

OFFSHORE SHARK SPECIES IDENTIFICATION GUIDE

For the Hawai'i Community Shark Tagging Program



This guide was developed by Dr. Melanie Hutchinson, University of Hawai'i, Joint Institute for Marine and Atmospheric Research, and Mark Royer, Hawai'i Institute of Marine Biology, University of Hawai'i at Mānoa.

All shark illustrations by Marc Dando and content adapted from the "Onboard guide for the identification of pelagic sharks and rays, Western Indian Ocean" © FAO.

Photographs: NOAA Fisheries, Mark Royer, and Melanie Hutchinson.

Special thanks to Mia Iwane, Amanda Dillon, Kirsten Leong, Keith Bigelow, Geoff Walker, Mike Berman, and all of the fishers participating in the tagging program.

For additional information, to request tags,
or to report shark interactions contact:

Dr. Melanie Hutchinson
Email: pacificsharktagger@gmail.com
or go to www.sharktagger.org



Introduction to the Hawai'i Community Shark Tagging Program

This field guide is designed to help fishers participating in the Hawai'i Community Shark Tagging Program to accurately identify shark species that they are likely to encounter while fishing offshore and in deep pelagic waters. While this guide does not include all of the species found in Hawai'i, it does provide guidance for identifying the species that are most commonly caught and sometimes difficult to distinguish. Instructions for tagging, the best handling and release practices, and reporting of shark interactions are also included. The data generated in this study will not only provide important details about depredation rates on commercial catches to quantify the economic impact that sharks have on this fishery, but will also give scientists insight into the habitat use of pelagic and coastal sharks around Hawai'i.

Sharks are long-lived species with slow growth, late ages at maturity and low reproductive capacity. These characteristics make them more vulnerable to overfishing than tuna and other targeted fish species. Sharks can have an enormous impact on commercial fishers not only by taking bait and depredating the catch but also by scaring fish away from baited hooks. These interactions often do not end well for some sharks and can have negative impacts on some populations. Through this cooperative tagging program, we are also working with fishers to identify non-lethal strategies for deterring sharks from baited hooks. We are seeking input from the community on ways to reduce lethal interactions.

Please send us your thoughts on the topic! Email: pacificsharktagger@gmail.com

Tagging instructions



1. SET UP TAG POLE (as shown at left).

2. TAG: Tag the shark at the base of the dorsal fin, with the tip of the tag anchor pointed towards the head. Try to get the tag into the dorsal musculature just under the dorsal fin (see figure below).

Avoid the gills, head, flank, and stomach areas.

3. RELEASE: Do not attempt to remove the hook if the shark has swallowed it or it is deeply hooked. Cut the line as close to the hook as possible. Please record the type and quantity of trailing gear left on the shark. Please also record the amount of time the shark was on the line (fight time).

Take photos or videos of your tagged shark if possible

Identification (ID) Tag

ID tag anchor (top)

ID tag number

pin fits through here

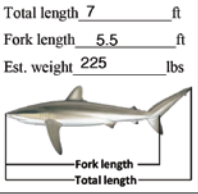
ID tag applicator pin



Required data

Please fill out the postcards completely and return promptly. Keep a copy of your data as postcards may get lost and we may try to contact you for additional information. You can also submit your report, interactions, and any photos online at www.sharktagger.org or by email: pacificsharktagger@gmail.com

We are interested in shark interaction rates, identifying involved species, and understanding the impact of depredation on the fishery and its participants. Any information that you can provide detailing these events will be very useful.

NOAA National Marine Fisheries Service		Please return card promptly ☺	
SHARK TAGGING REPORT		Send photos to pacificsharktagger@gmail.com	
PLEASE FILL IN DETAILS AND MAIL TODAY		TAG #: 1025	
Species: <u>Silky shark</u> , Sex: <input checked="" type="radio"/> M <input type="radio"/> F, Date: <u>10/08/18</u> , Time: <u>1420</u> , Location: <u>C buoy</u>			
Latitude: <u>19 23.1 N</u> N / S, Longitude: <u>155 59.2 W</u> W / E, FAD (if tagged at) <u>Yep at FAD</u>			
Angler Name/Address: <u>Melanie Hutchinson 1234 Sharktagger Dr</u>			
<u>Kailua Kona</u> , Zip <u>96732</u> , e-mail: <u>melanier@hawaii.edu</u> , Phone <u>808.927.3781</u>			
Hooked? <input checked="" type="radio"/> Y <input type="radio"/> N Hook type: <u>36 xxx Maruto</u> , Fight time: <u>20</u> min			
Did shark affect target species (e.g. depredation)? Y / N Bait type: <u>aku</u>			
Discard Method <u>Cut the line at the hook, tried getting hook back</u> trailing gear? <u>1</u> ft			
Release Condition: <input checked="" type="checkbox"/> Excellent <input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor <input type="checkbox"/> Dead			
Comments: <u>Bit the maki dog, was scaring fish away, took off after tagging</u>			
Please add e-mail or phone to address above			
			

***Tag numbers can be found at the tip of the ID tag as shown on the previous page

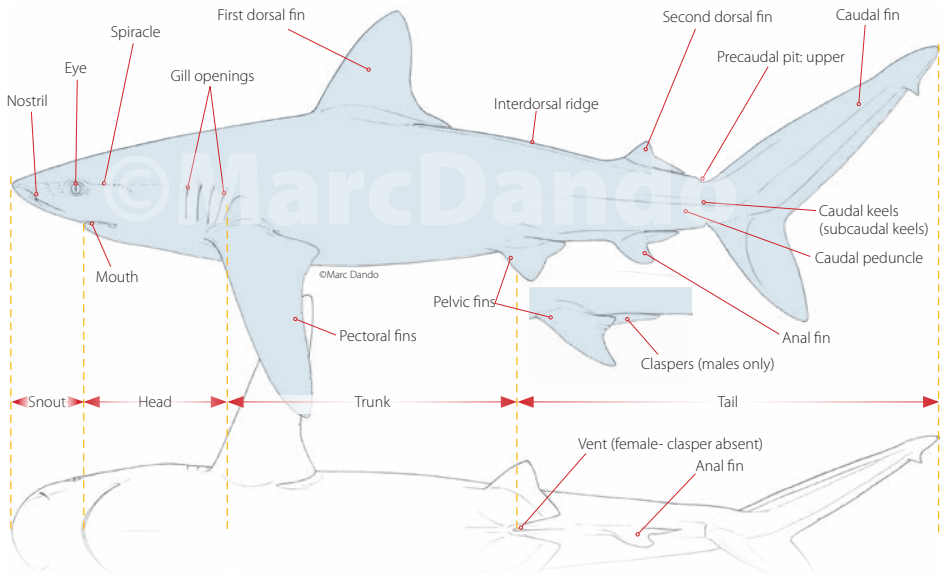
Taking photos to ease identification

Photos or videos that aid in the identification of sharks can be:

- Side profiles that show fin alignment
- Images of the dorsal surface that show presence or absence of an interdorsal ridge
- Images of the ventral surface to determine sex (presence or absence of claspers)
- Underwater footage is also useful!

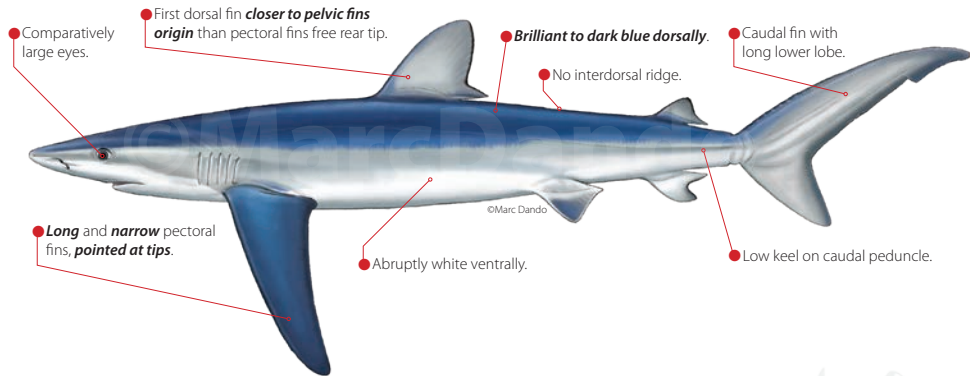


Description of physical characteristics used to distinguish shark species



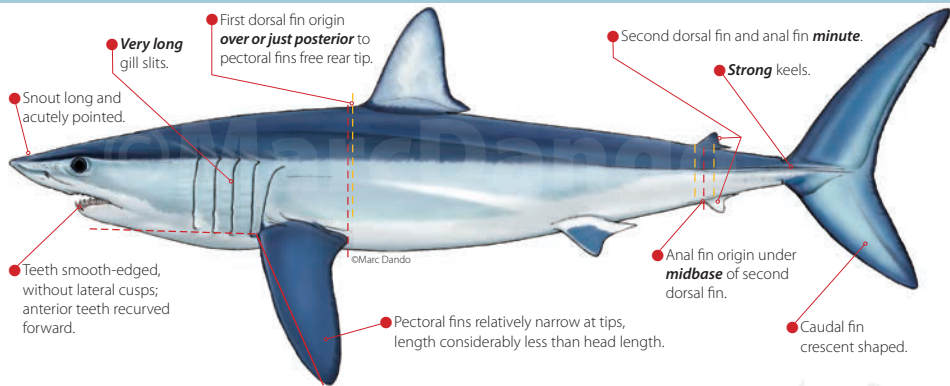
Ventral views of male/female genital area

BLUE SHARK, *Prionace glauca*



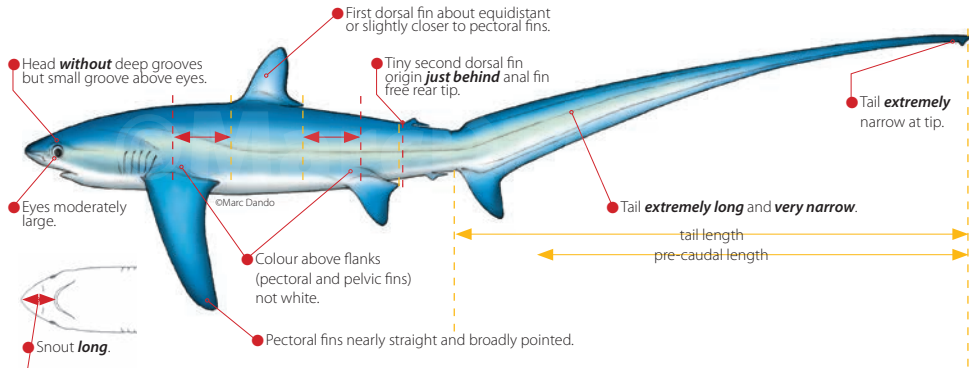
Slender-bodied shark with a long, rounded snout and large eyes. Vibrant blue color on back and sides, white below. Dorsal fin is rounded and sits low to the body. This species is highly migratory and is present in Hawaiian waters seasonally. Blue sharks are also the most commonly captured shark in longline fisheries worldwide. They are mature at age 7 and have an estimated lifespan of 20–33 years.

SHORTFIN MAKO SHARK, *Isurus oxyrinchus*



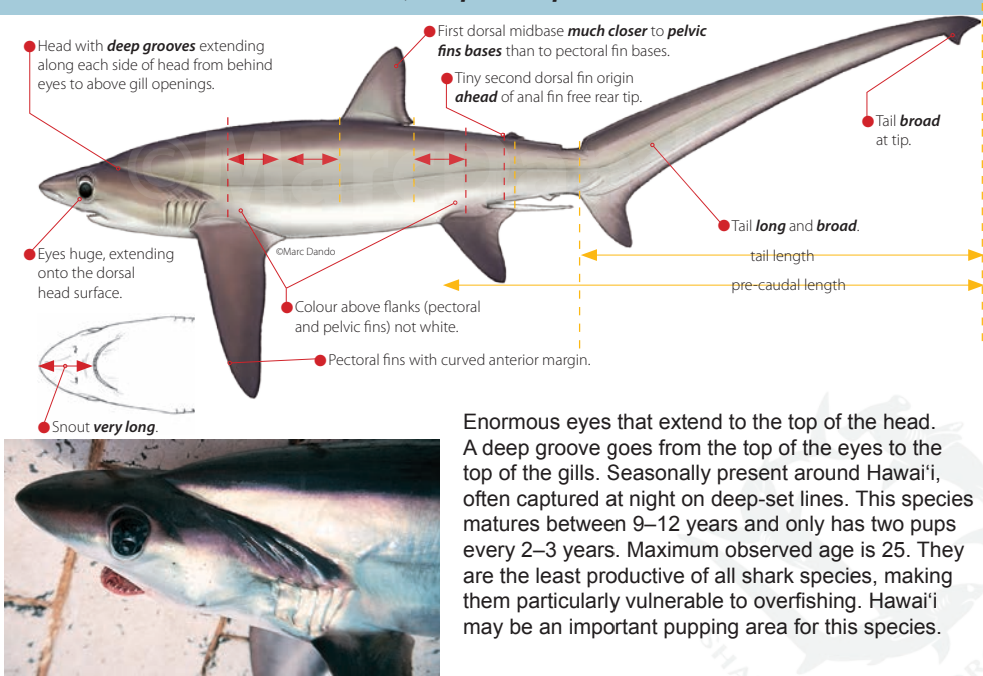
Streamlined, spindle-shaped body with a sharply-pointed tapering snout. Two strong ridges (keels) on either side of its crescent-shaped tail. Mako sharks are highly migratory and present seasonally in Hawai'i, also considered to be one of the fastest fish in the sea. Mako sharks utilize nursery areas for their pups and migrate to areas important for reproduction. They give birth once every three years. Age at first reproduction is thought to be between 9–21 years. They have a life-span of 25–40 years.

PELAGIC THRESHER SHARK, *Alopias pelagicus*



This is the smallest of the three thresher species. The Hawaiian name for threshers, Manō laukāhi'u, is given for their hard-hitting tails. This species is often encountered in the bottomfish and ika-shibi fisheries. They are also seasonal residents in Hawai'i. Age at maturity is 10–13 years. Life span has been estimated to exceed 24 years. This species is known to visit cleaning stations and has been photographed giving birth at seamounts and other oceanographic features. They give birth to 2 pups every year.

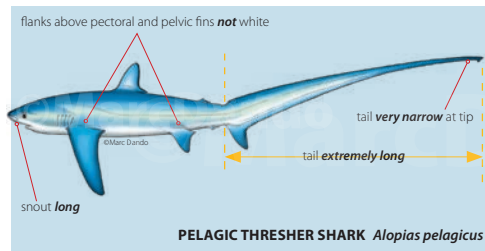
BIGEYE THRESHER SHARK, *Alopias superciliosus*



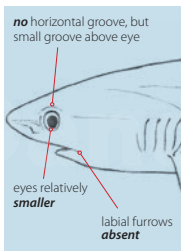
Enormous eyes that extend to the top of the head. A deep groove goes from the top of the eyes to the top of the gills. Seasonally present around Hawai'i, often captured at night on deep-set lines. This species matures between 9–12 years and only has two pups every 2–3 years. Maximum observed age is 25. They are the least productive of all shark species, making them particularly vulnerable to overfishing. Hawai'i may be an important pupping area for this species.

Similar species

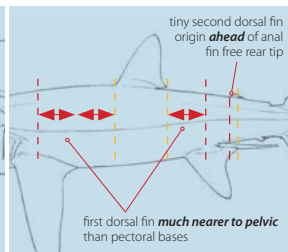
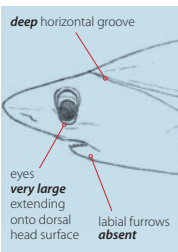
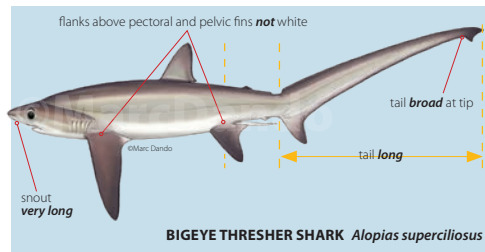
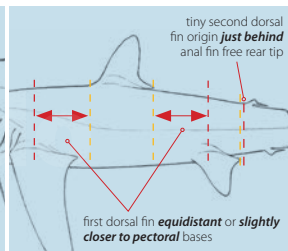
Colour on flanks above pectorals and pelvics and fin shapes



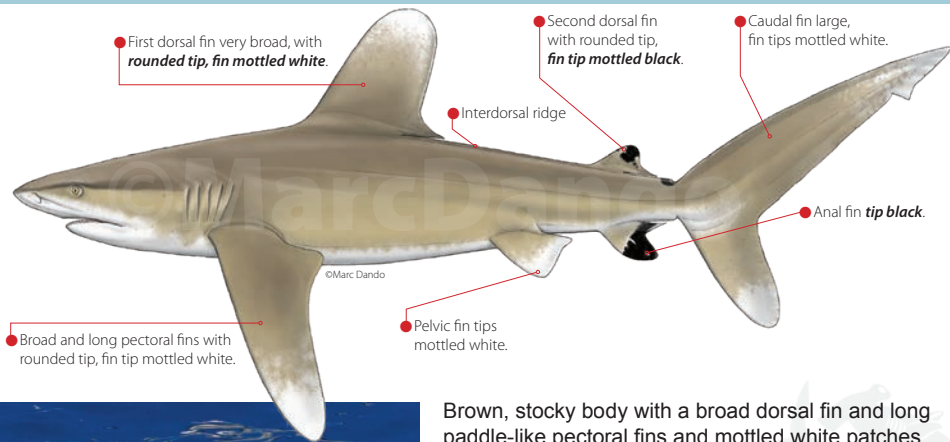
Lateral view of head



Dorsal fins positions

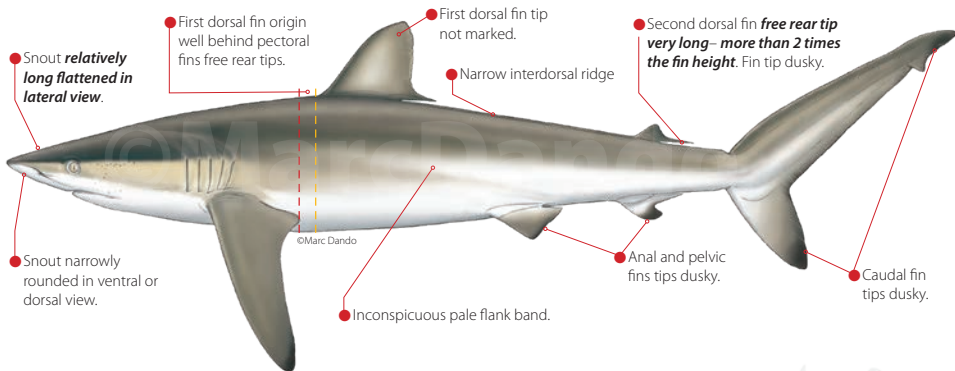


OCEANIC WHITETIP SHARK, *Carcharhinus longimanus*



Brown, stocky body with a broad dorsal fin and long paddle-like pectoral fins and mottled white patches on the tips of the fins. Highly migratory with regional site fidelity, also known to associate with drifting objects and anchored FADs. They are also seasonally abundant around Hawai'i. This species was listed as threatened in 2018 under the U.S. Endangered Species Act. This project is focused on finding strategies to reduce fishing mortality to this species.

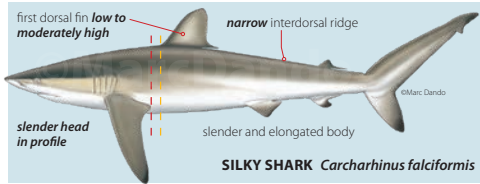
SILKY SHARK, *Carcharhinus falciformis*



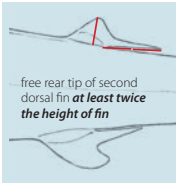
Sleek body with light-brown to gray brown coloration on back and sides and white underside. First dorsal is low, very rounded, and behind the pectoral fins. Small, narrow interdorsal ridge. An oceanic species found over deeper water, known to aggregate at FADs. Matures around age 10 with a life-span of 22+ years. This is the most commonly captured shark in tuna purse seine fisheries. Its retention is prohibited in high seas fisheries due to population declines from overfishing.

Similar species

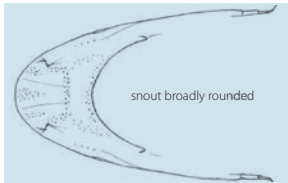
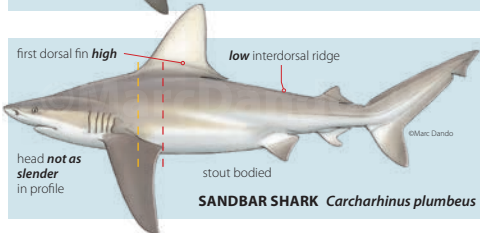
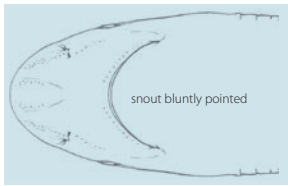
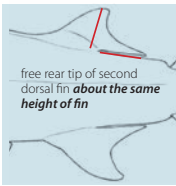
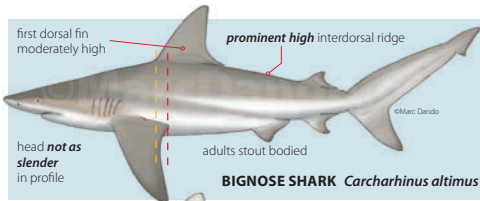
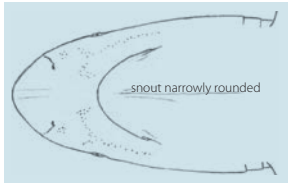
Pectoral fins free rear tip and first dorsal fin origin positions



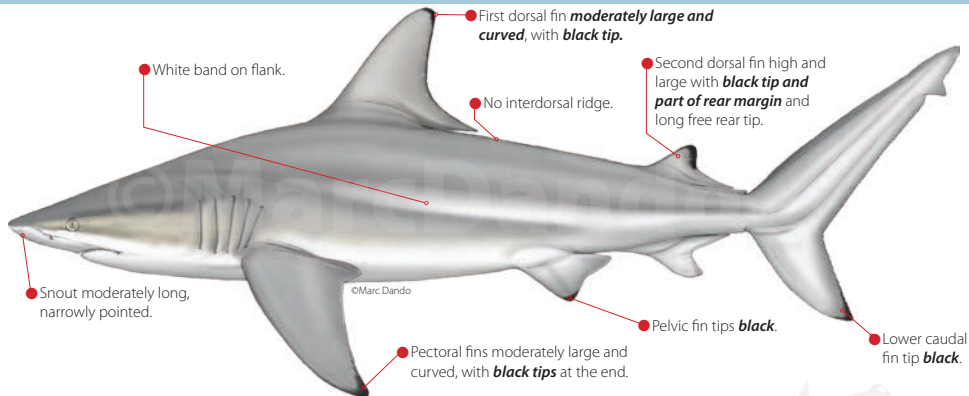
Second dorsal fin



Ventral view of head



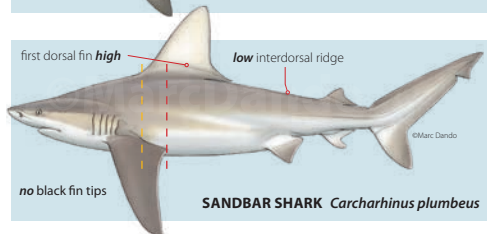
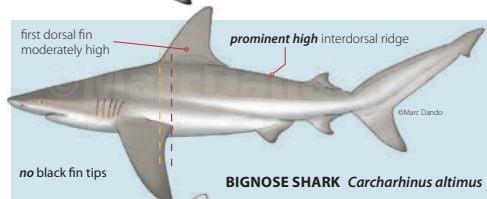
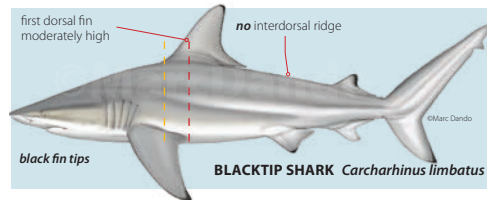
BLACKTIP SHARK, *Carcharhinus limbatus*



Stout bodied shark with gray to brownish coloration. There is a conspicuous white band on the flank with small black markings at the tips of the fins. No interdorsal ridge. Age at maturity ranges from 6–11. Often found in segregated schools of all male or all females over deep water near coastal shelves. They use shallow inshore areas as nursery and mating grounds such as Kāne’ohe Bay.

Similar species

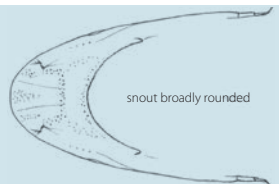
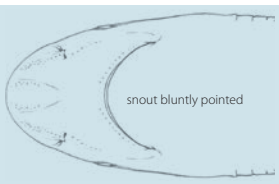
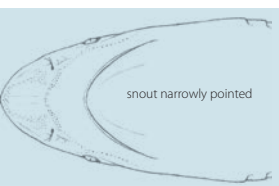
Pectoral fins free rear tip and first dorsal fin origin positions



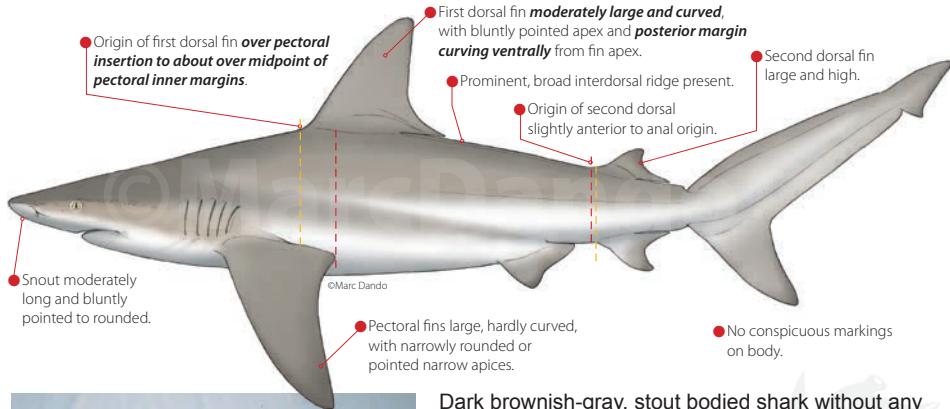
Second dorsal fin



Ventral view of head



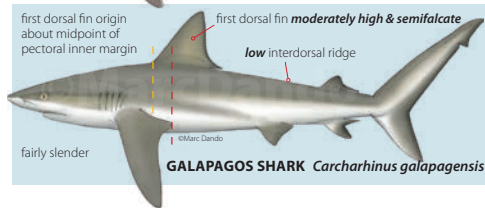
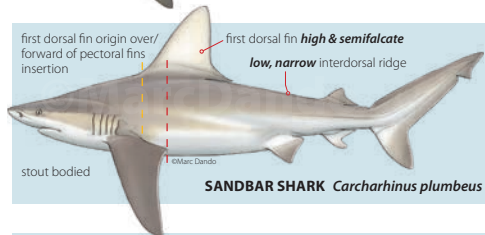
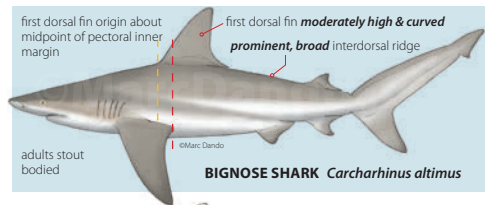
BIGNOSE SHARK, *Carcharhinus altimus*



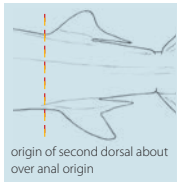
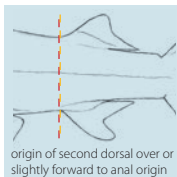
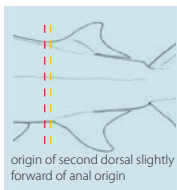
Dark brownish-gray, stout bodied shark without any conspicuous markings. A large, prominent interdorsal ridge is present. Snout is long, broad and bluntly pointed. In Hawai'i they are captured over deeper water adjacent to coastal shelves. They feed mostly off the bottom of deep water and diet consists of bony fish, cephalopods and sharks. They are rarely encountered and or often misidentified so there is not very much information available about this species' habitat use or biology around Hawai'i.

Similar species

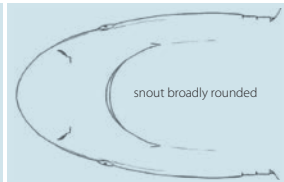
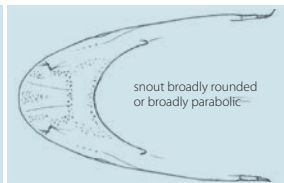
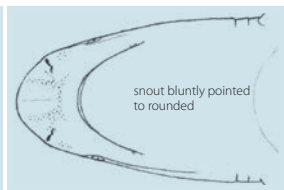
First dorsal fin position



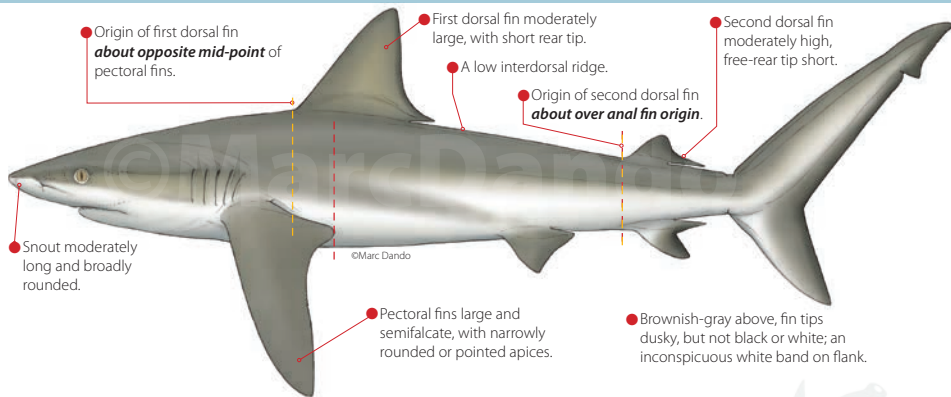
Second dorsal & anal fins



Ventral view of head



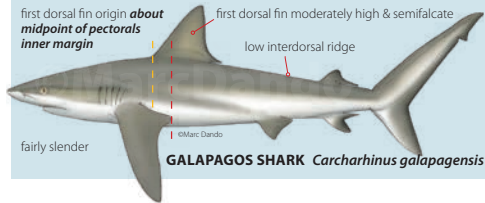
GALÁPAGOS SHARK, *Carcharhinus galapagensis*



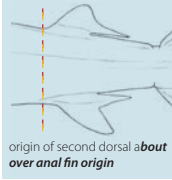
Large shark that reaches over 12 feet in total length. Dorsal fin is tall with a straight trailing edge. Small interdorsal ridge is present. Pectoral fins have a curved trailing edge. Abundant around oceanic islands feeding on bottom dwelling bony fish, cephalopods, and sharks. They have 4–12 pups every 2–3 years.

Similar species

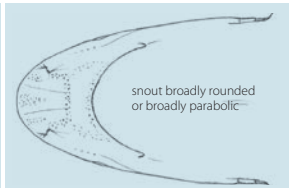
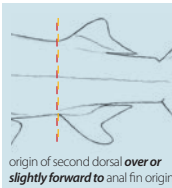
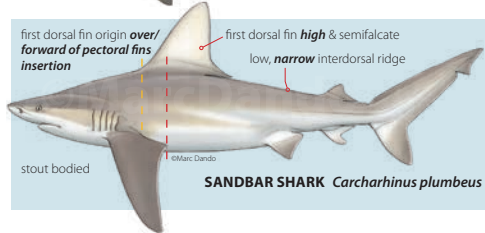
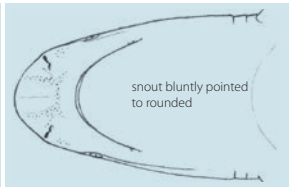
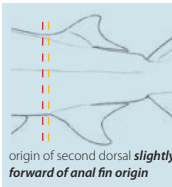
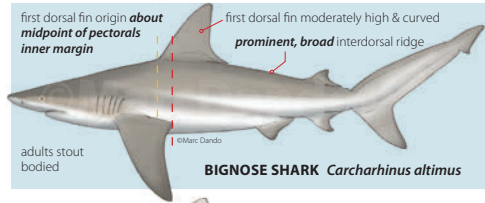
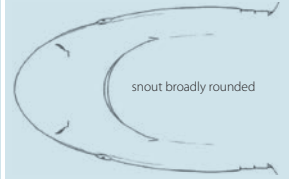
First dorsal fin nearer to pelvic fins than pectoral fins



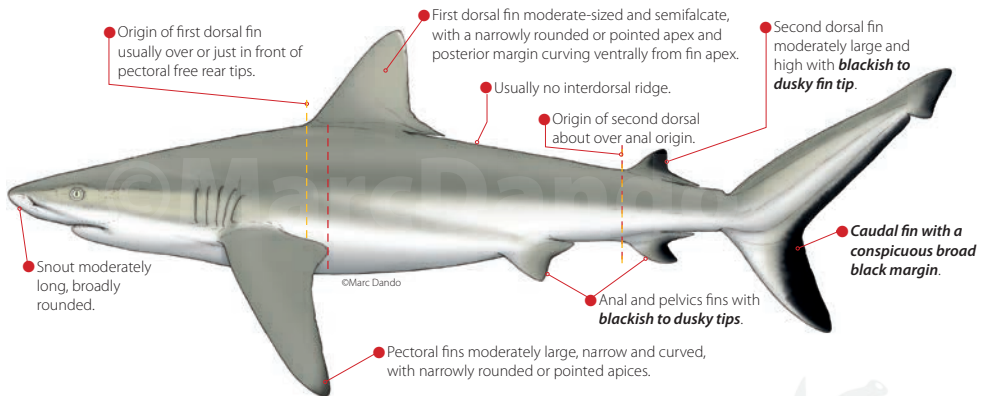
Second dorsal & anal fins



Ventral view of head

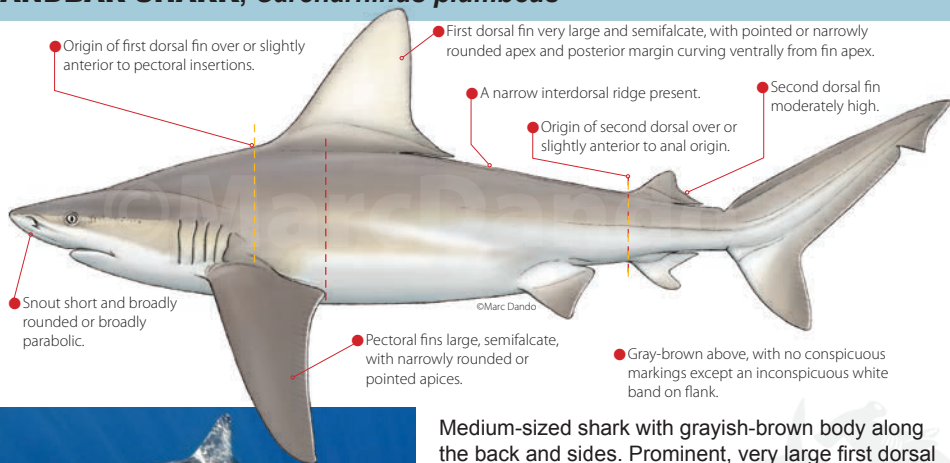


GREY REEF SHARK, *Carcharhinus amblyrhynchos*



Medium-sized gray shark. Prominent black margin along trailing edge of tail, with dark tips on second dorsal and anal fins. No interdorsal ridge. Commonly found in schools near coral reefs. More active at night. Age at first maturity is around 7 and lifespans range from 18–25 years.

SANDBAR SHARK, *Carcharhinus plumbeus*



Medium-sized shark with grayish-brown body along the back and sides. Prominent, very large first dorsal fin that sits in line with the origin of the pectoral fins. Interdorsal ridge present. This species is the most abundant species around Hawai'i. They use specific pupping sites as nursery areas for their young. Adults segregate by sex and conduct seasonal migrations around the islands. This species prefers small fish and crustaceans so interactions with pelagic fishers should be rare.

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and the Hawai'i Institute of Marine Biology at the University of Hawai'i.**



**NOAA
FISHERIES**