	1	45
Black crappie*	2	0.25	0	2
Green sunfish x pumpkinseed hybrid*	5	0.63	0	3
Green sunfish x bluegill hybrid	4	0.50	0	3
Yellow perch	1	0.13	0	1
Freshwater drum*	1	0.13	0	1
Number of Fish	1150	143.75		
Number of Species	26			
Number of Hybrids	3			

*Species found in harvestable size during 1991.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 21

WEIGHT OF TOTAL CATCH OF FISH COLLECTED FROM THE CALUMET RIVER
DURING 1991

Fish Species	Total Weight (grams)	Weight (grams) Per Sample		
		Average	Minimum	Maximum
Alewife	60.00	7.50	0.00	60.00
Gizzard shad	20,768.48	2,596.06	0.00	7,601.38
Chinook salmon	4,110.00	513.75	0.00	4,110.00
Goldfish	1,987.78	248.47	0.00	1,234.00
Grass carp	9,072.00	1,134.00	0.00	9,072.00
Carp	153,709.31	19,213.66	2,490.00	53,409.45
Carp x goldfish hybrid	715.00	89.38	0.00	715.00
Golden shiner	74.45	9.31	0.00	56.41
Emerald shiner	233.28	29.16	0.00	215.72
Spottail shiner	18.35	2.29	0.00	9.49
Bluntnose minnow	548.80	68.60	6.50	155.43
Fathead minnow	8.91	1.11	0.00	5.22
Quillback	1,284.50	160.56	0.00	1,284.50
White sucker	997.00	124.63	0.00	551.00
Black buffalo	5,925.15	740.64	0.00	5,925.15
Black bullhead	157.00	19.63	0.00	157.00
Channel catfish	1,879.50	234.94	0.00	999.00
White bass	553.00	69.13	0.00	553.00
White perch	2,355.56	294.45	0.00	883.00
Green sunfish	2,155.93	269.49	17.00	1,224.43
Pumpkinseed	1,459.99	182.50	43.00	378.37
Bluegill	2,116.15	264.52	0.00	502.86
Smallmouth bass	14.00	1.75	0.00	14.00
Largemouth bass	15,754.20	1,969.28	79.00	6,554.22
Black crappie	178.50	22.31	0.00	178.50
Green sunfish x pumpkinseed hybrid	156.79	19.60	0.00	85.00
Green sunfish x bluegill hybrid	32.00	4.00	0.00	16.11
Yellow perch	3.07	0.38	0.00	3.07
Freshwater drum	809.00	101.13	0.00	809.00
Total Weight of Fish Catch	227,137.70	28,392.21		

Tables 22 and 23, respectively. Harvestable size fish included black crappie (maximum of 218 mm total length), bluegill (maximum of 172 mm), carp (average of 513 mm, maximum of 865 mm), green sunfish x pumpkinseed hybrid (maximum of 155 mm), largemouth bass (maximum of 408 mm), white sucker (average of 361 mm, maximum of 380 mm), two quillback (323 mm and 420 mm), one 718 mm black buffalo, one 225 mm black bullhead, two channel catfish (450 mm and 466 mm), one 329 mm white bass, green sunfish (maximum of 155 mm), and freshwater drum (388 mm)..

Index of Biotic Integrity (IBI). The IBI for the Calumet River (Table 24) ranged from 22 (poor stream quality, a limited aquatic resource) to 34 (fair stream quality, a moderate aquatic resource).

LITTLE CALUMET RIVER

Abundance of Fish. Electrofishing results for the Little Calumet River fish catch are listed in Table 25 for number of fish collected, and in Table 26 for weight of the total catch. Fifteen fish species and a total of 963 fish were collected from the Little Calumet River.

Gizzard shad (545), carp (112), goldfish (108), and white perch (46) made up 84 percent of the fish collected from the Little Calumet River. Carp (150,755 grams), goldfish (29,741 grams), and carp x goldfish hybrids (25,378 grams) made up 90 percent of the weight of fish collected from the Little Calumet River.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 22

LENGTH OF FISH COLLECTED FROM THE CALUMET RIVER
DURING 1991

Fish Species	Number	<u>Total Length (millimeters)</u>		
		Average	Minimum	Maximum
Alewife	1	200	200	200
Gizzard shad	218	193	84	346
Chinook salmon	1	683	683	683
Goldfish	7	228	122	270
Grass carp	1	870	870	870
Carp	57	513	64	865
Carp x goldfish hybrid	1	378	378	378
Golden shiner	7	89	27	159
Emerald shiner	91	71	48	114
Spottail shiner	2	104	102	105
Bluntnose minnow	204	63	31	95
Fathead minnow	8	45	37	61
Quillback	2	372	323	420
White sucker	2	361	342	380
Black buffalo	1	718	718	718
Black bullhead	1	225	225	225
Channel catfish	2	458	450	466
White bass	1	329	329	329
White perch	53	144	82	218
Green sunfish	143	90	58	155
Pumpkinseed	69	92	57	152
Bluegill	135	80	41	172
Smallmouth bass	1	112	112	112
Largemouth bass	129	135	33	408
Black crappie	2	181	144	218
Green sunfish x pumpkinseed hybrid	5	102	56	155
Green sunfish x bluegill hybrid	4	71	57	91
Yellow perch	1	78	78	78
Freshwater drum	1	388	388	388

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 23

WEIGHT OF FISH COLLECTED FROM THE CALUMET RIVER
DURING 1991

Fish Species	Number	Fish Weight (grams)		
		Average	Minimum	Maximum
Alewife	1	60.00	60.00	60.00
Gizzard shad	218	95.27	5.55	420.00
Chinook salmon	1	4,110.00	4,110.00	4,110.00
Goldfish	7	283.97	34.28	492.00
Grass carp	1	9,072.00	9,072.00	9,072.00
Carp	57	2,696.65	3.66	12,587.40
Carp x goldfish hybrid	1	715.00	715.00	715.00
Golden shiner	7	10.64	0.16	34.20
Emerald shiner	91	2.56	0.71	11.49
Spottail shiner	2	9.18	8.86	9.49
Bluntnose minnow	204	2.69	0.18	8.53
Fathead minnow	8	1.11	0.39	2.70
Quillback	2	642.25	346.00	938.50
White sucker	2	498.50	446.00	551.00
Black buffalo	1	5,925.15	5,925.15	5,925.15
Black bullhead	1	157.00	157.00	157.00
Channel catfish	2	939.75	880.50	999.00
White bass	1	553.00	553.00	553.00
White perch	53	44.44	8.74	167.00
Green sunfish	143	15.08	2.50	76.00
Pumpkinseed	69	21.16	3.53	91.00
Bluegill	135	15.68	0.87	97.00
Smallmouth bass	1	14.00	14.00	14.00
Largemouth bass	129	122.13	0.42	1,219.05
Black crappie	2	89.25	29.00	149.50
Green sunfish x pumpkinseed hybrid	5	31.36	2.95	85.00
Green sunfish x bluegill hybrid	4	8.00	3.43	16.11
Yellow perch	1	3.07	3.07	3.07
Freshwater drum	1	809.00	809.00	809.00

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 24

METRICS USED IN THE CALCULATION OF THE INDEX OF BIOTIC INTEGRITY (IBI) FOR THE CALUMET RIVER DURING 1991

IBI Metric	Average	Minimum	Maximum
Number of Species Per Sample	11	6	15
Number of Sucker Species	1	0	2
Number of Sunfish Species	3	2	4
Number of Darter Species	0	0	0
Number of Intolerant Species	0	0	1
Percent of Total as Green Sunfish	11	3	39
Percent of Individuals as Hybrids	1	0	3
Percent Diseased	6	2	13
Percent of Omnivores	51	27	70
Percent of Insectivorous Cyprinids	4	0	25
Percent of Carnivores	18	5	26
Total Abundance	144	65	352
Electrofishing Time (Minutes)	34	30	40
Stream Order	3	3	3
Stream Basin	2	2	2
Species Metric Factor	3	1	5
Sucker Metric Factor	1	1	3
Sunfish Metric Factor	5	3	5
Darter Metric Factor	1	1	1
Intolerant Metric Factor	1	1	1
Green Sunfish Metric Factor	4	1	5
Hybrid Metric Factor	4	1	5
Disease Metric Factor	1	1	1
Omnivore Metric Factor	2	1	3
Insectivorous Metric Factor	1	1	3
Carnivore Metric Factor	5	3	5
Abundance Metric Factor	2	1	5
IBI	29	22	34

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 25

NUMBER OF FISH COLLECTED FROM THE LITTLE CALUMET RIVER
DURING 1991

Fish Species	Total Number	Number Per Sample		
		Average	Minimum	Maximum
Gizzard shad	545	68.13	1	484
Grass pickerel	1	0.13	0	1
Goldfish	108	13.50	0	27
Carp*	112	14.00	0	43
Carp x goldfish hybrid	18	2.25	0	6
Golden shiner	9	1.13	0	4
Emerald shiner	28	3.50	0	10
Spottail shiner	16	2.00	0	14
Bluntnose minnow	12	1.50	0	7
White sucker	1	0.13	0	1
Black bullhead*	2	0.25	0	1
White perch	46	5.75	0	17
Green sunfish	21	2.63	0	15
Pumpkinseed	14	1.75	0	8
Bluegill	10	1.25	0	4
Largemouth bass*	18	2.25	0	11
Green sunfish x pumpkinseed hybrid	2	0.25	0	1
Number of Fish	963	120.38		
Number of Species	15			
Number of Hybrids	2			

*Species found in harvestable size during 1991.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 26

WEIGHT OF TOTAL CATCH OF FISH COLLECTED FROM THE
LITTLE CALUMET RIVER DURING 1991

Fish Species	Total Weight (grams)	Weight (grams) Per Sample		
		Average	Minimum	Maximum
Gizzard shad	15,087.13	1,885.89	59.91	11,833.71
Grass pickerel	59.00	7.38	0.00	59.00
Goldfish	29,741.02	3,717.63	0.00	7,822.50
Carp	150,754.75	18,844.34	0.00	54,025.49
Carp x goldfish hybrid	25,377.65	3,172.21	0.00	8,302.50
Golden shiner	189.53	23.69	0.00	94.08
Emerald shiner	130.86	16.36	0.00	74.81
Spottail shiner	163.24	20.41	0.00	145.14
Bluntnose minnow	34.14	4.27	0.00	21.81
White sucker	252.00	31.50	0.00	252.00
Black bullhead	401.00	50.13	0.00	240.00
White perch	2,221.04	277.63	0.00	873.00
Rock bass	0.00	0.00	0.00	0.00
Green sunfish	211.73	26.47	0.00	158.15
Pumpkinseed	371.70	46.46	0.00	278.20
Bluegill	179.89	22.49	0.00	92.00
Largemouth bass	2,768.90	346.11	0.00	2,392.40
Green sunfish x pumpkinseed hybrid	52.78	6.60	0.00	46.74
Total Weight of Fish Catch	227,996.36	28,499.55		

Size of Fish. Average, minimum and maximum lengths and weights for fish collected from the Little Calumet River are listed in Tables 27 and 28, respectively. Harvestable size fish included black bullhead (average of 230 mm, maximum of 247 mm total length), carp (average of 412 mm, maximum of 652 mm), and largemouth bass (maximum of 367 mm).

Index of Biotic Integrity (IBI). The IBI for the Little Calumet River (Table 29) ranged from 14 (very poor stream quality, a restricted use aquatic resource) to 32 (fair stream quality, a moderate aquatic resource).

CAL-SAG CHANNEL

Abundance of Fish. Electrofishing results for the Cal-Sag Channel fish catch are listed in Table 30 for number of fish collected, and in Table 31 for weight of the total catch. Fourteen fish species and a total of 347 fish were collected from the Cal-Sag Channel.

Gizzard shad (105), goldfish (80), carp (79), green sunfish (31), and bluegill (22), made up 91 percent of the fish collected from the Cal-Sag Channel. Carp (67,622 grams), goldfish (18,430 grams), and carp x goldfish hybrids (3,210 grams) made up 96 percent of the weight of fish collected from the Cal-Sag Channel.

Size of Fish. Average, minimum and maximum lengths and weights for fish collected from the Cal-Sag Channel are listed in Tables

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 27

LENGTH OF FISH COLLECTED FROM THE LITTLE CALUMET RIVER
DURING 1991

Fish Species	Number	Total Length (millimeters)		
		Average	Minimum	Maximum
Gizzard shad	537	123	72	324
Grass pickerel	1	231	231	231
Goldfish	89	227	77	288
Carp	108	412	106	652
Carp x goldfish hybrid	16	441	275	571
Golden shiner	7	122	87	167
Emerald shiner	18	73	51	106
Spottail shiner	2	109	103	115
Bluntnose minnow	5	61	48	70
White sucker	1	295	295	295
Black bullhead	1	213	213	213
White perch	31	139	82	185
Green sunfish	20	79	51	105
Pumpkinseed	12	96	43	139
Bluegill	9	89	44	146
Largemouth bass	18	176	80	367
Green sunfish x pumpkinseed hybrid	1	123	123	123

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 28

WEIGHT OF FISH COLLECTED FROM THE LITTLE CALUMET RIVER
DURING 1991

Fish Species	Number	Fish Weight (grams)		
		Average	Minimum	Maximum
Gizzard shad	537	25.97	4.08	392.00
Grass pickerel	1	59.00	59.00	59.00
Goldfish	89	274.21	7.02	600.00
Carp	108	1,346.93	21.18	4,180.00
Carp x goldfish hybrid	16	1,506.07	365.00	3,230.00
Golden shiner	7	17.75	5.72	40.35
Emerald shiner	18	3.11	0.82	8.76
Spottail shiner	2	9.05	8.36	9.74
Bluntnose minnow	5	2.47	0.95	4.06
White sucker	1	252.00	252.00	252.00
Black bullhead	1	161.00	161.00	161.00
White perch	31	43.49	7.06	93.67
Green sunfish	20	10.09	2.08	26.00
Pumpkinseed	12	26.64	2.23	64.00
Bluegill	9	18.99	1.07	60.00
Largemouth bass	18	153.83	5.40	856.00
Green sunfish x pumpkinseed hybrid	1	46.74	46.74	46.74

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 29

METRICS USED IN THE CALCULATION OF THE INDEX OF BIOTIC INTEGRITY (IBI) FOR THE LITTLE CALUMET RIVER DURING 1991

IBI Metric	Average	Minimum	Maximum
Number of Species Per Sample	8	3	13
Number of Sucker Species	0	0	1
Number of Sunfish Species	2	0	3
Number of Darter Species	0	0	0
Number of Intolerant Species	0	0	0
Percent of Total as Green Sunfish	6	0	29
Percent of Individuals as Hybrids	3	0	7
Percent Diseased	9	0	21
Percent of Omnivores	75	46	94
Percent of Insectivorous Cyprinids	5	0	28
Percent of Carnivores	7	0	19
Total Abundance	120	16	550
Electrofishing Time (Minutes)	38	30	44
Stream Order	3	3	3
Stream Basin	2	2	2
Species Metric Factor	3	1	5
Sucker Metric Factor	1	1	1
Sunfish Metric Factor	3	1	5
Darter Metric Factor	1	1	1
Intolerant Metric Factor	1	1	1
Green Sunfish Metric Factor	4	1	5
Hybrid Metric Factor	3	1	5
Disease Metric Factor	2	1	5
Omnivore Metric Factor	1	1	1
Insectivorous Metric Factor	1	1	3
Carnivore Metric Factor	4	1	5
Abundance Metric Factor	2	1	5
IBI	25	14	32

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 30

NUMBER OF FISH COLLECTED FROM THE CAL-SAG CHANNEL
DURING 1991

Fish Species	Total Number	Number Per Sample		
		Average	Minimum	Maximum
Gizzard shad	105	13.13	0	54
Central mudminnow	2	0.25	0	1
Goldfish	80	10.00	0	29
Carp*	79	9.88	1	33
Carp x goldfish hybrid	3	0.38	0	2
Emerald shiner	5	0.63	0	3
Spottail shiner	1	0.13	0	1
Bluntnose minnow	2	0.25	0	2
Fathead minnow	1	0.13	0	1
Black bullhead	1	0.13	0	1
Green sunfish	31	3.88	0	11
Pumpkinseed	6	0.75	0	5
Bluegill*	22	2.75	0	9
Largemouth bass*	6	0.75	0	3
Black crappie	2	0.25	0	2
Green sunfish x pumpkinseed hybrid	1	0.13	0	1
Number of Fish	347	43.38		
Number of Species	14			
Number of Hybrids	2			

*Species found in harvestable size during 1991.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 31

WEIGHT OF TOTAL CATCH OF FISH COLLECTED FROM THE CAL-SAG CHANNEL
DURING 1991

Fish Species	Total Weight (grams)	Weight (grams) Per Sample		
		Average	Minimum	Maximum
Gizzard shad	1,844.08	230.51	0.00	859.83
Central mudminnow	9.87	1.23	0.00	4.97
Goldfish	18,429.52	2,303.69	0.00	8,284.62
Carp	67,621.71	8,452.71	290.19	17,852.10
Carp x goldfish hybrid	3,209.50	401.19	0.00	1,792.00
Emerald shiner	12.55	1.57	0.00	5.11
Spottail shiner	3.27	0.41	0.00	3.27
Bluntnose minnow	12.87	1.61	0.00	12.87
Fathead minnow	0.91	0.11	0.00	0.91
Black bullhead	102.00	12.75	0.00	102.00
Green sunfish	316.46	39.56	0.00	141.79
Pumpkinseed	68.00	8.50	0.00	60.00
Bluegill	726.60	90.83	0.00	320.34
Largemouth bass	484.83	60.60	0.00	382.00
Black crappie	8.41	1.05	0.00	8.41
Green sunfish x pumpkinseed hybrid	71.00	8.88	0.00	71.00
Total Weight of Fish Catch	92,921.58	11,615.20		

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 32

LENGTH OF FISH COLLECTED FROM THE CAL-SAG CHANNEL
DURING 1991

Fish Species	Number	Total Length (millimeters)		
		Average	Minimum	Maximum
Gizzard shad	105	104	59	262
Central mudminnow	2	75	74	75
Goldfish	80	213	109	290
Carp	79	314	71	650
Carp x goldfish hybrid	3	416	307	479
Emerald shiner	5	66	45	84
Spottail shiner	1	71	71	71
Bluntnose minnow	2	74	58	89
Fathead minnow	1	41	41	41
Black bullhead	1	190	190	190
Green sunfish	31	76	32	133
Green sunfish x pumpkinseed hybrid	1	141	141	141
Pumpkinseed	6	83	56	103
Bluegill	22	110	42	167
Largemouth bass	6	161	96	273
Black crappie	2	69	66	71

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 33

WEIGHT OF FISH COLLECTED FROM THE CAL-SAG CHANNEL
DURING 1991

Fish Species	Number	Fish Weight (grams)		
		Average	Minimum	Maximum
Gizzard shad	105	17.56	2.01	170.00
Central mudminnow	2	4.94	4.90	4.97
Goldfish	80	230.37	26.17	596.00
Carp	79	855.97	7.07	4,340.00
Carp x goldfish hybrid	3	1,069.83	394.50	1,417.50
Emerald shiner	5	2.51	0.74	4.19
Spottail shiner	1	3.27	3.27	3.27
Bluntnose minnow	2	6.44	2.58	10.29
Fathead minnow	1	0.91	0.91	0.91
Black bullhead	1	102.00	102.00	102.00
Green sunfish	31	10.21	0.75	47.00
Green sunfish x pumpkinseed hybrid	1	71.00	71.00	71.00
Pumpkinseed	6	11.33	3.00	21.00
Bluegill	22	33.03	0.86	99.00
Largemouth bass	6	80.81	8.83	298.00
Black crappie	2	4.21	3.70	4.71

32 and 33, respectively. Harvestable size fish included the carp (average of 314 mm total length, maximum of 650 mm total length), bluegill (maximum of 167 mm), and largemouth bass (maximum of 273 mm).

Index of Biotic Integrity (IBI). The IBI for the Cal-Sag Channel (Table 34) ranged from 16 (very poor stream quality, a restricted use aquatic resource) to 24 (poor stream quality, a limited aquatic resource).

CHICAGO RIVER

Abundance of Fish. Electrofishing results for the Chicago River fish catch are listed in Table 35 for number of fish collected, and in Table 36 for weight of the total catch. Twenty-six fish species and a total of 1,744 fish were collected from the Chicago River.

Bluntnose minnow (646), gizzard shad (257), carp (164), green sunfish (138), rock bass (136), bluegill (96), goldfish (55), and largemouth bass (55) made up 89 percent of the fish collected from the Chicago River. Carp (472,717 grams), carp x goldfish hybrids (21,542 grams), and goldfish (13,372 grams) made up 94 percent of the weight of fish collected from the Chicago River.

Size of Fish. Average, minimum and maximum lengths and weights for fish collected from the Chicago River are listed in Tables 37 and 38, respectively.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 34

METRICS USED IN THE CALCULATION OF THE INDEX OF BIOTIC INTEGRITY
(IBI) FOR THE CAL-SAG CHANNEL DURING 1991

IBI Metric	Average	Minimum	Maximum
Number of Species Per Sample	6	3	9
Number of Sucker Species	0	0	0
Number of Sunfish Species	2	0	3
Number of Darter Species	0	0	0
Number of Intolerant Species	0	0	0
Percent of Total as Green Sunfish	10	0	28
Percent of Individuals as Hybrids	1	0	5
Percent Diseased	14	3	27
Percent of Omnivores	69	40	95
Percent of Insectivorous Cyprinids	1	0	5
Percent of Carnivores	2	0	4
Total Abundance	43	5	96
Electrofishing Time (Minutes)	36	30	43
Stream Order	4	4	4
Stream Basin	2	2	2
Species Metric Factor	1	1	3
Sucker Metric Factor	1	1	1
Sunfish Metric Factor	2	1	3
Darter Metric Factor	1	1	1
Intolerant Metric Factor	1	1	1
Green Sunfish Metric Factor	4	1	5
Hybrid Metric Factor	4	1	5
Disease Metric Factor	1	1	1
Omnivore Metric Factor	2	1	3
Insectivorous Metric Factor	1	1	1
Carnivore Metric Factor	2	1	3
Abundance Metric Factor	1	1	1
IBI	20	16	24

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 35

NUMBER OF FISH COLLECTED FROM THE CHICAGO RIVER
DURING 1991

Fish Species	Total Number	Number Per Sample		
		Average	Minimum	Maximum
Alewife	30	2.50	0	24
Gizzard shad	257	21.42	0	197
Rainbow trout	1	0.08	0	1
Brown trout	3	0.25	0	2
Chinook salmon	1	0.08	0	1
Goldfish	55	4.58	0	17
Carp*	164	13.67	0	39
Carp x goldfish hybrid	15	1.25	0	4
Golden shiner	2	0.17	0	1
Emerald shiner	2	0.17	0	2
Spottail shiner	61	5.08	0	50
Bluntnose minnow	646	53.83	0	382
Fathead minnow	2	0.17	0	2
Black bullhead*	4	0.33	0	2
Trout-perch	2	0.17	0	2
Threespine stickleback	1	0.08	0	1
White perch	3	0.25	0	3
Rock bass*	136	11.33	0	57
Green sunfish	138	11.50	1	35
Pumpkinseed*	28	2.33	0	12
Orangespotted	1	0.08	0	1
Bluegill*	96	8.00	0	45
Smallmouth bass*	23	1.92	0	14
Largemouth bass*	55	4.58	0	21
Black crappie*	2	0.17	0	1
Green sunfish x pumpkinseed hybrid	1	0.08	0	1
Johnny darter	3	0.25	0	2
Yellow perch	12	1.00	0	7
Number of Fish	1,744	145.33		
Number of Species	26			
Number of Hybrids	2			

*Species found in harvestable size during 1991.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 36

WEIGHT OF TOTAL CATCH OF FISH COLLECTED FROM THE CHICAGO RIVER
DURING 1991

Fish Species	Total Weight (grams)	Weight (grams) Per Sample		
		Average	Minimum	Maximum
Alewife	227.98	19.00	0.00	106.86
Gizzard shad	10,200.52	850.04	0.00	6,346.62
Rainbow trout	853.50	71.13	0.00	853.50
Brown trout	67.65	5.64	0.00	37.69
Chinook salmon	17.56	1.46	0.00	17.56
Goldfish	13,371.72	1,114.31	0.00	3,995.00
Carp	472,716.88	39,393.07	0.00	105,396.03
Carp x goldfish hybrid	21,541.70	1,795.14	0.00	6,637.00
Golden shiner	60.34	5.03	0.00	56.82
Emerald shiner	13.77	1.15	0.00	13.77
Spottail shiner	206.83	17.24	0.00	183.53
Bluntnose minnow	1,368.49	114.04	0.00	759.71
Fathead minnow	5.51	0.46	0.00	5.51
Black bullhead	844.00	70.33	0.00	499.50
Trout-perch	4.89	0.41	0.00	4.89
Threespine stickleback	2.29	0.19	0.00	2.29
White perch	305.72	25.48	0.00	305.72
Rock bass	5,290.97	440.91	0.00	2,502.52
Green sunfish	2,876.14	239.68	16.00	1,030.25
Pumpkinseed	504.67	42.06	0.00	172.66
Orangespotted sunfish	9.00	0.75	0.00	9.00
Bluegill	1,420.44	118.37	0.00	441.90
Smallmouth bass	451.20	37.60	0.00	275.14
Largemouth bass	6,720.11	560.01	0.00	2,956.50
Black crappie	164.00	13.67	0.00	153.00
Green sunfish x pumpkinseed hybrid	40.00	3.33	0.00	40.00
Johnny darter	1.83	0.15	0.00	1.23
Yellow perch	287.66	23.97	0.00	200.16
 Total Weight of Fish Catch	 539,575.37	 44,964.61		

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 37

LENGTH OF FISH COLLECTED FROM THE CHICAGO RIVER
DURING 1991

Fish Species	Number	Total Length (millimeters)		
		Average	Minimum	Maximum
Alewife	30	86	62	211
Gizzard shad	257	151	107	330
Rainbow trout	1	468	468	468
Brown trout	3	126	107	151
Chinook salmon	1	113	113	113
Goldfish	55	213	163	277
Carp	164	521	168	855
Carp x goldfish hybrid	15	375	206	653
Golden shiner	2	118	73	163
Emerald shiner	2	90	76	104
Spottail shiner	61	70	45	129
Bluntnose minnow	646	57	29	97
Fathead minnow	2	64	60	67
Black bullhead	4	239	224	275
Trout-perch	2	69	68	70
Threespine stickleback	1	62	62	62
White perch	3	169	78	218
Rock bass	136	103	30	236
Green sunfish	138	97	40	164
Pumpkinseed	28	91	47	137
Orangespotted sunfish	1	80	80	80
Bluegill	96	76	34	187
Smallmouth bass	23	92	57	260
Largemouth bass	55	150	42	363
Black crappie	2	163	103	223
Green sunfish x pumpkinseed hybrid	1	121	121	121
Johnny darter	3	44	42	45
Yellow perch	12	134	80	169

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 38

WEIGHT OF FISH COLLECTED FROM THE CHICAGO RIVER
DURING 1991

Fish Species	Number	Fish Weight (grams)		
		Average	Minimum	Maximum
Alewife	30	7.60	1.86	68.31
Gizzard shad	257	39.69	11.62	376.38
Rainbow trout	1	853.50	853.50	853.50
Brown trout	3	22.55	12.04	37.69
Chinook salmon	1	17.56	17.56	17.56
Goldfish	55	243.12	76.35	470.00
Carp	164	2,882.42	77.00	11,471.09
Carp x goldfish hybrid	15	1,436.11	137.00	5,210.00
Golden shiner	2	30.17	3.52	56.82
Emerald shiner	2	6.89	4.24	9.53
Spottail shiner	61	3.39	0.57	20.34
Bluntnose minnow	646	2.12	0.21	10.49
Fathead minnow	2	2.76	2.53	2.98
Black bullhead	4	211.00	154.00	345.50
Trout-perch	2	2.45	2.34	2.55
Threespine stickleback	1	2.29	2.29	2.29
White perch	3	101.91	6.72	161.00
Rock bass	136	38.90	0.57	255.00
Green sunfish	138	20.84	1.17	110.00
Pumpkinseed	28	18.02	1.57	54.00
Orangespotted sunfish	1	9.00	9.00	9.00
Bluegill	96	14.80	0.66	146.00
Smallmouth bass	23	19.62	1.00	198.00
Largemouth bass	55	122.18	0.97	843.00
Black crappie	2	82.00	11.00	153.00
Green sunfish x pumpkinseed hybrid	1	40.00	40.00	40.00
Johnny darter	3	0.61	0.51	0.72
Yellow perch	12	23.97	4.56	44.00

Harvestable size fish included black bullhead (average of 239 mm total length, maximum of 275 mm total length), bluegill (maximum of 187 mm), carp (average of 521 mm, maximum of 855 mm), green sunfish (maximum of 164 mm), smallmouth bass (maximum of 260 mm), largemouth bass (maximum of 363 mm), rock bass (maximum of 236 mm), and black crappie (maximum of 223 mm).

Index of Biotic Integrity (IBI). The IBI for the Chicago River (Table 39) ranged from 22, (poor stream quality, a limited aquatic resource) to 38 (fair stream quality, a moderate aquatic resource).

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 39

METRICS USED IN THE CALCULATION OF THE INDEX OF BIOTIC INTEGRITY (IBI) FOR THE CHICAGO RIVER FROM APRIL THROUGH JULY 1991

IBI Metric	Average	Minimum	Maximum
Number of Species Per Sample	10	5	16
Number of Sucker Species	0	0	0
Number of Sunfish Species	4	1	6
Number of Darter Species	0	0	1
Number of Intolerant Species	1	0	3
Percent of Total as Green Sunfish	12.44	0.29	42.62
Percent of Individuals as Hybrids	1.44	0.00	4.92
Percent Diseased	5.73	0.34	15.40
Percent of Omnivores	63.84	19.63	90.32
Percent of Insectivorous Cyprinids	1.48	0.00	8.56
Percent of Carnivores	14.39	2.60	35.91
Total Abundance	145	13	584
Electrofishing Time (Minutes)	33	30	40
Stream Order	3	3	3
Stream Basin	2	2	2
Species Metric Factor	3	1	5
Sucker Metric Factor	1	1	1
Sunfish Metric Factor	4	1	5
Darter Metric Factor	1	1	1
Intolerant Metric Factor	2	1	3
Green Sunfish Metric Factor	3	1	5
Hybrid Metric Factor	3	1	5
Disease Metric Factor	1	1	3
Omnivore Metric Factor	2	1	5
Insectivorous Metric Factor	1	1	1
Carnivore Metric Factor	4	3	5
Abundance Metric Factor	2	1	5
IBI	27	22	38

REFERENCES

- Bertrand, B., "Des Plaines River Basin Fisheries Assessment," Illinois Department of Conservation, Division of Fisheries and Wildlife Resources, 44 pp., October 1984.
- Dennison, S., P. O'Brien, I. Polls, W. Schmeelk, and C. Spielman, "1975 Annual Summary Report, Water Quality within the Waterways System of the Metropolitan Sanitary District of Greater Chicago, Volume 2, Biological," Research and Development Department Report No. 78-5-B, The Metropolitan Sanitary District of Greater Chicago, May 1978.
- Dennison, S. "Fish Survey of Northeastern Illinois Streams," The Metropolitan Sanitary District of Greater Chicago, Research and Development Department, 208 Project Contract, Work Item III-5C(2)," 40 pp. plus 700 page Appendix, 1978.
- Dennison, S. G., J. L. Dorkin, S. J. Sedita, D. R. Zenz, and C. Lue-Hing, "The Feasibility of Using Fish for Biological Control of Midge Fly Larvae in the North Shore Channel," Research and Development Department Report No. 84-18, The Metropolitan Sanitary District of Greater Chicago, July 1984.
- Hite, R. L. and B. A. Bertrand, "Biological Stream Characterization (BSC): A Biological Assessment of Illinois Stream Quality," Special Report No. 13 of the Illinois State Water Plan Task Force, Illinois Environmental Protection Agency Report No. IEPA/WPC/89-275, September 1989.
- Illinois Environmental Protection Agency, "Illinois Water Quality Report 1986-1987," Illinois Environmental Protection Agency Report No. IEPA/WPC/88-002, April 1988.
- Illinois Pollution Control Board, "Amendments to Water Quality and Effluent Standards Applicable to the Chicago River System and the Calumet River System," Docket R87-27, May 19, 1988.
- Karr, J. R., "Assessment of Biotic Integrity Using Fish Communities," Fisheries, Volume 6, No. 6, pp. 21-27, 1981.
- Karr, J. R., K. D. Fausch, P. L. Angermeier, P. R. Yant, and I. J. Schlosser, "Assessing Biological Integrity in Running Waters - A Method and Its Rationale," Illinois Natural History Survey, Special Publication 5, Champaign, Illinois, September 1986, 28 pp.

REFERENCES (Continued)

- Reynolds, J. B., "Electrofishing," In Nielsen, L. A. and D. L. Johnson, Eds., Fisheries Techniques, American Fisheries Society, pp. 147-163, 1983.
- Smith, P. S., "Illinois Streams: A Classification Based on their Fishes and an Analysis of Factors Responsible for Disappearance of Native Species," Biological Notes No. 76, Illinois Natural History Survey, Urbana, Illinois, 1971.
- Spielman, C., S. Dennison, P. O'Brien, and W. Schmeelk, "1977 Annual Summary Report, Water Quality within the Waterways System of the Metropolitan Sanitary District of Greater Chicago, Volume II, Biological," Research and Development Department Report No. 79-8-B, The Metropolitan Sanitary District of Greater Chicago, December 1979.
- Weber, C. I., "Evaluation of the Effects of Effluents on Aquatic Life in Receiving Waters: an Overview," pp. 3-13, In: J. M. Bates and C. I. Weber, Eds., Ecological Assessments of Effluent Impacts on Communities of Indigenous Aquatic Organisms, American Society for Testing and Material, STP 370, Philadelphia, Pennsylvania, 1981 (Reference from Karr et al., 1986).

APPENDIX AI

Number and Weight of Fish
Collected Per Sample at Stations 1 through 20
in the Chicago Waterway System
During 1991

METROPCLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-1

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 1
AT SHERIDAN ROAD ON THE NORTH SHORE CHANNEL DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>5/21/91 Sample</u>				
Alewife	5	3.66	211.81	154.98
Gizzard shad	1	0.73	198.50	145.24
Brown trout	1	0.73	165.50	121.10
Rainbow smelt	1	0.73	0.89	0.65
Goldfish	13	9.51	2,030.67	1,485.86
Carp	1	0.73	167.50	122.56
Carp x goldfish hybrid	1	0.73	99.00	72.44
Golden shiner	31	22.68	28.78	21.06
Spottail shiner	4	2.93	4.02	2.94
Bluntnose minnow	720	526.83	464.11	339.59
Fathead minnow	276	201.95	235.23	172.12
Black bullhead	1	0.73	108.50	79.39
Threespine stickleback	1	0.73	1.30	0.95
Green sunfish	6	4.39	95.78	70.08
Bluegill	8	5.85	311.00	227.56
Yellow perch	2	1.46	9.26	6.78
Total for 5/21/91	1,072	784.39	4,131.85	3,023.31
<u>7/16/91 Sample</u>				
Gizzard shad	1	0.81	449.00	364.05
Brown trout	1	0.81	23.40	18.97
Goldfish	46	37.30	1,429.34	1,158.92
Carp	2	1.62	2,525.00	2,047.30
Carp x goldfish hybrid	2	1.62	1,063.50	862.30
Golden shiner	23	18.65	334.79	271.45
Spottail shiner	6	4.86	15.15	12.28
Bluntnose minnow	262	212.43	416.16	337.43
Fathead minnow	58	47.03	107.70	87.32

Table continued on the following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-1 (Continued)

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 1
AT SHERIDAN ROAD ON THE NORTH SHORE CHANNEL DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>7/16/91 Sample</u>				
Green sunfish	14	11.35	383.10	310.62
Pumpkinseed	1	0.81	3.00	2.43
Bluegill	4	3.24	113.46	91.99
Largemouth bass	2	1.62	11.52	9.34
Total for 7/16/91	422	342.16	6,875.12	5,574.42
<u>9/23/91 Sample</u>				
Alewife	222	166.50	151.41	113.56
Gizzard shad	1	0.75	5.16	3.87
Brown trout	2	1.50	590.00	442.50
Goldfish	31	23.25	662.97	497.23
Carp	1	0.75	3,210.00	2,407.50
Carp x goldfish hybrid	1	0.75	30.00	22.50
Golden shiner	324	243.00	349.68	262.26
Spottail shiner	18	13.50	15.82	11.87
Bluntnose minnow	1,226	919.50	1,146.51	859.88
Fathead minnow	141	105.75	237.76	178.32
White sucker	1	0.75	575.00	431.25
Black bullhead	1	0.75	53.00	39.75
Rock bass	7	5.25	10.47	7.85
Green sunfish	6	4.50	62.73	47.05
Pumpkinseed	3	2.25	4.31	3.23
Orangespotted sunfish	1	0.75	21.00	15.75
Bluegill	3	2.25	17.06	12.80
Total for 9/23/91	1,989	1,491.75	7,142.88	5,357.16

Table continued on the following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-1 (Continued)

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 1
AT SHERIDAN ROAD ON THE NORTH SHORE CHANNEL DURING 1991

Date of Sample and Fish Species Collected	<u>Number of Fish</u>		<u>Weight (grams)</u>	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>11/13/91 Sample</u>				
Alewife	1	0.81	6.03	4.89
Rainbow trout	1	0.81	1,890.00	1,532.43
Brown trout	1	0.81	184.00	149.19
Grass pickerel	1	0.81	72.00	58.38
Goldfish	5	4.05	648.81	526.06
Carp	1	0.81	5,370.00	4,354.05
Carp x goldfish hybrid	2	1.62	2,540.00	2,059.46
Spottail shiner	1	0.81	0.18	0.15
Bluntnose minnow	171	138.65	73.40	59.51
Fathead minnow	9	7.30	6.38	5.17
Rock bass	2	1.62	2.93	2.38
Green sunfish	3	2.43	7.14	5.79
Pumpkinseed	2	1.62	7.55	6.12
Bluegill	4	3.24	62.94	51.03
Total for 11/13/91	204	165.41	10,871.36	8,814.62

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-2

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 2 AT
DEMPSTER STREET ON THE NORTH SHORE CHANNEL DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>5/22/91 Sample</u>				
Alewife	1	1.00	2.76	2.76
Goldfish	56	56.00	7,851.58	7,851.58
Carp	5	5.00	1,682.04	1,682.04
Carp x goldfish hybrid	13	13.00	6,672.96	6,672.96
Golden shiner	4	4.00	38.49	38.49
Spottail shiner	1	1.00	4.05	4.05
Bluntnose minnow	6	6.00	25.63	25.63
Fathead minnow	39	39.00	193.61	193.61
Black bullhead	5	5.00	676.50	676.50
Green sunfish	6	6.00	151.44	151.44
Bluegill	5	5.00	312.00	312.00
Total for 5/22/91	141	141.00	17,611.06	17,611.06
<u>7/17/91 Sample</u>				
Alewife	1	1.00	4.72	4.72
Goldfish	61	61.00	7,192.20	7,192.20
Carp	18	18.00	16,020.70	16,020.70
Carp x goldfish hybrid	21	21.00	18,241.14	18,241.14
Golden shiner	18	18.00	181.44	181.44
Bluntnose minnow	1	1.00	3.68	3.68
Fathead minnow	10	10.00	8.91	8.91
Black bullhead	5	5.00	693.00	693.00
Green sunfish	11	11.00	286.36	286.36
Pumpkinseed	2	2.00	13.02	13.02
Largemouth bass	1	1.00	223.50	223.50
Black crappie	2	2.00	278.50	278.50
Total for 7/17/91	151	151.00	43,147.17	43,147.17

Table continued on the following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-2 (Continued)

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 2 AT
DEMPSTER STREET ON THE NORTH SHORE CHANNEL DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>9/24/91 Sample</u>				
Goldfish	78	78.00	207.58	207.58
Carp x goldfish hybrid	2	2.00	11.18	11.18
Golden shiner	140	140.00	117.56	117.56
Spottail shiner	2	2.00	2.01	2.01
Bluntnose minnow	393	393.00	137.75	137.75
Fathead minnow	182	182.00	113.59	113.59
Oriental weatherfish	2	2.00	20.10	20.10
Rock bass	3	3.00	3.08	3.08
Green sunfish	42	42.00	171.51	171.51
Pumpkinseed	12	12.00	57.89	57.89
Bluegill	1	1.00	38.00	38.00
Largemouth bass	1	1.00	9.00	9.00
Total for 9/24/91	858	858.00	889.25	889.25
<u>11/14/91 Sample</u>				
Goldfish	4	3.75	20.60	19.31
Golden shiner	4	3.75	3.39	3.18
Bluntnose minnow	4	3.75	8.57	8.03
Fathead minnow	2	1.88	0.57	0.53
Oriental weatherfish	1	0.94	7.75	7.27
Black bullhead	2	1.88	304.00	285.00
Green sunfish	10	9.38	83.26	78.06
Total for 11/14/91	27	25.31	428.14	401.38

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-3

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 3 AT
TOUHY AVENUE ON THE NORTH SHORE CHANNEL DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>5/23/91 Sample</u>				
Alewife	2	1.50	51.72	38.79
Goldfish	26	19.50	5,450.98	4,088.24
Carp	2	1.50	178.43	133.82
Carp x goldfish hybrid	9	6.75	5,802.55	4,351.91
Golden shiner	33	24.75	626.05	469.54
Fathead minnow	1	0.75	5.03	3.77
White sucker	2	1.50	1,024.50	768.38
Black bullhead	1	0.75	105.00	78.75
Green sunfish	3	2.25	43.45	32.59
Bluegill	3	2.25	168.40	126.30
Black crappie	2	1.50	158.50	118.88
Total for 5/23/91	84	63.00	13,614.61	10,210.96
<u>7/19/91 Sample</u>				
Gizzard shad	19	13.90	4,472.34	3,272.44
Goldfish	8	5.85	1,616.00	1,182.44
Carp	4	2.93	11,549.79	8,451.07
Carp x goldfish hybrid	1	0.73	1,207.00	883.17
Golden shiner	11	8.05	229.48	167.91
Spottail shiner	1	0.73	0.43	0.31
Black bullhead	1	0.73	154.00	112.68
Green sunfish	1	0.73	15.38	11.25
Total for 7/19/91	46	33.66	19,244.42	14,081.28
<u>9/19/91 Sample</u>				
Gizzard shad	2	1.20	108.44	65.06

Table continued on the following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-3 (Continued)

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 3 AT
TOUHY AVENUE ON THE NORTH SHORE CHANNEL DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>9/19/91 Sample</u>				
Goldfish	10	6.00	669.91	401.95
Carp	2	1.20	2,600.00	1,560.00
Carp x goldfish hybrid	1	0.60	13.23	7.94
Golden shiner	6	3.60	8.73	5.24
Spottail shiner	37	22.20	61.51	36.91
Bluntnose minnow	81	48.60	62.15	37.29
Fathead minnow	12	7.20	26.61	15.97
Black bullhead	5	3.00	665.00	399.00
Rock bass	1	0.60	1.04	0.62
Green sunfish	27	16.20	222.41	133.45
Bluegill	3	1.80	36.16	21.70
Largemouth bass	1	0.60	224.00	134.40
Black crappie	1	0.60	75.00	45.00
Green sunfish x pumpkinseed hybrid	2	1.20	2.23	1.34
Total for 9/19/91	191	114.60	4,776.42	2,865.85
<u>11/18/91 Sample</u>				
Gizzard shad	62	43.26	2,811.99	1,961.85
Golden shiner	4	2.79	45.88	32.01
Spottail shiner	1	0.70	3.76	2.62
Bluntnose minnow	25	17.44	23.91	16.68
Fathead minnow	1	0.70	2.36	1.65
Black bullhead	1	0.70	168.00	117.21
Bluegill	1	0.70	118.00	82.33
Largemouth bass	1	0.70	21.00	14.65
Black crappie	2	1.40	192.00	133.95
Total for 11/18/91	98	68.37	3,386.90	2,362.95

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-4

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 4
AT PETERSON AVENUE ON THE NORTH SHORE CHANNEL
DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>5/24/91 Sample</u>				
Central mudminnow	3	2.14	36.75	26.25
Goldfish	12	8.57	1,387.86	991.33
Carp	4	2.86	1,402.50	1,001.79
Carp x goldfish hybrid	6	4.29	4,078.05	2,912.89
Golden shiner	2	1.43	34.72	24.80
Spottail shiner	1	0.71	3.81	2.72
Bluntnose minnow	16	11.43	16.99	12.14
White sucker	8	5.71	2,742.00	1,958.57
Black bullhead	2	1.43	468.00	334.29
Green sunfish	13	9.29	142.46	101.76
Orangespotted sunfish	2	1.43	13.75	9.82
Bluegill	4	2.86	53.62	38.30
Black crappie	1	0.71	63.00	45.00
Total for 5/24/91	74	52.86	10,443.51	7,459.65
<u>7/18/91 Sample</u>				
Gizzard shad	10	8.11	2,578.50	2,090.68
Goldfish	5	4.05	510.00	413.51
Carp	1	0.81	1,346.50	1,091.76
Golden shiner	1	0.81	36.00	29.19
Bluntnose minnow	1	0.81	2.10	1.70
White sucker	1	0.81	383.00	310.54
Black bullhead	1	0.81	0.44	0.36
Green sunfish	2	1.62	14.00	11.35
Bluegill	1	0.81	15.00	12.16
Total for 7/18/91	23	18.65	4,885.54	3,961.25

Table continued on the following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-4 (Continued)

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 4
AT PETERSON AVENUE ON THE NORTH SHORE CHANNEL
DURING 1991

Date of Sample and Fish Species Collected	<u>Number of Fish</u>		<u>Weight (grams)</u>	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>9/20/91 Sample</u>				
Alewife	2	1.46	0.51	0.37
Goldfish	2	1.46	30.00	21.95
Golden shiner	4	2.93	28.06	20.53
Spottail shiner	118	86.34	204.73	149.80
Bluntnose minnow	285	208.54	190.12	139.11
Fathead minnow	34	24.88	54.02	39.53
Oriental weatherfish	1	0.73	4.41	3.23
Black bullhead	1	0.73	15.00	10.98
Green sunfish	12	8.78	121.07	88.59
Pumpkinseed	1	0.73	1.70	1.24
Bluegill	6	4.39	14.58	10.67
Total for 9/20/91	466	340.98	664.20	486.00
<u>11/18/91 Sample</u>				
Gizzard shad	148	134.55	3,743.03	3,402.75
Golden shiner	1	0.91	2.38	2.16
Spottail shiner	5	4.55	18.12	16.47
Bluntnose minnow	11	10.00	11.02	10.02
Fathead minnow	1	0.91	2.16	1.96
Green sunfish	11	10.00	186.00	169.09
Bluegill	4	3.64	4.04	3.67
Total for 11/18/91	181	164.55	3,966.75	3,606.14

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-5

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 5
AT WILSON AVENUE ON THE NORTH BRANCH OF THE CHICAGO RIVER
DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>5/20/91 Sample</u>				
Goldfish	11	7.50	967.66	659.77
Carp	6	4.09	19,005.00	12,957.95
Carp x goldfish hybrid	3	2.05	3,116.50	2,124.89
Golden shiner	1	0.68	19.93	13.59
White sucker	1	0.68	190.00	129.55
Black bullhead	1	0.68	153.00	104.32
Green sunfish	16	10.91	247.61	168.83
Bluegill	4	2.73	100.36	68.43
Green sunfish x bluegill hybrid	1	0.68	19.22	13.10
Pumpkinseed x bluegill hybrid	1	0.68	29.50	20.11
Total for 5/20/91	45	30.68	23,848.78	16,260.53
<u>7/18/91 Sample</u>				
Gizzard shad	5	3.95	1,211.75	956.64
Goldfish	16	12.63	4,807.79	3,795.62
Carp	8	6.32	6,555.31	5,175.24
Carp x goldfish hybrid	10	7.89	8,968.08	7,080.06
Golden shiner	4	3.16	83.29	65.76
Bluntnose minnow	2	1.58	7.81	6.17
Green sunfish	8	6.32	95.13	75.10
Bluegill	6	4.74	357.80	282.47
Largemouth bass	3	2.37	23.01	18.17
Total for 7/18/91	62	48.95	22,109.97	17,455.24

Table continued on the following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-5 (Continued)

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 5
AT WILSON AVENUE ON THE NORTH BRANCH OF THE CHICAGO RIVER
DURING 1991

Date of Sample and Fish Species Collected	<u>Number of Fish</u>		<u>Weight (grams)</u>	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>9/18/91 Sample</u>				
Alewife	1	0.68	57.06	38.90
Gizzard shad	4	2.73	565.14	385.32
Goldfish	51	34.77	1,945.62	1,326.56
Carp	15	10.23	6,555.05	4,469.35
Carp x goldfish hybrid	9	6.14	983.27	670.41
Golden shiner	44	30.00	187.93	128.13
Spottail shiner	2	1.36	3.02	2.06
Bluntnose minnow	14	9.55	10.97	7.48
Fathead minnow	2	1.36	5.07	3.46
White sucker	1	0.68	559.00	381.14
Black bullhead	1	0.68	89.00	60.68
Green sunfish	18	12.27	245.88	167.65
Pumpkinseed	7	4.77	20.67	14.09
Bluegill	10	6.82	280.46	191.22
Black crappie	2	1.36	176.38	120.26
Green sunfish x bluegill hybrid	2	1.36	31.00	21.14
Total for 9/18/91	183	124.77	11,715.52	7,987.85
<u>11/19/91 Sample</u>				
Gizzard shad	53	42.97	1,207.18	978.79
Goldfish	10	8.11	2,825.00	2,290.54
Carp	6	4.86	3,618.06	2,933.56
Carp x goldfish hybrid	2	1.62	96.00	77.84

Table continued on the following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-5 (Continued):

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 5
AT WILSON AVENUE ON THE NORTH BRANCH OF THE CHICAGO RIVER
DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>11/19/91 Sample</u>				
Golden shiner	2	1.62	11.18	9.06
Emerald shiner	2	1.62	19.28	15.63
Spottail shiner	2	1.62	5.62	4.56
Bluntnose minnow	28	22.70	43.13	34.97
Fathead minnow	2	1.62	3.91	3.17
Black bullhead	1	0.81	211.44	171.44
Green sunfish	14	11.35	216.85	175.82
Pumpkinseed	1	0.81	9.34	7.57
Bluegill	2	1.62	2.58	2.09
Total for 11/19/91	125	101.35	8,269.57	6,705.06

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-6

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 6
AT GRAND AVENUE ON THE NORTH BRANCH OF THE CHICAGO RIVER
DURING 1991

Date of Sample and Fish Species Collected	<u>Number of Fish</u>		<u>Weight (grams)</u>	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>5/16/91 Sample</u>				
Alewife	1	0.79	2.79	2.20
Gizzard shad	9	7.11	475.83	375.66
Goldfish	7	5.53	1,894.00	1,495.26
Carp	3	2.37	6,173.67	4,873.95
Carp x goldfish hybrid	6	4.74	6,672.50	5,267.76
Bluntnose minnow	8	6.32	59.01	46.59
Black bullhead	1	0.79	238.50	188.29
Green sunfish	8	6.32	232.50	183.55
Bluegill	4	3.16	211.00	166.58
Total for 5/16/91	47	37.11	15,959.80	12,599.84
<u>7/12/91 Sample</u>				
Alewife	3	2.37	23.04	18.19
Gizzard shad	2	1.58	255.75	201.91
Goldfish	4	3.16	1,762.50	1,391.45
Carp	20	15.79	27,548.00	21,748.42
Carp x goldfish hybrid	9	7.11	10,250.00	8,092.11
Golden shiner	4	3.16	99.48	78.54
Bluntnose minnow	3	2.37	12.77	10.08
Green sunfish	1	0.79	26.00	20.53
Bluegill	5	3.95	230.50	181.97
Total for 7/12/91	51	40.26	40,208.04	31,743.19

Table continued on the following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-6 (Continued)

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 6
AT GRAND AVENUE ON THE NORTH BRANCH OF THE CHICAGO RIVER
DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>9/16/91 Sample</u>				
Gizzard shad	4	3.08	245.60	188.92
Goldfish	6	4.62	2,176.00	1,673.85
Carp	23	17.69	32,973.00	25,363.85
Carp x goldfish hybrid	5	3.85	10,390.00	7,992.31
Bluntnose minnow	4	3.08	4.53	3.48
Green sunfish	1	0.77	10.07	7.75
Pumpkinseed	2	1.54	88.00	67.69
Bluegill	3	2.31	78.91	60.70
Largemouth bass	1	0.77	12.00	9.23
Total for 9/16/91	49	37.69	45,978.11	35,367.78
<u>11/12/91 Sample</u>				
Goldfish	1	0.83	20.00	16.67
Carp	4	3.33	8,210.00	6,841.67
Green sunfish	1	0.83	22.00	18.33
Total for 11/12/91	6	5.00	8,252.00	6,876.67

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-7

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 7
AT DAMEN AVENUE ON THE CHICAGO SANITARY AND SHIP CANAL
DURING 1991

Date of Sample and Fish Species Collected	<u>Number of Fish</u>		<u>Weight (grams)</u>	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>4/10/91 Sample</u>				
Gizzard shad	6	5.81	48.57	47.00
Rainbow smelt	1	0.97	5.51	5.33
Goldfish	42	40.65	9,949.00	9,628.06
Carp	3	2.90	1,636.00	1,583.23
Golden shiner	3	2.90	12.77	12.36
Bluntnose minnow	1	0.97	0.56	0.54
Threespine stickleback	1	0.97	1.41	1.36
Green sunfish	1	0.97	10.00	9.68
Pumpkinseed	2	1.94	6.21	6.01
Largemouth bass	4	3.87	49.47	47.87
Total for 4/10/91	64	61.94	11,719.50	11,341.45
<u>6/7/91 Sample</u>				
Goldfish	122	122.00	27,705.43	27,705.43
Carp	96	96.00	133,322.14	133,322.14
Carp x goldfish hybrid	3	3.00	3,504.00	3,504.00
Golden shiner	8	8.00	164.16	164.16
Green sunfish	1	1.00	27.08	27.08
Pumpkinseed	1	1.00	6.56	6.56
Bluegill	2	2.00	2.39	2.39
Largemouth bass	1	1.00	7.69	7.69
Total for 6/7/91	234	234.00	164,739.45	164,739.45

Table continued on following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-7 (Continued)

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 7
AT DAMEN AVENUE ON THE CHICAGO SANITARY AND SHIP CANAL
DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>8/27/91 Sample</u>				
Goldfish	18	18.00	5,565.00	5,565.00
Carp	37	37.00	50,015.31	50,015.31
Golden shiner	16	16.00	134.29	134.29
Emerald shiner	1	1.00	7.58	7.58
Bluntnose minnow	7	7.00	15.88	15.88
Fathead minnow	2	2.00	6.60	6.60
Pumpkinseed	2	2.00	41.00	41.00
Bluegill	5	5.00	7.02	7.02
Largemouth bass	13	13.00	1,341.20	1,341.20
Total for 8/27/91	101	101.00	57,133.88	57,133.88
<u>10/21/91 Sample</u>				
Gizzard shad	10	10.00	489.46	489.46
Goldfish	21	21.00	4,973.00	4,973.00
Carp	15	15.00	32,733.00	32,733.00
Golden shiner	4	4.00	51.06	51.06
Bluntnose minnow	63	63.00	72.64	72.64
Green sunfish	1	1.00	15.00	15.00
Bluegill	3	3.00	4.57	4.57
Largemouth bass	19	19.00	1,546.00	1,546.00
Total for 10/21/91	136	136.00	39,884.73	39,884.73

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-8

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 8
AT CICERO AVENUE ON THE CHICAGO SANITARY AND SHIP CANAL
DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>4/5/91 Sample</u>				
Goldfish	157	117.75	22,921.76	17,191.32
Carp	8	6.00	12,873.50	9,655.13
Carp x goldfish hybrid	1	0.75	130.91	98.18
Bluntnose minnow	115	86.25	158.70	119.03
Fathead minnow	3	2.25	14.36	10.77
Green sunfish	3	2.25	7.04	5.28
Total for 4/5/91	287	215.25	36,106.27	27,079.70
<u>6/5/91 Sample</u>				
Goldfish	55	41.25	10,524.78	7,893.59
Carp	54	40.50	85,872.90	64,404.68
Carp x goldfish hybrid	7	5.25	6,076.50	4,557.38
Golden shiner	1	0.75	9.45	7.09
Bluntnose minnow	38	28.50	188.47	141.35
Black bullhead	1	0.75	296.50	222.38
Largemouth bass	1	0.75	43.00	32.25
Total for 6/5/91	157	117.75	103,011.60	77,258.70
<u>8/26/91 Sample</u>				
Alewife	1	0.86	0.79	0.68
Gizzard shad	31	26.57	995.68	853.44
Goldfish	86	73.71	14,323.03	12,276.88
Carp	134	114.86	38,713.79	33,183.25

Table continued on following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-8 (Continued)

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 8
AT CICERO AVENUE ON THE CHICAGO SANITARY AND SHIP CANAL
DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>8/26/91 Sample</u>				
Carp x goldfish hybrid	5	4.29	2,237.70	1,918.03
Golden shiner	1	0.86	18.86	16.17
Bluntnose minnow	65	55.71	143.48	122.98
Fathead minnow	3	2.57	5.91	5.07
Black bullhead	1	0.86	2.18	1.87
Pumpkinseed	2	1.71	63.00	54.00
Bluegill	1	0.86	2.65	2.27
Largemouth bass	8	6.86	803.28	688.53
Black crappie	1	0.86	216.00	185.14
Total for 8/26/91	339	290.57	57,526.35	49,308.30
<u>10/28/91 Sample</u>				
Gizzard shad	1	1.00	5.95	5.95
Goldfish	39	39.00	7,436.00	7,436.00
Carp	1	1.00	1,280.00	1,280.00
Spottail shiner	18	18.00	27.08	27.08
Bluntnose minnow	217	217.00	271.82	271.82
Fathead minnow	4	4.00	8.22	8.22
Pumpkinseed	1	1.00	3.00	3.00
Bluegill	1	1.00	2.31	2.31
Total for 10/28/91	282	282.00	9,034.38	9,034.38

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-9

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 9
AT HARLEM AVENUE ON THE CHICAGO SANITARY AND SHIP CANAL
DURING 1991

Date of Sample and Fish Species Collected	<u>Number of Fish</u>		<u>Weight (grams)</u>	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>4/8/91 Sample</u>				
Brown trout	1	0.70	454.00	316.74
Goldfish	43	30.00	7,855.03	5,480.25
Carp	18	12.56	23,290.50	16,249.19
Bluntnose minnow	34	23.72	53.90	37.60
Pumpkinseed	4	2.79	9.71	6.77
Total for 4/8/91	100	69.77	31,663.14	22,090.56
<u>6/10/91 Sample</u>				
Goldfish	10	10.00	2,022.57	2,022.57
Carp	21	21.00	45,600.00	45,600.00
Carp x goldfish hybrid	1	1.00	565.50	565.50
Bluntnose minnow	5	5.00	24.18	24.18
Total for 6/10/91	37	37.00	48,212.25	48,212.25
<u>8/21/91 Sample</u>				
Goldfish	7	5.68	393.46	319.02
Carp	26	21.08	39,276.94	31,846.17
Golden shiner	14	11.35	32.17	26.08
Emerald shiner	15	12.16	68.39	55.45
Bluntnose minnow	82	66.49	51.04	41.38
Fathead minnow	12	9.73	12.90	10.46
Green sunfish	1	0.81	8.51	6.90
Total for 8/21/91	157	127.30	39,843.41	32,305.47

Table continued on following page

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-9 (Continued)

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 9
AT HARLEM AVENUE ON THE CHICAGO SANITARY AND SHIP CANAL
DURING 1991

Date of Sample and Fish Species Collected	<u>Number of Fish</u>		<u>Weight (grams)</u>	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>10/22/91 Sample</u>				
Gizzard shad	6	6.00	153.09	153.09
Goldfish	2	2.00	158.00	158.00
Carp	5	5.00	8,230.00	8,230.00
Bluntnose minnow	1	1.00	0.85	0.85
Total for 10/22/91	14	14.00	8,541.94	8,541.94

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-10

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 10 AT
WILLOW SPRINGS ROAD ON THE CHICAGO SANITARY AND SHIP CANAL
DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>4/23/91 Sample</u>				
Central mudminnow	1	0.91	20.00	18.18
Goldfish	6	5.45	953.00	866.36
Carp	4	3.64	4,215.70	3,832.45
Bluntnose minnow	1	0.91	3.29	2.99
Green sunfish	3	2.73	21.38	19.44
Total for 4/23/91	15	13.64	5,213.37	4,739.43
<u>6/14/91 Sample</u>				
Gizzard shad	1	1.00	102.50	102.50
Goldfish	5	5.00	223.45	223.45
Carp	11	11.00	13,793.00	13,793.00
Carp x goldfish hybrid	2	2.00	733.03	733.03
Bluntnose minnow	18	18.00	44.94	44.94
Green sunfish	1	1.00	11.50	11.50
Total for 6/14/91	38	38.00	14,908.42	14,908.42
<u>8/28/91 Sample</u>				
Goldfish	10	10.00	145.80	145.80
Carp	7	7.00	8,881.00	8,881.00
Carp x goldfish hybrid	1	1.00	253.00	253.00
Bluntnose minnow	10	10.00	59.03	59.03

Table continued on following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-10

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 10 AT
WILLOW SPRINGS ROAD ON THE CHICAGO SANITARY AND SHIP CANAL
DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>8/28/91 Sample</u>				
Green sunfish	1	1.00	16.72	16.72
Pumpkinseed	1	1.00	8.00	8.00
Largemouth bass	1	1.00	19.35	19.35
Total for 8/28/91	31	31.00	9,382.90	9,382.90
<u>11/5/91 Sample</u>				
Goldfish	8	8.00	179.17	179.17
Carp	1	1.00	8.15	8.15
Spottail shiner	1	1.00	2.09	2.09
Green sunfish	3	3.00	46.00	46.00
Pumpkinseed	1	1.00	5.00	5.00
Largemouth bass	1	1.00	5.00	5.00
Green sunfish x pumpkinseed hybrid	1	1.00	19.00	19.00
Total for 11/5/91	16	16.00	264.41	264.41

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-11

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 11
AT 16TH STREET, LOCKPORT ON THE CHICAGO SANITARY AND SHIP CANAL
DURING 1991

Date of Sample and Fish Species Collected	<u>Number of Fish</u>		<u>Weight (grams)</u>	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>4/11/91 Sample</u>				
Gizzard shad	1	0.79	10.83	8.55
Goldfish	1	0.79	9.92	7.83
Carp	14	11.05	24,918.50	19,672.50
Green sunfish	1	0.79	4.09	3.23
Pumpkinseed	3	2.37	6.25	4.93
Total for 4/11/91	20	15.79	24,949.59	19,697.04
<u>6/18/91 Sample</u>				
Goldfish	11	7.33	1,614.50	1,076.33
Carp	21	14.00	30,460.00	20,306.67
Golden shiner	2	1.33	10.10	6.73
Emerald shiner	1	0.67	5.92	3.95
Green sunfish	1	0.67	6.05	4.03
Bluegill	1	0.67	16.48	10.99
Total for 6/18/91	37	24.67	32,113.05	21,408.70
<u>8/29/91 Sample</u>				
Goldfish	2	1.43	40.90	29.21
Carp	14	10.00	15,859.39	11,328.14
Carp x goldfish hybrid	1	0.71	1,369.00	977.86

Table continued on the following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-11 (Continued):

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 11
AT 16TH STREET, LOCKPORT ON THE CHICAGO SANITARY AND SHIP CANAL
DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>8/29/91 Sample</u>				
Green sunfish	1	0.71	14.00	10.00
Largemouth bass	5	3.57	65.00	46.43
Total for 8/29/91	23	16.43	17,348.29	12,391.64
<u>10/29/91 Sample</u>				
Gizzard shad	10	8.33	343.78	286.48
Goldfish	3	2.50	1,250.00	1,041.67
Carp	6	5.00	7,658.00	6,381.67
Carp x goldfish hybrid	1	0.83	1,550.00	1,291.67
Emerald shiner	2	1.67	10.77	8.98
Largemouth bass	1	0.83	19.00	15.83
Total for 10/29/91	23	19.17	10,831.55	9,026.29

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-12

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 12 AT
130TH STREET ON THE CALUMET RIVER DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>5/1/91 Sample</u>				
Alewife	1	0.75	60.00	45.00
Gizzard shad	8	6.00	1,393.71	1,045.28
Goldfish	1	0.75	278.00	208.50
Grass carp	1	0.75	9,072.00	6,804.00
Carp	15	11.25	52,307.90	39,230.93
Spottail shiner	1	0.75	9.49	7.12
Bluntnose minnow	16	12.00	43.76	32.82
Fathead minnow	2	1.50	3.30	2.48
White sucker	1	0.75	551.00	413.25
Black buffalo	1	0.75	5,925.15	4,443.86
White perch	15	11.25	883.00	662.25
Green sunfish	3	2.25	46.57	34.93
Pumpkinseed	1	0.75	43.00	32.25
Largemouth bass	1	0.75	392.00	294.00
Total for 5/1/91	67	50.25	71,008.88	53,256.66
<u>6/26/91 Sample</u>				
Gizzard shad	48	36.92	4,971.04	3,823.88
Carp	2	1.54	5,185.00	3,988.46
Emerald shiner	3	2.31	11.44	8.80
Bluntnose minnow	1	0.77	6.50	5.00
Quillback	2	1.54	1,284.50	988.08
Channel catfish	1	0.77	880.50	677.31
White bass	1	0.77	553.00	425.38
White perch	17	13.08	577.84	444.49
Green sunfish	11	8.46	116.45	89.58
Pumpkinseed	2	1.54	110.50	85.00
Bluegill	7	5.38	322.00	247.69
Largemouth bass	3	2.31	1,019.58	784.29
Total for 6/26/91	98	75.38	15,038.35	11,567.96

Table continued on the following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-12 (Continued):

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 12 AT
130TH STREET ON THE CALUMET RIVER DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>10/3/91 Sample</u>				
Gizzard shad	61	50.83	7,601.38	6,334.48
Carp	1	0.83	2,490.00	2,075.00
Emerald shiner	1	0.83	6.12	5.10
Bluntnose minnow	11	9.17	45.65	38.04
White perch	4	3.33	208.00	173.33
Green sunfish	4	3.33	44.00	36.67
Pumpkinseed	12	10.00	363.00	302.50
Bluegill	18	15.00	502.86	419.05
Smallmouth bass	1	0.83	14.00	11.67
Largemouth bass	24	20.00	2,620.29	2,183.58
Green sunfish x pumpkinseed hybrid	1	0.83	28.00	23.33
Freshwater drum	1	0.83	809.00	674.17
Total for 10/3/91	139	115.83	14,732.30	12,276.92
<u>12/9/91 Sample</u>				
Carp	1	0.83	4,568.00	3,806.67
Golden shiner	1	0.83	10.34	8.62
Bluntnose minnow	39	32.50	155.43	129.53
Green sunfish	2	1.67	17.00	14.17
Pumpkinseed	5	4.17	68.00	56.67
Largemouth bass	17	14.17	190.00	158.33
Total for 12/9/91	65	54.17	5,008.77	4,173.98

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-13

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 13
IMMEDIATELY DOWNSTREAM OF THE O'BRIEN LOCK AND DAM ON THE
CALUMET RIVER DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>4/30/91 Sample</u>				
Gizzard shad	7	7.00	1,825.99	1,825.99
Goldfish	4	4.00	1,234.00	1,234.00
Carp	16	16.00	53,409.45	53,409.45
Carp x goldfish hybrid	1	1.00	715.00	715.00
Spottail shiner	1	1.00	8.86	8.86
Bluntnose minnow	44	44.00	56.93	56.93
Fathead minnow	5	5.00	5.22	5.22
White perch	1	1.00	25.49	25.49
Green sunfish	11	11.00	177.71	177.71
Pumpkinseed	3	3.00	129.51	129.51
Bluegill	9	9.00	320.50	320.50
Largemouth bass	4	4.00	3,208.25	3,208.25
Green sunfish x pumpkinseed hybrid	1	1.00	85.00	85.00
Green sunfish x bluegill hybrid	1	1.00	16.11	16.11
Total for 4/30/91	108	108.00	61,218.02	61,218.02
<u>6/24/91 Sample</u>				
Gizzard shad	3	3.00	366.09	366.09
Goldfish	1	1.00	441.50	441.50
Carp	12	12.00	17,944.96	17,944.96
Golden shiner	3	3.00	56.41	56.41
Bluntnose minnow	33	33.00	82.47	82.47
Fathead minnow	1	1.00	0.39	0.39
White sucker	1	1.00	446.00	446.00
Black bullhead	1	1.00	157.00	157.00
Channel catfish	1	1.00	999.00	999.00

Table continued on the following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-13 (Continued)

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 13
IMMEDIATELY DOWNSTREAM OF THE O'BRIEN LOCK AND DAM ON THE
CALUMET RIVER DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>6/24/91 Sample</u>				
Green sunfish	64	64.00	1,224.43	1,224.43
Pumpkinseed	8	8.00	305.10	305.10
Bluegill	10	10.00	442.67	442.67
Largemouth bass	25	25.00	6,554.22	6,554.22
Black crappie	2	2.00	178.50	178.50
Yellow perch	1	1.00	3.07	3.07
Total for 6/24/91	166	166.00	29,201.81	29,201.81
<u>10/10/91 Sample</u>				
Gizzard shad	83	83.00	4,495.01	4,495.01
Chinook salmon	1	1.00	4,110.00	4,110.00
Carp	6	6.00	10,810.00	10,810.00
Golden shiner	1	1.00	2.06	2.06
Emerald shiner	87	87.00	215.72	215.72
Bluntnose minnow	6	6.00	42.19	42.19
Green sunfish	33	33.00	330.77	330.77
Pumpkinseed	35	35.00	378.37	378.37
Bluegill	52	52.00	282.42	282.42
Largemouth bass	45	45.00	1,690.86	1,690.86
Green sunfish x pumpkinseed hybrid	3	3.00	43.79	43.79
Total for 10/10/91	352	352.00	22,401.19	22,401.19
<u>12/9/91 Sample</u>				
Gizzard shad	8	8.00	115.26	115.26
Goldfish	1	1.00	34.28	34.28
Carp	4	4.00	6,994.00	6,994.00

Table continued on the following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-13 (Continued):

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 13
IMMEDIATELY DOWNSTREAM OF THE O'BRIEN LOCK AND DAM ON THE
CALUMET RIVER DURING 1991

Date of Sample and Fish Species Collected	<u>Number of Fish</u>		<u>Weight (grams)</u>	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>12/9/91 Sample</u>				
Golden shiner	2	2.00	5.64	5.64
Bluntnose minnow	54	54.00	115.87	115.87
White perch	16	16.00	661.23	661.23
Green sunfish	15	15.00	199.00	199.00
Pumpkinseed	3	3.00	62.51	62.51
Bluegill	39	39.00	245.70	245.70
Largemouth bass	10	10.00	79.00	79.00
Green sunfish x bluegill hybrid	3	3.00	15.89	15.89
Total for 12/9/91	155	155.00	8,528.38	8,528.38

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-14

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 14
AT ROUTE I-94 ON THE LITTLE CALUMET RIVER DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>4/26/91 Sample</u>				
Gizzard shad	8	6.49	1,140.40	924.65
Goldfish	19	15.41	5,336.00	4,326.49
Carp	4	3.24	5,286.25	4,286.15
Carp x goldfish hybrid	2	1.62	1,280.50	1,038.24
Golden shiner	2	1.62	65.29	52.94
Emerald shiner	10	8.11	74.81	60.66
Spottail shiner	14	11.35	145.14	117.68
Bluntnose minnow	7	5.68	21.81	17.68
Black bullhead	1	0.81	240.00	194.59
White perch	15	12.16	873.00	707.84
Green sunfish	1	0.81	10.00	8.11
Pumpkinseed	2	1.62	52.00	42.16
Bluegill	1	0.81	9.00	7.30
Green sunfish x pumpkinseed hybrid	1	0.81	6.04	4.90
Total for 4/26/91	87	70.54	14,540.24	11,789.38
<u>6/21/91 Sample</u>				
Gizzard shad	5	3.85	404.95	311.50
Goldfish	13	10.00	3,282.50	2,525.00
Carp	43	33.08	54,025.49	41,558.07
Carp x goldfish hybrid	6	4.62	6,980.00	5,369.23
Golden shiner	4	3.08	94.08	72.37
Emerald shiner	3	2.31	14.88	11.45
Spottail shiner	1	0.77	8.36	6.43
Black bullhead	1	0.77	161.00	123.85

Table continued on the following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-14 (Continued):

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 14
AT ROUTE I-94 ON THE LITTLE CALUMET RIVER DURING 1991

Date of Sample and Fish Species Collected	<u>Number of Fish</u>		<u>Weight (grams)</u>	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>6/21/91 Sample</u>				
White perch	17	13.08	687.50	528.85
Green sunfish	1	0.77	10.00	7.69
Largemouth bass	1	0.77	225.50	173.46
Total for 6/21/91	95	73.08	65,894.26	50,687.89
<u>10/2/91 Sample</u>				
Gizzard shad	484	484.00	11,833.71	11,833.71
Goldfish	2	2.00	895.00	895.00
Carp	19	19.00	26,724.00	26,724.00
Carp x goldfish hybrid	3	3.00	6,210.00	6,210.00
Emerald shiner	9	9.00	33.26	33.26
Bluntnose minnow	2	2.00	5.86	5.86
White perch	10	10.00	573.37	573.37
Pumpkinseed	8	8.00	278.20	278.20
Bluegill	2	2.00	20.32	20.32
Largemouth bass	11	11.00	2,392.40	2,392.40
Total for 10/2/91	550	550.00	48,966.12	48,966.12
<u>12/11/91 Sample</u>				
Gizzard shad	14	12.35	301.51	266.04
Bluntnose minnow	1	0.88	4.06	3.58
White perch	1	0.88	12.00	10.59
Total for 12/11/91	16	14.12	317.57	280.21

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-15

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 15
AT HALSTED STREET ON THE LITTLE CALUMET RIVER
DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>4/29/91 Sample</u>				
Gizzard shad	1	0.68	70.00	47.73
Goldfish	27	18.41	6,052.00	4,126.36
Carp	3	2.05	5,723.10	3,902.11:
Carp x goldfish hybrid	2	1.36	2,604.65	1,775.90
Green sunfish	15	10.23	158.15	107.83
Bluegill	2	1.36	92.00	62.73
Green sunfish x pumpkinseed hybrid	1	0.68	46.74	31.87
Total for 4/29/91	51	34.77	14,746.64	10,054.53
<u>6/25/91 Sample</u>				
Gizzard shad	9	6.14	1,104.14	752.82
Goldfish	27	18.41	7,822.50	5,333.52
Carp	21	14.32	33,571.00	22,889.32
Carp x goldfish hybrid	5	3.41	8,302.50	5,660.80
Golden shiner	1	0.68	13.54	9.23
Spottail shiner	1	0.68	9.74	6.64
White perch	1	0.68	52.67	35.91
Green sunfish	1	0.68	10.50	7.16
Pumpkinseed	1	0.68	31.59	21.54
Bluegill	1	0.68	45.50	31.02
Total for 6/25/91	68	46.36	50,963.68	34,747.96

Table continued on following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-15 (Continued)

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 15
AT HALSTED STREET ON THE LITTLE CALUMET RIVER
DURING 1991

Date of Sample and Fish Species Collected	<u>Number of Fish</u>		<u>Weight (grams)</u>	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>10/9/91 Sample</u>				
Gizzard shad	15	10.47	172.51	120.36
Grass pickerel	1	0.70	59.00	41.16
Goldfish	18	12.56	5,559.02	3,878.39
Carp	19	13.26	20,830.91	14,533.19
Golden shiner	2	1.40	16.62	11.60
Emerald shiner	6	4.19	7.91	5.52
Bluntnose minnow	2	1.40	2.41	1.68
White sucker	1	0.70	252.00	175.81
White perch	2	1.40	22.50	15.70
Green sunfish	1	0.70	2.08	1.45
Pumpkinseed	2	1.40	7.68	5.36
Bluegill	4	2.79	13.07	9.12
Largemouth bass	6	4.19	151.00	105.35
Total for 10/9/91	79	55.12	27,096.71	18,904.68
<u>12/10/91 Sample</u>				
Gizzard shad	9	8.18	59.91	54.46
Goldfish	2	1.82	794.00	721.82
Carp	3	2.73	4,594.00	4,176.36
Green sunfish	2	1.82	21.00	19.09
Pumpkinseed	1	0.91	2.23	2.03
Total for 12/10/91	17	15.45	5,471.14	4,973.76

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-16

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 16
 AT CICERO AVENUE ON THE CAL-SAG CHANNEL
 DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>4/25/91 Sample</u>				
Gizzard shad	10	8.82	859.83	758.67
Goldfish	12	10.59	2,486.00	2,193.53
Carp	4	3.53	4,758.05	4,198.28
Carp x goldfish hybrid	1	0.88	1,417.50	1,250.74
Fathead minnow	1	0.88	0.91	0.80
Green sunfish	7	6.18	67.32	59.40
Bluegill	9	7.94	320.34	282.65
Black crappie	2	1.76	8.41	7.42
Total for 4/25/91	46	40.59	9,918.36	8,751.49
<u>6/20/91 Sample</u>				
Gizzard shad	1	0.97	121.00	117.10
Goldfish	23	22.26	4,663.40	4,512.97
Carp	11	10.65	6,511.50	6,301.45
Carp x goldfish hybrid	2	1.94	1,792.00	1,734.19
Total for 6/20/91	37	35.81	13,087.90	12,665.71
<u>10/1/91 Sample</u>				
Gizzard shad	28	24.71	374.51	330.45
Central mudminnow	1	0.88	4.90	4.32
Goldfish	29	25.59	8,284.62	7,309.96

Table continued on the following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-16 (Continued):

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 16
 AT CICERO AVENUE ON THE CAL-SAG CHANNEL
 DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>10/1/91 Sample</u>				
Emerald shiner	3	2.65	5.11	4.51
Green sunfish	1	0.88	0.75	0.66
Largemouth bass	1	0.88	46.00	40.59
Total for 10/1/91	96	84.71	24,365.76	21,499.20
<u>12/11/91 Sample</u>				
Central mudminnow	1	1.00	4.97	4.97
Carp	1	1.00	919.00	919.00
Bluegill	3	3.00	106.00	106.00
Total for 12/11/91	5	5.00	1,029.97	1,029.97

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-17

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 17
AT ROUTE 83 ON THE CAL-SAG CHANNEL DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>4/24/91 Sample</u>				
Gizzard shad	3	2.09	32.26	22.51
Goldfish	4	2.79	788.00	549.77
Carp	10	6.98	17,852.10	12,454.95
Bluntnose minnow	2	1.40	12.87	8.98
Black bullhead	1	0.70	102.00	71.16
Green sunfish	7	4.88	64.27	44.84
Bluegill	4	2.79	97.61	68.10
Total for 4/24/91	31	21.63	18,949.11	13,220.31
<u>6/19/91 Sample</u>				
Goldfish	5	3.57	900.50	643.21
Carp	14	10.00	17,331.00	12,379.29
Green sunfish	2	1.43	10.33	7.38
Bluegill	3	2.14	153.79	109.85
Largemouth bass	1	0.71	8.83	6.31
Total for 6/19/91	25	17.86	18,404.45	13,146.04
<u>9/30/91 Sample</u>				
Gizzard shad	54	47.65	373.46	329.52
Goldfish	4	3.53	765.00	675.00
Carp	2	1.76	4,310.00	3,802.94
Emerald shiner	1	0.88	3.25	2.87
Green sunfish	3	2.65	32.00	28.24
Pumpkinseed	1	0.88	8.00	7.06
Largemouth bass	3	2.65	382.00	337.06
Total for 9/30/91	68	60.00	5,873.71	5,182.69

Table continued on the following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-17 (Continued):

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 17
AT ROUTE 83 ON THE CAL-SAG CHANNEL DURING 1991

Date of Sample and Fish Species Collected	<u>Number of Fish</u>		<u>Weight (grams)</u>	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>12/2/91 Sample</u>				
Gizzard shad	9	6.43	83.02	59.30
Goldfish	3	2.14	542.00	387.14
Carp	4	2.86	290.19	207.28
Emerald shiner	1	0.71	4.19	2.99
Spottail shiner	1	0.71	3.27	2.34
Green sunfish	11	7.86	141.79	101.28
Green sunfish x pumpkinseed hybrid	1	0.71	71.00	50.71
Pumpkinseed	5	3.57	60.00	42.86
Bluegill	3	2.14	48.86	34.90
Largemouth bass	1	0.71	48.00	34.29
Total for 12/2/91	39	27.86	1,292.32	923.09

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-18

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 18
AT THE INNER HARBOR ON THE CHICAGO RIVER DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>5/7/91 Sample</u>				
Alewife	1	0.94	1.86	1.74
Rainbow trout	1	0.94	853.50	800.16
Goldfish	1	0.94	335.50	314.53
Carp	11	10.31	43,149.00	40,452.19
Carp x goldfish hybrid	3	2.81	4,889.00	4,583.44
Black bullhead	2	1.88	344.50	322.97
Rock bass	9	8.44	569.56	533.96
Green sunfish	26	24.38	367.22	344.27
Pumpkinseed	2	1.88	42.00	39.38
Bluegill	3	2.81	95.69	89.71
Largemouth bass	2	1.88	910.00	853.13
Total for 5/7/91	61	57.19	51,557.83	48,335.47
<u>7/10/91 Sample</u>				
Brown trout	2	1.50	29.96	22.47
Goldfish	2	1.50	522.00	391.50
Carp	10	7.50	13,679.50	10,259.63
Carp x goldfish hybrid	4	3.00	2,813.50	2,110.13
Golden shiner	1	0.75	3.52	2.64
Bluntnose minnow	8	6.00	44.18	33.14
Black bullhead	2	1.50	499.50	374.63
Threespine stickleback	1	0.75	2.29	1.72
Rock bass	22	16.50	838.88	629.16
Green sunfish	35	26.25	1,030.25	772.69
Pumpkinseed	1	0.75	5.50	4.13

Table continued on the following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-18 (Continued)

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 18
AT THE INNER HARBOR ON THE CHICAGO RIVER DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>7/10/91 Sample</u>				
Bluegill	11	8.25	281.07	210.80
Smallmouth bass	2	1.50	275.14	206.36
Largemouth bass	6	4.50	2,956.50	2,217.38
Total for 7/10/91	107	80.25	22,981.79	17,236.34
<u>9/27/91 Sample</u>				
Goldfish	2	1.71	509.00	436.29
Bluntnose minnow	113	96.86	190.60	163.37
Fathead minnow	2	1.71	5.51	4.72
Rock bass	57	48.86	2,502.52	2,145.02
Green sunfish	31	26.57	508.17	435.57
Pumpkinseed	8	6.86	136.05	116.61
Bluegill	9	7.71	27.44	23.52
Smallmouth bass	14	12.00	108.00	92.57
Largemouth bass	21	18.00	785.87	673.60
Black crappie	1	0.86	153.00	131.14
Johnny darter	1	0.86	0.60	0.51
Total for 9/27/91	259	222.00	4,926.76	4,222.94
<u>11/15/91 Sample</u>				
Brown trout	1	0.79	37.69	29.76
Goldfish	1	0.79	136.00	107.37
Spottail shiner	50	39.47	183.53	144.89
Bluntnose minnow	382	301.58	759.71	599.77
Troutperch	2	1.58	4.89	3.86
Rock bass	42	33.16	526.01	415.27
Green sunfish	25	19.74	415.00	327.63

Table continued on the following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-18 (Continued)

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 18
AT THE INNER HARBOR ON THE CHICAGO RIVER DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>11/15/91 Sample</u>				
Pumpkinseed	12	9.47	172.66	136.31
Bluegill	45	35.53	245.40	193.74
Smallmouth bass	6	4.74	55.06	43.47
Largemouth bass	12	9.47	561.01	442.90
Green sunfish x pumpkinseed hybrid	1	0.79	40.00	31.58
Johnny darter	2	1.58	1.23	0.97
Yellow perch	3	2.37	34.46	27.21
Total for 11/15/91	584	461.05	3,172.65	2,504.72

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-19

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 19
AT THE LOOP ON THE CHICAGO RIVER
DURING 1991

Date of Sample and Fish Species Collected	<u>Number of Fish</u>		<u>Weight (grams)</u>	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>5/13/91 Sample</u>				
Gizzard shad	1	0.88	281.50	248.38
Chinook salmon	1	0.88	17.56	15.49
Goldfish	5	4.41	1,441.00	1,271.47
Carp	22	19.41	101,393.45	89,464.81
Green sunfish	1	0.88	77.00	67.94
Yellow perch	1	0.88	29.04	25.62
Total for 5/13/91	31	27.35	103,239.55	91,093.72
<u>7/11/91 Sample</u>				
Goldfish	3	2.65	733.00	646.76
Carp	3	2.65	13,354.90	11,783.74
Rock bass	1	0.88	113.00	99.71
Green sunfish	3	2.65	143.00	126.18
Largemouth bass	3	2.65	681.00	600.88
Total for 7/11/91	13	11.47	15,024.90	13,257.26
<u>9/26/91 Sample</u>				
Carp	14	13.13	37,150.00	34,828.13
Bluntnose minnow	1	0.94	4.30	4.03
Rock bass	1	0.94	34.00	31.88
Green sunfish	3	2.81	54.00	50.63
Bluegill	1	0.94	11.00	10.31
Largemouth bass	4	3.75	27.00	25.31
Total for 9/26/91	24	22.50	37,280.30	34,950.28

Table continued on following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-19 (Continued):

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 19
AT THE LOOP ON THE CHICAGO RIVER
DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>11/21/91 Sample</u>				
Alewife	3	2.50	12.60	10.50
Gizzard shad	46	38.33	2,052.96	1,710.80
Goldfish	1	0.83	470.00	391.67
Carp	39	32.50	91,790.00	76,491.67
Bluntnose minnow	9	7.50	41.59	34.66
Green sunfish	2	1.67	34.52	28.77
Pumpkinseed	1	0.83	24.00	20.00
Bluegill	8	6.67	19.79	16.49
Smallmouth bass	1	0.83	13.00	10.83
Yellow perch	7	5.83	200.16	166.80
Total for 11/21/91	117	97.50	94,658.62	78,882.18

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-20

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 20
AT THE JUNCTION OF THE NORTH AND SOUTH BRANCHES OF THE CHICAGO
RIVER DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>5/15/91 Sample</u>				
Alewife	2	2.00	106.86	106.86
Gizzard shad	7	7.00	535.11	535.11
Goldfish	8	8.00	1,743.87	1,743.87
Carp	28	28.00	105,396.03	105,396.03
Carp x goldfish hybrid	1	1.00	265.00	265.00
Emerald shiner	2	2.00	13.77	13.77
Spottail shiner	3	3.00	7.31	7.31
Bluntnose minnow	12	12.00	71.74	71.74
Rock bass	1	1.00	215.00	215.00
Green sunfish	5	5.00	75.00	75.00
Pumpkinseed	1	1.00	33.46	33.46
Bluegill	1	1.00	9.86	9.86
Largemouth bass	1	1.00	35.94	35.94
Total for 5/15/91	72	72.00	108,508.95	108,508.95
<u>7/11/91 Sample</u>				
Goldfish	17	17.00	3,995.00	3,995.00
Carp	12	12.00	15,750.00	15,750.00
Carp x goldfish hybrid	2	2.00	1,257.20	1,257.20
Bluntnose minnow	16	16.00	22.18	22.18
Rock bass	2	2.00	297.00	297.00
Green sunfish	5	5.00	137.98	137.98
Pumpkinseed	1	1.00	42.00	42.00
Bluegill	3	3.00	122.50	122.50
Total for 7/11/91	58	58.00	21,623.86	21,623.86

Table continued on the following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AI-20 (Continued):

NUMBER AND WEIGHT OF FISH COLLECTED FROM STATION NUMBER 20
AT THE JUNCTION OF THE NORTH AND SOUTH BRANCHES OF THE CHICAGO
RIVER DURING 1991

Date of Sample and Fish Species Collected	Number of Fish		Weight (grams)	
	Total Catch	Per 30 Minutes	Total Catch	Per 30 Minutes
<u>9/25/91 Sample</u>				
Gizzard shad	6	6.00	984.33	984.33
Goldfish	6	6.00	1,419.00	1,419.00
Carp	8	8.00	16,177.00	16,177.00
Carp x goldfish hybrid	2	2.00	5,680.00	5,680.00
Bluntnose minnow	41	41.00	106.25	106.25
Green sunfish	1	1.00	16.00	16.00
Bluegill	5	5.00	165.79	165.79
Largemouth bass	3	3.00	307.79	307.79
Total for 9/25/91	72	72.00	24,856.16	24,856.16
<u>11/20/91 Sample</u>				
Alewife	24	24.00	106.66	106.66
Gizzard shad	197	197.00	6,346.62	6,346.62
Goldfish	9	9.00	2,067.35	2,067.35
Carp	17	17.00	34,877.00	34,877.00
Carp x goldfish hybrid	3	3.00	6,637.00	6,637.00
Golden shiner	1	1.00	56.82	56.82
Spottail shiner	8	8.00	15.99	15.99
Bluntnose minnow	64	64.00	127.94	127.94
White perch	3	3.00	305.72	305.72
Rock bass	1	1.00	195.00	195.00
Green sunfish	1	1.00	18.00	18.00
Pumpkinseed	2	2.00	49.00	49.00
Orangespotted sunfish	1	1.00	9.00	9.00
Bluegill	10	10.00	441.90	441.90
Largemouth bass	3	3.00	455.00	455.00
Black crappie	1	1.00	11.00	11.00
Yellow perch	1	1.00	24.00	24.00
Total for 11/20/91	346	346.00	51,744.00	51,744.00

APPENDIX AII

Average, Minimum and Maximum Weight and
Total Length of Fish Collected Per Sample at Stations 1
Through 20 in the Chicago Waterway System
During 1991

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-1

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 1 AT SHERIDAN ROAD ON THE NORTH SHORE CHANNEL
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>5/21/91 Sample</u>						
Alewife	42.36	21.23	56.34	173	143	188
Gizzard shad	198.50	198.50	198.50	276	276	276
Brown trout	165.50	165.50	165.50	245	245	245
Rainbow smelt	0.89	0.89	0.89	59	59	59
Goldfish	156.21	4.57	390.50	170	62	247
Carp	167.50	167.50	167.50	240	240	240
Carp x goldfish hybrid	99.00	99.00	99.00	189	189	189
Golden shiner	0.93	0.28	11.85	43	34	116
Spottail shiner	1.01	0.23	1.53	48	32	57
Bluntnose minnow	0.64	0.08	9.32	38	22	90
Fathead minnow	0.85	0.12	4.42	43	29	69
Black bullhead	108.50	108.50	108.50	195	195	195
Threespine stickleback	1.30	1.30	1.30	54	54	54
Green sunfish	15.96	6.78	24.50	92	70	107
Bluegill	38.88	14.00	74.50	125	100	158
Yellow perch	4.63	3.14	6.12	77	68	86

Table continued on the following page.

I-IIIV
1

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-1 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 1 AT SHERIDAN ROAD ON THE NORTH SHORE CHANNEL
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>7/16/91 Sample</u>						
Gizzard shad	449.00	449.00	449.00	347	347	347
Brown trout	23.40	23.40	23.40	132	132	132
Goldfish	31.07	4.38	241.50	105	67	212
Carp	1,262.50	779.00	1,746.00	408	350	465
Carp x goldfish hybrid	531.75	389.00	674.50	299	263	335
Golden shiner	14.56	1.94	41.66	104	61	153
Spottail shiner	2.53	1.37	3.98	68	57	78
Bluntnose minnow	1.59	0.45	7.45	54	39	86
Fathead minnow	1.86	0.80	3.98	56	44	70
Green sunfish	27.36	11.00	78.00	102	83	151
Pumpkinseed	3.00	3.00	3.00	55	55	55
Bluegill	28.37	11.00	43.00	108	83	124
Largemouth bass	5.76	5.40	6.12	77	75	78

Table continued on following page.

AII-2

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-1 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 1 AT SHERIDAN ROAD ON THE NORTH SHORE CHANNEL
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>9/23/91 Sample</u>						
Alewife	0.68	0.16	3.33	43	27	78
Gizzard shad	5.16	5.16	5.16	80	80	80
Brown trout	295.00	200.00	390.00	311	284	337
Goldfish	21.39	4.05	126.62	103	63	188
Carp	3,210.00	3,210.00	3,210.00	620	620	620
Carp x goldfish hybrid	30.00	30.00	30.00	125	125	125
Golden shiner	1.08	0.18	21.10	48	34	122
Spottail shiner	0.88	0.29	2.12	47	33	64
Bluntnose minnow	0.94	0.06	7.49	42	21	87
Fathead minnow	1.69	0.30	4.08	53	33	72
White sucker	575.00	575.00	575.00	370	370	370
Black bullhead	53.00	53.00	53.00	156	156	156
Rock bass	1.50	0.31	3.20	38	24	53
Green sunfish	10.46	5.51	22.00	79	66	104
Pumpkinseed	1.44	0.65	1.98	42	35	47
Orangespotted sunfish	21.00	21.00	21.00	97	97	97
Bluegill	5.69	0.36	15.00	59	30	98

Table continued on following page.

AII-3

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-1 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 1 AT SHERIDAN ROAD ON THE NORTH SHORE CHANNEL
DURING 1991

Date of Sample and Fish Species Collected	Individual Fish Weight (grams)			Total Length (millimeters)		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>11/13/91 Sample</u>						
Alewife	6.03	6.03	6.03	88	88	88
Rainbow trout	1,890.00	1,890.00	1,890.00	611	611	611
Brown trout	184.00	184.00	184.00	287	287	287
Grass pickerel	72.00	72.00	72.00	235	235	235
Goldfish	129.76	8.81	280.00	165	75	223
Carp	5,370.00	5,370.00	5,370.00	690	690	690
Carp x goldfish hybrid	1,270.00	870.00	1,670.00	400	363	437
Spottail shiner	0.18	0.18	0.18	29	29	29
Bluntnose minnow	0.43	0.07	7.36	34	22	88
Fathead minnow	0.71	0.29	1.65	40	33	54
Rock bass	1.47	1.44	1.49	42	42	42
Green sunfish	2.38	0.85	3.90	47	35	57
Pumpkinseed	3.78	1.55	6.00	56	44	67
Bluegill	15.74	2.05	32.00	91	49	120

AII-4

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-2

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 2 AT DEMPSTER STREET ON THE NORTH SHORE CHANNEL
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>5/22/91 Sample</u>						
Alewife	2.76	2.76	2.76	75	75	75
Goldfish	140.21	4.24	488.00	144	60	265
Carp	336.41	9.95	1,603.00	168	77	440
Carp x goldfish hybrid	513.30	4.00	1,506.00	235	60	420
Golden shiner	9.62	3.23	17.44	95	67	119
Spottail shiner	4.05	4.05	4.05	73	73	73
Bluntnose minnow	4.27	1.86	7.44	67	53	80
Fathead minnow	4.96	1.01	11.18	66	44	84
Black bullhead	135.30	13.00	180.50	192	94	238
Green sunfish	25.24	1.44	84.00	89	41	145
Bluegill	62.40	12.00	122.00	133	91	168

Table continued on following page.

AII-5

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-2 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 2 AT DEMPSTER STREET ON THE NORTH SHORE CHANNEL
DURING 1991

Date of Sample and Fish Species Collected	Individual Fish Weight (grams)			Total Length (millimeters)		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>7/17/91 Sample</u>						
Alewife	4.72	4.72	4.72	93	93	93
Goldfish	117.90	0.15	533.50	149	24	277
Carp	890.04	0.56	2,461.00	346	34	567
Carp x goldfish hybrid	868.63	19.13	2,257.50	323	102	495
Golden shiner	10.08	0.12	48.88	82	25	165
Bluntnose minnow	3.68	3.68	3.68	67	67	67
Fathead minnow	0.89	0.14	3.81	36	26	67
Black bullhead	138.60	86.50	202.00	207	169	241
Green sunfish	26.03	13.50	54.00	106	91	131
Pumpkinseed	6.51	6.02	7.00	63	60	66
Largemouth bass	223.50	223.50	223.50	255	255	255
Black crappie	139.25	138.00	140.50	207	201	212

Table continued on following page.

AII-6

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-2 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 2 AT DEMPSTER STREET ON THE NORTH SHORE CHANNEL
DURING 1991

Date of Sample and Fish Species Collected	Individual Fish Weight (grams)			Total Length (millimeters)		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>9/24/91 Sample</u>						
Goldfish	2.66	0.47	11.80	53	31	86
Carp x goldfish hybrid	5.59	1.24	9.94	60	42	78
Golden shiner	0.84	0.22	2.53	46	31	65
Spottail shiner	1.01	0.77	1.24	49	44	53
Bluntnose minnow	0.35	0.05	4.44	33	15	77
Fathead minnow	0.62	0.15	3.61	39	26	73
Oriental weatherfish	10.05	5.98	14.12	104	93	114
Rock bass	1.03	0.87	1.23	36	35	39
Green sunfish	4.08	0.48	45.00	48	30	144
Pumpkinseed	4.82	0.57	19.00	54	32	100
Bluegill	38.00	38.00	38.00	122	122	122
Largemouth bass	9.00	9.00	9.00	94	94	94

Table continued on following page.

AII-7

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-2 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 2 AT DEMPSTER STREET ON THE NORTH SHORE CHANNEL
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>11/14/91 Sample</u>						
Goldfish	5.15	1.66	7.52	65	45	76
Golden shiner	0.85	0.54	1.13	47	40	52
Bluntnose minnow	2.14	0.17	7.49	48	28	85
Fathead minnow	0.29	0.19	0.38	35	32	37
Oriental weatherfish	7.75	7.75	7.75	103	103	103
Black bullhead	152.00	47.00	257.00	204	155	253
Green sunfish	8.33	1.26	31.00	74	41	115

AII-8

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-3

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 3 AT TOUHY AVENUE ON THE NORTH SHORE CHANNEL
DURING 1991

Date of Sample and Fish Species Collected	Individual Fish Weight (grams)			Total Length (millimeters)		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>5/23/91 Sample</u>						
Alewife	25.86	4.12	47.60	138	89	187
Goldfish	209.65	16.39	501.00	189	95	265
Carp	89.22	52.43	126.00	170	153	187
Carp x goldfish hybrid	644.73	19.64	1,442.00	278	103	435
Golden shiner	18.97	4.36	39.06	112	77	144
Fathead minnow	5.03	5.03	5.03	67	67	67
White sucker	512.25	505.00	519.50	363	357	368
Black bullhead	105.00	105.00	105.00	187	187	187
Green sunfish	14.48	8.15	18.80	82	72	89
Bluegill	56.13	21.40	81.50	134	103	150
Black crappie	79.25	61.00	97.50	174	162	185

Table continued on following page.

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-3 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 3 AT TOUHY AVENUE ON THE NORTH SHORE CHANNEL
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>7/19/91 Sample</u>						
Gizzard shad	235.39	120.11	431.50	262	212	325
Goldfish	202.00	43.50	448.00	201	132	268
Carp	2,887.45	43.79	9,610.00	421	133	802
Carp x goldfish hybrid	1,207.00	1,207.00	1,207.00	415	415	415
Golden shiner	20.86	12.51	34.98	123	105	152
Spottail shiner	0.43	0.43	0.43	37	37	37
Black bullhead	154.00	154.00	154.00	217	217	217
Green sunfish	15.38	15.38	15.38	88	88	88
<u>9/19/91 Sample</u>						
Gizzard shad	54.22	45.85	62.59	164	157	171
Goldfish	66.99	6.47	473.00	118	71	251
Carp	1,300.00	1,030.00	1,570.00	425	402	447

Table continued on following page.

AII-10

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-3 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 3 AT TOUHY AVENUE ON THE NORTH SHORE CHANNEL
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>9/19/91 Sample</u>						
Carp x goldfish hybrid	13.23	13.23	13.23	90	90	90
Golden shiner	1.46	0.48	3.03	54	39	69
Spottail shiner	1.66	0.39	6.99	56	36	98
Bluntnose minnow	0.77	0.16	5.18	42	26	78
Fathead minnow	2.22	1.38	4.55	59	52	73
Black bullhead	133.00	4.00	284.00	174	65	270
Rock bass	1.04	1.04	1.04	37	37	37
Green sunfish	8.24	0.65	33.00	64	31	117
Bluegill	12.05	0.96	34.00	68	40	122
Largemouth bass	224.00	224.00	224.00	244	244	244
Black crappie	75.00	75.00	75.00	175	175	175
Green sunfish x pumpkinseed hybrid	1.12	1.07	1.16	41	40	41

Table continued on following page.

AII-11

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-3 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 3 AT TOUHY AVENUE ON THE NORTH SHORE CHANNEL
DURING 1991

Date of Sample and Fish Species Collected	Individual Fish Weight (grams)			Total Length (millimeters)		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>11/18/91 Sample</u>						
Gizzard shad	45.35	3.41	249.22	156	111	288
Golden shiner	11.47	1.23	27.16	98	51	142
Spottail shiner	3.76	3.76	3.76	78	78	78
Bluntnose minnow	0.96	0.41	2.54	46	35	62
Fathead minnow	2.36	2.36	2.36	63	63	63
Black bullhead	168.00	168.00	168.00	228	228	228
Bluegill	118.00	118.00	118.00	176	176	176
Largemouth bass	21.00	21.00	21.00	124	124	124
Black crappie	96.00	19.00	173.00	170	115	224

AII-12

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-4

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 4 AT PETERSON AVENUE ON THE NORTH SHORE CHANNEL
DURING 1991

Date of Sample and Fish Species Collected	Individual Fish Weight (grams)			Total Length (millimeters)		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>5/24/91 Sample</u>						
Central mudminnow	12.25	8.05	15.86	92	84	106
Goldfish	115.66	12.85	515.00	153	85	263
Carp	350.63	263.50	420.50	284	246	315
Carp x goldfish hybrid	679.68	10.03	1,358.00	268	82	410
Golden shiner	17.36	15.68	19.04	115	114	115
Spottail shiner	3.81	3.81	3.81	69	69	69
Bluntnose minnow	1.06	0.43	2.98	46	37	62
White sucker	342.75	127.50	673.50	293	215	379
Black bullhead	234.00	226.00	242.00	231	230	232
Green sunfish	10.96	3.52	35.50	75	53	112
Orangespotted sunfish	6.88	2.75	11.00	64	49	79
Bluegill	13.41	2.12	28.00	83	47	116
Black crappie	63.00	63.00	63.00	164	164	164

Table continued on following page.

AII-13

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-4 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 4 AT PETERSON AVENUE ON THE NORTH SHORE CHANNEL
DURING 1991

Date of Sample and Fish Species Collected	Individual Fish Weight (grams)			Total Length (millimeters)		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>7/18/91 Sample</u>						
Gizzard shad	257.85	165.50	405.50	276	237	307
Goldfish	102.00	12.00	231.00	157	95	227
Carp	1,346.50	1,346.50	1,346.50	420	420	420
Golden shiner	36.00	36.00	36.00	136	136	136
Bluntnose minnow	2.10	2.10	2.10	58	58	58
White sucker	383.00	383.00	383.00	324	324	324
Black bullhead	0.44	0.44	0.44	30	30	30
Green sunfish	7.00	6.50	7.50	74	69	79
Bluegill	15.00	15.00	15.00	87	87	87
<u>9/20/91 Sample</u>						
Alewife	0.26	0.22	0.29	34	32	35
Goldfish	15.00	13.00	17.00	95	91	99
Golden shiner	7.02	1.45	21.33	76	54	118

Table continued on following page.

AII-14

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-4 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 4 AT PETERSON AVENUE ON THE NORTH SHORE CHANNEL
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>9/20/91 Sample</u>						
Spottail shiner	1.74	0.19	4.83	56	28	78
Bluntnose minnow	0.67	0.06	2.16	41	22	60
Fathead minnow	1.59	0.33	2.62	51	32	62
Oriental weatherfish	4.41	4.41	4.41	85	85	85
Black bullhead	15.00	15.00	15.00	95	95	95
Green sunfish	10.09	0.48	35.00	71	28	117
Pumpkinseed	1.70	1.70	1.70	44	44	44
Bluegill	2.43	1.08	4.59	52	41	65
<u>11/18/91 Sample</u>						
Gizzard shad	25.29	9.11	230.00	131	93	302
Golden shiner	2.38	2.38	2.38	65	65	65
Spottail shiner	3.62	2.37	5.37	73	67	78
Bluntnose minnow	1.00	0.44	1.81	46	38	55
Fathead minnow	2.16	2.16	2.16	58	58	58
Green sunfish	16.91	8.00	35.00	93	71	117
Bluegill	1.01	0.42	1.72	41	32	49

AII-15

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-5

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 5 AT WILSON AVENUE ON THE NORTH BRANCH OF THE CHICAGO RIVER
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>5/20/91 Sample</u>						
Goldfish	87.97	8.83	432.00	134	76	251
Carp	3,167.50	409.00	9,733.50	473	280	780
Carp x goldfish hybrid	1,038.83	38.00	1,939.00	329	175	447
Golden shiner	19.93	19.93	19.93	120	120	120
White sucker	190.00	190.00	190.00	250	250	250
Black bullhead	153.00	153.00	153.00	205	205	205
Green sunfish	15.48	2.99	41.50	76	47	123
Bluegill	25.09	1.53	68.50	86	41	142
Green sunfish x bluegill hybrid	19.22	19.22	19.22	99	99	99
Pumpkinseed x bluegill hybrid	29.50	29.50	29.50	113	113	113
<u>7/18/91 Sample</u>						
Gizzard shad	242.35	132.24	333.66	261	219	285
Goldfish	300.49	0.27	686.50	208	26	302

Table continued on following page.

AII-16

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-5 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 5 AT WILSON AVENUE ON THE NORTH BRANCH OF THE CHICAGO RIVER
DURING 1991

Date of Sample and Fish Species Collected	Individual Fish Weight (grams)			Total Length (millimeters)		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>7/18/91 Sample</u>						
Carp	819.41	11.81	1,985.50	333	83	510
Carp x goldfish hybrid	896.81	74.58	1,937.50	344	158	495
Golden shiner	20.82	12.73	24.85	122	110	130
Bluntnose minnow	3.91	1.63	6.18	67	55	79
Green sunfish	11.89	8.03	20.00	82	69	95
Bluegill	59.63	9.12	185.50	122	78	194
Largemouth bass	7.67	5.72	9.04	78	72	83
<u>9/18/91 Sample</u>						
Alewife	57.06	57.06	57.06	172	172	172
Gizzard shad	141.29	36.46	381.00	206	151	312
Goldfish	38.15	1.35	550.00	103	44	278
Carp	437.00	4.64	2,470.00	187	65	565
Carp x goldfish hybrid	109.25	5.82	850.00	121	68	367
Golden shiner	4.27	0.69	59.00	70	43	176

Table continued on following page.

AII-17

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-5 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 5 AT WILSON AVENUE ON THE NORTH BRANCH OF THE CHICAGO RIVER
DURING 1991

Date of Sample and Fish Species Collected	Individual Fish Weight (grams)			Total Length (millimeters)		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>9/18/91 Sample</u>						
Spottail shiner	1.51	1.03	1.99	59	52	66
Bluntnose minnow	0.78	0.19	3.09	43	29	70
Fathead minnow	2.54	1.78	3.29	60	57	63
White sucker	559.00	559.00	559.00	377	377	377
Black bullhead	89.00	89.00	89.00	183	183	183
Green sunfish	13.66	1.68	36.00	83	43	121
Pumpkinseed	2.95	1.66	3.63	53	45	56
Bluegill	28.05	1.02	137.00	84	40	181
Black crappie	88.19	3.38	173.00	141	65	217
Green sunfish x bluegill hybrid	15.50	15.00	16.00	97	95	98
<u>11/19/91 Sample</u>						
Gizzard shad	22.78	6.68	58.44	126	90	171
Goldfish	282.50	22.00	587.00	207	104	268
Carp	603.01	42.06	1,757.00	275	129	458

Table continued on following page.

AII-18

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-5 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 5 AT WILSON AVENUE ON THE NORTH BRANCH OF THE CHICAGO RIVER
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>11/19/91 Sample</u>						
Carp x goldfish hybrid	48.00	29.00	67.00	139	123	154
Golden shiner	5.59	1.47	9.71	76	56	96
Emerald shiner	9.64	7.64	11.64	108	100	115
Spottail shiner	2.81	2.78	2.84	67	66	67
Bluntnose minnow	1.54	0.49	4.13	52	38	73
Fathead minnow	1.96	1.48	2.43	56	50	62
Black bullhead	211.44	211.44	211.44	230	230	230
Green sunfish	15.49	4.37	30.00	91	59	121
Pumpkinseed	9.34	9.34	9.34	75	75	75
Bluegill	1.29	0.68	1.90	43	35	50

AII-19

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-6

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 6 AT GRAND AVENUE ON THE NORTH BRANCH OF THE CHICAGO RIVER
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>5/16/91 Sample</u>						
Alewife	2.79	2.79	2.79	75	75	75
Gizzard shad	52.87	14.27	115.27	165	116	253
Goldfish	270.57	87.50	465.00	212	145	248
Carp	2,057.89	385.50	4,954.67	437	269	675
Carp x goldfish hybrid	1,112.08	802.50	1,393.50	379	336	412
Bluntnose minnow	7.38	2.80	13.10	76	62	92
Black bullhead	238.50	238.50	238.50	235	235	235
Green sunfish	29.06	10.00	56.00	108	72	131
Bluegill	52.75	15.00	110.00	127	85	168
<u>7/12/91 Sample</u>						
Alewife	7.68	6.46	8.51	87	85	92
Gizzard shad	127.88	123.96	131.79	222	220	223
Goldfish	440.63	317.50	544.50	243	233	263
Carp	1,377.40	316.00	3,788.50	410	265	575

Table continued on following page.

AII-20

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-6 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 6 AT GRAND AVENUE ON THE NORTH BRANCH OF THE CHICAGO RIVER
DURING 1991

Date of Sample and Fish Species Collected	Individual Fish Weight (grams)			Total Length (millimeters)		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>7/12/91 Sample</u>						
Carp x goldfish hybrid	1,138.89	436.00	2,144.00	388	267	493
Golden shiner	24.87	16.65	42.06	126	117	145
Bluntnose minnow	4.26	2.51	5.78	71	62	77
Green sunfish	26.00	26.00	26.00	107	107	107
Bluegill	46.10	13.00	86.50	125	88	150
<u>9/16/91 Sample</u>						
Gizzard shad	61.40	26.34	125.07	171	132	230
Goldfish	362.67	123.00	660.00	230	173	286
Carp	1,433.61	466.00	3,270.00	435	304	610
Carp x goldfish hybrid	2,078.00	1,440.00	4,120.00	450	388	565
Bluntnose minnow	1.13	0.76	1.36	50	43	53
Green sunfish	10.07	10.07	10.07	84	84	84

Table continued on following page.

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-6 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 6 AT GRAND AVENUE ON THE NORTH BRANCH OF THE CHICAGO RIVER
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>9/16/91 Sample</u>						
Pumpkinseed	44.00	42.00	46.00	128	125	131
Bluegill	26.30	7.91	48.00	106	76	134
Largemouth bass	12.00	12.00	12.00	100	100	100
<u>11/12/91 Sample</u>						
Goldfish	20.00	20.00	20.00	102	102	102
Carp	2,052.50	1,180.00	3,130.00	477	408	535
Green sunfish	22.00	22.00	22.00	103	103	103

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-7

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 7 AT DAMEN AVENUE ON THE CHICAGO SANITARY AND SHIP CANAL
DURING 1991

Date of Sample and Fish Species Collected	Individual Fish Weight (grams)			Total Length (millimeters)		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>4/10/91 Sample</u>						
Gizzard shad	8.10	6.53	9.90	98	92	104
Rainbow smelt	5.51	5.51	5.51	92	92	92
Goldfish	236.88	19.50	516.50	207	105	267
Carp	545.33	167.50	805.00	309	210	372
Golden shiner	4.26	1.17	6.35	73	54	87
Bluntnose minnow	0.56	0.56	0.56	38	38	38
Threespine stickleback	1.41	1.41	1.41	54	54	54
Green sunfish	10.00	10.00	10.00	69	69	69
Pumpkinseed	3.11	1.61	4.60	56	49	63
Largemouth bass	12.37	6.89	28.00	95	78	130
<u>6/7/91 Sample</u>						
Goldfish	227.09	39.00	827.00	201	127	298
Carp	1,388.77	48.92	10,235.50	392	140	823
Carp x goldfish hybrid	1,168.00	300.50	1,628.50	376	243	455

Table continued on following page.

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-7 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 7 AT DAMEN AVENUE ON THE CHICAGO SANITARY AND SHIP CANAL
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>6/7/91 Sample</u>						
Golden shiner	20.52	6.79	33.90	119	89	142
Green sunfish	27.08	27.08	27.08	102	102	102
Pumpkinseed	6.56	6.56	6.56	69	69	69
Bluegill	1.20	1.05	1.34	43	40	45
Largemouth bass	7.69	7.69	7.69	87	87	87
<u>8/27/91 Sample</u>						
Goldfish	309.17	125.00	588.00	224	170	280
Carp	1,351.77	14.58	9,420.00	381	92	795
Golden shiner	8.39	1.59	44.69	81	55	148
Emerald shiner	7.58	7.58	7.58	96	96	96
Bluntnose minnow	2.27	0.34	3.88	59	35	73
Fathead minnow	3.30	2.47	4.13	67	63	70
Pumpkinseed	20.50	18.00	23.00	101	96	105
Bluegill	1.40	0.92	1.90	43	38	48
Largemouth bass	103.17	3.61	375.00	150	65	277

Table continued on following page.

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-7 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 7 AT DAMEN AVENUE ON THE CHICAGO SANITARY AND SHIP CANAL
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>10/21/91 Sample</u>						
Gizzard shad	48.95	11.07	170.00	156	104	238
Goldfish	236.81	30.00	481.00	203	117	265
Carp	2,182.20	158.00	5,020.00	471	210	662
Golden shiner	12.77	0.87	41.55	87	47	157
Bluntnose minnow	1.15	0.39	3.13	50	37	68
Green sunfish	15.00	15.00	15.00	94	94	94
Bluegill	1.52	1.20	1.83	47	46	49
Largemouth bass	81.37	3.00	339.00	155	73	267

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-8

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 8 AT CICERO AVENUE ON THE CHICAGO SANITARY AND SHIP CANAL
DURING 1991

Date of Sample and Fish Species Collected	Individual Fish Weight (grams)			Total Length (millimeters)		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>4/5/91 Sample</u>						
Goldfish	146.00	19.20	467.00	178	104	265
Carp	1,609.19	176.50	4,427.50	432	215	630
Carp x goldfish hybrid	130.91	130.91	130.91	185	185	185
Bluntnose minnow	1.38	0.14	8.37	48	28	85
Fathead minnow	4.79	3.10	6.00	71	64	80
Green sunfish	2.35	1.55	3.23	52	44	58
<u>6/5/91 Sample</u>						
Goldfish	191.36	36.97	442.50	198	127	282
Carp	1,590.24	28.40	11,884.00	416	113	803
Carp x goldfish hybrid	868.07	497.50	1,343.50	338	280	395
Golden shiner	9.45	9.45	9.45	95	95	95
Bluntnose minnow	4.96	0.56	9.05	74	42	91
Black bullhead	296.50	296.50	296.50	260	260	260
Largemouth bass	43.00	43.00	43.00	143	143	143

Table continued on following page.

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-8 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 8 AT CICERO AVENUE ON THE CHICAGO SANITARY AND SHIP CANAL
DURING 1991

Date of Sample and Fish Species Collected	Individual Fish Weight (grams)			Total Length (millimeters)		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>8/26/91 Sample</u>						
Alewife	0.79	0.79	0.79	43	43	43
Gizzard shad	32.12	11.32	66.91	138	100	173
Goldfish	166.55	0.19	770.00	176	25	312
Carp	288.91	2.71	4,690.00	171	56	652
Carp x goldfish hybrid	447.54	4.68	1,460.00	238	66	446
Golden shiner	18.86	18.86	18.86	122	122	122
Bluntnose minnow	2.21	0.19	7.83	58	30	90
Fathead minnow	1.97	0.66	4.44	53	43	73
Black bullhead	2.18	2.18	2.18	53	53	53
Pumpkinseed	31.50	30.00	33.00	112	107	117
Bluegill	2.65	2.65	2.65	53	53	53
Largemouth bass	100.41	33.00	137.00	186	136	207
Black crappie	216.00	216.00	216.00	231	231	231

Table continued on following page.

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-8 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 8 AT CICERO AVENUE ON THE CHICAGO SANITARY AND SHIP CANAL
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>10/28/91 Sample</u>						
Gizzard shad	25.52	8.15	46.75	125	86	160
Goldfish	79.00	10.00	148.00	134	85	182
Carp	1,280.00	1,280.00	1,280.00	427	427	427
Spottail shiner	1.50	0.60	2.92	55	45	69
Bluntnose minnow	1.25	0.24	5.37	50	33	80
Fathead minnow	2.06	1.52	2.73	56	52	60
Pumpkinseed	3.00	3.00	3.00	49	49	49
Bluegill	2.31	2.31	2.31	54	54	54

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-9

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 9 AT HARLEM AVENUE ON THE CHICAGO SANITARY AND SHIP CANAL
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>4/8/91 Sample</u>						
Brown trout	454.00	454.00	454.00	336	336	336
Goldfish	182.68	16.03	508.50	188	90	282
Carp	1,293.92	220.00	3,518.00	398	225	622
Bluntnose minnow	1.59	0.24	4.53	50	30	71
Pumpkinseed	2.43	2.09	2.96	53	52	55
<u>6/10/91 Sample</u>						
Goldfish	202.26	35.97	471.00	190	111	264
Carp	2,171.43	386.00	6,291.00	458	270	670
Carp x goldfish hybrid	565.50	565.50	565.50	307	307	307
Bluntnose minnow	4.84	1.07	9.38	70	47	92
<u>8/28/91 Sample</u>						
Goldfish	56.21	28.44	111.00	130	108	161
Carp	1,510.65	2.47	6,062.00	391	54	708

Table continued on following page.

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-9 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 9 AT HARLEM AVENUE ON THE CHICAGO SANITARY AND SHIP CANAL
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>8/28/91 Sample</u>						
Golden shiner	2.30	1.38	3.80	63	53	74
Emerald shiner	4.56	3.07	6.22	84	74	92
Bluntnose minnow	0.62	0.10	7.40	40	27	85
Fathead minnow	1.08	0.50	2.32	46	38	58
Green sunfish	8.51	8.51	8.51	76	76	76
<u>10/22/91 Sample</u>						
Gizzard shad	25.52	8.15	46.75	125	86	160
Goldfish	79.00	10.00	148.00	134	85	182
Carp	1,646.00	770.00	2,610.00	447	358	525
Bluntnose minnow	0.85	0.85	0.85	47	47	47

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-10

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED FROM STATION NUMBER 10 AT WILLOW SPRINGS ROAD ON THE CHICAGO SANITARY AND SHIP CANAL DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>4/23/91 Sample</u>						
Central mudminnow	20.00	20.00	20.00	120	120	120
Goldfish	158.83	53.00	356.00	180	133	247
Carp	1,053.93	480.00	2,608.20	382	315	515
Bluntnose minnow	3.29	3.29	3.29	64	64	64
Green sunfish	7.13	6.51	7.87	70	66	74
<u>6/14/91 Sample</u>						
Gizzard shad	102.50	102.50	102.50	240	240	240
Goldfish	44.69	6.74	116.50	119	78	164
Carp	1,253.91	236.50	3,373.50	406	255	580
Carp x goldfish hybrid	366.52	20.53	712.50	224	102	346
Bluntnose minnow	2.50	1.10	7.38	61	52	83
Green sunfish	11.50	11.50	11.50	90	90	90

Table continued on following page.

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-10 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED FROM STATION NUMBER 10 AT WILLOW SPRINGS ROAD ON THE CHICAGO SANITARY AND SHIP CANAL DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>8/28/91 Sample</u>						
Goldfish	14.58	3.07	64.00	86	57	165
Carp	1,268.71	800.00	2,270.00	422	380	520
Carp x goldfish hybrid	253.00	253.00	253.00	235	235	235
Bluntnose minnow	5.90	2.34	7.58	81	62	88
Green sunfish	16.72	16.72	16.72	93	93	93
Pumpkinseed	8.00	8.00	8.00	76	76	76
Largemouth bass	19.35	19.35	19.35	110	110	110
<u>11/5/91 Sample</u>						
Goldfish	22.40	2.09	99.00	92	50	171
Carp	8.15	8.15	8.15	73	73	73
Spottail shiner	2.09	2.09	2.09	63	63	63
Green sunfish	15.33	11.00	21.00	94	80	110
Pumpkinseed	5.00	5.00	5.00	65	65	65
Largemouth bass	5.00	5.00	5.00	80	80	80
Green sunfish x pumpkinseed hybrid	19.00	19.00	19.00	90	90	90

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-11

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 11 AT 16TH STREET; LOCKPORT ON THE CHICAGO SANITARY AND SHIP CANAL
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>4/11/91 Sample</u>						
Gizzard shad	10.83	10.83	10.83	110	110	110
Goldfish	9.92	9.92	9.92	93	93	93
Carp	1,779.89	906.50	3,630.00	469	420	568
Green sunfish	4.09	4.09	4.09	64	64	64
Pumpkinseed	2.08	1.06	2.70	50	43	54
<u>6/18/91 Sample</u>						
Goldfish	146.77	65.50	276.00	186	156	239
Carp	1,450.48	797.00	2,895.50	444	359	557
Golden shiner	5.05	3.83	6.27	84	76	91
Emerald shiner	5.92	5.92	5.92	103	103	103
Green sunfish	6.05	6.05	6.05	69	69	69
Bluegill	16.48	16.48	16.48	104	104	104

Table continued on following page.

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-11 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 11 AT 16TH STREET, LOCKPORT ON THE CHICAGO SANITARY AND SHIP CANAL
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>8/29/91 Sample</u>						
Goldfish	20.45	20.39	20.51	99	98	100
Carp	1,132.81	9.52	3,150.00	326	77	570
Carp x goldfish hybrid	1,369.00	1,369.00	1,369.00	444	444	444
Green sunfish	14.00	14.00	14.00	93	93	93
Largemouth bass	13.00	7.00	28.00	96	73	126
<u>10/29/91 Sample</u>						
Gizzard shad	34.38	8.71	118.30	142	95	248
Goldfish	416.67	164.00	665.00	250	190	295
Carp	1,276.33	179.00	4,030.00	365	220	610
Carp x goldfish hybrid	1,550.00	1,550.00	1,550.00	450	450	450
Emerald shiner	5.39	1.34	9.43	84	58	110
Largemouth bass	19.00	19.00	19.00	121	121	121

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-12

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 12 AT 130TH STREET ON THE CALUMET RIVER
DURING 1991

Date of Sample and Fish Species Collected	Individual Fish Weight (grams)			Total Length (millimeters)		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>5/1/91 Sample</u>						
Alewife	60.00	60.00	60.00	200	200	200
Gizzard shad	174.21	104.00	420.00	256	218	346
Goldfish	278.00	278.00	278.00	257	257	257
Grass carp	9,072.00	9,072.00	9,072.00	870	870	870
Carp	3,487.19	881.00	7,682.85	598	397	735
Spottail shiner	9.49	9.49	9.49	105	105	105
Bluntnose minnow	2.74	0.45	6.40	62	39	81
Fathead minnow	1.65	0.60	2.70	51	40	61
White sucker	551.00	551.00	551.00	380	380	380
Black buffalo	5,925.15	5,925.15	5,925.15	718	718	718
White perch	58.87	34.00	138.00	163	138	218
Green sunfish	15.52	7.20	30.00	83	69	106
Pumpkinseed	43.00	43.00	43.00	127	127	127
Largemouth bass	392.00	392.00	392.00	297	297	297
<u>6/26/91 Sample</u>						
Gizzard shad	103.56	43.81	213.63	220	170	284

Table continued on following page.

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-12 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 12 AT 130TH STREET ON THE CALUMET RIVER
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>6/26/91 Sample</u>						
Carp	2,592.50	1,523.50	3,661.50	568	493	642
Emerald shiner	3.81	2.44	5.38	85	73	97
Bluntnose minnow	6.50	6.50	6.50	87	87	87
Quillback	642.25	346.00	938.50	372	323	420
Channel catfish	880.50	880.50	880.50	450	450	450
White bass	553.00	553.00	553.00	329	329	329
White perch	33.99	16.68	49.22	141	113	160
Green sunfish	10.59	3.79	22.50	82	63	104
Pumpkinseed	55.25	53.00	57.50	133	129	137
Bluegill	46.00	15.00	81.00	127	98	162
Largemouth bass	339.86	0.58	524.50	232	40	342
<u>10/3/91 Sample</u>						
Gizzard shad	124.61	20.91	406.00	208	123	332
Carp	2,490.00	2,490.00	2,490.00	548	548	548
Emerald shiner	6.12	6.12	6.12	99	99	99
Bluntnose minnow	4.15	1.96	5.89	73	60	82

Table continued on following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-12 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 12 AT 130TH STREET ON THE CALUMET RIVER
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>10/3/91 Sample</u>						
White perch	52.00	30.00	64.00	158	133	167
Green sunfish	11.00	7.00	16.00	85	74	96
Pumpkinseed	30.25	7.00	91.00	104	70	152
Bluegill	27.94	3.00	91.00	103	58	172
Smallmouth bass	14.00	14.00	14.00	112	112	112
Largemouth bass	109.18	3.88	892.00	137	67	393
Green sunfish x pumpkinseed hybrid	28.00	28.00	28.00	112	112	112
Freshwater drum	809.00	809.00	809.00	388	388	388
<u>12/9/91 Sample</u>						
Carp	4,568.00	4,568.00	4,568.00	655	655	655
Golden shiner	10.34	10.34	10.34	104	104	104
Bluntnose minnow	3.99	0.85	6.89	71	46	82
Green sunfish	8.50	8.00	9.00	77	75	79
Pumpkinseed	13.60	7.00	32.00	85	70	118
Largemouth bass	11.18	4.00	43.00	96	72	155

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-13

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 13 IMMEDIATELY DOWNSTREAM OF THE O'BRIEN LOCK AND DAM ON THE
CALUMET RIVER DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>4/30/91 Sample</u>						
Gizzard shad	260.86	63.99	416.00	291	184	336
Goldfish	308.50	205.00	492.00	240	217	270
Carp	3,338.09	480.00	12,587.40	560	319	865
Carp x goldfish hybrid	715.00	715.00	715.00	378	378	378
Spottail shiner	8.86	8.86	8.86	102	102	102
Bluntnose minnow	1.29	0.30	3.98	51	35	73
Fathead minnow	1.04	0.98	1.12	45	43	47
White perch	25.49	25.49	25.49	123	123	123
Green sunfish	16.16	5.12	37.00	87	64	115
Pumpkinseed	43.17	32.67	52.00	125	113	138
Bluegill	35.61	18.72	87.00	120	100	164
Largemouth bass	802.06	362.00	1,219.05	360	287	408
Green sunfish x pumpkinseed hybrid	85.00	85.00	85.00	155	155	155
Green sunfish x bluegill hybrid	16.11	16.11	16.11	91	91	91

Table continued on following page.

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-13 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 13 IMMEDIATELY DOWNSTREAM OF THE O'BRIEN LOCK AND DAM ON THE
CALUMET RIVER DURING 1991

Date of Sample and Fish Species Collected	Individual Fish Weight (grams)			Total Length (millimeters)		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>6/24/91 Sample</u>						
Gizzard shad	122.03	66.09	157.00	225	198	240
Goldfish	441.50	441.50	441.50	257	257	257
Carp	1,495.41	3.66	7,334.50	353	64	775
Golden shiner	18.80	0.16	34.20	105	27	159
Bluntnose minnow	2.50	0.92	6.04	65	52	87
Fathead minnow	0.39	0.39	0.39	37	37	37
White sucker	446.00	446.00	446.00	342	342	342
Black bullhead	157.00	157.00	157.00	225	225	225
Channel catfish	999.00	999.00	999.00	466	466	466
Green sunfish	19.13	2.50	76.00	98	68	155
Pumpkinseed	38.14	7.32	62.00	115	73	144
Bluegill	44.27	15.84	90.50	130	99	164
Largemouth bass	262.17	0.42	961.00	172	33	382
Black crappie	89.25	29.00	149.50	181	144	218
Yellow perch	3.07	3.07	3.07	78	78	78

Table continued on following page.

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-13 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 13 IMMEDIATELY DOWNSTREAM OF THE O'BRIEN LOCK AND DAM ON THE
CALUMET RIVER DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>10/10/91 Sample</u>						
Gizzard shad	54.16	12.08	261.87	159	107	287
Chinook salmon	4,110.00	4,110.00	4,110.00	683	683	683
Carp	1,801.67	1,220.00	2,640.00	494	441	578
Golden shiner	2.06	2.06	2.06	63	63	63
Emerald shiner	2.48	0.71	11.49	70	48	114
Bluntnose minnow	7.03	3.91	8.19	88	73	95
Green sunfish	10.02	3.39	32.00	82	58	118
Pumpkinseed	10.81	3.53	36.00	79	57	118
Bluegill	5.43	1.44	56.00	64	47	139
Largemouth bass	37.57	3.09	1,014.00	109	64	405
Green sunfish x pumpkinseed hybrid	14.60	2.95	36.00	82	56	125
<u>12/9/91 Sample</u>						
Gizzard shad	14.41	5.55	23.22	116	84	139
Goldfish	34.28	34.28	34.28	122	122	122
Carp	1,748.50	650.00	4,121.00	447	346	629
Golden shiner	2.82	1.46	4.18	69	55	83

Table continued on following page.

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-13 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 13 IMMEDIATELY DOWNSTREAM OF THE O'BRIEN LOCK AND DAM ON THE
CALUMET RIVER DURING 1991

Date of Sample and Fish Species Collected	Individual Fish Weight (grams)			Total Length (millimeters)		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>12/9/91 Sample</u>						
Bluntnose minnow	2.15	0.18	8.53	59	31	93
White perch	41.33	8.74	167.00	128	82	215
Green sunfish	13.27	4.00	31.00	88	62	120
Pumpkinseed	20.84	4.51	51.00	91	62	135
Bluegill	6.30	0.87	97.00	62	41	172
Largemouth bass	7.90	3.00	16.00	88	73	115
Green sunfish x bluegill hybrid	5.30	3.43	7.12	64	57	73

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-14

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 14 AT ROUTE I-94 ON THE LITTLE CALUMET RIVER
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>4/26/91 Sample</u>						
Gizzard shad	142.55	21.40	232.00	241	131	287
Goldfish	280.84	143.00	418.00	232	190	266
Carp	1,321.56	155.00	2,891.70	398	230	585
Carp x goldfish hybrid	640.25	430.00	850.50	341	287	394
Golden shiner	32.65	20.29	45.00	137	118	155
Emerald shiner	7.48	1.23	13.89	93	55	119
Spottail shiner	10.37	3.29	13.55	103	73	114
Bluntnose minnow	3.12	1.60	5.24	63	54	75
Black bullhead	240.00	240.00	240.00	247	247	247
White perch	58.20	36.00	137.00	157	140	199
Green sunfish	10.00	10.00	10.00	82	82	82
Pumpkinseed	26.00	23.00	29.00	109	104	114
Bluegill	9.00	9.00	9.00	84	84	84
Green sunfish x pumpkinseed hybrid	6.04	6.04	6.04	70	70	70

Table continued on following page.

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-14 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 14 AT ROUTE I-94 ON THE LITTLE CALUMET RIVER
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>6/21/91 Sample</u>						
Gizzard shad	80.99	57.12	93.87	205	186	215
Goldfish	252.50	177.50	335.00	231	210	274
Carp	1,256.41	86.09	3,652.00	410	194	643
Carp x goldfish hybrid	1,163.33	921.00	1,911.50	405	323	476
Golden shiner	23.52	14.63	40.35	136	117	167
Emerald shiner	4.96	3.49	7.01	94	88	103
Spottail shiner	8.36	8.36	8.36	103	103	103
Black bullhead	161.00	161.00	161.00	213	213	213
White perch	40.44	14.28	93.67	138	103	185
Green sunfish	10.00	10.00	10.00	84	84	84
Largemouth bass	225.50	225.50	225.50	253	253	253
<u>10/2/91 Sample</u>						
Gizzard shad	24.45	4.15	392.00	121	72	324
Goldfish	447.50	403.00	492.00	267	259	275
Carp	1,406.53	547.00	2,920.00	450	325	600

Table continued on following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-14 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 14 AT ROUTE I-94 ON THE LITTLE CALUMET RIVER
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>10/2/91 Sample</u>						
Carp x goldfish hybrid	2,070.00	1,150.00	3,230.00	476	421	517
Emerald shiner	3.70	1.32	8.76	76	57	106
Bluntnose minnow	2.93	2.30	3.56	64	60	68
White perch	57.34	15.37	86.00	152	100	175
Pumpkinseed	34.78	10.38	64.00	110	72	139
Bluegill	10.16	7.72	12.60	81	75	87
Largemouth bass	217.49	5.40	856.00	197	80	367
<u>12/11/91 Sample</u>						
Gizzard shad	21.54	4.86	84.44	117	72	211
Bluntnose minnow	4.06	4.06	4.06	70	70	70
White perch	12.00	12.00	12.00	95	95	95

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-15

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 15 AT HALSTED STREET ON THE LITTLE CALUMET RIVER
DURING 1991

Date of Sample and Fish Species Collected	Individual Fish Weight (grams)			Total Length (millimeters)		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>4/29/91 Sample</u>						
Gizzard shad	70.00	70.00	70.00	209	209	209
Goldfish	224.15	110.00	469.00	214	176	253
Carp	1,907.70	450.00	3,175.20	488	312	630
Carp x goldfish hybrid	1,302.33	365.00	2,239.65	408	275	540
Green sunfish	10.54	3.51	26.00	79	55	105
Bluegill	46.00	32.00	60.00	136	126	146
Green sunfish x pumpkinseed hybrid	46.74	46.74	46.74	123	123	123
<u>6/25/91 Sample</u>						
Gizzard shad	122.68	43.56	187.00	225	173	256
Goldfish	289.72	127.00	447.00	233	192	265
Carp	1,598.62	167.50	3,707.50	449	215	643
Carp x goldfish hybrid	1,660.50	816.00	2,664.00	477	380	571
Golden shiner	13.54	13.54	13.54	118	118	118

Table continued on following page.

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-15 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 15 AT HALSTED STREET ON THE LITTLE CALUMET RIVER
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>6/25/91 Sample</u>						
Spottail shiner	9.74	9.74	9.74	115	115	115
White perch	52.67	52.67	52.67	153	153	153
Green sunfish	10.50	10.50	10.50	83	83	83
Pumpkinseed	31.59	31.59	31.59	115	115	115
Bluegill	45.50	45.50	45.50	133	133	133
<u>10/9/91 Sample</u>						
Gizzard shad	11.50	5.34	26.69	101	79	143
Grass pickerel	59.00	59.00	59.00	231	231	231
Goldfish	308.83	7.02	600.00	228	77	288
Carp	1,096.36	21.18	4,180.00	324	106	652
Golden shiner	8.31	5.72	10.90	96	87	105
Emerald shiner	1.32	0.82	2.07	58	51	68
Bluntnose minnow	1.21	0.95	1.46	53	48	57
White sucker	252.00	252.00	252.00	295	295	295

Table continued on following page.

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-15 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 15 AT HALSTED STREET ON THE LITTLE CALUMET RIVER
DURING 1991

Date of Sample and Fish Species Collected	Individual Fish Weight (grams)			Total Length (millimeters)		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>10/9/91 Sample</u>						
White perch	11.25	7.06	15.44	92	82	101
Green sunfish	2.08	2.08	2.08	51	51	51
Pumpkinseed	3.84	2.70	4.98	58	53	62
Bluegill	3.27	1.07	5.00	58	44	65
Largemouth bass	25.17	7.00	36.00	125	90	145
<u>12/10/91 Sample</u>						
Gizzard shad	6.66	4.08	11.48	87	78	103
Goldfish	397.00	301.00	493.00	241	232	249
Carp	1,531.33	72.00	2,777.00	410	165	592
Green sunfish	10.50	6.00	15.00	87	74	100
Pumpkinseed	2.23	2.23	2.23	43	43	43

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-16

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 16 AT CICERO AVENUE ON THE CAL-SAG CHANNEL
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>4/25/91 Sample</u>						
Gizzard shad	85.98	6.83	170.00	204	93	262
Goldfish	207.17	130.00	458.00	211	190	285
Carp	1,189.51	184.00	2,182.95	397	225	525
Carp x goldfish hybrid	1,417.50	1,417.50	1,417.50	479	479	479
Fathead minnow	0.91	0.91	0.91	41	41	41
Green sunfish	9.62	3.96	26.00	72	56	110
Bluegill	35.59	1.16	81.00	114	42	154
Black crappie	4.21	3.70	4.71	69	66	71
<u>6/20/91 Sample</u>						
Gizzard shad	121.00	121.00	121.00	223	223	223
Goldfish	202.76	128.00	279.00	207	178	240
Carp	591.95	162.00	1,686.50	323	214	506
Carp x goldfish hybrid	896.00	394.50	1,397.50	385	307	462

Table continued on following page.

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-16 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 16 AT CICERO AVENUE ON THE CAL-SAG CHANNEL
DURING 1991

Date of Sample and Fish Species Collected	Individual Fish Weight (grams)			Total Length (millimeters)		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>10/1/91 Sample</u>						
Gizzard shad	13.38	4.20	94.57	100	76	210
Central mudminnow	4.90	4.90	4.90	75	75	75
Goldfish	285.68	26.17	596.00	225	109	290
Carp	474.24	7.07	4,340.00	218	71	650
Emerald shiner	1.70	0.74	2.50	57	45	64
Green sunfish	0.75	0.75	0.75	32	32	32
Largemouth bass	46.00	46.00	46.00	155	155	155
<u>12/11/91 Sample</u>						
Central mudminnow	4.97	4.97	4.97	74	74	74
Carp	919.00	919.00	919.00	387	387	387
Bluegill	35.33	2.00	99.00	104	72	167

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-17

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 17 AT ROUTE 83 ON THE CAL-SAG CHANNEL
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>4/24/91 Sample</u>						
Gizzard shad	10.75	5.20	21.86	102	84	136
Goldfish	197.00	104.00	324.00	206	173	233
Carp	1,785.21	672.00	3,033.45	484	370	601
Bluntnose minnow	6.44	2.58	10.29	74	58	89
Black bullhead	102.00	102.00	102.00	190	190	190
Green sunfish	9.18	4.00	20.00	75	56	100
Bluegill	24.40	4.61	50.00	106	66	142
<u>6/19/91 Sample</u>						
Goldfish	180.10	93.00	235.50	202	170	223
Carp	1,237.93	310.50	3,220.50	402	274	582
Green sunfish	5.17	2.58	7.75	65	54	76
Bluegill	51.26	15.63	93.00	134	98	162
Largemouth bass	8.83	8.83	8.83	96	96	96

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-17 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 17 AT ROUTE 83 ON THE CAL-SAG CHANNEL
DURING 1991

Date of Sample and Fish Species Collected	Individual Fish Weight (grams)			Total Length (millimeters)		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>9/30/91 Sample</u>						
Gizzard shad	6.92	3.46	30.45	88	71	144
Goldfish	191.25	135.00	258.00	209	193	226
Carp	2,155.00	2,110.00	2,200.00	517	514	520
Emerald shiner	3.25	3.25	3.25	73	73	73
Green sunfish	10.67	9.00	14.00	81	72	88
Pumpkinseed	8.00	8.00	8.00	76	76	76
Largemouth bass	127.33	17.00	298.00	185	111	273
<u>12/2/91 Sample</u>						
Gizzard shad	9.22	2.01	35.00	92	59	153
Goldfish	180.67	112.00	292.00	192	170	212
Carp	72.55	14.19	208.00	144	94	230
Emerald shiner	4.19	4.19	4.19	84	84	84
Spottail shiner	3.27	3.27	3.27	71	71	71
Green sunfish	12.89	1.84	47.00	84	50	133

Table continued on following page.

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-17 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED
FROM STATION NUMBER 17 AT ROUTE 83 ON THE CAL-SAG CHANNEL
DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>12/2/91 Sample</u>						
Green sunfish x pumpkinseed hybrid	71.00	71.00	71.00	141	141	141
Pumpkinseed	12.00	3.00	21.00	84	56	103
Bluegill	16.29	0.86	44.00	82	42	136
Largemouth bass	48.00	48.00	48.00	159	159	159

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-18

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED FROM STATION NUMBER 18 AT THE INNER HARBOR ON THE CHICAGO RIVER DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>5/7/91 Sample</u>						
Alewife	1.86	1.86	1.86	69	69	69
Rainbow trout	853.50	853.50	853.50	468	468	468
Goldfish	335.50	335.50	335.50	247	247	247
Carp	3,922.64	1,272.50	8,695.00	609	453	765
Carp x goldfish hybrid	1,629.67	338.00	2,561.00	402	259	508
Black bullhead	172.25	169.00	175.50	228	225	231
Rock bass	63.28	5.06	179.00	133	60	198
Green sunfish	14.12	5.00	48.00	84	63	130
Pumpkinseed	21.00	12.50	29.50	103	88	118
Bluegill	31.90	3.69	79.00	104	61	157
Largemouth bass	455.00	67.00	843.00	270	177	363
<u>7/10/91 Sample</u>						
Brown trout	14.98	12.04	17.92	113	107	119
Goldfish	261.00	241.50	280.50	218	208	228
Carp	1,367.95	339.00	4,234.50	401	269	677

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-18 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED FROM STATION NUMBER 18 AT THE INNER HARBOR ON THE CHICAGO RIVER DURING 1991

Date of Sample and Fish Species Collected	Individual Fish Weight (grams)			Total Length (millimeters)		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>7/10/91 Sample</u>						
Carp x goldfish hybrid	703.38	269.50	1,205.00	343	248	428
Golden shiner	3.52	3.52	3.52	73	73	73
Bluntnose minnow	5.52	1.87	8.83	78	58	95
Black bullhead	249.75	154.00	345.50	250	224	275
Threespine stickleback	2.29	2.29	2.29	62	62	62
Rock bass	38.13	2.00	149.50	112	57	186
Green sunfish	29.44	10.50	110.00	104	77	164
Pumpkinseed	5.50	5.50	5.50	67	67	67
Bluegill	25.55	4.91	45.60	104	66	137
Smallmouth bass	137.57	77.14	198.00	216	172	260
Largemouth bass	492.75	179.50	747.00	313	222	362
<u>9/27/91 Sample</u>						
Goldfish	254.50	196.00	313.00	225	204	245
Bluntnose minnow	1.69	0.21	8.30	54	29	88
Fathead minnow	2.76	2.53	2.98	64	60	67
Rock bass	43.90	0.57	255.00	113	30	236

Table continued on following page.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-18 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED FROM STATION NUMBER 18 AT THE INNER HARBOR ON THE CHICAGO RIVER DURING 1991

Date of Sample and Fish Species Collected	Individual Fish Weight (grams)			Total Length (millimeters)		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>9/27/91 Sample</u>						
Green sunfish	16.39	1.17	37.00	96	40	126
Pumpkinseed	17.01	2.05	33.00	91	50	116
Bluegill	3.05	0.69	10.00	52	37	89
Smallmouth bass	7.71	1.00	30.00	78	57	124
Largemouth bass	37.42	0.97	470.00	105	42	328
Black crappie	153.00	153.00	153.00	223	223	223
Johnny darter	0.60	0.60	0.60	45	45	45
<u>11/15/91 Sample</u>						
Brown trout	37.69	37.69	37.69	151	151	151
Goldfish	136.00	136.00	136.00	195	195	195
Spottail shiner	3.67	0.57	20.34	72	45	129
Bluntnose minnow	1.99	0.27	10.21	56	34	97
Trout-perch	2.45	2.34	2.55	69	68	70
Rock bass	12.52	1.03	96.00	67	37	183
Green sunfish	16.60	8.00	54.00	97	79	140
Pumpkinseed	14.39	1.57	54.00	81	47	137
Bluegill	5.45	0.66	24.00	62	36	110

Table continued on following page.

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-18 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED FROM STATION
NUMBER 18 AT THE INNER HARBOR ON THE CHICAGO RIVER DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>11/15/91 Sample</u>						
Smallmouth bass	9.18	3.24	20.00	85	62	115
Largemouth bass	46.75	1.10	257.00	125	44	253
Green sunfish x pumpkinseed hybrid	40.00	40.00	40.00	121	121	121
Johnny darter	0.62	0.51	0.72	43	42	44
Yellow perch	11.49	4.56	24.00	105	80	147

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-19

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED FROM STATION NUMBER 19 AT THE LOOP ON THE CHICAGO RIVER DURING 1991

Date of Sample and Fish Species Collected	Individual Fish Weight (grams)			Total Length (millimeters)		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>5/13/91 Sample</u>						
Gizzard shad	281.50	281.50	281.50	308	308	308
Chinook salmon	17.56	17.56	17.56	113	113	113
Goldfish	288.20	135.00	374.00	210	183	230
Carp	4,608.79	956.00	11,471.09	608	376	812
Green sunfish	77.00	77.00	77.00	147	147	147
Yellow perch	29.04	29.04	29.04	143	143	143
<u>7/11/91 Sample</u>						
Goldfish	244.33	173.00	354.00	211	201	228
Carp	4,451.63	636.00	10,432.80	575	346	855
Rock bass	113.00	113.00	113.00	175	175	175
Green sunfish	47.67	33.00	56.00	128	112	145
Largemouth bass	227.00	15.00	345.00	232	105	302

Table continued on following page.

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-19 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED FROM STATION NUMBER 19 AT THE LOOP ON THE CHICAGO RIVER DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>9/26/91 Sample</u>						
Carp	2,653.57	530.00	7,880.00	521	333	800
Bluntnose minnow	4.30	4.30	4.30	76	76	76
Rock bass	34.00	34.00	34.00	130	130	130
Green sunfish	18.00	17.00	19.00	100	98	102
Bluegill	11.00	11.00	11.00	86	86	86
Largemouth bass	6.75	5.00	11.00	83	75	95
<u>11/21/91 Sample</u>						
Alewife	4.20	4.05	4.48	76	73	81
Gizzard shad	44.63	11.62	172.03	153	109	252
Goldfish	470.00	470.00	470.00	277	277	277
Carp	2,353.59	700.00	6,920.00	505	327	706
Bluntnose minnow	4.62	1.09	8.72	71	46	88
Green sunfish	17.26	15.16	19.36	98	94	102
Pumpkinseed	24.00	24.00	24.00	110	110	110
Bluegill	2.47	0.84	3.33	51	38	57
Smallmouth bass	13.00	13.00	13.00	99	99	99
Yellow perch	28.59	18.00	44.00	144	125	169

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-20

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED FROM STATION NUMBER 20 AT THE JUNCTION OF THE NORTH AND SOUTH BRANCHES OF THE CHICAGO RIVER DURING 1991

Date of Sample and Fish Species Collected	Individual Fish Weight (grams)			Total Length (millimeters)		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>5/15/91 Sample</u>						
Alewife	53.43	38.55	68.31	192	173	211
Gizzard shad	76.44	16.96	192.26	178	116	252
Goldfish	217.98	165.00	323.87	209	187	228
Carp	3,764.14	527.53	10,090.33	570	310	800
Carp x goldfish hybrid	265.00	265.00	265.00	233	233	233
Emerald shiner	6.89	4.24	9.53	90	76	104
Spottail shiner	2.44	1.31	3.06	62	53	68
Bluntnose minnow	5.98	1.34	10.49	73	51	88
Rock bass	215.00	215.00	215.00	212	212	212
Green sunfish	15.00	8.75	19.99	85	71	96
Pumpkinseed	33.46	33.46	33.46	112	112	112
Bluegill	9.86	9.86	9.86	78	78	78
Largemouth bass	35.94	35.94	35.94	133	133	133

Table continued on following page.

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-20 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED FROM STATION NUMBER 20 AT THE JUNCTION OF THE NORTH AND SOUTH BRANCHES OF THE CHICAGO RIVER DURING 1991

Date of Sample and Fish Species Collected	Individual Fish Weight (grams)			Total Length (millimeters)		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>7/11/91 Sample</u>						
Goldfish	235.00	125.50	455.50	208	172	255
Carp	1,312.50	122.50	3,167.00	398	195	570
Carp x goldfish hybrid	628.60	350.00	907.20	291	281	300
Bluntnose minnow	1.39	0.85	2.19	55	50	61
Rock bass	148.50	122.00	175.00	189	173	204
Green sunfish	27.60	9.00	44.50	105	75	131
Pumpkinseed	42.00	42.00	42.00	122	122	122
Bluegill	40.83	24.00	49.50	125	118	131
<u>9/25/91 Sample</u>						
Gizzard shad	164.06	26.87	376.38	226	136	330
Goldfish	236.50	145.00	360.00	217	177	265
Carp	2,022.13	77.00	4,390.00	473	168	630
Carp x goldfish hybrid	2,840.00	1,430.00	4,250.00	491	391	590

Table continued on following page.

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-20 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED FROM STATION NUMBER 20 AT THE JUNCTION OF THE NORTH AND SOUTH BRANCHES OF THE CHICAGO RIVER DURING 1991

Date of Sample and Fish Species Collected	Individual Fish Weight (grams)			Total Length (millimeters)		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>9/25/91 Sample</u>						
Bluntnose minnow	2.59	0.60	5.06	64	42	82
Green sunfish	16.00	16.00	16.00	97	97	97
Bluegill	33.16	10.79	71.00	113	86	150
Largemouth bass	102.60	4.79	259.00	158	72	253
<u>11/20/91 Sample</u>						
Alewife	4.44	2.11	9.20	80	62	102
Gizzard shad	32.22	12.92	89.26	146	107	197
Goldfish	229.71	76.35	371.00	213	163	260
Carp	2,051.59	242.00	4,460.00	480	245	711
Carp x goldfish hybrid	2,212.33	137.00	5,210.00	415	206	653
Golden shiner	56.82	56.82	56.82	163	163	163
Spottail shiner	2.00	0.69	3.91	58	45	73
Bluntnose minnow	2.00	0.37	4.88	57	37	77
White perch	101.91	6.72	161.00	169	78	218
Rock bass	195.00	195.00	195.00	206	206	206

Table continued on following page.

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AII-20 (Continued)

AVERAGE, MINIMUM AND MAXIMUM WEIGHT AND TOTAL LENGTH OF FISH COLLECTED FROM STATION NUMBER 20 AT THE JUNCTION OF THE NORTH AND SOUTH BRANCHES OF THE CHICAGO RIVER DURING 1991

Date of Sample and Fish Species Collected	<u>Individual Fish Weight (grams)</u>			<u>Total Length (millimeters)</u>		
	Average	Minimum	Maximum	Average	Minimum	Maximum
<u>11/20/91 Sample</u>						
Green sunfish	18.00	18.00	18.00	97	97	97
Pumpkinseed	24.50	18.00	31.00	111	104	118
Orangespotted sunfish	9.00	9.00	9.00	80	80	80
Bluegill	44.19	0.69	146.00	109	34	187
Largemouth bass	151.67	10.00	434.00	168	93	315
Black crappie	11.00	11.00	11.00	103	103	103
Yellow perch	24.00	24.00	24.00	142	142	142

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APPENDIX AIII

Metrics Used in the Calculation of the
Index of Biotic Integrity (IBI) for Each Fish Sample at
Stations 1 through 20 in the Chicago Waterway System
During 1991

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AIII-1

METRICS USED IN THE CALCULATION OF THE INDEX OF BIOTIC INTEGRITY (IBI) FOR STATION NUMBER 1 AT SHERIDAN ROAD ON THE NORTH SHORE CHANNEL DURING 1991

IBI Metric	Date of Collection			
	5/21/91	7/16/91	9/23/91	11/13/91
Number Species Per Sample	15	12	16	13
Number Sucker Species	0	0	1	0
Number Sunfish Species	2	3	5	4
Number Darter Species	0	0	0	0
Number Intolerant Species	2	1	2	3
Percent Green Sunfish	0.56	3.32	0.30	1.47
Percent Hybrids	0.09	0.47	0.05	0.98
Percent Diseased	0.01	1.2	0.15	0.49
Percent Omnivores	97.67	92.89	97.84	91.67
Percent Insectivorous Cyprinids	0.37	1.42	0.90	0.49
Percent Carnivores	0.37	0.71	0.45	1.96
Total Abundance	1072	422	1989	204
Electrofishing Time (Minutes)	31	37	40	37
Stream Order	2	2	2	2
Stream Basin	2	2	2	2
Species Metric Factor	5	5	5	5
Sucker Metric Factor	1	1	1	1
Sunfish Metric Factor	5	5	5	5
Darter Metric Factor	1	1	1	1
Intolerant Metric Factor	3	1	3	3
Green Sunfish Metric Factor	5	5	5	5
Hybrid Metric Factor	3	3	3	3
Disease Metric Factor	3	1	3	3
Omnivore Metric Factor	1	1	1	1
Insectivorous Metric Factor	1	1	1	1
Carnivore Metric Factor	1	1	1	3
Abundance Metric Factor	5	3	5	3
IBI (Sum of Metric Factors)	34	28	34	34

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AIII-2

METRICS USED IN THE CALCULATION OF THE INDEX OF BIOTIC INTEGRITY (IBI) FOR STATION NUMBER 2 AT DEMPSTER STREET ON THE NORTH SHORE CHANNEL DURING 1991

IBI Metric	Date of Collection			
	5/22/91	7/17/91	9/24/91	11/14/91
Number Species Per Sample	10	11	11	7
Number Sucker Species	0	0	0	0
Number Sunfish Species	2	3	4	1
Number Darter Species	0	0	0	0
Number Intolerant Species	0	0	1	0
Percent Green Sunfish	4.26	7.28	4.90	37.04
Percent Hybrids	9.22	13.91	0.23	0.00
Percent Diseased	3.5	2.65	0.35	3.7
Percent Omnivores	78.72	72.19	92.66	55.56
Percent Insectivorus Cyprinids	0.71	0.00	0.23	0.00
Percent Carnivores	0.00	1.99	0.47	0.00
Total Abundance	141	151	858	27
Electrofishing Time (Minutes)	30	30	30	32
Stream Order	2	2	2	2
Stream Basin	2	2	2	2
Species Metric Factor	3	5	5	3
Sucker Metric Factor	1	1	1	1
Sunfish Metric Factor	5	5	5	3
Darter Metric Factor	1	1	1	1
Intolerant Metric Factor	1	1	1	1
Green Sunfish Metric Factor	5	3	5	1
Hybrid Metric Factor	1	1	3	5
Disease Metric Factor	1	1	3	1
Omnivore Metric Factor	1	1	1	1
Insectivorus Metric Factor	1	1	1	1
Carnivore Metric Factor	1	3	1	1
Abundance Metric Factor	1	1	5	1
IBI (Sum of Metric Factors)	22	24	32	20

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AIII-3

METRICS USED IN THE CALCULATION OF THE INDEX OF BIOTIC INTEGRITY (IBI) FOR STATION NUMBER 3 AT TOUHY AVENUE ON THE NORTH SHORE CHANNEL DURING 1991

IBI Metric	Date of Collection			
	5/23/91	7/19/91	9/19/91	11/18/91
Number Species Per Sample	10	7	13	9
Number Sucker Species	1	0	0	0
Number Sunfish Species	3	1	4	2
Number Darter Species	0	0	0	0
Number Intolerant Species	0	0	1	0
Percent Green Sunfish	3.57	2.17	14.14	0.00
Percent Hybrids	10.71	2.17	1.57	0.00
Percent Diseased	4.8	6.5	2.1	0
Percent Omnivores	76.19	91.30	59.16	93.88
Percent Insectivorous Cyprinids	0.00	2.17	19.37	1.02
Percent Carnivores	2.38	0.00	1.57	3.06
Total Abundance	84	46	191	98
Electrofishing Time (Minutes)	40	41	50	43
Stream Order	2	2	2	2
Stream Basin	2	2	2	2
Species Metric Factor	3	3	5	3
Sucker Metric Factor	1	1	1	1
Sunfish Metric Factor	5	3	5	5
Darter Metric Factor	1	1	1	1
Intolerant Metric Factor	1	1	1	1
Green Sunfish Metric Factor	5	5	3	5
Hybrid Metric Factor	1	1	1	5
Disease Metric Factor	1	1	1	5
Omnivore Metric Factor	1	1	1	1
Insectivorous Metric Factor	1	1	1	1
Carnivore Metric Factor	3	1	3	3
Abundance Metric Factor	1	1	1	1
IBI (Sum of Metric Factors)	24	20	24	32

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AIII-4

METRICS USED IN THE CALCULATION OF THE INDEX OF BIOTIC INTEGRITY (IBI) FOR STATION NUMBER 4 AT PETERSON AVENUE ON THE NORTH SHORE CHANNEL DURING 1991

IBI Metric	Date of Collection			
	5/24/91	7/18/91	9/20/91	11/18/91
Number Species Per Sample	11	9	11	7
Number Sucker Species	1	1	0	0
Number Sunfish Species	4	2	3	2
Number Darter Species	0	0	0	0
Number Intolerant Species	0	0	0	0
Percent Green Sunfish	17.57	8.70	2.58	6.08
Percent Hybrids	8.11	0.00	0.00	0.00
Percent Diseased	4.1	4.3	0.64	0.55
Percent Omnivores	50.00	78.26	70.39	88.95
Percent Insectivorus Cyprinids	1.35	0.00	25.32	2.76
Percent Carnivores	1.35	0.00	0.00	0.00
Total Abundance	74	23	466	181
Electrofishing Time (Minutes)	42	37	41	33
Stream Order	2	2	2	2
Stream Basin	2	2	2	2
Species Metric Factor	5	3	5	3
Sucker Metric Factor	1	1	1	1
Sunfish Metric Factor	5	5	0	5
Darter Metric Factor	1	1	1	1
Intolerant Metric Factor	1	1	1	1
Green Sunfish Metric Factor	3	3	5	3
Hybrid Metric Factor	1	5	5	5
Disease Metric Factor	1	1	3	3
Omnivore Metric Factor	1	1	1	1
Insectivorus Metric Factor	1	1	3	1
Carnivore Metric Factor	3	1	1	1
Abundance Metric Factor	1	1	3	1
IBI (Sum of Metric Factors)	24	24	34	26

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AIII-5

METRICS USED IN THE CALCULATION OF THE INDEX OF BIOTIC INTEGRITY (IBI) FOR STATION NUMBER 5 AT WILSON AVENUE ON THE NORTH BRANCH OF THE CHICAGO RIVER DURING 1991

IBI Metric	Date of Collection			
	5/20/91	7/18/91	9/18/91	11/19/91
Number Species Per Sample	7	8	14	12
Number Sucker Species	1	0	1	0
Number Sunfish Species	2	2	4	3
Number Darter Species	0	0	0	0
Number Intolerant Species	0	0	0	0
Percent Green Sunfish	35.56	12.90	9.84	11.20
Percent Hybrids	11.11	16.13	6.01	1.60
Percent Diseased	6.7	6.5	3.8	3.2
Percent Omnivores	40.00	56.45	71.58	80.80
Percent Insectivorous Cyprinids	0.00	0.00	1.09	3.20
Percent Carnivores	0.00	4.84	1.09	0.00
Total Abundance	45	62	183	125
Electrofishing Time (Minutes)	44	38	44	37
Stream Order	3	3	3	3
Stream Basin	2	2	2	2
Species Metric Factor	3	3	5	3
Sucker Metric Factor	1	1	1	1
Sunfish Metric Factor	3	3	5	5
Darter Metric Factor	1	1	1	1
Intolerant Metric Factor	1	1	1	1
Green Sunfish Metric Factor	1	3	3	3
Hybrid Metric Factor	1	1	1	1
Disease Metric Factor	1	1	1	1
Omnivore Metric Factor	3	1	1	1
Insectivorous Metric Factor	1	1	1	1
Carnivore Metric Factor	1	3	3	1
Abundance Metric Factor	1	1	1	1
IBI (Sum of Metric Factors)	18	20	24	20

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AIII-6

METRICS USED IN THE CALCULATION OF THE INDEX OF BIOTIC INTEGRITY (IBI) FOR STATION NUMBER 6 AT GRAND AVENUE ON THE NORTH BRANCH OF THE CHICAGO RIVER DURING 1991

IBI Metric	Date of Collection			
	5/16/91	7/12/91	9/16/91	11/12/91
Number Species Per Sample	8	8	8	3
Number Sucker Species	0	0	0	0
Number Sunfish Species	2	2	3	1
Number Darter Species	0	0	0	0
Number Intolerant Species	0	0	0	0
Percent Green Sunfish	17.02	1.96	2.04	16.67
Percent Hybrids	12.77	17.65	10.20	0.00
Percent Diseased	6.4	3.9	6.1	0
Percent Omnivores	59.57	70.59	75.50	83.33
Percent Insectivorous Cyprinids	0.00	0.00	0.00	0.00
Percent Carnivores	0.00	0.00	2.04	0.00
Total Abundance	47	51	49	6
Electrofishing Time (Minutes)	38	38	39	36
Stream Order	3	3	3	3
Stream Basin	2	2	2	2
Species Metric Factor	3	3	3	1
Sucker Metric Factor	1	1	1	1
Sunfish Metric Factor	3	3	5	1
Darter Metric Factor	1	1	1	1
Intolerant Metric Factor	1	1	1	1
Green Sunfish Metric Factor	3	5	5	3
Hybrid Metric Factor	1	1	1	5
Disease Metric Factor	1	1	1	5
Omnivore Metric Factor	1	1	1	1
Insectivorous Metric Factor	1	1	1	1
Carnivore Metric Factor	1	1	3	1
Abundance Metric Factor	1	1	1	1
IBI (Sum of Metric Factors)	18	20	24	22

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AIII-7

METRICS USED IN THE CALCULATION OF THE INDEX OF BIOTIC INTEGRITY
(IBI) FOR STATION NUMBER 7 AT DAMEN AVENUE ON THE CHICAGO
SANITARY AND SHIP CANAL DURING 1991

IBI Metric	Date of Collection			
	4/10/91	6/7/91	8/27/91	10/21/91
Number Species Per Sample	10	7	9	8
Number Sucker Species	0	0	0	0
Number Sunfish Species	2	3	2	2
Number Darter Species	0	0	0	0
Number Intolerant Species	1	0	0	0
Percent Green Sunfish	1.56	0.43	0.00	0.74
Percent Hybrids	0.00	1.28	0.00	0.00
Percent Diseased	7.8	14.5	9.9	5.89
Percent Omnivores	85.93	96.58	79.21	83.09
Percent Insectivorous Cyprinids	0.00	0.00	0.99	0.00
Percent Carnivores	7.81	0.43	12.87	13.97
Total Abundance	64	234	101	136
Electrofishing Time (Minutes)	31	30	30	30
Stream Order	3	3	3	3
Stream Basin	2	2	2	2
Species Metric Factor	3	3	3	3
Sucker Metric Factor	1	1	1	1
Sunfish Metric Factor	3	5	3	3
Darter Metric Factor	1	1	1	1
Intolerant Metric Factor	1	1	1	1
Green Sunfish Metric Factor	5	5	5	5
Hybrid Metric Factor	5	1	5	5
Disease Metric Factor	1	1	1	1
Omnivore Metric Factor	1	1	1	1
Insectivorous Metric Factor	1	1	1	1
Carnivore Metric Factor	5	1	5	5
Abundance Metric Factor	1	3	1	3
IBI (Sum of Metric Factors)	28	24	28	30

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AIII-8

METRICS USED IN THE CALCULATION OF THE INDEX OF BIOTIC INTEGRITY (IBI) FOR STATION NUMBER 8 AT CICERO AVENUE ON THE CHICAGO SANITARY AND SHIP CANAL DURING 1991

IBI Metric	Date of Collection			
	4/5/91	6/5/91	8/26/91	10/28/91
Number Species Per Sample	5	6	12	8
Number Sucker Species	0	0	0	0
Number Sunfish Species	1	0	3	2
Number Darter Species	0	0	0	0
Number Intolerant Species	0	0	0	0
Percent Green Sunfish	1.05	0.00	0.00	0.00
Percent Hybrids	0.35	4.46	1.47	0.00
Percent Diseased	7.3	10.2	5	2.8
Percent Omnivores	98.61	94.27	94.69	92.91
Percent Insectivorus Cyprinids	0.00	0.00	0.00	6.38
Percent Carnivores	0.00	0.64	2.65	0.00
Total Abundance	287	157	339	282
Electrofishing Time (Minutes)	40	30	35	30
Stream Order	3	3	3	3
Stream Basin	2	2	2	2
Species Metric Factor	1	1	3	3
Sucker Metric Factor	1	1	1	1
Sunfish Metric Factor	1	1	5	3
Darter Metric Factor	1	1	1	1
Intolerant Metric Factor	1	1	1	1
Green Sunfish Metric Factor	5	5	5	5
Hybrid Metric Factor	3	1	1	5
Disease Metric Factor	1	1	1	1
Omnivore Metric Factor	1	1	1	1
Insectivorus Metric Factor	1	1	1	1
Carnivore Metric Factor	1	1	3	1
Abundance Metric Factor	3	1	3	3
IBI (Sum of Metric Factors)	20	16	26	26

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AIII-9

METRICS USED IN THE CALCULATION OF THE INDEX OF BIOTIC INTEGRITY (IBI) FOR STATION NUMBER 9 AT HARLEM AVENUE ON THE CHICAGO SANITARY AND SHIP CANAL DURING 1991

IBI Metric	Date of Collection			
	4/8/91	6/10/91	8/21/91	10/22/91
Number Species Per Sample	5	3	7	4
Number Sucker Species	0	0	0	0
Number Sunfish Species	1	0	1	0
Number Darter Species	0	0	0	0
Number Intolerant Species	1	0	0	0
Percent Green Sunfish	0.00	0.00	0.64	0.00
Percent Hybrids	0.00	2.70	0.00	0.00
Percent Diseased	21	10.8	5.1	14.29
Percent Omnivores	95.00	97.30	89.81	100.00
Percent Insectivorous Cyprinids	0.00	0.00	9.55	0.00
Percent Carnivores	1.00	0.00	0.00	0.00
Total Abundance	100	37	157	14
Electrofishing Time (Minutes)	43	30	37	30
Stream Order	3	3	3	3
Stream Basin	2	2	2	2
Species Metric Factor	1	1	3	1
Sucker Metric Factor	1	1	1	1
Sunfish Metric Factor	1	1	1	1
Darter Metric Factor	1	1	1	1
Intolerant Metric Factor	1	1	1	1
Green Sunfish Metric Factor	5	5	5	5
Hybrid Metric Factor	5	1	5	5
Disease Metric Factor	1	1	1	1
Omnivore Metric Factor	1	1	1	1
Insectivorous Metric Factor	1	1	1	1
Carnivore Metric Factor	3	1	1	1
Abundance Metric Factor	1	1	1	1
IBI (Sum of Metric Factors)	22	16	22	20

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AIII-10

METRICS USED IN THE CALCULATION OF THE INDEX OF BIOTIC INTEGRITY
(IBI) FOR STATION NUMBER 10 AT WILLOW SPRINGS ROAD ON THE
CHICAGO SANITARY AND SHIP CANAL DURING 1991

IBI Metric	Date of Collection			
	4/23/91	6/14/91	8/28/91	11/5/91
Number Species Per Sample	5	5	6	6
Number Sucker Species	0	0	0	0
Number Sunfish Species	1	1	2	2
Number Darter Species	0	0	0	0
Number Intolerant Species	0	0	0	0
Percent Green Sunfish	20.00	2.63	3.23	18.75
Percent Hybrids	0.00	5.26	3.23	6.25
Percent Diseased	53.3	10.5	6.5	12.5
Percent Omnivores	80.00	92.11	87.10	56.25
Percent Insectivorous Cyprinids	0.00	0.00	0.00	6.25
Percent Carnivores	0.00	0.00	3.23	6.25
Total Abundance	15	38	31	16
Electrofishing Time (Minutes)	33	30	30	30
Stream Order	3	3	3	3
Stream Basin	2	2	2	2
Species Metric Factor	1	1	1	1
Sucker Metric Factor	1	1	1	1
Sunfish Metric Factor	1	1	3	3
Darter Metric Factor	1	1	1	1
Intolerant Metric Factor	1	1	1	1
Green Sunfish Metric Factor	3	5	5	3
Hybrid Metric Factor	5	1	1	1
Disease Metric Factor	1	1	1	1
Omnivore Metric Factor	1	1	1	1
Insectivorous Metric Factor	1	1	1	1
Carnivore Metric Factor	1	1	3	5
Abundance Metric Factor	1	1	1	1
IBI (Sum of Metric Factors)	18	16	20	20

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AIII-11

METRICS USED IN THE CALCULATION OF THE INDEX OF BIOTIC INTEGRITY (IBI) FOR STATION NUMBER 11 AT 16TH STREET, LOCKPORT ON THE CHICAGO SANITARY AND SHIP CANAL DURING 1991

IBI Metric	Date of Collection			
	4/11/91	6/18/91	8/29/91	10/29/91
Number Species Per Sample	5	6	4	5
Number Sucker Species	0	0	0	0
Number Sunfish Species	2	2	1	0
Number Darter Species	0	0	0	0
Number Intolerant Species	0	0	0	0
Percent Green Sunfish	5.00	2.70	4.35	0.00
Percent Hybrids	0.00	0.00	4.35	4.35
Percent Diseased	10.0	29.7	8.7	8.7
Percent Omnivores	80.00	91.89	69.57	82.61
Percent Insectivorous Cyprinids	0.00	2.70	0.00	8.70
Percent Carnivores	0.00	0.00	21.74	4.35
Total Abundance	20	37	23	23
Electrofishing Time (Minutes)	38	45	42	36
Stream Order	4	4	4	4
Stream Basin	2	2	2	2
Species Metric Factor	1	1	1	1
Sucker Metric Factor	1	1	1	1
Sunfish Metric Factor	3	3	1	1
Darter Metric Factor	1	1	1	1
Intolerant Metric Factor	1	1	1	1
Green Sunfish Metric Factor	3	5	5	5
Hybrid Metric Factor	5	5	1	1
Disease Metric Factor	1	1	1	1
Omnivore Metric Factor	1	1	1	1
Insectivorous Metric Factor	1	1	1	1
Carnivore Metric Factor	1	1	5	3
Abundance Metric Factor	1	1	1	1
IBI (Sum of Metric Factors)	20	22	20	18

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AIII-12

METRICS USED IN THE CALCULATION OF THE INDEX OF BIOTIC INTEGRITY (IBI) FOR STATION NUMBER 12 AT 130TH STREET ON THE CALUMET RIVER DURING 1991

IBI Metric	Date of Collection			
	5/1/91	6/26/91	10/3/91	12/9/91
Number Species Per Sample	14	12	11	6
Number Sucker Species	2	1	0	0
Number Sunfish Species	2	3	3	2
Number Darter Species	0	0	0	0
Number Intolerant Species	0	0	1	0
Percent Green Sunfish	4.48	11.22	2.88	3.08
Percent Hybrids	0.00	0.00	0.72	0.00
Percent Diseased	13.4	2	2.16	4.6
Percent Omnivores	64.18	54.08	52.52	63.08
Percent Insectivorus Cyprinids	1.49	3.06	0.72	0.00
Percent Carnivores	23.88	22.45	20.86	26.15
Total Abundance	67	98	139	65
Electrofishing Time (Minutes)	40	39	36	36
Stream Order	3	3	3	3
Stream Basin	2	2	2	2
Species Metric Factor	5	3	3	1
Sucker Metric Factor	3	1	1	1
Sunfish Metric Factor	3	5	5	3
Darter Metric Factor	1	1	1	1
Intolerant Metric Factor	1	1	1	1
Green Sunfish Metric Factor	5	3	5	5
Hybrid Metric Factor	5	5	3	5
Disease Metric Factor	1	1	1	1
Omnivore Metric Factor	1	1	1	1
Insectivorus Metric Factor	1	1	1	1
Carnivore Metric Factor	5	5	5	5
Abundance Metric Factor	1	1	1	1
IBI (Sum of Metric Factors)	32	28	28	26

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AIII-13

METRICS USED IN THE CALCULATION OF THE INDEX OF BIOTIC INTEGRITY (IBI) FOR STATION NUMBER 13 IMMEDIATELY DOWNSTREAM OF THE O'BRIEN LOCK AND DAM ON THE CALUMET RIVER DURING 1991

IBI Metric	Date of Collection			
	4/30/91	6/24/91	10/10/91	12/9/91
Number Species Per Sample	11	15	10	10
Number Sucker Species	0	1	0	0
Number Sunfish Species	3	4	3	3
Number Darter Species	0	0	0	0
Number Intolerant Species	0	0	1	0
Percent Green Sunfish	10.19	38.55	9.38	9.68
Percent Hybrids	2.78	0.00	0.85	1.94
Percent Diseased	6.5	8.4	1.99	5.81
Percent Omnivores	70.37	31.93	27.27	44.52
Percent Insectivorous Cyprinids	0.93	0.00	24.72	0.00
Percent Carnivores	4.63	17.47	13.07	16.77
Total Abundance	108	166	352	155
Electrofishing Time (Minutes)	30	30	30	30
Stream Order	3	3	3	3
Stream Basin	2	2	2	2
Species Metric Factor	3	5	3	3
Sucker Metric Factor	1	1	1	1
Sunfish Metric Factor	5	5	5	5
Darter Metric Factor	1	1	1	1
Intolerant Metric Factor	1	1	1	1
Green Sunfish Metric Factor	3	1	3	3
Hybrid Metric Factor	1	5	3	1
Disease Metric Factor	1	1	1	1
Omnivore Metric Factor	1	3	3	3
Insectivorous Metric Factor	1	1	3	1
Carnivore Metric Factor	3	5	5	5
Abundance Metric Factor	1	3	5	3
IBI (Sum of Metric Factors)	22	32	34	28

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AIII-14

METRICS USED IN THE CALCULATION OF THE INDEX OF BIOTIC INTEGRITY (IBI) FOR STATION NUMBER 14 AT ROUTE I-94 ON THE LITTLE CALUMET RIVER DURING 1991

IBI Metric	Date of Collection			
	4/26/91	6/21/91	10/2/91	12/11/91
Number Species Per Sample	12	10	9	3
Number Sucker Species	0	0	0	0
Number Sunfish Species	3	1	2	0
Number Darter Species	0	0	0	0
Number Intolerant Species	0	0	0	0
Percent Green Sunfish	1.15	1.05	0.00	0.00
Percent Hybrids	3.45	6.32	0.55	0.00
Percent Diseased	2.3	12.6	1.09	0
Percent Omnivores	45.98	68.42	92.18	93.75
Percent Insectivorous Cyprinids	27.59	4.21	1.64	0.00
Percent Carnivores	17.24	18.95	3.82	6.25
Total Abundance	87	95	550	16
Electrofishing Time (Minutes)	37	39	30	34
Stream Order	3	3	3	3
Stream Basin	2	2	2	2
Species Metric Factor	3	3	3	1
Sucker Metric Factor	1	1	1	1
Sunfish Metric Factor	5	1	3	1
Darter Metric Factor	1	1	1	1
Intolerant Metric Factor	1	1	1	1
Green Sunfish Metric Factor	5	5	5	5
Hybrid Metric Factor	1	1	3	5
Disease Metric Factor	1	1	1	5
Omnivore Metric Factor	1	1	1	1
Insectivorous Metric Factor	3	1	1	1
Carnivore Metric Factor	5	5	3	5
Abundance Metric Factor	1	1	5	1
IBI (Sum of Metric Factors)	28	22	28	28

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AIII-15

METRICS USED IN THE CALCULATION OF THE INDEX OF BIOTIC INTEGRITY (IBI) FOR STATION NUMBER 15 AT HALSTED STREET ON THE LITTLE CALUMET RIVER DURING 1991

IBI Metric	Date of Collection			
	4/29/91	6/25/91	10/9/91	12/10/91
Number Species Per Sample	5	9	13	5
Number Sucker Species	0	0	1	0
Number Sunfish Species	2	3	3	2
Number Darter Species	0	0	0	0
Number Intolerant Species	0	0	0	0
Percent Green Sunfish	29.41	1.47	1.27	11.76
Percent Hybrids	5.88	7.35	0.00	0.00
Percent Diseased	9.8	20.6	11.4	11.76
Percent Omnivores	60.78	85.29	70.89	82.35
Percent Insectivorous Cyprinids	0.00	1.47	7.59	0.00
Percent Carnivores	0.00	1.47	11.39	0.00
Total Abundance	51	68	79	17
Electrofishing Time (Minutes)	44	44	43	33
Stream Order	3	3	3	3
Stream Basin	2	2	2	2
Species Metric Factor	1	3	5	1
Sucker Metric Factor	1	1	1	1
Sunfish Metric Factor	3	5	5	3
Darter Metric Factor	1	1	1	1
Intolerant Metric Factor	1	1	1	1
Green Sunfish Metric Factor	1	5	5	3
Hybrid Metric Factor	1	1	5	5
Disease Metric Factor	1	1	1	1
Omnivore Metric Factor	1	1	1	1
Insectivorous Metric Factor	1	1	1	1
Carnivore Metric Factor	1	3	5	1
Abundance Metric Factor	1	1	1	1
IBI (Sum of Metric Factors)	14	24	32	20

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AIII-16

METRICS USED IN THE CALCULATION OF THE INDEX OF BIOTIC INTEGRITY (IBI) FOR STATION NUMBER 16 AT CICERO AVENUE ON THE CAL-SAG CHANNEL DURING 1991

IBI Metric	Date of Collection			
	4/25/91	6/20/91	10/1/91	12/11/91
Number Species Per Sample	7	3	7	3
Number Sucker Species	0	0	0	0
Number Sunfish Species	3	0	1	1
Number Darter Species	0	0	0	0
Number Intolerant Species	0	0	0	0
Percent Green Sunfish	15.22	0.00	1.04	0.00
Percent Hybrids	2.17	5.41	0.00	0.00
Percent Diseased	6.5	27	11.5	20
Percent Omnivores	58.70	94.59	94.79	40.00
Percent Insectivorous Cyprinids	0.00	0.00	3.13	0.00
Percent Carnivores	4.35	0.00	1.04	0.00
Total Abundance	46	37	96	5
Electrofishing Time (Minutes)	34	31	34	30
Stream Order	4	4	4	4
Stream Basin	2	2	2	2
Species Metric Factor	1	1	1	1
Sucker Metric Factor	1	1	1	1
Sunfish Metric Factor	3	1	1	1
Darter Metric Factor	1	1	1	1
Intolerant Metric Factor	1	1	1	1
Green Sunfish Metric Factor	3	5	5	5
Hybrid Metric Factor	1	1	5	5
Disease Metric Factor	1	1	1	1
Omnivore Metric Factor	1	1	1	3
Insectivorous Metric Factor	1	1	1	1
Carnivore Metric Factor	3	1	3	1
Abundance Metric Factor	1	1	1	1
IBI (Sum of Metric Factors)	18	16	22	22

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AIII-17

METRICS USED IN THE CALCULATION OF THE INDEX OF BIOTIC INTEGRITY (IBI) FOR STATION NUMBER 17 AT ROUTE 83 ON THE CAL-SAG CHANNEL DURING 1991

IBI Metric	Date of Collection			
	4/24/91	6/19/91	9/30/91	12/2/91
Number Species Per Sample	7	5	7	9
Number Sucker Species	0	0	0	0
Number Sunfish Species	2	2	2	3
Number Darter Species	0	0	0	0
Number Intolerant Species	0	0	0	0
Percent Green Sunfish	22.58	8.00	4.41	28.21
Percent Hybrids	0.00	0.00	0.00	2.56
Percent Diseased	6.5	24	2.9	12.8
Percent Omnivores	61.29	76.00	88.24	41.03
Percent Insectivorous Cyprinids	0.00	0.00	1.47	5.13
Percent Carnivores	0.00	4.00	4.41	2.56
Total Abundance	31	25	68	39
Electrofishing Time (Minutes)	43	42	34	42
Stream Order	4	4	4	4
Stream Basin	2	2	2	2
Species Metric Factor	1	1	1	3
Sucker Metric Factor	1	1	1	1
Sunfish Metric Factor	3	3	3	3
Darter Metric Factor	1	1	1	1
Intolerant Metric Factor	1	1	1	1
Green Sunfish Metric Factor	1	3	5	1
Hybrid Metric Factor	5	5	5	1
Disease Metric Factor	1	1	1	1
Omnivore Metric Factor	1	1	1	3
Insectivorous Metric Factor	1	1	1	1
Carnivore Metric Factor	1	3	3	3
Abundance Metric Factor	1	1	1	1
IBI (Sum of Metric Factors)	18	22	24	20

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AIII-18

METRICS USED IN THE CALCULATION OF THE INDEX OF BIOTIC INTEGRITY (IBI) FOR STATION NUMBER 18 AT THE INNER HARBOR ON THE CHICAGO RIVER DURING 1991

IBI Metric	Date of Collection			
	5/7/91	7/10/91	9/27/91	11/15/91
Number Species Per Sample	10	13	11	13
Number Sucker Species	0	0	0	0
Number Sunfish Species	4	4	5	4
Number Darter Species	0	0	1	1
Number Intolerant Species	2	3	2	3
Percent Green Sunfish	42.62	32.71	11.97	4.28
Percent Hybrids	4.92	3.74	0.00	0.17
Percent Diseased	4.9	3.7	1.93	0.34
Percent Omnivores	21.31	19.63	45.17	65.58
Percent Insectivorus Cyprinids	0.00	0.00	0.00	8.56
Percent Carnivores	18.03	29.91	35.91	10.96
Total Abundance	61	107	259	584
Electrofishing Time (Minutes)	32	40	35	38
Stream Order	3	3	3	3
Stream Basin	2	2	2	2
Species Metric Factor	3	5	3	5
Sucker Metric Factor	1	1	1	1
Sunfish Metric Factor	5	5	5	5
Darter Metric Factor	1	1	1	1
Intolerant Metric Factor	3	3	3	3
Green Sunfish Metric Factor	1	1	3	5
Hybrid Metric Factor	1	1	5	3
Disease Metric Factor	1	1	1	3
Omnivore Metric Factor	3	5	1	1
Insectivorus Metric Factor	1	1	1	1
Carnivore Metric Factor	5	5	5	5
Abundance Metric Factor	1	1	3	5
IBI (Sum of Metric Factors)	26	30	32	38

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AIII-19

METRICS USED IN THE CALCULATION OF THE INDEX OF BIOTIC INTEGRITY (IBI) FOR STATION NUMBER 19 AT THE LOOP ON THE CHICAGO RIVER DURING 1991

IBI Metric	Date of Collection			
	5/13/91	7/11/91	9/26/91	11/21/91
Number Species Per Sample	6	5	6	10
Number Sucker Species	0	0	0	0
Number Sunfish Species	1	2	3	3
Number Darter Species	0	0	0	0
Number Intolerant Species	1	1	1	1
Percent Green Sunfish	3.23	23.08	12.50	1.71
Percent Hybrids	0.00	0.00	0.00	0.00
Percent Diseased	3.2	15.4	8.3	5.13
Percent Omnivores	90.32	46.15	62.50	83.76
Percent Insectivorous Cyprinids	0.00	0.00	0.00	0.00
Percent Carnivores	6.45	30.77	20.83	6.84
Total Abundance	31	13	24	117
Electrofishing Time (Minutes)	34	34	32	36
Stream Order	3	3	3	3
Stream Basin	2	2	2	2
Species Metric Factor	1	1	1	3
Sucker Metric Factor	1	1	1	1
Sunfish Metric Factor	1	3	5	5
Darter Metric Factor	1	1	1	1
Intolerant Metric Factor	1	1	1	1
Green Sunfish Metric Factor	5	1	3	5
Hybrid Metric Factor	5	5	5	5
Disease Metric Factor	1	1	1	1
Omnivore Metric Factor	1	1	1	1
Insectivorous Metric Factor	1	1	1	1
Carnivore Metric Factor	5	5	5	5
Abundance Metric Factor	1	1	1	1
IBI (Sum of Metric Factors)	24	22	26	30

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE AIII-20

METRICS USED IN THE CALCULATION OF THE INDEX OF BIOTIC INTEGRITY (IBI) FOR STATION NUMBER 20 AT THE JUNCTION OF THE NORTH AND SOUTH BRANCHES OF THE CHICAGO RIVER DURING 1991

IBI Metric	Date of Collection			
	5/15/91	7/11/91	9/25/91	11/20/91
Number Species Per Sample	12	7	7	16
Number Sucker Species	0	0	0	0
Number Sunfish Species	4	4	2	6
Number Darter Species	0	0	0	0
Number Intolerant Species	1	1	0	1
Percent Green Sunfish	6.94	8.62	1.39	0.29
Percent Hybrids	1.39	3.45	2.78	0.87
Percent Diseased	9.7	8.6	5.56	2.02
Percent Omnivores	79.17	77.59	84.72	90.17
Percent Insectivorus Cyprinids	6.94	0.00	0.00	2.31
Percent Carnivores	2.78	3.45	4.17	2.60
Total Abundance	72	58	72	346
Electrofishing Time (Minutes)	30	30	30	30
Stream Order	3	3	3	3
Stream Basin	2	2	2	2
Species Metric Factor	3	3	3	5
Sucker Metric Factor	1	1	1	1
Sunfish Metric Factor	5	5	3	5
Darter Metric Factor	1	1	1	1
Intolerant Metric Factor	1	1	1	1
Green Sunfish Metric Factor	3	3	5	5
Hybrid Metric Factor	1	1	1	3
Disease Metric Factor	1	1	1	1
Omnivore Metric Factor	1	1	1	1
Insectivorus Metric Factor	1	1	1	1
Carnivore Metric Factor	3	3	3	3
Abundance Metric Factor	1	1	1	5
IBI (Sum of Metric Factors)	22	22	22	32