DNR

South Carolina's GUIDE TO FRESHWATER FISHES

SPORT FISH RESTORATION

www.dnr.sc.gov/aquaticed

SOUTH CAROLINA DEPARTMENT OF NATURAL RESOURCES

The South Carolina Department of Natural Resources has information to help you learn more about the aquatic environment.

Wildlife and Freshwater Fisheries	803-734-3886	Freshwater Fish Records	803-734-3891
Aquatic Education	803-737-8483	Licensing Information	803-734-3833
Boater Education	800-277-4301		

For information on FREE FISHING DAYS, call the Office of Wildlife and Freshwater Fisheries at the number above.

To speak to a Fisheries professional in your area, call the Freshwater Fisheries Office nearest you.

Region 1
311 Natural Resources Dr.
Clemson, SC 29631
864-654-1671

(Oconee, Pickens, Greenville, Spartanburg, Anderson, Laurens, Abbeville, Greenwood, Union, Cherokee, McCormick and Edgefield)

Region 2
295 S. Evander Drive
Florence, SC 29506
843-661-4767

(York, Chester, Fairfield, Lancaster, Kershaw, Lee, Chesterfield, Marlboro, Darlington, Dillon, Florence, Marion and Williamsburg)

Region 3
1000 Assembly Street
PO Box 167
Columbia, SC 29202
803-955-0462

(Newberry, Saluda, Aiken, Lexington, Richland, Calhoun, Orangeburg, Barnwell, Allendale, Bamberg, Sumter and Clarendon)

Region 4
217 Ft. Johnson Road
PO Box 12559
Charleston, SC 29422
843-825-3387

(Horry, Hampton, Georgetown, Berkeley, Charleston, Dorchester, Colleton, Jasper and Beaufort)

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Indicates Native Species

Native fish is defined as an organism or species found naturally in South Carolina or known to have occurred in South Carolina prior to the first European settlers.

Learn about SC Reel Kids and other free fishing programs at *www.dnr.sc.gov/aquaticed*

Basic Fish Information

Fish are vertebrates, meaning they have a backbone. All fish have fins and most have scales (with a few exceptions, such as catfish which do not). Fish are cold blooded animals that lay eggs and are well suited for living in water. Learn about the different fish adaptations below that allow a fish to survive in water.

External Anatomy

Eyes: Used for sight, fish can detect colors and see short distances with their eyes. They use their vision to escape predators and find food.

Nares: Similar to nostrils, except nares are used for smelling only (nostrils are used for both smelling and breathing).

Mouth: The mouth is used to consume food.

Operculum: The operculum is the bony flap that protects the gills from harm. It opens and closes to allow water to pass over the gills.

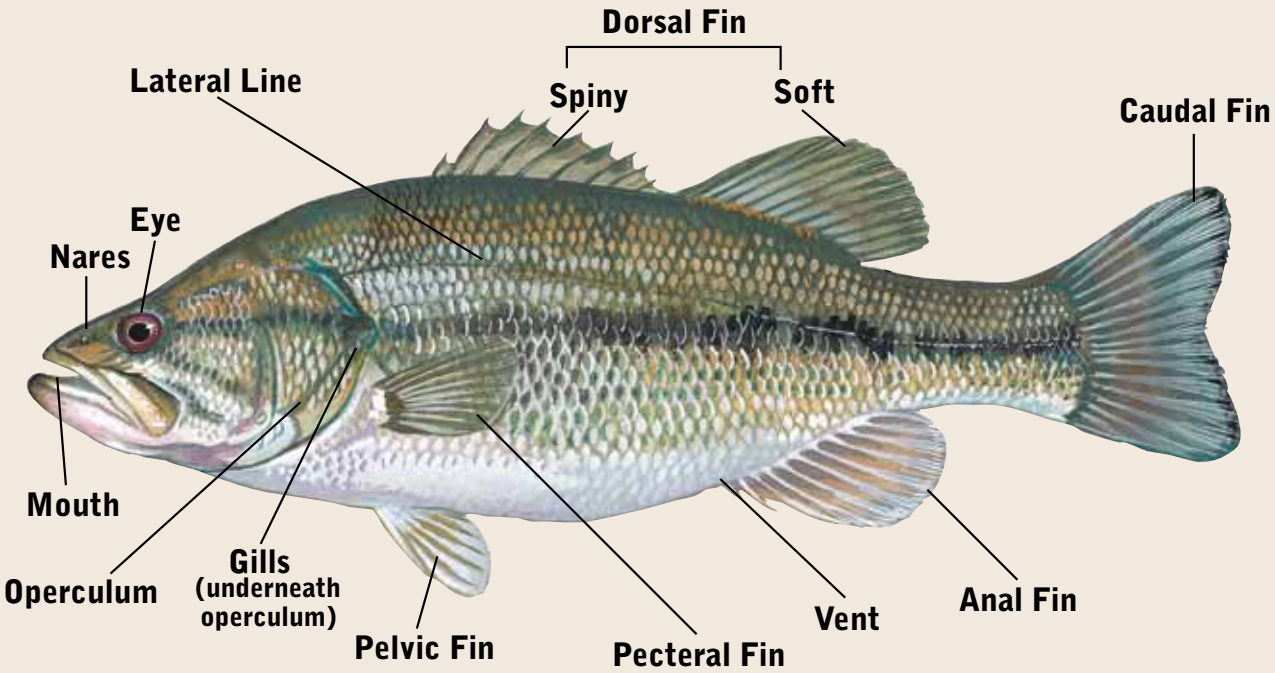
Pectoral Fin: The pectoral fin allows for abrupt changes in side-to-side direction and speed. It also acts as a brake to decrease speed while swimming.

Pelvic Fin: The pelvic fin stabilizes the fish while swimming and allows for up-and-down movement in the water.

Vent: The vent removes waste and extra water. It is also the outlet for eggs or milt (sperm) during spawning.

Anal Fin: The anal fin stabilizes the fish while swimming.

Caudal Fin: The caudal fin moves, propels or pushes the fish through the water.


Dorsal Fin
Spiny
Soft
Lateral Line
Caudal Fin
Eye
Nares
Mouth
Operculum
Gills
(underneath
operculum)
Pelvic Fin
Pecteral Fin
Vent
Anal Fin

Basic Fish Information

Adipose Fin: The adipose fin is not pictured; it is not present on a lot of fish species. Its purpose is unknown. Trout, salmon and catfish have an adipose fin. It is the small, thick, fleshy fin located between the dorsal and caudal fins.

Dorsal Fin: The dorsal fin helps maintain balance while swimming.

Scales: Scales protect the fish from injury.

Barbels Barbels are not pictured. They are the "whiskers" found on the head area of fish such as catfish or bullheads. On the catfish and bullheads, barbels are thought to be a sensory organ to help track down prey or food. Sturgeon also have barbels.

Internal Anatomy

Gills: Gills are the feathery tissue structure that allows fish to breathe in water. Water flows in through their mouth and over their gills where oxygen is extracted and passed into the bloodstream.

Swim Bladder: The swim bladder is a long, skinny organ that can inflate/deflate with air allowing fish to float at different levels in the water column.

Fish Senses

Eyesight: Fish can see in two directions (one eye focusing on an object independent of the other whereas human eyes can only focus on one object at a time).

Hearing: Fish have ears but not external ear openings like humans do. Their ears lack a middle and outer ear because sound travels faster in water than in air. Fish have internal ears with pairs of inner ear bones called otoliths. The otoliths allow fish to sense sounds in the water. Fisheries biologists use these bones (otoliths) to age fish and determine the health of fish populations.

Smell: Fish use their sense of smell to locate food and to aid in migrating.

Taste: Some fish have taste buds, however, they are located on the outside of the fish's head and fins in small pores. Some fish, such as catfish, have a very developed sense of taste.

Lateral Line: The lateral line, found alongside a fish's body from the operculum to the tail (caudal fin), senses vibrations or movements in the water. It allows fish to locate predators and find prey. This system is made up of a series of fluid-filled canals just below the skin of the fish's head and alongside the body. The canals are filled with tiny hair-like structures that detect changes in the water pressure via tiny pores connected to the system.

Aquatic Education Programs

The Aquatic Education Section of SCDNR offers FREE education programs on recreational fishing techniques, opportunities and angler ethics.

Here are some of the unique, fun fishing and learning opportunities available.

SC Reel Kids

A free goal based fishing program for kids under the age of 15. Kids receive goals to complete like taking a friend fishing, learning how to tie fishing knots, visiting a state park and more. Once the goals are completed, prizes in the form of fishing tackle and equipment are mailed to participants.

Reel Art

A component of the SC Reel Kids program, the Reel Art program is an art competition for kids in kindergarten through 12th grade. Kids learn about fish and their habitats while creating their fun, creative fish art. Deadline for the competition is March 1st of each year.

Youth Bass Fishing Clubs

SCDNR and The Bass Federation of SC have teamed up to help bring youth bass fishing clubs to schools around the state. Students can establish school bass fishing clubs to compete for prizes, scholarships and more on a club, state and national level.

Family Fishing Clinics

Family Fishing Clinics are an introductory class to fishing. Families with kids ages 4 and up can learn how to tie fishing knots, rig a rod and reel, cast and try their hand at fishing.

Fishing Tackle Loaner Program

The tackle loaner program has sites all around the state in various state and county parks that allow adults, kids and families to try their hand at fishing. Checking out a rod, reel and tackle is free. Bring your own bait and pay the park entry fee and the fishing fun is free!

To learn more about these education programs, visit *www.dnr.sc.gov/aquaticed* for more information or call 803-737-8483 or email *aquaticed@dnr.sc.gov*.

Sunfish & Blackbass

LARGEMOUTH BASS

Micropterus salmoides

Description: The upper jaw extends back past the rear margin of the eye. Dorsal fin is deeply notched and the two sections of the fin are nearly separated. The upper body is dark green to olive while the lower body and belly are white. It has a series of dark blotches that merge into a dark lateral band. The largemouth bass usually has no teeth on the tongue.

Range: Statewide in all warm water habitats.

Average Length: 4-25 inches.

Average Size: 1-3 pounds, eight-pound individuals are not uncommon.

Maximum Age: Approximately 23 years.

Preferred Habitat: Largemouth bass can be found in slow moving streams, pools of large rivers, natural lakes and all sizes of man-made impoundments. Largemouth bass prefer warm, moderately clear water that has no appreciable current.

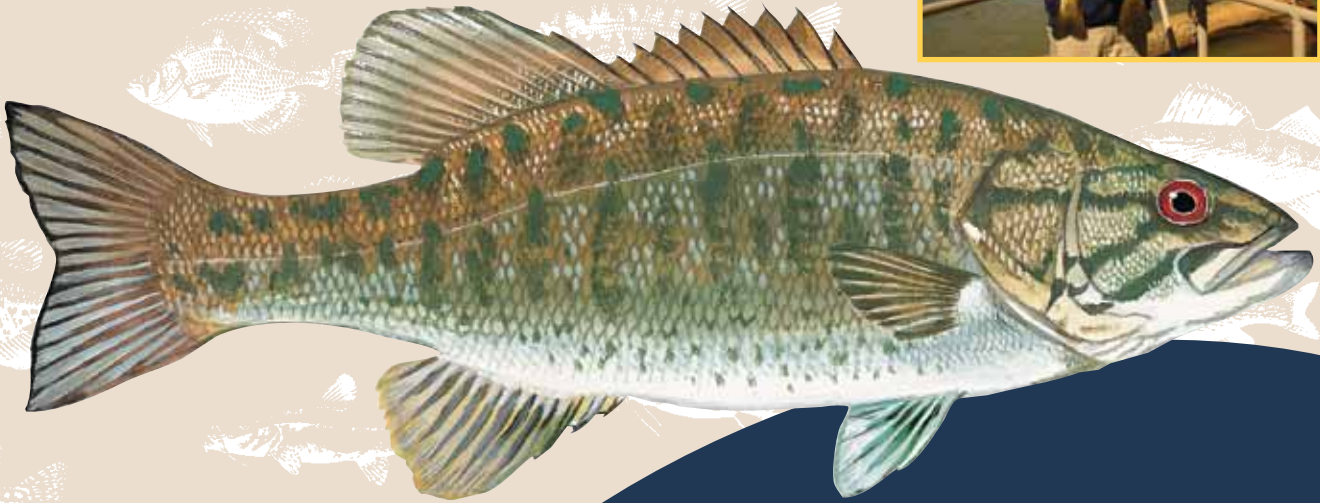
Food Habits: Newly hatched bass feed on zooplankton, switching first to insects and then to larval and juvenile fish as they grow. Adult largemouth bass primarily consume other fish. In a large impoundment, the major prey species include threadfin and gizzard shad, while in small impoundments sunfish will predominate in the diet. Basically, the largemouth bass will consume any organism that opportunity allows.

Spawning: Spawning usually begins when water temperatures range between 65-75°F, around April to June. The male largemouth bass constructs a saucer-shaped nest at a depth of 2 to 10 feet. One or more females will deposit 5,000 to 150,000 eggs over the nest while the male fertilizes them. The eggs are guarded and fanned by the male until they hatch in 3 to 4 days. The male continues to guard the fry until they disperse several weeks after hatching.

Miscellaneous: The largemouth bass is the most important freshwater sport fish in South Carolina. More time and money are spent in the pursuit of this fish by anglers than any other species. In addition to being an important sport fish, the largemouth bass is an important part of the ecological balance of fish populations. In farm ponds where they are stocked with bluegill and redear sunfish, the largemouth bass are responsible for controlling the bream population through predation. In large impoundments, they serve a similar but different function in preying on shad populations. The largemouth bass is the dominant predator in many of South Carolina's fish populations.

Commonly Mistaken Species: Some species of fish that are commonly mistaken for this species are spotted and smallmouth bass.

Sunfish & Blackbass



SMALLMOUTH BASS

Micropterus dolomieu

Description: The smallmouth has bronze to olive green sides with dark brown to bronze specks which sometimes look like bars on the sides of the fish. There are no specks on the lower side. Extending outward from the eye are three dark stripes on the cheek. The mouth is large and extends to about the middle of the eye, which is usually red. The two dorsal fins—spiny and soft—are separated by a shallow notch. This species does not have the row of spots or specks on the lower side of its body like a redeye or spotted bass, nor does it have the dark horizontal stripe that is present in the largemouth and spotted bass.

Range: Lakes Jocassee and Keowee; Broad River. Not native to South Carolina.

Average Length: 10-18 inches.

Average Size: ½-2 pounds; 6 pounds is large for South Carolina smallmouth.

Maximum Age: 15 years.

Preferred Habitat: Smallmouth can be found in cooler waters of the Foothill reservoirs or pool sections of clear, cool streams. In streams, smallmouth limit their range to one pool or several adjacent pools.

Food Habits: Young eat microcrustaceans and aquatic insects, tadpoles, fish larvae and as they grow progress to crayfish and fish such as darters, minnows, yellow perch and sunfishes.

Spawning: Smallmouth bass will begin their nesting activity in the spring when water temperature reach 60 degrees Fahrenheit, usually in April or early May. Nests, constructed of coarse gravel, are usually located in shallow areas of reservoirs or in protected areas of streams where the current is minimal. Several females may spawn in the nest of one male. The typical nest will contain about 2,500 eggs which are guarded by the male until they hatch in two or three days. The newly hatched-fry are guarded by the male until they disperse in 12 to 16 days.

Miscellaneous: Smallmouth bass were introduced to waters in the northwestern part of the state and the central piedmont. These limited stockings have been successful in establishing this non-native sportfish species. The smallmouth bass both ambushes and prowls for food. It is common for them to feed on food organisms that are dislodged by suckers or turtles as they disturb the stream bottom rooting for food. On a national basis, the smallmouth bass is judged to be a favorite of anglers for its exceptional sport fishing qualities.

Commonly Mistaken Species: Some species of fish that are commonly mistaken for this species are redeye bass, spotted bass and largemouth bass.

REDEYE BASS

Micropterus coosae

Description: The redeye bass has a slender bronze-olive body that fades into white on the belly. It has dark lateral blotches along the side and horizontal rows of spots on the lower side and distinguishing white edges along the upper and lower edges of the caudal fin which similar species don't have. An orange margin is also often present on the caudal and anal fins. The mouth is large and extends to the rear edge of the eye, but not beyond.

Range: Located in the northwestern parts of the state, primarily in the Savannah River basin—including lakes Jocassee, Keowee, Hartwell and Russell. It is also present in some tributaries of the upper Saluda and the Broad rivers in the Santee basin.

Average Length: 6-9 inches.

Average Size: 6 ounces in streams and 1 pound in lakes; rarely exceeds 2 pounds.

Maximum Age: 10 years.

Preferred Habitat: Redeye bass occur naturally in rivers and streams with a lot of structure such as undercut banks, vegetation, boulders and submerged logs. They seem to prefer rocky areas with at least moderate current. Redeye can also be found in several upstate South Carolina reservoirs.

Food Habits: Redeye predominantly eat terrestrial insects but will also eat aquatic insects, crayfish, salamanders and small fishes.

Spawning: Redeye bass spawn when water temperatures are between 62 and 68 degrees Fahrenheit, usually from May to early June. At this time, redeye males who have reached sexual maturity at three or four years of age begin constructing a nest over coarse gravel for the female redeye to deposit between 2,000 and 3,000 eggs. The eggs are maintained and guarded by the male throughout incubation and development of the fry.

Miscellaneous: The redeye bass is a truly unique and interesting species. Its entire range is limited to Alabama, Georgia and small areas of Tennessee and South Carolina. Current, on-going research indicates the fish in South Carolina and parts of Georgia is actually a separate, not yet described, species, sometimes referred to as Bartram's bass. Whether redeye or Bartram's bass, the species is a top predator in the streams where it occurs and offers exciting angling opportunities in some of South Carolina's most beautiful settings. The redeye does hybridize with smallmouth and spotted bass where they co-occur. Offspring typically possess physical characteristics of both parents. The spread of these introduced species—smallmouth and spotted bass—and their hybrids pose a significant threat to redeye bass throughout its range in South Carolina.

Commonly Mistaken Species: Some species of fish that are commonly mistaken for this species are spotted bass, smallmouth bass and largemouth bass.

Sunfish & Blackbass

SPOTTED BASS

Micropterus punctulatus

Description: The spotted bass has a gold-green body with dark olive mottling that fades to a yellow-white belly. It has small black spots below a dark band along the middle of its side with a distinct black spot on the body right before the tail or caudal fin. The spotted bass' large mouth extends to the rear edge of the eye, but not beyond. Spotted bass have teeth on their tongue.

Range: Upper Savannah River drainage, primarily lakes Keowee, Russell, Jocassee and Hartwell; also introduced into tributaries of the Enoree, Saluda and Savannah rivers and in the Catawba River reservoirs upstream of the state line. Not native to South Carolina.

Average Length: 11.8-24 inches.

Average Size: 1-3 pounds.

Maximum Age: 5 years.

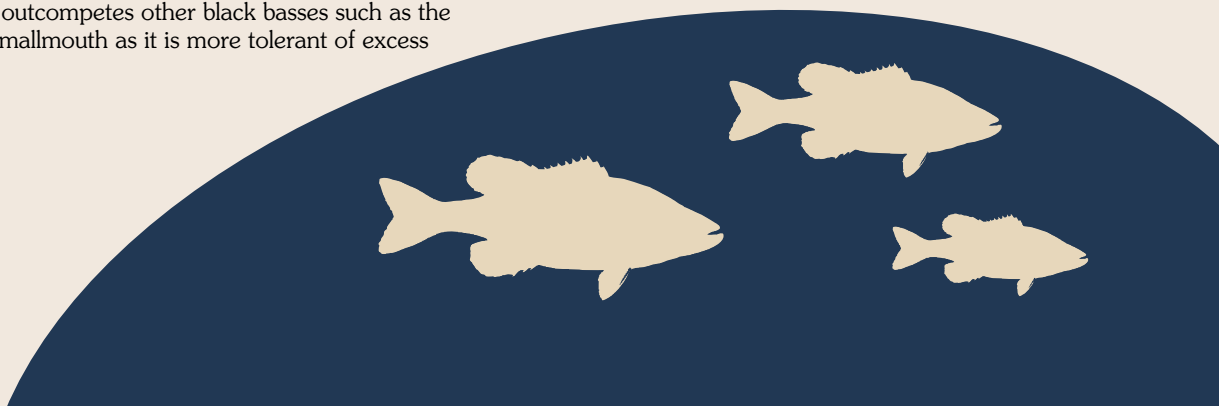
Preferred Habitat: The spotted bass is found in medium to large cool and warm mountain streams and reservoirs. It adapts well and outcompetes other black basses such as the largemouth or smallmouth as it is more tolerant of excess sediment.

Food Habits: Major foods for spotted bass are crayfish, aquatic insects and fish such as shad. Spotted bass eat fewer fish than other blackbass species.

Spawning: Spotted bass reach sexual maturity at age 2 or 3 and begin spawning activity in April and May when water temperatures reach 65 degrees Fahrenheit. Males construct shallow saucer-shaped nests on soft, clay bottoms or on gravel bars. The female will lay 3,000 to 30,000 eggs. The male guards the nest with eggs hatching in 4 or 5 days.

Miscellaneous: Spotted bass are not native and readily hybridize with other black bass species such as the redeye bass.

Commonly Mistaken Species: Some species of fish that are commonly mistaken for this species are spotted bass, smallmouth bass and largemouth bass.



Sunfish & Blackbass

BLUEGILL

Lepomis macrochirus

Description: The bluegill is a laterally compressed or flattened sunfish, olive in color with an orange to yellow breast with clear fins except for a distinguishing large black smudge near the bottom of the soft dorsal fin. The operculum or gill cover is tipped distinctly with black and there are several wide dark vertical bars on the side of the body. Bluegills have small mouths with no teeth on the tongue. The bluegill name comes from breeding males who exhibit pale blue to violet on the top half of the body with powder blue on the lower jaw and lower portion of the operculum or gill cover. The breeding males also develop a red breast.

Range: Statewide including all rivers as well as small and large impoundments.

Average Length: 5-10 inches.

Average Size: 3-8 ounces.

Maximum Age: 11 years.

Preferred Habitat: Bluegills are very tolerant of many habitat types including pools of creeks and rivers, swamps, oxbow lakes, ponds, vegetated shores of impoundments, man-made lakes, ponds and retention basins. They prefer sluggish or slow moving water.

Food Habits: Bluegills are opportunistic carnivores feeding on a variety of prey types. They will feed on mature and immature insects, small invertebrates, crayfish, mollusks (mussels) and other fishes. They have small mouths however, the larger the bluegill the larger the prey type they can consume. They mostly feed near the surface.

Spawning: Bluegills are colonial nesters with 100 or more different bluegill nests in one area. This helps provide extra protection for the eggs and fry from predators. Bluegill become sexually mature at 1 or 2 years of age and then construct nests in shallow water over sand or mud bottoms as water temperatures exceed 75 degrees Fahrenheit, usually from May to August. Females can produce up to 80,000 eggs per year. A female may deposit eggs in several adjacent nests within a nesting colony. Highly unusual for sunfishes, male bluegill will sneak into nests of other males to deposit their sperm to produce more of their offspring versus another male. Males will guard their nests and aerate the eggs by fanning their fins until the eggs hatch, within 1-2 days. Males continue to guard the area as the young fry disperse.

Miscellaneous: Just like largemouth bass, bluegills are one of the most common fishes stocked for angling and food. It has been stocked extensively by state and federal agencies into farm ponds, usually in combination with redear sunfish and largemouth bass. With proper farm management, bluegill can provide many years of successful fishing. Lack of proper management may result in crowded ponds with stunted bluegill, only growing 4 to 5 inches in length. Successful and multiple reproduction of bluegill is important to provide an adequate food source for developing young largemouth bass. Concentrations of large numbers of nesting or bedding bluegill produce an odor which is detectable by experienced anglers.

Commonly Mistaken Species: Some species of fish which are commonly mistaken for this species are redear sunfish and the green sunfish.

Sunfish & Blackbass

REDEAR

Lepomis microlophus

Description: Like other sunfishes, the redear has a laterally compressed or flattened body that is olive in color with an iridescent gold-green sheen that fades from the top side of the fish to yellow. The redear's side is speckled with brown spots. The operculum or gill flap cover is short, black and distinguishably tipped with red or orange along the edge. The redear's operculum edge is flexible. The fins are clear but the pectoral fin is long and pointed. The mouth is small with no teeth on the tongue. The nose of the fish is pointed.

Range: Statewide.

Average Length: 6-10 inches.

Average Size: 4-8 ounces.

Maximum Age: 8 years.

Preferred Habitat: Redear can be found in a variety of habitat types including ponds, lakes, reservoirs, swamps, streams and small rivers. They prefer slow moving, sluggish or non-flowing waters and are often found in or near areas of vegetation and over a mud or sand bottom.

Food Habits: Redear sunfish feed on the bottom and therefore eat aquatic organisms that live on the bottom such as mussels, snails and insect larvae.

Spawning: Redear sunfish can begin spawning at age one, but most don't until age two at temperatures above 70 degrees Fahrenheit usually in late spring to early summer. They create shallow nests in water 6 inches to several feet deep on sand, gravel or mud. The nests may be solitary or in groups of several dozen and up to one hundred. The female will lay up to 45,000 eggs which the male guards and aerates during incubation.

Miscellaneous: Anglers nicknamed the redear sunfish "shellcracker" because they have teeth (called pharyngeal teeth) located in the throat area of the fish that are used to crush the shells of some of the redear's favorite prey items—mussels and snails. Redear are often stocked in small farm ponds in combination with bluegill and largemouth bass.

Commonly Mistaken Species: One species of fish that is commonly mistaken for this species is pumpkinseed.

Sunfish & Blackbass

REDBREAST

Lepomis auritus

Description: The redbreast sunfish is laterally compressed or flattened like other sunfishes; however, it has a more elongated body than other sunfishes. The redbreast's body is a bluish-green that fades into a bright orange-yellow belly in females and a deep orange-red belly in males. Both males and females have vertical rows of red-brown to orange spots on the sides of the body. Traces of these spots can sometimes be seen tapering on the edge of the tail or caudal fin where the body connects. The caudal fin is generally an orange-red color. The operculum or gill cover has a distinguishing long black lobe. Blue lines can be found on the face or cheek area of the redbreast sunfish. Teeth are present on the roof of the mouth.

Range: Statewide.

Average Length: 2-9 inches.

Average Size: 3-8 ounces.

Maximum Age: 8 years.

Preferred Habitat: The redbreast sunfish can be found in areas with slow moving or sluggish water such as pools and backwaters of streams and rivers and upstream reaches of reservoirs. They can be found in areas with woody debris, stumps, undercut banks, shoreline riprap and rocky points. They prefer areas with a sandy bottom and generally avoid areas that are stagnant or heavily vegetated.

Food Habits: The redbreast sunfish feeds predominantly on aquatic and terrestrial insects, crayfish, mollusks and other fish.

Spawning: Redbreast sunfish spawn during late May through the end of July when water temperatures are from 65 degrees to 75 degrees Fahrenheit. Males construct large saucer-shaped nests typically in shallow waters on sand or gravel substrates. Nests may be solitary or built in groups of more than 80 nests. Fertilized eggs are sticky and clump together in the nest.

Miscellaneous: The popularity afforded to South Carolina's lowcountry blackwater rivers can be attributed to the redbreast sunfish fishery they support.

Commonly Mistaken Species: Some species of fish that are commonly mistaken for this species are dollar sunfish and bluegill.

Sunfish & Blackbass

WARMOUTH

Lepomis gulosus

Description: The warmouth gets its name from the large mouth that extends to beneath the pupil of the large red eye. The body is an overall olive brown with a purple sheen. The sides of the body are mottled dark brown with dark red-brown lines that radiate out towards the gill flap or operculum from the eye. The edge of the operculum is stiff and short with a reddish spot. A patch of teeth is found on the tongue and in the roof of the mouth. Breeding male warmouths develop a bright orange spot at the base of the dorsal fin.

Range: Statewide in all flowing and impounded habitats.

Average Length: 5-8 ounces.

Average Size: 2 pounds.

Maximum Age: 8 years.

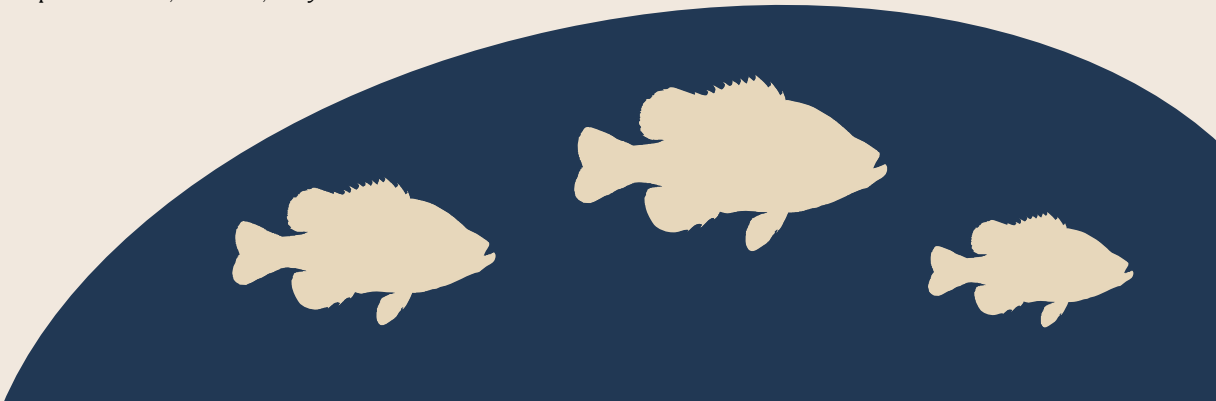
Preferred Habitat: The warmouth prefers slow moving streams, swamps, Carolina bays, ponds and reservoirs, especially areas with submerged cover—riprap or vegetation.

Food Habits: Aquatic insects, mussels, crayfish and fish.

Spawning: Warmouth begin spawning in late spring through the summer months when water temperatures are above 70 degrees Fahrenheit. Male warmouth build multiple nests sometimes in groups with other warmouths on top of gravel or sandy bottoms. Females then lay their eggs in multiple nests, depositing as few as 2,000 eggs to as many as 20,000 eggs. The eggs are guarded until hatching and after for a short period.

Miscellaneous: The larger mouth size of warmouths allows the fish to consume a wider variety of food items than other sunfish species. The warmouth grows better and is more productive in coastal plain waters than in piedmont waters.

Commonly Mistaken Species: Some species of fish that are commonly mistaken for this species are juvenile bluegill and green sunfish.



Sunfish & Blackbass

PUMPKINSEED

Lepomis gibbosus

Description: The pumpkinseed is easily recognized by the wavy and iridescent blue lines that radiate from the mouth along the side of its head. The sides of the body fade from olive, covered with gold and yellow flecks, to blue green covered with orange spots, to a yellow or orange belly. The dorsal, anal and caudal fins are decorated with brown wavy lines or orange sports. The pectoral fin is long and pointy and usually extends far past the eye when bent forward. The gill cover or operculum is stiff, short and mostly black with a light colored edge of bright orange to red-orange. The mouth is small. Pumpkinseeds have pharyngeal teeth, which are molar-shaped teeth located in the throat area of the fish.

Range: Statewide.

Average Length: 4-6 inches.

Average Size: 2-4 ounces.

Maximum Age: 8 years.

Preferred Habitat: Pumpkinseeds can survive and reproduce in a variety of habitat types including pools and backwaters or streams, rivers, ponds and reservoirs over a variety of bottoms. They prefer the vegetated areas of these habitat types.

Food Habits: Aquatic insects, mussels, snails and crayfish.

Spawning: Pumpkinseed begin to spawn when water temperatures exceed 70 degrees Fahrenheit around late spring to early summer. Males construct nests in shallow water either singularly or in loose groups. Females can produce up to 14,000 eggs during a laying season, producing 2,000-3,000 sticky eggs at one time in the bottom of their sandy nests. The male fertilizes the eggs, guards them throughout incubation and protects them during their early development.

Miscellaneous: Pumpkinseed will often hybridize with other sunfish species, reproducing more than once if conditions are favorable. They rarely reach a size to make them recreationally important to anglers.

Commonly Mistaken Species: One species of fish that is commonly mistaken for this species is redear sunfish.

Sunfish & Blackbass

SPOTTED SUNFISH

Lepomis punctatus

Description: The spotted sunfish has distinct black spots along the side of its head and body and noticeably on the operculum or gill cover. The body is olive in color with an orange or yellow tinge along the belly. The tips of the dorsal, caudal and anal fins are silvery to white. The operculum lobe is black with a white edge and is stiff. The bottom of the eye is underlined with a blue iridescent half moon. The mouth is small with no teeth on the tongue or the roof of the mouth.

Range: Coastal plain of South Carolina.

Average Length: 4-5 inches.

Average Size: 3-7 ounces.

Maximum Age:

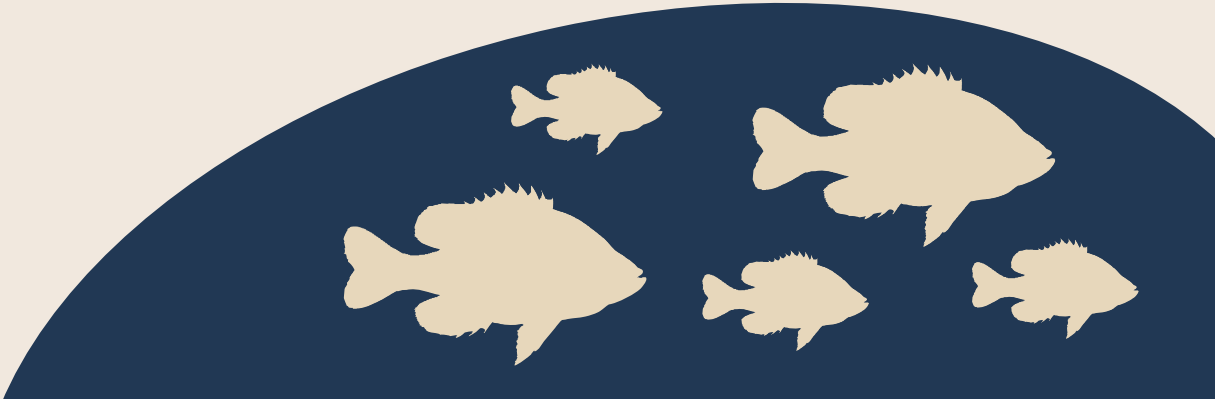
Preferred Habitat: Spotted sunfish are generally found in sloughs, swamps, slow streams and rivers near dense vegetation, debris and/or submerged logs and stumps.

Food Habits: Terrestrial and aquatic insects, snails and crayfish

Spawning: Spotted sunfish spawn late spring to early summer once water temperatures have reached 70 degrees Fahrenheit. The males build nests in shallow water frequently near banks. Spotted sunfish are unlike other sunfishes in that they tend to be solitary nesters. Courting males make a grunting sound and are very aggressive when guarding their nests.

Miscellaneous: Spotted sunfish are often called "stumpknockers." This is probably due to their feeding activity for insects attached to submersed logs. This species will tolerate higher salinities than other sunfishes, thus allowing it to exist in coastal streams with some saltwater intrusion.

Commonly Mistaken Species: None.



Sunfish & Blackbass

GREEN SUNFISH

Lepomis cyanellus

Description: Green sunfish have a slender, thick body with a large mouth and an upper jaw that extends back to the near middle of the eye. Its body is greenish-brown with irregular rows of metallic blue-green flecks along its sides. From the mouth to the cheeks and the operculum, iridescent blue lines radiate. A distinctive large black blotch is present on the rear of the dorsal fin and on the anal fin. The soft dorsal and anal fins, pelvic and caudal fins are edged with white followed by a faint, but distinct, yellow-orange edge. The pectoral fin is short and rounded. The opercular lobe is short and black with a wide pale margin.

Range: Mostly in the Blue Ridge and Piedmont foothills, but may also be found in parts of the Coastal Plain.

Average Length:

Average Size:

Maximum Age: 7 years.

Preferred Habitat: Green sunfish prefer slow pools and backwaters of streams and rivers, but they also occur in ponds, lakes and reservoirs. They are highly tolerant of turbidity and drought conditions.

Food Habits: Aquatic insects, crayfish and small fishes.

Spawning: From April through August, green sunfish spawn almost always making nest near some type of shelter such as a log or clumps of vegetation over gravel or sand. Green sunfish nests are often located in large groups. Depending on the female's size, she can lay between 2,000 and 10,000 eggs per spawning season.

Miscellaneous: Green sunfish are the most resilient and top competitors of all the sunfishes. They can withstand extreme changes in temperature and most disturbed habitats. They often out-compete and suppress native fish populations in disturbed or marginal habitats. They can rapidly colonize new habitats too.

Commonly Mistaken Species: Some species of fish that are commonly mistaken for this species are bluegill and warmouth.

Sunfish & Blackbass

FLIER

Centrarchus macropterus

Description: The flier looks almost circular. The body is olive green to silver in color and has interrupted rows of black spots along the side. A distinct, large black teardrop-shaped marking occurs below the eye. The operculum or gill cover lobe is black. Young fliers have a dark spot outlined in an orange ring on the dorsal fin. These spots fade and disappear with age. The flier has 11-13 dorsal fin spines.

Range: Predominantly found in the coastal plain of South Carolina; however, there are records of the flier in tributaries of the Broad, Saluda and Savannah rivers.

Average Length: 5 inches.

Average Size: 3 ounces.

Maximum Age: 8 years.

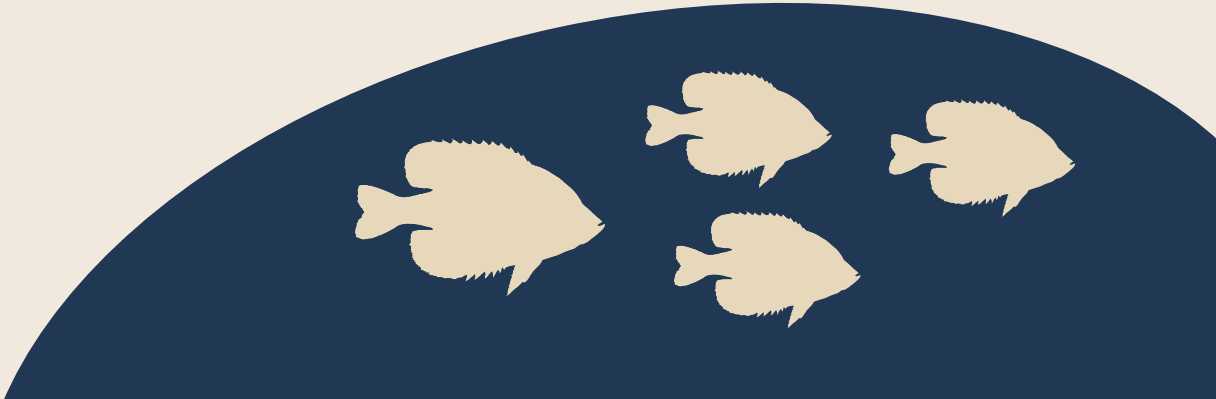
Preferred Habitat: The flier is commonly found in the warm and heavily vegetated waters of the coastal plain in swamps, creeks, ponds, backwaters, sloughs, roadside drainage ditches and low flowing streams.

Food Habits: Small aquatic insects and small fishes.

Spawning: Spawning for fliers begins earlier than most sunfish around March to May when water temperatures are reaching 55-65 degrees Fahrenheit. The males build and defend the nests which are often in groups. The females deposit 20,000-35,000 eggs in the nest.

Miscellaneous: The flier is a species of sunfish which establishes fishable population in the coastal plain section of South Carolina. It has the most dorsal fin spines, usually 11-13, of any sunfish.

Commonly Mistaken Species: Some species of fish that are commonly mistaken for this species are white and black crappie.



Sunfish & Blackbass

BLACK CRAPPIE

Pomoxis nigromaculatus

Description: The black crappie body is overall gray-green to bluish on the back that fades to a silvery side and belly. Black mottling is present on the sides of the body as well as the anal, dorsal and caudal fins. The mouth is large and extends to beneath the eye. Black crappie appear to have a "receding fin line," as the area in front of the dorsal fin is highly arched. The black crappie has 7-8 dorsal fin spines.

Range: Statewide.

Average Length: 10 inches.

Average Size: ½ to 1 ¼ pounds.

Maximum Age: 13 years, but most will not live beyond 8 years.

Preferred Habitat: Black crappie are found in vegetated areas of backwaters in streams, rivers, ponds and reservoirs. They prefer cool, clear waters.

Food Habits: Predominantly feed on small fish, but may also consume mussels, snails, crayfish, aquatic insects.

Spawning: As water temperatures approach 60 degrees Fahrenheit in late February to early May, male black crappie build their nests on top of sand, gravel or mud in shallow water. Females will deposit large amounts of eggs per spawn—3,000 to 15,000 eggs! Large females can lay up to 150,000 eggs. The male guards the fertilized eggs until they hatch and the fry leave the nest.

Miscellaneous: The black and white crappie can hybridize, but it is rare. The black crappie is the predominant crappie species in the state. It is one of the most popular sport fishes for South Carolina anglers. They are relatively easy to locate and catch as they congregate in large numbers around brush piles and piers. As a service to anglers, the South Carolina Department of Natural Resources constructs and marks fish attractors designed to attract crappie. These fish attractors do a good job of attracting crappie, but fishing pressure can reduce the number of fish at the site for short periods of time.

Commonly Mistaken Species: One species of fish that is commonly mistaken for this species is white crappie.

WHITE CRAPPIE

Pomoxis annularis

Description: Overall body color is a gray-green with a silver side and white belly. The dark spots on the side tend to form wavy vertical bars. The white crappie has a deep and highly compressed body, a large mouth that extends rearward to beneath the eye and a concave nape.

Range: Statewide.

Average Length: 6.7-20.9 inches.

Average Size: ½ to 1¼ pounds, approximate maximum size five-pounds.

Maximum Age: Approximately 10 years.

Preferred Habitat: The two species of crappie are found in almost all waters with the exception of mountain streams. They are more abundant in large impoundments, natural lakes and backwaters. White crappie are more tolerant of turbid conditions with the black crappie preferring clearer lakes.

Food Habits: Young crappie feed on invertebrates such as zooplankton and insects. When they reach a size of about 7 inches, fish become more prevalent in the diet. In large impoundments, adult crappie feed on threadfin shad and small gizzard shad throughout the year; however, they will feed extensively on mayfly nymphs during the summer months.

Spawning: As water temperatures approach 60° Fahrenheit, the male crappie will prepare a nest by fanning out a shallow depression on top of sand, gravel or mud in 2 to 8 feet of water. Nests range from 8 to 15 inches in diameter and are usually found in colonies, with as many as 30 nests found in a 9-square yard area. Females deposit from 3,000 to 15,000 eggs per spawn, but may spawn with several different males. Large females have the potential to lay up to 150,000 eggs. The male guards the fertilized eggs for 2 to 3 days until hatching after 2 to 3 days and continues to guard for an additional 3 to 4 days until fry leave the nest.

Miscellaneous: The black crappie is very similar to the white crappie, differing slightly only in some body characteristics, color patterns and habitat preference. In most impoundments, one species or the other will predominate. The crappie is one of the most popular sport fishes in South Carolina. It is relatively easy to locate and catch and it has a very good flavor. Crappie are often found in large numbers around piers and brush. These loose aggregations are not really schools of fish but they can appear to come and go as they are fished out of a small area. The South Carolina Department of Natural Resources constructs and marks brush piles designed to attract crappie as a service to anglers. These fish attractors do a good job of attracting crappie but fishing pressure can reduce the number of fish at the site for short periods of time.

Commonly Mistaken Species: One species of fish that is commonly mistaken for this species is white bass.

Temperate Bass

STRIPED BASS

Morone saxatilis

Description: The coloration of the dorsum ranges from deep olive to steel blue and changes to a silvery abdomen, flanked by 7 to 8 longitudinal dark stripes running from behind the gills to the base of the tail. It is common for adult fish to exceed 10.8 inches and weigh 20 pounds. The size helps distinguish this species from Striped bass x White bass Hybrid, which rarely exceeds 10 pounds.

Range: All of South Carolina's coastal rivers support striped bass, the largest populations occurring in the Savannah, Cooper and Santee rivers. Excellent reservoir fisheries exist in lakes Marion, Moultrie, Murray and Wateree. Smaller populations are found in lakes Hartwell, Thurmond, Secession and Greenwood.

Average Length: 20-36 inches.

Average Size: 3-10 pounds, about 60 pounds in freshwater or 120 pounds in saltwater.

Maximum Age: Approximately 30 years.

Preferred Habitat: Striped bass are found in major rivers and large impoundments of South Carolina as well as estuarine and coastal areas. They prefer cool waters and are diadromous throughout their range, except in South Carolina. Diadromous fishes use both marine and freshwater habitats during their life cycle.

Food Habits: The diet of striped bass consists mostly of fish. Preferred species in freshwater are threadfin shad, gizzard shad and blueback herring.

Spawning: Prior to spawning in early spring, striped bass migrate up rivers. Spawning occurs when water temperatures reach 60-70° Fahrenheit. The semi-buoyant eggs are released in the flowing water and fertilized by several males in a thrashing event known as a "fight." As many as 3 million eggs may be released by one female. The eggs require a flow adequate to prevent their settling to the bottom during the incubation period of approximately 50 hours. During their first few days of life, the larval fish are sustained by a yolk material while they develop. Eventually they begin to feed on zooplankton.

Miscellaneous: Because striped bass need flowing water to spawn successfully, most reservoir populations are maintained solely by stocking. In South Carolina, only the Santee-Cooper reservoirs have suitable tributary rivers, the Congaree and Wateree, to meet their spawning needs. Other reservoirs have limited upstream river systems due to extensive dam construction. Unimpounded coastal rivers still provide adequate stream flow for hatching. The “landlocked” reproducing population of the Santee-Cooper reservoirs was a unique phenomenon until recent discoveries of other reproducing populations in the Southeast and far west. South Carolina was a pioneer in developing striped bass hatchery techniques. As a direct result of work at the Dennis Wildlife Center in Moncks Corner, striped bass fisheries now exist in many reservoirs across the country.

Commonly Mistaken Species: Some species of fish that are commonly mistaken for this species are white bass and striped bass x white bass hybrid.

Temperate Bass

STRIPED BASS x WHITE BASS, Hybrid

Palmetto Bass Hybrid

Description: Similar to the striped and white bass that it is a product of, the Palmetto bass has an elongated body. However, its sides fade from a dark olive to steel green in color along the top edge to a silver along the side and belly. Hybrids commonly have distinctly broken lines along their sides. Its back is arched similar to that of the white bass but it has a longer sloping forehead than typically seen in striped bass.

Range: The Palmetto bass hybrid is found in the Savannah River drainage, particularly lakes Hartwell and Thurmond and Stevens Creek Reservoir.

Average Length: 11-23 inches.

Average Size: 2-3 ¼ pounds.

Maximum Age:

Preferred Habitat: Due to the limited distribution of the hybrid, little is known about the potential variety of preferred habitats. However, in those waters where the hybrid has been introduced, it appears to prefer open waters.

Food Habits: Hybrids consume primarily threadfin and gizzard shad, blueback herring and yellow perch. However, the Palmetto bass hybrid is opportunistic and will consume insects and other targets when possible.

Spawning: Despite being a hybrid, this fish has been spawned under laboratory conditions. Hybrids will migrate upstream with white bass and striped bass during their seasonal spawning run. The hybrid has been observed conducting spawning behavior similar to the striped bass; however, reproduction is questionable.

Miscellaneous: The Palmetto bass is a cross between a striped bass female and a white bass male. The hybridization of this species was developed in the mid-1960s by the South Carolina Department of Natural Resources at the Dennis Wildlife Center in Moncks Corner in an attempt to produce a fish that would have higher survival rates than striped bass when stocked at a smaller size. Unlike small striped bass, the striped bass x white bass hybrid is much less sensitive to the stress of movement and stocking. Since its introduction into lakes Hartwell and Thurmond, it has become one of the favorite sport fish of local anglers.

Commonly Mistaken Species: Some species of fish that are commonly mistaken for this species are white and striped bass.

Temperate Bass

WHITE BASS

Morone chrysops

Description: The white bass is a wide bodied fish with an overall dark bluish green to gray color with yellow eyes. The two dorsal fins—spiny and soft—are completely separated. The white bass has stripes running laterally down its sides that may be broken. The lower jaw sticks out further than the upper jaw on the mouth. A tooth patch is present on the tongue.

Range: Scattered throughout South Carolina in the Piedmont and in the Coastal Plain in the Pee Dee, Santee and Savannah river drainages.

Average Length: 10 inches.

Average Size: 1 pound.

Maximum Age: 6 years.

Preferred Habitat: White bass prefer the deeper pools of large reservoirs and rivers.

Food Habits: Aquatic insects and fish, primarily threadfin shad, young gizzard shad and blueback herring

Spawning: White bass migrate upstream from reservoirs to shoals upriver or to the heads of reservoirs and into smaller streams during March and April as water temperatures reach 55 degrees Fahrenheit. Spawning occurs at the surface where several males congregate around one female in shallow areas of the stream where up to one million eggs can be released by the large female and fertilized. These sticky eggs adhere to submerged trees and other substrates where they hatch unattended after approximately 45 days.

Miscellaneous: Not native to South Carolina, the white bass was introduced in 1954 when stocks of adult fish were moved from Tennessee to Lake Wylie by South Carolina Game and Fish Commission personnel. From these early stocks, introductions were made into other rivers and impoundments of the state. Schools of the species may be seen at the surface of large reservoirs as they pursue threadfin and gizzard shad. Sport fishing for white bass is most productive during these schooling periods and during their spawning migration.

Commonly Mistaken Species: Some species of fish that are commonly mistaken for this species are striped bass and white perch.

Temperate Bass

WHITE PERCH

Morone americana

Description: White perch are silver-green to olive in color. The underside of their lower jaw is often purple. The spiny and soft dorsal fins are joined by a membrane. The anal fin contains three spines; the second spine is thicker than and almost as long as the third. There are no teeth on the tongue of the white perch.

Range: All reservoirs except Keowee and Jocassee

Average Length: 6-9 inches.

Average Size: Less than 1 pound, most landlocked specimens less than 1/3 pound.

Maximum Age: 17 years.

Preferred Habitat: White perch were primarily found in estuarine and marine habitats throughout the Atlantic coast southward to areas near Charleston, SC. Now, they commonly inhabit the Piedmont in the Pee Dee, Santee, Cooper, Broad, Saluda and Savannah rivers and many of the inland reservoirs such as lakes Murray, Greenwood, Thurmond and Wateree.

Food Habits: They have a diverse diet including worms, shrimp, crabs, insects and small fishes.

Spawning: White perch are a schooling species that are semi-anadromous, meaning they move between estuarine and freshwaters to spawn. From April to June, when water temperatures average 50-60 degrees Fahrenheit, white perch migrate from estuarine waters into large rivers where females release up to 150,000 adhesive eggs. Populations that are locked within reservoirs do not follow this pattern, but instead migrate within the reservoir. Immediately following the laying of the eggs, males release millions of sperm cells. In spite of this haphazard spawning ritual, the ratio of hatched eggs is enormous when compared to other fish. Eggs can hatch in as little as 30 hours or take as long as six days, depending on water temperature.

Miscellaneous: Fisheries biologists are concerned about white perch because its prolific reproductive capabilities give it a competitive advantage over some more desirable species. Although scorned by some fishermen as a pest (small size), the white flaky flesh of the white perch is among the best tasting.

Commonly Mistaken Species: Some species of fish that are commonly mistaken for this species are white and striped bass.

Catfish & Bullhead

BLUE CATFISH

Ictalurus furcatus

Description: Blue catfish has a deeply forked tail fin. This large catfish is distinguished by its bluish back and side, lack of black spots and humped back near the dorsal fin.

Range: Blue catfish are native to the Mississippi River basin. In South Carolina, blue catfish are found in almost every drainage. This species is found in South Carolina Department of Natural Resources' public fishing lakes and large impoundments such as lakes Wateree, Marion and Moultrie.

Average Length: 20-45 inches.

Average Size: 3-40 pounds.

Maximum Age: Approximately 34 years.

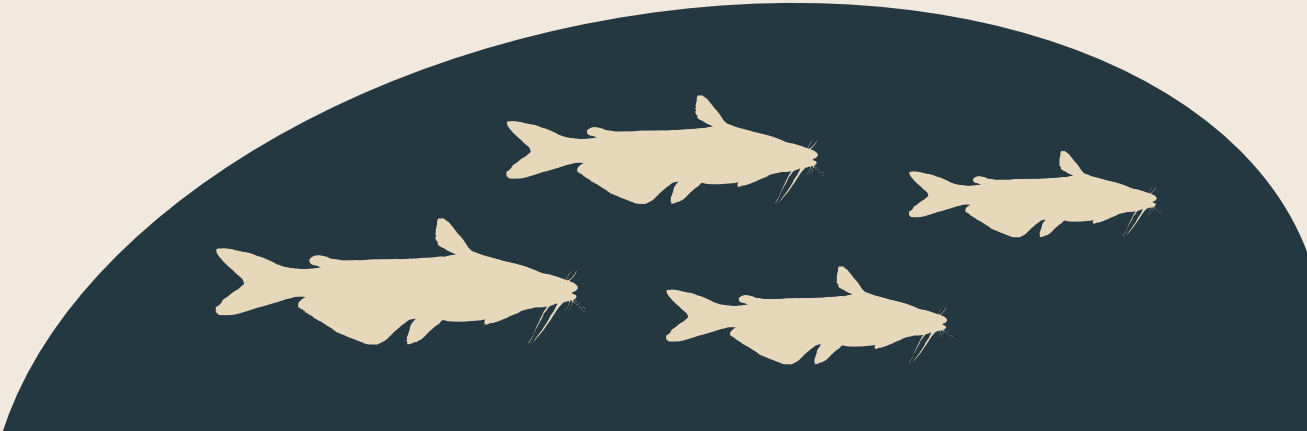
Preferred Habitat: Blue catfish prefer rivers and large creeks with moderate to swift current over rock, gravel or clean sandy bottoms; however, they also do well in large impoundments.

Food Habits: The blue catfish feeds on a variety of organisms including clams, snails, aquatic insects, freshwater mussels, fish and plant material.

Spawning: Spawning occurs in late spring or early summer in water temperatures of 70-75° Fahrenheit. Egg masses are deposited in cavities afforded by logs, brush or undercut riverbanks. Unlike other catfish, the male and female both assist in guarding the eggs and the young while they remain in the nest.

Miscellaneous: The blue catfish is one of the largest freshwater fishes found in North America. They were first introduced into South Carolina in 1964 when they were stocked into Lake Marion.

Commonly Mistaken Species: Some species of fish that are commonly mistaken for this species are channel and white catfish.



Catfish & Bullhead

FLATHEAD CATFISH

Pylodictus olivaris

Description: The flathead catfish is very large in size compared to other catfish in South Carolina. It has a broad and flat head with small eyes atop. The mouth's lower jaw sticks out farther than the top jaw. The flathead's body is mottled yellowish brown which fades to a gray belly. The upper tip of the square caudal fin may be white. This coloration is absent in large adults.

Range: The flathead can be found in the Pee Dee, Santee, Edisto and Savannah river drainages of the Coastal Plain and Piedmont.

Average Length: 15-45 inches.

Average Size: 1-45 pounds.

Maximum Age: 26 years.

Preferred Habitat: The flathead catfish prefers deep holes in sluggish or slow water in medium to large rivers in areas with good structure such as fallen trees, stumps and undercut banks. Flatheads have also done well in large reservoirs, though growth rates tend to be slower in non-river habitats.

Food Habits: Primarily a diet of fish

Spawning: In South Carolina, flathead catfish spawn from mid-May to mid-July in areas around hollow logs and undercut banks. The males create nests that are 3-15 feet in depth. The yellow gelatinous eggs masses that can contain 4,000 to 100,000 eggs are tended by the males. They guard and aerate the eggs with fin movements during incubation. Parental protection continues until the young fish absorb their yolk sacs and disperse.

Miscellaneous: The flathead catfish is an introduced species to South Carolina. Its native range is in the Ohio, Mississippi and Missouri river basins. Since its introduction into the Santee-Cooper Reservoir, flatheads have become established in nearly every reservoir or river system in the state. The spread of this non-native fish has negatively affected several native species, most notably redbreast sunfish. Although the flathead catfish provides a great sportfishing opportunity, the highly predacious flathead has negatively impacted native species such as bullheads and redbreast sunfish creating ecosystem imbalance. The flathead catfish maintain a solitary existence, usually inhabiting the same site on a daily basis. Like most catfish, the flathead catfish is a nocturnal feeder, becoming more active as light intensity declines. This fish makes excellent table fare. Unlike other catfish species, flatheads are reluctant to take decaying bait and prefer live bait.

Commonly Mistaken Species: Some species of fish that are commonly mistaken for this species are channel and blue catfish.

Catfish & Bullhead

YELLOW BULLHEAD

Ameiurus natalis

Description: The yellow bullhead has a body that fades from olive to yellow to bright yellow on the sides to a white belly. The chin barbells, commonly known as whiskers, are distinctly white to yellow in color. The yellow bullhead also has a distinctly long anal fin and a rounded or nearly straight caudal fin.

Range: Statewide.

Average Length: 6-10 inches.

Average Size: 1 pound.

Maximum Age: 7 years.

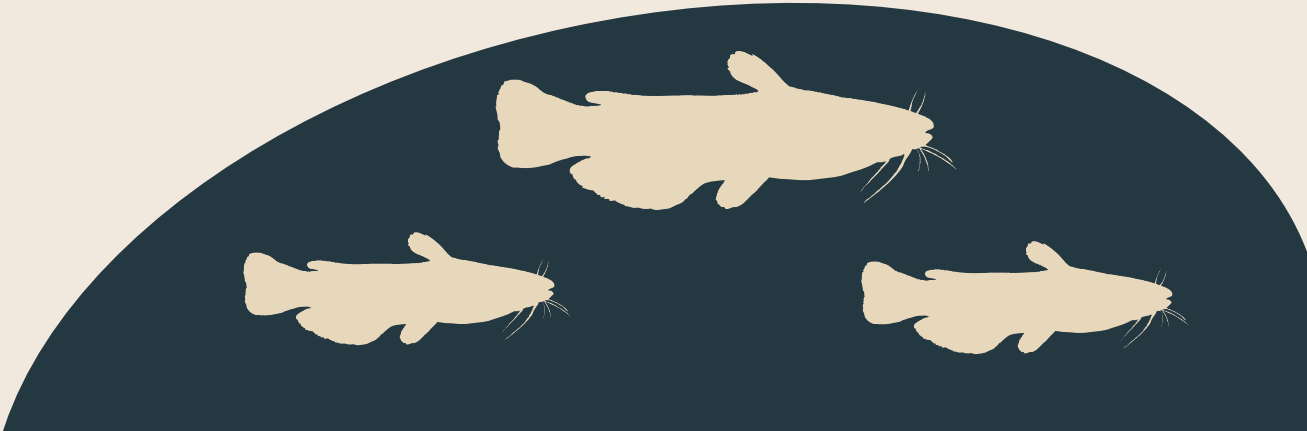
Preferred Habitat: Yellow bullheads can be found in a variety of habitat types but they typically are found in pools with soft bottom of silt or accumulated leaves in small- and medium-sized rivers.

Food Habits: Crayfish, mussels, insects, fish and fish eggs.

Spawning: Yellow bullhead spawning occurs from May through June when water temperatures reach 75-80 degrees Fahrenheit. Both the male and female participate in nest construction, but only the male guards the nest. The nests may be located under logs, rocks or in open areas. Approximately 2,000-4,000 eggs are deposited in a mass by one female. The eggs hatch in 5-7 days.

Miscellaneous: Like most catfish, the yellow bullhead feeds mainly in the early evening and at night. Although edible, it is the least prized of the catfishes. Its prolific reproductive nature most often causes stunting of sunfish populations in farm ponds by competing for available food.

Commonly Mistaken Species: Some species of fish that are commonly mistaken for this species are black and brown bullheads.



Catfish & Bullhead

CHANNEL CATFISH

Ictalurus punctatus

Description: The channel catfish has a slender body that is pale blue to olive on the back and side with a white belly. Dark spots are usually present on the back and sides, but these tend to fade in larger adults. The caudal fin is deeply forked.

Range: Statewide.

Average Length: 16 inches.

Average Size: 1-1 ½ pounds.

Maximum Age: 24 years.

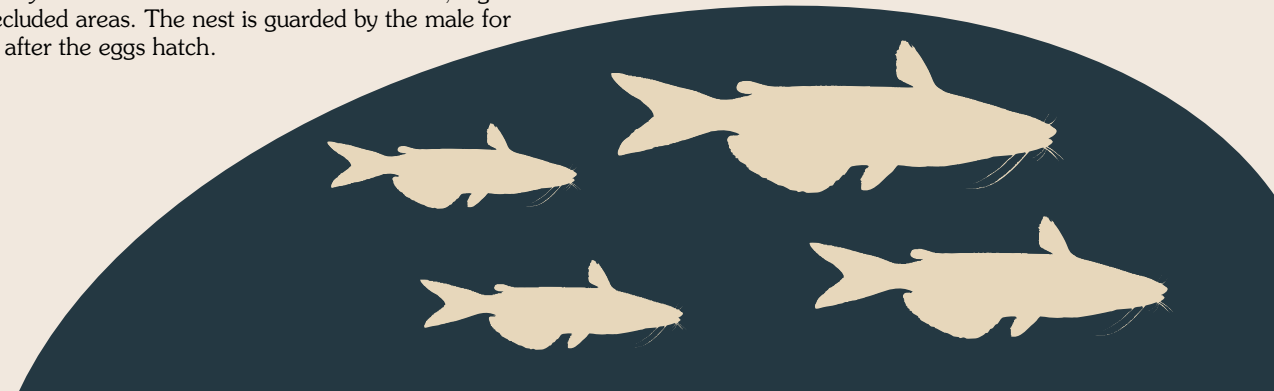
Preferred Habitat: The channel catfish inhabits a variety of habitat types including small to large creeks, rivers, reservoirs and ponds over a range of substrates.

Food Habits: Fish, crayfish, mollusks, immature mayflies and caddisflies, as well as aquatic vegetation.

Spawning: Spawning occurs from May to July when the water temperature is approximately 70-80 degrees Fahrenheit. A gelatinous mass of eggs is deposited in a nest constructed by the male below undercut stream banks, logs or other secluded areas. The nest is guarded by the male for some time after the eggs hatch.

Miscellaneous: The channel catfish is the principal species in freshwater aquaculture in the Southeast. State and federal fishery agencies have stocked channel catfish extensively through South Carolina with special emphasis on selected farm ponds.

Commonly Mistaken Species: One species of fish that is commonly mistaken for this species is the blue catfish. Both the blue and channel catfish have deeply forked tails and similarly shaped bodies, but differ in that channels have black spots and a shorter, rounder anal fin.



Salmonid

RAINBOW TROUT

Oncorhynchus mykiss

Description: The rainbow trout is an elongated fish with sides that fade from green below the dorsal fin to yellow to white. A pink to red stripe runs laterally along the sides of the rainbow. Small, dark spots are found on the head, body and most of the fins. The black spots on the caudal fins appear to be in rows.

Range: Mountain streams of Oconee, Pickens and Greenville counties. Also present in Lake Jocassee and the tailraces of lakes Murray and Hartwell.

Average Length: 7 to 8 inches.

Average Size: 4-5 ounces.

Maximum Age: 11 years (wild southern Appalachian populations, 4 years).

Preferred Habitat: The rainbow trout prefers clear and cold waters (not in excess of 68 degrees Fahrenheit) in creeks, rivers, lakes and reservoirs. This habitat exists in tailraces of large impoundments or occasionally in the deeper waters of certain reservoirs. In a normal mountain stream habitat, rainbow trout will inhabit the faster moving waters such as at the head of a pool area.

Food Habits: Aquatic and terrestrial insects, crayfish and fishes.

Spawning: Rainbow trout spawning occurs in February and March in the riffle areas of South Carolina mountain streams. The females prepare nesting areas, called redds, by fanning out a shallow depression several inches deep. The eggs are laid, fertilized, covered with gravel and left unattended to incubate and hatch some 30-50 days later. Females are known to deposit eggs in several redds during the spawning process. Wild self-sustaining rainbow trout populations occur in South Carolina's mountain region, generally east of the Chattooga Ridge along the Blue Ridge Escarpment in streams with elevations from 1,300 to 3,000 feet. The South Carolina Department of Natural Resources has an active trout stocking program which expands rainbow trout fishing opportunities seasonally, particularly in lower elevation streams.

Miscellaneous: Rainbow trout are sensitive to their environment; increases in water temperature and siltation are two main threats to its well-being. Man's land use practices have accounted for most of the loss of trout habitat in South Carolina. Improper road construction and logging practices often leave no buffer zone to shade and protect streams from solar heating and soil erosion. Silt works its way into streams and smothers trout eggs before they can hatch and decreases the amount and diversity of food available. A significant portion of SC's limited trout waters have been impounded by utility companies and private individuals. The rainbow trout is not native to the state, but the popular gamefish has inhabited the state's mountain streams and pleased anglers for well over a century. Rainbow trout are the most intensively stocked of the three trout species in SCDNR's trout stocking program, accounting for more than 60% of all trout stocked. This is largely a result of the versatility and ease of culture of the species. Annual stocking of just under 300,000 rainbow trout by the SCDNR greatly expands the recreational fishery for rainbow trout in the state's mountain streams, Lake Jocassee and the tailraces of lakes Hartwell and Murray.

Commonly Mistaken Species: None.

Salmonid

BROOK TROUT

Salvelinus fontinalis

Description: The brook trout has dark-olive colored sides with pale, often yellow, spots and scattered red spots with a lighter colored halo. The edges of the pectoral, pelvic and anal fins are bright white, outlined by a black line. The belly of the brook trout along with the pectoral, pelvic and anal fins can be a vibrant red to orange in spawning trout.

Range: Mountain streams of Oconee, Pickens and Greenville counties.

Average Length: 4-7 inches.

Average Size: 1-3 ounces.

Maximum Age: 4-5 years.

Preferred Habitat: Brook trout prefer small, cool, clear mountain streams with well-oxygenated water.

Food Habits: Aquatic insects, terrestrial insects, crayfish, salamanders, frogs and fish.

Spawning: Brook trout spawning occurs during October and November when water temperatures approach 50 degrees Fahrenheit. The female constructs the nest, called a redd, which is protected by both the male and female trout. The female brookie can lay from as few as 100 eggs to more than 5,000. Once the eggs are deposited, the male fertilizes them and the eggs are covered with gravel. The eggs hatch in approximately 50 days.

Miscellaneous: The brook trout is in fact a char. The brook char or brook trout is the only salmonid species native to South Carolina. The brook trout's security in the unspoiled mountain wilderness gradually changed with the influx of European settlers in the 1800s. Records from the 1870s note the presence of healthy populations of eastern brook trout in the upper Chattooga River. Land use practices of the late 19th and early 20th centuries forced the brook trout to retreat to the state's most remote headwaters.

Fortunately, the trout's decline did not pass unnoticed. The rainbow trout from the western US and the brown trout from Europe were imported. These introductions had both positive and negative impacts. On one hand, brown and rainbow trout were arguably able to occupy warmer water temperatures in the degraded habitat, and extend farther downstream of historic brook trout habitat. Therefore, these introductions likely increased available natural trout waters, alerted conservationists to protect the trout's habitat and helped create the vast southern Appalachian trout resource anglers enjoy today. On the other hand, the introduction of non-native trout resulted in the displacement of brook trout from their native range in many cases. Working cooperatively through a range-wide program called the Eastern Brook Trout Joint Venture, South Carolina Department of Natural Resources, the United States Forest Service and Trout Unlimited are working in partnership to restore the native brook trout to representative streams of its historical range.

Commonly Mistaken Species: None.

Salmonid

BROWN TROUT

Salmo trutta

Description: The brown trout's body coloration in South Carolina varies between wild and hatchery-reared fish. The wild brown trout's body coloration is typically dark olive with brilliant yellow and large black spots. The olive background generally extends down the sides of the fish with brilliant red spots on sky-blue halos. The body color fades from olive to a richly colored yellow belly. The anal fin of wild brown trout often exhibits a white leading edge with a black outline (much like brook trout) but this pattern is absent on the other fins along the belly. Wild brown trout often have black spots present on the head and upper side of the body, including the dorsal fin. Red spots also occur along the sides and are sometimes present in the dorsal and adipose fins. Black spots are found on the dorsal and adipose fins, but not the caudal. The edge of the anal fin is white.

Range: Mountain streams of Oconee, Pickens and Greenville counties. Also present in Lake Jocassee and the tailraces of lakes Murray and Hartwell.

Average Length: 8-10 inches.

Average Size: 4-8 ounces in streams to several pounds in Lake Jocassee and lakes Hartwell and Murray tailraces.

Maximum Age: 18 years (southern populations 7-10 years).

Preferred Habitat: Brown trout can tolerate warmer water temperatures (not exceeding 68 degrees Fahrenheit for any extended period) than the brook and rainbow trout. Brown trout can be found in small creeks, rivers and reservoirs. They inhabit the deeper pools and undercut banks of these habitat types, seeking out areas of low light intensity. Brown trout are better competitors than rainbow and brook trout in larger streams with multiple species.

Food Habits: Aquatic and terrestrial insects, crayfish and fish.

Spawning: Brown trout spawn from October through November when the females deposit 600-3,000 eggs into a shallow nest called a redd.

Miscellaneous: The brown trout is not native to the United States but comes from Europe. Since their introduction to North America in 1883, the brown trout has been stocked into the waters of every continent except Antarctica. This trout is more tolerant of warmer and turbid water than either the rainbow or the brook trout allowing it to have a greater habitat range. The brown trout inhabiting deeper, darker waters and undercut banks adds to the challenge anglers face when fishing for this exceptional fish.

Commonly Mistaken Species: None.

CHAIN PICKEREL

Esox niger

Description: The chain pickerel is a narrowly elongated fish with a duckbill snout that is long and narrow. The body is olive green in color with rows of a chain like pattern along the side. A black bar streams straight down from the eye.

Range: Common statewide, except for the Broad River system.

Average Length: 14-15 inches.

Average Size: 12-14 ounces.

Maximum Age: 8 or 9 years.

Preferred Habitat: Chain pickerels are found in heavily vegetated areas of sluggish or slow moving rivers, streams, swamps and lakes.

Food Habits: Fish.

Spawning: Chain pickerel spawn when water temperatures approach 45 degrees Fahrenheit during March and April. However, they may be fall spawners in the coastal plain. One female will be joined by one or two males in submerged vegetation. Once the eggs are fertilized, they will stick to the aquatic vegetation and other submerged substrate where they incubate until they hatch unattended.

Miscellaneous: This popular sport fish of coastal plain backwaters and streams is well adapted for its ambush-type feeding behavior. Its body and mouth shape are perfectly designed for capturing and consuming other fish. Chain pickerel have been known to capture and attempt to consume fish equal to their own size. Chain pickerel will usually maintain a motionless posture, resembling a drifting stick. This unanimated behavior reduces its detection by prey (other fish) allowing the pickerel the advantage of surprise. Although they have many small bones, they are a good fish to eat.

Commonly Mistaken Species: One species of fish that is commonly mistaken for this species is redfin pickerel. The chain pickerel, however, has a longer snout and a black bar below the eye that streams straight down from the eye.

REDFIN PICKEREL

Esox americanus

Description: The redfin pickerel is a narrowly elongated fish with a duck like snout that is short and wide. The body is brown to dark olive in color with numerous wavy horizontal bars with a white belly. The fins are often bright orange-red to red, especially in spawning adults. A black bar slants backward toward the gill flap or operculum from the eye, and can sometimes be vertical.

Range: Statewide, common in the Coastal Plain and lower Piedmont.

Average Length: 6-10 ounces.

Average Size: 5 ounces.

Maximum Age: 6 years (southern populations 4 years).

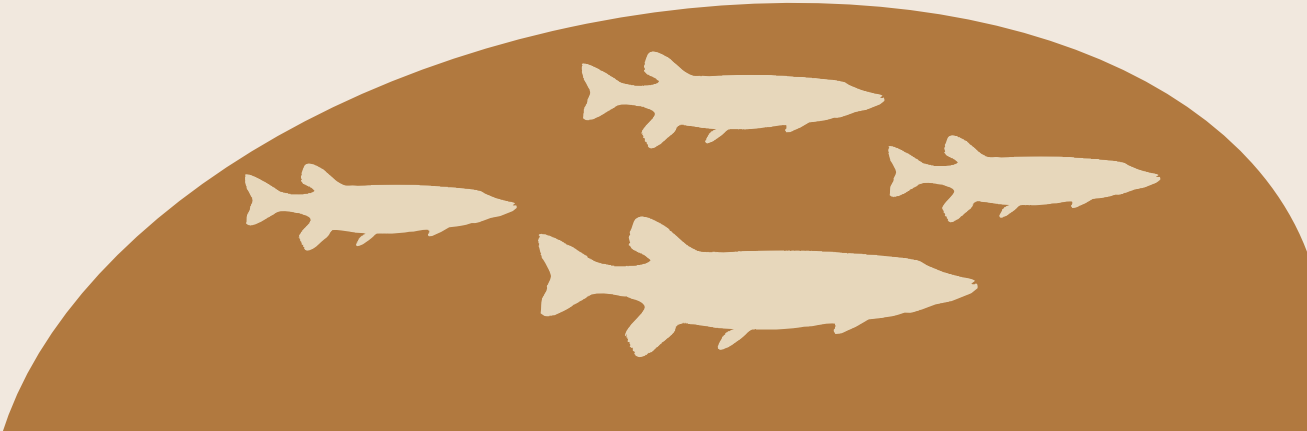
Preferred Habitat: Redfin pickerels inhabit heavily vegetated slow-moving streams.

Food Habits: Fish.

Spawning: Redfin pickerels spawn in January and February when water temperatures approach 50 degrees Fahrenheit. Females deposits their eggs in vegetated areas where they are fertilized and left unattended. A large female may deposit as many as 4,000 eggs at one time.

Miscellaneous: The torpedo-shaped redfin pickerel has numerous sharp teeth in a relatively pointed snout making it perfectly designed for its ambush–type feeding behavior. Due to its small size, sport fishing for the species is limited primarily to coastal areas where the ideal habitat for growth exists.

Commonly Mistaken Species: One species of fish that is commonly mistaken for this species is chain pickerel. The redfin pickerel, however, has a shorter snout and a black bar below the eye that angles slightly towards the rear.



AMERICAN SHAD

Alosa sapidissima

Description: The American shad's body is blue or green in color along the top of its body with silvery sides. At the upper side of the operculum or gill flap, a dark spot is present which is usually followed by a row of smaller spots along the upper side of the body.

Range: Coastal plain and undammed Piedmont rivers.

Average Length: 24 inches.

Average Size: 4 pounds.

Maximum Age: 5 years.

Preferred Habitat: Atlantic Ocean, but migrates up freshwater rivers to spawn in the Coastal Plain. (Moves farther up than any other *Alosa sp*.)

Food Habits: Plankton, algae, insects, microscopic crustaceans by swimming with mouths open and allowing water to enter the mouth and move across their gill rakers (which function like a strainer, catching food).

Spawning: Adult American shad migrate from the Atlantic Ocean into coastal rivers when water temperatures reach 55 degrees Fahrenheit, usually around mid-January to April. Males generally arrive first. Spawning activity occurs in the evening in shallow waters. The eggs are released in batches by the females as they swim hundreds of miles up unimpeded streams. The females will deposit anywhere from 100,000 to 600,000 eggs. The eggs generally sink and are carried by the currents. Once the eggs hatch, young shad will remain to feed and grow in lower rivers and estuarine areas. In the fall, young American shad migrate to the ocean.

Miscellaneous: The American shad is the largest member of the herring family in the United States and is highly valued as a commercial fish for the quality of its meat and roe (eggs). American shad were an important food source to early American colonists and are still used today. Sport fishing opportunities occur on several coastal rivers, particularly the Cooper and Santee. Since American shad are a diadromous fish, meaning they migrate between fresh and salt water, impoundments and dams create big problems for fish trying to migrate. To help the fish travel their natural routes, fish locks were constructed at the Pinopolis and St. Stephen dams to assist shad and other migratory fish species in their spawning migrations. Currently, the St. Stephen fish lock annually passes some of the highest numbers of American shad on the East Coast

Commonly Mistaken Species: One species of fish that is commonly mistaken for this species is hickory shad.

GIZZARD SHAD

Dorosoma cepedianum

Description: The gizzard shad has a body that is silvery in color with a bluish-gray back with a large purple-blue spot on the upper side of the body just beyond the operculum or gill flap. The snout, with its downward pointing mouth, is distinctly blunt. There is also a distinguishingly long dorsal fin ray at the back of the dorsal fin.

Range: Statewide, except small streams and foothills streams.

Average Length: 10-12 inches.

Average Size: 2 pounds.

Maximum Age: 10 years.

Preferred Habitat: Gizzard shad inhabit large rivers, reservoirs, lakes, ponds, pools and sluggish backwaters.

Food Habits: Microscopic plants and animals by filter feeding with their gill rakers (which function like a strainer catching food).

Spawning: Gizzard shad are prolific spawners from March through August. Females release 400,000 sticky eggs that adhere to shallow water substrates until they hatch. The young grow rapidly during their first year, making them available prey for a short period of time.

Miscellaneous: Gizzard shad get their name from their heavy and muscular stomachs that resemble the gizzard of a chicken. The gizzard shad occurs in large numbers in the state's more productive reservoirs. Here, the shad school in shoreline and open water areas. Gizzard shad are an important prey species for many game fish from hatching through adulthood. However, at full size, they are too large for all but the biggest striped bass, largemouth bass and catfish to consume. Massive die-offs occur in extreme cold weather. They are commonly used as a baitfish.

Commonly Mistaken Species: One species of fish that is commonly mistaken for this species is threadfin shad.

THREADFIN SHAD

Dorosoma petenense

Description: The threadfin shad has bluish gray on its upper side that fades into a silver side and bell. There is a prominent purple to black spot on the upper side of the body just beyond the operculum or gill flap. The caudal fin tends to be yellow. A distinguishingly long dorsal fin ray occurs at the back of the dorsal fin.

Range: Statewide in large rivers and reservoirs.

Average Length: 2-3 inches.

Average Size: 1 ounce.

Maximum Age: 4 years.

Preferred Habitat: The threadfin shad inhabits larger rivers and reservoirs primarily, but it is also found in brackish water.

Food Habits: Microscopic plants and animals by filter feeding with their gill rakers which function like a strainer catching food.

Spawning: Threadfin shad spawn from April to July in shallow shoreline areas, between dawn to sunrise over submerged plants or other objects. The eggs sink and stick to various substrates until they hatch.

Miscellaneous: The threadfin shad is considered by most fishery managers to be the single most important prey fish in South Carolina's reservoirs. Although the threadfin shad occurs in all but the coldest of the state's waters, they are most productive in large impoundments. In these impoundments, the shad rarely lives past one year, and during that time it grows no more than three or four inches in length. This makes it an ideal sized food item for all advanced predators.

Commonly Mistaken Species: One species of fish that is commonly mistaken for this species is gizzard shad.

HICKORY SHAD

Alosa mediocris

Description: Hickory shad are gray green on their back and upper sides that fades to silver. A row of dark spots is present on its sides and the tip of the lower jaw is darkly colored. The mouth is superior with the lower jaw distinctly projecting forward of the snout.

Range: It occurs sporadically in the lower parts of coastal rivers, primarily in the Pee Dee, lower Santee, Cooper and Savannah. Recently this species has been collected in Lake Hartwell on the Georgia-South Carolina border, present there presumably as a result of angler introduction.

Average Length: 14-24 inches.

Average Size: 4 pounds.

Maximum Age: 6 years.

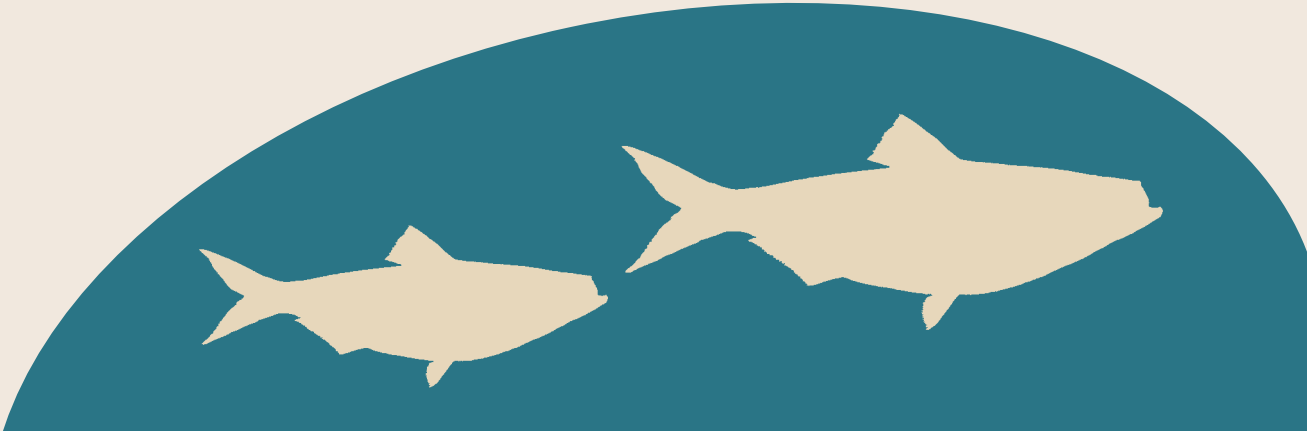
Preferred Habitat: Atlantic Ocean, but migrates up freshwater rivers to spawn in the Coastal Plain.

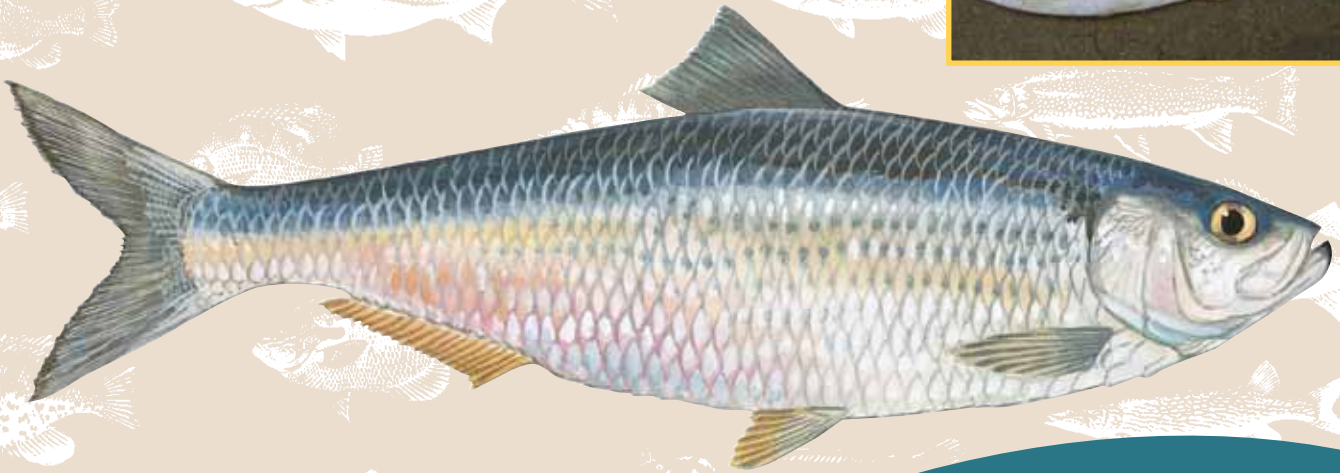
Food Habits: Fish, small crabs, aquatic insects, squid and fish eggs.

Spawning: Hickory shad spawn in tidal fresh waters such as creeks, flooded swamps, sloughs and other backwater tributaries to a main channel from February to early March. A six year old females can contain more than 300,000 eggs. After hatching, the young fry remain in freshwater and move towards higher salinity waters by fall.

Miscellaneous: Unlike other shad and herring species, hickory shad are not used as food for humans. Little is known about the status of South Carolina's hickory shad population.

Commonly Mistaken Species: Some species of fish that are commonly mistaken for this species are American shad, blueback herring and alewife.





BLUEBACK HERRING

Alosa aestivalis

Description: The blueback herring have a bluish color on the upper side of its body with silver on the rest. There is usually one small dark spot located on the upper side of the body just beyond the operculum or gill flap.

Range: Coastal rivers and streams in the Pee Dee, Santee and Savannah river drainages and present in several reservoirs—lakes Murray, Thurmond, Hartwell, Russell, Jocassee, Marion and Moultrie.

Average Length: 10 inches.

Average Size: 1/3 pound.

Maximum Age: 8 years.

Preferred Habitat: Atlantic Ocean, but migrates up freshwater rivers to spawn in the Coastal Plain.

Food Habits: Zooplankton, fish eggs and fish larvae.

Spawning: Blueback herring move into coastal rivers during March and April when the water temperatures reach the mid-50s. The spawning site can be from the tidal zone to more than 100 miles upstream. Females release as many as 250,000 eggs in shoreline areas where they are fertilized by the male. Upon spawning, the adults return to offshore areas to overwinter. The newly-hatched fish remain in the lower riverine area for several months before moving to sea.

Miscellaneous: The blueback herring is a diadromous fish, meaning it migrates between fresh and saltwater. While one of many that do so, it is of considerable importance to the commercial and sport fishermen of South Carolina. The Santee and Cooper rivers provide an excellent illustration of the blueback herring's importance. As the upstream spawning migration begins, large numbers of schooling blueback herring will congregate near Wilson Dam and Pinopolis Fish Lock and Dam where they become vulnerable to commercial harvest. They are harvested for fish bait and sold to distributors throughout the state. The South Carolina Department of Natural Resources for years has recognized the value of blueback herring as food for certain game fish of lakes Marion and Moultrie. Prior to the Santee-Cooper rediversion project, blueback herring were "locked" through the navigational lock at Pinopolis. This allowed the species to enter the reservoir, thereby providing food for striped bass and largemouth bass and increasing its spawning range. Since the rediversion project was completed, an additional but different method of moving fish is provided by a fishlift in the Santee River at St. Stephen. Fish moving through the fishlift can be viewed each spring during March and April. Blueback herring have been stocked in several upstate reservoirs and although landlocked are successfully reproducing. Although the blueback herring is generally only about ten inches in length and contains numerous bones, it is occasionally smoked and eaten by residents of some coastal towns. The true value of the species will continue to be as a major food item of game fish.

Commonly Mistaken Species: Some species of fish that are commonly mistaken for this species are American and hickory shad.

Bowfin

BOWFIN

Amia calva

Description: The bowfin is a stout fish, olive in color, with darker mottling along the sides. A large, black oval spot with a yellow to orange outline is present on the body at the upper corner of the base of the caudal fin. The caudal fin is rounded. The dorsal fin is long and extends for more than half of the length of the body. Breeding male bowfin have bright green fins and the orange outline around the black spot at the base of the caudal fin is intensified.

Range: Bowfin are primarily found in the Coastal Plain with a few records in the Piedmont.

Average Length: 1 ½-2 feet.

Average Size: 2 pounds.

Maximum Age: 10 years.

Preferred Habitat: Sluggish coastal rivers, backwaters, swamps, creeks, ditches and borrow pits. It can also be found in clear water but usually concealed in and near vegetation, logs, branches and other shelter.

Food Habits: Fish, crayfish, and all other living aquatic animals.

Spawning: Bowfin spawn from March to early June. Males construct nests in shallow water by fanning their fins. They will use their mouths to bite and clear any debris or vegetation. Females can deposit up to 55,000 sticky eggs, usually at night. The male will protect the nest during incubation of the eggs and after they have hatched. Once the young hatch, they stay in compact groups and continue to be guarded by the males for some time.

Miscellaneous: The bowfin is the only remaining member of an ancient group of fish which lived over 180 million years ago. The bowfin has several features similar to a gar. The head is covered with bony plate-like armor and much of the skeleton consists of cartilage. Bowfin can survive in poor water quality with low oxygen levels by breathing air directly into its swim bladder that will function similar to a lung. Anglers enjoy the strength and endurance of the bowfin, but not the taste.

Commonly Mistaken Species: Some species of fish that are commonly mistaken for this species are northern snakehead (which is a non-native not currently found in South Carolina). The northern snakehead has a long anal fin (short in the bowfin) and pelvic fins which are positioned directly below the pectoral fins. If caught, snakeheads should be placed in a cooler and immediately reported to the South Carolina Department of Natural Resources at 803-734-3891. Snakeheads should not be released back into the environment.

Sucker

SPOTTED SUCKER

Minytrema melanops

Description: The spotted sucker has an elongated body with rows of dark spots on the back and side that run horizontally down the body. The upper side of the body is dark green to olive brown in color that fades to a yellow or brown on the side. The mouth is positioned on the underside of the head, allowing the fish to root along the bottom and giving this group of fish the common name "suckers."

Range: Occurs in all South Carolina drainages, primarily in the Coastal Plain.

Average Length: 10-14 inches.

Average Size: 8 ounces.

Maximum Age: 6 years.

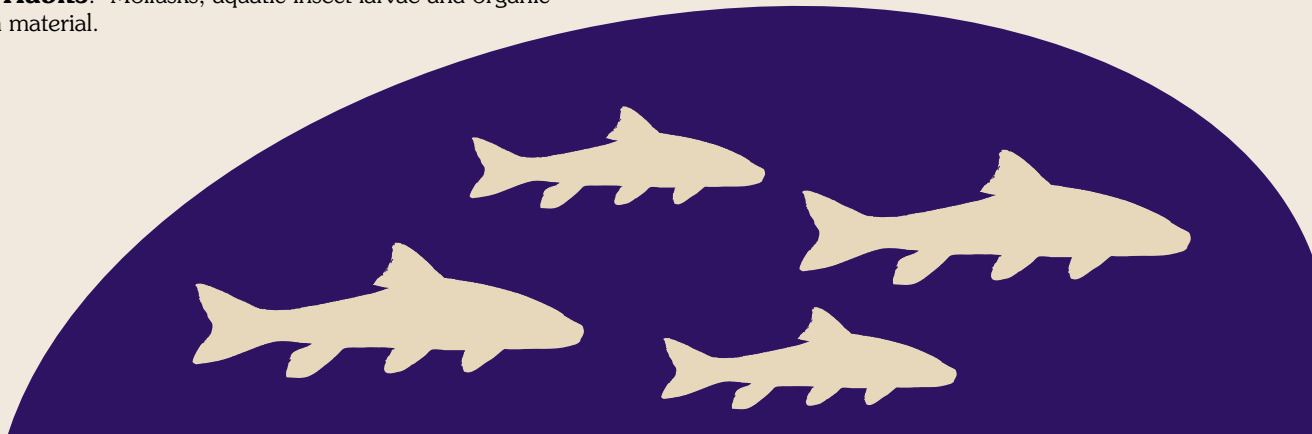
Preferred Habitat: The spotted sucker inhabits clear pools of coastal plain rivers and streams. It also can be found in oxbows, lakes and reservoirs.

Food Habits: Mollusks, aquatic insect larvae and organic bottom material.

Spawning: Spotted suckers spawn from March until May in pools and riffles of 59-65 degree Fahrenheit rivers and streams. The male will develop tubercles (bumps) on its snout which are indicative of the spawning season. Males will congregate in groups and set up territories in the riffles or pools. When a female enters the territory, males will fertilize the eggs. The eggs, which are sticky and semi-buoyant, will hatch in 7-10 days.

Miscellaneous: The spotted sucker is one of at least 13 species of the sucker family (Catostimidae) in South Carolina. Spotted suckers are often captured by sportsmen as they congregate during their spawning run. The flesh is excellent although not popular because of its many bones.

Commonly Mistaken Species: Some species of fish which are commonly mistaken for this species are redhorses *Moxostoma spp*.



Gar

LONGNOSE GAR

Lepisosteus osseus

Description: The longnose gar has long and narrow forceps-like jaws that are more than twice as long as the rest of the head. The body is olive brown to green with scattered dark oval spots on the body and fins.

Range: Statewide in river mainstems.

Average Length: 2 ½ to 3 feet.

Average Size: 4 pounds.

Maximum Age:

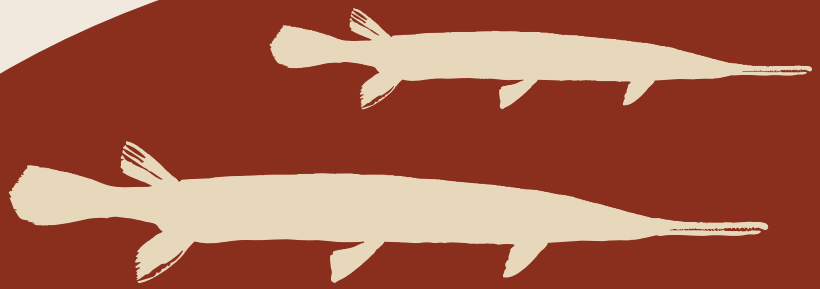
Preferred Habitat: Longnose gar inhabit sluggish or slow moving waters rivers and reservoirs.

Food Habits: Fish.

Spawning: Spawning occurs in May and early June. A longnose gar female will be courted by several males in a circling ritual in shallow water with splashing and convulsive movements. Females can deposit up to 77,000 eggs in a spawning season. The newly-hatched young have a sticky pad on their snouts that allow them to attach to objects.

Miscellaneous: Longnose gar belong to a small and primitive family (Lepisosteidae) with a few species only found in the southeastern United States. The fish can use its swim bladder as a lung in waters with very poor water quality and low oxygen levels. The longnose gar will take the bait of an angler seeking other fish species as they are not noted for their food value. However, gar are very popular in bow fishing.

Commonly Mistaken Species: One species of fish that is commonly mistaken for this species is Florida gar.



Perch

YELLOW PERCH

Perca flavescens

Description: The yellow perch is yellow in color with most individuals having six to nine black vertical bars that run along the side of the fish. Pelvic and anal fins can range from red to yellow-orange in color. A dark spot is found on the base of the spiny dorsal fin. The mouth has small teeth.

Range: Statewide.

Average Length: 5-8 inches.

Average Size: 6-10 ounces.

Maximum Age: 21 years.

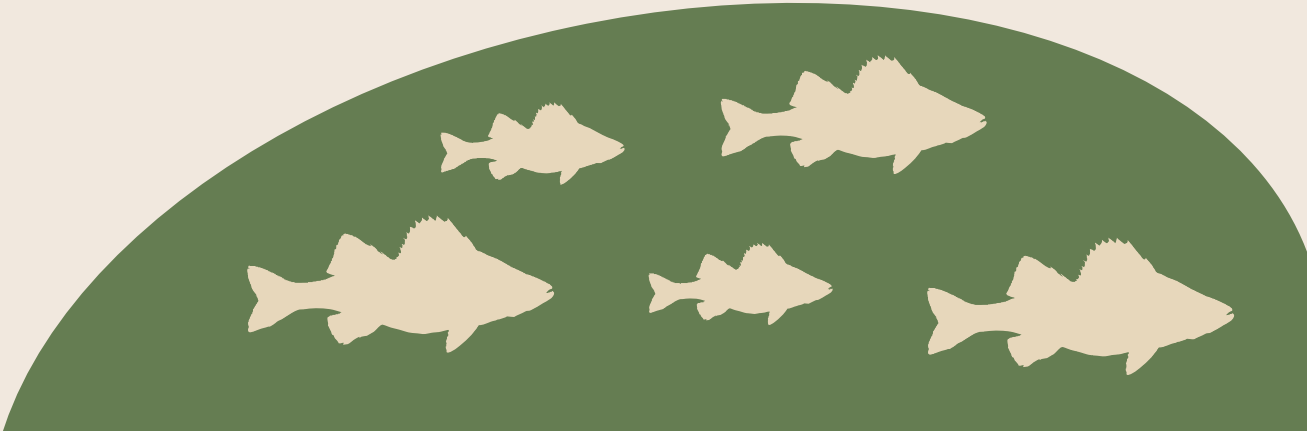
Preferred Habitat: Yellow perch can be found in a variety of habitats from cool, clear waters to warm waters. They occur in creeks, streams, rivers and reservoirs. Yellow perch are tolerant of acidic waters and salinities up to about 12 percent.

Food Habits: Aquatic insects, crayfish and fish

Spawning: Yellow perch spawn from March to May in water temperatures of 45-55 degrees Fahrenheit. Females, dependent upon size, can produce anywhere from 3,000 to 150,000 eggs. The female yellow perch has a single ovary that produces an accordion-like gelatinous ribbon of densely packed eggs. This single ovary arrangement is unique among North American fishes. Spawning is a communal affair with up to 25 males pursuing a single female. The ribbon of eggs is deposited in and around vegetation and the submerged branches of trees. Eggs hatch in two to three weeks.

Miscellaneous: Yellow perch are considered to be fun, easy to catch and a joy to eat. The flesh is firm and makes excellent table fare and is comparable to walleye in quality.

Commonly Mistaken Species: One species of fish that is commonly mistaken for this species is walleye.



Perch

WALLEYE

Stizostedion vitreum

Description: Walleye are a long, slender-bodied fish with a large mouth that extends back past the middle of the eye, large canine teeth and a silver eye. The body of a walleye is yellow-olive to brown in color with a creamy white belly. Two dorsal fins atop the body are separated. The spiny dorsal has a black spot at the base. There are six or seven faint saddles on the back.

Range: Lake Hartwell and some waters immediately downstream.

Average Length: 18-24 inches.

Average Size: 2 ¼ pounds.

Maximum Age: 8 years.

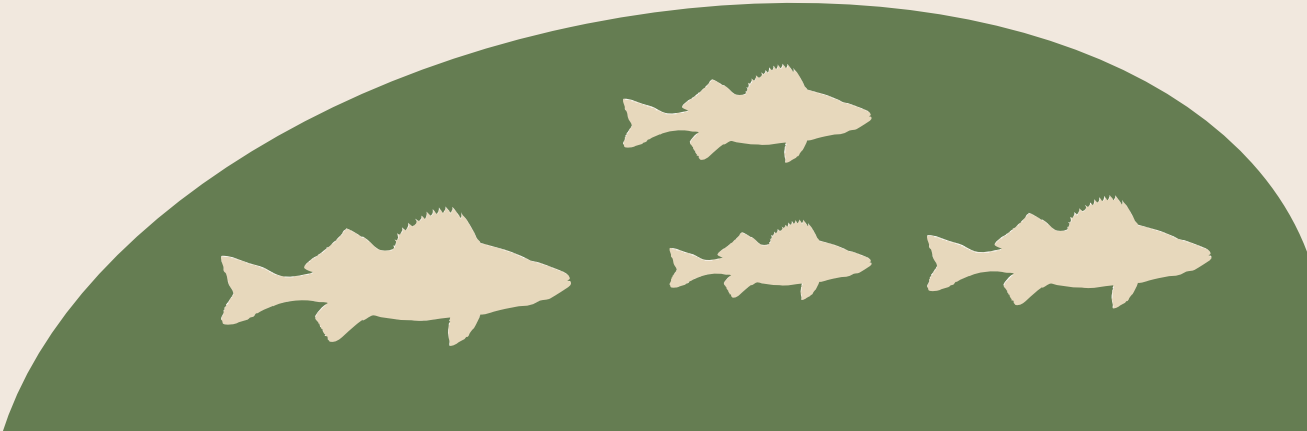
Preferred Habitat: Walleye are found in clear and cool pools, runs and backwaters of large rivers and reservoirs.

Food Habits: Fish.

Spawning: Walleye spawn in streams, along shores of reservoirs and over substrate that ranges from boulders to gravel and sand in lakes at night in March and April.

Miscellaneous: Walleye were stocked as fry in lakes Greenwood, Hartwell, Murray and Thurmond from 1962 to 1972 by the South Carolina Department of Natural Resources. However, only Lake Hartwell has a viable, reproducing population.

Commonly Mistaken Species: One species of fish that is commonly mistaken for this species is yellow perch.



COMMON CARP

Cyprinus carpio

Description: The common carp is a large, robust fish with two barbels on each side of the upper jaw. The body color can range from gray in young carp to a brassy green-gold in adults. The scales are edged with a black spot at the base. At the front of both the dorsal and anal fins, there is a strong spine-like ray.

Range: Statewide.

Average Length: 3 feet.

Average Size: 1 to 10 pounds.

Maximum Age: 20 years.

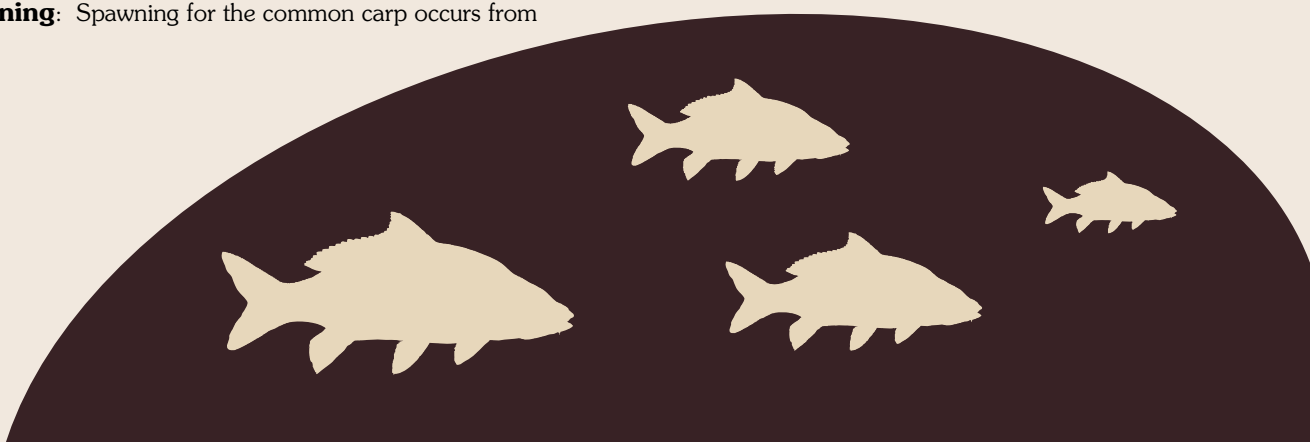
Preferred Habitat: Common carp inhabit either standing or sluggish warm water over soft mud bottoms where vegetation is found.

Food Habits: Worms, insect larvae, crustaceans and mollusks.

Spawning: Spawning for the common carp occurs from April to June. Female carp produce on average 100,000 to 500,000 eggs that either attach to vegetation or sink to the muddy bottom. Spawning activities are quite vigorous, stirring up sediment and often causing a commotion that can be heard.

Miscellaneous: Common carp are native to Eurasia and were first introduced in to North American in 1831. They were reintroduced widely in the 1880's by the federal government as a food source. Consequently, they now occur in nearly all 50 states. Their introduction has proven to be a serious mistake because of their destructive effect on habitat where they feed and spawn. Carp can also adapt better than most fish to pollution. This adaptability allows the common carp to outcompete other native species.

Commonly Mistaken Species: Some species of fish that are commonly mistaken for this species are goldfish and grass carp.



GRASS CARP

Ctenyopharyngodon idella

Description: The grass carp has a thick, mullet-like body with a white head and a terminal mouth. The scales are large with dark edges. The dorsal and pectoral fins start at the same midway point along the body, almost appearing parallel. The grass carp's body can range from silvery to olive in color on its back fading to yellow and white below.

Range: Scattered within the Pee Dee to the Savannah River, mostly in the Coastal Plain. Not native to South Carolina.

Average Length: 2.6 to 4.3 feet.

Average Size:

Maximum Age:

Preferred Habitat: Grass carp prefer quiet or slow-moving water in ponds, lakes, pools and backwaters of large rivers.

Food Habits: Young grass carp eat small invertebrates and microcrustaceans. As they become adults, they become voracious feeders and feed on a variety of plants and animals.

Spawning: Grass carp introduced here are tested to be sterile triploids and thus cannot reproduce, but they can commonly be found over shoals where they typically would lay and fertilize eggs.

Miscellaneous: Grass carp are native to eastern Asia, but were introduced in the United States in 1963 first in Alabama and Arkansas. This non-native fish now occurs in 35 states. Grass carp were introduced to help control nuisance or invasive aquatic vegetation. Large grass carp can consume many pounds of aquatic vegetation in a day. However, due to their rapid growth rate, voracious appetite and high reproduction rates, fisheries managers who introduced the species realized they could have adverse impacts on native fish and plant species. Therefore, they mandated only sterile triploids could be introduced. A permit is required from the South Carolina Department of Natural Resources to sell, buy, or possess any grass carp, even sterile triploids.

Commonly Mistaken Species: One species of fish that is commonly mistaken for this species is common carp.

Note: It is illegal to harm or kill grass carp taken in public waters.

Livebearer

EASTERN MOSQUITOFISH

Gambusia holbrooki

Description: The eastern mosquitofish is small and gray with scaled edges in black giving the body a chain-link, criss-crossed appearance. The eye is large with a black bar running vertically down from the eye.

Range: Statewide.

Average Length: 1-2 inches.

Average Size: Less than 1 ounce.

Maximum Age:

Preferred Habitat: Mosquitofish prefer vegetated areas of lakes, oxbows, ponds, drainage ditches, sloughs and backwaters of creeks and rivers over a soft substrate of mud or sand.

Food Habits: Mosquito larvae, aquatic insects, plant material

Spawning: The eastern mosquitofish is a livebearer! During the warmer months, the male mosquitofish continuously courts and fertilizes the female. Males have a modified anal fin called a gonopodium that allows the male mosquitofish to fertilize the eggs. The female gives birth to live young after a 21- to 28-day gestation period. A female can produce three or four broods in one season of one to more than 300 young.

Miscellaneous: Mosquitofish are found in fresh, brackish and even salt waters and are extremely tolerant of poor water quality. They are generally the first fish to be observed in new ponds. In spite of its small size, the mosquitofish is of economic importance because it feeds on the larvae and pupae of mosquitoes. It is also an important prey item for sunfish and young black bass. This species was once widely introduced for mosquito control; however, because of the fish's aggressive nature, they may adversely impact native fishes and their use as a biological control agent is now discouraged.

Commonly Mistaken Species: Some species of fish that are commonly mistaken for this species are rainwater killifish and western mosquitofish.

Eel

AMERICAN EEL

Anguilla rostrata

Description: American eel have a snakelike body that is olive green in color that fades to yellow or white on the belly. It lacks pelvic fins.

Range: Primarily in the Coastal Plain, rare in Piedmont.

Average Length: 2 ½ feet.

Average Size: ½ to 3 pounds.

Maximum Age: 25 years (southern populations: females, 9 years and males, 5 years).

Preferred Habitat: In freshwater, female American eels prefer coastal rivers and reservoirs where the males locate close to tidal areas.

Food Habits: Fish, insects, worms, snails, clams and crabs.

Spawning: American eels are diadromous fishes, migrating between fresh and salt waters. Spawning begins when adults leave freshwater and brackish habitats and migrate to an area in the Atlantic Ocean east of the Bahamas and southwest of Bermuda in the region referred to as the Sargasso Sea. Very little is known of the actual act of spawning as it has never been observed. The eels begin their life as planktonic larva called a leptocephalus. The leptocephalus is transparent and ribbonlike as it floats in the currents of the ocean for up to a year before it metamorphoses into the next stage as a glass eel. Glass eels can be found in coastal rivers and streams during late winter and spring. The glass eels then metamorphose into the elver stage. Elvers appear by the thousands at the mouth of creeks and rivers as they migrate upstream to grow. Before sexual maturation, the eels, both sexes, appear yellow in color. Once sexually mature, both sexes of eels appear silver and head to the ocean to reproduce once more.

Miscellaneous: Eels are highly esteemed food fish, particularly in Europe and Japan where they are served smoked, pickled and fried. Eels can be caught by angling but they are generally caught by trapping.

Commonly Mistaken Species: One species of fish that is commonly mistaken for this species is lamprey.

Sturgeon

ATLANTIC STURGEON

Acipenser oxyrinchus

Description: Atlantic sturgeon have dark bronze to brown sides that fade to lighter browns on the sides with a white belly. The Atlantic sturgeon has a small mouth with a relatively pointed snout. Large individuals can have a blunted snout. There are a row of two to six small bony plates, or scutes between the base of the anal fin and the midlateral row of scutes. It has a small mouth; the inner gape width (measured between the inside corner of the lips) is usually less than 60% of the interorbital width. A row of two to six small bony plates, or scutes, is present between the base of the anal fin and the midlateral row of scutes. Body coloration is dark bronze to brown above, lighter on the side, and white below. The lining of the body cavity and the intestine is pale. The Atlantic sturgeon has a pointed snout and a narrow mouth; however, the snout can be relatively blunt in large individuals. In the adult the distance from the tip of the snout to the anterior edge of the upper lips is about twice that of the width of the outer gape (measured across the outer edges of the lips).

Range: All major river drainages, mostly in the river mainstems and on the coast.

Average Length: 3 to 14 feet.

Average Size: Up to 800 lbs.

Maximum Age: 30 years.

Preferred Habitat: Atlantic sturgeon are diadromous, spending its first few years of life in fresh or brackish water of large rivers and then migrating to the ocean to mature. In South Carolina, adult Atlantic sturgeons occur in most rivers and estuaries along the coast.

Food Habits: They are bottom feeders feeding on aquatic insects, amphipods, isopods, shrimp, mollusks and even some fishes that live in the substrate.

Spawning: Spawning has been documented in both the fall and spring in South Carolina with spawning occurring in the Pee Dee, Edisto, Combahee, Savannah rivers and possibly the Waccamaw River. Dams impede natural spawning migrations on the Santee and Cooper Rivers but studies indicate that populations may reproduce below the dams.

Miscellaneous: Atlantic sturgeons are the largest fish living in freshwater on the entire Atlantic coast. During the mid-1970s, half of the US landings of this species came from South Carolina, in particular in Winyah Bay. The fishery for this species in South Carolina was closed in 1985 and other Atlantic States. Currently, the Atlantic sturgeon is undergoing review for possible inclusion on the federal list of threatened species.

Commonly Mistaken Species: One species of fish that is commonly mistaken for this species is the shortnose sturgeon.

Note: It is illegal to harm, kill or possess Atlantic sturgeon. A sturgeon caught must be returned immediately.

Sturgeon

SHORTNOSE STURGEON

Acipenser brevirostrum

Description: Shortnose sturgeons are generally brown in color with pink or salmon colored tones above that fade into white along the belly. Shortnose are much lighter in color than the similar Atlantic sturgeon. They also have a larger mouth, shorter snout which is bluntly V-shaped. Shortnose sturgeon lack the scutes or small bony plates between the base of the anal fin and midlateral scutes.

Range: Occurs in all major drainages mostly in the river mainstems and on the coast.

Average Length: 1 to 4 feet.

Average Size: up to 50 lbs.

Maximum Age: 20 years.

Preferred Habitat: Shortnose sturgeon prefer deep water and are often found in areas with soft substrate and a vegetated bottom. Like the Atlantic sturgeon, shortnose are also diadromous; however, they enter the ocean with less frequency than the Atlantic sturgeon.

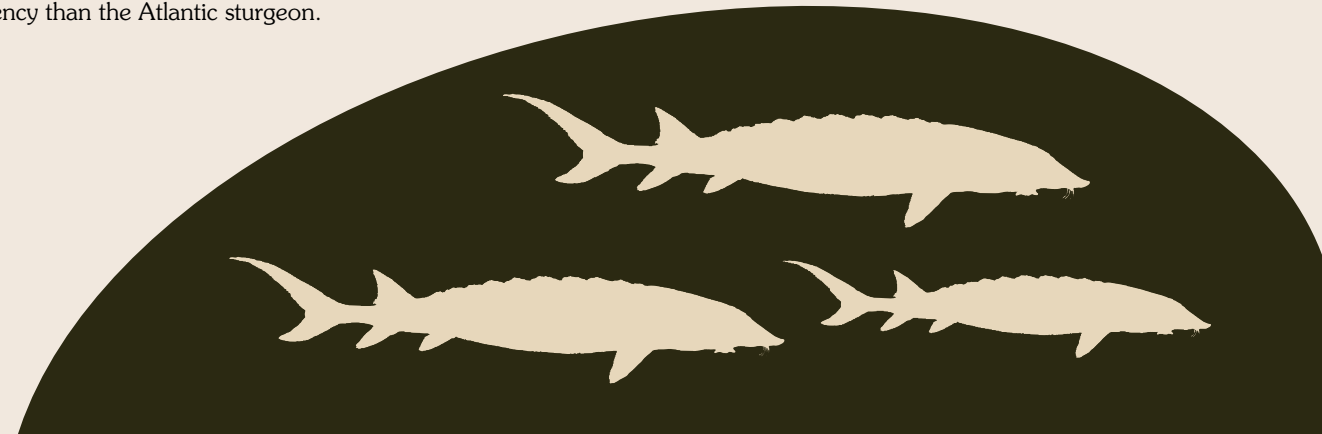
Food Habits: Mussels, worms, small crustaceans and insect larvae.

Spawning: Spawning occurs for the shortnose from mid-February to March, primarily at night when water temperatures reach 48 to 53 degrees Fahrenheit. Shortnose sturgeon spawn over submerged timber, scoured sand and clay and gravel substrates.

Miscellaneous: The shortnose sturgeon is federally listed as an endangered species.

Commonly Mistaken Species: One species of fish that is commonly mistaken for this species is the Atlantic sturgeon.

Note: It is illegal to harm, kill or possess shortnose sturgeon. They are federally listed as an endangered species. A sturgeon must be returned immediately to the waters from where it is taken.



Angler Ethics

It is important as an angler to practice good fishing ethics in order to protect the resource and help improve everyone's fishing experience.

Do your part to be a responsible sportsman by following these principles:

- Respect the law. Obey all fishing regulations and report violators by calling 1-800-922-5431.
- Respect the resource. Keep only those fish that are injured or those you intend to eat.
- Practice catch and release fishing.
- Respect the rights of landowners. Get permission to fish on their property first.
- Respect other anglers' territory or space. Treat them the way you would like to be treated.
- Respect the land. Leave no litter and take out what you take in. Leave your fishing area cleaner than you found it.
- Pass it on. Teach a child or a friend to fish.
- Support fisheries research and habitat protection.
- Join an organization that works to protect the resource and promotes responsible sportsmen conduct.

Safety

- Keep at least one rod's length between you and the next angler before, during and after you cast.
- Always look behind you and to the side before casting to prevent hooking power lines, trees, or a person.
- Wear sunglasses, sunscreen, bug spray and other protection from the natural elements.
- Always be aware of your surroundings and be on the alert for ant mounds and snakes. Avoid thick grassy areas where you can't see your feet.
- Be very careful around water and make sure you have a fishing buddy with you. If fishing from a boat or bank near deep water, always wear a life jacket or PFD (personal flotation device).

Catch & Release or Catch & Keep

Catch & Release

Currently, many fish species of popular game fish have legally mandated size and catch limits, requiring anglers to release undersized and over the limit fish. Many anglers voluntarily release their fish. If these fish are not released properly, their chance of survival is reduced.

Whether anglers choose to release fish or are required to do so by law, all released fish should be handled carefully to give the fish the best chance for survival.

When practicing catch and release fishing, you should do the following:

- Use barbless or circle hooks and needlenose pliers or forceps to reduce injury and handling time of the fish.
- Land the fish as quickly as possible to minimize the fish's fighting time.
- Use wet hands when handling a fish and minimize the fish's time out of the water.
- Never hold a fish by the gills.
- When returning a fish to the water, point the fish into the current or cradle it in your hands loosely under the water until the fish swims away on its own.
- If a fish is landed and the hook has been swallowed, cut the line as far down in the fish's mouth as possible. Do NOT pull the hook out!

Catch & Keep

Most of the game fish species are excellent fare for the frying pan or grill. If fishing to keep, make sure you follow all rules and regulations with regards to size and catch limits. Keep only fish you will use and release the rest. Plan ahead and bring a proper storage container to put the fish on ice or in water. Get fish cleaned as soon as possible and enjoy! Bon appetite!

Invasive Species

Invasive or aquatic nuisance species are non-native organisms that lack natural predators or diseases that help keep their growth in check. Some of the common invasive plants in South Carolina include hydrilla, water hyacinth, giant salvinia, water primrose, phragmites and alligator weed. These plants grow very dense, covering large areas, degrading water quality, displacing native plant species and making recreation and boating impossible. Preventing the occurrence of these invasive species can save millions of public and private dollars in control costs. South Carolina law also includes fines up to $500 and/or imprisonment for persons spreading nuisance aquatic weeds.

Anglers should also be aware of unnoticed passengers on their boats and/or waders and take the necessary precautions to assure they are not spreading harmful exotic animal hitchhikers from one stream to another.

A few of the invasive animals include green mussels, zebra mussels, mud snails, flathead catfish, spotted bass, Asian carp and lionfish. The larvae (immature form) of animals can be so tiny that they are not visible to the naked eye. These animal larvae can live in mud, dirt, sand and on plant fragments. Therefore, anglers should always remove visible mud, sand, plants or plant fragments from their boats, wading gear, clothing and fishing equipment before leaving a water body. Do not transport any potential hitchhikers, even back to your home. Remove and leave them at the water body.

To avoid further damage from exotic species, anglers should never take resource management into their own hands. Unplanned stocking of fish, other aquatic animals or plants by anglers can disrupt the natural balance in an aquatic ecosystem causing damage to the established fishery, fish habitat and prey base.

Zebra Mussels

Snakehead (juvenile)

Asian Clam

Hydrilla

Invasive Species

Unplanned stockings often occur from the careless use of live baits. Excess live bait, whether purchased at a local bait store or obtained from another body of water, should not be released. It may be disposed of in a trash receptacle or on one's compost heap. Even if you think your live bait is native, it has the potential to house nuisance species and disease that can have negative impacts on aquatic ecosystems. Dispose of shrimp parts and oyster shells properly. Shrimp heads and shells need to be disposed of in the trash and not thrown into the water because non-native shrimp parts have the potential to spread disease. Oyster shells can be taken to a nearby oyster recycling facility.

Harmful exotics such as Whirling Disease spores, Didymo algae, zebra mussels, mud snails, Asian clams and many more are becoming more common threats to aquatic resources.

Anglers should thoroughly clean their boats and wading gear after each use!

Ways to Clean Wading Gear

- Once wading gear is 100% dry, allow it to remain dry for 5 days before using again.
- Another option is to dip wading gear in a 3% bleach solution, rinse well (as chlorine can be harmful to gear) and allow to dry thoroughly. To avoid possible damage from chlorine, anglers can dip their gear in a 100% vinegar solution for 20 minutes or in a 1% salt solution for 20 minutes. Don't forget your best fishing buddy! Pets can be carriers of harmful exotics too. Pets should be rinsed thoroughly in warm water, towel dried and brushed well after each fishing or wading trip.

Eliminate water from equipment before transporting. Clean and dry anything that comes into contact with the water (boats, trailers, equipment, clothing, dogs, etc.).

Taking time to prevent the spread of aquatic hitchhikers will help assure the resources are protected from harmful, exotic species.

Report aquatic weed problems in public waters to the Aquatic Nuisance Species Program, SCDNR, by calling (803) 755-2836.

STOP AQUATIC HITCHHIKERS!™

Prevent the transport of nuisance species.
Clean all recreational equipment.
www.ProtectYourWaters.net

Rules & Regulations FAQs

Why do we have Rules & Regulations? People! Along with natural pressures such as predators and competition for food and space, fish have to worry about pressures we put on them. Those pressures include pollution, in the forms of litter and runoff which damages water quality; loss of adequate habitat due to changes in the landscape such as urban development and farm practices; and overfishing which comes from the unnecessary harvest of too many fish or from harvesting fish that are too small and haven't had the opportunity to reproduce. SCDNR's role is to protect and manage the resource through science and provide suggestions to the legislature on necessary laws. The General Assembly then votes to make the bills law and SCDNR law enforcement officers enforce these laws. Some of the common management practices include daily bag or creel limits on the amount of fish an angler can catch and possess in a day, slot or size limits on fish to allow fish to reach sexual maturity and reproduce and restrictions on what type of gear can be used to harvest or catch certain fish—game versus non-game.

Frequently Asked Questions about Fishing Regulations

Where do I find fish and wildlife regulations for the state of South Carolina?

- Rules and Regulations are available at every license vendor in the state. They are also found on the website at www.*dnr.sc.gov/regulations*.

What age do I need to purchase a fishing license?

- When you turn 16, you must have a fishing license in order to fish legally in public waters.

How often do I need to renew my fishing license?

- A fishing license is good from July 1st to June 30th.

Do I need a fishing license to fish from my private property?

- Yes, you will need a license to fish in public waters (such as lakes or rivers) even if you're on private land. You don't need a license to fish on private property in a private pond unless you are fishing in a commercial pay pond. You don't need a license to fish in a commercial pay pond when the pond is permitted by DNR.

Rules & Regulations FAQs

Where do I go to buy a license?

- You can visit any of the 500 license agents throughout the state at the nearest local bait and tackle store; the DNR office in Charleston, Clemson, Columbia and Florence between 8:30 a.m.-5:00 p.m. Monday through Friday; or call 1-866-714-3611 7 days a week 24 hours a day, or visit the web at *www.dnr.sc.gov/purchase*.

When I buy a license, how is that money used?

- Every fishing license purchase helps to support fisheries research, habitat enhancement and management projects.

For questions regarding your license purchase, please call 803-734-3833.

Literature cited: Rohde, Fred C., Arndt, Rudolf G., Foltz, Jeffery W., Quattro, Joseph M. 2009. *Freshwater Fishes of South Carolina*. University of South Carolina Press, Columbia South Carolina.

DNR

Harry Hampton
MEMORIAL WILDLIFE FUND

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