

OREGON SKATE AND RAY IDENTIFICATION KEY

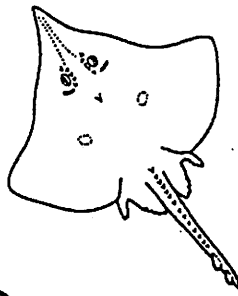
by

Mike Hosie

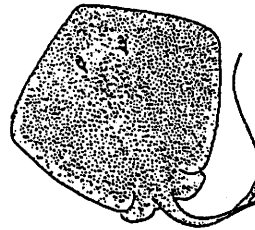
Oregon Department of Fish and Wildlife
2040 SE Marine Science Drive
Newport, OR 97365
6/4/97



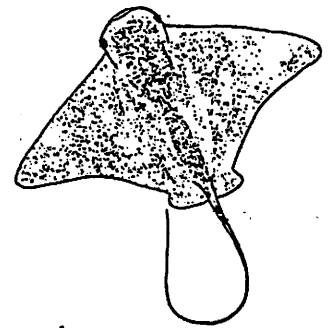
electric rays



skates



stingrays



eagle rays

(illustrations from Eschmeyer, Herald, and Hammann, 1983)

Four Families and Fourteen Species Found Off Oregon

Family
Torpedinidae

One species

Family
Rajidae

Ten species

Family
Dasyatidae

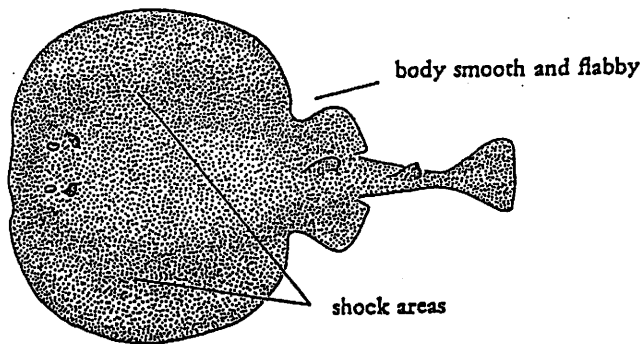
Two species

Family
Myliobatidae

One species

- 1a. Two dorsal fins on tail 2
- 1b. None or one dorsal fin on tail..... 12
- 2a. Large caudal (tail) fin present; body smooth with no thorns or denticles (prickles)
 electric rays, ... Family Torpedinidae

Pacific electric ray, Torpedo californica

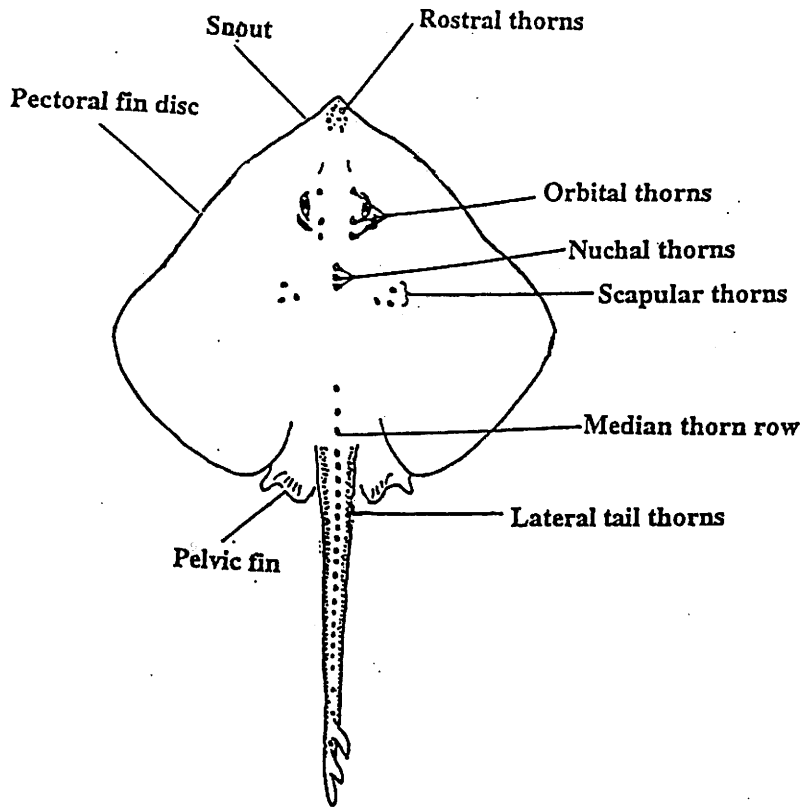


(from Miller and Lea, 1972)

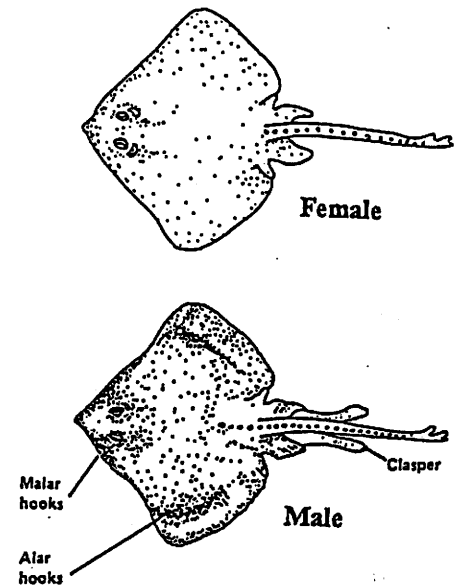
Uncommon off Oregon; dark bluish-gray above, often with small irregular black spots; white to light gray below; length to 137 cm; depth of 0 - 453 m; Baja California - British Columbia. Dangerous, as it produces an electric shock with up to about 400 volts, and very low amps. If you find one alive only lift it up by its tail, as the electrical organs are in the head. If you are shocked it reportedly will be only a mild shock.

- 2b. Caudal (tail) fin absent, or very small and rudimentary, thorns or denticles on body (pectoral fin disc) and tailSkates, ... Family Rajidae3

Characteristics used to identify Oregon skates,
including locations of various thorn patterns
on the body dorsal surface



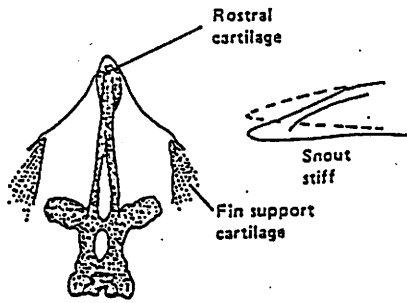
(adapted from Zorzi and Anderson, 1988)



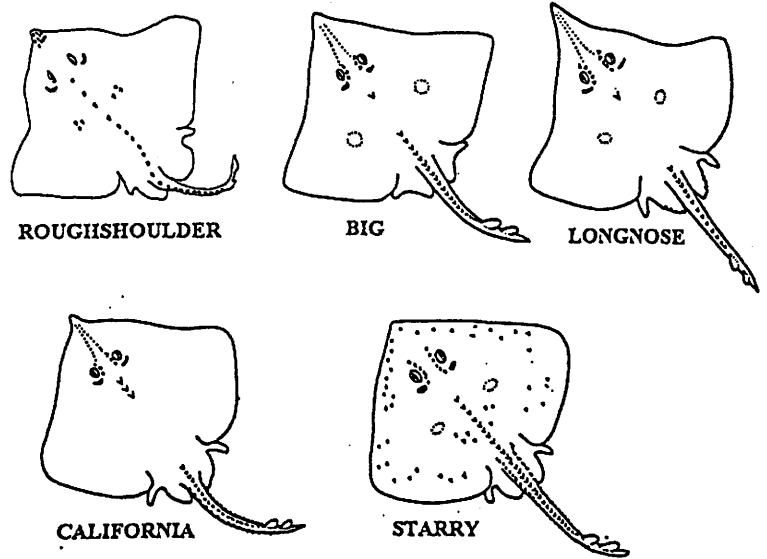
(adopted from Allen, 1983 unpublished)

Male skates, unlike females, have narrow long rows of both malar hooks and alar hooks, as well as two elongated claspers. Both sets of hooks are on the dorsal surface of the pectoral fin disc. Malar hook rows are near the anterior disc edge. Alar hook rows are midway back and somewhat near the edge of the widest part of the disc. Care must be taken to avoid confusing these hooks with the thorns used in skate species identification. The thorns are in different locations and have different shapes than the male hooks. Two elongated claspers, used in mating, are attached to the posterior end of the body and extend back on either side of the tail. Near the posterior tip of the claspers, in a sheath, is a cartilage knife-like structure. Do not touch this structure when handling live male skates, because people have received severe cuts on both fingers and hands from the posterior end of claspers.

3a. Snout stiff (hardnosed), especially at tip, due to thick broad tapering rostral cartilage; anteriormost pectoral fin rays falling distinctly short of tip of snout; orbital thorns present (genus Raja) ... 5 Oregon skate species.....4

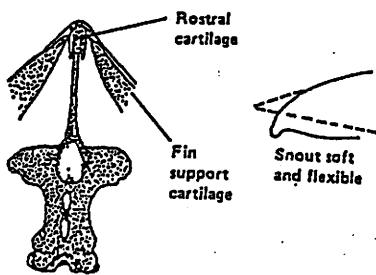


(from Allen, 1983 unpublished)

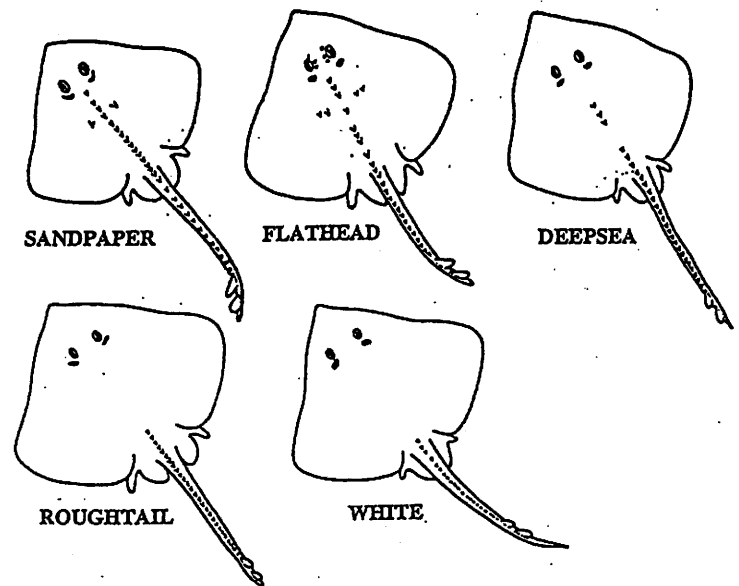


(from Eschmeyer, Herald, and Hammann, 1983)

3b. Snout flexible and flabby (softnosed), especially near tip, due to slender rostral cartilage; anteriormost pectoral fin rays nearly reaching tip of snout; orbital thorns absent or present (genus Bathyraja)... 5 Oregon skate species8



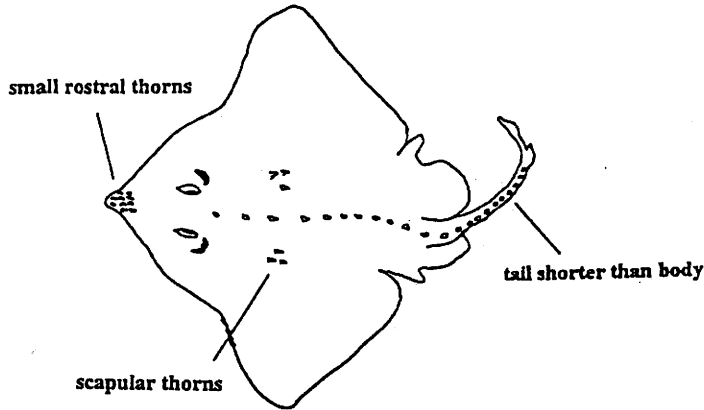
(from Allen, 1983, unpublished)



(from Eschmeyer, Herald, and Hammann, 1983)

- 4a. Tail considerably shorter than body; usually 4 - 6 scapular thorns present; tip of snout with enlarged small rostral thorns (thornlets); dorsal surface of pectoral fin disc covered with minute denticles; ventral surface smooth

roughshoulder skate, Raja badia

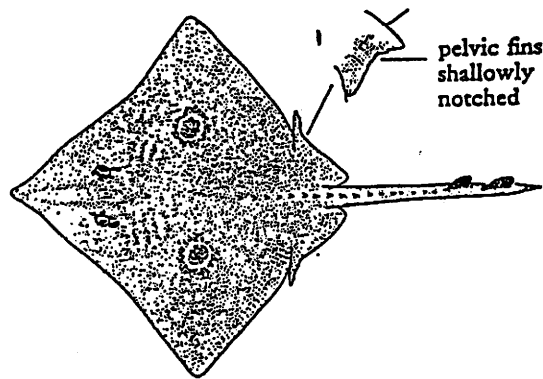


Rare; gray-brown color above, blotchy gray-brown below; length to 99 cm; depth from 87 - 1600 m; Panama - British Columbia.

(adopted from Amaoka, Nakaya, and Yabe, 1995)

- 4b. Tail equal to or longer than body; scapular thorns absent.....5
- 5a. Pelvic fins shallowly indented (notched); dorsal thorn series interrupted; no lateral tail thorns; center of pectoral fin dorsal surface usually with two large eye spots, each surrounded by a ring of light spots

big skate, Raja binoculata



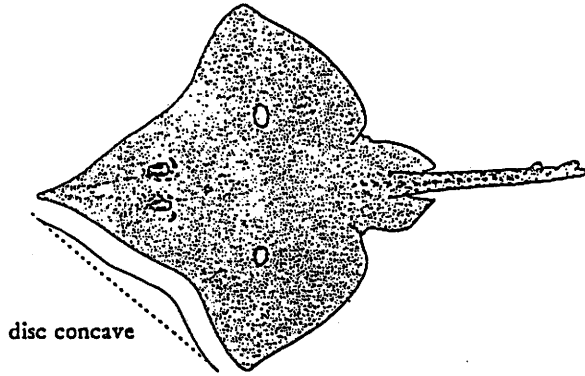
Common inshore skate in trawl catches; light blotched grayish-brown color above, blotched white below; largest Oregon area skate, with length to 244 cm and weight to 200 pounds; depth from 3 - 800 m; Baja California. - Bering Sea.

(from Miller and Lea, 1972)

- 5b. Pelvic fins deeply indented (notched); lateral tail thorns present or absent

6a. Lateral tail thorns absent; anterior edge of pectoral fin disc strongly concave, center of dorsal surface usually with two simple ring eye spots of darker pigment.....

longnose skate, *Raja rhina*



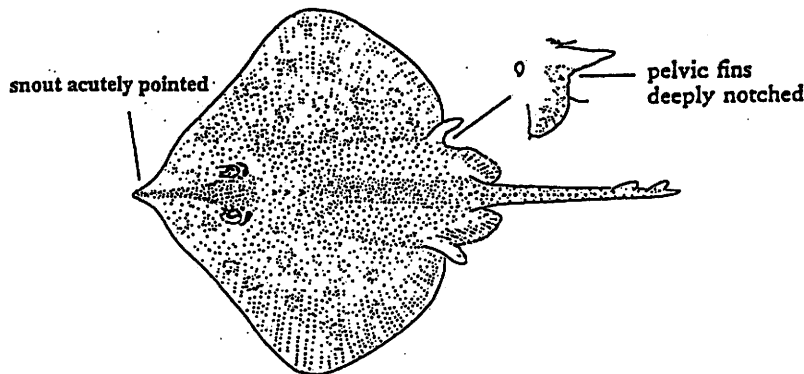
Most common skate in Oregon trawl catches; dark brown above, light bluish-brown below; length to 140 cm; weight to about 60 pounds; depth from 13 - 800 m; Baja California - Southeast Alaska.

(from Miller and Lea, 1972)

6b. Lateral tail thorns present

7a. Dorsal thorn series not continuous, with median thorn row incomplete; snout moderately long and acutely pointed; pectoral fin disc dorsal surface mostly smooth and ventral surface entirely smooth with no denticles

California skate, *Raja inornata*

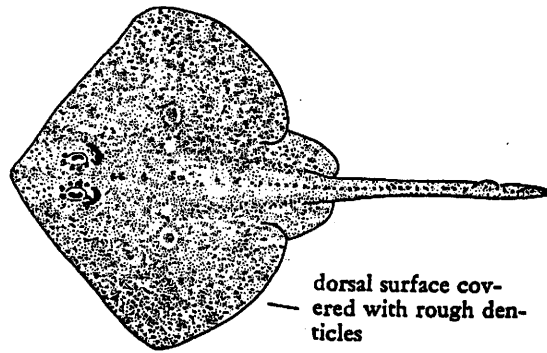


Uncommon; olive brown above, tan below; length to 77 cm; depth from 0 - 1600 m; Baja California - British Columbia.

(from Miller and Lea, 1972)

- 7b. Dorsal thorn series continuous, with median row complete; snout very short and bluntly pointed; the spiniest hardnosed Oregon area skate, with pectoral fin disc dorsal surface and much of ventral surface covered with prickly denticles; often two eyespots on dorsal surface, each with a yellow center and brownish ring

starry skate, *Raja stellulata*

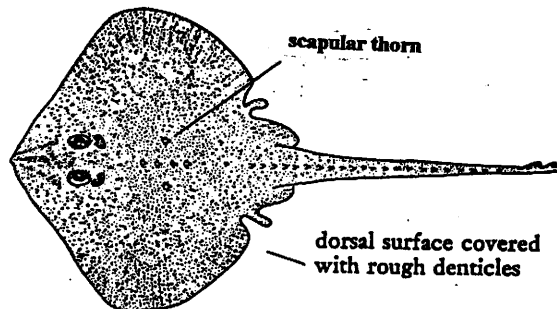


Uncommon; brown to grayish-brown above, white below; length to 77 cm; depth from 18 - 732 m; Baja California - Bering Sea.

(from Miller and Lea, 1972)

- 8a. Scapular thorns present9
- 8b. Scapular thorns absent10
- 9a. No ocular thorns; usually 2 scapular thorns; coarse sandpaper-like denticles on pectoral fin disc dorsal surface

sandpaper skate, *Bathyraja interrupta*

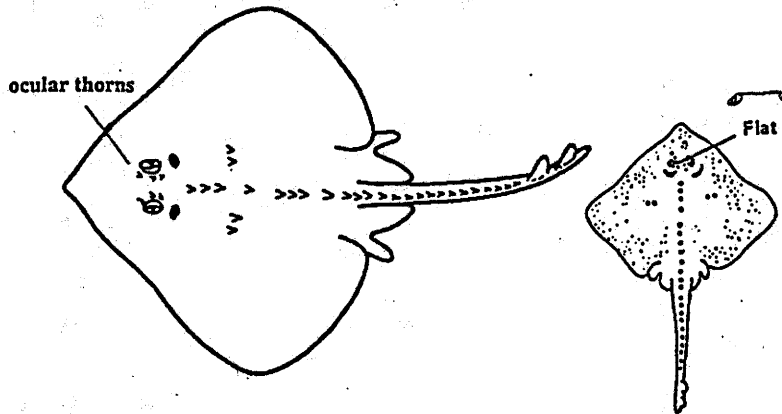


Common; dark brown to blackish above, white below; length to 86 cm; depth from 17 - 1380 m; Southern California - Bering Sea.

(from Miller and Lea, 1972)

- 9b. Ocular thorns present; usually 4 scapular thorns; coarse denticles on dorsal surface of pectoral fin disc; flat space between the eyes

flathead skate, *Bathyraja rosispinis*

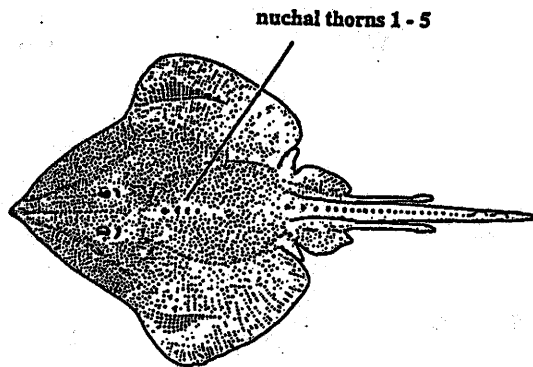


Rare; darkish-brown above, white below; length to 91 cm; depth from ? - 1554 m; Central California - Bering Sea.

(from Eshmeyer, Herald, and Hammann, 1983)

- 10a. Nuchal thorns 1 - 5, dorsal and ventral surface of pectoral fin disc evenly covered with tiny denticles; disc about as wide as it is long, narrower than any other Oregon area skate

deepsea skate, *Bathyraja abyssicola*



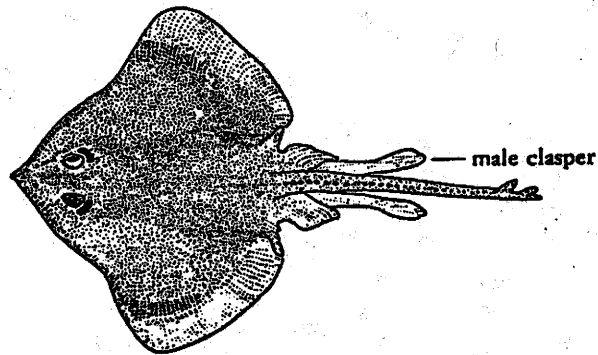
Rare; grayish-brown or whitish both above and below; length to 138 cm; depth from 218 - 2904 m; Baja California - Bering Sea.

(from Miller and Lea, 1972)

- 10b. Nuchal thorns absent11

- 11a. Ventral surface of pectoral fin disc smooth, dorsal surface smooth except for small patches of denticles on snout and near disc margin; dorsal surface black

rougtail (black) skate, *Bathyraja trachura*

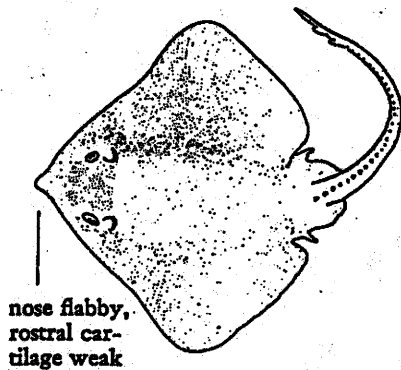


Uncommon, black both above and below; length to 89 cm; depth from 24 - 1993 m; Baja California - Bering Sea.

(from Miller and Lea, 1972)

- 11b. Ventral surface of pectoral fin disc covered with denticles; dorsal and ventral surfaces whitish or grayish-white

white skate, *Bathyraja spinossima*

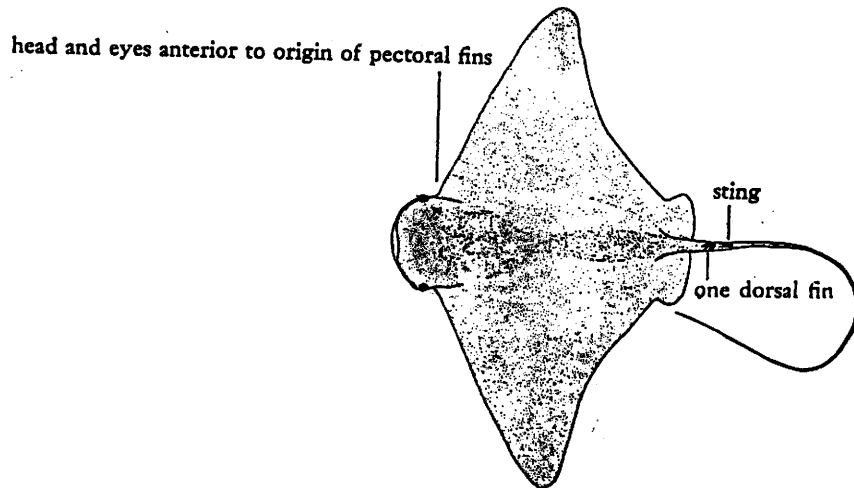


Rare; whitish or grayish-white both above and below; length to 107 cm; depth from 144 - 2938 m; Costa Rica - Southern Oregon.

(from Miller and Lea, 1972)

- 12a. One dorsal fin near base of a long whip-like tail; venomous sting just behind dorsal fin; raised massive head and eyes anterior to origin of pectoral fins; snout thick and spade-like
 Eagle rays, ... Family Myliobatidae

Bat ray, *Myliobatis californica*

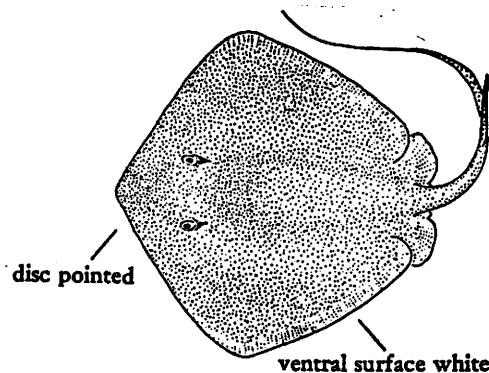


Rare off Oregon; dark brown to blackish above, white below; length to 180 cm; depth from 0 - 60 m; Gulf of California - Oregon. Dangerous because of its sting and powerful crushing jaws.

(from Miller and Lea, 1972)

- 12b. No dorsal fins on tail; elongated venom producing sting on long slender tail; a flat head, merged in with pectoral fin disc; stingrays, ... Family Dasyatidae13
 13a. Front edge of pectoral fin disc pointed; disc diamond shaped; ventral surface white

diamond stingray, *Dasyatis dipterura*

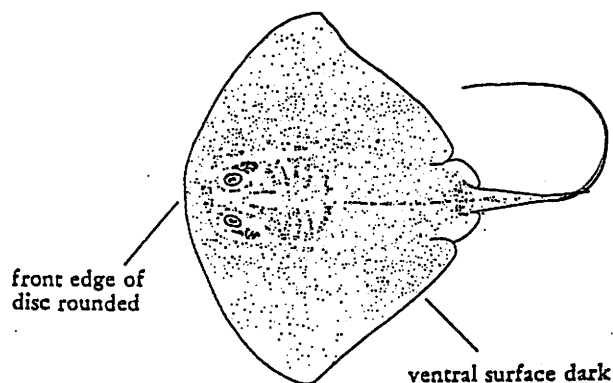


Rare off Oregon; brown to black above, white below; length to at least 183 cm; depth from 0 - 17 m; Peru - British Columbia. Dangerous, as a live stingray when disturbed can whip its tail upwards and sideways, driving the sting into a victim. Venom is produced in a gland at the base of the sting. Reportedly at least one death probably was caused by this species in the Gulf of California.

(from Miller and Lea, 1972)

13b. Front edge of pectoral fin disc broadly rounded; ventral surface dark

pelagic stingray, *Dasyatis violacea*



(from Miller and Lea, 1972)

Rare off Oregon; dark purplish above, purplish to dark gray below; length to 163 cm; depth from 0 - 238 m; South America - British Columbia. Dangerous, because a live stingray can use its sting as a poisonous weapon.

ACKNOWLEDGMENTS

This Oregon skate and ray identification key is the result of contributions made by several people. Special thanks go to Dr. John McEachran of the Department of Wildlife and Fisheries Sciences at Texas A & M University, who helped me greatly with skate species identification characteristics. Dr. Jay Orr and Frank Shaw of the NMFS Race Division at the Alaska Fisheries Center also helped supply existing skate keys and illustrations. Their assistance is greatly appreciated.

SELECTED OREGON SKATE AND RAY REFERENCES

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- Eschmeyer, W. N., E. S. Herald, and H. Hammann. 1983. A field guide to Pacific coast fishes of North America from the Gulf of Alaska to Baja California. Houghton Mifflin Co., Boston, 336 p.
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