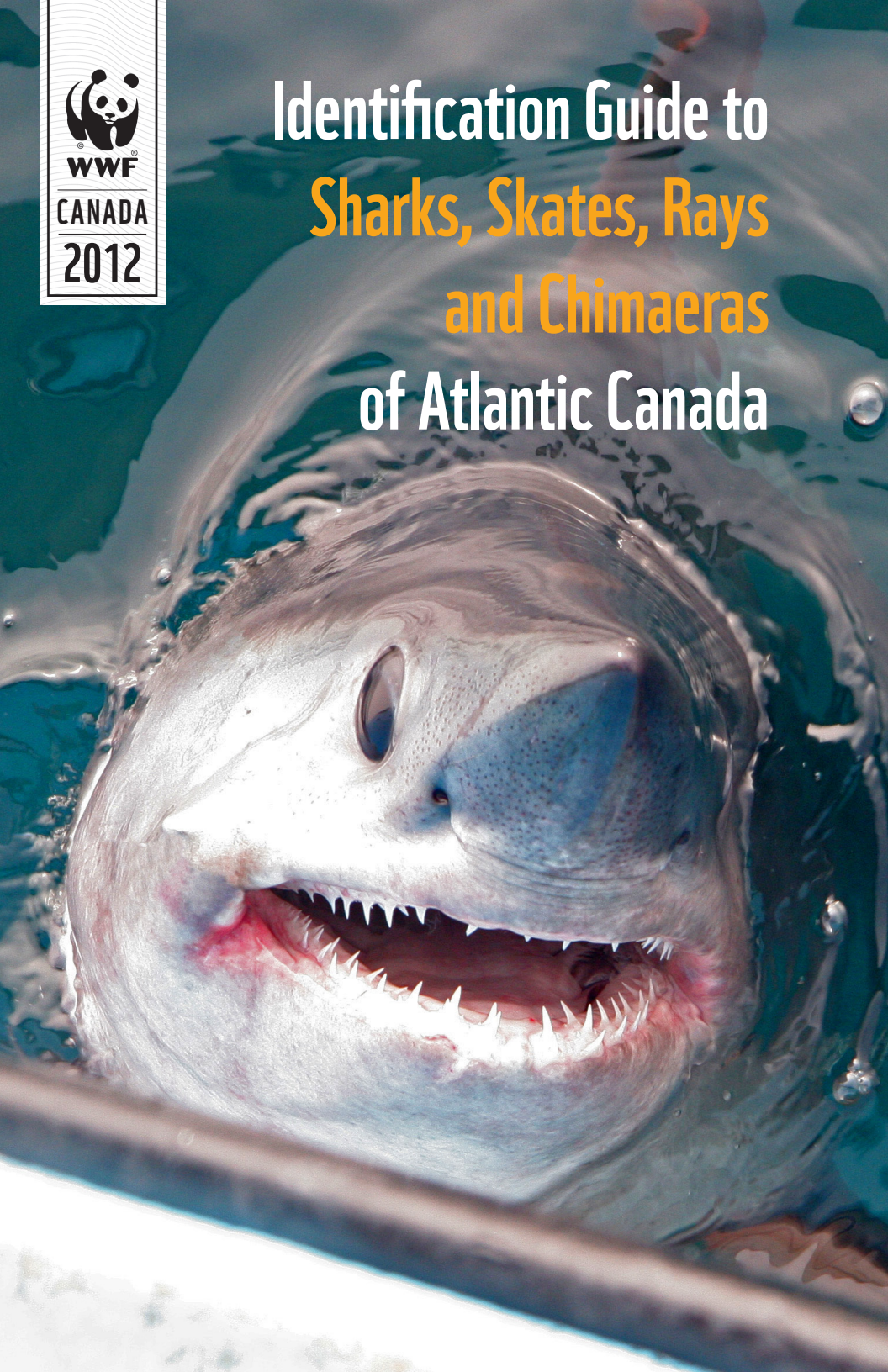




Identification Guide to Sharks, Skates, Rays and Chimaeras of Atlantic Canada



Written by:

Jarrett Corke

Front cover: Porbeagle shark (*Lamna nasus*) by Dr. Steven Campana, BIO

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Acknowledgements

This guide is as much a new identification guide as it is a synthesis of information from a number of sources. All the work that preceded this document is respectfully acknowledged.

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How to use this guide

This identification guide is meant as a tool to help assist at-sea observers and fishermen, both commercial and recreational, to quickly and accurately identify most species of sharks, skates, rays and chimaeras that they may encounter.

While species-specific information is provided, this guide is not meant to provide detailed information regarding the biology, behaviour or ecology of these species. Only the information necessary to make accurate and timely species identification.

This guide uses at-sea or scientific photographs wherever possible: such as species photographed on-deck, over a vessel's rail, or from the view of a boat; in order to display what the species may look like out of the water. These types of photos were used to display what the species may look like out of water in a real identification scenario.

Like most species, the appearance of sharks, skates, rays and chimaeras may change with growth and maturity (e.g., body size, external colouration, skin markings or pigment patterns, etc.). Therefore, do not assume that the photographs displayed in this guide represent the *only way* in which these species may appear.

This guide contains:

Introduction

- An overview of shark, skate, ray and chimaera species reported in Atlantic Canadian waters.
- External characteristics and key distinguishing features for each sub-group of species (e.g., teeth for sharks, thorns for skate, etc.).

Species Sections

- Provides detailed species-specific information for all sharks, skates, rays and chimaeras reported in Atlantic Canadian waters. Species are listed within their own sub-group by alphabetical order.
- Species-specific characteristics are provided in addition to other important information including description (e.g. physical features, colouration), body size (e.g., at birth, average, maximum), habitat (e.g., depth range), distribution (e.g., geographic range).
- Species distribution maps were taken from the International Union for the Conservation of Nature (IUCN) Red List. These maps represent an accumulation of knowledge derived from previously published information.

- Colour tabs in the top right-hand corner of the page are a quick reference to a species' occurrence (e.g., common, occasional or rare) in Atlantic Canadian waters and/or whether their identification may be problematic. If the ID tab (below-right) is present, this indicates that this species is often confused with another species. For these species, refer to the *Problematic Identification* section (pg. 102). Canadian species conservation status, as either assessed by the Committee On the Status of Endangered Wildlife In Canada (COSEWIC) and/or as listed on Schedule I of Canada's Species At Risk Act (SARA) are also provided.

Common

Occasional

Rare

ID

Problematic Identifications

- This section provides detailed information about commonly mistaken or misidentified species. Similarities and differences between these problematic species are discussed in detail to aid correct identification of species.

Egg Capsules

- Provides available species-specific information on egg capsules, or “mermaid’s purses”, of all species (3 chimaeras, 1 shark, 14 skates) that are “oviparous”, or producing young by means of eggs that are hatched after they have been laid by the parent, in Atlantic Canadian waters.

Important!

If you cannot confidently identify a species of shark, skate, ray or chimaera by using this guide, it is recommended that digital photographs and specimens be obtained and frozen/put on ice.

Please contact WWF-Canada to determine the appropriate regional research staff for assistance:

WWF-Canada
 5251 Duke Street,
 Halifax, Nova Scotia
 1 (902) 482-1105
jcorke@wwfcanada.org



Introduction

Chondrichthyans of Atlantic Canada

42

Forty-two species of sharks, skates, rays and chimaeras have been reported in Atlantic Canadian waters

Chondrichthyans, which include sharks, skates, rays and chimaeras are one of the most diverse groups of fish and belong to the oldest evolutionary inhabitants in the ocean. While hundreds of species are known to exist, an estimated 42 species have been reported in Atlantic Canadian waters.

To be specific, 21 species of shark, 14 species of skate, four species of ray and three species of chimaera can be found in Atlantic Canadian waters. These species include both year-round residents and occasional or rare visitors to our waters.

8

Eight species have been scientifically assessed by the Committee on the Status of Endangered Wildlife in Canada

As there is a diversity of chondrichthyans in Atlantic Canadian waters, each plays a unique and vital role in maintaining a healthy ocean. Large, apex predators, such as the Porbeagle and Shortfin Mako Sharks, occupy the top of the food chain and play an important role in keeping ecosystems in check. Other species, such as dogfish and skates, inhabit the ocean depths occupying a position much lower on the food chain.

1

One species has been listed under the *Species At Risk Act* in Atlantic Canadian waters

Many of these species have been recognized as being particularly vulnerable to overfishing due to their life history characteristics which include slow growth, late maturity, produce few offspring and long life. Large open-water ('pelagic') species are among the most threatened with 60% being threatened with some form of extinction globally.

In the past half century, these species have been subject to increasing fishing pressures - much of it unreported and unmanaged - which has caused, in

Atlantic Canada

Geographical area of focus for this identification guide.



some cases, populations to decline by as much as 90%. The loss of these species may have far-reaching consequences for marine ecosystems.

While few of these species are directly targeted by commercial fisheries in Atlantic Canada, with the exception of Porbeagle Shark, Spiny Dogfish, and Thorny Skate, many are caught as “bycatch”. Bycatch, which refers to the unintentional capture of a species while targeting another, has been identified as the most significant threat to chondrichthyans in Atlantic Canadian waters. While bycatch may only be a minor part of some fishing operations, bycatch in other fisheries may account for as much as 50% of the total catch, of which sharks or skates make up the bulk of the species caught.

Recreational shark fishing is also common in Atlantic Canada and covers three types of fishing: catch and release angling, fishing on shark charters, and shark derbies (the only time a shark may be retained recreationally). The recreational shark fishery is based primarily on blue sharks; however, porbeagle, shortfin makos and thresher sharks are occasionally caught.

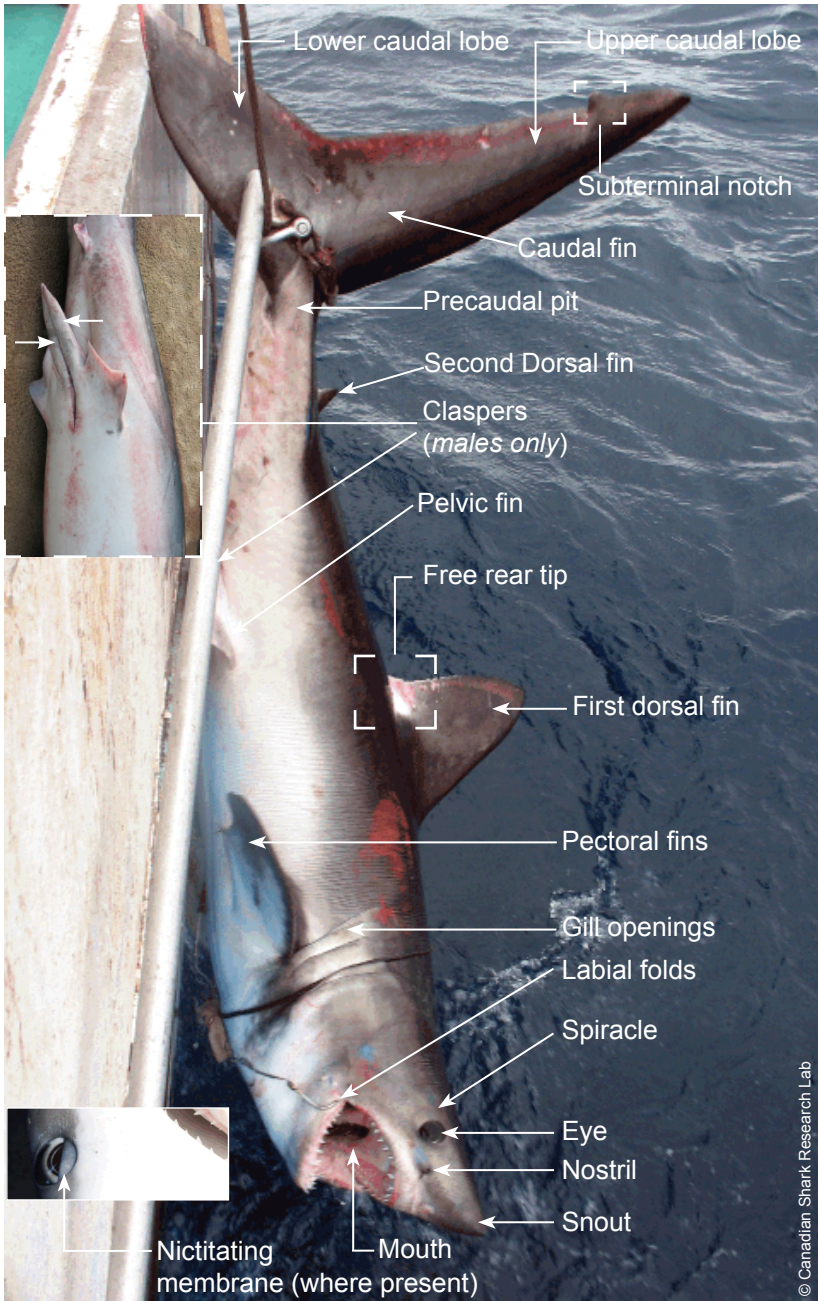
Conservation and protection of this species group has been particularly slow in Atlantic Canada. As of May 2012, eight species have been assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), an independent scientific committee that assesses the level of risk of extinction (disappeared globally) or extirpation (disappeared in Canada, but exists elsewhere) of wild Canadian species. Despite several of these being considered at risk, only the “great” white shark - a species that only occurs occasionally in Atlantic Canada - has been listed on Schedule I and therefore federally protected under Canada’s *Species At Risk Act* (SARA).

Issues surrounding these species and their relatives are not unique to Canada, but instead illustrate the broader issues of global conservation and management; indicating that there is still much to be done to safeguard these species.

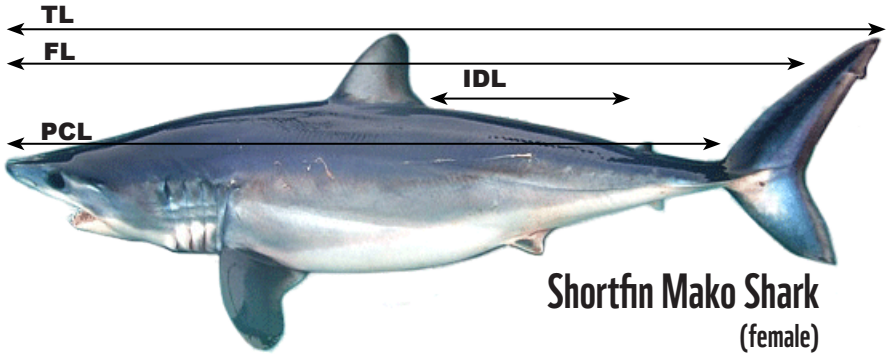


Porbeagle Shark
(*Lamna nasus*)

Characteristics of Sharks



Porbeagle Shark (male)



Measures of Length

Total length (TL): Tip of the snout to the tip of the tail.

Fork length (FL): Tip of the snout to the fork of the tail.

Precaudal length (PCL): Tip of the snout to the precaudal notch (sometimes referred to as Body Length (BDL)).

Inter-dorsal length (IDL): First dorsal to second dorsal fin.



White Shark

Teeth

The shape, number and appearance of shark teeth vary considerably among species, and can be one of the most important features for species identification.

However, tooth appearance can also differ between the upper and lower jaw, and from front to back, for any given species.



Porbeagle Shark



Shortfin Mako Shark



Blue Shark

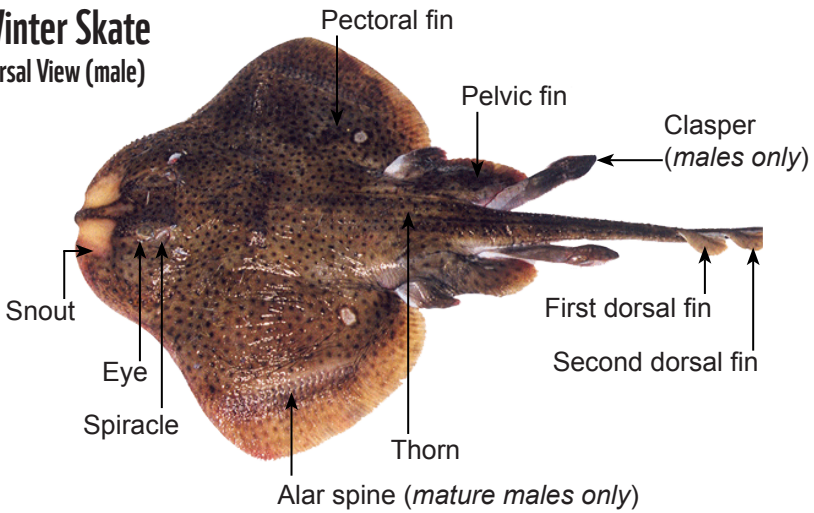
Characteristics of Skates and Rays

Skates and rays can be difficult to differentiate, as external features of both are similar, as indicated on a winter skate below.

Although differences are often subtle, all species of skate and ray possess unique features such as patterns of thorns and/or spines, species specific markings and colouration or pigmentation which are unique to the species. These characteristics can be used to distinguishable between the two.

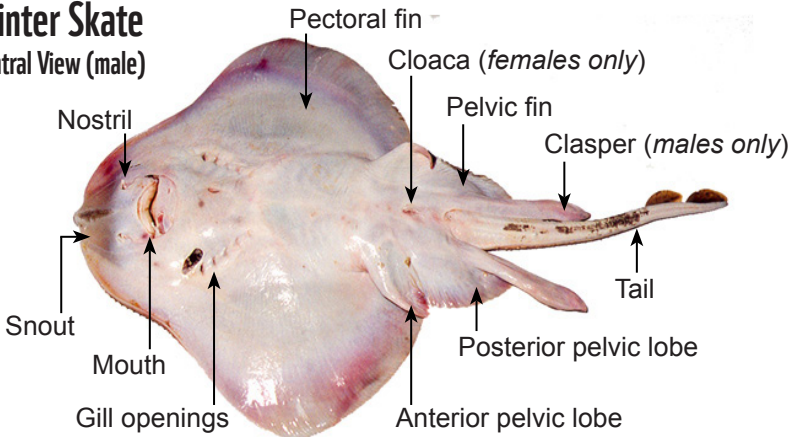
Winter Skate

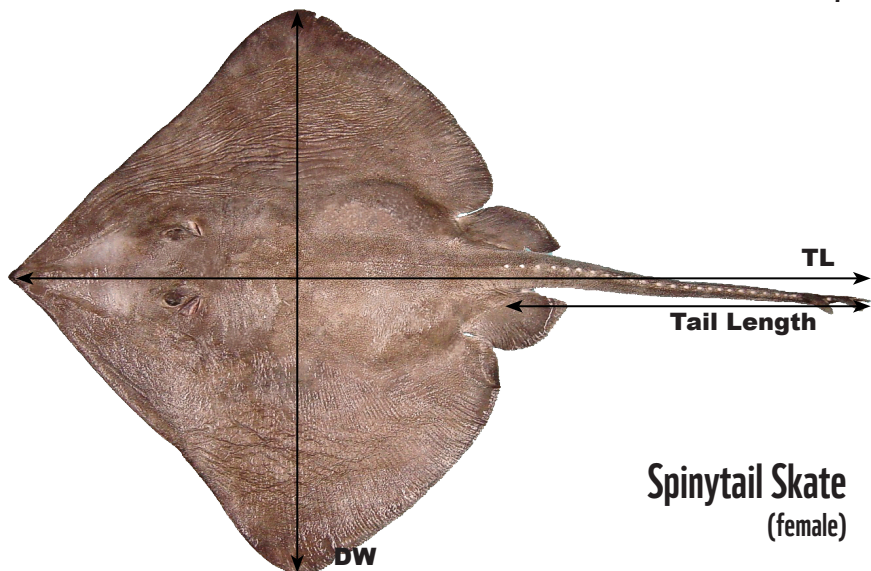
Dorsal View (male)



Winter Skate

Ventral View (male)





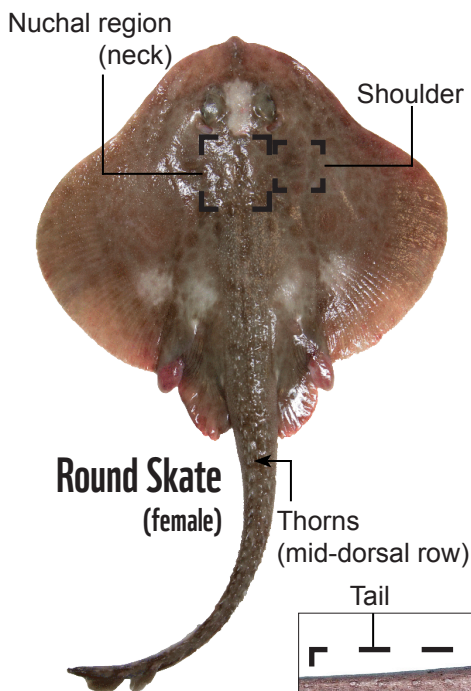
Spinytail Skate
(female)

Measures of Length

Tail Length: Distance from center of cloaca to tip of tail.

Total length (TL): Tip of snout to tip of tail.

Disc Width (DW): Distance between tips of pectoral fins (or wings).



Round Skate
(female)

Thorns, Spines and Spinules

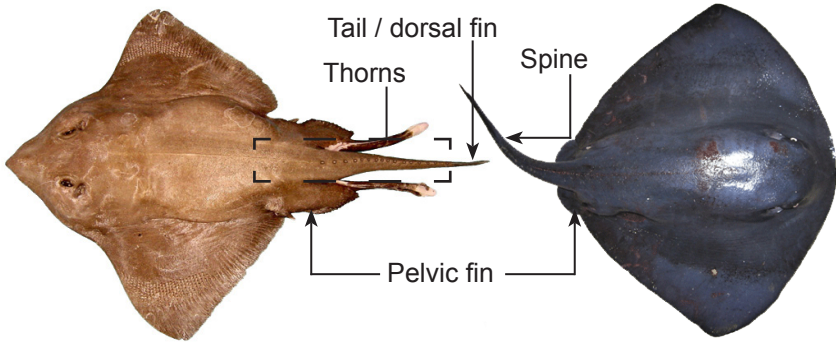
Thorns: Many skates have a median or mid-dorsal row of large thorns that may extend from the nuchal region to the first dorsal fin (tail shown below). Thorns may also be present on other areas: e.g., nuchal region; on shoulders; along both sides of the tail (left).

Spines: Most skates have numerous small thorn-like structure either all over their upper surface or on certain areas (e.g., flanking the mid-dorsal row of thorns).

Spinules: Numerous, very small spines, or prickles.



Skate or Ray?



	Skate	Ray
Thorns	<ul style="list-style-type: none"> • Most have enlarged thorns along the midline of the back extending onto the tail. 	<ul style="list-style-type: none"> • No thorns along the midline of the back.
Pelvic fins	<ul style="list-style-type: none"> • Pelvic fins have two lobes. 	<ul style="list-style-type: none"> • Each pelvic fin has only one lobe.
Tail/ dorsal fin	<ul style="list-style-type: none"> • Tail relatively broad without a stinging barb, and usually with two small dorsal fins near its tip. 	<ul style="list-style-type: none"> • Tail is slender and whip-like with a stinging spine midway along its length usually without a dorsal fin. • When a dorsal fin occurs, it is near the base of the tail.
Mature males	<ul style="list-style-type: none"> • Mature males have enlarged spines near the eyes and pectoral wingtips. 	<ul style="list-style-type: none"> • Mature males do not have enlarged spines near the eyes and pectoral wingtips.

Identification keys adapted from the Skates and Rays of Atlantic Canada website developed by the Canadian Shark Research Lab, Bedford Institute of Oceanography (DFO – NS) and the Marine Fish Species at Risk Section, Northwest Atlantic Fisheries Center (DFO – NL).

Chimaera Species





Deepwater Chimaera

(*Hydrolagus affinis*)

Common Names

Small-Eyed Rabbitfish, Chimère de Profondeur (fr)

Description

- Body greatly tapering from a massive head to a pointed caudal fin; smooth skin (except for denticles on male organs); short, conical snout; short-based first dorsal; lacks a separate anal fin
- **Colour:** Uniform dark violet/brown; fins somewhat paler but with dark edges

Size (cm)

Average Size:

32-147 cm (TL); 14-96 cm (BDL)

Maximum:

Female - 125 cm (TL)

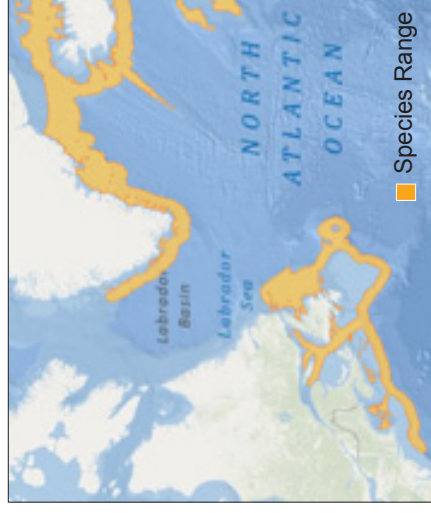
Male - 130 cm (TL)

Habitat

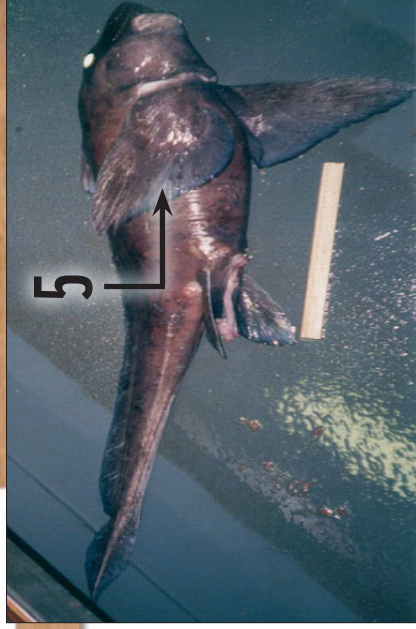
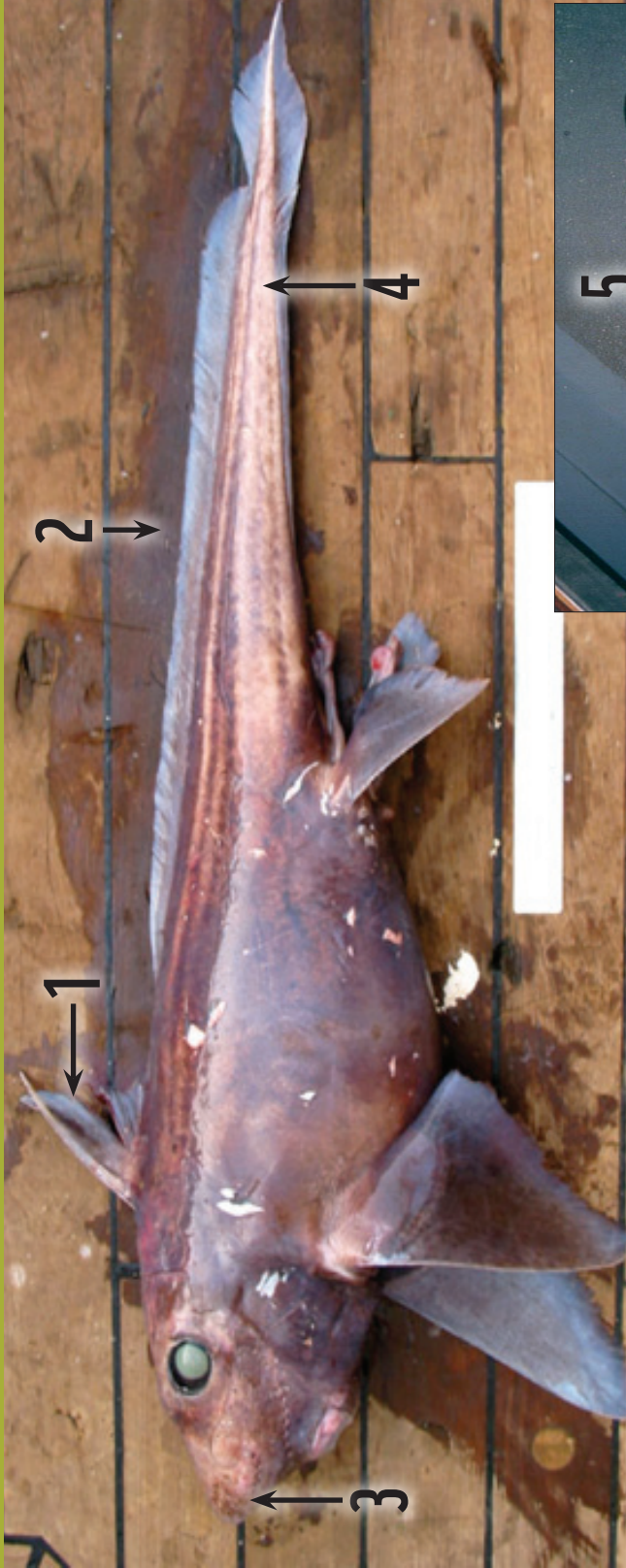
- Occurs in deepwater on continental slopes, seamounts, and seaplains of the North Atlantic
- **Depth:** 300-3000 m; commonly below 1000 m

Distribution

- Ranges from southern Greenland to Newfoundland, Flemish Cap, along the Grand Banks and Scotian Shelf, Gulf of St. Lawrence and edge of Georges Bank to Cape Cod in USA
- Probably has a much wider distribution with greatest abundance at depths greater than 1000 m



Species Range



Identification Keys

- 1 - First dorsal fin is triangular and high with a distinct spine in front (fin and spine of equal size)
- 2 - Second dorsal fin long, continuous to upper caudal fin
- 3 - Short, somewhat conical snout; overhanging the mouth
- 4 - Anal fin continuous with caudal fin; the lower lobe continues forward as a low fleshy ridge
- 5 - Pectoral fins not reaching the pelvic fin base when laid back

Common Names

Straight Nose Rabbitfish Chimère Couteau (fr)

Description

- Long, narrow, moderately flattened, pointed snout; smooth, sharp-edged tooth plates; narrow pectoral fins; caudal fin with very short terminal filament and wide-spaced tubercles on upper edge
- **Colour:** Uniformly pale brownish to whitish, fins somewhat darker



Knifenose Chimaera

(*Rhinochimaera atlantica*)

Size (cm)

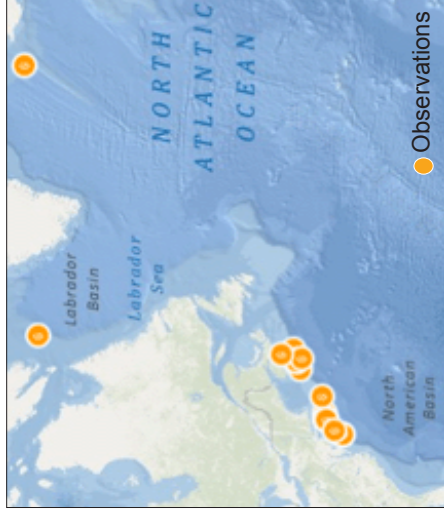
Maximum: 140 cm (TL); 90 cm to end of second dorsal fin

Habitat

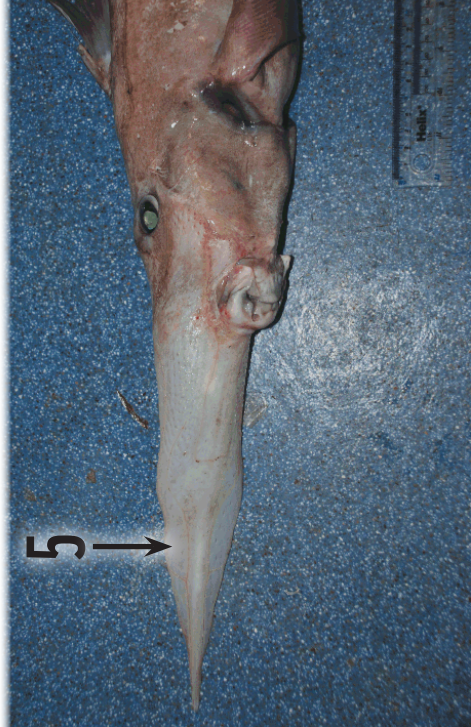
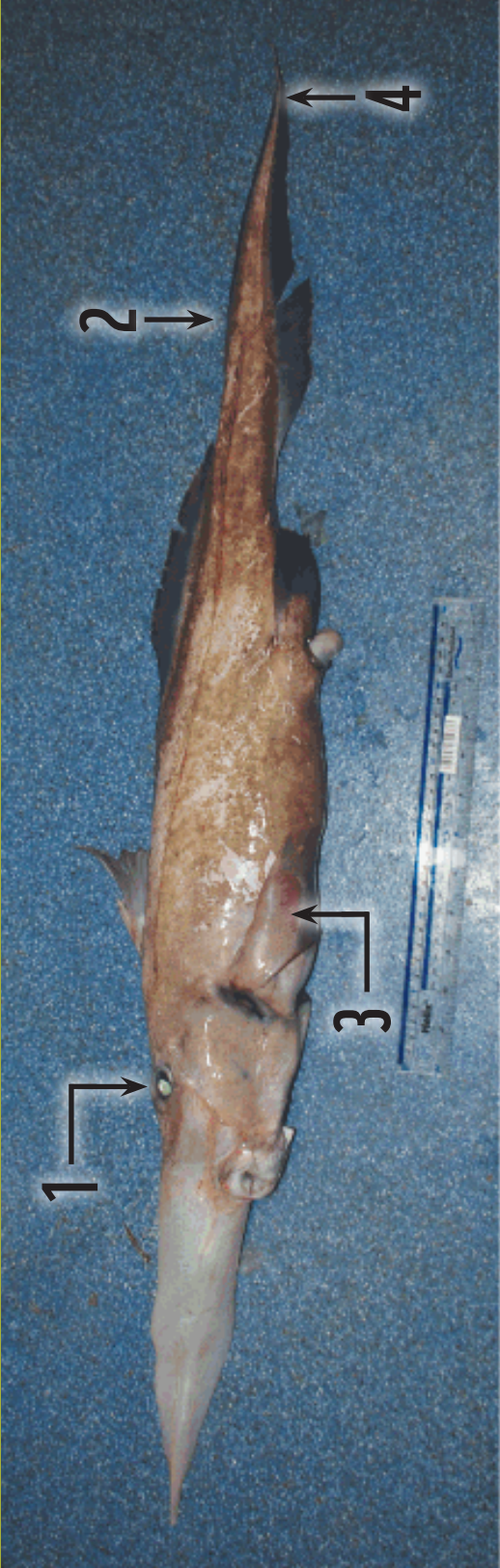
- Occurs on or near the bottom of continental slopes, likely on muddy or rubble / rock bottoms
- **Depth:** ~ 500-1500 m

Distribution

- Ranges from off Nova Scotia to New England, USA
- May be more widespread and abundant in deeper waters



Observations



Identification Keys

- 1 - Eyes relatively small; placed behind level of the mouth
- 2 - Upper lobe of caudal fin with 25-30 relatively "tubercles" or knob-like projections, in a single or paired line (mainly in half-grown to adult males; less noticeable or absent in juveniles and females)
- 3 - Narrow pectoral fins
- 4 - Filament present at tip of caudal fin (at most 10% of length of second dorsal fin)
- 5 - Long, narrow snout

Common Names

Bent Nose Rabbitfish, Bigspine Spookfish, Narrownose Chimaera, Chimère Spatule (fr)

Description

- Long, narrow, depressed snout; small eye situated above or behind the mouth; long first dorsal fin and spine; no separate anal fin
- **Colour:** Uniformly dark brown or blackish in color; fins edged darker, pelvic fins blackish



Longnose Chimaera
(*Harringtonia raleighana*)

Size (cm)

Maximum:

Female - 102.5 cm (TL)

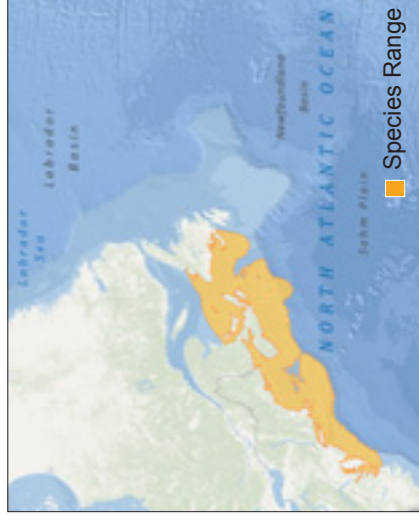
Male - 120 cm (TL)

Habitat

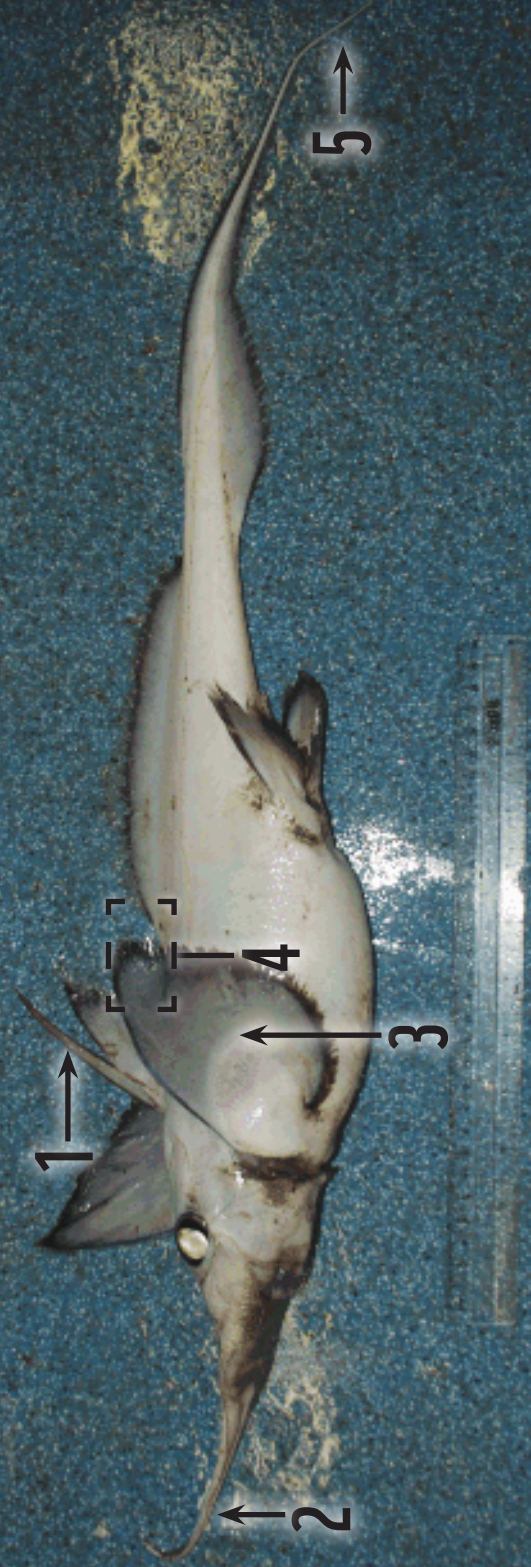
- Occurs primarily in deepwater on continental slopes, likely on the ocean floor
- **Depth:** 200-2600 m

Distribution

- Species ranges from southwestern Newfoundland, Gulf of St. Lawrence and around Nova Scotia to Chesapeake Bay in USA



Species Range



Identification Keys

- 1 - First dorsal fin with distinct long, spine
- 2 - Snout tip long, pointed and bent upward
- 3 - Pectoral fins wide and long, their tips reaching beyond pelvic fin origin
- 4 - Space between first and second dorsal fins shorter than base of the first dorsal
- 5 - Upper edge of caudal fin without tubercles; lower lobe about twice as deep; fin ends in a long filament (up to a third TL if undamaged)
- 6 - Eyes moderate and placed above the mouth



Shark Species



Common Names

Newfoundland Shark, Sharp-Nosed Shark
Requin à Nez Pointu (fr)

Description

- Small coastal shark; long snout, which is longer than the width of the mouth
- **Colour:** Brown, olive-gray or blue-gray turning to white underneath

Size (cm)

At Birth: 25-35 cm

Average Size: 60-75 cm

Maximum: 120 cm

Habitat

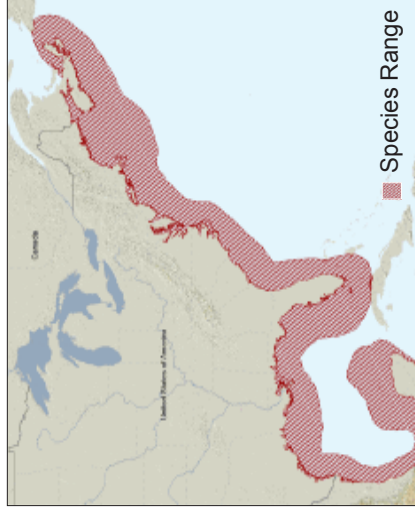
- Often found in enclosed bays, sounds, harbours, and marine to brackish estuaries
- **Depth:** 10-280 m; usually found in coastal water except during winter when it is found at depths greater than 27 m

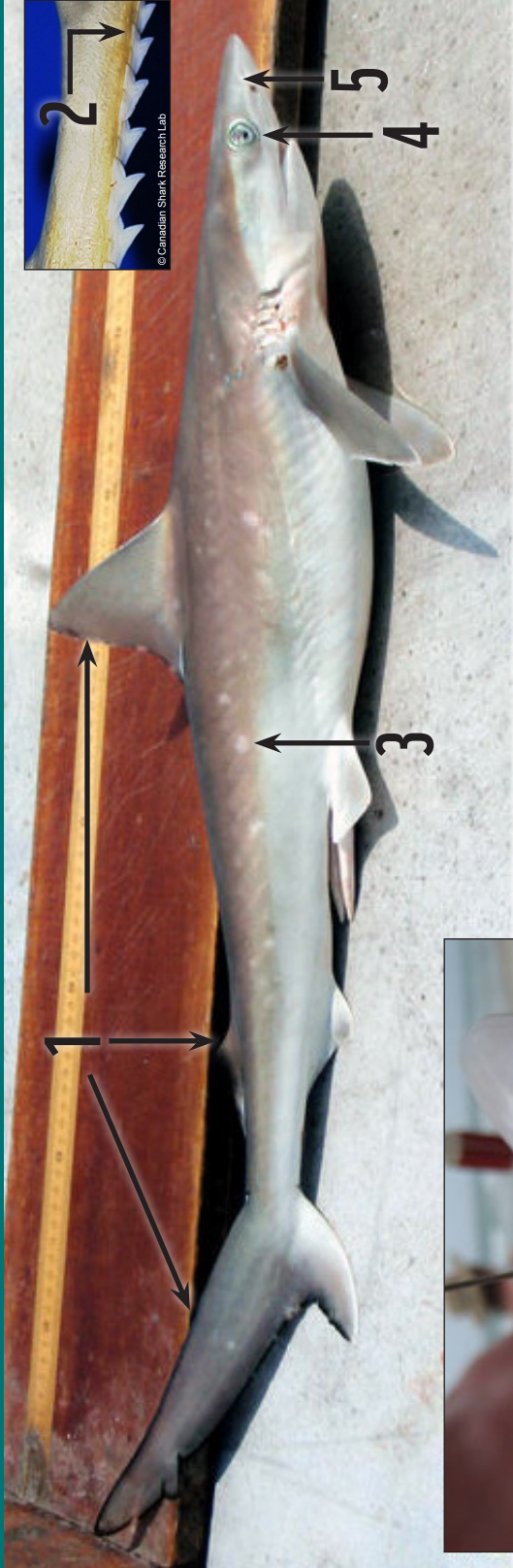
Atlantic Sharpnose Shark

(*Rhizoprionodon terraenovae*)

Distribution

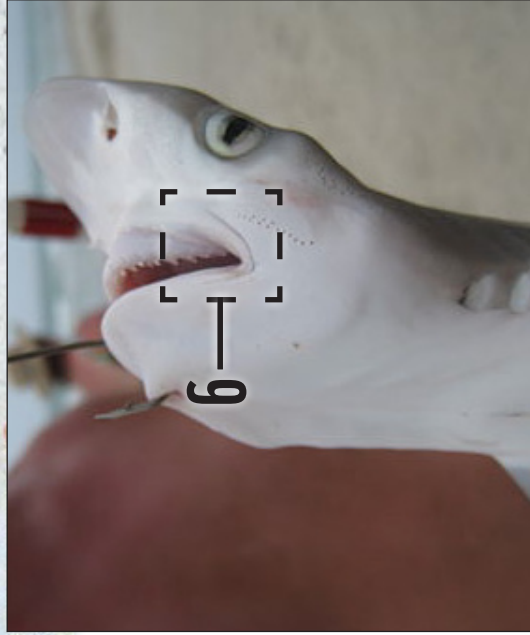
- Not a common shark in Atlantic Canadian waters
- Its most northerly distribution is the Bay of Fundy through to the Gulf of Mexico as well as along the coast of Brazil





Identification Keys

- 1 - May have black edged dorsal and caudal fins
- 2 - Triangular smooth edged teeth
- 3 - Most adults have white spots or splotches on their sides
- 4 - Nictitating membrane over eye
- 5 - Long, rounded snout
- 6 - Long labial furrows around corner of mouth





Basking Shark

(*Cetorhinus maximus*)

Size (cm)

Juvenile: 165 cm

Average Size: 7-9 m

Maximum: 10 m

Habitat

- Occurs in coastal and oceanic waters; commonly seen at or near the surface
- Often seen during the summer and fall (May to September) near and around the coastline
- **Depth:** 0-2000 m

Distribution

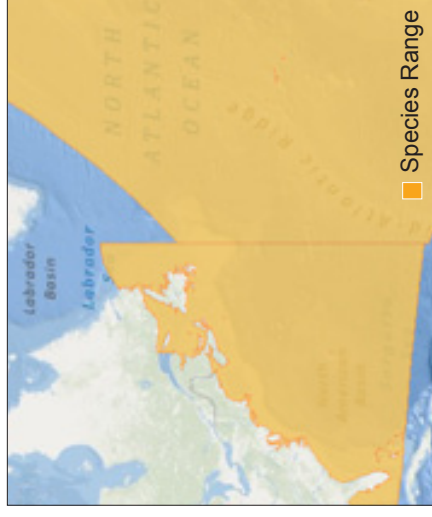
- Ranges from White Bay and Notre Dame Bay Newfoundland, to the Gulf of St. Lawrence, on the Scotian Shelf, along the Nova Scotia coastline, in the Bay of Fundy and south towards the U.S. border

Common Names

Requin Pelerin (fr)

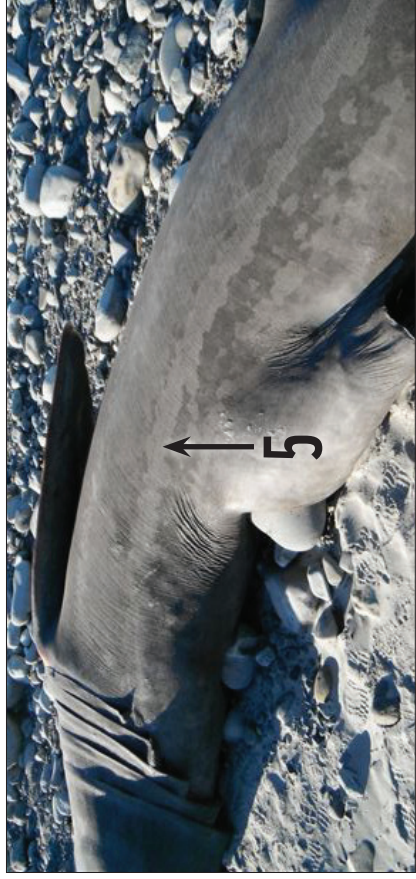
Description

- Second largest fish in Atlantic Canadian waters and the world
- Swims slowly near the surface, often with its mouth wide-open filter feeding on plankton and small crustaceans
- **Colour:** Grayish-brown in colour and often seems to have a mottled appearance

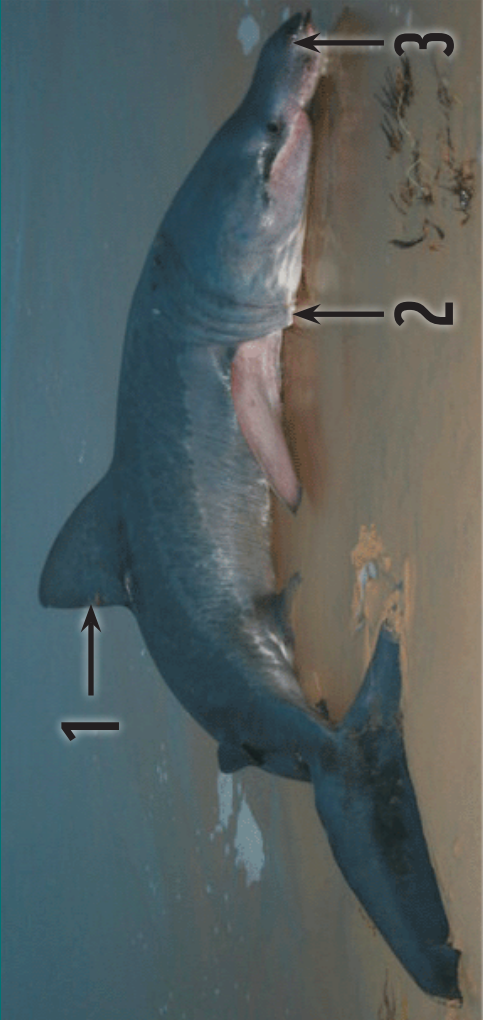


Identification Keys

- 1 - First dorsal fin is set further back on body, slightly rounded top, at a distinct 45° degree angle shape and is much larger than the second dorsal
- 2 - Large gill slits which extend almost completely around the top and bottom of its head
- 3 - Large conical snout
- 4 - Teeth minute and numerous
- 5 - Often seems to have a mottled appearance



May be confused with [White Shark](#) (pg. 60)





Black Dogfish

(*Centroscyllium fabricii*)

Size (cm)

• **At Birth:** 15-20 cm

• **Average Size:** 60-75 cm

• **Maximum:** 85 cm

Habitat

- A deep water shark of the outer continental shelf and slope; most commonly found on the bottom of the ocean
- In subarctic waters, the black dogfish may occur at the surface (especially during winter months)
- **Depth:** 275-1600 m

Common Names

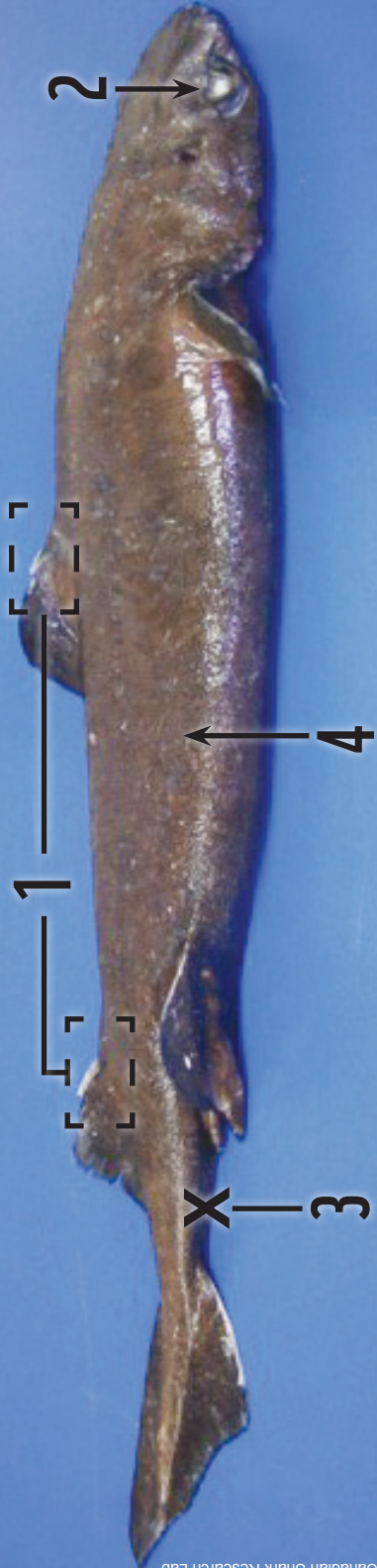
Aiguillat Noir (fr)

Description

- Small, deepwater, schooling shark
- **Colour:** Completely black with the exception of the white dorsal spines; older individuals may be a dark chocolate brown



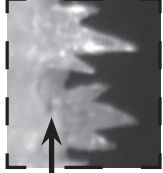
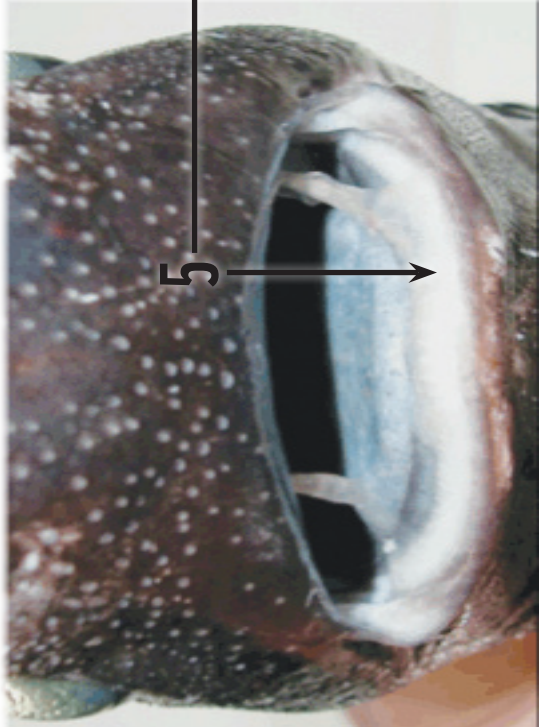
Species Range



© Canadian Shark Research Lab

Identification Keys

- 1 - Presence of white dorsal fin spines
- 2 - Large green eyes
- 3 - No anal fin
- 4 - Minute, thorn-like dermal denticles
- 5 - Tricuspid teeth in both jaws





Blue Shark

(*Prionace glauca*)

Size (cm)

At Birth: 40-51 cm

Maximum: 3.8 m

Habitat

- Blue sharks are commonly seen near the surface over deep waters off the coast of Nova Scotia and Newfoundland during the summer and fall
- **Depth:** 0-200 m

Distribution

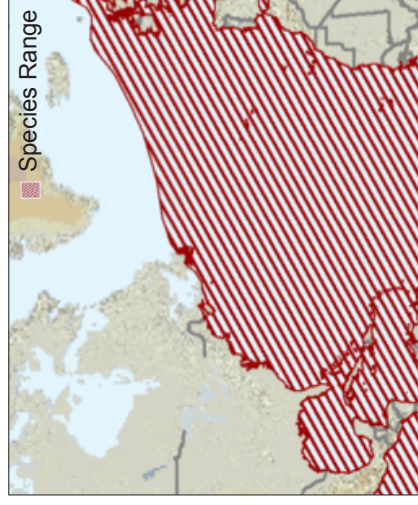
- In temperate waters the blue shark is a wide ranging pelagic species
- Found in southeastern Newfoundland, the Grand Banks, the Gulf of St. Lawrence, the Scotian Shelf and the Bay of Fundy

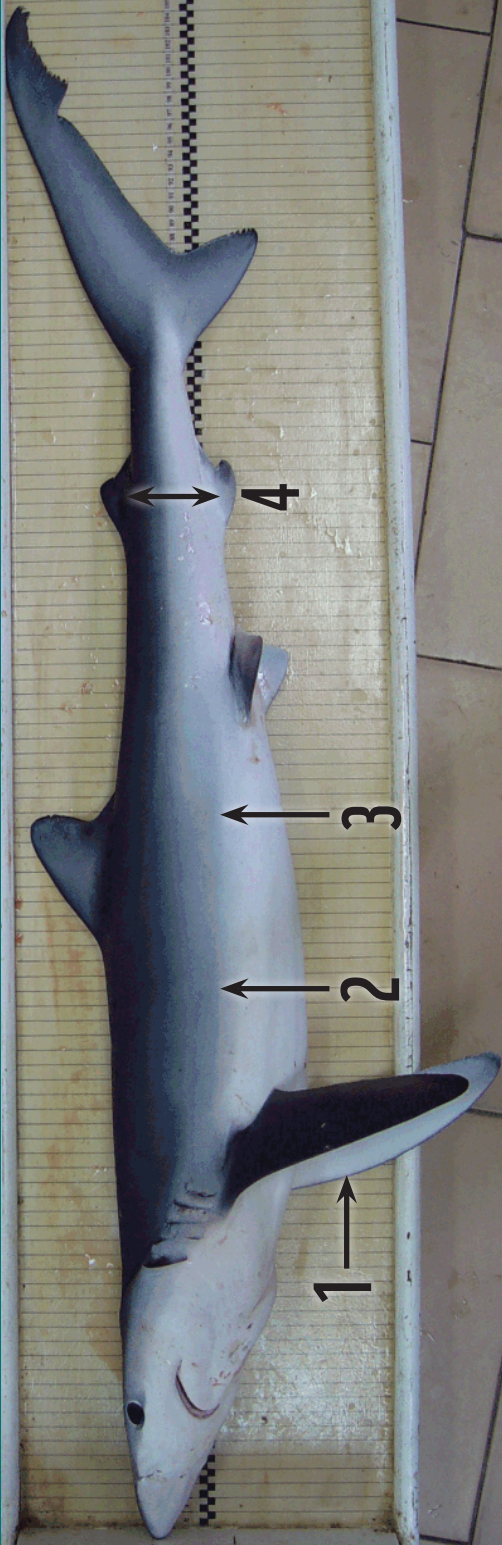
Common Names

Blue Dog, Requin Bleu (fr)

Description

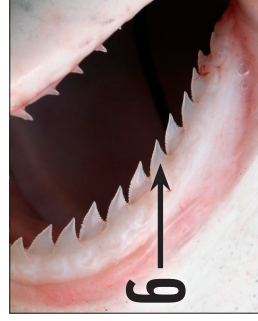
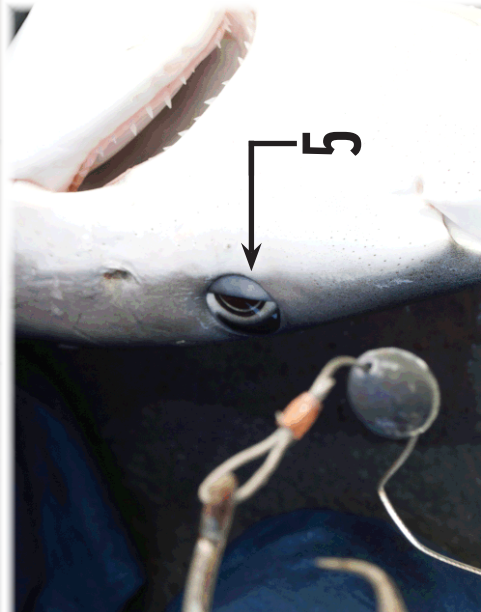
- It is the most common pelagic shark seen in Atlantic Canadian waters
- A long and slender shark with long pectoral fins and distinct coloration
- **Colour:** Deep indigo blue from above, vibrant blue on its sides, changing to pure white underneath





Identification Keys

- 1 - Long pectoral fins
- 2 - Long slender body
- 3 - Distinct countershading; dark blue colour on top, bright blue on the sides and white underneath
- 4 - Second dorsal fin equal in size to and directly above anal fin
- 5 - Nictitating membrane over eye
- 6 - Teeth on upper and lower jaws have triangular cusps with smooth or finely serrated edge

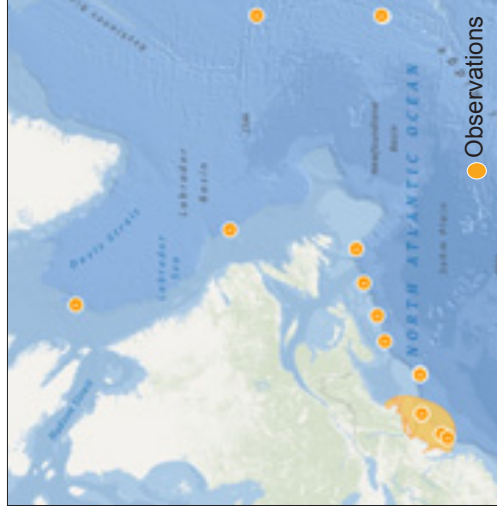


Common Names

Roussette de Profondeur (fr)

Description

- Sluggish, deepwater shark with a broad snout, small eyes, shorter gill openings
- **Colour:** Dark gray, brown or black on its whole body



Deepwater Catshark

(*Apristurus profundorum*)

Size (cm)

Average Size: 50 cm

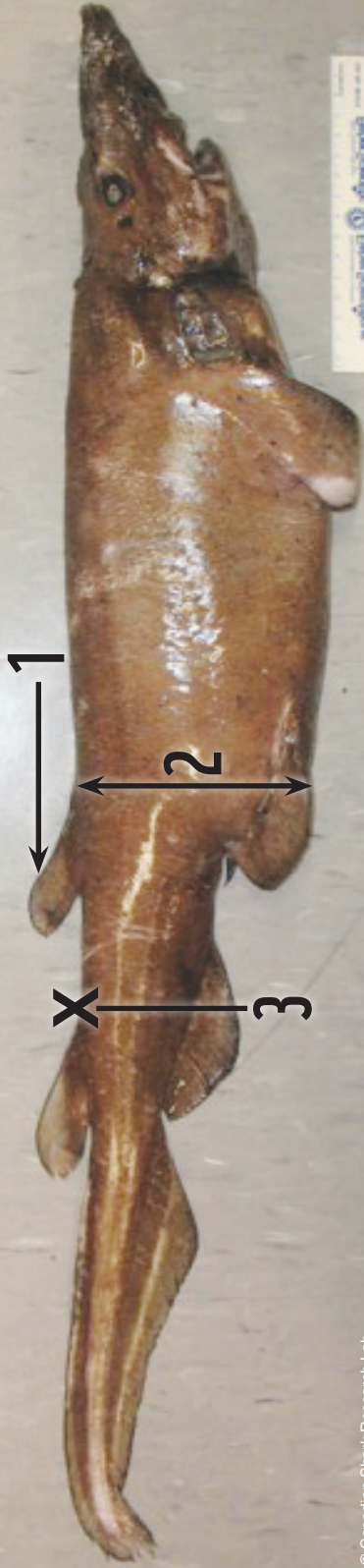
Habitat

- Bottom dwelling fish living on or near the bottom of deep waters of the upper continental slope
- **Depth:** 1100-1750 m

Distribution

- Distribution of the Deepwater Catshark (including in Canadian waters) are unknown

Note: *Not much is unknown about this species. Many life-history characteristics still remain a mystery.*



Identification Keys

- 1 - First dorsal fin is set far back on the body
- 2 - First dorsal fin originates over the pelvic fin
- 3 - No spines on first or second dorsal fin
- 4 - 8-9 rows of pores along the ventral surface
- 5 - Tricuspid and smooth edged teeth in both jaws
- 6 - Broad snout



Common Names

Requin Obscur (fr)

Description

- Long streamlined body; faint lateral stripe that extends to the pelvic fin; one of the larger species living in warm temperate continental waters
- **Colour:** Brown or gray on top and white underneath



Dusky Shark
(*Carcharhinus obscurus*)

© Canadian Shark Research Lab

Size (cm)

At Birth: 95 cm

Maximum: 3.6 m

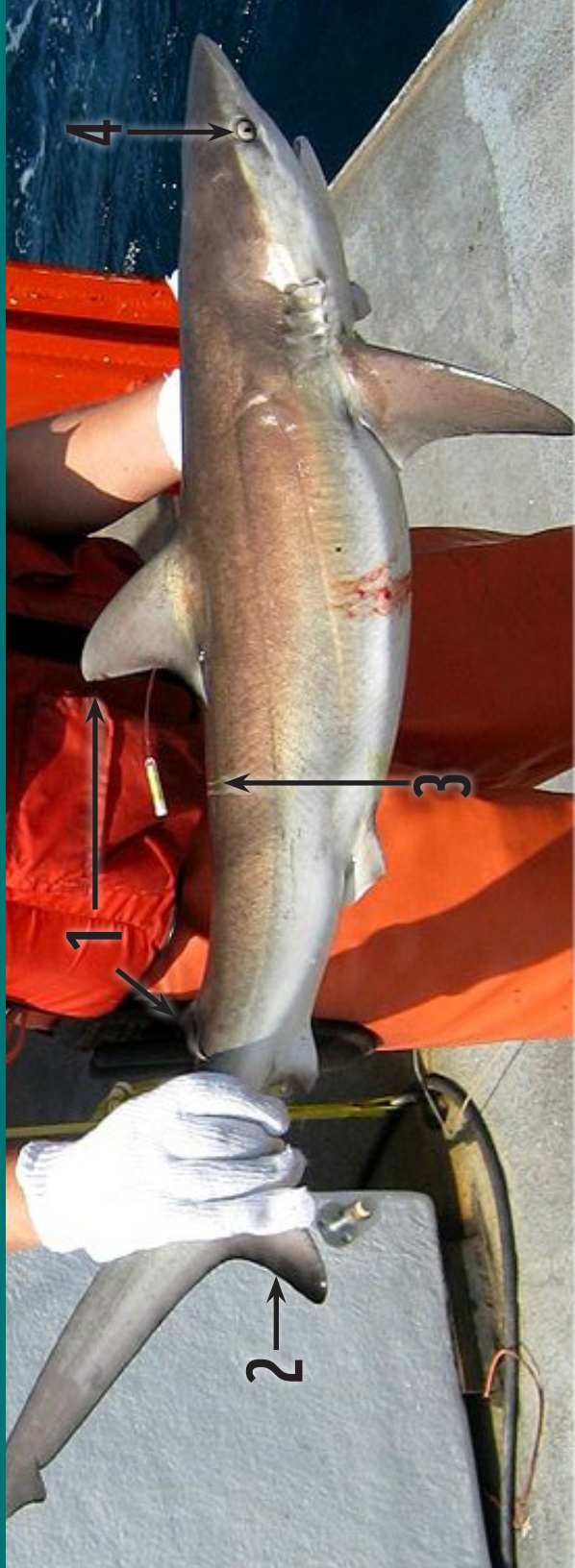
Habitat

- Found from the coast, including the surf zone, to the outer continental shelf and adjacent pelagic waters
- **Depth:** 0-400 m; usually 200-400 m

Distribution

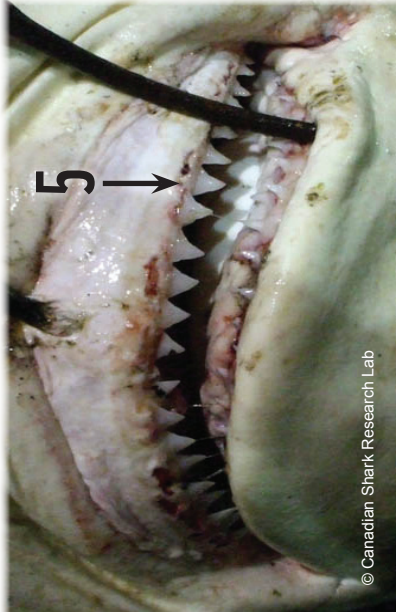
- Occasionally occurs in Atlantic Canadian waters
- Northernmost range is Massachusetts and Georges Bank to Florida and continuing to southern Brazil and Uruguay





Identification Keys

- 1 - First dorsal fin is much larger than the second
- 2 - Juveniles have a dark colouration on the tip of the caudal fin and the underside of the pectoral fins that is less pronounced in adults
- 3 - Dermal ridge found between the two dorsal fins
- 4 - Nictitating membrane over eye
- 5 - Upper and lower teeth nearly erect



Common Names

Rough Sagre, Sagre Rude (fr)

Description

- Small, slender deep water shark with a spine at the origin of both dorsal fins
- Uncertain if it has luminescent photophores (light producing organs)
- **Colour:** Uniform in colour; black or brownish black



Great Lanternshark

(*Etmopterus princeps*)

Size (cm)

Average Size: 55 cm

Maximum: 75 cm

Habitat

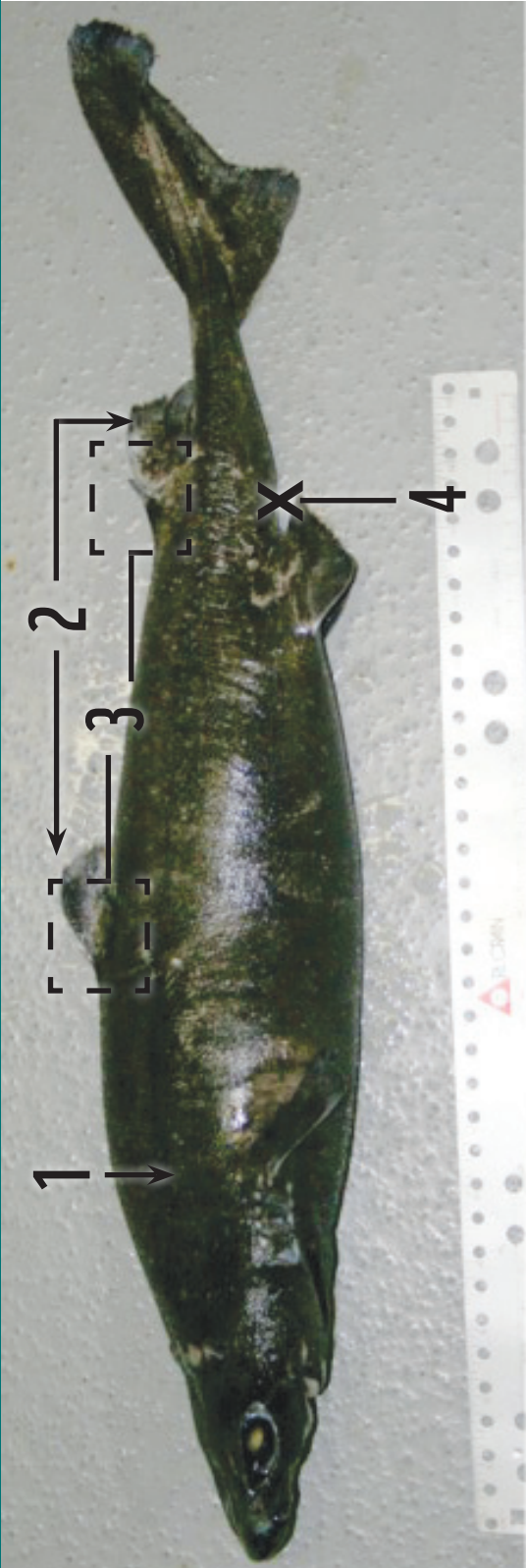
- A deep-dwelling shark that is often found on the continental slopes
- **Depth:** 570-2200 m

Distribution

- In the Northwest Atlantic, it is found from Nova Scotia to southern New England
- Common throughout its range

Note: *Not much is known about this species. Many life-history characteristics still remain a mystery.*





Identification Keys

- 1 - Rough skin; thorn-like, nearly erect dermal denticles
- 2 - Second dorsal fin is larger than the first dorsal fin
- 3 - Large dorsal fin spines on first and second dorsal fins
- 4 - No anal fin present
- 5 - Upper teeth with 5 cusps, lower teeth oblique with single cusp





Greenland Shark

(*Somniosus microcephalus*)

Size (cm)

At Birth: 38 cm

Average Size: 3.5-5 m

Maximum: 7.3 m

Habitat

- In colder months, it occurs inshore in the intertidal area, at the surface, in bays and river mouths and near the edge of ice flows
- Retreats to depths when temperature rises
- **Depth:** 0-2400 m; commonly 200-600 m; 180-730 m during summer months

Distribution

- It is the only shark regularly found in arctic and subarctic waters
- Ranges from Baffin Island, the Gulf of St. Lawrence, along the Scotian Shelf, at the mouth of rivers near Saguenay River in Québec and continues further south

Common Names

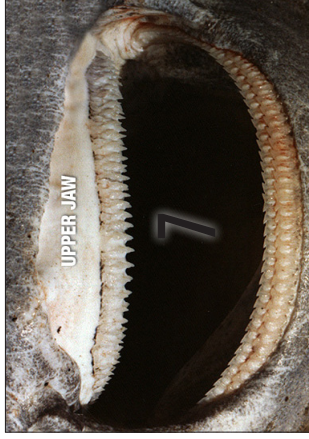
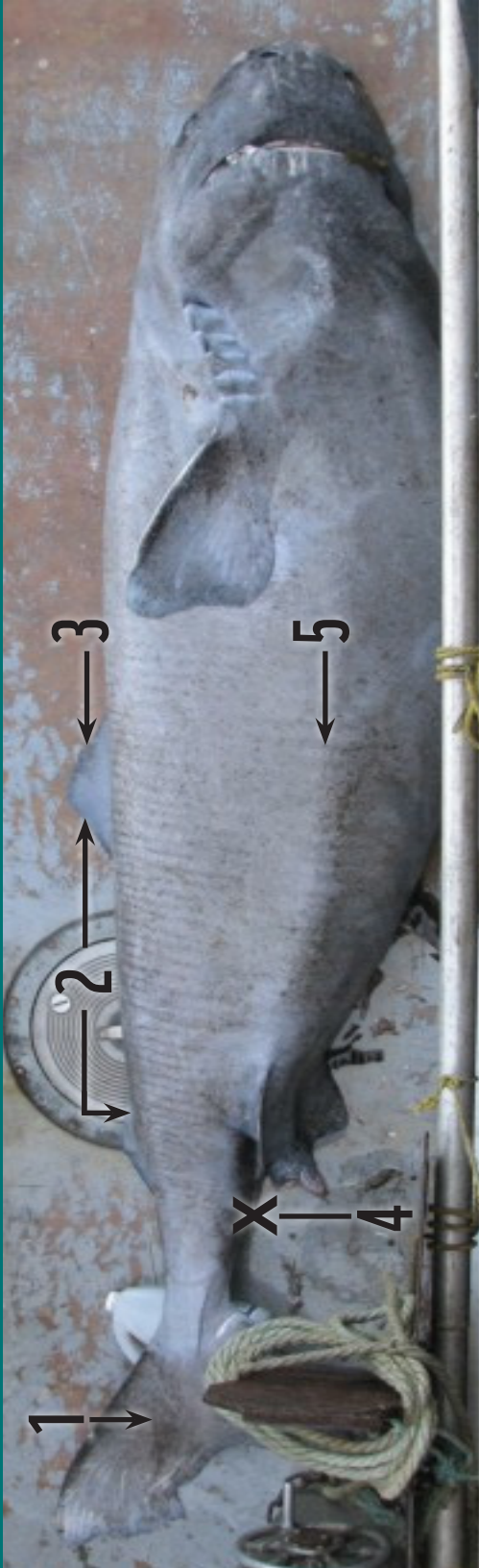
Ground Shark, Laimargue Atlantique (fr), Requin du Groenland (fr)

Description

- Large, flabby deep dwelling shark that is generally slow moving
- **Colour:** Varies slightly; adults can be brown, black, purplish gray or slate gray, may have dark bands or white spots



Species Range



Identification Keys

- 1 - Caudal fin is asymmetrical
- 2 - Small, spineless dorsal fins that are of equal size
- 3 - First dorsal fin originates midway on the body
- 4 - No anal fin present
- 5 - May have dark bands on body
- 6 - Small eyes
- 7 - Upper teeth are long and pointed, lower teeth are smooth and large



Longfin Mako Shark

(*Isurus paucus*)

Common Names

Mako Shark, Petite Requin Taupe (fr)

Description

- A slender, spindle-shaped body with a moderately long conical snout and large blade-like fins and long gill slits
- Often confused with the Shortfin Mako Shark
- **Colour:** Dark slate-blue or gray-black turning to white underneath
- Underside of the snout is dark in adults and large juveniles

Size (cm)

At Birth: 97-120 cm

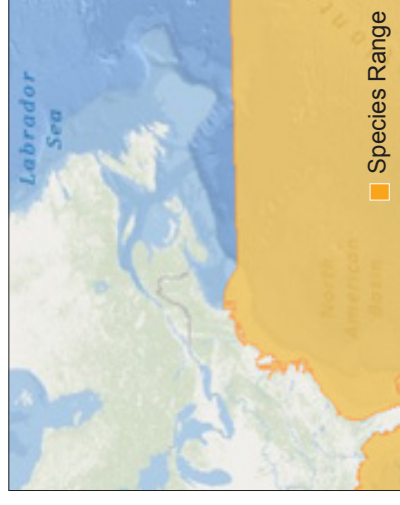
Maximum: 426 cm (TL)

Habitat

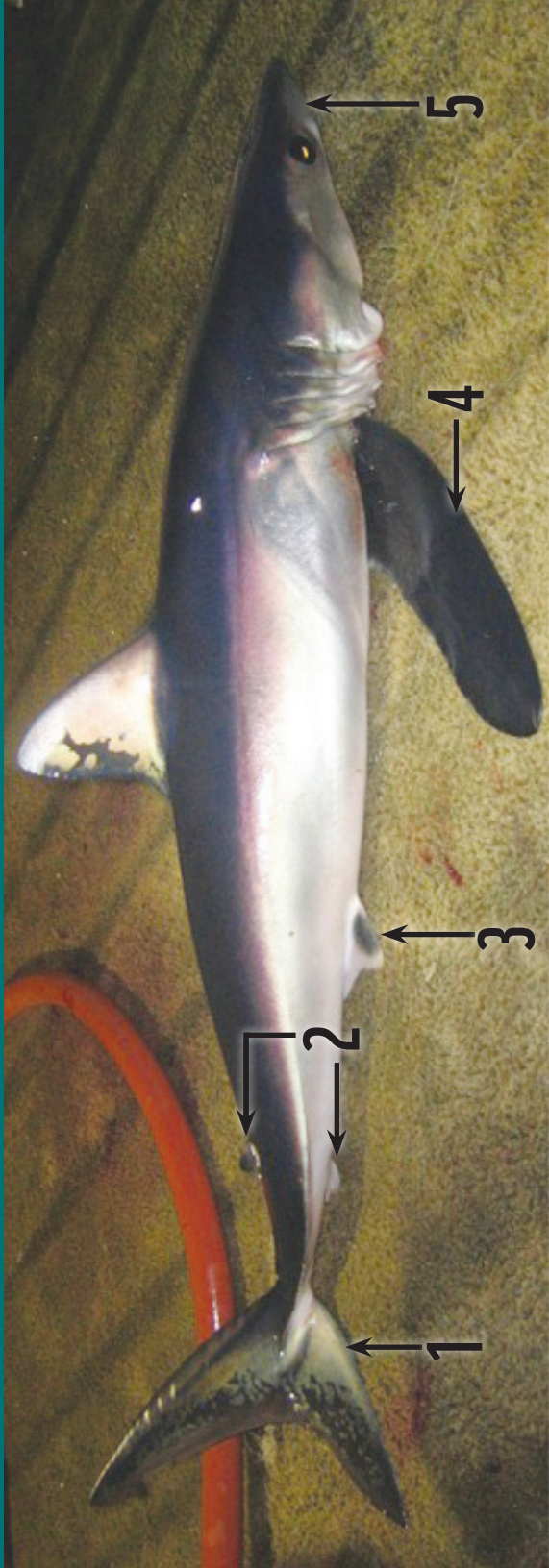
- Though little known about the habitat of this species, they are thought to be a deep-dwelling shark, although there have been sightings at the surface
- Females may approach land to pup
- **Depth:** 0-200 m

Distribution

- Occurs across the world's tropical and warm temperate waters
- Ranges from the Gulf Stream to southern Brazil
- Distribution remains unclear due to sporadic records and confusion with Shortfin Mako Shark



Species Range



Identification Keys

- 1 - Caudal fin is crescent-shaped; upper lobe only slightly longer than lower lobe
- 2 - Anal fin and the second dorsal fin are quite small
- 3 - Top of pelvic fins are dark and white underneath
- 4 - Pectoral fins are broad-tipped and as long or longer than the head
- 5 - Long conical snout
- 6 - Large blade-like teeth without lateral cusplets or serrations

May be confused with [Shortfin Mako Shark](#) (pg. 46)





Oceanic Whitetip Shark

(*Carcharhinus longimanus*)

Size (cm)

At Birth: 65-75 cm

Average Size: 150-250 cm

Maximum: 4 m

Habitat

- Generally an oceanic, deep-water species found offshore, but sometimes comes close to shore
- **Depth:** 0-230 m; usually 0-152 m

Common Names

Requin Océanique (fr)

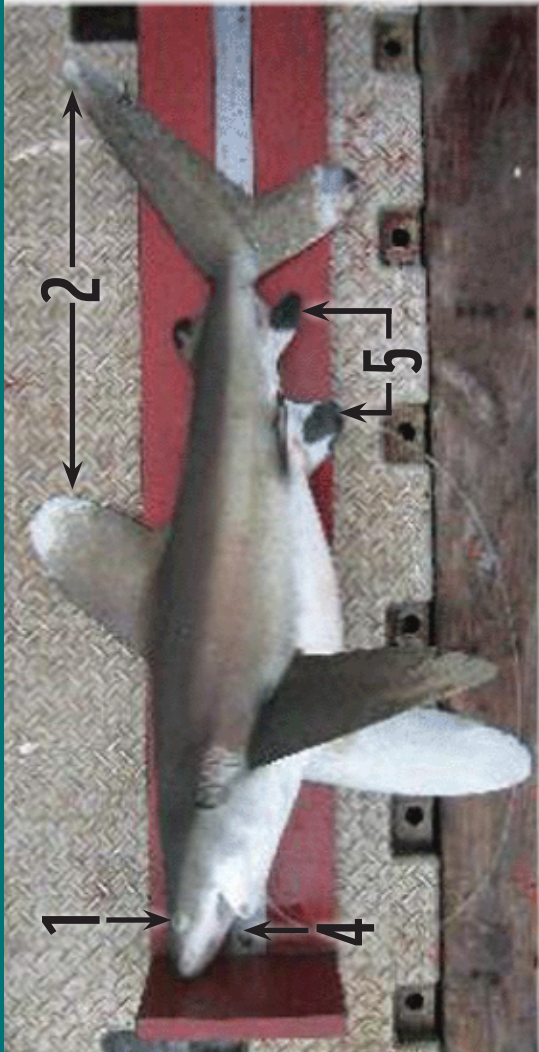
Description

- Stocky shark with blunt snout, large, rounded first dorsal and long pectoral fins; white tips on several fins (black markings on juveniles)
- **Colour:** Dark gray or olive gray on top; white underneath

Distribution

- Ranges from Georges Bank (the northernmost point of their range) down through the southeastern U.S to the Gulf of Mexico and the Caribbean





Identification Keys

- 1 - Nictitating membrane over eye
- 2 - Obvious mottled white tipped fins
- 3 - High first dorsal fin with broad rounded tip
- 4 - Upper teeth are triangular with serrated edges while lower teeth have narrow serrated cusps and broad bases
- 5 - Juveniles may also have black markings on pelvic and anal fins
- 6 - Large paddle like pectoral fins



Common Names

Mackerel Shark, Requin Marafiche (fr)

Description

- Stout shark with a conical snout, heavy spindle-shaped body, large eyes, distinct white patch on free rear tip of first dorsal fin, secondary keel on tail
- Second most commonly observed large shark in Atlantic Canadian waters
- **Colour:** Blue-gray on top and white underneath



Porbeagle Shark
(*Lamna nasus*)

Size (cm)

At Birth: 60-75 cm

Average Size: 150-180 cm

Maximum: 3 m

Habitat

- Most commonly found on the continental shelf or near the shelf edge; also found far from land in ocean basins and occasionally close inshore
- **Depth:** 0-1360 m

Distribution

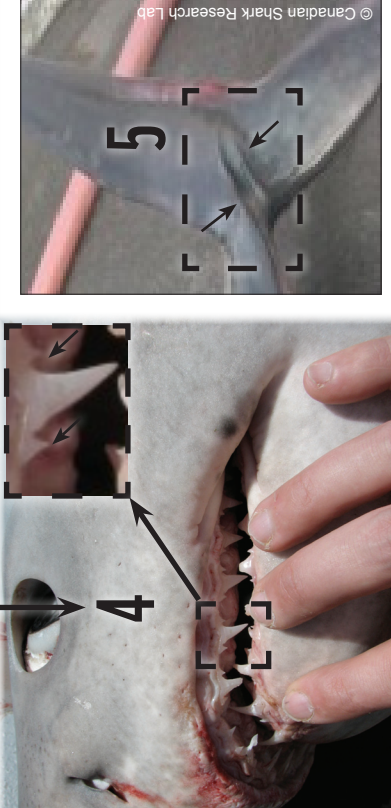
- Ranges from Raleigh, Newfoundland at its northernmost range to the Gulf of St. Lawrence, the Scotian Shelf, the Bay of Fundy and the Gulf of Maine to New Jersey
- Often seen inshore and around mouths of estuaries in Nova Scotia and New Brunswick in late summer





Identification Keys

- 1 - Distinct conical snout and large dark eyes
- 2 - Distinct white patch on trailing edge of first dorsal fin
- 3 - Lunate tail, upper lobe only slightly longer than the lower
- 4 - Upper and lower jaws have smooth-edged teeth: each with one large central cusp and two small cusps at the base (tricuspid)
- 5 - Caudal fin has both primary and secondary keels



Common Names

Pailona Commun (fr)

Description

- Stocky body, short snout, small dorsal fins with inconspicuous spines at their origins
- **Colour:** varies with age
Juveniles - dark blue
Sub-adults - black
Adults - brown

Size (cm)

At Birth: 27-30 cm

Average Size: 90-107 cm

Maximum: 120 cm

Habitat

- Occurs in very deep waters on continental slopes and abyssal plains
- **Depth:** 150-3700 m; usually 400-2000 m

Portuguese Dogfish

(*Centroscymnus coelepis*)



Distribution

- In the Northwest Atlantic this species ranges from the Grand Banks and Delaware Bay, U.S., continuing south to Cuba
- Occasional reports occur on the Scotian Shelf on Banquereau Bank and Georges Bank

At Birth: 27-30 cm

Average Size: 90-107 cm

Maximum: 120 cm

At Birth: 27-30 cm

Average Size: 90-107 cm

Maximum: 120 cm

At Birth: 27-30 cm

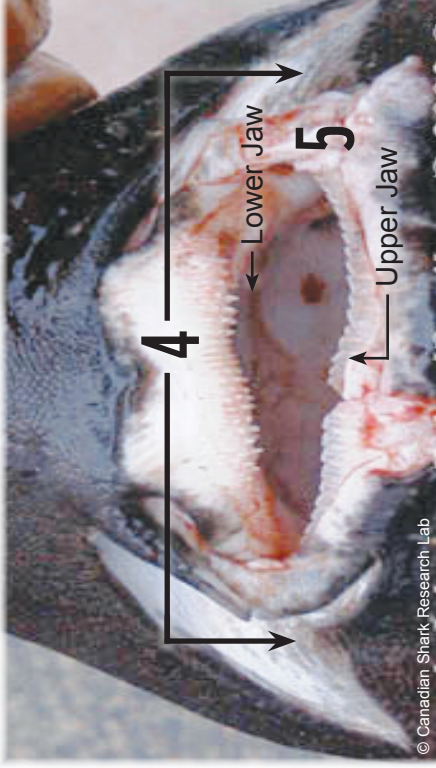
Average Size: 90-107 cm

Maximum: 120 cm



Identification Keys

- 1 - Second dorsal fin is larger than the first although they are both relatively small
- 2 - Inconspicuous dorsal fin spines
- 3 - No anal fin present
- 4 - Labial furrows (white areas)
- 5 - Numerous teeth with single cusp; upper teeth long and pointed, lower teeth short, broad and strongly oblique



Common Names

Grey Nurse Shark, Requin Taureau (fr)

Description

- Stout body with a flattened, pointy snout and two large dorsal fins
- **Colour:** Appears bronze from above turning increasingly pale underneath; juveniles have reddish or yellow-brown spots on the tail and rear end of the body that fade with age

Size (cm)

At Birth: 91-105 cm

Average Size: 120 - 270 cm

Maximum: 302 cm

Habitat

- Often found in sandy coastal waters, shallow bays, estuaries and rocky reefs in shallow waters
- **Depth:** 1-200 m; usually 15-25 m

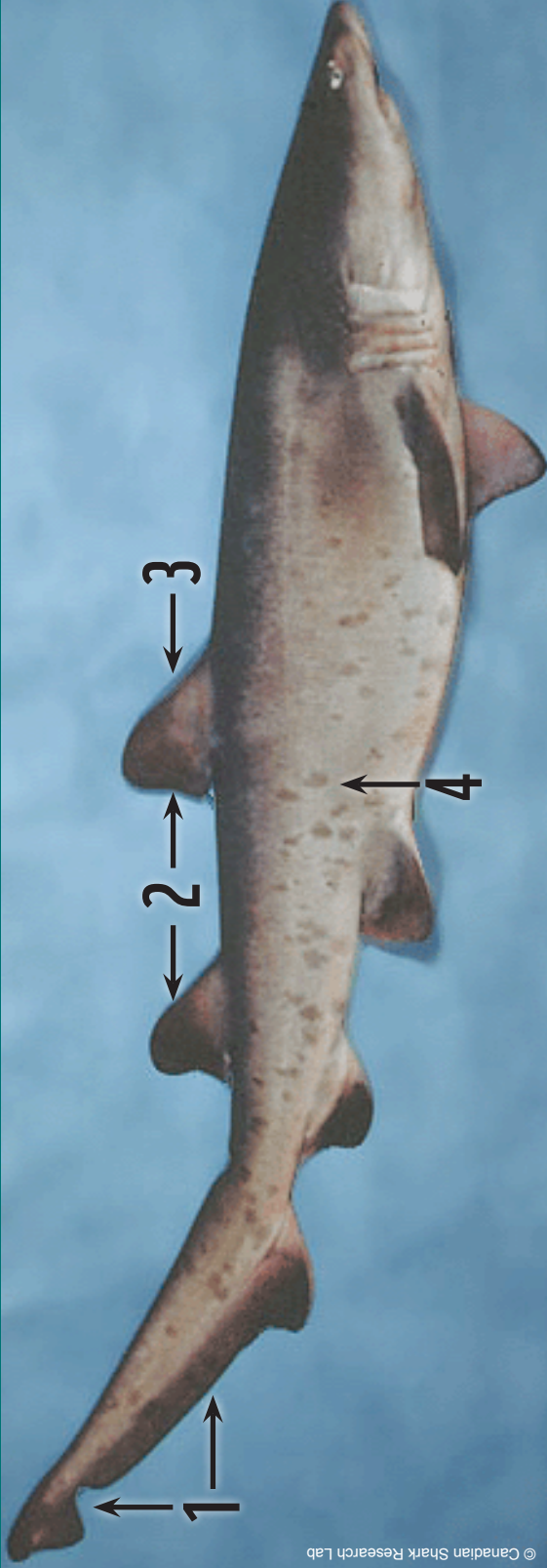
Sand Tiger Shark

(*Carcharias Taurus*)

Distribution

- In the Northwest Atlantic, it ranges from the George's Bank to the Gulf of Mexico
- Sightings have occurred in the Minas Basin of Nova Scotia, near Saint Andrews, New Brunswick and off Point Lepreau, New Brunswick





Identification Keys

- 1 - Elongated upper lobe of caudal fin with prominent subterminal notch
- 2 - Two dorsal fins almost equal in size
- 3 - First dorsal fin placed far back on the trunk of the body
- 4 - Adults have reddish-brown spots on either their backs or entire body (juveniles have yellow-brown spots)
- 5 - Teeth have long smooth, narrow-edged cusps





Shortfin Mako Shark (*Isurus oxyrinchus*)

Size (cm)

At Birth: 70–77 cm

Maximum: 390 cm

Habitat

- Pelagic species that occurs well offshore; however, warm water conditions can bring them closer to shore (off the surf zone in some areas)
- **Depth:** 0-740 m; usually 100-150 m

Distribution

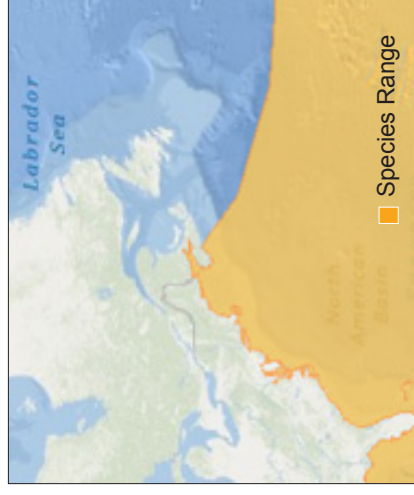
- While this species is not abundant in Canadian waters, as they prefer warmer waters, neither are they rare
- Ranges from Browns Bank, along the continental shelf of Nova Scotia and into the Gulf of St. Lawrence to Argentina

Common Names

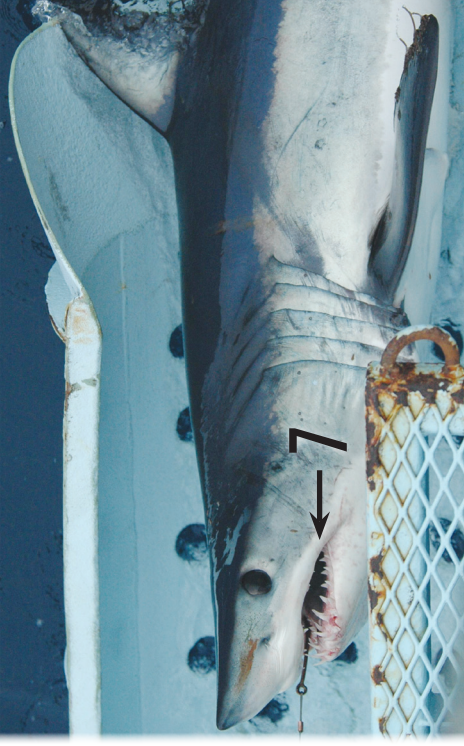
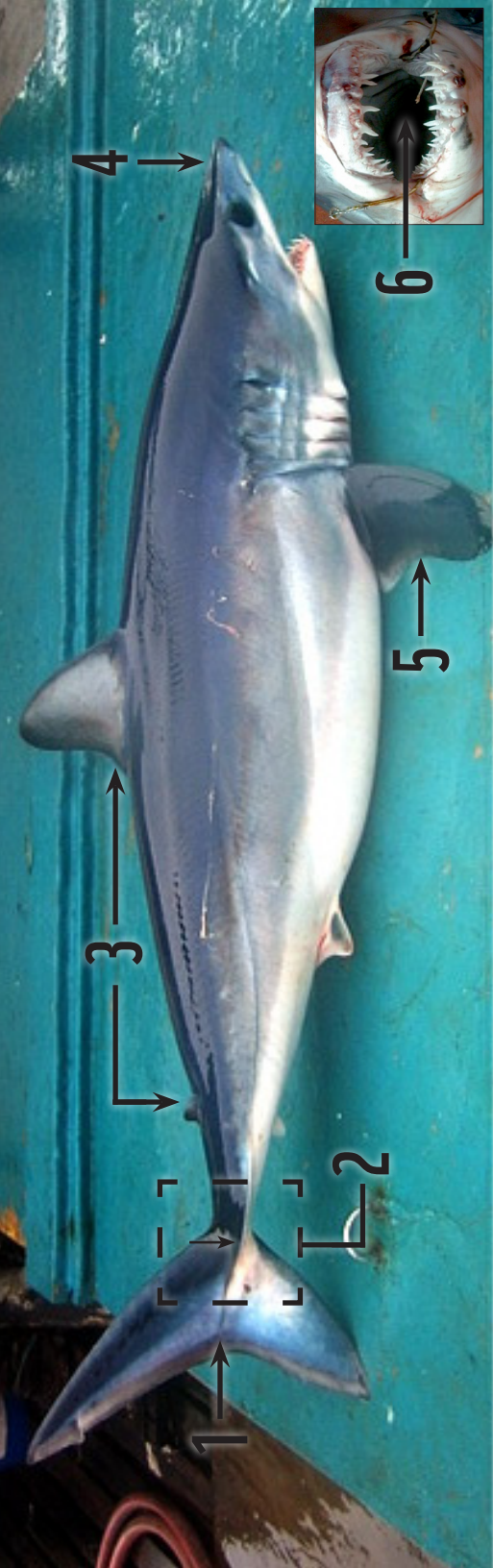
Mako Shark, Mako à Nageoires Courtes (fr)

Description

- Sleek spindle shaped shark with a bluntly pointed snout, large black eyes, and a prominent primary caudal keel
- **Colour:** Distinct countershading; metallic indigo blue on top and white underneath



Species Range



Identification Keys

- 1 - Crescent shaped tail
- 2 - Distinct primary keel (*no secondary keel*)
- 3 - Second dorsal is much smaller than the first dorsal fin
- 4 - Long conical snout that is white underneath
- 5 - Moderately short pectoral fins
- 6 - Teeth are long and slender with smooth-edged cusps
- 7 - Teeth are visible even when the mouth is closed

May be confused with **Longfin Mako Shark** (pg. 36) or **Porbeagle Shark** (pg. 40)

Common Names

Dusky Smoothhound, Émissole Douce (fr)

Description

- Slender shark, able to change colour slowly through migratory pigment cells that through contraction or relaxation give the impression of a colour change
- **Colour:** Olive gray or brown on top; yellow or grayish white below

Smooth Dogfish

(*Mustelus canis*)

Size (cm)

At Birth: 34-39 cm

Average Size: 122 cm

Maximum: 150 cm

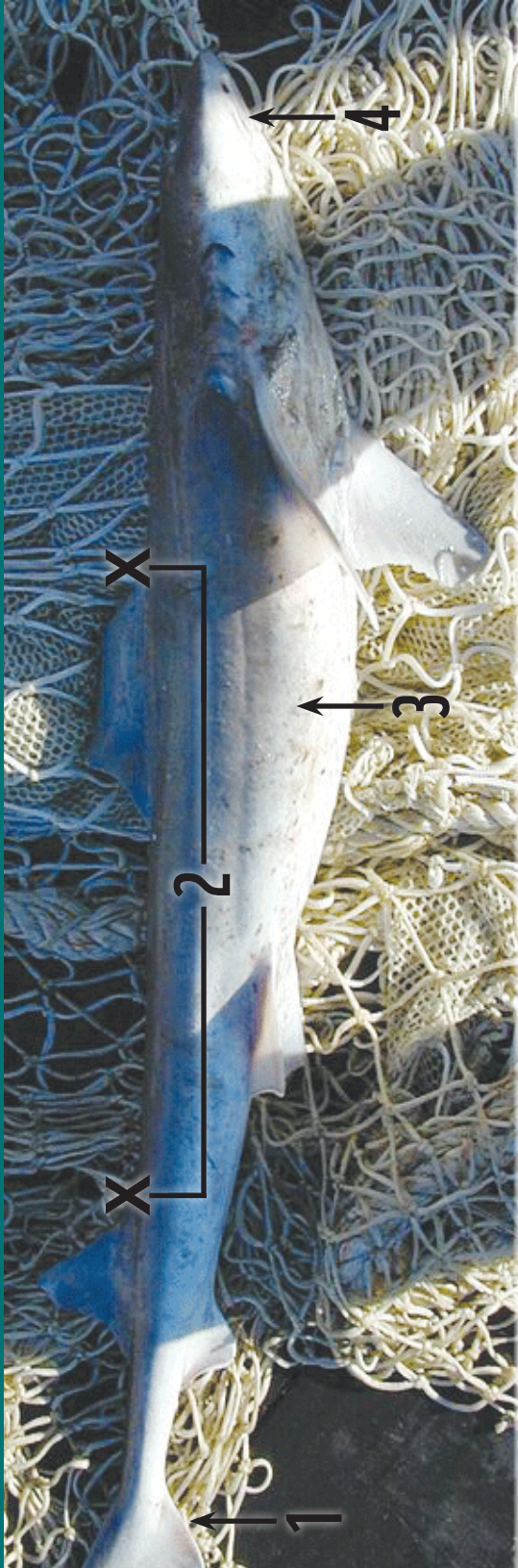
Habitat

- Occurs on continental and insular shelves and upper slopes, ranging from shallow inshore waters to the intertidal
- **Depth:** ~ 18-800 m; usually 18-200 m

Distribution

- Ranges from the Bay of Fundy (the northernmost part of its range) to Uruguay
- Common shark in the waters off Cape Cod to Delaware Bay, and overwinters from Chesapeake Bay to South Carolina





Identification Keys

- 1 - Caudal fin has a rounded lower lobe and a larger upper lobe
- 2 - No spines on either dorsal fin
- 3 - Sleek, slender body
- 4 - Numerous small blunt teeth in both jaws
- 5 - Prominent spiracle behind eye



Common Names

Hammerhead Shark, Requin Marteau
Commun (fr)

Description

- Broad and flattened head with eyes located on the outer edges and nostrils spread far apart; mouth is strongly arched
- **Colour:** Brownish gray or a deep olive colour on top turning to white underneath occasionally having dusky or black-tipped pectoral fins

Size (cm)

At Birth: 50 cm

Maximum: 370 - 400 cm

Habitat

- A coastal, pelagic, and semi-oceanic shark that occurs over continental and insular shelves, but often bottom associated
- **Depth:** 0-200 m; usually 0-20 m

Distribution

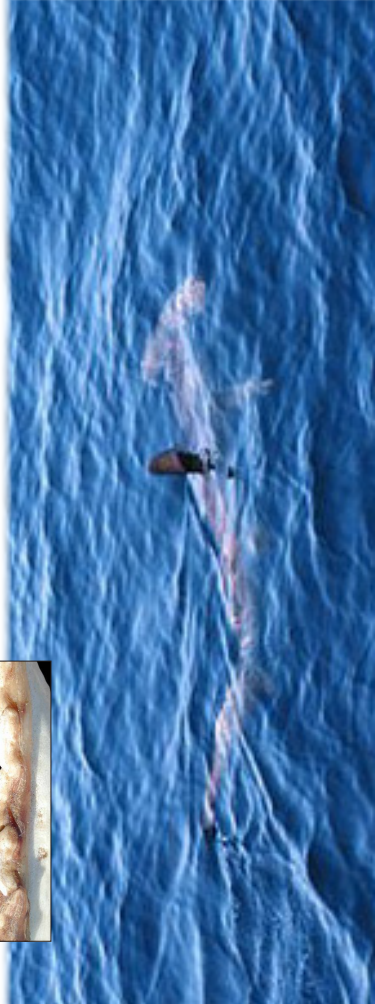
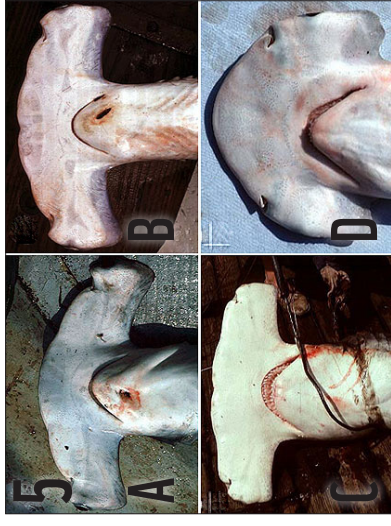
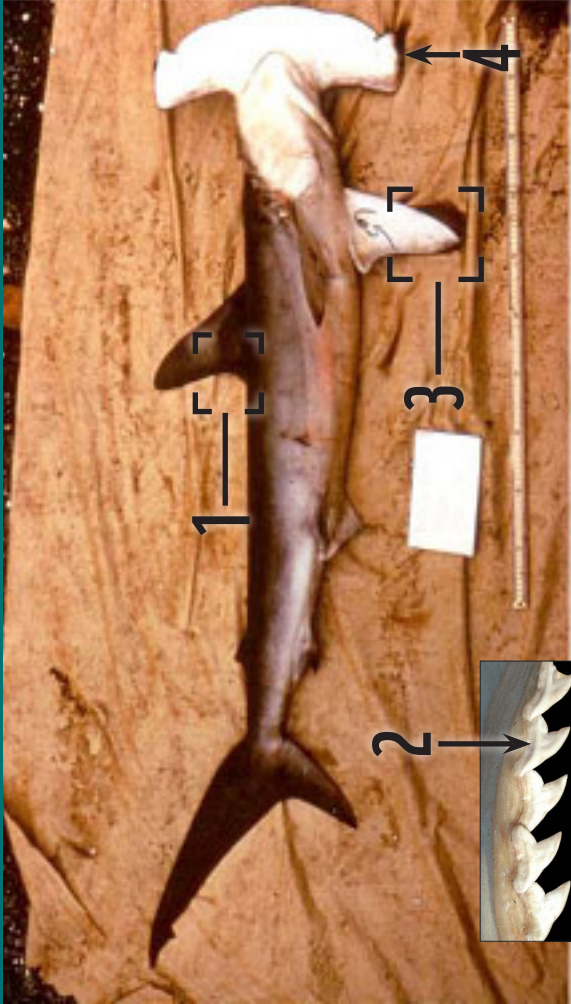
- Ranges from Nova Scotia to Florida continuing to south to Argentina
- It has been reported in Nova Scotian waters off Herring Cove, Sambro Light and Brier Island, as well as in St. Margaret's Bay and on the northeast tip of Georges Bank



Identification Keys

- 1 - Free-rear tip of first dorsal fin does not reach level of pelvic fins
- 2 - Teeth, which are similar on both the upper and lower jaw, are triangular and smooth-edged
- 3 - Occasionally they have dark coloured or black-tipped pectoral fins
- 4 - Hammer-shaped head that lacks a central indentation
- 5 - Comparison of hammerhead sharks heads:

- A) Smooth Hammerhead
- B) Scalloped Hammerhead
- C) Great Hammerhead
- D) Bonnethead Shark



Common Names

Dogfish, Spurdog, Aiguillat Commun (fr)

Description

- The most common and numerous shark in Atlantic Canada
- **Colour:** Gray or brownish on top and pale gray or white underneath; irregular white spots on the top or sides of the body



Size (cm)

At Birth: 20-30 cm

Average Size: 75-105 cm

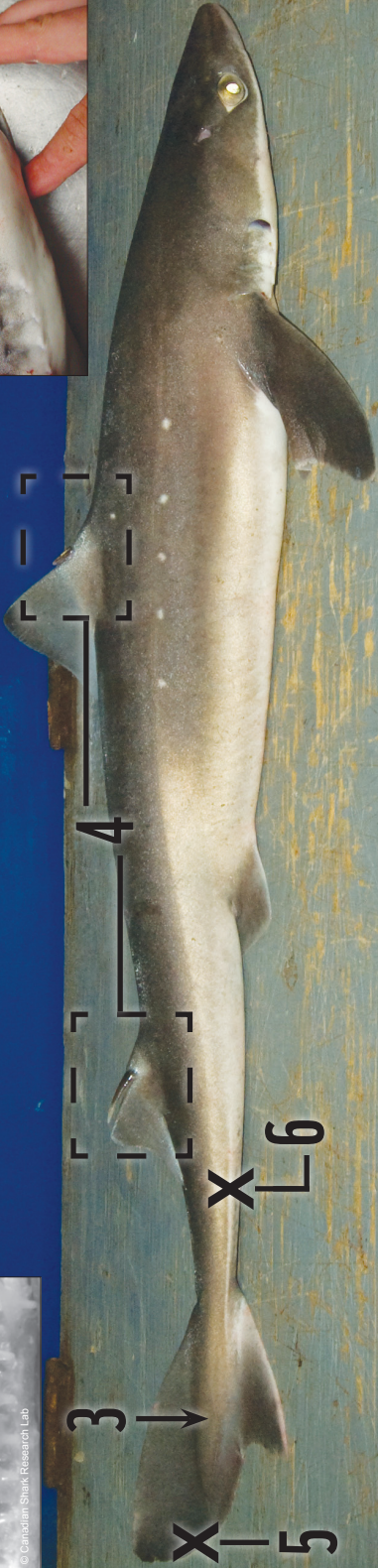
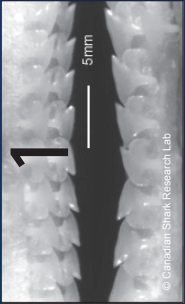
Maximum: 130 cm

Habitat

- Found in cold and warm temperate oceans and can tolerate a wide range of salinities
- Can be a resident or seasonal migrant into Canadian waters
- **Depth:** 0-730 m

Distribution

- Ranges from southern Labrador to Florida, continuing to the coast of Argentina
- Semi-resident groups occur off southern Newfoundland, the Gulf of St. Lawrence and on the Scotian Shelf off Nova Scotia
- Most abundant between Nova Scotia and Cape Hatteras



Identification Keys

- 1 - Strongly oblique teeth in both jaws, with single cusp
- 2 - Prominent spiracle behind eyes
- 3 - Caudal fin is asymmetrical with the upper lobe being larger
- 4 - Sharp, heavy spine in front of each dorsal fin
- 5 - No subterminal notch on caudal fin
- 6 - No anal fin present
- 7 - Row of white spots present on sides and back of the body

Common Names

Common Thresher Shark, Renard Marin (fr)

Description

- A large stout shark with an extremely large caudal fin with a narrow-tip
- **Colour:** Brown, grey, blue-grey or black on top with metallic hues; white underneath extending over pectoral fin bases

Size (cm)

At Birth: 150 cm

Average Size: 303-505 cm

Maximum: 6 m

Habitat

- Preferring temperate to tropical waters, they often swim at or near the surface of coastal waters; juveniles may be found inshore in shallow water
- **Depth:** 0-350 m

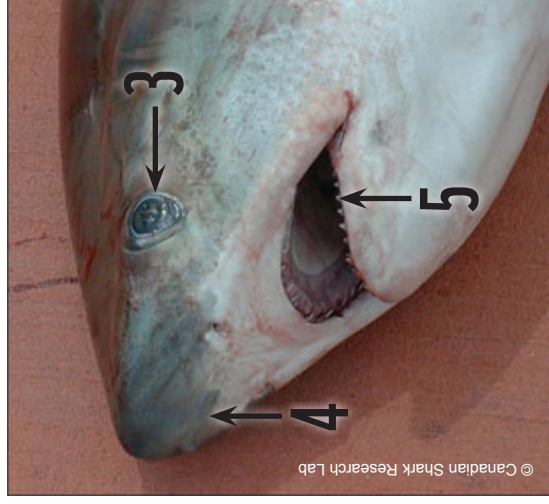
Thresher Shark

(*Alopias vulpinus*)

Distribution

- Ranges from eastern Newfoundland (northernmost part of its range in the Northwest Atlantic) southward to northern South America
- A summer visitor to Atlantic Canadian waters, it may occur from July to November, but most frequently during August and September





Identification Keys

- 1 - Extremely large upper lobe of the caudal fin (may be as long or longer than its body length); lower lobe short but well developed
- 2 - Second dorsal fin is much smaller than the first; origins well behind the rear tip of the pelvic fin
- 3 - Relatively large eyes placed forward on the head
- 4 - Short, stubby snout
- 5 - Relatively small jaw and teeth
- 6 - Sharp, curved teeth without serration

Common Names

Requin Tigre Commun (fr)

Description

- A large shark with a broad, rounded snout, long upper labial furrows and large mouth with saw-edged teeth
- Distinctive mottled pattern on juveniles; striped tiger-like patterns or bars on adults
- **Colour:** Bluish or greenish gray to black above and light gray to dirty yellow or white underneath

Size (cm)

At Birth: 68-85 cm

Average Size: 300-402 cm

Maximum: 7.5 m

Habitat

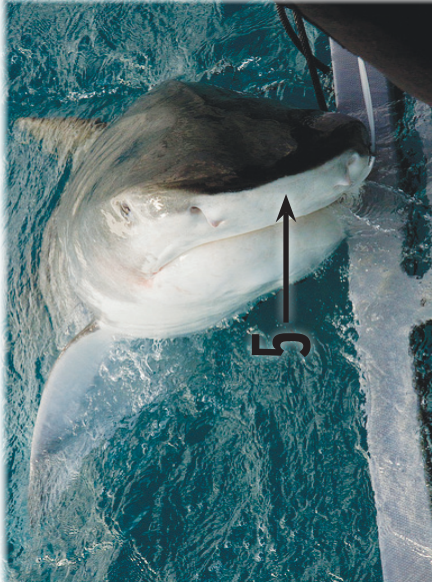
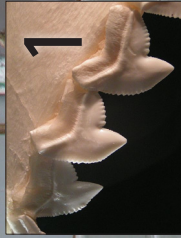
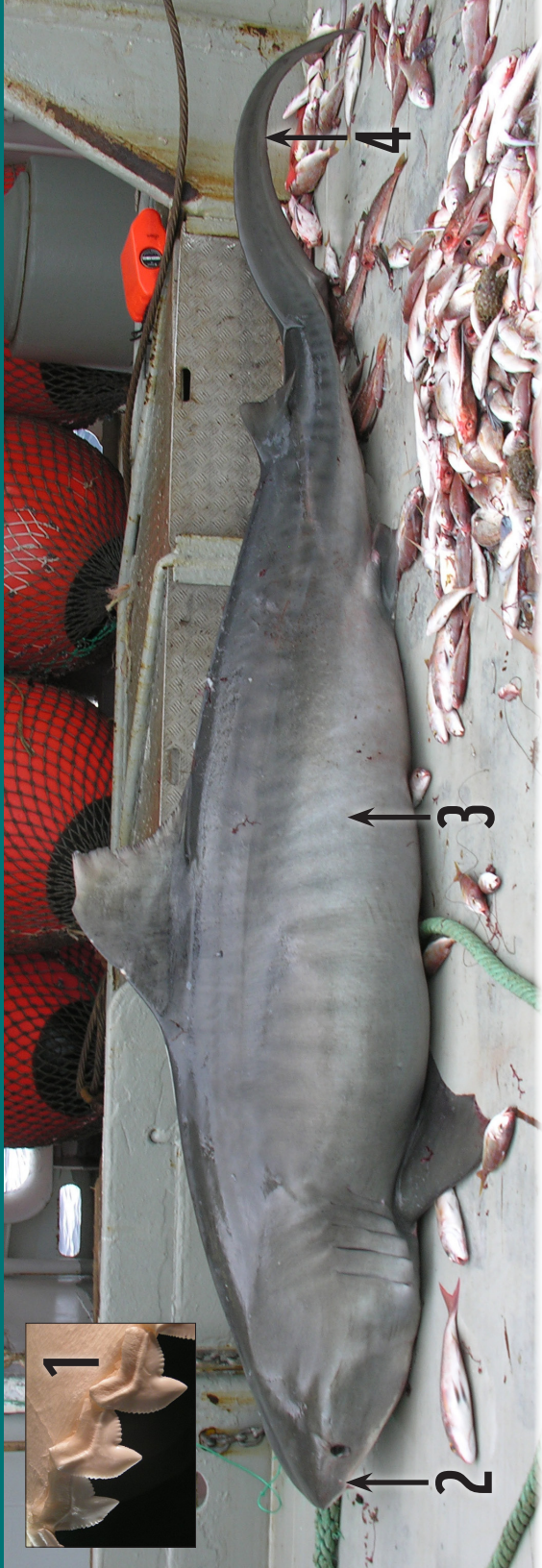
- Inhabits oceanic and shallow coastal waters occurring on or adjacent to continental and insular shelves, frequenting river estuaries, harbours, coral atolls and lagoons; may be bottom associated and pelagic
- **Depth:** 0-371 m

Distribution

- Ranges from the Gulf of Maine and tip of George's Bank south to Uruguay
- While rare in Canadian water, it typically occurs in summer months in or near the Gulf Stream

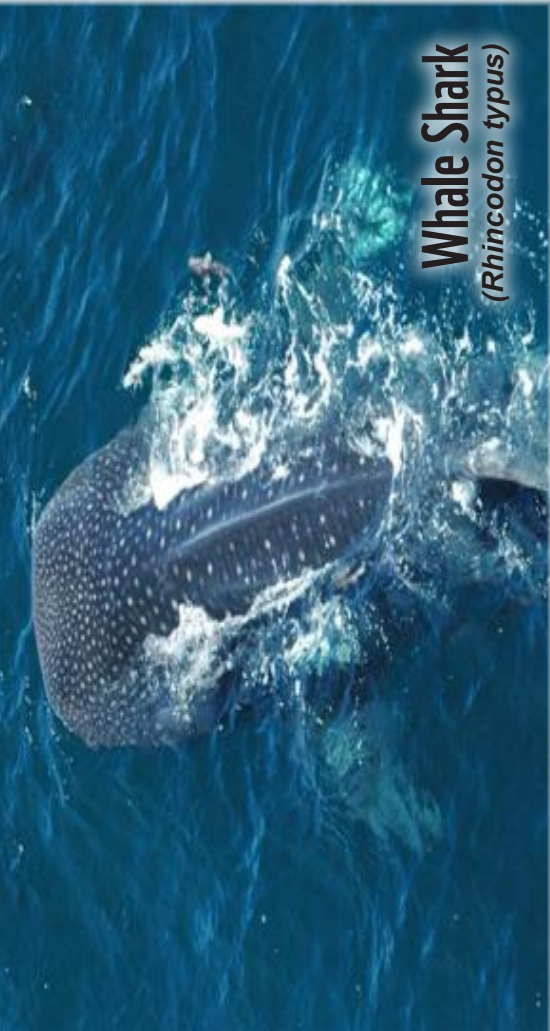


Tiger Shark
(*Galeocerdo cuvier*)



Identification Keys

- 1 - Curved serrated teeth with deep notches on the outer rear margin
- 2 - Broad, flat head and slender body
- 3 - Distinctive mottled pattern in juveniles, striped tiger-like pattern in adults
- 4 - Long and pointed caudal fin with reinforcing ridges
- 5 - Snout shorter than the width of the mouth



Whale Shark (*Rhincodon typus*)

Size (cm)

At Birth: 58 cm (TL)

Maximum: ~ 20 m (TL)

Habitat

- Primarily found in the warm tropical and subtropical seas
- Often seen offshore, but also close to shore, sometimes entering lagoons or coral atolls
- **Depth:** 0-700 m; usually 0-70 m

Common Names

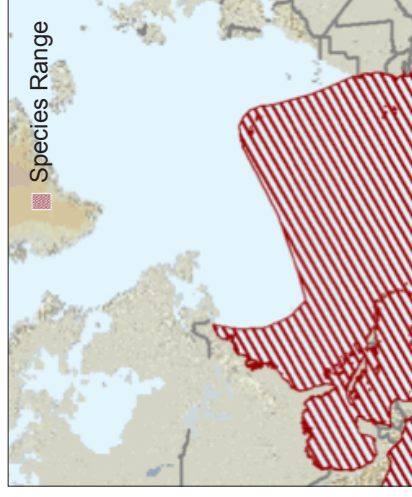
Requin Baleine (fr)

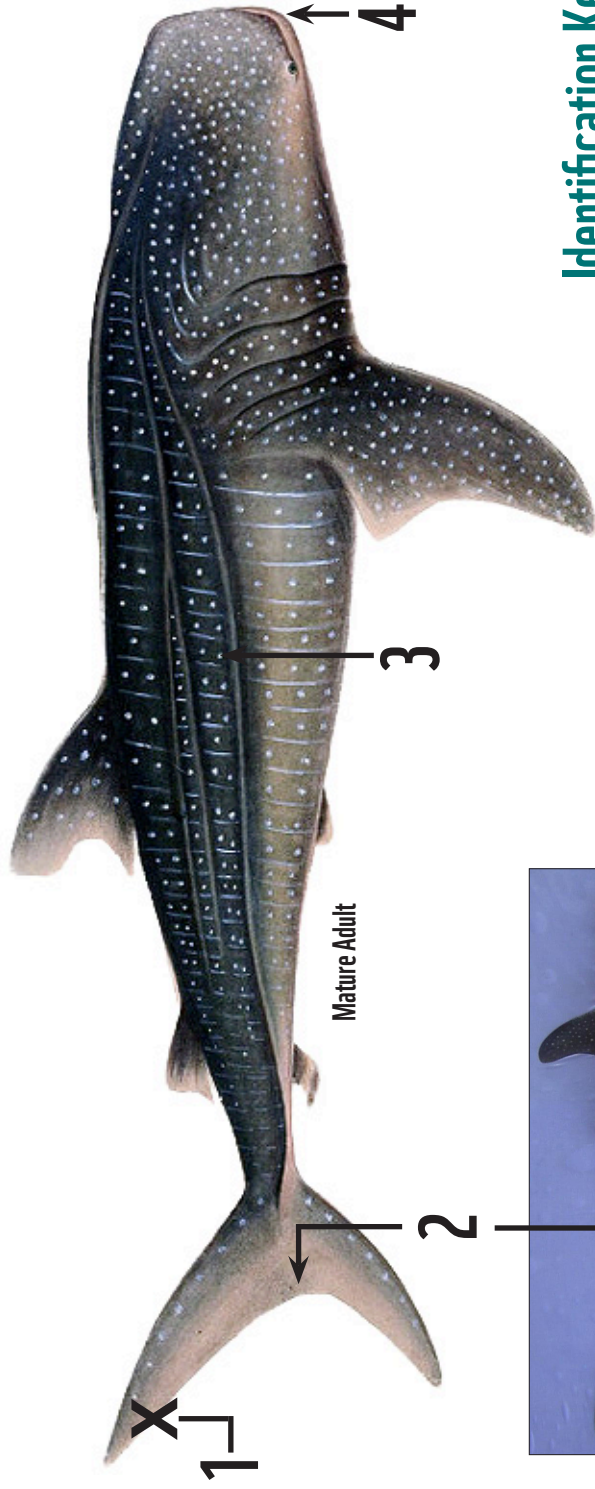
Description

- Huge, blunt-headed shark with mouth at the tip of its head
- Distinct pattern of white spots between pale, vertical and horizontal stripes on upper surface
- **Colour:** Greyish, bluish or brownish above; white underneath

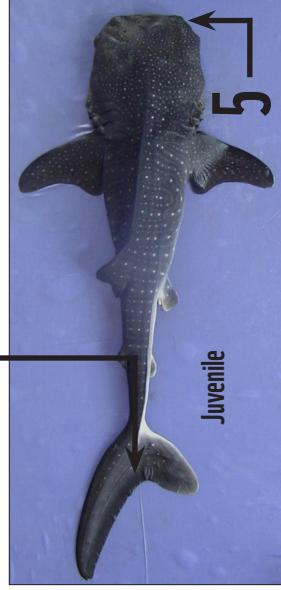
Distribution

- Known range includes from the Gulf of Maine to southern Brazil
- Very rare in Canadian waters as there is only *one* confirmed sighting in the Bay of Fundy off the eastern coast of Wolf Island





Mature Adult



Juvenile

Identification Keys

- 1** - No subterminal notch present on tail
- 2** - Caudal fin is semi-lunate in adults, while in juveniles the upper lobe is longer than the lower lobe
- 3** - Pattern of white spots between pale, vertical and horizontal stripes
- 4** - Mouth extends across its broad head, is very large and nearly at the tip of the snout
- 5** - Depressed, broad, and flattened head



White Shark
(*Carcharodon carcharias*)

Size (cm)

At Birth: ~ 100 cm

Average Size: 406 cm

Maximum: 709 cm

Habitat

• Inhabits coastal and offshore waters of the continental shelf and may wander into bays and harbours

• **Depth:** 0-1280 m; usually 0-250 m

Distribution

• It has one of the widest ranges of any fish covering along the continental margins of all temperate seas and part of the tropics

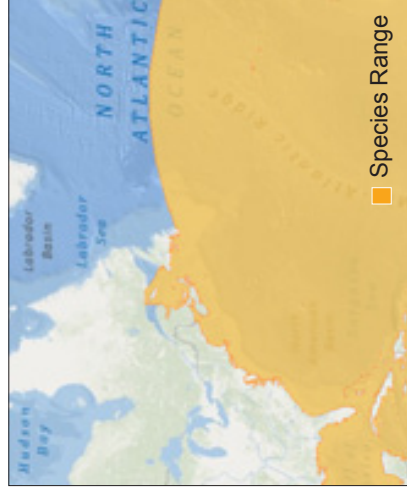
• It has been caught in the Bay of Fundy, off of southwest Nova Scotia, eastern Nova Scotia, southern Newfoundland and in the Gulf of St. Lawrence

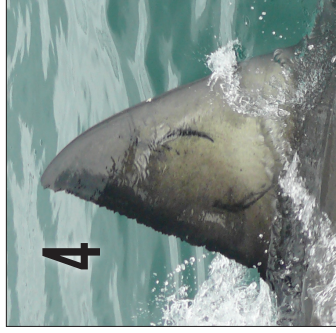
Common Names

“Great” White Shark, Requin Blanc (fr)

Description

- A large, robust, torpedo-shaped shark with a large conical snout and lunate caudal fin
- **Colour:** Varies from lead grey, brownish grey or black on top; white underneath





Identification Keys

- 1 - Lunate tail; lobes of caudal fin of about equal size
- 2 - Strong caudal keel
- 3 - Black spot may be present at axil of pectoral fin
- 4 - Large, triangular shaped first dorsal fin
- 5 - Triangular-shaped teeth with serrated edge
- 6 - Moderately long, conical snout

May be confused with **Basking Shark** (pg. 22)

Shark Condition Classification Scheme

This shark condition classification scheme relates specifically to condition upon release and was agreed upon by representatives from DFO, Javitech Ltd. and the fishing industry (i.e. pelagic longline, groundfish longline, trawl/dragger, groundfish gillnet and shark derbies) at the Shark Condition Meeting held on March 13th, 2012.

While these codes are meant for all species of shark, they may not be feasible for certain species of shark (e.g., dogfish) – and more broadly to other elasmobranchs (i.e., skates and rays) – that are caught in large quantities.

Code	Name	Details
0	Unable to determine	<p>At least one of the following applies:</p> <ul style="list-style-type: none"> • Evaluation is not possible. • Fish is not moving and condition cannot be assessed. <p>*This code should be used if the fish is only seen for a second and no information can be recorded or if it is not seen at all.</p>
1	Alive, Not Injured	<p>All of the following characteristics should apply:</p> <ul style="list-style-type: none"> • Quick movements and/or response to being handled. • Frequent gill movement. • Fish is not bleeding or is bleeding slowly and not from the gills. Blood may be seen around mouth and/or jaw. • Hook is visible (e.g., mouth hooked) and has not been swallowed or hooked in from the gills. • Jaw is intact and appears functional. Injury is limited to hook puncture and/or small extraction wound, with some bleeding possible from the wound. • If gear is wrapped around the fish, it is not inhibiting or it is removed with minimal damage; appendages remain functional after removal of gear.

2	Alive, Injured	<p>At least one of the following characteristics applies:</p> <ul style="list-style-type: none"> •Fish is moving and/or reacts to being handled. •Gill movement. •Fish is gill hooked or hook is not visible and has obviously been swallowed by the fish. •Blood is flowing freely and continuously (i.e., gushing) from any wound on the fish and shows no sign of slowing down or stopping. •Jaw is damaged, but still useable. •Injuries (greater than hook puncture or minimal gear extraction wound) are present, but not immediately life-threatening. For example, fins may be frayed, damaged or torn, but are still useable. •If wounds are present on the body - though muscle may be visible - they are not deep enough to expose internal organs.
5	Alive, Moribund	<p>Fish is alive, but is presumed to have at least one of the following lethal injuries:</p> <ul style="list-style-type: none"> •Bleeding from a torn or severed gill arch. Fish are unlikely to survive if gills are bleeding, even though it may look alive at the moment of release. •Multiple fins missing. •Serious damage to eyes or head. •Jaw broken, unuseable or missing to the point where the fish will be unable to swim, hunt or feed. •Deep wounds with internal organs visible. •Amount of bleeding may be used to qualify whether a fish is moribund.
3	Dead	<p>Fish is in rigor and lifeless, even if no apparent injuries are visible, and shows absolutely no response to being handled.</p> <p>*This code is not applicable if there are any signs of life (e.g., body or gill movement).</p>
4	Dead, Shark Bit	<p>Fish is dead. General injuries or missing pieces of tissue can clearly be attributed to predation (teeth marks, circular jaw prints, etc).</p>

Skate and Ray Species



Common Names

Deepwater Ray, Raie Bathyale (fr)

Description

- Heart-shaped body in juveniles; diamond-shaped in adults
- **Colour:** Colour is uniform; light brown on top and white underneath



Mature Female

Abyssal Skate

(*Rajella bathyphila*)

Size (cm)

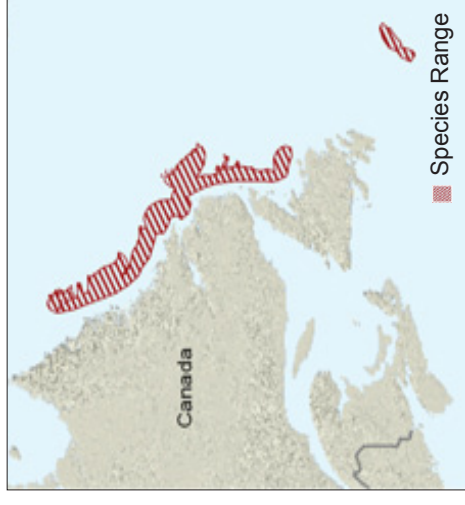
Maximum: 95 cm (TL)

Habitat

- This skate is a deepwater species inhabiting the lower parts of the continental slope and probably abyssal plains
- **Depth:** 600-2293 m; typically occurs in waters deeper than 1400 m

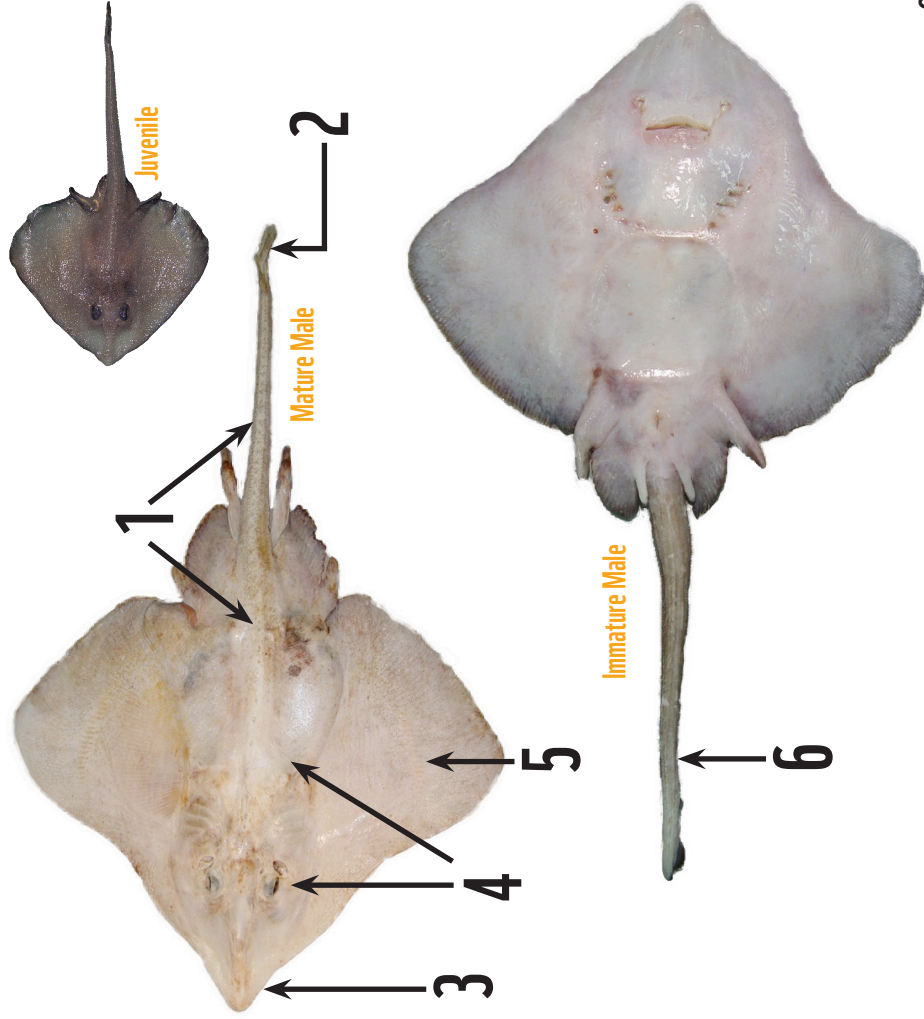
Distribution

- This species occurs north of 45°N along continental slopes in the northern Labrador Sea, east of Newfoundland, Flemish Cap, Grand Banks, Georges Bank



Identification Keys

- 1 - Large thorns in mid-dorsal row (35-43); flanking row of small thorns 1/3-1/2 of tail length; 1 or more lateral rows of spines on each side of whole tail length
- 2 - Dorsals fins usually joined - no gap
- 3 - Pointed snout with no spines
- 4 - 3-4 thorns around eyes; 2-3 thorns in a triangular patch on each shoulder
- 5 - Upper disc surface completely spinulose; except mature males are smooth on sides of body & center of each wing
- 6 - Long tail (1.5 times longer than body)
- 7 - 40-54 teeth rows on upper jaw



May be confused with the **White Skate**
(see pg. 98)



Humpedbacked Appearance
on Mature Female

Arctic Skate

(*Amblyraja hyperborea*)

Common Names

Blackbelly Skate, Raie Arctique (fr),
Raie Boréale (fr)

Description

- Diamond-shaped (juveniles);
spade-shaped (adults)
- **Colour:** Dark mouse gray, blue gray or dark brown with small rounded spots on top; light or dark on the bottom with highly variable dark markings that are usually “mirror-images” across midline from snout to base of tail

Size (cm)

At Birth: 16-18 cm

Maximum: 86 cm (TL)

Habitat

- This skate is a bottom dwelling species, occurring on the lower continental slope
- Lays less than 100 eggs annually in cold, polar waters as low as 0°C
- **Depth:** 140-2500 m

Distribution

- May occur from Baffin Bay (including off Cape Dyer), along the west, south, and east coasts of Greenland and further eastward to Iceland
- Also found in Canadian waters of NAFO Subarea 0

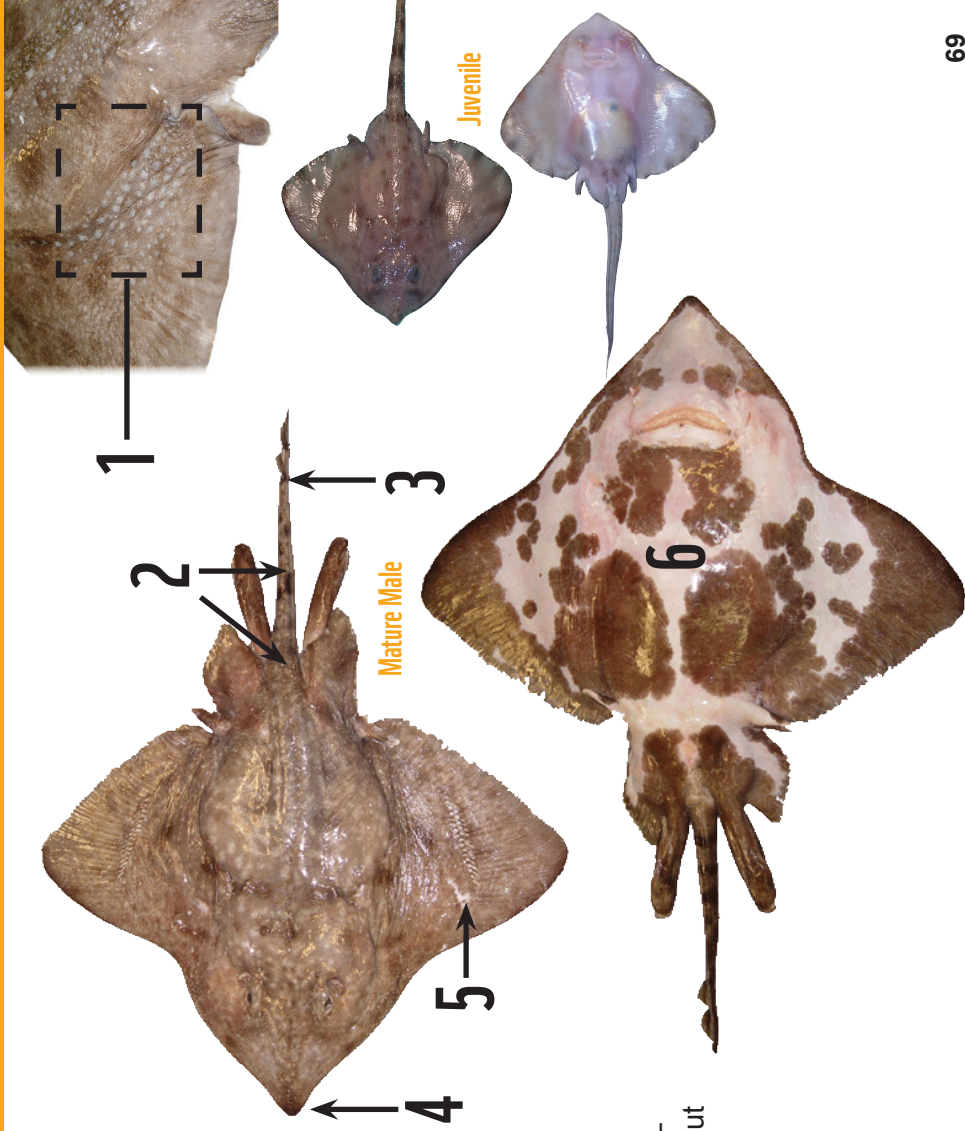


Species Range

Identification Keys

- 1 - With body growth/ age, medium-sized spines develop on the mid-rear area of each wing
- 2 - Median row of 22-37 thorns; decreasing in size towards 1st dorsal fin
- 3 - Tail is very short
- 4 - Pointed snout with 4-9 thorns on the tip
- 5 - Upper surface covered with sandpaper-like spines
- 6 - Highly variable dark markings that are usually "mirror-images" across midline from snout to base of tail

May be confused with **Jensen's Skate** (see pg. 78)



Common Names

Devil Rays, Devil Fish, Mante Atlantique (fr)

Description

- Wide, dorso-ventrally flattened body with a broad flattened head, whip-like tail that tapers into a lash-like tip and enlarged pectorals
- **Colour:** Reddish, olive greenish-brown to black above, with or without white markings; white toward centre of disc and gray around the margins below

Size (cm)

Maximum: > 700 cm (DW)

Habitat

- Occupies surface or near surface waters mainly in near-shore waters, near coral and rocky reefs, intertidal areas, muddy bays or over deep water
- May be more oceanic and migratory than previously thought
- **Depth:** 0-120 m

Distribution

- In the western Atlantic, generally range from the Carolinas south as far as Brazil
- Very rarely found in colder waters of the northwest Atlantic; however, have been spotted and/or caught in southern New England and Georges Bank waters

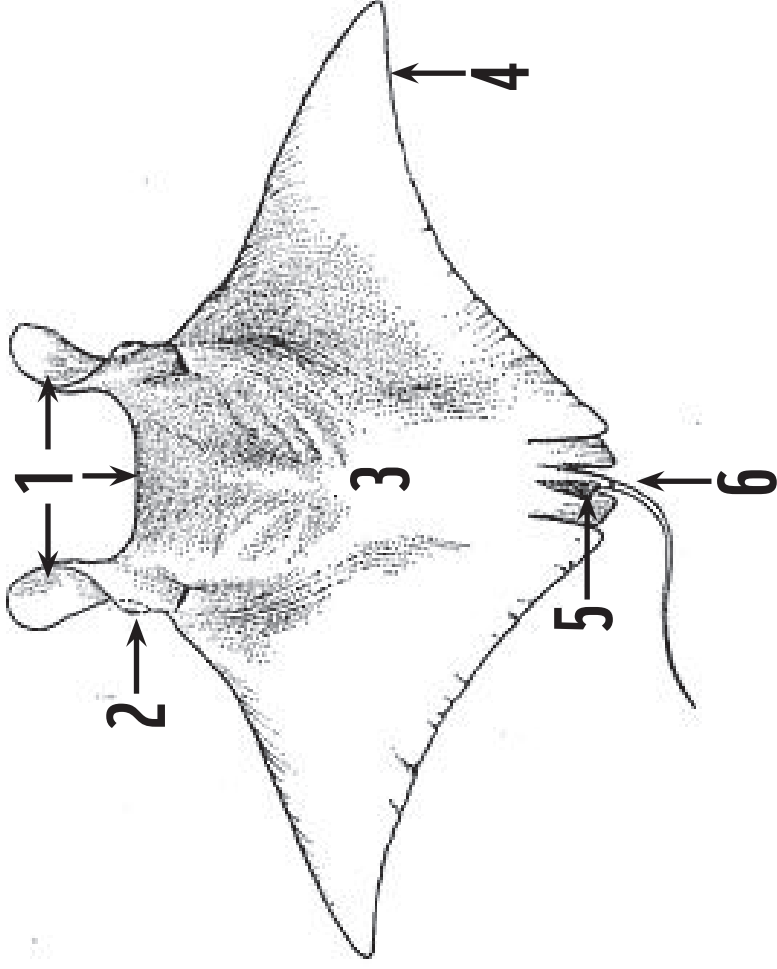
Atlantic Manta Ray

(*Manta birostris*)



Identification Keys

- 1 - Extremely broad head with long head fins that curve forward from the front of the head flanking the mouth
- 2 - Eyes and spiracles - on either side of the head - are small
- 3 - Skin is smooth and lacking scales; small prickles may be present
- 4 - Pectoral fins are divided at the head to form two widely separated large fins
- 5 - Single, small dorsal fin is present on the base of tail
- 6 - Tail usually without a spine



Common Names

Torpedo Ray, Electric Ray, Torpille Noire (fr)

Description

- Subcircular, disc-shaped body
- **Colour:** Uniform or slightly spotted chocolate brown, slate-gray or black on top, with white underneath edged with light brown

Mature Male

Atlantic Torpedo

(*Torpedo nobiliana*)

Size (cm)

Average Size: 40 cm

Maximum: 180 cm

Habitat

• The Atlantic torpedo is a bottom-dwelling fish inhabiting muddy or sandy bottom ecosystems

- **Depth:** 10-150 m; may also reach depths of 800 m

Distribution

- It ranges from Nova Scotia south to Brazil, including the northern part of the Gulf of Mexico
- While this species is not common in Atlantic Canadian water, nor is it rare



■ Species Range

Identification Keys

- 1 - Eyes almost absent
- 2 - Dorsal and caudal fins are well-developed; first dorsal is larger than the second and located partially behind the pelvic fins
- 3 - Powerful electric organs visible as large, kidney-shaped patches on sides of head
- 4 - Stout tail, which is either as long as or shorter than its body
- 5 - Small mouth filled with small, rounded teeth



Mature Male



Common Names

Grande Raie (fr)

Description

- Large skate with a flattened body, a diamond-shaped disc, and a long slender tail
- **Colour:** Top of disc is brown with many dark spots; underside of disc is white, blotched with gray, and has many tiny mucous pores marked with black pigment (look like black peppercorns)

Size (cm)

Maximum: 152 cm

- Largest shelf-dwelling species in Atlantic Canadian waters

Habitat

- A bottom-dwelling species that occurs on all types of bottom habitats on the continental shelf from shoal waters to waters at depth
- **Depth:** 51-788 m; usually 10-145 m

Barndoor Skate

(*Dipturus laevis*)

Distribution

- Gulf of St Lawrence and the southern Grand Bank southward along the continental shelf off Nova Scotia to Georges Bank, the Bay of Fundy and the Gulf of Maine
- Southernmost range is unknown; however, this species range may be more extensive than previously reported, both in terms of depth and northern range

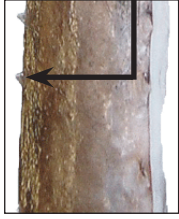


Identification Keys

- 1 - Dorsal fins of equal size, separated by a gap with one thorn
- 2 - Row of small thorn-like spines from the pectoral fins to the base of the first dorsal, with one or two rows of spines on either side
- 3 - diamond-shaped body
- 4 - Small spines on the snout, along the front edges of pectoral fins and in front of and behind the eyes
- 5 - Underside dusky; darker along margins of fins; many tiny, black-pigmented mucous pores underneath body & wings

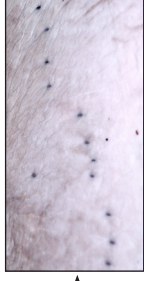
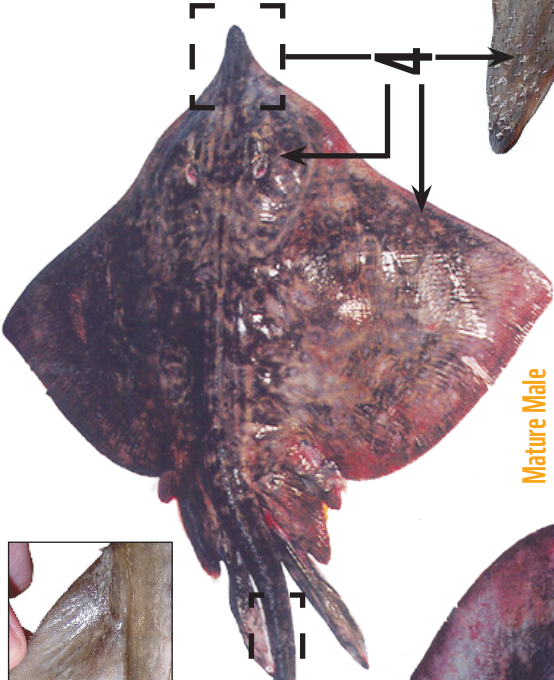
May be confused with the

Spinytail Skate (see pg. 94)



3

Mature Male



5

Common Names

Chocolate Skate, Raie de Bigelow (fr),
Raie Chocolat (fr)

Description

- A spade-shaped skate with rounded outer corners
- **Colour:** Lower surface uniform dark brown, darker than dusky gray upper surface, with underside of the tail being distinctly lighter

Size (cm)

- **At Birth:** < 8.9 cm (TL)
- **Maximum:** 55 cm (TL)

Habitat

- This deepwater species inhabits the lower parts of the continental slope, abyssal plains and deepwater rises
- **Depth:** 367-4156 m

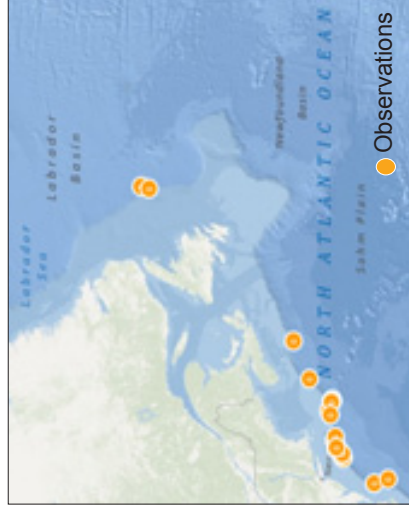
Distribution

- Bigelow's skate is a relatively wide-ranging species, occurring on both sides of the North Atlantic in deep waters
- It occurs in southern Baffin Bay, Davis Strait, Grand Banks, Flemish Cap, Scotian Slope, and Georges Bank; in deep water, the distribution of this species is probably much wider

Bigelow's Skate

(*Rajella bigelowi*)

Mature Male

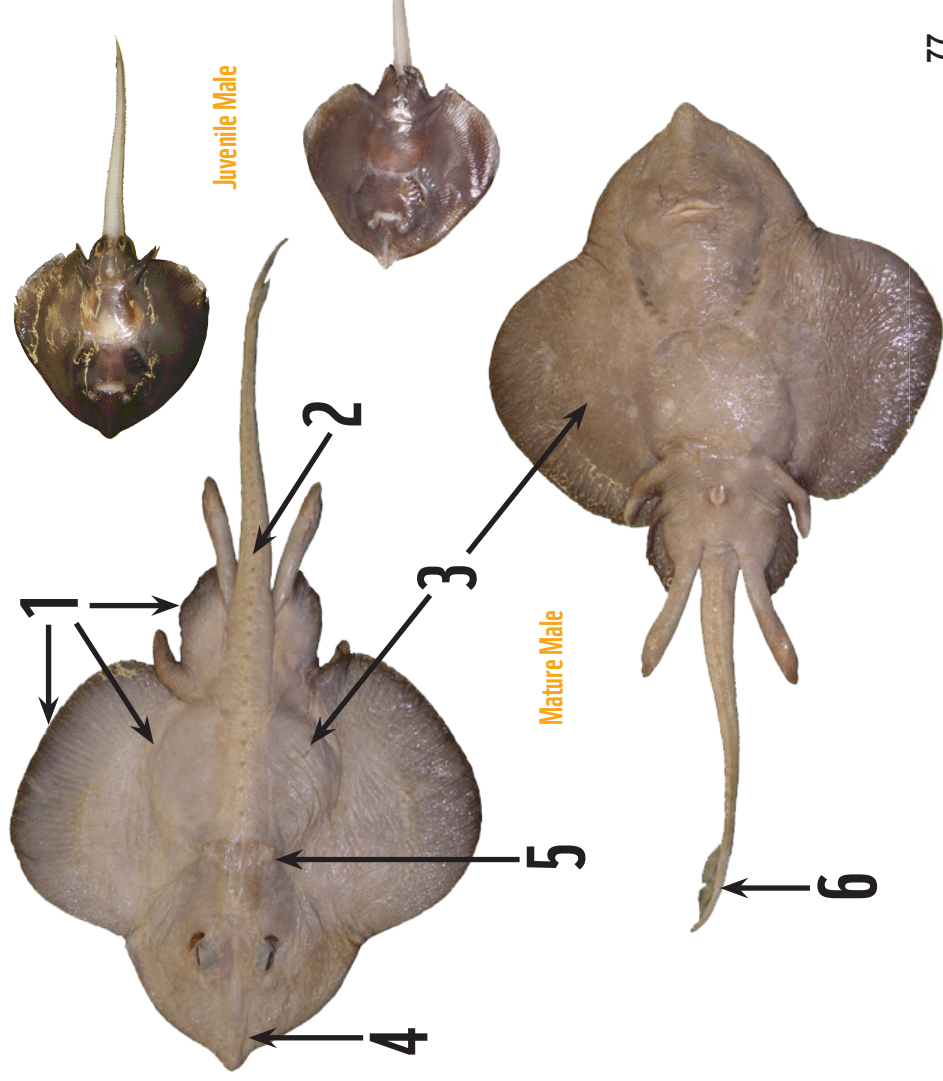


● Observations

Identification Keys

- 1 - Upper surface completely covered by small spines except on trailing edges of the disc and pelvic fins which are slightly darker in colour
- 2 - 26-35 midline thorns; 1 - 2 irregular thorn rows on tail
- 3 - Underside of disc always darker than top side of disc
- 4 - Row of 3-15 small spines on its snout
- 5 - 3 thorns on each shoulder
- 6 - Joined dorsal fins with no distinct gap

May be confused with **Round Skate** (see pg. 88)



Juvenile Male

Mature Male

Common Names

Shorttail Skate, Raie à Queue Courte, Raie de Jensen (fr)

Description

- A diamond-shaped, firm bodied skate with relatively thin abdomen and wings
- **Colour:**
- **Top of disc:** highly variable colouration ranging from “leopard-like” spots on dark background to one uniform brownish colour.
- **Underneath disc:** highly variable pigment patterns; dark brown to blackish patches are symmetrical; up to 95% coverage of white background



Jensen's Skate
(*Amblyraja jenseni*)

Size (cm)

Maximum: 110 cm (TL)

Habitat

- Prefers cold, deepwater along the continental slope and rise
- **Depth:** 336-2777 m (based on records off Georges Bank and southern New England); usually captured around 1100 m from the Grand Banks to the Labrador Shelf

Distribution

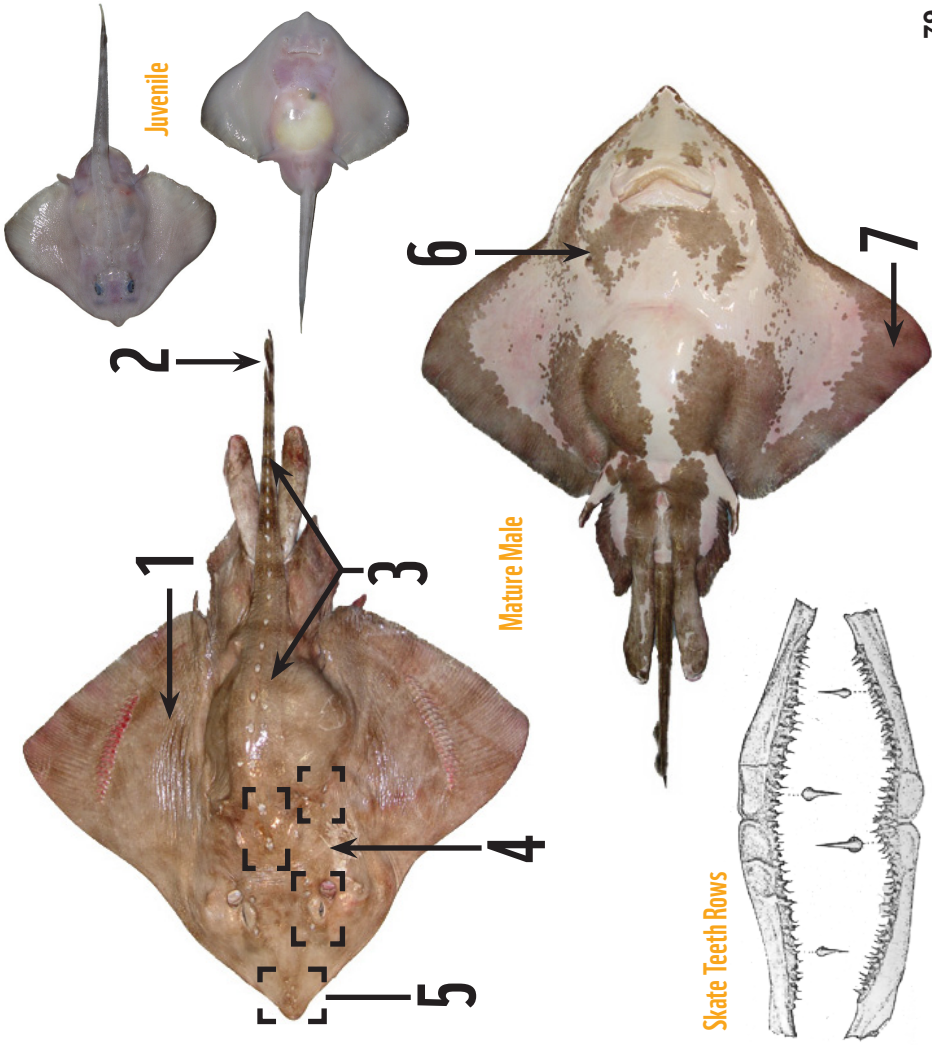
- Reported in Northwest Atlantic waters, with captures occurring from Hamilton Inlet, Newfoundland and Georges Bank southward to New England



Identification Keys

- 1 - Upper surface covered with fine sandpaper-like spinules, or prickles
- 2 - Tail shorter than body;
- dorsal fins separated by a distinct gap with 0-2 intervening thorns
- 3 - Midline thorns are large and distinctly white
- 4 - 3-4 thorns on each shoulder;
- 2 - 4 thorns around each eye;
- thorns on neck region
- 5 - 4-9 thorns on tip of pointed snout
- 6 - Dark brown to blackish patches on white underneath disc;
- symmetrical on both sides of imaginary midline
- 7 - Angular corners on wings
- 8 - 54-71 Teeth rows on upper jaw (see "Skate Teeth Rows" diagram)

May be confused with **Arctic Skate** (see pg. 68)



Common Names

Tobacco Box, Hedgehog Skate, Raie Hérissou (fr)

Description

- Spade-shaped body with rounded corners, broad snout and disc and tail roughly equal length
- **Colour:** Grayish to dark brown on top, usually with small oval darker spots; white to pale gray underneath

Size (cm)

Juvenile: < 21 cm (TL)

Maximum: 53-59 cm (TL)

- One of the smallest species of skate in Atlantic Canadian waters

Habitat

- Primarily found on the continental shelf over sand or gravel bottom, often in shallow waters and prefers lower temperatures, moving inshore in the winter and offshore in the summer
- **Depth:** 10-914 m; usually 25-111 m

Distribution

- Ranges from southeastern Newfoundland, Scotian Shelf, Bay of Fundy, and Georges Bank southward to North Carolina (most abundant from Georges Bank to Delaware Bay region)
- Occurs in the same geographical areas as the Winter Skate (pg. 99)

Little Skate

(*Leucoraja erinacea*)

Mature Male

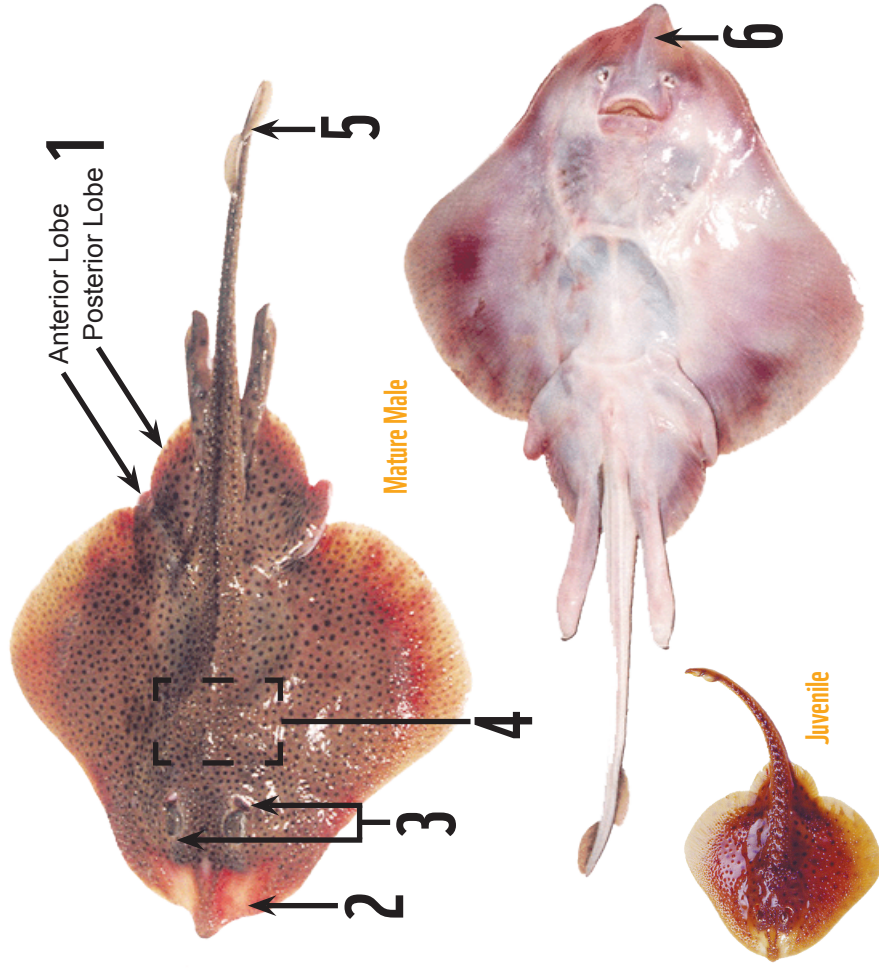


Species Range

Identification Keys

- 1 - Distinct division of anterior and posterior lobes of pelvic fins and overlapped by the pectorals
- 2 - Translucent areas on either side of ridge at tip of snout
- 3 - 2-4 rows of thorn-like spines on either side of mid-line; 8-15 spines in front of eyes and 3-8 behind
- 4 - Irregular triangular patch of 20-60 thorns on nuchal/ shoulder area
- 5 - Dorsal fins relatively large and joined with no distinct gap or intervening thorns
- 6 - Underside of disc is white and smooth, except for a few spines on the snout

May be confused with **Winter Skate** (see pg. 100)



Common Names

Black Skate, Pastenague Violette (fr)

Description

- A small, thick, disc-shaped stingray with blunt-rounded snout, angular pectoral disc, and usually one extremely long sting on its tail
- **Colour:** Uniformly violet, purple, or dark blue-green on top and below



Pelagic Stingray

(*Pteroplatytrygon violacea*)

Size (cm)

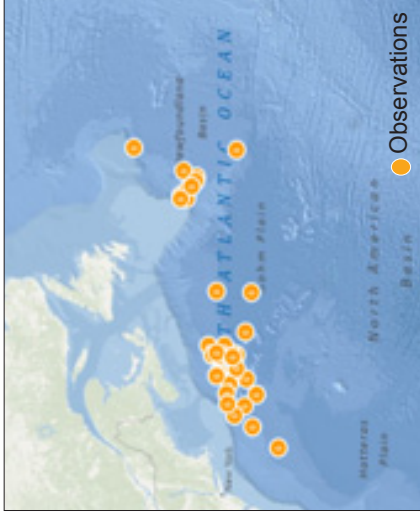
Maximum: 160 cm

Habitat

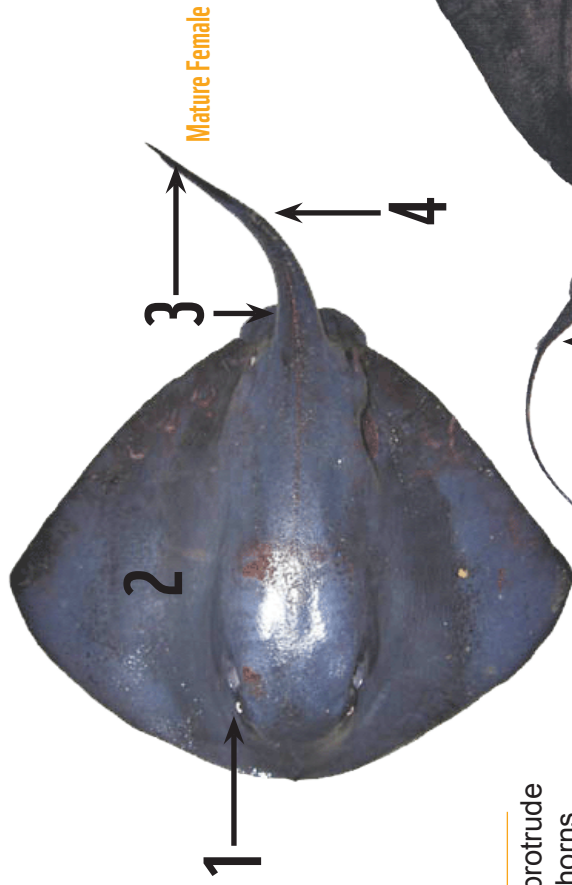
- Found in open, tropical and warm temperate waters occupying open surface and near surface waters
- Perhaps the only species of stingray that occurs in pelagic, oceanic waters
- **Depth:** 1-381 m; commonly < 100 m

Distribution

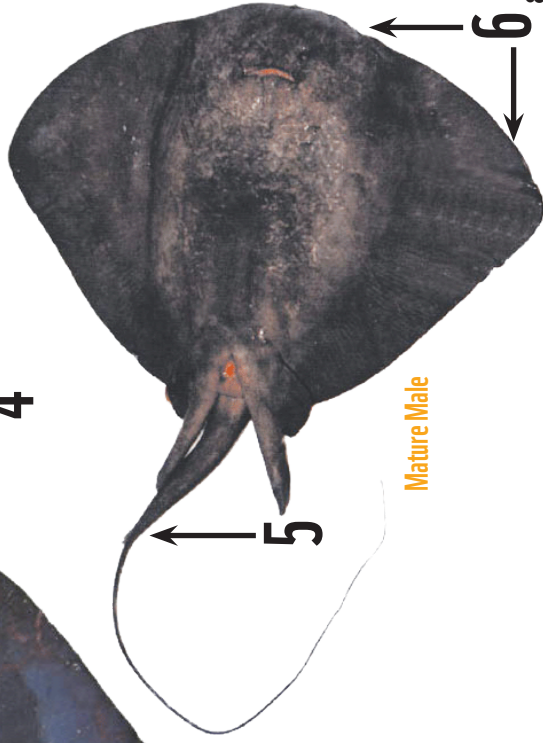
- In the Northwest Atlantic, these stingrays occur along the continental shelf in Canadian waters southward along the coast of the United States to the Lesser Antilles
- In Atlantic Canadian waters, this species is thought to be a migratory species, as opposed to a permanent resident



● Observations



Mature Female



Mature Male

Identification Keys

- 1 - Eyes are small and do not protrude
- 2 - No prominent markings or thorns on their skin
- 3 - Dorsal and anal fins are absent
- 4 - Tail itself is less than twice the length of the body
- 5 - Long, serrated tail spine which is flattened dorsoventrally and attached rigidly to the skin of the tail
- 6 - Pectorals are continuous along both sides from the head

Common Names

Richardson's Skate, Raie de Richardson (fr)

Description

- This is a very poorly understood and rarely observed species
- A diamond-shaped disc with a broad triangular-shaped head, very wide mouth, eyes far apart and a very short tail
- **Colour:** Both upper and lower surfaces are uniform grey or brown



Mature Female

Richardson's Skate

(*Bathyraja richardsoni*)

Size (cm)

At Birth: 18.2-24.5 cm (TL)

Maximum: 175 cm (TL)

- Largest skate species in the Northwest Atlantic

Habitat

- A bottom-dwelling species that occurs on the lower parts of continental slopes, on submarine rises, and on the adjacent deep-sea plains
- **Depth:** 1320-2500 m

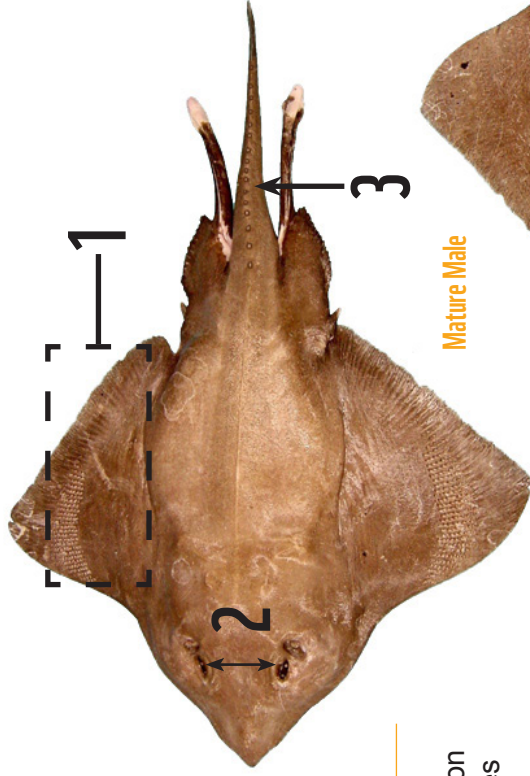
Distribution

- Found off southern Labrador, Flemish Cap, Grand Banks, Scotian Slope, northern Georges Bank
- Only reported captures in the Northwest Atlantic occurred via bottom longline during deepwater explorations

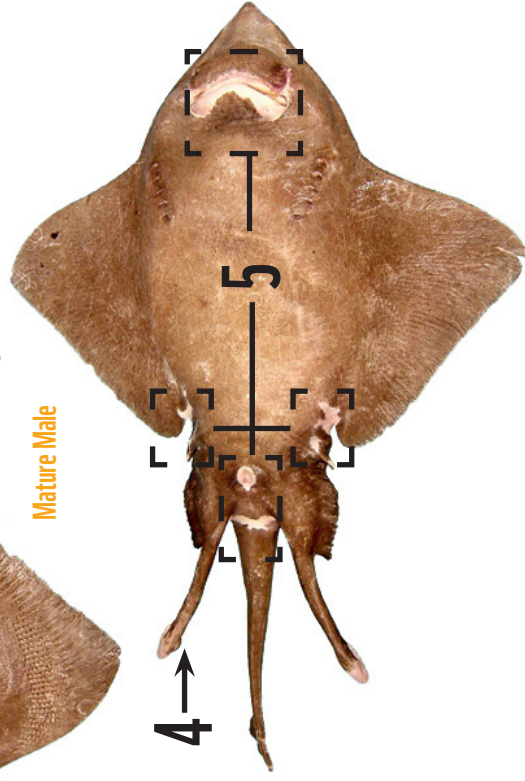


Identification Keys

- 1 - No thorns or spines on its upper disc; except for rows of alar spines on the wings of maturing / mature males (of every skate species)
- 2 - Large head; eyes far apart
- 3 - Spines are only on the midline of its tail
- 4 - Claspers on mature males are very long
- 5 - Light colouration usually around the mouth, anus, and underneath its tail in patches



Mature Male



Common Names

Pastenague à Queue Epineuse (fr)

Description

- A large, square-shaped stingray with a blunt snout, conspicuous tubercles on the outer parts of disc and serrated tail spine on its long, slender tail
- **Colour:** Olive green-brown or brownish-black on top; white to yellowish-white below



Rough-tail Stingray

(*Dasyatis centroura*)

Size (cm)

At Birth: 8-37 cm

Maximum: 210-260 cm

- One of the largest known stingrays

Habitat

- A bottom-dwelling species, inhabiting coastal marine and brackish waters, that occurs primarily over muddy or sandy bottoms
- **Depth:** 3-270 m; commonly 15-50 m

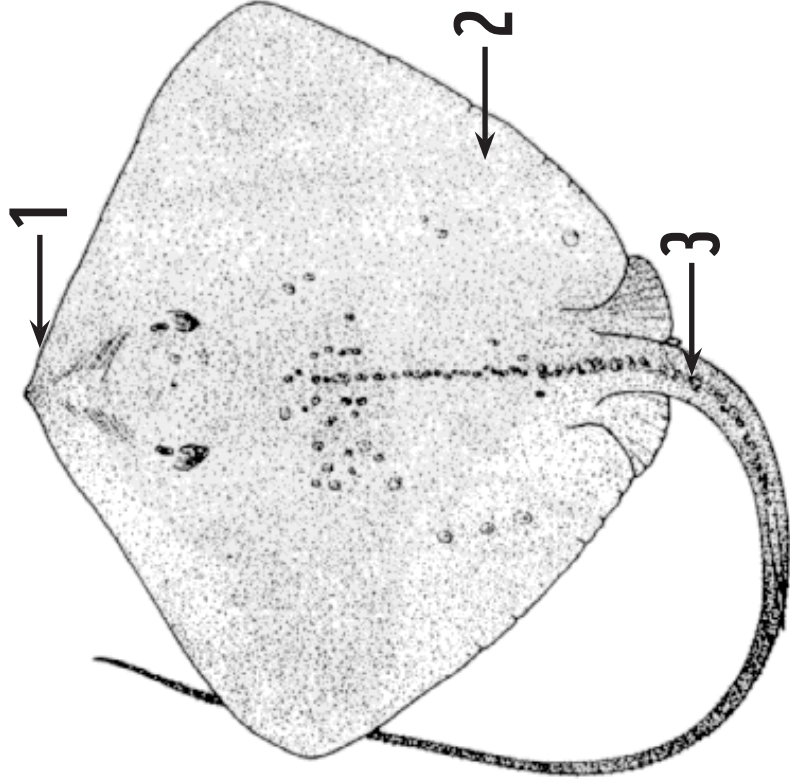
Distribution

- While considered rare in Atlantic Canadian waters, this species ranges from Georges Bank and Cape Cod south to the northeastern Gulf of Mexico and in the Bahamas



Identification Keys

- 1 - Blunt snout
- 2 - Disc is square to rectangular in shape
- 3 - Large, well-spaced mid-dorsal 'bucklers' or thorn-like scales that extend before the tail spine
- 4 - Numerous rows of tail spines embedded within the tough skin of its long, slender tail that extend to the tapered tip of the tail

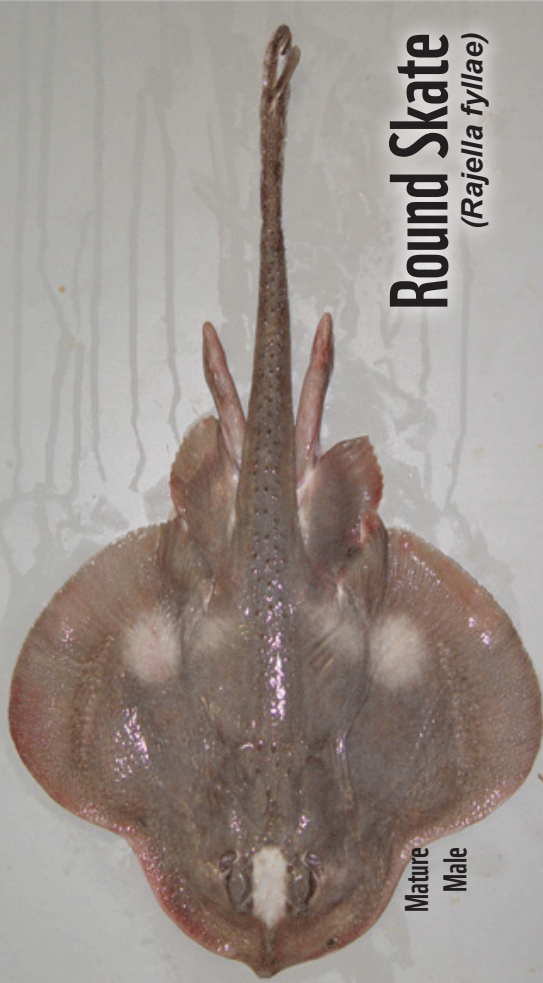


Common Names

Round Ray, Raie Ronde (fr)

Description

- Distinct spade-shaped disc with rounded corners and a snout with small terminal point
- **Colour:** Top of disc ash gray to chocolate brown; usually with 1 pale spot between eyes, and 1-2 pale spots on rear of each wing (not on young juveniles). Underneath disc white to gray with sooty patches on pelvics and the rear of pectorals



Mature
Male

Round Skate

(*Rajella fyllae*)

Size (cm)

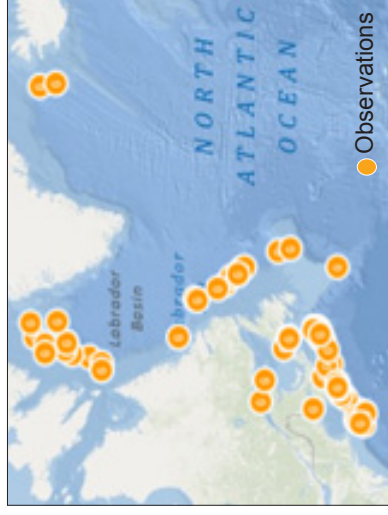
Maximum: 55 cm (TL)

Habitat

- Found in deeper waters along the continental shelf and slope
- **Depth:** 70-1240 m; commonly 300-800 m

Distribution

- Ranges from Davis Strait off west Greenland, Gulf of St. Lawrence to the slopes off Nova Scotia and Georges Bank
- Exploratory trawling have captured Round Skate offshore from LaHave to Browns Bank in depths of 530 – 1097 m



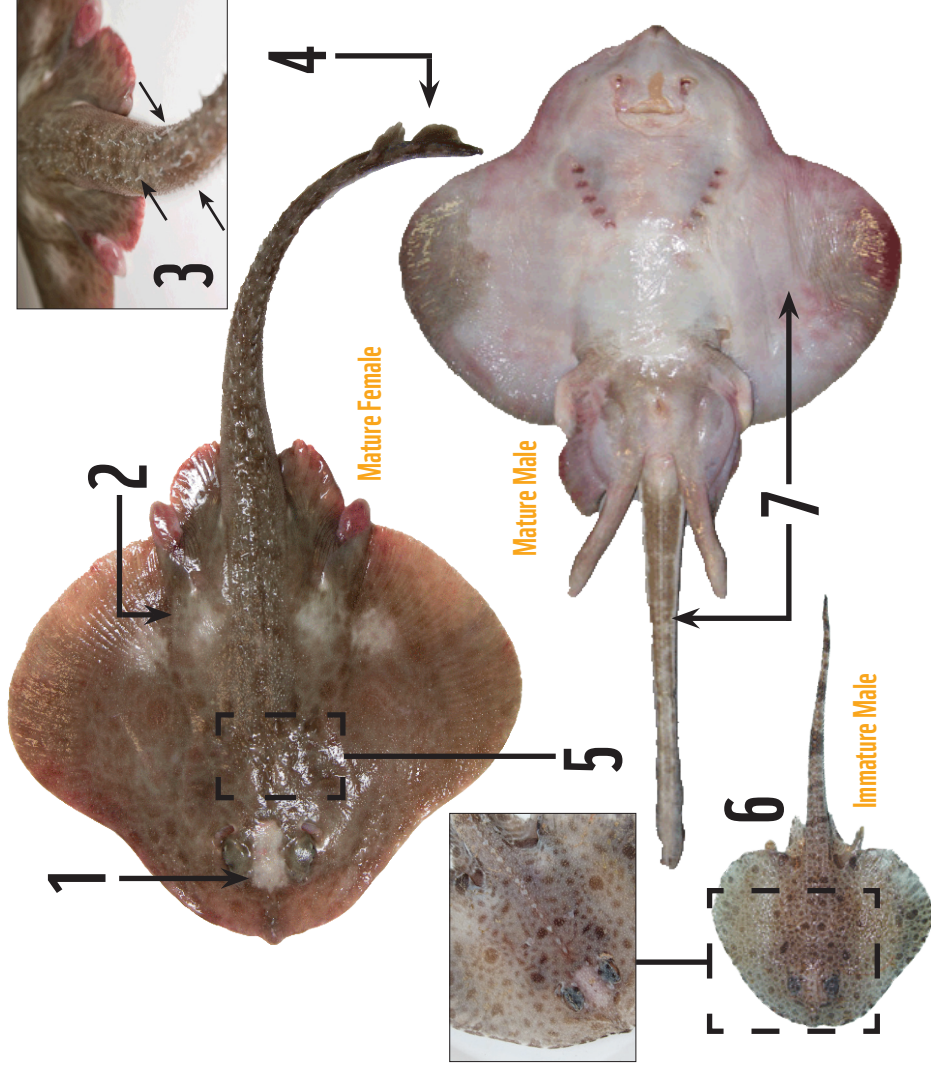
Identification Keys

- 1 - 1-2 pale spots on rear of each pectoral fin
- 2 - 3-5 parallel mid-dorsal rows of roughly equal, claw-like thorns
- 3 - Dorsal fins usually joined with no intervening gap or thorn
- 4 - Distinct pale spot between eyes
- 5 - Triangular patch of 20-30 large thorns on shoulders / neck region
- 6 - Juveniles have proportionately longer tail; often confused with Pluto skate (does not occur in Canadian waters)
- 7 - Underside of body / tail bare and translucent white in colour and with sooty patches

May be confused with

Bigelow Skate (see pg. 76)

and/or **Winter Skate** (see pg. 100)



Common Names

Smooth-Tailed Skate, Prickly Skate, Raie Lisse (fr), Raie a Queue de Velours (fr)

Description

- One of the most common species encountered
- Heart-shaped disc with very thin margins and a distinctly pointed snout has thin, opaque cartilage
- **Colour:** Gray-brown on top with dark mottling or few spots; entirely white underneath



Smooth Skate
(*Malacoraja senta*)

Size (cm)

At Birth: <12 cm (TL)

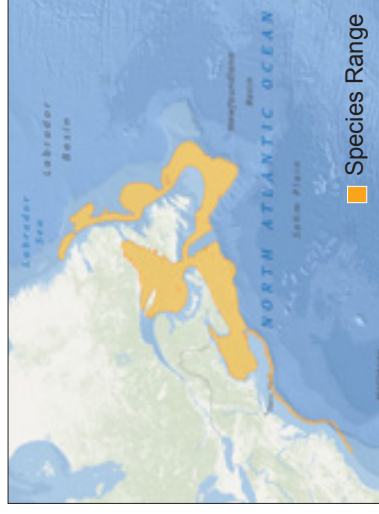
Maximum: 62 cm (TL)

Habitat

- A cold water, bottom-dwelling species living on clay, silt or soft, sandy bottoms predominantly in deep troughs and basins
- **Depth:** 31-874 m

Distribution

- Ranges from the Labrador Shelf, Strait of Belle Isle, Flemish Cap, St. Lawrence River to Saguenay River, Gulf of St. Lawrence, Scotian Shelf, Bay of Fundy, Georges Bank
- Common on southern Grand Bank along the Scotian Shelf to the Bay of Fundy, Georges Bank, Gulf of Maine region

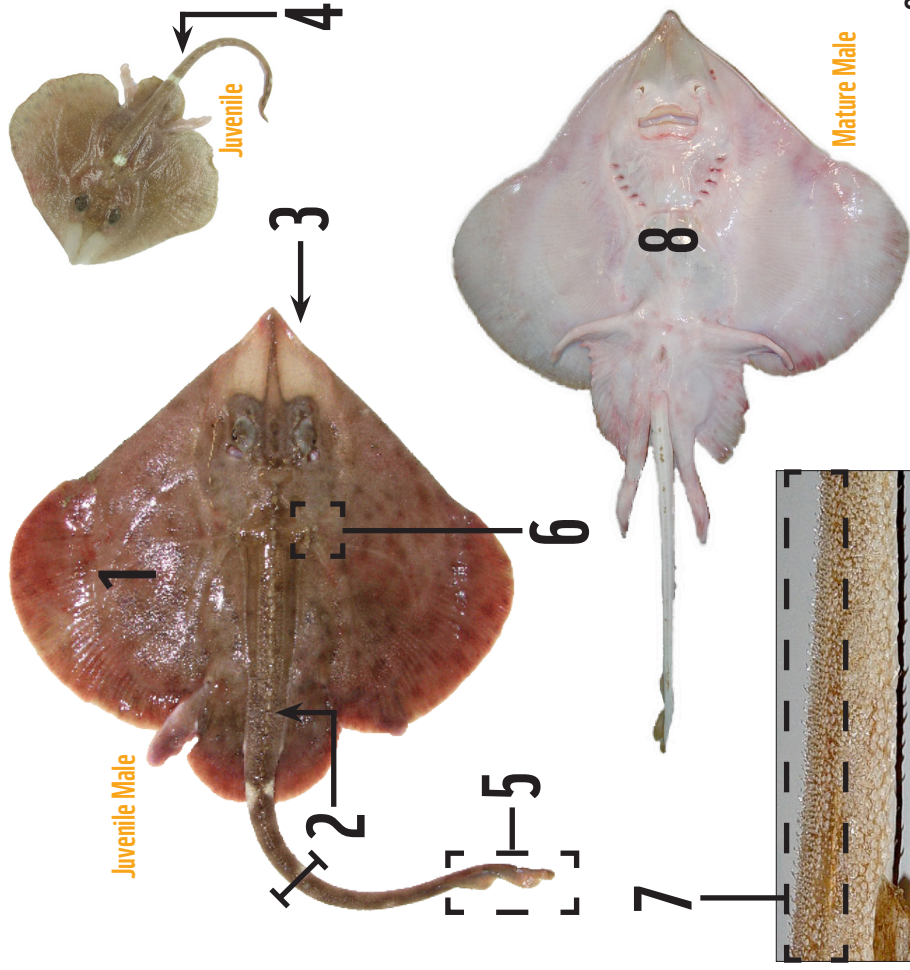


Species Range

Identification Keys

- 1 - Upper surface of disc covered with fine sandpaper like spinules
- 2 - Single midline row of small thorns; no thorns on the last half of tail
- 3 - Thin, opaque cartilage on snout
- 4 - Young juveniles have 1-4 irregular pale "crossbars" or 1/2 bars on their tails (No other Northwest Atlantic skate species has this colour pattern on its juvenile tail)
- 5 - Dorsal fins either joined or separate with no intervening thorn
- 6 - 1-6 shoulder thorns
- 7 - Midline spines decrease in size from its neck to base of tail until spines 'become invisible' among the numerous spines on the whole tail
- 8 - Underside white without spinules (except under tail)

May be confused with **Soft Skate** (see pg. 92)



Common Names

Roughskin Skate, Raie Molle (fr)

Description

- Soft skate is a poorly understood species
- Heart-shaped disc with a pointed snout that has thin, opaque cartilage
- **Colour:** Uniform gray-brown on top; whitish underneath with scattered gray specks (except under tail)



Soft Skate

(*Malacoraja spinacidermis*)

Size (cm)

At Birth: ~ 10 cm (TL)

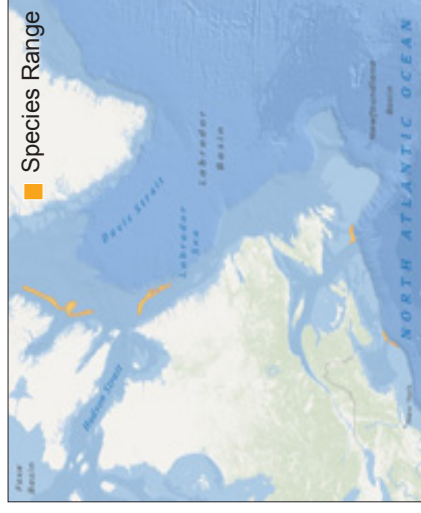
Maximum: 70 cm (TL)

Habitat

- This species inhabits continental slopes, probably down to the abyssal plains
- **Depth:** 450 m-1550 m; commonly > 800 m; juveniles mainly found around 450 m downward and adults at depths >1500 m

Distribution

- Encountered off the continental slope off Baffin Island, Davis Strait, northeast Newfoundland Slope, southwest Grand Banks, Scotian Slope and Georges Bank

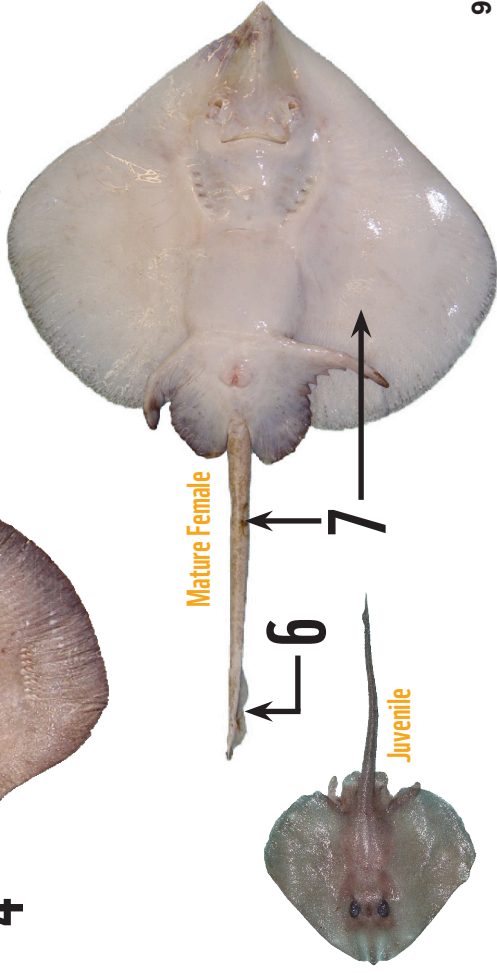
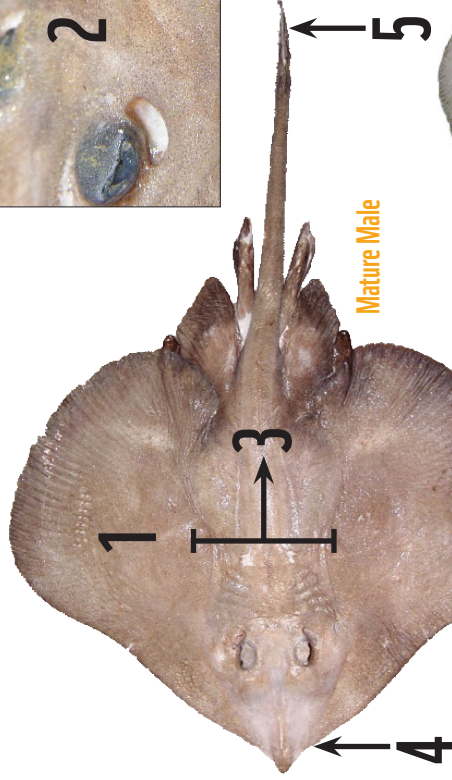


Identification Keys

- 1 - Upper surface of disc covered in small densely-spaced spinules
- 2 - 0-2 thorns on neck region; 0-1 thorns on each shoulder
- 3 - No thorns anywhere on disc except in neck/shoulder areas and around eyes
- 4 - Pointed snout has thin, opaque cartilage
- 5 - Tail slightly longer than body
- 6 - Dorsal fins usually connected with no gap or intervening thorn
- 7 - Underside white and bare; except for the tail which is covered by fine densely spaced spinules

May be confused with **Smooth Skate**

(see pg. 90)



Common Names

Spinetail Ray, Raie à Queue Epineuse (fr)

Description

- Diamond-shaped disc with no spines and a very pointed snout
- **Colour:** Uniform pale brown or bluish-gray, with the posterior edges of the pectorals being slightly paler; white with irregularly sooty markings around the edges of pectorals

Size (cm)

Maximum: 172 cm (TL)

Habitat

- An inhabitant of deep, cold waters found along the upper and middle continental slope
- **Depth:** 140-1650 m; commonly >400 m

Distribution

- Ranges from Davis Strait, off the coast of Newfoundland and Labrador, the Grand Banks and Flemish Cap, the Gulf of St. Lawrence, the Scotian Shelf, the eastern slope of Georges Bank south to Nantucket, and occasionally in the Gulf of Maine

Spinytail Skate

(*Bathyraja spinicauda*)

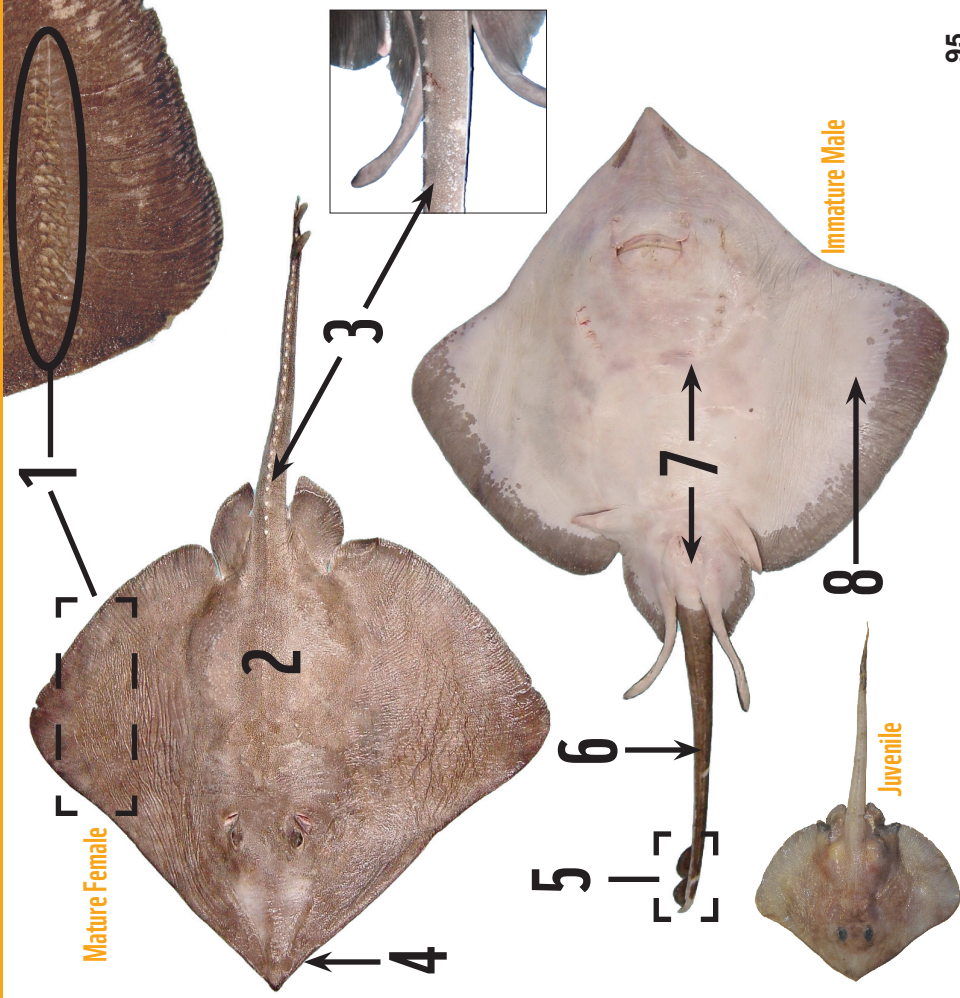


Identification Keys

- 1 - Alar thorn rows near edge of each pectoral fin of maturing / mature males of all skate species
- 2 - No spines on disc; densely covered with fine spinules
- 3 - Midline row of thorns only on tail; no lateral row of spines on tail
- 4 - Very pointed snout
- 5 - Dorsal fins distinctly separated with one intervening thorn (absent in juveniles)
- 6 - Tail shorter than body; prominent lateral fold along lower margins
- 7 - Underside of disc and tail is smooth
- 8 - No dark pigment in mucous pores on underside of disc (see Barndoor Skate)

Note: Young juveniles look exactly like adults; except for small clasper lengths and no alar thorn rows in males.

May be confused with **Bamdoor Skate** (see pg. 74)

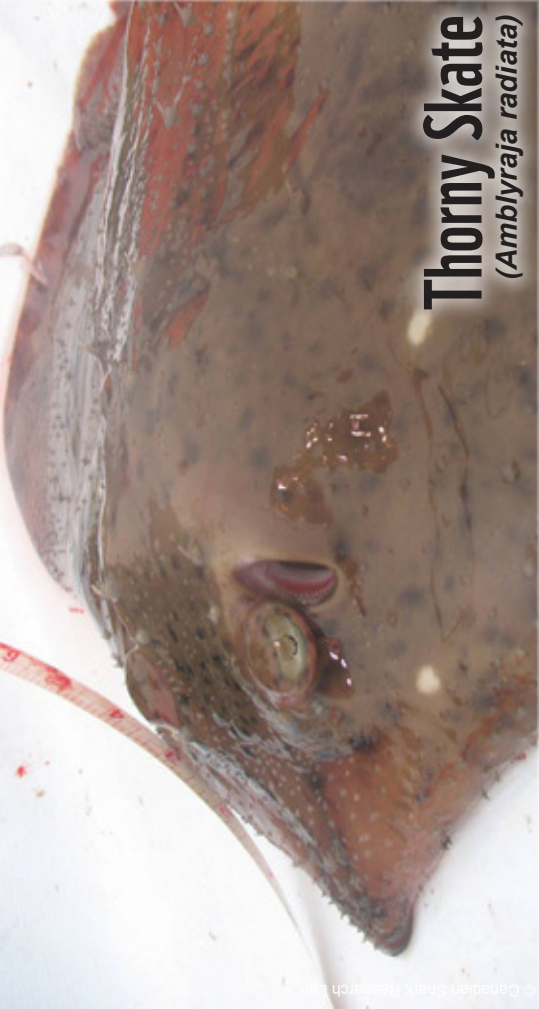


Common Names

Starry Skate, Raie Epineuse (fr)

Description

- Spade to heart-shaped body with rounded corners and snout
- **Colour:** Highly variable colouration on top of disc; ranging from almost circular "rosettes" of small yellow and black spots, to one uniform colour. Underneath disc is whitish; rarely with 1 to few irregular sooty blotches



Thorny Skate
(*Amblyraja radiata*)

Size (cm)

- **At Birth:** <13 cm (TL)
- **Maximum:** 105 cm (TL)

Habitat

- Found over hard and soft bottoms, and occurs at a wide range of depths from nearshore farther offshore
- **Depth:** 5-1400 m; commonly 100-500 m

Distribution

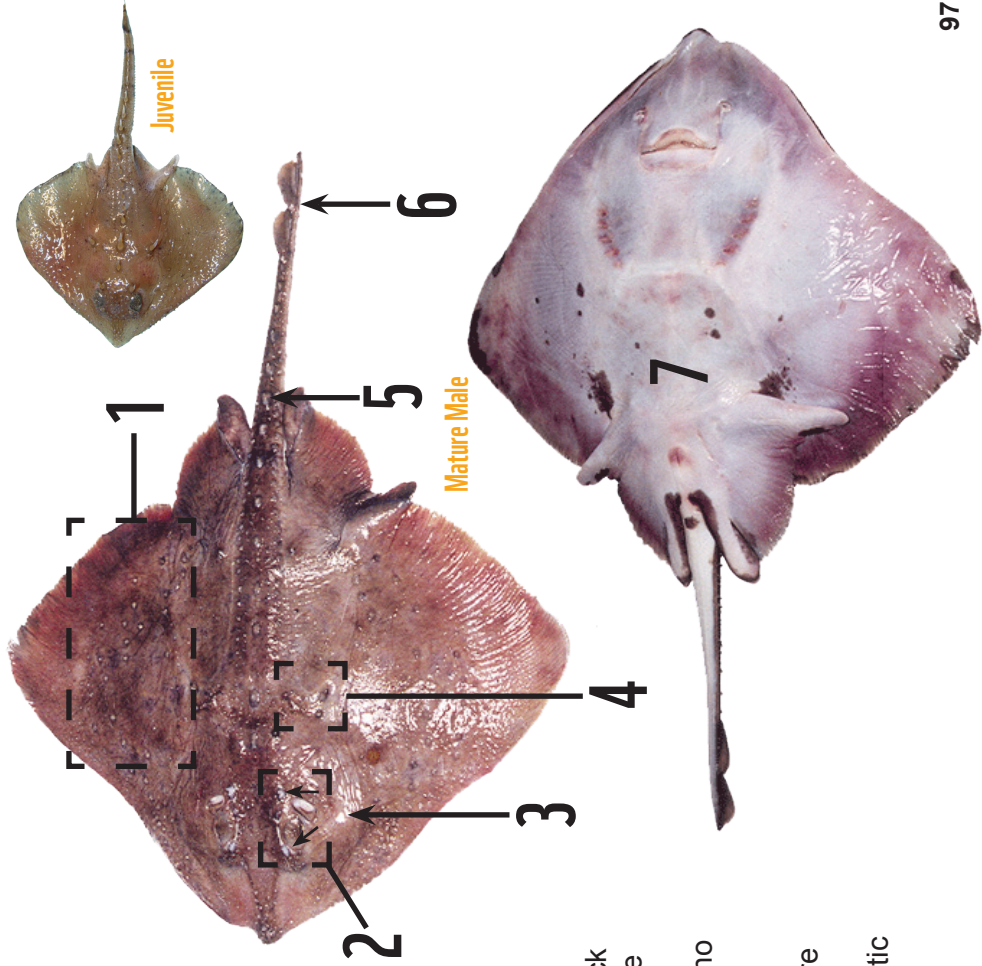
- Ranges from western Greenland, Davis strait, Hudson strait, Hudson Bay, and off Labrador southward as far as South Carolina
- One of the most common skates found on/in the Grand Bank, the Gulf of St. Lawrence, the Scotian Shelf, the Bay of Fundy, and Georges Bank



Species Range

Identification Keys

- 1 - Variable patches of large thorns on top of whole disc
- 2 - 1-4 thorns around each eye;
1 thorn near the inner margin of each spiracle
- 3 - Highly variable colouration on top of disc; ranging from almost circular "rosettes" of small yellow and black spots, to medium pale spots, to one uniform colour
- 4 - 2-3 large spines on each shoulder; except 1 on each for young juveniles
- 5 - Single dominant midline row (from neck region to 1st dorsal fin) of 11-19 very large thorns on radiate bases
- 6 - Dorsal fins separated by distinct gap; no intervening thorn
- 7 - Underneath disc is whitish; rarely with 1 to few irregular sooty blotches, which are never symmetrical across an imaginary midline from snout to base of tail (see Arctic Skate)



Common Names

Raie Linon (fr)

Description

- Diamond-shaped skate with a long, narrow snout, strongly scalloped pelvic fins, single row of large thorns along the midline of the back, and a long tail
- **Colour:** Upper surface plain fawn color, slate-grey or clay-grey; lower surface white, with borders of the pelvic and the ventral surface of tail with some darkening
- Same colouration throughout its life



Mature Male

White Skate

(*Dipturus lineatus*)

Size (cm)

Maximum: 123 cm (TL)

Habitat

- This species occurs in deep, cold and partly arctic waters
- **Depth:** 150-1455 m (possibly deeper)

Distribution

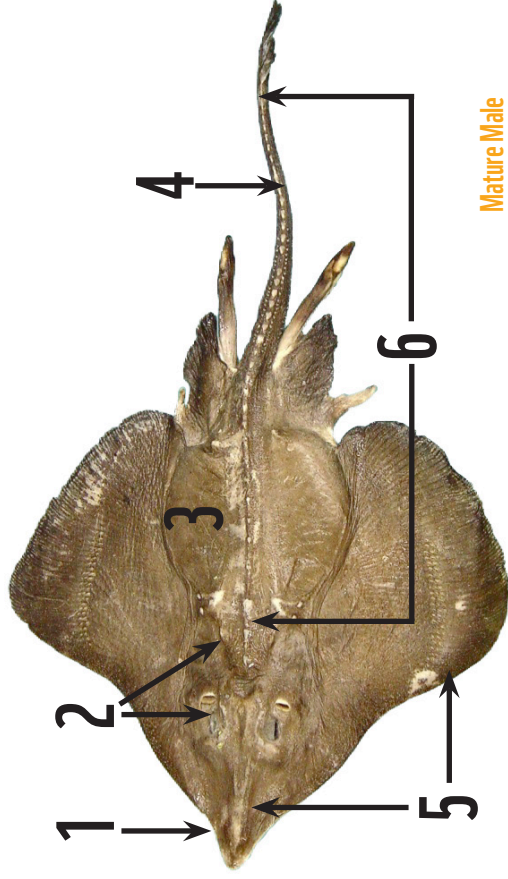
- Widely distributed in the Northwest Atlantic, from the Grand Banks to Eastern Greenland
- To date, genetic evidence has not indicated any White Skate in Canadian waters; alleged White specimens were genetically Abyssal Skates

Identification Keys

- 1 - Long, narrow snout
- 2 - 2-3 thorns around each eye; 0-2 thorns near each spiracle; 3-4 thorns on each shoulder
- 3 - Except for spines, top of disc is mainly smooth
- 4 - 1 row of small "parallel" thorns and 1 row of small "lateral" thorns on each side of midline row on tail
- 5 - Rough spinules on the front margins of pectorals; medium spines on snout
- 6 - Single row of 42-51 large midline thorns from neck region to 1st dorsal fin

Note: Lower surface of the disc is *smooth* (picture unavailable)

May be confused with **Abyssal Skate** (see pg. 66)



Mature Male

Common

ID

Southern Gulf of St. Lawrence population - Endangered
Eastern Scotian Shelf population - Threatened
Georges Bank-Western Scotian Shelf-Bay of Fundy population - Special Concern
Northern Gulf-Newfoundland population - Data Deficient



Mature
Female

Winter Skate

(*Leucoraja ocellata*)

Size (cm)

At Birth: <13 cm
Maximum: 103 cm (TL)

Habitat

- A bottom-dwelling species that prefers sand and gravel bottoms in shoal water
- **Depth:** 10-723 m; commonly <110 m

Distribution

- Ranges from southeastern Newfoundland, Gulf of St. Lawrence, Scotian Shelf, Bay of Fundy, Georges Bank, and the Gulf of Maine
- In southern parts, it appears to move shoreward in autumn and offshore in the summer
- On the eastern Scotian Shelf, it appears to move onto the banks in the summer and into deeper waters in the winter

Common Names

Big Skate, Eyed Skate, Raie Tachetée (fr)

Description

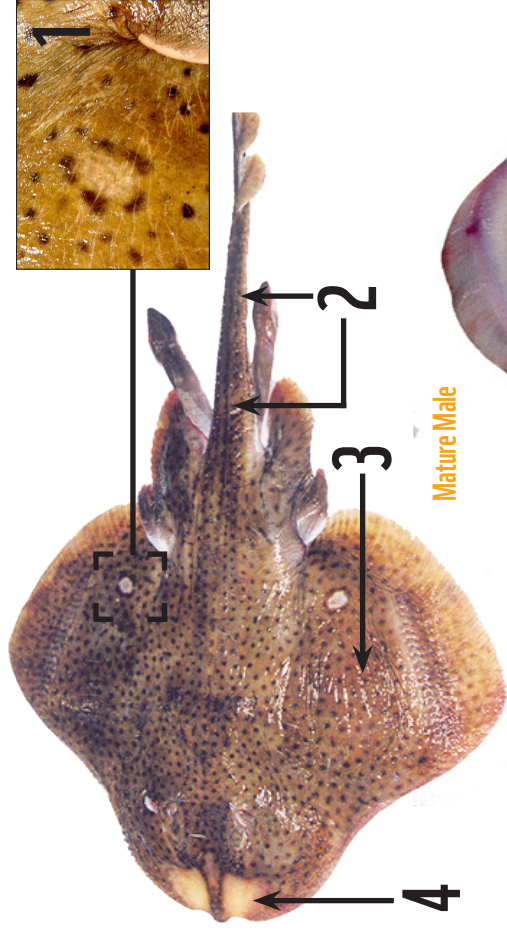
- Rounded snout usually has thin, opaque cartilage depressed body, a slender tail, tail slightly larger than body
- **Colour:** Light brown on top with varying numbers of black spots; white underneath, sometimes with irregular brownish blotches



Identification Keys

- 1 - 1-4 symmetrical "eyes" or spots on each wing; sometimes 1 on each pelvic fin
- 2 - Juveniles have midline row of spines from the shoulder to first dorsal fin; absent in those >51cm (TL), but irregular rows of spines along each side of the midline remain
- 3 - Numerous small dark spots all over its upper surface and tail
- 4 - Rounded snout usually has thin, opaque cartilage
- 5 - Juveniles (<21 cm): snout blunt extending little beyond margins of pectorals

May be confused with **Little Skate** (see pg. 80) and/or **Round Skate** (see pg. 88)



Mature Male



Juvenile

Problematic Identifications



Basking Shark vs. White Shark

- Dorsal fins of Basking Sharks and White Sharks are sometimes confused due to their size; however, can be differentiated by shaped and specific markings.



Basking Shark
(pg. 22)



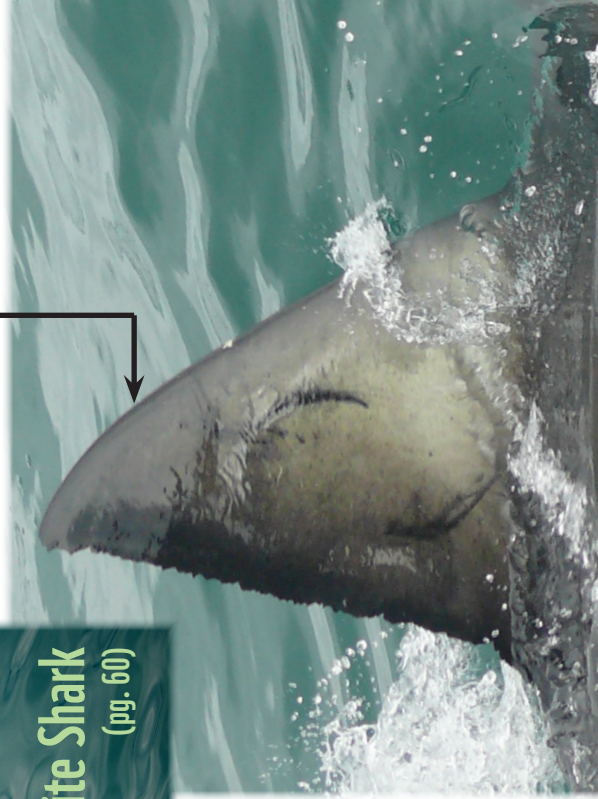
Key Differences

- Basking Sharks have a large dorsal fin with a rounded point at a distinct 45° degree angle.



White Shark (pg. 60)

- White Sharks have a large dorsal fin with a distinct triangular shape.



- Each White Shark has its own unique markings or serrated edge on the trailing edge of their dorsal fin. These markings act as a 'fingerprint' to identifying specific animals.

Shortfin Mako

vs. Longfin Mako Shark

- Commonly lumped together under the name “mako”, though they are two distinctly different sharks.



Shortfin Mako
(pg. 46)



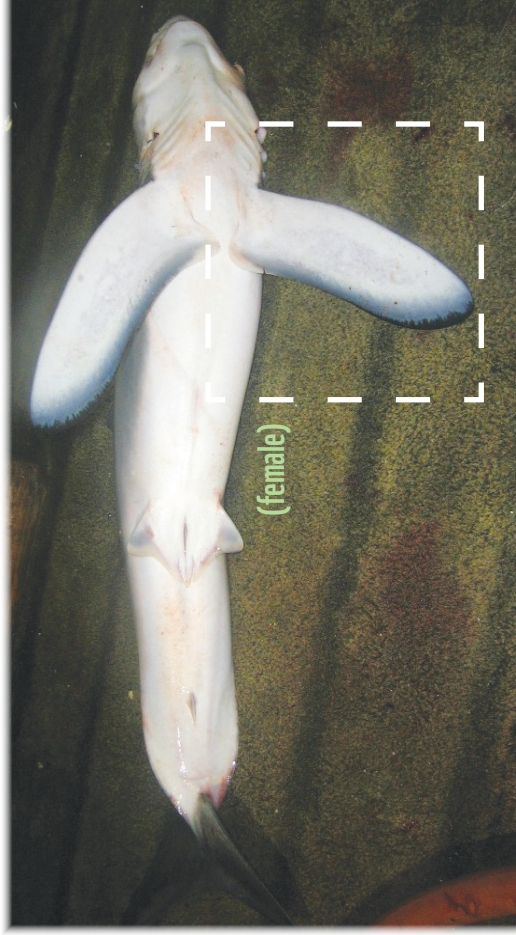
(male)

Key Differences

- Shortfin Mako (above) resembles the Longfin Mako (below); however, the pectoral fins differentiate the two species



- Longfin Mako has larger, rounded pectoral fins and larger eyes
- Shortfin Mako has shorter, pointed pectoral fins



- The presence of only one lateral keel (primary keel) on the tail and the lack of a white patch on the trailing edge of the first dorsal fin distinguish makos from the closely related Porbeagle Sharks.

Shortfin Mako

vs. Porbeagle Shark

- Shortfin Mako Shark and Porbeagle Shark are often confused with one another
- There are two distinguishing features that can separate the two:
 - 1) Presence or absence of a white patch on back of the dorsal fin
 - 2) Presence or absence of secondary keel on tail

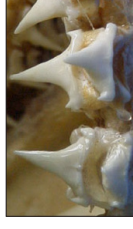


Key Differences

- Porbeagles have a white patch (below) which is absent in Shortfin Makos (above), as well as the Longfin Mako
- Primary and secondary keels on porbeagle tail (below) distinguish it from a Shortfin Mako (above), which lacks the secondary keel



- Porbeagle teeth are shorter and tricuspid (a point on either side)



Porbeagle Shark

- Shortfin Mako teeth are long and slender



Shortfin Mako

Abyssal Skate vs. White Skate

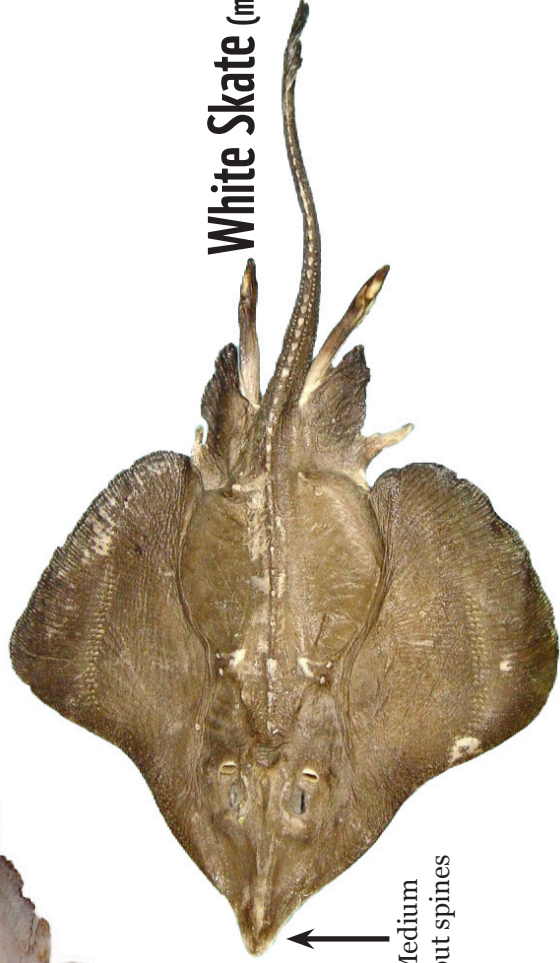
- Abyssal Skate (below-left) and White Skate (below-right) are similar in body shape and patterns of spines.
- Colour & pigmentation of upper and lower disc can be the same (especially for juveniles).

Key Differences	Abyssal Skate (pg. 66)	White Skate (pg. 98)
Upper Disc	Upper disc is completely covered in tiny spines; except for adult males that have bare patches in the centers of their wings & on the sides of their bodies.	<p>Except where spines are located, the upper disc is mainly smooth to touch.</p> <p>Rough prickles are on the front margins of its wings, and on its snout extending to between its eyes.</p>
Snout Spines	No spines on snout	Medium snout spines
Midline Spines	33 - 44 midline spines	42 - 51 midline spines
Colouration	Upper disc is plain greyish-brown in young, but usually lightens to greyish-white or 'ghost skate' in adults. Adult Abyssal Skates are 'whiter' than White skates.	White's upper disc is plain fawn greyish-brown throughout life.



Abyssal Skate (male)

No spines
on snout



White Skate (male)

Medium
snout spines



Arctic Skate vs. Jensen's Skate

- Arctic Skate (below-left) and Jensen's Skate (below-right) species are almost identical. Both species are different from all other skates by their colouration patterns:

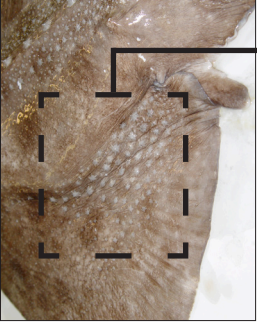
Key Differences	Arctic Skate (pg. 66)	Jensen's Skate (pg. 78)
Colouration	<p>Colouration on upper discs is highly variable for both species. May range from 'leopard-like' spots to one uniform colour. Both species almost always have dark bands on the upperside of their tails.</p> <p>Both species born with white undersides. Dark pattern begins as small patches that are symmetrical across an imaginary midline (from snout to base of tail). With body growth (and age), this dark pattern increasingly covers the skate's underside.</p>	
Spines	<p>With body growth (and age), Arctic Skate develops medium-sized spines on the mid-rear area of each pectoral fin.</p>	<p>Jensen's Skate is only prickly there throughout life.</p>
Teeth	<p>Arctic upper jaw has 35–48 teeth rows.</p>	<p>Jensen's Skate upper jaw has 56–70 teeth rows.</p>



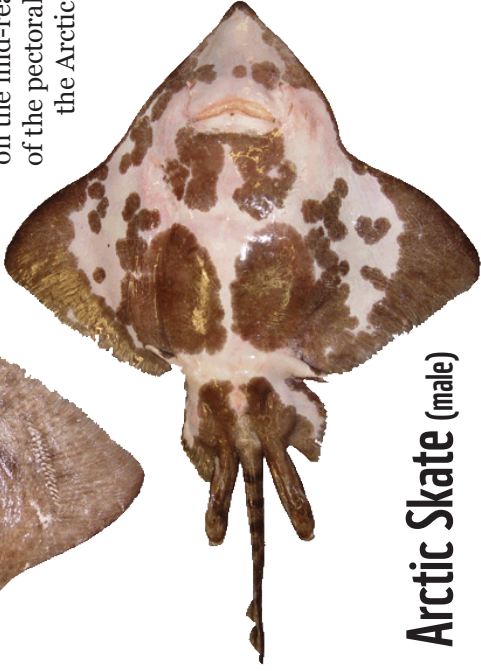
Jensen's Skate (male)



Arctic Skate (male)



Medium-sized spines on the mid-rear area of the pectoral fin on the Arctic Skate.

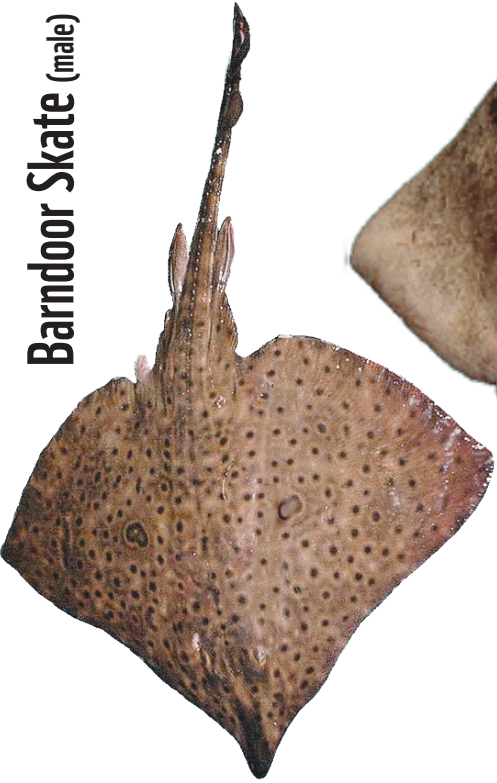


Barndoor Skate vs. Spinytail Skate

- Barndoor Skate (below-left) and Spinytail Skate (below-right) are two very large and very different skates.

Key Differences	Barndoor Skate (pg. 74)	Spinytail Skate (pg. 94)
<p>Colouration</p>	<p>Barndoor Skate has many dark spots on its upper disc.</p> <p><i>Underside of body:</i> Dark colouration under its snout and mouth fades along its wings and towards the pelvic fins.</p> <p>Also has black-pigmented mucous pores underneath its disc.</p>	<p>Spinytail Skate has uniform colouration on its upper disc.</p> <p><i>Underside of body:</i> May have dark colouration on the edges of wings, pelvic fins and underneath its tail.</p> <p>No dark pigment in its mucous pores.</p>
<p>Spines</p>	<p>Spines are present on the upper disc between the eyes, on its shoulders and on its tail.</p>	<p>Rough to the touch, but no spines on its upper disc (except for the crescent-shaped alar rows of spines on the wings of maturing/ mature males - same for all skate species).</p> <p>Spines are only on the midline of its tail.</p>

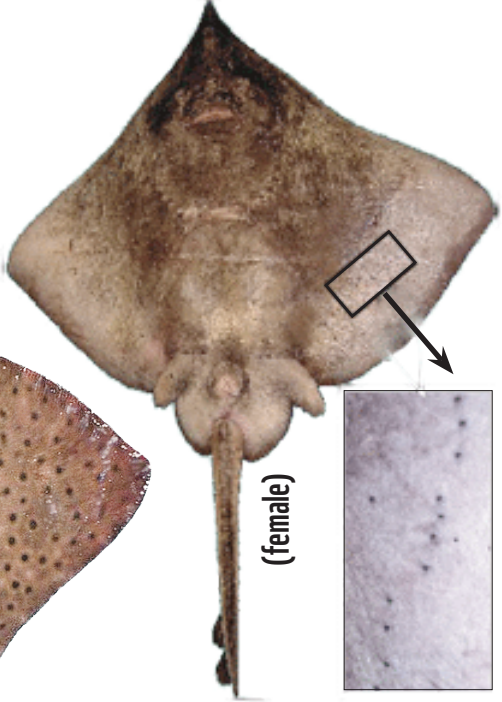
Barndoor Skate (male)



Spines are only on the midline of its tail



(female)



(female)

Spinytail Skate (male)



Little Skate vs. Winter Skate

- Little Skate (below-left) and Winter Skate (below-right) skate small species that are difficult to distinguish from one another.
- Individuals <9 cm (TL) are indistinguishable from one another using external features only. Genetic analyses are the best way to identify individuals <30 - 35 cm (TL), though tooth count may work as well.

Key Differences	Little Skate (pg. 80)	Winter Skate (pg. 100)															
Pelvic Spines	Females have small pelvic spines very close to the cloaca that are rough to the touch (appear at 36-44 cm). Male Little Skates do not have pelvic spines.	Pelvic spines in females appear larger and are more toward the outside edges of the pelvic fins. Male Winter Skates have pelvic spines.															
Mdline Row of Thorns	21 or more thorns in midline row from the pectoral fin to the origin of 1 st dorsal fin in specimens <21 cm (TL).	Less than 21 thorns in midline row from the pectoral fin to the origin of 1 st dorsal fin in specimens <21 cm (TL).															
Teeth Row Count in Upper Jaw	<table border="1"> <thead> <tr> <th>Size (TL)</th> <th>9-16 cm</th> <th>16-21 cm</th> <th>21-35 cm</th> <th>>35 cm</th> </tr> </thead> <tbody> <tr> <td>Little Skate</td> <td>30-48</td> <td>36-53</td> <td>43-52</td> <td>usually <54</td> </tr> <tr> <td>Winter Skate</td> <td>44-55</td> <td>50-60</td> <td>58-70</td> <td>>63</td> </tr> </tbody> </table>	Size (TL)	9-16 cm	16-21 cm	21-35 cm	>35 cm	Little Skate	30-48	36-53	43-52	usually <54	Winter Skate	44-55	50-60	58-70	>63	
Size (TL)	9-16 cm	16-21 cm	21-35 cm	>35 cm													
Little Skate	30-48	36-53	43-52	usually <54													
Winter Skate	44-55	50-60	58-70	>63													

Juvenile



Winter Skate
At Birth



Little Skate (male)



Winter Skate (male)

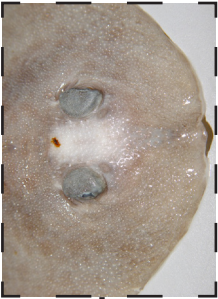


Round Skate vs. Bigelow's Skate

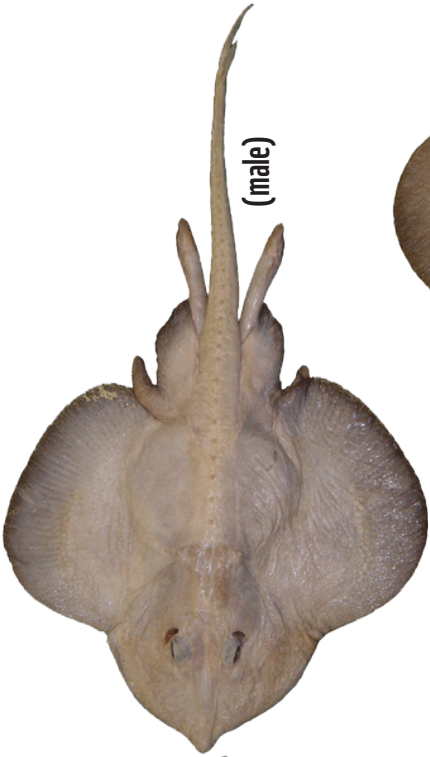
- Round Skate (below-left) and Bigelow's Skate (below-right) skates are sometimes confused, as both species are similar in body shape and patterns of spines; however:

Key Differences	Round Skate (pg. 88)	Bigelow's Skate (pg. 76)
Colouration	Its underside is never darker in colouration than its upper disc.	This skate's underside is <i>always</i> darker in colouration than its upper disc. While it may lighten with body growth (and age) it will remain darker than its upper disc throughout life. This is a characteristic not found in any other Northwest Atlantic skate species.
Distinctive Markings	Round Skate usually has a distinct light coloured spot between its eyes, and 1-2 pale spots on rear of each wing (no pale spots on very young juveniles).	No spots on top of disc.

Distinct light coloured spot between its eyes



(female)



(male)



Round Skate (male)

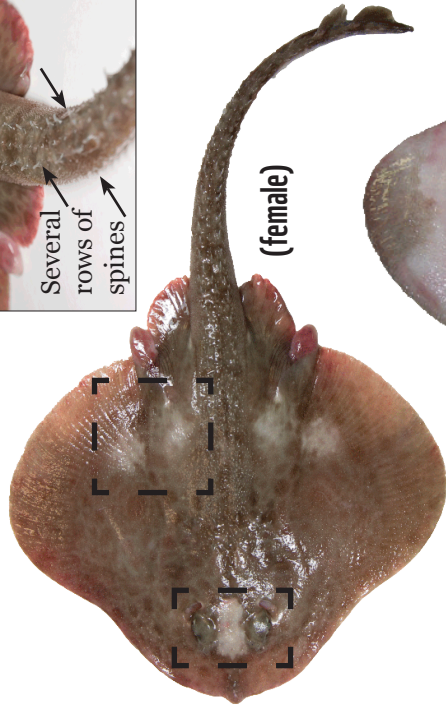


Bigelow's Skate (male)

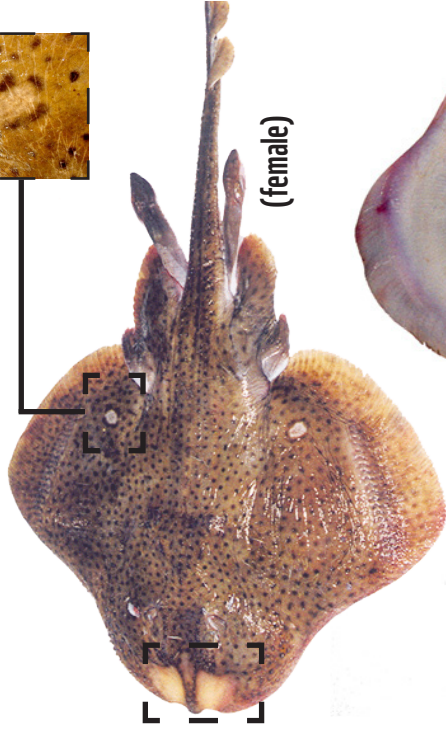
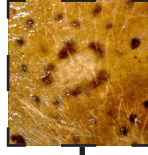
Round Skate vs. Winter Skate

- Round Skate (below-left) and Winter Skate (below-right) are sometimes confused. Both are similar in body shape and patterns of spines at young ages, *however*:

Key Differences	Round Skate (pg. 88)	Winter Skate (pg. 100)
Midline Row of Spines	Round Skate keeps both midline row of spines and irregular parallel rows of spines throughout life.	Winter loses its midline row of spines by 51cm (TL), but keeps its irregular parallel rows of spines along each side of it throughout life.
Distinctive Markings	Round Skate only has small dark spots from birth to age 1-2 that fade with growth. Usually has 1 pale spot between eyes. When present, Round Skate has 1-2 plain pale spots on each wing (no coloured edging).	Winter has numerous small dark spots all over its upper disc and tail throughout its life. Usually has opaque area of thin cartilage on its snout. Almost always has 1-4 “eye spots” (right) on each wing, and sometimes 1 on each pelvic fin. Spots can be dark coloured with whitish edges or visa versa.



Round Skate (male)



Winter Skate (male)



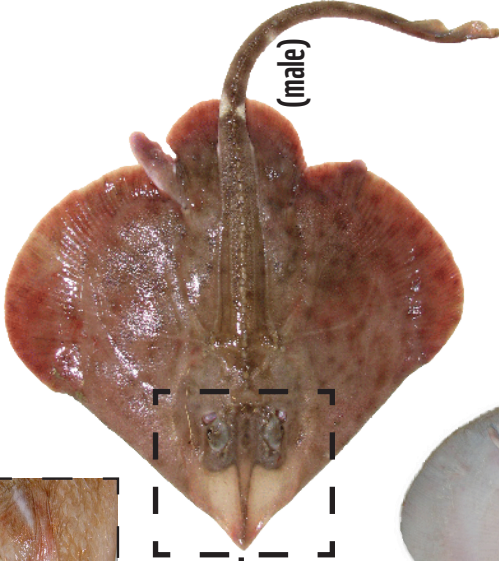
Smooth Skate vs. Soft Skate

- Smooth Skate (below-left) and Soft Skate (below-right) are usually confused, as they are similar in body shape, and have thin, opaque cartilage on their snouts.
- Note: Soft Skates are *smoother* on their upper discs than Smooth Skates

Key Differences	Smooth Skate (pg. 90)	Soft Skate (pg. 92)
Midline Row of Spines	Midline spines decrease in size from the neck to base of tail, where they 'become invisible' in size among the numerous spines that cover the entire tail.	No midline spines from the neck to the base of the tail. Midline spines on the tail are somewhat larger than the other spines covering the tail.
Shoulder / Neck Spines	Smooth Skate almost always has more than 2 spines on each shoulder (except in juveniles, which only has 1).	Soft Skate only has 0-3 midline spines in the neck region (0-2 on the neck and 0-1 on each shoulder).
Distinctive Markings	Smooth and Soft Skates both have thin, opaque cartilage on their snouts.	



Thin, opaque cartilage on snout of Smooth Skate



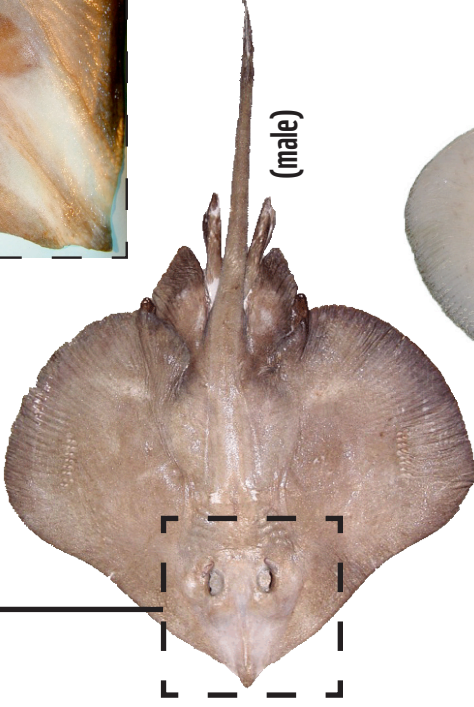
(male)



Smooth Skate (male)



Thin, opaque cartilage on snout of Soft Skate



(male)



Soft Skate (female)

Egg Capsules or “Mermaid Purses”



Egg Capsules or “Mermaid’s Purses”

While some species give “live” birth to their young, others retain their eggs and then deposit them on the ocean floor in tough, egg cases. All skates, as well as some chimaeras and sharks, exhibit this primitive form of reproduction.

Egg cases, sometimes called “mermaid’s purses”, vary widely in size, shape, and structure; however, the basic design is similar. The body of the capsule is usually curved on one side and is relatively flat on the other. All eggs are equipped with structures, or horns, that grow from each corner and serve as anchoring devices. Despite their similarities, egg capsules can be distinguished by their shape, size and the length of their horns relative to the capsule body.

Chimaeras

Deepwater

- No data available

No picture available

Knifefish

- Large and tadpole-shaped, with an anterior constriction, a long posterior tube and very wide lateral membranes with many transverse ribs

No picture available

Longnose

- No data available

No picture available

Sharks

Deepwater

- Usually thick-walled

Catshark

- 50-68 mm long by 25-29 mm wide; The front of the case has a long weak fibrous thread on each corner. The rear end usually has two small horns, each with a long coiled, fibrous thread.



Skates

Abyssal

- Egg capsules have distinct, horn-like projections



Arctic

- Elongated capsules with long, stiff horns at the corners that exceed the length of the capsule
- Deposited in sandy or muddy flats
- 81-125 mm long by 50-80 mm wide



Barndoor

- Capsules less than 100 mm long; various shapes but *not* trapezoidal
- Horns moderately or extremely long; length more than half the length of the capsule
- 124 to 132 mm long by 66 to 74 mm wide
- Capsule over 100 mm long, trapezoidal in shape and slightly convex on both sides.
- Horns strong and short, length less than half length of the capsule



Bigelow or Chocolate

- Elongated capsules with distinct, stiff, horn-like projections at the corners
- 53 mm long by 30 mm wide

**No picture
available**

Richardson's

- 200-208 mm (excluding egg horns) long by 112-120 mm wide

No picture available

Little

- Elongated capsules with long, stiff horns at the corners that exceed the length of the capsule
- 46-63 mm long by 33-45 mm wide
- Brown to dark brown in colour
- Elongated capsules with long, stiff horns at the corners
- Capsules vary in size; typically 33-44 mm by 24-26 mm wide



Round

Jensen's

- Egg capsules have distinct, horn-like projections
- Paired eggs are laid



Smooth

- Smooth and square with one side almost flat and the other highly convex
- Clearly visible lateral membrane
- Rear end pair of horns longer
- 45-66 mm long by 30-46 mm wide



Soft

- Egg capsules have distinct, horn-like projections
- Paired eggs are laid



Spinytail

- Oblong capsules with stiff pointed horns at the corners
- Deposited in sandy or muddy flats
- 134-165 mm long by 80-102 mm wide



Thorny

- Capsule characteristics and size varies considerably with region and relates significantly to size of female
- 59-90 mm long by 45-73 mm wide



White

- Elongated capsules with stiff pointed horns at the corners
- 107 mm long by 77 mm wide
- Deposited in sandy or muddy flats

No picture available

Winter

- Elongated capsules with stiff pointed horns at the corners
- Greenish brown to olive brown in colour
- Deposited in sandy or muddy flats
- 65-86 mm long by 41-54 mm wide



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Problematic Identification of Sharks and Skates

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Egg Capsules or “Mermaid Purses”

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Notes

Atlantic Canadian Chondrichthyans by the Numbers



42

Forty-two species of sharks, skates, rays and chimaeras occur in Atlantic Canadian waters

17

Seventeen species are commonly mistaken or misidentified



8

Eight species have been scientifically assessed by the Committee on the Status of Endangered Wildlife in Canada

1

One species has been listed under the *Species At Risk Act* in Atlantic Canadian waters



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