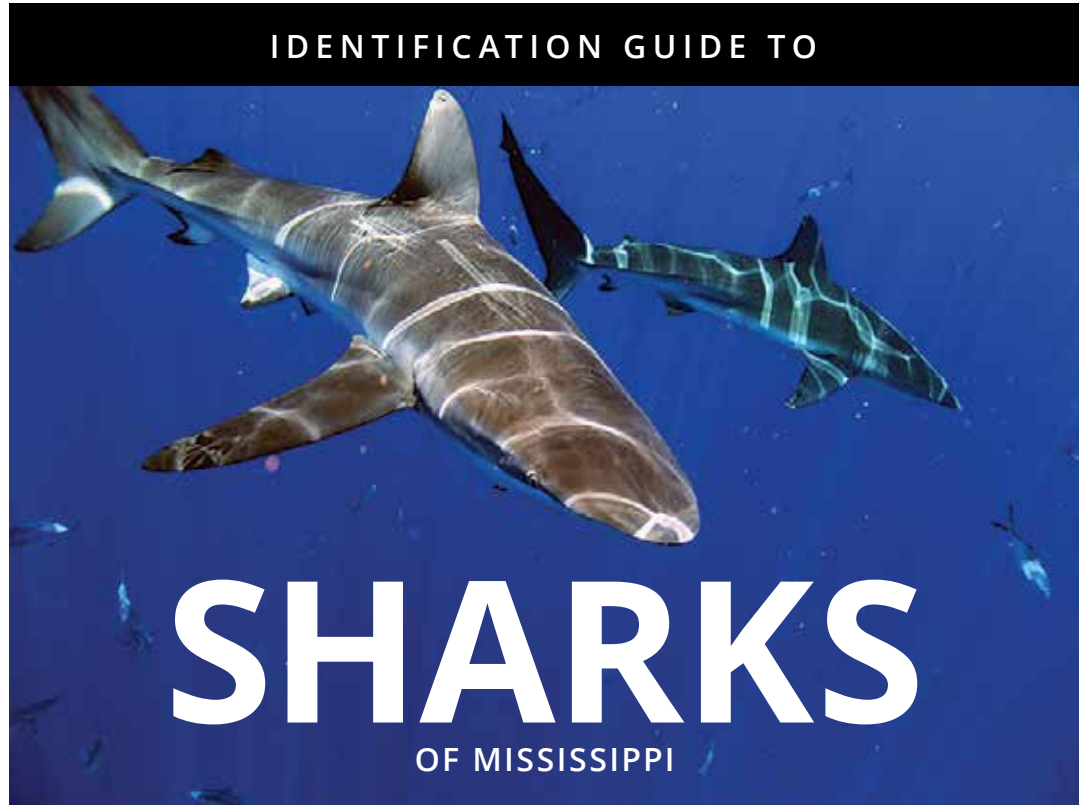




THE UNIVERSITY OF
**SOUTHERN
MISSISSIPPI.**



The development of this guide was made possible by the Mississippi Department of Marine Resources and the U.S. Fish and Wildlife Service, Federal Aid in Sport Fish Restoration Program.



By
Eric Hoffmayer, Jim Franks, John Shelley, Jill Hendon and Jeremy Higgs

PREFACE

This guide was developed to assist recreational anglers, commercial fishers, charter captains, marine enforcement officers, and shark enthusiasts in the identification of sharks that occur in the coastal waters of Mississippi. Species included in the guide were selected based on their high rate of occurrence in the decades of survey research conducted by The University of Southern Mississippi's Center for Fisheries Research and Development.

In this guide you will find an external anatomy reference which will aid you in using the identification key. The key will guide you through a series of questions to assist you in identifying the correct species of a shark from Mississippi waters. Once the species is identified, there is a description page that provides additional details and an example photo. It is the intent of the authors that this guide serve as a field identification aid as well as a source of general information on local sharks.

Through our research, we have found that our local waters are an important nursery area for many coastal shark species. Their presence in our waters aids in keeping the Mississippi Sound productive and thriving. Sharks play an important role in maintaining the intricate balance of our coastal ecosystem and makes our waters some of the most diverse in the Gulf of Mexico. Considering the overfished status of numerous shark species, it is important that we, as stewards of our ecosystem, protect and respect this resource. In your endeavors, simple choices such as gently handling and releasing female sharks during pupping season can make a positive impact on the sustainability of our populations.

We hope this guide is useful to you and we appreciate your interest in these important predators in our waters.

REPORT TAGGED FISH

What info is needed?

- Tag ID
- Date of catch
- Location of catch
- Total length of fish
- Kept or released
- Your contact info



To report any tag, please contact us with the above information at:

228.818.8818 • tagging@usm.edu



SAWFISH

The Smalltooth Sawfish, *Prisits pectinata*, is a species that has historically been present in our waters. We have had reports of them returning to the Mississippi Sound. This species is listed as ENDANGERED and therefore reporting of any sightings is essential.



General Release Guidelines

- Release sawfish immediately
- Never lift the sawfish from the water or drag it ashore
- Do not use gaffs or ropes on the sawfish
- Cut any gear off of the sawfish as close to the attached point or hook as possible without injuring the animal

An Endangered Species:

- Smalltooth sawfish are listed as endangered under the Endangered Species Act (ESA)
- Federal law prohibits injuring or harming sawfish
- Captured sawfish should be released immediately and reported

TO REPORT A SAWFISH SIGHTING 1-844-4SAWFISH

Provide as much of the following as possible:

- Date and time
- Latitude and longitude (or detailed location description)
- Habitat description (water depth, temperature, salinity, dissolved oxygen)
- Photographs (in/on gear, body, rostrum)
- Markings, scars, wounds
- Tag number and type if applicable
- Lengths (saw and total, estimate if necessary)
- Sex
- Release condition including any gear attached to the fish

CONTENTS OF THIS GUIDE

Shark Size and Reproduction Information	4	Sandbar shark; <i>Carcharhinus plumbeus</i>	20
External Anatomy References.....	5	Silky shark; <i>Carcharhinus falciformis</i>	22
Identification Key	6-7	Atlantic sharpnose shark; <i>Rhizoprionodon</i> <i>terraenovae</i>	24
Bonnethead; <i>Sphyrna tiburo</i>	8	Blacknose shark; <i>Carcharhinus acronotus</i>	26
Scalloped hammerhead; <i>Sphyrna lewini</i>	10	Finetooth shark; <i>Carcharhinus isodon</i>	28
Great hammerhead; <i>Sphyrna mokarran</i>	12	Spinner shark; <i>Carcharhinus brevipinna</i>	30
Tiger shark; <i>Galeocerdo cuvier</i>	14	Blacktip shark; <i>Carcharhinus limbatus</i>	32
Lemon shark; <i>Negaprion brevirostris</i>	16		
Bull shark; <i>Carcharhinus leucas</i>	18		

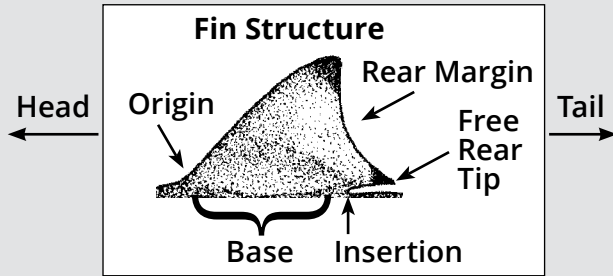
GENERAL REPRODUCTIVE INFORMATION

Common Name	Female Size at Maturity (feet)	Litter Size	Size at Birth (inches)	Pupping Season
<i>Small Coastal Species</i>				
Atlantic sharpnose	2 – 3	4 – 7	11 – 14	Spring/Summer
Blacknose	3 – 4	1 – 8	16 – 19	Spring/Summer
Bonnethead	2 – 3	6 – 14	9 – 14	Summer/Fall
Finetooth	4 – 5	3 – 9	18 – 22	Spring/Summer
<i>Large Coastal Species</i>				
Blacktip	5 – 6	2 – 9	21 – 24	Spring/Summer
Spinner	6 – 7	6 – 10	22 – 25	Spring/Summer
Bull	7 – 8	7 – 12	23 – 32	Spring/Summer
Tiger	9 – 8	18 – 70	31 – 36	Spring/Summer
Lemon	7 – 8	7 – 18	21 – 26	Spring/Summer
Great hammerhead	9	13 – 56	24 – 28	Summer/Fall
Scalloped hammerhead	9	10 – 44	14 – 20	Spring/Summer
Sandbar*	6	1 – 14	21 – 26	Spring/Summer
Silky**	7 – 8	2 – 12	27 – 34	Spring/Summer

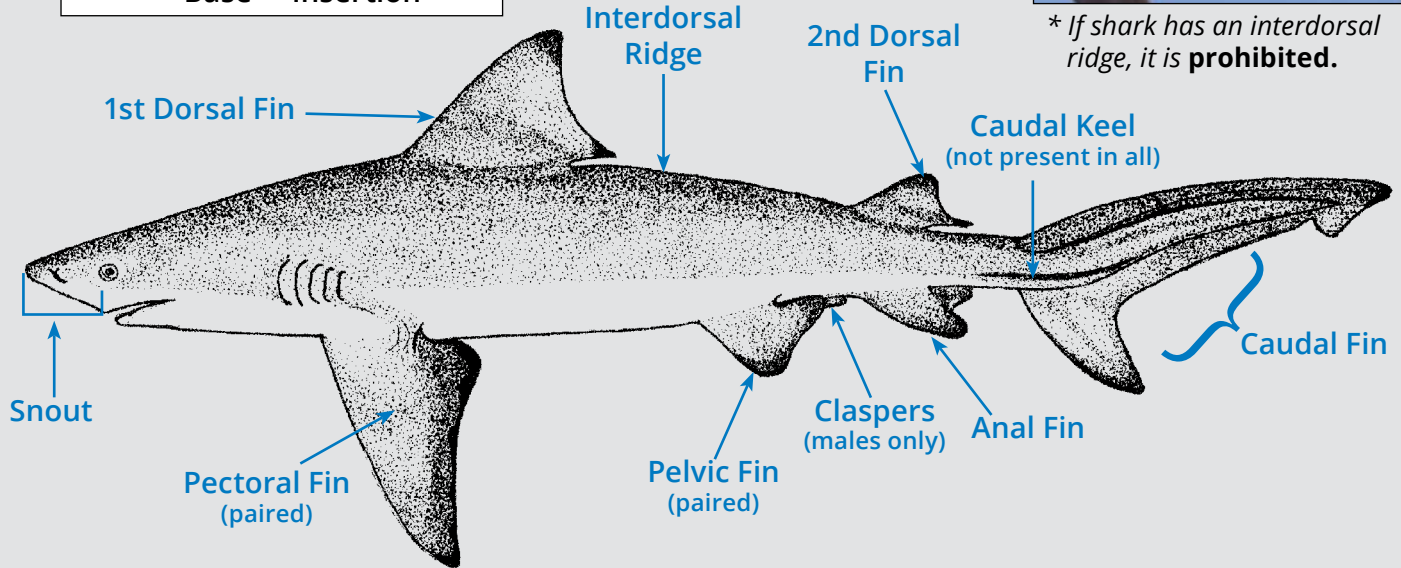
• *Shark Management Category* * *Prohibited Species* ** *Prohibited in the Recreational Fishery*
Sharks are managed by state and federal regulations.

Data Source: Castro, J.I. 2011. The Sharks of North America. Oxford University Press, New York.

EXTERNAL ANATOMY REFERENCES



** If shark has an interdorsal ridge, it is **prohibited**.*



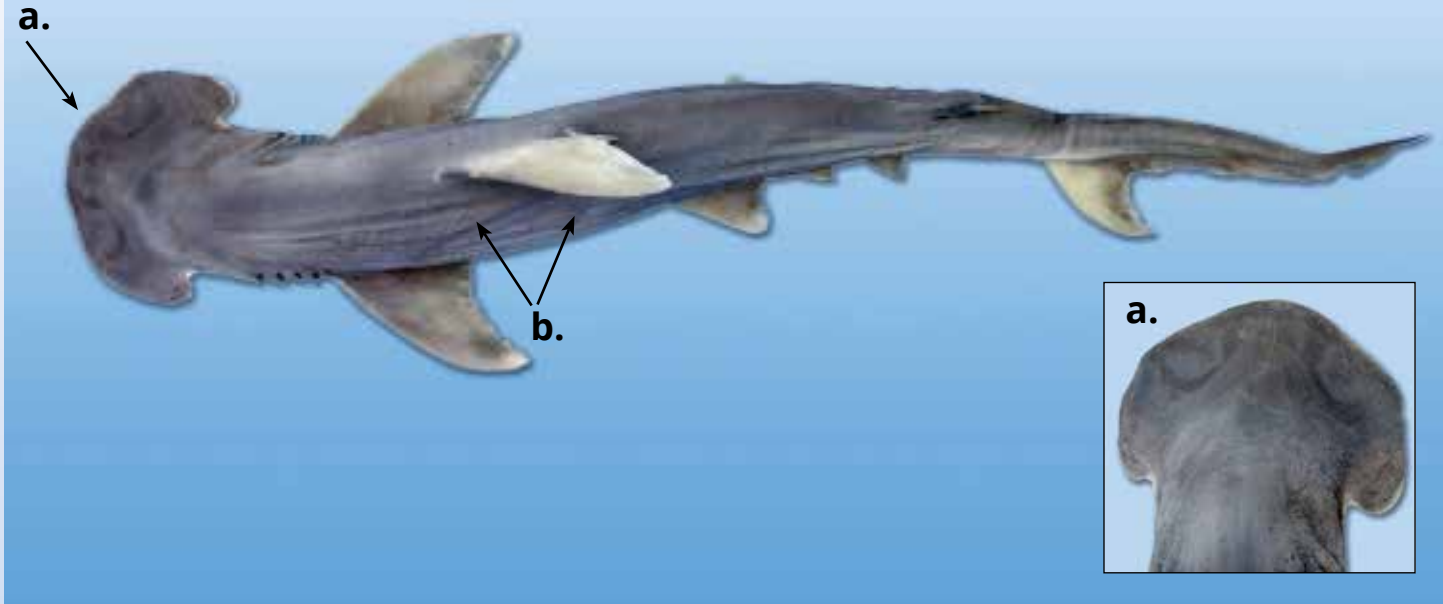
IDENTIFICATION KEY TO THE SHARKS OF MISSISSIPPI

This key contains a series of paired descriptive options (1-12) to use in the identification of sharks. Beginning with #1, select the option (a or b) that best applies to your specimen. The number shown at the end of your chosen option will guide you through the key to the next pair of options to consider. Continue this stepwise process until you end at the species for your shark.

1. a) Head flattened and spade or hammer shaped2
b) Head not flattened; snout rounded to pointed4
2. a) Head spade shaped..... [Bonnethead](#) (pg.8)
b) Head hammer shaped.....3
3. a) Front margin of head broadly curved with center indentation; rear margin of head $<90^\circ$ angle with body; pelvic fins with straight rear margin [Scalloped hammerhead](#) (pg.10)
b) Front margin of head straight with center indentation; rear margin of head 90° angle with body; pelvic fins with hooked rear margin..... [Great hammerhead](#) (pg.12)
4. a) Snout short and bluntly rounded or squared5
b) Snout moderately rounded to pointed7
5. a) Black spots or blotches on dorsal surface; raised caudal keel..... [Tiger](#) (pg.14)
b) Dorsal surface of body uniform in color.....6

6. a) 1st and 2nd dorsal fins approximately equal in size; body yellowish-green to brown in color [Lemon](#) (pg.16)
 b) 1st dorsal fin much larger than 2nd dorsal fin; 2nd dorsal fin origin in front of anal fin origin; body stocky[Bull](#) (pg.18)
7. a) Interdorsal ridge present 8
 b) Interdorsal ridge absent..... 9
8. a) 1st dorsal fin high, triangular, and originates over middle of pectoral fin [Sandbar](#) (pg.20)
 b) 1st dorsal fin originates well behind rear margin of pectoral fin; 2nd dorsal fin has long free rear tip..... [Silky](#) (pg.22)
9. a) Origin of 2nd dorsal fin behind origin of anal fin; white rear margin of pectoral fins; large specimens have white spots on body [Atlantic sharpnose](#) (pg.24)
 b) Origin of 2nd dorsal fin aligns with origin of anal fin 10
10. a) Snout with dusky blotch at tip; short gill slits; body slightly yellowish in coloration [Blacknose](#) (pg.26)
 b) Snout without dusky blotch at tip; long gill slits; body dark or bluish gray in coloration..... 11
11. a) Fins without black tips; 1st dorsal fin originates over rear margin of pectoral fin; body bluish gray [Finetooth](#) (pg.28)
 b) All or most of the fins black tipped..... 12
12. a) 1st dorsal fin originates at or behind rear margin of pectoral fin; all fins with black tips; snout length longer than mouth width[Spinner](#) (pg.30)
 b) 1st dorsal fin originates over attached portion of pectoral fin; all fins with black tips except anal fin; snout length shorter than mouth width [Blacktip](#) (pg.32)

BONNETHEAD



SIMILAR SPECIES



Scalloped hammerhead



Great hammerhead

Key Characteristics

- a. *Flattened spade-shaped head*
- b. *Small scattered black spots on dorsal surface*

Management Category

Small Coastal

Maximum Size 5 ft.

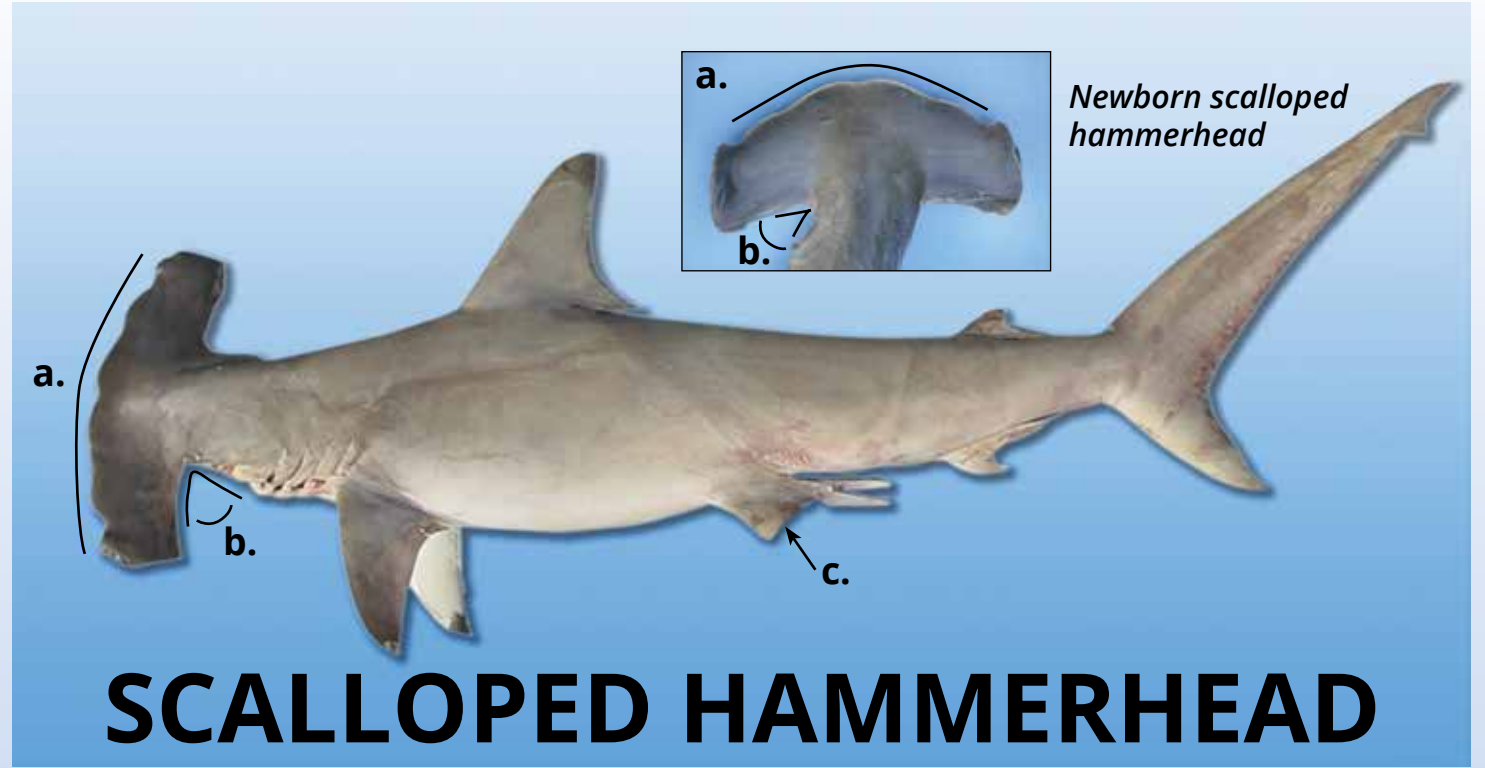
Common Size 2 to 4 ft.

Abundance

Inshore Medium / Offshore Rare

Similar Species

*Scalloped hammerhead (pg. 10) and
Great hammerhead (pg. 12)*



SIMILAR SPECIES



Bonnethead



Great hammerhead

Key Characteristics

- Flattened hammer-shaped head; front margin of head curved*
- Posterior margin of head forms less than 90 degree angle with body*
- Pelvic fins with straight rear margins*

Management Category

Large Coastal

Maximum Size 12 ft.

Common Size 5.5 to 8.5 ft.

Abundance

Inshore Rare / Offshore Medium

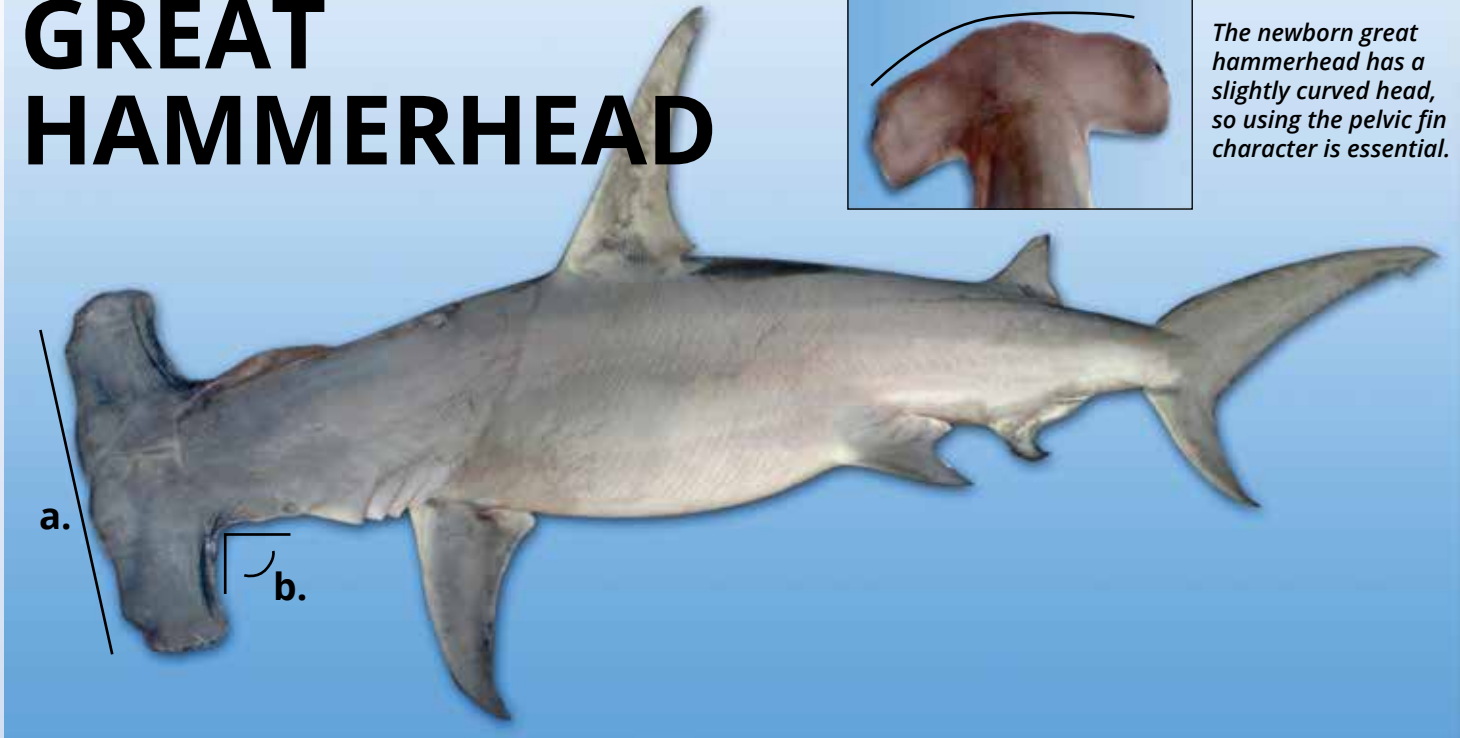
Similar Species

Bonnethead (pg. 8) and Great hammerhead (pg. 12)

GREAT HAMMERHEAD



The newborn great hammerhead has a slightly curved head, so using the pelvic fin character is essential.



SIMILAR SPECIES



Bonnethead



Scalloped hammerhead

Key Characteristics

- Flattened hammer-shaped head; front margin of head straight*
- Posterior margin of head forms 90 degree angle with body*
- Pelvic fins with hooked rear margin*

Management Category

Large Coastal

Maximum Size 18.5 ft.

Common Size 7 to 10 ft.

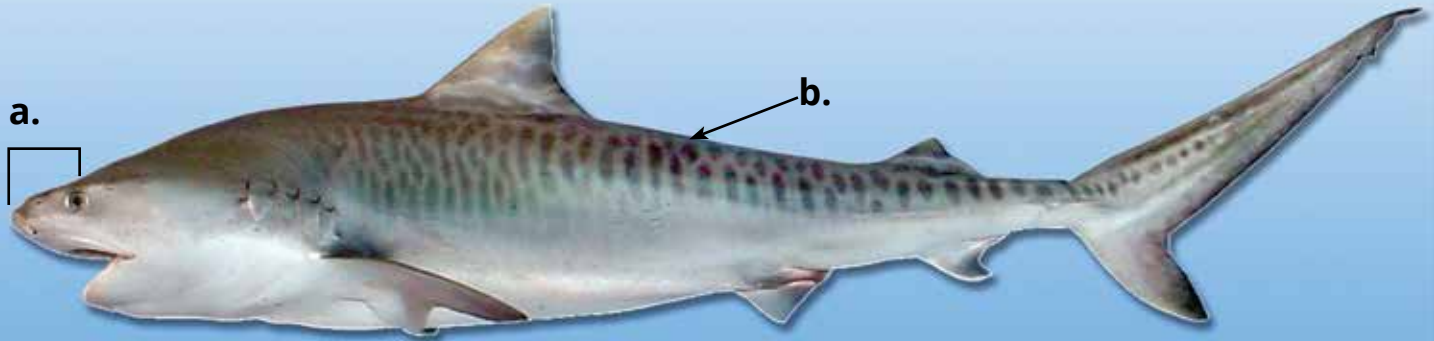
Abundance

Inshore Rare / Offshore Rare

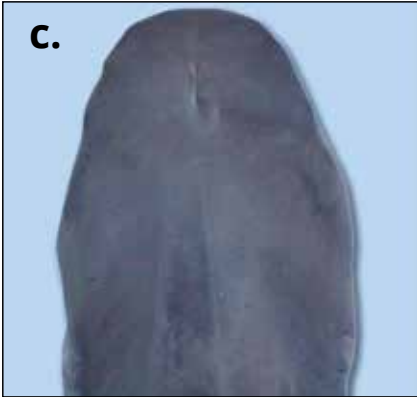
Similar Species

*Bonnethead (pg. 8) and
Scalloped hammerhead (pg. 10)*

TIGER



FEATURE



Key Characteristics

- a. Snout short*
- b. Black stripes or blotches on dorsal surface*
- c. Head squared*

Management Category

Large Coastal

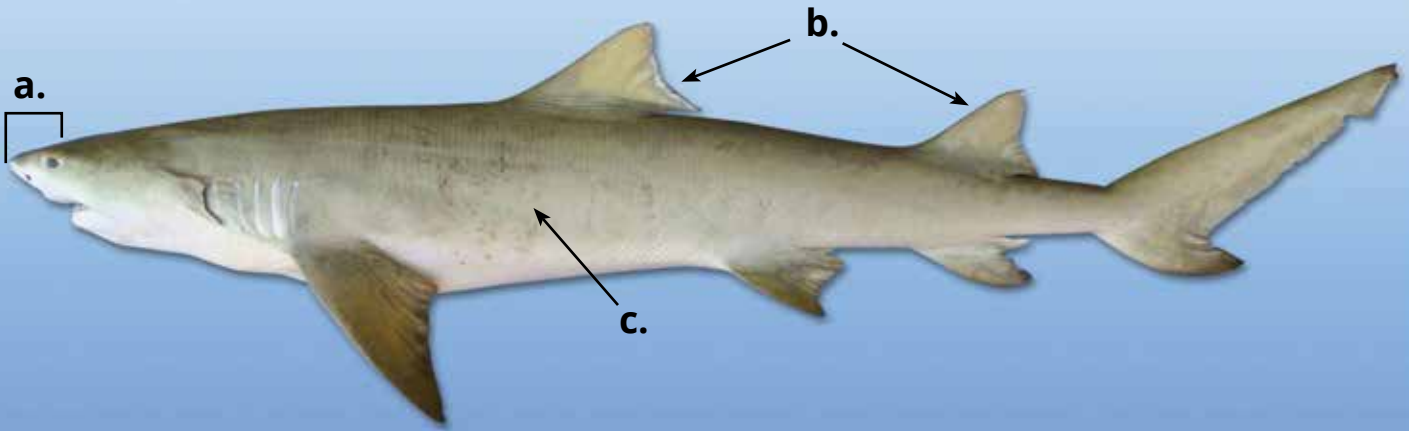
Maximum Size 20 ft.

Common Size 4 to 9 ft.

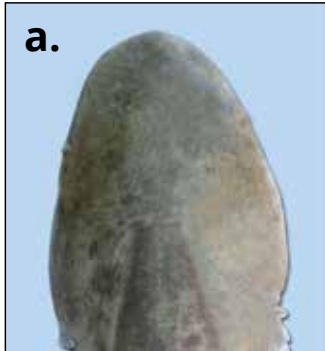
Abundance

Inshore Rare / Offshore Medium

LEMON



FEATURE



SIMILAR SPECIES



Nurse shark, *Ginglymostomata cirratum*
Not typical in Mississippi waters.

Key Characteristics

- a. Snout short and bluntly rounded
- b. 1st and 2nd dorsal fin of similar size
- c. Body color yellowish-green to brown

Management Category

Large Coastal

Maximum Size 11 ft.

Common Size 4 to 7 ft.

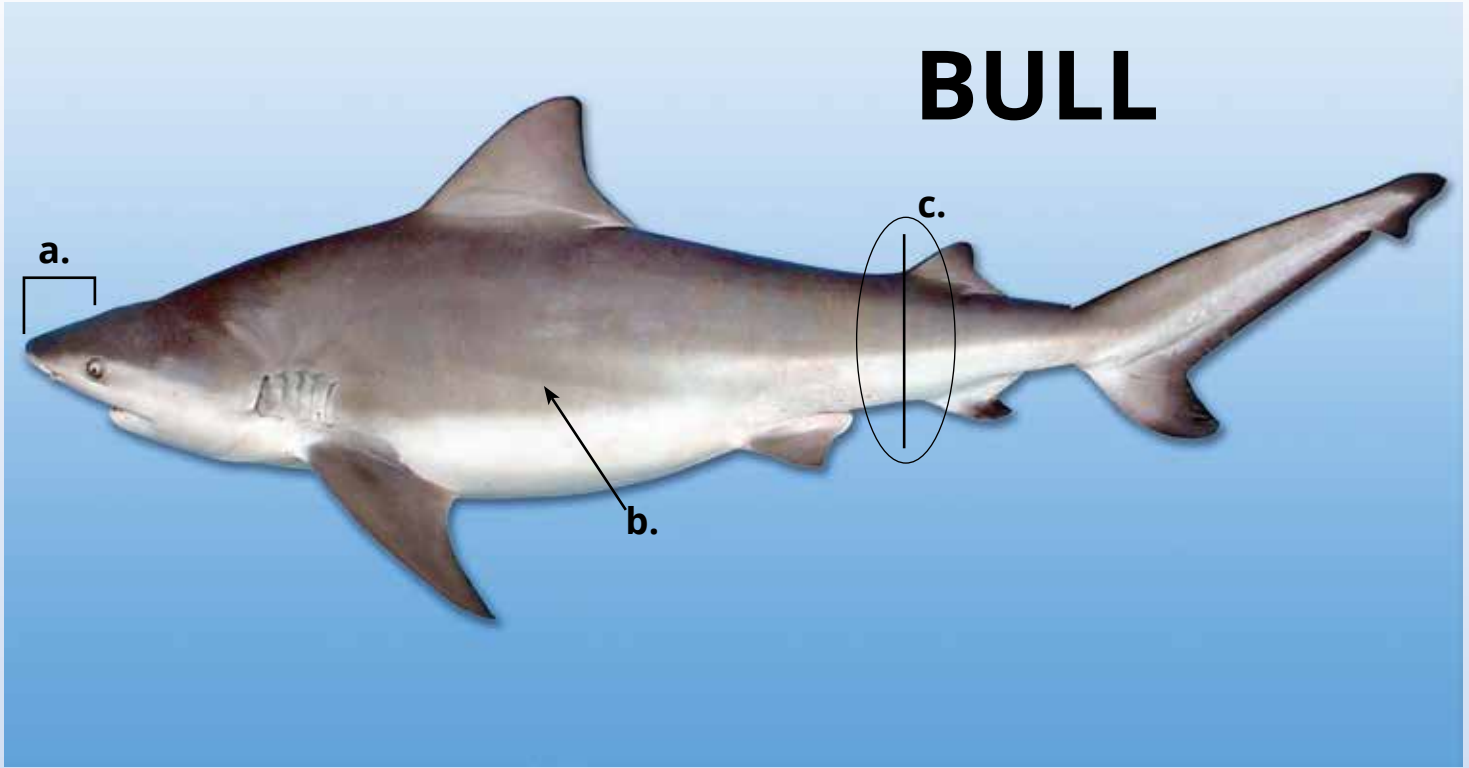
Abundance

Inshore Rare / Offshore Rare

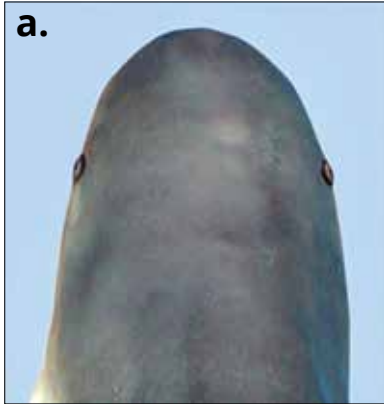
Similar Species

Nurse shark (photo to left)

BULL



FEATURE



Key Characteristics

- a. Snout short and blunt, head rounded
- b. Body deep and stocky
- c. 2nd dorsal fin origin in front of anal fin origin

Note: no interdorsal ridge present

Management Category

Large Coastal

Maximum Size 11.5 ft.

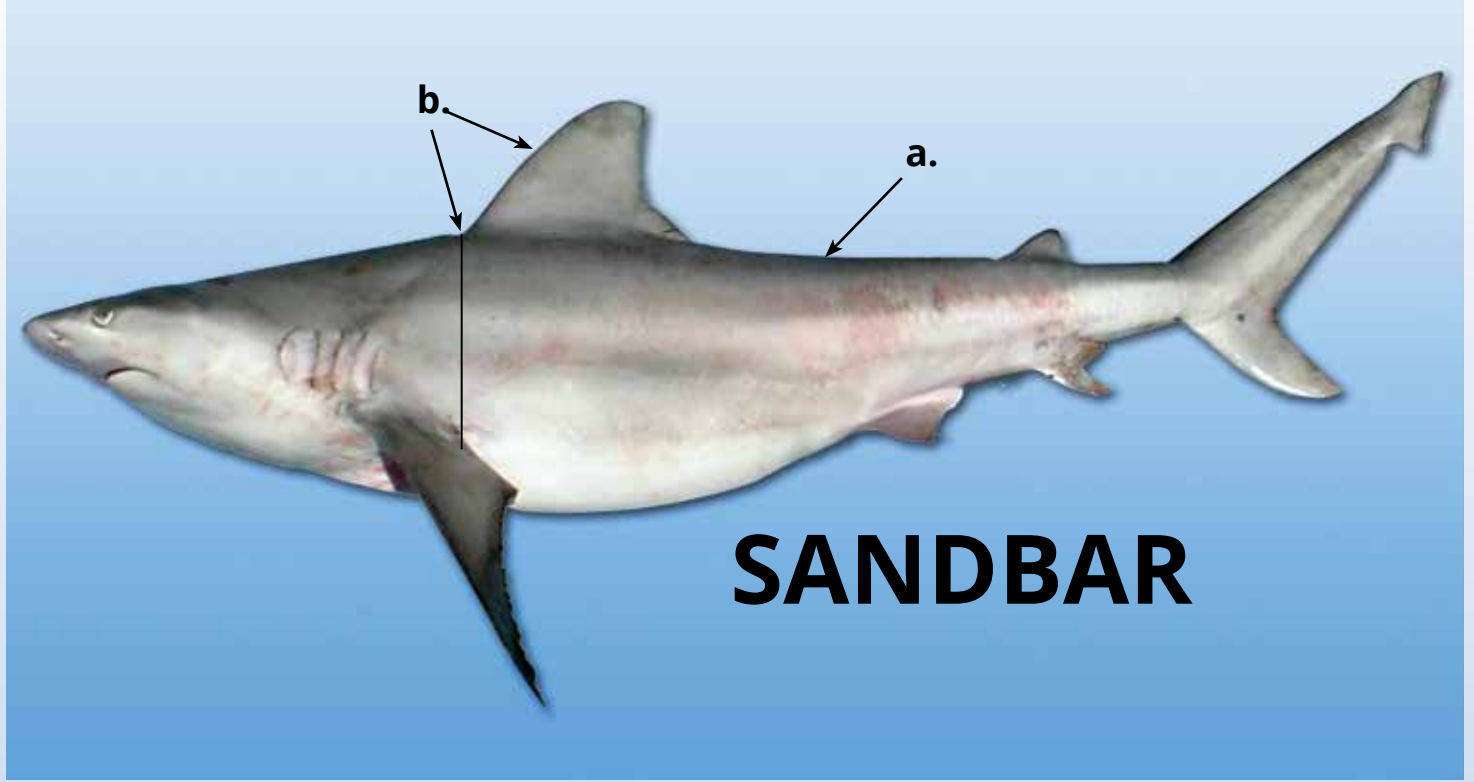
Common Size 3 to 6 ft.

Abundance

Inshore High / Offshore Medium

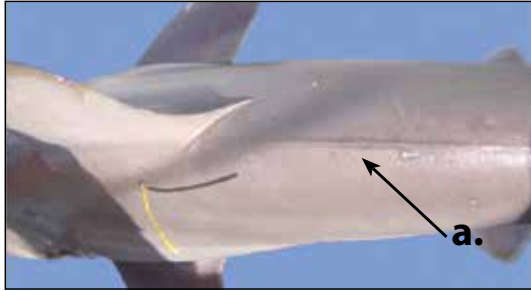
Similar Species

Sandbar (pg. 20) and Blacktip (pg. 32)



SANDBAR

FEATURE



SIMILAR SPECIES



Dusky shark, *Carcharhinus obscurus*
Prohibited, Not typical in MS waters

Key Characteristics

- a. Interdorsal ridge present
- b. 1st dorsal fin high, triangular; originates over middle of pectoral fin

Management Category

Large Coastal, **Prohibited**

Maximum Size 8 ft.

Common Size 3 to 6.5 ft.

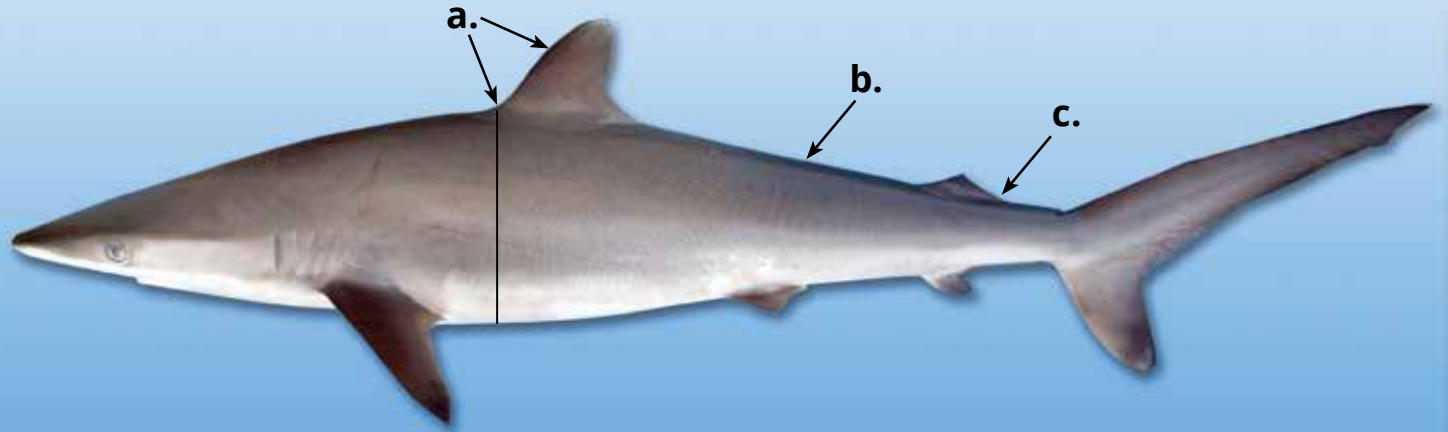
Abundance

Inshore Rare / Offshore Medium

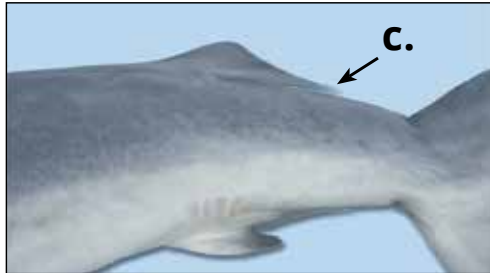
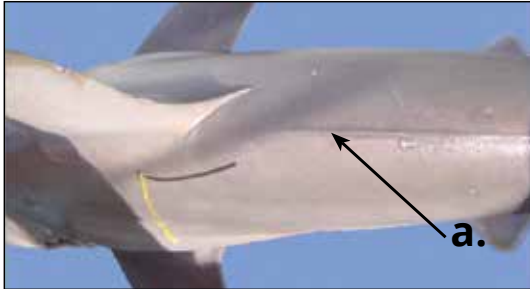
Similar Species

Bull (pg. 15) and Dusky (photo to left)

SILKY



FEATURE



Key Characteristics

- a. 1st dorsal fin short, rounded; originates well behind pectoral fin
- b. Interdorsal ridge
- c. 2nd dorsal fin with long free rear tip

Management Category

Large Coastal, Prohibited

Maximum Size 11 ft.

Common Size 3 to 6 ft.

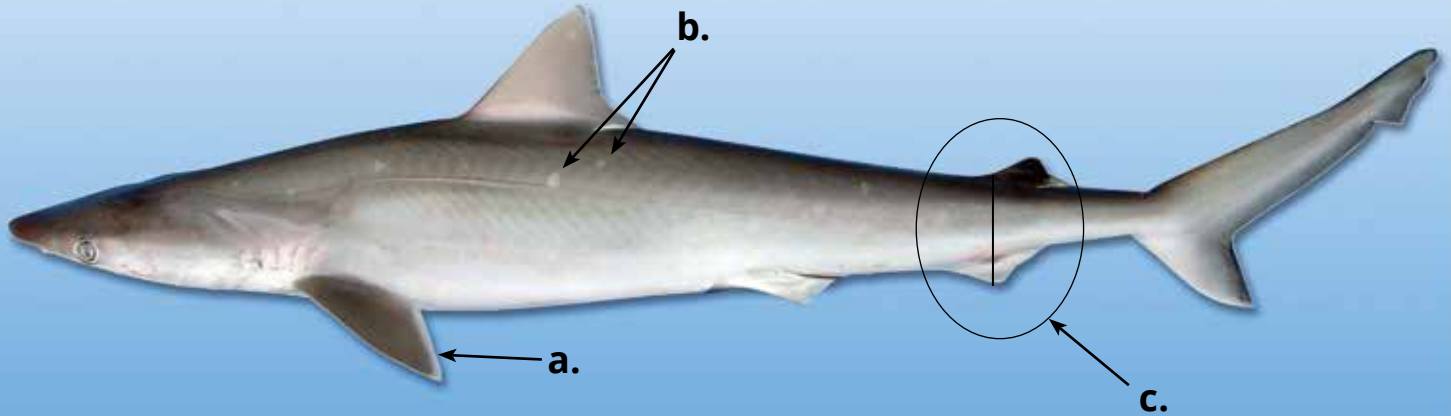
Abundance

Inshore Rare / Offshore Medium

Similar Species

Dusky (pg. 21) and Sandbar (pg. 20)

ATLANTIC SHARPNOSE



FEATURE



The young Atlantic sharpnose less than 23 inches does not have white spots on dorsal surface.

SIMILAR SPECIES



Smalltail Shark, *Carcharhinus porosus*
Not typical in MS waters; 2nd dorsal fin is not black

Key Characteristics

- White rear margin of pectoral fins*
- White spots on dorsal surface in adults*
- Origin of 2nd dorsal about mid-base of anal fin*

Management Category

Small Coastal, this is the most common species in Mississippi waters.

Maximum Size 4 ft.

Common Size 2 to 3.5 ft.

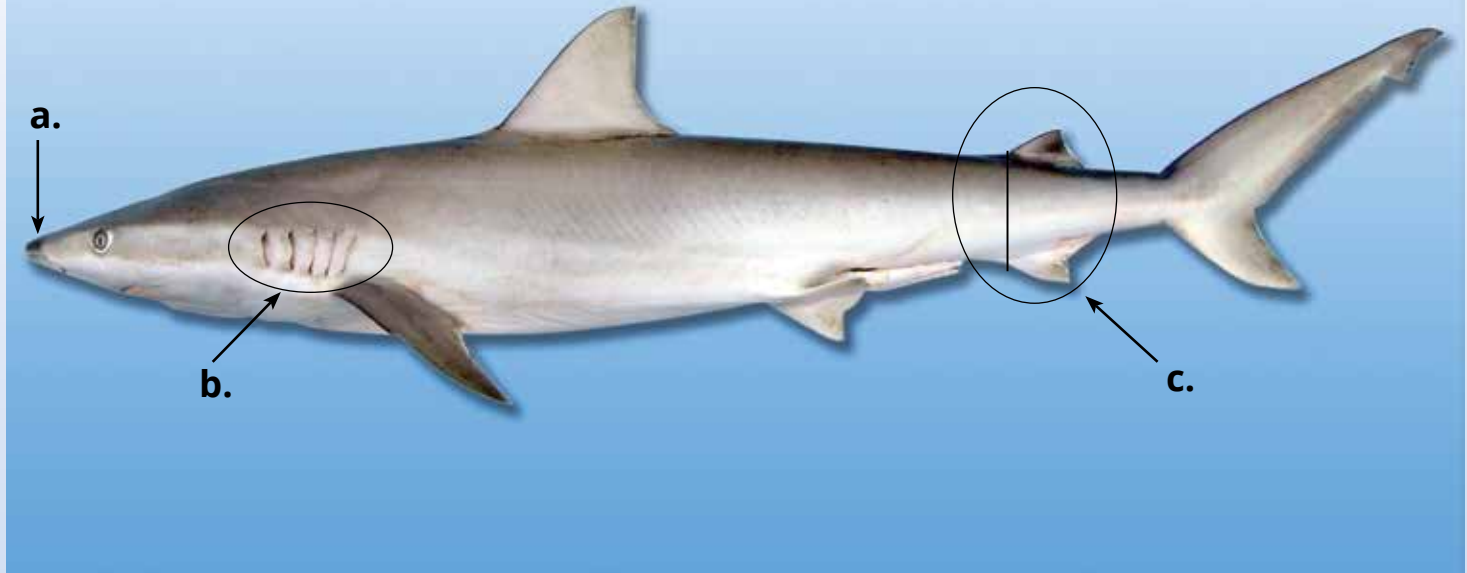
Abundance

Inshore High / Offshore Medium

Similar Species

Blacknose (pg. 26), Finetooth (pg. 28), and Smalltail (photo to left)

BLACKNOSE



FEATURE



Key Characteristics

- a. *Black blotch on snout (sometimes faint in adults)*
- b. *Short gill slits*
- c. *2nd dorsal fin origin aligns with anal fin origin*

Management Category

Small Coastal

Maximum Size 5 ft.

Common Size 2.5 to 4 ft.

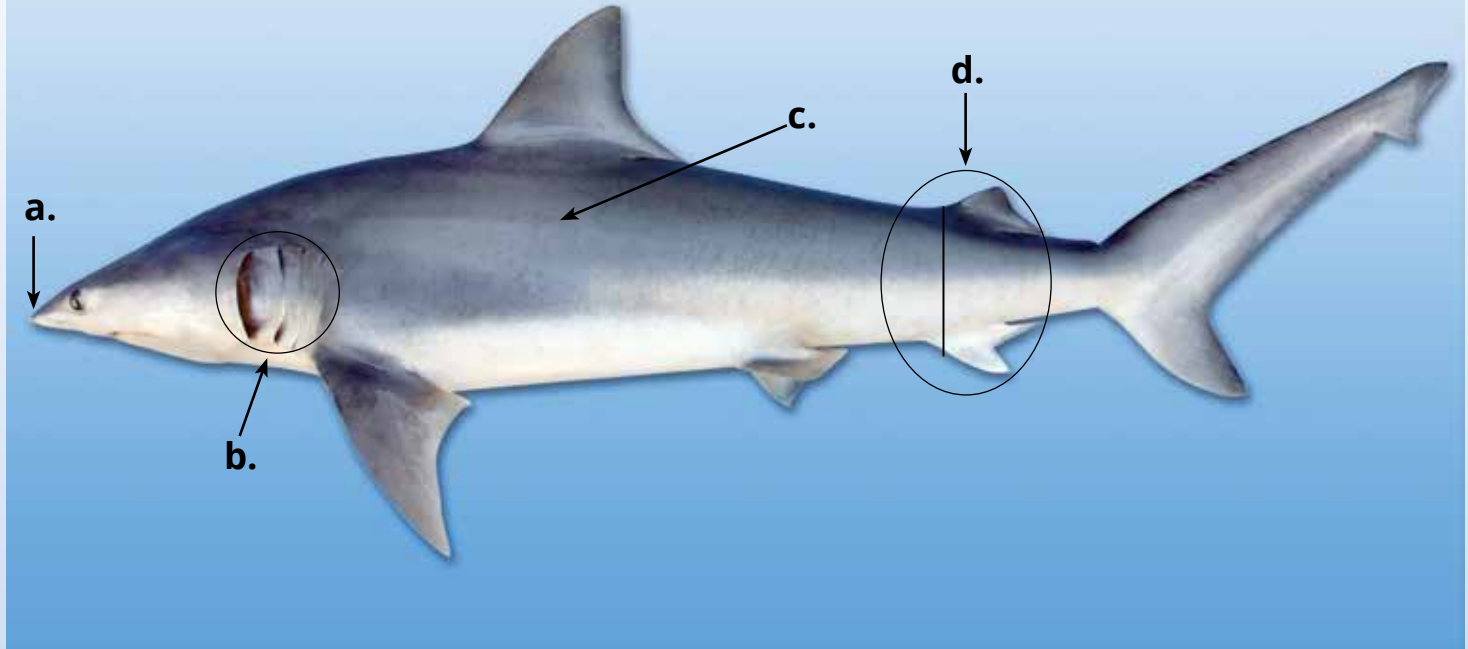
Abundance

Inshore Rare / Offshore High

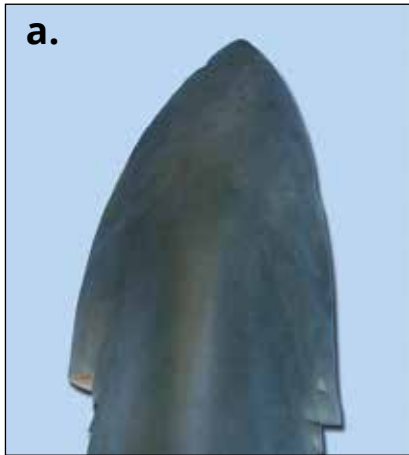
Similar Species

Atlantic sharpnose (pg. 24) and Finetooth (pg. 28)

FINETOOTH



FEATURE



Key Characteristics

- a. Pointed snout
- b. Long gill slits
- c. Dorsal surface bluish gray
- d. 2nd dorsal fin origin aligns with anal fin origin

Note: Fins do not have black tips.

Management Category

Small Coastal

Maximum Size 6 ft.

Common Size 2 to 4.5 ft.

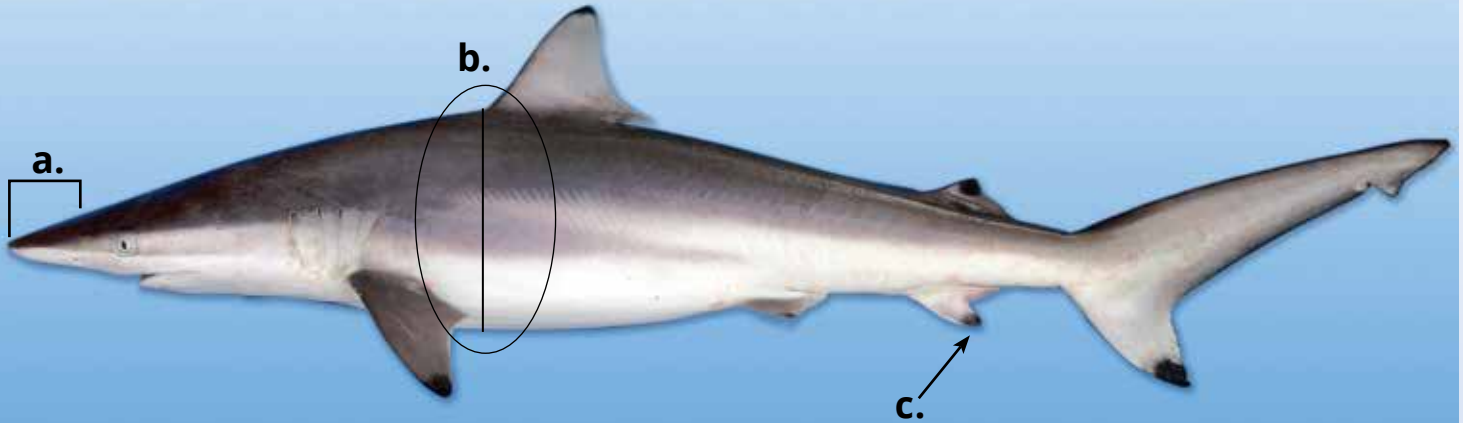
Abundance

Inshore High / Offshore Rare

Similar Species

Atlantic sharpnose (pg. 24), Blacknose (pg. 28) and Blacktip (pg. 32)

SPINNER



SIMILAR SPECIES



Blacktip shark



Bull shark



Finetooth shark

Key Characteristics

- a. Snout length longer than mouth width
- b. Origin of 1st dorsal fin at or behind rear margin of pectoral fin
- c. All fins black tipped, including anal fin

Management Category

Large Coastal

Maximum Size 9 ft.

Common Size 2.5 to 6 ft.

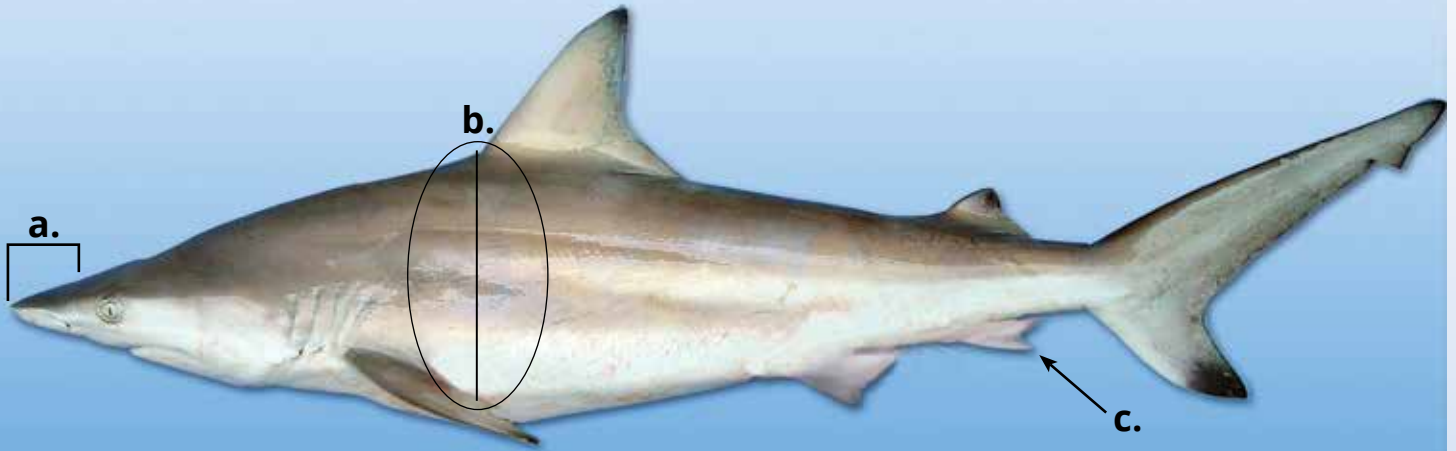
Abundance

Inshore Medium / Offshore High

Similar Species

Blacktip (pg. 32), Bull (pg. 18) and Finetooth (pg. 28)

BLACKTIP



SIMILAR SPECIES



Spinner shark



Bull shark



Finetooth shark

Key Characteristics

- a. Snout length shorter than mouth width
- b. Origin of 1st dorsal fin over pectoral base
- c. All fins except anal fin black tipped

Management Category

Large Coastal

Maximum Size 9 ft.

Common Size 2 to 5 ft.

Abundance

Inshore High / Offshore High

Similar Species

Spinner (pg. 30), Bull (pg. 28) and Finetooth (pg. 28)



Center for Fisheries Research and Development

703 East Beach Drive • Ocean Springs, MS 39564
usm.edu/fisheries-research-development • 228.872.4242



Photo Credits

William Driggers III

Eric Hoffmayer

Jill Hendon

Tonya Wiley (sawfish)

Shark Illustration

Joe Jewell

Thanks for your field research participation!

Gary Gray, Paul Grammer, Monty Simmons, Mercedes Smith, Steven George, William Dempster, Jason Tilley, Lauren Byrd, Captain and crew of the R/V *Tommy Munro*, GCRL Summer Field Program Shark Biology Classes and Mississippi Deep Sea Fishing Rodeo.

EOE/F/M/VETS/DISABILITY