A Field Guide To

Kelp Forests of the Santa Barbara Channel

Fourth Edition

Santa Barbara Coastal Long Term Ecological Research Program

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Kelp Forests of the Santa Barbara Channel

Santa Barbara Coastal
Long Term Ecological Research Program

by

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Fourth Edition

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Introduction

This guide contains information on the common marine seaweeds, invertebrates, fish, and mammals that inhabit the shallow rocky reefs of the Santa Barbara Channel. Its primary purpose is to aid students, staff and faculty researchers of the Santa Barbara Coastal Long Term Ecological Research program (SBC LTER) in field identification. It also provides those less familiar with the Santa Barbara Channel with a glimpse of the diverse marine life that can be found at SBC LTER study sites. SBC LTER is one of 26 sites established and funded by the National Science Foundation to investigate long-term ecological phenomena. More information on SBC LTER's mission and research can be found at: http:/sbc.lternet.edu.

How To Use This Book

Taxa in this book are generally arranged in phylogenetic order. Each organism is identified by its scientific name and common name, if available. Brief information on key characteristics used in identification and size is provided for each taxon. The occurrence and distribution of each organism is described as follows:

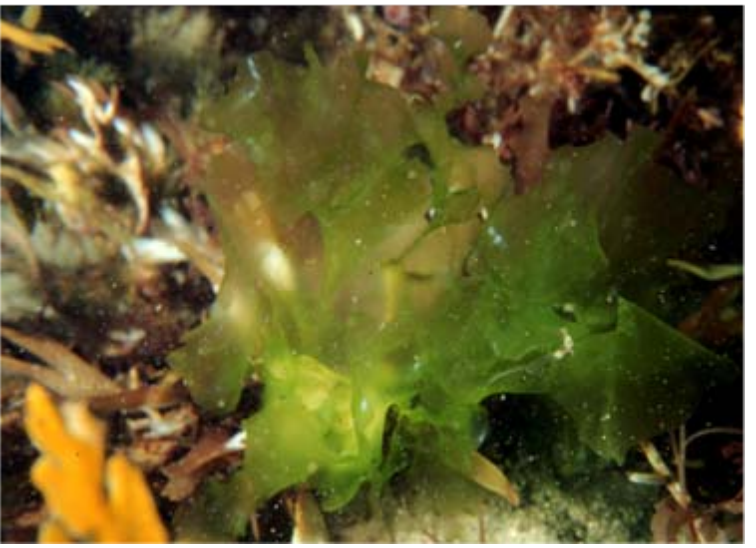
Abundant = frequent and numerous
Common = frequent and moderately abundant
Uncommon = infrequent and sparse
Rare = infrequent and extremely sparse
Local = present at only a few sites
Widespread = ubiquitous, present at most sites

Santa Barbara Coastal
Long Term Ecological Research

About the Santa Barbara Coastal Long Term Ecological Research Program

The Santa Barbara Coastal Long Term Ecological Research Program (SBC LTER) is part of the National Science Foundation's (NSF) Long Term Ecological Research (LTER) Network. NSF established the LTER Network in 1980 to support research on long-term ecological phenomena. The LTER Network is a collaborative effort involving more than 1100 scientists and students investigating ecological processes over long temporal and broad spatial scales. The 26 sites in the LTER network represent diverse ecosystems and research emphases. The Network promotes synthesis and comparative research across sites and ecosystems and among other related national and international research programs. The research focus of the SBC LTER is on ecological systems at the land-ocean margin. Although there is increasing concern about the impacts of human activities on coastal watersheds and nearshore marine environments, there have been few long-term studies of linkages among oceanic, reef, beach, wetland, stream, and terrestrial habitats. SBC LTER is helping to fill this gap by studying the effects of oceanic and coastal watershed influences on kelp forest ecosystems in the Santa Barbara Channel. Additional information on the research activities of SBC LTER can be found at http://sbc.lternet.edu.

Phylum Chlorophyta



Ulvoid spp.

Sea Lettuce

Identification: Very thin bright green algae with leafy transparent blades. Genera include *Ulva* and *Enteromorpha*.

Size: 5-20 cm blade length

Occurrence: Locally common

Cladophora graminea

Identification: Grows grayish-green to dark green tufts. Sometimes appear striped. Very long coarse filaments with few orders of branching in upper portions. Primarily dichotomous or trichotomous in lower portions.

Size: 4-10 cm in height

Occurrence: Locally common

Codium fragile

Dead Man's Fingers

Identification: Spongy, compact, tubular finger like branches extend from a broad base Color dark green to blackish-green. Often covered filamentous red algal epiphytes

Size: 10-40 cm in height, 10-20 cm common locally

Occurrence: Locally common on ridges at high relief sites.

Phylum Phaeophyta

Filamentous brown spp.

Identification: Tiny, finely branched, brown filaments which can form dense mats. Common genera include *Ectocarpus*, *Giffordia* and *Hincksia*.

Size: To 30 cm, 5-10 cm common locally

Occurrence: Widespread and abundant

Colpomenia spp.

Identification: Sac-like alga with broad basal attachment. Color from olive to medium brown.

Size: To 10 cm in diameter, 3-5 cm common locally

Occurrence: Common at island sites, uncommon locally

Dictyota spp.

Identification: Smooth thin blades with small indentations on the rounded tips. Olive to dark brown, often with iridescent margins. Dichotomous to pinnate branching arising from a branched stolon. No midrib.

Size: To 45 cm in height, 5-10 cm common locally, blades 1-2 cm wide

Occurrence: Widespread and common

Phylum Phaeophyta

Dictyopteris undulata

Identification: Distinct midrib running through branches. Thalli irregularly dichotomous with short terminal branches. Color yellowish-brown to olive with some iridescence.

Size: 8-12 cm in height, sometimes reaching 30 cm

Occurrence: Locally uncommon

Taonia lennebackerae

Identification: Thallus very thin and bladelike with no midrib. Light to medium brown in color. Blades often split or torn along the top margin at maturity.

Size: 10-30 cm in height

Occurrence: Locally common

Desmarestia ligulata

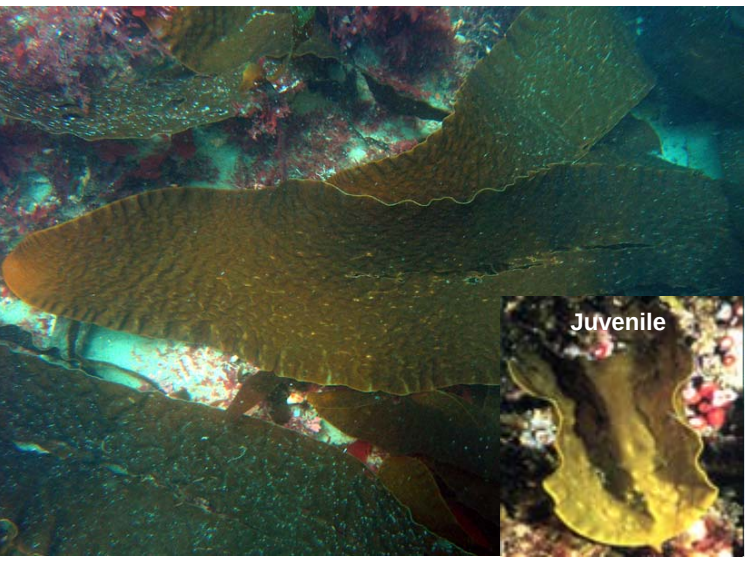
Acid Weed

Identification: Thin annual thalli with a midrib that rises from a small discoid holdfast. Olive to dark brown with fine branching in young specimens becoming broader with less branching in mature individuals. Blades lie low along substrate, can blanket the bottom at high densities.

Size: To 3 m locally

Occurrence: Widespread and abundant

Phylum Phaeophyta



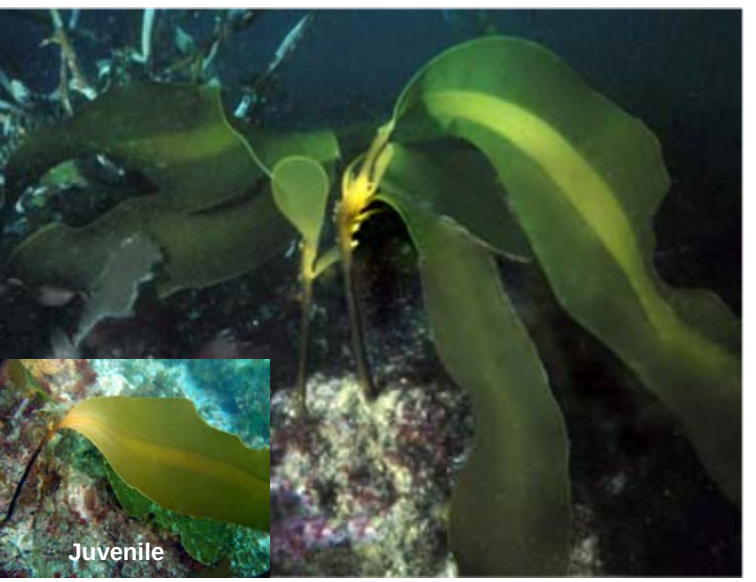
Laminaria farlowii

Oar Weed

Identification: Single long, wide blade with deep depressions in longitudinal rows. Dark brown color with short stipe and strong compact branching haptera.

Size: To 4 m in blade length, with up to a 7 cm stipe length

Occurrence: Locally common



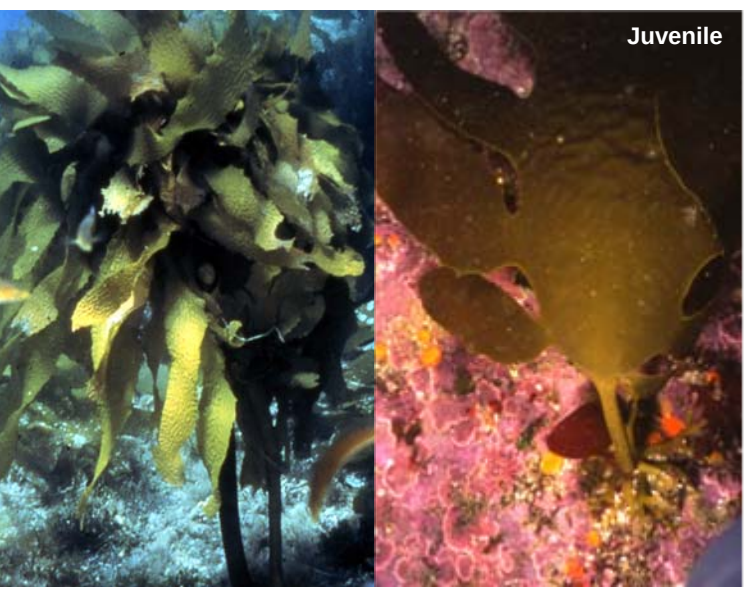
Pterygophora californica

Palm Kelp

Identification: Long woody stipe flattens at apex to support numerous lateral sporophylls and a terminal blade with a midrib. Medium to dark brown. Juvenile blades similar to *L. farlowii* but with thickening or midrib in center of blade.

Size: Stipe up to 1 m, blades 1-2 m locally

Occurrence: Widespread and abundant



Eisenia arborea

Southern Sea Palm

Identification: Erect tree-like stipe that terminates into two branches bearing leafy blades with toothed margins. Juveniles begin as a single blade with wavy lobes and spines around the edges (right picture)

Size: To 1-2 m in height

Occurrence: Abundant at island sites, rare on mainland reefs

Phylum Phaeophyta

Egregia menziesii

Feather Boa Kelp

Identification: Canopy forming kelp with a thick, flat stipe with numerous small ovate blades and floats along its entire length. Juvenile shown in left picture.

Size: To 5-15 m in height, blades to 8 cm in length

Occurrence: Locally common on shallow reefs

Macrocystis pyrifera

Giant Kelp

Identification: The largest of kelps possessing many round stipes each bearing numerous blades attached by gas filled floats. Large conical holdfast of root like haptera. Juvenile pictured in corner.

Size: To 30 m in length

Occurrence: Widespread and abundant

Cystoseira osmundacea

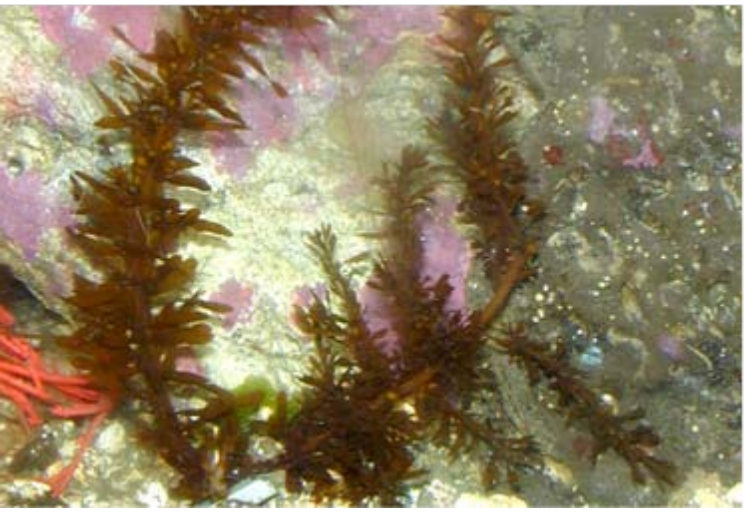
Bladder Chain Kelp

Identification: Dark brown to light tan bipinnate radial branches flattened in lower portion . Cylindrical holdfast often covered in epiphytes. Numerous reproductive fronds rise to the canopy annually, buoyed by many small gas filled bladders.

Size: Reproductive fronds to 8 m, blades 1-3 cm wide, thallus to 1 m tall

Occurrence: Widespread and common

Phylum Phaeophyta



Sargassum muticum

Wireweed

Identification: Large fucoid alga with small leaf like blades and toothed margins that occur singly along the thallus. Medium to dark brown in color. Small cylindrical nematocysts borne in clusters.

Size: To 2 m in height, blades to 10 cm long

Occurrence: Common at island sites, uncommon along the mainland

Phylum Rhodophyta

Scinaia confusa

Identification: Rose pink densely branched thallus. Tubular gel filled branches divided dichotomosly with pointed tips.

Size: 3-15 cm in height

Occurrence: Locally common

Gelidium robustum

Agarweed

Identification: Mostly compressed ovate dark red branches with unbranched basal axes. Lateral branchlets occasionally produce unbranched branchlets from flattened surfaces. Often covered by white encrusting bryozoans.

Size: To 40 cm, branches 2-5 mm wide

Occurrence: Locally abundant on ridges of high relief reefs.

Phylum Rhodophyta

Encrusting red spp.

Identification: General category used for encrusting leathery species of red algae that form a thin fleshy layer over hard substrates. Common genera: *Mastocarpus* and *Hildenbrandia*.

Size: Variable, patches 3-30 cm in diameter

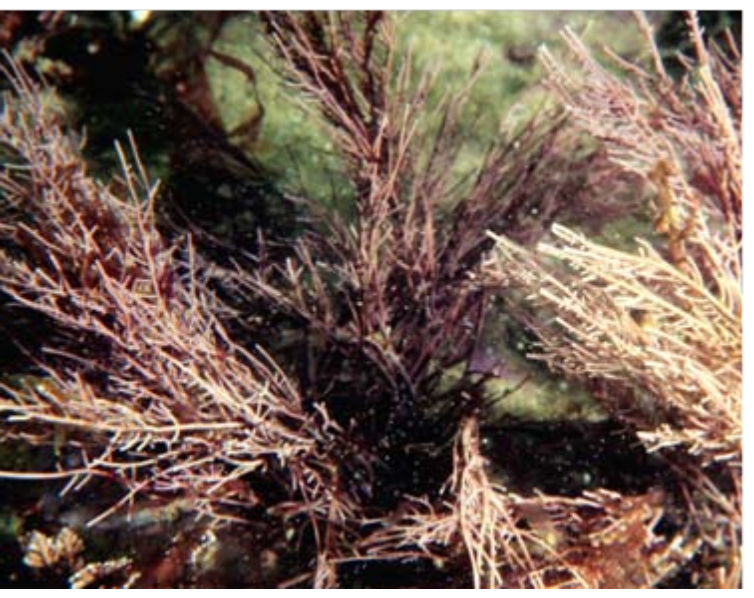
Occurrence: Locally common in urchin barren areas, uncommon elsewhere

Encrusting coralline spp.

Identification: Calcified crusts of pinkish algae that cover the surface of hard substrates. Often intermixed with other erect species of coralline algae. Common genera: *Pseudolithophyllum*.

Size: Variable

Occurrence: Widespread and abundant



Lithothrix spp.

Stone Hair

Identification: Thinly branched calcified alga. Dull purple to pink in color. Primary branching dichotomous, but irregular lateral branches, gives a stringy look. Branched in many planes

Size: To 13 cm in height

Occurrence: Rare

Phylum Rhodophyta

Corallina officinalis

Identification: Pink to purple calcified fronds with white tips. Bipinnate to tripinnate branches become shorter near apex and tend to lie in one plane.

Size: To 15 cm in height, 3-10 cm locally

Occurrence: Common and widespread

Bossiella orbigniana

Identification: Pink to purple calcified alga with numerous delicate branches. Branches articulated and nearly always dichotomous with thicker center. Wings curve convexly down midrib. Raised conceptacles in center of segments

Size: To 15 cm in height, 5-10 cm locally

Occurrence: Common and widespread

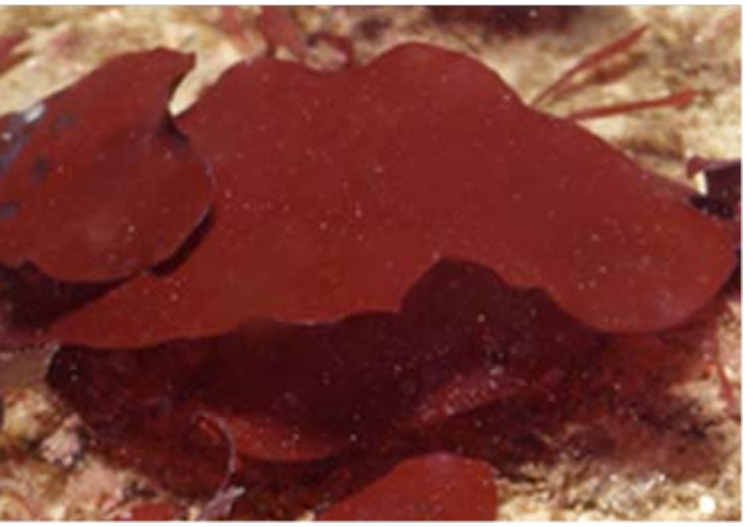
Calliarthron cheilosporioides

Identification: Articulate pink coralline alga with coarse pinnate branching. Branching sometimes dichotomous near base. Wings angle upward toward long axis of branch. Raised concepticles along the edge of segments

Size: To 30 cm tall, segments to 7 mm wide

Occurrence: Common at island sites, uncommon but widespread elsewhere

Phylum Rhodophyta

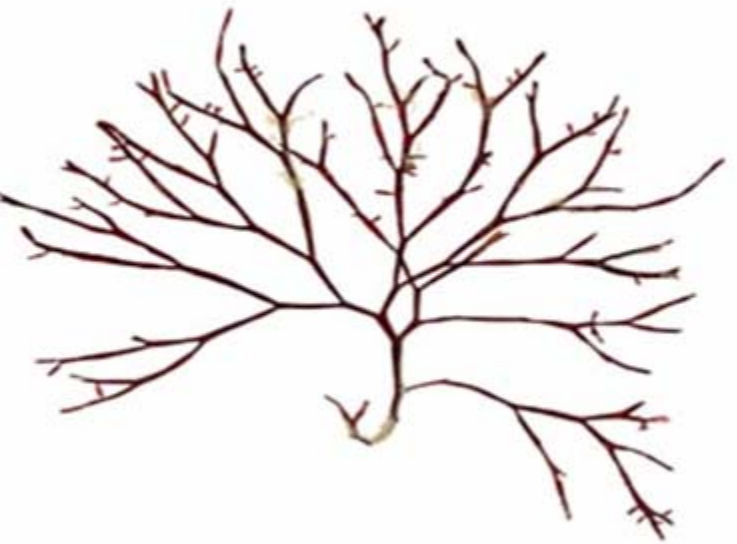


Bladey red spp.

Identification: General category used for species with large ovate blades that are difficult to distinguish (e.g. *Halymenia, Schizymenia).* Also includes small recruits of other species of large bladed algae (e.g., *Chondracanthus* spp).

Size: To 40 cm

Occurrence: Common and widespread



Prionitis spp.

Identification: Dichotomous or irregularly branched thalli. Deep red flattened blades lie in one plane. Blades taper at tips and branching junctions and often have small proliferations along the side. Local species: *augusta* and *linearis.*

Size: 10-25 cm in height locally

Occurrence: Rare

Prionitis lanceolata

Identification: 1-2 stipes originating from a discoid holdfast. Irregular branching blades pinnate, tapered to a sharp tip, and frequently longer toward base of plant. Dark red turning to yellow in color.

Size: 20-30 cm in height, branches 1-3 cm wide

Occurrence: Locally uncommon

Phylum Rhodophyta

Callophyllis flabellulata

Identification: Branched, firm cartilaginous thallus with apices of branches uneven and finely dissected. Blades without midrib or veins.

Size: 4-10 cm in height

Occurrence: Widespread and common

Sarcodiotheca furcata

Identification: Drab red color with irregular branching that is narrow below, arising from rounded stipes and a small discoid holdfast. Sharply terminated blades

Size: To 25 cm in height, blades 10-20 mm wide and to 1 mm thick

Occurrence: Widespread but uncommon

Gracilaria spp.

Identification: Numerous thin cylindrical branches arising from a discoid base. Radial branching in irregular directions.

Size: 6-20 cm tall, branches 2-5 mm broad

Occurrence: Widespread and common especially on reefs with sand channels and sand flats

Phylum Rhodophyta

Gymnogongrous spp.

Identification: Includes *G. leptophyllus, G. linearis and G. platyphyllus.* Thalli thick bushy and clumped. Similar to *Prionitis* but with large circular reproductive structures throughout that cover almost the entire width of the blade. Color dark red

Size: To 25 cm in height

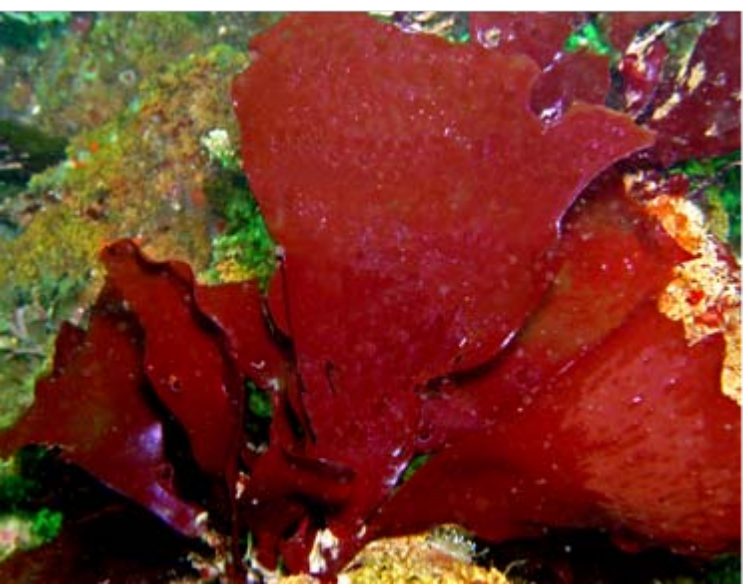
Occurrence: Locally uncommon

Stenogramme interrupta

Identification: Dichotomously branched. Resembles *Rhodymenia*, but has a discoid holdfast and an interrupted midrib when reproductive. May have dark blotches on blade. Color: deep red.

Size: 6-30 cm in height

Occurrence: Locally uncommon



Chondracanthus spp.

Formerly *Gigartina* spp., *Mazzaella californica*

Identification:. Broad, deep red blades sometimes iridescent, rarely divided but taper to a narrow holdfast. Larger blades are covered in bulbous papillae growths. Local species include *C. corymbiferus* and *C. exasperatus.*

Size: To 1 m in length, holdfasts to 1-5 cm wide

Occurrence: Widespread and abundant

Phylum Rhodophyta

Chondracanthus spinosa

Formerly *Gigartina spinosa*

Identification: Broad, deep red blades with main branches commonly narrow and repeatedly branched. Blades noticeably narrower than *C. corymbiferus* with larger papillae and numerous spine-like to bladelike branchlets.

Size: 20-30 cm in height, 4-6 cm wide

Occurrence: Locally common at shallow depths, rare elsewhere

Halosaccion glandiforme

Sea Nipples

Identification: Several simple sacs which originate from a single holdfast. Pink to dark purple in color. Bladder filled with seawater.

Size: Sac to 25 cm in length, 3-5 cm common locally

Occurrence: Widespread but rare. Occasionally found at Naples

Rhodymenia spp.

Identification: Includes *R. californica, R. pacifica, R. rhizoides* etc. Thalli bushy and clumped, one to many erect or spreading blades dichotomously or flabellately branched on short stipes. Color dark red to a bleached pink.

Size: To 15 cm in height

Occurrence: Widespread and abundant

Phylum Rhodophyta

Filiform red spp.

Identification: General category for red feather-like branching algae that are difficult to distinguish to species underwater. Common genera: *Microcladia, Ptilota, Neoptilota, Plocamium, Rhodoptilum*

Size: 10-50 cm in height

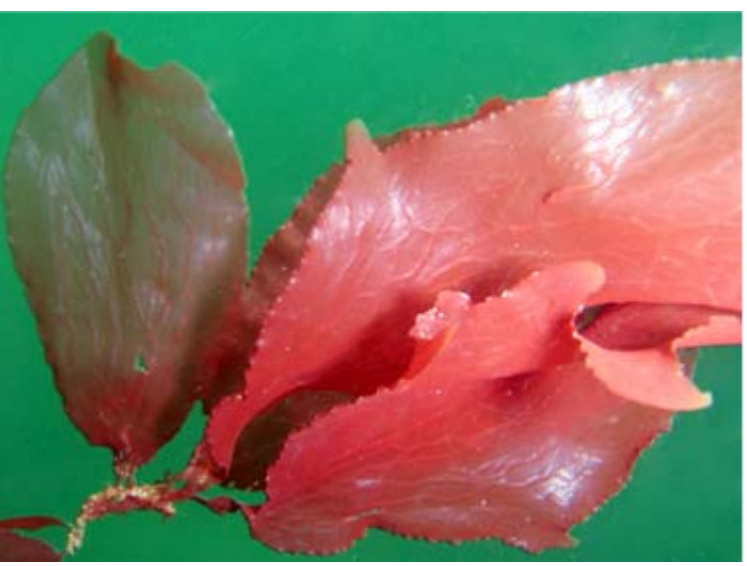
Occurrence: Widespread but uncommon

Phycodrys setchellii

Identification: Dark pink to brownish-red. Leaf-like dichotomous divisions from base with rounded apices, conspicuous percurrent midribs and lateral veins.

Size: To 20 cm in height

Occurrence: Widespread but uncommon



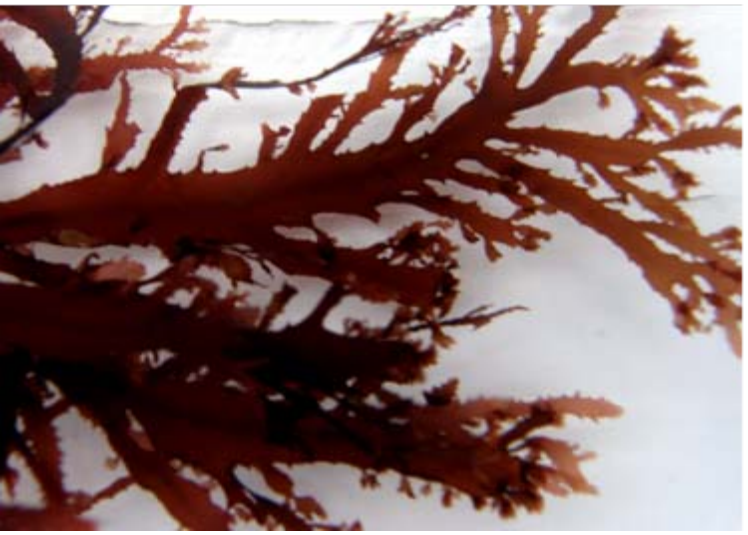
Polyneura latissima

Identification: Thin, pink to red crinkly blades with a net-like system of macroscopic veins. Blade margins entire when young, becoming uneven with age..

Size: 12-15 cm in length

Occurrence: Widespread and common

Phylum Rhodophyta



Nienburgia andersoniana

Identification: Alternating irregular branches with spines on margins usually in one plane. Upper portions have inconspicuous midrib with lateral veins.

Size: Main axes 1-2 cm broad, commonly 5-20 cm in height

Occurrence: Widespread and common

Acrosorium ciliolatum

Formerly *Acrosorium uncinatum*

Identification: Thin, ribbon-like, irregularly branched blades. Blades irregularly hooked at ends. Frequently epiphytic. Color deep rose red. Commonly found attached to *Diopatra ornata* tubes.

Size: 3-10 cm diameter clumps

Occurrence: Locally common

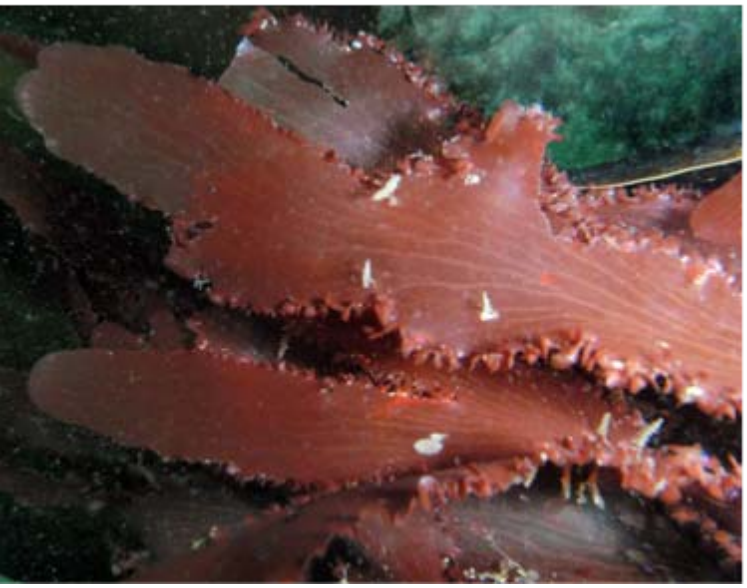
Cryptopleura spp.

Identification: Thalli differentiated into erect, ribbon-like bases. Blades characterized by a collection of macroscopic veins dividing and gradually spreading upward, becoming narrow and eventually microscopic.

Size: 10-30 cm in height

Occurrence: Locally uncommon

Phylum Rhodophyta



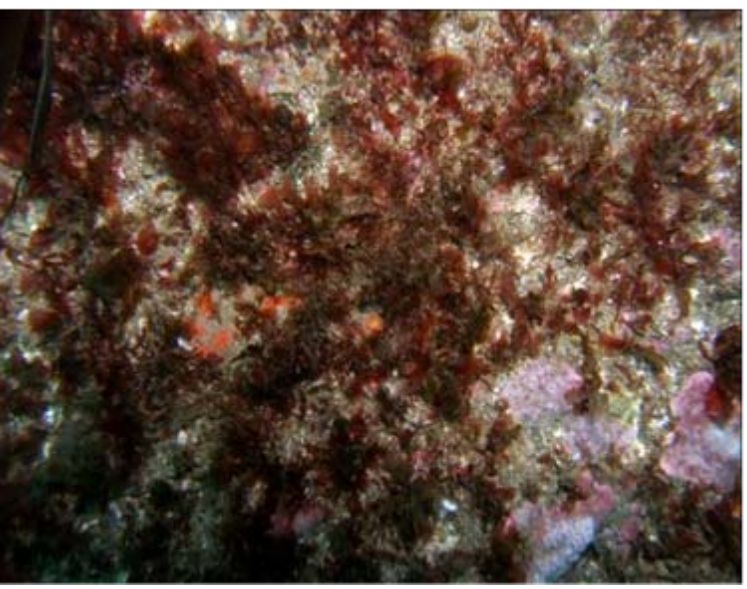
Cryptopleura farlowianum

Formerly *Botryoglossum farlowianum*
Grape Tongue

Identification: Large deep red slightly iridescent blades with visible veins and densely ruffled blade margins.

Size: Erect axes 10-50 cm in height, blades 2-3 cm wide

Occurrence: Widespread and common



Red turf spp.

Identification: Low growing turf consisting of filamentous and juvenile red algae. Common genera include: *Polysiphonia, Pterosiphonia,* and *Tiffaniella as well as* juveniles of many species that are difficult to tell apart.

Size: 1-3 cm in height

Occurrence: Widespread and common

Filamentous red spp.

Identification: Thin, finely branched polysiphonous red algae. Frequently forms tufts or clumps. Common genera include: *Ceramium, and Polysiphonia*

Size: To 20 cm in height

Occurrence: Widespread and common

Phylum Rhodophyta

Laurencia spp.

Identification: Erect bushy thalli with short stubby pinnate or radial branches ending in a blunt tip with terminal cystocarps. Color ranging from brown to rich red. Often encrusted with many epiphytes and silt.

Size: 3-10 cm in height

Occurrence: Locally common

Osmundea spectabilis

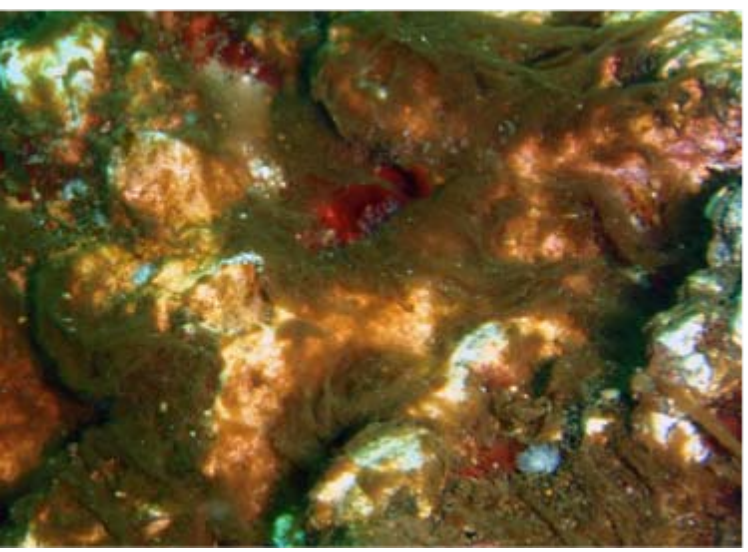
Formerly *Laurencia spectabilis*

Identification: Dense cluster of axes on a conical base. Blades are thick, pinnate, flattened, with round tips. Texture: tough, elastic. Color: purplish red.

Size: To 30 cm

Occurrence: Locally uncommon

Phylum Bacillariophyta



Benthic Diatoms

Identification: Common yellow-brown algae forms a fuzzy film or mat on rocks and other hard substrates. Delicate strands of these diatoms look like filamentous brown algae but break apart when touched. Common genera: *Vaucheria*

Size: Mats usually under 1 cm tall but can cover several meters of reef. Occasionally 2-4 cm tall strands form and can also cover large areas of reef.

Occurrence: Widespread and abundant

Phylum Magnoliophyta

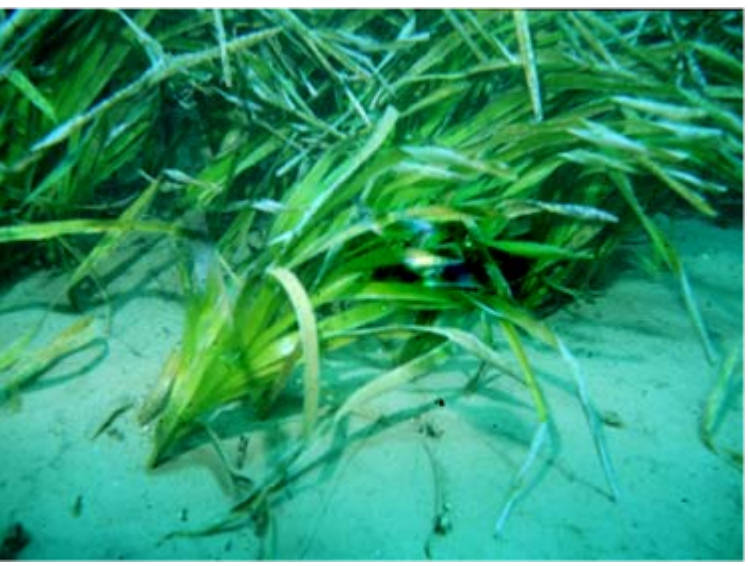
Phyllospadix torreyi

Surfgrass

Identification: Bright green narrow wiry leaves with flowering stems arising from a densely mingled rhizomous mat. Separate sexes. Flowers arranged in spadices.

Size: Leaves 2-4 mm wide, 1-2 m long.

Occurrence: Widespread and common at shallow depths



Zostera marina

Eelgrass

Identification: Dull, light green, strap-like leaves with long flowering stems. Monecious. Flowers inconspicuous in spadices.

Size: Leaves 6-12 mm wide and 30-150 cm long, flowering stems 1-3 m long

Occurrence: Locally abundant in sand at protected sites

Phylum Porifera

Leucilla nuttingi

Urn Sponge

Identification: Urn-shaped, cream white with a single osculum at the distil end. Usually found in groups of 5-10 individuals.

Size: To 4 cm tall

Occurrence: Widespread and common

Spheciospongia confoederata

Moon Sponge

Identification: Massive, smooth gray sponge, leathery in texture, with numerous crater-like oscula on outer ridge.

Size: To 1 m long and 30 cm thick

Occurrence: Locally common

Tethya californiana

Formerly *Tethya aurantia*

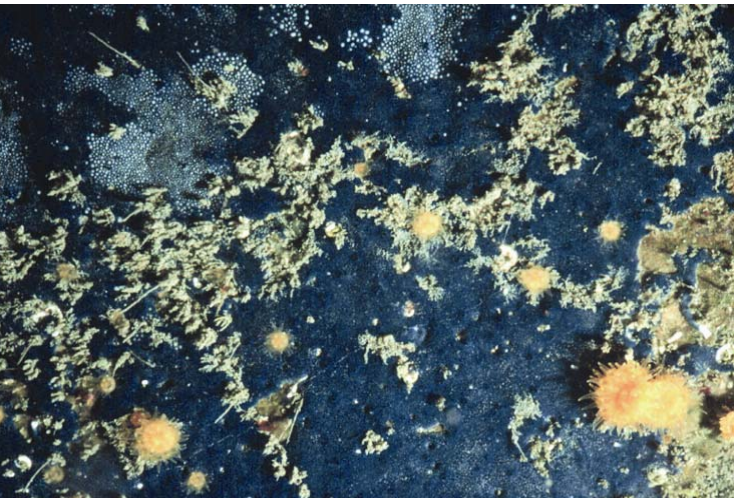
Orange Puffball Sponge

Identification: Porous, globose sponge with very rough outer surface. Color ranges from orange to yellow. Cylindrical or ball shaped.

Size: To 8 cm in diameter

Occurrence: Common and widespread

Phylum Porifera



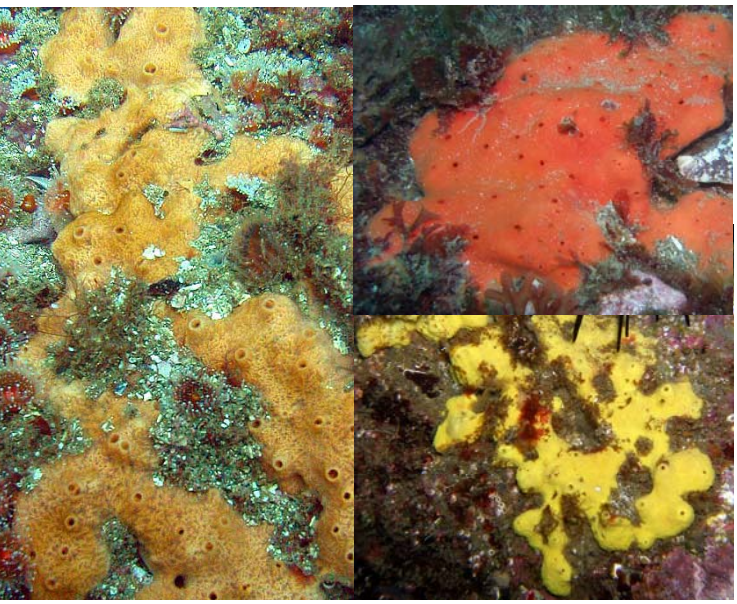
Acanthancora cyanocrypta

Formerly *Hymenamphiastra cyanocrypta*
Cobalt Sponge

Identification:. Thin encrusting sponge. Cobalt blue in color.

Size: To 1 m

Occurrence: Uncommon



Encrusting sponge spp.

Identification: Encrusting growth form. Numerous species that vary widely in color. Species distinguished by spicules.

Size: Commonly cover 30 cm or more and can be up to 5 cm thick, usually thin 1-3 cm

Occurrence: Widespread and abundant

Phylum Cnidaria

Aglaophenia spp.

Ostrich-Plume Hydroid

Identification: Large feather-like brown plumes consisting of a central stalk with numerous alternating pinnate branches. Local species include *A. latirostris* , *A. struthionides, A. epizoica,* and *A. inconspicua.*

Size: To about 12 cm in height

Occurrence: Widespread and abundant

Phylum Cnidaria

Abietinaria spp.

Coarse Sea Fir Hydroid

Identification: Large, flask-shaped polyp with pinnate alternate branching. There are over seven known species found locally.

Size: To 5 cm in height

Occurrence: Widespread and common

Obelia spp.

Wine-Glass Hydroid

Identification: Long, branching colonies that have polyps with clear sheaths. Often covered in silt, resulting in a brownish appearance. There are over four known species found locally, some of which are believed to be introduced. Species distinguished by branching pattern. Common species are often dichotomously branched.

Size: To 10 cm in height

Occurrence: Uncommon

Plumularia spp.

Hydroid

Identification: Colony of upright feather-shaped plumes. There are over five known species found locally.

Size: To 2 cm in height

Occurrence: Widespread and abundant

Phylum Cnidaria

Urticina piscivora

Fish Eating Anemone

Identification: Deep, red column with tentacles that are usually white, but occasionally red.

Size: Crown diameter to 20 cm, locally 2-5 cm

Occurrence: Uncommon

Urticina lofotensis

White-Spotted Rose Anemone

Identification: Column is very distinctive red, with white spots. Tentacles are scarlet to crimson.

Size: Crown diameter to 10 cm

Occurrence: Widespread and common

Anthopleura sola

Aggregating Anemone

Identification: Longitudinal rows of adhesive tubercles on column, and the tentacles are short and abundant. Striped oral disc. Occur in aggregations or as solitary individuals.

Size: Crown diameter up to 9 cm

Occurrence: Widespread and common

Phylum Cnidaria

Anthopleura artemisia

Moonglow Anemone

Identification: Many different color variations, white bands on arms, central disk often buried in sand.

Size: Crown diameter 2-4 cm locally

Occurrence: Widespread and abundant

Anthopleura xanthogrammica

Giant Green Anemone

Identification: Found as solitary individuals. Covered with abundant adhesive tentacles that are short, conical, and either pointed or blunt. Usually greenish in color.

Size: Crown diameter up to 25 cm

Occurrence: Locally common

Phyllactis spp.

Sand Anemone

Identification: Short, slender, clear tapering tentacles that have black stripes. Oral disk level with sand surface and covered with sand particles.

Size: Crown diameter 1-3 cm locally

Occurrence: Widespread and abundant

Phylum Cnidaria

Corynactis californica

Club-Tipped Anemone

Identification: Small colonial anemone with bulbous-tipped tentacles. Color of column varies from orange, white, red, purple, pink, to almost white.

Size: Diameter up to 2.5 cm

Occurrence: Widespread and abundant

Astrangia lajollaensis

Aggregating Cup Coral

Identification: Small solitary hard corals forming large colonies. The stony cups are brownish-orange and tentacles are yellowish-orange.

Size: 1 cm in diameter

Occurrence: Widespread and common

Balanophyllia elegans

Orange Cup Coral

Identification: Solitary orange cup-shaped hard coral with orange tentacles. Each tentacle has wart-like nodules.

Size: Diameter up to 2.5 cm

Habitat: Widespread and common

Phylum Cnidaria

Paracyathus stearnsi

Brown Cup Coral

Identification: Large, brown, solitary hard corals with long, semi-transparent tentacles.

Size: Diameter to 3 cm

Occurrence: Uncommon

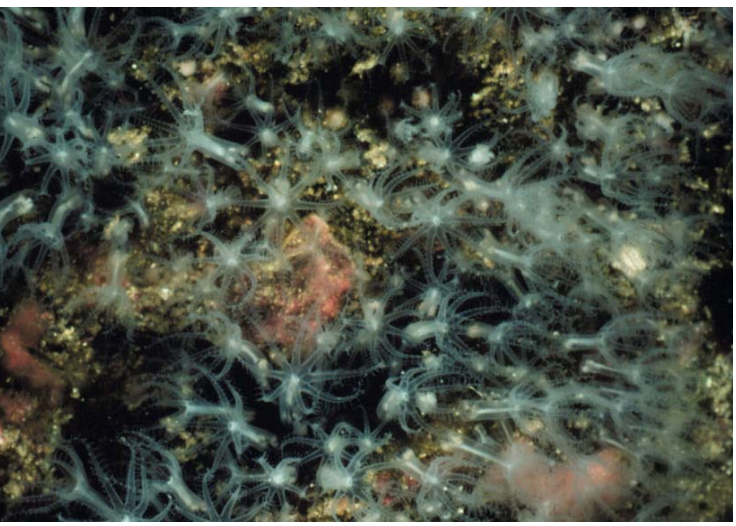
Pachycerianthus fimbriatus

Tube Dwelling Anemone

Identification: Long, slender outer tentacles and shorter inner tentacles. Soft body protected by parchment-like tube. Tentacles may vary in color from tan, or orange to purple.

Size: Tube height to 30 cm, diameter to 4 cm

Occurrence: Widespread and common



Alcyonium rudyi

Octocoral

Identification: A colonial soft coral that has cream to pink polyps each with eight branched tentacles.

Size: Polyps to 2.5 cm, colony diameter 5-50 cm

Occurrence: Uncommon

Phylum Cnidaria

Muricea californica

California Golden Gorgonian

Identification: Thick brown branches. Yellow polyps distinguish it from brown gorgonian.

Size: To about 1 meter

Occurrence: Locally abundant

Muricea fruticosa

Brown Gorgonian

Identification: Sea fan with thick brown to brownish-red branches and white polyps, usually in one plane.

Size: To about 1 meter

Occurrence: Locally common

Lophogorgia chilensis

Red Gorgonian

Identification: Sea fan with red branches and white polyps. Branches are not in a single plane.

Size: To about 1 meter

Occurrence: Locally common

Phylum Annelida

Cirriformia luxuriosa

Identification: Polychaete with long slender tentacles of reddish branchiae and orange-red tentacular filaments (dense cluster on dorsum). Few black spines from sides of body from middle to posterior end.

Size: To 15 cm

Occurrence: Uncommon

Dodecaceria fewkesi

Colonial Tube Worm

Identification: Calcareous tubes clustered into colonies with exposed dark brown to black tentacles.

Size: Length up to 4 cm, tube diameter up to 5 mm

Occurrence: Locally common

Phragmatopoma californica

Colonial Sand Tube Worm

Identification: Extensive colonies. Tubes constructed of cemented sand. Short lavender tentacles. Common in *Macrocystis* holdfasts.

Size: Tube diameter to 1 cm, colony diameter to 2 m

Occurrence: Widespread and abundant

Phylum Annelida

Diopatra ornata

Ornate Tube Worm

Identification: Tubes usually completely covered with attached pieces of shell, algae, or other debris. Common in sand or cobble.

Size: To 7 cm tall

Occurrence: Widespread and abundant

Salmacina tribranchiata

Fragile Tube Worm

Identification: Small whitish tubes that form tangled complex masses. Short red-orange tentacles.

Size: Tube diameter < 2 mm, colony diameter to 30cm

Occurrence: Uncommon

Pista elongata

Identification: Solitary tubes terminate in a globular shaped, reticulated network of fibers

Size: To 8 cm tall

Occurrence: Uncommon

Phylum Annelida

Eudistylia polymorpha

Feather Duster Worm

Identification: A solitary tube worm identified by its feathery plume of branched gills. Varies in color from tan to orange to purple. Will retract gills into tube rapidly if disturbed.

Size: Plume diameter to 5 cm

Occurrence: Locally abundant

Sabellid spp.

Identification: Worms in the family Sabellidae. All species will retract into tubes when disturbed. Local species include *Myxicola infundibulum, Sabella crassicornis, Pseudopotamilla occelata,* and *Bispira turneri*.

Size: Plume diameter to 3 cm

Occurrence: Widespread and common

Phylum Mollusca

Haliotis corrugata

Pink Abalone

Identification: Shell is thick and rounded with a scalloped edge and is usually heavily fouled. Two to four raised shell holes remain open. Tentacles are black and the epipodium is mottled black and white.

Size: To 25 cm

Occurrence: Uncommon

Phylum Mollusca

Haliotis rufescens

Red Abalone

Identification: Shell usually brick-red, occasionally with bands of green or white. Usually a black epipodium and tentacles but some have a barred black and cream pattern. Three to four of the holes are open.

Size: To 30 cm

Occurrence: Uncommon

Haliotis assimilis

Formerly *Haliotis kamtschatkana*

Threaded Abalone

Identification: Flat oblong shell with four to eight open holes that are slightly raised. Mottled pale yellow to dark brown epipodium with yellowish-brown, short and thin tentacles.

Size: To 18 cm

Occurrence: Rare

Megathura crenulata

Giant Keyhole Limpet

Identification: Mantle color varies from black to mottled gray and usually covers the entire shell. Shell has a large opening in the center.

Size: To 25 cm

Occurrence: Widespread and common

Phylum Mollusca

Megastraea undosa

Formerly *Lithopoma undosum*
Wavy Turban Snail

Identification: Heavily sculptured or low, spiral shell that is frequently covered with encrusting coralline algae.

Size: To 11 cm

Occurrence: Locally abundant

Serpulorbis squamigerus

Scaled Worm Snail

Identification: Shell is a partially coiled tube attached to substrates. No operculum. Usually occurs in aggregations.

Size: To 12 cm long, diameter to 1.5 cm

Occurrence: Uncommon

Cypraea spadicea

Chestnut Cowry

Identification: Smooth shell with a brown dorsal surface and white margins on the ventral side. Foot and mantle are orange-brown with dark spots.

Size: To 8 cm

Occurrence: Widespread and common

Phylum Mollusca

Norrisia norrisi

Norris' Top Snail

Identification: Red-brown flattened spiral shell with a bright red foot.

Size: 2-4 cm locally

Occurrence: Uncommon

Turban Snails

Formerly *Tegula* spp.

Identification: Shell is typically a smooth, rounded-conical shape. Shell color varies and is often covered by encrusting organisms. Foot with dark brown or black sides, white or cream color below. Includes species in the genera *Chlorostoma*, *Agathistoma*, and *Promartynia*.

Size: To 3 cm in diameter

Occurrence: Locally common

Pteropurpura trialata

Three-Winged Murex

Identification: Three distinctive wing-like processes protrude from the central shell, one on top and one to each side. Brown bands common on shell.

Size: 3-7 cm locally

Occurrence: Uncommon

Phylum Mollusca

Kelletia kelletia

Kellet's Whelk

Identification: White or gray, robust shell with heavy sculpturing crossed by thin spiral lines. Skin is yellow, mottled with black and white markings.

Size: To 18 cm

Occurrence: Locally abundant

Small whelk spp.

Identification: Category for small whelk shaped snails. May include juvenile *Kelletii* or other genera such as *Pteropurpura.*

Size: To 2.5 cm in diameter

Habitat: Locally common

Mitra idae

Ida's Miter

Identification: Dark brown, smooth shell covered with a black periostracum. The foot is white.

Size: To 8 cm in length

Occurrence: Uncommon

Phylum Mollusca

Conus californicus

California Cone Snail

Identification: Smooth, light brown shell with a transparent to white foot and a black proboscis.

Size: To 4 cm in length

Occurrence: Widespread and common

Aplysia californica

California Brown Sea Hare

Identification: Color varies from reddish to brownish, and/or greenish, overlaid with dark lines and spots.

Size: Can exceed 40 cm

Occurrence: Widespread and common

Aplysia vaccaria

California Black Sea Hare

Identification: Body dark reddish brown to black, with white speckled patches. Distinguished from *A. californica* by larger size.

Size: To 75 cm

Occurrence: Uncommon

Phylum Mollusca

Crassedoma giganteum

Formerly *Hinnites giganteus*
Rock Scallop

Identification: Orange mantle. Adults cemented to substrate and have thick valves with spines protruding from ribs.

Size: Shell diameter up to 20 cm

Occurrence: Widespread and common

Mytilus californianus

California Mussel

Identification: Shell thick, pointed at anterior end, broad at posterior, sculptured with strong radial ridges and irregular growth lines. Surface often eroded or worn. Blue-black in color.

Size: 5-10 cm

Occurrence: Locally abundant

Chaceia ovoidea

Wart-Neck Piddock

Identification: Boring clam, with distinct dark brown siphon which usually protrudes from rock 3-5 cm..

Size: To 12 cm in length

Occurrence: Widespread and abundant

Phylum Mollusca

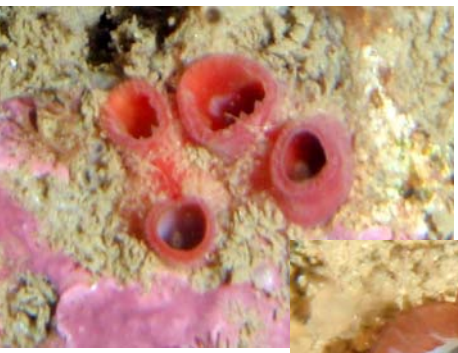
Parapholas californica

Scaleside Piddock

Identification: Boring clam, with white siphon that usually has reddish-brown spots and blotches.

Size: Shell length up to 15 cm, siphon diameter 2-4 cm locally

Occurrence: Widespread and abundant



Pholad spp.

Identification: Only the siphons may be visible in this family of boring clams. May include juvenile *Parapholas californica*, juvenile *Chaceia ovoidea*, *Penitella spp*., and *Hiatella arctica*.

Size: Siphon diameter 1-2 cm

Occurrence: Locally common

Octopus spp.

Identification: Arms usually reach 3-5 times the length of the body. Color varies with background and mood. Local species include *O. bimaculoides* (featured here) and *O. rubescens.*

Size: Arm span up to 300 cm

Occurrence: Uncommon

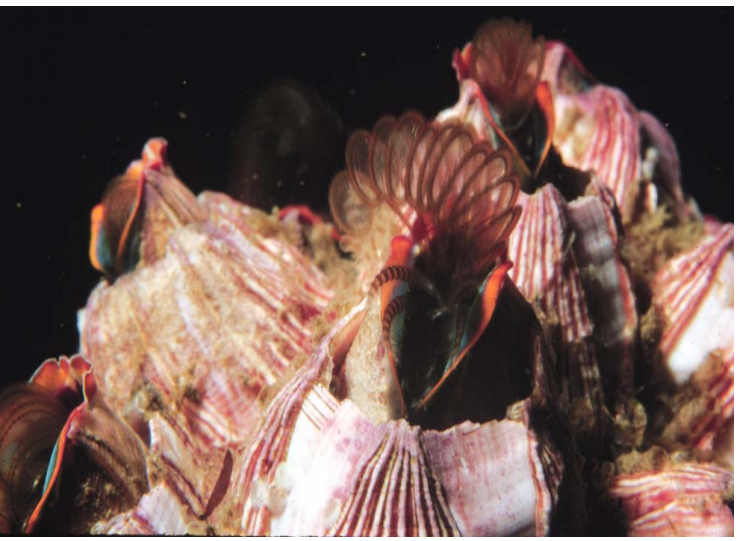
Phylum Arthropoda

Tubiculous amphipod spp.

Identification: Colonies of small tube forming amphipods often intermixed with other small invertebrates and algae. Spongy texture. Color is usually dark brown to tan.

Size: 1-2 mm tube diameter

Occurrence: Locally common



Megabalanus californicus

Barnacle

Identification: This species is one of the most common and conspicuous of the many barnacles found locally. Longitudinal red and white striped plates protect the feeding tentacles and body. Often found in clusters.

Size: Basal diameter to 6 cm, height to 5 cm

Occurrence: Widespread and common

Panulirus interruptus

California Spiny Lobster

Identification: Large reddish brown decapod crustacean with long antennae covered with small sharp spines. Anterior portion of the thorax with sharp spines. Large spines on tail. Claws absent.

Size: To 60 cm

Occurrence: Widespread and common

Phylum Arthropoda

Loxorhynchus grandis

Sheep Crab

Identification: Large spider crab with robust, oval carapace covered with spines and tubercles. Males have larger chelipeds (claws) than females.

Size: Carapace to 25 cm in width, up to 1 m leg span

Occurrence: Widespread and common

Pugettia producta

Kelp Crab

Identification: Smooth carapace with yellowish brown to reddish coloring. Feeds on algae.

Size: Carapace to 9 cm in width

Occurrence: Widespread and common

Cancer spp.

Cancer Crab

Identification: Oval shaped carapace. Body and legs may be hairy or smooth. Local species include *C. antennarius, C. gracilis, C. productus*, and *C. anthonyi*.

Size: Carapace to 18 cm in width

Occurrence: Uncommon

Phylum Ectoprocta

Phidolopora labiata

Lattice-Work Bryozoan

Identification: Upright colonies form a mass of lattice-like structures, usually orange.

Size: Diameter to 20 cm, height to 10 cm

Occurrence: Uncommon

Bugula californica

Spiral Bryozoan

Identification: Colony composed of fronds that have spiral whorls of branches. White to orange in color.

Size: To 8 cm in height, diameter to 50 cm

Occurrence: Widespread and abundant

Bugula neritina

Identification: Bushy colonies of erect branching fronds, reddish brown or purple in color. Branches curve slightly inward toward central axis.

Size: To 15 cm in height, diameter to 20 cm

Occurrence: Widespread and common

Phylum Ectoprocta

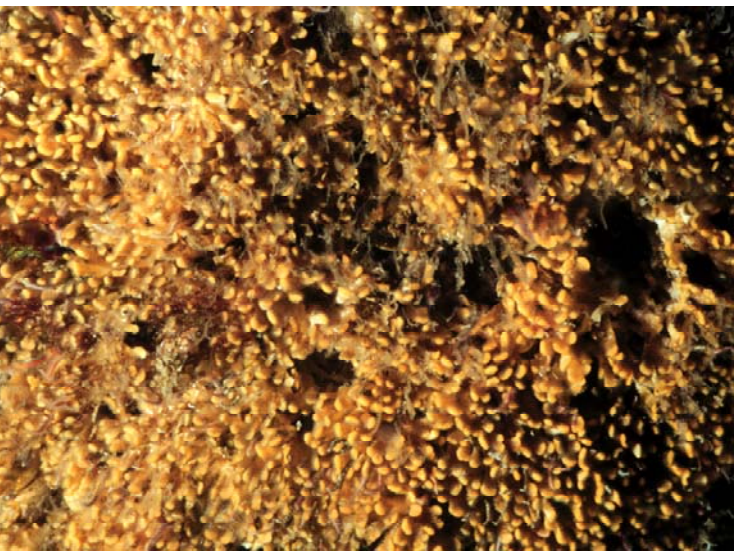
Hipporina mexicana

Formerly *Hippodiplosia insculpta*
Southern Fluted Bryozoan

Identification: Colonies consist of erect, fan-like, curled folds. Color is typically light yellow to orange and tan.

Size: To 10 cm in height, diameter to 13 cm

Occurrence: Uncommon



Diaperoforma californica

Formerly *Diaperoecia californica*
Southern Staghorn Bryozoan

Identification: Colonies calcified in coral-like masses, with flattened branches. Color varies from light to dark yellow.

Size: Height to 10 cm, colony diameter to 30 cm

Occurrence: Widespread and abundant

Heteropora pacifica

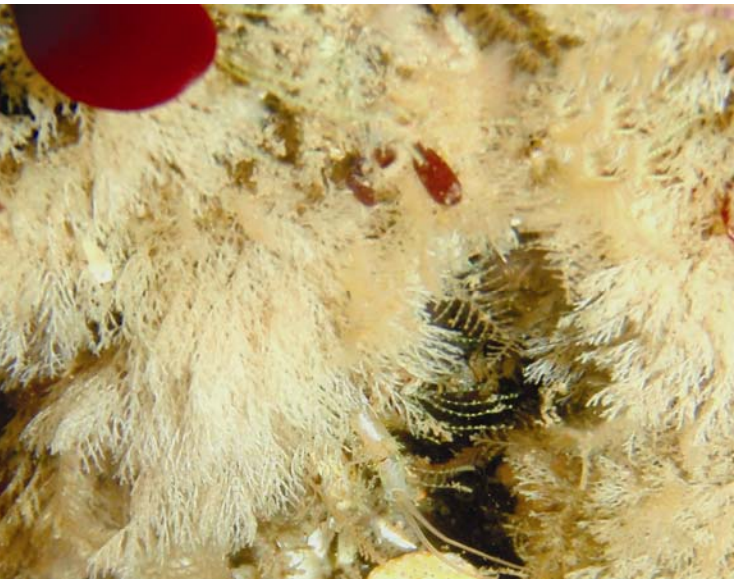
Northern Staghorn Bryozoan

Identification: Calcified colonies often mistaken for coral because of their superficial resemblance. Cross sections of colony branches are round. Typically light yellow to cream in color.

Size: To 10 cm in height, colony diameter to 15 cm

Occurrence: Uncommon at mainland sites, common at island sites

Phylum Ectoprocta



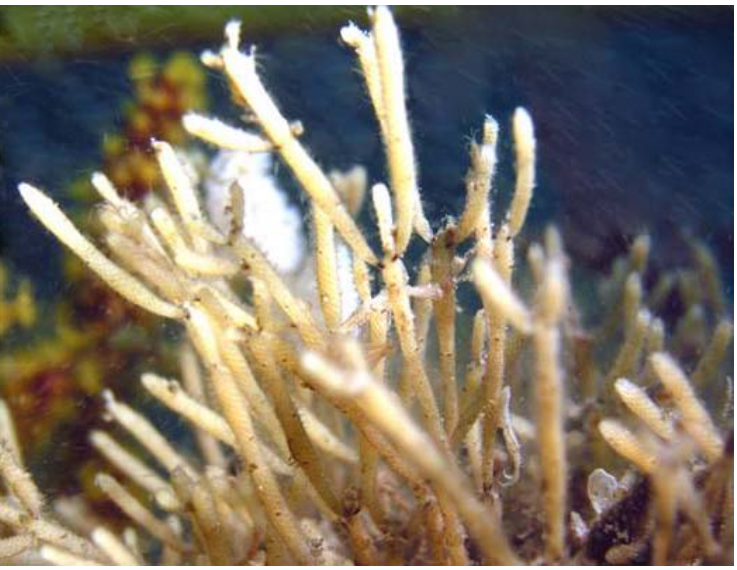
Crisia occidentalis

White Tuft Bryozoans

Identification: White erect fragile colonies with a branching, bushy structure. Tubular zooids with round terminal apertures.

Size: To 3 cm in height

Occurrence: Widespread and abundant

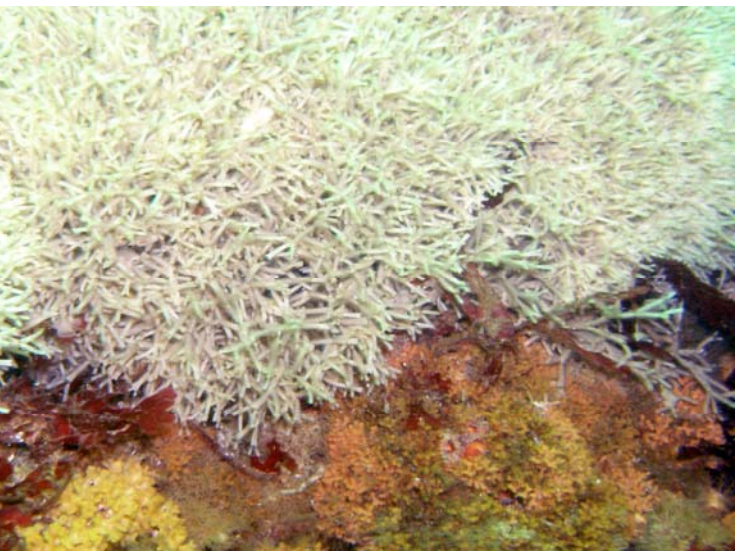


Cellaria spp.

Identification: Dichotomous 'Y'-shaped branching pattern emphasized at tips. Long circular nodes. Dull white in color with dark joints. Local species include *C. difusa* and *C. madibulata*.

Size: To 8 cm in height, colony diameter to 30 cm

Occurrence: Uncommon



Thalamoporella californica

Identification: White to off-white colonies with many dichotomously branched projections and a basal crust.

Size: To 15 cm in height, colony diameter variable up to 2 m

Occurrence: Widespread and abundant

Phylum Ectoprocta

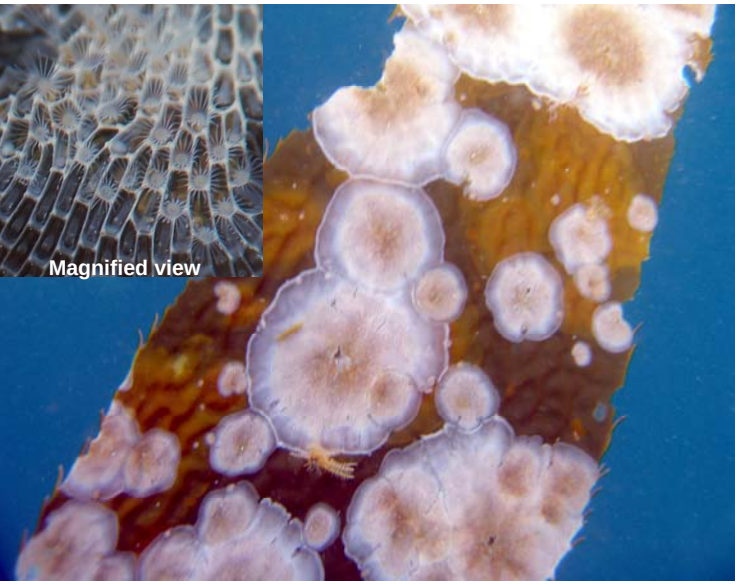
Celleporina robertsoniae

Formerly *Costazia robertsoniae*
Orange Bryozoan

Identification: Colonies formed of erect single or forked nodules. Often fuzzy in appearance. Color is typically orange to red-orange. Typically epiphytic.

Size: Height to 5 cm, colony diameter to 8 cm

Occurrence: Widespread and uncommon



Membranipora serrilamella

Encrusting Bryozoan

Identification: Small white zooids forming crustose colonies having a honeycomb appearance. Usually epiphytic. Seen here on *Macrocystis.*

Size: Variable

Occurrence: Widespread and abundant

Encrusting bryozoan spp.

Identification: Colonies can become one of the dominant species under kelp canopies and in low light areas under ledges and on walls . Color variable, requires a dissecting scope for species identification.

Size: Variable

Occurrence: Widespread and abundant

Phylum Echinodermata

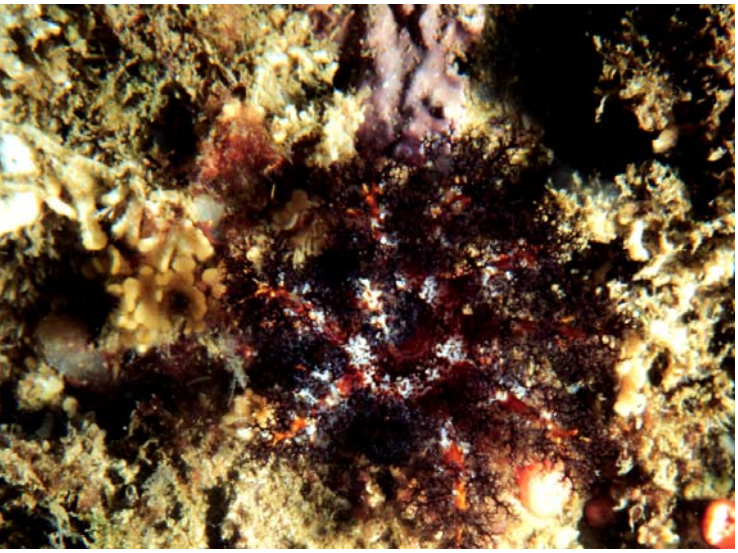
Cucumaria miniata

Red Sea Cucumber

Identification: Bright orange cucumber with 10 branched tentacles and 5 rows of tube feet.

Size: To 25 cm in length

Occurrence: Uncommon

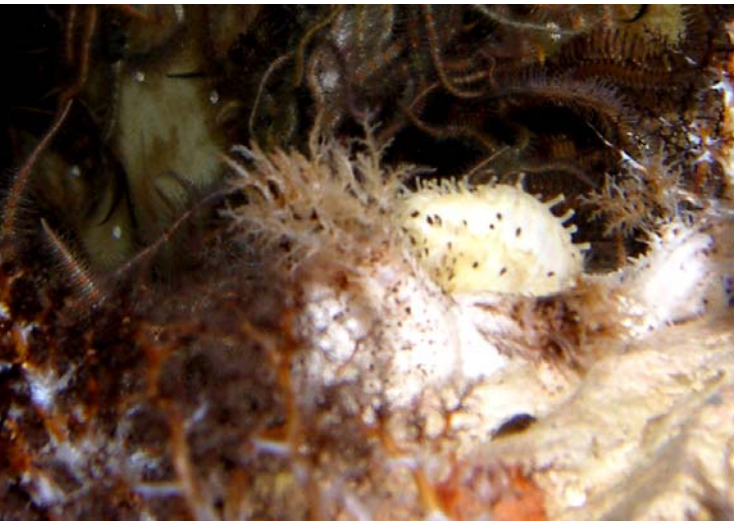


Cucumaria salma

Identification: Body salmon to orange color with 5 rows of tube feet. Tentacles black and goldish yellow, with white banding.

Size: To 15 cm in length

Occurrence: Locally common



Cucumaria piperata

Salt and Pepper Cucumber

Identification: Small cucumber with 10 branched tentacles. Usually white, with brown or black speckles.

Size: To 6 cm in length, 2-4 cm common locally

Occurrence: Widespread and common

Phylum Echinodermata

Eupentacta quinquesemita

White Sea Cucumber

Identification: Small white to cream colored sea cucumber. Cannot completely retract its rows of long tube feet.

Size: To 8 cm in length

Occurrence: Widespread and common

Pachythyone rubra

Identification: Small cucumber, with white to brown feeding tentacles. Body color varies, can be brown, white, or orange. Tube feet are scattered over entire body and can retract completely.

Size: To 5 cm in length, 1-3 cm common locally

Occurrence: Locally common

Lissothuria nutriens

Identification: Thick body wall without scales. Dorsal surface is orange to red in color. Flattened ventral side with three rows of tube feet and pale pink in color. Mouth and anus directed upward. 10 clear to pale orange branched tentacles.

Size: To 2 cm in length

Occurrence: Widespread and common

Phylum Echinodermata

Parastichopus californicus

California Sea Cucumber

Identification: Dark red, brown, or yellow sea cucumber has stiff, conical papillae. Tube feet only on ventral surface.

Size: To 40 cm in length

Occurrence: Locally uncommon

Parastichopus parvimensis

Warty Sea Cucumber

Identification: Brown to orange sea cucumber is covered with small black-tipped papillae or pseudospines. Tube feet located on ventral surface.

Size: To 25 cm in length

Occurrence: Widespread and abundant

Lytechinus anamesus

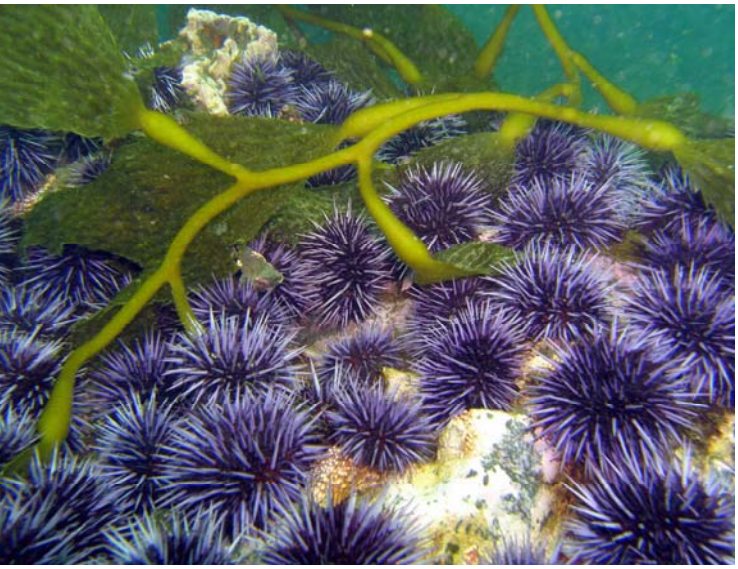
White Sea Urchin

Identification: Small sea urchin with sharp, short white spines. Test is usually white with dark blotches.

Size: To 8 cm test diameter, 2-4 cm common locally

Occurrence: Widespread and uncommon

Phylum Echinodermata



Strongylocentrotus purpuratus

Purple Sea Urchin

Identification: Medium sized sea urchin with short purple spines. Frequently bores depressions in rocks. Occasionally juveniles less than 2.5 cm have greenish-white spines.

Size: To 8 cm test diameter

Occurrence: Widespread and abundant

Strongylocentrotus franciscanus

Red Sea Urchin

Identification: Large urchin with sharp, long spines. Color ranges from red to dark reddish-purple to black.

Size: To 25 cm test diameter

Occurrence: Widespread and abundant

Patiria miniata

Formerly *Asterina miniata*

Bat Star

Identification: This webbed sea star varies greatly in color. Lacks pedicellariae or spines. Number of arms usually 5, but can be 4 to 9.

Size: To 20 cm in diameter

Occurrence: Widespread and abundant

Phylum Echinodermata

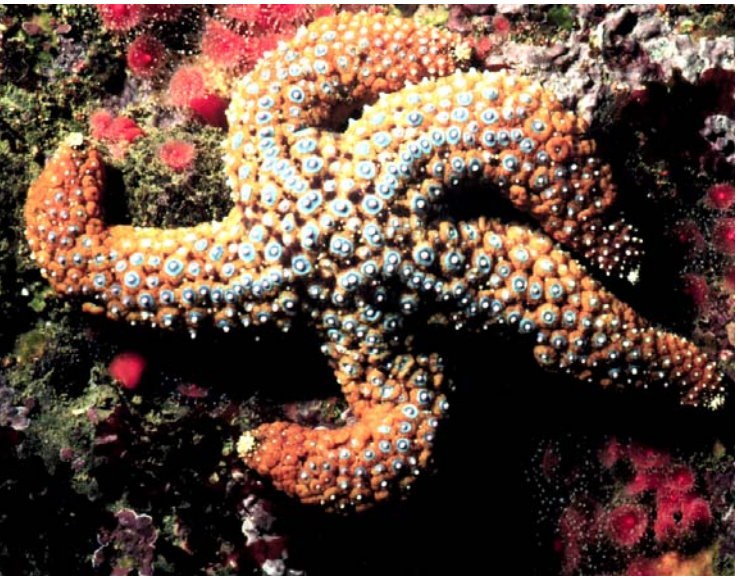
Pisaster brevispinus

Short Spined Sea Star

Identification: Five armed sea star. Pink to white in color. Short aboral spines.

Size: To 60 cm in diameter

Occurrence: Widespread and common



Pisaster giganteus

Giant Spined Sea Star

Identification: This sea star has long uniformly spaced spines with swollen tips. Each spine is surrounded by a blue circle.

Size: To 60 cm in diameter

Occurrence: Widespread and abundant

Pisaster ochraceus

Ochre Sea Star

Identification: Thick armed star with numerous small white spines on the aboral surface arranged in a reticular pattern. Color varies.

Size: To 35 cm in diameter

Occurrence: Widespread and common

Phylum Echinodermata

Dermasterias imbricata

Leather Star

Identification: This sea star feels smooth and almost leather-like.

Size: To 25 cm in diameter

Occurrence: Widespread and common

Orthasterias koehleri

Rainbow Sea Star

Identification: Vivid color, ranging from pink with gray to bright red with yellow banding. Small disk with 5 slender arms.

Size: To 40 cm in diameter

Occurrence: Uncommon

Pycnopodia helianthoides

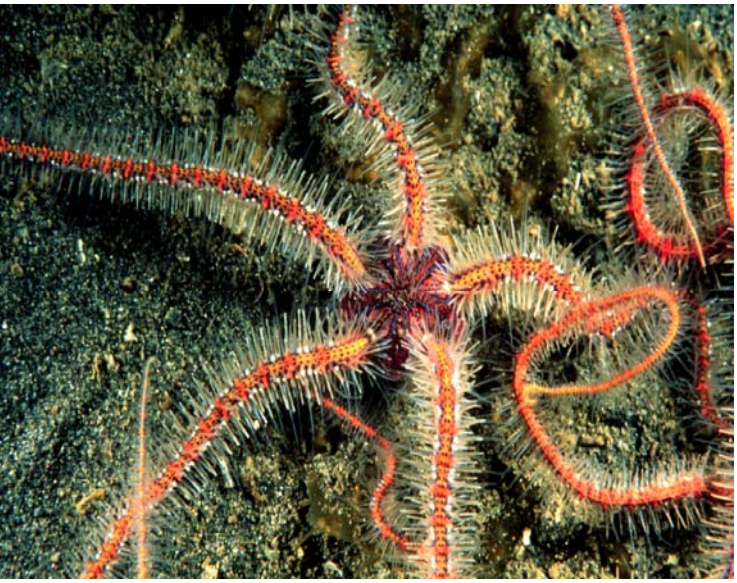
Sunflower Sea Star

Identification: Large sea star has 20 to 24 flexible arms. Juveniles have 5 arms. Color varies from purple to orange.

Size: To 90 cm in diameter

Occurrence: Widespread and common

Phylum Echinodermata



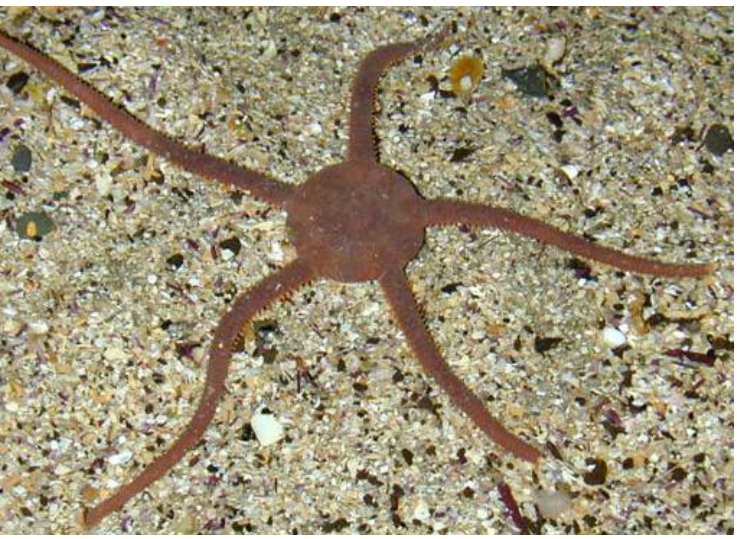
Ophiothrix spiculata

Spiny Brittle Star

Identification: Small brittle star with long, erect spines on the arms and disc. Often aggregates.

Size: To 30 cm in diameter, 10-20 common locally

Occurrence: Widespread and abundant



Ophioplocus esmarki

Smooth Brittle Star

Identification: Relatively smooth, with a large disc and short spines that can be folded against the arms. Color brown to gray-brown.

Size: To 15 cm in diameter

Occurrence: Widespread and common

Phylum Chordata

Styela montereyensis

Stalked Tunicate

Identification: Long stalked, solitary tunicate with longitudinal ridges. Color yellow to dark red-brown.

Size: To 25 cm in height

Occurrence: Widespread and abundant

Phylum Chordata

Chelyosoma productum

Disc-Top Tunicate

Identification: A small flat tunicate that occurs in colonies. Often covered with silt and difficult to see. It is usually a translucent brown and unlike most tunicates feels hard to the touch.

Size: Zooid diameter about 3 cm

Occurrence: Uncommon

Pycnoclavella stanleyi

Yellow Social Tunicate

Identification: Branchial baskets of expanded zooids in upright orange or gold stripped projections.

Size: To 1 cm in height, 5-30 cm clumps

Occurrence: Locally uncommon

Euherdmania claviformis

Tunic-Band Compound Tunicate

Identification: This tunicate is found in clumps or colonies of elongate, almost transparent lobes. They are often covered in light sand or silt

Size: Commonly 1-4 cm in height in 5-10 cm clumps

Occurrence: Locally common

Phylum Chordata

Clavelina spp.

Light Bulb Tunicate

Identification: Grows in clusters. Pharynx contains two luminescent pink lines that resemble the glowing filaments of a light bulb.

Size: To 5 cm in height

Occurrence: Uncommon

Polyclinum planum

Elephant Ear Tunicate

Identification: Ear-like, lobed colony of zooids attached to substrate by slender stalk. Brown to yellow color.

Size: Diameter of lobe to 30 cm

Occurrence: Uncommon

Archidistoma psammion

Sand Tunicate

Identification: Colonies form flat slabs or oval lobes. Zooids arranged in circular systems Test is firm and leathery Color varies from dark brown to purple, maroon, gray, or whitish..

Size: Typically 1-2 cm thick and to 20 cm in diameter

Occurrence: Widespread and common

Phylum Chordata

Compound tunicate spp.

Identification: Smooth colonies with many small openings and a few larger apertures. Variable in color. Some of the local species that may fall in this category include *Didemnum* spp, *Botrylloides* spp, *Aplidium* spp, and *Cystodytes* spp.

Size: Irregular

Occurrence: Widespread and common

Family Myliobatidae

Myliobatis californica

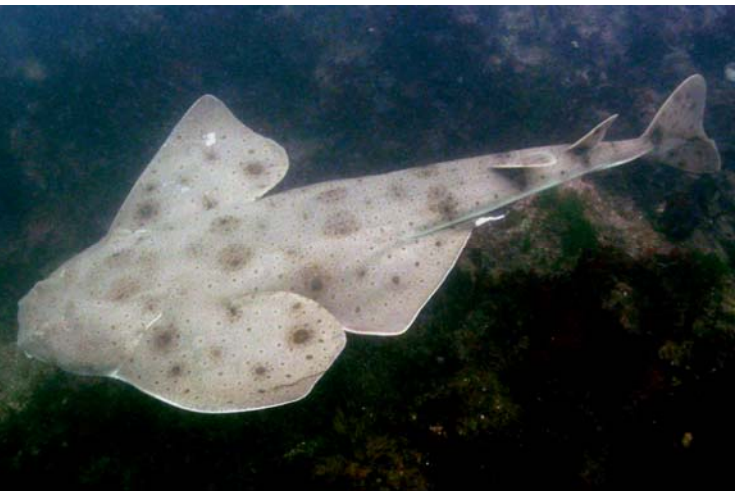
Bat Ray

Identification: Thick bodied with large bulbous head, long pectoral fins, whip-like tail, and long venom injecting barb at base of tail.

Size: To 1.8 m wingspan

Occurrence: Uncommon

Family Squatinidae



Squatina californica

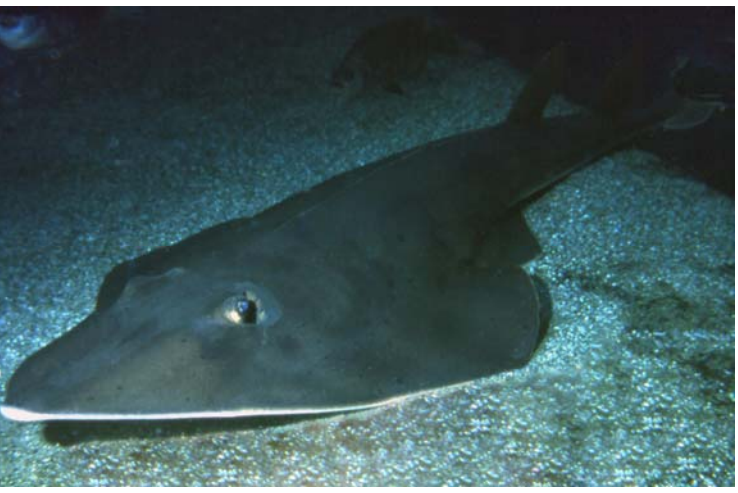
Pacific Angel Shark

Identification: Flattened body with blunt head and large pectoral fins. Rear body and base are tubular. Two dorsal fins near base of tail.

Size: To 1.5 m in length

Occurrence: Uncommon

Family Rhinobatidae



Rhinobatos productus

Shovelnose Guitarfish

RPRO

Identification: Brown to gray, sometimes lightly blotched. Distinctive long v-shaped head. Small spines along dorsal ridge and tail.

Size: To 1 m in length

Occurrence: Uncommon

Family Triakidae

Triakis semifasciata

Leopard Shark

Identification: Short, rounded snout and dark saddle blotches that run the length of the body.

Size: To 2 m in length

Occurrence: Uncommon

Family Heterodontidae

Heterodontus francisci

Horn Shark

Identification: Brown to gray in color with black spots. Both dorsal fins have a spine on the leading edge. Spiral egg casings.

Size: To 1 m in length, 30-50 cm common locally

Occurrence: Locally common

Family Scyliorhinidae

Cephaloscyllium ventriosum

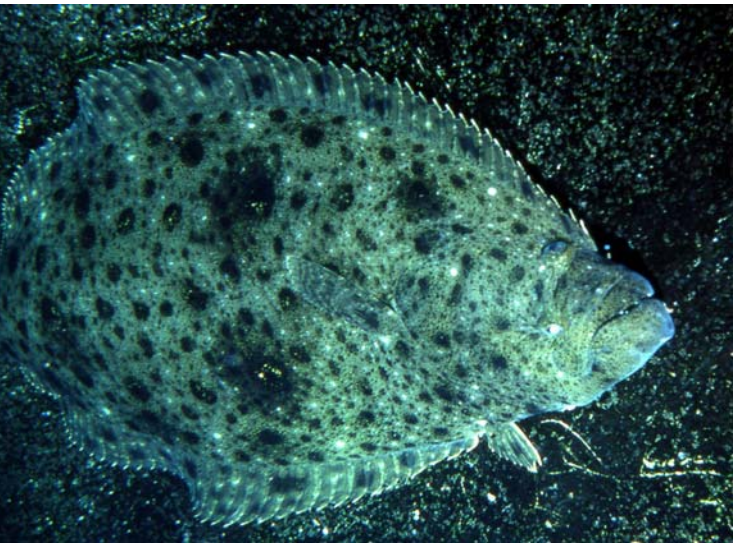
Swell Shark

Identification: Dark spotted elongated body with flattened head. Two posterior dorsal fins.

Size: To 1.5 m, 40-70 cm common locally

Occurrence: Locally common

Family Paralichthyidae



Paralichthys californicus

California Halibut

Identification: Large mouth, upper jaw extends to or behind eye, and tail arched in middle with outer edges square cut.

Size: To 1.5 m in length

Occurrence: Widespread but uncommon

Citharichthys stigmaeus

Speckled Sand Dab

Identification: Speckles, often small blotches, and ventrally compressed.

Size: To 18 cm, 3-10 cm common locally

Occurrence: Widespread and abundant in sandy areas

Family Scorpaenidae

Scorpaena guttata

California Scorpionfish

Identification: Many spines, short barbels and skin flaps on head. Brown spots on head, body and fins.

Size: To 43 cm, locally 10-25 cm

Occurrence: Uncommon

Family Scorpaenidae

Sebastes atrovirens

Kelp Rockfish

Identification: No distinctive markings. Mottled shades of tan to brown to greenish brown. Can change color and markings with background.

Size: To 42 cm, 5-30 cm common locally

Occurrence: Widespread and abundant

Sebastes auriculatus

Brown Rockfish

Identification: Blotched shades of brown to tan. Pectoral and fore-dorsal fins pale coral to tan, distinguished from other mottled rockfish by a solid dark brown blotch or spot at the top rear of the gill cover

Size: To 45 cm, 10-30 cm common locally

Occurrence: Widespread and common

Sebastes carnatus

Gopher Rockfish

Identification: Three pale colored splotches on back that extend into dorsal spines. Two diagonal bands extend from lower eye, and pale blotches on dorsal spines

Size: To 40 cm, 5-30 cm common locally

Occurrence: Widespread and uncommon

Family Scorpaenidae

Sebastes paucispinis

Bocaccio

Identification: Elongated gray body often with spots as seen in juvenile pictured below left. Concave head, large mouth, maxilla extends beyond eye.

Size: To 90 cm, 5-15 cm common locally

Occurrence: Locally uncommon (juvenile) and rare (adult)

Sebastes serranoides

Olive Rockfish

Identification: Olive green with lighter coloring below lateral line and several pale spots below dorsal fin.

Size: To 60 cm, 5-35 cm common locally

Occurrence: Locally common

Sebastes serriceps

Treefish

Identification: Yellowish body with 5 to 6 black bars across back and base of tail. Two dark bands from eye to pectoral fin, with pink to red lips. Juveniles often have brighter coloring than adults.

Size: To 40 cm, 5-20 cm common locally

Occurrence: Locally uncommon

Family Scorpaenidae

Sebastes caurinus

Copper Rockfish

Identification: White belly, pale fins, and dark band that slopes downward from eye toward pectoral fin. White lateral line extending from dorsal fin toward tail.

Size: To 60cm, 20-25 cm common locally

Occurrence: Widespread but uncommon

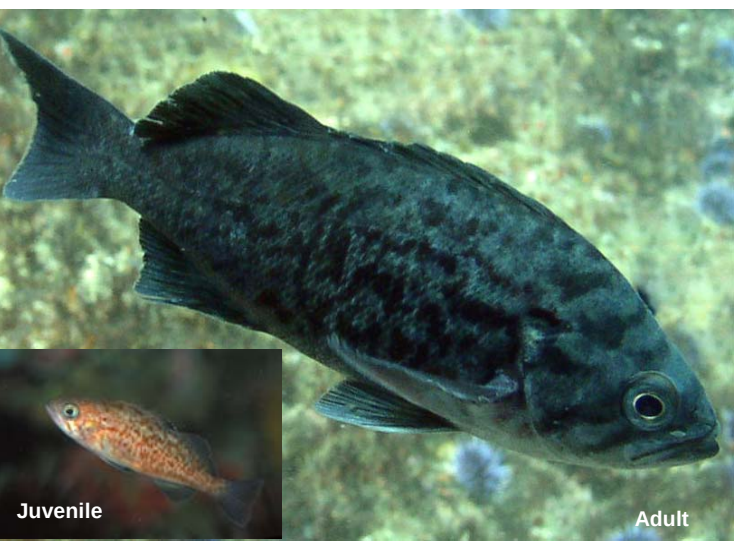
Sebastes chrysomelas

Black and Yellow Rockfish

Identification: Two dark diagonal bands extend from lower eye. Bright yellow spots and blotches over dark under-color.

Size: To 40 cm, 5-25 cm common locally

Occurrence: Widespread and abundant



Sebastes mystinus

Blue Rockfish

Identification: Mottled Blue to Gray in color, juveniles with red coloration. Slightly projected jaw that extends to midpoint of eye, 2-4 curved bands around front of head.

Size: To 40 cm, 5-30 cm common locally

Occurrence: Common at island sites, uncommon along the mainland

Family Scorpaenidae

Sebastes miniatus

Vermilion Rockfish

Identification: Red mottled body coloration on gray skin background. Juveniles mottled and banded color not as bright as adults, speckled head.

Size: To 70 cm, 4-10 cm common locally

Occurrence: Widespread but uncommon (juveniles) to rare (adults)

Rockfish spp.

Young of year rockfish

Identification: Juvenile rockfish that are difficult to distinguish to species

Size: To 5 cm

Occurrence: Widespread and common

Family Malacanthidae

Caulolatilus princeps

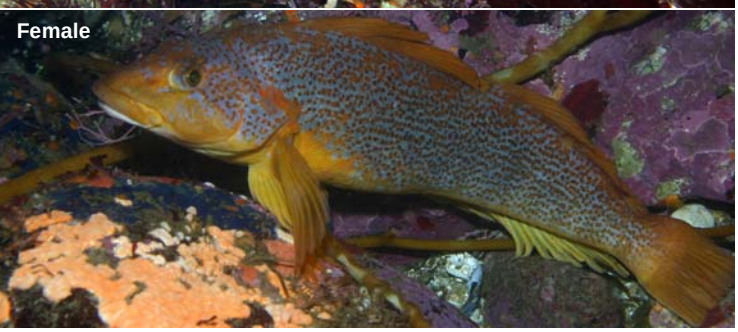
Ocean Whitefish

Identification: Elongate compressed sliver blue body with small terminal mouth. Fins often yellowish and may have bluish stripes.

Size: To 50 cm

Occurrence: Uncommon

Family Hexagrammidae



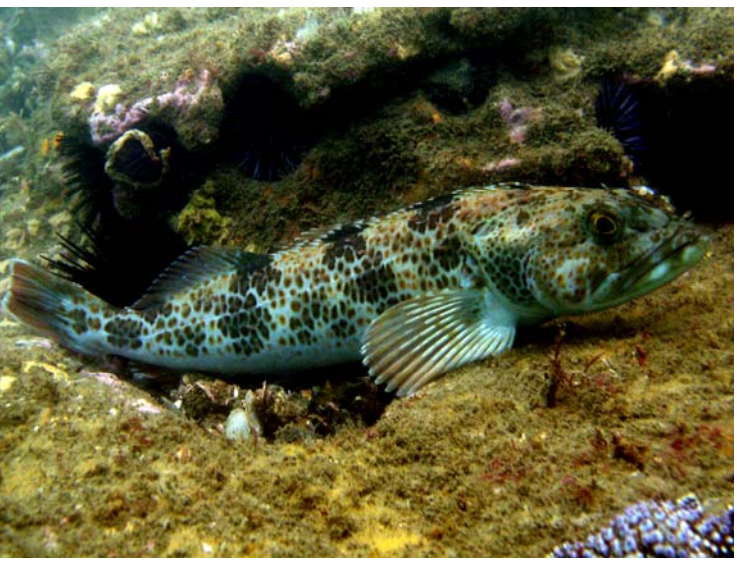
Hexagrammos decagrammus

Kelp Greenling

Identification: Male: (above) Blue irregular spots outlined by small dark spots on head and forebody and a pair of cirri above eyes. Female: (below) Speckled with red-brown to gold over a pale under-color.

Size: To 60 cm, 15-40 cm common locally

Occurrence: Locally uncommon



Ophiodon elongatus

Lingcod

Identification: Single, whitish lateral line, large mouth and prominent canine teeth. Long, even spinous dorsal fin separated by a notch before soft rear dorsal fin.

Size: To 1.5 m, 20-60 cm common locally

Occurrence: Locally common

Oxylebius pictus

Painted Greenling

Identification: Pointed snout with 5-6 dark bands encircling fins and body. Two pairs of cirri, males can be almost black during winter mating season

Size: To 25 cm, 10-20 cm common locally

Occurrence: Widespread and abundant

Family Cottidae

Leiocottus hirundo

Lavender Sculpin

Identification: Slender, tapered elongated body. First two extremely long dorsal fin spines form a spike-like projection, and red to blue spots on spines of dorsal fins aligned diagonally.

Size: To 25 cm

Occurrence: Locally common

Cottid spp.

Sculpin

Identification: Tapered tubular body, large boney head, obvious scales. Large pectoral fins. Common genera: *Orthonopias and Artedius*

Size: To 10 cm

Occurrence: Widespread and abundant

Scorpaenichthys marmoratus

Cabezon

Identification: Bulbous head and stout body with prominent fleshy cirrus above each eye.

Size: To 1 m, 20-40 cm common locally

Occurrence: Widespread and common

Family Percichthyidae

Stereolepis gigas

Giant Sea Bass

Identification: Large mouth, bulky body, low profile foredorsal fin, tall soft dorsal, and sizable black spots.

Size: To 2.3 m

Occurrence: Rare

Family Serranidae

Paralabrax clathratus

Kelp Bass

Identification: Square cut tail, first two spines of fore dorsal fin short, and large, pale blotches on back.

Size: To 72 cm, 20-40 cm common locally

Occurrence: Widespread and abundant

Paralabrax nebulifer

Barred Sand Bass

Identification: Square cut tail, dusky bars on side, and third fore dorsal spine distinctly longer.

Size: To 66 cm

Occurrence: Widespread and common

Family Kyphosidae

Girella nigricans

Opaleye

Identification: Dull green, thick, body with one to three white spots on back, and bright blue to blue-green eyes.

Size: To 66 cm, 30-45 cm common locally

Occurrence: Widespread and common

Medialuna californiensis

Halfmoon

Identification: Silver blue compressed body. Darker coloring on back graduating to pale shades on sides and belly. Dusky spot on upper posterior portion of gill cover.

Size: To 45 cm, 15-25 cm common locally

Occurrence: Locally common

Family Haemulidae

Anisotremus davidsonii

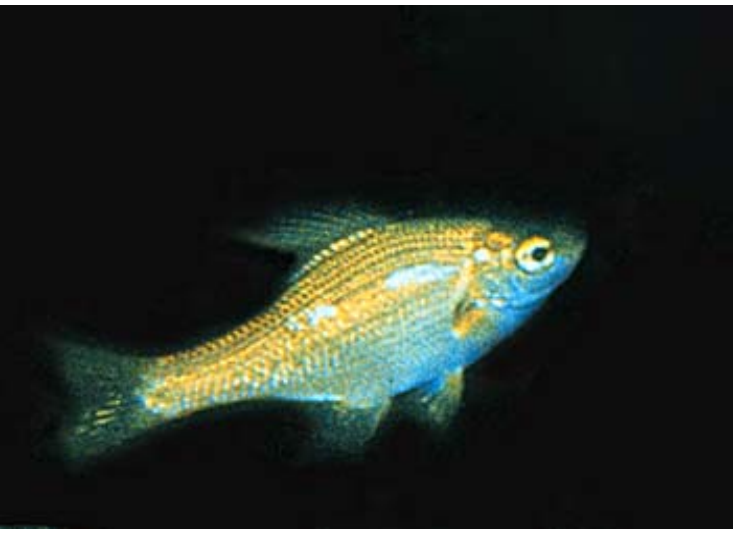
Sargo

Identification: Silver with single black vertical bar from base of anterior dorsal fin to level of pectoral fin

Size: To 50 cm

Occurrence: Locally uncommon

Family Embiotocidae



Brachyistius frenatus

Kelp Surfperch

Identification: Thin body, dark areas on scales that form stripes above mid-lateral line, concave head above eyes, and snout pointed upward due to prominent lower jaw.

Size: To 22 cm, 8-15 cm common locally

Occurrence: Widespread and common in kelp canopy

Cymatogaster aggregata

Shiner Surfperch

Identification: Black spots on scales form thin stripes on sides. Usually two or three yellow to yellowish bars on sides.

Size: To 15 cm, 8-10 cm common locally

Occurrence: Locally uncommon

Phanerodon furcatus

White Surfperch

Identification: Thin, football-shaped silverish white body with deeply forked tail, and black line at base of dorsal fin.

Size: To 32 cm, 10-20 cm common locally

Occurrence: Widespread and common

Family Embiotocidae

Embiotoca jacksoni

Black Surfperch

Identification: Large lips, mustache, blue stripe on anal fin. Compressed body with numerous dusky vertical bars.

Size: To 40 cm, 10-30 cm common locally

Occurrence: Widespread and abundant

Embiotoca lateralis

Striped Surfperch

Identification: Thin, football-shaped body and several narrow, iridescent blue lateral stripes separated by wider orange to copper colored stripes.

Size: To 38 cm

Occurrence: Widespread and Common

Hypsurus caryi

Rainbow Surfperch

Identification: Compressed body with a flat abdomen and vertical bars shaded orange. Black spot on upper corner of mouth.

Size: To 30 cm, 10-20 cm common locally

Occurrence: Widespread and Common

Family Embiotocidae

Rhacochilus vacca

Formerly *Damalichthys vacca*
Pile Surfperch

Identification: Compressed silver green body, deeply forked tail,, dark vertical bar below anterior portion of soft dorsal fin, and a black spot behind corner of mouth.

Size: To 44 cm, 15-25 cm common locally

Occurrence: Widespread and common

Rhacochilus toxotes

Rubberlip Surfperch

Identification: Large, fat lips with white to pink tint. Deep compressed body with dark vertical bar posterior of mid section. Spiny posterior dorsal fin shorter than anterior soft dorsal fin.

Size: To 47 cm, 25-35 cm common locally

Occurrence: Widespread and common

Hyperprosopon argenteum

Walleye Surfperch

Identification: Large eyes on a deep compressed body with a black edged ventral fin. Occasionally displays dusky barring.

Size: To 25 cm, 10-16 cm common locally

Habitat: Locally uncommon to rare

Family Pomacentridae

Chromis punctipinnis

Blacksmith

Identification: Damsel fish with blue bordered caudal, anal and dorsal fins. Black spots on scales scattered from mid-body to tail.

Size: To 30 cm, 8-20 cm common locally

Occurrence: Widespread and abundant

Hypsypops rubicundus

Garibaldi

Identification: Compressed oval-shaped damsel fish with deeply notched tail between two rounded lobes. Body, bright orange. Juveniles with blue spots

Size: To 36 cm

Occurrence: Widespread and common

Family Labridae

Halichoeres semicinctus

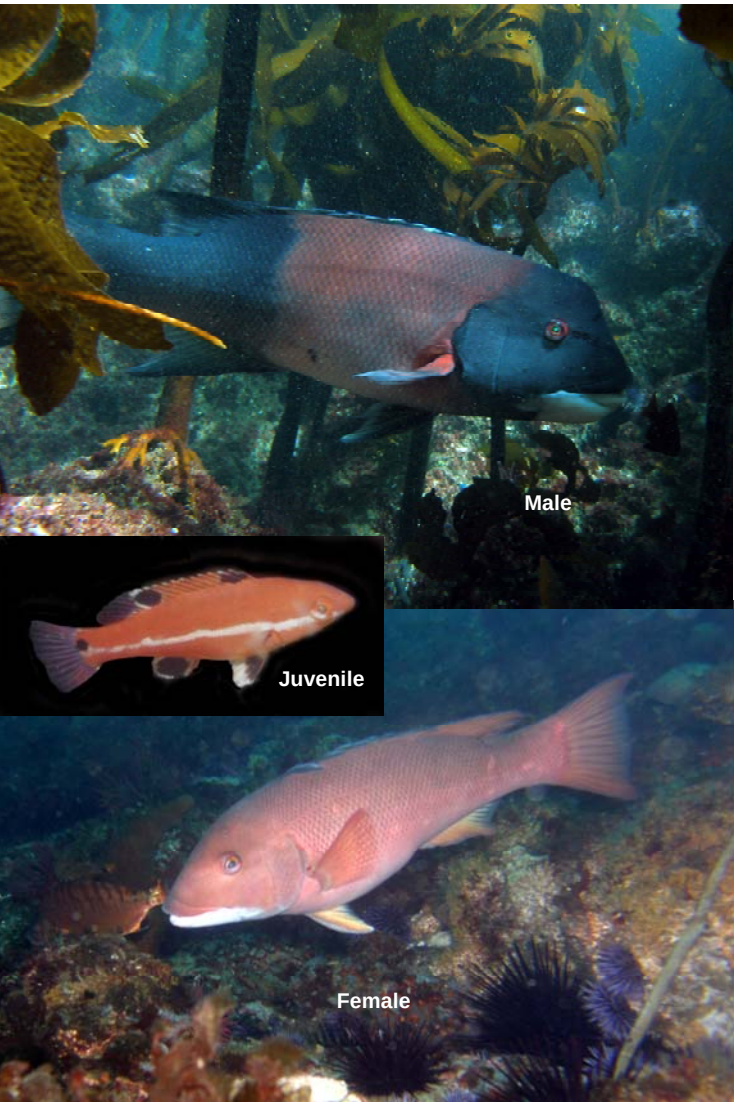
Rock Wrasse

Identification: Red eye distinguishes this species from *Oxyjulis*. Males with dark bar behind pectoral fin. Females with dark areas on scales. Juveniles with longitudinal white stripes and black spots, orange/gold in color.

Size: To 38 cm

Occurrence: Widespread and common at island reefs uncommon along mainland reefs

Family Labridae



Semicossyphus pulcher

California Sheephead

Identification: Juvenile: Red orange body with white lateral stripe. Black spots on posterior dorsal, anal and caudal fins. Adult: Wide compressed body with white chin and protruding teeth Females smaller than males with more uniform reddish pink coloration. Males with dark head and rear, Bulbous lump on nape with blunt head.

Size: To 90 cm, 20-40 cm common locally

Occurrence: Widespread and abundant

Oxyjulis californica

Senorita

Identification: White belly, sharp canine teeth that typically protrude from mouth, yellow to orange in color, and large black spot on tail base.

Size: To 25 cm, 10-20 cm common locally

Occurrence: Widespread and abundant

Family Clinidae

Heterostichus rostratus

Giant Kelpfish

Identification:. Forked tail and an elongated head with a upturned, pointed snout. Varies color to match habitat

Size: To 61 cm, 15-30 cm common locally

Occurrence: Widespread and common

Neoclinus blanchardi

Sarcastic Fringehead

Identification: Large mouth with jaws extending almost to gill openings, two blue spines with yellow spots on anterior dorsal fin, and cirri above eyes.

Size: To 30 cm

Occurrence: Widespread but uncommon

Alloclinus holderi

Island Kelpfish

Identification: Pale spot extending from cheek lower rear quarter of eye, raised rear dorsal fin, pale spots cover body, a row of dark blotches on upper body, and long pectoral fins.

Size: To 10 cm

Occurrence: Widespread and common at island reefs, rare at the mainland reefs

Family Clinidae

Gibbonsia spp.

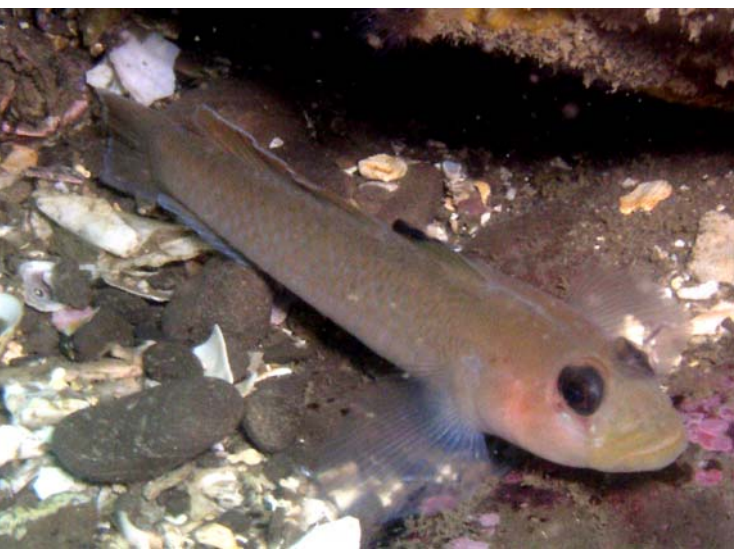
Crevice Kelpfish

Identification: Rounded tail fin, short pectoral fins, soft rays of rear dorsal fin are spaced more widely towards rear, and a single row of spots along upper side. The four species of Gibbonsia in our area are: *G. metzi, G. elegans, G. montereyensis, and G. erythra*. They are difficult to distinguish without a microscope.

Size: To 15 cm

Occurrence: Widespread and common

Family Gobiidae



Rhinogobiops nicholsii

Formerly: *Coryphopterus nicholsii*

Blackeye Goby

Identification: Dark to pale tan, black eye, and black edge o on anterior dorsal fin.

Size: To 15 cm

Occurrence: Widespread and abundant

Lythrypnus dalli

Bluebanded Goby

Identification: Bright red with four to nine bright vertical blue bars and a tall anterior dorsal fin.

Size: To 6 cm

Occurrence: Common at island reefs, rare at mainland reefs

Family Syngnathidae

Syngnathus spp.

Pipefish

Identification: Green to brown in color, underside often white. Long trumpet-like snout, small fan-shaped tail. Of the six species that occur in the area, only *S. leptorynchus* (Bay Pipefish – pictured here) and *S. californiensis* (Kelp Pipefish) are commonly seen.

Size: To 50 cm

Occurrence: Uncommon

Family Aulorhynchidae

Aulorhynchus flavidus

Tube-Snout

Identification: Elongate body and snout with a forked tail. Quick and often aggregated, compared to more solitary, slow moving pipefish which has a rounded caudal fin and body rings.

Size: To 18 cm

Occurrence: Locally common

Phylum Chordata

Enhydra lutris

Sea Otter

Identification: Thick fur, dark brown, with head and back of neck a yellow to grayish color, fairly short tail, webbed feet, flipper-like hind feet.

Size: To 1.5 m

Occurrence: Seasonally common at Northern sites

Zalophus californianus

Sea Lion

Identification: External ear flaps, large flippers, males develop sagittal crest on top of skull.

Size: To 2.1 m

Occurrence: Abundant and widespread

Phoca vitulina

Harbor Seal

Identification: Spotted coats from silver-gray to dark brown or black, no external ear flaps, small flippers.

Size: To 1.9 m

Occurrence: Abundant and widespread

Phylum Chordata

Tursiops truncatus

Bottlenose Dolphin

Identification: Dark cape often on head and back, well defined and short beak, transverse groove between forehead and snout, broad-based and falcate dorsal fin near center of back.

Size: To 3.7 m

Occurrence: Common and widespread

Delphinus delphis

Common Dolphin

Identification: Fusiform and slender, sides marked with hourglass or crisscross pattern, well defined long beak with white tip, 1+ dark stripes from center of lower jaw to flipper, dorsal fin nearly triangular to falcate.

Size: To 2.6 m

Occurrence: Common offshore of the kelp beds

Eschrichtius robustus

Gray Whale

Identification: Mottled gray, short baleen plates, narrowly triangular head, paired blowholes, 2-5 deep lengthwise throat grooves, low hump 2/3 way down the back followed by serrated ridge, no ventral grooves.

Size: To 14 m

Occurrence: Common seasonally

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