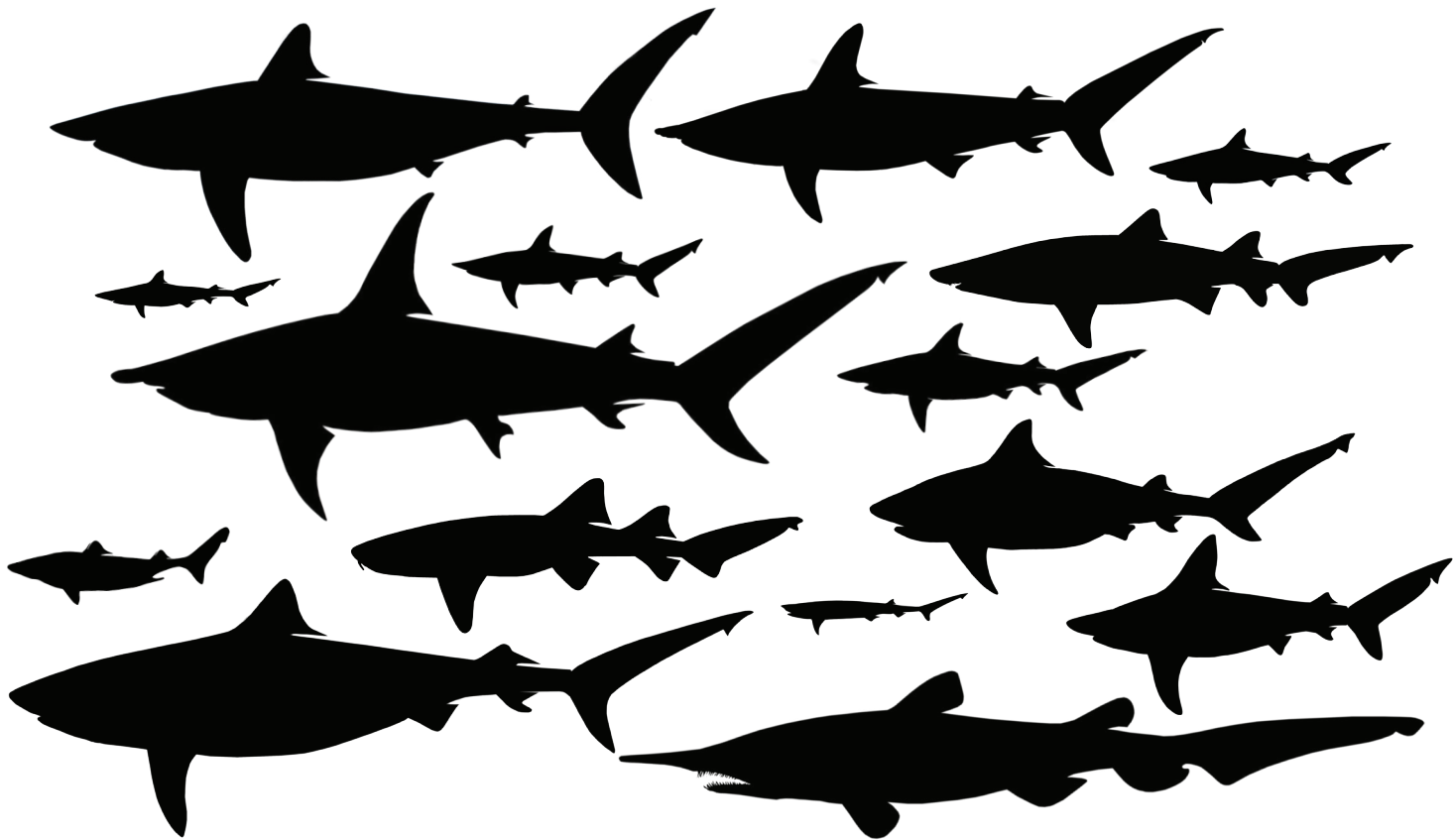


# Mississippi's Sharks and Rays

*An educational guide for Mississippi Aquarium*

Photo provided by Mississippi Aquarium



# Mississippi's Sharks and Rays

*An educational guide for Mississippi Aquarium*

Edited by Marcus Drymon, PhD<sup>1,2</sup>

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<sup>1</sup>Mississippi State University Extension Service

<sup>2</sup>Mississippi-Alabama Sea Grant Consortium



MASGP-21-016

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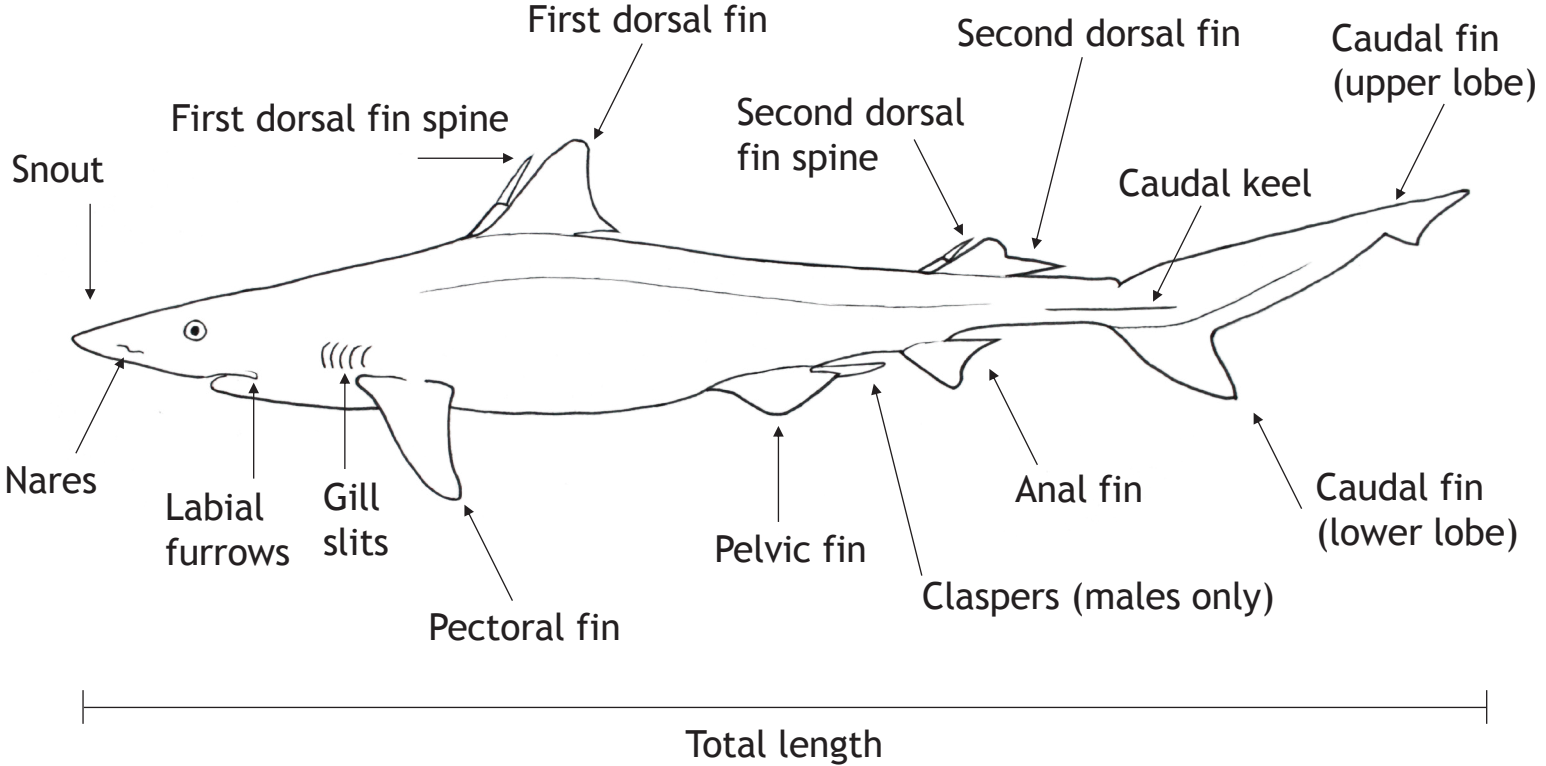
# Using This Guide

The waters surrounding Mississippi are home to an exciting diversity of sharks, skates, and rays (collectively called *elasmobranchs*). We've developed this book to showcase a small portion of this diversity and highlight the sharks and rays you may see at Mississippi Aquarium. Below are a few things to keep in mind as you go through this book. First, we've included the common and Latin (or scientific) name for each species. Then, alongside each color illustration, we've shown an example of a single tooth from the upper jaw (sharks) or an entire set of jaws (rays). We've also described the average size at maturity (i.e., size at adulthood) and the maximum reported total length (for sharks) or disc width ("wingspan," for rays) for Gulf of Mexico specimens. To best illustrate the maximum reported total length of each shark and the maximum reported disc width of each ray, we've displayed a silhouette of each species relative to a 6-foot-tall human. Finally, we've presented a color-coded "population status" graphic to indicate whether the current status of each population is good (green), fair (yellow), poor (red), or unknown (gray). To develop this graphic, we used data from NOAA Fisheries for populations in the U.S. Gulf of Mexico, instead of the IUCN, which provides global population trends. While current as of 2021, it's important to remember that the statuses of U.S. shark and ray populations are constantly changing (hopefully for the better!).

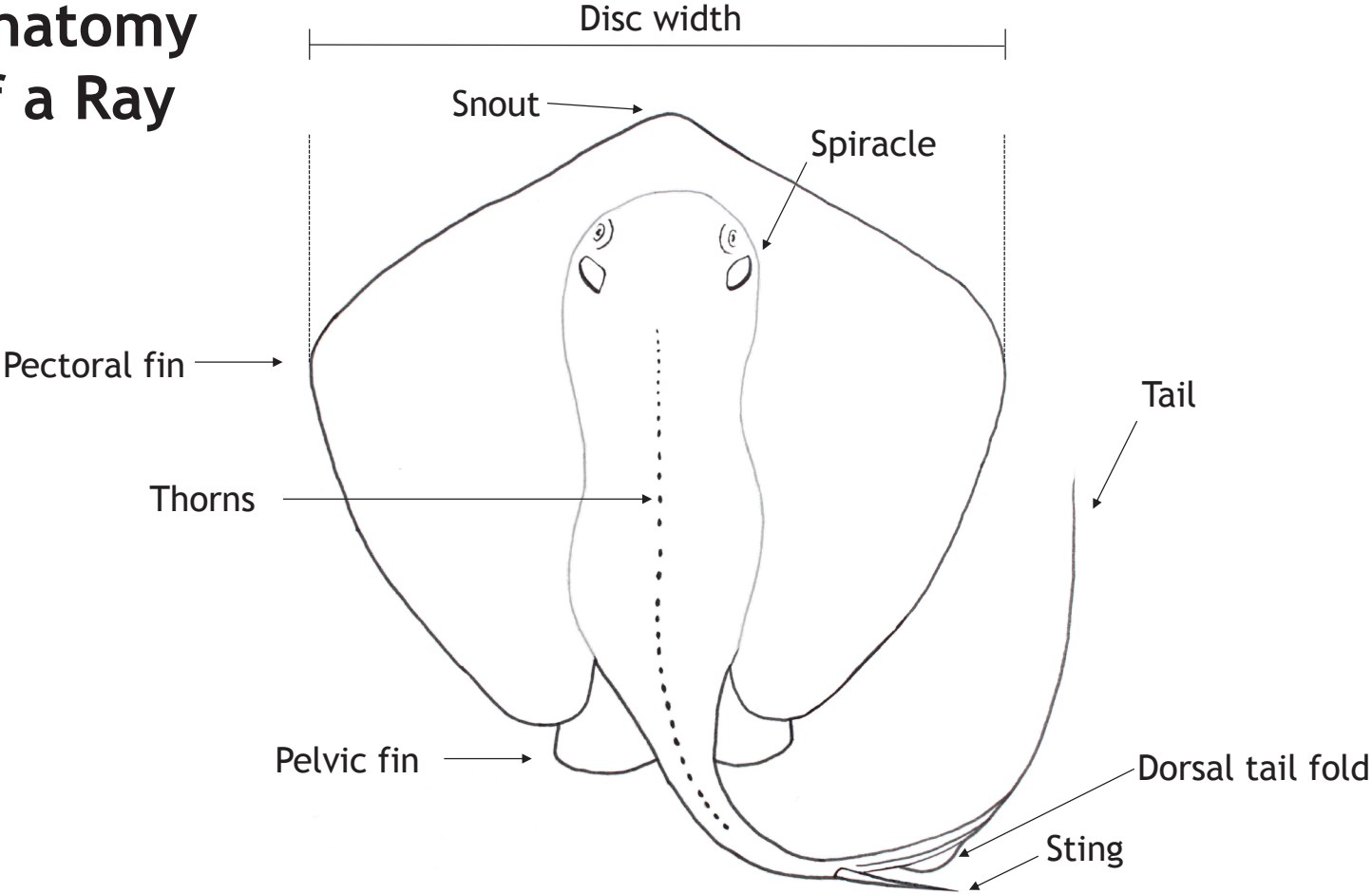
We hope this book increases your appreciation for the incredible diversity of sharks and rays off our coast. Enjoy!



# Anatomy of a Shark



# Anatomy of a Ray

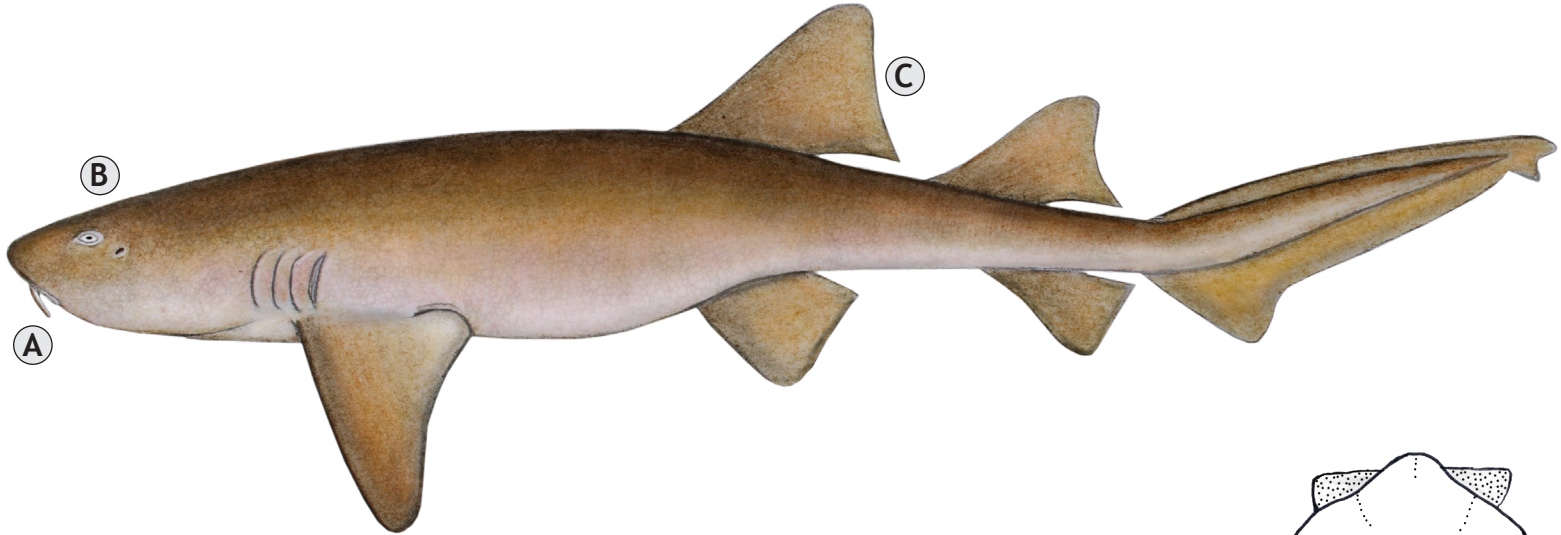


# Nurse shark

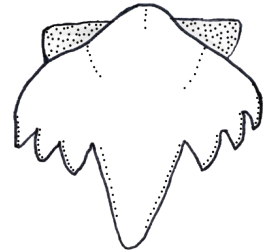
*Ginglymostoma cirratum*

Mississippi  
Aquarium  
Sharks

6



- A. Nasal barbels (slender, whisker-like sensory organs)
- B. Wide head, giving it a tadpole-like appearance
- C. First dorsal fin farther back on body

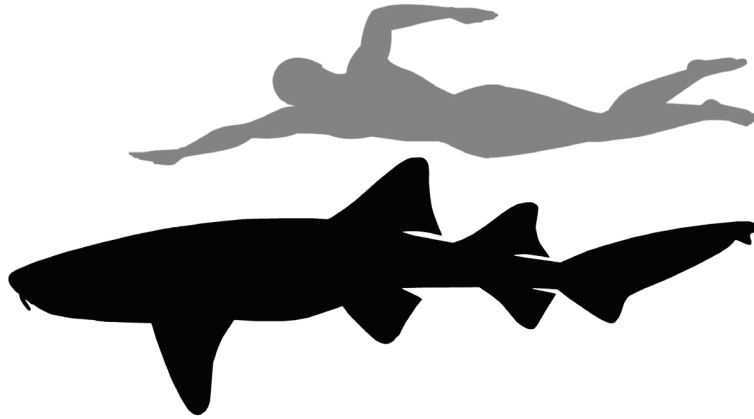


Good

Fair

Poor

Unknown



**Size:** 6 ft 7 in (at maturity), 9 ft (max)

**Habitat & Diet:** Shallow coastal waters; feeds on fishes and invertebrates

**Interesting Fact:** Coloration ranges from yellowish tan to dark brown

# Nurse shark

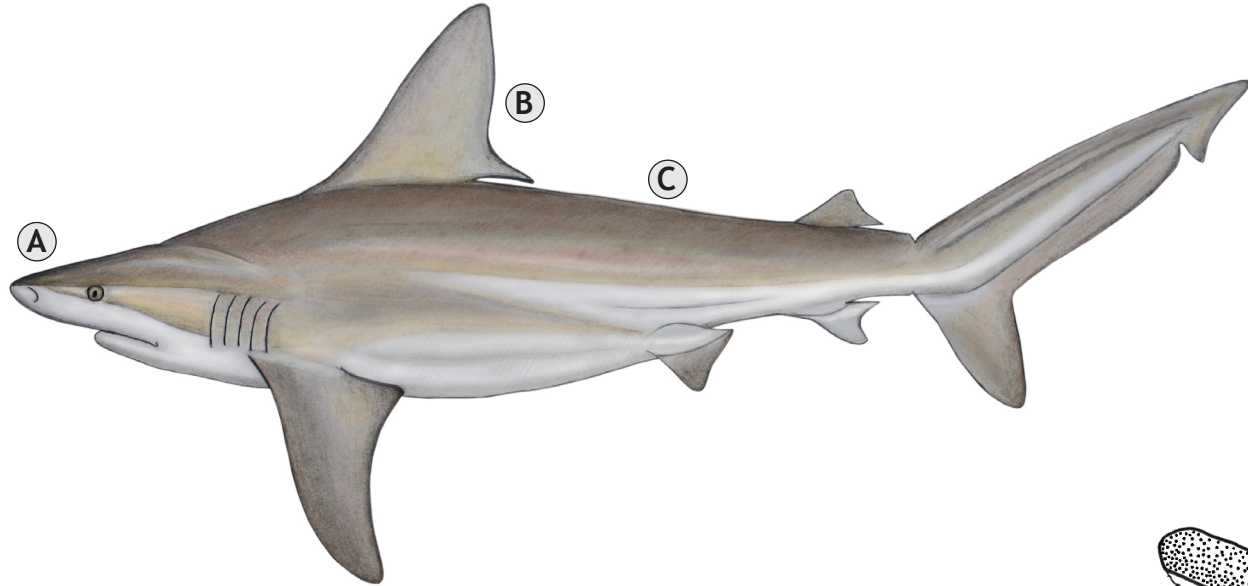
*Ginglymostoma cirratum*

# Sandbar shark

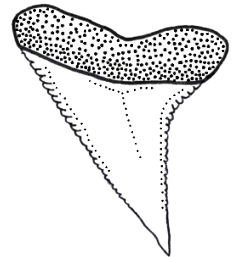
*Carcharhinus plumbeus*

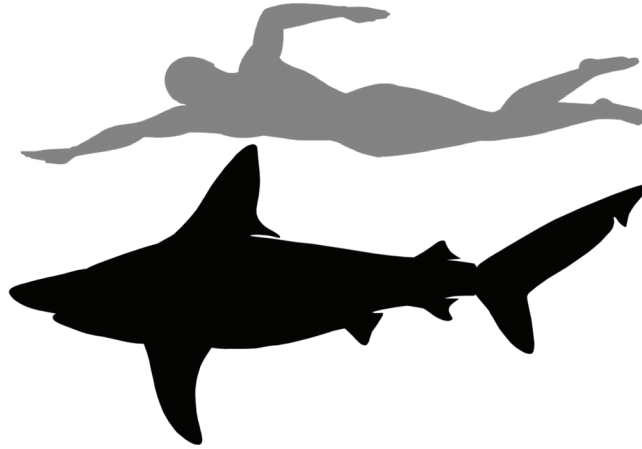
Mississippi  
Aquarium  
Sharks

8



- A. Snout shorter than mouth width
- B. Large first dorsal fin
- C. Interdorsal ridge





**Size:** 6 ft (at maturity), 7 ft 8 in (max)

**Habitat & Diet:** Coastal waters; feeds on small fishes

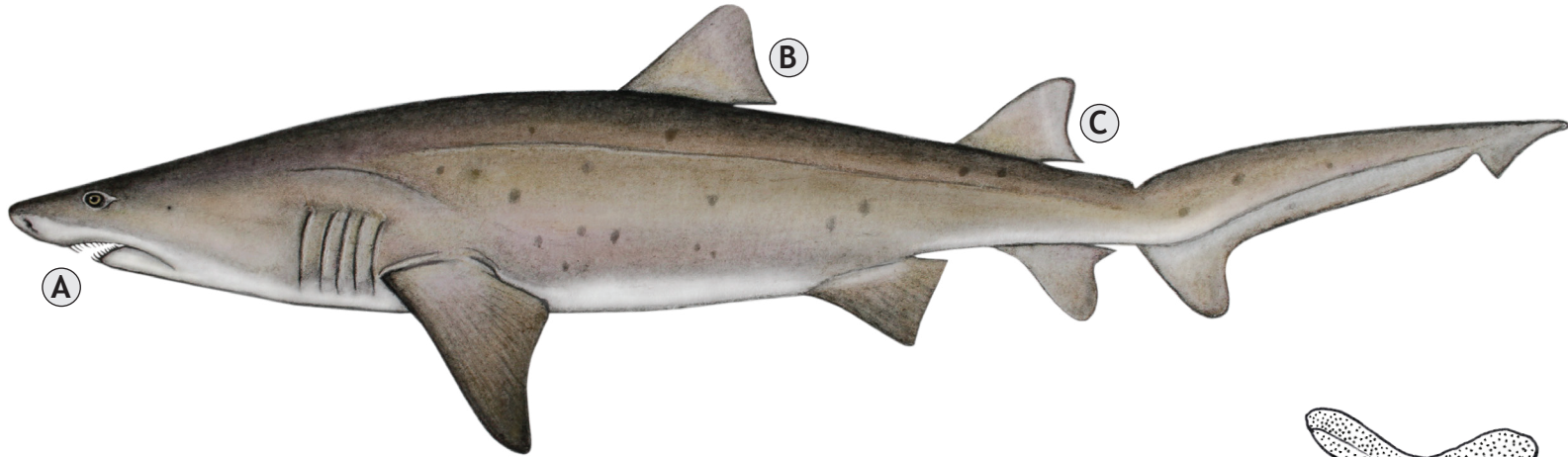
**Interesting Fact:** Undertakes long seasonal migrations

# Sandbar shark

*Carcharhinus plumbeus*

# Sand tiger shark

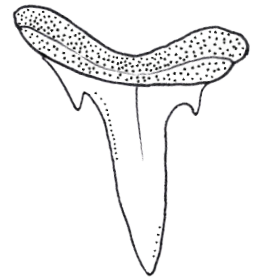
*Carcharias taurus*



A. Sharp, jagged teeth

B. First dorsal fin located far back on body

C. Secondary dorsal fin nearly as large as first dorsal fin

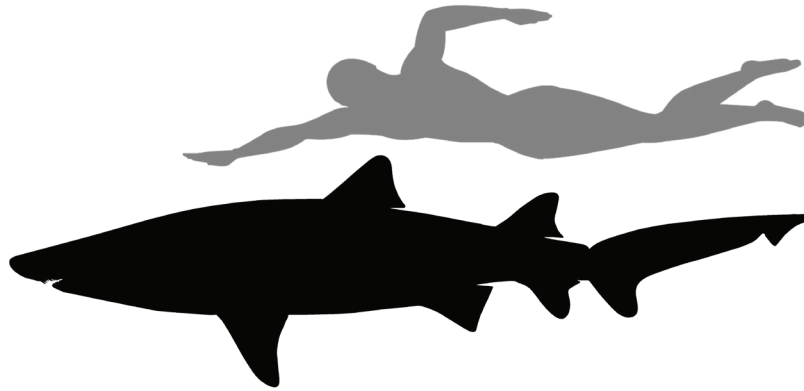


Good

Fair

Poor

Unknown



**Size:** 6 ft 7 in (at maturity), 9 ft 10 in (max)

**Habitat & Diet:** Shallow water, often found near bottom; feeds on fishes

**Interesting Fact:** Siblings eat each other in the womb (termed *adelphophagy*)

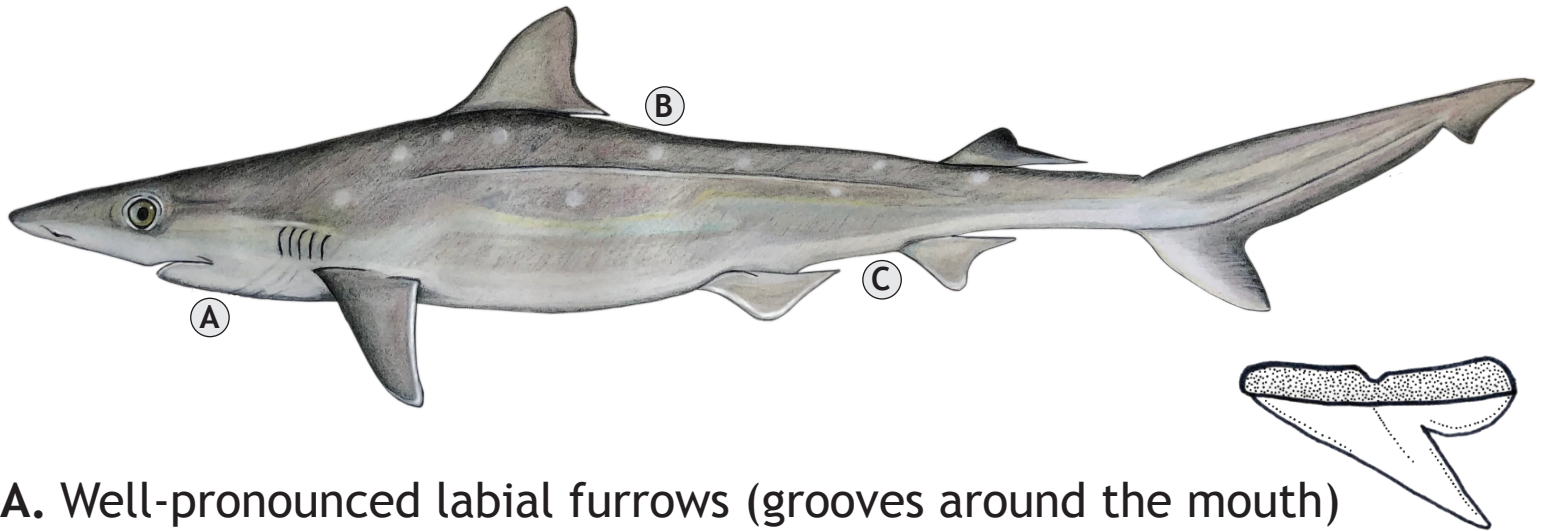
# Sand tiger shark

*Carcharias taurus*

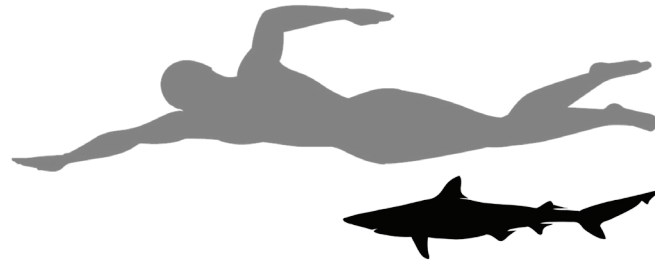
# Atlantic sharpnose shark

*Rhizoprionodon terraenovae*

Common  
Mississippi  
Sharks 12



- A. Well-pronounced labial furrows (grooves around the mouth)
- B. White spots (adults only)
- C. Pre-anal ridges



**Size:** 2 ft 6 in (at maturity), 3 ft 7 in (max)

**Habitat & Diet:** Inshore and offshore; feeds on small fishes and invertebrates

**Interesting Fact:** Most common coastal shark in the northern Gulf of Mexico

# Atlantic sharpnose shark

*Rhizoprionodon terraenovae*

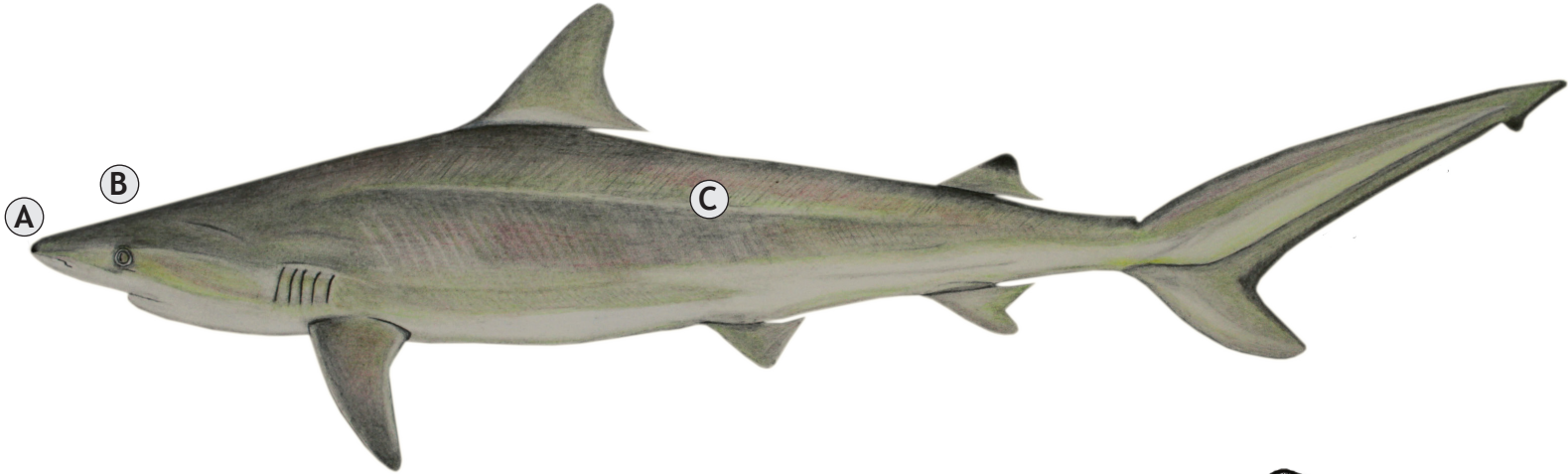
Common  
Mississippi  
Sharks

# Blacknose shark

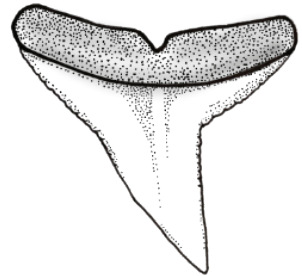
*Carcharhinus acronotus*

Common  
Mississippi  
Sharks

14



- A. Black-tipped nose
- B. Large eyes
- C. Copper color along body

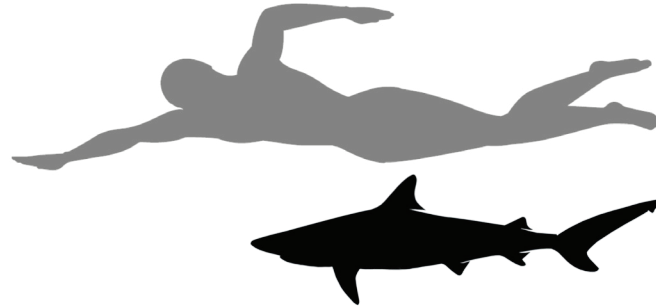


Good

Fair

Poor

Unknown



**Size:** 3 ft 5 in (at maturity), 5 ft (max)

**Habitat & Diet:** Shallow, warm coastal waters; feeds on small fishes

**Interesting Fact:** Sometimes mistaken for a lemon shark because of its color

# Blacknose shark

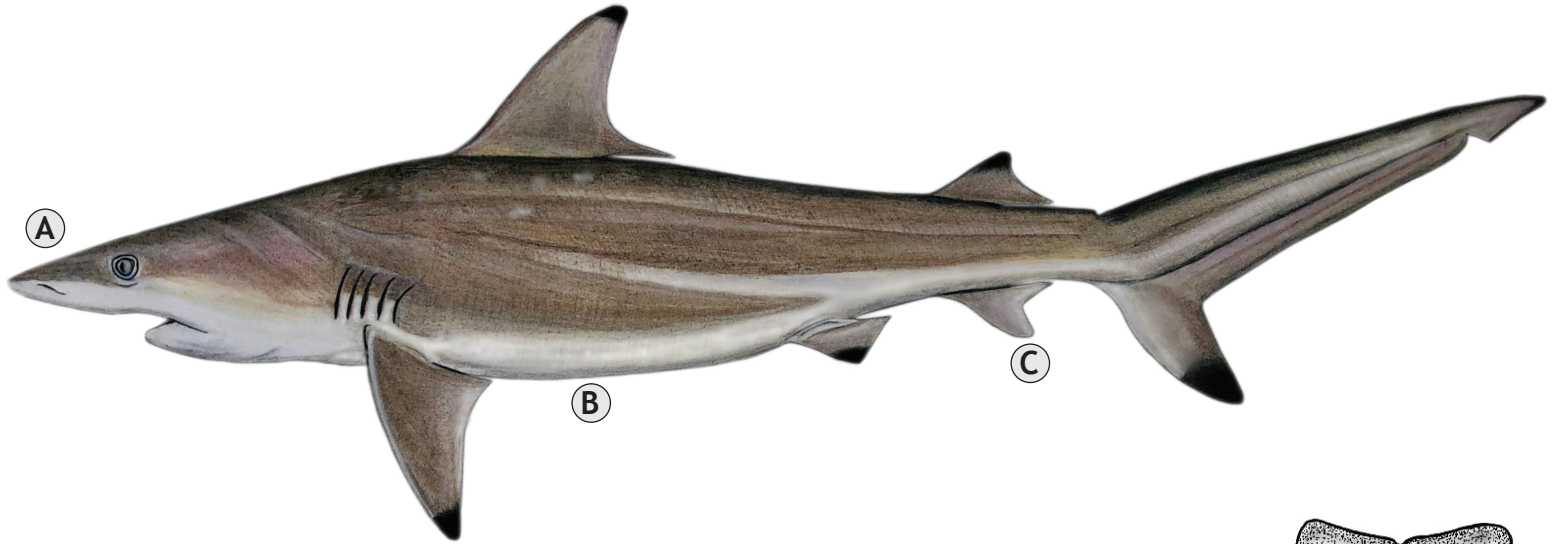
*Carcharhinus acronotus*

Common  
Mississippi  
Sharks

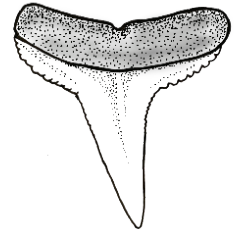
# Blacktip shark

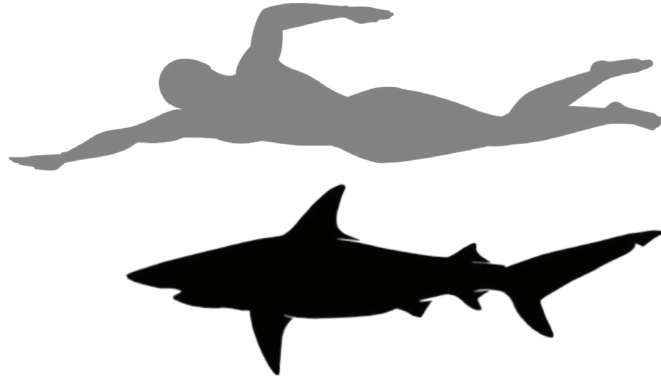
*Carcharhinus limbatus*

Common  
Mississippi  
Sharks 16



- A. Nose shorter than mouth width
- B. Stout body
- C. Black tips on all fins except anal fin





**Size:** 4 ft 8 in (at maturity), 6 ft 3 in (max)

**Habitat & Diet:** Nearshore, subtropical coastal waters; feeds on fishes

**Interesting Fact:** Often seen with a species-specific parasite on dorsal region

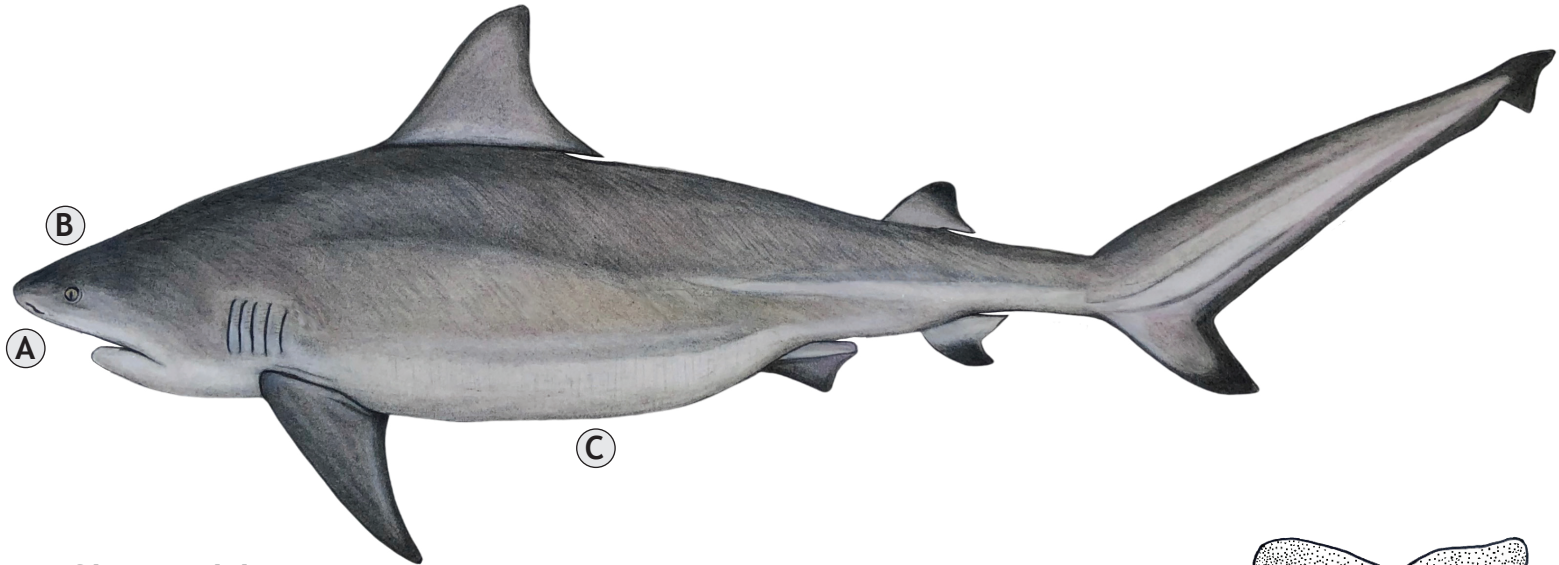
# Blacktip shark

*Carcharhinus limbatus*

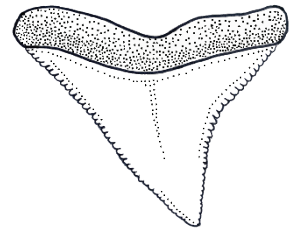
# Bull shark

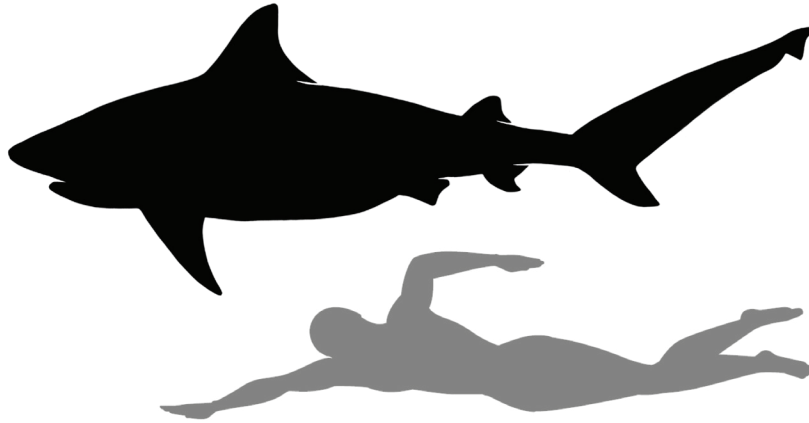
*Carcharhinus leucas*

Mississippi  
Apex  
Predators 18



- A. Short, blunt snout
- B. Small eyes
- C. Stocky body





**Size:** 7 ft 5 in (at maturity), 9 ft 4 in (max)

**Habitat & Diet:** Coastal waters, including freshwater; feeds on fishes, stingrays, and sharks

**Interesting Fact:** Juveniles prefer estuaries and rivers; adults inhabit saltwater

# Bull shark

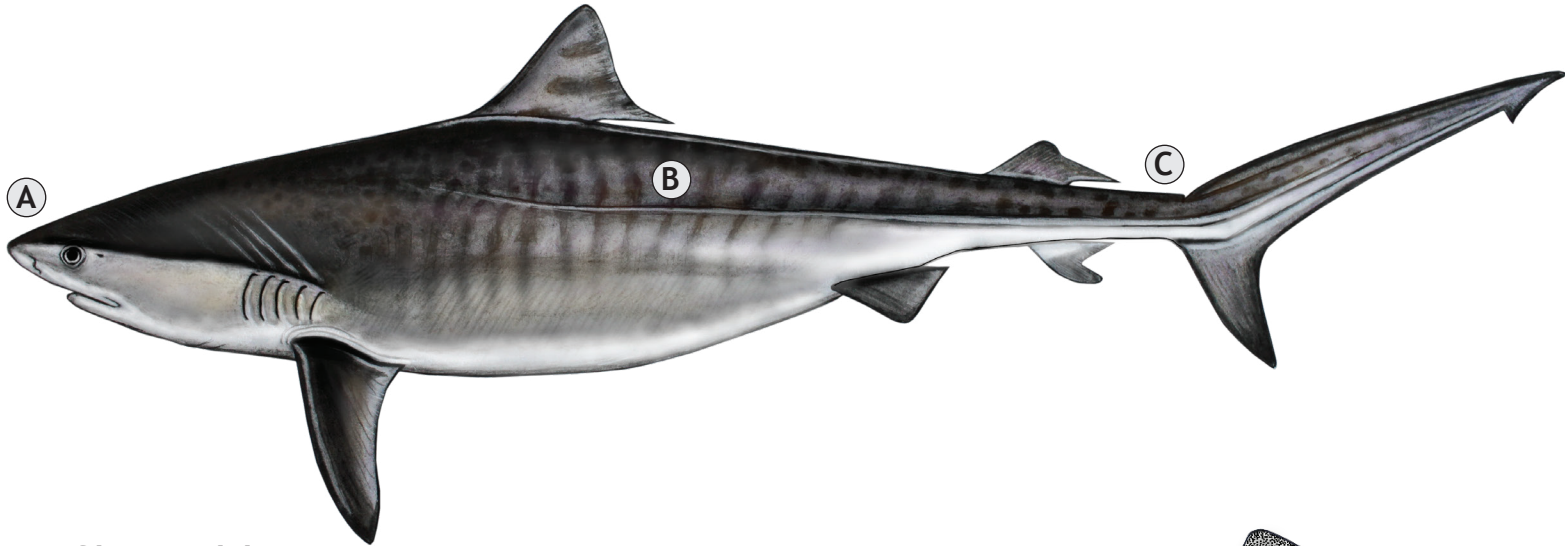
*Carcharhinus leucas*

Mississippi  
Apex  
Predators

# Tiger shark

*Galeocerdo cuvier*

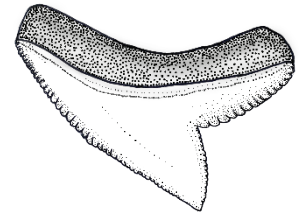
Mississippi  
Apex  
Predators 20

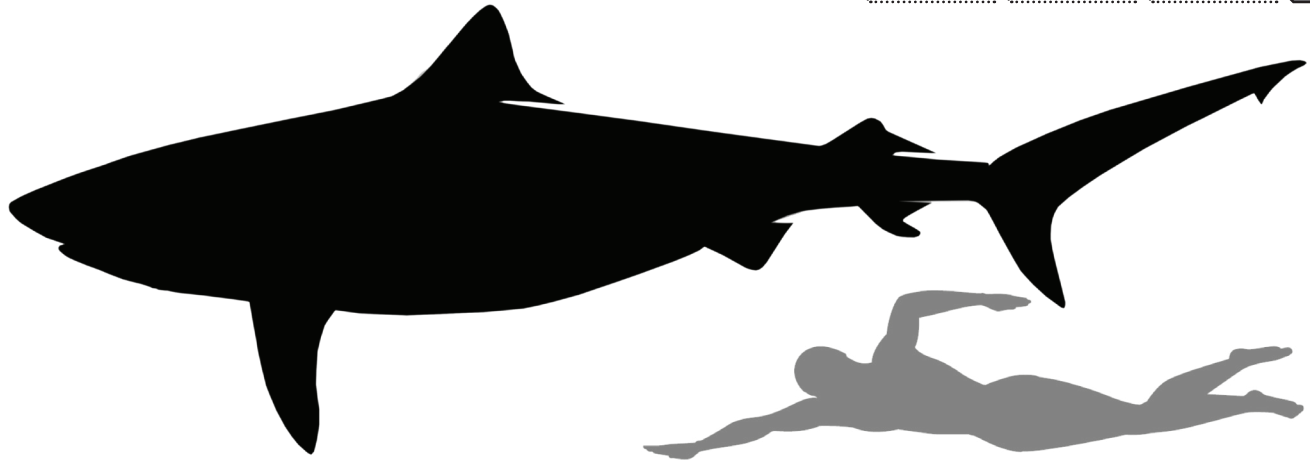


A. Short, blunt snout

B. Dorsal surface covered with dark spots/bands

C. Well developed caudal keel





**Size:** 9 ft 10 in (at maturity), 15 ft (max)

**Habitat & Diet:** Subtropical and tropical waters; feeds on sea turtles, mammals, fishes, and sharks

**Interesting Fact:** Teeth distinctly curved and serrated for tearing through prey

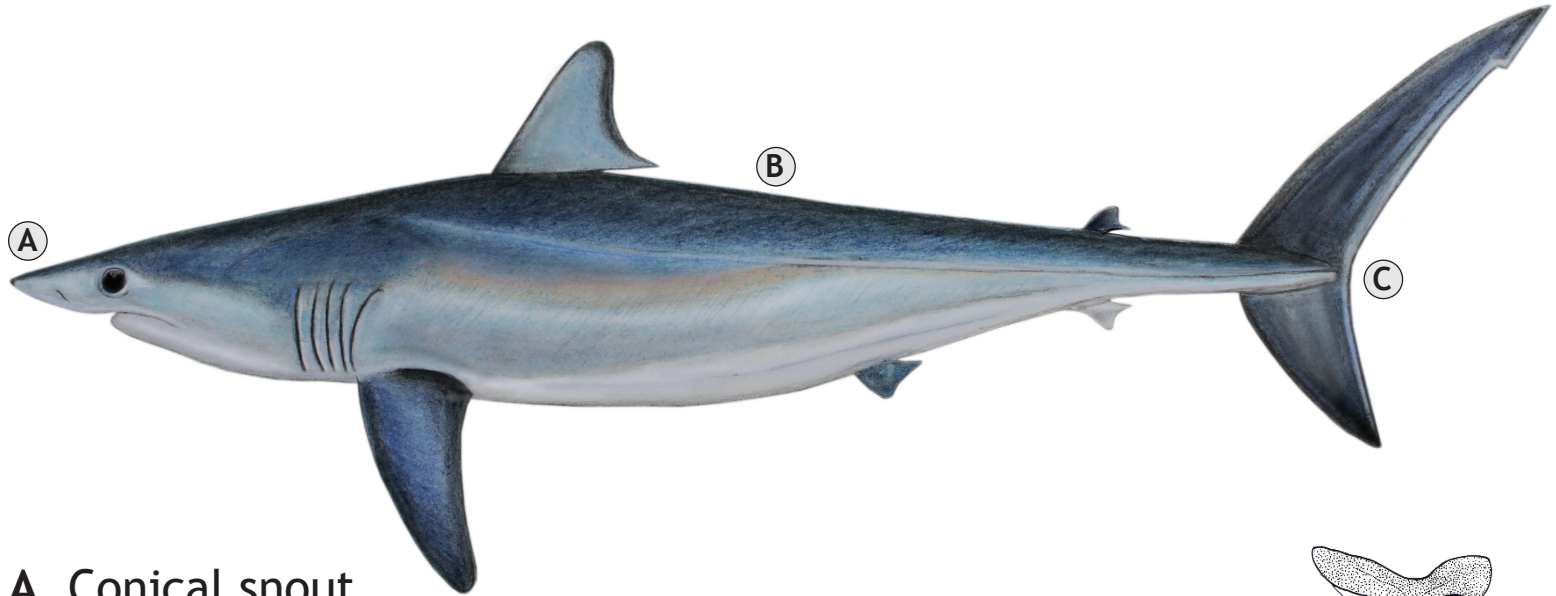
# Tiger shark

*Galeocerdo cuvier*

# Shortfin mako

*Isurus oxyrinchus*

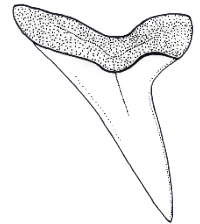
Mississippi  
Apex  
Predators 22

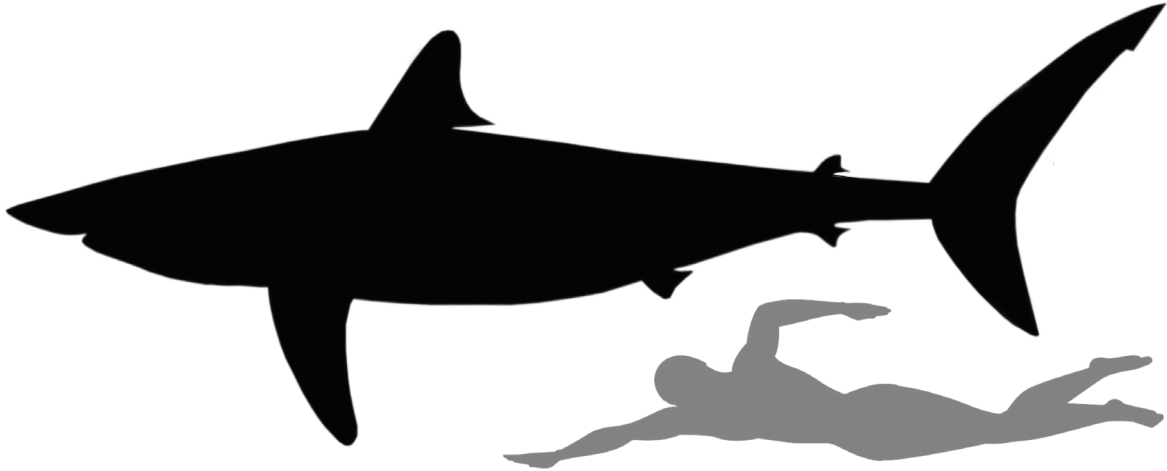


A. Conical snout

B. Blue color along body

C. Lunate tail





**Size:** 6 ft 6 in (at maturity), 13 ft (max)

**Habitat & Diet:** Subtropical and tropical waters; feeds on fishes and squids

**Interesting Fact:** Considered the fastest shark in the ocean (nearly 40 mph)

# Shortfin mako

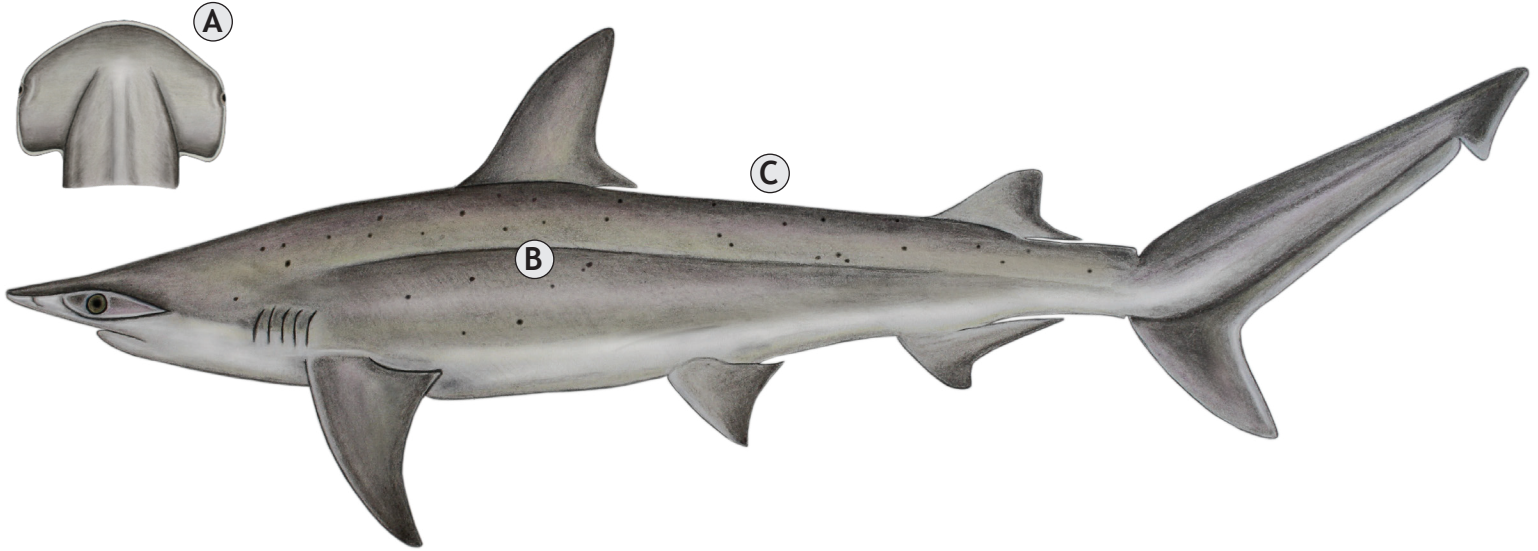
*Isurus oxyrinchus*

# Bonnethead

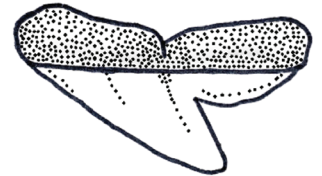
*Sphyrna tiburo*

Mississippi  
Hammerheads

24



- A. Flattened, shovel-shaped head
- B. Speckles on body
- C. Brownish or greenish-gray color

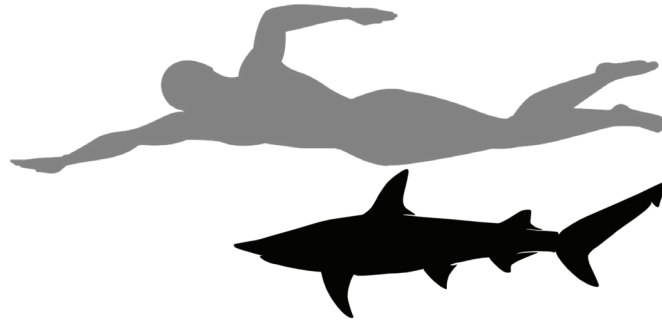


Good

Fair

Poor

Unknown



**Size:** 2 ft 4 in (at maturity), 5 ft (max)

**Habitat & Diet:** Shallow inshore waters; feeds mostly on small invertebrates

**Interesting Fact:** Teeth are specially modified molars for consuming crabs

# Bonnethead

*Sphyrna tiburo*

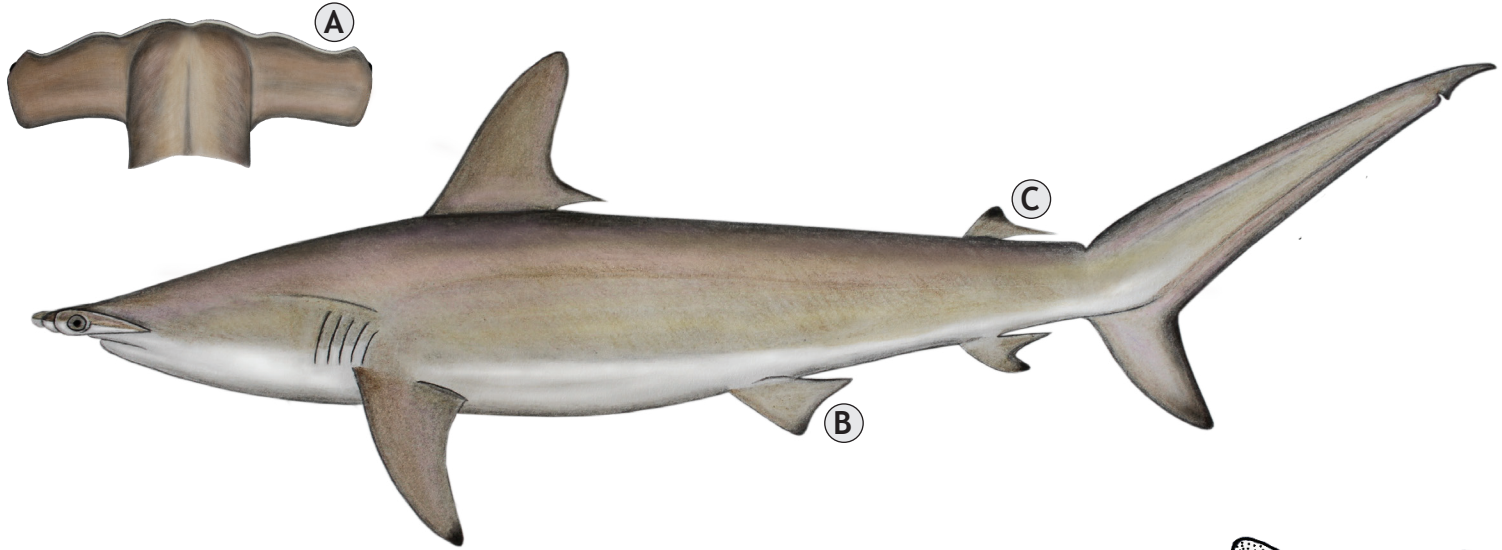
Mississippi  
Hammerheads

# Scalloped hammerhead

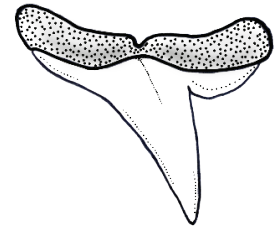
*Sphyrna lewini*

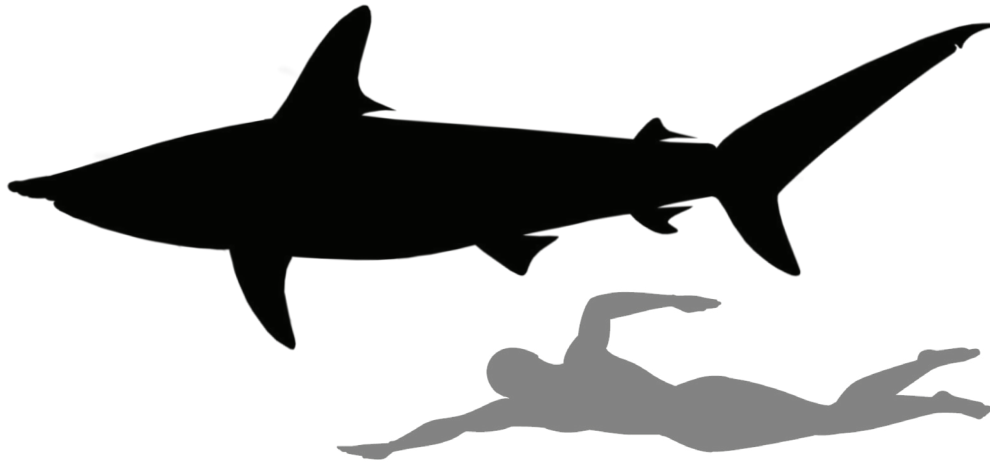
Mississippi  
Hammerheads

26



- A. Notches near eyes on head (cephalofoil)
- B. Pelvic fins with straight rear margins
- C. Long and low secondary dorsal fin





**Size:** 6 ft 7 in (at maturity), 11 ft 6 in (max)

**Habitat & Diet:** Coastal and oceanic waters; feeds on stingrays, fishes, and small sharks

**Interesting Fact:** Sometimes swim on their sides

# Scalloped hammerhead

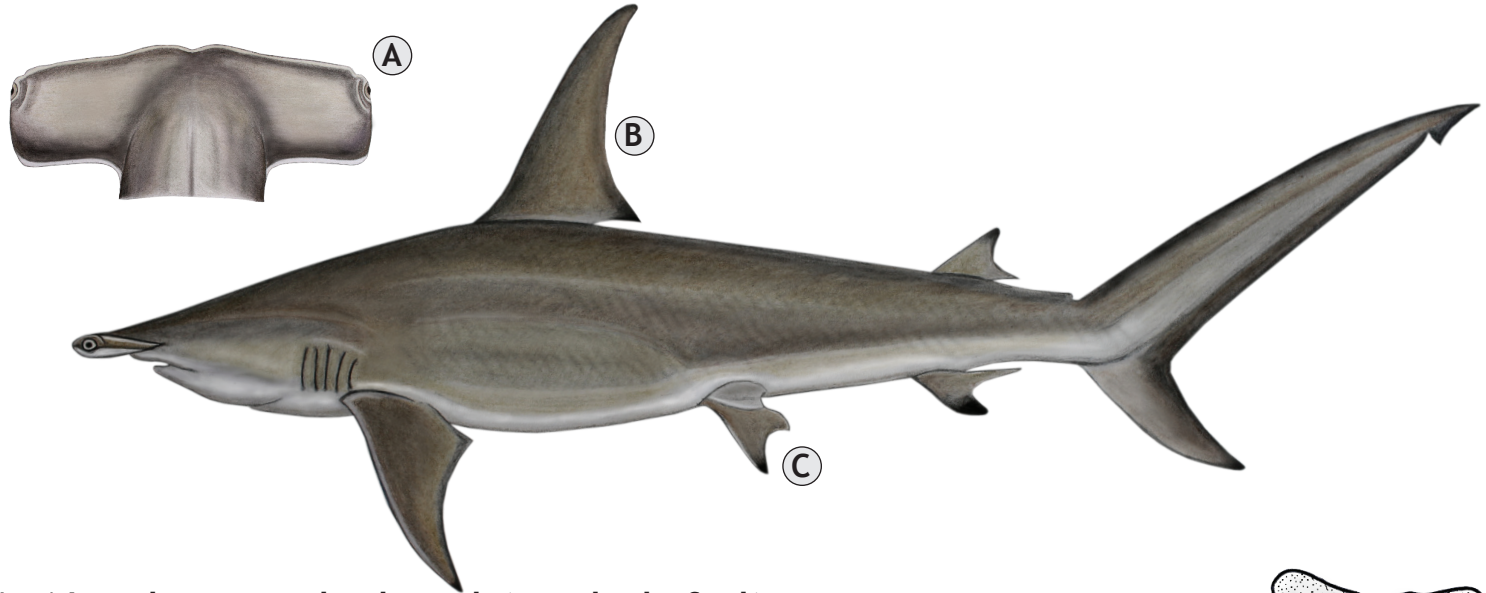
*Sphyrna lewini*

# Great hammerhead

*Sphyrna mokarran*

Mississippi  
Hammerheads

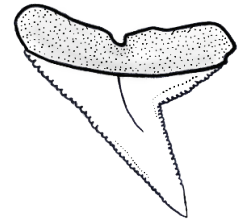
28

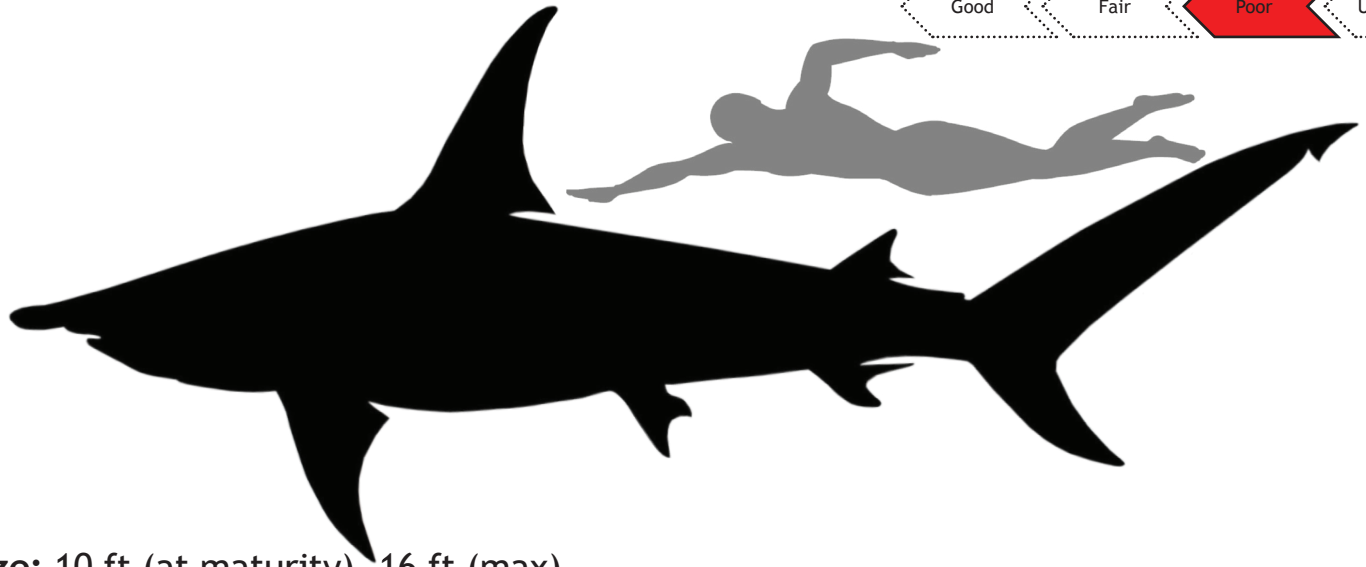


A. Nearly straight head (cephalofoil)

B. Extremely high, curved (i.e., falcate) first dorsal fin

C. Pelvic fins with curved rear margins





**Size:** 10 ft (at maturity), 16 ft (max)

**Habitat & Diet:** Shallow coastal waters; feeds on stingrays, smaller sharks, and fishes

**Interesting Fact:** The largest hammerhead species in the world

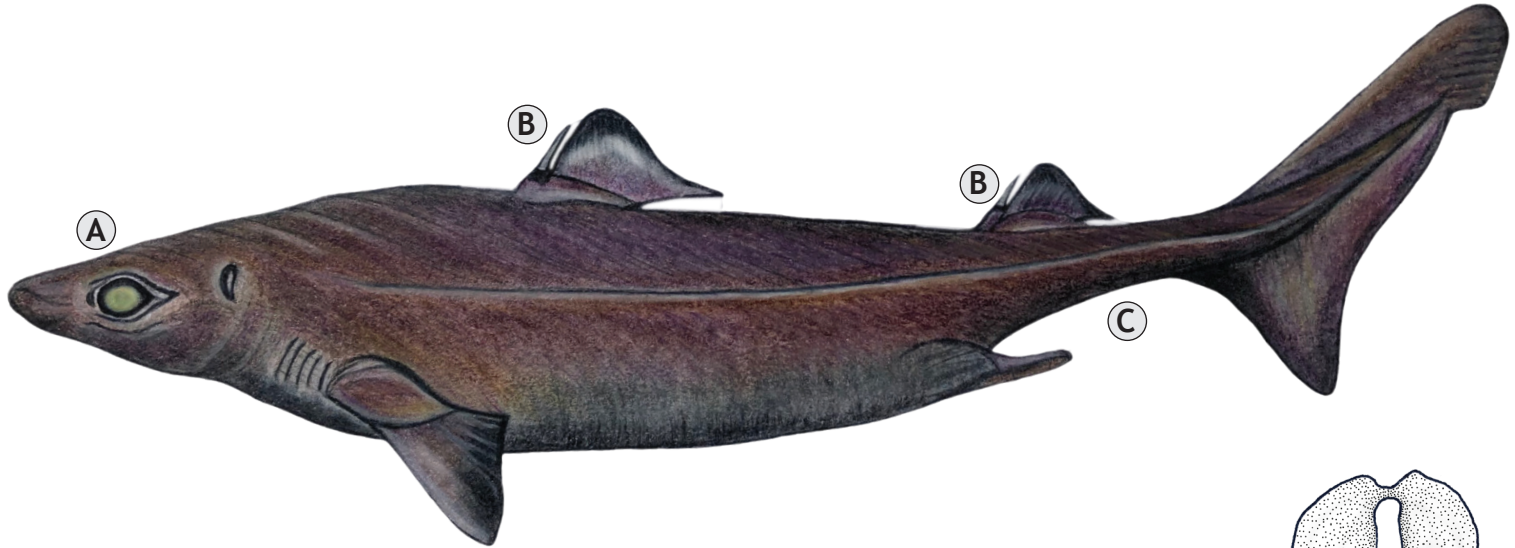
# Great hammerhead

*Sphyrna mokarran*

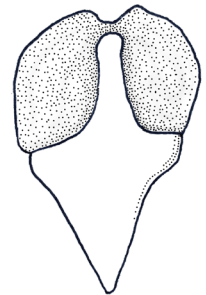
# Gulper shark

*Centrophorus granulosus*

Mississippi  
Deepwater  
Sharks 30



- A. Green eyes
- B. Spines on each dorsal fin
- C. No anal fin

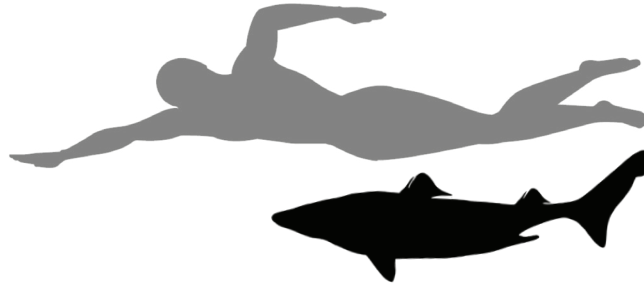


Good

Fair

Poor

Unknown



**Size:** 3 ft 2 in (at maturity), 4 ft 6 in (max)

**Habitat & Diet:** Deep waters; feeds on small fishes and squids

**Interesting Fact:** Large, broad, leaf-like scales (known as dermal denticles)

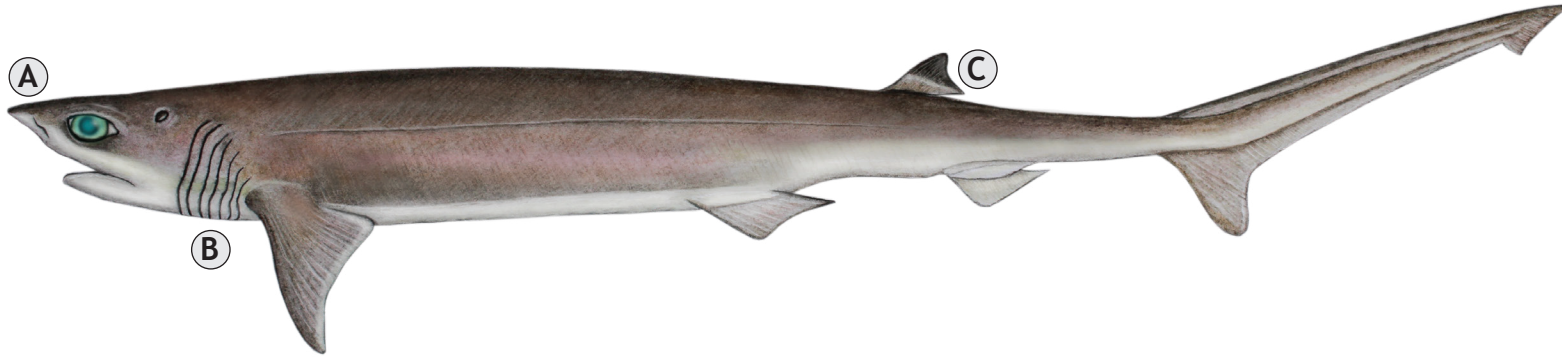
# Gulper shark

*Centrophorus granulosus*

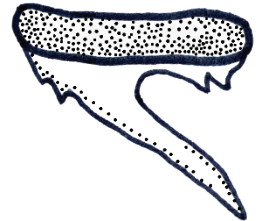
# Sharpnose sevengill shark

*Heptanchias perlo*

Mississippi  
Deepwater  
Sharks 32



- A. Narrow, tapering snout
- B. Seven gill slits
- C. Only one dorsal fin, located far back on body

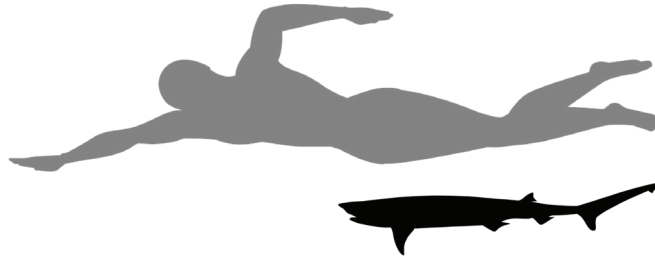


Good

Fair

Poor

Unknown



**Size:** 2 ft 10 in (at maturity), 3 ft 8 in (max)

**Habitat & Diet:** Deep, subtropical and warm waters; feeds on squids and small fishes

**Interesting Fact:** Most shark species have five gill slits, but this species has seven

# Sharpnose sevengill shark

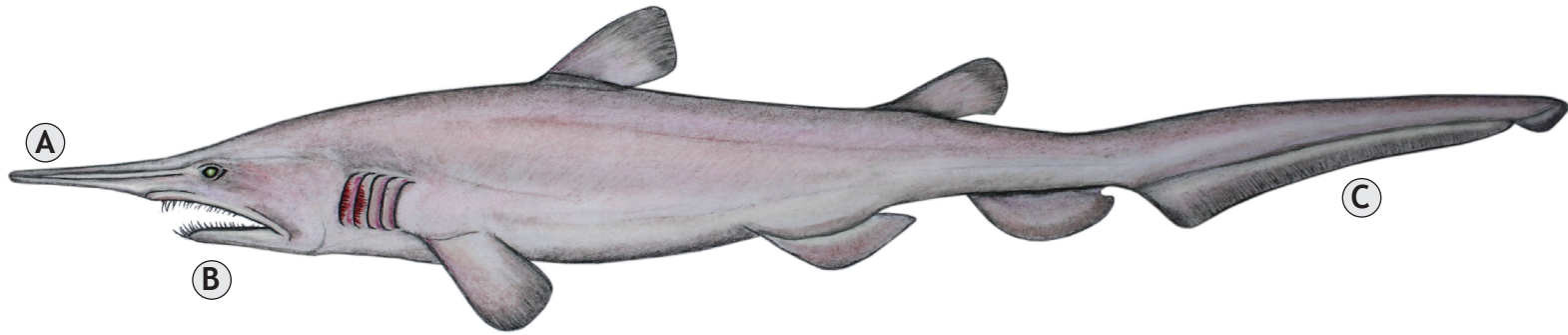
*Heptranchias perlo*

Mississippi  
Deepwater  
Sharks

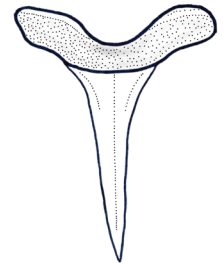
# Goblin shark

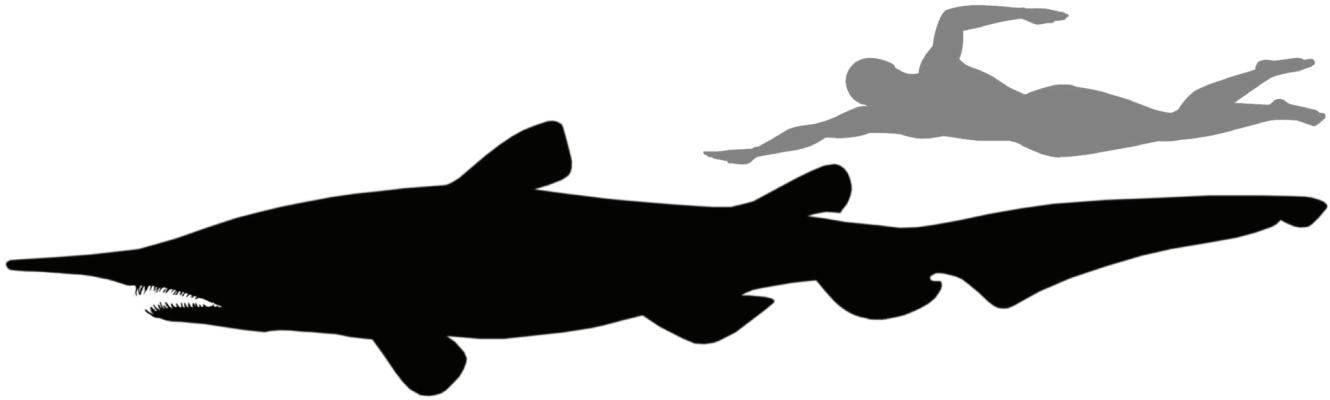
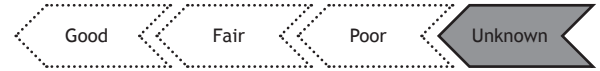
*Mitsukurina owstoni*

Mississippi  
Deepwater  
Sharks 34



- A. Long, blade-like snout
- B. Jaws that can extend outward for prey capture
- C. Long caudal fin that lacks a lower lobe





**Size:** Size at maturity unknown; estimates suggest 16 ft as max size

**Habitat & Diet:** Deep waters; feeds on fishes, squids, and crustaceans

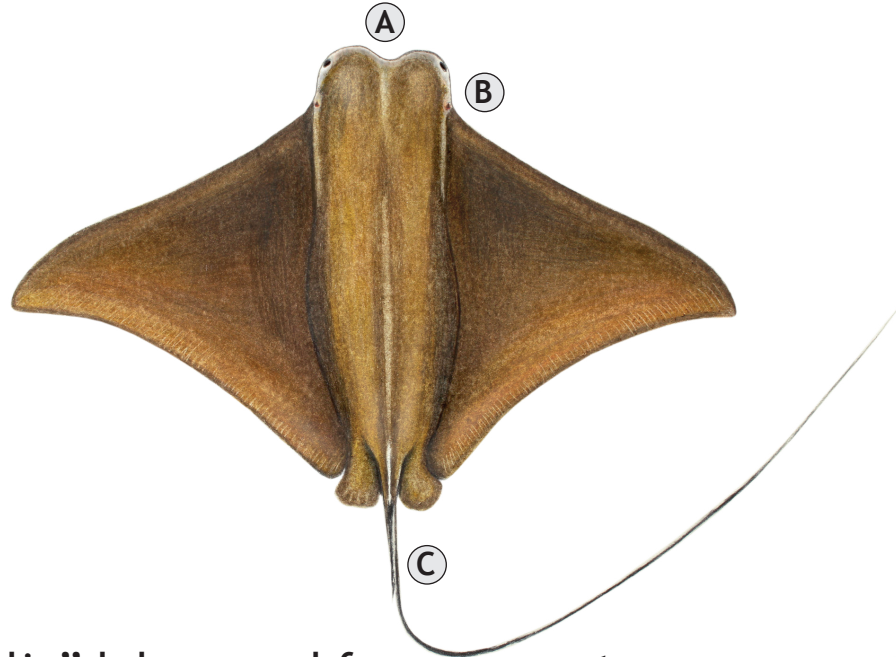
**Interesting Fact:** Monotypic (the only species in its family)

# Goblin shark

*Mitsukurina owstoni*

# Cownose ray

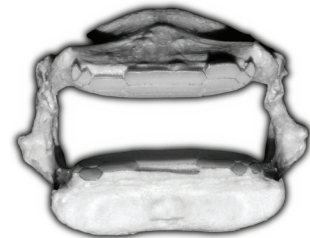
*Rhinoptera bonasus*

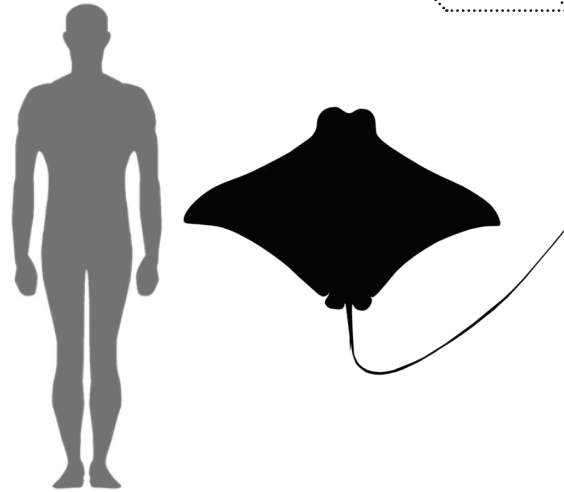


A. Wide head

B. Fleshy “cephalic” lobes used for prey capture

C. One to two stings at base of tail





**Size:** 2 ft 1 in (at maturity), 3 ft 11 in (max)

**Habitat & Diet:** Shallow coastal waters; feeds on bivalves, crustaceans, and marine worms

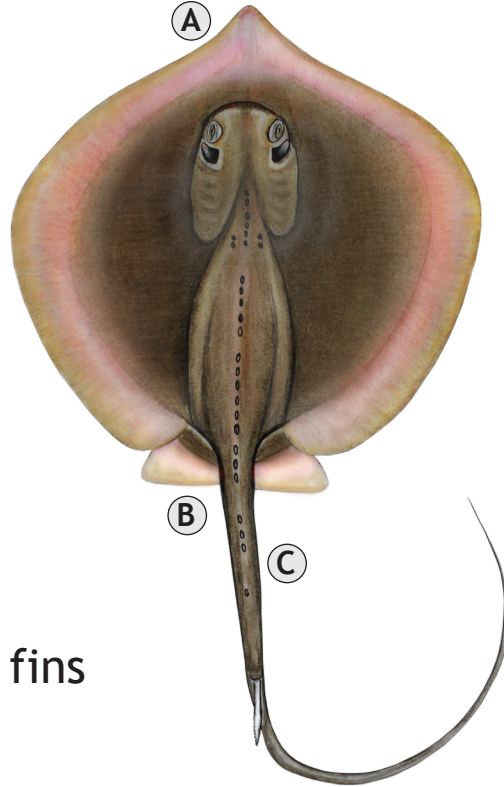
**Interesting Fact:** Seasonally migrates in schools of up to 10,000 in the Gulf

# Cownose ray

*Rhinoptera bonasus*

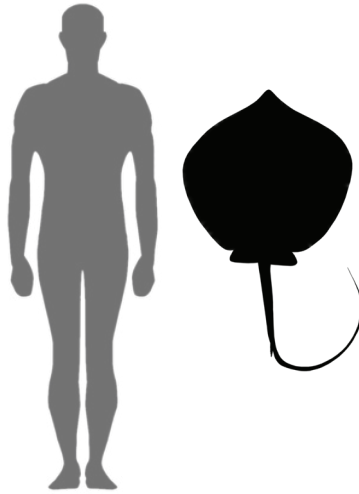
# Atlantic stingray

*Hypanus sabinus*



- A. Pointed snout
- B. Well developed pelvic fins
- C. Row of small thorns





**Size:** 10 in (at maturity), 2 ft (max)

**Habitat & Diet:** Coastal waters, including freshwater; feeds on small invertebrates and fishes

**Interesting Fact:** Only U.S. shark/ray with permanent freshwater populations (Florida)

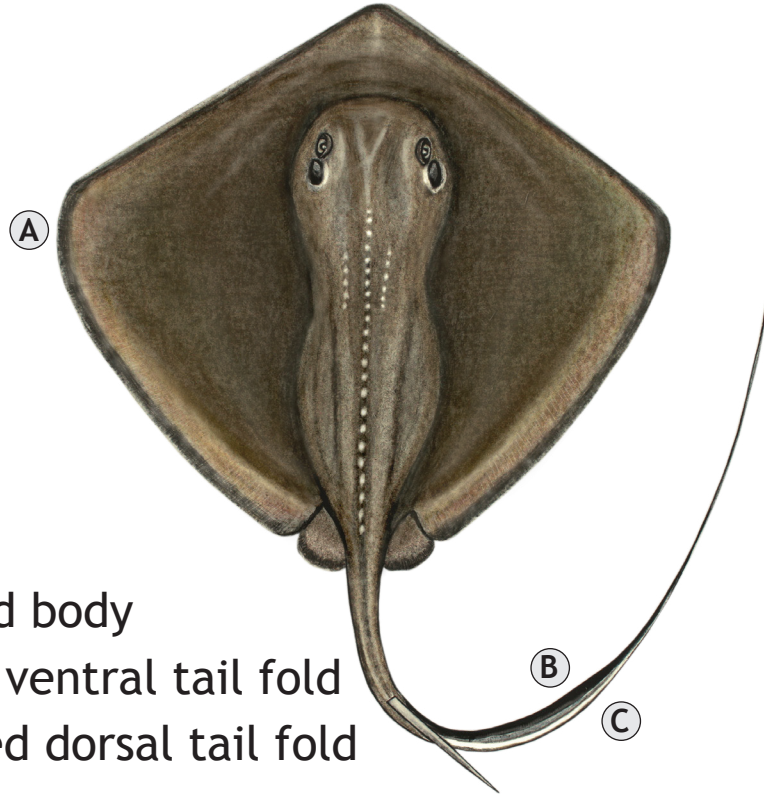
# Atlantic stingray

*Hypanus sabinus*

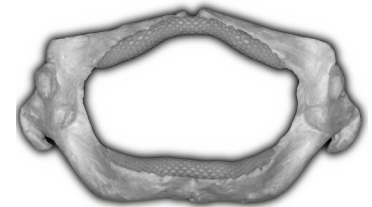
# Southern stingray

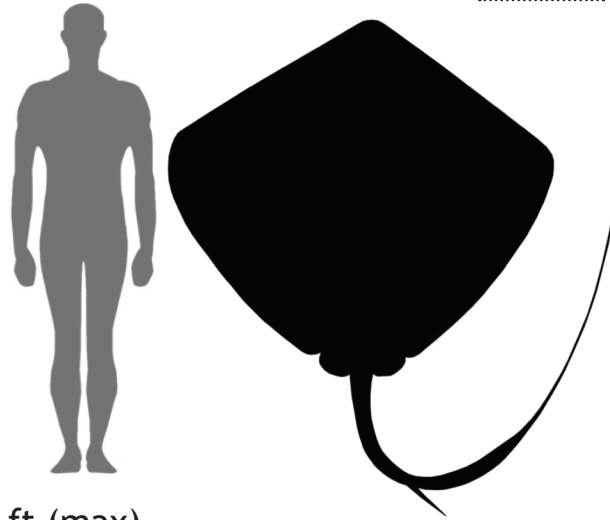
*Hypanus americanus*

Mississippi  
Aquarium  
Rays 40



- A. Diamond-shaped body
- B. Well developed ventral tail fold
- C. Poorly developed dorsal tail fold





**Size:** 2 ft 6 in (at maturity), 5 ft (max)

**Habitat & Diet:** Nearshore and coastal waters; feeds on crustaceans and fishes

**Interesting Fact:** Tourists often swim with this species when visiting the Caribbean

# Southern stingray

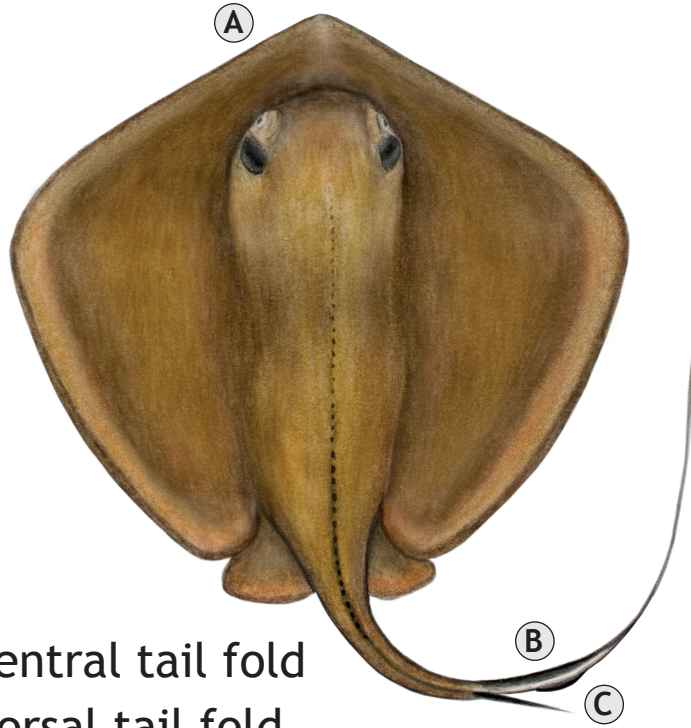
*Hypanus americanus*

# Bluntnose stingray

*Hypanus say*

Other  
Mississippi  
Rays

42

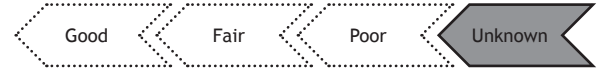
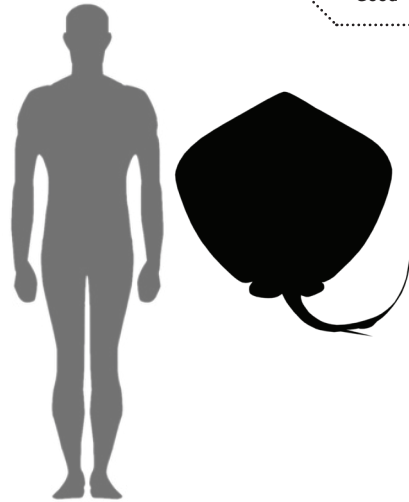


A. Blunt snout

B. Well developed ventral tail fold

C. Well developed dorsal tail fold





**Size:** 1 ft 7 in (at maturity), 2 ft 7 in (max)

**Habitat & Diet:** Shallow coastal waters; feeds on crustaceans and fishes

**Interesting Fact:** Frequently has up to three stings

# Bluntnose stingray

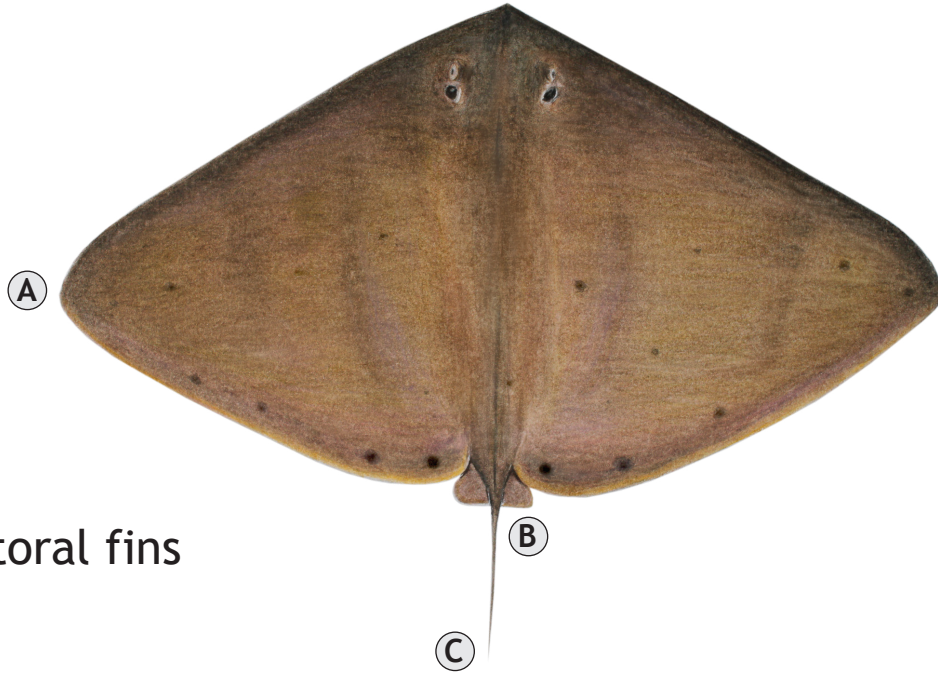
*Hypanus say*

# Smooth butterfly ray

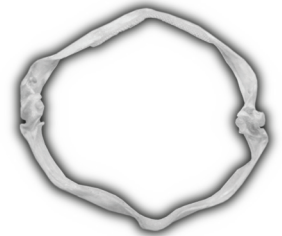
*Gymnura lessae*

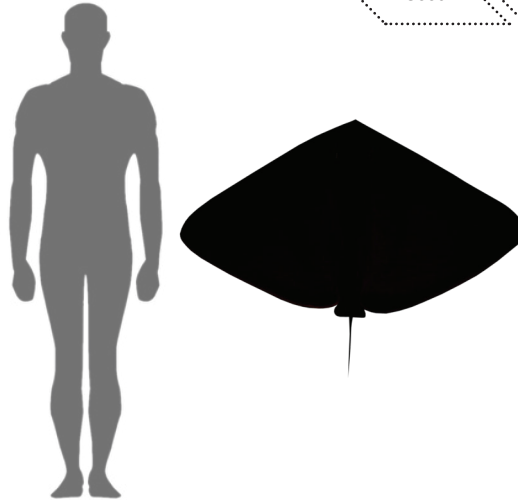
Other  
Mississippi  
Rays

44



- A. Wide pectoral fins
- B. No sting
- C. Short tail





**Size:** 1 ft 7 in (at maturity), 4 ft (max)

**Habitat & Diet:** Coastal waters; feeds on fishes

**Interesting Fact:** Ambush predator that uses its pectoral fins to strike and stun fish prey

# Smooth butterfly ray

*Gymnura lessae*

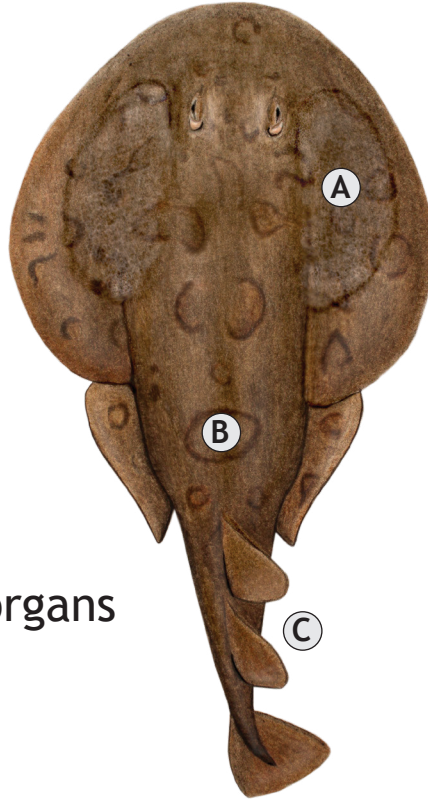
*Other  
Mississippi  
Rays*

# Lesser electric ray

*Narcine bancroftii*

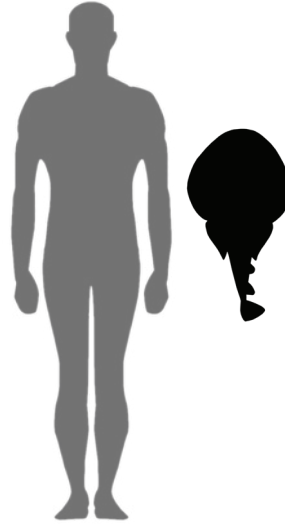
Other  
Mississippi  
Rays

46



- A. Kidney-shaped electric organs
- B. Dark ring-like markings
- C. Two tall dorsal fins





**Size:** 11 in (at maturity), 2 ft 1 in (max)

**Habitat & Diet:** Shallow coastal waters; feeds on marine worms

**Interesting Fact:** Can generate up to 56 volts of electricity, which it uses for defense

# Lesser electric ray

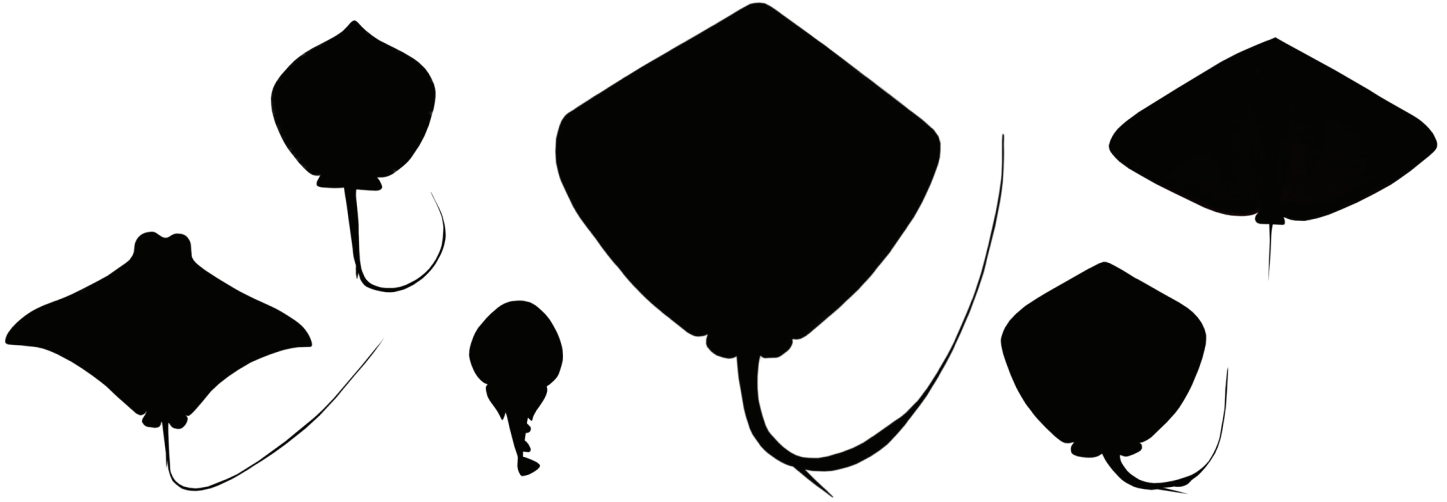
*Narcine bancroftii*

Other  
Mississippi  
Rays

# Conservation and Management

The individuals included in this guide are only a portion of the diverse shark and ray species that live off the Mississippi coast. In spite of their many sizes, shapes, and colors, most sharks and rays share a similar set of biological characteristics that include slow growth, late age at maturity, and long lifespan. Unfortunately, these “life history” characteristics mean that once depleted, it can be difficult for shark and ray populations to recover.

Overharvest, habitat loss, and pollution are some of the threats currently facing sharks and rays. Collecting baseline life history data is the first step toward managing and conserving these species. Fortunately, Mississippi Aquarium has partnered with researchers at Mississippi State University to help fill some of the data gaps for local sharks and rays. Research partnerships like this one are critical to ensuring the future sustainability of the sharks and rays that call Mississippi home.



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