



NOAA Technical Report NMFS Circular 431

## Guide to Some Trawl-Caught Marine Fishes From Maine to Cape Hatteras, North Carolina

Donald D. Flescher

March 1980

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## CONTENTS

Introduction .....	1
Introductory key to fishes .....	3-7
Sharks except angel shark .....	8
Skates, rays and angel shark .....	9
Skates, rays - skates .....	10
Skates, rays - rays .....	11
Skates, rays - stingrays .....	12
Eel-shaped fishes .....	13,14
Herring family .....	15,16
Anchovy-shaped fishes .....	17,18
Cod family - one or three dorsal fins .....	19
Cod family - two dorsal fins .....	20
Bass-shaped fishes - one dorsal fin .....	21
Bass-shaped fishes - two dorsal fins .....	22
Searobins and sculpins - searobins .....	23
Searobins and sculpins - sculpins .....	24
Flatfishes - right-eyed flatfishes .....	25
Flatfishes - left-eyed flatfishes .....	26
Mackerel and tuna-shaped fishes .....	27
Goosefish and butterfish .....	28
Index of common names .....	29-31
Index of scientific names .....	32-34

# Guide to Some Trawl-Caught Marine Fishes From Maine to Cape Hatteras, North Carolina

DONALD D. FLESCHER<sup>1</sup>

## ABSTRACT

Fishes covered are those regularly caught during trawling operations. Similar shaped fishes are grouped together. On each page the written keys are connected by lines to the fish illustrations; consequently, technical terms in the keys are illustrated as they are used. Notes on the size and range of each fish are included.

## INTRODUCTION

This guide is designed for the quick identification of trawl caught fishes under sometimes difficult field conditions. The species that are included are abundant in bottom trawl catches of National Marine Fisheries Service (NMFS) research cruises on the continental shelf. These cruises cover the area slightly northeast of the Gulf of Maine to Cape Hatteras, N.C., from about 5 to 200 fathoms. Estuaries are not included.

Fishes with similar characteristics are grouped together even though they may not be related. When identifying a fish, if you cannot decide on which page to begin after leafing through the guide, you can use the introductory key on pages 3 to 7. The keys are for identifying adult fishes. The body proportions of immature fishes may be quite different, and some body parts may not have developed yet.

A geographical range is given for each species. This is the total area over which it has been found. It may be expected to be abundant within a small area of this range.

Many species occur quite frequently in NMFS trawl catches but are not considered to be abundant. These species are omitted in order to keep the guide small. Therefore any fish that does not exactly fit the key characteristics or that looks different from the majority of the individuals can be preserved (10% Formalin or full strength alcohol works well) or frozen for later identifi-

cation. The reader is referred to the following texts for a more extensive coverage of the fishes:

"Field Book of Marine Fishes of the Atlantic Coast" by Charles M. Breder, Jr. 1948. G. P. Putnam's Sons, 332 p. This book also includes the estuarine species as well as those whose center of abundance is south of Cape Hatteras. It is pocket-sized, which is helpful for in-the-field use.

"Fishes of the Gulf of Maine" by Henry Bigelow and William Schroeder. 1953. U.S. Fish and Wildlife Service, Fishery Bulletin, vol. 53, 577 p. [Available as a reprint from the Museum of Comparative Zoology, Harvard University, Cambridge, MA 02138.] It includes not only the usual fishes of the Gulf of Maine and Georges Bank but all that have ever strayed into that area. Extensive information is given on the biology and economics of each species.

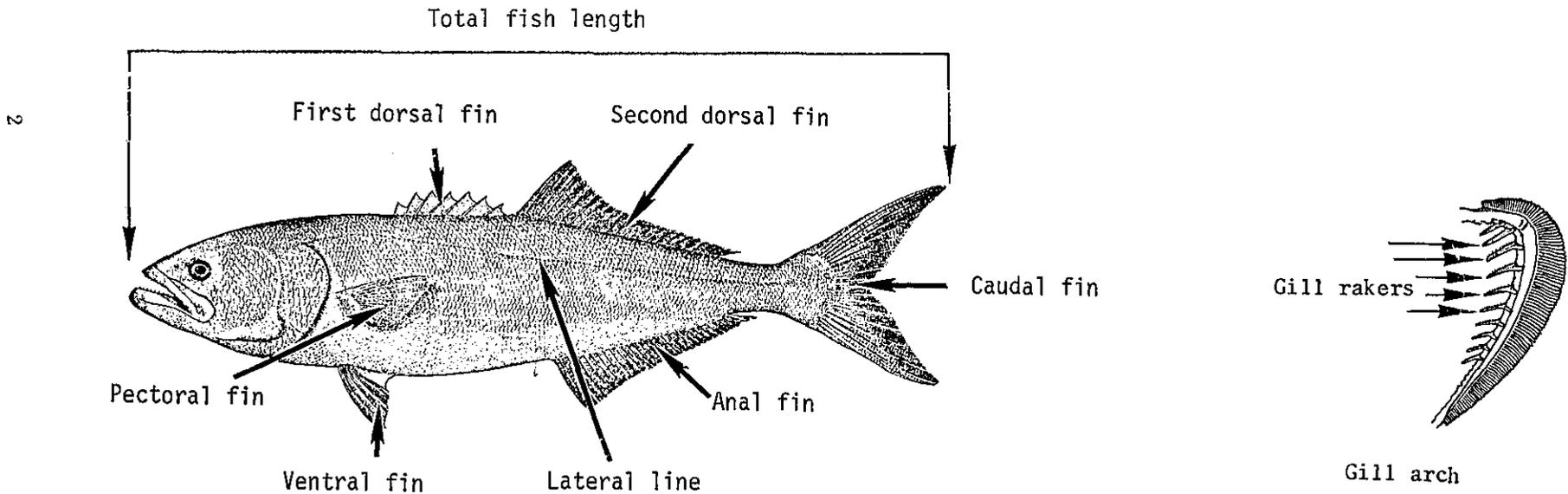
"Fishes of Chesapeake Bay" by Samuel Hildebrand and William Schroeder. 1928. Bulletin of the U.S. Bureau of Fisheries, 43(1): 1-366. [A 1972 reprint is available from T. F. H. Publications, Inc., Neptune, NJ 07753.] Although about 50 years old, this publication gives good coverage of the biology and economic importance of each species. The T. F. H. Publications reprint brings the scientific names up to date.

"Fishes of the Atlantic Coast of Canada" by A. H. Leim and W. B. Scott. 1966. Fisheries Research Board of Canada, Bulletin 155, 485 p. It covers the fishes found between the Gulf of Maine and Labrador out to 1,000 fathoms.

<sup>1</sup>Northeast Fisheries Center Woods Hole Laboratory, National Marine Fisheries Service, NOAA, Woods Hole, MA 02543.

### Source of Drawings

Forty-eight of the drawings came from the files of the United States National Museum (Smithsonian Institution). Thirty-one are from the book "The Fishery Industries of the United States, Section I, History of Aquatic Animals" by George B. Goode, 1884. Twenty-one are from the books "Fishes of the Western North Atlantic," Part 1, 1948; Part 2, 1953; Part 3, 1963; and Part 6, 1973 (Sears Foundation for Marine Research, Memoir 1). Four are from "Oceanic Ichthyology" by George B. Goode and Tarleton H. Bean, 1896. Six other government and museum publications were each the source of one or two drawings. Illustrators at the National Marine Fisheries Service, NOAA, Woods Hole, Mass., drew the undersides of the winter and little skates and the gill rakers of red and white hake.

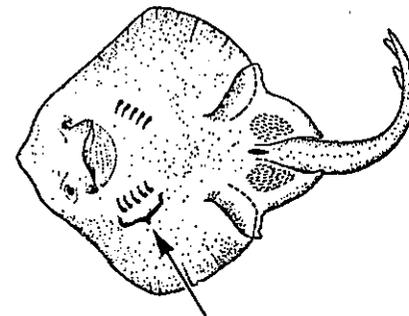
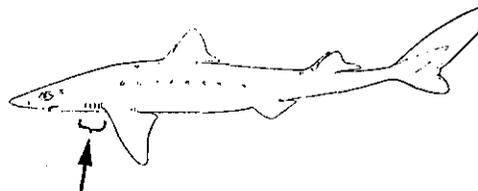


Parts of a fish used for fish identification.

INTRODUCTORY KEY

1a. Has five gill openings on each side.

Go to 2.



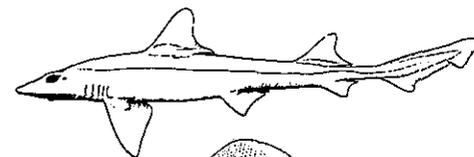
1b. Has either one or no gill opening on each side.

Go to 3.

2a. The body in cross section is more or less rounded.

See sharks except angel shark, p. 8.

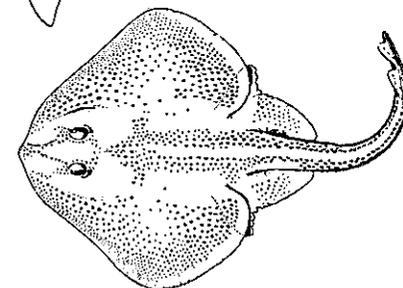
cross-section



2b. The body in cross section is flattened from belly to back.

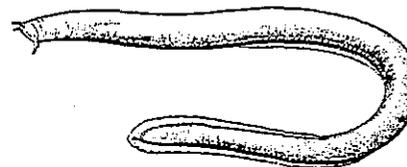
See skates, rays and angel shark, p. 9 to 12.

cross-section



3a. Has no jaws, no pectoral fin and no external eyes.

See hagfish, p. 13.

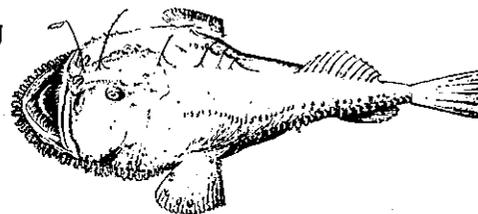


3b. Has jaws, pectoral fin and external eyes.

Go to 4.

4a. Mouth enormous and directed upward with lower jaw projecting so far beyond upper that most teeth in lower jaw exposed when mouth closed.

See goosefish, p. 28.



- 4b. Mouth not enormous, most teeth in lower jaw not exposed when mouth closed.

Go to 5.

- 5a. Body flattened in cross section; both eyes on the same side of the head.

See flatfishes, p. 25, 26.

- 5b. Body more or less rounded in cross section; one eye on each side of head.

Go to 6.

- 6a. Body tapers to a whiplike tail ("rattail").

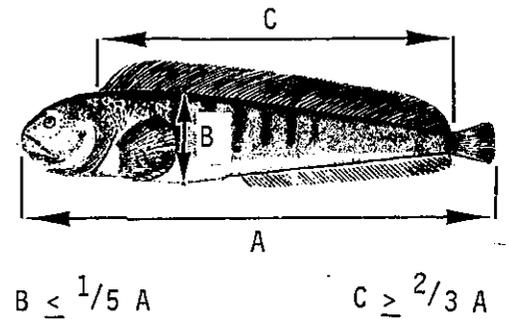
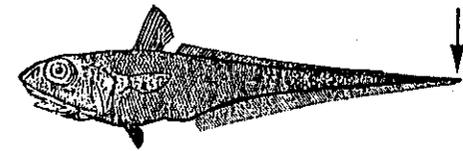
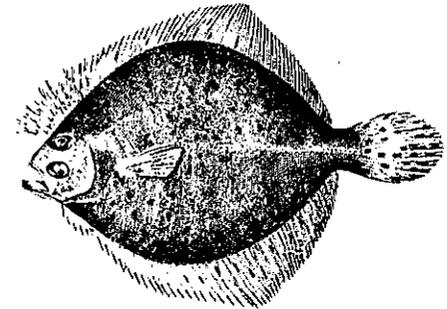
See grenadier, p. 13.

- 6b. Tail not whiplike.

Go to 7.

- 7a. Body long and slender: body's greatest height (not counting dorsal fin) less than or equal to  $1/5$  of total body length; has only one dorsal fin which is at least  $2/3$  as long as total body length.

See eel-shaped fishes, p. 13, 14.



- 7b. Body shorter and stouter: body's greatest height (not counting dorsal fin) greater than or equal to  $1/4$  of total body length or the longest dorsal fin is less than  $2/3$  of the total body length.

Go to 8.

- 8a. The belly in cross-section has a bottom edge that is sharp edged.

See herrings, p. 15, 16 and butterfish, p. 28.

- 8b. The belly in cross-section has a bottom edge that is more or less rounded.

Go to 9.

- 9a. Numerous light-producing organs (photophores) along the ventral surface.

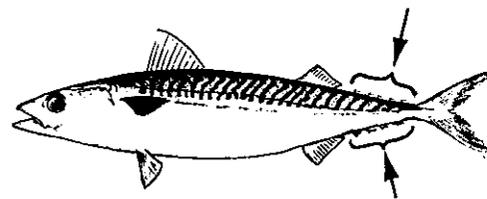
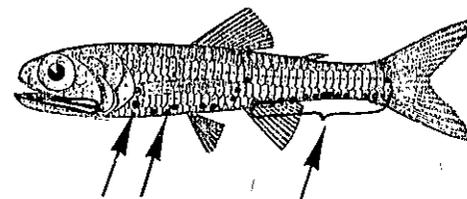
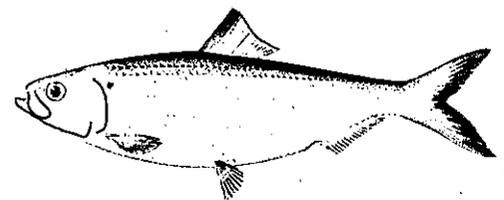
See pearlsides and lanternfish, p. 17.

- 9b. No light-producing organs (photophores) along the ventral surface.

Go to 10.

- 10a. Four or more small fins between last dorsal fin and caudal fin and between anal fin and caudal fin.

See mackerel and tuna-shaped fishes, p. 27.



- 10b. No small fins between last dorsal fin and caudal fin and between anal fin and caudal fin.

Go to 11.

- 11a. Base of longest dorsal fin  $1/7$  or less of total body length.

See anchovy-shaped fishes, p. 17, 18.

- 11b. Base of longest dorsal fin  $1/6$  or more of total body length.

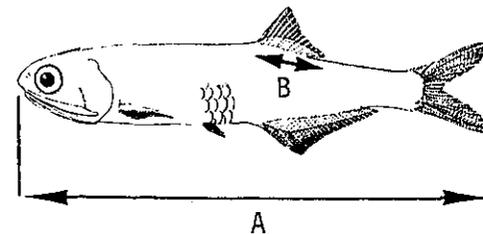
Go to 12.

- 12a. The front half of the first dorsal fin is supported entirely by segmented, fairly soft bones (called rays); start of ventral fin is located directly beneath or forward of start of pectoral fin.

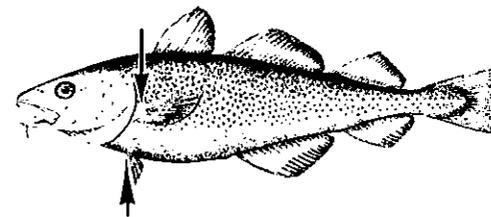
See cod-family, p. 19, 20.

- 12b. The front half of the first dorsal fin is supported entirely by unsegmented, often very hard bones (called spines); or start of ventral fin is located behind start of pectoral fin.

Go to 13.



$$B \leq \frac{1}{7} A$$

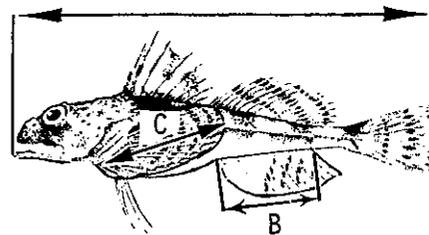


13a. Two dorsal fins. Base of anal fin long, more than 1/5 of total body length. Pectoral fins large, usually more than 1/5 of total body length.

See searobins and sculpins, p. 23, 24.

$$B > \frac{1}{5} A$$

$$\text{usually } C > \frac{1}{5} A$$

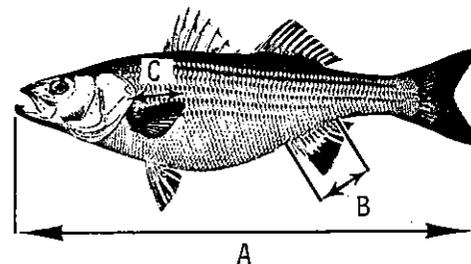


13b. One or two dorsal fins. If two dorsal fins are present, base of anal fin usually less than 1/5 of total body length. Pectoral fins small, usually less than 1/5 of total body length.

See bass-shaped fishes, p. 21, 22.

$$\text{usually } B < \frac{1}{5} A$$

$$\text{usually } C < \frac{1}{5} A$$



# SHARKS EXCEPT ANGEL SHARK

A chain-like pattern of black stripes on back and sides.

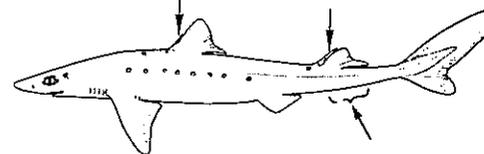


**CHAIN DOGFISH** *Squalorhynchus retifer*  
Maximum size: 2½ feet  
Range: Offshore (40 to 125 fathoms) from New York to North Carolina.

No chain-like pattern of black stripes on back and sides.

An anal fin. No spine in front of each dorsal fin.

No anal fin. A spine in front of each dorsal fin.



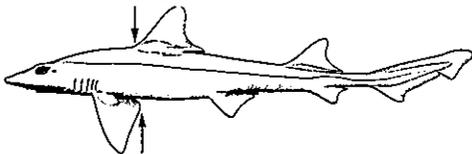
**SPINY DOGFISH** *Squalus acanthias*  
Maximum size: 4 feet  
Range: Worldwide in temperate and subarctic latitudes.

First and second dorsal fins about equal in size.

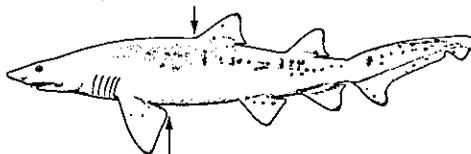
First dorsal fin much larger than second dorsal fin.

First dorsal fin begins over rear edge of pectoral fin. Teeth tiny, flat, and pavement-like.

First dorsal fin begins far behind rear edge of pectoral fin. Teeth large and pointed.



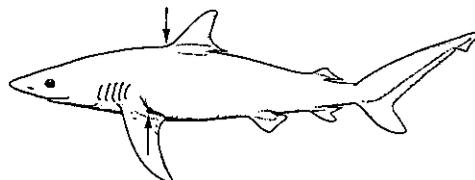
**SMOOTH DOGFISH** *Mustelus canis*  
Maximum size: 5 feet  
Range: Cape Cod to as far south as Uruguay.



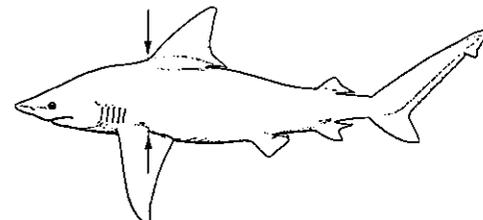
**SAND TIGER** *Odontaspis taurus*  
Maximum size: about 10½ feet  
Range: Gulf of Maine to Florida.

Start of first dorsal fin behind inner angle (armpit) of pectoral fin. First dorsal fin smaller, its height is less than distance from eye to first gill opening.

Start of first dorsal about over the free inner angle (armpit) of pectoral fin. First dorsal fin larger, its height is at least as great as distance from eye to third gill opening.



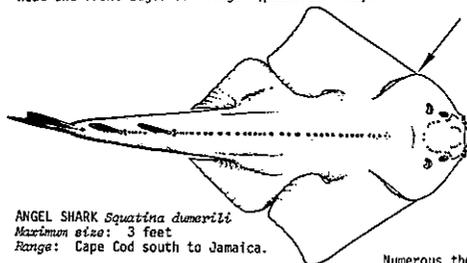
**DUSKY SHARK** *Carcharhinus obscurus*  
Maximum size: 11 2/3 feet  
Range: Common in inshore and offshore waters from Cape Cod to Florida.



**SANDBAR SHARK** *Carcharhinus milberti*  
(Brown shark)  
Maximum size: 7 2/3 feet  
Range: Common in inshore and offshore waters from Cape Cod to Florida.

# SKATES, RAYS AND ANGEL SHARK

Mouth located at very front of head. Distinct notches between head and front edges of "wings" (pectoral fins).



ANGEL SHARK *Squatina dumerilii*  
Maximum size: 3 feet  
Range: Cape Cod south to Jamaica.

Mouth located some distance back on underside of head. No notches between head and front edges of "wings" (pectoral fins).

There are two dorsal fins at tip of tail. There are never any spines ("stingers") on tail.

There are no dorsal fins at tip of tail. There may be one or more spines ("stingers") on tail.

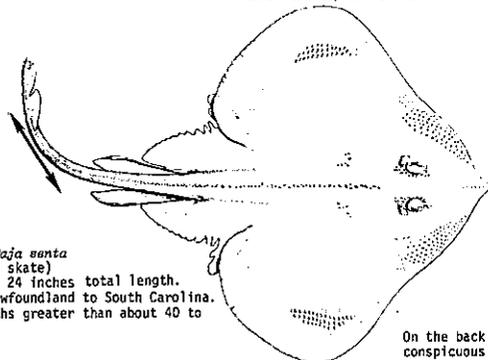
SEE RAYS, PAGE 11

One or more rows of conspicuous thorns in middle of back in area A. No black dots or dashes on lower surface.

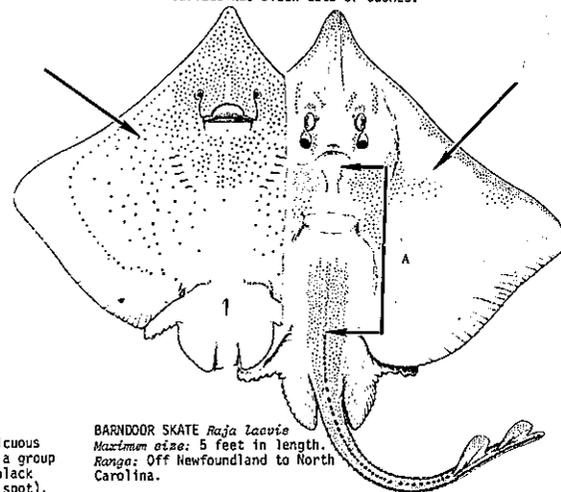
No conspicuous thorns in middle of back, in area A. Lower surface has black dots or dashes.

Numerous thorns, all very tiny, cover the top of rear 1/3 of tail.

One or more rows of moderate to large thorns on top of rear 1/3 of tail.



SMOOTH SKATE *Raja senta*  
(Smooth-tailed skate)  
Maximum size: 24 inches total length.  
Range: Off Newfoundland to South Carolina.  
Mostly in depths greater than about 40 to 50 fathoms.



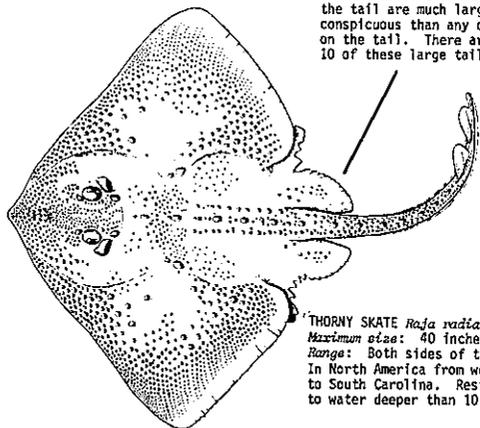
BARNDOOR SKATE *Raja laevis*  
Maximum size: 5 feet in length.  
Range: Off Newfoundland to North Carolina.

On the back there are no conspicuous dark rosettes.

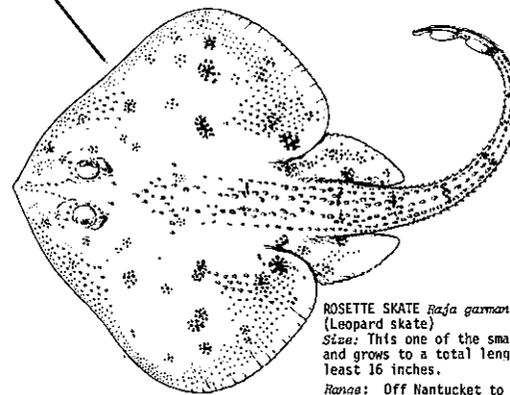
On the back there are conspicuous dark rosettes (a rosette is a group of 6 or more dark brown or black spots surrounding a central spot).

The thorns of the middle row on the tail are much larger and conspicuous than any other thorns on the tail. There are 9 or 10 of these large tail thorns.

No one row of thorns on the tail is much larger or more conspicuous than the other thorns on the tail. There are at least 15 thorns in each of the rows on the tail.



THORNY SKATE *Raja radiata*  
Maximum size: 40 inches  
Range: Both sides of the North Atlantic. In North America from west of Greenland to South Carolina. Restricted in general to water deeper than 10 fathoms.



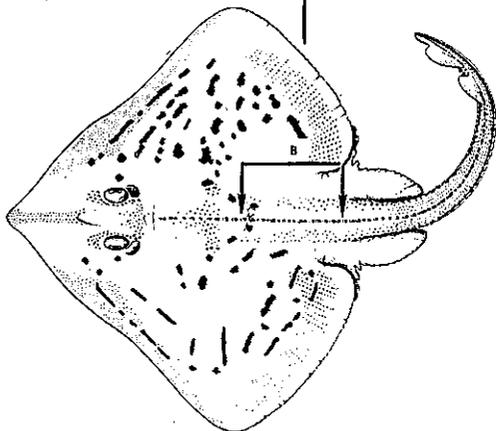
ROSETTE SKATE *Raja garmani*  
(Leopard skate)  
Size: This one of the smaller skates and grows to a total length of at least 16 inches.  
Range: Off Nantucket to Florida, in depths of 30 to 300 fathoms.

(continued on next page)

# SKATES, RAYS — SKATES

(continued from preceding page)

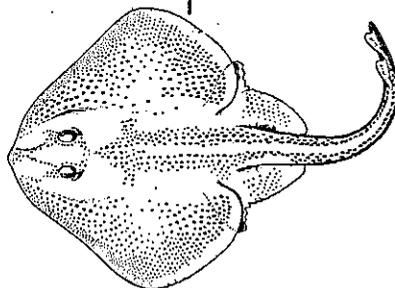
Only one row of large thorns in the middle of the back, in area B. Upper surface of body marked with roundish spots and short bars. The first and second dorsal fins are separated by a definite space or at least 1 or 2 thorns.



**CLEARNOSE SKATE** *Raja eglantorica*  
(Brier skate)  
Maximum size: 37 inches in total length.  
Range: Massachusetts to Florida.

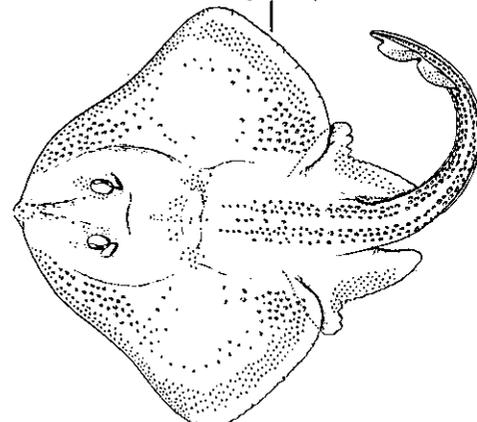
There are at least three rows of thorns in middle of back in area B. Upper surface of body marked with spots but has no short bars. The first and second dorsal fins are not separated by a definite space or by a thorn or thorns.

Generally less than 54 rows of teeth in upper jaw. Rarely exceeds length of about 21 inches (54 centimeters) or weight of 2 pounds.



**LITTLE SKATE** *Raja erinacea*  
Maximum size: Rarely exceeds a total length of about 21 inches (54 centimeters) in U.S. waters.  
Range: Gulf of St. Lawrence to Virginia.

Generally more than 80 rows of teeth in upper jaw. Grows to a length of about 43 inches (109 centimeters) and often exceeds a weight of 2 pounds.

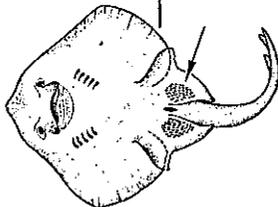


**WINTER SKATE** *Raja ocellata*  
(Big skate)  
Maximum size: About 43 inches  
Range: Off Newfoundland to North Carolina.

Note: In U.S. waters, fish longer than 54 centimeters (21 inches) will usually turn out to be winter skates, and specimens longer than about 60 centimeters (24 inches) are almost certainly winter skates. There is a problem when separating winter skates that are less than 54 centimeters from little skates by counting rows of teeth, since it is so time-consuming as to be impractical in the field. However, if each sex is considered separately, those in the size range of 35 centimeters (14 inches) to 54 centimeters can be readily identified. This is the size range in which little skates show maturing or mature external sex characters and the winter skate shows immature external sex characters. For fish under about 35 centimeters, though, both species are immature and there is no easy characteristic for quickly separating them in the field. The sexes can be separated as follows: males have 2 claspers (copulatory organs), one at each side of the start of the tail; females lack claspers.

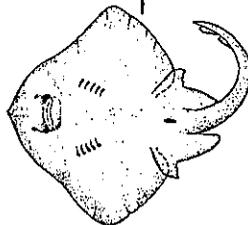
Fish between 35 and 54 centimeters

On underside of body there are two patches of spines, one on each side of the vent. (Note: The spines are often difficult to see even in good light conditions but they can be felt if you move your fingertip in the tail-toward-head direction).



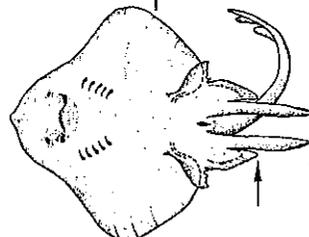
LITTLE SKATE, female, underside

On underside of body there is no patch of spines on each side of vent.



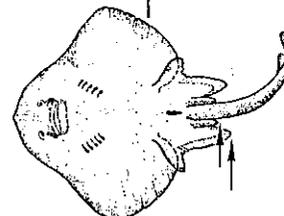
WINTER SKATE, female, underside

The claspers extend well beyond posterior edge of disc.



LITTLE SKATE, male, underside

The claspers either don't reach posterior edge of disc or extend barely beyond it.

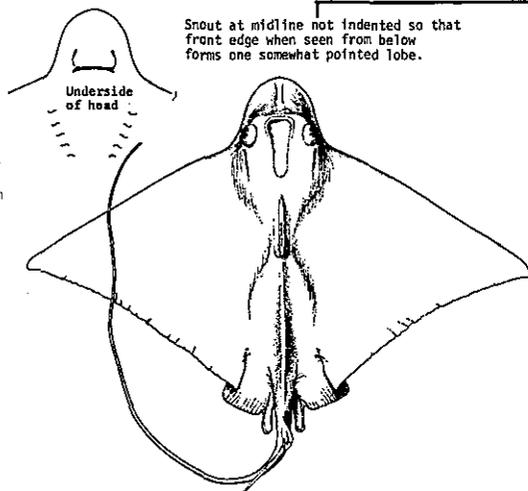


WINTER SKATE, male, underside

# SKATES, RAYS — RAYS

Outline of front edge of fish, from wingtip to wingtip, interrupted by head protruding forward.

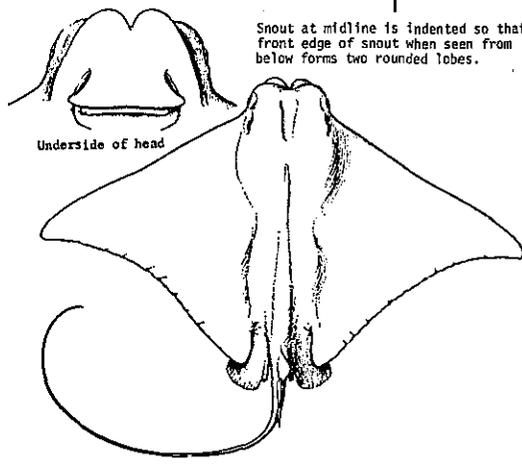
Outline of front edge of fish, from wingtip to wingtip, is approximately v-shaped. That is, head doesn't protrude forward appreciably.



Snout at midline not indented so that front edge when seen from below forms one somewhat pointed lobe.

Underside of head

**BULLNOSE RAY** *Myliobatis framinvillei*  
Maximum size: 34 inches wingtip to wingtip.  
Range: Cape Cod to Brazil.



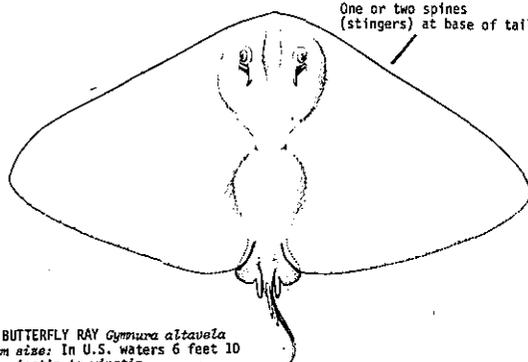
Snout at midline is indented so that front edge of snout when seen from below forms two rounded lobes.

Underside of head

**COWNOSE RAY** *Rhinoptera bonasus*  
Maximum size: About 38 inches wingtip to wingtip.  
Range: Vicinity of Cape Cod (Nantucket, Woods Hole) to Brazil.

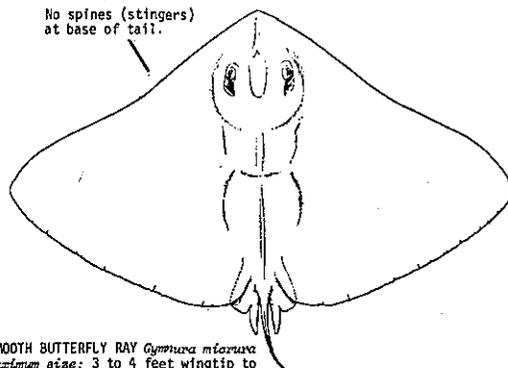
Tail short, much shorter than distance from snout to start of tail. Wingtip to wingtip distance much greater than distance from snout to end of tail.

Tail long, whiplike, much longer than distance from snout to start of tail. Wingtip to wingtip distance much less than distance from snout to tip of tail.



One or two spines (stingers) at base of tail.

**SPINY BUTTERFLY RAY** *Gymnura altavela*  
Maximum size: In U.S. waters 6 feet 10 inches wingtip to wingtip.  
Range: Both sides of Atlantic. In western Atlantic Cape Cod to South America.



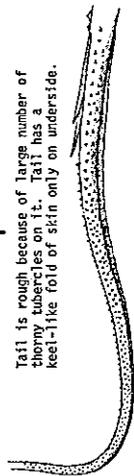
No spines (stingers) at base of tail.

**SMOOTH BUTTERFLY RAY** *Gymnura mizura*  
Maximum size: 3 to 4 feet wingtip to wingtip.  
Range: Cape Cod to Brazil

(continued on next page)

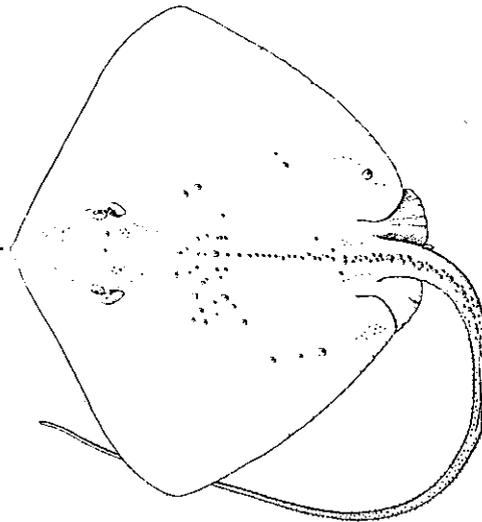
# SKATES, RAYS -- STINGRAYS

(continued from preceding page)



Tail is rough because of large number of thorny tubercles on it. Tail has a keel-like fold of skin only on underside.

Detail of tail showing thorny tubercles and single keel-like skin fold located on underside of tail.

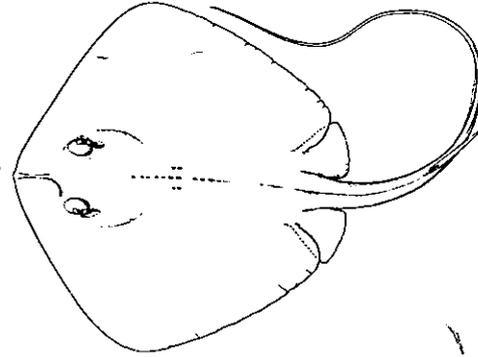


**ROUGH-TAIL STINGRAY** *Dasyatis centroura*  
(Northern stingray)  
Maximum size: Nearly 7 feet wingtip to wingtip.  
Range: Cape Cod to Florida.

Tail is smooth, lacks thorny tubercles. Tail has a keel-like fold of skin on both topside and underside.



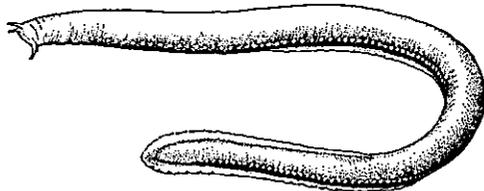
Detail of tail showing two keel-like skin folds just behind "stinger."



**BLUNTNOSE STINGRAY** *Dasyatis sayi*  
Maximum size: One meter (about 39 inches) wingtip to wingtip.  
Range: Southern Massachusetts to Brazil or farther south.

# EEL-SHAPED FISHES

Has no jaws, no pectoral fin and no external eyes.

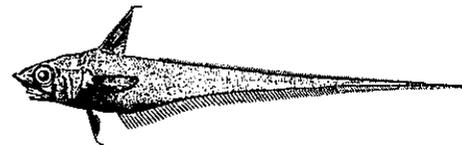


ATLANTIC HAGFISH *Myxine glutinosa*  
Maximum size: 31 inches  
Range: Both sides of Atlantic. In North America, Arctic to North Carolina.

Has jaws, pectoral fin and external eyes.

Has one dorsal fin.

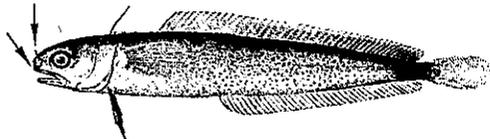
Has two dorsal fins but the second one is so much lower than the first that it may be difficult to see. Body tapers to an elongated whiplike tail ("rattail") with no distinctive caudal fin.



GRENADIERS ("RATTAILS")

Note: There are many species of grenadiers and all live in deep water. In U.S. waters a few are occasionally caught in depths less than 100 fathoms. One, the Marlinspike, *Nannomus bairstowi*, is shown above.

Three barbels above the mouth: one in front of each nostril and the third on the top of the snout. A fourth barbel hangs from the chin.



FOURBEARD ROCKLING *Enchelyopus cimbrius*  
Maximum size: 12 inches in North America  
Range: Both sides of North Atlantic. In North America, Gulf of St. Lawrence to North Carolina.

No barbels above the mouth.

Anal fin and caudal fin not separated by deep notch or gap.

Anal fin and caudal fin separated by deep notch or gap.

No ventral fins or chin barbel.

Ventral fins and chin barbel present.



CUSK *Brosme brosme*  
Maximum size: 3½ feet, 27 pounds  
Range: Both sides of North Atlantic. In North America, Newfoundland to Virginia.

Snout rounded and large canine teeth present.

Snout pointed and no large canine teeth.



ATLANTIC WOLFFISH *Anarhichas lupus*  
(Ocean catfish)  
Maximum size: 5 feet, 40 pounds  
Range: Both sides of North Atlantic. In North America, Greenland to New Jersey.



SAND LANCE *Ammodytes* species  
Maximum size: 7 inches  
Range: Labrador to North Carolina.

(continued on next page)

(continued from  
preceding page)

## EEL-SHAPED FISHES (CONTINUED)

Dorsal fin seems separated from  
caudal fin by a considerable gap.



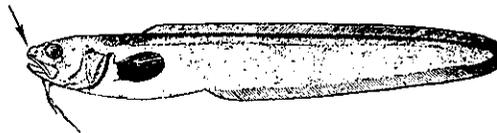
OCEAN POUT *Macrura americana*  
(Eelpout)  
Maximum size: 3½ feet, 12 pounds  
Range: Newfoundland to Delaware.

Dorsal, caudal, and anal fins  
form one continuous fin.

No barbel-like fins on the throat.

Barbel-like fins on the throat.

No short spine on snout. Upper sides  
not covered with pale round spots.



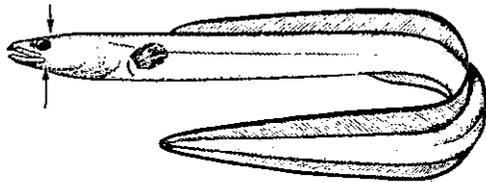
STRIPED CUSK-EEL *Mesobius marginatus*  
Maximum size: 6 inches  
Range: New York to Texas.

A short sharp spine on the top of snout  
which is easily felt if not seen (for  
it is nearly hidden in skin). Upper sides  
covered with pale round spots.



FLAWN CUSK-EEL *Lepophidium cervinum*  
Maximum size: More than 10 inches  
Range: Georges Bank to Florida.

Gape of mouth reaches only about as far as rear  
of eye; body thick; tip of tail soft and rounded.



CONGER EEL *Conger oceanicus*  
Maximum size: 7 feet, 22 pounds in North America  
Range: Continental shelf of eastern North America, reaching  
as far north as Nova Scotia.

Gape of mouth reaches well beyond eye; body  
very slender; tip of tail hard and pointed.



SNAKE EEL *Ophichthys cruentifera*  
Maximum size: More than 16 inches  
Range: Gulf of Maine to Virginia.

# HERRING FAMILY



Belly (A) is sharp-edged in cross section.



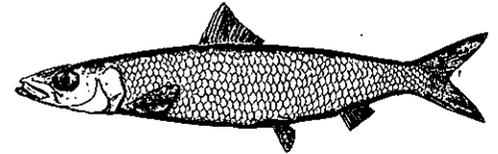
Belly (B) is more or less rounded in cross section.

Two rows of distinctive scales along middle of back between head and dorsal fin. Head (C) large, about 1/3 of body length to narrowest part of tail (D).

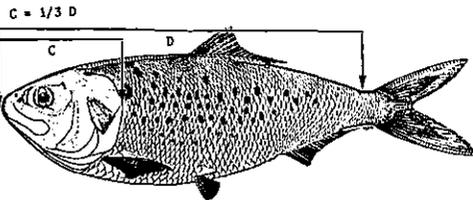


Top view of fish to show scales

No rows of distinctive scales along middle of back between head and dorsal fin. Head (C) smaller, about 1/4 or less of (D).



ROUND HERRING *Etrumeus teras*  
Maximum size: 10 inches  
Range: Bay of Fundy to Gulf of Mexico

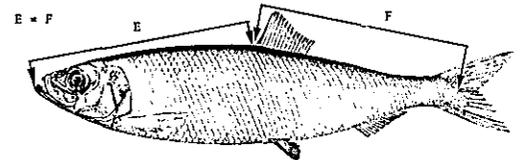


$C = 1/3 D$

ATLANTIC MENHADEN *Brevoortia tyrannus*  
(Pogy)  
Maximum size: 20 inches, about 1 3/4 pounds  
Range: Nova Scotia to Florida.

(E) much less than (F).  
Belly very sawtoothed.

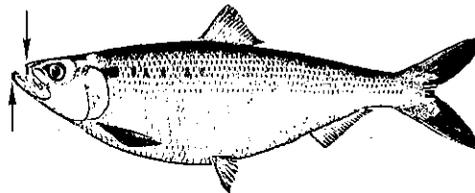
Distance from tip of lower jaw to start of dorsal fin (E) equals distance from start of dorsal fin to last large scales on the middle of the tail (F). Belly slightly sawtoothed.



ATLANTIC HERRING *Clupea harengus*  
(Sea herring)  
Maximum size: 17 inches, about 1 1/2 pounds  
Range: Both sides of the North Atlantic. In North America, Greenland to North Carolina.

Tip of lower jaw does not extend much beyond upper jaw when mouth closed

Tip of lower jaw extends beyond upper jaw when mouth is closed

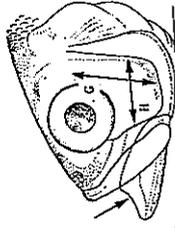


HICKORY SHAD *Alosa medlicottii*  
Maximum size: 2 feet  
Range: Bay of Fundy to Florida.

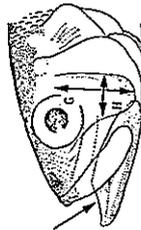
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# HERRING FAMILY (CONTINUED)

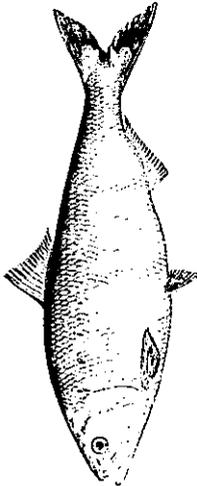
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Upper outline of forward part of lower jaw with pronounced angle. Cheek bone only slightly higher (G) than long (H).

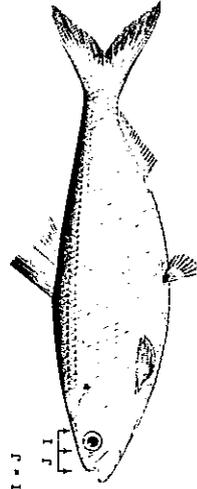


Upper outline of forward part of lower jaw nearly straight. Cheek bone much higher (G) than long (H).



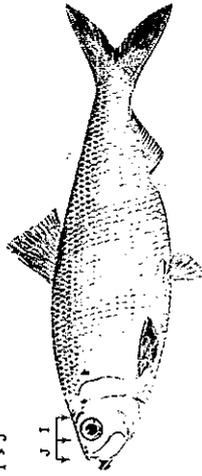
**AMERICAN SHAD** *Alosa sapidissima*  
*Maximum size:* 24 feet, 134 pounds  
*Range:* Newfoundland to Florida and on the United States' Pacific coast.

Eye width (I) equal to distance from front of eye to tip of snout (J). Lining of belly cavity black or sooty. Back is blue-green.



**BLUEBACK HERRING** *Alosa aestivalis*  
*Maximum size:* 15 inches  
*Range:* Nova Scotia to Florida.

Eye width (I) greater than distance from front of eye to tip of snout (J). Lining of belly cavity pale gray. Back is gray-green.



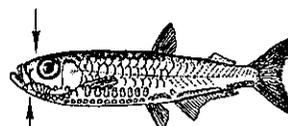
**ALEWIFE** *Alosa pseudoharengus*  
 (Freshwater herring)  
*Maximum size:* 15 inches  
*Range:* Gulf of St. Lawrence to North Carolina.

# ANCHOVY-SHAPED FISHES

No light-producing organs (photophores) present.

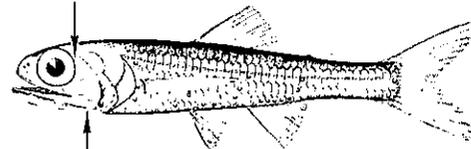
Light-producing organs (photophores) present.

Mouth small, extends only to about front of eye.



PEARLSIDES *Maurolicus muelleri*  
Maximum size: 2½ inches  
Range: The open Atlantic.

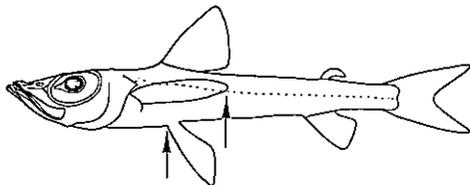
Mouth large, extends beyond eye.



LANTERNFISHES (MYCTOPHIDS)

Many species of lanternfishes exist. Identification depends mostly on the position and number of their light-producing organs (photophores). They are small fishes (most will be shorter than 3 or 4 inches) which are most abundant in the open ocean beyond the continental shelf. One fairly common species is the HORNED LANTERNFISH *Ceratospineus madarenis*, shown above, which has a small spine ("horn") pointing forward just above each eye.

Start of ventral fins in front of rear tip of pectoral fins.



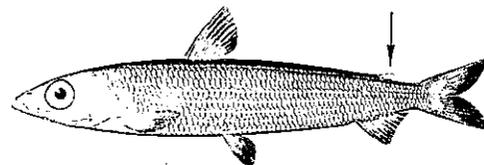
SHORTNOSE GREENEYE *Chlorophthalmus agassisi*  
Maximum size: About 6½ inches  
Range: South of Cape Cod to South America, in 81 to 400 fathoms.

Start of ventral fins well behind rear tip of pectoral fins.

No small fleshy fin (adipose fin) behind the dorsal fin.

(continued on next page)

A small fleshy fin (adipose fin) behind the dorsal fin.

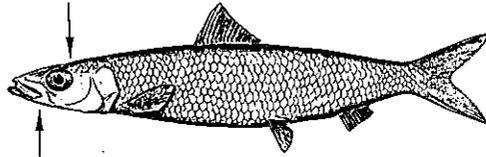


ATLANTIC ARGENTINE *Argentina silus*  
Maximum size: 18 inches  
Range: Both sides of North Atlantic usually in water as deep as 80 to 300 fathoms. In North America from Nova Scotia to off southern New England.

# ANCHOVY-SHAPED FISHES (CONTINUED)

(continued from preceding page)

Ventral fins located far behind dorsal fin. Mouth doesn't extend beyond eye.

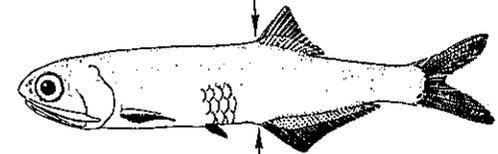


ROUND HERRING *Etrumeus teres*  
Maximum size: 10 inches  
Range: Bay of Fundy to Gulf of Mexico.

Ventral fins located in front of dorsal fin. Mouth extends beyond eye.

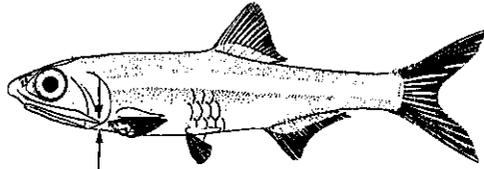
Start of dorsal fin farther forward than start of anal fin.

Start of dorsal fin directly over start of anal fin.



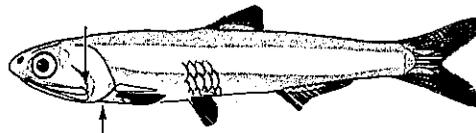
BAY ANCHOVY *Anchoa mitchilli*  
Maximum size: About 3½ inches  
Range: Maine to Texas.

Bone (maxillary bone) forming the bottom edge of upper jaw reaches about to gill opening and is pointed at its posterior tip.



STRIPED ANCHOVY *Anchoa hepsetus*  
Maximum size: About 6 inches  
Range: Nova Scotia to Uruguay.

Bone (maxillary bone) forming bottom edge of upper jaw stops far in front of gill opening and is rounded at its posterior tip.



SILVER ANCHOVY *Egornella eurystole*  
Maximum size: About 6 inches  
Range: In summer it is common offshore between Massachusetts and North Carolina.

# COD FAMILY — ONE OR THREE DORSAL FINNS

Three separate dorsal fins  
and two anal fins.

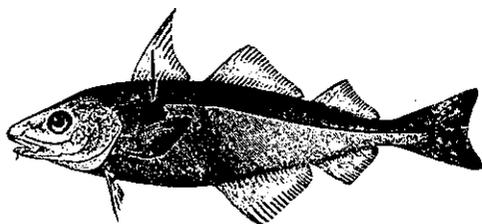
One dorsal fin  
and one anal fin.

The lateral line is black;  
a black blotch on each shoulder.

The lateral line is pale;  
there is no shoulder blotch.

CUSK *Brosmo brosmo*  
Maximum size: 3½ feet, about 27 pounds  
Range: Both sides of the North Atlantic.  
In North America, from Newfoundland to New  
Jersey in moderately deep water.

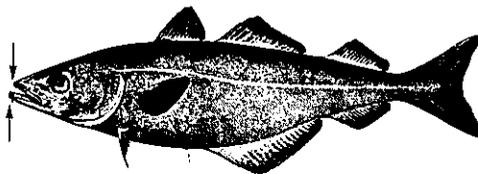
Although the cusk has the fin shape of the eels  
(that is, a single, long dorsal fin and a single long anal  
fin) and is included in the eel section of this  
guide, it is also included here since the cusk  
is a relative of the cod-like fishes and has a  
stout body like them.



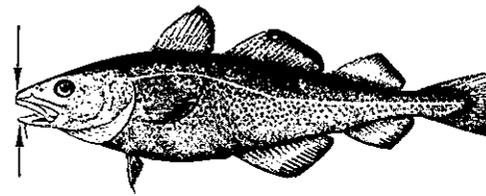
HADDOCK *Melanogrammus aeglefinus*  
Maximum size: 44 inches, about 37 pounds  
Range: Both sides of the Atlantic. In  
North America, from West Greenland to North Carolina.

The lower jaw projects beyond  
the upper; the chin barbel is  
very small, if there is one.

The upper jaw projects beyond  
the lower; the chin barbel is large.

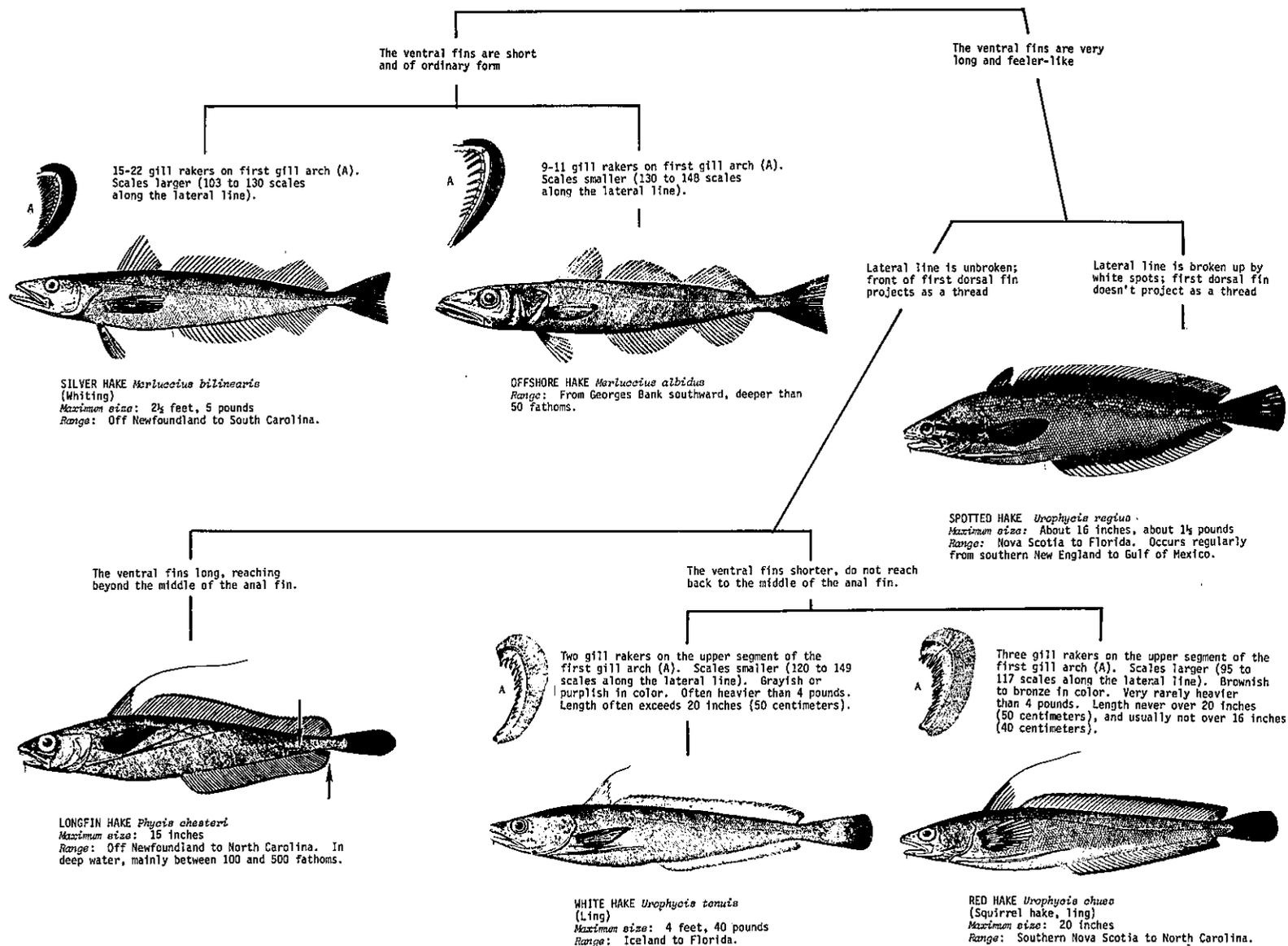


POLLOCK *Pollachius virens*  
Maximum size: 3½ feet, about 35 pounds  
Range: Both sides of the North Atlantic. In  
North America, from Gulf of St. Lawrence to  
North Carolina.

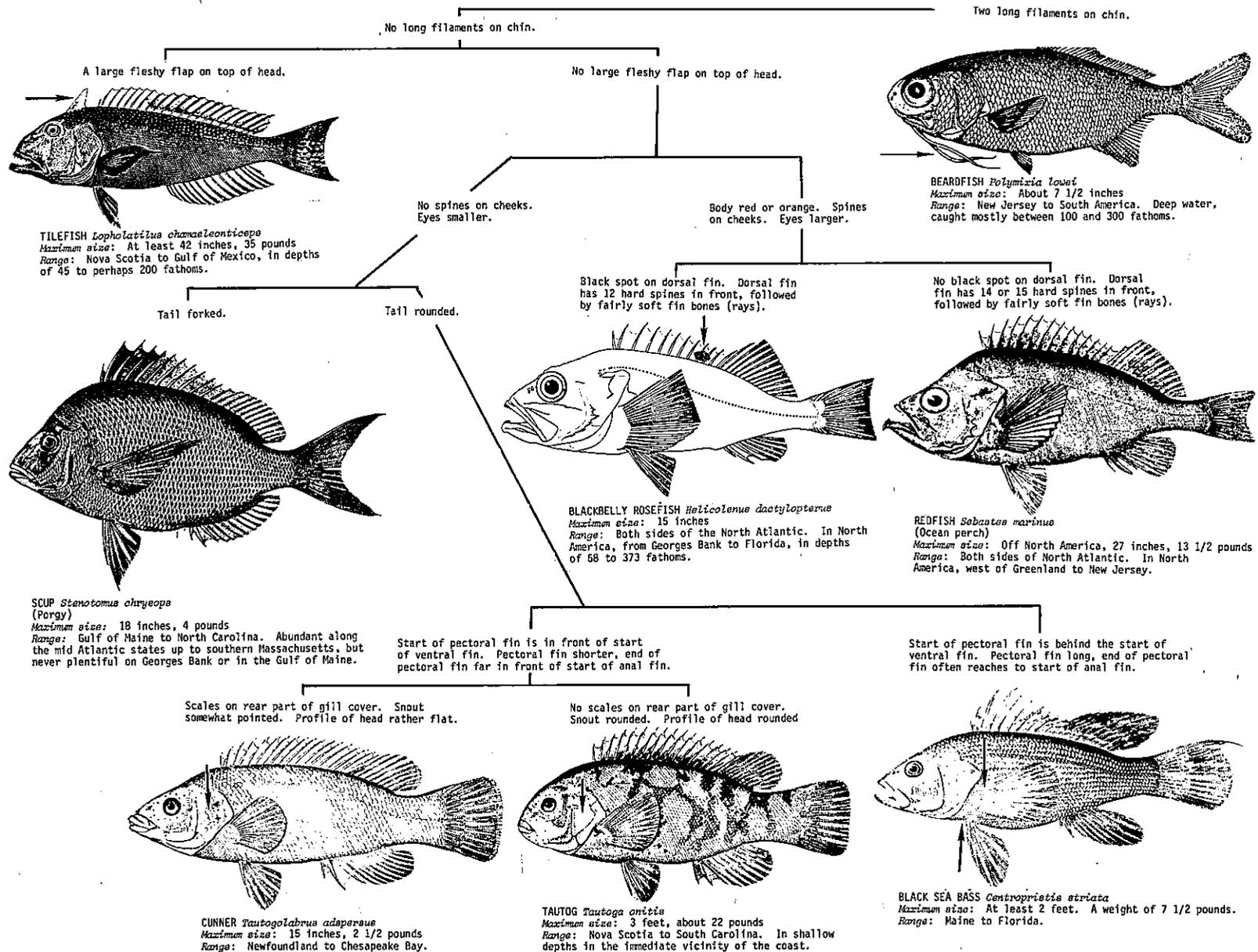


ATLANTIC COD *Gadus morhua*  
Maximum size: More than 6 feet, about 210 pounds  
Range: Both sides of the North Atlantic. In North  
America, from West Greenland to North Carolina.

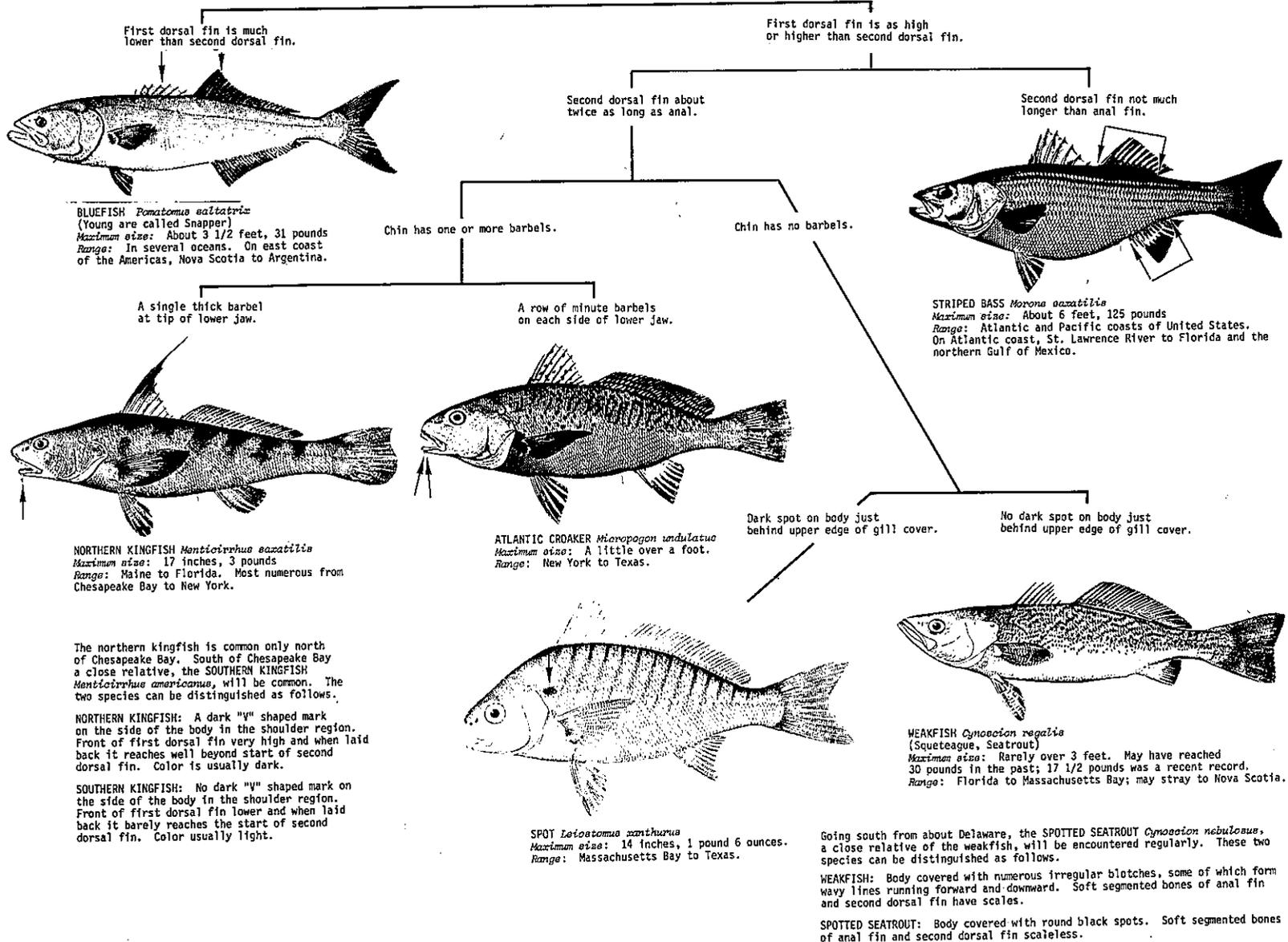
# COD FAMILY — TWO DORSAL FINN



# BASS-SHAPED FISHES — ONE DORSAL FIN



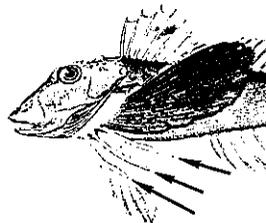
# BASS-SHAPED FISHES — TWO DORSAL FIN



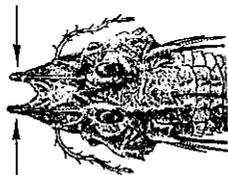
# SEAROBINS AND SCULPINS — SEAROBINS

Lower part of pectoral fins in the form of feelers and separated from remainder of fin.

Lower part of pectoral fins not in the form of feelers and not separated from remainder of fin.

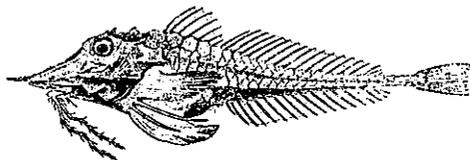


(see SCULPINS, next page)



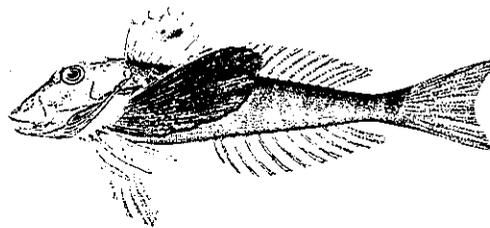
Snout seems double when seen from above.

Snout not double when seen from above.



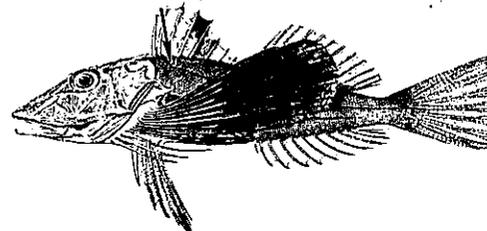
**ARMORED SEAROBIN** *Paristedion miniatum*  
 Maximum size: 14 inches  
 Range: Georges Bank to South Carolina. In deeper water, from 50 fathoms to over 200 fathoms.

No stripe down side of body. Pectoral fin shorter, reaching only 1/2 the way to end of base of second dorsal fin.



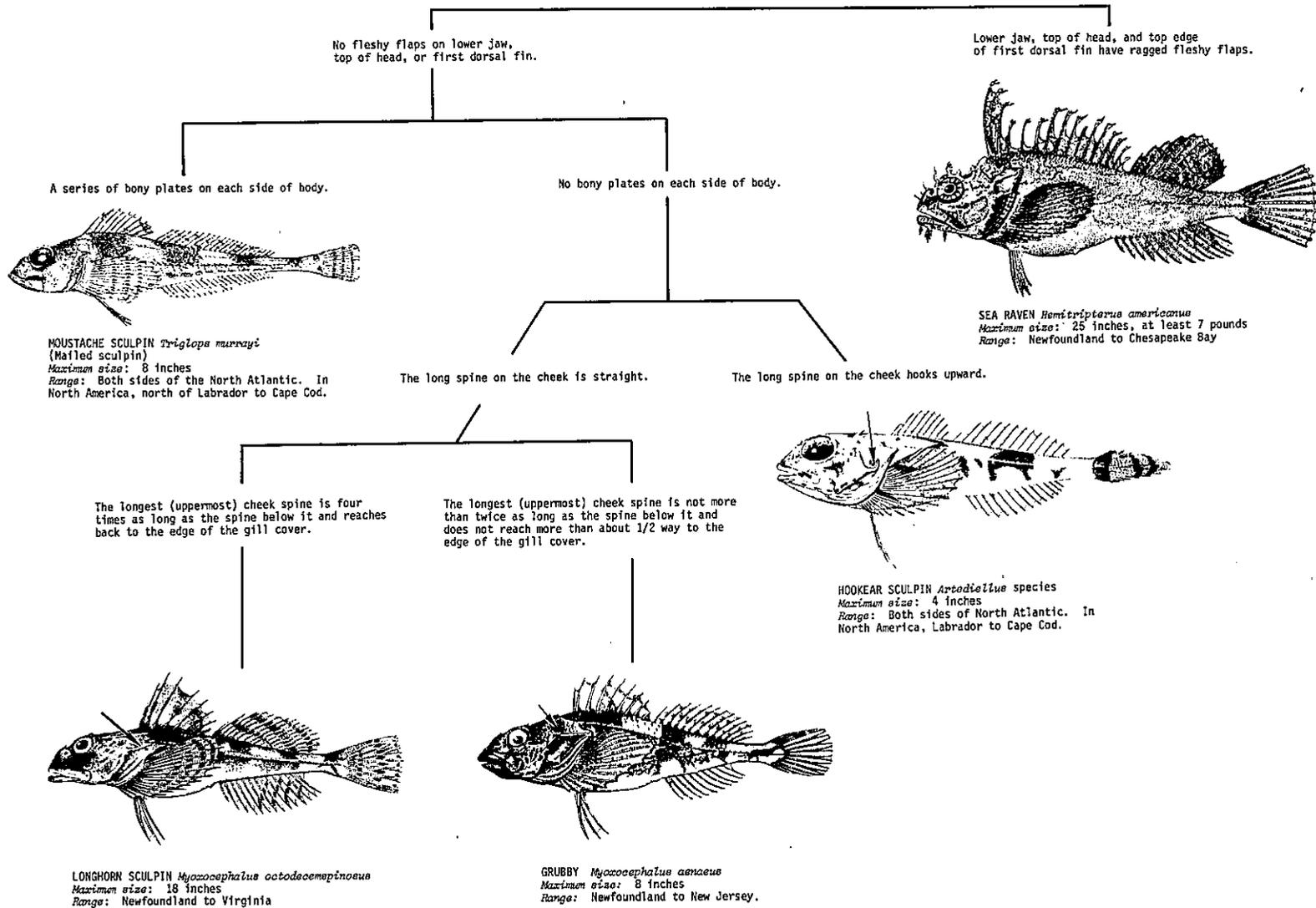
**NORTHERN SEAROBIN** *Prionotus carolinus*  
 Maximum size: 16 inches  
 Range: Bay of Fundy to South Carolina, mainly west and south from Cape Cod.

A prominent dark-brown stripe down side of body. Pectoral fin longer, reaching about 3/4 of the way to end of base of second dorsal fin.



**STRIPED SEAROBIN** *Prionotus evolans*  
 Maximum size: 18 inches  
 Range: Gulf of Maine to South Carolina.

# SEAROBINS AND SCULPINS — SCULPINS



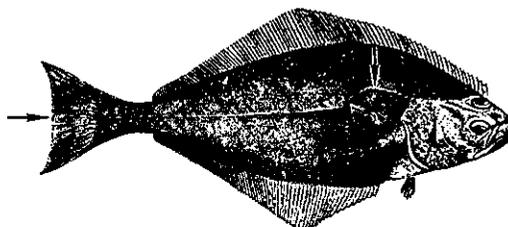
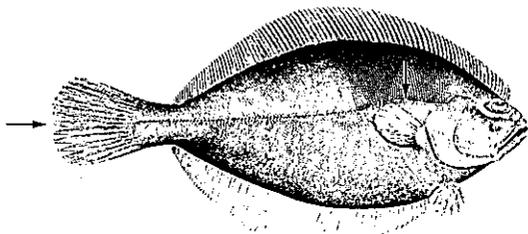
# FLATFISHES — RIGHT-EYED FLATFISHES

Large mouth, gaping back  
as far as the eye

Small mouth, not gaping  
back as far as the eye

Margin of tail rounded; lateral line  
nearly straight just behind gill opening

Margin of tail has sharp corners and is slightly concave;  
lateral line arched just behind gill opening.



AMERICAN PLAICE *Hippoglossoides platessoides*  
(American dab, Dab)  
Maximum size: 32 1/2 inches, 14 pounds  
Range: Both sides of the North Atlantic.  
In North America, Labrador to Montauk  
Point, New York.

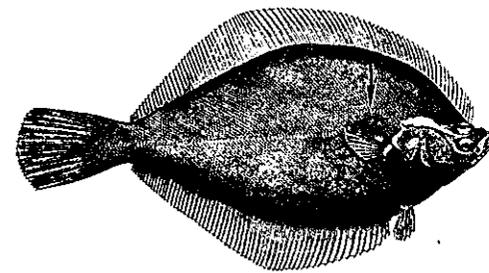
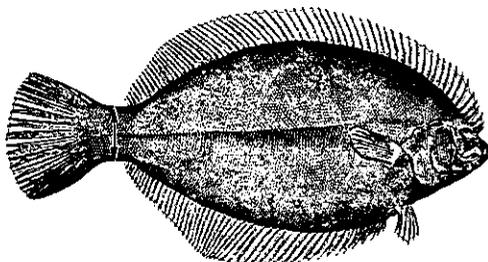
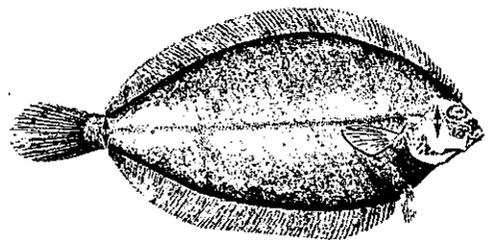
ATLANTIC HALIBUT *Hippoglossus hippoglossus*  
Maximum size: An 8-foot halibut weighs about 350 pounds.  
Known to reach about 700 pounds.  
Range: Both sides of the North Atlantic. In  
North America, from Virginia north to, or beyond, Labrador.

Lateral line nearly straight  
behind gill opening.

Lateral line arched  
behind gill opening

Depth of base of tail about equal to  
distance between outer margins of eyes

Depth of base of tail much more than  
distance between outer margins of eyes



WITCH FLOUNDER *Glyptocephalus cynoglossus*  
(Gray sole)  
Maximum size: 25 inches, about 4 pounds  
Range: Both sides of the North Atlantic. In North  
America, north of Newfoundland to North Carolina.  
Found in moderately deep water.

WINTER FLOUNDER *Pseudopleuronectes americanus*  
(Blackback, Lemon sole)  
Maximum size: 25 inches, 8 pounds  
Range: Newfoundland to Georgia.

YELLOWTAIL FLOUNDER *Limanda ferruginea*  
Maximum size: 21 3/4 inches  
Range: Labrador to Chesapeake Bay.

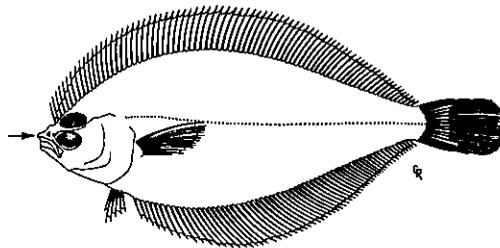
# FLATFISHES — LEFT-EYED FLATFISHES

Lateral line arched over pectoral fin.  
Often much longer than 7 inches.

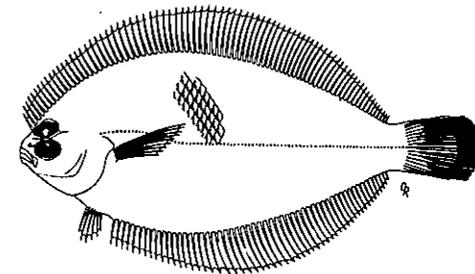
Lateral line is nearly straight.  
Maximum is 7 inches or less.

Snout has a well developed bony  
protuberance, extending horizontally.

No bony protuberance  
extending horizontally on snout.



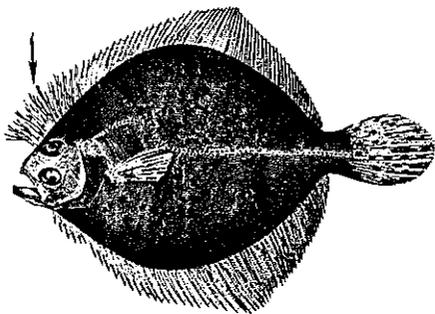
**GULF STREAM FLOUNDER** *Otharichthys arotifrons*  
Maximum size: 7 inches  
Range: Georges Bank to Yucatan, Mexico. Occurs mainly at depths of 25 to 200 fathoms, seldom as shallow as 12 fathoms.



**SMALLMOUTH FLOUNDER** *Stropus microstomus*  
Maximum size: 6 inches  
Range: New England to the Gulf of Mexico. Common at depths of 2-15 fathoms, seldom deeper than 25 fathoms.

Body more round in outline, body about 1 1/2  
times as long as broad. Front part of  
dorsal fin is enlarged and fringe-like.

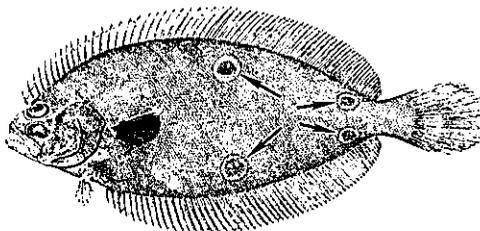
Body more elongate in outline; body about 2  
times as long as broad. Front part of dorsal  
fin is about like the rest of dorsal fin.



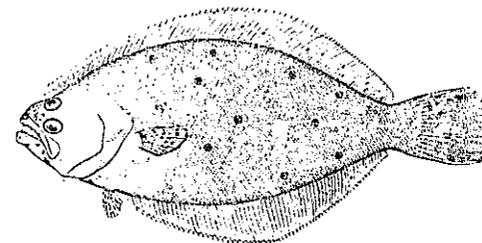
**WINDOWPANE** *Scophthalmus aquosus*  
(Sand dab, Sand flounder, Sundial)  
Maximum size: 18 inches, 2 pounds  
Range: Gulf of St. Lawrence to South Carolina.

Four large spots on upper side.

Many small spots on upper side.

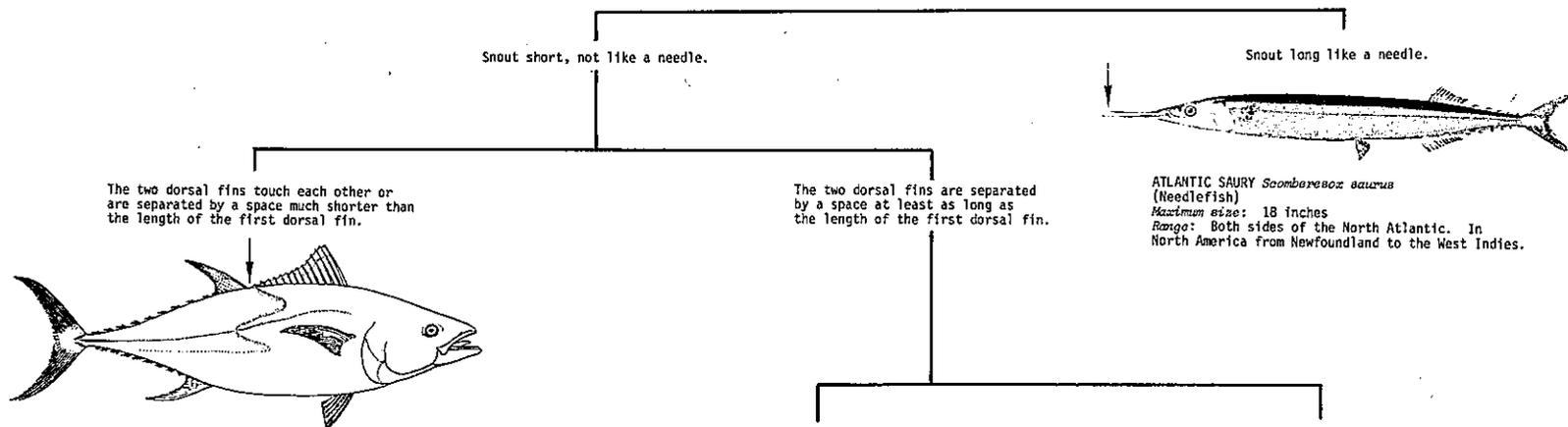


**FOURSPOT FLOUNDER** *Hippoglossus oblongus*  
Maximum size: 16 inches  
Range: Georges Bank to South Carolina.

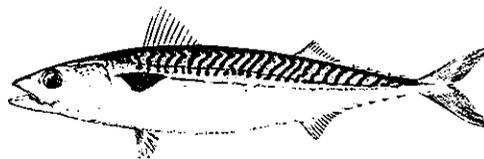


**SUMMER FLOUNDER** *Paralichthys dentatus*  
(Fluke)  
Maximum size: A 37" fish has been caught which weighed 20 pounds. May reach 30 pounds.  
Range: Maine to South Carolina, maybe to Florida.

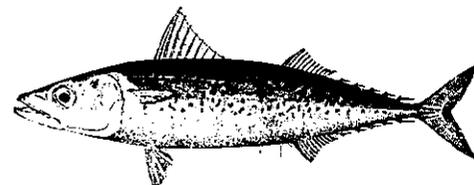
# MACKEREL AND TUNA-SHAPED FISHES



TUNAS - A group of similar looking fishes, fast swimming and seldom caught in otter trawls. One species, the BLUEFIN TUNA *Thunnus thynnus*, shown above, attains a weight well above 1000 pounds.



ATLANTIC MACKEREL *Scomber scombrus*  
Maximum size: A few reach 22 inches and about 4 pounds. One weighing 7 1/2 pounds is mentioned in "Fishes of the Gulf of Maine."  
Range: Both sides of the North Atlantic. In North America, Newfoundland to North Carolina.

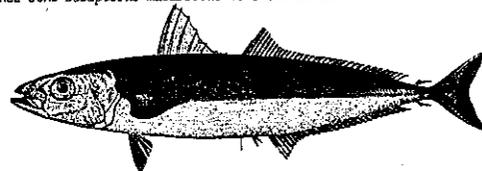


CHUB MACKEREL *Scomber japonicus*  
Maximum size: 14 inches  
Range: Gulf of St. Lawrence to Virginia.

Another group of fishes, the jacks (also called carangids) contain several fishes that look like the mackerels. The jacks can be separated from the mackerels by the following characters.

MACKERELS: The length of the base of the second dorsal is about equal to or smaller than the base of the first dorsal fin. There are four or more little fins (called finlets) between the last dorsal fin and the caudal fin.

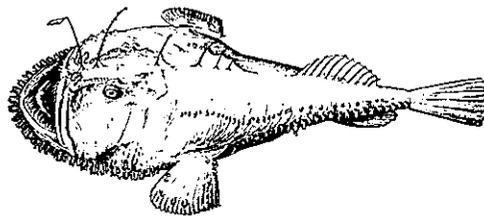
JACKS: When two dorsal fins are present some are present (some jacks have only one dorsal fin) the base of the second dorsal is much longer than the base of the first. There is one or no little fins between the last dorsal fin and the caudal fin. One of the jacks, the MACKEREL SCAD *Decapterus macarellus* is shown below.



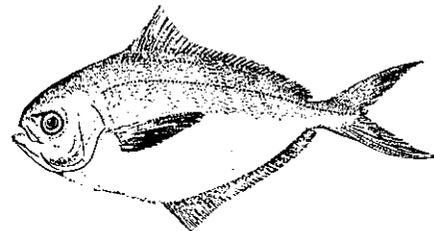
MACKEREL SCAD *Decapterus macarellus*  
Maximum size: About 1 foot  
Range: Nova Scotia south to warm parts of the Atlantic.

## GOOSEFISH AND BUTTERFISH

Note: These two fishes should be easily distinguishable from all other fishes in the guide. They are placed together here for lack of a better place and not because they resemble each other.



GOOSEFISH *Lophius americanus*  
(Angler, Monkfish)  
Maximum size: 4 feet, 50 pounds  
Range: Near Newfoundland to North Carolina. Same  
or similar species off South America.



BUTTERFISH *Peprilus triacanthus*  
Maximum size: 12 inches, 1½ pound  
Range: Gulf of St. Lawrence to South Carolina.

Another group of fishes, the jacks (also called carangids) contain several fishes that somewhat resemble the butterfish. They can be distinguished because all jacks have ventral fins. Butterfish lack ventral fins.

INDEX OF COMMON NAMES

	<u>Page</u>		<u>Page</u>
Alewife . . . . .	16	Blueback herring . . . . .	16
American dab . . . . .	25	Bluefin tuna . . . . .	27
American plaice . . . . .	25	Bluefish . . . . .	22
American shad . . . . .	16	Bluntnose stingray . . . . .	12
Anchovy . . . . .	18	Brier skate . . . . .	10
Angel shark . . . . .	9	Brown shark . . . . .	8
Angler . . . . .	28	Bullnose ray . . . . .	11
Argentine . . . . .	17	Butterfish . . . . .	28
Armored searobin . . . . .	23	Butterfly ray . . . . .	11
Atlantic argentine . . . . .	17	Catfish . . . . .	13
Atlantic cod . . . . .	19	Chain dogfish . . . . .	8
Atlantic croaker . . . . .	22	Chub mackerel . . . . .	27
Atlantic hagfish . . . . .	13	Clearnose skate . . . . .	10
Atlantic halibut . . . . .	25	Cod . . . . .	19
Atlantic herring . . . . .	15	Common sea robin . . . . .	23
Atlantic mackerel . . . . .	27	Conger eel . . . . .	14
Atlantic menhaden . . . . .	15	Cownose ray . . . . .	11
Atlantic saury . . . . .	27	Croaker . . . . .	22
Atlantic wolffish . . . . .	13	Cunner . . . . .	21
Barndoor skate . . . . .	9	Cusk . . . . .	13, 20
Bass . . . . .	21, 22	Cusk-eel . . . . .	14
Bay anchovy . . . . .	18	Dab . . . . .	25
Beardfish . . . . .	21	Dogfish . . . . .	8
Big skate . . . . .	10	Dusky shark . . . . .	8
Blackback . . . . .	25	Eel . . . . .	13, 14
Blackbelly rosefish . . . . .	21	Eelpout . . . . .	14
Black sea bass . . . . .	21		
Blueback . . . . .	16		

Fawn cusk-eel. . . . .	14	Longfin hake. . . . .	20
Flatfishes . . . . .	25, 26	Longhorn sculpin. . . . .	24
Flounder . . . . .	25, 26	Mackerel. . . . .	27
Fluke. . . . .	26	Mackerel scad . . . . .	27
Fourbeard rockling . . . . .	13	Mailed sculpin. . . . .	24
Fourspot flounder. . . . .	26	Menhaden. . . . .	15
Freshwater herring . . . . .	16	Monkfish. . . . .	28
Goosefish. . . . .	28	Moustache sculpin . . . . .	24
Gray sole. . . . .	25	Myctophid . . . . .	17
Greeneye . . . . .	17	Needlefish. . . . .	27
Grenadier. . . . .	13	Northern kingfish . . . . .	22
Grubby . . . . .	24	Northern searobin . . . . .	23
Gulf Stream flounder . . . . .	26	Northern stingray . . . . .	12
Haddock. . . . .	19	Ocean catfish . . . . .	13
Hagfish. . . . .	13	Ocean perch . . . . .	21
Hake . . . . .	20	Ocean pout. . . . .	14
Halibut. . . . .	25	Offshore hake . . . . .	20
Herring. . . . .	15, 16	Pearlsides. . . . .	17
Herring family . . . . .	15, 16	Perch . . . . .	21
Hickory shad . . . . .	15	Plaice. . . . .	25
Hookear sculpin. . . . .	24	Pogy. . . . .	15
Horned lanternfish . . . . .	17	Pollock . . . . .	19
Jack . . . . .	27, 28	Porgy . . . . .	21
Kingfish . . . . .	22	Pout. . . . .	14
Lance . . . . .	13	Rattail . . . . .	13
Lanternfishes. . . . .	17	Raven . . . . .	24
Lemon sole . . . . .	25	Rays. . . . .	11
Leopard skate. . . . .	9	Redfish . . . . .	21
Ling . . . . .	20	Red hake. . . . .	20
Little skate . . . . .	10	Rockling. . . . .	13

Rosefish. . . . .	21
Rosette skate . . . . .	9
Roughtail stingray. . . . .	12
Round herring . . . . .	15, 18
Sandbar shark . . . . .	8
Sand dab. . . . .	26
Sand flounder . . . . .	26
Sand lance. . . . .	13
Sand tiger. . . . .	8
Saury . . . . .	27
Scad. . . . .	27
Sculpin . . . . .	24
Scup. . . . .	21
Sea bass. . . . .	21
Sea herring . . . . .	15
Sea raven . . . . .	24
Searobin. . . . .	23
Seatrout. . . . .	22
Shad. . . . .	15, 16
Shark . . . . .	8, 9
Shortnose greeneye. . . . .	17
Silver anchovy. . . . .	18
Silver hake . . . . .	20
Skate . . . . .	9, 10
Smallmouth flounder . . . . .	26
Smooth butterfly ray. . . . .	11
Smooth dogfish. . . . .	8
Smooth skate. . . . .	9
Smooth-tailed skate . . . . .	9
Snake eel . . . . .	14
Snapper . . . . .	22

Sole. . . . .	25
Southern kingfish . . . . .	22
Spiny butterfly ray . . . . .	11
Spiny dogfish . . . . .	8
Spot. . . . .	22
Spotted hake. . . . .	20
Spotted seatrout. . . . .	22
Squeteague. . . . .	22
Squirrel hake . . . . .	20
Stingrays . . . . .	12
Striped anchovy . . . . .	18
Striped bass. . . . .	22
Striped cusk-eel. . . . .	14
Striped searobin. . . . .	23
Summer flounder . . . . .	26
Sundial . . . . .	26
Tautog. . . . .	21
Thorny skate. . . . .	9
Tilefish. . . . .	21
Tuna. . . . .	27
Weakfish. . . . .	22
White hake. . . . .	20
Whiting . . . . .	20
Windowpane. . . . .	26
Winter flounder . . . . .	25
Winter skate. . . . .	10
Witch flounder. . . . .	25
Wolfish. . . . .	13
Yellowtail. . . . .	25
Yellowtail flounder . . . . .	25

INDEX OF SCIENTIFIC NAMES

	<u>Page</u>		<u>Page</u>
<i>acanthias</i> , <i>Squalus</i> . . . . .	8	<i>Carcharhinus obscurus</i> . . . . .	8
<i>adpersus</i> , <i>Tautogolabrus</i> . . . . .	21	<i>carolinus</i> , <i>Prionotus</i> . . . . .	23
<i>aeglefinus</i> , <i>Melanogrammus</i> . . . . .	19	<i>Centropristis striata</i> . . . . .	21
<i>aenaeus</i> , <i>Myoxocephalus</i> . . . . .	24	<i>centroura</i> , <i>Dasyatis</i> . . . . .	12
<i>aestivalis</i> , <i>Alosa</i> . . . . .	16	<i>Ceratoscopelus maderensis</i> . . . . .	17
<i>agassizi</i> , <i>Chlorophthalmus</i> . . . . .	17	<i>cervinum</i> , <i>Lepophidium</i> . . . . .	14
<i>albidus</i> , <i>Merluccius</i> . . . . .	20	<i>chamaeleonticeps</i> , <i>Lopholatilus</i> . . . . .	21
<i>Alosa aestivalis</i> . . . . .	16	<i>chesteri</i> , <i>Phycis</i> . . . . .	20
<i>Alosa mediocris</i> . . . . .	15	<i>Chlorophthalmus agassizi</i> . . . . .	17
<i>Alosa pseudoharengus</i> . . . . .	16	<i>chrysops</i> , <i>Stenotomus</i> . . . . .	21
<i>Alosa sapidissima</i> . . . . .	16	<i>chuss</i> , <i>Urophycis</i> . . . . .	20
<i>altavela</i> , <i>Gymnura</i> . . . . .	11	<i>cimbrius</i> , <i>Enchelyopus</i> . . . . .	13
<i>americanus</i> , <i>Hemirhamphus</i> . . . . .	24	<i>Citharichthys arctifrons</i> . . . . .	26
<i>americanus</i> , <i>Lophius</i> . . . . .	28	<i>Clupea harengus</i> . . . . .	15
<i>americanus</i> , <i>Macrozoarces</i> . . . . .	14	<i>Conger oceanicus</i> . . . . .	14
<i>americanus</i> , <i>Menticirrhus</i> . . . . .	22	<i>cruentifer</i> , <i>Ophichthys</i> . . . . .	14
<i>americanus</i> , <i>Pseudopleuronectes</i> . . . . .	25	<i>cynoglossus</i> , <i>Glyptocephalus</i> . . . . .	25
<i>Ammodytes</i> species . . . . .	13	<i>Cynoscion regalis</i> . . . . .	22
<i>Anarhichas lupus</i> . . . . .	13	<i>Cynoscion nebulosus</i> . . . . .	22
<i>Anchoa hepsetus</i> . . . . .	18	<i>dactylopterus</i> , <i>Helicolenus</i> . . . . .	21
<i>Anchoa mitchilli</i> . . . . .	18	<i>Dasyatis centroura</i> . . . . .	12
<i>aquosus</i> , <i>Scophthalmus</i> . . . . .	26	<i>Dasyatis sayi</i> . . . . .	12
<i>arctifrons</i> , <i>Citharichthys</i> . . . . .	26	<i>Decapterus macarellus</i> . . . . .	27
<i>Argentina silus</i> . . . . .	17	<i>dentatus</i> , <i>Paralichthys</i> . . . . .	26
<i>Artediellus</i> species . . . . .	24	<i>dumerili</i> , <i>Squatina</i> . . . . .	9
<i>bairdi</i> , <i>Nezumia</i> . . . . .	13	<i>eglanteria</i> , <i>Raja</i> . . . . .	10
<i>bilinearis</i> , <i>Merluccius</i> . . . . .	20	<i>Enchelyopus cimbrius</i> . . . . .	13
<i>bonasus</i> , <i>Rhinoptera</i> . . . . .	11	<i>Engraulis eurystole</i> . . . . .	18
<i>Brevoortia tyrannus</i> . . . . .	15	<i>erinacea</i> , <i>Raja</i> . . . . .	10
<i>Brosme brosmes</i> . . . . .	13, 19	<i>Etropus microstomus</i> . . . . .	26
<i>brosme</i> , <i>Brosme</i> . . . . .	13, 19	<i>Etrumeus teres</i> . . . . .	15, 18
<i>canis</i> , <i>Mustelus</i> . . . . .	8	<i>eurystole</i> , <i>Engraulis</i> . . . . .	18
<i>Carangids</i> . . . . .	27, 28	<i>evolans</i> , <i>Prionotus</i> . . . . .	23
<i>Carcharhinus milberti</i> . . . . .	8	<i>ferruginea</i> , <i>Limanda</i> . . . . .	25
		<i>freminvillei</i> , <i>Myliobatis</i> . . . . .	11

<i>Gadus morhua</i> . . . . .	19	<i>Melanogrammus aeglefinus</i> . . . . .	19
<i>garmani</i> , <i>Raja</i> . . . . .	9	<i>Menticirrhus saxatilis</i> . . . . .	22
<i>glutinosa</i> , <i>Myxine</i> . . . . .	13	<i>Menticirrhus americanus</i> . . . . .	22
<i>Glyptocephalus cynoglossus</i> . . . . .	25	<i>Merluccius albidus</i> . . . . .	20
<i>Gymmura altavela</i> . . . . .	11	<i>Merluccius bilinearis</i> . . . . .	20
<i>Gymmura micrura</i> . . . . .	11	<i>Micropogon undulatus</i> . . . . .	22
		<i>microstomus</i> , <i>Etropus</i> . . . . .	26
<i>harengus</i> , <i>Clupea</i> . . . . .	15	<i>micrura</i> , <i>Gymmura</i> . . . . .	11
<i>Helicolenus dactylopterus</i> . . . . .	21	<i>milberti</i> , <i>Carcharhinus</i> . . . . .	8
<i>Hemitripterus americanus</i> . . . . .	24	<i>miniatum</i> , <i>Peristedion</i> . . . . .	23
<i>hepsetus</i> , <i>Anchoa</i> . . . . .	18	<i>mitchilli</i> , <i>Anchoa</i> . . . . .	18
<i>Hippoglossoides platessoides</i> . . . . .	25	<i>morhua</i> , <i>Gadus</i> . . . . .	19
<i>Hippoglossus hippoglossus</i> . . . . .	25	<i>Morone saxatilis</i> . . . . .	22
<i>hippoglossus</i> , <i>Hippoglossus</i> . . . . .	25	<i>muelleri</i> , <i>Maurolicus</i> . . . . .	17
<i>Hippoglossus oblongus</i> . . . . .	26	<i>murrayi</i> , <i>Triglops</i> . . . . .	24
		<i>Mustelus canis</i> . . . . .	8
<i>japonicus</i> , <i>Scomber</i> . . . . .	27	<i>Myliobatis freminvillei</i> . . . . .	11
		<i>Myoxocephalus aenaeus</i> . . . . .	24
<i>laevis</i> , <i>Raja</i> . . . . .	9	<i>Myoxocephalus octodecemspinosus</i> . . . . .	24
<i>Leiostomus xanthurus</i> . . . . .	22	<i>Myxine glutinosa</i> . . . . .	13
<i>Lepophidium cervinum</i> . . . . .	14		
<i>Limanda ferruginea</i> . . . . .	25	<i>nebulosus</i> , <i>Cynoscion</i> . . . . .	22
<i>Lophius americanus</i> . . . . .	28	<i>Nezumia bairdi</i> . . . . .	13
<i>Lopholatilus chamaeleonticeps</i> . . . . .	21		
<i>lowei</i> , <i>Polymixia</i> . . . . .	21	<i>oblongus</i> , <i>Hippoglossus</i> . . . . .	26
<i>lupus</i> , <i>Anarhichas</i> . . . . .	13	<i>obscurus</i> , <i>Carcharhinus</i> . . . . .	8
		<i>oceanus</i> , <i>Conger</i> . . . . .	14
<i>macarellus</i> , <i>Decapterus</i> . . . . .	27	<i>ocellata</i> , <i>Raja</i> . . . . .	10
<i>Macrozoarces americanus</i> . . . . .	14	<i>octodecemspinosus</i> , <i>Myoxocephalus</i> . . . . .	24
<i>maderensis</i> , <i>Ceratoscopelus</i> . . . . .	17	<i>Odontaspis taurus</i> . . . . .	8
<i>marginata</i> , <i>Rissola</i> . . . . .	14	<i>onitis</i> , <i>Tautoga</i> . . . . .	21
<i>marinus</i> , <i>Sebastes</i> . . . . .	21	<i>Ophichthus cruentifer</i> . . . . .	14
<i>Maurolicus muelleri</i> . . . . .	17		
<i>mediocris</i> , <i>Alosa</i> . . . . .	15		

<i>Paralichthys dentatus</i> . . . . .	26	<i>Scyliorhinus retifer</i> . . . . .	8
<i>Peprilus triacanthus</i> . . . . .	28	<i>Sebastes marinus</i> . . . . .	21
<i>Peristedion miniatum</i> . . . . .	23	<i>senta, Raja</i> . . . . .	9
<i>Phycis chesteri</i> . . . . .	20	<i>silus, Argentina</i> . . . . .	17
<i>platessoides, Hippoglossoides</i> . . . . .	25	<i>Squalus acanthias</i> . . . . .	8
<i>Pollachius virens</i> . . . . .	19	<i>Squatina dumerili</i> . . . . .	9
<i>Polymixia lowei</i> . . . . .	21	<i>Stenotomus chrysops</i> . . . . .	21
<i>Pomatomus saltatrix</i> . . . . .	22	<i>striata, Centropristis</i> . . . . .	21
<i>Prionotus carolinus</i> . . . . .	23		
<i>Prionotus evolans</i> . . . . .	23	<i>taurus, Odontaspis</i> . . . . .	8
<i>pseudoharengus, Alosa</i> . . . . .	16	<i>Tautoga onitis</i> . . . . .	21
<i>Pseudopleuronectes americanus</i> . . . . .	25	<i>Tautogolabrus adspersus</i> . . . . .	21
		<i>tenuis, Urophycis</i> . . . . .	20
<i>radiata, Raja</i> . . . . .	9	<i>teres, Etrumeus</i> . . . . .	15, 17
<i>Raja eglanteria</i> . . . . .	10	<i>Thunnus thynnus</i> . . . . .	27
<i>Raja erinacea</i> . . . . .	10	<i>thynnus, Thunnus</i> . . . . .	27
<i>Raja garmani</i> . . . . .	9	<i>triacanthus, Peprilus</i> . . . . .	28
<i>Raja laevis</i> . . . . .	9	<i>Triglops murrayi</i> . . . . .	24
<i>Raja ocellata</i> . . . . .	10	<i>tyrannus, Brevoortia</i> . . . . .	15
<i>Raja radiata</i> . . . . .	9		
<i>Raja senta</i> . . . . .	9	<i>undulatus, Micropogon</i> . . . . .	22
<i>regalis, Cynoscion</i> . . . . .	22	<i>Urophycis chuss</i> . . . . .	20
<i>regius, Urophycis</i> . . . . .	20	<i>Urophycis regius</i> . . . . .	20
<i>retifer, Scyliorhinus</i> . . . . .	8	<i>Urophycis tenuis</i> . . . . .	20
<i>Rhinoptera bonasus</i> . . . . .	11		
<i>Rissola marginata</i> . . . . .	14	<i>virens, Pollachius</i> . . . . .	19
<i>saltatrix, Pomatomus</i> . . . . .	22	<i>xanthurus, Leiostomus</i> . . . . .	22
<i>sapidissima, Alosa</i> . . . . .	16		
<i>saurus, Scomberesox</i> . . . . .	27		
<i>saxatilis, Menticirrhus</i> . . . . .	22		
<i>saxatilis, Morone</i> . . . . .	22		
<i>sayi, Dasyatis</i> . . . . .	12		
<i>Scomber japonicus</i> . . . . .	27		
<i>Scomber scombrus</i> . . . . .	27		
<i>Scomberesox saurus</i> . . . . .	27		
<i>scombrus, Scomber</i> . . . . .	27		
<i>Scophthalmus aquosus</i> . . . . .	26		

## ERRATA

NOAA Technical Report NMFS Circular 428: Morphological Comparisons of North American Sea Bass Larvae (Pisces: Serranidae), by Arthur W. Kendall, Jr.

Page 7, Figure 6d is incorrect. See correct Figure 6d below.

