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California Cooperative Commercial
Groundfish Survey Field Guide

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California Cooperative Commercial Groundfish Survey Field Guide

INTRODUCTION

This guide has been designed as an aid to port samplers in the field. The guide should supplement training provided by a supervising biologist and the California Cooperative Commercial Survey Sampling Manual. Topics addressed are the sampling guidelines for rockfish, Dover sole, flatfish, sablefish, and lingcod, including gonad identification, maturity classification, and a species identification guide. The groundfish sampler is encouraged to bring this protected guide into the field as an aid to conducting the various sampling schemes and species identification. This guide is not intended to replace field training.

Because the species identification guide is meant to be used in the field, the descriptions are neither exhaustive, nor is the key dichotomous. This guide is not meant to replace detailed keys, as it focuses on fewer characteristics that are easier to assess under field conditions. The guide should help the sampler identify the specimen quickly, or alert the sampler that they should try to acquire the specimen and bring it into the laboratory for identification.

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California Cooperative Commercial Groundfish Survey Field Guide

SPECIES IDENTIFICATION SECTION

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Sources:

Guide to the Coastal Marine Fishes of California, California Fish
Bulletin Number 157 (Miller and Lea); A Field Guide to Pacific
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California Fish Bulletin Number 104 (Philips).

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Mary Yoklavich, NMFS; Patty Zielinski, CDFG;

Species Identification Field Guide

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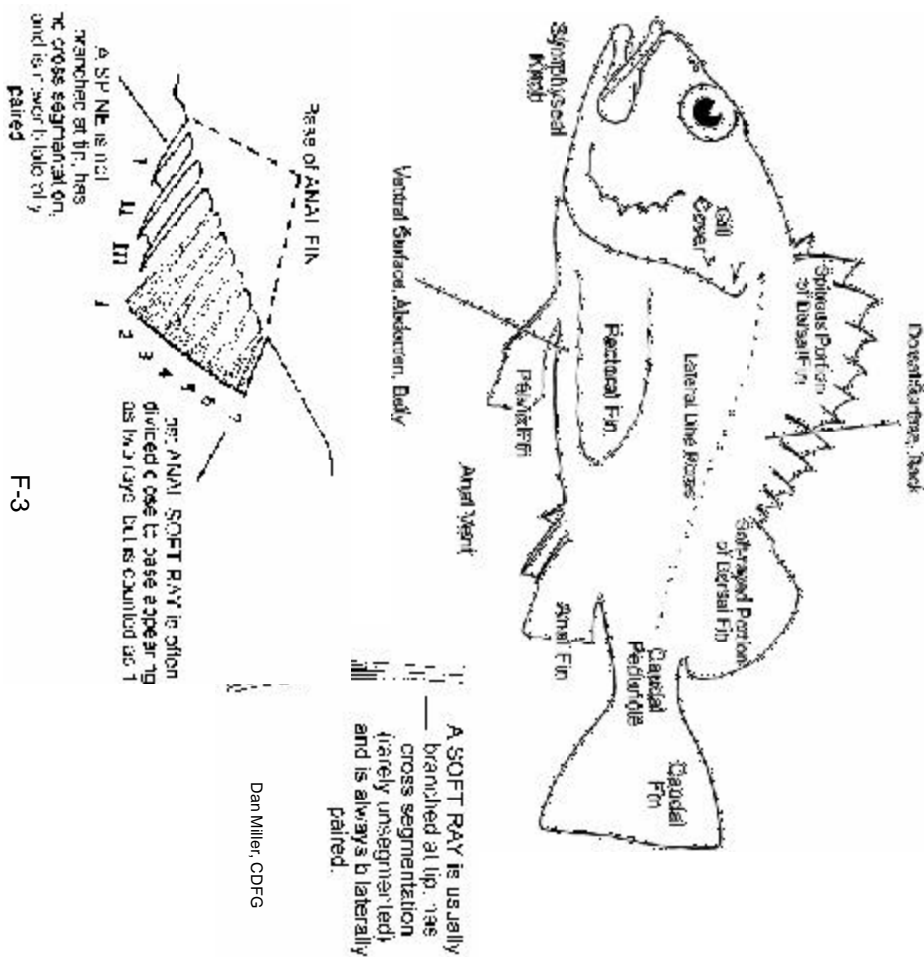
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Species Identification Field Guide

This guide is not intended to replace comprehensive species identification keys. It is provided as a compilation of the materials generally used to identify rockfish and selected groundfish. Use a comprehensive key for fish that are not easily identified. Collect unusual specimens for identification in the laboratory.

The following species descriptions are generally organized by color and color pattern. Match the fish color and pattern to a page description the specimen most agrees with. Each species entry lists key characteristics in text and table format. Verify your identification by reading the key characteristics. In addition suggestions for similar fish and key differences are provided with entries. For further assistance, a table of meristic counts is also included at the end of this section.

ROCKFISH DIAGRAM

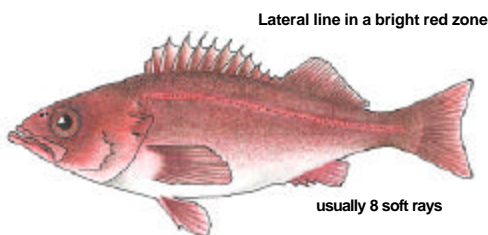


Chilipepper Rockfish (*Sebastes goodei*)



Diane Haas, PSMFC

Chilipepper Rockfish (*Sebastes goodei*)



Lorraine Sinclair, PSMFC

Pacific Ocean Perch (*Sebastes alutus*)



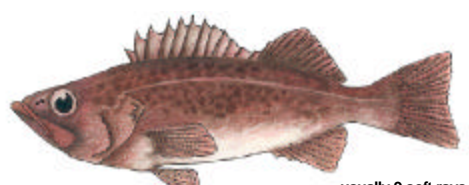
Mike Fukushima, CDFG

Bocaccio Rockfish (*Sebastes paucispinis*)



Patty Zeilinski, CDFG

Bocaccio Rockfish (*Sebastes paucispinis*)



Lorraine Sinclair, PSMFC

Pacific Ocean Perch (*Sebastes alutus*)



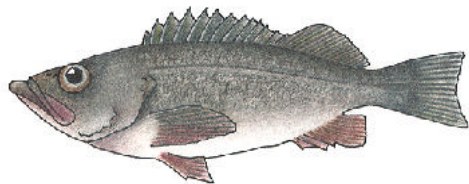
Mike Fukushima, CDFG

Silvergray Rockfish (*Sebastes brevispinis*)



NMFS

Silvergray Rockfish (*Sebastes brevispinis*)



Lorraine Sinclair, PSMFC

Shortbelly Rockfish (*Sebastes jordani*)



anal vent

Bill Barss, ODFW

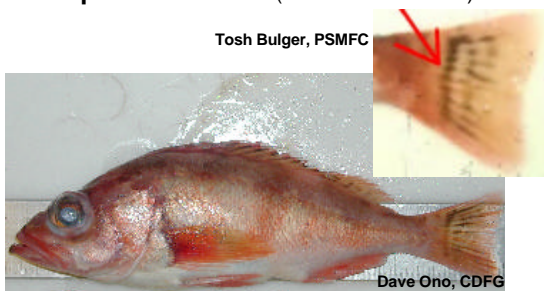
NAME	COLOR GEN.	MOTTLING/PATTERN	KEY CHARACTERISTICS & SIMILAR SPECIES
Chilipepper <i>goodei</i>	Reddish-pink	No distinct pattern	Upper jaw extends below midpoint of eye. Chin projects, symphyseal knob projects forward. Caudal fin dusky. Juveniles: lateral line obscure, and light olive on back. BOCACCIO: jaw extends to or past rear of eye. REDSTRIPE: lateral line in red zone. POP: usu. dark blotching on back, stronger head spines, black peritoneum.
Bocaccio <i>paucispinis</i>	Brown-red to pink below	Often brown spots on sides	Upper jaw extends to rear of (or beyond) eye. Mouth large and upturned, chin projects. 8-10 anal soft-rays. Usually many brown spots on sides. CHILIPEPPER: jaw extends to mid-eye. SILVERGRAY: 7-8 anal soft-rays, no red / brown.
Silvergray <i>brevispinus</i>	Gray to silvergray below	mouth black	Mouth large, chin projects, symphyseal knob projects forward and down. Lips blackish. 7-8 anal soft-rays. BOCACCIO: red on side, usu. spotted, 8-10 anal soft-rays.
Pacific Ocean Perch (POP) <i>alutus</i>	Light red to whitish below	Often dark patches at base of dorsal fin.	Prominent knob on chin, projects forward. Often a large olive green area below soft dorsal fin. 6-9 anal soft-rays. 3rd anal spine longer than 2nd. Spines on lower edge of gill cover. CHILIPEPPER: no distinct blotching, less prominent symphyseal knob, white peritoneum. DARKBLOTCHED: up to 5 blackish patches on back, knob on chin absent, 6-7 anal soft-rays. HALFBANDED: 2 dark blotches on side, dark streaks on tail, lacks prominent knob on chin. SHARPCHIN: 2nd anal fin spine longer than 3rd. STRIPETAIL: dark streaks on tail, lacks knob on chin. YELLOWMOUTH: Black and yellow patches in mouth.
Shortbelly <i>jordani</i>	Grey-olive, light pink sides	No distinct pattern	Small fish. Anal vent midway between pelvic fin base and anal fin. Chin & symphyseal knob project forward. Caudal fin more forked. CHILIPEPPER: anal vent closer to anal fin. PYGMY: anal vent closer to anal fin.

COMMON NAME	FIN COLOR	PERITONEUM	ANAL SOFT-RAYS		PECTORAL RAYS		LENGTH MAX.	OCCURRENCE
Chilipepper	Pectoral pinkish	silver/white w some black dots	8-9	Usually 8	16-18	Usually 17	56 cm	Common
Bocaccio	Pectoral membranes dark	silver/white w black dots	8-10	Usually 9	15-16	Usually 15	91 cm	Common
Silvergray	Dorsal pinkish near base	white w many black dots	7-8	Usually 7	16-18	Rarely 16	71 cm	Uncommon
POP	Olive patch below dorsal	gray w black dots to black	6-9	Usually 8-9	15-19	Usually 18	51 cm	Uncommon
Shortbelly	Pectoral red	gray w black dots to black	8-11		19-22		32 cm	Common

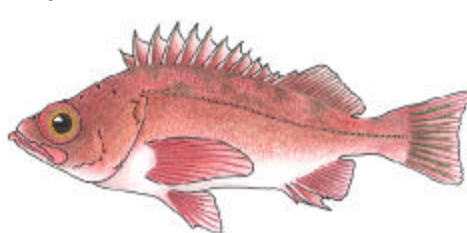
Note: all measurements and other characters are for typical specimens, individuals vary. See "Meristic Table" for ranges.

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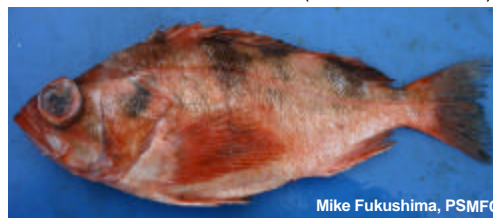
Stripetail Rockfish (*Sebastes saxicola*)



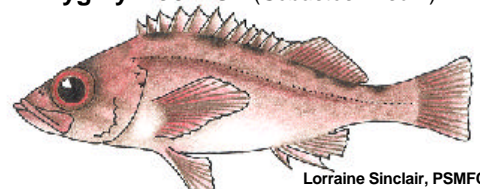
Stripetail Rockfish (*Sebastes saxicola*)



Darkblotched Rockfish (*Sebastes crameri*)



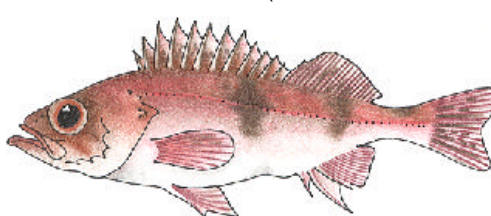
Pygmy Rockfish (*Sebastes wilsoni*)



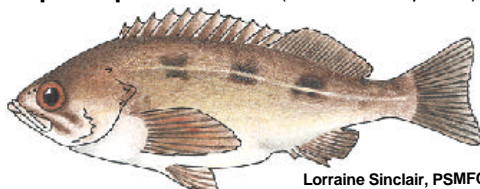
Halfbanded Rockfish (*Sebastes semicinctus*)



Halfbanded Rockfish (*Sebastes semicinctus*)



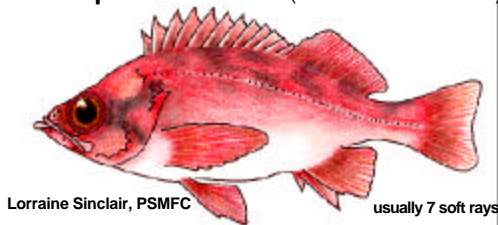
Squarespot Rockfish (*Sebastes hopkinsi*)



Sharpchin Rockfish (*Sebastes zacentrus*)



Sharpchin Rockfish (*Sebastes zacentrus*)



Squarespot Rockfish (*Sebastes hopkinsi*)



NAME	COLOR GEN.	MOTTLING/PATTERN	KEY CHARACTERISTICS & SIMILAR SPECIES
Stripetail <i>saxicola</i>	Pink-red-yellow, to silver-white below	4-6 faint vertical dusky patches on back Colors vary	Green streaks on caudal fin (may not be distinct). 1-2 spines on lower rear edge of gill cover. May have dark margins on dorsal fin between spines. GREENSTRIPED: has green horizontal stripes on body. SHARPCHIN: V-shape mark radiates from eye. HALFBANDED: has 1-2 large dusky blotches on side (rear mark may be absent).
Halfbanded <i>semicinctus</i>	Dusky pink, to silver below	1-2 large dark patches on side	Small fish. 2 spines on lower rear gill cover edge. 1st dark patch is mid-body, 2nd (usu.) below soft dorsal fin. Dark red or brownish spots on tail or dorsal fin. STRIPETAIL: 2 spines below eye, 5-8 anal soft-rays, no large dark blotches on side.
Sharpchin <i>zacentrus</i>	Pinkish, to yellowish-red below	5-6 vague dusky areas on back, 2 dusky bars behind eye	Small fish. Usually 2 dusky forked (V-shape) bars radiate from eye, on to gill cover. Usually 7 anal soft-rays. Dark stripes may be present on tail fin. STRIPETAIL: 2 sharp spines below front of eye, distinct dark green stripes on tail. HALFBANDED: Small fish, 1-2 dark blotches on side. PYGMY : small fish, usually 6 anal soft-rays*.
Darkblotched <i>crameri</i>	Pinkish to paler below	3-5 irregular large dark blotches on back	Usually 3 dark patches below spinous dorsal fin , 1 below soft dorsal fin, and 1 on upper part of caudal peduncle. Patches fade in larger specimens. 6-7 anal soft-rays. Spines present on lower edge of gill cover. Deep body shape. POP: prominent projecting knob on chin, 6-9 anal soft-rays. STRIPETAIL: vague blotching, stripes in tail. SHARPCHIN: vague blotching, V-shape mark behind eyes.
Pygmy <i>wilsoni</i>	Light brown-red, to silver-white below	4-5 dark patches at base of dorsal fin, red-brown lateral line	Small fish. Dark patches at base of dorsal spine are distinct. Red-brown stripe at lateral line. 6 anal soft-rays (rarely 7). SHORTEBELLY: anal vent is midway between base of pelvic fin and anal fin.
Squarespot <i>hopkinsi</i>	brown-tan to white below	Angular blotches near lat line	Small fish. Angular spots on back, usually very distinctive.

COMMON NAME	FIN COLOR	PERITONEUM	STRIPES ON TAIL	ANAL SOFT-RAYS	LENGTH MAX.	OCCURRENCE
Stripetail	Yellow-pink	Black	Green, connected at front of tail	5-8 Usually 7	39 cm	Common
Halfbanded	Yellow-pink	Gray w black dots to black	Brownish	7-8 Usually 7	25 cm	Common S. Cal.
Sharpchin		Black	May have vague stripes	6-8 Usually 7	33 cm	Common
Darkblotched	Orange-red	Brown w black dots to black	May have vague stripes	6-7 Usually 7	57 cm	Common
Pygmy		Black	May have vague stripes	6-7* Usually 6*	21 cm	Common
Squarespot		Brown w black dots to black	May have vague stripes	6-7 Usually 7	29 cm	Rare N. Cal.

* Last ray double, counted as one. Note: all measurements and other characters are for typical specimens, individuals vary. See "Meristic Table" for ranges.

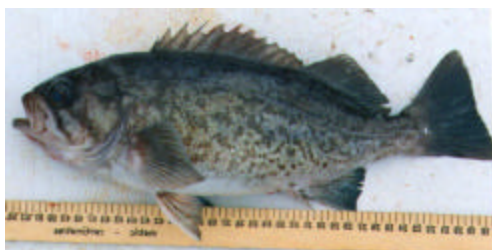
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Black Rockfish (*Sebastes melanops*)



Diane Haas, PSMFC

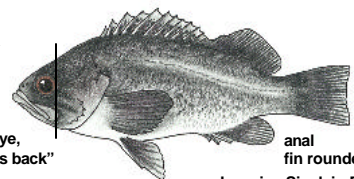
Blue Rockfish (*Sebastes mystinus*)



M. Bowers, NMFS

Black

jaw extends to rear of eye, "black goes back"



Lorraine Sinclair, PSMFC

Blue

jaw extends to midpoint of eye, "blue goes through"



anal fin straight

Widow Rockfish (*Sebastes entomelas*)



Diane Haas, PSMFC

Widow Rockfish (*Sebastes entomelas*)



fin membranes dark

Lorraine Sinclair, PSMFC

Speckled Rockfish (*Sebastes ovalis*)



Lisa Wertz, CDFG

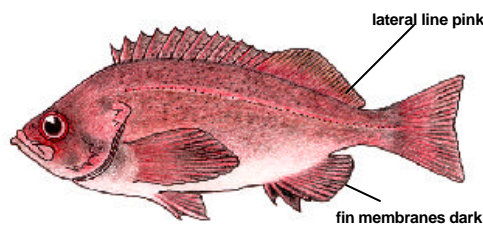
Bank Rockfish (*Sebastes rufus*)

"Red Widow"



Diane Haas, PSMFC

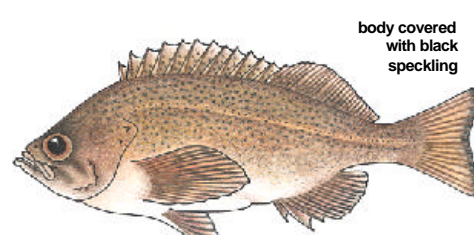
Bank Rockfish (*Sebastes rufus*)



lateral line pink
fin membranes dark

Lorraine Sinclair, PSMFC

Speckled Rockfish (*Sebastes ovalis*)



body covered with black speckling

Lorraine Sinclair, PSMFC

NAME	COLOR GEN.	MOTTLING/PATTERN	KEY CHARACTERISTICS & SIMILAR SPECIES
Black <i>melanops</i>	Black-blue black to dirty white below	Black spots on back and dorsal Mottled with gray to dirty white	Jaw extends to, or, past rear of eye. Black spots on dorsal membranes. May have faint white or gray stripe at lateral line. Anal fin rounded. BLUE: jaw extends to mid-point of eye, smaller eye. Anal fin profile straight. YELLOWTAIL & OLIVE: yellow on fins.
Blue <i>mystinus</i>	Blue-black to paler below	No dorsal spots Mottled with lighter blue	Jaw extends to mid-point of eye. No dark spots on dorsal fin. Young are gray with red streaks and black specks. Anal fin profile straight or slanted. BLACK: jaw extends to rear of eye, larger eye. Anal fin rounded.
Widow <i>entomelas</i>	Dark brown-brassy yellow to red-white below	No distinct pattern	Spinous dorsal fin tan, other fins blackish. Smaller specimens pale with orange streaks. BANK: body redder, lachrymal projections usually sharp, some have spots on dorsal fin. YELLOWTAIL: yellowish fins. BOCACCIO: elongate body, upturned mouth and projecting chin. BLACK & BLUE: no brown, yellow, or red.
Bank <i>rufus</i>	Dusky red-gray to paler below	So. Cal. specimens may have dark spots	Soft fin membranes black. Dorsal fin and back speckled with dark spots (So. Cal.). SPECKLED: has smaller spots on body and dorsal fin, body is orange-brown. WIDOW: lacks spots, darker, less red. SQUARESPOT: square blotches along lateral line, no red. YELLOWTAIL: fin membranes yellow.
Speckled <i>ovalus</i>	Tan w/ pink tinge to white-pink-yellow below	Small dark black spots on side, back and dorsal	Covered with small round black spots. Lower part of pectoral, pelvic, and anal fin tinged with pink or orange. No green. Deep bodied, oval shaped fish. Pointed mouth with 2 rear pointing lachrymal spines (spines over mouth below eye). BANK: has redder body, black membranes between anal fin spines, and usually with sharp lachrymal projections.

COMMON NAME	DORSAL SPOTS	FINS	ANAL SOFT-RAYS	LATERAL LINE COLOR	JAW EXTENDS TO	LACHRYMAL SPINES	LENGTH MAX.	OCCURRENCE
Black	Yes	Rounded	7-9	Gray stripe	Rear of eye	0	60 cm	Common
Blue	No	Slanted / Straight	8-10		Middle of eye	0-1	53 cm	Common
Widow	No	Black / Tan	8		3/4 of eye	0-1 rounded	61 cm	Common
Bank	Yes (So Cal)	Blackish	8-9	Clear pinkish	1/4 of eye	2 Sharp	51 cm	Common
Speckled	Yes	Pink or orange	7-8		Middle of eye	2 Directed BACKWARDS	56 cm	Common

Note: all measurements and other characters are for typical specimens, individuals vary. See "Meristic Table" for ranges.

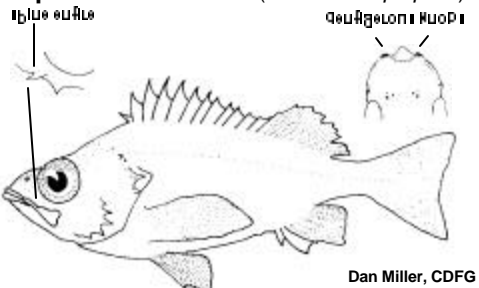
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Splitnose Rockfish (*Sebastes diploproa*)



Robert Leos, CDFG

Splitnose Rockfish (*Sebastes diploproa*)



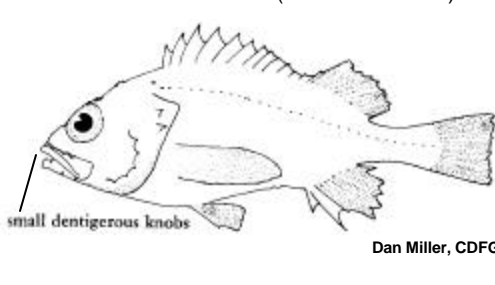
Dan Miller, CDFG

Aurora Rockfish (*Sebastes aurora*)



Dave Ono, CDFG

Aurora Rockfish (*Sebastes aurora*)



Dan Miller, CDFG

Splitnose and Aurora



Splitnose

Aurora

Diane Haas, PSMFC

Chameleon Rockfish (*Sebastes phillipsi*)



CDFG

Chameleon Rockfish (*Sebastes phillipsi*)



CDFG

Rougheye Rockfish (*Sebastes aleutianus*)



Mike Fukushima, CDFG

Shortraker Rockfish (*Sebastes borealis*)



Diane Haas, PSMFC

NAME	COLOR GEN.	MOTTLING/PATTERN	KEY CHARACTERISTICS & SIMILAR SPECIES
Splitnose <i>diploproa</i>	Pinkish-red to pale pink below	No distinct pattern	Prominent dentigerous knobs on upper jaw, with a deep notch between knobs. Under jaw rough. Peritoneum black. 6-8 anal soft-rays (rarely 6). Scales rub off in trawls, leaving white patches bordered by red. AURORA: smaller toothed knobs on upper jaw, smaller eye, usually 6 anal soft-rays. ROUGHYE: spiny ridge below eye.
Aurora <i>aurora</i>	Red-pink	No distinct pattern	Toothed (dentigerous) knobs on upper jaw. 5-6 anal soft-rays* (usu. 6). 2nd anal spine long. Inside mouth red. Scales rub off in trawls, leaving white patches bordered by red. SPLITNOSE: more prominent dentigerous knobs, larger eye, usually 7-8 anal soft-rays, deeper body. ROUGHYE: spiny ridge below eye. OTHER: CHAMELEON and YELLOWMOUTH.
Chameleon <i>phillipsi</i>	Live: white-pink Dead: crimson	No distinct pattern	Lachrymal projections with several points. 1-2 small spines on lower rear edge of gill cover. 36-39 gillrakers. Peritoneum black. AURORA: fewer gillrakers, no spines on lower gill cover.
Roughye <i>aleutianus</i>	Reddish-black, to pinkish below	Vague dark blotches.	Large fish. Ridge of 2-10 sharp spines below eye. Dusky edge on fins. In large specimens, mouth white to pink with black blotches. SHORTRAKER: lacks spiny ridges below eyes. AURORA: lacks dark blotches.
Shortraker <i>borealis</i>	Pink-orange	Vague red-orange bars	Generally, a large fish. No more than one lachrymal spine. Mouth and gill chamber red with dark blotches. May have dark edges on pectoral and pelvic fins. ROUGHYE: has spiny ridges below eyes.

COMMON NAME	MOUTH COLOR	ANAL RAYS	LACHRYMAL SPINES	DENTIGEROUS KNOBS	LENGTH MAX.	OCCURRENCE
Splitnose	Some red	6-8 (rarely 6)	2, Anterior directed forward	Very Strong	46 cm	Common
Aurora	Red	5-6* (usu 6)	2	Small	39 cm	Common
Chameleon		6	2 +, Jagged	Absent	43 cm	Uncommon
Roughye	Pinkish w/ black blotches	6-8	2 +, Jagged	Absent	96 cm	Uncommon
Shortraker	Red w/ dark blotches	6-8	Present	Absent	96 cm	Uncommon

* Last ray double, counted as one.

Note: all measurements and other characters are for typical specimens, individuals vary. See "Meristic Table" for ranges.

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Vermilion Rockfish (*Sebastes miniatus*)



CDFG

Canary Rockfish (*Sebastes pinniger*)



Robert Leos, CDFG

Yelloweye Rockfish (*Sebastes ruberrimus*)

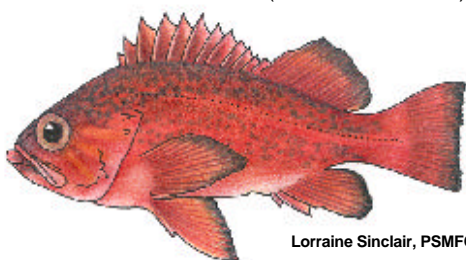


Diane Haas, PSMFC



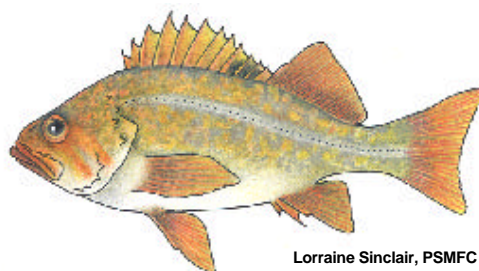
Robert Leos, CDFG

Vermilion Rockfish (*Sebastes miniatus*)



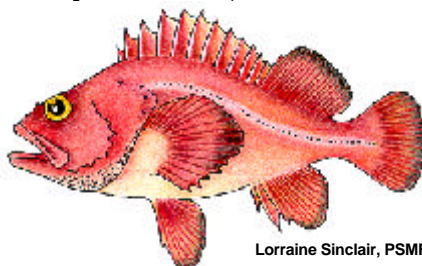
Lorraine Sinclair, PSMFC

Canary Rockfish (*Sebastes pinniger*)



Lorraine Sinclair, PSMFC

Yelloweye Rockfish (*Sebastes ruberrimus*)

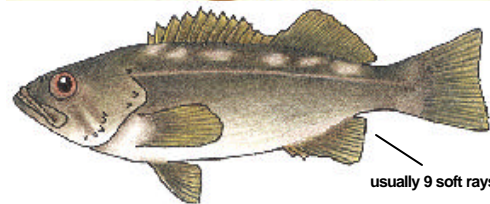


Lorraine Sinclair, PSMFC

Olive Rockfish (*Sebastes serranoides*)



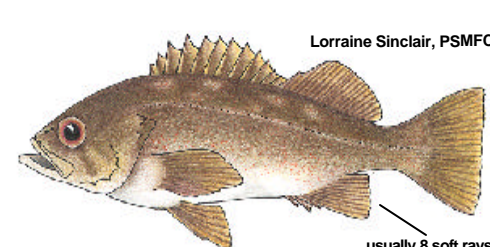
CDFG



usually 9 soft rays

Lorraine Sinclair, PSMFC

Yellowtail Rockfish (*Sebastes flavidus*)



Lorraine Sinclair, PSMFC

usually 8 soft rays



CDFG

NAME	COLOR GEN.	MOTTLING/ PATTERN	KEY CHARACTERISTICS & SIMILAR SPECIES
Vermilion <i>miniatus</i>	Red- to red- orange below	Gray mottling on side	3 forked (V-shape) orange stripes radiate from eye. Rough under jaw. Fin edges black in small specimens. CANARY: smooth under jaw, has a dark spot on rear of spinous dorsal fin in specimens up to 30 cm., lateral line in broad gray zone. YELLOWEYE: bright yellow eye, small specimens have 2 white side stripes, large individuals are plain colored, and have rasp-like ridges above eye.
Canary <i>pinniger</i>	Orange-red over gray	Gray or dusky pattern on back and side.	May be black patch on rear part of the spinous dorsal fin. Smooth under jaw. Lat. line in gray zone. VERMILION: rough under jaw, redder fish, lateral line not in gray zone.
Yelloweye <i>ruberrimus</i>	Orange- red	2 white stripes on near lat line, dark fin margins. juveniles lack white stripes	Generally a large fish. Bright yellow eye. 2 horizontal whitish stripes (1 along lateral line), and black edges on the pectoral, anal and caudal fins. Large specimens: uniform yellow-orange, spiny ridges of spines above eyes. VERMILION: no bright yellow eye, no whitish stripes on side, no spiny ridges above eye.
Olive <i>serranoides</i>	Olive- brown to paler below	Pale blotches on base of dorsal fin. Dark olive below dorsal.	Fins olive with a yellowish tinge. 8-10* anal soft-rays (usu. 9). Lacks head spines. More common in southern California. YELLOWTAIL: 7-9* anal soft-rays (usu. 8), may have narrower body, red-brown specks on some scales.
Yellowtail <i>flavidus</i>	Olive-green- gray-brown to pale below	Pale areas on back, reddish-brown specks on some scales.	Fins pinkish yellow, tail fin more yellow. 7-9* anal soft-rays (usu. 8). OLIVE: 8-10* anal soft-rays (usu. 9), no pink on pectoral fin rays, more distinct pale areas below dorsal fin, may have more elongate body, lacks red-brown specks on scales.

COMMON NAME	FIN COLOR	SPINES ON LOWER GILL COVER EDGE	SPINY RIDGES ABOVE EYE	UNDER JAW	ANAL RAYS	LENGTH MAX.	OCCURRENCE
Vermilion	Red, juveniles tipped with black	Occasionally		Usually rough	6-8	76 cm	More Common S. Cal.
Canary	Bright orange	Occasionally		Usually smooth	7	76 cm	More Common N. Cal.
Yelloweye	Pinkish, usu. black margins	Present	Yep	Usually smooth	5-8	91 cm	Common
Olive	Olive to Yellowish			Usually rough	8-10*, usu 9	61 cm	More Common S. Cal.
Yellowtail	Yellowish, some pink			Usually rough	7-9*, usu. 8	66 cm	Common

* Last ray double, counted as one. Note: all measurements and other characters are for typical specimens, individuals vary. See "Meristic Table" for ranges.

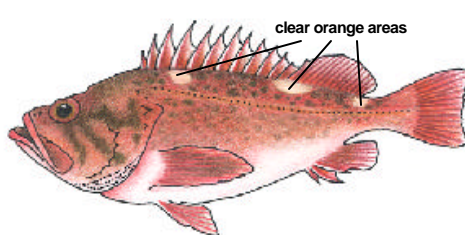
Page F-13

Bronzespotted Rockfish (*Sebastes gilli*)



CDFG

Bronzespotted Rockfish (*Sebastes gilli*)



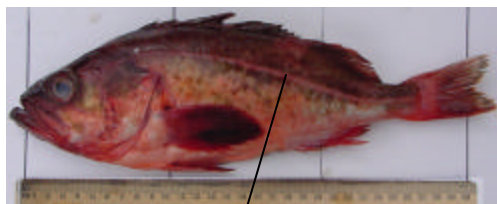
Lorraine Sinclair, PSMFC

Blackgill Rockfish (*Sebastes melanostomus*)



Jenny Taylor, PSMFC

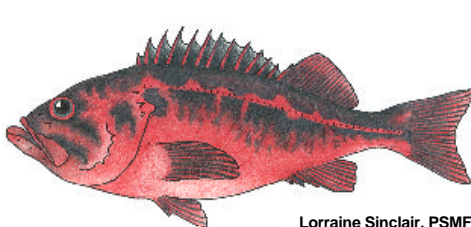
Mexican Rockfish (*Sebastes macdonaldi*)



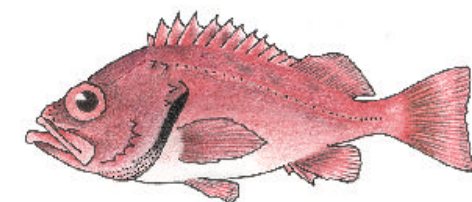
lateral line red

Diane Haas, PSMFC

Mexican Rockfish (*Sebastes macdonaldi*)



Lorraine Sinclair, PSMFC



gill membranes jet-black

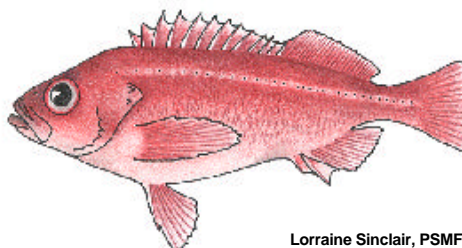
Lorraine Sinclair, PSMFC

Yellowmouth Rockfish
(*Sebastes reedi*)

Mike Fukushima, CDFG



Dwarf-red Rockfish (*Sebastes rufinus*)



Lorraine Sinclair, PSMFC

Redstripe Rockfish (*Sebastes proriger*)
lateral line gray



Lorraine Sinclair, PSMFC



Diane Haas, PSMFC

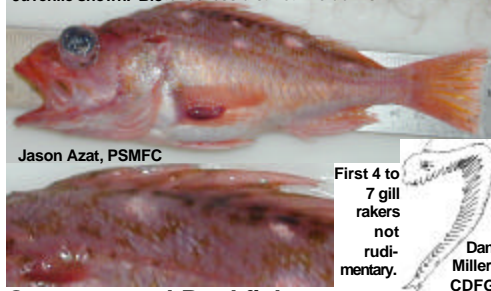
NAME	COLOR GEN.	MOTTLING/PATTERN	KEY CHARACTERISTICS & SIMILAR SPECIES
Bronze-spotted gilli	Red-Orange	0-3 clear orange areas below dorsal, many brown spots	Large fish. Mouth strongly curved upward. Brown forked (V-shape) bars radiate from eye. Many brown to bronze spots on back. Lateral line in narrow red zone. Smooth under jaw. Headspines strong, at least 5 pairs.
Mexican macdonaldi	Red & Black	Back & black-red Lateral line in bright red zone	Large fish. Fin membranes red-black. Lateral line in bright red zone. More common in southern California. REDSTRIPE: lateral line in gray zone bordered by red, membranes of pectoral fin reddish or yellowish.
Yellowmouth reedi	Red-orange to whitish below	3-5 vague saddles, juveniles mottled and redder	Yellow / black patches in pinkish mouth. Jaws red. Lateral line in pink zone. Rear edge of soft anal fin straight, nearly vertical. REDSTRIPE: lateral line gray w/ red border. Lips black. POP: lacks yellow and black blotching in mouth, more prominent knob.
Dwarf-red rufinanus	Dusky-red to lighter red below	No distinct pattern	Small fish. 8* anal soft-rays. 37-38 gillrakers. Extremely rare, collect possible specimens. AURORA: fewer (24-28) gillrakers, 5-6* anal soft-rays. SPLITNOSE: prominent knobs on upper jaw. CHAMELEON: 6* anal soft-rays. OTHER: REDSTRIPE, MEXICAN, and YELLOWMOUTH.
Blackgill melanostomus	Red	No distinct pattern	Rear edge of gill cover black. Black patches inside mouth. Scales rub off in trawls, leaving white patches. BANK: most fin membranes are black, 8-9 anal soft-rays.
Redstripe proriger	Light red to yellow white below	Upper back mottled with olive, yellowish on side	Gray lateral line bordered by red. Lips black. Forward projecting knob on chin. Usually 6-7* anal soft-rays. CHILIPEPPER: 8-9 anal soft-rays. Lateral line in clear pink zone. MEXICAN: more black body, pectoral fin rays black. ADULT YELLOWEYE: bright yellow eye.

COMMON NAME	MOUTH COLOR	ANAL SOFT-RAYS	LATERAL LINE	LENGTH MAX.	OCCURRENCE
Bronzespotted	pinkish w/dusky patches	7-8	narrow red/orange zone	71 cm	Common in S.Cal.
Mexican	pinkish w/dusky patches	7-8	bright red zone	66 cm	Rare
Yellowmouth	Yellow / black on pink	7-8	pink	58 cm	Rare
Dwarf-red		8*	pale	17 cm	Very Rare
Blackgill	Dusky to black mottled	6-8 (rarely 6)	slightly pale	61 cm	Common
Redstripe	Lips dusky	Usually 6-7*	clear gray zone w/ red border	51 cm	Uncommon

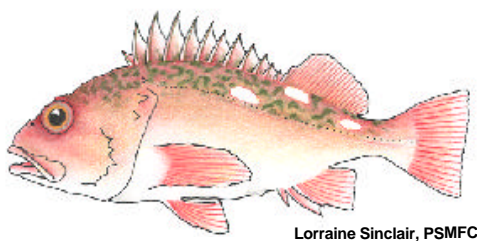
* Last ray double, counted as one. Note: all measurements and other characters are for typical specimens, individuals vary. See "Meristic Table" for ranges.

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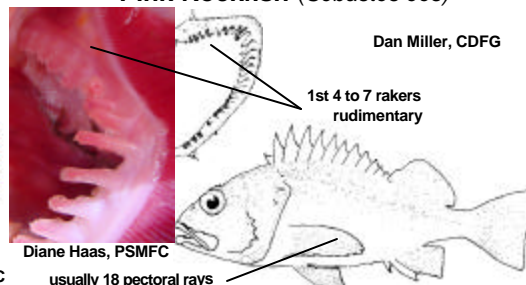
Greenblotched Rockfish (*Sebastes rosenblatti*)
Juvenile shown. Blotches less distinct in older fish



Greenblotched Rockfish (*Sebastes rosenblatti*)



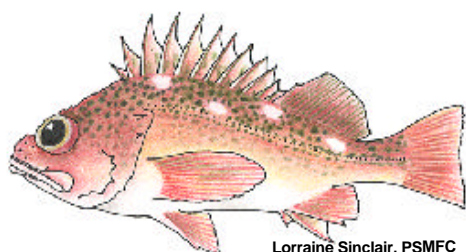
Pink Rockfish (*Sebastes eos*)



Greenspotted Rockfish (*Sebastes cholorostictus*)
Juvenile shown at right. Spots less distinct in older fish.



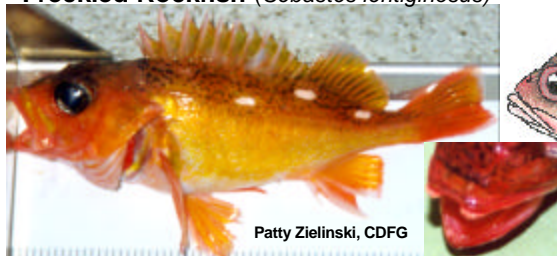
Greenspotted Rockfish (*Sebastes cholorostictus*)



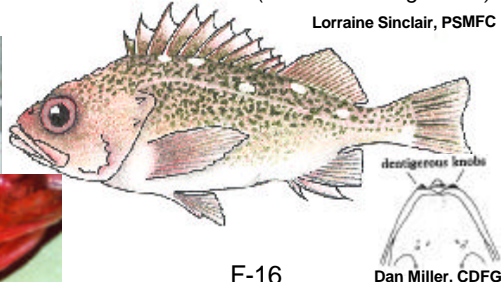
Starry Rockfish (*Sebastes constellatus*)



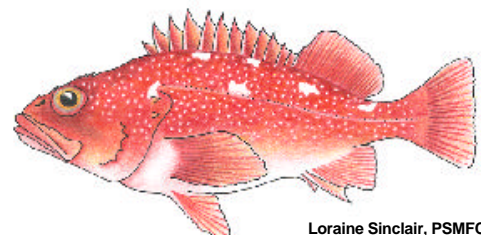
Freckled Rockfish (*Sebastes lentiginosus*)



Freckled Rockfish (*Sebastes lentiginosus*)
Lorraine Sinclair, PSMFC



Starry Rockfish (*Sebastes constellatus*)



NAME	COLOR GEN.	MOTTLING/PATTERN	KEY CHARACTERISTICS & SIMILAR SPECIES
Pink eos	Pink to whitish below	Olive green wavy lines. 3-5 pale areas. May have green at dorsal base, and/or green-yellow on scales.	Looks exactly like Greenblotched. Usu. no spines on lower edge of gill cover. Usu. scales under jaw. Usu. 18 pectoral fin rays. First 4-7 gillrakers stubby, usually < 30. GREENBLOTCHED: 0-2 spines on lower gill cover. Usually 17 pectoral fin rays. GREENSPOTTED: round spots, smooth under jaw, usually 17 pectoral fin rays.
Greenblotched rosenblatti	Pink to whitish below	Olive green wavy lines. 3-5 pale areas. May have green at dorsal base, and/or green-yellow on scales.	Looks exactly like Pink. Usu. 1-2 spines on lower edge of gill cover. Scales under jaw. Usually 17 pectoral fin rays. Gillrakers developed, usually > 30. PINK: no spines on gill cover. Usually 18 pectoral fin rays. GREENSPOTTED: round spots, smooth under jaw.
Greenspotted chloristicus	Pink w/ yellowish	Many sharply defined round green spots. May have some vermiculations also. 3-5 pale areas.	Round green spots and possibly some wavy lines. Smooth (0-few scales) under jaw. Usually 17 pectoral fin rays. More than 30 gillrakers. Dorsal green at base. GREENBLOTCHED & PINK: wavy lines, not round spots. Rough under jaw. GREENSTRIPED: horizontal stripes.
Freckled lentiginosus	Pinkish	Dark green dense freckles. 3-5 pale areas.	Small fish. Small dark streaks on tail fin. Scales under jaw. Dentigerous knobs. HONEYCOMB: scale edges are dark. GREENBLOTCHED & PINK: short green wavy lines. GREENSPOTTED: distinct round green spots, lacks dark streaks on tail fin, smooth jaw.
Starry constellatus	Red-orange to paler	3-5 large whitish areas on back, small white dots cover most of body.	Small white dots covering body are distinct.

COMMON NAME	PECTORAL FIN RAYS		ANAL RAYS	GILL RAKERS		SPINES ON GILL COVER	UNDER JAW	TOOTHED KNOBS	NUCHAL * SPINES	LENGTH MAX.	OCCURRENCE
Pink	17-18	Usually 18	6-7	1-5 Stubby	26-31	Often none	Usually rough		Usually 2+	56 cm	Uncommon
Greenblotched	16-18	Usually 17	5-6	Developed	29-34	Often 1-2	Usually rough		Usually 0	48 cm	Common
Greenspotted	16-18	Usually 17	5-7	Developed	31-36	1-2	Usually smooth		Usually 0	50 cm	Common
Freckled	16-18		6-7		34-39		Usually rough	Present		23 cm	Rare
Starry	16-18		5-7		25-30		Usually smooth			46 cm	Common

*Nuchal = nape of neck. Note: all measurements and other characters are for typical specimens, individuals vary. See "Meristic Table" for ranges.

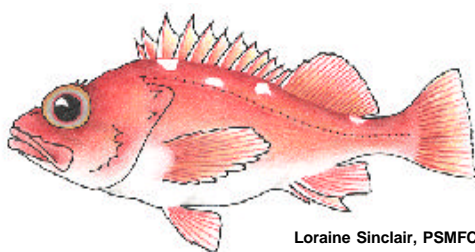
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Pinkrose Rockfish (*Sebastes simulator*)



Dave Ono, CDFG

Pinkrose Rockfish (*Sebastes simulator*)



Lorraine Sinclair, PSMFC

Rosy Rockfish (*Sebastes rosaceus*)



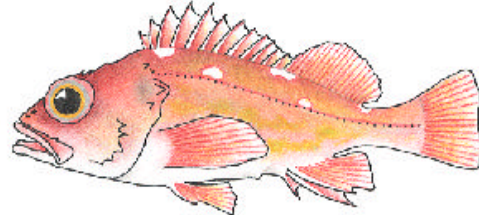
CDFG

Rosethorn Rockfish (*Sebastes helvomaculatus*)



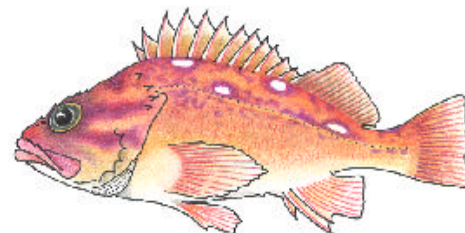
Bill Barss, ODFW

Rosethorn Rockfish (*Sebastes helvomaculatus*)



Lorraine Sinclair, PSMFC

Rosy Rockfish (*Sebastes rosaceus*)



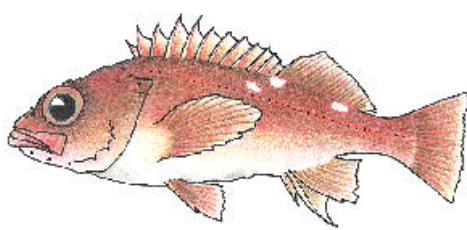
Lorraine Sinclair, PSMFC

Swordspine Rockfish (*Sebastes ensifer*)



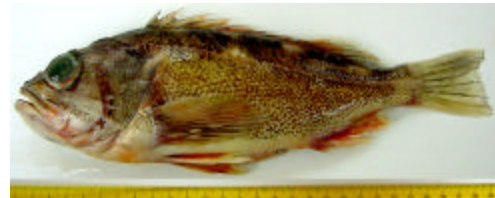
Daniel Gotshall, CDFG

Swordspine Rockfish (*Sebastes ensifer*)



Lorraine Sinclair, PSMFC

Honeycomb Rockfish (*Sebastes umbrosus*)



Diane Haas, PSMFC

NAME	COLOR GEN.	MOTTLING/ PATTERN	KEY CHARACTERISTICS & SIMILAR SPECIES
Pinkrose <i>simulator</i>	Red-pink to white below	3-4 white or pink patches on back, uniform color.	Small fish. Typically 17 pectoral fin rays. Southern California fish. ROSETHORN & ROSY: border around pale patches, yellow tinge. ROSETHORN: usually 16 pectoral rays.
Rosethorn <i>helvonomaculatus</i>	Pink w/ greenish yellow tinge to white below	4-5 white-pink patches on back bordered by pink-red. Some yellow-green markings on back. Greenish-yellow to pink on side.	Deep water fish. Very rare south of San Francisco. Usually 16 pectoral fin rays. White patches bordered by REDdish pink-orange. ROSY & PINKROSE: usually 17 pectoral fin rays. ROSY: purple (not red-pink) on back. PINKROSE: uniform reddish color, no border around pale patches, occurs in Southern California. SWORDSPINE: 2nd anal spine long, no border around pale patches, rough under jaw.
Swordspine <i>ensifer</i>	Pink-orange, brassy	3-5 pale patches on back. Head and upper body mottled w/ purple or red, tinged with a greenish yellow.	Small fish. 2nd anal fin spine usually as long or longer than soft-rays. Rough under jaw. Lower jaw projects out more than upper. More common in deep water. PINKROSE: uniform red color. ROSY & ROSETHORN: smooth under jaw. Patches on back bordered.
Rosy <i>rosaceus</i>	Red-orange-yellow to white below	4-5 white patches bordered by purple. Purplish mottling on back. Vague purple band on head.	Purplish border around pale areas. Vague purple bar on head behind eyes. Usu. 17 pectoral fin rays. More common near shore. ROSETHORN: pale patches bordered by red-pink (not purple), usu. 16 pectoral rays. PINKROSE: uniform red color, no border around pale patches. STARRY: covered with white dots. SWORDSPINE: rough under jaw, 2nd anal spine long.
Honeycomb <i>umbrosus</i>	Pinkish-yellow-orange	Scales with dark edges. 4-5 pale patches on back.	Small fish. Dark borders on edges make distinct honeycomb pattern. Often olive green between fin rays. More common in Southern California.

COMMON NAME	FIN MEMBRANES	PECTORAL FIN RAYS		UNDER JAW	DEPTH	LENGTH MAX.	OCCURRENCE
Pinkrose		16-18	Usu. 17	Usually smooth	> 50 Fathoms	30 cm	Uncommon
Rosethorn	Pinkish w/ Yellow-green	15-18	Usu. 16	Usually smooth	> 40 Fathoms	41 cm	Occurs N. of San Francisco
Swordspine	Yellowish	16-18	Usu. 17	Usually rough	> 40 Fathoms	30 cm	Uncommon
Rosy	Orange-red w/ Greenish-yellow	16-18	Usu. 17	Usually smooth	< 40 Fathoms	36 cm	Common
Honeycomb	Orange w/ olive	15-18	Usu. 17	Usually rough	< 40 Fathoms	27 cm	Common in S. Cal.

Note: all measurements and other characters are for typical specimens, individuals vary. See "Meristic Table" for ranges.

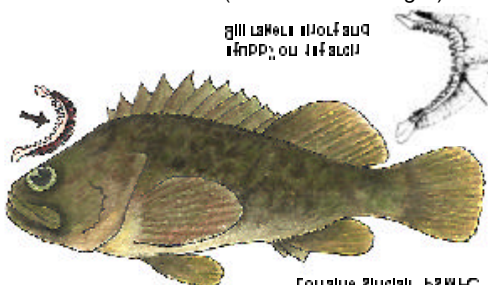
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Grass Rockfish (*Sebastes rastrelliger*)



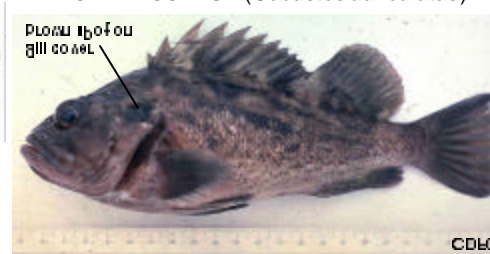
CDLB

Grass Rockfish (*Sebastes rastrelliger*)



Formal: 21x11, 62WBC

Brown Rockfish (*Sebastes auriculatus*)



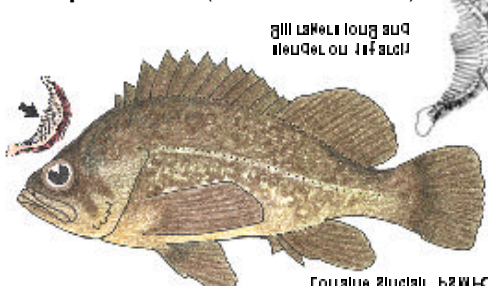
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Kelp Rockfish (*Sebastes atrovirens*)



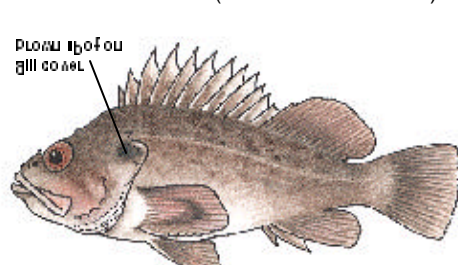
CDLB

Kelp Rockfish (*Sebastes atrovirens*)



Formal: 21x11, 62WBC

Brown Rockfish (*Sebastes auriculatus*)



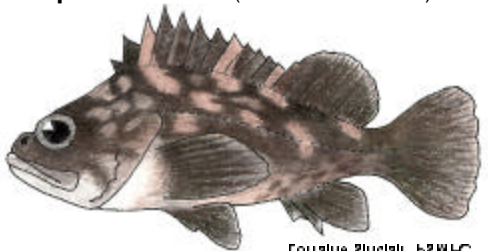
Formal: 21x11, 62WBC

Gopher Rockfish (*Sebastes carnatus*)



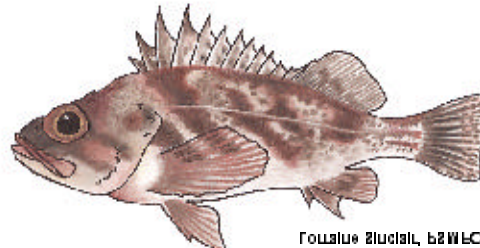
C. Ludy, CDFG

Gopher Rockfish (*Sebastes carnatus*)



Formal: 21x11, 62WBC

Calico Rockfish (*Sebastes dallii*)



Formal: 21x11, 62WBC

NAME	COLOR GEN.	MOTTLING/ PATTERN	KEY CHARACTERISTICS & SIMILAR SPECIES
Grass <i>rastrelliger</i>	Olive-green	Green or light gray mottling.	Gillrakers short and stubby. Thick caudal peduncle. Head "thick". Usually smooth under jaw. KELP: gillrakers are long and slender. BROWN: has brown spot on gill cover. GOPHER: mottling whitish to flesh colored.
Kelp <i>atrovirens</i>	Olive / gray-brown	Dark brown mottling. Occasionally pinkish below.	Gillrakers long and slender. Head "chunky". Usually rough under jaw. GRASS: has stubby gillrakers. BROWN: has brown spot on gill cover.
Gopher <i>camatus</i>	Olive-brown	Up to 6 large pale areas, pale whitish to pinkish (flesh colored) on back.	"Chunky" fish. Stout body. About 6 large flesh colored areas on back. Usually smooth under jaw. B & Y: has bright yellow patches on back.
Brown <i>auriculatus</i>	Light brown	Brown mottling. Dark blotch on gill cover	Brown patch on upper corner of gill cover. GRASS: no brown spot on gill cover, stubby gillrakers. KELP, GOPHER: no brown spot on gill cover.
Calico <i>dallii</i>	Greenish-yellowish	Brown oblique bars, irregular brownish blotches.	Small fish. Brown to red-brown streaks on caudal fin. More common in Southern California.

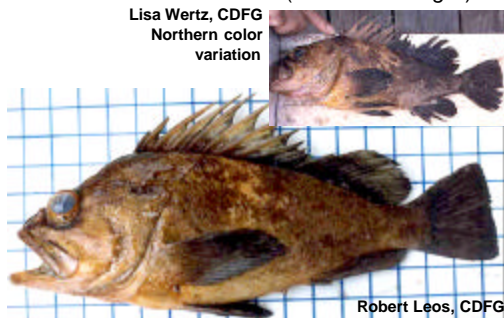
COMMON NAME	FIN COLOR	GILL-RAKERS	PECTORAL RAYS	DORSAL MEMBRANES	UNDER JAW	LENGTH MAX.	OCCURRENCE	
Grass	Dark	Short & Stubby	22-25	18-20		Usually smooth	56 cm	Common
Kelp		Long & Slender	28-35	16-18		Usually rough	42 cm	Common
Gopher			27-30	16-18		Usually smooth	39 cm	Common
Brown	Pinkish		25-30	15-19	Deep notches	Usually smooth	55 cm	Common
Calico			31-34	16-17	Deep notches	Usually smooth	25 cm	Common in S.Cal.

Note: all measurements and other characters are for typical specimens, individuals vary. See "Meristic Table" for ranges.

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Quillback Rockfish (*Sebastes maliger*)

Lisa Wertz, CDFG
Northern color variation



Robert Leos, CDFG

Copper Rockfish (*Sebastes caurinus*)



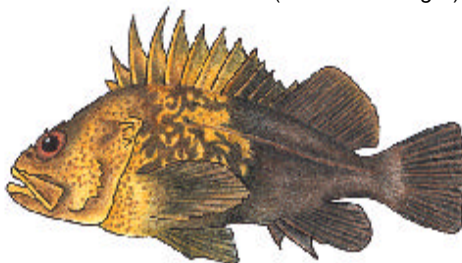
M. Bowers, NMFS

Black-and-yellow Rockfish (*Sebastes chrysomelas*)



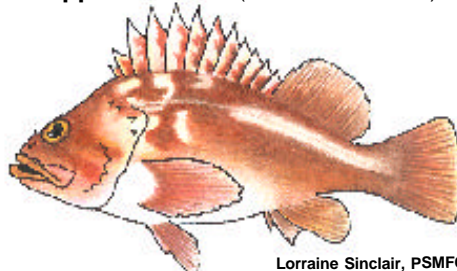
CDFG

Quillback Rockfish (*Sebastes maliger*)



Lorraine Sinclair, PSMFC

Copper Rockfish (*Sebastes caurinus*)



Lorraine Sinclair, PSMFC

Black-and-yellow Rockfish (*Sebastes chrysomelas*)



Lorraine Sinclair, PSMFC

China Rockfish (*Sebastes nebulosus*)



Diane Haas, PSMFC

Copper Rockfish (*Sebastes caurinus*)



CDFG

Greenstriped Rockfish (*Sebastes elongatus*)



NMFS

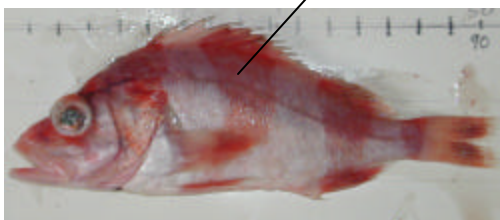
NAME	COLOR GEN.	MOTTLING/PATTERN	KEY CHARACTERISTICS & SIMILAR SPECIES
Quillback <i>maliger</i>	Black-brown to pale orange	Orange-yellow patches on face and back. Brown-orange spots below.	Dorsal spines are long and incised. Head area is orange to yellow, patches on back are not continuous. CHINA: continuous yellow stripe at lateral line and many yellowish spots.
Copper <i>caurinus</i> N. Cal	Copper-pink orange to white below	Yellow-copper bars on back and behind eye. Lateral line in pale zone.	Bars radiating from eyes. Dorsal fin rays deeply notched. Deep, stout body. QUILLBACK: dorsal spine notches very deep.
Copper "whitebelly" S. Cal	Olive-red-dk. brown to white below	2 copper red bars behind eye. Yellow-copper-red-brown patches on back.	
Black-and-yellow <i>chrysomelas</i>	Black-Brown	Yellowish patches on black.	5-6 large yellow patches on back, 1 patch between dorsal fin spines 2-4. Faint dark stripes radiate from eye. Caudal fin membrane striped. CHINA: broad yellow stripe on side. GOPHER: flesh colored patches on back.
China <i>nebulosus</i>	Black-Blue	Yellow to white speckled.	Broad continuous yellow stripe from dorsal spines 3-4, along lateral line to tail. Strong head spines. Black & Yellow: has yellow patches, not a stripe. QUILLBACK: orange patches, not speckled, longer dorsal spines.
Greenstriped <i>elongatus</i>	Pinkish	3-4 dark green horizontal bars.	Horizontal bars are distinct. Elongate fish. Lateral line is in clear zone. Green stripes on caudal fin membranes.

COMMON NAME	FIN COLOR	SPOT COLOR	DORSAL SPINES	UNDER JAW	LENGTH MAX.	OCCURRENCE
Quillback	Dark Brown / Black	Orange	V. deep notches	Usu. smooth	61 cm	Common
Copper	Copper/ orange / pink / yellow	Pink / yellow	Deep notches	Usu. smooth	57 cm	Common in N. Cal
Copper "Whitebelly"	Dark Brown / Olive	Pink / yellow	Deep notches	Usu. smooth	57 cm	Common in S. Cal.
Black-and-yellow	Blackish (and fleshy!)	Yellow		Usu. smooth	39 cm	Common
China	Black to blue / black	Lt. Yellow + some blue	Deep notches	Usu. smooth	43 cm	Common
Greenstriped		Green		Usu. rough	38 cm	Common

Note: all measurements and other characters are for typical specimens, individuals vary. See "Meristic Table" for ranges.

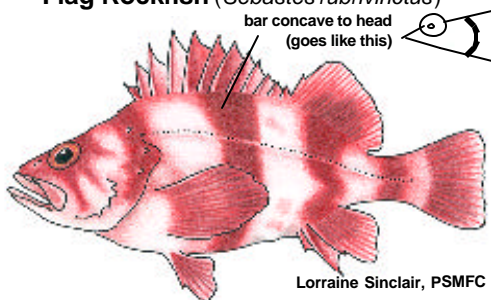
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Flag Rockfish (*Sebastes rubrivinctus*)
bar concave to head



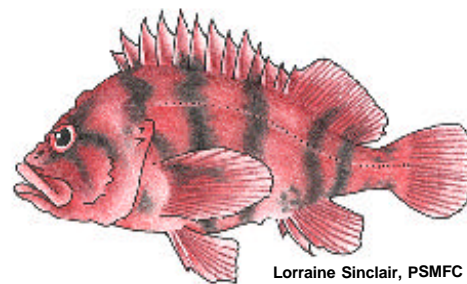
Dave Ono, CDFG

Flag Rockfish (*Sebastes rubrivinctus*)
bar concave to head (goes like this)



Lorraine Sinclair, PSMFC

Tiger Rockfish (*Sebastes nigrocinctus*)



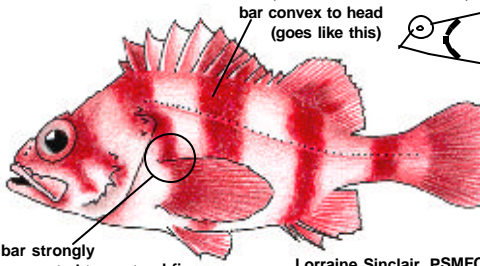
Lorraine Sinclair, PSMFC

Redbanded Rockfish (*Sebastes babcocki*)



Jason Azat, PSMFC

Redbanded Rockfish (*Sebastes babcocki*)
bar convex to head (goes like this)



Lorraine Sinclair, PSMFC

Tiger Rockfish (*Sebastes nigrocinctus*)



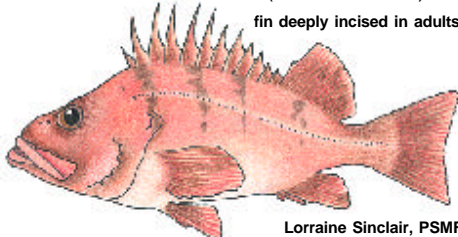
NMFS

Cowcod Rockfish (*Sebastes levis*)



Robert Leos, CDFG

Cowcod Rockfish (*Sebastes levis*)
fin deeply incised in adults



Lorraine Sinclair, PSMFC

Treefish (*Sebastes serriceps*)



Lorraine Sinclair, PSMFC

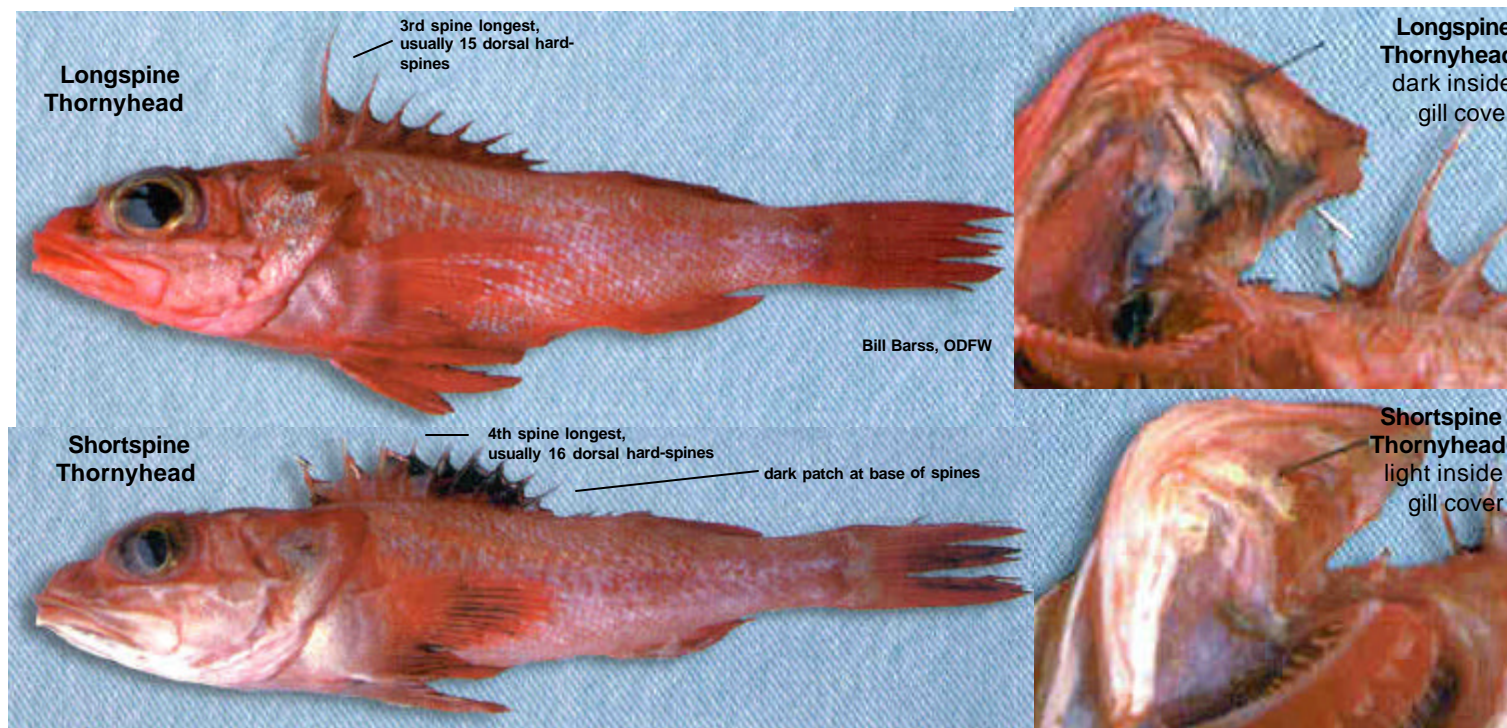
NAME	COLOR GEN.	MOTTLING/ PATTERN	KEY CHARACTERISTICS & SIMILAR SPECIES
Flag <i>rubrivinctus</i>	Pinkish-white	Broad red or reddish black vertical bars on body and caudal fin. Fade as size increases.	1st bar (from head) curves downward onto the gill cover. Red bars radiate from eye. Pinched face. Usually 17 pectoral rays. Smooth under jaw. More common in Southern California. REDBANDED: 1st bar slants away from head to pectoral fin. Rough under jaw. 19-20 pectoral rays.
Redbanded <i>babcocki</i>	Pinkish-white	4 broad red vertical bars on body, red to blackish in small specimens.	1st bar (from head) slants away from face, passing over and behind gill cover, to pectoral fin. Red bars radiate from eye. Usually 19 pectoral rays. Rough under jaw. More common in Northern California. FLAG: 1st bar slants down onto the gill cover, under jaw smooth, 17-19 pectoral rays.
Cowcod <i>levis</i>	Pink-red	4-5 irregular dark vertical bars w/ speckles on side, fade as size increases.	Generally a large fish. Deep notches between dorsal fin spines. Distance between tip of snout and eye is long. Large hump on nose in profile view. Color may vary. More common in Southern California.
Tiger <i>nigrocinctus</i>	Pink or Red	5 black to dark red vertical bars across body, extending onto dorsal fin.	Dark bars radiate from eye. TREEFISH: background is yellowish, not reddish. REDBANDED & FLAG: red vertical bars on pinkish-white body.
Treefish <i>serriceps</i>	Yellow to olive	5-6 black vertical bars across body.	Dark bars radiate from eye. Adults have pinkish lips and chin. Juveniles have more yellowish background, white tipped fins. More common in Southern California. TIGER: body is red, not yellowish.

COMMON NAME	FIN COLOR	PECTORAL FIN RAYS	UNDER JAW	DEPTH	LENGTH MAX.	OCCURRENCE
Flag	Red to reddish black.	Usually 17	Usually smooth	<100 Fathoms	64 cm	Common in S.Cal.
Redbanded	Red (juveniles black tipped) dorsal and tail fins	Usually 19	Usually rough	> 150 Fathoms	64 cm	Common in N.Cal.
Cowcod			Usually smooth	8-200 Fathoms	94 cm	Common in S.Cal.
Tiger	Red-pink (juveniles black tipped anal & pelvic)	19-20	Usually smooth	>30 Fathoms	61 cm	Uncommon
Treefish	Yellow (juveniles white tipped)	17-18	Usually smooth	<30 Fathoms	41 cm	Common in S.Cal.

Note: all measurements and other characters are for typical specimens, individuals vary. See "Meristic Table" for ranges.

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Longspine & Shortspine Thornyheads (*Sebastolobus altivelis* & *Sebastolobus alascanus*)



Bill Barss, ODFW

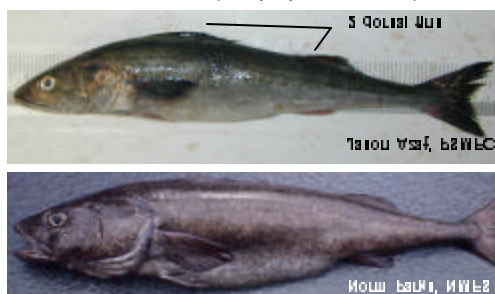
NAME	COLOR GEN.	MOTTLING/PATTERN	KEY CHARACTERISTICS & SIMILAR SPECIES
Longspine Thornyhead <i>Sebastulobus altivelis</i>	Brick-red	Some dusky areas on fin edges.	Pectoral fins bi-lobed. Row of spines below eye, on cheek. Usually 15 dorsal spines, 3rd longest, significantly longer than others (if not broken). Lining of gill cavity is dark gray or black. Juveniles (≤ 5.1 cm) are mostly black. SHORTSPINE THORNYHEAD: see below.
Shortspine Thornyhead <i>Sebastulobus alascanus</i>	Reddish-orange. Smaller fish pale red.	Dark area on back of dorsal fin	Pectoral fins bi-lobed. Row of spines below eye, on cheek. Usually 16 dorsal spines, 4th or 5th longest. Distinct black blotch or blotches on rear of dorsal fin. Lining of gill cavity is pale. May be dark blotches inside operculum. Smaller specimens are paler. LONGSPINE THORNYHEAD: see above.

COMMON NAME	UNDER SIDE	DORSAL FIN COLOR	DORSAL SPINES	INSIDE GILL COVER COLOR	DEPTH MAY BE CAUGHT	LENGTH MAX.	OCCURRENCE
L. Thornyhead	Brick-red	Slight black edges (no blotch)	15-16 Usu. 15	Black- gray	>160 Fathoms	38 cm	Common
S. Thornyhead	Small fish paler	Distinct black blotch	15-17 Usu. 16	Pale	14-830 (usu. >50) Fm	75 cm	Common

Note: all measurements and other characters are for typical specimens, individuals vary. See "Meristic Table" for ranges.

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Sablefish (*Anoplopoma fimbria*)



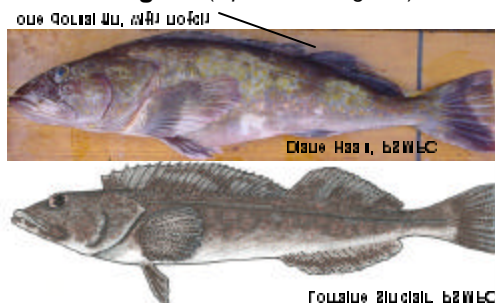
Sablefish



Lingcod



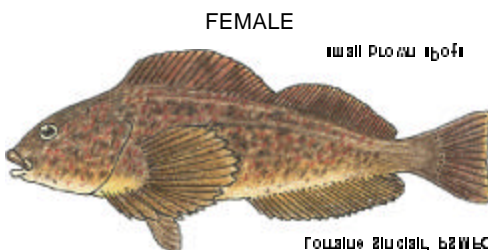
Lingcod (*Ophiodon elongatus*)



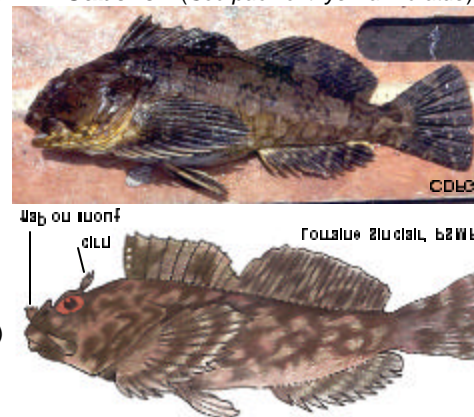
Kelp Greenling (*Hexagrammos decagrammus*)



Kelp Greenling (*Hexagrammos decagrammus*)



Cabezon (*Scorpaenichthys marmoratus*)



California Scorpionfish (*Scorpaena guttata*)



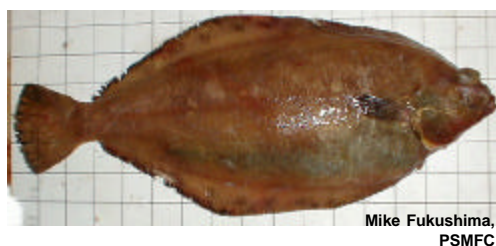
COMMON NAME	COLOR GEN.	MOTTLING/PATTERN	KEY CHARACTERISTICS & SIMILAR SPECIES
Sablefish	Black-green-gray Paler below.	Pale blotches or chain-like pattern on back. Occasionally albino.	Elongate fish with two dorsal fins. Rear dorsal fin mirrors anal fin. Wide space between dorsal fins. 17-30 spines on first dorsal. Small mouth and teeth.
Lingcod	Gray-brown Blue-green	Darker and lighter spotting. Color variable.	Elongate, and generally a large fish. 1 long dorsal fin with notch. Large mouth, jaw extends past eye. Large teeth.
Kelp Greenling (male)	Gray-brown-olive	Irregular blue spots on front of body, each spot surrounded by ring of small reddish-brown spots.	Two cirri present, one above eye, the other (very small) between eye and dorsal fin. Inside of mouth yellowish. 5 lateral lines. LINGCOD: larger mouth, 1 lateral line.
Kelp Greenling (female)	Brown-gray	Freckled with small reddish brown or golden spots.	Two cirri present, one above eye, the other (very small) between eye and dorsal fin. Inside of mouth yellowish. 5 lateral lines. LINGCOD: larger mouth, 1 lateral line.
Cabezon	Brown, red or green to white green below	Intense dark and light mottling.	Generally a large fish. Distinctive skin flap on snout. Branched cirrus over eye. 5 pelvic soft-rays. OTHER SCULPINS: generally smaller fish, have scales, or fewer pelvic soft-rays.
California Scorpionfish (Sculpin)	Red-brown	Pale mottling. Dark spots on body and fins.	Stocky fish, large mouth, spiny head. Pectoral fin is fan shaped. 12 dorsal spines. Row of spines under eye onto cheek. Spines poisonous. OTHER SCULPINS: usually smaller and more elongate.

COMMON NAME	UNDER-SIDE	FIN COLOR	LATERAL LINE	CIRRI	LENGTH MAX.	OCCURRENCE
Sablefish	Gray-white		1	0	102 cm	Common
Lingcod	Pale		1	1 pair	152 cm	Common
Kelp Greenling (male)		Yellowish-orange	5	2 pairs	53 cm	Common
Kelp Greenling (female)		Yellowish-orange	5	2 pairs	53 cm	Common
Cabezon	White-green		1	1 pair, branched	72 cm	Common
California Scorpionfish			1	many	43 cm	Common in S. California

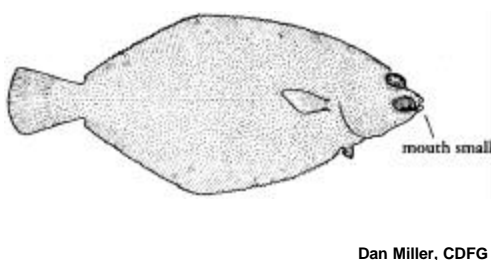
Note: all measurements and other characters are for typical specimens, individuals vary. See "Meristic Table" for ranges.

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Dover Sole (*Microstomus pacificus*)



Dover Sole (*Microstomus pacificus*)



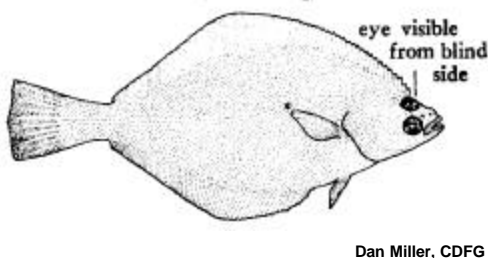
Rex Sole (*Glyptocephalus zachirus*)



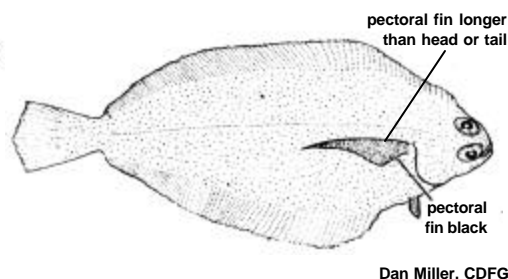
English Sole (*Parophrys vetulus*)



English Sole (*Parophrys vetulus*)



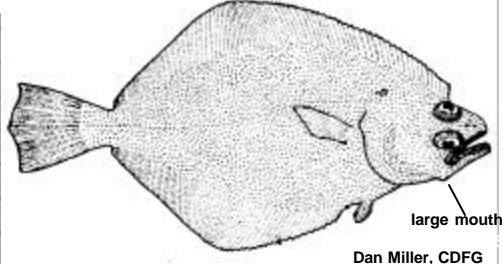
Rex Sole (*Glyptocephalus zachirus*)



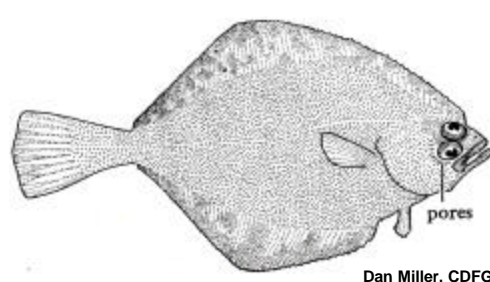
Petrable Sole (*Eopsetta jordani*)



Petrable Sole (*Eopsetta jordani*)



Flathead Sole (*Hippoglossoides elassodon*)

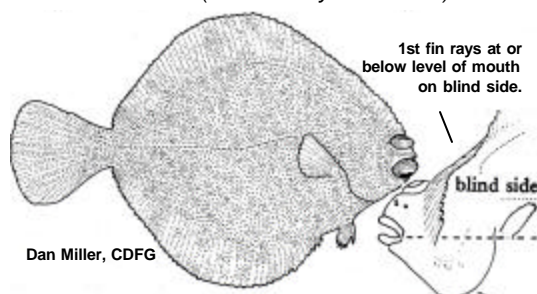


NAME	COLOR GEN.	MOTTLING/ PATTERN	EYE SIDE	LATERAL LINE	FIN COLOR	KEY CHARACTERISTICS
Dover Sole <i>Microstomus pacificus</i>	Brown	Uniform color.	Right	Nearly straight. No dorsal branch.	Black or Dusky	Small mouth, jaw only extends to below front of lower eye. Gill slit small, rarely extending above pectoral fin. Slimy, flaccid fish.
English Sole <i>Parophrys vetulus</i>	Brown	Uniform color.	Right	Nearly straight. Long dorsal branch.		Snout is slender and pointed, looks twisted from the front. Upper eye visible from the blind side. Scales on front part of body smooth, rear half are ctenoid (rough).
Petrale Sole <i>Eopsetta jordani</i>	Brown	Uniform color.	Right	Nearly straight. No dorsal branch.	May have faint dark blotches.	Jaw extends below middle of eye, mouth large. 2 rows of small teeth on upper jaw.
Rex Sole <i>Glyptocephalus zachirus</i>	Light brown.	Uniform color.	Right	Straight. No dorsal branch.	Dark-edged. Pectoral fin black.	Pectoral fin longer than head or tail. Small mouth. Head rounded. Lateral line nearly straight.
Flathead Sole <i>Hippoglossoides elassodon</i>	Brown	May have dusky blotches.	Right	Nearly straight. No dorsal branch.	Dark blotches on dorsal and anal fins.	Small pores below lower eye. Long white teeth in 1 row.

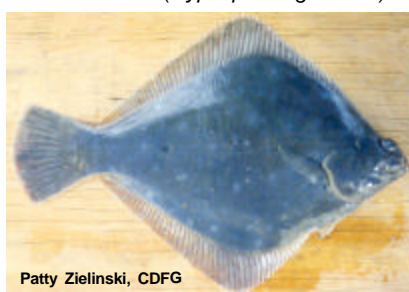
Note: all measurements and other characters are for typical specimens, individuals vary. See "Meristic Table" for ranges.

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Curlfin Turbot (*Pleuronichthys decurrens*)



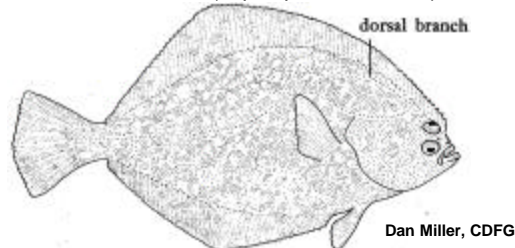
Diamond Turbot (*Hypsopsetta guttulata*)



Starry Flounder (*Platichthys stellatus*)



Rock Sole (*Lepidopsetta bilineata*)



Butter Sole (*Isopsetta isolepsis*)



California Halibut (*Paralichthys californicus*)



Sand Sole (*Psettichthys melanostictus*)



Arrowtooth Flounder (*Atheresthes stomias*)



Pacific Sanddab (*Citharichthys sordidus*)



NAME	COLOR GEN.	MOTTLING/PATTERN	EYE SIDE	LATERAL LINE	KEY CHARACTERISTICS
Curlfin Turbot <i>Pleuronichthys decurrens</i>	Reddish brown to blackish.	Often mottled.	Right	Nearly straight. Long dorsal branch.	Deep bodied and oval, slightly diamond shaped. 9-12 dorsal rays on blind side. 1st ray at level of mouth. Rays on blind sides of other fishes do not reach level of mouth.
Diamond Turbot <i>Hypsopsetta guttulata</i>	Dark gray greenish.	Often with bright blue spots.	Right	Straight w/ long dorsal branch.	Diamond shaped. Small mouth. Blind side white with yellow near mouth. Rays do not extend to blind side.
Starry Flounder <i>Platichthys stellatus</i>	Brown to black.	Uniform color.	Right or left.	Nearly straight. No dorsal branch.	Diamond shaped. Distinct alternating dark and yellowish bars on fins. Rough star shaped tubercles on eyed side. HYBRID SOLE: bars less distinct, small dorsal branch, no tubercles.
Rock Sole <i>Lepidopsetta bilineata</i>	Brown or gray.	Darker mottling, or mottled with yellow and red	Right	High arch. Small dorsal branch on head.	Only California flatfish with both a high arch and dorsal branch in lateral line. Ctenoid scales on eyed side. BUTTER SOLE: slight arch, longer dorsal branch.
Butter Sole <i>Isopsetta isolepsis</i>	Brown.	Mottling, may be yellow / green.	Right	Nearly straight. Dorsal branch.	Fins yellow at edge. Ctenoid scales on eyed side, extend onto fins. ROCK: high arch. ENGLISH: no scales on fins.
California Halibut <i>Paralichthys californicus</i>	Brown to black	Light and dark mottled.	Left or right.	Arched. No dorsal branch.	Large mouth. Jaw extends beyond end of eye. Caudal fin notched above and below. Very firm, muscular fish.
Sand sole <i>Psettichthys melanostictus</i>	Gray to brown or greensih	Black Speckles	Right	Straight. Small, separate dorsal branch.	Threadlike rays at front of dorsal fin, not connected to dorsal membrane. Large mouth, jaw extends to below middle of eye.
Arrowtooth Flounder <i>Atheresthes stomias</i>	Brown	Uniform color.	Right	Nearly straight. No dorsal branch.	Mouth large. Extends to rear of eye. Upper eye set high, visible from blind side. Teeth arrow shaped, in two rows on upper jaw. CA HALIBUT: Arched lat line. BIGMOUTH: L eyed.
Pacific Sanddab <i>Citharichthys sordidus</i>	Light brown.	Mottling darker, may be yellowish.	Left	Straight. No dorsal branch.	Left pectoral shorter than head. Bony ridge above lower eye.

Note: all measurements and other characters are for typical specimens, individuals vary. See "Meristic Table" for ranges.

MERISTIC COUNTS : Selected Fish												
COMMON NAME	Dorsal				Anal				Pectoral Total		Gill Rakers Total	
	Hard Spines		Soft-rays		Hard Spines		Soft-rays					
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Aurora	13	13	12	14	3	3	5	6	16	18	24	28
Bank	13	13	13	16	3	3	8	9	17	19	33	37
Black	13	13	13	16	3	3	7	9	18	20	33	39
Black-and-yellow	13	13	12	14	3	3	6	7	17	18	26	30
Blackgill	13	13	12	15	3	3	6	8	17	20	27	35
Blue	13	13	15	17	3	3	8	10	16	18	33	38
Bocaccio	12	14	13	15	3	3	8	10	15	16	28	31
Bronzespotted	13	13	13	14	3	3	7	8	18	20	26	29
Brown	13	13	12	15	3	3	5	8	15	19	25	30
Calico	13	13	12	14	3	3	6	6	16	17	31	34
Canary	13	13	13	15	3	3	7	7	16	18	40	45
Chameleon	13	13	12	13	3	3	6	6	18	18	36	39
Chilipepper	13	13	13	14	3	3	8	9	16	18	34	39
China	13	13	12	14	3	3	6	8	17	19	26	31
Copper	13	13	11	14	3	3	5	7	16	18	26	32
Cowcod	13	13	12	13	3	3	6	7	17	18	29	32
Darkblotched	13	13	12	14	3	3	6	7	18	20	29	34
Dwarf-red	13	13	14	14	3	3	8	8	17	17	37	38
Flag	13	13	12	15	3	3	6	7	16	18	26	30
Freckled	13	13	12	13	3	3	6	7	16	18	34	39
Gopher	13	13	12	14	3	3	5	7	16	18	27	30
Grass	13	13	12	14	3	3	6	6	18	20	22	25
Greenblotched	13	13	11	13	3	3	5	6	16	18	29	34
Greenspotted	13	13	11	15	3	3	5	7	16	18	31	36

MERISTIC COUNTS : Selected Fish												
COMMON NAME	Dorsal				Anal				Pectoral		Gill Rakers	
	Hard Spines		Soft-rays		Hard Spines		Soft-rays		Total		Total	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Greenstriped	13	13	12	14	3	3	6	7	16	18	28	33
Halfbanded	13	13	13	13	3	3	7	8	16	18	37	40
Honeycomb	13	13	11	13	3	3	5	7	15	18	33	38
Kelp	13	13	13	14	3	3	6	7	16	18	28	35
Mexican	13	13	13	14	3	3	7	8	18	19	37	38
Olive	12	13	15	17	3	3	8	10	17	18	29	36
Pacific ocean perch	13	13	13	17	3	3	6	9	15	19	30	38
Pink	13	13	11	13	3	3	6	7	17	18	26	31
Pinkrose	13	13	12	14	3	3	5	6	16	18	28	33
Pygmy	13	13	13	14	3	3	6	7	16	17	38	43
Quillback	13	13	12	14	3	3	6	7	16	18	29	33
Redbanded	13	13	13	15	3	3	7	7	19	20	29	33
Redstripe	13	13	13	15	3	3	6	7	16	18	36	43
Rosethorn	13	13	12	14	3	3	6	7	15	18	28	33
Rosy	13	13	11	14	3	3	5	7	16	18	29	34
Rougheyeye	13	13	12	15	3	3	6	8	17	19	30	35
Sharpchin	13	13	13	15	3	3	6	8	17	19	31	37
Shortbelly	13	13	13	16	3	3	8	11	19	22	42	47
Shortraker	13	14	12	15	3	3	6	8	17	20	27	31
Silvergray	13	13	14	17	3	3	7	8	16	18	33	36
Speckled	13	13	13	16	3	3	7	8	17	19	30	34
Splitnose	13	13	11	14	3	3	6	8	17	19	32	37
Squarespot	13	13	14	17	3	3	6	7	16	18	35	41
Starry	13	13	12	14	3	3	5	7	16	18	25	30

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MERISTIC COUNTS : Selected Fish												
COMMON NAME	Dorsal				Anal				Pectoral		Gill Rakers	
	Hard Spines		Soft-rays		Hard Spines		Soft-rays		Total		Total	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Stripetail	13	13	12	14	3	3	5	8	15	17	31	35
Swordspine	13	13	12	14	3	3	5	7	16	18	34	40
Tiger	13	14	13	15	3	3	6	7	18	20	27	31
Treefish	13	13	13	15	3	3	5	7	17	18	27	29
Vermilion	13	13	13	15	3	3	6	8	16	18	35	43
Widow	13	13	14	16	3	3	8	8	17	19	34	47
Yelloweye	13	13	13	16	3	3	5	8	18	20	25	30
Yellowmouth	13	13	13	15	3	3	7	8	18	20	30	36
Yellowtail	13	13	14	16	3	3	7	9	17	19	33	39
Thornyhead, L .Spine	15	16	8	10	3	3	4	6	22	24	21	26
Thornyhead, S. Spine	15	17	8	10	3	3	4	5	20	23	18	24
Ca. Scorpionfish	7	7	8	10	3	3	5	6	17	19	16	17
Cabazon	8	12	15	18			11	14	14	16	16	22
Kelp Greenling	20	23	22	26	0	1	21	25	18	20	13	18
Lingcod	25	28	19	24	3	3	21	24			21	26
Sablefish	17	30	16	21			16	23			18	25

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MERISTIC COUNTS : Selected Fish												
COMMON NAME	Dorsal				Anal				Pectoral		Gill Rakers	
	Hard Spines		Soft-rays		Hard Spines		Soft-rays		Total		Total	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Dover Sole			88	116			75	96	8	12	13	19
English Sole			71	93			52	70	10	12	14	18
Petrale Sole			82	103			62	80	13	13	15*	17*
Rex Sole			87	110			78	93	11	13	5	12
Flathead Sole			72	90			57	71	10	12	17	19
Curlfin Turbot			67	79			45	53	9	14	9	13
Diamond Turbot			66	75			48	54	11	13	6	8
Starry Flounder			52	64			38	47			6	11
Rock Sole			67	82			51	64	10	12	8	11
Butter Sole			78	92			58	69	11	13	7	8
California Halibut			66	76			49	59	10	13	25	32
Sand Sole			72	90			53	66	10	12	20	25
Arrowtooth Flounder			93	115			81	99	14	15	15	17
Pacific Sanddab			86	102			67	81	12	12	18	25

* lower limb only

OPEN OTHER END