A Field Guide To

Common Subtidal Plants and Animals

Santa Barbara Coastal Ecosystem
Long-Term Ecological Research Program

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Edited by

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Introduction

This guide contains information on the common marine plants and animals that inhabit the shallow rocky reefs of the Santa Barbara Channel. It's purpose is to aid student, staff and faculty researchers of the Santa Barbara Coastal Ecosystem 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 24 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 arranged in phylogenetic order. Each organism is identified by its scientific name and common name, if available. The accompanying one to four letter code in **BOLD** is the species code that is used to identify the taxa in all SBC databases. Brief information on key characteristics used in identification, including the size and habitat of most common occurrence, is provided for each taxon.

Phylum Chlorophyta/Phaeophyta

Ulvoid

UV

- Identification: Bright green algae with thin leafy blades in the genera *Ulva* and *Enteromorpha*.
- Size: Variable in size.
- Habitat: Usually found growing on rocks or epiphytic.

Codium fragile

Dead man's fingers

COF

- Identification: One to several erect branches from a broad base, then abundantly branched. Color dark green to blackish-green.
- Size: 10-30 cm tall.
- Habitat: Frequent on sides and tops of rocks in areas of high water motion.

Filamentous brown algae

FB

- Identification: Small finely branched filamentous brown algae. Frequently forming dense mats. Common genera include *Ectcarpus*, *Giffordia* and *Hinksia*.
- Size: Variable up to 30 cm long.
- Habitat: Growing on rocks and other hard substrates.

Phylum Phaeophyta

Scytosiphon lomentaria
SELO

- Identification: Small brown alga with slender tubular thalli. Gregarious in clusters from a crustose holdfast. Larger plants inflated and irregularly constricted.
- Size: 20-30 cm tall, thallus 4-6 mm in diameter.
- Habitat : on sheltered rocks.

Colpomenia spp.
CP

- Identification: Sac-like alga with broad basal attachment. Color from olive to medium brown.
- Size: Diameter up to 10 cm.
- Habitat: On rocks, occasionally epiphytic.

Dictyota spp./ *Pachydictyon* spp.
DP

- Identification: Smooth thin blades with rounded tips. Light to dark brown in color. Dichotomous to pinnate branching. No midrib.
- Size: Up to 45 cm tall. Blades 1-2 cm broad.
- Habitat: On rocky substrate.

Phylum Phaeophyta

Taonia lennebackeriae

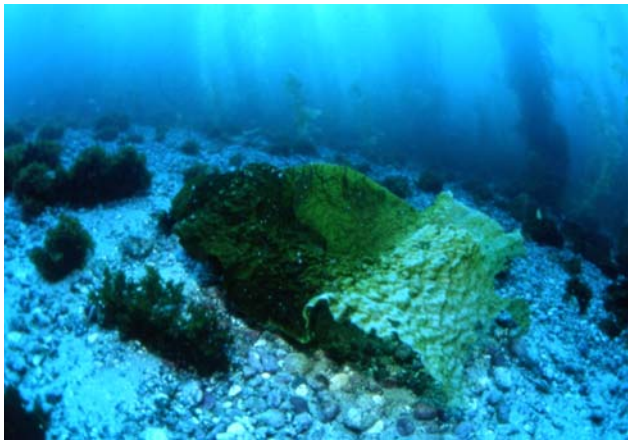
TALE

- Identification: Thin strap-like to fan-shaped blade. Light to medium brown in color. Split or lacerated at tips when mature.
- Size: 10-30 cm tall, blades 10-60 mm broad.
- Habitat: Frequent on rocks, often partially embedded in sand.

Dictyopteris undulata

DU

- Identification: Alga irregularly dichotomous with short terminal branches. Distinguishing feature is the midrib running through the branches. Color yellowish-brown to olive.
- Size: 8-12 cm tall, reaching 24 cm.
- Habitat: Frequent on rocks.



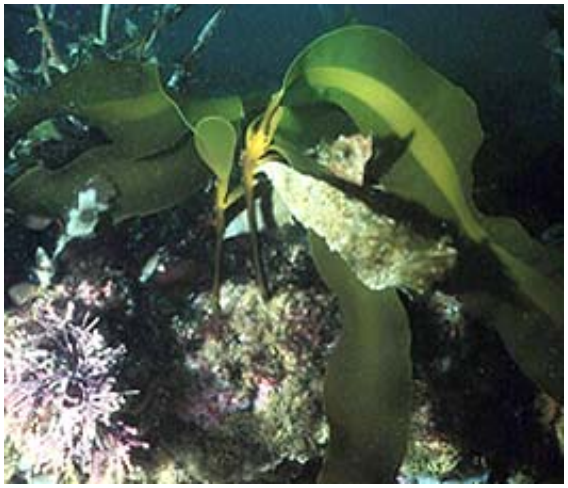
Laminaria farlowii

Oar weed

LAFA / LFJ

- Identification: Single long, wide blade with deep depressions in longitudinal rows. Dark brown in color with short stipe.
- Size: Blade length to 5 m. Stipe 4-7 cm long.
- Habitat: On rocky substrate.

Phylum Phaeophyta



Pterygophora californica

Palm Kelp

PTCA / PTJ

- Identification: Long woody unbranched stipe. Flattened in upper portion. Terminal blade with a midrib. Numerous lateral sporophylls. Small branched holdfast.
- Size: To 2.3 m in height.
- Habitat: May form extensive stands on rocky substrate.

Eisenia arborea

Southern sea palm

EA

- Identification: Erect tree-like stipe that terminates into two branches that bear leafy brown blades with toothed margins. Color usually medium to dark brown .
- Size: Stipe 1-2 m long. Blades can be as long as stipe.
- Habitat: On rocky substrate.

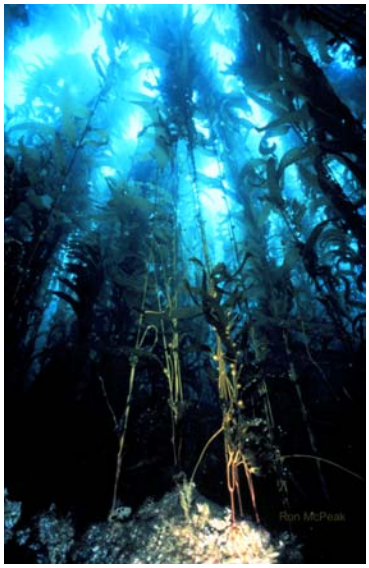
Egregia menziesii

Feather boa kelp

EGME / EGJ

- Identification: A large kelp having a long flat stipe bearing numerous small flat blades and floats along its entire length.
- Size: Plant 5 to 15 m long with blades to 8 cm long.
- Habitat: On rocky substrate.

Phylum Phaeophyta



Macrocystis pyrifera

Giant Kelp

MPS / MPJ

- 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.
- Size: Up to 45.7 m tall.
- Habitat: On rocky substrate and occasionally in sand.

Desmarestia ligulata

Acid weed

DL

- Identification: Thin pinnately branched thallus with slender midvein. Medium to dark brown in color. Finely branched and bushy or coarse with marginal spines.
- Size: 8 m tall.
- Habitat: Growing on rocks and attached to worm tubes in sandy habitats.

Sargassum muticum

SAMU

- Identification: Large alga having small leaf like blades with toothed margins that occur singly along the thallus. Medium to dark brown in color. Small cylindrical pneumatocysts borne in clusters.
- Size: up to 2 m tall, leaves to 10 cm long.
- Habitat: On hard substrate.

Phylum Phaeophyta/Rhodophyta

Cytoseira osmundacea

Bladder chain

CYOS / CYJ

- Identification: dark brown fucoid with radial branches. Tall bushy reproductive parts
- Size: to 8 m tall, blades 1-1.5 cm broad.
- Habitat: On rocks, frequently mingled with *Macrocystis*.

Scinaia confusa

SCCA

- Identification: Rose pink tubular thallus, with regularly branched axes.
- Size: 3-15 cm tall.
- Habitat: grows on rocks.

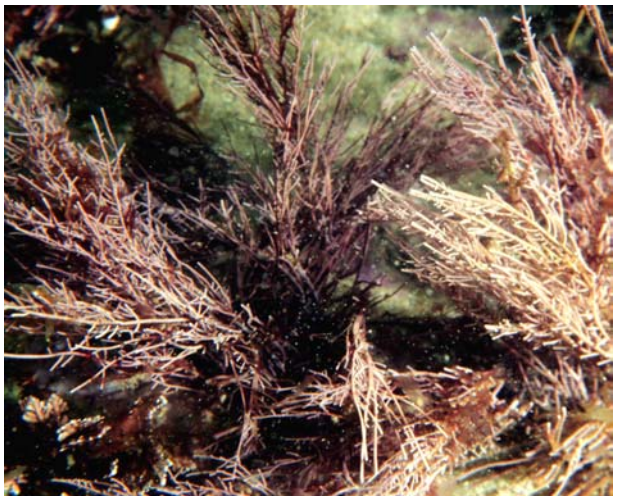
Gelidium robustum

Agarweed

GR

- Identification: Dark red branches, compressed, but basal axes cylindrical. Branches frequently distichous, often geniculate. Branches often covered by white encrusting bryozoans..
- Size: To 40 cm tall.
- Habitat: On tops of reefs in areas of high water motion.

Phylum Rhodophyta



Lithothrix spp.

Stone hair

LI

- Identification: Alga dull purple to pink in color. Primary branching dichotomous but irregular lateral branches, gives a stringy look.
- Size: To 13 cm tall.
- Habitat: Found growing on rocks or animals in sandy areas.

Corallina officinalis

CO

- Identification: Fronds whitish, pinkish, or purplish. Bipinnate to tripinnate branching, with branches in one plane like a feather.
- Size: Height to 15 cm.
- Habitat: On hard substrate.

Bossiella orbigniana

BO

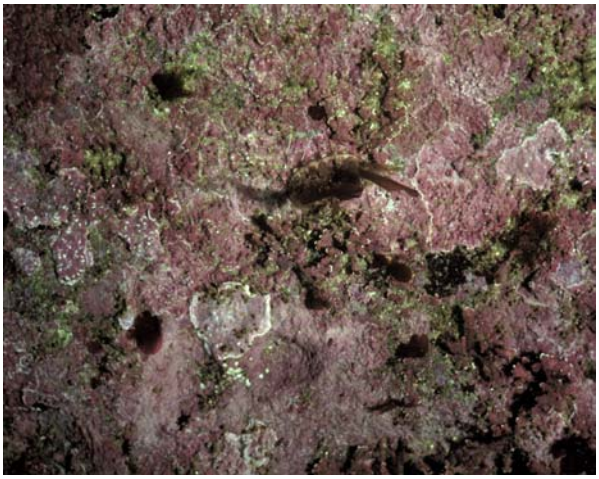
- Identification: Branches are thin and delicate, always dichotomous. Each segment is wing-nut shaped and has bumps (i.e. conceptacles) on the inner margin.
- Size: Height 15-30 cml.
- Habitat: On rocks.

Phylum Rhodophyta

Calliarthron cheilosporioides

CAL

- Identification: Articulate coralline alga with coarse pinnate branching. Segments flat and rounded. Conceptacles (bumps) on the margins of wings. Seen here with an orange epiphytic hydroid (*Garvela annulata*).
- Size: Fronds to 30 cm. Segments to 7 mm.
- Habitat: Frequent growing on rocks.



Encrusting coralline

EC

- Identification: Calcified crusts of pinkish algae that cover the surface of hard substrates. Often intermixed with other erect species of coralline algae.
- Size: Variable sized patches that can cover a large proportion of the bottom.
- Habitat: Hard, rocky substrate.

Prionitis lanceolata

PL

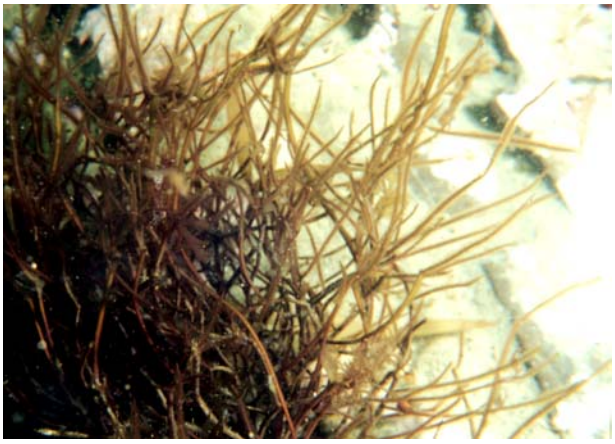
- Identification: Dull, purplish red alga with narrow compressed branches. Cartilaginous in texture.
- Size: 20-30 cm tall, axes and branches 2.5-5 cm wide.
- Habitat: grow on hard substrate.

Phylum Rhodophyta

Callophyllis flabellulata

CF

- Identification: Flat thin bladed red alga with finely dissected ultimate branches. Rose to orange-red color.
- Size: 4-10 cm tall.
- Habitat: growing on rocks or epiphytic.



Gracilaria sp.

GS

- Identification: Deep dull reddish algae with numerous cylindrical spaghetti-like branches arising from a discoid holdfast. Branches fleshy to cartilaginous.
- Size: 6-20 cm tall.
- Habitat: Frequently on rocks often embedded in shallow sand.

Chondracanthus corymbiferus

CC

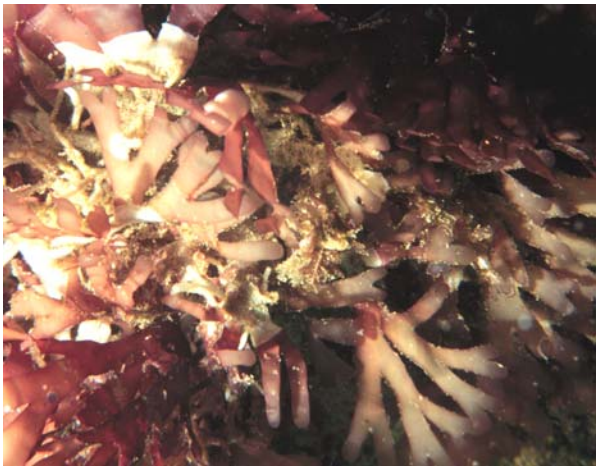
- Identification: Among the largest of all red algae. Blades deep red. Broadly rounded and frequently ruffled, with smooth iridescent bases. Formerly *Gigartina corymbiferus.*
- Size: blades can grow more than 1m, 30 cm wide. Holdfasts 1-5 cm wide.
- Habitat: On hard substrate.

Phylum Rhodophyta

Chondracanthus spinosa

CZ

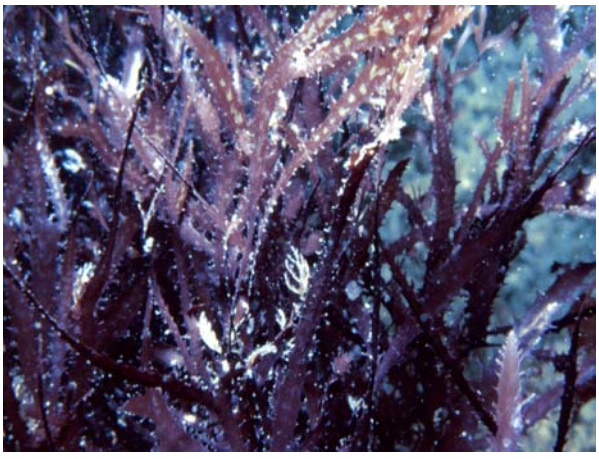
- Identification: Colors range from purplish to black to brownish to red, grows in thick isolated clumps. Narrower blades than *C. corymbiferus* with large papillae and numerous spinelike to bladelike branchlets.
- Size: 20-30 cm tall, 4-6 cm broad
- Habitat: On hard substrate.



Rhodymenia californica

R

- Identification: 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 tall.
- Habitat: Found growing on rocks.



Nienburgia andersoniana

NA

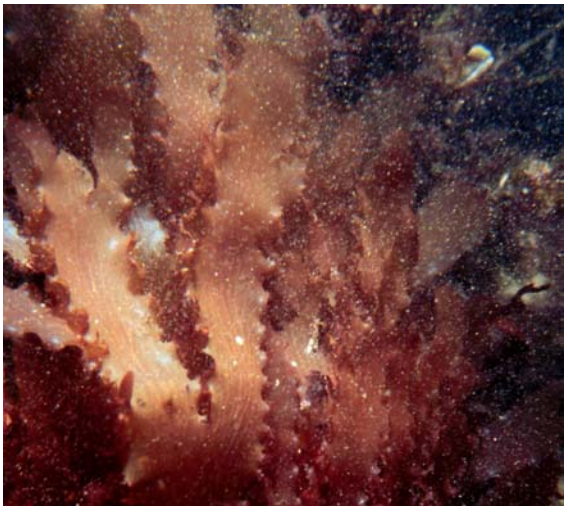
- Identification: Thin narrow branched blades with a midrib in the lower parts and conspicuously toothed margins. Bright rose to dull carmine.
- Size: Main axes 1-16mm broad.
- Habitat: Found growing on rocks.

Phylum Rhodophyta

Acrosorium uncinatum

AU

- Identification: Thin flattened blades with irregular branches. Blades irregularly hooked at ends that cause it to become entangled. Frequently parasitic. Color deep rose red.
- Size: Height to 8 cm tall.
- Habitat: Often found epiphytic on other algae.



Botryoglossum farlowianum

Grape tongue

BF

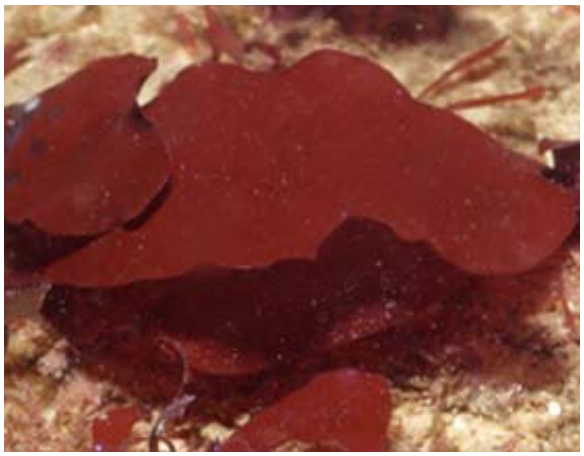
- Identification: Large deep red slightly iridescent blades having densely ruffled margins with numerous proliferations.
- Size: Erect axes 10-50 cm tall, blades 0.15-2 cm wide.
- Habitat: Common growing on rocks.

Laurencia sp.

LS

- Identification: Erect bushy thalli with short stubby branches ending in a blunt tip. Color ranging from brown to rich red.
- Size: 3-10 cm tall.
- Habitat: Found growing on rocks or epiphytic.

Phylum Rhodophyta



Bladey Red

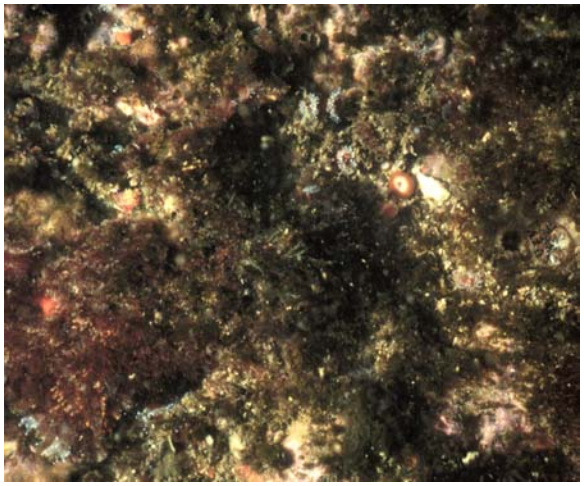
BR

- Identification: Broad catch all category for numerous species of red algae having thin fleshy blades.
- Size: Variable, but can reach 10 cm tall.
- Habitat: Rocky substrate.

Filamentous red spp.

FR

- Identification: Thin, finely branched red algae. Frequently forms tufts or clumps. Common genera include: *Polysiphonia, Ceramium.*
- Size: Variable, up to 20 cm tall.
- Habitat: On rocky substrate.



Red Algal Turf

RAT

- Identification: Low growing turf consisting of polysiphonous filamentous red algae (e.g. *Polysiphonia* spp., *Pterosiphonia* spp, *Tiffaniella* spp.), turf dwelling invertebrates (e.g. tubiculous crustacea and polychaetes) and sediments.
- Size: 1 – 3 cm tall.
- Habitat: On rocky substrate.

Phylum Tracheophyta

Phyllospadix torreyi

Surfgrass

PHTO

- 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.
- Habitat: open coast on rocky reefs, low intertidal to 6 m depth.

Zostera marina

Eelgrass

ZOMA

- Identification: Dull, light green, strap-like leaves with long flowering stems. Monecious. Flowers inconspicuous in spadices.
- Size: leaves 6-12 mm wide, 30-150 cm long, flowering stems 1-3 m long.
- Habitat: protected sandy flats. Intertidal to shallow subtidal in bays and estuaries. Occurring offshore on open coast at depths of 5–20 m.

Phylum Porifera

Spheciospongia confoederata

moon sponge

SC

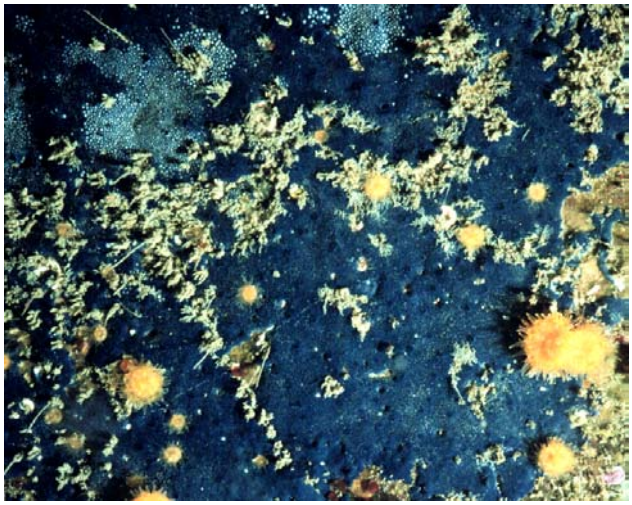
- Identification: Massive, smooth gray sponge (leathery in texture) with numerous crater-like oscula on outer ridge.
- Size: Up to 70 cm long and 14 cm thick
- Habitat: On rocky reefs.

Tethya aurantia

orange puffball

TEAU

- Identification: Porous, globose sponge with very rough outer surface. Color ranges from orange to yellow.
- Size: Diameter at least 8 cm.
- Habitat: On sides of reefs and under ledges.



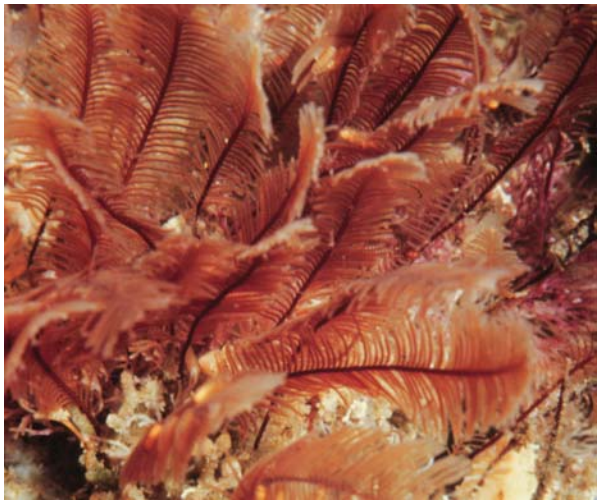
Hymenamphiastra cyanocrypta

cobalt sponge

HC

- Identification: Thin encrusting sponge. Cobalt blue in color.
- Size: Diameter up to 1 m.
- Habitat: common growing on rocky reef areas underneath ledges or on sides of rocks.

Phylum Cnidaria



Aglaophenia spp.

hydroid

AS

- Identification: Large feather-like brown plumes consisting of a central stalk with numerous pinnate branches.
- Size: Plumes to about 12 cm.
- Habitat: Attached to rocky substrate.

Urticina lofotensis

white-spotted rose anenome

URLO

- Identification: Column is very distinctive red, with white spots. Tentacles are scarlet to crimson.
- Size: Maximum column diameter to 10 cm.
- Habitat: Attached to rocky substrate.

Urticina piscivora

fish eating anemone

URPI

- Identification: Deep red column with tentacles that are usually white, but occasionally red.
- Size: Crown to 8 inches in diameter.
- Habitat: Attatched to rocky substrate.

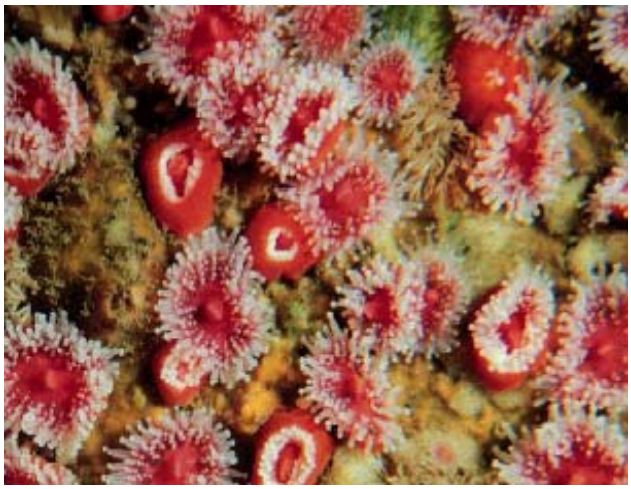
Phylum Cnidaria

Anthopleura spp.

aggregating anemone

ANSP

- Identification: Aggregations or solitary individuals. Color from green to reddish.
- Size: Maximum tentacular diameter to 10-15 cm.
- Habitat: Attached to rocky substrate, may be buried in sand.

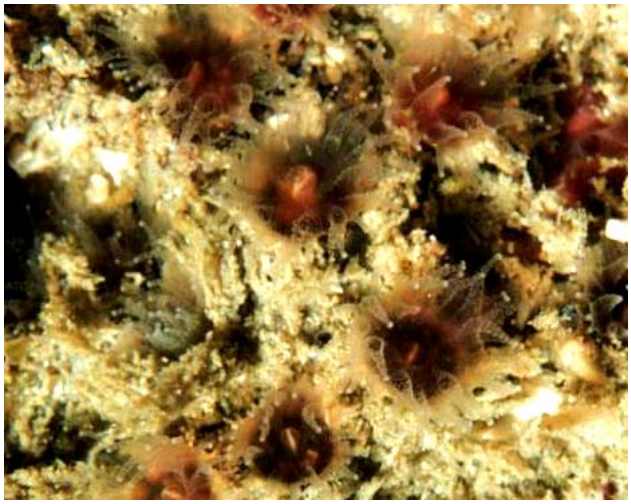


Corynactis californica

club-tipped anemone

CY

- Identification: Small colonial anemone with bulbous-tipped tentacles. Color varies from orange, red, purple, pink, to almost white.
- Size: Diameter up to 2.5 cm.
- Habitat: attached to rocky substrates.



Astrangia lajollaensis

cup coral

AL

- Identification: Small cup corals form large colonies. The stony cups are brownish-orange and tentacles are yellowish-orange.
- Size: Cups to about 1 cm in diameter.
- Habitat: on rocky reefs and under ledges.

Phylum Cnidaria

Balanophyllia elegans

orange cup coral

BAEL

- Identification: Solitary, orange, cup-shaped coral with orange tentacles.
- Size: Diameter up to 2.5 cm.
- Habitat: Attached to rocky substrate.

Paracyathus stearnsi

brown cup coral

PAST

- Identification: Small brown solitary cup corals have long, almost clear, tentacles.
- Size: Maximum cup diameter of 4 cm.
- Habitat: Attached to rocky substrate.

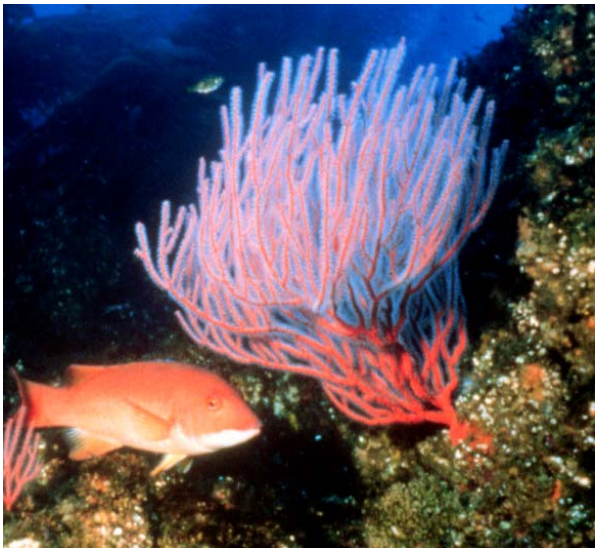
Pachycerianthus fimbriatus

tube dwelling anemone

PAFI

- Identification: long, slender outer tentacles and shorter inner tentacles. Soft body protected by tube. Tentacles may be creamy white, brown, black, or orange.
- Size: Height to about 30cm, diameter to about 38 mm.
- Habitat: Sand and soft mud bottoms

Phylum Cnidaria



Lophogorgia chilensis

red gorgonian

LOCH

- Identification: Sea fan with red branches with white polyps. Branches are not in a single plan.
- Size: Height to about 1 meter.
- Habitat: Attached to rocky substrate.

Muricea fruticosa

brown gorgonian

MUFR

- Identification: Thick brown branches with white polyps, usually in one plane. Brown in color.
- Size: Height to about 1 meter.
- Habitat: Attached to rocky substrate.

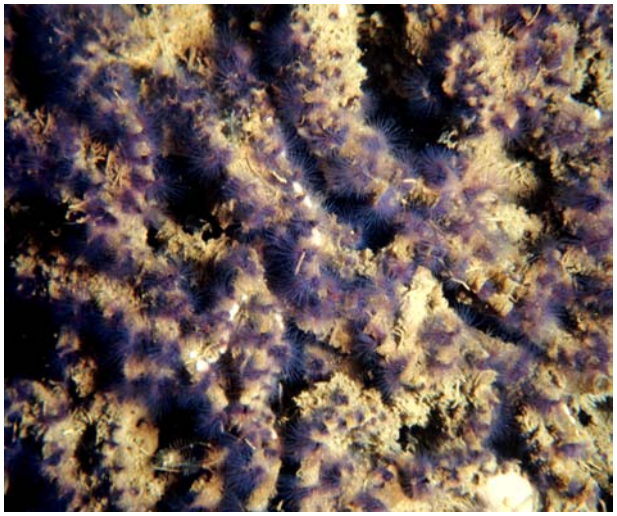
Muricea californica

california golden gorgonian

MUCA

- Identification: Thick brown branches. Yellow polyps distinguish it from brown gorgonian.
- Size: Height to about 1 meter.
- Habitat: Attached to rocky substrate.

Phylum Annelida



Phragmatopoma californica

Colonial sand tube worm

PA

- Identification: Extensive colonies. Tubes constructed of cemented sand. Short lavender tentacles.
- Size: Diameter up to 1 cm.
- Habitat: Honeycomb colonies on or against rocks in areas of high sand transport.

Sabellid worm

SABW

- Identification: Worms in the family Sabellidae that retract into tube when disturbed. The most commonly observed species is the feather duster worm *Eudistylia polymorpha* which is identified by it's plume of branched gills that vary in color from tan to orange.
- Size: Crown diameter to 7.5 cm
- Habitat: Attached to rocky substrate.

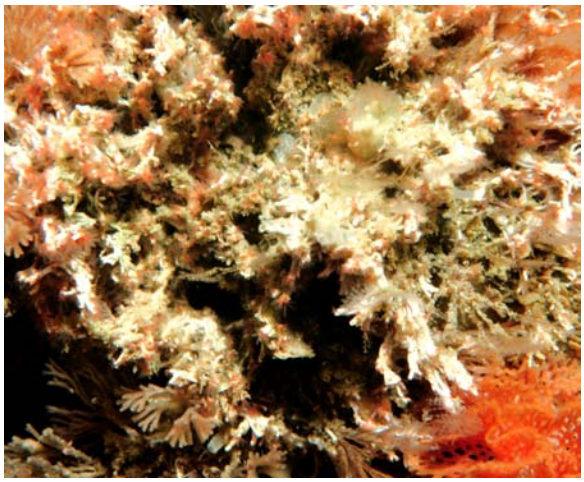
Diopatra ornata

Ornate tube worm

DIOR

- Identification: Tubes usually completely covered with attached pieces of shell, algae, or other debris.
- Size: Tube diameter up to about 2 cm.
- Habitat: On sand or rubble usually near rocks.

Phylum Annelida



Salmacina tribranchiata

Fragile tube worm

ST

- Identification: Small whitish tubes that form tangled complex masses up to a size of about 20 cm in diameter.
- Size: Tube diameter < 2 mm.
- Habitat: Attached to sides or under rocks.

Phylum Mollusca

Haliotis corrugata

Pink abalone

HACO

- Identification: Shell is almost round, with corrugated, scalloped edge. Two to four raised shell holes remain open.
- Size: Length to 25 cm.
- Habitat: In rocky crevices and on sides of rocks.

Haliotis cracherodii

Black abalone

HACR

- Identification: Shell color ranges from dark blue to black and shell is smooth. Five to 7 holes are usually open.
- Size: Length to 20 cm.
- Habitat: On rocks and in crevices.

Phylum Mollusca

Haliotis rufescens

Red abalone

HARU

- Identification: Shell usually brick-red, occasionally with bands of green or white. Three or four of the holes are open.
- Size: Length to 30 cm.
- Habitat: On rocks, occasionally on sand or gravel bottoms.

Haliotis kamtschatkana

Threaded abalone

HAKA

- Identification: Flat oblong shell with four to eight open holes that are slightly raised.
- Size: Length to about 175 mm
- Habitat:on rocks or in crevices

Megathura crenulata

Giant keyhole limpet

MECR

- Identification: Mantle color varies from black to mottled gray and usually covers the entire shell. Shell has a large opening in the center.
- Size: Length of shell to 13 cm.
- Habitat: On rocky substrate.

Phylum Mollusca

Lithopoma undosum

(Formerly *Astraea undosum*)

Red turban snail

LIGL/S

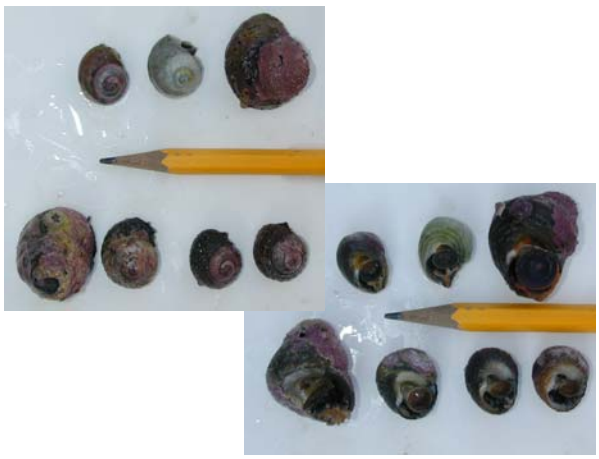
- Identification: Heavily sculptured spiral shell that is frequently covered with encrusting coralline algae. Oval-shaped operculum has large rough ridges.
- Size: Shell diameter to 110 mm.
- Habitat: On rocky substrate.

Norrisia norrisi

NONO

Norris's top snail

- Identification: Red-brown flattened spiral shell with a bright red foot.
- Size: Shell diameter to 5.5 cm.
- Habitat: On kelp and rocky substrate.



Tegula spp.

TESP

Turban snail

- Identification: Shell commonly smooth, rounded-conical. Color orange, black, brown or a combination of these. Foot with dark brown or black sides, white or cream color below.
- Size: Variable, 1-3 cm.
- Habitat: On kelp and rocky substrate.

Phylum Mollusca

Serpulorbis squamigerus

scaled worm snail

SE

- Identification: Shell is a partially coiled tube attached to substrate. No operculum. Usually occurring in aggregations.
- Size: Length of tube to 12 cm.
- Habitat: On rocky or other hard substrate.

Cypraea spadicea

Chestnut cowry

CYSP

- 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: Up to 8 cm in length.
- Habitat: On rocky reefs and underneath ledges.

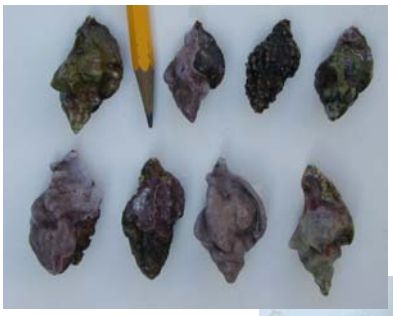
Kelletia kelletia

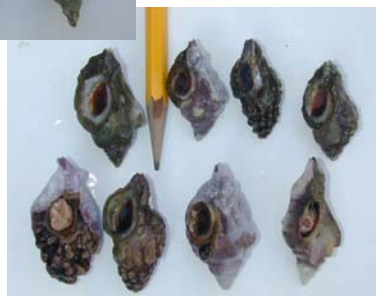
Kellet's whelk

KEKE

- Identification: White or gray, robust shell with heavy sculpturing crossed by thin spiral lines. Skin is yellow, mottled with black and white markings.
- Size: Length of shell to 18 cm.
- Habitat: In kelp beds on rocky and soft bottoms.

Phylum Mollusca





Small Kelletia-like spp.

Whelk-like snail

SKE

- Identification: Catchall category for small *Kelletia*-like snails. May include juveniles *Kelletii* or other genera such as *Pteropurpura*
- Size: Variable, 1-3 cm.
- Habitat: On rocky substrate.

Pteropurpura trialata

Three-winged murex

PTTR

- Identification: Three distinctive wing-like processes protrude from the central shell, one on top and one to each side. Distinguished from *Ceratostoma foliatum* by lack of tooth on the outside edge of the opening.
- Size: Length up to 9 cm.
- Habitat: commonly on rocky substrate.

Mitra idae

Ida's miter

MIID

- Identification: Dark brown, smooth shell covered with a black periostracum. The foot is white.
- Size: Up to 8 cm in length.
- Habitat: On rocky substrate.

Phylum Mollusca

Conus californicus

California cone

COCA

- Identification: Smooth light brown shell with a transparent to white foot and a black proboscis.
- Size: Up to 4 cm in length.
- Habitat: On sandy and rocky bottoms.

Aplysia californica

California brown sea hare

APCA

- Identification: Color varies from reddish, brownish, and/or greenish, overlaid with dark lines and spots.
- Size: Length can exceed 40cm.
- Habitat: Among seaweed, in kelp canopy, sometimes in sandy areas.

Aplysia vaccaria

California black sea hare

APVA

- Identification: Body dark reddish brown to black, with white speckled patches. Distinguished from *A.. californica* by larger size.
- Size: Length up to 75 cm.
- Habitat: Around kelp beds, rocky and sandy areas.

Phylum Mollusca

Crassedoma giganteum

(Formerly *Hinnites giganteus*)

Rock scallop

CRGI

- Identification: Orange mantle. Adults cemented to substrate and have thick valves with spines protruding from ribs.
- Size:. Shell diameter to 20 cm.
- Habitat: On rocky substrate.

Mytilus californianus

California mussel

MC

- Identification: Shell thick, pointed at anterior end, broadening posteriorly, sculptured with strong radial ridges and irregular growth lines. Surface often eroded or worn. Blue-black in color.
- Size: Length to 13 cm.
- Habitat: Form large beds on rocks and pilings.

Chaceia ovoidea

wart-neck piddock

CHOV

- Identification: Boring clam, with siphon sticking out of rock. Siphon distinct dark brown.
- Size: Shell to 12 cm in length. Siphon fully extended can reach 1m in length.
- Habitat: Burrows into clay or shale reefs.

Phylum Mollusca

Parapholas californica

scaleside piddock

PACA

- Identification: Boring clam, with white siphon that usually has reddish-brown spots and blotches.
- Size: Shell length to 15 cm. Siphon can extend to 15 cm.
- Habitat: Burrows into clay, soft shale and sandstone reefs.

Octopus spp.

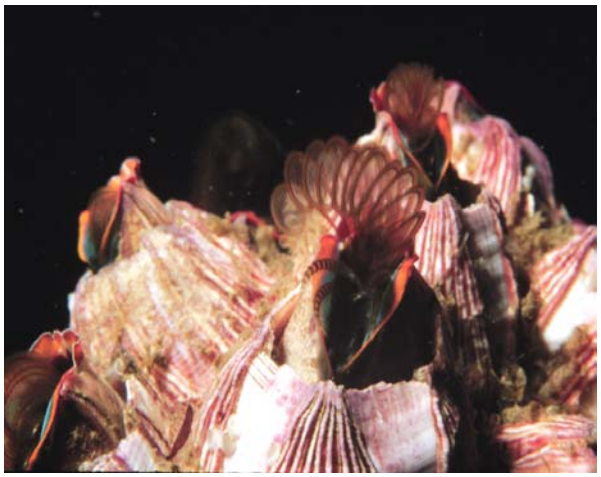
octopus

OCTO

- Identification: Octopus mimic colors and texture. They always have eight legs.
- Size: Armspan to 300 cm but usually closer to 30 cm.
- Habitat: Usually found hiding in crevices and under rocks.

Phylum Arthropoda

Crustacea



Barnacle spp.

barnacle

BA

- Identification: Assorted barnacle species, Plates or paired beaks cover the opening of the feeding tentacles in live individuals.
- Size: Basal diameter from 0.5 to 10 cm depending on species. Height 0.5 to 7.5 cm.
- Habitat: Requires hard substrate to attach to, such as rock or the shell of another animal.

Phylum Arthropoda

Panulirus interruptus

California spiny lobster

PAIN

- Identification: Large reddish brown crustacean with long antennae covered with small sharp spines. Anterior portion of the thorax with sharp spines. Large spines on tail. Claws absent.
- Size: Length up to 60 cm.
- Habitat: In crevices and underneath rocks during daytime, forages at night.

Loxorhynchus grandis

Sheep crab

LOGR

- Identification: Large spider crab with robust, oval carapace covered with spines and tubercles. Males have larger chelipeds (claws) than females.
- Size: Carapace up to 16 cm in width.
- Habitat: Common on rocky and soft bottoms.

Pugettia producta

Kelp crab

PUPR

- Identification: Smooth carapace with yellowish brown to reddish coloring. Feeds on algae.
- Size: Carapace width up to 12 cm.
- Habitat: Common on kelp and on rocky substrate.

Phylum Arthropoda

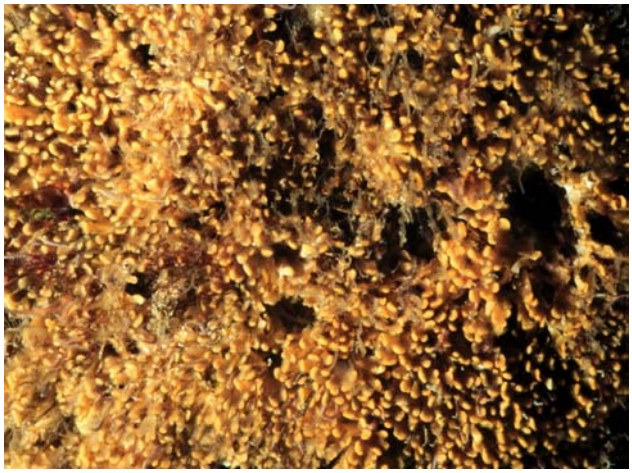
Cancer spp.

cancer crab

CASP

- Identification: Typical “crab” shape like you see in the grocery store. Body and legs may be hairy or smooth.
- Size: Carapace width 2-18 cm.
- Habitat: On rocky and sand substrates.

Phylum Ectoprocta (Bryozoans)



Diaperoecia californica

staghorn bryozoan

DC

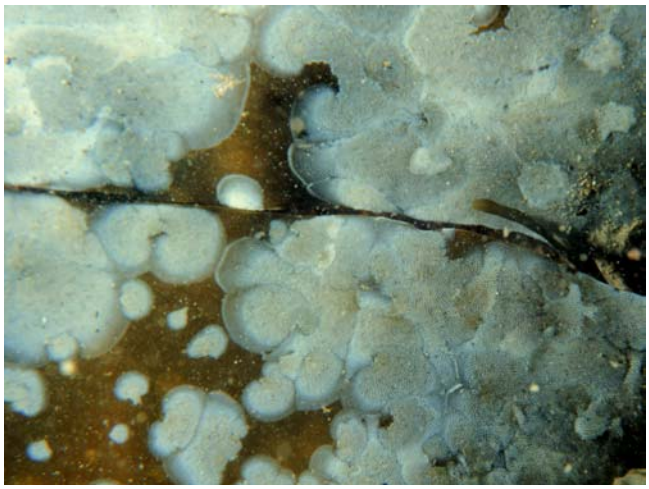
- Identification: Colonies in coral-like masses, with flattened branches. Color light to dark yellow.
- Size: Colony height to 10 cm .
- Habitat: On rocks and other hard substrate.

Bugula neritina

BN

- Identification: Colony bushy, reddish brown or purple in color.
- Size: Colony 3-10 cm in height.
- Habitat: Found growing on rocks and in sandy substrate.

Phylum Ectoprocta (Bryozoans)

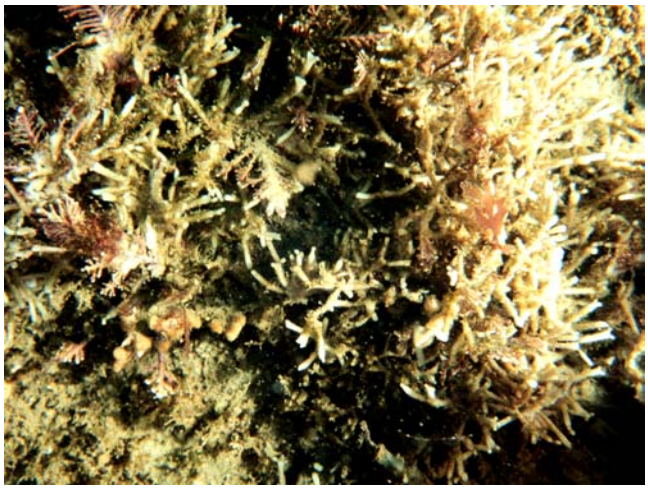


Membranipora tuberculata

encrusting bryozoan

MT

- Identification: Small white zooids forming crustose colonies having a honeycomb appearance. Usually epiphytic. Seen here on *Macrocystis.*
- Size: Variable, can cover most of an alga, several cm in diameter.
- Habitat: Often found growing on *Macrocystis, Cystiseira,* and especially *Gelidium.*



Thalamoporella californica

TC

- Identification: Flesh colored colony dichotomously branched with a basal crust and many projections.
- Size: Colony varying in size but can form large mats.
- Habitat: Found growing on rocks and on some red algae, *Gelidium, Lithothrix,* and *Gigartina,* and *Macrocystis.*

Phylum Echinodermata

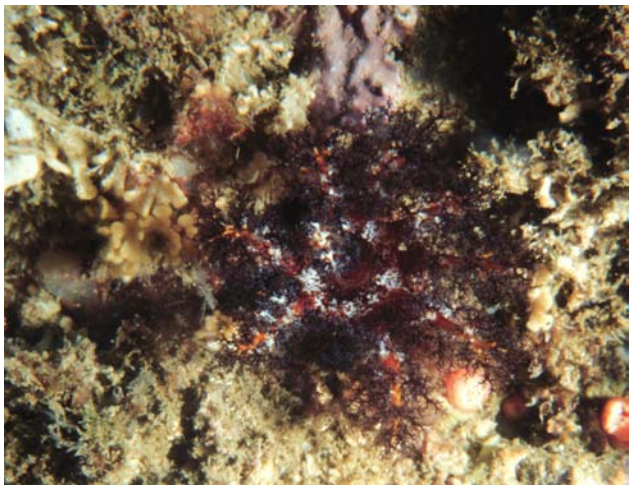
Holothuroidea

Cucumaria piperata

CUPI

- Identification: Small cucumber. 10 branched tentacles. Usually white, with brown or black speckles.
- Size: Length to about 60 mm.
- Habitat: In rocky areas and crevices.

Phylum Echinodermata



Cucumaria salma

CUSA

- Identification: Body salmon to orange color with 5 rows of tube feet. Tentacles black and goldish yellow, with white banding.
- Size: Length to 15 cm.
- Habitat: In holes and crevices in rocks.

Eupentacta quinquesemita

White sea cucumber

EUQU

- Identification: Small white to yellowish sea cucumber, cannot completely retract its long tube feet.
- Size: Length to 10 cm.
- Habitat: On rocky substrate.

Parastichopus californicus

California sea cucumber

CUKE

- Identification: Dark red, brown or yellow sea cucumber has stiff, conical papillae. Tube feet only on ventral surface.
- Size: Length to 40 cm.
- Habitat: On rocks and soft substrates.

Phylum Echinodermata

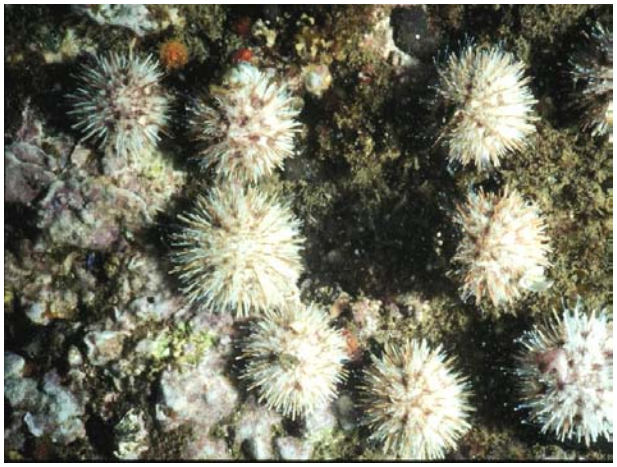
Parastichopus parvimensis

Warty sea cucumber

PAPA

- Identification: Brownish sea cucumber is covered with small black-tipped papillae or pseudospines.
- Size: Length to 25 cm.
- Habitat: On soft substrate.

Echinoidea

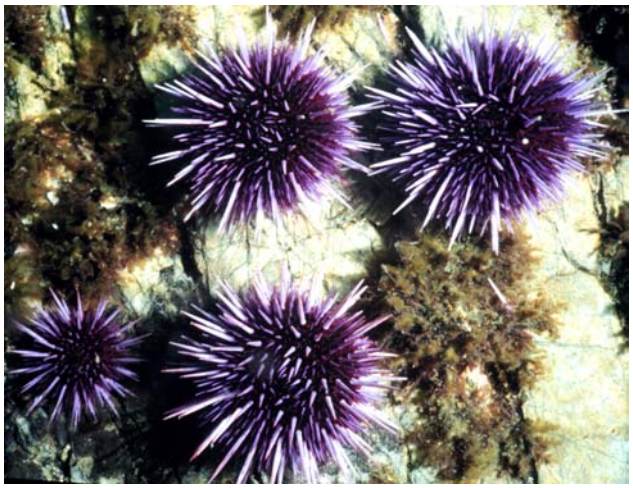


Lytechinus anamesus

*W*hite sea urchin

LA

- Identification: small sea urchin with sharp, short white spines. Test is usually white with dark blotches.
- Size: Diameter to about 8 cm.
- Habitat: On soft as well as rocky bottoms, often aggregate around food sources.



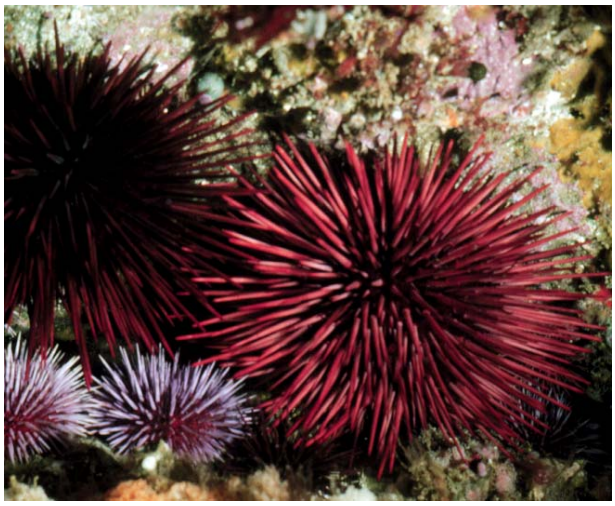
Strongylocentrotus purpuratus

purple sea urchin

SPL/S

- Identification: Medium sized sea urchin with short purple spines. Frequently bores depressions in rocks.
- Size: Test diameter to about 5 cm.
- Habitat: On rocky substrate.

Phylum Echinodermata



Strongylocentrotus franciscanus

red sea urchin

SFL/S

- Identification: Large urchin with sharp, long spines. Color ranges from red to dark purple to black (S. *purpuratus* shown in bottom left).
- Size: Test diameter to 10 cm.
- Habitat: On rocky substrate.

Asteroidea

Asterina miniata

bat star

AML/S

- 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: Diameter to 20 cm.
- Habitat: On rocky and sandy substrates.

Dermasterias imbricata

leather star

DIL/S

- Identification: This sea star feels smooth and almost leather-like.
- Size: Diameter to 25 cm.
- Habitat: On rocky substrate, occasionally on sand.

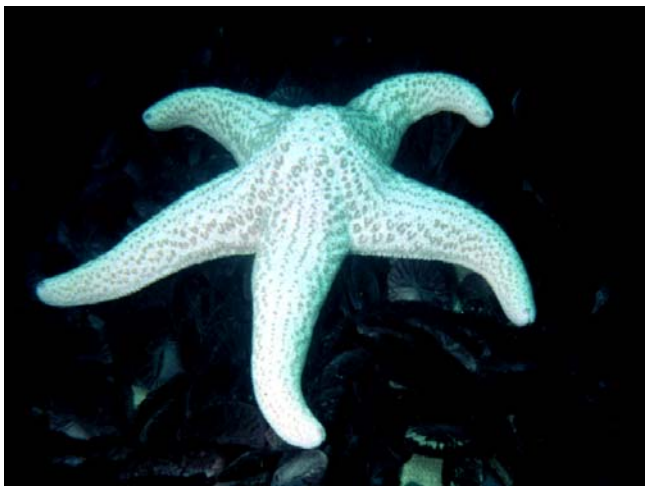
Phylum Echinodermata

Orthasterias koehleri

Rainbow sea star

OKL/S

- Identification: Vivid color, ranging from pink with gray to bright red with yellow banding. Small disk with 5 slender arms.
- Size: Arm radius to 21 cm.
- Habitat: On mud, sand, rock and kelp. Depths extending to 250 m.

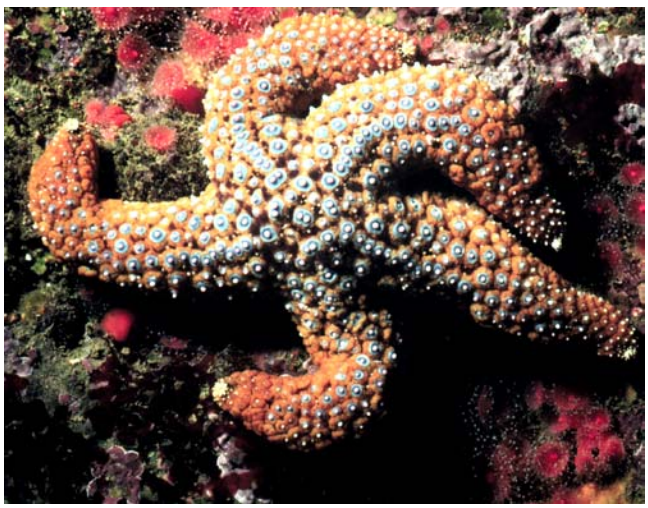


Pisaster brevispinus

short spined sea star

PBL/S

- Identification: This sea star is always pink. It has short aboral spines.
- Size: Diameter to 60 cm.
- Habitat: On rocky and soft substrates.



Pisaster giganteus

giant spined sea star

PGL/S

- Identification: This sea star has long uniformly spaced spines with swollen tips. Each spine is surrounded by a blue circle.
- Size: Diameter to 60 cm.
- Habitat: On rocky and sand substrates.

Phylum Echinodermata

Pisaster ochraceus

ochre sea star

POL/S

- Identification: Thick armed star with numerous small white spines on the aboral surface arranged in a reticular pattern. Color varies from dark gray to orange.
- Size: Diameter to 35 cm.
- Habitat: Low intertidal to shallow subtidal on rocky habitats.

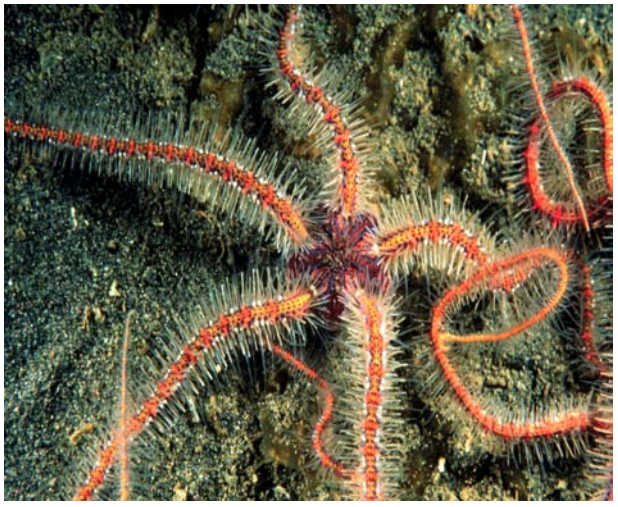
Pycnopodia helianthoides

sunflower sea star

PHL/S

- Identification: Large sea star has 20 to 24 flexible arms. Juveniles have 5 arms. Color varies from purple to brown, orange, or yellow.
- Size: Diameter to 90 cm.
- Habitat: On rocky and soft substrates.

Ophiuroidea



Ophiothrix spiculata

spiny brittle star

OPSP

- Identification: Small brittle star with long, erect spines on the arms and disc. Often aggregates.
- Size: Diameter usually < 15 cm.
- Habitat: On rocky and soft substrates.

Phylum Echinodermata

Ophioplocus esmarki

Smooth brittle star

OPES

- Identification: Relatively smooth, with a large disc and short spines that can be folded against the arms. Color brown to gray-brown.
- Size: Diameter to 15 cm.
- Habitat: On rocky and soft substrates.

Phylum Chordata

Polyclinum planum

Elephant ear tunicate

POPL

- Identification: Ear-like, lobed colony of zooids attached to substrate by slender stalk. Brown to yellow color.
- Size: Diameter of lobe to about 20 cm.
- Habitat: Attached to rocky substrate.

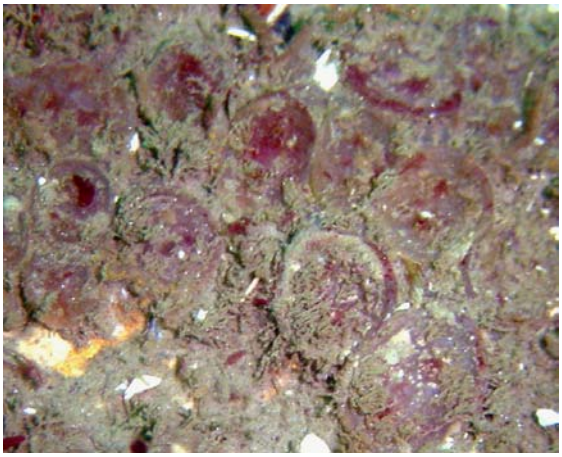
Archidistoma psammion

Sand tunicate

AR

- Identification: Colonies form flat slabs or oval lobes. Zooids arranged in circular systems Test is firm and leathery Color varies from dark brown, purple, maroon, gray, or whitish..
- Size: 1-2 cm thick, up to 20 cm long.
- Habitat: On rock surfaces in sand scoured areas.

Phylum Chordata



Chelyosoma productum

CHPR

- 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 ~ 2 cm
- Habitat: on horizontal rock surface

Styela montereyensis

stalked tunicate

STMO

- Identification: Long stalked, solitary tunicate with longitudinal ridges. Color yellow to dark red-brown.
- Size: Height to about 25 cm.
- Habitat: Attached to rocky substrate.

Santa Barbara Coastal Ecosystem
Long Term Ecological Research

About the Santa Barbara Coastal Ecosystem Long-Term Ecological Research Program

The Santa Barbara Coastal Ecosystem 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 24 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.