



BARATARIA-TERREBONNE NATIONAL ESTUARY PROGRAM

There is not one drop of water in the ocean, not even the deepest parts of the abyss, that does not respond to the mysterious forces that create the tide. No other force that affects the sea is so strong. Compared with the tide, wind-created waves are surface movements which are felt, at the most, no more than a hundred fathoms below the surface.

RESPONSE TO THE "PULL" OF THE MOON

The tides are a response of ocean waters to the gravitational "pull" of the moon and more distant sun. Residents who live along the Louisiana coast know that the moon, far more than the sun, control the tides. Why is this? Should not the sun, with a mass 27 million times that of the moon, have the great influence? No. Because in the mechanics of the universe, nearness counts far more than distant mass, and when all the calculations have been made, we find that the moon's power over the tides is more than twice that of the sun.

MOON DECIDING FACTOR

Here's how it works – twice each month, when the moon is a mere thread of silver in the sky, and again when it is full, we have hour hand of a clock about a central point – mid ocean. These waves run 12 hours and 25 minutes apart.

Jighty Ticles

TIDES MORE COMPLICATED

The tides are enormously more complicated than all of this would suggest. The influence of sun and moon constantly changes with the phases of the moon, with the distance of moon and sun from the earth, and with position of each in relation to its position north or south of the equator.

The declination of the moon (its position north or south of the equator) is one of the most important factors affecting Louisiana tides. As the moon revolves around the earth from east to west, it also has a north-south movement. The declination is the distance in degrees of latitude that the moon is north or south of the equator. The plane of the moon's orbit is not in the same plane as the equator; therefore, the declination of the moon is constantly changing. In the moon's fortnightly change from maximum northerly to maximum southerly declination, the difference between morning and afternoon tides are greatest near the times the moon is over the equator.

POWER OF OSCILLATION

Tides are further complicated by the fact that every body of water, whether natural or artificial, has its own period of oscillation. If disturbed, its waters will move with a seesaw or rocking motion with the most pronounced movement at the ends of the container and the least motion in the center. The truth of the matter is that local topography is all important in determining the features that, to our minds, make "the tide". The gravitational force of the celestial bodies sets the water in motion, but how, and how far, and how strongly it will rise depends on such things as the slope of the bottom, the depth of the channel, or the width of the bay's entrance.

Whether at Venice, Grand Isle, or Cocodrie, the ebbing and flowing of the tide may not leave much of an impression on our minds because in that great inland sea of the Atlantic – the Gulf of Mexico – the tidal rise is but a slight movement of no more than a foot or two. On the shores of Louisiana, the tide is a long, deliberate undulation – one rise and one fall in the lunar day of 24 hours plus 50 minutes – resembling the untroubled breathing of that earth monster to whom the ancient Native Americans attributed all tides. In contrast, if you ever have the chance to summer on the Gulf of Maine around the Bay of Fundy, the rise and fall of the tide would be something not easily forgotten. With a tide that rises and falls 40 to 50 feet a day, all boating and water related activities would need special accommodations to say the least! Although all earth lies under the same moon and sun, the above contrast shows us how much the topography affects the tides.

TIDES AFFECT PEOPLE, FISH

The lives of coastal Louisianians are affected daily by the tides and of even greater importance is the effect of the rise and fall of tides has on the lives of fish and shellfish we call "seafood". The tidal flooding of the coastal marshes – estuaries – is a vital factor that accounts for the fertility that enables us to enjoy the fishing and fine seafood that we sometimes take for granted.

TIDES GROWING WEAKER

Let me leave you with the following fact: the tides are growing weaker and weaker. Tidal friction is constantly pushing the moon farther and farther away. As the moon recedes, it will the strongest tidal movements – the highest flood tides and lowest ebb tides of the lunar month. These are called spring tides. At these times the sun, moon, and earth are directly in line and the pull of the two celestial bodies combine to bring the water high on the beaches and draw a brimming tide into the bays so that boats float high beside their wharfs.

Likewise, twice each month at the quarters of the moon, when sun, moon, and earth lie at the apexes of a triangle and the pull of the sun and the moon are opposed, we have moderate tidal movements called neap tides. At this time the difference between high and low water is less than at any other time during the month. A simple way to explain or remember tidal rhythm is to think of it as twice-daily (Diurnal) waves that move like the



have less power over the tides, and it will also take the moon longer to complete its orbit around the earth. When finally the length of the day and month coincide, the moon will no longer rotate relatively to the earth and there will be no lunar tides.

If the history of the earth's tide should one day be written by some observer of the universe, it would no doubt be said that the tides reached their greatest grandeur and power in the younger days of Earth, and that they slowly grew feebler and less imposing until one day they ceased to be. As with all that is earthly, their days are numbered. All this, of course, will require time on a scale the mind finds difficult to comprehend. Before this happens, it is quite probable that the human race will have vanished from the earth.

> Moon phases 1033155280 | Shutterstock.com; Illustration 84929863 © Grandfailure | Dreamstime.com

THE BARATARIA-TERREBONNE NATIONAL ESTUARY PROGRAM

An estuary is classified as an area where freshwater from rivers, streams, or bayous meet the saltwater of the sea such as the Gulf of Mexico. This mixing of water produces ecologically productive systems with rich natural resources. There are a wide range of habitat types found in estuaries such as marshes, swamps, and forested uplands.

The Barataria-Terrebonne National Estuary Program (BTNEP) area is located between the Mississippi and Atchafalaya rivers in southeast Louisiana. BTNEP works to protect and preserve the land, water, people, and culture that are so unique and valuable to the United States.



BTNEP and the stakeholders of the area have made a concerted effort to improve the estuary and tackle tough environmental problems since the early 1990s. This public-private partnership allows diverse groups to work together to reestablish a chemical, physical, and biological balance in the estuary and engages future generations to assist with the estuary's preservation.

This estuary produces a host of resources for the United States. Oysters, shrimp, finfish, goods transported through our ports, oil and gas and their related infrastructures are all integral to our country. This estuary also offers unique cultural experiences and one of a kind tourism opportunities.



BTNEP offers a science-based consensus-driven stewardship approach to protecting the water and land which is focused on:

- pollution abatement to protect the health of plants, animals, and people,
- environmentally-responsible economic activity,
- environmentally-compatible infrastructure (such as roads, bridges, levees, railroads),
- comprehensive, integrated watershed planning among all users,
- harmonious use of the resources by many interests and resolution of user conflicts, and
- public education and informed citizen participation.

SCIENTIFIC NAME: Pogonias cromis

kack Drum

Black drum are fish in the Sciaenidae family (drum fish). Black drum are the largest members of the drum family, able to reach 90 lbs. and 44 years old. The genus Pogonias evolved during the Miocene epoch, around 23 million years ago. Geographically, they range from Nova Scotia to Argentina in coastal waters. Similar to sheepshead, they are silver in color with 4 to 6 bold, black, vertical stripes, which fade in older fish. Dissimilar to sheepshead, they have an elongated body and sensitive barbells on their chin, which they use to find food. As larvae (less than 0.1 inch), they mainly eat zooplankton, but switch to worms and small fish at about 8 inches in length. They achieve their adult form around 0.5 inch. Juvenile drum prefer shallow, muddy, low salinity areas within an estuary; whereas adults prefer saltier bays and passes. Similar to other fish in the drum family, they make drumming sounds by beating special abdominal muscles against their swim bladder. With a downward-placed mouth, they hunt for food along water bottoms and oyster beds, waiting near structures to ambush prey washed in by currents. With strong jaws and pharyngeal teeth, they easily crush mollusks, crabs and oysters. Occasionally, parasitic worms can be found in the tail of large drum. "Spaghetti worms" are part of a complex lifecycle between sharks, copepods, small fish and the drum that is completed when the drum is eaten by a shark. Black drum spawn in open bays and passes leading to the Gulf of Mexico between November and July when they reach 17 to 21 inches in length. Recreationally, they account for a large number of fish taken through



angling in saline waters along the Gulf Coast. Commercially, black drum can negatively affect oyster harvests from leases and are able to eat 1-2 commercial-sized oysters per pound of body weight each day.

Freshwater drum teeth

Black drum illustration © 1992, Diane Rome Peebles Plant illustrations by Yuliya Derbisheva



SCIENTIFIC NAME: Scomberomorus cavalla

King mackerel belong to the family Scombridae, which includes other mackerels, tunas, and bonitas. The king mackerel is a silver fish with indistinct bars or spots on its side. The dorsal surface is black with iridescent tones of blue and green. Larval fish have small bronze spots in 5 or 6 irregular rows. It is an elongated torpedoshaped fish with the ability to fold the first dorsal fin and pectoral fins into grooves. They then use the second dorsal fin, anal fin, and finlets to help with speed and maneuvering. It has a pointed snout and a distinctly forked caudal fin. The king mackerel is found in the western Atlantic from Massachusetts to Brazil including the

> Gulf of Mexico and Caribbean. King mackerel appear to be present throughout the year in the Gulf of Mexico and Caribbean waters. Warmer coastal waters are preferred,

where they feed on smaller schooling fish and grow between 20 and 35 inches long. The maximum size of a king mackerel is 68 inches and up to 100 lbs. King mackerel feed primarily on fishes, but will also eat crustaceans including shrimp, squid and the occasional mollusk. As an epipelagic, neritic species, they inhabit shallow coastal waters up to 650 feet deep. King mackerel are often found in outer reef areas migrating in groups over large distances along western Atlantic coastline depending on water temperatures. In one summer spawning season, a female can shed millions of eggs into the sea in hopes of some being fertilized. Roughly 24 hours after fertilization, the eggs will hatch and larvae remain in surface waters when temperatures are between 26.3 ° to 31 °C and salinities are between 26.9 to 35 parts per thousand. King mackerel is an

important species for recreational, commercial, and subsistence fisheries throughout its range.

lackerel



King mackerel, Shutterstock.com King Mackerel Illustration © 1992, Diane Rome Peebles



Photo 171218104 © Meepoohya | Dreamstime.com

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High Tide: February 8 7:28 p.m. · 1.1 ft.

Low Tide: February 8 6:19 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



Dheepshead are fish in the sea bream or Sparidae family. The genus Archosargus evolved at the beginning of the Eocene epoch around 56 million years ago. Similar to black drum, sheepshead are silver in color with 4 to 6 bold, black, vertical stripes. Unlike black drum, sheepshead have a shorter, oval, flattened body. They have sharp gill covers and large, sharp dorsal spines. Human-like teeth in the front of their mouths combined with several rows of molars give sheepshead the versatility to eat a variety of foods including plants, algae, barnacles, shrimp, fish, blue crabs, oysters, and other marine invertebrates. The sheepshead's versatile teeth is why they have a reputation for being bait thieves and difficult to hook. Although found offshore in full strength Gulf sea water of 35 ppt salinity, they are most abundant within shallow estuary depths and between 5 and 10 ppt salinities. Larval fish are between 0.2 and 1 inch and achieve adult characteristics while still in this stage much earlier than other fish in the Sparidae family. Juvenile sheepshead are between 1 and 1.2 inches. When they reach about 1.6 inches, they leave the grassbeds and begin to congregate with adults near hard, open structures like oyster reefs, where they

switch from eating filamentous algae and copepods to mollusks and crustaceans. Adult fish commonly reach 10 to 20 inches, but can reach 36 inches long and 21 lbs. in weight, with the record in Louisiana of 21.25 lbs. Sheepshead overwinter in offshore waters in the Gulf of Mexico and spawn in March, April and May and then return to inshore estuaries where they remain the rest of the year.





(top) Sheepshead Teeth by Matt Benoit (bottom) Sheepshead mouth, Virginia Institute of Marine Science

Sheepshead illustration © 1992, Diane Rome Peebles Shell and plant illustrations by Anna Szonn, Designwork or Yuliya Derbisheva.

Sheepshead



SCIENTIFIC NAME: Sciaenops ocellatus

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Red drum are finfish in the Sciaenidae family (drum fish). The genus *Sciaenops* evolved during the Miocene Epoch about 16 million years ago. Sciaenidae also contains spotted sea trout, black drum and Atlantic croaker. Red drum range from Massachusetts through the Gulf of Mexico and can grow up to 61 inches in length, 94 lbs. in weight and 50 years in age. Their torpedo-shaped bodies are golden red on the back and white on the belly with one or more "eyespots" near the tail. Eyespots are believed to be an evolutionary adaptation for confusing predators. Red drum use sight, smell, touch and down-turned mouths to feed on crabs, shrimp, mullet and menhaden. They aggressively feed near the tops or bottoms of channels and marsh ponds, growing 13 inches in their first year. Sexually-mature red drum spawn in the tidal passes between barrier islands from mid-August to mid-October. Males are mature by age 5 and form large schools called drumming aggregations to attract sexually-receptive females. Males beat specialized muscles against their swim bladders to make the drumming sound. Females mature by age 6 and spawn every 2 to 7 days over an 8 to 9 week period, producing 20-40 million eggs per year. Eggs hatch in about 24 hours. The larvae are swept into estuaries and marshes with inflowing tides. Larvae are 0.23 to 0.3 inch and grow about 0.02 inch per day, feeding on plankton. Juveniles shift to a diet of small crustaceans and marine worms, occasionally becoming



the intermediate host for the nematode parasite, *Contracaecum multipapillatum*, which infects their kidneys, matures and completes its lifecycle in birds. At about 8 inches, red drum shift to the adult diet of crustaceans and finfish, remaining in the estuaries until they are sexually-mature before they return to the tidal passes to begin the cycle again.

Red drum illustration © 1992, Diane Rome Peebles. Golden and watercolor plant illustrations by Yuliya Derbisheva.



J. J. Jacobs

Southern Flounder

SCIENTIFIC NAME: Paralichthys lethostigma

Southern flounder are in the Paralichthyidae family (large-toothed flounders). The genus Paralichthys evolved about 12.5 million years ago during the Miocene Epoch. Southern flounders have a geographical range from North Carolina to Texas; living in brackish estuaries to shallow, saline and offshore waters. They are laterally-compressed and have both eyes on the left side, which is olive-brown with dark and white spots. The right side is white and eyeless. Flounders hatch with an eye on both sides of their head, but the right eye migrates to the left side of the head when they are about 1 inch in length. Juveniles feed on small invertebrates and change to a fish diet when they are 8 inches long. Southern flounder are ambush predators that camouflage their flattened bodies on the bottom and wait motionless while using their well-developed vision to track prey until the prey come within striking distance. Adults feed on shrimp, striped mullet, menhaden and bay anchovies, eating 4 to 8 percent of their bodyweight each day. Males grow slower and have shorter life spans than females; almost never living over 3 years or growing more than 14 inches. Females mature at 2 years and can reach 28 inches and 6 years of age. Males live offshore after their first year; whereas females live in low salinity estuarine waters. Spawning migrations begin in mid-October and November when temperatures cool down. Females and males meet offshore where they stage in large numbers. Spawning takes place between November and January every 3 to 7 days producing between 40,000 to 62,000 eggs per spawn. Eggs hatch offshore and larvae are carried into estuaries and marshes with inflowing tides where they mature to adults. Often spawning

migrations can move fish to estuaries far away from their original home. Around March, the females move back into the muddy-bottomed estuaries to start the cycle over again.



Flounder buried, Gulf Coast Research Laboratory

Flounder illustration © 2009, Diane Rome Peebles. Plant illustrations by Anna Szonn, Designwork. Golden and coral illustrations by Yuliya Derbisheva.



SCIENTIFIC NAME: Cynoscion nebulosus

Spotted seatrout are not trout nor are they related to trout. They are fish in the Sciaenidae or drum family. The genus Cynoscion evolved during the Miocene epoch about 11.5 million years ago. Seatrout range from Cape Cod to the Gulf of Mexico; spending winters in low salinity waters and summers in high salinity waters. Seatrout are torpedo-shaped, dark silvery-grey on top, paler underneath and dark spots on the upper sides, dorsal fin and tail. A yellow mouth sports one to two "canine" teeth on the upper lip. Occasionally, spaghetti worm parasites infest seatrout, which complete their lifecycle in sharks. Larvae congregate in marsh vegetation and double in length every 2 weeks, reaching 8 inches in their first year. Fish less than 6 inches feed on zooplankton and shrimplike crustaceans. Fish longer than 6 inches feed on panaeid shrimp in summer and bait fish in winter and are usually active at night and early morning hours. All males and 75% of females are sexually mature at 12 inches long. Seatrout between 5 to 12 years old or weighing more than 5 pounds are females. Spawning begins when water temperatures reach 68° F with a peak around 80° F. During spawning, male trout form drumming aggregations with thousands of fish at night near passes and channels with good tidal flow where the salinity is between 17-35 ppt. Together they vibrate their air bladders, producing a roaring sound, which attracts females. Fertilized eggs are swept into the estuaries with the tide. Seatrout eggs are buoyant in higher salinities and

free and Egg as o the

fresher areas of the estuary, since eggs and larval fish require higher salinities. Egg development begins to take place as days become longer in the spring and the cycle begins again.



Ed Lewandowski

sink in lower salinities, a mechanism that limits egg movement into

Spotted Seatrout illustration © 1992, Diane Rome Peebles. Plant and coral artwork created by Anna Szonn, Designwork or Yuliya Derbisheva.



SCIENTIFIC NAME: Rachycentron canadum

Cobia is a large perch-like fish belonging to the family Rachycentridae, of which it is the only representative. Cobia are torpedo-shaped fish with a long pointed face. Cobia have a row of sharp dorsal spines in front of the dorsal

fin. While their body style can often resemble a shark, cobia have harmless brush-like teeth. They are black along their backs (dorsal) with alternating black and silver horizontal stripes running along their body, but can sometimes have patchy splotches of orange and green. Cobia have a worldwide distribution in tropical, subtropical and warm temperate waters. Cobia prefer water temperatures that are between 68 to 86 °F. They will migrate to warm tropical waters during the winter months. Cobia are a pelagic fish, often found in the open ocean but tend to congregate near pilings, buoys, boats and flotsam where they are able to forage for crustaceans, squids and small fish. Wild cobia meat demands a relatively high price at market because of its pleasant flavor and texture, but also because the fish is a solitary species and is not commercially targeted. In the summer months, cobia do form aggregations in the western Atlantic for spawning purposes. Eggs and larvae are planktonic, floating in the water column. Cobia average between 15 to 50 pounds but can reach more than 150 pounds. Cobia reach reproductive maturity between 2 to 3 years of age and live between 9 to 15 years.

Cobia's rapid growth rate and high quality meat make it a targeted species for offshore aquaculture production. Coastal countries

across the globe have nurseries and offshore grow-out cages that raise cobia until 1.5 years of age and are then processed and exported. Currently China and Taiwan make up 80.6% of the world's cobia production.

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Cobia swimming, Shutterstock.com



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TIDE ADJUSTMENT TABLE CAN BE FOUND ON THE BACK COVER

SCIENTIFIC NAME: Megalops atlanticus

arpon belong to the family Megalopidae. Tarpon are identified by their shiny silver sides and large scales. They usually appear dark blue to greenish black on their dorsal side. They have a superior upturned mouth. Tarpon inhabit both sides of the Atlantic Ocean, from Senegal to the Congo on the eastern Atlantic coast and from Nova Scotia to Argentina on the West Atlantic Coast. They prefer warmer waters and are found extensively in the Gulf of Mexico and Caribbean. Tarpon are found in coastal waterways and estuaries in areas with depths up to 1000 feet. Tarpon can tolerate a wide variety of salinities (0-47 parts per thousand) and they are sometimes found in coastal rivers. Tarpon have a unique modified swim bladder that is attached directly to the esophagus. When they encounter areas of low dissolved oxygen, tarpon may fill their swim bladder with air taken in by gulping at the surface. Their swim bladders are filled with alveoli that allow them to use this air for respiration. Female tarpon can grow to lengths 8 feet or more and weigh nearly 350 pounds. Males are generally smaller than females. Tarpon reach reproductive maturity at 6 to 7 years of age and can live between 30 to 50 years. Tarpon typically spawn offshore between May and July. Larvae then float to inshore nursery habitat on currents. In the first 20-30 days tarpon exist in a leptocephalus larval stage; a transparent ribbon-like form absorbing nutrients from the water. From 30-70 days old, larvae develop into young juvenile tarpon who forage for zooplankton and incorporate insects and small fish as they develop. Adult tarpon feed mostly on midwater prey such as mullet and catfishes among others, along with shrimp and crabs. They feed both day and night and generally swallow prey whole. Grand Isle,



Louisiana hosts the annual International Grand Isle Tarpon Rodeo, the oldest fishing rodeo in the United States. The first year was in 1928. arpon

Tarpon, Shutterstock.com

Tarpon illustration © 1992, Diane Rome Peebles. Anchor, plant, shell, and golden artwork created by Anna Szonn, Designwork or Yuliya Derbisheva.



Illustration 90795079 © Moloko88 | Dreamstime.com

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Barataria-Terrebonne National Estuary Program P.O. Box 2663, Nicholls State University, N. Babington Hall, Room 105, Thibodaux, LA 70310

SCIENTIFIC NAME: Morone saxatilis

he 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 near 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. Landlocked populations complete their entire life cycle in freshwater by ascending tributaries of 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.

> Striped Bass illustration © 1998, Diane Rome Peebles. Coral, plant and golden artwork created by Anna Szonn, Designwork or Yuliya Derbisheva.

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Striped Bass, Duane Raver, USFWS

SCIENTIFIC NAME: Lutjanus campechanus

Red snapper are popular reef fish in the Lutjanidae family (snappers) that evolved at the beginning of the Eocene Epoch 55.5 million years ago. They feature a sloped profile and a laterally-compressed body that is bright red on the back and light red to white on the lower sides. Teeth are needle-like and the eye is red. Dorsal fins are spiny and the caudal fin is truncated and notched. They range from Massachusetts through the Gulf of Mexico. Red snapper are omnivorous predators. The name "snapper" comes from their tendency to bite at anything, including bare hooks. They commonly live in waters between 30 to 200 feet, forming large schools near the bottom around natural and artificial reefs. Oil rigs or artificial reefs provide "three-dimensional habitat." It is debated whether rigs only attract fish or actually increase fish numbers due to an increase in habitat. Red snapper are parasitized

by the organism, Cymothoa exigua, a type of isopod that attaches itself to the fish's tongue, causing it to fall off. The parasite then functions as the tongue of the fish. Snappers are fast-growing and commonly reach a length of 24 inches but can reach a maximum length, weight and age of 39 inches, 85 lbs. and 59 years. Once they reach two years or more in age and about 15 inches in length, they begin spawning offshore in the Gulf of Mexico from May to September. Spawning takes place between dusk and midnight in open water, where they release eggs and sperm simultaneously. Eggs hatch within about 24 hours. Larvae feed on plankton, then shift to feeding on small fish, squid, worms and crustaceans. As snappers near one year, they move to high relief habitat, while older, larger fish become territorial and guard territories in the lower part of the reef. Once the lunar-driven tides and warm temperatures return in May, the cycle begins over again.



(left) Red Snapper, Dean Blanchard, (right) Eddie Cook

Red Snapper illustration © 1992, Diane Rome Peebles. Jelly fish and coral artwork by Anna Szonn, Designwork. Coral and plant artwork by Yuliya Derbisheva.



SCIENTIFIC NAME: Lutjanus griseus

Mangrove snapper are part of the Lutjanidae family; including 113 other snapper species. Mangrove snapper are an oblong, moderately compressed fish that can grow to up to 35 inches, although 18 inches is more common. Mangrove snapper also called gray snapper due to their dorsal fin and top side being dark gray and their caudal fins are light silver. Depending on habitat and other factors, they may have a reddish tinge and spots. The mangrove snapper inhabits the western Atlantic Ocean from Massachusetts south to Brazil, including the Gulf of Mexico and the Caribbean. They reside in shallow coastal waters to deeper offshore waters up to 590 feet. Young snapper tend to live in estuarine habitats from seagrass beds and soft sandy bottom areas. The mangrove snapper is tolerant of a variety of salinities and have documented in coastal freshwater water bodies. Mangrove snapper are opportunistic predators in all stages of life. Larval snapper feed on zooplankton, including amphipods and copepods. Juvenile snappers feed mainly on crustaceans, fish and sometimes mollusks and polychaete worms. Adults tend to feed at night, preying on fish, shrimp, crabs, snails and squid. Mangrove snapper reach reproductive maturity after 2 years of age and can live up to 25 years. Mangrove snapper spawn between April and November with peak spawning occurring during the summer months. Each snapper may spawn several times during the year. Larval mangrove snapper are planktonic and begin then begin to settle into estuaries to continue growing as juveniles. Mangrove snapper are a good eating fish with a light and



flaky flesh. Whether using traditional bait and tackle, or spearfishing, mangrove snapper are a common catch for saltwater fishing in Louisiana.

Juvenile Mangrove Snapper by Solomon David



Illustration 173491270 © Markusmayer, Dreamstime.com

SCIENTIFIC NAME: Caranx hippos

Jack crevalle are a large marine fish belonging to the jack family, Carangidae. The genus Caranx evolved 60 million years ago sometime between the Cretaceous and Paleogene period. With a convexly round forehead and a deep body, they are easily distinguished from other jackfish. Jack crevalle has a yellow shading over a background of grey on its dorsal side with a white underside. Jack crevalle inhabit both inshore and offshore waters of the Gulf of Mexico and Atlantic Ocean, typically near reefs, bays, and estuaries. Adults and young can ride the currents into more northern areas of the Atlantic Ocean, but migrate back to warmer waters in the winter. Year-round spawning occurs in the Gulf of Mexico and the northeastern coast of South America. Prior to spawning, jack crevalle form large schools near bays and estuaries and will then break into pairs for spawning. Larval jack crevalle are pelagic, feeding near the surface of the water column. Juvenile jack crevalles are frequently found in estuarine habitats in the surf and in small bays. Adults move in and out of bays to open water seasonally, with larger individuals preferring deep-water habitats. The average size of a jack crevalle is between 2 to 5 pounds and larger fish more than 25 pounds are common. The jack crevalle is an indiscriminate predatory fish, which feeds primarily on other smaller fish species while also enjoying shrimp, crabs, and mollusks. For commercial fishing interests in the western Atlantic, 200-400 tons of jack crevalle are harvested annually using seines, gill nets, trawls, handlines,



and trolling lines. Recreational catch of jack crevalle often exceeds commercial catch in the United States, ranging from 400 to 1000 tons per year. evalle

Jack Crevalle, shutterstock.com

Jack Creualle illustration © 1992, Diane Rome Peebles. Coral illustrations created by Anna Lopatina - Dreamstime.com or Yuliya Derbisheva



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

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BTNEP THANKS...



BARATARIA-TERREBONNE ESTUARY FOUNDATION 2021 Moon Phase Calendar Icons **First Quarter** Third Quarter

New Moon) Full Moon

2021 TIDAL GRAPH CALENDAR



Project Manager: Seth Moncrief

Contributors: Nicole Babin. Andrew Barron. Matt Benoit. Dean Blanchard, Delaina LeBlanc, Seth Moncrief, Siva Nunna, Alma Robichaux, Nicole Lundberg, and Natalie Waters

Design and layout by: Otey White & Associates/Angela DeGravelles



Barataria-Terrebonne National Estuary Program P.O. Box 2663, Nicholls State University, N. Babington Hall Thibodaux, LA 70310 800.259.0869 • www.BTNEP.org

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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, guotas 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
(False River located in Pointe Coupee Parish)	14'' Minimum (TL)	5
Crappie (Sac-a-lait)	None	50
Striped or Hybrid Striped Bass	None: 2 ouer 30" (TL)	5 (Any combination)
White Bass	None	50
Yellow Bass	None	50
Channel Catfish	25 less than 11" (TL)	100] 100 total of
Blue Catfish	25 less than 12" (TL)	100 – these three
Flathead Catfish (Spotted, Yellow or Opelousas)	25 less than 14" (TL)	100 _ species
Freshwater Drum (Gaspergou)	12" Minimum (TL)	25

SALTWATER SPECIES

SPECIES	SIZE LIMIT	DAILY LIMIT
Speckled Trout*	12" Minimum (TL)	25
(Cameron & Calcasieu Parishes**)	12" Minim <mark>um (TL), tw</mark> o over <mark>25"</mark>	15
Red Fish*	16" Minimu <mark>m (TL</mark>), 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 <mark>& Federal Reg</mark> . 33" Min. (FL)	2
King Mackerel	State & Federal Reg. 24" Min. (FL)	3
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 1-10 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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