

Salmons, Cods, and Skates Lecture

3-week Observer Training

I. SALMON

- All have pelvic axillary process and adipose fin (distinguishes from smelts and herrings)
- Six species in groundfish fishery
- Species have distinct coloration in freshwater, but may be very similar in ocean
- Characters important in field identification:
 - Anal fin-ray count (steelhead vs. salmon) (no spines)
 - silvering on caudal fin (silver wash vs. silver streak or none)
- spotting on caudal fin - where, how big, how many - VERY important but use others if tail damaged
 - body coloration and spotting
 - individual characters for each species
- Dichotomous key and species characters in Species ID Manual

Chinook Salmon



Chinook Salmon



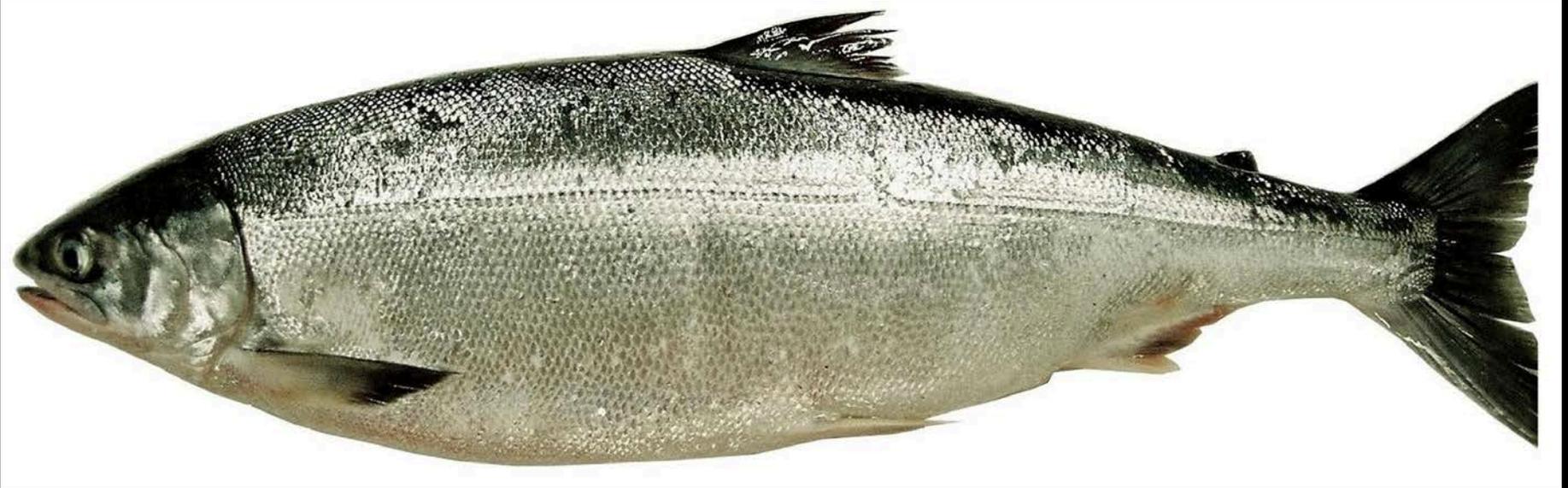
Coho Salmon



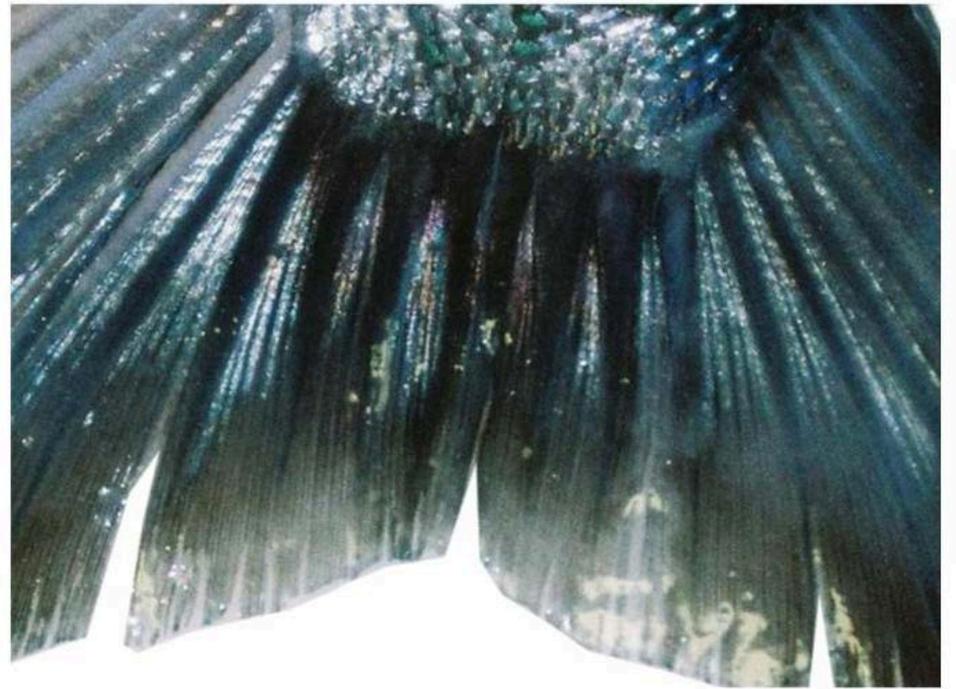
Coho Salmon



Chum Salmon

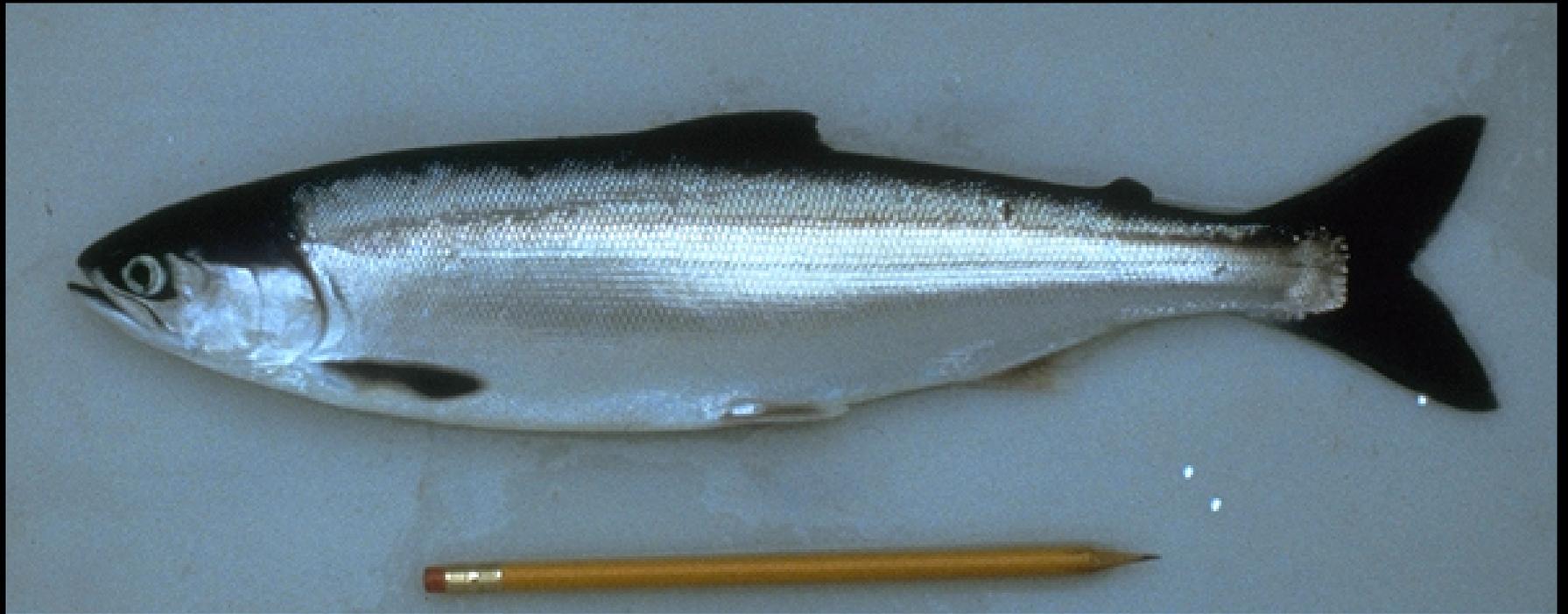


Chum Salmon



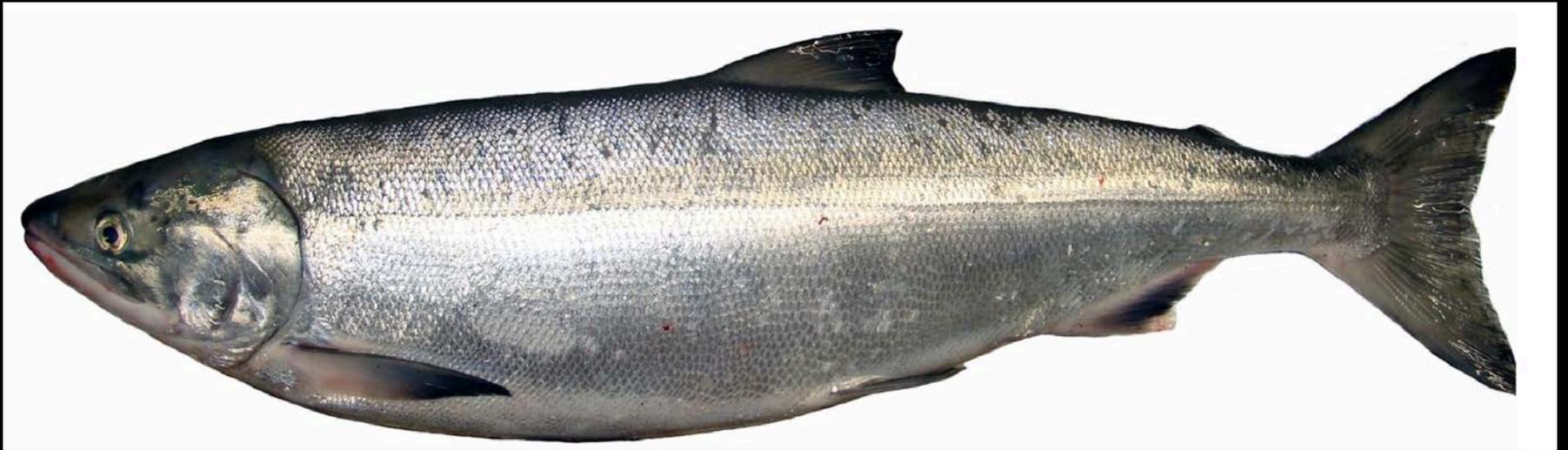
Sockeye (red) salmon





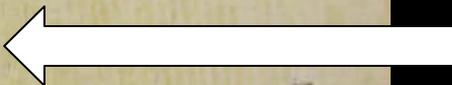
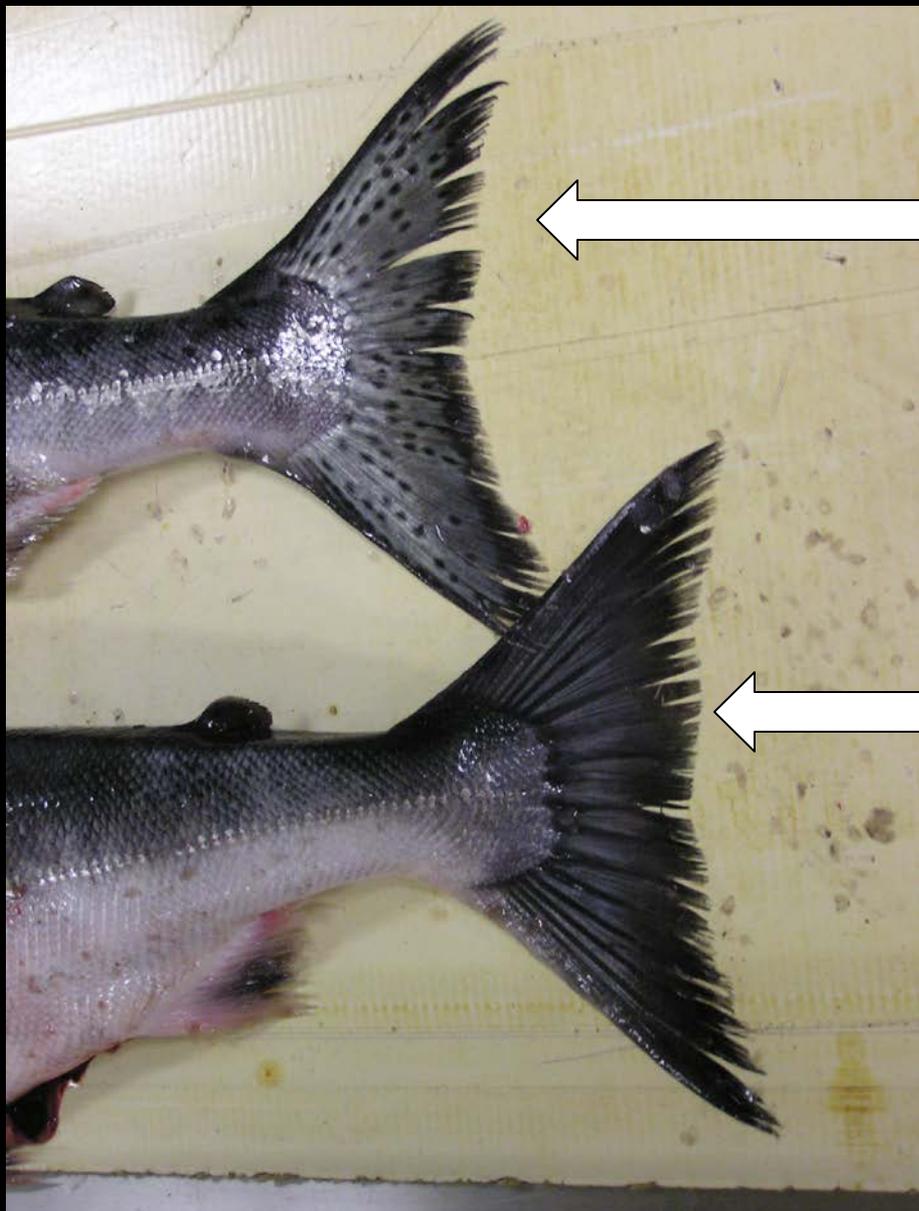
Sockeye (juvenile)

Pink (humpy) salmon

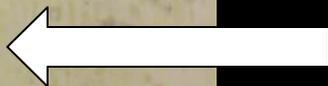


Steelhead

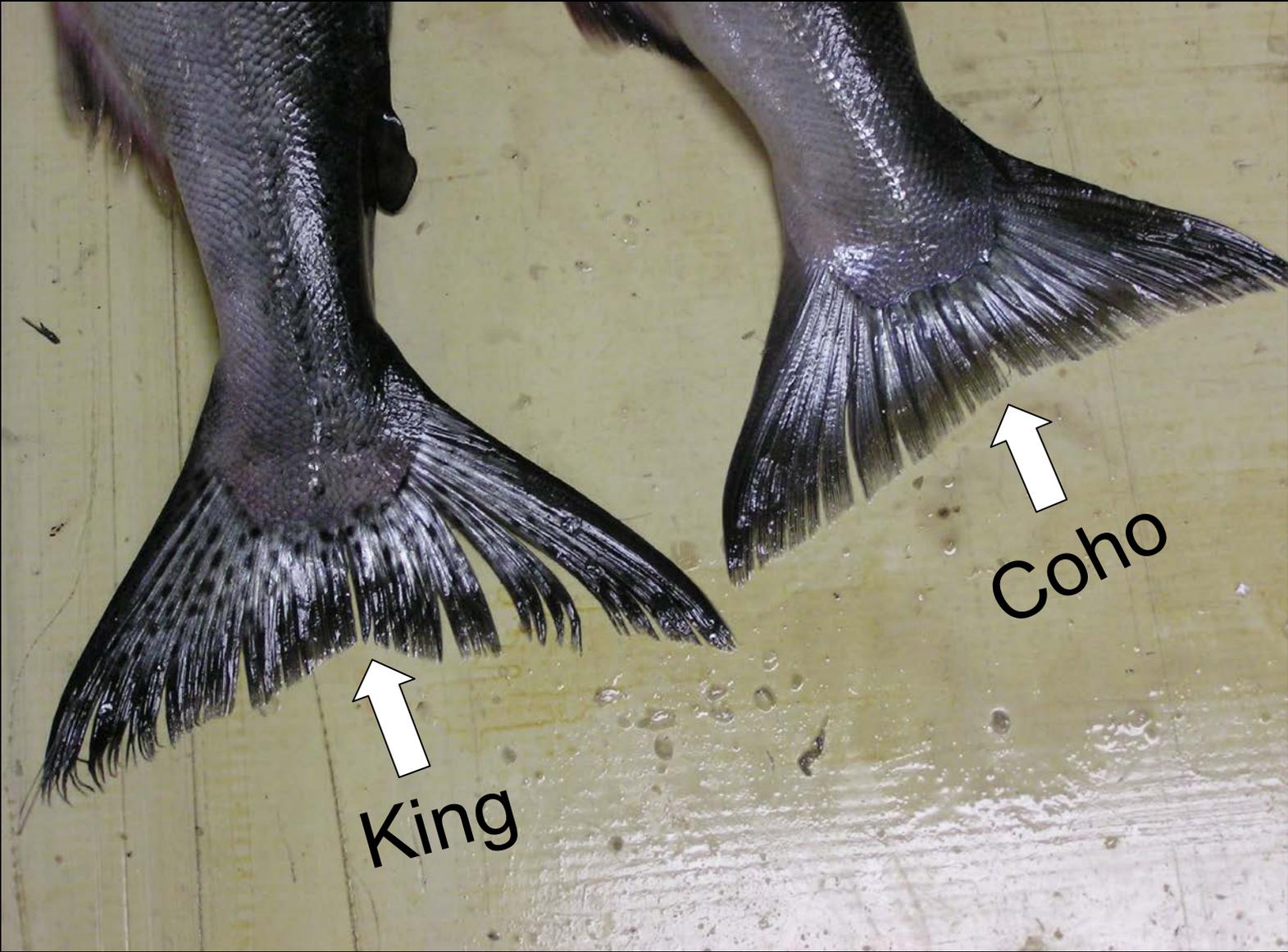




King salmon

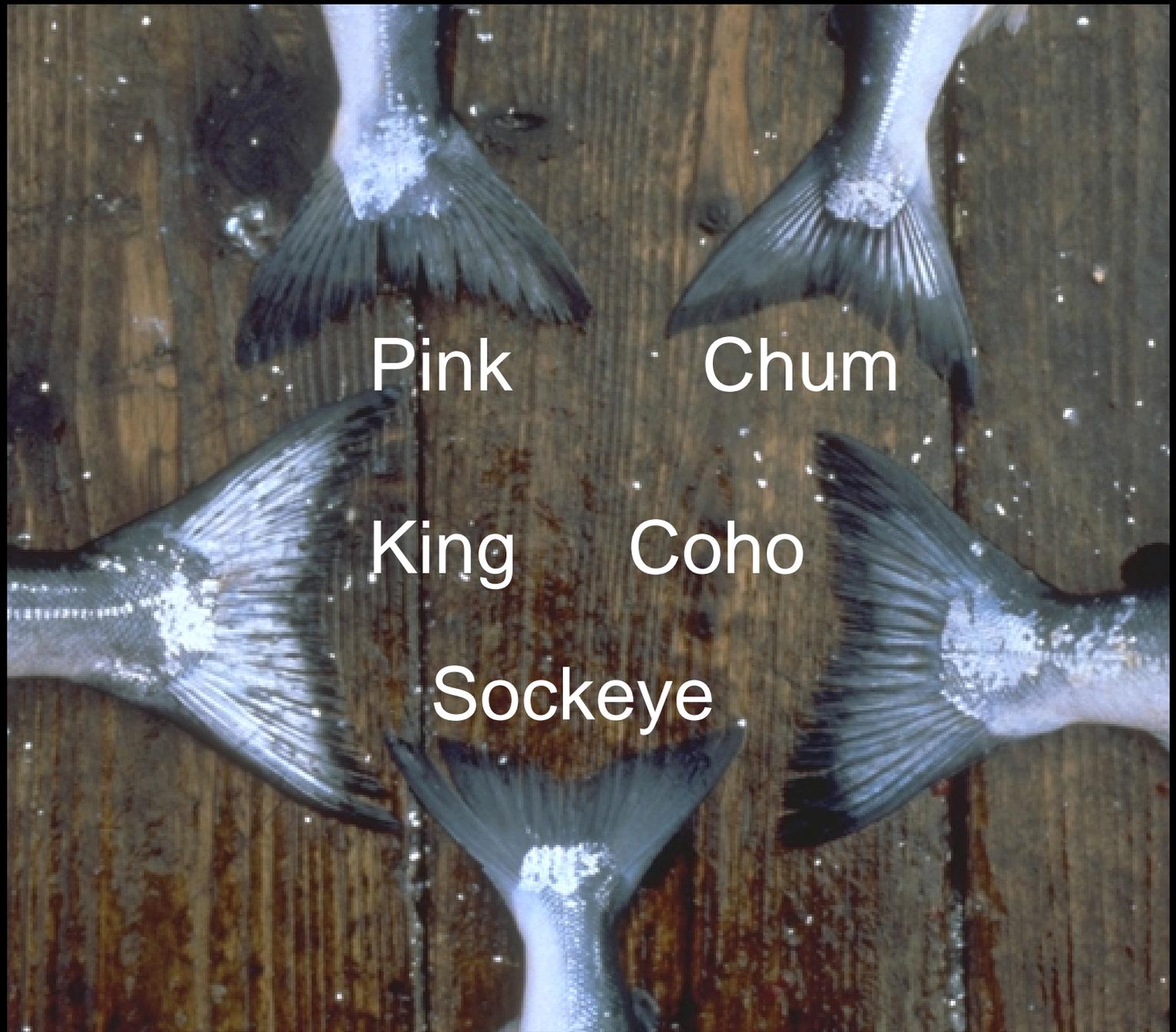


Chum salmon



King

Coho



Pink

Chum

King

Coho

Sockeye

II. INTRODUCTION TO CODS

- Cods can be split into 2 categories:
 - true cods (3 dorsal fins, 2 anal fins, all soft rays)
 - hake (2 dorsal fins, 1 anal fin)
- Important characters:
 - projection of lower jaw - which jaw most anterior
 - presence of and length of chin barbel - relative to pupil in key, not eye
 - position of anus relative to dorsal fins - under 1st or b/w 1 and 2
 - configuration of LL (interrupted or not)



Walleye pollock



Pacific cod



Walleye pollock

Pacific cod



Pacific tomcod



Saffron cod



Arctic cod

Walleye pollock



>80 PC

Arctic cod

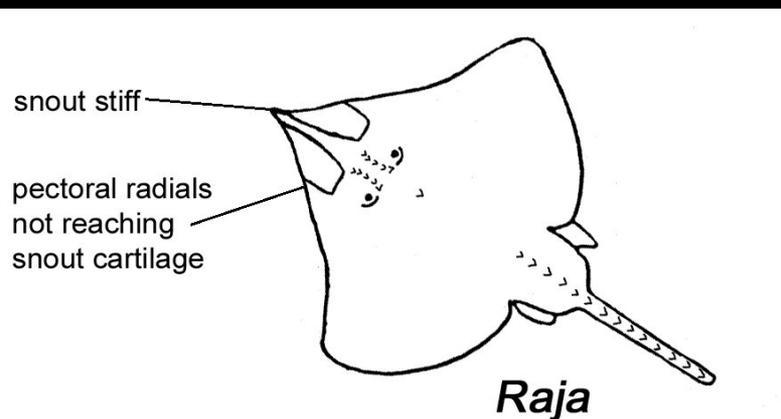
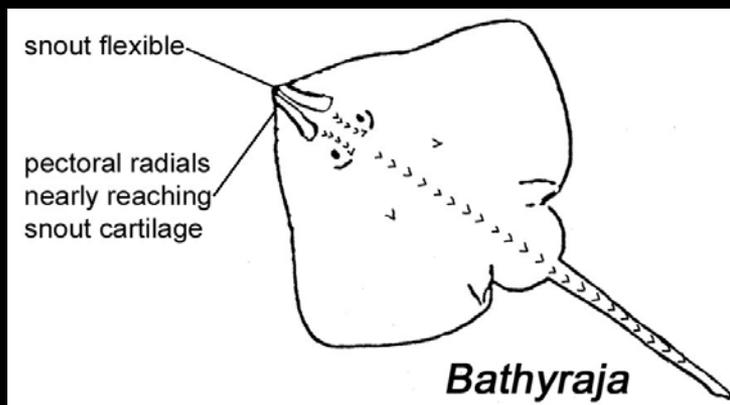
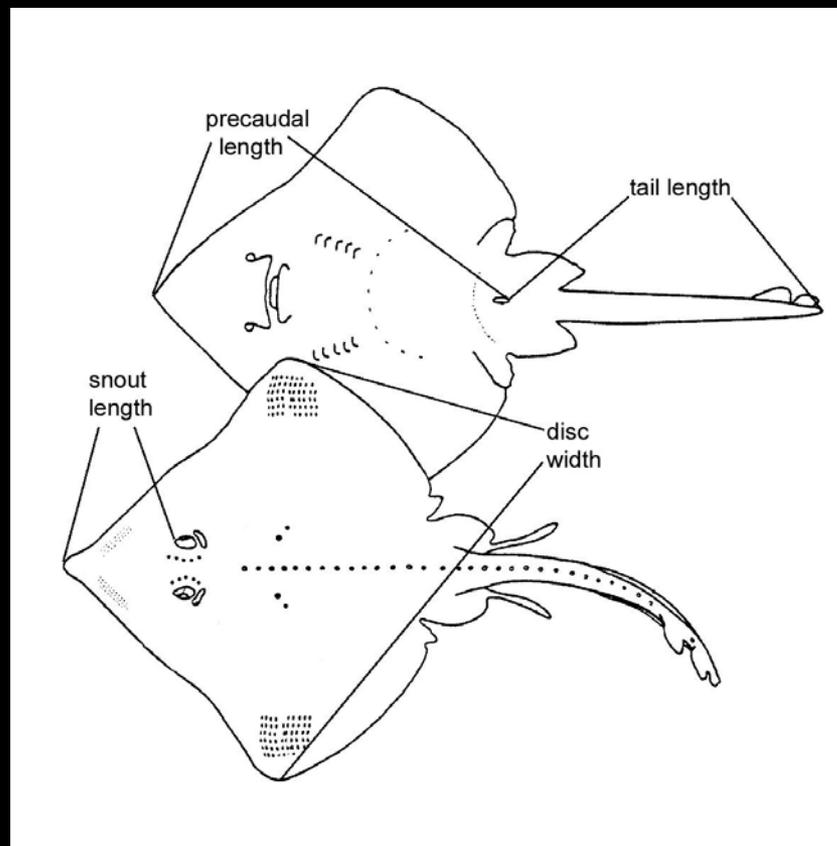
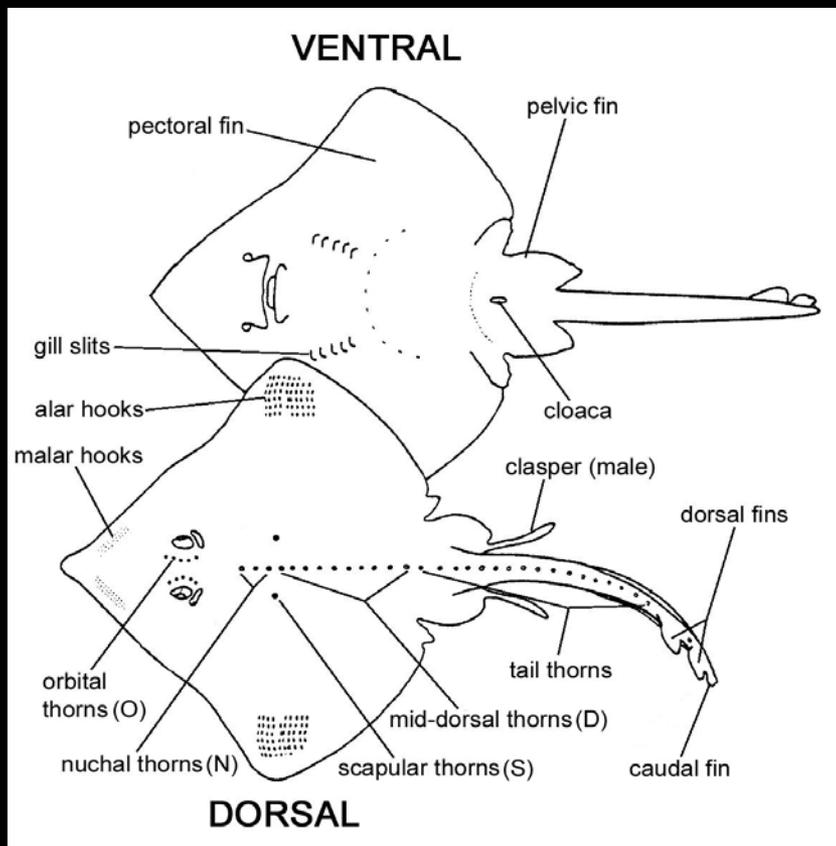


<40 PC



Pacific hake

Skate anatomy



Names

Raja binoculata

big skate

Diagnosis

Diagnosis: The only Alaskan species of *Raja* with the following combination of characters: anterior margin of disk concave; posterolateral margin of pelvic fin slightly concave; and base of pectoral fin with large ocellus surrounded by light spots.

Other Features

Denticles: Fine denticles on dorsal surface; ventral surface smooth.

Coloration: Dorsal surface brown, gray-brown or reddish brown, often with large ocellus surrounded by smaller spots on pectoral fin; ventral surface white to light gray.

Body Shape: Disc wide, somewhat diamond-shaped, with concave anterior margin; posterolateral margin of pelvic fin slightly concave.

Juveniles:

Maximum Size: 244 cm

Range: SE Bering Sea to California

Depth: 23-800 m

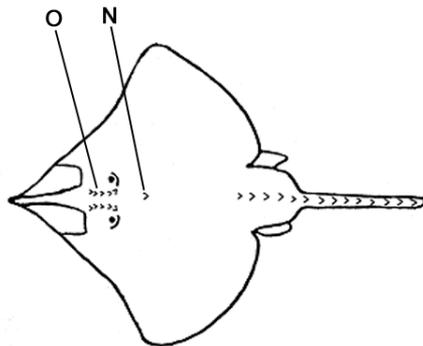


Distribution Map

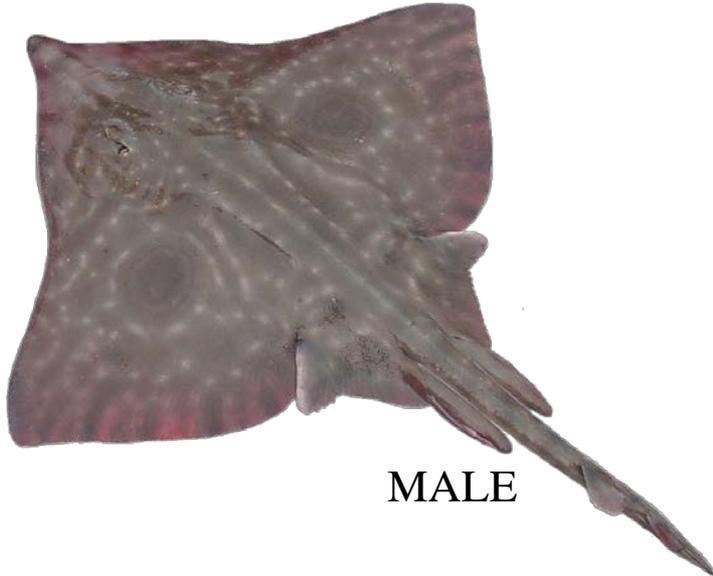


Photos

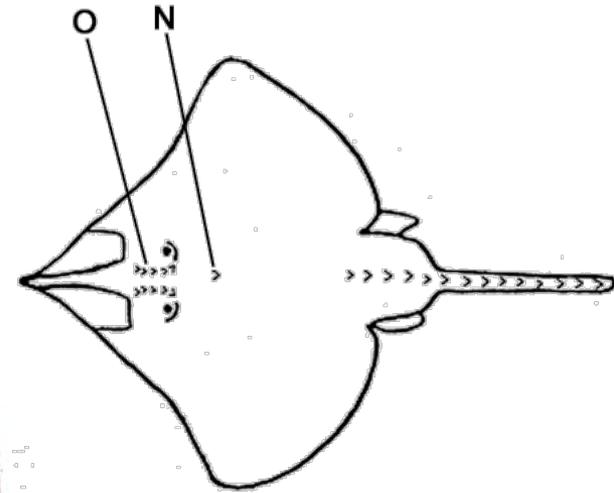
Thorn Diagram



Big skate



MALE



FEMALE



ventral



Longnose skate



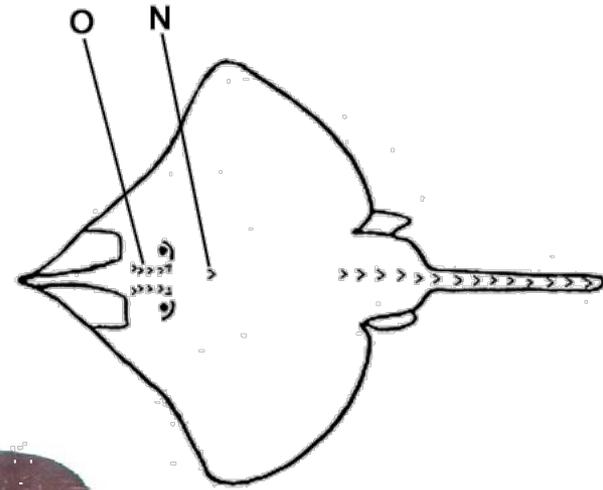
MALE



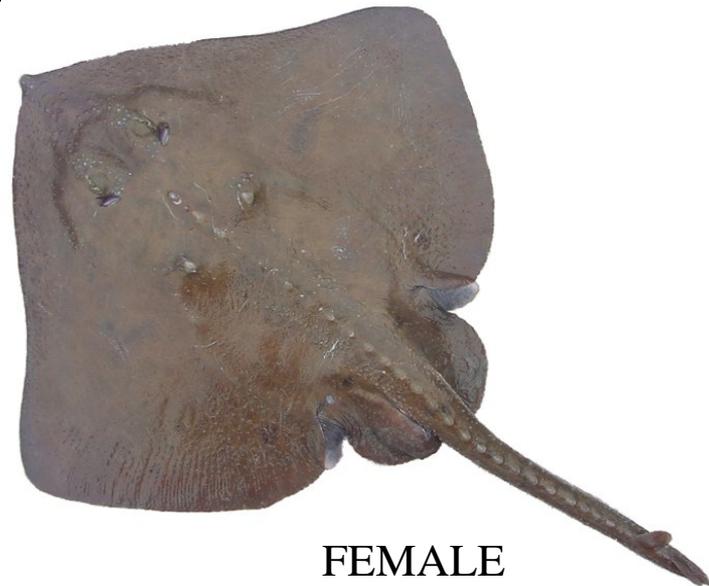
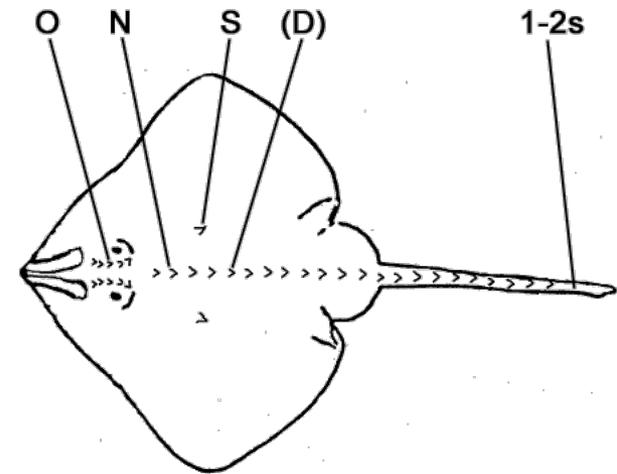
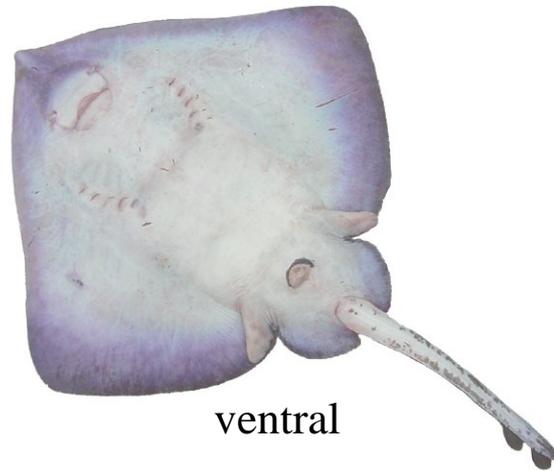
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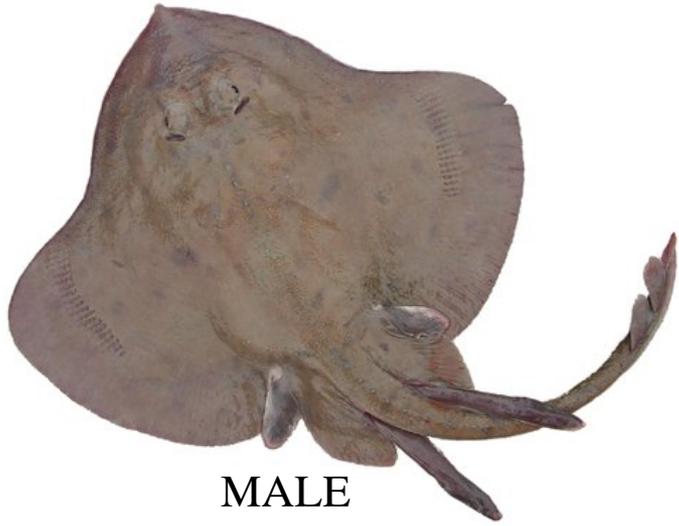
ventral



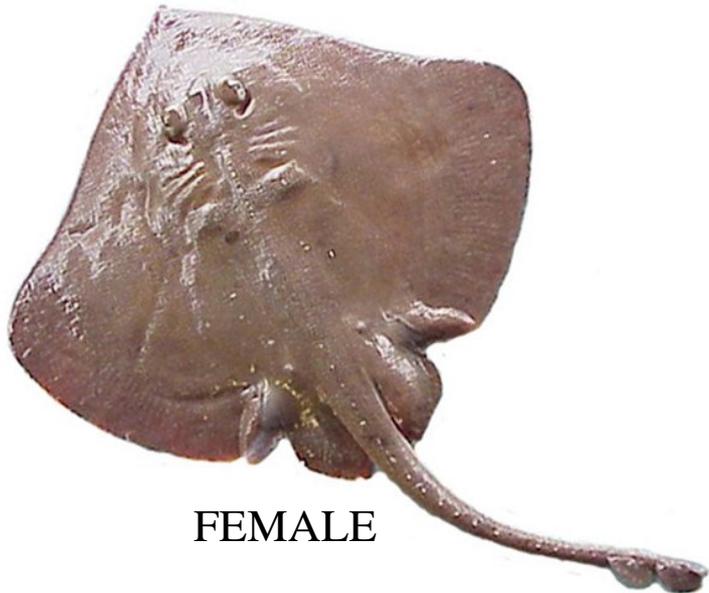
Alaska skate



Bering skate



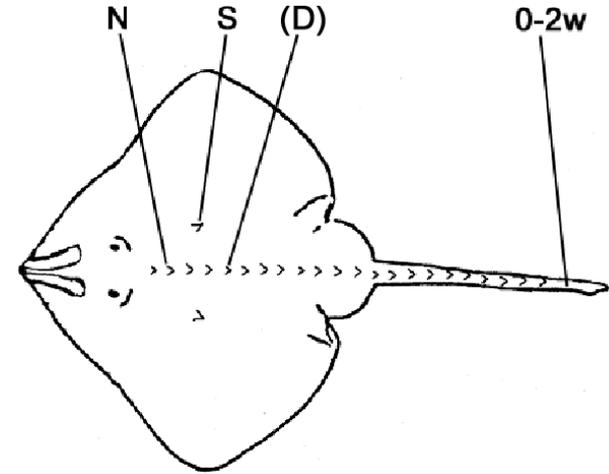
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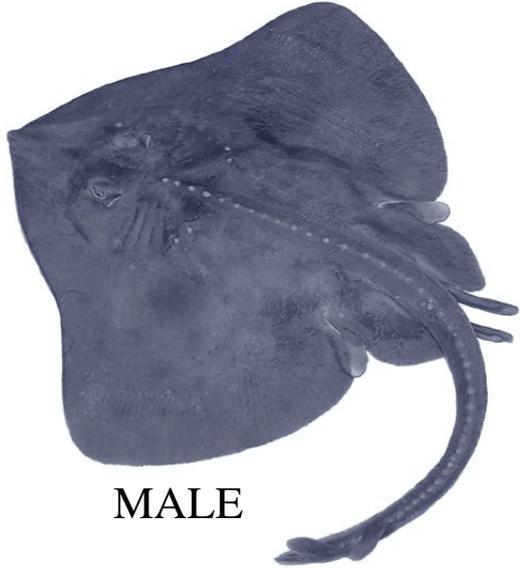
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ventral



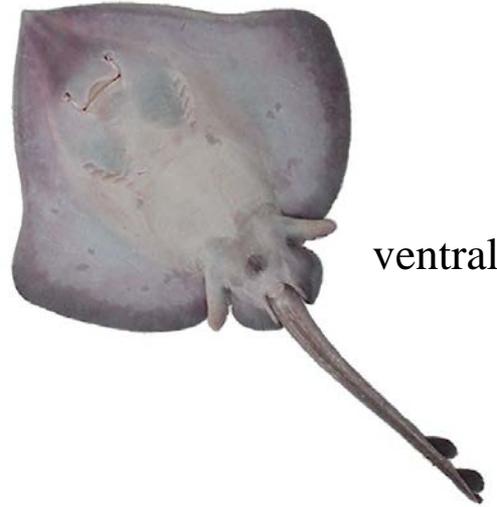
Aleutian skate



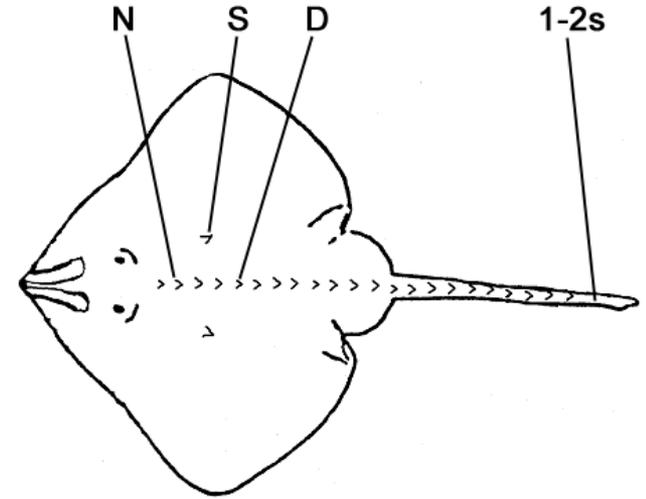
MALE



FEMALE



ventral



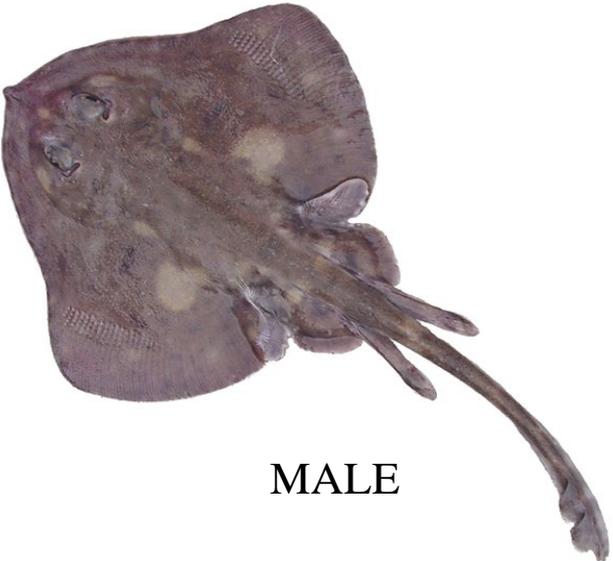
Bering skate

vs.

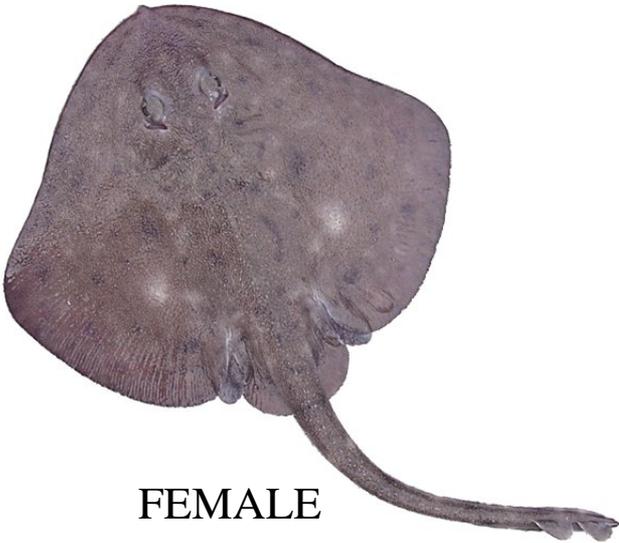
Aleutian skate



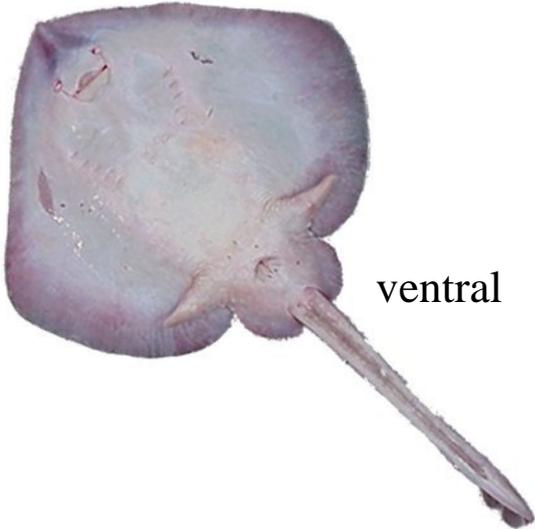
Mud skate



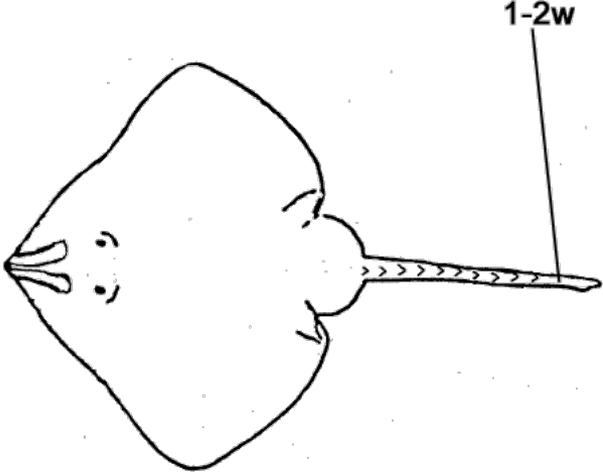
MALE



FEMALE



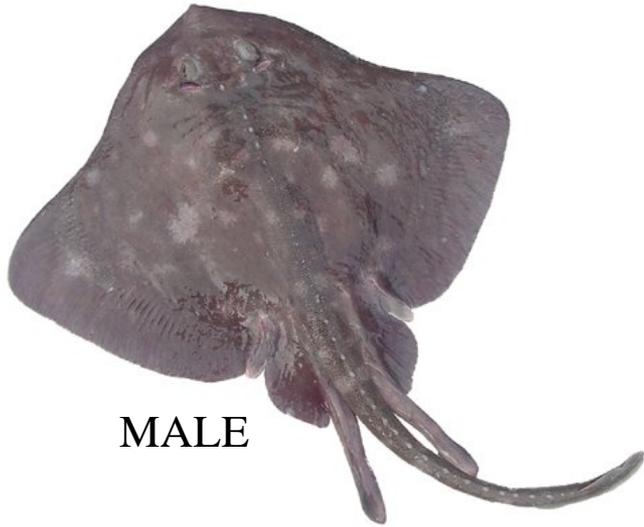
ventral



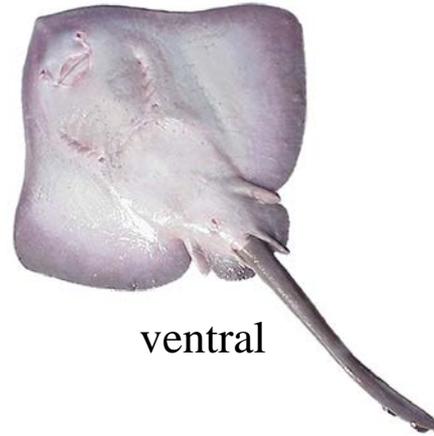
1-2w



Whiteblotch skate



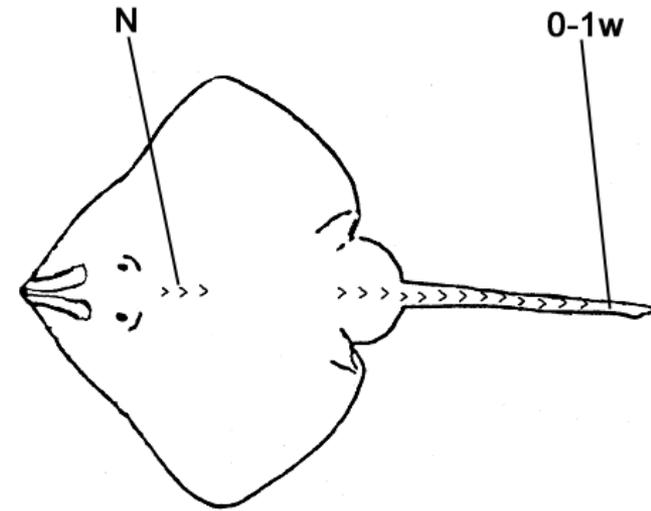
MALE



ventral



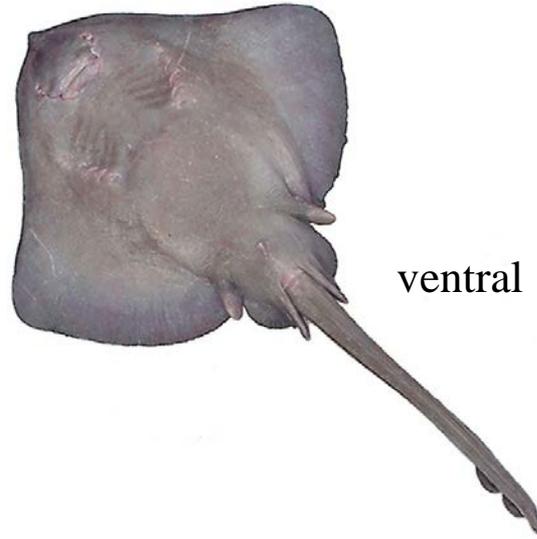
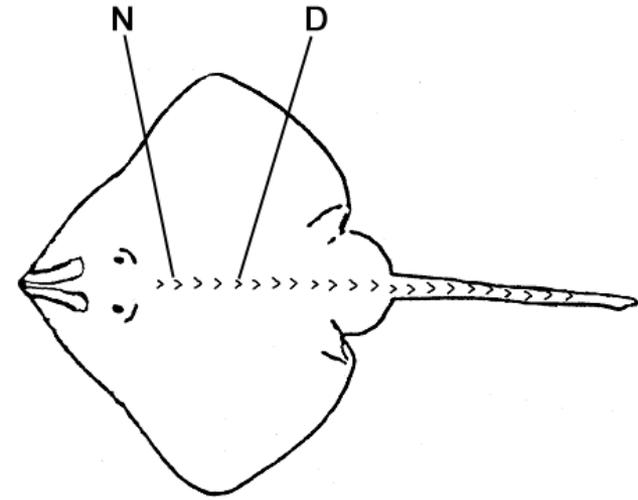
FEMALE



Commander skate



MALE



ventral

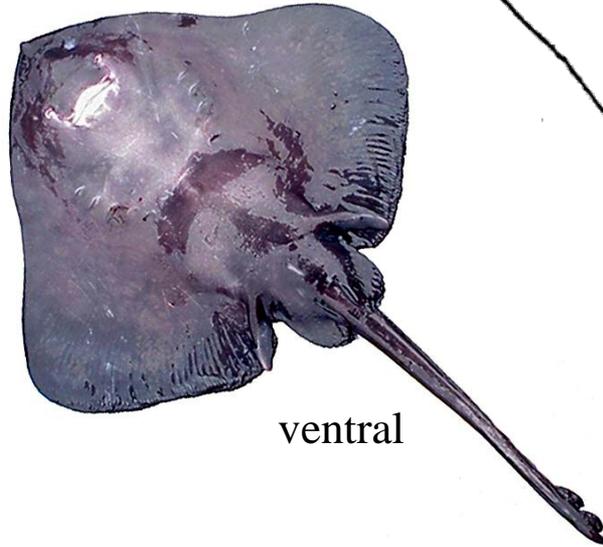
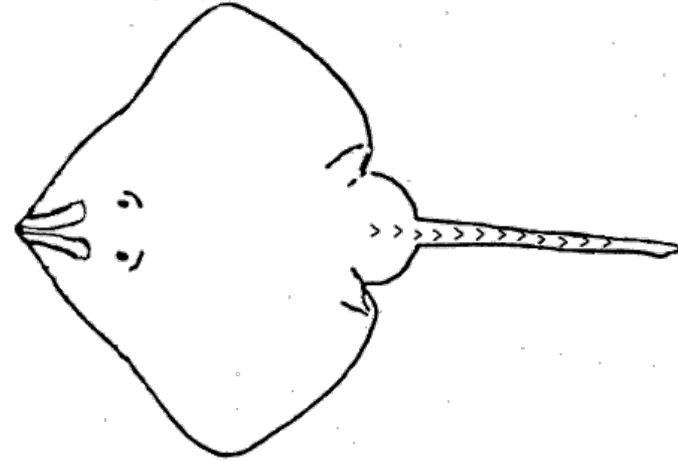


FEMALE

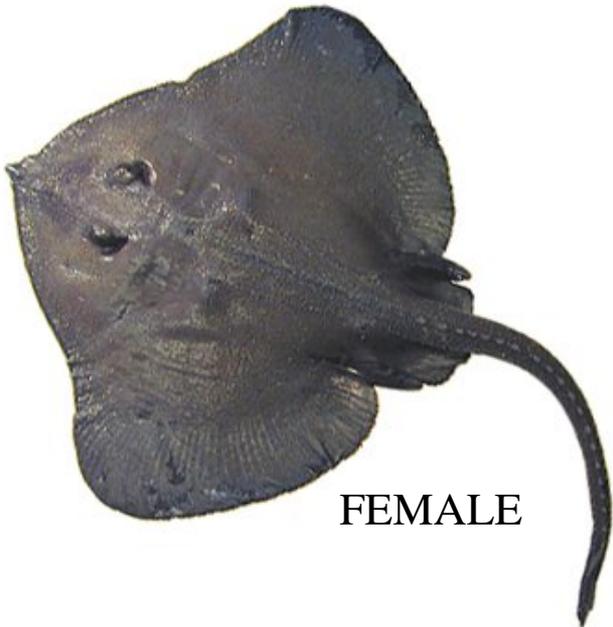
Roughtail skate



MALE



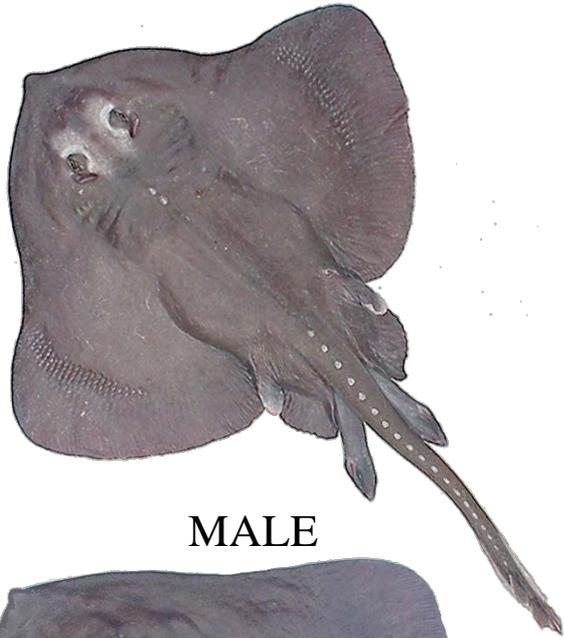
ventral



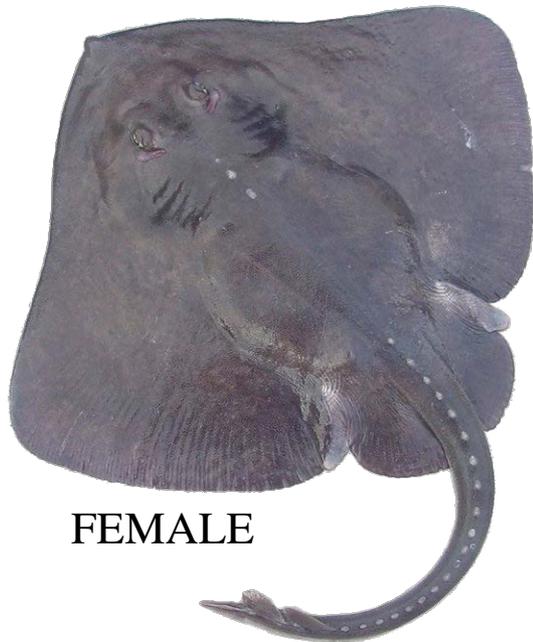
FEMALE



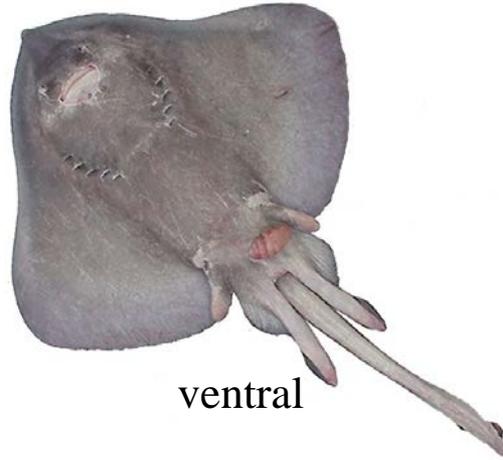
Whitebrow skate



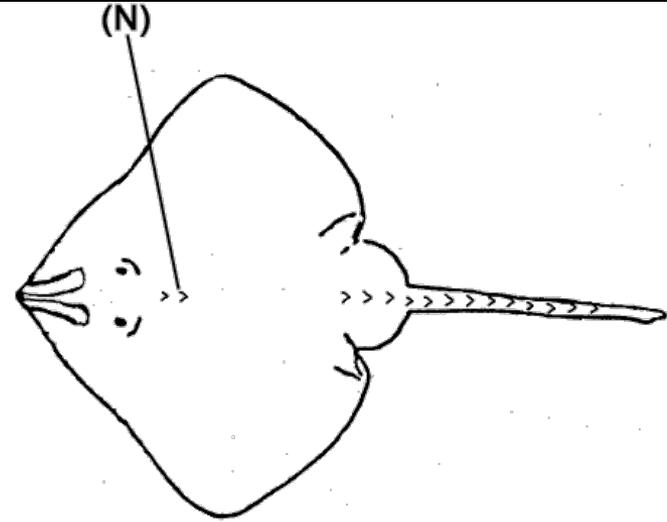
MALE



FEMALE



ventral



Rare Skates – Retain These For Confirmation !!

Deepsea skate



Roughshoulder skate

