GEOLOGICAL SURVEY OF ALABAMA

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WATER INVESTIGATIONS PROGRAM

AN AQUATIC SPECIES SURVEY OF STREAMS AND RIVERS DRAINING FOREVER WILD LANDS IN THE MOBILE-TENSAW RIVER DELTA, 2002-05

OPEN-FILE REPORT 0521

by

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INTRODUCTION

The Forever Wild Program was created in 1992 by an overwhelming majority vote (83 percent) of the public to preserve Alabama's natural heritage through land acquisition and maintenance of unique lands and waters of Alabama. The Forever Wild Board was created to direct the purchase of land throughout the state of Alabama. Funding for land acquisition is derived primarily from offshore gas lease royalties (which will provide funds through fiscal year 2012-13) and a unique combination of federal, state, and private partnerships, sources, and contributions. As of July 2005, 46 tracts of land have been purchased in Alabama totaling over 110,774 acres and valued at the time of purchase around $74.5 million.

Acquisition of land in the Mobile-Tensaw River Delta (referred to as the Delta) has been a priority of Forever Wild because of the area's diverse natural communities, public outdoor recreational opportunities, and potential for ecological research and education (table 1). The Mobile-Tensaw properties are comprised of bottomland hardwoods and cypress/tupelo swamps, bogs, marshes, and a variety of other wetland habitats interconnected by a vast network of large rivers, creeks, sloughs, ponds, and lakes. Over 50 species of rare and endangered plants and animals are currently known to inhabit this area. When the delta is not flooded, its unique attributes and scenery provide tremendous opportunities for hunting, canoeing, fishing, and nature study. An extensive canoe trail has been created through the Forever Wild program with over 100 miles of boating routes for day and overnight trips.

Table 1. Forever Wild land ownership in the Mobile-Tensaw River Delta.

Tract	Purchase date	Acres
Blakeley Addition	January 28, 1998	420
Mobile-Tensaw Delta	June 12, October 5, 1999	35,795
Bayou Canot	November 2, 2000	1,933
Salco-Middle River	December 10, 2001	1,764
Middle River West	June 28, 2002	1,423
McMillan #1, #2, #3	March 15, 2003	640
Total delta acres acquired through July 2005		41,975

ACKNOWLEDGMENTS

Several individuals and institutions provided assistance with this study, and we sincerely appreciate their time and contributions. Greg Lein, Will Brantley, and Jo Lewis of the Alabama Department of Conservation and Natural Resources (ADCNR), Lands Division, defined the scope of this project and provided funding and GIS technical assistance through their department. Keith Gauldin, also of Lands Division, assisted with field logistics on earlier sampling trips to the Delta. A project of this scope requires the assistance of many individuals with expertise in sample collection, animal taxonomy and identification, and information technology. Many individuals assisted with fish sampling using gill nets, electrofishing gear, and nets: Dave Armstrong, Kevin Brown, Cliff Young, and Jerry Moss of ADCNR, Wildlife and Freshwater Fisheries Division (WFFD); Andy Ford and Scott Floyd, U.S. Fish and Wildlife Service, Daphne, Alabama; and Brett Smith, Neil Moss, Phillip Henderson, and Blakeney Gillett of the Geological Survey of Alabama (GSA). Staff of GSA conducted all invertebrate and aquatic insect light-trap sampling. Jeffrey Garner of WFFD assisted with freshwater mussel collections. Many samples were sent to outside experts for identification. Steve Harris of Clarion College in Pennsylvania identified adult caddisflies, Emanual Pescador of Florida A&M University identified adult mayflies, and Andy Rasmussen, also of Florida A&M University, identified adult stoneflies. Steve Krotzer, Alabama Power Company, identified immature dragonflies and damselflies; Kathy Borror, Ohio State University Museum of Zoology (retired), identified fingernail clams; Stuart McGregor and Jeffrey Garner identified freshwater mussels; Guenter Schuster of Eastern Kentucky University and Ray Bouchard of the Philadelphia Academy of Sciences identified crayfishes. Bruce Thompson of Louisiana State University assisted with identification of problematic topminnows. Dave Armstrong provided historical sample data from the files of the WFFD District 5 office for the database. Phillip Henderson of GSA assisted with many information technology needs related to database development and georeferencing historical sampling locations. Fishes were identified by Scott Mettee, Tom Shepard, and Patrick O'Neil of GSA and Dave Armstrong of WFFD.

STUDY AREA AND SAMPLING METHODS

In order to encompass the breadth of Forever Wild land ownership in the Delta, a core study area was loosely defined from the Alabama River cutoff on the north to Interstate Hwy. 65 (I-65) on the south, and from the Mobile River on the west to the Tensaw River on the east (fig. 1). As sampling progressed it was decided to include additional area south of I-65 and tributaries draining directly into the Delta. The majority of samples, however, were collected within the upper Delta core area. The database compiled for this study contains new information about species distributions collected during this investigation and historical collection data from the files of GSA and ADCNR. The database files submitted as final products for this investigation contain both vintages of data covering all of Mobile and Baldwin Counties.

A total of 86 days was spent by varying numbers of biologists sampling the aquatic fauna in the Delta. Samples were collected throughout the year, when flow conditions permitted (fig. 2), beginning in December 2002 and ending August 2005 with samples taken in all months, excluding September. Most sampling took place from February-May and from October-December (table 2).

Table 2. Seasonal sampling effort in the Mobile-Tensaw River Delta, 2002-05.

Month	Number of sampling days
January	5
February	13
March	6
April	11
May	15
June	2
July	1
August	1
September	0
October	7
November	14
December	11

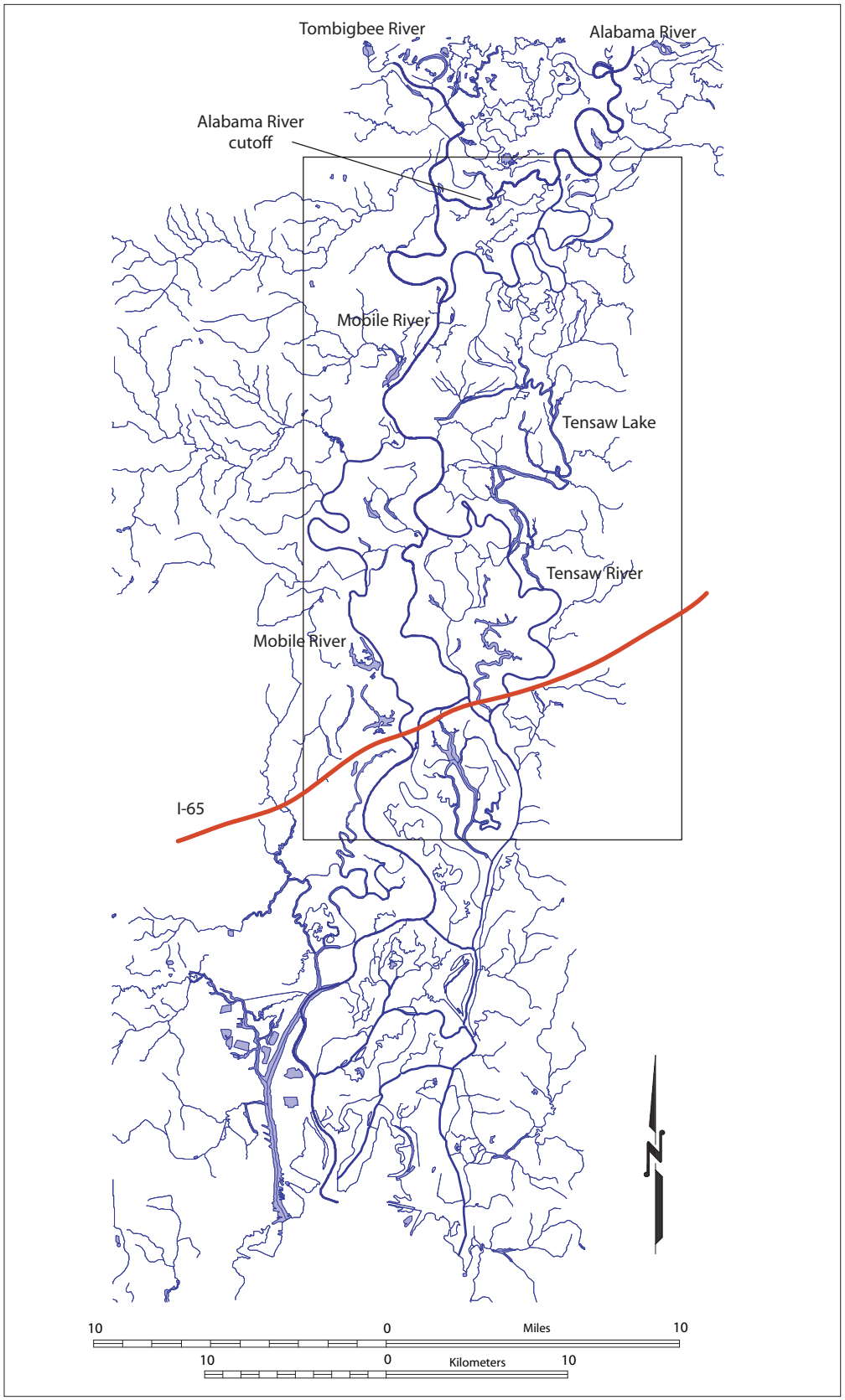

Figure 1. Primary study area in the Mobile-Tensaw River Delta

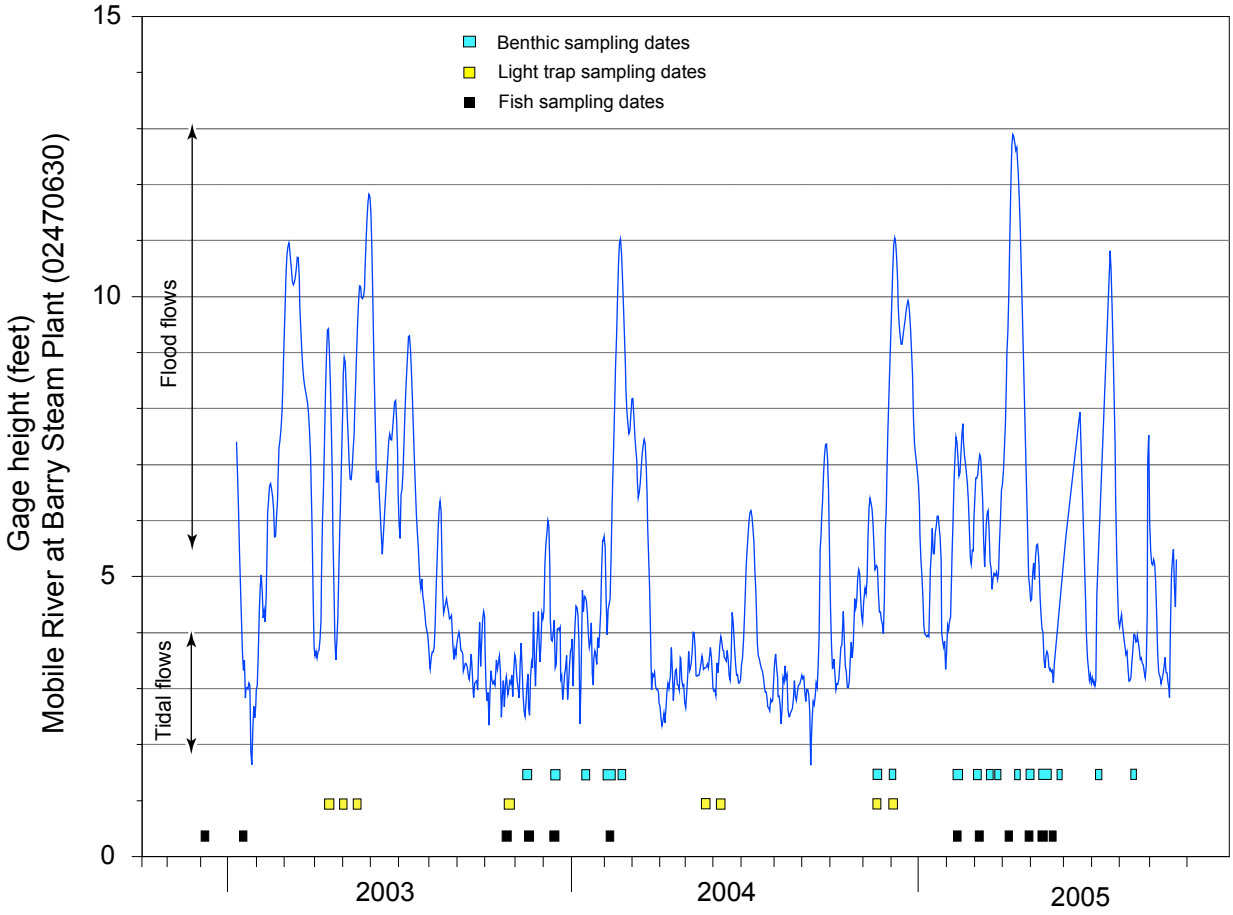

Figure 2. Mobile River water levels and sampling periods, 2002-05.

Fishes were collected using a variety of methods including sinking and floating monofilament gill nets, boat electrofishing gear, aquatic nets, nylon seines, and wire minnow traps. Gill nets were 200 feet long and 6 feet deep with a 2.5-inch stretch mesh. Nets were generally set in main river channels, in groups of 3 to 5 nets, and left to fish for 2 to 5 hours during daylight hours. Gill nets were occasionally set overnight. Boat electrofishing gear was used to sample a variety of habitats throughout the Delta: shallow bayous, backwater shorelines, narrow creek channels, and along main river channels. Smith Root GPP 5.0 and 2.5 units were used for all of the electrofishing samples. Nylon seines were used infrequently along sand and mud bars but were found to be less useful in the Delta environment than other sampling techniques. Aquatic macroinvertebrate sampling nets were very effective for small fishes occurring in shallow backwaters, overflow pools, and tributaries. Small fishes were frequently found in the wire minnow traps used to collect crayfishes.

Adult aquatic insects were collected with ultraviolet (UV) light traps. A small white pan was placed next to a body of water and filled about a third full with slightly diluted ethanol. The UV light was suspended across the pan and connected to a 12-volt battery with a timer. Light traps were operated from mid to late afternoon until about one hour past sunset generally in late spring through early summer and again in early fall to capture late-emerging adults.

Benthic species were collected using techniques appropriate for the group. Freshwater mussels were collected primarily by diving with SCUBA, surface air supply, or snorkling. Noodlin along banks and hand picking along shorelines were also effective techniques. Snails, insect immatures, crawfishes, fingernail clams, and occasional fishes were collected with aquatic nets worked around undercut banks, ditches, root wads, and snags. Initial efforts to collect crawfishes focused on aquatic nets, seines, and minnow traps left overnight. It was discovered later in the study that three to five minnow traps, baited with a can of cat food and left continuously for at least a week at a site, generally yielded a good catch of large individuals. This technique was used extensively in 2005 to collect crayfish.

SUMMARY RESULTS

All field data collected during this investigation and historical collection records can be found on the accompanying CD. Database field labels and descriptions of the field labels for each database file on the CD are listed in appendix A.

A species count within the major aquatic animal groups collected during this investigation is listed in table 3 while a list of the individual species collected can be found in appendix B. Species collected during this investigation were fairly typical of large distributary coastal river systems. Catch within these groups was also highly variable depending on river flow conditions, season, and habitat sampled.

Table 3. Summary species catch in the Mobile-Tensaw River Delta, 2002-05.

Species group	Total species collected
Crustacea (crabs, shrimp, crayfish)	15
Odonata (dragonflies and damselflies)	26
Trichoptera (caddisflies)	104
Ephemeroptera (mayflies)	15
Plecoptera (stoneflies)	5
Bivalvia (mussels and clams)	25
Chondrichthys (rays and sharks)	1
Actinopterygii (ray-finned fishes)	77
Amphibia (amphibians)	3
Reptilia (reptiles)	2
Total species collected	273

The Delta area does not support a highly varied crayfish fauna, and the list is reasonably complete for the region at this time. The White River crayfish *(Procambarus acutus*) and Ribbon crayfish (*Procambarus bivittatus*) comprised most of the crayfish catch in the Delta. The crayfish *Cambarellus lesliei,* an uncommon species that is considered of high conservation concern in Alabama,was found in several collections. The dragonfly and damselfly list is based on immature

specimens only and additional species will likely be added with collection of adult individuals. Capture of several individuals of the Allegheny River Cruiser, *Macromia alleghaniensis*, represent the first records of this species below the Fall Line in Alabama.

The stonefly and mayfly list is probably incomplete because adult insect collections were limited to those species captured in UV light traps, and several species in these two orders are poorly collected using this technique. The UV light trap method was very efficient for collecting adult caddisflies as observed by the collection of 104 species, approximately 30 percent of Alabama's 340+ species. Many species, such as *Cheumatopsyche burksi, Hydropsyche mississippiensis*, and *Ceraclea cancellata,* were rare in collections, whereas other species, including *Hydropsyche orris, Ceraclea maculata*, and *Oecetis inconspicua,* were present in almost all of the 101 samples. A few species of caddisflies that were thought to be rare in the Delta area, *Phylocentropus harrisi* and *Neotrichia mobilensis*, were found to be common after extensive light trapping in the study area.

Just a few species of unionid mussels occur in the Mobile-Tensaw River area, and the list is representative of the fauna expected in large coastal river systems. *Potamilus inflatus*, the inflated heelsplitter, is listed as threatened and was the only federally protected species collected during this investigation. It was found in the main channel of the Tombigbee River between the Alabama River cutoff and the mouth of the Alabama River. The Atlantic rangia clam (*Rangia cuneata*), an estuarine species, was the most common mussel species found, while the Round pearlshell (*Glebula rotundata*) was the most abundant freshwater unionid in the study area followed by the Southern mapleleaf (*Quadrula apiculata*).

The list of fishes is reasonably complete with the exception of a few anadromous species. Although not collected during this study, there is evidence that the Gulf sturgeon, *Acipenser oxyrinchus desotoi*, a federally listed threatened species, may utilize the Delta region at times. The Alabama shad, *Alosa alabamae*, a candidate species under consideration for federal protection, likely occurs seasonally in the larger rivers within the Delta. Capture of the blackmouth shiner, *Notropis melanostomus,* was made during a different study in the lower Delta (Bay Minette Creek), but we have included the records with this study because its capture is very significant for the region. This is a rare minnow species that should be considered of high to

highest conservation concern and was unknown in Alabama until 2003. Although more common in the lower Delta near the causeway, the alligator gar (*Atractosteus spatula*) likely occurs in the upper Delta at times. The fish communities are representative of the varied aquatic habitats in the Delta. The large rivers support gars, buffalo, carpsuckers, bass, sunfishes, paddlefish, and small forage fishes along river shorelines. Bowfin, gars, and sunfishes prefer backwaters and quiet bayous. Topminnows, killifishes, small darters, and juvenile fishes of many species can be found in overflow pools, ditches, and small feeder tributaries to the Delta. Brackish water species such as the Southern flounder *(Paralichthys lethostigma*), Gulf menhaden (*Brevoortia patronus*), and Bay anchovy (*Anchoa mitchilli*) can be readily found when river flows are low and brackish water intrudes upstream.

The few herptiles collected were incidental catch with our gear. Of particular note was the fact that minnow traps baited with cat food were fairly efficient at capturing amphiumas and occasional water snakes. Alligators were spotted frequently and dead alligator snapping turtles were occasionally observed.

In conclusion, the Mobile-Tensaw River Delta supports one of Alabama's more diverse and abundant aquatic animal faunas. From the insects to the fishes, a wide variety of types and sizes of animals call the Delta home. The seasonal interconnection of the Delta's large river channels, including the Mobile, Middle, and Tensaw, with its backwaters, like The Basin, Mifflin Lake, Tensaw Lake, and Stiggins Lake, and the wetland contributions of small blackwater tributaries, results in a highly dynamic biological system that serves as a productive fishery resource, biodiversity preserve, water quality filter, and future conservation legacy for Alabama.

Appendix A

Database field labels and label descriptions.

FIELD_NUM - number assigned by field investigators in the field for tracking and accounting purposes.

ACC_NUM - accession number assigned to each collection of organisms collected. The Geological Survey maintains an official ichthyological collection and the numbers are used to track and account for all holdings. The accession number assigned to the benthic and light trap collections are used to associate the species data with the locality data. The complete accession number consists of an accession prefix number and suffix number.

ACC_PREFIX - accession number prefix. Single samples are assigned an accession number, acc_prefix, and every species collected in the sample is assigned a sequential suffix number, acc-suffix. The acc_prefix is unique for the sample, the acc_suffix is unique for the species in the sample.

ACC_SUFFIX - accession number suffix. Single samples are assigned an accession number, acc_prefix, and every species collected in the sample is assigned a sequential suffix number, acc_suffix. The acc_prefix is unique for the sample, the acc_suffix is unique for the species in the sample.

STATE - all collections were made in Alabama.

COUNTY - county of collection.

SYSTEM - drainage system of collection.

QUAD_NAME - official U.S. Geological Survey 7.5' quadrangle name for the topographic sheet in which a collection is located.

LOCATION - written description of a collection site. Some are very abbreviated, listing only the stream name, while others contain additional location information.

LOC_ACCURACY - a number assigned to a collection to designate the degree of location accuracy: 1 - the location information is very accurate with georeferencing in the field with a GPS unit, generally accurate to within 10 meters; 2 - the location information is moderately accurate, georeferenced from paper maps or with web tools, generally applied to historical location information; 3 - the location information is of low accuracy, generally insufficient data exists to assign a level 1 or 2 rating, many time location is placed based on best professional judgement.

COLLECTORS - individual(s) who made the collection.

CLARITY - general descriptive clarity of water at the time of sample collection.

DEPTH (FT) - depth of water at the site at time of collection in feet.

SUBSTRATE - predominant substrate composition at a collection site.

PEDAL_TIME - number of seconds that the on/off pedal was on for an electrofishing sample.

COMMENTS - descriptive comments of site conditions, weather observations, and other pertinent information about a collection.

SECTION - section designation of collection.

TOWN - township designation of collection.

TOWNSHIP_N-S - direction of township, north or south, along the St. Stephen's meridian relative to the St. Stephens Base Line.

RANGE - range designation of collection.

RANGE_E-W - direction of range, east or west, along the St. Stephens Base Line relative to the St. Stephens meridian.

UTM_N - northing value of the Universal Transverse Mercator system.

UTM_E - easting value of the Universal Transverse Mercator system.

LAT - latitude in decimal degrees (NAD 1927).

LONG - longitude in decimal degrees (NAD 1927).

DAY - day of the month.

MONTH - number designation of the month.

MONTH - three letter abbreviation of the month.

YEAR - four digit year.

SAMP_TIME - beginning and ending time of sample.

DAYLIGHT - true meaning sample was made during daylight hours, false meaning sample was collected during night hours.

INSTITUTION - acronym for agency, university, or institution where original data records are maintained. GSA (Geological Survey of Alabama), TU (Tulane University), ADCNR (Alabama Department of Conservation and Natural Resources), UMMZ (University of Michigan Museum of Zoology), AUM (Auburn University Museum), UAIC (University of Alabama Ichthyological Collection), AMRD (Alabama Marine Resources Division), FMNH (Florida Museum of Natural History), JMP (personal collections of J. Malcolm Pierson).

HY_CODE_8 - eight digit hydrologic unit code.

WATERSHED - 11-digit hydrologic unit code.

METHOD_COLL - method of sample collection.

PHYSPROV - physiographic province.

FAMILY - family designation for collected species.

GENUS - genus designation for collected species.

SPECIES - specific epithet for collected species.

SUBSPECIES - subspecific epithet for collected species.

NO_INDIV - number of individuals of a species in a sample.

WEIGHT - composite weight of all specimens in a sample measured in grams.

MIN_SL - minimum standard length of all specimens of a species in a collection.

MAX_SL - maximum standard length of all specimens of a species in a collection.

Appendix B

List of aquatic species collected in the Mobile-Tensaw River Delta study area, 2002-05

Family	Species	Common name
Class Crustacea - crayfish, crabs, shrimps		
Cambaridae	*Cambarellus lesliei*	
	Cambarus diogenes	Devil crayfish
	Fallicambarus fodiens	Digger crayfish
	Fallicambarus sp.	
	Procambarus acutus	White River crawfish
	Procambarus bivittatus	Ribbon crayfish
	Procambarus evermanni	
	Procambarus lagniappe	Lagniappe crayfish
	Procambarus sp.	
	Procambarus versutus	
Palaemonidae	*Macrobranchium ohione*	Ohio shrimp
	Palaemonetes paludosus	Riverine grass shrimp
	Palaemonetes sp.	
Panopeidae	*Rhithropanopeus harrisii*	Harris mud crab
Class Insecta - insects		
Order - Odonata - damselflies and dragonflies		
Aeshnidae	*Boyeria vinosa*	Fawn Darner
	Nasiaeschna pentacantha	Cyrano Darner
Calopterygidae	*Calopteryx dimidiata*	Sparkling Jewelwing
	Calopteryx maculata	Ebony Jewelwing
Coenagrionidae	*Argia fumipennis*	Variable Dancer
	Argia tibialis	Blue-tipped Dancer
	Enallagma divagans	Turquoise Bluet
	Enallagma sp.	
	Ischnura postica	Fragile Forktail
Cordulidae	*Epitheca cyanosura*	Common Baskettail
	Helocordulia selysii	Selys' Sundragon
	Neurocordulia alabamensis	Alabama Shadowdragon
Gomphidae	*Arigomphus maxwelli*	Bayou Clubtail
	Dromogomphus armatus	Southeastern Spinyleg
	Dromogomphus spinosus	Black-shouldered Spinyleg
	Gomphus dilatatus	Blackwater Clubtail
	Gomphus exilis	Lancet Clubtail
	Gomphus geminatus	Twin-striped Clubtail
	Gomphus hodgesi	Hodges' Clubtail
	Hagenius brevistylus	Dragonhunter
	Progomphus obscurus	Common Sanddragon
	Stylurus plagiatus	Russet-tipped Clubtail
Libellulidae	*Celithemis ornata*	Faded Pennant
	Libellula sp.	
Macromiidae	*Macromia alleghaniensis*	Allegheny River Cruiser
	Macromia illinoiensis	Swift River Cruiser
	Macromia sp.	
	Macromia taeniolata	Royal River Cruiser
Order - Trichoptera - caddisflies		
Brachycentridae	*Micrasema n.sp.*	
Calamoceratidae	*Anisocentropus pyraloides*	
Hydropsychidae	*Cheumatopsyche burksi*	
	Cheumatopsyche pettiti	
	Cheumatopsyche pinaca	
	Cheumatopsyche virginica	
	Diplectrona modesta	
	Hydropsyche decalda	
	Hydropsyche elissoma	
	Hydropsyche mississippiensis	
	Hydropsyche orris	
	Macrostemum carolina	
	Potamyia flava	

Family	Species	Common name
Hydroptilidae	*Hydroptila circangula* *Hydroptila disgalera* *Hydroptila gunda* *Hydroptila latosa* *Hydroptila molsonae* *Hydroptila n.sp.* *Hydroptila novicola* *Hydroptila quinola* *Hydroptila remita* *Hydroptila waubesiana* *Neotrichia minutisimella* *Neotrichia mobilensis* *Neotrichia vibrans* *Orthotrichia aegerfasciella* *Orthotrichia baldufi* *Orthotrichia cristata* *Orthotrichia curta* *Oxyethira abacatia* *Oxyethira elerobi* *Oxyethira glasa* *Oxyethira janella* *Oxyethira lumosa* *Oxyethira maya* *Oxyethira novasota* *Oxyethira pallida* *Oxyethira pescadori* *Oxyethira roberti* *Oxyethira savanniensis* *Oxyethira setosa* *Oxyethira sininsigne* *Oxyethira verona* *Oxyethira zeronia*	
Leptoceridae	*Ceraclea cancellata* *Ceraclea diluta* *Ceraclea flava* *Ceraclea maculata* *Ceraclea nepha* *Ceraclea ophioderus* *Ceraclea protonepha* *Ceraclea tarsipunctata* *Ceraclea transversa* *Leptocerus americanus* *Nectopsyche candida* *Nectopsyche exquisita* *Nectopsyche paludicola* *Nectopsyche pavida* *Nectopsyche spiloma* *Oecetis cinerascens* *Oecetis ditissa* *Oecetis georga* *Oecetis inconspicua* *Oecetis nocturna* *Oecetis osteni* *Oecetis persimilis* *Oecetis sphyra* *Triaenodes helo* *Triaenodes ignitus* *Triaenodes n.sp.* *Triaenodes ochraceus* *Triaenodes perna*	

Family	Species	Common name
Limnephilidae	*Pycnopsyche scabripinnis*	
Molannidae	*Molanna blenda* *Molanna tryphena* *Molanna ulmerina*	
Philopotamidae	*Chimarra aterrima* *Chimarra florida* *Wormaldia moesta*	
Phryganeidae	*Banksiola concatenata* *Ptilostomis ocellifera* *Ptilostomis postica*	
Polycentropodidae	*Cernotina calcea* *Cernotina spicata* *Cyrnellus fraternus* *Neureclipsis crepuscularis* *Neureclipsis melco* *Nyctiophylax affinis* *Nyctiophylax celta* *Nyctiophylax morsei* *Nyctiophylax serratus* *Phylocentropus carolinus* *Phylocentropus harrisi* *Phylocentropus placidus* *Polycentropus blicklei* *Polycentropus cinereus* *Polycentropus confusus* *Polycentropus crassicornis* *Polycentropus nascotius*	
Psychomyiidae	*Lype diversa*	
Rhyacophilidae	*Rhyacophila carolina*	
Sericostomatidae	*Agarodes crassicornis* *Agarodes libais*	
Order - Ephemeroptera - mayflies		
Baetidae	*Procloeon sp.* *Procloeon viridoculare* *Pseudocloeon ephippiatum* *Pseudocloeon sp.*	
Caenidae	*Caenis sp.*	
Ephemerellidae	*Eurylophella doris* *Eurylophella sp.*	
Ephemeridae	*Hexagenia bilineata* *Hexagenia limbata* *Hexagenia sp.*	
Heptageniidae	*Stenacron floridense* *Stenacron interpunctatum* *Stenacron sp.* *Stenonema exiguum* *Stenonema mexicanum integrum* *Stenonema smithae*	
Isonychiidae	*Isonychia berneri* *Isonychia sp.*	
Leptophlebiidae	*Habrophlebia vibrans* *Leptophlebia sp.* *Paraleptophlebia volitans*	
Order - Plecoptera - stoneflies		
Chloroperlidae	*Alloperla prognoides*	
Perlidae	*Acroneuria lycorias* *Paragnetina fumosa* *Perlesta shubuta* *Perlinella zwicki*	

Family	Species	Common name
Class Bivalvia		
Corbiculidae	*Corbicula fluminea*	Asian clam
	Polymesoda carolineana	Carolina marshclam
Dreissenidae	*Mytilopsis leucophaeata*	Dark falsemussel
Mactridae	*Mulinia lateralis*	Dwarf surfclam
	Rangia cuneata	Atlantic rangia
Mytilidae	*Geukensia demissa*	Ribbed-mussel
Ostreidae	*Crassostrea virginica*	Eastern oyster
Sphaeriidae	*Musculium lacustre*	Lake fingernailclam
	Musculium partumeium	Swamp fingernailclam
	Musculium securis	Pond fingernailclam
	Musculium transversum	Long fingernailclam
	Pisidium casertanum	Ubiquitous peaclam
	Pisidium sp.	Peaclam
	Sphaerium occidentale	Herrington fingernailclam
Unionidae	*Anodonta sp.*	Floater
	Arcidens confragosus	Rock pocketbook
	Fusconaia cerina	Gulf pigtoe
	Glebula rotundata	Round pearlshell
	Lampsilis teres	Yellow sandshell
	Leptodea fragilis	Fragile papershell
	Megalonaias nervosa	Washboard
	Plectomerus dombeyanus	Bankclimber
	Potamilus inflatus	Inflated heelsplitter
	Potamilus purpuratus	Bleufer
	Pyganodon grandis	Giant floater
	Quadrula apiculata	Southern mapleleaf
Class Chondrichthys - cartilaginous fishes		
Dasyatidae	*Dasyatis sabina*	Atlantic stingray
Class Actinopterygii - ray-finned fishes		
Polyodontidae	*Polyodon spathula*	Paddlefish
Lepisosteidae	*Atractosteus spatula*	Alligator gar
	Lepisosteus oculatus	Spotted gar
	Lepisosteus osseus	Longnose gar
Amiidae	*Amia calva*	Bowfin
Anguillidae	*Anguilla rostrata*	American eel
Ophichthyidae	*Myrophis punctatus*	Speckled worm eel
Engraulidae	*Anchoa mitchilli*	Bay anchovy
Clupeidae	*Alosa chrysochloris*	Skipjack herring
	Brevoortia patronus	Gulf menhaden
	Dorosoma cepedianum	Gizzard shad
	Dorosoma petenense	Threadfin shad
Cyprinidae	*Ctenopharyngedon idella*	Grass carp
	Cyprinella venusta	Blacktail shiner
	Cyprinus carpio	Common carp
	Hybognathus nuchalis	Mississippi silvery minnow
	Macrhybopsis storeriana	Silver chub
	Notemigonus crysoleucas	Golden shiner
	Notropis atherinoides	Emerald shiner
	Notropis baileyi	Rough shiner
	Notropis candidus	Silverside shiner
	Notropis maculatus	Taillight shiner
	Notropis melanostomus	Blackmouth shiner
	Notropis petersoni	Coastal shiner
	Notropis texanus	Weed shiner
	Opsopoeodus emiliae	Pugnose minnow
	Pimephales vigilax	Bullhead minnow

Family	Species	Common name
Catostomidae	*Carpiodes cyprinus*	Quillback
	Carpiodes velifer	Highfin carpsucker
	Erimyzon sucetta	Lake chubsucker
	Erimyzon tenuis	Sharpfin chubsucker
	Ictiobus bubalus	Smallmouth buffalo
	Minytrema melanops	Spotted sucker
	Moxostoma poecilurum	Blacktail redhorse
Ictaluridae	*Ameiurus nebulosus*	Brown bullhead
	Ictalurus furcatus	Blue catfish
	Ictalurus punctatus	Channel catfish
	Noturus funebris	Black madtom
	Noturus leptacanthus	Speckled madtom
	Pylodictis olivaris	Flathead catfish
Esocidae	*Esox niger*	Chain pickerel
Aphredoderidae	*Aphredoderus sayanus*	Pirate perch
Mugilidae	*Mugil cephalus*	Striped mullet
Atherinopsidae	*Labidesthes sicculus*	Brook silverside
	Menidia beryllina	Inland silverside
Fundulidae	*Fundulus chrysotus*	Golden topminnow
	Fundulus notatus	Blackstripe topminnow
	Fundulus notti	Bayou topminnow
	Fundulus olivaceus	Blackspotted topminnow
Poeciliidae	*Gambusia holbrooki*	Eastern mosquitofish
	Heterandria formosa	Least killifish
Moronidae	*Morone chrysops*	White bass
	Morone saxatilis x chrysops	Palmetto bass
	Morone mississippiensis	Yellow bass
	Morone saxatilis	Striped bass
Centrarchidae	*Enneacanthus gloriosus*	Bluespotted sunfish
	Lepomis gulosus	Warmouth
	Lepomis macrochirus	Bluegill
	Lepomis marginatus	Dollar sunfish
	Lepomis megalotis	Longear sunfish
	Lepomis microlophus	Redear sunfish
	Lepomis miniatus	Redspotted sunfish
	Micropterus punctulatus	Spotted bass
	Micropterus salmoides	Largemouth bass
	Pomoxis annularis	White crappie
	Pomoxis nigromaculatus	Black crappie
Percidae	*Etheostoma fusiforme*	Swamp darter
	Etheostoma nigrum	Johnny darter
	Perca flavescens	Yellow perch
	Percina nigrofasciata	Blackbanded darter
	Percina suttkusi	Gulf logperch
Gerridae	*Eucinostomus argenteus*	Spotfin mojarra
Sciaenidae	*Aplodinotus grunniens*	Freshwater drum
Elassomatidae	*Elassoma zonatum*	Banded pygmy sunfish
Gobiidae	*Gobionellus shufeldti*	Freshwater goby
Paralichthyidae	*Paralichthys lethostigma*	Southern flounder
Achiridae	*Trinectes maculatus*	Hogchoker
Class - Amphibia		
Proteidae	*Necturus beyeri*	Gulf coast waterdog
Amphiumidae	*Amphiuma means*	Two-toed amphiuma
	Amphiuma tridactylum	Three-toed amphiuma
Class - Reptilia		
Colubridae	*Thamnophis sauritus*	Eastern ribbon snake
Kinosternidae	*Sternotherus minor*	Loggerhead musk turtle

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