

Freshwater Fishes of the Estuary

BARATARIA-TERREBONNE NATIONAL ESTUARY PROGRAM

2018 TIDAL GRAPH CALENDAR



Freshwater Fishes of the Estuary



Biologists today have a special way of naming living organisms, called "binomial nomenclature". Often called scientific names or Latin names, this two-part (binomial) naming system has been in use for hundreds of years. Since the early 1500s, scientists were creating their own naming systems, but the methods were inconsistent. It was not until the 1700s that Swedish botanist Carl Linnaeus was credited with the strict system of binomial nomenclature, which was finally adopted by mainstream science. In fact, Linnaeus first described the fish species *Amia calva* (bowfin or choupique) in 1766. The choupique is featured in the March article of this calendar.

The naming of an organism is important because it provides a way to separate or compile living things into specific categories or classifications, based on evolutionary, anatomical, genetic, and physiological characteristics. For example, a choupique and a catfish are both fish but have different physical characteristics that separate them into different groupings or classifications. The system of classification is called taxonomy, which provides organization and distinctions for all living things (bacteria, plants, fungi, animals, etc.).

These distinctions are made using a phylogenetic (in an evolutionary sequence) approach, starting with the least derived species and moving to the most derived species. Living organisms with cells containing a nucleus and membrane-enclosed organelles are of the Domain Eukaryota (eukaryotes). There are five Kingdoms of eukaryotes: protists, chromists, plants, fungi, and animals.

SCIENTIFIC CLASSIFICATION	MEANING
Kingdom: Animalia	Animal – eukaryotic, multicellular organisms
Subkingdom: Bilateria	Body plan dividing organism into two equal parts
Infrakingdom: Deuterostomia	Organism whose mouth is the 2nd opening to develop
Phylum: Chordata	Presence of a flexible spinal column
Subphylum: Vertebrata	Chordates with backbones
Infraphylum: Gnathostomata	Vertebrates with a vertical biting device or "jaw"

All jawed vertebrates are in the Infraphylum "Gnathostomata" that accounts for 99% of all living vertebrates including fishes, amphibians, reptiles, and mammals. Characteristics of this classification also include the presence of teeth, paired appendages, and an adaptive immune system with the ability to produce antigens. The extant, or living, gnathostomes are then separated into a relevant superclass: Actinopterygii (bony, ray-finned fishes), Sarcopterygii (bony, lobe-finned fishes), Chondrichthyes (cartilaginous fishes), or Tetrapoda (amphibians, reptiles, and mammals).

Superclass: Actinopterygii

Actinopterygii and Sarcopterygii both envelop "bony fishes" and are historically referred to together as Osteichthyes. However, there are distinct identifying characteristics including physiology, skeleton, fins, and scales that separate the two superclasses of Actinopterygii and Sarcopterygii. Additionally, there are only a few living species of sarcopterygian fishes compared to the more than 30,000 species of actinopterygian fishes living today. Actinopterygian fishes characterized by their fins, consisting of a thin layer of webbed skin between bony spines that attach directly to their skeletons. A dominant characteristic of this superclass is reproduction through external fertilization. Female fish spawn unfertilized eggs into the water, and males (sometimes multiple) inseminate the eggs that become a free-swimming larvae. However, there is some variation in reproductive characteristics.

Four classes make up the superclass Actinopterygii: Chondrostei, Cladistei, Holostei, and Teleostei. Fishes in the superclass Cladistei are found only in Africa and are not featured in this calendar.

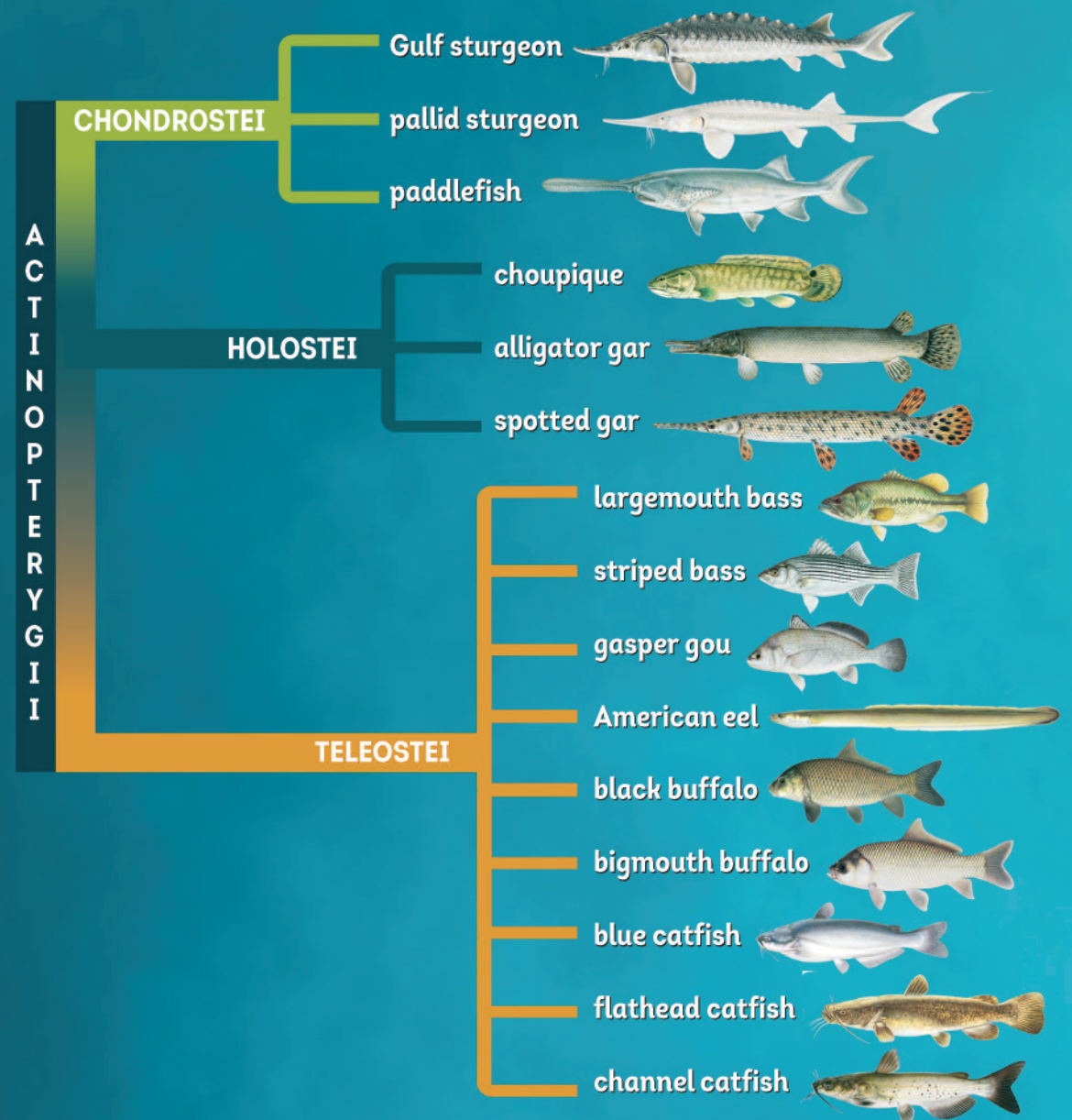
Text references: Ross, Stephen T. 2002. The Inland Fishes of Mississippi. Book, David H. Evans 1993. The Physiology of Fishes. 1st edition. Book, Moyle, Peter B. and Joseph J. Cech. 2003. Fishes. An Introduction to Ichthyology. Fifth Edition. Book, Louisiana Outdoor Writers Association www.laoutdoorwriters.com. Taxonomic classification references: www.itis.gov.



Established in 1991, the mission of the Barataria-Terrebonne National Estuary Program (BTNEP) is the preservation and restoration of the Barataria-Terrebonne estuarine system, the 4.2 million-acre region between the Atchafalaya and Mississippi River basins. BTNEP strives to rebuild and protect the estuary for future generations through the implementation of a science-based, consensus-driven plan that utilizes partnerships focused on the estuary's rich cultural, economic and natural resources.

Why are scientific names in Latin? 1. During the development of binomial nomenclature, Latin was a common language of religion and education across European nations. Scientific findings were published in Latin. 2. Scientific names are derived from not only Latin, but also Classical Greek and other languages that are often converted to a Latinized form. Binomial nomenclature is a two-part naming system. The first part (genus) identifies the genera to which the species belongs and when translated, it typically gives a simple description of the organism (Lepisosteus means "gar fish"). The second part (specific epithet) identifies the species within the genus and either furthers the description of the organism or refers to the biologist that discovered it (oculatus means "eye-like spots"). Lepisosteus oculatus, translated, means "the gar with eye-like spots" or "spotted gar".

CLASSES OF ACTINOPTERYGII



Class: Chondrostei

Order: Acipenseriformes

Family: Acipenseridae (Sturgeons)

The class Chondrostei includes species in the order Acipenseriformes, which are characterized by large, semi-cylindrical bodies and long snouts. Sturgeon and paddlefish are examples of this class of fish.

Gulf Sturgeon



Scientific name: *Acipenser oxyrinchus desotoi*

Name meaning: "the pointed snout sturgeon"

Desotoi is in honor of Hernando de Soto, the sixteenth-century Spanish explorer of the Gulf Coast region.

Status: **THREATENED**

The gulf sturgeon, *Acipenser oxyrinchus desotoi*, is characterized by four anterior barbels between an elongated snout and their highly adapted mouths. The gulf sturgeon is strictly anadromous, which means adults move from the saltwater of the Gulf of Mexico into the estuary for spawning. All sturgeons have the highly adapted protrusible mouth, meaning that they are capable of thrusting out or extending out their jaws to catch prey. The anterior barbels are like sensitive whiskers helping sturgeon to locate prey items, before extending their mouths to catch the prey. Additionally, sturgeon have five rows of bony plates along their body and more bony plates in their heads to protect them from other predators. Species of sturgeon living today have been highly impacted by human activities. Sturgeons have a complicated reproductive life history with immature females taking a relatively long time to reach sexual maturity and then not reproducing annually. After every spawn, it can take three or more years for mature sturgeon to spawn again. Spawning pressure is increased because of the sturgeons need to migrate up rivers to spawn and hydrologic modifications, like dams and levees across large-river habitats, have decreased the ability of sturgeons to reach critical spawning areas. The Gulf sturgeon commonly reach a total length of more than 6 feet and weigh in at more than 250 lbs.

There are two genera in the family *Acipenseridae*: *Acipenser* and *Scaphirhynchus*. All species of the genus *Acipenser* have a subconical snout **with** the presence of spiracles, or gill openings. The genus *Scaphirhynchus*, or river sturgeons, can be distinguished by a flattened shovel shaped snout **without** spiracles. The pallid sturgeon, *Scaphirhynchus albus* (white shovelnose sturgeon), inhabit large river systems of the eastern United States and rarely venture into coastal areas. Today, pallid sturgeon are mostly restricted to the main channels of the Missouri and Mississippi Rivers, but can be found venturing into the floodplain during spawning season. The pallid sturgeon is generally less than 3 feet in total length and weighs less than 60 lbs.

THE PALLID STURGEON

Scientific name: *Scaphirhynchus albus*

Status: **ENDANGERED**

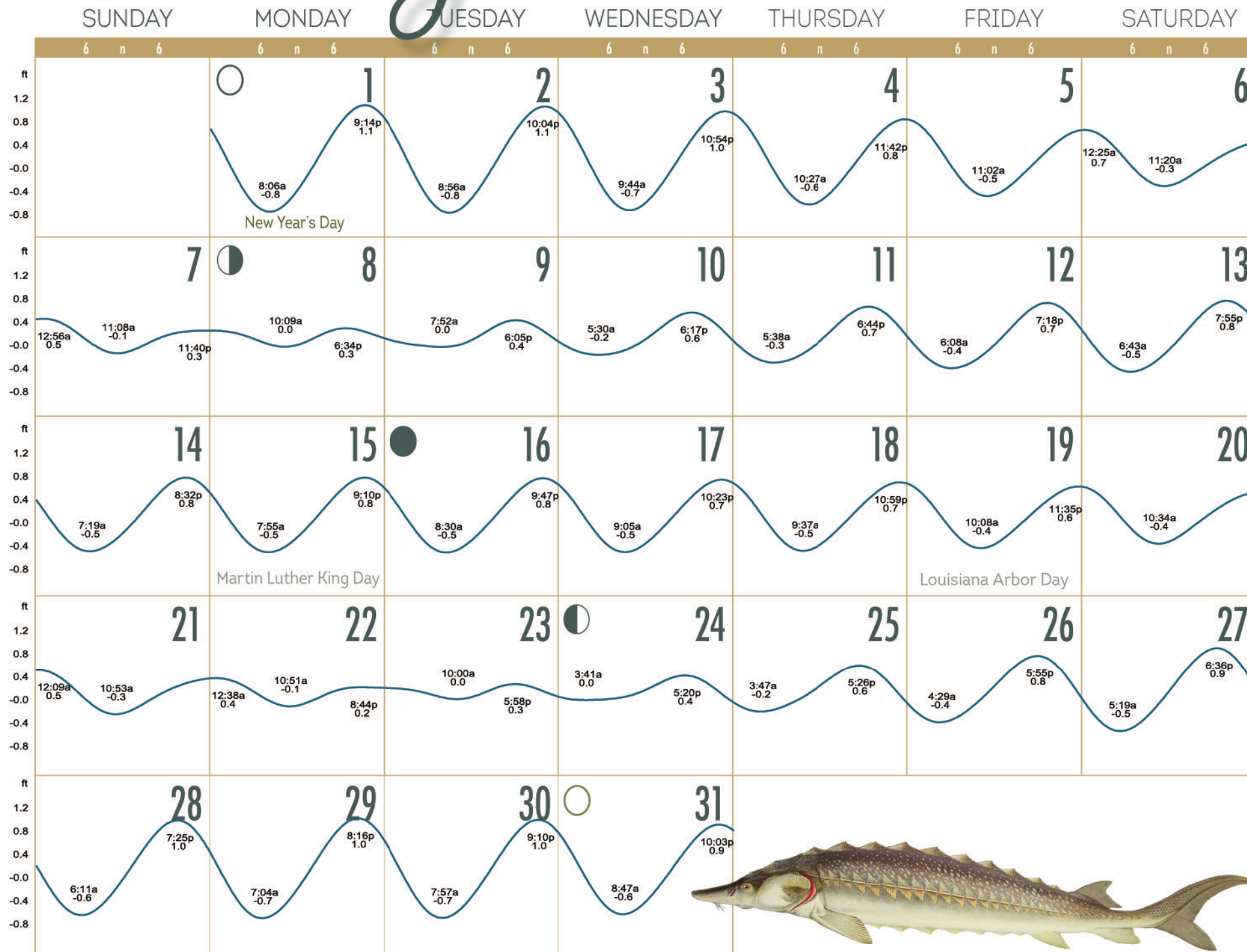


In 1944, a Gulf sturgeon was fished out of the Pearl River that was 7.75 feet long and weighed 340 lbs. This was prior to the Ross Barnett Reservoir construction that impeded migrations of numerous anadromous fishes.



Photo Courtesy of Mississippi Museum of Natural Science

January 2018



DECEMBER 2017

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31						

FEBRUARY 2018

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11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28			

High Tide:
January 1
9:14 p.m. • 1.1 ft.

Low Tide:
January 2
8:56 a.m. • -0.8 ft.



Barataria-Terrebonne National Estuary Program:
P.O. Box 2663, Nicholls State University,
N. Babington Hall, Room 105, Thibodaux, LA 70310
1.800.259.0869 • www.BTNEP.org

Tides from Barataria Bay, Grand Isle, East Point.

29° 15'48" N 89° 57' 24" W

Tides & Currents by Jeppesen Marine

www.nobeltec.com

Tide adjustment table can be found on the inside back cover



Class: Chondrostei

Order: Acipenseriformes

Family: Polyodontidae (Paddlefishes)

The class Chondrostei includes species in the order Acipenseriformes, which are characterized by large, semi-cylindrical bodies and long snouts. Sturgeon and paddlefish are examples of this class of fish.

Paddlefish



Background Photograph by Lane Lefort

© Joseph Tomelleri

Scientific name: *Polyodon spathula*

Name meaning: "Many toothed fish with a long paddle-like snout"

Adult paddlefish do not actually have any teeth, but young ones do have many small teeth.

Status: **SPECIAL CONCERN**

The paddlefish, *Polyodon spathula*, is a living species of an ancient and primitive lineage. The family of paddlefishes have been prevalent since the Cretaceous period. There are two species living today: one living in the Yangtze River of China and the other in the Mississippi River watershed of the United States. This geographic distinction of species demonstrates the ancient connection some 100+ million years ago of proto-Eurasian and North American land masses (Laurasia).

Our native paddlefish is one of the largest freshwater fishes of North America, reaching lengths of 6 feet or longer and weighing more than 100 lbs. Paddlefish have a smooth body, mostly without scales and a heterocercal tail. Filter feeders such as the paddlefish open their mouth very wide and swim through areas densely populated with plankton. Everything larger than 0.09 mm is retained by the paddlefish's mesh like gill rakers. Although closely related to sturgeon, which thrive in flowing water, paddlefish seek refuge in slow moving backwaters and oxbow lakes. Backwater reservoirs are great for feeding on zooplankton. Historically, paddlefish would move back into main river channels and migrate hundreds of miles upriver for spawning purposes. Today, this migration is hindered, so paddlefish congregate in the tailwaters of dams for spawning. After spawning, their downstream migration is also hazardous and they sometimes perish in hydropower turbines.



© Solomon David



The snout, or rostrum, can represent up to one-third of the paddlefish's total length.

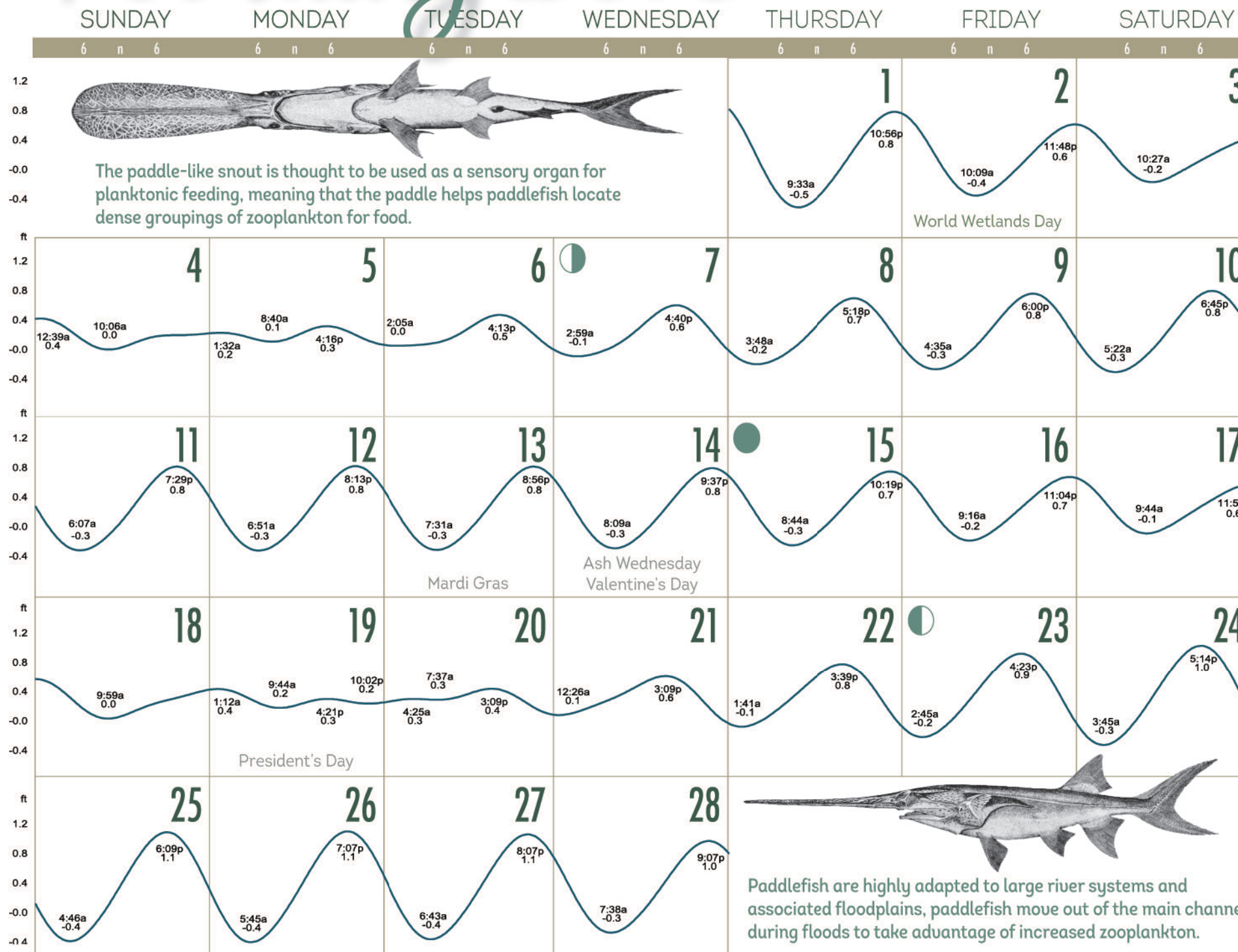
NOAA Historic Fish Collection (NOAA-HFC)



NOAA Historic Fish Collection (NOAA-HFC)

Text references: Ross, Stephen T. 2002. *The Inland Fishes of Mississippi*. Book, David H. Evans 1993. *The Physiology of Fishes*. 1st edition. Book, Moyle, Peter B. and Joseph J. Cech. 2003. *Fishes. An Introduction to Ichthyology*. Fifth Edition. Book, Louisiana Outdoor Writers Association www.laoutdoorwriters.com. Taxonomic classification references: www.itis.gov.

February 2018



JANUARY

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MARCH

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High Tide:
February 26
7:07 p.m. • 1.1 ft.

Low Tide:
February 26
5:45 a.m. • -0.4 ft.



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Tides from Barataria Bay, Grand Isle, East Point,
29° 15' 48" N 89° 57' 24" W
Tides & Currents by Jeppesen Marine
www.nobeltec.com
Tide adjustment table can be found on the inside back cover

Class: Holostei **Order: Amiiformes** **Family: Amiidae (Bowfins)**

The class Holostei encompass fishes that retained ancient adaptive characteristics from an early time in their evolution. Holostei includes 8 living species divided among two orders: Amiiformes (the choupique) and Lipisosteiformes (the gar).

Choupique a.k.a. Bowfin



Background Photograph by Lane Lefort

© Joseph Tomelleri

Scientific name: *Amia calva*

Name meaning: "the ancient smooth fish"

Status: **SECURE**

The choupique, *Amia calva*, is the only species living today from the order Amiiformes. Choupique are large, heavy-bodied fish with an elongated dorsal fin and a rounded heterocercal caudal fin. As predatory fish, choupique have large mouths with many sharp teeth. A distinguishing characteristic is a large plate under the choupique's lower jaw. Visually, the choupique can exhibit beautiful coloration with varying shades of green along the body with dark mottling on the sides. Adult male choupique and juveniles of both sexes have a conspicuous dark spot on the upper portion of their caudal fins, which is ringed in a vibrant yellow or orange. Adult females usually lose this spot during maturation.

The choupique's effective primitive characteristics have been unchanged for hundreds of millions of years. With a compartmentalized air bladder, the choupique is highly adapted at directly breathing air and does well in hypoxic, or low oxygen water. In the Barataria-Terrebonne National Estuary, choupique are usually found in freshwater swamps and slow moving bayous. During the springtime flood season, choupique move into flooded swamps in search of food and spawning habitat. Spawning rituals include a courtship between a male and female, which starts with the male building and maintaining bowl-shaped nests in shallow vegetation. He selects a female by biting her face to initiate courtship, pulling her to the nest, and then moving parallel to her side. She spawns her eggs into the nest while the male vibrates his fins and fertilizes the eggs. The pair can repeat this protocol up to five times, producing thousands of fertilized eggs, before the female leaves the nest. The male stays behind defending the eggs against predators.

After flood season, choupique cannot always find deep-water refuge and become trapped in backwater ponding areas that are oxygen deprived. This is a death sentence for most fish, but not for the choupique. Even when the pools begin to dry up, leaving only mud, choupique have been known to survive for weeks buried in the mud.

Text references: Ross, Stephen T. 2002. *The Inland Fishes of Mississippi*. Book, David H. Evans 1993. *The Physiology of Fishes*. 1st edition. Book, Moyle, Peter B. and Joseph J. Cech. 2003. *Fishes. An Introduction to Ichthyology*. Fifth Edition. Book, Louisiana Outdoor Writers Association www.laoutdoorwriters.com. Taxonomic classification references: www.itis.gov.



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Choupique eggs are edible, and sometimes sold as a relatively less expensive caviar called Choupiquet Royale or Cajun Caviar. To the right market, choupique eggs can sell for \$12 or more per pound.



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March 2018

SUNDAY

MONDAY

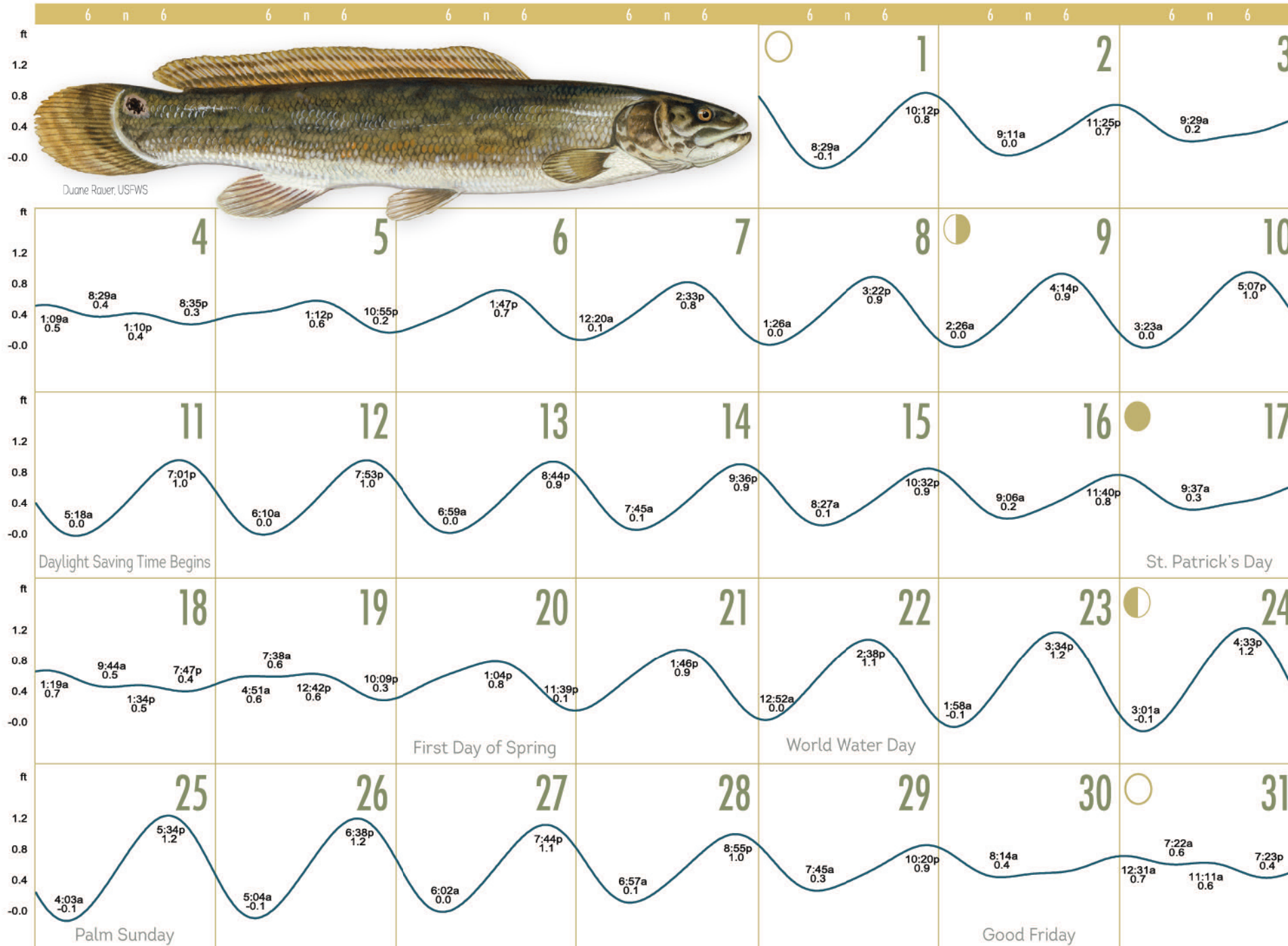
TUESDAY

WEDNESDAY

THURSDAY

FRIDAY

SATURDAY



FEBRUARY

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APRIL

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29	30					

High Tide:
March 25
5:34 p.m. • 1.2 ft.

Low Tide:
March 25
4:03 a.m. • -0.1 ft.



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Class: Holostei Order: Lepisosteiformes Family: Lepisosteidae (the gars)

The class Holostei encompass fishes that retained ancient adaptive characteristics from an early time in their evolution. Holostei includes 8 living species divided among two orders: Amiiformes, the choupique, and Lipisosteiformes, the gars.

Alligator Gar

Background Photograph by Lane Lefort

Scientific name: *Atractosteus spatula*

Name meaning: "the bony arrow shaped fish with a broad, elongated snout"

Status: **SPECIAL CONCERN**

The alligator gar, *Atractosteus spatula*, is the largest species of gar living in our estuary today, known to grow more than 7 feet in total length and weigh more than 250 lbs. Fossils of alligator gar, nearly unchanged, trace their origin back more than 100 million years ago. All gar species, including alligator gar have a relatively long slender body with prolonged jaws and hundreds of razor-sharp teeth. Gar are heavily armored with interlocking ganoid scales. Like the choupique, low oxygen water is no problem for Lepisosteids, as they have the ability to close their gill covers and survive by directly breathing air. This is showcased by the typical "gar roll" across the top of the water. During a gar roll, the fish is actually taking a gulp of air when it surfaces. As a very large opportunistic predator, alligator gar will feed on anything that it can easily catch and swallow whole. While fish make up the majority of an alligator gar's diet, they are also known to scavenge dead animals, ducks, and small birds. Alligator gar will also cannibalize smaller alligator gar when food is scarce.



U.S. Fish and Wildlife Service

Spawning season for alligator gar is in the late spring, when water depths and temperatures begin to rise. Followed closely by two or three male alligator gar, large adult females move into flooded vegetation to begin spawning rituals. The males will follow the single female close to her side and tap her sides with their snouts, signaling her to release her eggs so the males can fertilize them.

Alligator gar are harvested commercially and recreationally in Louisiana by fishermen using jug lines, bow, and arrow. The large adult females are typically the most sought after, which is a conservation concern. Female alligator gar take up to a decade to reach maturity and older, larger females produce more offspring. Removing the largest female alligator gar from the population reduces the population's potential to repopulate.

Text references: Ross, Stephen T. 2002. *The Inland Fishes of Mississippi*. Book, David H. Evans 1993. *The Physiology of Fishes*. 1st edition. Book, Moyle, Peter B. and Joseph J. Cech. 2003. *Fishes. An Introduction to Ichthyology*. Fifth Edition. Book, Louisiana Outdoor Writers Association www.laoutdoorwriters.com. Taxonomic classification references: www.itis.gov.



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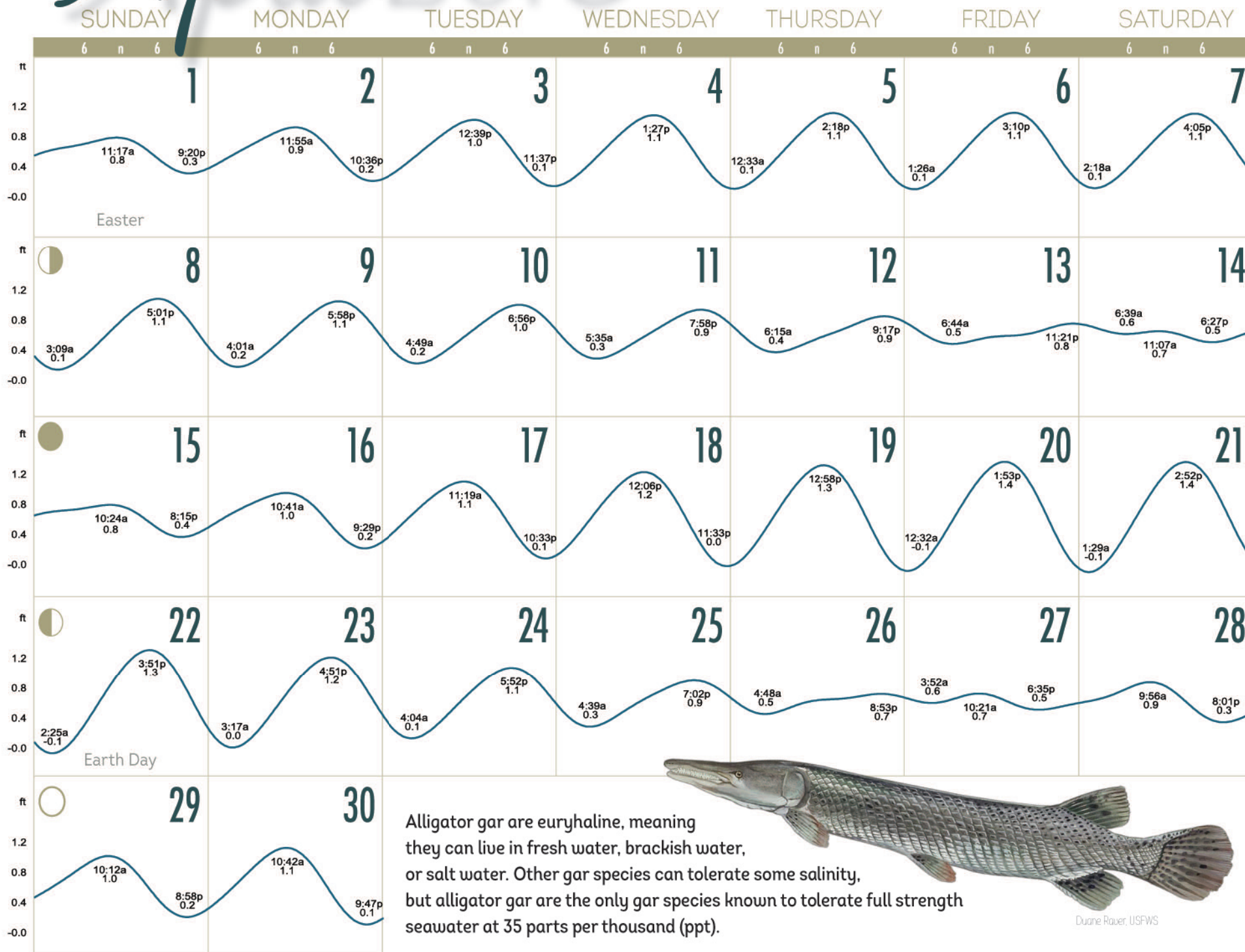
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GAR IDENTIFICATION

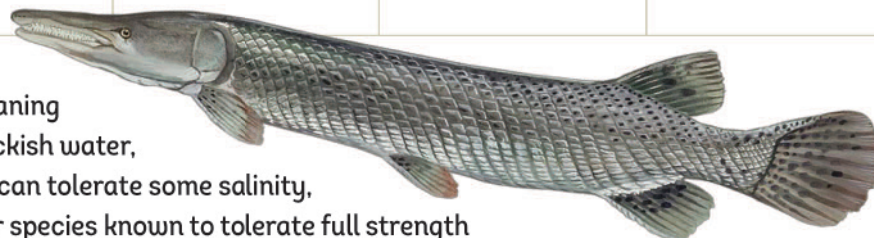


U.S. Fish and Wildlife Service

April 2018



Alligator gar are euryhaline, meaning they can live in fresh water, brackish water, or salt water. Other gar species can tolerate some salinity, but alligator gar are the only gar species known to tolerate full strength seawater at 35 parts per thousand (ppt).



Duane Raver, USFWS

MARCH

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MAY

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20	21	22	23	24	25	26
27	28	29	30	31		

High Tide:
April 20
1:53 p.m. • 1.4 ft.

Low Tide:
April 21
1:29 a.m. • -0.1 ft.



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Class: Holostei **Order: Lepisosteiformes** **Family: Lepisosteidae (the gars)**

The class Holostei encompass fishes that evolved the ability to directly breathe air 275 million years ago. Holostei includes 8 living species divided among two orders: Amiiformes, the choupique, and Lipisosteiformes, the gars.

Spotted Gar

Scientific name: *Lepisosteus oculatus*

Name meaning: "the gar covered in eyelike spots"

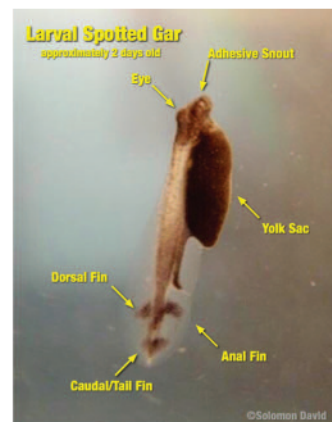
Status: **SECURE**

The spotted gar, *Lepisosteus oculatus*, is the most abundant species of gar living in the Barataria-Terrebonne Estuary System. Spotted gar are present throughout most of the Mississippi River historic floodplain, the Gulf Coast, and Gulf slope drainages from central Texas to western Florida, as well as parts of the Great Lakes. At a maximum of 9 lbs. and 3 feet long, spotted gar are the 3rd largest species of gar found in the United States, behind alligator gar and longnose gar. *L. oculatus* can be distinguished from other gar by the large spots on top of their heads. Coloration of spotted gar can vary with environmental conditions.

For a hundred million years, or more, spotted gar have adapted to the large river floodplain of the Mississippi River. In January and February temperatures begin to rise and snow from higher latitudes melts and drains to the Mississippi River creating a pulse of flooding throughout the floodplain. During floods, large river floodplains become extremely productive due to the extensive nutrient and energy exchange that occurs when the water rises and submerges dry land. During this "flood pulse" the inundated land serves as spawning habitat for spotted gar and similar species. Springtime flooding is a trigger for fishes like the spotted gar to initiate spawning behavior.

Due to hydrologic modifications of the Mississippi River, the annual flood pulse no longer includes most of the Barataria-Terrebonne Estuary System. This is problematic for spotted gar because they are forced to depend on localized rain events to flood the bottomlands for spawning and reproduction. Rain events are unpredictable and typically shorter in duration than a springtime flood pulse. Multiple years of drought or decreased rainfall could negatively impact spotted gar in our estuary.

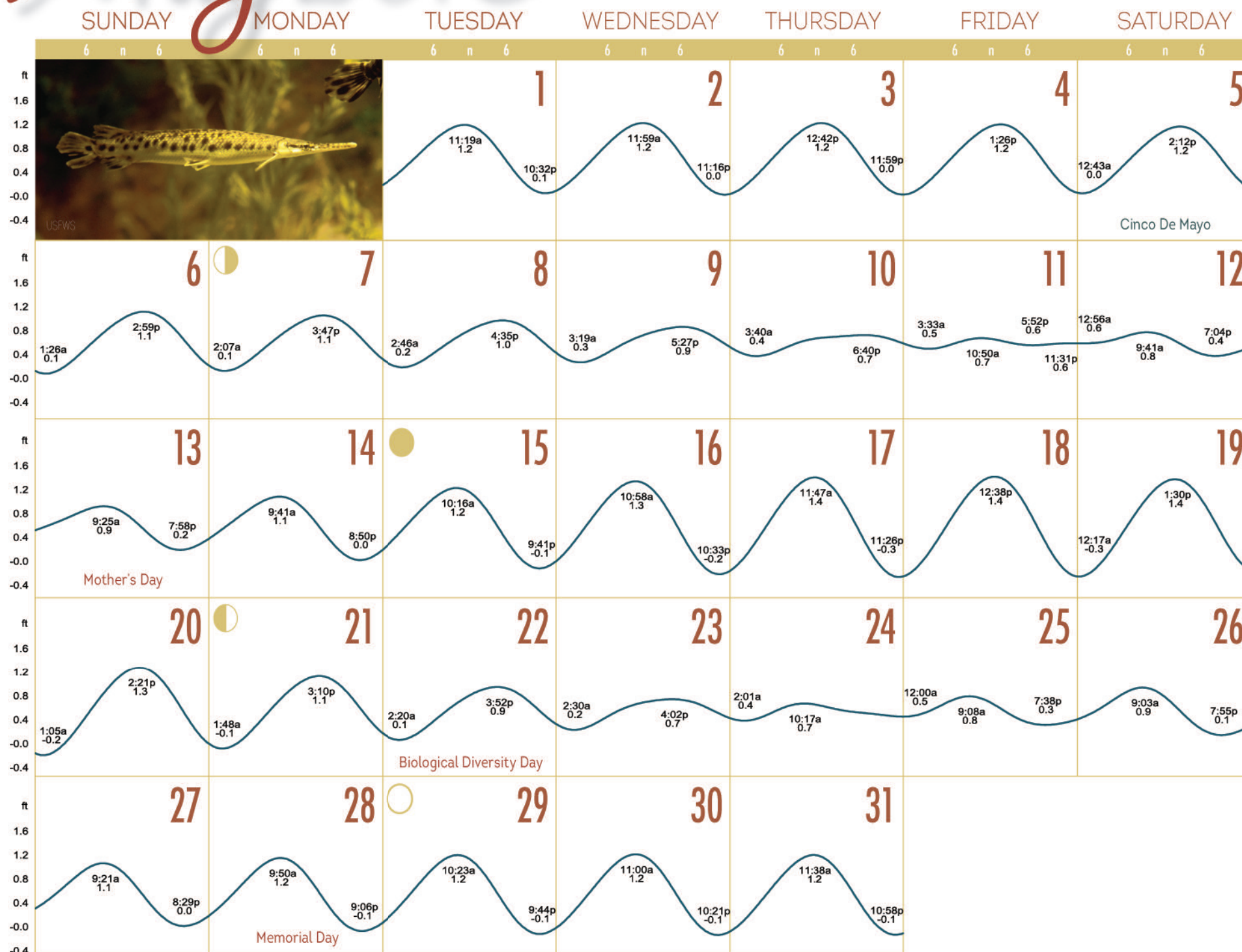
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Background Photograph by Lane Lefort

© Joseph Tomelleri

May 2018



APRIL

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JUNE

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24	25	26	27	28	29	30

High Tide:
May 18
12:38 p.m. • 1.4 ft.

Low Tide:
May 17
11:26 p.m. • -0.3 ft.



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Class: Teleostei

Superorder: Acanthopterygii

Order: Perciformes

Family: Centrarchidae (Sunfishes)

As the largest class of superclass Actinopterygii, Teleostei makes up 96% of living ray finned fishes today with more than 26,000 named or described species. Teleosts have a wide range of specialized adaptations allowing them to inhabit nearly any type of aquatic environment. Acanthopterygians typically include deep-bodied fishes like sunfishes and perches with sharp bony rays in their fins.

Largemouth Bass



Background Photograph by Lane Lefort

Scientific name: *Micropterus salmoides*

Name meaning: "The small fin troutlike fish"

Status: **SECURE**

The largemouth bass, *Micropterus salmoides*, is the largest of the three black bass species (largemouth, smallmouth, and spotted bass). A mouth slit extending past the eye distinguishes largemouth bass from other bass species in this family. The largest largemouth bass caught in Louisiana was 15.97 lbs., but the U.S. record is 22.25 lbs., angled in Georgia. Largemouth bass are an olive-green color with dark mottling surrounding a dark lateral stripe along the body. Near the head, the lateral stripe is sometimes broken up or blotched, but becomes more distinct and straight edged towards the caudal fin.

Largemouth bass are found throughout our estuary, from the freshwater bayous and lakes to brackish marshes, tolerating salinities up to 12 parts per thousand (ppt). Anglers target larger numbers of bass in freshwater lakes with high water clarity and dense submerged aquatic vegetation. Late winter and early spring is the spawning season for largemouth bass. Males choose a shallow, protected area near a submerged log to build a nest on a hard substrate or water bottom. If the bottom is soft or muddy, the male will excavate a nest among the roots of riparian trees or underground stems of submerged plants. Once constructed, the male leaves the nest to lure a female to the nest for spawning. Male and female hover side by side over the nest with their bellies almost touching and release eggs and sperm simultaneously. Similar to choupique, male largemouth bass will stay on the nest for several weeks to protect their eggs and young larvae.

Text references: Ross, Stephen T. 2002. *The Inland Fishes of Mississippi*. Book, David H. Evans 1993. *The Physiology of Fishes*. 1st edition. Book, Moyle, Peter B. and Joseph J. Cech. 2003. *Fishes. An Introduction to Ichthyology*. Fifth Edition. Book, Louisiana Outdoor Writers Association www.laoutdoorwriters.com. Taxonomic classification references: www.itis.gov.



Robert Pos, USFWS



photo by Dean Blanchard

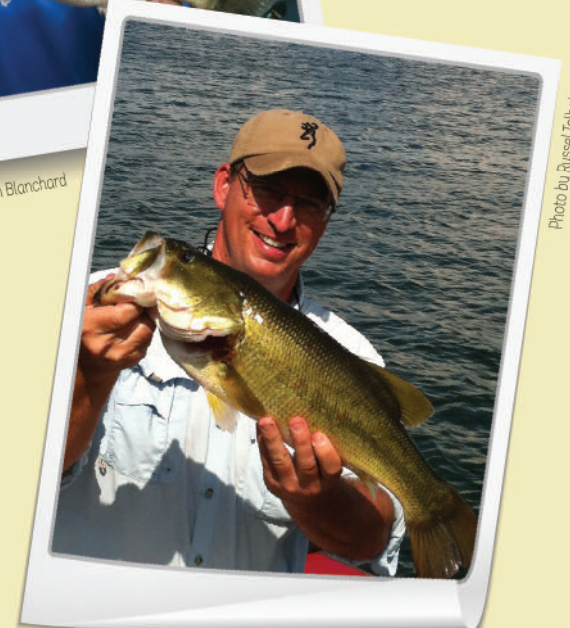


Photo by Russel Tabbot

The order Perciformes, meaning "perch-like", is the most variably sized order of vertebrates, ranging from the 1/4-inch long stout infantfish to the 16 foot long Atlantic blue marlin.

June 2018

SUNDAY

MONDAY

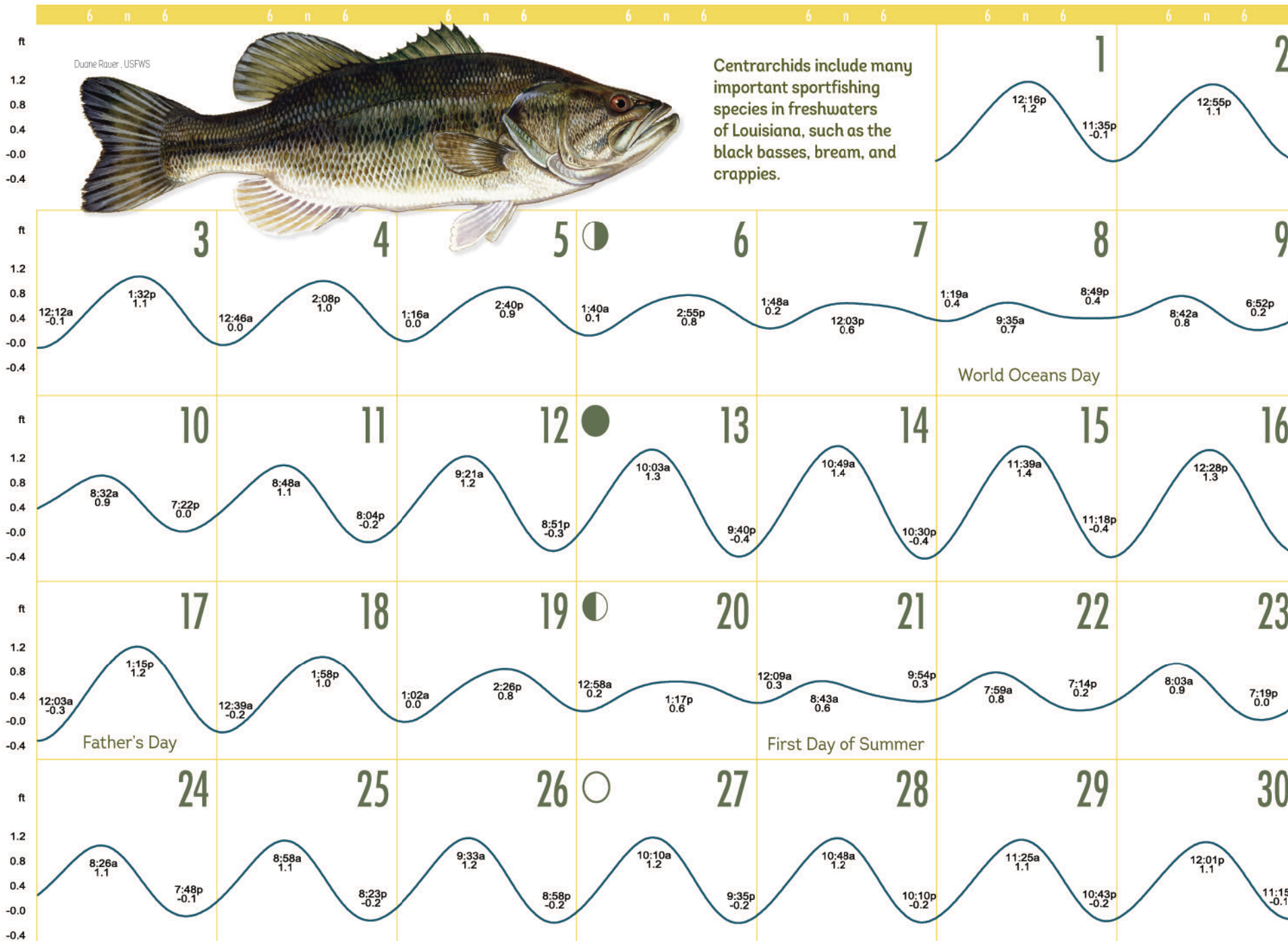
TUESDAY

WEDNESDAY

THURSDAY

FRIDAY

SATURDAY



MAY

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13	14	15	16	17	18	19
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27	28	29	30	31		

JULY

S	M	T	W	T	F	S
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8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

High Tide:
June 14
10:49 a.m. • 1.4 ft.

Low Tide:
June 14
10:30 p.m. • -0.4 ft.



Barataria-Terrebonne National Estuary Program:
P.O. Box 2663, Nicholls State University,
N. Babington Hall, Room 105, Thibodaux, LA 70310
1.800.259.0869 • www.BTNEP.org

Tides from Barataria Bay, Grand Isle, East Point,
29° 15'48" N 89° 57' 24" W
Tides & Currents by Jeppesen Marine
www.nobeltec.com

Tide adjustment table can be found on the inside back cover

Class: Teleostei

Superorder: Acanthopterygii

Order: Perciformes

Family: Moronidae (Temperate Basses)

Acanthopterygians typically include deep-bodied fishes like sunfishes and perches with sharp bony rays in their fins. The temperate basses (striped bass) have two separate dorsal fins, whereas the centrarchids (largemouth bass) have one continuous dorsal fin.

Striped Bass



Background Photograph by Lane Lefort

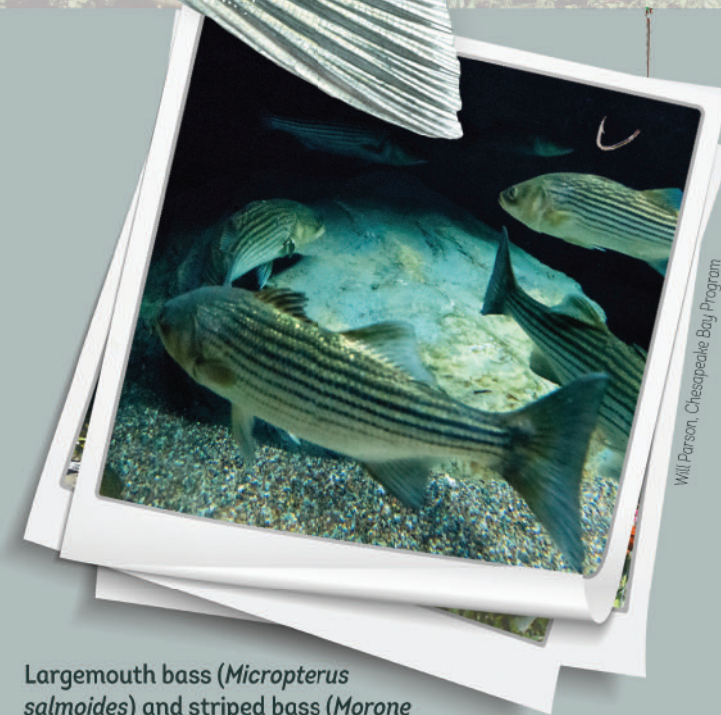
Scientific name: *Morone saxatilis*

Name meaning: *Morone* is from an unknown origin;
saxatilis means to "live among rocks"

Status: **LEAST CONCERN**

The striped bass, *Morone saxatilis*, is native to freshwater and estuaries along the Gulf and Atlantic Coasts with an anadromous life cycle spawning in fresh water, but feeding in saline estuaries and coastal waters. Adult stripers living in estuaries feed heavily on menhaden and gizzard shad but also crustaceans like blue crabs and shrimp. The striped bass is the largest of three species of temperate basses in Louisiana, including the white bass (*Morone chrysops*) and the yellow bass (*Morone mississippiensis*). Striped bass can be distinguished by their bluish-green color on top, white bottom, and six to nine dark lateral stripes along the body. Some striped bass get large, reaching total lengths up to 6 feet long and weigh more than 100 lbs. However, it is more common to catch stripers at or under 40 lbs. and 2-4 feet long. No matter the size, striped bass are known for their strong fight when hooked on rod and reel. The large size and fight of striped bass have influenced anglers to transplant stripers outside of their native range. Today, striped bass can be found in most lakes and reservoirs across North America. A status of "least concern" means that the striped bass populations have been evaluated and some concern may be warranted, but the species does not qualify as threatened, near threatened, or endangered.

In coastal populations, individuals may ascend streams and travel as much as 100 miles inland to spawn. Land-locked populations complete their entire life cycle in freshwater by ascending tributaries of the lakes or streams. Spawning begins in the spring when water temperatures approach 60°F. Typically, one female is accompanied by several males during spawning. Running water is necessary to keep eggs in motion until hatching. At least 50 miles of stream is required for successful hatches. Stripers may reach a size of 10 to 12 inches in the first year. Males mature faster over two years; whereas females take three to four years.



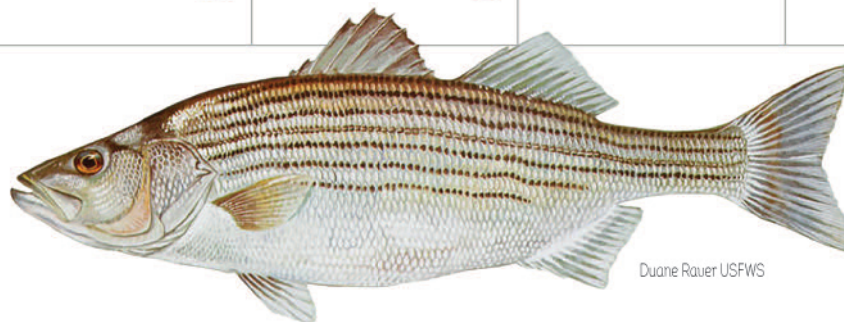
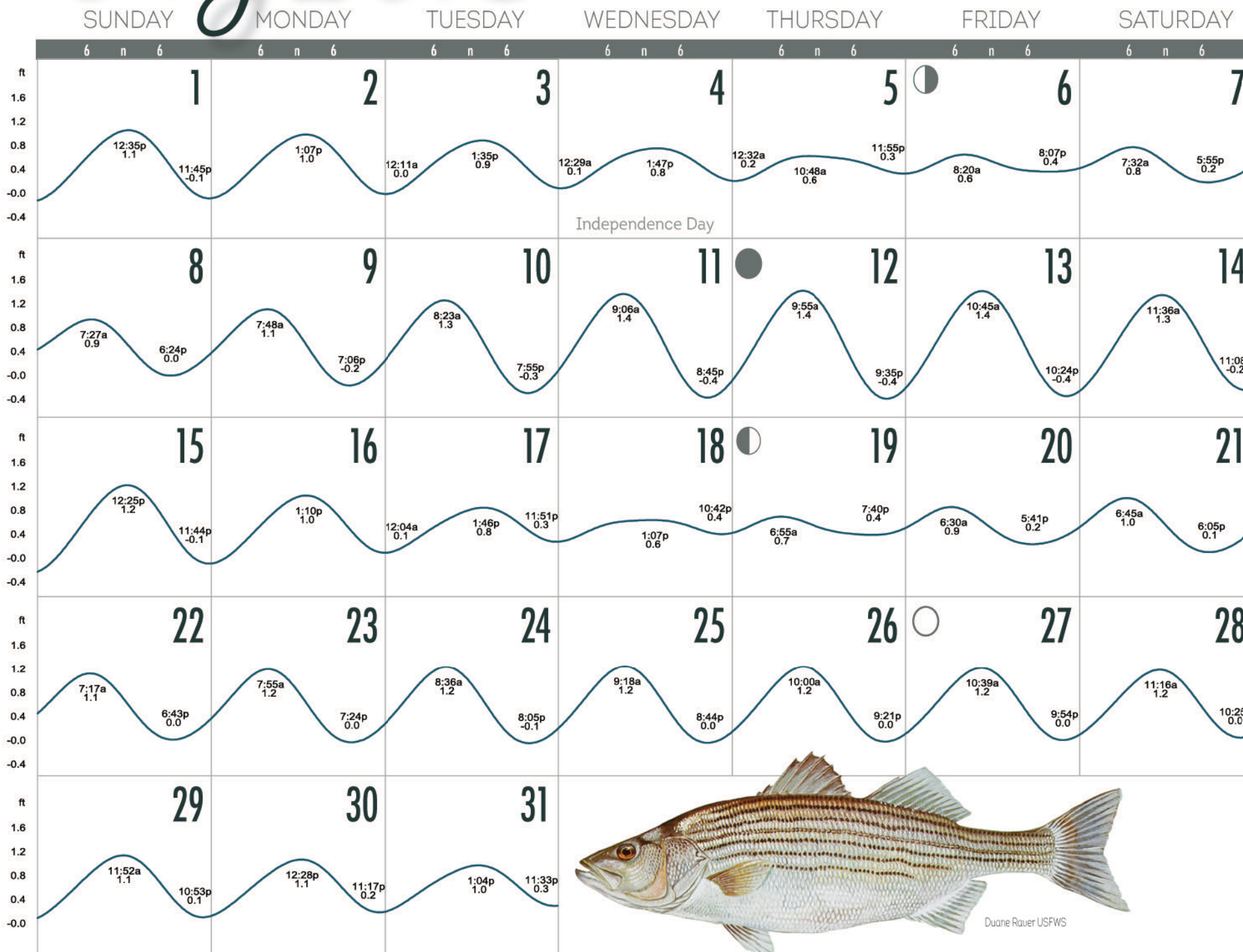
Will Parson, Chesapeake Bay Program

Largemouth bass (*Micropterus salmoides*) and striped bass (*Morone saxatilis*) share the same "bass" title, but they actually belong to different families of fishes.

Text references: Ross, Stephen T. 2002. *The Inland Fishes of Mississippi*. Book, David H. Evans 1993. *The Physiology of Fishes*. 1st edition. Book, Moyle, Peter B. and Joseph J. Cech. 2003. *Fishes. An Introduction to Ichthyology*. Fifth Edition. Book, Louisiana Outdoor Writers Association www.laoutdoorwriters.com. Taxonomic classification references: www.itis.gov.

Robert Brigham, NOAA, Central Library Historical Fisheries Collection 2

July 2018



Duane Rauer USFWS

JUNE

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

AUGUST

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			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

High Tide:
July 12
9:55 a.m. • 1.4 ft.

Low Tide:
July 12
9:35 p.m. • -0.4 ft.



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Tides from Barataria Bay, Grand Isle, East Point,
29° 15'48" N 89° 57' 24" W

Tides & Currents by Jeppesen Marine
www.nobeltec.com

Tide adjustment table can be found on the inside back cover

Class: Teleostei

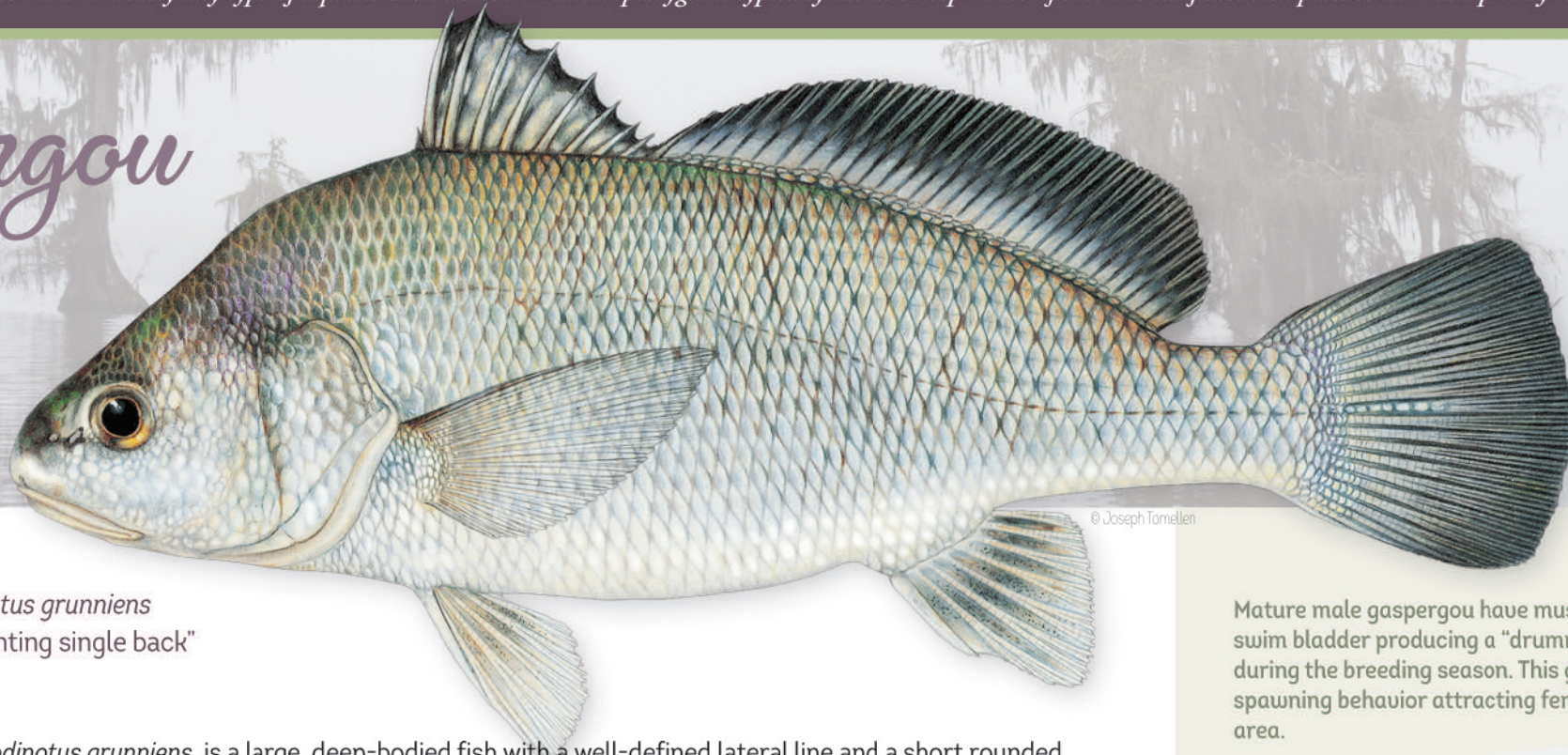
Superorder: Acanthopterygii

Order: Perciformes

Family: Sciaenidae (the drums)

As the largest class of superclass Actinopterygii, Teleostei makes up 96% of living ray-finned fishes today with more than 26,000 named or described species. Teleosts have a wide range of specialized adaptations allowing them to inhabit nearly any type of aquatic environment. Acanthopterygians typically include deep-bodied fishes like sunfishes and perches with sharp bony rays in their fins.

Gaspergou



Background Photograph by Lane Lefort

Scientific name: *Aplodinotus grunniens*

Name meaning: "the grunting single back"

Status: **SECURE**

The freshwater drum, *Aplodinotus grunniens*, is a large, deep-bodied fish with a well-defined lateral line and a short rounded snout. The gaspergou is the only member of the family Sciaenidae that inhabits freshwater for its entire life. Geographically, gaspergou range throughout the Mississippi River drainage in the United States and South to Guatemala in Central America. Gaspergou can weigh up to 60 lbs. and measure 30 inches in total length. Young feed primarily on invertebrate zooplankton and slowly progress into aquatic insect larvae. Adult gaspergou have terminal mouths making them highly adapted to feeding on bottom-dwelling

organisms such as midge fly larvae, mosquito larvae, gizzard shad, bream, crawfish, and molluscs. In Louisiana, common prey items for gaspergou are the 66 freshwater mussel species like the Louisiana pearlshell mussel (*Margaritifera hembeli*), which is critically endangered. Freshwater drum spawn when temperatures reach 65°F. Males drum to attract females and they spawn in open water. Females release the eggs and males fertilize them. The eggs float until they hatch. Freshwater drum are benthic, spending most of their time at or near the bottom of the water column.

When gaspergou are hooked by anglers, they put up a strong fight, similar to their marine cousin the black drum (*Pogonias cromis*). Although gaspergou are frequently considered to be a trash fish, they are delicious when the fresh fish are grilled or baked.

Text references: Ross, Stephen T. 2002. *The Inland Fishes of Mississippi*. Book, David H. Evans 1993. *The Physiology of Fishes*. 1st edition. Book, Moyle, Peter B. and Joseph J. Cech. 2003. *Fishes. An Introduction to Ichthyology*. Fifth Edition. Book, Louisiana Outdoor Writers Association www.laoutdoorwriters.com. Taxonomic classification references: www.itis.gov.

Mature male gaspergou have muscles that vibrate the swim bladder producing a "drumming" or "grunting" sound during the breeding season. This grunting is thought to be spawning behavior attracting females to the spawning area.



Photo by Dean Blanchard

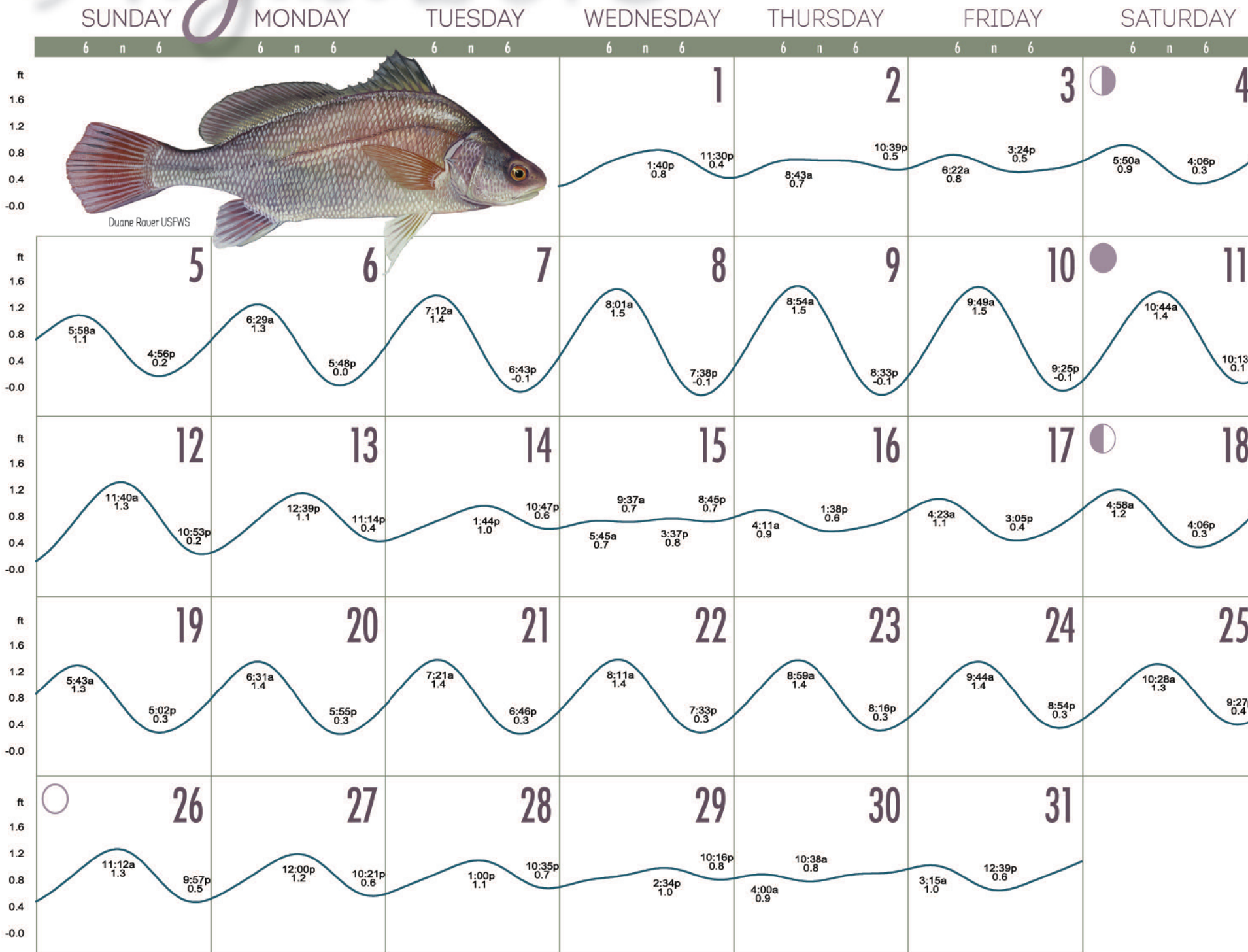


© Solomon David



© Solomon David

August 2018



JULY

S	M	T	W	T	F	S
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8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

SEPTEMBER

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

High Tide:
August 9
8:54 a.m. • 1.5 ft.

Low Tide:
August 8
7:38 p.m. • -0.1 ft.



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Tides & Currents by Jeppesen Marine
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Tide adjustment table can be found on the inside back cover

Class: Teleostei **Order:** Anguilliformes **Family:** Anguillidae (Freshwater Eels)

Among the 26,000+ teleosts, the order Anguilliformes consists of 800 species of eel divided into 20 families, which mostly consist of marine species. There only a few species in the world that spend time in freshwater and they belong to the family Anguillidae.

American Eel



Background Photograph by Lane Lefort

© Joseph Tomelleri

Scientific name: *Anguilla rostrata*

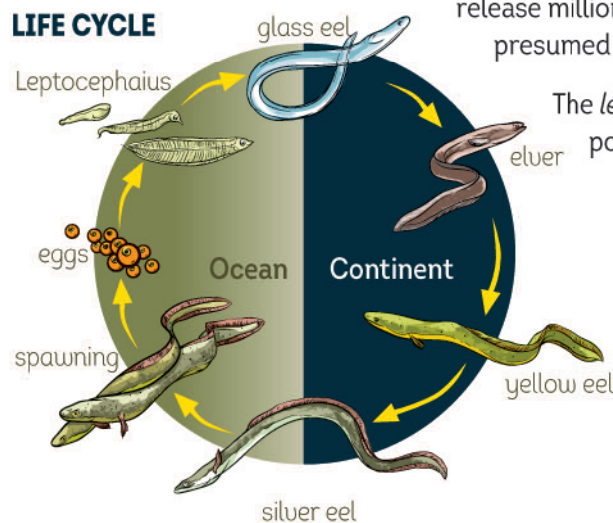
Name meaning: "the long-nosed eel"

Status: **SECURE BUT DECLINING**

The American eel, *Anguilla rostrata*, belongs to the family Anguillidae. American eel are unusual among Anguilliforms in that adults spend their lives in freshwater estuarine systems and only return to saltwater for spawning. Their long, tube-shaped body and the absence of pelvic fins characterizes the American eel. The dorsal and anal fins are confluent with the caudal fin. American eels weigh up to 8 lbs, but can grow to 4 feet in length. Geographic distribution is widespread in the Gulf of Mexico and Eastern Atlantic drainage basins, but is restricted to rivers and streams that are connected to the sea.

During winter months in Louisiana, male and female American eel 6-12 years old, considered *yellow eel*, begin migrating down the rivers and bayous to the Gulf of Mexico. In open water, eels are referred to as *silver eel* and swim the Gulf Stream to the Sargasso Sea of the Atlantic Ocean. Promiscuous or indiscriminate spawning occurs from February to April in deep water where females release millions of floating eggs that are fertilized externally by males. Adult eels are presumed to die after spawning, with no reports of adults migrating up rivers.

LIFE CYCLE

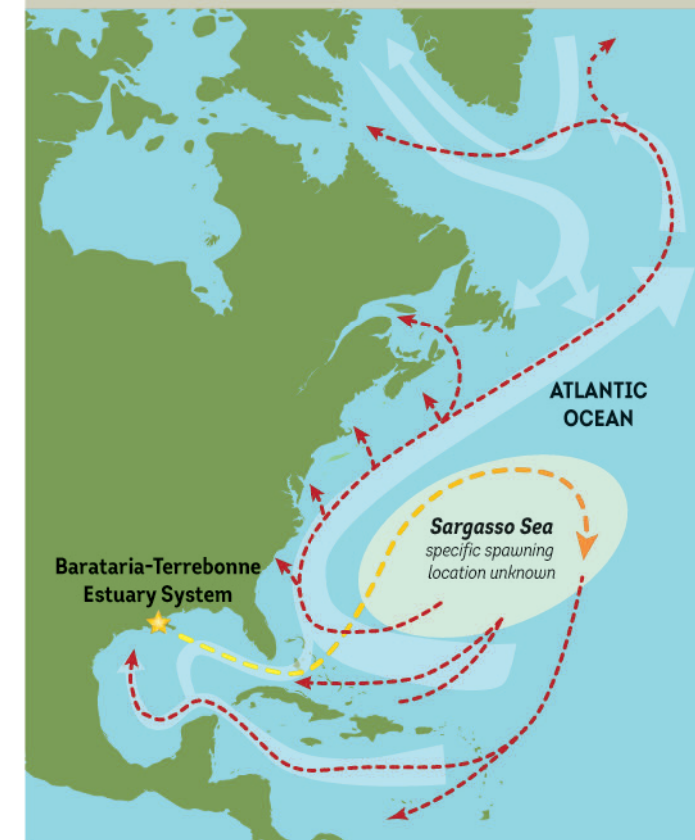


The *leptocephalus* is the transparent "leaf-like" larval form of the eel. It has a small pointed head and large teeth. The larval form drifts in the Gulf Stream for approximately one year until reaching the Gulf of Mexico. Once they reach coastal waters, the leptocephalus metamorphose into *elvers* that migrate into streams and estuaries. Now growing into the adult *yellow eel* stage of their life, males inhabit rivers and estuaries, whereas, females migrate further upstream to lakes.

Text references: Ross, Stephen T. 2002. *The Inland Fishes of Mississippi*. Book, David H. Evans 1993. *The Physiology of Fishes*. 1st edition. Book, Moyle, Peter B. and Joseph J. Cech. 2003. *Fishes. An Introduction to Ichthyology*. Fifth Edition. Book, Louisiana Outdoor Writers Association www.laoutdoorwriters.com. Taxonomic classification references: www.itis.gov.

AMERICAN EEL MIGRATION MAP

The yellow path represents the incredible spawning migration of mature American eel from their freshwater homes to the deep waters of the Atlantic Ocean. The red dotted pathways are passively transported larval forms of the American eel spreading across the eastern coasts of North America, where they enter freshwater to mature.



September 2018

SUNDAY

MONDAY

TUESDAY

WEDNESDAY

THURSDAY

FRIDAY

SATURDAY

6 n 6

6 n 6

6 n 6

6 n 6

6 n 6

6 n 6

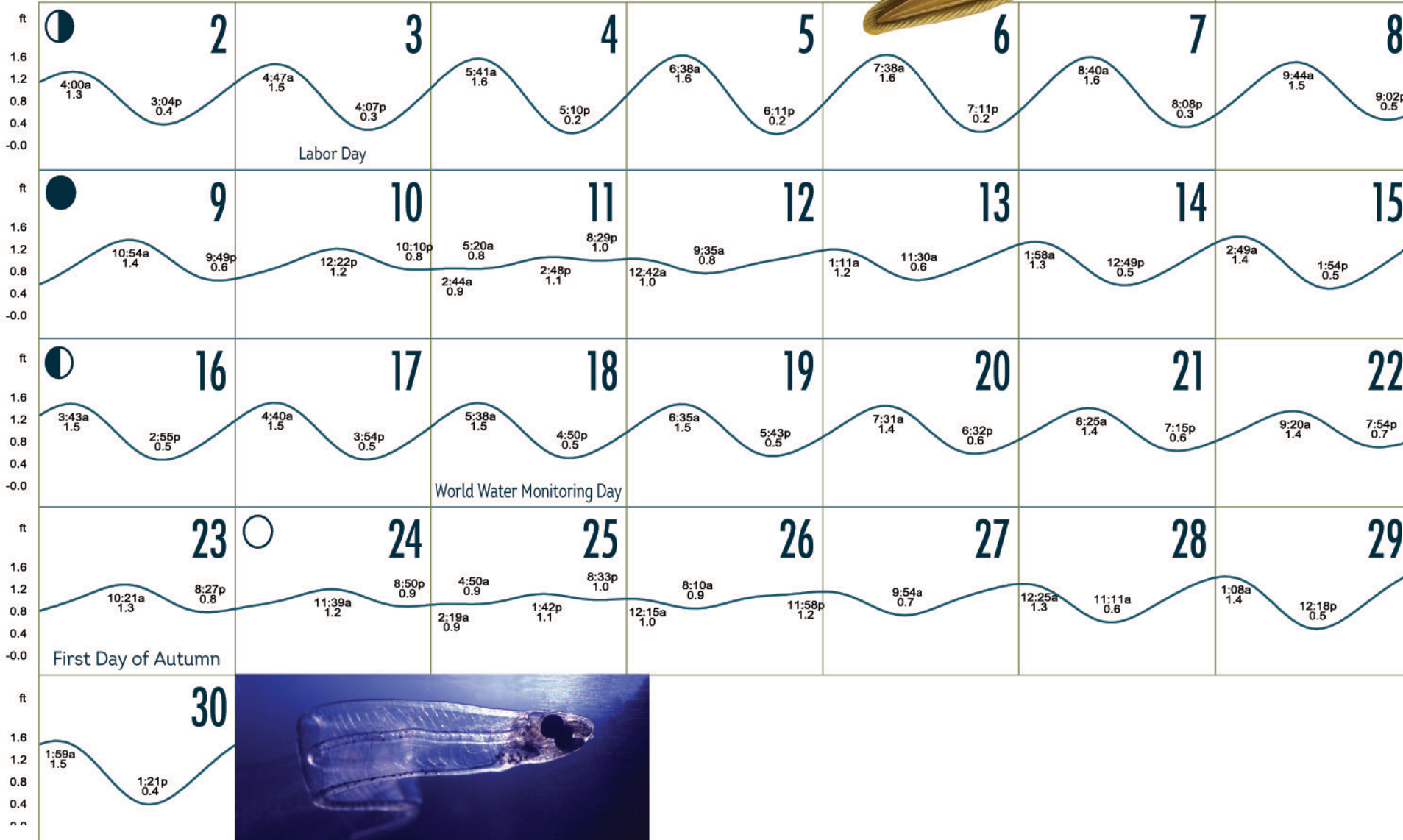
6 n 6

ft
1.6
1.2
0.8
0.4
-0.0

As long as it is cooked, the American eel is safe to eat and considered a delicacy in Japan and many other countries. It must be cooked thoroughly to destroy toxins in the blood.



Duane Raver USFWS



AUGUST

S	M	T	W	T	F	S
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5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
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OCTOBER

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

High Tide:
September 6
7:38 a.m. • 1.6 ft..

Low Tide:
September 5
6:11 p.m. • 0.2 ft..



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29° 15' 48" N 89° 57' 24" W
Tides & Currents by Jeppesen Marine
www.nobeltec.com

Tide adjustment table can be found on the inside back cover

Class: Teleostei

Order: Cypriniformes

Family: Catostomidae (Suckers)

Between class and order, the superorder Ostariophysi envelops minnows (order Cypriniformes), suckers (order Cypriniformes), and catfishes (order Siluriformes). The family Catostomidae distinguishes the suckers from the minnows of the Cyprinidae family. Catostomids, or suckers, are often large, bottom-dwelling fishes that derived from the smaller cyprinids.

Bigmouth Buffalo

Scientific name: *Ictiobus cyprinellus*

Name meaning: "the bull carp"

Status: **SECURE**

The bigmouth buffalo, *Ictiobus cyprinellus*, belongs to the family of suckers Catostomidae that typically feed on benthic, or bottom phytoplankton, detritus (decayed twigs and leaves), copepods, and other small crustaceans. Bigmouth buffalo are deep-bodied suckers with a terminal (at the tip) mouth and smooth lips on a short snout. They have a long dorsal fin, almost shark-like, and a shallow forked caudal fin. Bigmouth buffalo are one of the largest freshwater teleosts, reaching total lengths at near 4 feet and weighing up to 80 lbs. Coloration for bigmouth buffalo can vary from various shades of gray to near black, but always lighter on the bottom of the fish. The geographic range of *I. cyprinellus* includes the majority of the Mississippi River drainage basin from Canada to Louisiana. Bigmouth buffalo are also found in Lake Erie, but are not commonly found in any other watersheds outside of the Mississippi River Watershed. In the spring, buffalo will congregate in shallow water for spawning with several males following a female; this is called a "spawning rush". This activity initially creates a lot of splashing. The female then sticks her nose into the mud with her caudal fin straight up, sometimes breaching the surface of the water. Eggs are released and fertilized simultaneously by the males surrounding her.

There are two other buffalo species living in Louisiana: the smallmouth buffalo (*Ictiobus bubalus*) and the black buffalo (*Ictiobus niger*). All three buffalo species are similar in size and physical characteristics. Smallmouth and black buffalo are most similar to each other and have more subterminal (behind the tip) mouths compared to the terminal mouth of bigmouth buffalo.

THE BLACK BUFFALO

Scientific name: *Ictiobus niger*

Name meaning: "the black bull"

Status: **SECURE**



© Joseph Tomelleri



Background Photograph by Lane Lefort



Brett Albanese Georgia DNR - Wildlife Resources

Bigmouth buffalo are excellent food fish if

prepared and cooked appropriately. All sucker species have numerous small, intermuscular bones that must be accounted for when cleaning and cooking the fish. Buffalo were once an important food source for certain ethnic American communities.



Fisherman with net, LSU and LDWF

October 2018

SUNDAY

MONDAY

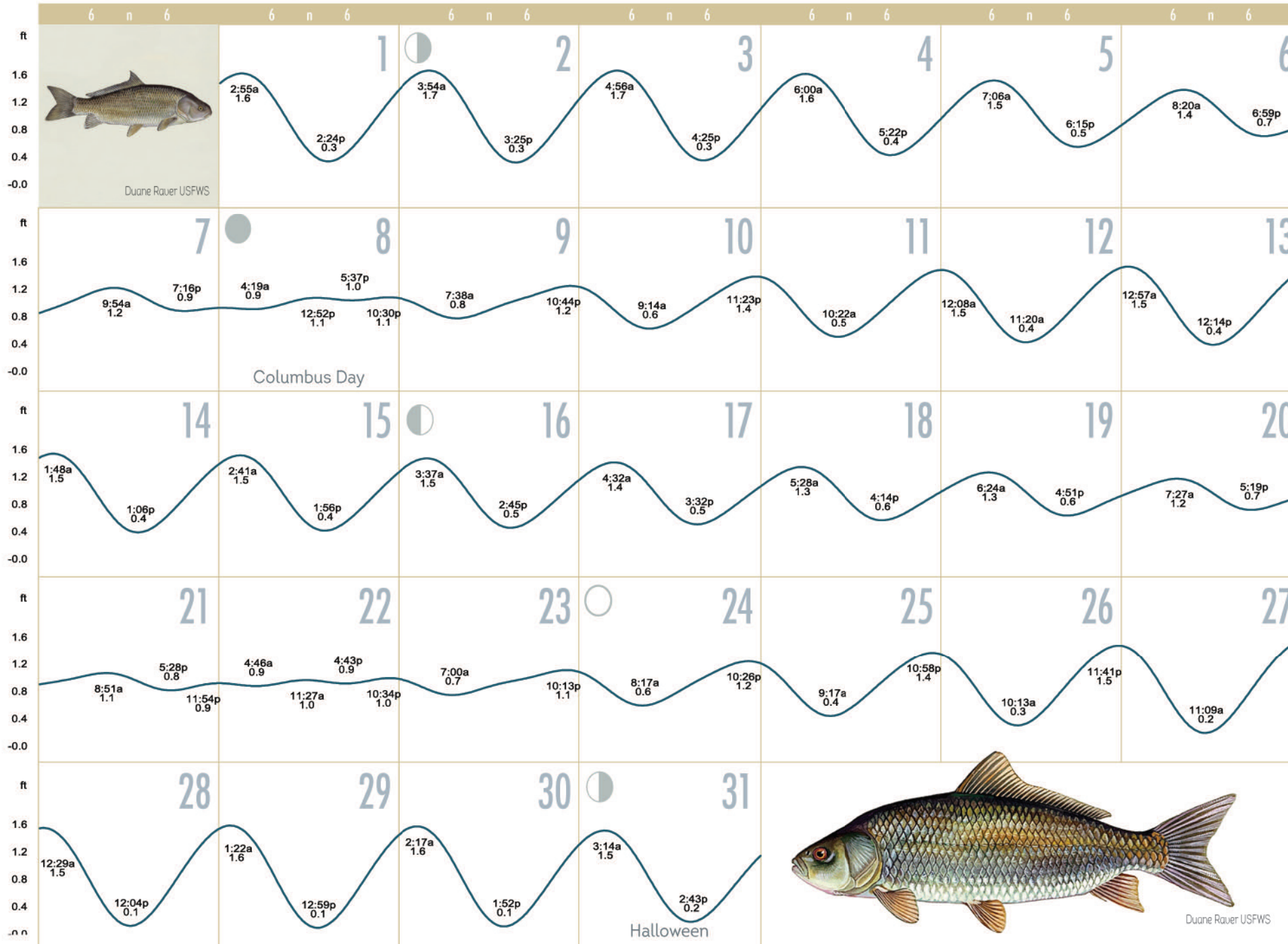
TUESDAY

WEDNESDAY

THURSDAY

FRIDAY

SATURDAY



SEPTEMBER

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2	3	4	5	6	7	8
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30						

NOVEMBER

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

High Tide:
 October 2
 3:54 a.m. • 1.7 ft.

Low Tide:
 October 29
 12:59 p.m. • 0.1 ft.

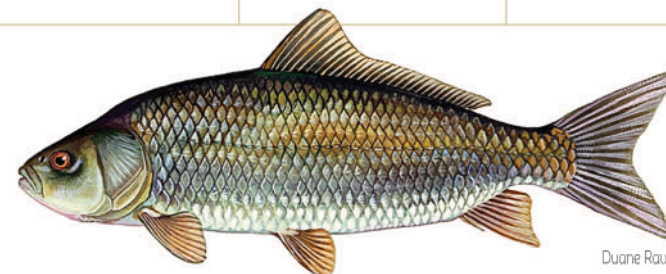


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Tides from Barataria Bay, Grand Isle, East Point,
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Tides & Currents by Jeppesen Marine
 www.nobeltec.com

Tide adjustment table can be found on the inside back cover



Duane Rauer USFWS

Class: Teleostei **Order:** Siluriformes **Family:** Ictaluridae (Bullhead Catfishes)

Between class and order, the superorder Ostariophysi envelops minnows (order Cypriniformes), suckers (order Cypriniformes), and catfishes (order Siluriformes). Fishes of order Siluriformes have prominent barbels on their snouts that resemble a cat's whiskers, thus leading to their common name. Ictalurids are freshwater catfishes of North America.

Flathead Catfish

Background Photograph by Lane Lefort

Scientific name: *Pylodictis olivaris*
Name meaning: "the olive colored mud fish"
Status: **SECURE**

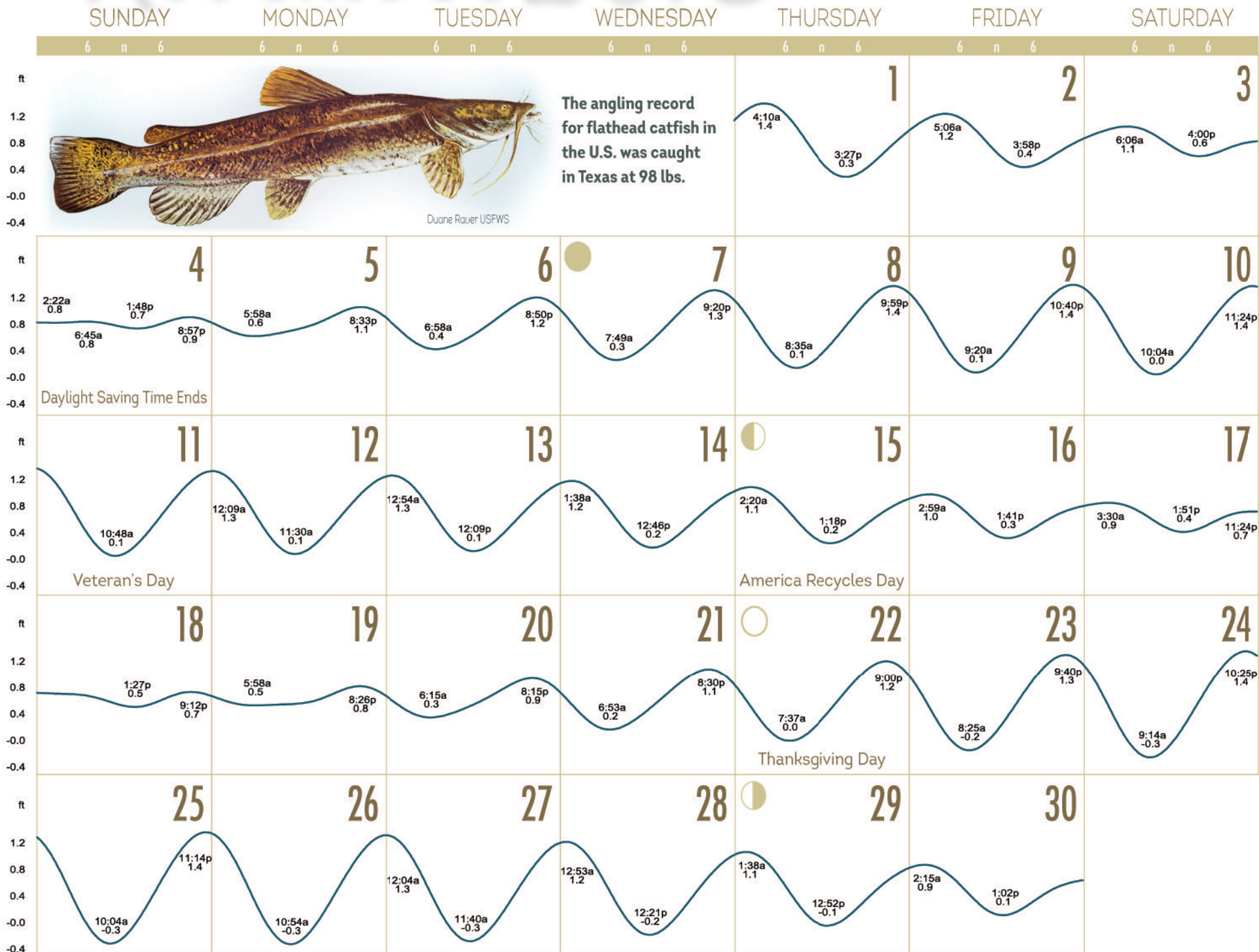
The flathead catfish, *Pylodictis olivaris*, is a bullhead catfish in the family Ictaluridae characterized by scaleless skin and four pairs of barbels. Flatheads have horizontal mouths and their lower jaws project forward past the upper jaw. Adult flathead catfish can grow more than 4 feet in total length and weigh more than 60 lbs. Like many other bottom dwelling fishes, the undersides of the head and body are pale white in color compared to the rest of the body, which is mostly brown with darker mottling. The geographic range of flathead catfish is the Mississippi River and the majority of other drainages across the northern Gulf of Mexico. Young flatheads usually inhabit slower streams containing lots of debris, which they use for cover. Older and larger fish, seek out deeper water and better cover. Flathead catfish are ambush predators. They commonly burrow a cavern under a large log, where they wait motionless for smaller fishes or crawfish to eat whole. Flathead catfish are indiscriminate when it comes to prey, eating minnows, sunfishes, gizzard shad, gaspergou, largemouth bass, channel cat, blue cat, and other flathead catfish. Flathead catfish are important commercial and recreational species. Their large size and strong fight make flatheads popular for angling. An unusual way to catch flatheads is noodling. It involves the fisherman sticking his/her bare hand inside a discovered catfish hole, inserting their hand inside the fish's mouth grabbing hold of its lower jaw and wrestling it to the surface. Noodling is a dangerous method of bringing in a fish, but thrill seekers love it. Superficial cuts and minor wounds are common when noodling, as well as the smaller but ever present risk of drowning or losing fingers from the strong catfish bite. Even small wounds are at a high risk for infection. Additionally, catfish are not the only aquatic species that bites in Louisiana. Snapping turtles and alligators are known to inhabit abandoned catfish holes, and one of their bites is considerably worse than a flathead's.

Male flathead select hollow logs and burrows as nest sites creating shallow depressions for females to lay eggs. Females can lay 1200 eggs for every pound she weighs. For four to six days, males defend the nest and eggs aggressively until hatching is complete and larvae leave the nest.



Text references: Ross, Stephen T. 2002. *The Inland Fishes of Mississippi*. Book, David H. Evans 1993. *The Physiology of Fishes*. 1st edition. Book, Moyle, Peter B. and Joseph J. Cech. 2003. *Fishes. An Introduction to Ichthyology*. Fifth Edition. Book, Louisiana Outdoor Writers Association www.laoutdoorwriters.com. Taxonomic classification references: www.its.gov.

November 2018



OCTOBER

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7	8	9	10	11	12	13
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21	22	23	24	25	26	27
28	29	30	31			

DECEMBER

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

High Tide:
November 1
4:10 a.m. • 1.4 ft.

Low Tide:
November 26
10:54 a.m. • -0.3 ft.



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Class: Teleostei **Order:** Siluriformes **Family:** Ictaluridae (Bullhead Catfishes)

Between class and order, the superorder Ostariophysi envelops minnows (order Cypriniformes), suckers (order Cypriniformes), and catfishes (order Siluriformes). The bullheads have prominent barbels on their snouts that resemble a cat's whiskers.

Blue Catfish

Scientific name: *Ictalurus furcatus*
Name meaning: "the forked fish cat"
Status: **SECURE**

The blue catfish, *Ictalurus furcatus*, is a stout but elongated fish with a deeply forked caudal fin. As one of the largest freshwater fishes in the United States, the blue catfish can weigh more than 100 lbs, reaching total lengths near 6 feet. Coloration of blue catfish can vary but older fish are usually characterized by a dark blue-gray along the back and upper sides, grading to shiny silver or white along the sides and belly. *I. furcatus* is widely distributed within the large river systems of the Mississippi, Missouri, and Ohio, and along coastal drainages of the Gulf of Mexico. There are occurrences of blue catfish as far south as Mexico and even Guatemala. Blue catfish are opportunistic feeders, feeding on everything from mollusks and crustaceans, to fishes and insect larvae. Feeding activity usually increases late night after midnight, when waters are coolest. There is a large commercial and recreational fishery for blue catfish, highest catches usually found in deltaic rivers. While noodling for flathead catfish is the most common, noodlers do not shy away from blue catfish, as they put up a stronger fight than the flathead catfish.

The angling record for the blue catfish in Louisiana is 114 lbs., angled by Lawson Boyte in the Mississippi River in March 2014.

The fish most likely confused with the blue catfish would be its close cousin the channel catfish (*Ictalurus punctatus*). The channel cat presents with dark spots on the body and a more rounded anal fin compared to the straight anal fin of blue catfish.

THE CHANNEL CATFISH

Scientific name: *Ictalurus punctatus*
Name meaning: "the spotted fish cat"
Status: **SECURE**



Text references: Ross, Stephen T. 2002. *The Inland Fishes of Mississippi*. Book, David H. Evans 1993. *The Physiology of Fishes*. 1st edition. Book, Moyle, Peter B. and Joseph J. Cech. 2003. *Fishes. An Introduction to Ichthyology*. Fifth Edition. Book, Louisiana Outdoor Writers Association www.laoutdoorwriters.com. Taxonomic classification references: www.itis.gov.

Background Photograph by Lane Lefort

© Joseph Tomiellen



Photo by Dean Blanchard

Photo by Dean Blanchard

Photo by Michael Klotz

December 2018

SUNDAY

MONDAY

TUESDAY

WEDNESDAY

THURSDAY

FRIDAY

SATURDAY

6 n 6 6 n 6 6 n 6 6 n 6 6 n 6 6 n 6

ft
1.2
0.8
0.4
-0.0
-0.4
-0.8

Blue Catfish, Duane Raver USFWS

Catfish never stop growing;
the larger the fish, the older it is.

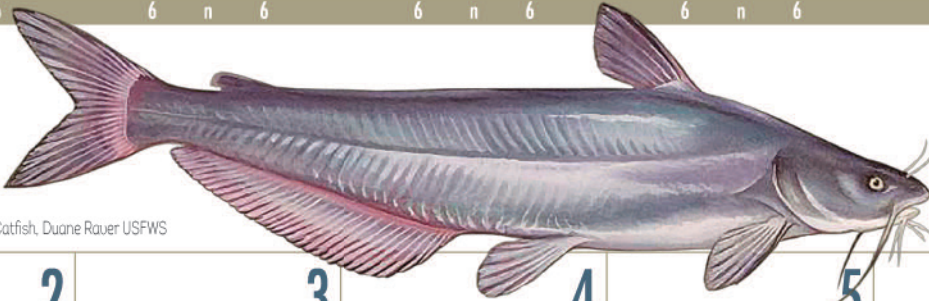
ft
1.2
0.8
0.4
-0.0
-0.4
-0.8

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-0.8

ft
1.2
0.8
0.4
-0.0
-0.4
-0.8



Channel Catfish, Duane Raver USFWS

New Year's Eve

Christmas Day

First Day of Winter

NOVEMBER 2018

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

JANUARY 2019

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

High Tide:
December 7
9:44 p.m. • 1.1 ft..

Low Tide:
December 23
9:11 a.m. • -0.7 ft..



Barataria-Terrebonne National Estuary Program:
P.O. Box 2663, Nicholls State University,
N. Babington Hall, Room 105, Thibodaux, LA 70310
1.800.259.0869 • www.BTNEP.org

Tides from Barataria Bay, Grand Isle, East Point,
29° 15'48" N 89° 57' 24" W
Tides & Currents by Jeppesen Marine
www.nobeltec.com

Tide adjustment table can be found on the inside back cover

TIDE CORRECTIONS

To find the best time to fish your favorite locations, find a location that is closest to your area and add or subtract the time from the corresponding daily prediction.

AREA	LOW (Hours:Minutes)	High (Hours:Minutes)
Shell Beach, Lake Borgne	+5:10	+4:01
Chandeleur Lighthouse	+0:38	+0:05
Venice, Grand Pass	+1:28	+1:06
Southwest Pass, Delta	-0:29	-1:29
Empire Jetty	-1:35	-2:03
Bastian Island	+0:22	-0:19
Quatre Bayou Pass	+0:27	+1:18
Independence Island	+2:09	+1:29
Caminada Pass	+1:44	+1:14
Timbalier Island	+0:33	-0:41
Cocodrie, Terrebonne Bay	+2:50	+1:10
Wine Island	+1:12	+0:08
Raccoon Point	-0:10	-1:03
Ship Shoal Light	-1:40	-2:54

Charts in this calendar are intended for use solely as a reference guide to Louisiana fishing. It is not intended for navigational use. BTNEP makes no warranty, expressed or implied, with respect to the accuracy or completeness of the information contained in these charts. BTNEP assumes no liability with respect to the use of any information contained in this document.

BTNEP THANKS...



2018 TIDAL GRAPH CALENDAR

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FISHING REGULATIONS

This is not a comprehensive or official copy of the laws in effect and should not be utilized as such. Size and creel limit regulations are presented for selected species only. These species as well as other species may be managed by seasons, quotas and permits. Different regulations for bass, catfish and crappie may apply within specific areas. Contact the Louisiana Department of Wildlife and Fisheries (LDWF) for specific information.

FRESHWATER SPECIES

SPECIES	SIZE LIMIT	DAILY LIMIT
Large mouth and Spotted Bass***	None	10
(Atchafalaya Basin and Lake Verret-Palourde Area)	None	10
Crappie (Sac-a-lait)	None	50
Striped or Hybrid Striped Bass	None: 2 over 30" (TL)	5 (Any combination)
White Bass	None	50
Yellow Bass	None	50
Channel Catfish	25 less than 11" (TL)	100
Blue Catfish	25 less than 12" (TL)	100
Flathead Catfish (Spotted, Yellow or Opelousas)	25 less than 14" (TL)	100
Freshwater Drum (Gaspergou)	12" Minimum (TL)	25

100 total of
these three
species

SALTWATER SPECIES

SPECIES	SIZE LIMIT	DAILY LIMIT
Speckled Trout*	12" Minimum (TL)	25
(Cameron & Calcasieu Parishes**)	12" Minimum (TL), two over 25"	15
Red Fish*	16" Minimum (TL), one over 27"	5
Black Drum	16" Minimum (TL), one over 27"	5
Southern Flounder	None	10
Greater Amberjack	State & Federal Reg. 30" Min. (FL)	1
Cobia (Ling or Lemon Fish)	State & Federal Reg. 33" Min. (FL)	2
King Mackerel	State & Federal Reg. 24" Min. (FL)	2
Spanish Mackerel	State & Federal Reg. 12" Min. (FL)	15
Red Snapper***	State & Federal Reg. 16" Min. (TL)	***

* For Red Drum (Redfish) and Spotted Seatrout (Speckled Trout): Recreational saltwater anglers may possess a two day bag limit on land; however, no person shall be in possession of over the daily bag limit in any one day or while fishing on the water, unless that recreational saltwater angler is aboard a trawler engaged in commercial fishing for a consecutive period of longer than 25 hours.

** (Cameron & Calcasieu Parishes) Daily take and possession limit of 15 Spotted Seatrout (Speckled Trout): no person shall possess, regardless of where taken, more than two spotted seatrout exceeding 25 total inches in length, which are considered part of the daily bag and possession limit in state and coastal territorial waters South of I-10 at the Louisiana/Texas border to its junction with LA HWY 171, south to Hwy's 14 and 27 near Holmwood, south along Hwy. 27 to Hwy. 82 to the Gulf of Mexico.

*** There are specific regulations for Bass, Red Snapper and Shark. Contact the LDWF for more information.

FORK LENGTH (FL): Tip of snout to fork of tail. TOTAL Length (TL): Tip of snout to tip of tail.

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