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Checklist of the Inland Fishes of Louisiana

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Checklist of the Inland Fishes of Louisiana

Abstract

Since the publication of *Freshwater Fishes of Louisiana* (Douglas, 1974) and a revised checklist (Douglas and Jordan, 2002), much has changed regarding knowledge of inland fishes in the state. An updated reference on Louisiana's inland and coastal fishes is long overdue. Inland waters of Louisiana are home to at least 224 species (165 primarily freshwater, 28 primarily marine, and 31 euryhaline or diadromous) in 45 families. This checklist is based on a compilation of fish collections records in Louisiana from 19 data providers in the Fishnet2 network (www.fishnet2.net). The checklist has grown because of descriptions of three new species, new distribution records of both native and non-native species, and the addition numerous of marine species that are known to enter freshwaters in Louisiana.

Keywords

freshwater, brackish, marine, ichthyofauna

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INTRODUCTION

Since the publication of *Freshwater Fishes of Louisiana* (Douglas, 1974), much has changed regarding knowledge of inland fishes in the state, and updated reference on Louisiana's inland and coastal fishes is long overdue. Douglas (1974) treated 148 freshwater species from 22 families and listed an additional 21 marine invaders that may be encountered in the freshwaters of Louisiana. The state checklist of fishes was updated in 2002 and included 170 species in 25 families (Douglas and Jordan, 2002). The list of native and exotic fishes from inland and coastal waters of Louisiana reported here includes at least 224 species (165 primarily freshwater, 28 primarily marine, and 31 euryhaline or diadromous) in 45 families (Table 1). The list has grown through discovery of new species, taxonomic changes, new distribution records of both native and non-native species, and the addition of a number of coastal marine species that are known to enter freshwater in Louisiana. All of the fish species included on this checklist except for *Acipenser fulvescens*, Lake Sturgeon, are documented by voucher specimens in ichthyological research collections and are thus verifiable. The Lake Sturgeon record is based on personal communication by D. Walther, U.S. Fish and Wildlife Service, in 1994 of a specimen captured in an auxiliary canal off the Old River Control Structure, a former channel of the Mississippi River (Douglas and Jordan, 2002). The included coastal marine and euryhaline species have been collected significant distances inland in large rivers of the state, especially the Mississippi River. Additionally, records of non-native aquarium species that are the result of introductions are included if these species have been captured multiple times.

Table 1. Checklist of the inland and coastal fishes of Louisiana. Eschmeyer's Catalog of Fishes (Fricke, et al. 2020) provided binomials and author's names. Common names provided by the American Fisheries Society checklist (Page et al., 2013).

Family Petromyzontidae—Lampreys

Ichthyomyzon castaneus Girard 1858—Chestnut Lamprey

Ichthyomyzon gagei Hubbs & Trautman 1937—Southern Brook Lamprey

Lampetra aepyptera (Abbott 1860)—Least Brook Lamprey

Family Carcharhinidae—Requiem Sharks

Carcharhinus leucas (Valenciennes 1839)—Bull Shark

Family Dasyatidae—Whiptail Stingrays

Hypanus sabinus (Lesueur 1824)—Atlantic Stingray

Family Acipenseridae—Sturgeons

Acipenser desotoi Vladykov 1955—Gulf Sturgeon

Acipenser fulvescens Rafinesque 1817—Lake Sturgeon

Scaphirhynchus albus (Forbes & Richardson 1905)—Pallid Sturgeon

Scaphirhynchus platyrhynchus (Rafinesque 1820)—Shovelnose Sturgeon

Family Polyodontidae—Paddlefishes

Polyodon spathula (Walbaum 1792)—Paddlefish

Family Lepisosteidae—Gars

Atractosteus spatula (Lacepède 1803)—Alligator Gar

Lepisosteus oculatus Winchell 1864—Spotted Gar

Lepisosteus osseus (Linnaeus 1758)—Longnose Gar

Lepisosteus platostomus Rafinesque 1820—Shortnose Gar

Table 1. Continued.

Family Amiidae—Bowfins	<i>Amia calva</i> Linnaeus 1766—Bowfin
Family Hiodontidae—Mooneyes	<i>Hiodon alosoides</i> (Rafinesque 1819)—Goldeye <i>Hiodon tergisus</i> Lesueur 1818—Mooneye
Family Elopidae—Tenpounders	<i>Elops saurus</i> Linnaeus 1766—Ladyfish
Family Anguillidae—Freshwater Eels	<i>Anguilla rostrata</i> (Lesueur 1817)—American Eel
Family Ophichthidae—Snake Eels	<i>Myrophis punctatus</i> Lütken 1852—Speckled Worm Eel
Family Engraulidae—Anchovies	<i>Anchoa mitchilli</i> (Valenciennes 1848)—Bay Anchovy
Family Clupeidae—Herrings	<i>Alosa alabamae</i> Jordan & Evermann 1896—Alabama Shad <i>Alosa chrysochloris</i> (Rafinesque 1820)—Skipjack Herring <i>Brevoortia patronus</i> Goode 1878—Gulf Menhaden <i>Dorosoma cepedianum</i> (Lesueur 1818)—Gizzard Shad <i>Dorosoma petenense</i> (Günther 1867)—Threadfin Shad
Family Cyprinidae—Carps, Barbs, and Their Allies	<i>Carassius auratus</i> (Linnaeus 1758)—Goldfish <i>Cyprinus carpio</i> Linnaeus 1758—Common Carp
Family Leuciscidae—Minnows, Shiners, and Chubs	<i>Campostoma anomalum</i> (Rafinesque 1820)—Central Stoneroller <i>Cyprinella camura</i> (Jordan & Meek 1884)—Bluntface Shiner <i>Cyprinella lutrensis</i> (Baird & Girard 1853)—Red Shiner <i>Cyprinella venusta</i> Girard 1856—Blacktail Shiner <i>Cyprinella whipplei</i> Girard 1856—Steelcolor Shiner <i>Hybognathus hayi</i> Jordan 1885—Cypress Minnow <i>Hybognathus nuchalis</i> Agassiz 1855—Mississippi Silvery Minnow <i>Hybopsis amnis</i> (Hubbs & Greene 1951)—Pallid Shiner <i>Hybopsis winchelli</i> Girard 1856—Clear Chub <i>Luxilus chrysocephalus</i> Rafinesque 1820—Striped Shiner <i>Lythrurus fumeus</i> (Evermann 1892)—Ribbon Shiner <i>Lythrurus roseipinnis</i> (Hay 1885)—Cherryfin Shiner <i>Lythrurus umbratilis</i> (Girard 1856)—Redfin Shiner <i>Macrhybopsis gelida</i> (Girard 1856)—Sturgeon Chub <i>Macrhybopsis hyostoma</i> (Gilbert 1884)—Shoal Chub <i>Macrhybopsis meeki</i> (Jordan & Evermann 1896)—Sicklefin Chub <i>Macrhybopsis storeriana</i> (Kirkland 1845)—Silver Chub <i>Macrhybopsis tomellerii</i> Gilbert & Mayden 2017—Gulf Chub <i>Nocomis leptcephalus</i> (Girard 1856)—Bluehead Chub <i>Notemigonus crysoleucas</i> (Mitchill 1814)—Golden Shiner <i>Notropis amplamala</i> Pera & Armbruster 2006—Longjaw Minnow <i>Notropis atherinoides</i> Rafinesque 1818—Emerald Shiner

Table 1. Continued.

<i>Notropis atrocaudalis</i> Evermann 1892—Blackspot Shiner
<i>Notropis blennioides</i> (Girard 1856)—River Shiner
<i>Notropis boops</i> Gilbert 1884—Bigeye Shiner
<i>Notropis burchanani</i> Meek 1896—Ghost Shiner
<i>Notropis chalybaeus</i> (Cope 1867)—Ironcolor Shiner
<i>Notropis longirostris</i> (Hay 1881)—Longnose Shiner
<i>Notropis maculatus</i> (Hay 1881)—Taillight Shiner
<i>Notropis potteri</i> Hubbs & Bonham 1951—Chub Shiner
<i>Notropis sabiniae</i> Jordan & Gilbert 1886—Sabine Shiner
<i>Notropis shumardi</i> (Girard 1856)—Silverband Shiner
<i>Notropis texanus</i> (Girard 1856)—Weed Shiner
<i>Notropis volucellus</i> (Cope 1865)—Mimic Shiner
<i>Notropis wickliffi</i> Trautman 1931—Channel Shiner
<i>Opsopoeodus emiliae</i> Hay 1881—Pugnose Minnow
<i>Phenacobius mirabilis</i> (Girard 1856)—Suckermouth Minnow
<i>Pimephales notatus</i> (Rafinesque 1820)—Bluntnose Minnow
<i>Pimephales promelas</i> Rafinesque 1820—Fathead Minnow
<i>Pimephales vigilax</i> (Baird & Girard 1853)—Bullhead Minnow
<i>Platygobio gracilis</i> (Richardson 1836)—Flathead Chub
<i>Pteronotropis hubbsi</i> (Bailey & Robison 1978)—Bluehead Shiner
<i>Pteronotropis signipinnis</i> (Bailey & Suttkus 1952)—Flagfin Shiner
<i>Pteronotropis welaka</i> (Evermann & Kendall 1898)—Bluenose Shiner
<i>Semotilus atromaculatus</i> (Mitchill 1818)—Creek Chub
Family Xenocyprididae—Asian Carps
<i>Ctenopharyngodon idella</i> (Valenciennes 1844)—Grass Carp
<i>Hypophthalmichthys molitrix</i> (Valenciennes 1844)—Silver Carp
<i>Hypophthalmichthys nobilis</i> (Richardson 1845)—Bighead Carp
<i>Mylopharyngodon piceus</i> (Richardson 1846)—Black Carp
Family Catostomidae—Suckers
<i>Carpiodes carpio</i> (Rafinesque 1820)—River Carpsucker
<i>Carpiodes cyprinus</i> (Lesueur 1817)—Quillback
<i>Carpiodes velifer</i> (Rafinesque 1820)—Highfin Carpsucker
<i>Cycleptus elongatus</i> (Lesueur 1817)—Blue sucker
<i>Cycleptus meridionalis</i> Burr & Mayden 1999—Southeastern Blue Sucker
<i>Erimyzon claviformis</i> (Girard 1856)—Western Creek Chubsucker
<i>Erimyzon sucetta</i> (Lacepède 1803)—Lake Chubsucker
<i>Erimyzon tenuis</i> (Agassiz 1855)—Sharpfin Chubsucker
<i>Hypentelium nigricans</i> (Lesueur 1817)—Northern Hog Sucker
<i>Ictiobus bubalus</i> (Rafinesque 1818)—Smallmouth Buffalo
<i>Ictiobus cyprinellus</i> (Valenciennes 1844)—Bigmouth Buffalo
<i>Ictiobus niger</i> (Rafinesque 1819)—Black Buffalo
<i>Minytrema melanops</i> (Rafinesque 1820)—Spotted Sucker
<i>Moxostoma carinatum</i> (Cope 1870)—River Redhorse
<i>Moxostoma duquesnei</i> (Lesueur 1817)—Black Redhorse
<i>Moxostoma poecilurum</i> Jordan 1877—Blacktail Redhorse

Table 1. Continued.

Family Ariidae—Sea Catfishes
<i>Ariopsis felis</i> (Linnaeus 1766)—Hardhead Catfish
<i>Bagre marinus</i> (Mitchill 1815)—Gafftopsail Catfish
Family Ictaluridae—North American Catfishes
<i>Ameiurus melas</i> (Rafinesque 1820)—Black Bullhead
<i>Ameiurus natalis</i> (Lesueur 1819)—Yellow Bullhead
<i>Ameiurus nebulosus</i> (Lesueur 1819)—Brown Bullhead
<i>Ictalurus furcatus</i> (Valenciennes 1840)—Blue Catfish
<i>Ictalurus punctatus</i> (Rafinesque 1818)—Channel Catfish
<i>Noturus flavus</i> Rafinesque 1818—Stonecat
<i>Noturus funebris</i> Gilbert & Swain 1891—Black Madtom
<i>Noturus gyrinus</i> (Mitchill 1817)—Tadpole Madtom
<i>Noturus leptacanthus</i> Jordan 1877—Speckled Madtom
<i>Noturus miurus</i> Jordan 1877—Brindled Madtom
<i>Noturus munitus</i> Suttkus & Taylor 1965—Frecklebelly Madtom
<i>Noturus nocturnus</i> Jordan & Gilbert 1886—Freckled Madtom
<i>Noturus phaeus</i> Taylor 1969—Brown Madtom
<i>Pylodictis olivaris</i> (Rafinesque 1818)—Flathead Catfish
Family Osmeridae—Smelts
<i>Osmerus mordax</i> (Mitchill 1814)—Rainbow Smelt
Family Salmonidae—Trouts
<i>Oncorhynchus mykiss</i> (Walbaum 1792)—Rainbow Trout
Family Esocidae—Pikes
<i>Esox americanus</i> Gmelin 1789—Redfin Pickerel
<i>Esox lucius</i> Linnaeus 1758—Northern Pike
<i>Esox niger</i> Lesueur 1818—Chain Pickerel
Family Aphredoderidae—Pirate Perches
<i>Aphredoderus sayanus</i> (Gilliams 1824)—Pirate Perch
Family Mugilidae—Mulletts
<i>Dajaus monticola</i> (Bancroft 1834)—Mountain Mullet
<i>Mugil cephalus</i> Linnaeus 1758—Striped Mullet
<i>Mugil curema</i> Valenciennes 1836—White Mullet
Family Atherinopsidae—New World Silversides
<i>Labidesthes sicculus</i> (Cope 1865)—Brook Silverside
<i>Labidesthes vanhyningi</i> Bean & Reid 1930—Golden Silverside
<i>Membras martinica</i> (Valenciennes 1835)—Rough Silverside
<i>Menidia audens</i> Hay 1882—Mississippi Silverside
<i>Menidia beryllina</i> (Cope 1867)—Inland Silverside
Family Belonidae—Needlefishes
<i>Strongylura marina</i> (Walbaum 1792)—Atlantic Needlefish
Family Fundulidae—Topminnows
<i>Fundulus blairae</i> Wiley & Hall 1975—Western Starhead Topminnow
<i>Fundulus catenatus</i> (Storer 1846)—Northern Studfish
<i>Fundulus chrysotus</i> (Günther 1866)—Golden Topminnow
<i>Fundulus dispar</i> (Agassiz 1854)—Starhead Topminnow

Table 1. Continued.

	<i>Fundulus euryzonus</i> Suttkus & Cashner 1981—Broadstripe Topminnow
	<i>Fundulus grandis</i> Baird & Girard 1853—Gulf Killifish
	<i>Fundulus jenkinsi</i> (Evermann 1892)—Saltmarsh Topminnow
	<i>Fundulus majalis</i> (Walbaum 1792)—Striped Killifish
	<i>Fundulus notatus</i> (Rafinesque 1820)—Blackstripe Topminnow
	<i>Fundulus nottii</i> (Agassiz 1854)—Bayou Topminnow
	<i>Fundulus olivaceus</i> (Storer 1845)—Blackspotted Topminnow
	<i>Fundulus pulvereus</i> (Evermann 1892)—Bayou Killifish
	<i>Fundulus similis</i> (Baird & Girard 1853)—Longnose Killifish
	<i>Fundulus xenicus</i> Jordan & Gilbert 1882—Diamond Killifish
	<i>Lucania parva</i> (Baird & Girard 1855)—Rainwater Killifish
Family	Cyprinodontidae—Pupfishes
	<i>Cyprinodon variegatus</i> Lacepède 1803—Sheepshead Minnow
Family	Poeciliidae—Livebearers
	<i>Gambusia affinis</i> (Baird & Girard 1853)—Western Mosquitofish
	<i>Heterandria formosa</i> (Girard 1859)—Least Killifish
	<i>Poecilia latipinna</i> (Lesueur 1821)—Sailfin Molly
Family	Syngnathidae—Pipefishes
	<i>Syngnathus scovelli</i> (Evermann & Kendall 1896)—Gulf Pipefish
Family	Triglidae—Searobins
	<i>Prionotus tribulus</i> Cuvier 1829—Bighead Searobin
Family	Moronidae—Temperate Basses
	<i>Morone chrysops</i> (Rafinesque 1820)—White Bass
	<i>Morone mississippiensis</i> Jordan & Eigenmann 1887—Yellow Bass
	<i>Morone saxatilis</i> (Walbaum 1792)—Striped Bass
Family	Centrarchidae—Sunfishes
	<i>Ambloplites ariommus</i> Viosca 1936—Shadow Bass
	<i>Centrarchus macropterus</i> (Lacepède 1801)—Flier
	<i>Elassoma zonatum</i> Jordan 1877—Banded Pygmy Sunfish
	<i>Lepomis auritus</i> (Linnaeus 1758)—Redbreast Sunfish
	<i>Lepomis cyanellus</i> Rafinesque 1819—Green Sunfish
	<i>Lepomis gulosus</i> (Cuvier 1829)—Warmouth
	<i>Lepomis humilis</i> (Girard 1858)—Orangespotted Sunfish
	<i>Lepomis macrochirus</i> Rafinesque 1819—Bluegill
	<i>Lepomis marginatus</i> (Holbrook 1855)—Dollar Sunfish
	<i>Lepomis megalotis</i> (Rafinesque 1820)—Longear Sunfish
	<i>Lepomis microlophus</i> (Günther 1859)—Redear Sunfish
	<i>Lepomis miniatus</i> (Jordan 1877)—Redspotted Sunfish
	<i>Lepomis symmetricus</i> Forbes 1883—Bantam Sunfish
	<i>Micropterus punctulatus</i> (Rafinesque 1819)—Spotted Bass
	<i>Micropterus salmoides</i> (Lacepède 1802)—Largemouth Bass
	<i>Pomoxis annularis</i> Rafinesque 1818—White Crappie
	<i>Pomoxis nigromaculatus</i> (Lesueur 1829)—Black Crappie

Table 1. Continued.

Family Percidae—Perches

- Ammocrypta beanii* Jordan 1877—Naked Sand Darter
Ammocrypta clara Jordan & Meek 1885—Western Sand Darter
Ammocrypta vivax Hay 1882—Scaly Sand Darter
Crystallaria asprella (Jordan 1878)—Crystal Darter
Etheostoma artesiaae (Hay 1881)—Redspot Darter
Etheostoma asprigene (Forbes 1878)—Mud Darter
Etheostoma caeruleum Storer 1845—Rainbow Darter
Etheostoma chlorosoma (Hay 1881)—Bluntnose Darter
Etheostoma collettei Birdsong & Knapp 1969—Creole Darter
Etheostoma fusiforme (Girard 1854)—Swamp Darter
Etheostoma gracile (Girard 1859)—Slough Darter
Etheostoma histrio Jordan & Gilbert 1887—Harlequin Darter
Etheostoma lynceum Hay 1885—Brighteye Darter
Etheostoma parvipinne Gilbert & Swain 1887—Goldstripe Darter
Etheostoma proeliare (Hay 1881)—Cypress Darter
Etheostoma stigmaeum (Jordan 1877)—Speckled Darter
Etheostoma swaini (Jordan 1884)—Gulf Darter
Etheostoma thompsoni Suttkus, Bart & Etnier 2012—Gumbo Darter
Percina aurora Suttkus & Thompson 1994—Pearl Darter
Percina caprodes (Rafinesque 1818)—Logperch
Percina copelandi (Jordan 1877)—Channel Darter
Percina lenticula Richards & Knapp 1964—Freckled Darter
Percina macrolepida Stevenson 1971—Bigscale Logperch
Percina maculata (Girard 1859)—Blackside Darter
Percina nigrofasciata (Agassiz 1854)—Blackbanded Darter
Percina sciera (Swain 1883)—Dusky Darter
Percina shumardi (Girard 1859)—River Darter
Percina suttkusi Thompson 1997—Gulf Logperch
Percina uranidea (Jordan & Gilbert 1887)—Stargazing Darter
Percina vigil (Hay 1882)—Saddleback Darter
Sander canadensis (Griffith & Smith 1834)—Sauger
Sander vitreus (Mitchell 1818)—Walleye

Family Carangidae—Jacks

- Caranx hippos* (Linnaeus 1766)—Crevalle Jack
Oligoplites saurus (Bloch & Schneider 1801)—Leatherjack

Family Lutjanidae—Snappers

- Lutjanus griseus* (Linnaeus 1758)—Gray Snapper

Family Gerridae—Mojarras

- Eucinostomus argenteus* Baird & Girard 1855—Spotfin Mojarra

Family Sparidae—Porgies

- Archosargus probatocephalus* (Walbaum 1792)—Sheepshead

Table 1. Continued.

Family Sciaenidae—Drums and Croakers
<i>Aplodinotus grunniens</i> Rafinesque 1819—Freshwater Drum
<i>Bairdiella chrysoura</i> (Lacepède 1802)—Silver Perch
<i>Cynoscion arenarius</i> Ginsburg 1930—Sand Seatrout
<i>Cynoscion nebulosus</i> (Cuvier 1830)—Spotted Seatrout
<i>Leiostomus xanthurus</i> Lacepède 1802—Spot
<i>Micropogonias undulatus</i> (Linnaeus 1766)—Atlantic Croaker
<i>Pogonias cromis</i> (Linnaeus 1766)—Black Drum
<i>Sciaenops ocellatus</i> (Linnaeus 1766)—Red Drum
Family Cichlidae—Cichlids
<i>Herichthys cyanoguttatus</i> Baird & Girard 1854—Rio Grande Cichlid
Family Eleotridae—Sleepers
<i>Dormitator maculatus</i> (Bloch 1792)—Fat Sleeper
<i>Eleotris amblyopsis</i> (Cope 1871)—Largescaled Spinycheek Sleeper
<i>Gobiomorus dormitor</i> Lacepède 1800—Bigmouth Sleeper
Family Gobiidae—Gobies
<i>Ctenogobius boleosoma</i> (Jordan & Gilbert 1882)—Darter Goby
<i>Ctenogobius shufeldti</i> (Jordan & Eigenmann 1887)—Freshwater Goby
<i>Evorthodus lyricus</i> (Girard 1858)—Lyre Goby
<i>Gobioides broussonnetii</i> Lacepède 1800—Violet Goby
<i>Gobionellus oceanicus</i> (Pallas 1770)—Highfin Goby
<i>Gobiosoma bosc</i> (Lacepède 1800)—Naked Goby
Family Scombridae—Mackerels
<i>Scomberomorus maculatus</i> (Mitchill 1815)—Spanish Mackerel
Family Paralichthyidae—Sand Flounders
<i>Citharichthys spilopterus</i> Günther 1862—Bay Whiff
<i>Paralichthys lethostigma</i> Jordan & Gilbert 1884—Southern Flounder
Family Achiridae—American Soles
<i>Trinectes maculatus</i> (Bloch & Schneider 1801)—Hogchoker

Numerous ichthyological and ecological studies have been conducted in Louisiana waters since *Freshwater Fishes of Louisiana*. Guillory (1982) studied fish diversity in Thompson Creek in West Feliciana and East Feliciana parishes, Grady et al. (1983) surveyed nearby Bayou Sara. Knight and Hastings (1994) reported on the fishes of the Tangipahoa River. Bart (2000) discussed fish diversity in the lower Mississippi River between St. Francisville and the mouth of Mississippi River. Extensive surveys of fish diversity, community ecology, and abundance changes in Lake Pontchartrain and the Pearl River have been published (O’Connell et al., 2004; Piller et al., 2004; Geheber and Piller, 2012; Piller and Geheber, 2015).

This current list is based on a compilation of records of fish collections in Louisiana from 19 data providers (Table 2) in the FishNet2 (www.fishnet2.net) global network of ichthyological collections and is supplemented by records from the Neil H. Douglas Collection of Fishes from the University of Louisiana at Monroe and Southeastern Louisiana University. We thank Nelson Rios and staff of these institutions for data provided via FishNet2. Eschmeyer’s Catalog of Fishes (Fricke, et al. 2020) was followed for current taxonomy. In total, these institutions provide data on

104,953 cataloged species lots representing more than 3.3 million specimens of inland and coastal fishes from Louisiana. The vast majority of the lots are held at four collections in Louisiana: Tulane University (TU, 56.0%), University of Louisiana at Monroe (ULM, 22.5%), Louisiana State University Museum of Natural Science (LSUMZ, 7.7%), and Southeastern Louisiana University (SLU, 5.8%). Besides TU, ULM, LSUMZ, and SLU, only the National Museum of Natural History, University of Michigan Museum of Zoology, and the Mississippi Museum of Science have more than 1,000 lots of Louisiana fishes. Thus, 97% of the specimens are held in the state of Louisiana. In 2017, after 40 years at ULM, the Neil H. Douglas Fish Collection was moved to the Tulane University Biodiversity Research Institute in Belle Chasse to be inventoried and ultimately divided among a consortium of regional fish collections in Louisiana and neighboring states.

Table 2. List of ichthyological collections (Sabaj, 2019) with Louisiana fish records and the number of cataloged lots for each institution. Data were provided by the FishNet2 server on 15 December 2017, or from collection staff for those collections that do not provide data to FishNet2*.

Ichthyological Collection, Location (symbolic code)	Lots
Academy of Natural Sciences, Philadelphia, PA (ANSP)	497
Cornell University Museum of Vertebrate, Ithaca, NY (CUMV)	351
Florida Museum of Natural History, Gainesville, FL (UF)	380
Field Museum, Chicago, IL (FMNH)	146
University of Kansas Biodiversity Institute, Lawrence, KS (KU)	283
Natural History Museum of Los Angeles County, Los Angeles, CA (LACM)	31
Harvard University Museum of Comparative Zoology, Cambridge, MA (MCZ)	74
Louisiana State University Museum of Natural Science, Baton Rouge, LA (LSUMZ)	8080
Mississippi Museum of Natural Science, Jackson, MS (MMNS)	1131
North Carolina Museum of Natural Science, Raleigh, NC (NCSM)	33
Royal Ontario Museum, Toronto, Canada (ROM)	33
Sam Noble Oklahoma Museum of Natural History, Norman, OK (OKMNH)	2
Southeastern Louisiana University, Vertebrate Collection, Hammond, LA (SLU)*	6132
Texas Cooperative Wildlife Collection, College Station, TX (TCWC)	336
Texas Natural Science Center, Austin, TX (TNHC)	87
Tulane University Museum of Natural History, Belle Chasse, LA (TU)	58824
University of Alabama Ichthyological Collection, Tuscaloosa, AL (UAIC)	751
University of Colorado Museum of Natural History, Boulder, CO (UCM)	25
University of Louisiana at Monroe, Monroe, LA (ULM)*	23656
University of Michigan Museum of Zoology, Ann Arbor, MI (UMMZ)	1659
Smithsonian National Museum of Natural History, Washington, DC (USNM)	2050
Yale Peabody Museum of Natural History, New Haven, CT (YPM)	95

NEW SPECIES

Three fish species that occur in Louisiana have been described as new to science since the publication of the revised checklist by Douglas and Jordan (2002). *Notropis amplamala*, Longjaw Minnow, was described in 2006 as distinct from its presumed sister species *Notropis buccata*, Silverjaw Minnow (Pera and Armbruster, 2006). The Gumbo Darter, *Etheostoma thompsoni* (Suttkus et al., 2012) was described as a new species distinct from the Mud Darter, *Etheostoma asprigene*. The Gumbo Darter is distributed in the Neches, Sabine, and Calcasieu Rivers of western Louisiana and eastern Texas. *Macrhybopsis tomellerii*, Gulf Chub, a member of the *M. aestivalis* complex, was recently described (Gilbert et al., 2017). In Louisiana, it occurs in the Lake Pontchartrain and Pearl River drainages and in the Pascagoula River in Mississippi. Before the formal description of *M. tomellerii*, this species was listed as “Mobile Chub” by Eisenhour (2004) and “Gulf Chub” by Boschung and Mayden (2004) and Page and Burr (2011).

NOMENCLATURAL CHANGES

The scientific name for Atlantic Stingray has been changed from *Dasyatis sabina* to *Hypanus sabinus* (Last et al., 2016), and Gulf Sturgeon, *Acipenser oxyrinchus desotoi*, has been recognized as a full species, *Acipenser desotoi* (Robins et al., 2018).

All native minnows, shiners, and chubs in Louisiana, formerly assigned to Cyprinidae, have been reassigned to Leuciscidae, a former subfamily of cyprinid fishes (Tan and Armbruster, 2018). In addition, non-native species of cyprinids within *Ctenopharyngodon*, *Hypophthalmichthys*, and *Mylopharyngodon* have been reclassified in Xenocyprididae (Tan and Armbruster, 2018).

Macrhybopsis hyostoma, Shoal Chub, occurs in Louisiana west of the Mississippi River, and *M. tomellerii* occurs in the Lake Pontchartrain and Pearl River drainages. As currently recognized, *Macrhybopsis aestivalis* is now restricted to the Rio Grande drainage in Texas and New Mexico and the Rio San Fernando drainage in northern Mexico (Eisenhour, 2004; Page and Burr, 2011). *Notropis amnis* and *Notropis winchelli* have again been reclassified and are now placed in the genus *Hybopsis*. Thus, *Hybopsis amnis*, Pallid Shiner, and *Hybopsis winchelli*, Clear Chub, are the valid names for these cyprinids (Boschung and Mayden, 2004). The latter two chub species are distributed west and east of the Mississippi River in Louisiana, respectively. The subspecies *Erimyzon oblongus claviformis* that occurs throughout much of Louisiana has been elevated to a full species *Erimyzon claviformis*, Western Creek Chubsucker (Bailey et al., 2004; Page and Burr, 2011). *Erimyzon oblongus*, Eastern Creek Chubsucker is now restricted to Lake Ontario and Atlantic slope drainages in the eastern United States.

The scientific name for Mountain Mullet has been changed from *Agonostomus monticola* to *Dajaus monticola* (Durand et al., 2012), and Diamond Killifish has been changed from *Adinia xenica* to *Fundulus xenicus* (Ghedotti and Davis, 2013). The silverside genus, *Labidesthes*, formerly consisted of a single species, the Brook Silverside, *L. sicculus*, was expanded by Wernecke and Armbruster (2015) who elevated a former subspecies of *L. s. vanhyningi* to species status, the Golden Silverside, *L. vanhyningi*. Both species of *Labidesthes* occur in Louisiana.

The taxonomy of *Etheostoma whipplei*, Redfin Darter, has been revised and the two subspecies are now given species rank (Piller et al., 2001). *Etheostoma artesia*, Redspot Darter, occurs throughout most of Louisiana, with the exception of southern third of the state, while *E. whipplei* has a more northern distribution in the Ozark and Ouachita Highlands (Piller et al., 2001).

The scientific name of the Rio Grande Cichlid, an invasive species in Louisiana, has been changed from *Cichlasoma cyanoguttatum* to *Herichthys cyanoguttatus* (Miller et al., 2005; Page and Burr, 2011). Pygmy Sunfishes (*Elassoma*) are now classified in the family Centrarchidae (Near et al., 2012). Two species of sand flounders, *Citharichthys spilopterus*, Bay Whiff, and *Paralichthys lethostigma*, Southern Flounder, both of which venture into Louisiana's inland waters, were previously classified in the family Bothidae (Douglas, 1974; Douglas and Davis, no date) are now placed in the family Paralichthyidae (Nelson et al., 2004).

RECENT RANGE EXTENSIONS AND INTRODUCTIONS

Douglas and Jordan (2002) discussed the distributions of three species Asian cyprinids that are established in Louisiana. Since 2002, *Hypophthalmichthys molitrix*, Silver Carp, and *H. nobilis*, Bighead Carp, have increased in abundance and distribution in the state. These carps are now frequently collected in the lower Mississippi River (Schofield et al., 2005) and are now in the Lake Pontchartrain basin as a result of multiple recent openings of the Bonnet Carre Spillway (March 2011, January 2016, March 2018, February 2019, May 2019). Another Chinese cyprinid, *Mylopharyngodon piceus*, Black Carp, is also becoming more frequently collected in the lower Mississippi River (Schofield et al., 2005).

There are records of *Esox lucius*, Northern Pike, from the Ouachita River (ULM 2970 and 30201). *Esox lucius* occurs naturally in the Mississippi River system as far south as Missouri and Illinois, but it has been widely introduced across North America (Page and Burr, 2011). A specimen of *Oncorhynchus mykiss*, Rainbow Trout, was captured in a canal near Luling, St. Charles Parish (George et al., 2013). The specimen was collected just 1030 m downstream of the Davis Pond freshwater diversion control structure and its likely origin was the White River in Arkansas (George et al., 2013). Records of nine tropical fish species — *Amatitlania nigrofasciata*, *Gymnocorymbus ternetzi*, *Misgurnus anguillicaudatus*, *Parachromis managuensis*, *Pethia conchonius*, *Xiphophorus helleri*, *X. maculatus*, *X. variatus*, and *Dichotomyctere nigroviridis* — introduced by a tropical fish hatchery in the upstream reaches of the Bayou Lacombe, in St. Tammany Parish are included because they have been documented on multiple occasions and are vouchered by specimens cataloged at SLU.

MARINE INVADERS

In an undated educational bulletin for the Louisiana Wildlife and Fisheries Commission, Douglas and Davis (no date) listed 21 marine species that have been collected in freshwater habitats in Louisiana, and Douglas (1974) included the exact list in his book without details of their distribution or abundance. No marine or brackish water species were included in the checklist of Douglas and Jordan (2002). The present list includes 59 species of primary marine or diadromous fishes that have been collected in the inland or coastal waters of Louisiana. All of the marine species reported below are included because they have been collected in the Mississippi

River at or above Fort Jackson at river mile (RM) 20 and in the other rivers in Louisiana and other states.

Hypanus sabinus, Atlantic Stingray, is common in coastal bays and bayous in Louisiana and has been collected from the lower Mississippi River (RM 20-80). *Carcharhinus leucas*, Bull Shark, is one of a number of chondrichthyan species known to enter freshwater bodies in many parts of the world (Compagno and Cook, 1995) and has been reported from the Mississippi River near Alton, Illinois, suggesting it could be encountered throughout the Mississippi River in Louisiana (Thomerson et al., 1977).

Elops saurus, Ladyfish, is fairly common in the lower Mississippi River, and coastal lakes and bayous of Louisiana. *Myrophis punctatus*, Speckled Worm Eel, has been recorded in the lower Mississippi River at Fort Jackson (RM 20) and in the lower courses of other Gulf coastal rivers.

Anchoa mitchilli, Bay Anchovy, is commonly collected in the lower Mississippi River as far inland as RM 80, and in the lower courses of other rivers in Louisiana. *Brevoortia patronus*, Gulf Menhaden, is also commonly collected in the lower Mississippi River at Belle Chasse, Plaquemines Parish (RM 80).

Two sea catfishes of the family Ariidae occur in inland and coastal waters of Louisiana. *Ariopsis felis*, Hardhead Catfish, and *Bagre marinus*, Gafftopsail Catfish, have both been recorded in the lower Mississippi River as far inland as Belle Chasse. The Hardhead Catfish was previously named *Arius felis* (Nelson et al., 2004).

Dajaus monticola, Mountain Mullet, first reported in the lower Mississippi River by Suttkus (1956), has since been reported from inland sites on rivers of Florida, Georgia, Mississippi, South Carolina and Texas (Matamoros et al., 2009; Kubicek, et al., 2019), and has been collected in Price Lake of Rockefeller Wildlife Refuge, Cameron Parish. *Mugil cephalus* Striped Mullet, is abundant in coastal marine and inland freshwater habitats, while *M. curema*, White Mullet, is more restricted to saltwater, but has occasionally been collected in the lower Mississippi River (RM 20).

Membras martinica, Rough Silverside, is frequently encountered in the lower Mississippi River (RM 20), and rarely at more inland sites on the Mississippi. *Strongylura marina*, Atlantic Needlefish, occurs in the lower Mississippi River, the lower Pearl and Sabine rivers in Louisiana, as well as inland waters of other U.S. coastal rivers.

Eight species of euryhaline marine and brackish killifishes — *Cyprinodon variegatus*, Sheepshead Minnow; *Fundulus grandis*, Gulf Killifish; *F. jenkinsi*, Saltmarsh Topminnow; *F. majalis*, Striped Killifish; *F. pulvereus*, Bayou Killifish; *F. similis*, Longnose Killifish; *F. xenicus*, Diamond Killifish; and *Lucania parva*, Rainwater Killifish — are common in Louisiana's coastal waters but are also found in the lower portions of the Mississippi River and other rivers. The distributions of *Cyprinodon variegatus*, *F. grandis*, *F. pulvereus* and *L. parva* extend far inland in rivers of Texas and New Mexico.

Syngnathus scovelli, Gulf Pipefish, is common in coastal marshes along the Gulf of Mexico, and inland sites on coastal rivers. The species has been collected in the Mississippi River near Baton Rouge and nearby oxbow lakes and northern Louisiana. *Prionotus tribulus*, Bighead

Searobin, is abundant in coastal lakes, bays and marshes along the Gulf Coast. It occurs less frequently in freshwater habitats of the lower Atchafalaya and Mississippi rivers.

Two species of jacks — *Caranx hippos*, Crevalle Jack, and *Oligoplites saurus*, Leatherjack, — are often encountered in Louisiana's coastal waters and have also been collected in the lower Mississippi River as far inland as Belle Chasse.

Lutjanus griseus, Gray Snapper, is occasionally collected in Louisiana's coastal bays and marshes, and juveniles have been collected in the lower Mississippi River (RM 20). *Eucinostomus argenteus*, Spotfin Mojarra, is an abundant inshore marine species that is frequently found in shallow bays and coastal marshes. The species occasionally enters freshwater (Robins et al., 1986) and there are a number of records from the lower Mississippi River (RM 20). *Archosargus probatocephalus*, Sheepshead, occasionally enters freshwater and has been found in the lower Mississippi River (RM 80) in Louisiana, and lower reaches of the Pearl, Pascagoula and Escatawpa River in Mississippi.

Seven species of marine drums (Sciaenidae) enter fresh water in coastal Louisiana. *Bairdiella chrysoura*, Silver Perch; *Cynoscion arenarius*, Sand Seatrout; *C. nebulosus*, Spotted Seatrout; *Leiostomus xanthurus*, Spot; *Micropogonias undulatus*, Atlantic Croaker; *Pogonias cromis*, Black Drum; and *Sciaenops ocellatus*, Red Drum, are common to abundant in coastal marshes and bays, are also known to occur in the lower Mississippi River (RM 20).

Dormitator maculatus, Fat Sleeper, and *Eleotris amblyopsis*, Largescaled Spinycheek Sleeper are commonly collected in the lower Mississippi River (RM 20-80), and there is a single record from the mouth of the Amite River, Livingston Parish. *Gobiomorus dormitor*, Bigmouth Sleeper, is represented in Louisiana by seven records in the lower Mississippi River (RM 20).

Six species of gobies (Gobiidae) occur in inland fresh waters of Louisiana including: *Ctenogobius boleosoma*, Darter Goby; *Ctenogobius shufeldti*, Freshwater Goby; *Evorthodus lyricus*, Lyre Goby; *Gobioides broussonnetii*, Violet Goby; *Gobionellus oceanicus*, Highfin Goby; and *Gobiosoma bosc*, Naked Goby. *Ctenogobius boleosoma* and *C. shufeldti* are abundant in the lower Mississippi River, lower Calcasieu River, and the Atchafalaya River Delta and in coastal marine habitats in Louisiana. *Evorthodus lyricus* and *Gobiosoma bosc* are common in the lower Mississippi River Delta and in coastal marshes and bayous. *Gobioides broussonnetii* and *Gobionellus oceanicus* have been collected in the lower Mississippi River (RM 20-80), but are more commonly found in coastal marine habitats.

Scomberomorus maculatus, Spanish Mackerel, is an abundant marine species in the Gulf of Mexico, but is rarely encountered in fresh water in Louisiana. A single record is known from the lower Mississippi River (RM 20).

Citharichthys spilopterus and *Paralichthys lethostigma* are common in coastal brackish and marine habitats, as well as, in coastal rivers of Louisiana, including numerous records from the lower Mississippi River (RM 20-80). *Trinectes maculatus*, Hogchoker, is commonly encountered in coastal rivers and freshwater lakes in Louisiana.

CONCLUDING REMARKS

This updated checklist was compiled in preparation for a forthcoming book on the inland and coastal fishes of Louisiana. The fish species discussed above and listed in Table 1 will be treated — i.e., will each have written species accounts distributional maps — in the book. Most of Louisiana is drained by freshwater rivers and most of the fishes inhabiting these rivers are intolerant of waters with even low levels of salinity (>0.1%). However, as discussed above, our updated list includes a number of coastal marine and euryhaline species that have documented occurrences in inland fresh waters of Louisiana, including the Mississippi River and other freshwater bodies in Louisiana and elsewhere. Further justification for including these species is that many are popular targets of sport fishing, and, indeed, are often caught by anglers fishing in freshwater. Moreover, the distinction between fresh and saline waters in Louisiana has always been blurred across Louisiana's vast coastline and its many estuaries. The same can be said of fish communities encountered in this transitional environment, which also grade from freshwater-dominated-species to marine-dominated-species with transitional communities between these. A compounding factor is that Louisiana's coastline is vanishing due to a combination of natural and anthropogenic processes. Climate change induced sea level rise will exacerbate this problem in coming decades, and this will shift the transition between freshwater and marine environments, and their respective fish communities, further inland.

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