

**SEA OF CORTEZ
MARINE INVERTEBRATES**

A Guide for the Pacific Coast,
Mexico to Ecuador

by
Alex Kerstitch

DUPL



E.J. BRILL
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Seabutton, *Jenneria pustulata*

Photograph by Alex Kerstitch

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DEDICATION

To

DONALD A. THOMSON

my

mentor, colleague, and good friend.

El Niño — The cyclic phenomenon that involves the widespread warming of the equatorial Pacific ocean and results in the disruption of marine ecosystems and weather patterns throughout the world.

endemic — Restricted to a particular region.

epipelagic — Oceanic zones, in near-surface waters where enough light penetrates for photosynthesis.

epizoanthid — Small solitary anemones of the genus *Epizoanthus*.

exoskeleton — External skeleton or supporting covering of animals (particularly arthropods).

extrabranchial — Located outside the branchial arches (particularly in fishes).

fasciole — A band of oar-shaped, ciliated spines used to produce currents along the body surface of heart urchins.

filiform — Filament or thread-shape.

flammules — Flame-shaped markings.

fusiform — Spindle-shaped; tapering at each end.

gastropod — Molluscs of the class Gastropoda (snails and slugs).

gastrozooids — The nutritive polyps of cnidarians.

girdle — Muscular, spicule-bearing peripheral part of the mantle of a chiton, encircling the body and shell plates.

gonozooid — A sexual zooid or medusa bud of a hydroid.

helix — A spiraling coil, as in a gastropod shell.

hyaline — Transparent or semi-transparent, with a glossy or gelatinous consistency.

hydrocoral — A compound hydrozoan having a well-developed calcareous skeleton: orders Milleporina and Stylasterina.

hydroids — The polyp form of a hydrozoan (as distinguished from the medusa form); usually sessile.

infauna — Animals living in soft benthic substrata, such as sand and mud.

interambulacra — Areas of the echinoderm body that lie between rows of tube feet.

intertidal — That part of the shore zone that is alternately covered and uncovered by the tides.

iridocytes — Cells that occur in the skin

of certain vertebrates and invertebrates that appear iridescent greenish or bluish from guanine.

lamella — A small, thin disc or plate.

lecithotrophic — Larvae with large yolk supply for nutrition.

lumule — An oval or crescent-shaped body part.

maculations — Spots and similar markings on an animal or plant.

mantle — The soft external body wall that covers the body of molluscs, tunicates, or barnacles.

margin — Edge or border.

marislin — A 20-carbon chemical secreted by *Chromodoris marislae* as a defense mechanism.

mesenteries — The radial muscular partitions extending inward from the wall of the digestive cavity of actinozoans.

metabolite — A metabolic by-product.

molluscivorous — Organisms that prey exclusively or primarily on molluscs.

morphology — The study of form and structure of organisms.

navenone — An intraspecific alarm substance used for chemical communication among individuals of *Navanax inermis*.

nematocysts — The stinging cells of cnidarians.

neurotoxin — A toxic protein compound in certain venomous animals that affects the nervous system.

nomenclature — A system of names used in a particular science and sanctioned by the usage of its practitioners.

notal — Of or belonging to the back.

notosetae — The chitinous bristles associated with the upper lobe of polychaete segmental locomotory appendages (parapodia).

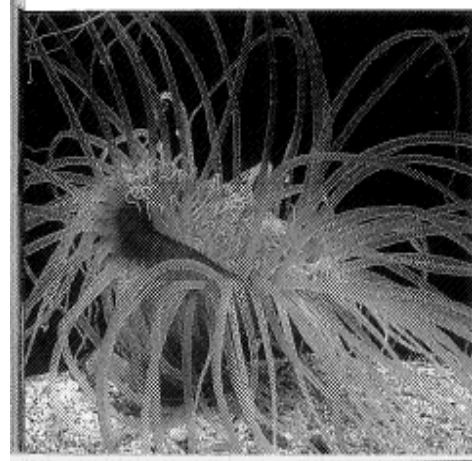
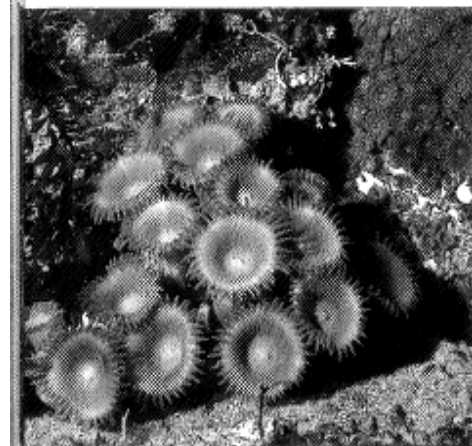
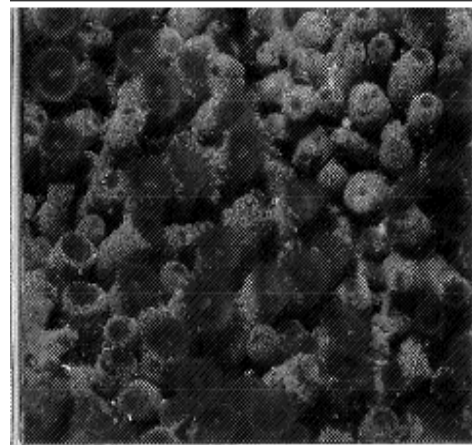
norrisolide — A diterpene chemical secreted by the nudibranch *Chromodoris norrisi*.

ocellus — A simple eye or eyespot found in many organisms (pl. ocelli); an eye-like pigment spot on certain invertebrates, such as octopuses.

operculum — A hard or horny plug that closes the aperture of some snails, barnacles, or bryozoans.

opisthobranch — Sluglike molluscs of the order Opisthobranchia.

oral disc — The unattached end of a cnidarian polyp; in the center is a single opening to the gut cavity.



dal depths, to at least 100 ft. (30.5 m). *Distribution*: Throughout the Gulf to central Mexico, including Islas Revillagigedo. *Remarks*: The gorgonian wrapper attaches itself to various gorgonians, including *Lophogorgia alba*, *Eugorgia aurantica*, and *Muricea* sp. This anemone is probably an undescribed species.

29. *Epizoanthus* sp. (species undetermined) **Red epizoanthid**

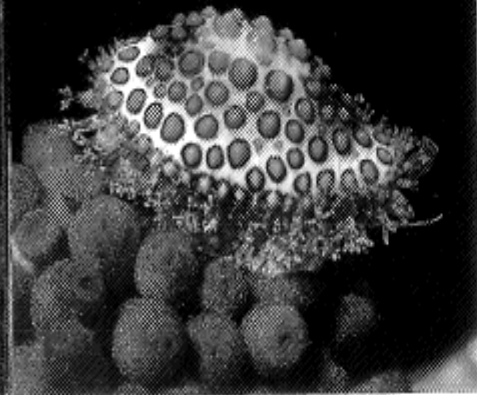
Description: The column and tentacles are red to reddish-brown in color. The column epidermis is usually covered with sand or mud. *Size*: Polyp height 1 in. (25 mm). *Habitat*: On rocky reefs, sand, and rubble substrates, encrusting gorgonian stalks or covering rock surfaces; shallow subtidal to at least 250 ft. (76.2 m). *Distribution*: Throughout the Gulf. *Remarks*: This species is particularly common in the upper and central Gulf. An undescribed genus and species of nudibranch lives and feeds on this zoanthid.

30. *Palythoa ignota* **Colonial zoanthid anemone**

Description: The polyp color is brown to olive-green. Like other zoanthid anemones, this species has only one ciliated groove on the oral disc and lacks a pedal disc. The column epidermis is relatively thick. *Size*: Polyp diameter 0.5-1 in. (12-25 mm). *Habitat*: Covers rocks and reef surfaces, particularly along tide pool edges; low intertidal and shallow subtidal. *Distribution*: Northern and central Gulf (distribution below the central Gulf is unrecorded). *Remarks*: This is one of the most abundant zoanthid anemones within its range. Its coloration results from zooxanthellae, symbiotic one-celled algae living in its tissues.

31. *Pachycerianthus fimbriatus* **Pacific tube anemone**

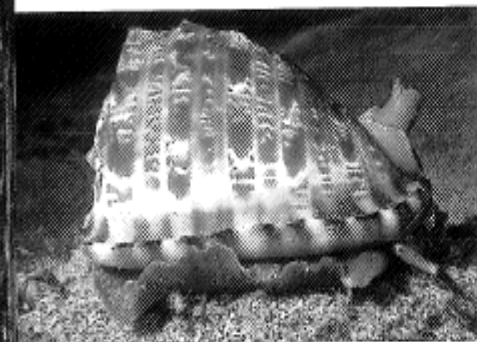
Description: The long, thin tentacles extending out of the mucus-like tube vary in color from white to light blue, purple or pink and are occasionally bi-colored. *Size*: Total expanded length 10-15 in. (250-375 mm). *Habitat*: Partially buried under sandy or rubble substrates; depths of 30-150 ft. (10-46 m). *Distribution*: Throughout the Gulf, northern to southern California (distribution south of the Gulf is poorly known). *Remarks*: This elegant species is most often encountered with its



83. *Jenneria pustulata*

Sea button

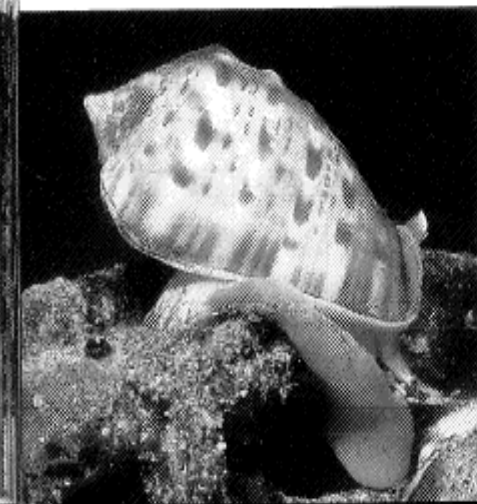
Description: The dorsal surface is covered with reddish orange pustules and the ventral surface is banded with raised white ribs. *Size:* Shell length 0.75-1 in. (6-12 mm). *Habitat:* Under intertidal and subtidal rocks and in crevices; to 60 ft. (15.2 m). *Distribution:* Throughout the Gulf to Ecuador. *Remarks:* Common in some localities. Numerous individuals can occasionally be found on beaches after heavy storms or hurricanes. This cowrie-related snail is frequently associated with the colonial anemone, *Palythoa ignota*. Several snails may be found living within a large colony.



84. *Cassis tenuis*

Thinshell helmet

Description: Shell is quite thin. The aperture is relatively narrow, with a single varix at the outer lip. *Size:* Shell length 3-6.4 in. (75-160 mm). *Habitat:* In subtidal sandy areas close to rocks or under rocky ledges; at depths of 10-150 ft. (3-46 m). *Distribution:* Central Gulf to Ecuador. *Remarks:* A rather rare species which appears to be associated with offshore islands. Crab-inhabited shells are occasionally found, but live specimens are rarely seen.



85. *Cassis coarctata*

Narrow helmet shell

Description: Smaller and heavier than *Cassis tenuis*. The upper part of the lip folds slightly inward. *Size:* Shell length 1.5-3 in. (37-75 mm). *Habitat:* In intertidal and subtidal sand, between rocks; to depths of 100 ft. (30.5 m). *Distribution:* Throughout the Gulf to Ecuador. *Remarks:* Remains buried under the sand during the day, but emerges at night to forage over sand. It is locally common.