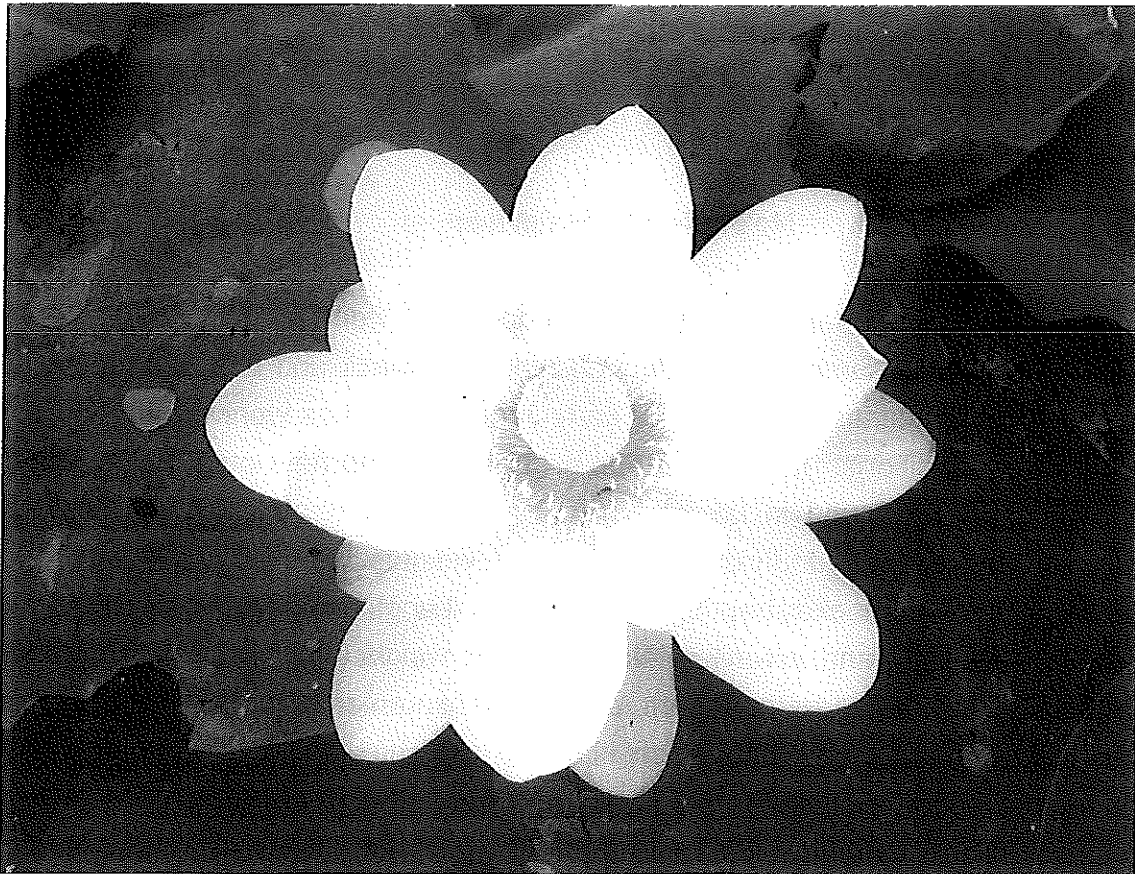


**FISH COMMUNITIES  
OF  
MINNESOTA RIVER  
FLOOD PLAIN LAKES**



**Yellow Lotus  
Horseshoe Lake (Carver County, MN)**

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## **Introduction**

For approximately 50 miles, from Belle Plaine to the mouth of the Minnesota River, several lakes and wetlands dot the flood plain that includes portions of Carver, Dakota, Hennepin and Scott counties (Appendix X). Most of this river reach's adjacent shorelands are large undeveloped tracts of public lands that include Fort Snelling State Park, Minnesota Valley State Recreation Area and Minnesota Valley National Wildlife Refuge. In most cases, these flood plain lakes have no or very primitive watercraft access. Some of these waters are accessible only via hiking trails or from watercraft on the Minnesota River. Because of these waters' remoteness, inaccessibility, or shallowness, their fish communities are rarely, if ever, surveyed. In 2006, fish were sampled in 21 flood plain lakes to establish baseline data on community composition, species occurrence and relative abundance.

## **Methods and Materials**

Using multiple sampling gears, surveys were conducted from mid-May to mid-September 2006. The waters were initially sampled with electrofishing (backpack and boat shockers), gill nets, trap nets, minnow traps and seines. However, by early June many lakes were too shallow to survey because of dry weather conditions. In such waters, gill nets and trap nets could no longer be used; sampling with these gear continued in lakes still having sufficient depth. All fish sampled were identified by species and tallied. Individual lengths and weights were recorded for larger adult species sampled with the boat shocker, trap nets and gill nets. Length ranges and batch weights were recorded for young-of-the-year and juveniles. No length or weight data were recorded for small nongame species (e.g., minnows and darters). Length measurements for nine typically targeted sportfish species (northern pike, channel catfish, flathead catfish, bluegill, largemouth bass, white crappie, black crappie, yellow perch and walleye) were converted to English units (inches) and summarized in length-frequency tables; the table for each water body follow the lake's summary in the appendices. (A lake without a length-frequency distribution indicates no fish of the nine species were measured from that lake.) At least one specimen of most species was preserved in formalin and deposited in the fish collection at the James Ford Bell Museum of Natural History in St. Paul. Coordinates of station locations were recorded with a GPS and waypoints saved to a data file. Water clarity was measured with a 120-centimeter transparency tube and recorded to the nearest tenth of a meter.

## **Results and Discussion**

Fish survey summaries for each of the 21 lakes are provided in Appendices AU. The 2006 surveys sampled 19,673 fish that represented 51 species in 14 families (Table 1). Overall, gizzard

shad, bluegill, black bullhead and emerald shiner were the most numerically abundant species, forming, respectively, 20, 14, 11 and 9 percent of the total catch. The common carp was the most abundant species in biomass, forming 42 percent (1956 pounds) of the overall weight. Bluegill was the most widespread species (present in 20 lakes), followed by the common carp, green sunfish and pumpkinseed (19 lakes), and orangespotted sunfish, largemouth bass and black crappie (18 lakes).

Table 1. 2006 fish survey summary of 21 lakes in Minnesota River flood plain.

Common Name	Scientific Name	Total Catch	Percent Composition	Length Range (mm)	Total Weight (g)	Percent Biomass	Lake Total	Percent Occurrence
<b>GAR FAMILY                      LEPISOSTEIDAE</b>								
shortnose gar	<i>Lepisosteus platostomus</i>	43	<1	375-692	23,029	1	7	33
<b>BOWFIN FAMILY                      AMIIDAE</b>								
bowfin	<i>Amia calva</i>	143	1	168-690	164,182	8	16	76
<b>HERRING FAMILY                      CLUPEIDAE</b>								
gizzard shad	<i>Dorosoma cepedianum</i>	3868	20	20-454	41,591	2	17	81
<b>MINNOW FAMILY                      CYPRINIDAE</b>								
spotfin shiner	<i>Cyprinella spiloptera</i>	698	4	N/A	N/A	N/A	13	62
common carp	<i>Cyprinus carpio</i>	470	2	62-755	887,200	42	19	91
brassy minnow	<i>Hybognathus hankinsoni</i>	3	<1	N/A	N/A	N/A	3	14
hornyhead chub	<i>Nocomis biguttatus</i>	6	<1	N/A	N/A	N/A	4	19
golden shiner	<i>Notemigonus crysoleucas</i>	285	2	N/A	N/A	N/A	14	67
emerald shiner	<i>Notropis atherinoides</i>	1780	9	N/A	N/A	N/A	15	71
bigmouth shiner	<i>Notropis dorsalis</i>	2	<1	N/A	N/A	N/A	1	5
sand or mimic shiner	<i>Notropis stramineus</i> or <i>N. volucellus</i>	111	1	N/A	N/A	N/A	7	33
weed shiner	<i>Notropis texanus</i>	31	<1	N/A	N/A	N/A	5	24
northern redbelly dace	<i>Phoxinus eos</i>	1	<1	N/A	N/A	N/A	1	5
bluntnose minnow	<i>Pimephales notatus</i>	243	1	N/A	N/A	N/A	7	33
fathead minnow	<i>Pimephales promelas</i>	628	3	N/A	N/A	N/A	12	57
bullhead minnow	<i>Pimephales vigilax</i>	8	<1	N/A	N/A	N/A	3	14
blacknose dace	<i>Rhinichthys obtusus</i>	3	<1	N/A	N/A	N/A	1	5
creek chub	<i>Semotilus atromaculatus</i>	8	<1	N/A	N/A	N/A	4	19
<b>SUCKER FAMILY                      CATOSTOMIDAE</b>								
river carpsucker	<i>Cariodes carpio</i>	17	<1	250-552	25,695	1	4	19
quillback	<i>Cariodes cyprinus</i>	24	<1	107-479	14,033	1	5	24
white sucker	<i>Catostomus commersonii</i>	46	<1	127-535	11,410	1	8	38
smallmouth buffalo	<i>Ictiobus bubalus</i>	47	<1	90-519	30,383	5	12	57
bigmouth buffalo	<i>Ictiobus cyprinellus</i>	117	1	215-750	232,763	11	13	62
black buffalo	<i>Ictiobus niger</i>	1	<1	667	5000	<1	1	5

Common Name	Scientific Name	Total Catch	Percent Composition	Length Range (mm)	Total Weight (g)	Percent Biomass	Lake Total	Percent Occurrence
shorthead redhorse	<i>Moxostoma macrolepidotum</i>	29	<1	123-423	9327	<1	7	33
unidentified redhorse (young of the year)	<i>Moxostoma</i> spp.	13	<1	N/A	N/A	N/A	3	14
<b>BULLHEAD CATFISH FAMILY</b>	<b>ICTALURIDAE</b>							
black bullhead	<i>Ameiurus melas</i>	2065	11	24-298	94,759	5	16	76
yellow bullhead	<i>Ameiurus natalis</i>	52	<1	88-378	9238	<1	10	48
brown bullhead	<i>Ameiurus nebulosus</i>	3	<1	285-324	1155	<1	2	10
channel catfish	<i>Ictalurus punctatus</i>	43	<1	202-730	23430	1	8	38
tadpole madtom	<i>Noturus gyrinus</i>	15	<1	N/A	N/A	N/A	8	38
flathead catfish	<i>Pylodictis olivaris</i>	4	<1	317-510	3550	<1	2	10
<b>PIKE FAMILY</b>	<b>ESOCIDAE</b>							
northern pike	<i>Esox lucius</i>	181	1	55-827	142,727	7	14	67
<b>MUDMINNOW FAMILY</b>	<b>UMBRIDAE</b>							
central mudminnow	<i>Umbra limi</i>	46	<1	N/A	N/A	N/A	7	33
<b>SILVERSIDE FAMILY</b>	<b>ATHERINIDAE</b>							
brook silverside	<i>Labidesthes sicculus</i>	13	<1	N/A	N/A	N/A	4	19
<b>STICKLEBACK FAMILY</b>	<b>GASTEROSTEIDAE</b>							
brook stickleback	<i>Culaea inconstans</i>	2	<1	N/A	N/A	N/A	1	5
<b>TEMPERATE BASS FAMILY</b>	<b>MORONIDAE</b>							
white bass	<i>Morone chrysops</i>	19	<1	256-401	7380	<1	4	19
<b>SUNFISH FAMILY</b>	<b>CENTRARCHIDAE</b>							
green sunfish	<i>Lepomis cyanellus</i>	1172	6	41-160	3137	<1	19	91
pumpkinseed	<i>Lepomis gibbosus</i>	284	2	41-230	4686	<1	19	91
orangespotted sunfish	<i>Lepomis humilis</i>	537	3	30-109	1137	<1	18	86
bluegill	<i>Lepomis macrochirus</i>	2732	14	38-243	88,237	4	20	95
hybrid sunfish	<i>Lepomis</i> spp. X <i>Lepomis</i> spp.	115	1	80-216	4695	<1	17	81
largemouth bass	<i>Micropterus salmoides</i>	580	3	24-465	46,720	2	18	86
white crappie	<i>Pomoxis annularis</i>	505	3	62-317	54,593	3	13	62
black crappie	<i>Pomoxis nigromaculatus</i>	1079	6	52-392	98,198	5	18	86
crappie hybrid	<i>Pomoxis annularis</i> X <i>P. nigromaculatus</i>	2	<1	252-297	652	<1	2	10
<b>PERCH FAMILY</b>	<b>PERCIDAE</b>							
iowa darter	<i>Etheostoma exile</i>	49	<1	N/A	N/A	N/A	12	57
johnny darter	<i>Etheostoma nigrum</i>	62	<1	N/A	N/A	N/A	10	48
yellow perch	<i>Perca flavescens</i>	1220	6			<1	12	57
logperch	<i>Percina caprodes</i>	29	<1	N/A	N/A	N/A	3	14
slenderhead darter	<i>Percina phoxocephala</i>	39	<1	N/A	N/A	N/A	2	10
sauger	<i>Sander canadensis</i>	1	<1	N/A	N/A	N/A	1	5
walleye	<i>Sander vitreus</i>	87	<1	66-720	31,025	2	14	67

Common Name	Scientific Name	Total Catch	Percent Composition	Length Range (mm)	Total Weight (g)	Percent Biomass	Lake Total	Percent Occurrence
DRUM FAMILY	SCIAENIDAE							
freshwater drum	Aplodinotus grunniens	113	1	100-505	39,724	2	14	67
TOTALS		19,673	100		2,100,111	100	21	

The rarest species, comprising eight or fewer individuals of the total catch, were the brassy minnow, hornyhead chub, bigmouth shiner, northern redbelly dace, blacknose dace, bullhead minnow, creek chub, black buffalo, brown bullhead, flathead catfish, brook stickleback and sauger. Species sampled from only one lake include bigmouth shiner and black buffalo (Nine Mile), northern redbelly dace (Gun Club), blacknose dace (Blue), brook stickleback (Shakopee Memorial Pond) and sauger (Louisville). The hornyhead chub is typically found in clear, headwater to medium-sized streams with riffles and runs and rock-based substrates. Hornyhead chub was sampled at the outlets of lakes where suitable microhabitats exist. The northern redbelly dace is rare at the southern edge of its range in the lower Minnesota River, but is occasionally reported from tributary streams. The black buffalo is a special concern species that was first reported in the Minnesota River in 1990. Since then, it has been found at several locations, all downstream from the Minnesota Falls Dam. Other noteworthy records include the weed shiner, which was present in five lakes, and the brook silverside, sampled from four lakes. From 1953-2005, the weed shiner was collected at only three localities in the lower Minnesota River and 2003 was the first collection of the brook silverside.

Very diverse fish communities were present in many of the flood plain lakes (Table 2). The greatest diversity occurred in Gifford Lake (35 species), Gun Club Lake (33), Louisville Swamp (37) and Nine Mile Lake (36). The least diverse waters were Ahlswede Lake (7), Kelly Lake (10) and Paine Pond (2). However, Gifford, Gun Club and Louisville Swamp were surveyed multiple times over the summer and the least diverse lakes were sampled only once— with seines and kick nets— because of inaccessibility. Several more species likely occur in the rest of the lakes, but additional sampling with multiple gears was canceled due to low water levels.

Table 2. Locations, water transparencies (T-tube) and fish survey summaries of Minnesota River flood plain lakes.

Lake	County	River Mile	Township-Range-Section	General Location	UTM East	T-tube (m)	Families	Total Catch
DOW#					UTM North		Species	Total Weight (g)
Ahlswede	Scott	41	T114N-R24W-S14	NW of Jordan	446509	0.1	5	51
70013200					4948128		7	N/A

Lake	County	River Mile	Township-Range-Section	General Location	UTM East	T-tube (m)	Families	Total Catch
DOW#					UTM North		Species	Total Weight (g)
Beason 70034000	Scott	44	T114N-R41W-S24	NE of Belle Plaine	443269 4944965	0.2	8 17	574 61,215
Black Dog 19008300	Dakota	8	T27N-R24W-S26	North of Burnsville	478803 4961158	0.1-0.2	10 29	656 73,415
Blue 70008800	Scott	19	T115N-R22W-S2	SE of Eden Prairie	465644 4961190	0.3->1.2	10 27	485 25,996
Browns 70013300	Scott	45	T114N-R24W-S29	NE of Belle Plaine	442080 4944223	0.2	8 18	647 21,870
Fisher 70008700	Scott	17	T115N-R22W-S1	West of Savage	467534 4960702	0.1-0.3	10 21	510 100,275
Gifford 70011800	Scott	31	T115N-R23W-S6	East of Carver	452762 4957185	0.2-0.3	11 35	4602 304,376
Gun Club 19007800	Dakota	3	T28N-R23W-S33	SW of Mendota	485538 4968512	0.2	11 33	1972 279,679
Horseshoe 10000300	Carver	37	T114N-R23W-S6	North of Jordan	449845 4950441	0.2	10 28	778 109,429
Horseshoe 70013400	Scott	47	T114N-R24W-S32	NE of Belle Plaine	440991 4943412	0.2	8 20	851 97,797
Unnamed ("Jail House Marsh") 70021400	Scott	37	T114N-R23W-S8	North of Jordan	451163 4949593	0.3-0.5	7 14	422 90,615
Johnson Slough 70020900	Scott	35	T115N-R23W-31	South of Carver	450456 4952875	1.0	6 13	240 12,078
Kelly 10002100	Carver	43	T114N-R24W-S22	West of Jordan	444147 4946931	0.1	4 10	137 N/A
Long 10001600	Carver	37	T114N-R23W-S6	North of Jordan	449390 4950518	0.1-0.2	10 29	1928 275,651
Long Meadow 27000200	Hennepin	7	T27N-R24W-S12	East of Bloomington	481534 4964584	0.7-1.0	12 29	2030 114,040
Louisville Swamp 70020900	Scott	34	T115N-R23W-29	South of Carver	450971 4953750	0.1	11 37	1495 68,718
Nine Mile 27001300	Hennepin	12	T27N-R24W-S29	NE of Savage	474908 4960337	0.4	10 36	513 239,902
Unnamed ("Palme Pond") No DOW ID #	Scott	42	T114N-R24W-S15	West of Jordan	445453 4947232	0.4	1 2	35 N/A
Rice 70002500	Scott	16	T115N-R21W-S7	West of Savage	468959 4959673	0.8	8 25	673 119,867
Shakopee Memorial Pond 70025300	Scott	24	T115N-R22W-S6	East of Shakopee	460330 4961209	1.0->1.2	7 23	548 22,565

Lake	County	River Mile	Township-Range-Section	General Location	UTM East	T-tube (m)	Families	Total Catch
DOW#					UTM North		Species	Total Weight (g)
Snelling Gravel Pit	Dakota	5	T27N-R23W-S8	West of Eagan	484853	0.8	8	524
19012800					4965783		16	82,323

Water transparencies in most of the floodplain lakes were very low and, relatedly, many lakes were often void of submerged vegetation (Table 2). However, a few were extremely clear and supported very diverse plant communities. Those with diverse plant communities included Blue, Johnson Slough, Long Meadow, Rice and Shakopee. Snelling Gravel Pit, where Eurasian water milfoil was abundant in the littoral zone, and the south basin of Gun Club (where curly leaf pondweed choked the surface until mid-June) were thick with non-native but established plants.

Fish community analysis based on the Index of Biotic Integrity (IBI) has been used to develop biological criteria in assessing environmental quality in streams and rivers (Karr 1981). The IBI methodology analyzes several facets or niches of the community called metrics that include species richness, taxa, feeding levels, spawning behavior, and tolerance. The sum of individual metrics provides numerical scores that rate sample stations from poor through excellent. The development process requires metric lists be established for the fish fauna present in a state or study area. There are no statewide metric lists currently available for Minnesota fishes. However, several IBI studies have been conducted in the Midwest, which include Minnesota (Bailey *et al* [1993], Niemela *et al* [1998]), Wisconsin (Lyons [1992], Fausch [1986]), and Ohio (Ohio Environmental Protection Agency [1987]). These sources have been used to compile a summary overview of the fish fauna sampled in the flood plain lakes (Table 3).

Table 3. Ecological niches of fish species sampled in Minnesota River flood plain lakes.

Species	Feeding Level	Spawning Behavior	Tolerance	Status	Preferred Stream Habitat
<b>GAR FAMILY</b>					
shortnose gar	plscivore	simple miscellaneous			pools, large rivers
<b>BOWFIN FAMILY</b>					
bowfin	plscivore	complex/parental care			pools, large rivers
<b>HERRING FAMILY</b>					
gizzard shad	filter feeder	simple miscellaneous			pools
<b>MINNOW FAMILY</b>					
spotfin shiner	insectivore	simple miscellaneous			pools and riffles
common carp	omnivore	simple miscellaneous	tolerant	exotic	pools

Species	Feeding Level	Spawning Behavior	Tolerance	Status	Preferred Stream Habitat
brassy minnow	herbivore	simple miscellaneous			pools
hornyhead chub	Insectivore	complex/no parental care	intolerant		pools and riffles
golden shiner	Insectivore	simple miscellaneous			pools
emerald shiner	Insectivore	simple lithophil			pools, large rivers
bigmouth shiner	Insectivore	simple miscellaneous			pools and riffles
sand shiner	Insectivore	simple miscellaneous			pools and riffles
mimic shiner	Insectivore	simple miscellaneous	intolerant	limited	pools and riffles, large rivers
weed shiner	herbivore		intolerant	limited	pools, large rivers
northern redbelly dace	herbivore	simple miscellaneous		limited	pools, headwaters
bluntnose minnow	omnivore	complex/parental care			pools and riffles, pioneer
fathead minnow	omnivore	complex/parental care	tolerant		pools and riffles, pioneer
bullhead minnow	omnivore	complex/parental care		limited	pools, large rivers
blacknose dace	generalist feeder	simple lithophil			riffles, headwaters
creek chub	generalist feeder	complex/no parental care	tolerant		pools and riffles, pioneer
SUCKER FAMILY					
river carpsucker	omnivore	simple miscellaneous			pools, large rivers
quillback	omnivore	simple miscellaneous			pools
white sucker	omnivore	simple lithophil	tolerant		pools and riffles
smallmouth buffalo	Insectivore	simple miscellaneous			pools, large rivers
bigmouth buffalo	Insectivore	simple miscellaneous			pools, large rivers
black buffalo	Insectivore	simple miscellaneous	intolerant	special concern	pools, large rivers
shorthead redhorse	Insectivore	simple lithophil			pools, large rivers
BULLHEAD CATFISH FAMILY					
black bullhead	Insectivore	complex/parental care	tolerant		pools
yellow bullhead	Insectivore	complex/parental care			pools
brown bullhead	Insectivore	complex/parental care		limited	pools
channel catfish	piscivore	complex/parental care			pools, large rivers
tadpole madtom	Insectivore	complex/parental care			pools and riffles
flathead catfish	piscivore	complex/parental care			pools and riffles, large rivers
PIKE FAMILY					
northern pike	piscivore	simple miscellaneous			pools



Species	Feeding Level	Spawning Behavior	Tolerance	Status	Preferred Stream Habitat
<b>MUDMINNOW FAMILY</b>					
central mudminnow	insectivore	complex/parental care			pools
<b>SILVERSIDE FAMILY</b>					
brook silverside	Insectivore	simple miscellaneous		limited	pools, large rivers
<b>STICKLEBACK FAMILY</b>					
brook stickleback	insectivore	complex/parental care			pools, headwaters
<b>TEMPERATE BASS FAMILY</b>					
white bass	piscivore	simple miscellaneous			pools, large rivers
<b>SUNFISH FAMILY</b>					
green sunfish	insectivore	complex/parental care			pools, pioneer
pumpkinseed	Insectivore	complex/parental care			pools
orangespotted sunfish	insectivore	complex/parental care			pools
bluegill	Insectivore	complex/parental care			pools
hybrid sunfish	insectivore	complex/parental care			pools
largemouth bass	piscivore	complex/parental care			pools
white crappie	piscivore	complex/parental care		limited	pools
black crappie	piscivore	complex/parental care			pools
<b>PERCH FAMILY</b>					
Iowa darter	Insectivore	simple miscellaneous	Intolerant		pools
Johnny darter	insectivore	complex/parental care			pools and riffles, pioneer
yellow perch	insectivore	simple miscellaneous			pools
logperch	insectivore	simple lithophil		limited	pools and riffles
slenderhead darter	Insectivore	simple lithophil	Intolerant		riffles, large rivers
sauger	piscivore	simple lithophil			pools, large rivers
walleye	piscivore	simple lithophil			pools, large rivers
<b>DRUM FAMILY</b>					
freshwater drum	insectivore	simple miscellaneous			pools, large rivers

IBI metrics often used for biocriteria development and water quality assessments include fishes classified as insectivorous, piscivorous (top carnivore), omnivorous, simple lithophilic spawners, intolerant, tolerant, headwater, and pioneer.

Insectivores inhabit healthy streams that also support aquatic insect communities. Environmental degradation of the streams will reduce or eliminate the insects and thus insectivorous fishes. Similarly, piscivores are at the top of the food pyramid and can only thrive in streams supporting forage species. In contrast, omnivores are adapted to a wider range of food items and can flourish under degraded conditions.

Simple lithophilic spawners require clean gravel or cobble for egg survival and do poorly in streams where sedimentation buries and embeds rocky substrates.

Intolerant fishes are sensitive to habitat modifications (e.g. channelization, siltation, turbidity, or poor water quality). Conversely, tolerant species tend to be highly successful under adverse conditions.

Headwater fishes indicate stable flow conditions, permanent habitat, low environmental stress and higher biological integrity, while pioneers are the first to colonize streams after desiccation or spills and reflect unstable or stressed habitats.

The overall results of niches often used for IBI metrics include insectivores (27 species, 59% of the total catch, 26% of the biomass [Table 4]), piscivores (11 species, 13% of the catch, 28% of the biomass), omnivores (seven species, 7% of the catch, 44% of the biomass [primarily carp]), simple lithophils (eight species, 10% of the catch, 2% of the biomass), intolerant (five species, <1% of both catch and biomass) and tolerant (four species, 16% of the catch, 47% of the biomass [mostly carp]).

Evidence of rare and extirpated species that may have historically occurred in the flood plain lakes is, for the most part, anecdotal at best and based on reports from the Minnesota River. The Minnesota Department of Natural Resources has established a list of Species in the Greatest Conservation Need (SGCN) that includes 47 fishes. Eight of these species either currently or historically occurred in the lower Minnesota River and potentially the floodplain lakes via flooding or stream connectivity. The lake sturgeon (*Acipenser fulvescens*) historically occurred in the Minnesota River to its source at Big Stone Lake. However, the species was considered extirpated for half a century until anglers caught one near New Ulm in 1993 and another at Minnesota Falls in 1999. The shovelnose sturgeon (*Scaphirhynchus platyrhynchus*) is well distributed and occasionally common from the mouth upstream to the first barrier on the river at the Minnesota Falls dam.

Paddlefish (*Polyodon spathula*) also was extirpated in the Minnesota River until 1993 when Xcel Energy (electric utility; previously named Northern States Power [NSP]) biologists found a fresh carcass at their Black Dog power plant. Since then, there have been more reports of paddlefish from the mouth upstream to Minnesota Falls. The American eel (*Anguilla rostrata*) has been reported from only three locations in the lower Minnesota River from 1970-1982. The species is currently under review for federal status. The skipjack herring (*Alosa chrysochloris*) historically migrated annually

several hundred miles up the Mississippi and Minnesota Rivers to Big Stone Lake.

Table 4. Fish community overview of Minnesota River flood plain lakes.

Niche	Species Total	Total Catch	Percent Composition	Total Weight (g)	Percent Biomass
<b>FEEDING LEVELS</b>					
Filter Feeder (Planktivore)	1	3868	20	41,591	1
Generalist Feeder	2	11	<1	N/A	N/A
Herbivore	3	33	<1	N/A	N/A
Insectivore (Invertivore)	27	11,637	59	566,287	26
Omnivore	7	1436	7	938,338	44
Piscivore (Top Carnivore)	11	2686	13	595,186	28
<b>SPAWNING BEHAVIOR</b>					
Complex/No Parental Care	2	14	<1	N/A	N/A
Complex/Parental Care	20	10,293	52	605,449	28
Simple Lithophil	8	2027	10	51,762	2
Simple Miscellaneous	20	7308	37	1,442,600	68
<b>TOLERANCE</b>					
Intolerant	5	124	<1	5000	<1
Tolerant	4	3209	16	993,369	47
<b>PREFERRED HABITAT</b>					
Pools (Lakes)	38	18,475	93	2,084,851	99
Pools (Lakes) and Riffles	11	1154	5	14,960	<1
Riffles	2	42	<1	N/A	N/A
Headwaters	3	6	<1	N/A	N/A
Large Rivers	19	3243	16	595,943	28
Pioneer	5	2113	10	3137	<1

However, in 1913 skipjack herring was blocked access to its spawning areas in the upper Mississippi River with completion of the Keokuk Dam in southeastern Iowa; the species was last reported from Big Stone Lake in 1920 (Eddy and Underhill 1976). The blue sucker (*Cyprinostomus elongatus*) was first reported in the Minnesota River at Carver Rapids in 1989 and now occurs upstream to the Minnesota Falls Dam. The river redhorse (*Moxostoma carinatum*) was collected at two localities in lower Minnesota between Belle Plaine and Jordan in 1899 and is assumed extirpated. However, the species does occur in the Mississippi River above and below its confluence with Minnesota River. Finally, two non-SGCN species include the spotted sucker (*Minytrema melanops*) and banded killifish (*Fundulus diaphanus*). The spotted sucker was last reported from the Minnesota River in 1899 near Belle Plaine. This species does occur in backwaters of the lower St. Croix River

and the Mississippi downstream of Hastings. The banded killifish has been reported in Snelling Lake in 1989, Long Meadow Lake in 1991 and Snelling Gravel Pit Lake in 1994.

Results from this survey confirm that, as of conditions during spring and summer 2006, the majority of the study waters (15 of 21, 71%) are capable of providing fishing opportunities for species sought for food and sport (tables in Appendices AU). However, fishing pressure and catch have not been commensurate with potential for several reasons. Most of these lakes and wetlands have difficult or no public access; shallow depths, soft bottoms and thick vegetation dissuade both boat and shore-based anglers; anglers feel these lakes are more polluted and less aesthetically pleasing; and the variable and often-changing water and fish community conditions produce frustratingly unreliable fishing conditions compared with other local opportunities.

Sampling results reflected sportfish communities ranging from mere presence of one species through five or more species in comparative abundance with angler desired sizes. Basins with the best fishing potential (three or more species, larger sample sizes, higher proportions of larger fish) were Beason, Gifford, Gun Club, Long, and Long Meadow. Waters that had two or fewer species/types with fishing potential were: Black Dog (for crappie species and possibly bluegill), Horseshoe (largemouth bass, possibly bluegill or black crappie), unnamed/Jailhouse Marsh (some potential for either bluegill or largemouth bass), Louisville Swamp (catfishes, bluegill, and walleye could provide opportunities and connection via Sand Creek to the Minnesota River), Nine Mile (walleye, with lower numbers but quality-sized northern pike or channel catfish), Rice (crappie species), and Snelling Gravel Pits (largemouth bass, with smallish bluegill and black crappie).

### **Recommendations**

Whenever possible, surveys should continue on the flood plain lakes that were missed due to drought and trap net surveys completed on others partially surveyed with only a boat shocker. The flood plain lakes provide habitats not found in the Minnesota River for spawning, nursing, and refuge. Stream connectivity with the river should be protected and restored. Waterfowl managers scheduling drawdowns on lakes with water control structures should also take into consideration maintaining access and habitats of sufficient depth for spawning fishes. Finally, rare aquatic plants have been found in some of the flood plain lakes (Welby Smith, pers. comm.) and all lakes should undergo systematic vegetation surveys.

### **Acknowledgments**

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**Appendix A. Ahlswede Lake (Scott County) fish survey results.**  
 Kick net and seine: 8/15/06

Common Name	Scientific Name	Total Catch	Percent Composition	Length Range (mm)	Total Weight (g)	Percent Biomass
<b>HERRING FAMILY</b>	<b>CLUPEIDAE</b>					
gizzard shad	Dorosoma cepedianum	17	33	N/A	N/A	N/A
<b>MINNOW FAMILY</b>	<b>CYPRINIDAE</b>					
common carp	Cyprinus carpio	1	2	N/A	N/A	N/A
<b>SUNFISH FAMILY</b>	<b>CENTRARCHIDAE</b>					
green sunfish	Lepomis cyanellus	20	39	N/A	N/A	N/A
pumpkinseed	Lepomis gibbosus	6	12	N/A	N/A	N/A
orangespotted sunfish	Lepomis humilis	4	8	N/A	N/A	N/A
largemouth bass	Micropterus salmoides	1	2	N/A	N/A	N/A
<b>PERCH FAMILY</b>	<b>PERCIDAE</b>					
Iowa darter	Etheostoma exile	2	4	N/A	N/A	N/A
<b>TOTALS</b>		<b>51</b>	<b>100</b>			

**Appendix B. Beason Lake (Scott County) fish survey results.**

Electrofishing (boat): 6/26/06

Seine: 7/3/06

Trap net: 6/26,27/06

Common Name	Scientific Name	Total Catch	Percent Composition	Length Range (mm)	Total Weight (g)	Percent Biomass
<b>BOWFIN FAMILY</b>	<b>AMIIDAE</b>					
bowfin	<i>Amla calva</i>	11	1	295-587	10,337	16
<b>HERRING FAMILY</b>	<b>CLUPEIDAE</b>					
glizzard shad	<i>Dorosoma cepedianum</i>	1	<1	257	153	<1
<b>MINNOW FAMILY</b>	<b>CYPRINIDAE</b>					
common carp	<i>Cyprinus carpio</i>	15	2	300-566	21,340	34
emerald shiner	<i>Notropis atherinoides</i>	31	5	N/A	N/A	N/A
<b>SUCKER FAMILY</b>	<b>CATOSTOMIDAE</b>					
smallmouth buffalo	<i>Ictiobus bubalus</i>	1	<1	315	508	<1
bigmouth buffalo	<i>Ictiobus cyprinellus</i>	1	<1	215	198	<1
shorthead redhorse	<i>Moxostoma macrolepidotum</i>	1	<1	210	101	<1
<b>BULLHEAD CATFISH FAMILY</b>	<b>ICTALURIDAE</b>					
black bullhead	<i>Ameiurus melas</i>	9	1	168-248	1321	2
<b>SUNFISH FAMILY</b>	<b>CENTRARCHIDAE</b>					
green sunfish	<i>Lepomis cyanellus</i>	6	1	59-119	65	<1
pumpkinseed	<i>Lepomis gibbosus</i>	2	<1	98-102	44	<1
orangespotted sunfish	<i>Lepomis humilis</i>	8	1	50-99	51	<1
bluegill	<i>Lepomis macrochirus</i>	273	47	42-187	10,588	17
hybrid sunfish	<i>Lepomis</i> spp. X <i>Lepomis</i> spp.	10	1	85-187	504	<1
largemouth bass	<i>Micropterus salmoides</i>	21	3	24-298	2687	4
white crappie	<i>Pomoxis annularis</i>	82	14	112-316	7220	11
black crappie	<i>Pomoxis nigromaculatus</i>	96	16	94-241	5110	8
crappie hybrid	<i>Pomoxis annularis</i> X <i>P. nigromaculatus</i>	1	<1	297	377	<1
<b>PERCH FAMILY</b>	<b>PERCIDAE</b>					
walleye	<i>Sander vitreus</i>	2	<1	245-248	226	<1
<b>DRUM FAMILY</b>	<b>SCIAENIDAE</b>					
freshwater drum	<i>Aplodinotus grunniens</i>	3	<1	157-282	385	<1
<b>TOTALS</b>		<b>574</b>	<b>100</b>		<b>61,215</b>	<b>100</b>



Length-frequency distribution (inches) for selected sportfish species, all gear types, Beason Lake 2006. BLG = bluegill, LMB = largemouth bass, WHC = white crappie, BLC = black crappie, WAE = walleye.

inches	BLG	LMB	WHC	BLC	WAE			
< 5.0			6	4				
5.0 - 5.9	13	7	3					
6.0 - 6.9	1	1		4				
7.0 - 7.9	15		4	1				
8.0-8.9	12	1	4	2				
9.0 - 9.9		2	10	3				
10.0 - 10.9		2	4					
11.0 - 11.9		3	1		2			
12.0 - 12.9		3	4					
13.0 - 13.9		1						
14.0 - 14.9								
15.0 - 15.9								
16.0 - 16.9								
17.0 - 17.9								
18.0 - 18.9								
19.0 - 19.9								
20.0 - 20.9								
21.0 - 21.9								
22.0 - 22.9								
23.0 - 23.9								
24.0 - 24.9								
25.0 - 25.9								
26.0 - 26.9								
27.0 - 27.9								
28.0 - 28.9								
29.0 - 29.9								
30.0 - 30.9								
31.0 - 31.9								
32.0 - 32.9								
33.0 - 33.9								
34.0 - 34.9								
35.0 - 35.9								
Total	41	20	36	14	2			

**Appendix C. Black Dog Lake (Dakota County) fish survey results.**

Electrofishing (boat): 6/27/06

Seine: 6/29/06

Trap net: 6/28,29/06 and 8/1,2/06

Common Name	Scientific Name	Total Catch	Percent Composition	Length Range (mm)	Total Weight (g)	Percent Biomass
<b>GAR FAMILY                      LEPISOSTEIDAE</b>						
shortnose gar	Lepisosteus platostomus	3	<1	681-692	3950	5
<b>BOWFIN FAMILY                      AMIIDAE</b>						
bowfin	Amla calva	1	<1	670	2950	4
<b>HERRING FAMILY                      CLUPEIDAE</b>						
gizzard shad	Dorosoma cepedianum	67	10	11-70	1709	2
<b>MINNOW FAMILY                      CYPRINIDAE</b>						
spotfin shiner	Cyprinella spiloptera	248	37	N/A	N/A	N/A
common carp	Cyprinus carpio	27	4	209-736	40,611	55
hornyhead chub	Nocomis biguttatus	1	<1	N/A	N/A	N/A
golden shiner	Notemigonus crysoleucas	6	<1	N/A	N/A	N/A
sand or mimic shiner	Notropis stramineus or N. volucellus	3	<1	N/A	N/A	N/A
bluntnose minnow	Pimephales notatus	2	<1	N/A	N/A	N/A
fathead minnow	Pimephales promelas	61	9	N/A	N/A	N/A
bullhead minnow	Pimephales vigilax	5	<1	N/A	N/A	N/A
<b>SUCKER FAMILY                      CATOSTOMIDAE</b>						
quillback	Cariodes cyprinus	5	<1	342-479	3250	4
smallmouth buffalo	Ictiobus bubalus	2	<1	90-125	4410	6
bigmouth buffalo	Ictiobus cyprinellus	2	<1	476-575	55	<1
shorthead redhorse	Moxostoma macrolepidotum	4	<1	141-320	579	<1
unidentified redhorse (young of the year)	Moxostoma spp.	11	1	N/A	N/A	N/A
<b>BULLHEAD CATFISH FAMILY                      ICTALURIDAE</b>						
channel catfish	Ictalurus punctatus	3	<1	202-370	360	<1
<b>TEMPERATE BASS FAMILY                      MORONIDAE</b>						
white bass	Morone chrysops	4	<1	322-401	1530	2
<b>SUNFISH FAMILY                      CENTRARCHIDAE</b>						
green sunfish	Lepomis cyanellus	21	3	62-127	263	<1
pumpkinseed	Lepomis gibbosus	1	<1	81	9	<1
orangespotted sunfish	Lepomis humilis	14	2	38-93	81	<1
bluegill	Lepomis macrochirus	52	7	49-187	2277	3
hybrid sunfish	Lepomis spp. X Lepomis spp.	6	<1	81-157	190	<1
largemouth bass	Micropterus salmoides	4	<1	282-384	1275	1
white crappie	Pomoxis annularis	9	1	76-270	967	1
black crappie	Pomoxis nigromaculatus	52	7	57-314	4810	6

Common Name	Scientific Name	Total Catch	Percent Composition	Length Range (mm)	Total Weight (g)	Percent Biomass
crappie hybrid	Pomoxis annularis X P. nigromaculatus	1	<1	252	275	<1
PERCH FAMILY	PERCIDAE					
Iowa darter	Etheostoma exile	1	<1	N/A	N/A	N/A
Johnny darter	Etheostoma nigrum	3	<1	N/A	N/A	N/A
yellow perch	Perca flavescens	9	1	N/A	N/A	N/A
walleye	Sander vitreus	5	<1	253	129	<1
DRUM FAMILY	SCIAENIDAE					
freshwater drum	Aplodinotus grunniens	23	3	100-480	3735	5
TOTALS		656	100		73,415	100

Length-frequency distribution (inches) for selected sportfish species, all gear types, Black Dog Lake 2006. CCF = channel catfish, BLG = bluegill, LMB = largemouth bass, WHC = white crappie, BLC = black crappie, YEP = yellow perch, WAE = walleye.

inches	CCF	BLG	LMB	WHC	BLC	YEP	WAE
< 5.0		15		1	20	3	
5.0 - 5.9		11			10		
6.0 - 6.9		9		4			
7.0 - 7.9		5			5		
8.0-8.9	1				3		
9.0 - 9.9				3	8		
10.0 - 10.9					3		1
11.0 - 11.9			1	1	1		
12.0 - 12.9					2		
13.0 - 13.9							
14.0 - 14.9							
15.0 - 15.9	1		1				
16.0 - 16.9							
17.0 - 17.9							
18.0 - 18.9							
19.0 - 19.9							
20.0 - 20.9							
21.0 - 21.9							
22.0 - 22.9							
23.0 - 23.9							
24.0 - 24.9							
25.0 - 25.9							
26.0 - 26.9							
27.0 - 27.9							
28.0 - 28.9							
29.0 - 29.9							
30.0 - 30.9							
Total	2	40	2	9	52	3	1

**Appendix D. Blue Lake (Scott County) fish survey results.**

Electrofishing (backpack): 9/11/06  
Electrofishing (boat) and Seine: 7/5/06

Common Name	Scientific Name	Total Catch	Percent Composition	Length Range (mm)	Total Weight (g)	Percent Biomass
<b>BOWFIN FAMILY                      AMIIDAE</b>						
bowfin	<i>Amia calva</i>	3	<1	385-600	3450	13
<b>HERRING FAMILY                      CLUPEIDAE</b>						
gizzard shad	<i>Dorosoma cepedianum</i>	2	<1	155-420	985	3
<b>MINNOW FAMILY                      CYPRINIDAE</b>						
spotfin shiner	<i>Cyprinella spiloptera</i>	117	24	N/A	N/A	N/A
common carp	<i>Cyprinus carpio</i>	6	1	540-690	17,250	66
golden shiner	<i>Notemigonus crysoleucas</i>	102	21	N/A	N/A	N/A
emerald shiner	<i>Notropis atherinoides</i>	1	<1	N/A	N/A	N/A
weed shiner	<i>Notropis texanus</i>	23	4	N/A	N/A	N/A
fathead minnow	<i>Pimephales promelas</i>	22	4	N/A	N/A	N/A
blacknose dace	<i>Rhinichthys obtusus</i>	3	<1	N/A	N/A	N/A
creek chub	<i>Semotilus atromaculatus</i>	1	<1	N/A	N/A	N/A
<b>SUCKER FAMILY                      CATOSTOMIDAE</b>						
smallmouth buffalo	<i>Ictiobus bubalus</i>	1	<1	204	146	<1
<b>BULLHEAD CATFISH FAMILY              ICTALURIDAE</b>						
black bullhead	<i>Ameiurus melas</i>	25	5	N/A	N/A	N/A
brown bullhead	<i>Ameiurus nebulosus</i>	2	<1	285-290	710	2
<b>PIKE FAMILY                      ESOCIDAE</b>						
northern pike	<i>Esox lucius</i>	1	<1	N/A	N/A	N/A
<b>MUDMINNOW FAMILY                      UMBRIDAE</b>						
central mudminnow	<i>Umbra limi</i>	22	4	N/A	N/A	N/A
<b>SUNFISH FAMILY                      CENTRARCHIDAE</b>						
green sunfish	<i>Lepomis cyanellus</i>	92	19	55-59	7	<1
pumpkinseed	<i>Lepomis gibbosus</i>	2	<1	69	7	<1
orangespotted sunfish	<i>Lepomis humilis</i>	9	1	45-69	34	<1
bluegill	<i>Lepomis macrochirus</i>	14	2	78-145	481	1
hybrid sunfish	<i>Lepomis spp. X Lepomis spp.</i>	1	<1	N/A	N/A	N/A
largemouth bass	<i>Micropterus salmoides</i>	4	<1	166-330	1265	4
white crappie	<i>Pomoxis annularis</i>	1	<1	114	17	<1
black crappie	<i>Pomoxis nigromaculatus</i>	3	<1	168-262	456	1
<b>PERCH FAMILY                      PERCIDAE</b>						
Iowa darter	<i>Etheostoma exile</i>	6	1	N/A	N/A	N/A
Johnny darter	<i>Etheostoma nigrum</i>	11	2	N/A	N/A	N/A
yellow perch	<i>Perca flavescens</i>	3	<1	N/A	N/A	N/A

Common Name	Scientific Name	Total Catch	Percent Composition	Length Range (mm)	Total Weight (g)	Percent Biomass
walleye	Sander vitreus	4	<1	66-205	188	<1
DRUM FAMILY	SCIAENIDAE					
freshwater drum	Aplodinotus grunniens	4	<1	154-385	1000	3
TOTALS		485	100		25,996	100

Length-frequency distribution (inches) for selected sportfish species, all gear types, Blue Lake 2006. BLG = bluegill, LMB = largemouth bass, WHC = white crappie, BLC = black crappie, WAE = walleye.

inches	BLG	LMB	WHC	BLC	WAE			
< 5.0	2		1		1			
5.0 - 5.9	8							
6.0 - 6.9		1		1				
7.0 - 7.9				1				
8.0-8.9					3			
9.0 - 9.9								
10.0 - 10.9				1				
11.0 - 11.9								
12.0 - 12.9								
13.0 - 13.9		1						
14.0 - 14.9								
15.0 - 15.9								
16.0 - 16.9								
17.0 - 17.9								
18.0 - 18.9								
19.0 - 19.9								
20.0 - 20.9								
21.0 - 21.9								
22.0 - 22.9								
23.0 - 23.9								
24.0 - 24.9								
25.0 - 25.9								
26.0 - 26.9								
27.0 - 27.9								
28.0 - 28.9								
29.0 - 29.9								
30.0 - 30.9								
31.0 - 31.9								
32.0 - 32.9								
33.0 - 33.9								
34.0 - 34.9								
35.0 - 35.9								
Total	2	2	2	3	4			

**Appendix E. Browns Lake (Scott County) fish survey results.**  
**Electrofishing (boat) and Seine: 7/7/06**

Common Name	Scientific Name	Total Catch	Percent Composition	Length Range (mm)	Total Weight (g)	Percent Biomass
<b>BOWFIN FAMILY                      AMIIDAE</b>						
bowfin	<i>Amia calva</i>	2	<1	N/A	N/A	N/A
<b>HERRING FAMILY                      CLUPEIDAE</b>						
gizzard shad	<i>Dorosoma cepedianum</i>	59	9	40-278	2290	10
<b>MINNOW FAMILY                      CYPRINIDAE</b>						
common carp	<i>Cyprinus carpio</i>	14	2	62-630	13,717	62
golden shiner	<i>Notemigonus crysoleucas</i>	18	2	N/A	N/A	N/A
emerald shiner	<i>Notropis atherinoides</i>	1	<1	N/A	N/A	N/A
fathead minnow	<i>Pimephales promelas</i>	1	<1	N/A	N/A	N/A
<b>SUCKER FAMILY                      CATOSTOMIDAE</b>						
quillback	<i>Carpilodes cyprinus</i>	1	<1	162	58	<1
smallmouth buffalo	<i>Ictiobus bubalus</i>	1	<1	345	650	3
bigmouth buffalo	<i>Ictiobus cyprinellus</i>	1	<1	401	1250	5
<b>BULLHEAD CATFISH FAMILY              ICTALURIDAE</b>						
black bullhead	<i>Amelurus melas</i>	470	72	24-230	1811	8
<b>PIKE FAMILY                      ESOCIDAE</b>						
northern pike	<i>Esox lucius</i>	4	<1	140-212	122	<1
<b>SUNFISH FAMILY                      CENTRARCHIDAE</b>						
pumpkinseed	<i>Lepomis gibbosus</i>	3	<1	100-130	96	<1
orangespotted sunfish	<i>Lepomis humilis</i>	19	2	56-79	29	<1
bluegill	<i>Lepomis macrochirus</i>	28	4	70-152	836	3
hybrid sunfish	<i>Lepomis</i> spp. X <i>Lepomis</i> spp.	1	<1	146	90	<1
largemouth bass	<i>Micropterus salmoides</i>	15	2	45-318	644	3
white crappie	<i>Pomoxis annularis</i>	1	<1	N/A	N/A	N/A
black crappie	<i>Pomoxis nigromaculatus</i>	4	<1	N/A	N/A	N/A
<b>DRUM FAMILY                      SCIAENIDAE</b>						
freshwater drum	<i>Aplodinotus grunniens</i>	4	<1	206-240	277	1
<b>TOTALS</b>		<b>647</b>	<b>100</b>		<b>21,870</b>	<b>100</b>

Length-frequency distribution (inches) for selected sportfish species, all gear types, Browns Lake 2006. NOP = northern pike, BLG = bluegill, LMB = largemouth bass.

inches		NOP	BLG	LMB					
< 5.0			17	7					
5.0 - 5.9			7						
6.0 - 6.9			2	2					
7.0 - 7.9		1		1					
8.0-8.9									
9.0 - 9.9									
10.0 - 10.9									
11.0 - 11.9									
12.0 - 12.9									
13.0 - 13.9				1					
14.0 - 14.9									
15.0 - 15.9									
16.0 - 16.9									
17.0 - 17.9									
18.0 - 18.9									
19.0 - 19.9									
20.0 - 20.9									
21.0 - 21.9									
22.0 - 22.9									
23.0 - 23.9									
24.0 - 24.9									
25.0 - 25.9									
26.0 - 26.9									
27.0 - 27.9									
28.0 - 28.9									
29.0 - 29.9									
30.0 - 30.9									
31.0 - 31.9									
32.0 - 32.9									
33.0 - 33.9									
34.0 - 34.9									
35.0 - 35.9									
<b>Total</b>		1	26	11					

**Appendix F. Fisher Lake (Scott County) fish survey results.**

Electrofishing (backpack): 9/11/06

Electrofishing (boat): 5/25/06

Seine: 5/31/06 and 9/11/06

Common Name	Scientific Name	Total Catch	Percent Composition	Length Range (mm)	Total Weight (g)	Percent Biomass
<b>GAR FAMILY                      LEPISOSTEIDAE</b>						
shortnose gar	Lepisosteus platostomus	1	<1	605	950	1
<b>BOWFIN FAMILY                      AMIIDAE</b>						
bowfin	Amia calva	13	2	565	1900	1
<b>HERRING FAMILY                      CLUPEIDAE</b>						
gizzard shad	Dorosoma cepedianum	10	2	247-454	4600	4
<b>MINNOW FAMILY                      CYPRINIDAE</b>						
spotfin shiner	Cyprinella spiloptera	1	<1	N/A	N/A	N/A
common carp	Cyprinus carpio	45	8	427-737	90,325	90
golden shiner	Notemigonus crysoleucas	96	18	N/A	N/A	N/A
emerald shiner	Notropis atherinoides	15	2	N/A	N/A	N/A
sand or mimic shiner	Notropis stramineus or N. volucellus	3	<1	N/A	N/A	N/A
weed shiner	Notropis texanus	4	<1	N/A	N/A	N/A
fathead minnow	Pimephales promelas	187	36	N/A	N/A	N/A
<b>BULLHEAD CATFISH FAMILY                      ICTALURIDAE</b>						
black bullhead	Ameiurus melas	3	<1	N/A	N/A	N/A
<b>PIKE FAMILY                      ESOCIDAE</b>						
northern pike	Esox lucius	10	2	N/A	N/A	N/A
<b>MUDMINNOW FAMILY                      UMBRIDAE</b>						
central mudminnow	Umbra limi	6	1			
<b>SUNFISH FAMILY                      CENTRARCHIDAE</b>						
green sunfish	Lepomis cyanellus	60	11	N/A	N/A	N/A
pumpkinseed	Lepomis gibbosus	5	1	114	25	<1
orangespotted sunfish	Lepomis humilis	6	1	N/A	N/A	N/A
bluegill	Lepomis macrochirus	22	4	N/A	N/A	N/A
hybrid sunfish	Lepomis spp. X Lepomis spp.	12	2	N/A	N/A	N/A
black crappie	Pomoxis nigromaculatus	5	1	N/A	N/A	N/A
<b>PERCH FAMILY                      PERCIDAE</b>						
Iowa darter	Etheostoma exile	2	<1	N/A	N/A	N/A
walleye	Sander vitreus	2	<1	168-240	150	<1
<b>DRUM FAMILY                      SCIAENIDAE</b>						
freshwater drum	Aplodinotus grunniens	4	<1	345-380	2325	2
<b>TOTALS</b>		<b>512</b>	<b>100</b>		<b>100,275</b>	<b>100</b>



Length-frequency distribution (inches) for selected sportfish species, all gear types, Fisher Lake 2006. WAE = walleye.

inches		WAE							
< 5.0									
5.0 - 5.9									
6.0 - 6.9		1							
7.0 - 7.9									
8.0-8.9									
9.0 - 9.9									
10.0 - 10.9									
11.0 - 11.9		1							
12.0 - 12.9									
13.0 - 13.9									
14.0 - 14.9									
15.0 - 15.9									
16.0 - 16.9									
17.0 - 17.9									
18.0 - 18.9									
19.0 - 19.9									
20.0 - 20.9									
21.0 - 21.9									
22.0 - 22.9									
23.0 - 23.9									
24.0 - 24.9									
25.0 - 25.9									
26.0 - 26.9									
27.0 - 27.9									
28.0 - 28.9									
29.0 - 29.9									
30.0 - 30.9									
31.0 - 31.9									
32.0 - 32.9									
33.0 - 33.9									
34.0 - 34.9									
35.0 - 35.9									
Total		2							

**Appendix G. Gifford Lake (Scott County) fish survey results.**

Electrofishing (backpack): 6/15/06 and 8/24/06

Electrofishing (boat): 6/6,7/06

Gill Net: 6/13,14/06

Kick Net and Seine: 8/24/06

Trap Net: 6/13,14/06 and 8/23,24/06

Common Name	Scientific Name	Total Catch	Percent Composition	Length Range (mm)	Total Weight (g)	Percent Biomass
<b>GAR FAMILY                      LEPISOSTEIDAE</b>						
shortnose gar	Lepisosteus platostomus	15	<1	375-540	4450	1
<b>BOWFIN FAMILY                      AMIIDAE</b>						
bowfin	Amia calva	16	<1	195-690	31,769	10
<b>HERRING FAMILY                      CLUPEIDAE</b>						
gizzard shad	Dorosoma cepedianum	2951	64	40-371	10,654	3
<b>MINNOW FAMILY                      CYPRINIDAE</b>						
spotfin shiner	Cyprinella spiloptera	1	<1	N/A	N/A	N/A
common carp	Cyprinus carpio	35	<1	200-754	59,953	19
golden shiner	Notemigonus crysoleucas	13	<1	N/A	N/A	N/A
emerald shiner	Notropis atherinoides	1	<1	N/A	N/A	N/A
fathead minnow	Pimephales promelas	1	<1	N/A	N/A	N/A
<b>SUCKER FAMILY                      CATOSTOMIDAE</b>						
river carpsucker	Carplodes carpio	6	<1	416-552	12,450	4
quillback	Carplodes cyprinus	1	<1	369	525	<1
white sucker	Catostomus commersonii	4	<1	127-296	667	<1
smallmouth buffalo	Ictiobus bubalus	16	<1	117-282	2714	<1
bigmouth buffalo	Ictiobus cyprinellus	11	<1	305-614	18,025	5
shorthead redhorse	Moxostoma macrolepidotum	3	<1	143-324	804	<1
<b>BULLHEAD CATFISH FAMILY                      ICTALURIDAE</b>						
black bullhead	Ameiurus melas	154	3	77-298	20,174	6
yellow bullhead	Ameiurus natalis	18	<1	88-274	1547	<1
brown bullhead	Ameiurus nebulosus	1	<1	324	445	<1
channel catfish	Ictalurus punctatus	21	<1	252-536	8950	
tadpole madtom	Noturus gyrinus	2	<1	N/A	N/A	N/A
flathead catfish	Pylodictis olivaris	2	<1	317-329	750	<1
<b>PIKE FAMILY                      ESOCIDAE</b>						
northern pike	Esox lucius	52	1	481-779	50,675	16
<b>TEMPERATE BASS FAMILY                      MORONIDAE</b>						
white bass	Morone chrysops	1	<1	299	400	<1
<b>SUNFISH FAMILY                      CENTRARCHIDAE</b>						
green sunfish	Lepomis cyanellus	298	6	71-160	895	<1
pumpkinseed	Lepomis gibbosus	10	<1	68-148	207	<1

Common Name	Scientific Name	Total Catch	Percent Composition	Length Range (mm)	Total Weight (g)	Percent Biomass
orangespotted sunfish	Lepomis humilis	140	3	35-109	495	<1
bluegill	Lepomis macrochirus	148	3	55-191	5348	1
hybrid sunfish	Lepomis spp. X Lepomis spp.	24	<1	103-185	720	<1
largemouth bass	Micropterus salmoides	24	<1	120-369	3541	1
white crappie	Pomoxis annularis	225	4	87-317	23,509	7
black crappie	Pomoxis nigromaculatus	331	7	99-288	32,718	10
PERCH FAMILY	PERCIDAE					
johnny darter	Etheostoma nigrum	1	<1	N/A	N/A	N/A
yellow perch	Perca flavescens	39	<1	N/A	N/A	N/A
logperch	Percina caprodes	10	<1	N/A	N/A	N/A
slenderhead darter	Percina phoxocephala	1	<1	N/A	N/A	N/A
walleye	Sander vitreus	6	<1	221-367	1085	<1
DRUM FAMILY	SCIAENIDAE					
freshwater drum	Aplodinotus grunniens	20	<1	107-505	11,206	3
TOTALS		4602	100		304,676	100

Length-frequency distribution (inches) for selected sportfish species, all gear types, Gifford Lake 2006. NOP = northern pike, FCF = flathead catfish, CCF = channel catfish, BLG = bluegill, LMB = largemouth bass, WHC = white crappie, BLC = black crappie, YEP = yellow perch, WAE = walleye.

inches	NOP	CCF	FCF	BLG	LMB	WHC	BLC	YEP	WAE
< 5.0				31		15	16		
5.0 - 5.9				22	3	6	12	1	
6.0 - 6.9				9	2	61	73	2	
7.0 - 7.9				15	1	49	55	9	
8.0-8.9					3	25	82	6	
9.0 - 9.9					2	23	21	4	4
10.0 - 10.9		1				10	16	14	
11.0 - 11.9						11	7	2	1
12.0 - 12.9		3	1			4			
13.0 - 13.9		7	1						
14.0 - 14.9		3							
15.0 - 15.9		2							1
16.0 - 16.9		2							
17.0 - 17.9									
18.0 - 18.9									
19.0 - 19.9	2	1							
20.0 - 20.9	2								
21.0 - 21.9	5	2							
22.0 - 22.9	9								
23.0 - 23.9	5								
24.0 - 24.9	5								
25.0 - 25.9	4								
26.0 - 26.9	3								
27.0 - 27.9	3								
28.0 - 28.9									
29.0 - 29.9									
30.0 - 30.9									
31.0 - 31.9	1								
32.0 - 32.9									
33.0 - 33.9									
34.0 - 34.9									
35.0 - 35.9									
Total	39	21	2	77	11	204	282	38	6

**Appendix H. Gun Club Lake (Dakota County) fish survey results.**

Electrofishing (backpack): 7/3/06  
 Electrofishing (boat): 5/22/06 and 6/30/06  
 Gill Net and Minnow Trap: 5/17,18/06  
 Seine: 5/18/06 and 7/3/06  
 Trap Net: 5/17,18/06 and 8/1,2/06

Common Name	Scientific Name	Total Catch	Percent Composition	Length Range (mm)	Total Weight (g)	Percent Biomass
<b>BOWFIN FAMILY                      AMIIDAE</b>						
bowfin	<i>Amlia calva</i>	6	<1	514-673	9475	3
<b>HERRING FAMILY                      CLUPEIDAE</b>						
gizzard shad	<i>Dorosoma cepedianum</i>	6	<1	66-358	506	<1
<b>MINNOW FAMILY                      CYPRINIDAE</b>						
spotfin shiner	<i>Cyprinella spiloptera</i>	10	<1	N/A	N/A	N/A
common carp	<i>Cyprinus carpio</i>	61	3	477-737	172,250	61
brassy minnow	<i>Hybognathus hankinsoni</i>	1	<1	N/A	N/A	N/A
hornyhead chub	<i>Nocomis biguttatus</i>	2	<1	N/A	N/A	N/A
golden shiner	<i>Notemigonus crysoleucas</i>	6	<1	N/A	N/A	N/A
emerald shiner	<i>Notropis atherinoides</i>	627	31	N/A	N/A	N/A
sand or mimic shiner	<i>Notropis stramineus</i> or <i>N. volucellus</i>	3	<1	N/A	N/A	N/A
weed shiner	<i>Notropis texanus</i>	1	<1	N/A	N/A	N/A
northern redbelly dace	<i>Phoxinus eos</i>	1	<1	N/A	N/A	N/A
fathead minnow	<i>Pimephales promelas</i>	93	4	N/A	N/A	N/A
<b>SUCKER FAMILY                      CATOSTOMIDAE</b>						
white sucker	<i>Catostomus commersonii</i>	1	<1	366	500	<1
smallmouth buffalo	<i>Ictiobus bubalus</i>	1	<1	466	1700	<1
bigmouth buffalo	<i>Ictiobus cyprinellus</i>	3	<1	465-479	4000	1
<b>BULLHEAD CATFISH FAMILY              ICTALURIDAE</b>						
black bullhead	<i>Ameiurus melas</i>	6	<1	190	93	<1
yellow bullhead	<i>Ameiurus natalis</i>	4	<1	N/A	N/A	N/A
channel catfish	<i>Ictalurus punctatus</i>	1	<1	529	1800	
tadpole madtom	<i>Noturus gyrinus</i>	3	<1	N/A	N/A	N/A
<b>PIKE FAMILY                      ESOCIDAE</b>						
northern pike	<i>Esox lucius</i>	41	2	305-827	38,200	13
<b>MUDMINNOW FAMILY                      UMBRIDAE</b>						
central mudminnow	<i>Umbra limi</i>	2	<1	N/A	N/A	N/A
<b>SILVERSIDE FAMILY                      ATHERINIDAE</b>						
brook silverside	<i>Labidesthes sicculus</i>	1	<1	N/A	N/A	N/A

Common Name	Scientific Name	Total Catch	Percent Composition	Length Range (mm)	Total Weight (g)	Percent Biomass
SUNFISH FAMILY                      CENTRARCHIDAE						
green sunfish	Lepomis cyanellus	74	3	51-126	137	<1
pumpkinseed	Lepomis gibbosus	105	5	48-176	1612	<1
orangespotted sunfish	Lepomis humilis	5	<1	N/A	N/A	N/A
bluegill	Lepomis macrochirus	665	33	48-211	24,228	8
hybrid sunfish	Lepomis spp. X Lepomis spp.	25	1		1860	<1
largemouth bass	Micropterus salmoides	30	1	37-348	4450	1
white crappie	Pomoxis annularis	2	<1	264	250	<1
black crappie	Pomoxis nigromaculatus	94	4	62-310	7668	2
PERCH FAMILY                      PERCIDAE						
Iowa darter	Etheostoma exile	1	<1	N/A	N/A	N/A
yellow perch	Perca flavescens	79	4	N/A	N/A	N/A
walleye	Sander vitreus	3	<1	180-570	3600	1
DRUM FAMILY                      SCIAENIDAE						
freshwater drum	Aplodinotus grunniens	9	<1	367-427	7350	2
TOTALS		1972	100		279,679	100

Length-frequency distribution (inches) for selected sportfish species, all gear types, Gun Club Lake 2006. NOP = northern pike, FCF = flathead catfish, CCF = channel catfish, BLG = bluegill, LMB = largemouth bass, WHC = white crappie, BLC = black crappie, YEP = yellow perch, WAE = walleye.

inches	NOP	CCF	BLG	LMB	WHC	BLC	YEP	WAE	
< 5.0			45	7	1	27	26		
5.0 - 5.9			67	3		14	2		
6.0 - 6.9			57	1		3	3		
7.0 - 7.9			59			7	10	1	
8.0-8.9			15			12	6		
9.0 - 9.9				3		12	3		
10.0 - 10.9				3	1	5	8		
11.0 - 11.9				1		1	1		
12.0 - 12.9	1					1			
13.0 - 13.9				2					
14.0 - 14.9	1			2					
15.0 - 15.9	2								
16.0 - 16.9	3								
17.0 - 17.9	3								
18.0 - 18.9	3								
19.0 - 19.9	1								
20.0 - 20.9	1								
21.0 - 21.9	1								
22.0 - 22.9	2							1	
23.0 - 23.9								1	
24.0 - 24.9									
25.0 - 25.9	1								
26.0 - 26.9	9	1							
27.0 - 27.9	1								
28.0 - 28.9	2								
29.0 - 29.9									
30.0 - 30.9	1								
31.0 - 31.9									
32.0 - 32.9									
33.0 - 33.9	2								
34.0 - 34.9									
35.0 - 35.9									
Total	34	1	243	22	2	82	59	3	

**Appendix I. Horseshoe Lake (Carver County) fish survey results.**

Electrofishing (boat) and Seine: 8/14/06

Trap Net: 8/8,9/06

Common Name	Scientific Name	Total Catch	Percent Composition	Length Range (mm)	Total Weight (g)	Percent Biomass
<b>GAR FAMILY                      LEPISOSTEIDAE</b>						
shortnose gar	<i>Lepisosteus platostomus</i>	4	<1	522-565	2475	2
<b>BOWFIN FAMILY                      AMIIDAE</b>						
bowfin	<i>Amia calva</i>	15	1	232-680	15,499	14
<b>HERRING FAMILY                      CLUPEIDAE</b>						
gizzard shad	<i>Dorosoma cepedianum</i>	69	8	82-257	3905	3
<b>MINNOW FAMILY                      CYPRINIDAE</b>						
spotfin shiner	<i>Cyprinella spiloptera</i>	2	<1	N/A	N/A	N/A
common carp	<i>Cyprinus carpio</i>	13		336-707	22,466	20
golden shiner	<i>Notemigonus crysoleucas</i>	3	<1	N/A	N/A	N/A
emerald shiner	<i>Notropis atherinoides</i>	1	<1	N/A	N/A	N/A
sand or mimic shiner	<i>Notropis stramineus</i> or <i>N. volucellus</i>	5	<1	N/A	N/A	N/A
<b>SUCKER FAMILY                      CATOSTOMIDAE</b>						
white sucker	<i>Catostomus commersonii</i>	1	<1	295	270	<1
smallmouth buffalo	<i>Ictiobus bubalus</i>	2	<1	242-351	990	<1
bigmouth buffalo	<i>Ictiobus cyprinellus</i>	12	1	239-531	13,605	12
shorthead redhorse	<i>Moxostoma macrolepidotum</i>	3	<1	332-423	2175	2
<b>BULLHEAD CATFISH FAMILY                      ICTALURIDAE</b>						
black bullhead	<i>Ameiurus melas</i>	230	29	59-267	8943	8
yellow bullhead	<i>Ameiurus natalis</i>	9	1	102-315	2131	2
tadpole madtom	<i>Noturus gyrinus</i>	1	<1	N/A	N/A	N/A
<b>PIKE FAMILY                      ESOCIDAE</b>						
northern pike	<i>Esox lucius</i>	3	<1	445-580	2675	2
<b>SUNFISH FAMILY                      CENTRARCHIDAE</b>						
green sunfish	<i>Lepomis cyanellus</i>	7	<1	68-122	113	<1
pumpkinseed	<i>Lepomis gibbosus</i>	12	1	41-111	190	<1
orangespotted sunfish	<i>Lepomis humilis</i>	14	1	60-103	83	<1
bluegill	<i>Lepomis macrochirus</i>	107	13	72-158	3234	3
hybrid sunfish	<i>Lepomis</i> spp. X <i>Lepomis</i> spp.	1	<1	89	15	<1
largemouth bass	<i>Micropterus salmoides</i>	16	2	87-449	6917	6
white crappie	<i>Pomoxis annularis</i>	109	14	62-306	12,694	11



Common Name	Scientific Name	Total Catch	Percent Composition	Length Range (mm)	Total Weight (g)	Percent Biomass
black crappie	Pomoxis nigromaculatus	119	15	111-268	9464	8
PERCH FAMILY	PERCIDAE					
iowa darter	Etheostoma exile	2	<1	N/A	N/A	N/A
johnny darter	Etheostoma nigrum	4	<1	N/A	N/A	N/A
yellow perch	Perca flavescens	8	1	N/A	N/A	N/A
walleye	Sander vitreus	1	<1	253	128	<1
DRUM FAMILY	SCIAENIDAE					
freshwater drum	Aplodinotus grunniens	5	<1	225-381	1457	1
TOTALS		778	100		109,429	100

**Appendix J. Horseshoe Lake (Scott County) fish survey results.**

Electrofishing (boat): 7/6/06

Seine: 7/7/06

Common Name	Scientific Name	Total Catch	Percent Composition	Length Range (mm)	Total Weight (g)	Percent Biomass
<b>BOWFIN FAMILY                      AMIIDAE</b>						
bowfin	<i>Ambloplites caeruleus</i>	10	1	347-648	14,450	14
<b>HERRING FAMILY                      CLUPEIDAE</b>						
gizzard shad	<i>Dorosoma cepedianum</i>	580	68	20-281	1861	1
<b>MINNOW FAMILY                      CYPRINIDAE</b>						
spotfin shiner	<i>Cyprinella spiloptera</i>	6	<1	N/A	N/A	N/A
common carp	<i>Cyprinus carpio</i>	19	2	377-611	24,950	25
emerald shiner	<i>Notropis atherinoides</i>	8	<1	N/A	N/A	N/A
<b>SUCKER FAMILY                      CATOSTOMIDAE</b>						
river carpsucker	<i>Carpododes carpio</i>	1	<1	510	1900	1
smallmouth buffalo	<i>Ictalurus bubalus</i>	2	<1	327-332	1100	1
bigmouth buffalo	<i>Ictalurus cyprinellus</i>	20	2	242-585	37,500	38
<b>BULLHEAD CATFISH FAMILY              ICTALURIDAE</b>						
black bullhead	<i>Ameiurus melas</i>	1	<1	N/A	N/A	N/A
channel catfish	<i>Ictalurus punctatus</i>	1	<1	730	4800	4
<b>SUNFISH FAMILY                      CENTRARCHIDAE</b>						
green sunfish	<i>Lepomis cyanellus</i>	24	2	66-137	115	<1
pumpkinseed	<i>Lepomis gibbosus</i>	2	<1	88-157	116	<1
orangespotted sunfish	<i>Lepomis humilis</i>	28	3	44-89	94	<1
bluegill	<i>Lepomis macrochirus</i>	82	9	60-205	3458	3
hybrid sunfish	<i>Lepomis</i> spp. X <i>Lepomis</i> spp.	2	<1	152-216	402	<1
largemouth bass	<i>Micropterus salmoides</i>	30	3	42-465	4854	5
white crappie	<i>Pomoxis annularis</i>	1	<1	N/A	N/A	N/A
black crappie	<i>Pomoxis nigromaculatus</i>	20	2	113-254	1018	1
<b>PERCH FAMILY                      PERCIDAE</b>						
yellow perch	<i>Perca flavescens</i>	2	<1	N/A	N/A	N/A
walleye	<i>Sander vitreus</i>	2	<1	242	109	<1
<b>DRUM FAMILY                      SCIAENIDAE</b>						
freshwater drum	<i>Aplodinotus grunniens</i>	10	1	155-330	1070	1
<b>TOTALS</b>		<b>851</b>	<b>100</b>		<b>97,797</b>	<b>100</b>

Length-frequency distribution (inches) for selected sportfish species, all gear types, Horseshoe Lake (Scott County) 2006. BLG = bluegill, LMB = largemouth bass, BLC = black crappie, YEP = yellow perch, WAE = walleye.

inches	BLG	LMB	BLC	YEP	WAE			
< 5.0	33	8	1					
5.0 - 5.9	21	3		1				
6.0 - 6.9	9	3						
7.0 - 7.9	3		1					
8.0-8.9	1		2					
9.0 - 9.9			2		2			
10.0 - 10.9		1	1					
11.0 - 11.9								
12.0 - 12.9		1						
13.0 - 13.9								
14.0 - 14.9								
15.0 - 15.9		2						
16.0 - 16.9		1						
17.0 - 17.9								
18.0 - 18.9								
19.0 - 19.9		1						
20.0 - 20.9								
21.0 - 21.9								
22.0 - 22.9								
23.0 - 23.9								
24.0 - 24.9								
25.0 - 25.9								
26.0 - 26.9								
27.0 - 27.9								
28.0 - 28.9								
29.0 - 29.9								
30.0 - 30.9								
Total	67	20	7	1	2			

**Appendix K. Jail House Marsh (Scott County) fish survey results.**

Electrofishing (boat): 6/5/06

Seine: 6/16/06

Common Name	Scientific Name	Total Catch	Percent Composition	Length Range (mm)	Total Weight (g)	Percent Biomass
<b>BOWFIN FAMILY                      AMIIDAE</b>						
bowfin	<i>Ambloplites caeruleus</i>	8	1	352-681	12,050	13
<b>MINNOW FAMILY                      CYPRINIDAE</b>						
common carp	<i>Cyprinus carpio</i>	27	6	387-732	68,050	75
golden shiner	<i>Notemigonus crysoleucas</i>	9	2	N/A	N/A	N/A
bluntnose minnow	<i>Pimephales notatus</i>	1	<1	N/A	N/A	N/A
fathead minnow	<i>Pimephales promelas</i>	3	<1	N/A	N/A	N/A
<b>SUCKER FAMILY                      CATOSTOMIDAE</b>						
bigmouth buffalo	<i>Ictalurus nebulosus</i>	2	<1	329-348	1475	1
<b>BULLHEAD CATFISH FAMILY              ICTALURIDAE</b>						
yellow bullhead	<i>Ameiurus natalis</i>	3	<1	272-362	1750	1
<b>PIKE FAMILY                              ESOCIDAE</b>						
northern pike	<i>Esox lucius</i>	5	1	408-498	1475	1
<b>SUNFISH FAMILY                      CENTRARCHIDAE</b>						
pumpkinseed	<i>Lepomis gibbosus</i>	15	3	109-158	560	<1
orangespotted sunfish	<i>Lepomis humilis</i>	1	<1	N/A	N/A	N/A
bluegill	<i>Lepomis macrochirus</i>	56	13	46-196	2650	2
hybrid sunfish	<i>Lepomis</i> spp. X <i>Lepomis</i> spp.	1	<1	167	125	<1
largemouth bass	<i>Micropterus salmoides</i>	287	68	82-393	2480	2
<b>PERCH FAMILY                              PERCIDAE</b>						
johnny darter	<i>Etheostoma nigrum</i>	1	<1	N/A	N/A	N/A
yellow perch	<i>Perca flavescens</i>	3	<1	N/A	N/A	N/A
<b>TOTALS</b>		<b>422</b>	<b>100</b>		<b>90,615</b>	<b>100</b>

Length-frequency distribution (inches) for selected sportfish species, all gear types, unnamed Scott County wetland ("Jailhouse Marsh") 2006. NOP = northern pike, BLG = bluegill, LMB = largemouth bass, YEP = yellow perch.

inches	NOP	BLG	LMB	YEP				
< 5.0		5	4	1				
5.0 - 5.9		3	2					
6.0 - 6.9		4						
7.0 - 7.9		5	1	1				
8.0-8.9		3		1				
9.0 - 9.9			1					
10.0 - 10.9			1					
11.0 - 11.9								
12.0 - 12.9			1					
13.0 - 13.9			1					
14.0 - 14.9								
15.0 - 15.9								
16.0 - 16.9	1		1					
17.0 - 17.9	1							
18.0 - 18.9								
19.0 - 19.9								
20.0 - 20.9	1							
21.0 - 21.9								
22.0 - 22.9								
23.0 - 23.9								
24.0 - 24.9								
25.0 - 25.9								
26.0 - 26.9								
27.0 - 27.9								
28.0 - 28.9								
29.0 - 29.9								
30.0 - 30.9								
31.0 - 31.9								
32.0 - 32.9								
33.0 - 33.9								
34.0 - 34.9								
35.0 - 35.9								
Total	3	20	12	3				

**Appendix L. Johnson Slough (Scott County) fish survey results.**  
**Electrofishing (boat): 7/5/06**

Common Name	Scientific Name	Total Catch	Percent Composition	Length Range (mm)	Total Weight (g)	Percent Biomass
<b>BOWFIN FAMILY</b>	<b>AMIIDAE</b>					
bowfin	<i>Amia calva</i>	5	2	265-325	1225	10
<b>MINNOW FAMILY</b>	<b>CYPRINIDAE</b>					
common carp	<i>Cyprinus carpio</i>	10	4	174-520	7370	60
golden shiner	<i>Notemigonus crysoleucas</i>	2	<1	N/A	N/A	N/A
emerald shiner	<i>Notropis atherinoides</i>	23	9	N/A	N/A	N/A
<b>BULLHEAD CATFISH FAMILY</b>	<b>ICTALURIDAE</b>					
black bullhead	<i>Ameiurus melas</i>	77	32	90-162	1362	11
<b>PIKE FAMILY</b>	<b>ESOCIDAE</b>					
northern pike	<i>Esox lucius</i>	1	<1	140	14	<1
<b>MUDMINNOW FAMILY</b>	<b>UMBRIDAE</b>					
central mudminnow	<i>Umbra limi</i>	2	<1	N/A	N/A	N/A
<b>SUNFISH FAMILY</b>	<b>CENTRARCHIDAE</b>					
green sunfish	<i>Lepomis cyanellus</i>	2	<1	85-90	26	<1
pumpkinseed	<i>Lepomis gibbosus</i>	8	3	82-105	138	1
orangespotted sunfish	<i>Lepomis humilis</i>	4	1	53-77	23	<1
bluegill	<i>Lepomis macrochirus</i>	94	39	66-139	1575	13
hybrid sunfish	<i>Lepomis</i> spp. X <i>Lepomis</i> spp.	1	<1	145	56	<1
largemouth bass	<i>Micropterus salmoides</i>	9	3	45-200	215	1
black crappie	<i>Pomoxis nigromaculatus</i>	2	<1	114-159	74	<1
<b>TOTALS</b>		<b>240</b>			<b>12,078</b>	<b>100</b>

**Appendix M. Kelly Lake (Carver County) fish survey results.**  
Kick Net and Seine: 8/15/06

Common Name	Scientific Name	Total Catch	Percent Composition	Length Range (mm)	Total Weight (g)	Percent Biomass
HERRING FAMILY                      CLUPEIDAE						
gizzard shad	Dorosoma cepedianum	16	11	N/A	N/A	N/A
BULLHEAD CATFISH FAMILY            ICTALURIDAE						
black bullhead	Amelurus melas	3	2	N/A	N/A	N/A
tadpole madtom	Noturus gyrinus	1	<1	N/A	N/A	N/A
PIKE FAMILY                                ESOCIDAE						
northern pike	Esox lucius	1	<1	N/A	N/A	N/A
SUNFISH FAMILY                          CENTRARCHIDAE						
green sunfish	Lepomis cyanellus	1	<1	N/A	N/A	N/A
orangespotted sunfish	Lepomis humilis	11	8	N/A	N/A	N/A
bluegill	Lepomis macrochirus	89	64	N/A	N/A	N/A
largemouth bass	Micropterus salmoides	1	<1	N/A	N/A	N/A
white crappie	Pomoxis annularis	3	2	N/A	N/A	N/A
black crappie	Pomoxis nigromaculatus	11	8	N/A	N/A	N/A
TOTALS		137	100			

**Appendix N. Long Lake (Carver County) fish survey results.**

Electrofishing (backpack) and Seine: 6/16/06

Electrofishing (boat): 6/5/06

Gill Net: 6/12,13/06

Trap Net: 6/12,13/06 and 8/8,9/06

Common Name	Scientific Name	Total Catch	Percent Composition	Length Range (mm)	Total Weight (g)	Percent Biomass
<b>GAR FAMILY                      LEPISOSTEIDAE</b>						
shorinose gar	Lepisosteus platostomus	8	<1	426-598	4000	1
<b>BOWFIN FAMILY                      AMIIDAE</b>						
bowfin	Amia calva	23	1	168-556	17,842	6
<b>HERRING FAMILY                      CLUPEIDAE</b>						
glizzard shad	Dorosoma cepedianum	32	1	106-329	3740	1
<b>MINNOW FAMILY                      CYPRINIDAE</b>						
spotfin shiner	Cyprinella spiloptera	2	<1	N/A	N/A	N/A
common carp	Cyprinus carpio	59	3	257-676	97,775	35
golden shiner	Notemigonus crysoleucas	2	<1	N/A	N/A	N/A
emerald shiner	Notropis atherinoides	40	2	N/A	N/A	N/A
bluntnose minnow	Pimephales notatus	8	<1			
<b>SUCKER FAMILY                      CATOSTOMIDAE</b>						
white sucker	Catostomus commersonii	6	<1	143-480	3336	1
smallmouth buffalo	Ictiobus bubalus	1	<1	233	225	<1
bigmouth buffalo	Ictiobus cyprinellus	13	<1	226-365	8500	3
shorthead redhorse	Moxostoma macrolepidotum	1	<1	377	575	<1
<b>BULLHEAD CATFISH FAMILY                      ICTALURIDAE</b>						
black bullhead	Ameiurus melas	1014	52	55-271	57,721	20
yellow bullhead	Ameiurus natalis	8	<1	170-261	1196	<1
tadpole madtom	Noturus gyrinus	1	<1	N/A	N/A	N/A
<b>PIKE FAMILY                      ESOCIDAE</b>						
northern pike	Esox lucius	17	<1	402-747	23,400	8
<b>SUNFISH FAMILY                      CENTRARCHIDAE</b>						
green sunfish	Lepomis cyanellus	53	2	84-120	103	<1
pumpkinseed	Lepomis gibbosus	18	<1	71-139	500	<1
orangespotted sunfish	Lepomis humilis	80	4	44-91	162	<1
bluegill	Lepomis macrochirus	196	10	56-211	8775	3
hybrid sunfish	Lepomis spp. X Lepomis spp.	3	<1	154-194	295	<1
largemouth bass	Micropterus salmoides	33	1	123-409	9953	3
white crappie	Pomoxis annularis	60	3	117-305	9535	3
black crappie	Pomoxis nigromaculatus	194	10	99-392	24,495	8
<b>PERCH FAMILY                      PERCIDAE</b>						
Iowa darter	Etheostoma exile	1	<1	N/A	N/A	N/A



Common Name	Scientific Name	Total Catch	Percent Composition	Length Range (mm)	Total Weight (g)	Percent Biomass
Johnny darter	Etheostoma nigrum	5	<1	N/A	N/A	N/A
yellow perch	Perca flavescens	31	1	N/A	N/A	N/A
logperch	Percina caprodes	3	<1	N/A	N/A	N/A
walleye	Sander vitreus	13	<1	206-381	1741	<1
DRUM FAMILY	SCIAENIDAE					
freshwater drum	Aplodinotus grunniens	3	<1	227-435	1782	<1
TOTALS		1928	100		275,651	100

Length-frequency distribution (inches) for selected sportfish species, all gear types, Long Lake 2006. NOP = northern pike, BLG = bluegill, LMB = largemouth bass, WHC = white crappie, BLC = black crappie, YEP = yellow perch, WAE = walleye.

inches	NOP	BLG	LMB	WHC	BLC	YEP	WAE
< 5.0		18		1	6	3	
5.0 - 5.9		44	1	1	1		
6.0 - 6.9		21	3		7		
7.0 - 7.9		7	4	1	19	2	
8.0-8.9		6	2	5	6	7	2
9.0 - 9.9			1	12	2	10	3
10.0 - 10.9					10	4	2
11.0 - 11.9			2	2	4		
12.0 - 12.9			2	4	1		1
13.0 - 13.9			9		2		
14.0 - 14.9							
15.0 - 15.9							
16.0 - 16.9	1		1		1		
17.0 - 17.9	1						
18.0 - 18.9	1						
19.0 - 19.9	1						
20.0 - 20.9							
21.0 - 21.9							
22.0 - 22.9							
23.0 - 23.9							
24.0 - 24.9	1						
25.0 - 25.9	4						
26.0 - 26.9	1						
27.0 - 27.9	1						
28.0 - 28.9	1						
29.0 - 29.9							
30.0 - 30.9	1						
31.0 - 31.9							
32.0 - 32.9							
33.0 - 33.9							
34.0 - 34.9							
35.0 - 35.9							
Total	13	96	25	26	59	26	8

**Appendix O. Long Meadow Lake (Hennepin County) fish survey results.**

Electrofishing (backpack): 8/4/06

Electrofishing (boat): 5/26/06

Gill Net and Trap Net: 6/1,2/06

Seine: 6/2/06

COMMON NAME	SCIENTIFIC NAME	TOTAL CATCH	PERCENT COMPOSITION	LENGTH RANGE (MM)	TOTAL WEIGHT (G)	PERCENT BIOMASS
<b>GAR FAMILY                      LEPISOSTEIDAE</b>						
shortnose gar	Lepisosteus platostomus	1	<1	425	254	<1
<b>BOWFIN FAMILY                      AMIIDAE</b>						
bowfin	Amia calva	15	<1	520-665	28,075	24
<b>HERRING FAMILY                      CLUPEIDAE</b>						
gizzard shad	Dorosoma cepedianum	3	<1	155-368	932	<1
<b>MINNOW FAMILY                      CYPRINIDAE</b>						
spotfin shiner	Cyprinella spiloptera	67	3	N/A	N/A	N/A
common carp	Cyprinus carpio	24	1	358-673	42,550	37
golden shiner	Notemigonus crysoleucas	19	<1	N/A	N/A	N/A
emerald shiner	Notropis atherinoides	207	10	N/A	N/A	N/A
fathead minnow	Pimephales promelas	127	6	N/A	N/A	N/A
creek chub	Semotilus atromaculatus	1	<1	N/A	N/A	N/A
<b>SUCKER FAMILY                      CATOSTOMIDAE</b>						
white sucker	Catostomus commersonii	15	<1	N/A	N/A	N/A
bigmouth buffalo	Ictiobus cyprinellus	3	<1	502-504	4450	3
<b>BULLHEAD CATFISH FAMILY                      ICTALURIDAE</b>						
black bullhead	Ameiurus melas	11	<1	147	42	<1
yellow bullhead	Amelurus natalis	3	<1	230-378	1592	1
channel catfish	Ictalurus punctatus	1	<1	591	2150	1
tadpole madtom	Noturus gyrinus	4	<1	N/A	N/A	N/A
<b>PIKE FAMILY                      ESOCIDAE</b>						
northern pike	Esox lucius	22	1	55-800	14,180	12
<b>MUDMINNOW FAMILY                      UMBRIDAE</b>						
central mudminnow	Umbra limi	9	<1	N/A	N/A	N/A
<b>SILVERSIDES                      ATHERINIDAE</b>						
brook silverside	Labidesthes sicculus	7	<1	N/A	N/A	N/A
<b>SUNFISH FAMILY                      CENTRARCHIDAE</b>						
green sunfish	Lepomis cyanellus	130	6	55-113	165	<1
pumpkinseed	Lepomis gibbosus	46	2	45-230	951	<1

COMMON NAME	SCIENTIFIC NAME	TOTAL CATCH	PERCENT COMPOSITION	LENGTH RANGE (MM)	TOTAL WEIGHT (G)	PERCENT BIOMASS
orangespotted sunfish	Lepomis humilis	1	<1	N/A	N/A	N/A
bluegill	Lepomis macrochirus	218	10	45-243	8688	7
hybrid sunfish	Lepomis spp. X Lepomis spp.	5	<1	135-183	219	<1
largemouth bass	Micropterus salmoides	33	1	100-260	1311	1
black crappie	Pomoxis nigromaculatus	29	1	148-379	5131	4
PERCH FAMILY	PERCIDAE					
iowa darter	Etheostoma exile	1	<1	N/A	N/A	N/A
johnny darter	Etheostoma nigrum	4	<1	N/A	N/A	N/A
yellow perch	Perca flavescens	1020	50	N/A	N/A	N/A
walleye	Sander vitreus	2	<1	481-514	2300	2
DRUM FAMILY	SCIAENIDAE					
freshwater drum	Aplodinotus grunniens	2	<1	292-376	1050	<1
TOTALS		2030	100		114,040	100

Length-frequency distribution (inches) for selected sportfish species, all gear types, Long Meadow Lake 2006. NOP = northern pike, BLG = bluegill, LMB = largemouth bass, BLC = black crappie, YEP = yellow perch, WAE = walleye.

inches	NOP	BLG	LMB	BLC	YEP	WAE		
< 5.0	2	30	5		7			
5.0 - 5.9		25	1		14			
6.0 - 6.9		10	3	4	14			
7.0 - 7.9		17	1	9	3			
8.0-8.9		11	1		2			
9.0 - 9.9		1	2	5				
10.0 - 10.9			1	6	2			
11.0 - 11.9	1			1	1			
12.0 - 12.9								
13.0 - 13.9								
14.0 - 14.9								
15.0 - 15.9				1				
16.0 - 16.9								
17.0 - 17.9								
18.0 - 18.9	1							
19.0 - 19.9	1					1		
20.0 - 20.9	1							
21.0 - 21.9	1					1		
22.0 - 22.9	1							
23.0 - 23.9								
24.0 - 24.9	1							
25.0 - 25.9	1							
26.0 - 26.9	1							
27.0 - 27.9								
28.0 - 28.9								
29.0 - 29.9								
30.0 - 30.9								
31.0 - 31.9	1							
32.0 - 32.9	2							
Total	14	94	14	26	43	2		

**Appendix P. Louisville Swamp (Scott County) fish survey results.**

Electrofishing (backpack): 6/15/06 and 8/22/06

Electrofishing (boat): 6/7/06

Seine: 8/22/06

COMMON NAME	SCIENTIFIC NAME	TOTAL CATCH	PERCENT COMPOSITION	LENGTH RANGE (MM)	TOTAL WEIGHT (G)	PERCENT BIOMASS
GAR FAMILY                      LEPISOSTEIDAE						
shortnose gar	<i>Lepisosteus platostomus</i>	10	<1	506-670	6950	10
BOWFIN FAMILY                      AMIIDAE						
bowfin	<i>Amia calva</i>	1	<1	N/A	N/A	N/A
HERRING FAMILY                      CLUPEIDAE						
gizzard shad	<i>Dorosoma cepedianum</i>	17	1	144-331	1247	1
MINNOW FAMILY                      CYPRINIDAE						
spotfin shiner	<i>Cyprinella spiloptera</i>	104	7	N/A	N/A	N/A
common carp	<i>Cyprinus carpio</i>	36	2	244-538	16,708	24
honeyhead chub	<i>Nocomis biguttatus</i>	1	<1	N/A	N/A	N/A
emerald shiner	<i>Notropis atherinoides</i>	372	24	N/A	N/A	N/A
sand or mimic shiner	<i>Notropis stramineus</i> or <i>N. volucellus</i>	34	2	N/A	N/A	N/A
bluntnose minnow	<i>Pimephales notatus</i>	130	8	N/A	N/A	N/A
fathead minnow	<i>Pimephales promelas</i>	14	<1	N/A	N/A	N/A
bullhead minnow	<i>Pimephales vigilax</i>	2	<1	N/A	N/A	N/A
creek chub	<i>Semotilus atromaculatus</i>	2	<1	N/A	N/A	N/A
SUCKER FAMILY                      CATOSTOMIDAE						
river carpsucker	<i>Carpionodes carpio</i>	8	<1	250-530	10,275	15
quillback	<i>Carpionodes cyprinus</i>	10	<1	107-428	4830	7
white sucker	<i>Catostomus comersonii</i>	3	<1	144-354	482	<1
smallmouth buffalo	<i>Ictiobus bubalus</i>	5	<1	173-510	2986	4
bigmouth buffalo	<i>Ictiobus cyprinellus</i>	8	<1	327-620	16,200	23
shorthead redhorse	<i>Moxostoma macrolepidotum</i>	4	<1	123-375	1118	1
unidentified redhorse (young of the year)	<i>Moxostoma</i> spp.	1	<1	N/A	N/A	N/A
BULLHEAD CATFISH FAMILY                      ICTALURIDAE						
black bullhead	<i>Ameiurus melas</i>	5	<1	N/A	N/A	N/A
channel catfish	<i>Ictalurus punctatus</i>	7	<1	238-300	295	<1
flathead catfish	<i>Pylodictis olivaris</i>	2	<1	455-510	2800	4
SILVERSIDE FAMILY                      ATHERINIDAE						
brook silverside	<i>Labidesthes sicculus</i>	4	<1	N/A	N/A	N/A

COMMON NAME	SCIENTIFIC NAME	TOTAL CATCH	PERCENT COMPOSITION	LENGTH RANGE (MM)	TOTAL WEIGHT (G)	PERCENT BIOMASS
TEMPERATE BASS FAMILY	MORONIDAE					
white bass	Morone chrysops	2	<1	273-380	950	1
SUNFISH FAMILY	CENTRARCHIDAE					
green sunfish	Lepomis cyanellus	172	11	45-153	125	<1
pumpkinseed	Lepomis gibbosus	27	1	47-54	8	<1
orangespotted sunfish	Lepomis humilis	180	12	56-75	38	<1
bluegill	Lepomis macrochirus	204	13	60-202	1363	2
hybrid sunfish	Lepomis spp. X Lepomis spp.	4	<1	N/A	N/A	N/A
largemouth bass	Micropterus salmoides	11	<1	115-222	230	<1
white crappie	Pomoxis annularis	2	<1	110-208	134	<1
black crappie	Pomoxis nigromaculatus	36	2	N/A	N/A	N/A
PERCH FAMILY	PERCIDAE					
iowa darter	Etheostoma exile	1	<1	N/A	N/A	N/A
johnny darter	Etheostoma nigrum	2	<1	N/A	N/A	N/A
logperch	Percina caprodes	16	1	N/A	N/A	N/A
slenderhead darter	Percina phoxocephala	38	2	N/A	N/A	N/A
sauger	Sander canadensis	1	<1	N/A	N/A	N/A
walleye	Sander vitreus	9	<1	173-460	1764	2
DRUM FAMILY	SCIAENIDAE					
freshwater drum	Aplodinotus grunniens	10	<1	138-185	215	<1
TOTALS		1495	100		68,718	100

Length-frequency distribution (inches) for selected sportfish species, all gear types, Louisville Swamp 2006. CCF = channel catfish, FCF = flathead catfish, BLG = bluegill, LMB = largemouth bass, WHC = white crappie, WAE = walleye.

inches	CCF	FCF	BLG	LMB	WHC	WAE		
< 5.0			7	1	1			
5.0 - 5.9			12					
6.0 - 6.9			4					
7.0 - 7.9				1		1		
8.0-8.9			1		1			
9.0 - 9.9	1			1		1		
10.0 - 10.9						1		
11.0 - 11.9								
12.0 - 12.9	1							3
13.0 - 13.9								
14.0 - 14.9								
15.0 - 15.9								
16.0 - 16.9						1		
17.0 - 17.9								
18.0 - 18.9		1				1		
19.0 - 19.9								
20.0 - 20.9		1						
21.0 - 21.9								
22.0 - 22.9								
23.0 - 23.9								
24.0 - 24.9								
25.0 - 25.9								
26.0 - 26.9								
27.0 - 27.9								
28.0 - 28.9								
29.0 - 29.9								
30.0 - 30.9								
31.0 - 31.9								
32.0 - 32.9								
33.0 - 33.9								
34.0 - 34.9								
35.0 - 35.9								
Total	2	2	24	3	2	5		



**Appendix Q. Nine Mile Lake (Hennepin County) fish survey results.**

Electrofishing (boat): 5/19/06

Gill Net and Trap Net: 5/23,24/06

Kick Net and Seine: 5/24/06

COMMON NAME	SCIENTIFIC NAME	TOTAL CATCH	PERCENT COMPOSITION	LENGTH RANGE (MM)	TOTAL WEIGHT (G)	PERCENT BIOMASS
<b>HERRING FAMILY                      CLUPEIDAE</b>						
gizzard shad	Dorosoma cepedianum	10	2	125-370	3224	1
<b>MINNOW FAMILY                      CYPRINIDAE</b>						
spotfin shiner	Cyprinella spiloptera	63	12	N/A	N/A	N/A
common carp	Cyprinus carpio	33	6	446-704	74,290	31
brassy minnow	Hybognathus hankinsoni	1	<1	N/A	N/A	N/A
golden shiner	Notemigonus crysoleucas	7	1	N/A	N/A	N/A
emerald shiner	Notropis atherinoides	89	17	N/A	N/A	N/A
bigmouth shiner	Notropis dorsalis	2	<1	N/A	N/A	N/A
sand or mimic shiner	Notropis stramineus or N. volucellus	61	11	N/A	N/A	N/A
weed shiner	Notropis texanus	2	<1	N/A	N/A	N/A
bluntnose minnow	Pimephales notatus	7	1	N/A	N/A	N/A
fathead minnow	Pimephales promelas	62	12	N/A	N/A	N/A
bullhead minnow	Pimephales vigilax	1	<1	N/A	N/A	N/A
<b>SUCKER FAMILY                      CATOSTOMIDAE</b>						
river carpsucker	Carploides carpio	2	<1	349-350	1070	<1
quillback	Carploides cyprinus	7	1	311-451	5370	2
white sucker	Catostomus commersonii	1	<1	135	22	<1
smallmouth buffalo	Ictiobus bubalus	13	2	259-519	19,292	8
bigmouth buffalo	Ictiobus cyprinellus	34	6	449-686	89,000	37
black buffalo	Ictiobus niger	1	<1	667	5000	2
shorthead redhorse	Moxostoma macrolepidotum	13	2	218-340	3975	1
<b>BULLHEAD CATFISH FAMILY              ICTALURIDAE</b>						
black bullhead	Ameiurus melas	2	<1	151	50	<1
yellow bullhead	Ameiurus natalis	1	<1	88	15	<1
channel catfish	Ictalurus punctatus	6	1	296-406	2700	1
<b>PIKE FAMILY                      ESOCIDAE</b>						
northern pike	Esox lucius	12	2	550-728	10,500	4
<b>SILVERSIDE FAMILY                      ATHERINIDAE</b>						
brook silverside	Labidesthes sicculus	1	<1	N/A	N/A	N/A
<b>TEMPERATE BASS FAMILY                      MORONIDAE</b>						
white bass	Morone chrysops	12	2	254-378	4500	1

COMMON NAME	SCIENTIFIC NAME	TOTAL CATCH	PERCENT COMPOSITION	LENGTH RANGE (MM)	TOTAL WEIGHT (G)	PERCENT BIOMASS
SUNFISH FAMILY                      CENTRARCHIDAE						
green sunfish	Lepomis cyanellus	8	1	N/A	N/A	N/A
pumpkinseed	Lepomis gibbosus	4	<1	80	10	<1
orangespotted sunfish	Lepomis humilis	2	<1	N/A	N/A	N/A
bluegill	Lepomis macrochirus	24	4	110-111	51	<1
largemouth bass	Micropterus salmoides	2	<1	N/A	N/A	N/A
white crappie	Pomoxis annularis	1	<1	94	15	<1
black crappie	Pomoxis nigromaculatus	1	<1	111	25	<1
PERCH FAMILY                              PERCIDAE						
Iowa darter	Etheostoma exile	1	<1	N/A	N/A	N/A
yellow perch	Perca flavescens	3	<1	N/A	N/A	N/A
walleye	Sander vitreus	18	3	152-720	18,143	7
DRUM FAMILY                              SCIAENIDAE						
freshwater drum	Aplodinotus grunniens	6	1	314-372	2650	1
TOTALS		513	100		239,902	100

Length-frequency distribution (inches) for selected sportfish species, all gear types, Nine Mile Lake 2006. NOP = northern pike, CCF = channel catfish, BLG = bluegill, BLC = black crappie, YEP = yellow perch, WAE = walleye.

inches		NOP	CCF	BLG	BLC	YEP	WAE		
< 5.0				2	1	2			
5.0 - 5.9									
6.0 - 6.9						1	2		
7.0 - 7.9							1		
8.0-8.9									
9.0 - 9.9							1		
10.0 - 10.9									
11.0 - 11.9									
12.0 - 12.9			1						
13.0 - 13.9							1		
14.0 - 14.9			1				2		
15.0 - 15.9			2						
16.0 - 16.9			2				2		
17.0 - 17.9									
18.0 - 18.9									
19.0 - 19.9							1		
20.0 - 20.9									
21.0 - 21.9							1		
22.0 - 22.9		1							
23.0 - 23.9							1		
24.0 - 24.9									
25.0 - 25.9		2							
26.0 - 26.9		1							
27.0 - 27.9							1		
28.0 - 28.9		1					1		
29.0 - 29.9		1					1		
30.0 - 30.9									
31.0 - 31.9									
32.0 - 32.9									
33.0 - 33.9									
34.0 - 34.9									
35.0 - 35.9									
Total		6	6	2	1	2	15		

**Appendix R. Paine Pond (Scott County) fish survey results.**  
 Kick Net: 8/15/06

COMMON NAME	SCIENTIFIC NAME	TOTAL CATCH	PERCENT COMPOSITION	LENGTH RANGE (MM)	TOTAL WEIGHT (G)	PERCENT BIOMASS
SUNFISH FAMILY	CENTRARCHIDAE					
green sunfish	Lepomis cyanellus	16	46	N/A	N/A	N/A
bluegill	Lepomis macrochirus	19	54	N/A	N/A	N/A
TOTALS		35	100			

**Appendix S. Rice Lake (Scott County) fish survey results.**

Electrofishing (boat): 5/25/06  
 Gill Net and Trap Net: 5/30,31/06  
 Seine: 5/31/06

COMMON NAME	SCIENTIFIC NAME	TOTAL CATCH	PERCENT COMPOSITION	LENGTH RANGE (MM)	TOTAL WEIGHT (G)	PERCENT BIOMASS
<b>BOWFIN FAMILY                      AMIIDAE</b>						
bowfin	<i>Amlia calva</i>	9	1	358-593	9960	8
<b>HERRING FAMILY                      CLUPEIDAE</b>						
gizzard shad	<i>Dorosoma cepedianum</i>	26	3	133-426	5035	4
<b>MINNOW FAMILY                      CYPRINIDAE</b>						
spotfin shiner	<i>Cyprinella spiloptera</i>	50	7	N/A	N/A	N/A
common carp	<i>Cyprinus carpio</i>	30	4	425-755	76,950	64
brassy minnow	<i>Hybognathus hankinsoni</i>	1	<1	N/A	N/A	N/A
golden shiner	<i>Notemigonus crysoleucas</i>	1	<1	N/A	N/A	N/A
emerald shiner	<i>Notropis atherinoides</i>	161	23	N/A	N/A	N/A
sand or mimic shiner	<i>Notropis stramineus</i> or <i>N. volucellus</i>	2	<1	N/A	N/A	N/A
weed shiner	<i>Notropis texanus</i>	1	<1	N/A	N/A	N/A
fathead minnow	<i>Pimephales promelas</i>	2	<1	N/A	N/A	N/A
<b>BULLHEAD CATFISH FAMILY              ICTALURIDAE</b>						
black bullhead	<i>Amelurus melas</i>	22	3	90-266	3188	2
yellow bullhead	<i>Ameiurus natalis</i>	1	<1	295	460	<1
channel catfish	<i>Ictalurus punctatus</i>	3	<1	399-511	2375	2
tadpole madtom	<i>Noturus gyrinus</i>	1	<1	N/A	N/A	N/A
<b>PIKE FAMILY                              ESOCIDAE</b>						
northern pike	<i>Esox lucius</i>	10	1	108-627	1476	1
<b>SUNFISH FAMILY                      CENTRARCHIDAE</b>						
green sunfish	<i>Lepomis cyanellus</i>	23	3	57-128	662	<1
pumpkinseed	<i>Lepomis gibbosus</i>	13	1	61-135	111	<1
orangespotted sunfish	<i>Lepomis humilis</i>	11	1	30-81	47	<1
bluegill	<i>Lepomis macrochirus</i>	218	32	55-210	8449	7
hybrid sunfish	<i>Lepomis</i> spp. X <i>Lepomis</i> spp.	9	1	82-144	158	<1
white crappie	<i>Pomoxis annularis</i>	9	1	86-198	252	<1
black crappie	<i>Pomoxis nigromaculatus</i>	46	6	107-284	4761	4
<b>PERCH FAMILY                              PERCIDAE</b>						
Iowa darter	<i>Etheostoma exile</i>	3	<1	N/A	N/A	N/A
yellow perch	<i>Perca flavescens</i>	1	<1	N/A	N/A	N/A
walleye	<i>Sander vitreus</i>	10	1	155-267	761	<1
<b>DRUM FAMILY                              SCIAENIDAE</b>						
freshwater drum	<i>Aplodinotus grunniens</i>	10	1	227-390	5222	4
<b>TOTALS</b>		<b>673</b>	<b>100</b>		<b>119,867</b>	<b>100</b>

Length-frequency distribution (inches) for selected sportfish species, all gear types, Rice Lake 2006. NOP = northern pike, CCF = channel catfish, BLG = bluegill, WHC = white crappie, BLC = black crappie, YEP = yellow perch, WAE = walleye.

inches	NOP	CCF	BLG	WHC	BLC	YEP	WAE
< 5.0	2		7	4	5		
5.0 - 5.9			55				
6.0 - 6.9			22		14		2
7.0 - 7.9			7	2	12		2
8.0-8.9			6	1	3		3
9.0 - 9.9					6	1	2
10.0 - 10.9					4		1
11.0 - 11.9					1		
12.0 - 12.9							
13.0 - 13.9					1		
14.0 - 14.9							
15.0 - 15.9							
16.0 - 16.9		2					
17.0 - 17.9							
18.0 - 18.9							
19.0 - 19.9							
20.0 - 20.9		1					
21.0 - 21.9							
22.0 - 22.9							
23.0 - 23.9							
24.0 - 24.9							
25.0 - 25.9	1						
26.0 - 26.9							
27.0 - 27.9							
28.0 - 28.9							
29.0 - 29.9							
30.0 - 30.9							
31.0 - 31.9							
32.0 - 32.9							
33.0 - 33.9							
34.0 - 34.9							
35.0 - 35.9							
Total	3	3	97	7	46	1	10

**Appendix T. Shakopee Memorial Pond (Scott County) fish survey results.**

Electrofishing (backpack): 9/11/06

Electrofishing (boat): 6/28/06

COMMON NAME	SCIENTIFIC NAME	TOTAL CATCH	PERCENT COMPOSITION	LENGTH RANGE (MM)	TOTAL WEIGHT (G)	PERCENT BIOMASS
<b>MINNOW FAMILY</b>		<b>CYPRINIDAE</b>				
spottfin shiner	<i>Cyprinella spiloptera</i>	27	4	N/A	N/A	N/A
common carp	<i>Cyprinus carpio</i>	5	<1	491-573	12,400	55
hornyhead chub	<i>Nocomis biguttatus</i>	2	<1	N/A	N/A	N/A
golden shiner	<i>Notemigonus crysoleucas</i>	1	<1	N/A	N/A	N/A
emerald shiner	<i>Notropis atherinoides</i>	203	37	N/A	N/A	N/A
bluntnose minnow	<i>Pimephales notatus</i>	13	2	N/A	N/A	N/A
fathead minnow	<i>Pimephales promelas</i>	55	10	N/A	N/A	N/A
creek chub	<i>Semotilus atromaculatus</i>	4	<1	N/A	N/A	N/A
<b>SUCKER FAMILY</b>		<b>CATOSTOMIDAE</b>				
white sucker	<i>Catostomus commersonii</i>	15	2	157-535	6133	27
smallmouth buffalo	<i>Ictiobus bubalus</i>	2	<1	167-283	472	2
unidentified redhorse (young of the year)	<i>Moxostoma</i> spp.	1	<1	N/A	N/A	N/A
<b>BULLHEAD CATFISH FAMILY</b>		<b>ICTALURIDAE</b>				
black bullhead	<i>Amelurus melas</i>	33	6	158	54	<1
yellow bullhead	<i>Ameiurus natalis</i>	1	<1	N/A	N/A	N/A
<b>PIKE FAMILY</b>		<b>ESOCIDAE</b>				
northern pike	<i>Esox lucius</i>	2	<1	121	10	<1
<b>MUDMINNOW FAMILY</b>		<b>UMBRIDAE</b>				
central mudminnow	<i>Umbra limi</i>	1	<1	N/A	N/A	N/A
<b>STICKLEBACK FAMILY</b>		<b>GASTEROSTEIDAE</b>				
brook stickleback	<i>Culaea inconstans</i>	2	<1	N/A	N/A	N/A
<b>SUNFISH FAMILY</b>		<b>CENTRARCHIDAE</b>				
green sunfish	<i>Lepomis cyanellus</i>	118	21	41-143	361	1
pumpkinseed	<i>Lepomis gibbosus</i>	4	<1	150	86	<1
bluegill	<i>Lepomis macrochirus</i>	18	3	61-189	977	4
hybrid sunfish	<i>Lepomis</i> spp. X <i>Lepomis</i> spp.	4	<1	110	26	<1
largemouth bass	<i>Micropterus salmoides</i>	5	<1	151-301	1293	5
black crappie	<i>Pomoxis nigromaculatus</i>	1	<1	147	52	<1
<b>PERCH FAMILY</b>		<b>PERCIDAE</b>				
johnny darter	<i>Etheostoma nigrum</i>	21	3	N/A	N/A	N/A
walleye	<i>Sander vitreus</i>	10	1	189-250	701	3
<b>TOTALS</b>		<b>548</b>	<b>100</b>		<b>22,565</b>	<b>100</b>

Length-frequency distribution (inches) for selected sportfish species, all gear types, Shakopee Memorial Pond 2006. NOP = northern pike, BLG = bluegill, LMB = largemouth bass, BLC = black crappie, WAE = walleye.

inches	NOP	BLG	LMB	BLC	WAE			
< 5.0	1	9						
5.0 - 5.9		3						
6.0 - 6.9		4	1	1				
7.0 - 7.9		2			3			
8.0-8.9			1		4			
9.0 - 9.9					2			
10.0 - 10.9			1		1			
11.0 - 11.9			1					
12.0 - 12.9			1					
13.0 - 13.9								
14.0 - 14.9								
15.0 - 15.9								
16.0 - 16.9								
17.0 - 17.9								
18.0 - 18.9								
19.0 - 19.9								
20.0 - 20.9								
21.0 - 21.9								
22.0 - 22.9								
23.0 - 23.9								
24.0 - 24.9								
25.0 - 25.9								
26.0 - 26.9								
27.0 - 27.9								
28.0 - 28.9								
29.0 - 29.9								
30.0 - 30.9								
31.0 - 31.9								
32.0 - 32.9								
33.0 - 33.9								
34.0 - 34.9								
35.0 - 35.9								
Total	1	18	5	1	10			



**Appendix U. Snelling Gravel Pit Lake (Dakota County) fish survey results.**

Electrofishing (backpack): 8/23/06

Electrofishing (boat): 8/7/06

Kick Net and Seine: 8/22/06

Trap Net: 8/22,23/06

COMMON NAME	SCIENTIFIC NAME	TOTAL CATCH	PERCENT COMPOSITION	LENGTH RANGE (MM)	TOTAL WEIGHT (G)	PERCENT BIOMASS
<b>BOWFIN FAMILY</b>	<b>AMIIDAE</b>					
bowfin	<i>Amlia calva</i>	5	1	430-504	5200	6
<b>HERRING FAMILY</b>	<b>CLUPEIDAE</b>					
gizzard shad	<i>Dorosoma cepedianum</i>	2	<1	426	750	<1
<b>MINNOW FAMILY</b>	<b>CYPRINIDAE</b>					
common carp	<i>Cyprinus carpio</i>	10	2	458-660	28,245	34
bluntnose minnow	<i>Pimephales notatus</i>	82	15	N/A	N/A	N/A
<b>SUCKER FAMILY</b>	<b>CATOSTOMIDAE</b>					
bigmouth buffalo	<i>Ictiobus cyprinellus</i>	7	1	594-750	34,150	41
<b>BULLHEAD CATFISH FAMILY</b>	<b>ICTALURIDAE</b>					
yellow bullhead	<i>Amelurus natalis</i>	4	<1	325	547	<1
tadpole madtom	<i>Noturus gyrinus</i>	2	<1	N/A	N/A	N/A
<b>MUDMINNOW FAMILY</b>	<b>UMBRIDAE</b>					
central mudminnow	<i>Umbra limi</i>	4	<1	N/A	N/A	N/A
<b>SUNFISH FAMILY</b>	<b>CENTRARCHIDAE</b>					
green sunfish	<i>Lepomis cyanellus</i>	47	9	80-154	100	<1
pumpkinseed	<i>Lepomis gibbosus</i>	1	<1	98	16	<1
bluegill	<i>Lepomis macrochirus</i>	205	39	38-184	5259	6
hybrid sunfish	<i>Lepomis</i> spp. X <i>Lepomis</i> spp.	6	1	122	35	<1
largemouth bass	<i>Micropterus salmoides</i>	54	10	62-400	5605	6
black crappie	<i>Pomoxis nigromaculatus</i>	35	6	52-239	2416	2
<b>PERCH FAMILY</b>	<b>PERCIDAE</b>					
lowa darter	<i>Etheostoma exile</i>	28	5	N/A	N/A	N/A
johnny darter	<i>Etheostoma nigrum</i>	10	2	N/A	N/A	N/A
yellow perch	<i>Perca flavescens</i>	22	4	N/A	N/A	N/A
<b>TOTALS</b>		<b>524</b>	<b>100</b>		<b>82,323</b>	<b>100</b>

Length-frequency distribution (inches) for selected sportfish species, all gear types, Snelling Gravel Pits 2006. BLG = bluegill, LMB = largemouth bass, BLC = black crappie, YEP = yellow perch.

inches	BLG	LMB	BLC	YEP					
< 5.0	14	9	8	5					
5.0 - 5.9	12		1						
6.0 - 6.9	19	1	5	1					
7.0 - 7.9	13	3	3						
8.0-8.9		2	10						
9.0 - 9.9		3	3						
10.0 - 10.9		1							
11.0 - 11.9		1							
12.0 - 12.9		1							
13.0 - 13.9									
14.0 - 14.9		1							
15.0 - 15.9		2							
16.0 - 16.9		1							
17.0 - 17.9									
18.0 - 18.9									
19.0 - 19.9									
20.0 - 20.9									
21.0 - 21.9									
22.0 - 22.9									
23.0 - 23.9									
24.0 - 24.9									
25.0 - 25.9									
26.0 - 26.9									
27.0 - 27.9									
28.0 - 28.9									
29.0 - 29.9									
30.0 - 30.9									
31.0 - 31.9									
32.0 - 32.9									
33.0 - 33.9									
34.0 - 34.9									
35.0 - 35.9									
<b>Total</b>	<b>58</b>	<b>25</b>	<b>30</b>	<b>6</b>					

Appendix V. Minnesota River flood plain lakes.



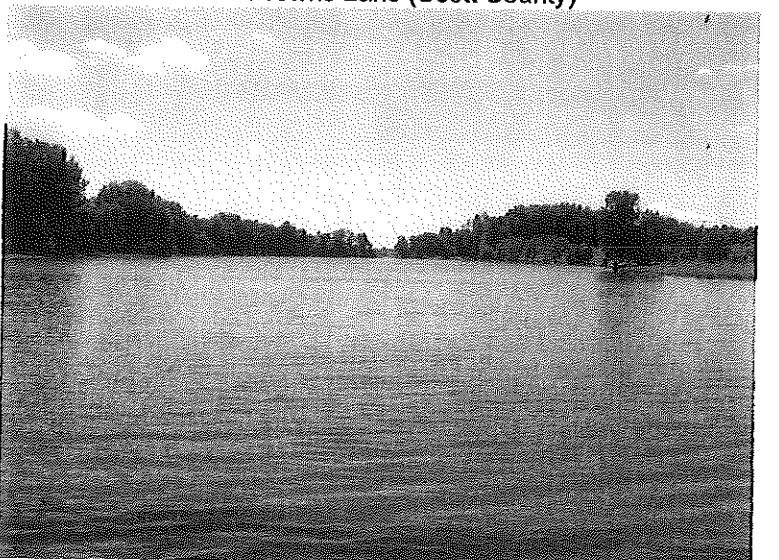
Browns Lake (Scott County)



Browns Lake (Scott County)



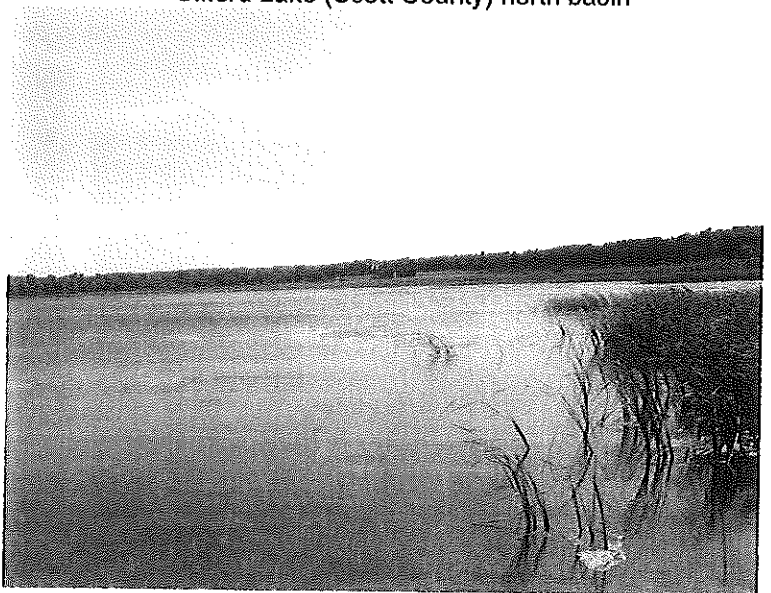
Gifford Lake (Scott County) south basin



Gifford Lake (Scott County) north basin



Horseshoe Lake (Carver County)



Jail House Marsh (Scott County)



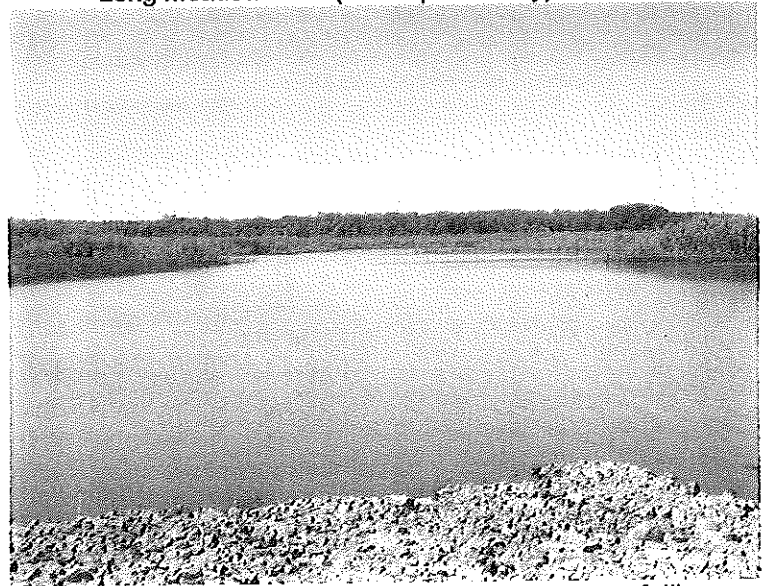
Long Meadow Lake (Hennepin County) north basin



Long Meadow Lake (Hennepin County) north basin



Louisville Swamp (Scott County) upstream of dike



Louisville Swamp (Scott County) downstream of dike



Rice Lake (Scott County)



Rice Lake (Scott County)



Nine Mile Lake (Hennepin County) east basin



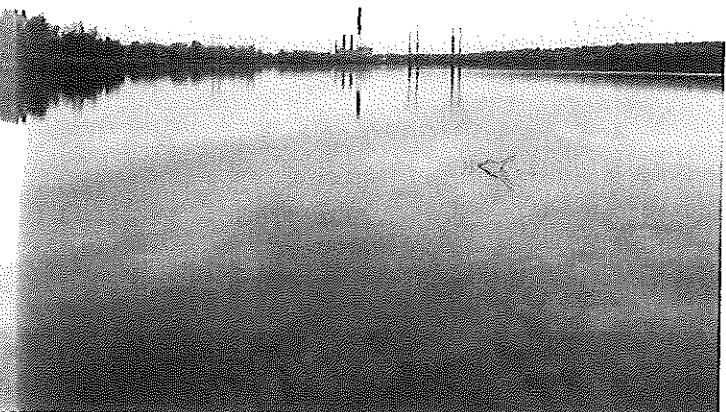
Nine Mile Lake (Hennepin County) east basin



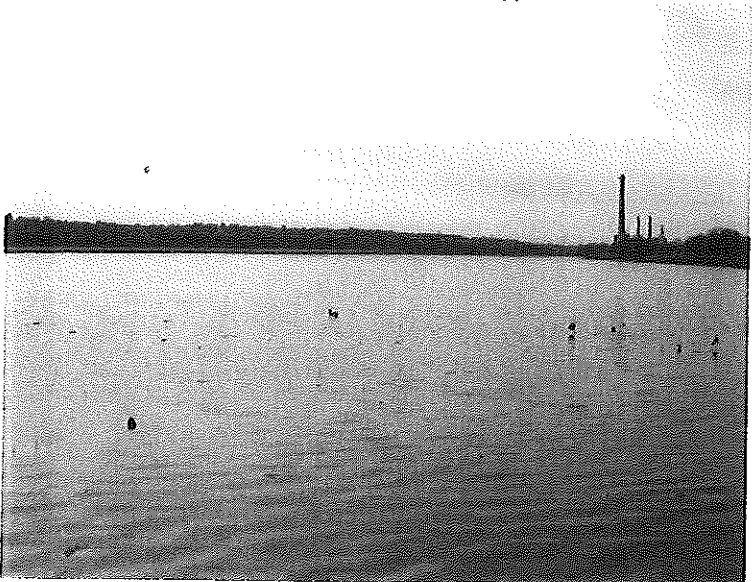
Nine Mile Lake (Hennepin County) west basin



Nine Mile Lake (Hennepin County) west basin



Black Dog Lake (Dakota County) west basin



Black Dog Lake (Dakota County) east basin



Gun Club Lake (Dakota County) north basin



Gun Club Lake (Dakota County) north basin



Gun Club Lake (Dakota County) south basin



Snelling Gravel Pit Lake (Dakota County)



Blue Lake (Scott County)

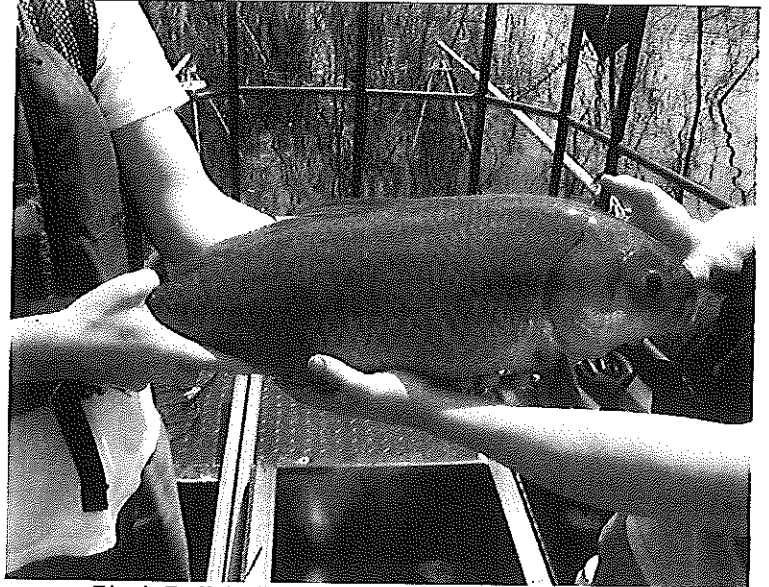


Shakopee Memorial Pond (Scott County)

Appendix W. Fishes of Minnesota River flood plain lakes.



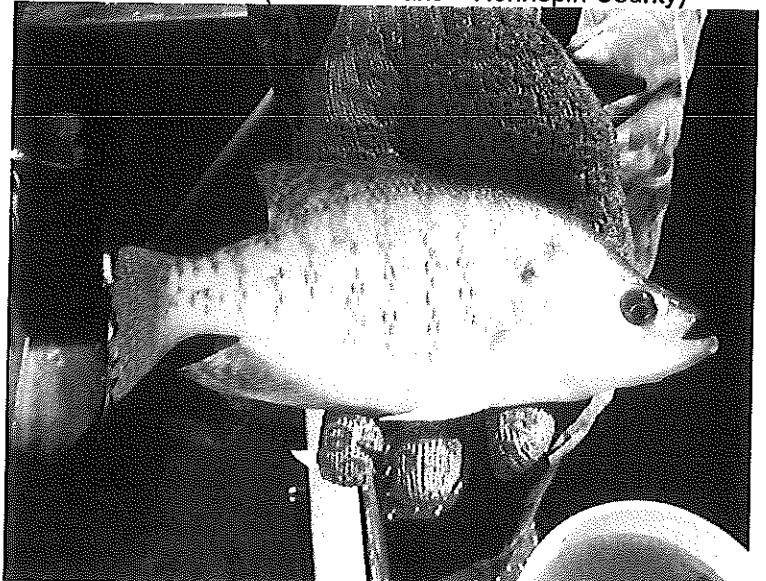
Bigmouth Buffalo (Snelling Gravel Pit Lake – Dakota County)



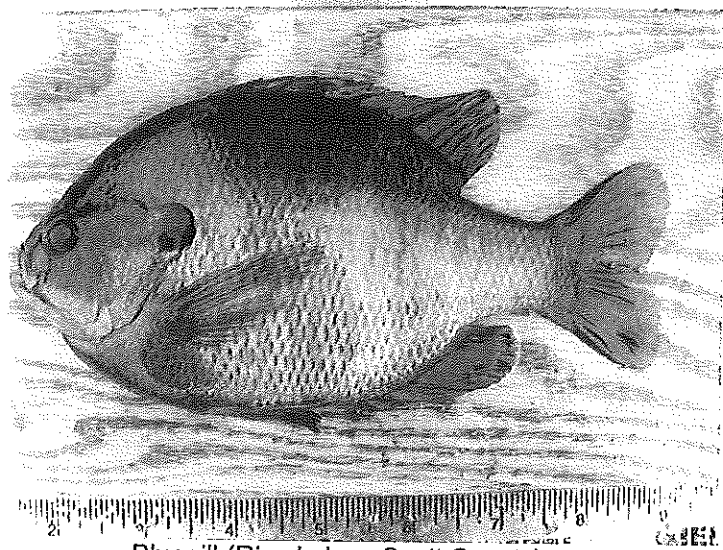
Black Buffalo (Nine Mile Lake – Hennepin County)



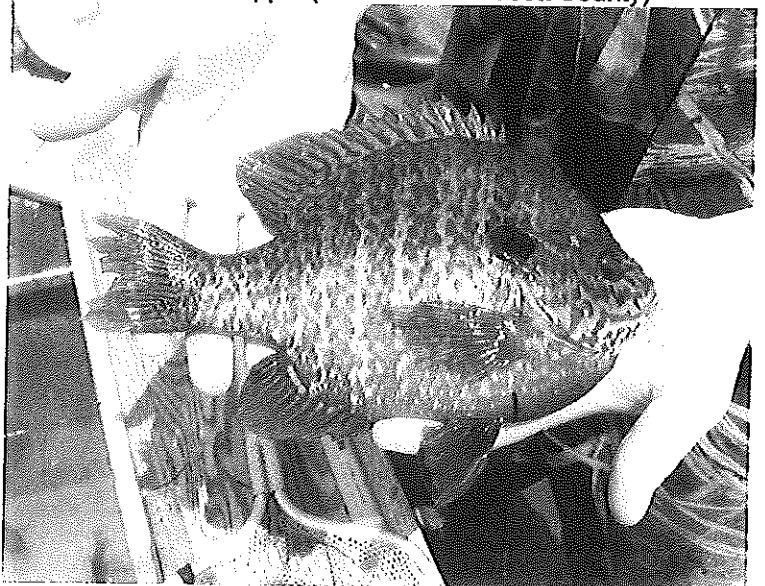
Black Crappie (Long Lake – Carver County)



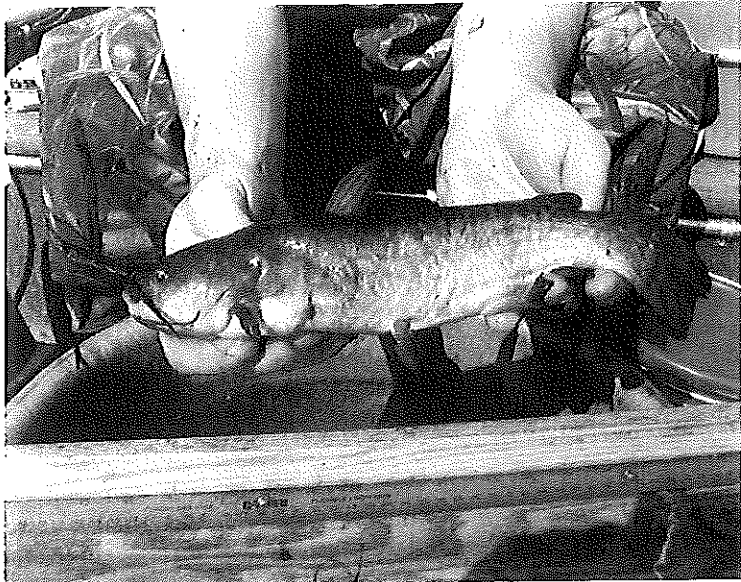
White Crappie (Gifford Lake – Scott County)



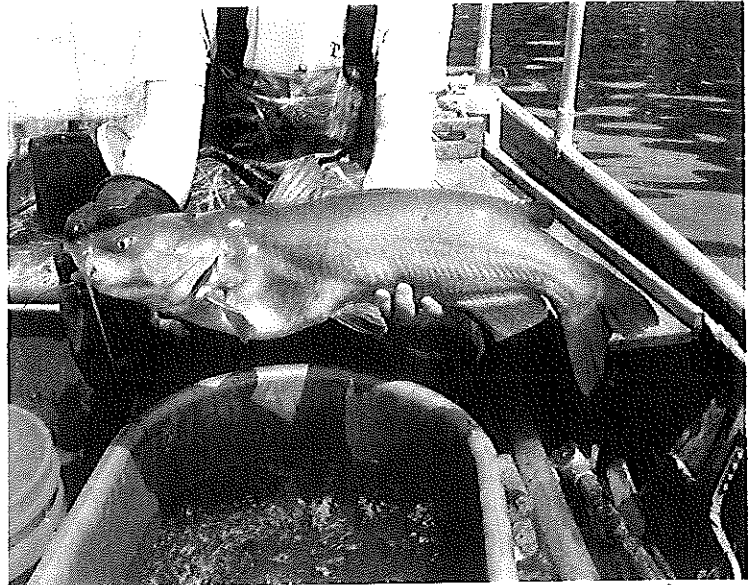
Bluegill (Rice Lake – Scott County)



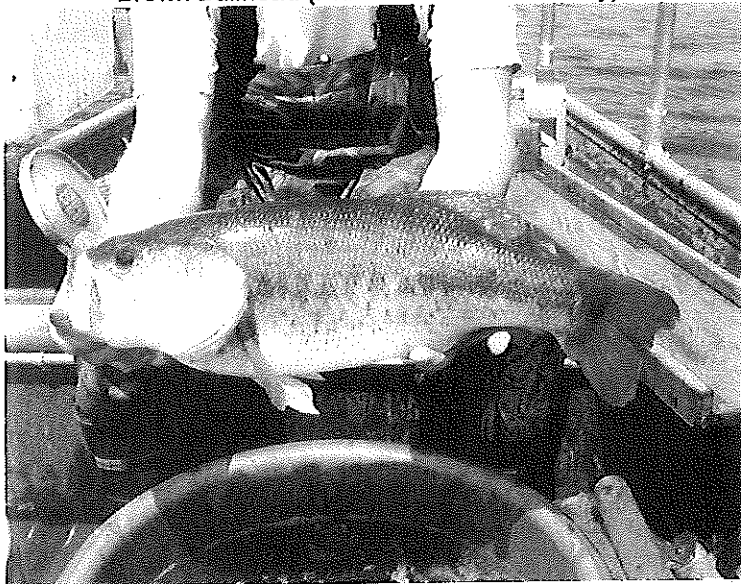
Pumpkinseed (Long Meadow Lake – Hennepin County)



Brown Bullhead (Blue Lake – Scott County)



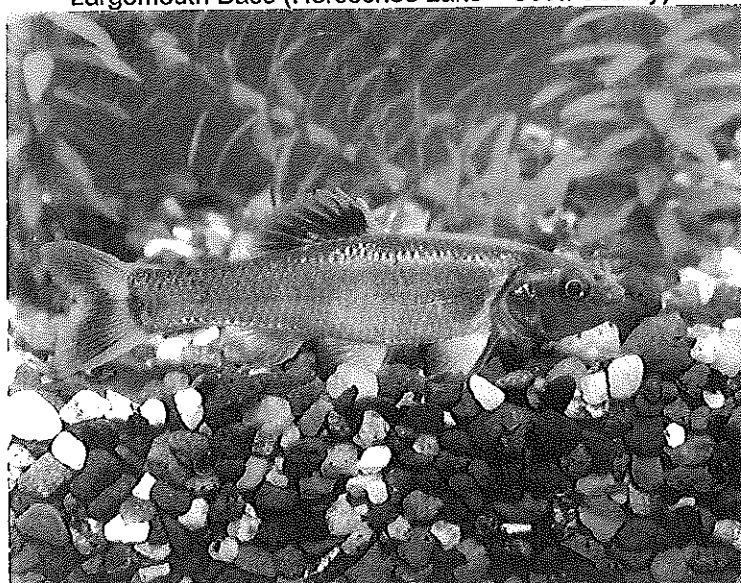
Channel Catfish (Horseshoe Lake – Scott County)



Largemouth Bass (Horseshoe Lake – Scott County)



White Bass (Louisville Swamp – Scott County)



Bullhead Minnow (Black Dog Lake – Dakota County)



Weed Shiner (Blue Lake – Scott County)



Appendix X. Minnesota River flood plains lakes study area.

