



**AMERICAN
SAMOA
UNDERWATER
IDENTIFICATION
GUIDE**

GLOSSARY

- **Dioecious:** Refers to species in which sexes are always separate. Opposite of hermaphroditic and monoecious (referring to species with male and female sex organs in the same specimen).
- **Gametes:** Male or female reproductive cells.
- **Hermaphrodite:** Refers to species having both sexes in the same individual, either at the same time (synchronous hermaphrodite) or at different times (successive hermaphrodite).
- **Intertidal zone:** Area between high- and low-water marks.
- **IUCN:** The World Conservation Union that issues a "Red List" of threatened species of animals and plants.
- **Oviparous:** Producing eggs that develop and hatch outside the body of the female.
- **Phytoplankton:** Plankton composed of plants.
- **Plankton:** Passively floating or only weakly swimming small aquatic organisms drifting in the ocean. Planktonic organisms range in size from tiny plants and animals to rather large jellyfish, and include the larval stages of many fish.
- **Polyp:** Animal with numerous tentacles.
- **Protogynous:** Successive hermaphrodite in which fish function first as females and then change to males (opposite of protandrous hermaphrodite, which refers to species that function first as males and then change to females).
- **Rhizome:** Elongate stem of a plant that produces shoots above ground and roots below.
- **Spawning aggregation:** A group of fish gathered for the purpose of spawning, with fish numbers significantly higher than those found in the area during the non-reproductive periods.
- **Substrate:** The substance forming the sea or ocean floor.
- **Viviparous:** Bringing forth living (active, free-swimming) young, rather than laying eggs; producing live young from within the body of the parent female.
- **Zooplankton:** Plankton composed of animals.



SPC
Secretariat
of the Pacific
Community



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Resource documents used to gather the information include:

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Stenella longirostris

- **Habitat/biology:** May occur in schools of 1000 individuals, but more commonly found in schools of 200 or less. Communicate with each other by echolocation, caressing each other, and using aerial jumps. They perform many kinds of jumps, but the spinning jump is their “trademark”. Carnivorous, they eat fish, squid, and shrimp. Most of the prey they eat are vertically migrating species.

- **Reproduction:** Dioecious; sexual reproduction with internal fertilization; viviparous. Mate one or two times a year. Male senses when a female is ready to mate and pursues her. Mating happens within the school with no real mate selection. Males reach sexual maturity when 10–12 years old, females when 5.5–10 years old. Adult females give live birth to one calf every 2 or 3 years. Gestation period is more than 10 months.

- **Maximum size:** 250 cm (6 ft 2 in).

- **Importance:** May attract tourists (dolphin watching). Also subject to scientific investigation because of their remarkable capacity to learn.

- **Distribution:** Tropical and subtropical waters.

Spinner dolphin

- **Systematics:** Animalia (K); Chordata (P); Mammalia (C); Cetacea (O); Delphinidae (F).
- **Description:** Adults with a three-part color pattern: dark gray back, pearl-gray side panels, and white belly. Beak generally very long.





Chelonia mydas

- **Habitat/biology:** Females only emerge from the ocean when nesting. Males are constantly at sea but for when they were first born. Adults are strictly herbivorous, juveniles mostly carnivorous (jellyfish, crabs, snails and worms).
- **Reproduction:** Dioecious; sexual reproduction with internal fertilization; oviparous. Males and females mature when 10–24 year old. They may migrate, for mating purposes, sometimes over a thousand miles across the ocean to get back to where they hatched. Mating occurs underwater or on the surface about one kilometer from the shore. Sometimes, the female retains enough sperm to nest several times in the same season. Nesting occurs every 3 to 6 years. When a female is ready to lay her eggs, she leaves the water, crawls onto the sand and digs for hours. She then lays a group of 100 to 200 eggs, called a clutch. She covers it with sand as a protection against the sun, heat and predators. Gestation period lasts 40 to 72 days.
- **Mean adult size:** 1.1 m (3 ft 7 in) and 145 kg (320 lbs).
- **Importance:** Endangered species because it has many predators, including humans, is long-lived and has a low reproduction rate. Protected by the Endangered Species Act in the USA.
- **Distribution:** Tropical and subtropical waters.

LAUMEI TUALIMU

Green turtle

- **Systematics:** Animalia (K); Chordata (P); Reptilia (C); Testudines (O); Cheloniidae (F).
- **Description:** Olive-green carapace with black spots in adults (> 0.9 m or 3 ft); brick red with a few streaks in sub-adults (0.15–0.9 m or 0.5–3.0 ft); bluish-black with a white edge bordering the carapace and flippers at birth.





Carcharhinus melanopterus

- **Habitat/biology:** Shallow water close inshore on coral reefs and in the intertidal zone (reef flats), near reef dropoffs and close offshore; occasionally in mangrove areas. Occurs singly or in small groups. Prefers fish but also feeds on crustaceans, cephalopods, and other mollusks.

- **Reproduction:** Dioecious; sexual reproduction with internal fertilization; viviparous (placental); 2 to 4 young (46–52 cm or 18–20 in) per litter. Vulnerable to depletion because of its small litter size and long gestation period.

- **Maximum size:** 200 cm (6 ft 7 in).

- **Importance:** Fisheries: commercial (meat, fins, and liver for oil); aquarium: show aquarium.

- **Distribution:** Wide ranging from South Africa, the Red Sea, Pakistan, India eastward to the Western Central Pacific. Also in the eastern Mediterranean Sea as an invader from the Red Sea through the Suez Canal.

APEAPE MALIE ALAMATA

Blacktip reef shark

- **Systematics:** Animalia (K); Chordata (P); Elasmobranchii (C); Carcharhiniformes (O); Carcharhinidae (F).
- **Description:** Yellow-brown on dorsal surface, underside white; all fins with black or dark brown tips; a prominent black tip on first dorsal fin set off abruptly by a light band below it.



Image: J.E. Randall



Acanthurus lineatus

- **Habitat/biology:** A territorial species, almost continually in motion, common in surge zones of exposed seaward reefs. Large males control well-defined feeding territories and harems of females. Herbivorous but also feeds on crustaceans. The venomous caudal spine can cause painful wounds.
- **Reproduction:** Dioecious; sexual reproduction with external fertilization; oviparous. Forms spawning aggregations.
- **Maximum size:** 38 cm (15 in).
- **Importance:** Fisheries: commercial; aquarium: commercial.
- **Distribution:** Eastern Africa to the Hawaiian, Line, Marquesas and Tuamotu islands, south to the Great Barrier Reef and New Caledonia, north to southern Japan.

Lined surgeonfish

- **Systematics:** Animalia (K); Chordata (P); Actinopterygii (C); Perciformes (O); Acanthuridae (F).
- **Description:** Upper $\frac{3}{4}$ of body with alternating black-edged blue and yellow bands; lower $\frac{1}{4}$ of body gray. Upper part of head with yellow, oblique stripes. Pectoral fins pale with dusky rays; pelvic fins light yellowish brown with black outer margin; vertical markings on caudal fin.





Acanthurus triostegus

- **Habitat/biology:** Lagoon and seaward reefs with hard substrate; young abundant in tide pools. Occasionally form schools; feed on filamentous algae in large aggregations.

- **Reproduction:** Dioecious; sexual reproduction with external fertilization; oviparous. Forms spawning aggregations. During spawning, clouds of eggs and sperm are often preyed upon by eagle rays.

- **Maximum size:** 27 cm (11 in).

- **Importance:** Fisheries: commercial.

- **Distribution:** East Africa to Panama, north to southern Japan, south to Lord Howe, Rapa, and Ducie islands; throughout Micronesia.

Convict surgeonfish

- **Systematics:** Animalia (K); Chordata (P); Actinopterygii (C); Perciformes (O); Acanthuridae (F).
- **Description:** Body olive-gray, with 4 vertical stripes (1 stripe on head across the yellow eye; 1 on caudal peduncle); shading to white ventrally, often with a sharp line of demarcation. Sharp, forward-pointing, erectile spine on each side of caudal peduncle, which folds down into a groove.





Cirripectes stigmaticus

- **Habitat/biology:** Coastal reef flats with rich coral and algae habitats, usually in very shallow depths.
- **Reproduction:** Dioecious; sexual reproduction with external fertilization; oviparous. Males attract gravid females to lay their eggs in a small hole or crevice, or underneath empty bivalve shells. The eggs are then guarded by the male or by both parents.
- **Maximum size:** 13 cm (5 in).
- **Importance:** Aquarium: commercial.
- **Distribution:** Indo-Pacific, from Mozambique to Kenya, throughout the Indian Ocean and Western Central Pacific to the Marshall and Samoa islands.

MANO'O-LA'O

Red-streaked blenny

- **Systematics:** Animalia (K); Chordata (P); Actinopterygii (C); Perciformes (O); Blenniidae (F).
- **Description:** Scaleless body; large individuals dark green to black with red spots on the head and red spots to vertical streaks on the sides; iris with yellow-ringed pupil.



Image: J.E. Randall



Caranx melampygus

- **Habitat/biology:** A coastal and oceanic species, associated with reefs. Juveniles occur seasonally in shallow sandy inshore waters. Occasionally in schools. Feeds mainly on other fish, but also on crustaceans.

- **Reproduction:** Dioecious; sexual reproduction with external fertilization; oviparous.

- **Maximum size:** 117 cm (46 in).

- **Importance:** Fisheries: commercial; aquaculture: commercial; gamefish: yes; aquarium: show aquarium.

- **Distribution:** Indo-Pacific: Red Sea and East Africa to Ducie Island, north to the Ryukyu Islands (Japan), south to New Caledonia. Eastern Central Pacific: Mexico to Panama.

MALAULI-APAMOANA ATUGALOLOA

Bluefin trevally

- **Systematics:** Animalia (K); Chordata (P); Actinopterygii (C); Perciformes (O); Carangidae (F).
- **Description:** Head and body color brassy; median fins electric blue; fins of juveniles and the young pale to dusky, except yellow pectorals. Breast fully scaled. Pectoral fins deeply concave. 2 spines detached from anal fin.



Image: R.A. Patzner



Centropyge flavissima

- **Habitat/biology:** Coral-rich areas of shallow lagoon and exposed seaward reefs from the lower surge zone to 50 m (160 ft) depth. Juveniles secretive. Feeds mainly on algae. Lives as long as 11 years in captivity.
- **Reproduction:** Dioecious; sexual reproduction with external fertilization; oviparous.
- **Maximum size:** 14 cm (5.5 in).
- **Importance:** Aquarium: commercial.
- **Distribution:** Cocos-Keeling Atoll to the Line, Marquesas, and Ducie islands, straying to Easter Island, north to the Ryukyu Islands (Japan), south to New Caledonia and Rapa Island; throughout Micronesia. Not reported from Indonesia or Malaysia. Common at most oceanic islands, except the Carolines.

TU'U'U-SAMA TU'U'U-LEGA

Lemonpeel angelfish

- **Systematics:** Animalia (K); Chordata (P); Actinopterygii (C); Perciformes (O); Pomacanthidae (F).
- **Description:** Overall color bright yellow, with a blue circle around the eye and a blue blotch on the posterior margin of the operculum. Median fins edged blue. Juveniles have a characteristic blue-edged black eye-like spot in the middle of each side.





Chaetodon auriga

- **Habitat/biology:** May be seen in a variety of habitats ranging from rich coral reefs to weedy and rubble-covered areas. May be found singly, in pairs, and in aggregations that roam over large distances in search of food. Feeds mainly by tearing pieces from polychaetes (annelid worms), sea anemones, coral polyps, and algae.
- **Reproduction:** Dioecious; sexual reproduction with external fertilization; oviparous.
- **Maximum size:** 23 cm (9 in).
- **Importance:** Aquarium: commercial.
- **Distribution:** Indo-Pacific: Red Sea and East Africa to the Hawaiian, Marquesas, and Ducie islands, north to southern Japan, south to Lord Howe and Rapa islands; throughout Micronesia.

SI'U; I'USAMASAMA

Threadfin butterflyfish

- **Systematics:** Animalia (K); Chordata (P); Actinopterygii (C); Perciformes (O); Chaetodontidae (F).
- **Description:** Distinctive pattern of “chevron” markings on the sides and prominent black spot at the posterior edge of soft portion of dorsal fin. Adults with a prominent black vertical band running across the eye, and a filament trailing from the upper soft portion of the dorsal fin. Juveniles with a black bar over the head hiding the eye, and an eye-sized black spot on the soft dorsal fin.





Image: P. Laboute

Chlorurus microrhinos

- **Habitat/biology:** Lagoon and seaward reefs. Juveniles generally solitary; large adults often school together. Feeds primarily on algae and corals. Uses strong beak-like teeth to scrape algae off of rocks and dead coral and to bite off pieces of hard living corals.
- **Reproduction:** Probably protogynous hermaphrodite; sexual reproduction with external fertilization; oviparous. In parrotfish populations, the large “supermales” (large males that were once females) are dominant; they claim most of the females.
- **Maximum size:** 70 cm (27.5 in).
- **Importance:** Fisheries: commercial.
- **Distribution:** Western Central Pacific; northwest coast of Australia and some islands of Indonesia.

(< 25 CM OR 10 IN) **FUGAASI**

(25–40 CM OR 10–15 IN) **LAEA**

(40–50 CM OR 15–20 IN) **ULUMATO**

(> 50 CM OR 20 IN) **GALO**

Steephead parrotfish

- **Systematics:** Animalia (K); Chordata (P); Actinopterygii (C); Perciformes (O); Scaridae (F).
- **Description:** Juveniles (< 8 cm or 3 in) black with several horizontal white streaks. Larger ones up to about 20 cm (8 in) uniformly dark, greenish brown, slowly becoming blue with age. Blue streak and patch extending behind the corner of the mouth of large males often quite brilliant. Uniformly yellowish-tan individuals are rare. Caudal fin lunate in large males. Males develop large hump on head and appear blunt-headed.



Image: J.E. Randall



Image: P. Laboute

Chrysiptera taupou

- **Habitat/biology:** Inhabits lagoon and offshore coral reefs.
- **Reproduction:** Dioecious; sexual reproduction with external fertilization; oviparous.
- **Maximum size:** 8 cm (3.1 in).
- **Importance:** Aquarium: show aquarium.
- **Distribution:** Western Pacific: Coral Sea, northern Great Barrier Reef, Vanuatu, New Caledonia, Fiji, Samoa, and American Samoa.

TU'U'U-MO'O VAIULI-SAMA

Southseas devil

- **Systematics:** Animalia (K); Chordata (P); Actinopterygii (C); Perciformes (O); Pomacentridae (F).
- **Description:** Upper part of body bright blue with a black spot at the base of the posterior end of dorsal fin. Ventral part gold-yellow interlaced with white streaks.



Image: J.E. Randall



Epinephelus merra

- **Habitat/biology:** Very common in shallow lagoon and semi-protected seaward reefs. Juveniles are common in thickets of staghorn *Acropora* corals. Feeds on crustaceans and fish.
- **Reproduction:** Protogynous hermaphrodite; sexual reproduction with external fertilization; oviparous.
- **Maximum size:** 31 cm (12.2 in).
- **Importance:** Fisheries: commercial; aquaculture: commercial; aquarium: show aquarium.
- **Distribution:** Indo-Pacific: South Africa to French Polynesia. Not known from the Red Sea, Persian Gulf, or Asian mainland.

GATALA-ALOALO GATALA-PULEPULE

Honeycomb grouper

- **Systematics:** Animalia (K); Chordata (P); Actinopterygii (C); Perciformes (O); Epinephelidae (F).
- **Description:** A series of about 5 darker diagonal bands, each 2 to 5 hexagons wide, superimposed on sides and radiating from eye; hexagons on sides may merge into short rows.



Image: A. Cornish



Liza vaigiensis

- **Habitat/biology:** Lagoons and reef flats; also common along protected sandy shorelines. Frequently enters estuaries and rivers. Forms large schools, frequently in mangrove areas. Juveniles may be found in mangroves and may be used as bait fish.
- **Reproduction:** Dioecious; sexual reproduction with external fertilization; oviparous.
- **Maximum size:** 63 cm (24.8 in).
- **Importance:** Fisheries: commercial; aquaculture: commercial; aquarium: commercial; bait: occasionally.
- **Distribution:** Indo-Pacific: Red Sea and East Africa south to Durban, South Africa, and east to Tuamotu Islands; north to southern Japan, south to southern Great Barrier Reef and New Caledonia.

(< 10 CM OR 4 IN) **FUITOGO**

(10–25 CM OR 4–10 IN) **‘AFA**

(> 25 CM OR 10 IN) **ANAEAFA**

Squaretail mullet

- **Systematics:** Animalia (K); Chordata (P); Actinopterygii (C); Perciformes (O); Mugilidae (F).
- **Description:** About 6 longitudinal stripes on flanks formed by longitudinal marks on scales; scales also with darkened margins. Iris with yellow patches. Margins of fins dusky, otherwise yellowish white. Caudal fin distinctly yellow. Pectoral fin completely black in small fish; lower section yellowish in adults.



Image: J. Williams, IRD



Mulloidichthys flavolineatus

- **Habitat/biology:** This occasionally schooling species inhabits shallow sandy areas of lagoon and seaward reefs. Feeds on crustaceans, mollusks, worms, heart urchins, and forams.
- **Reproduction:** Dioecious; sexual reproduction with external fertilization; oviparous.
- **Maximum size:** 43 cm (17 in).
- **Importance:** Fisheries: commercial; bait: usually.
- **Distribution:** Indo-Pacific: Red Sea and East Africa to the Hawaiian, Marquesas, and Ducie islands, north to the Ryukyu and Bonin islands, south to Lord Howe and Rapa islands; throughout Micronesia. Common throughout most of its range.

(< 8 CM OR 3 IN) **I ASINA
VETE; AFULU; AFOLU**

Yellowstripe goatfish

- **Systematics:** Animalia (K); Chordata (P); Actinopterygii (C); Perciformes (O); Mullidae (F).
- **Description:** Back gray to olive, sides and belly whitish; dark blotch below first dorsal fin; yellow-mid-lateral stripe from eye to tail, and some yellow striping on cheek and along abdomen.





Rhinecanthus aculeatus

- **Habitat/biology:** Commonly found in subtidal reef flats and shallow protected lagoons. Territorial. Feeds on algae, detritus, mollusks, crustaceans, worms, sea urchins, fishes, corals, tunicates, forams, and eggs. Sleeps on its side; makes a whirring noise when alarmed.

- **Reproduction:** Dioecious; sexual reproduction with external fertilization; oviparous; distinct pairing. Female builds the nest, in which eggs are fertilized by the male and cared for until they hatch. She then looks after newly hatched juveniles.

- **Maximum size:** 30 cm (11.8 in).

- **Importance:** Fisheries: minor commercial; aquarium: commercial.

- **Distribution:** Indo-Pacific: Red Sea south to South Africa and east to the Hawaiian, Marquesas, and Tuamotu islands, north to southern Japan, south to Lord Howe Island; throughout Micronesia. Eastern Atlantic: Senegal to South Africa.

SUMU'UO'UO

Blackbar triggerfish

- **Systematics:** Animalia (K); Chordata (P); Actinopterygii (C); Tetraodontiformes (O); Balistidae (F).
- **Description:** Angular body, distinctive high, forward, dorsal spine; small but powerful jaw, equipped with sharp, cutting teeth. Distinctive color pattern (also named Picasso triggerfish) with 2 alternate large and thin black oblique bars on posterior of ventral sides.





Selar crumenophthalmus

- **Habitat/biology:** Prefers clear and oceanic waters; occasionally in turbid waters. Mainly nocturnal. Feeds on small shrimps, benthic invertebrates, and forams when inshore, and zooplankton and fish larvae when offshore. Travels in compact groups of hundreds of thousands of fish.

- **Reproduction:** Dioecious; sexual reproduction with external fertilization; oviparous.

- **Maximum size:** 60 cm (23.6 in).

- **Importance:** Fisheries: highly commercial; bait: usually.

- **Distribution:** Tropical waters. Indo-Pacific: East Africa to Rapa, north to southern Japan and Hawaiian Islands, south to New Caledonia. Eastern Pacific: Mexico to Peru, including the Galapagos Islands. Western Atlantic: Nova Scotia, Canada, Bermuda and Rio de Janeiro to Sao Paulo, Brazil; throughout the Bahamas, Gulf of Mexico and the Caribbean Sea. Eastern Atlantic: Cape Verde to southern Angola.

(< 10 CM OR 4 IN) **NATO**

(10–20 CM OR 4–8 IN) **ATULE**

(> 20 CM OR 8 IN) **TAUPAPA**

Bigeye scad

- **Systematics:** Animalia (K); Chordata (P); Actinopterygii (C); Perciformes (O); Carangidae (F).
- **Description:** Color metallic blue to bluish green dorsally, shading to white ventrally; the lateral yellow stripe sometimes present. Lower margin of gill opening with a deep furrow, a large papilla immediately above it and a smaller one near upper edge. Operculum with black spot.





Octopus cyanea

- **Habitat/biology:** Clear tropical waters from intertidal reefs to 25-m (82-ft) depth. Feeds on crabs and other crustaceans.

- **Reproduction:** Dioecious; sexual reproduction with internal fertilization; oviparous. Female covers the eggs with her body and renews the water around them by contracting her mantle. She can lay up to 600,000 eggs in festoons.

- **Maximum size:** Over 1 m (39 in) and 6 kg (13 lb).

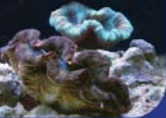
- **Importance:** Fisheries: commercial.

- **Distribution:** Tropical Indo-West Pacific region from Hawaii in the east to the east African coast in the west. Reported as far north as southern Japan and as far south as New South Wales, Australia.

Big blue octopus

- **Systematics:** Animalia (K); Mollusca (P); Cephalopoda (C); Octopoda (O); Octopodidae (F).
- **Description:** Large and robust ocellate octopus. From dark chocolate brown through mottled patterns to pale gray. Ocellus present as plain black spot surrounded by pale and dark rings.





Tridacna maxima

- **Habitat/biology:** On reefs, partially embedded in corals. Littoral and shallow waters down to 20 m (65 ft). Sessile. Feeds on phytoplankton (filter feeder), but derives maintenance requirements from symbiotic algae living within its mantle.
- **Reproduction:** Dioecious; sexual reproduction with external fertilization; oviparous; extended planktonic stage.
- **Maximum size:** 35 cm (13.8 in) shell length.
- **Importance:** Fisheries: commercial (food and shell trade); aquaculture: commercial; aquarium: commercial.
- **Distribution:** Widespread in the Indo-West Pacific, from east Africa, including Madagascar, the Red Sea and the Persian Gulf to eastern Polynesia; north to Japan and south to New South Wales and Lord Howe Island.

Elongate giant clam

- **Systematics:** Animalia (K); Mollusca (P); Bivalvia (C); Veneroida (O); Tridacnidae (F).
- **Description:** Elongated shell, almost triangular; outer surface of each valve with 6 or 7 very broad rib-like radial folds. External grayish-white, interior shiny white. Exposed mantle brightly colored and variable in color and pattern.





Turbo chrysostomus

- **Habitat/biology:** Coral reef areas. Intertidal and shallow sub-littoral zones.
- **Reproduction:** Dioecious; sexual reproduction with external fertilization; oviparous.
- **Maximum size:** 8 cm (3.1 in) shell length.
- **Importance:** Fisheries: minor commercial (seashell trade).
- **Distribution:** Indo-West Pacific, from southeastern Africa to Melanesia and western Polynesia; north to southern Japan and south to southern Queensland and New Caledonia.

Goldmouth turban

- **Systematics:** Animalia (K); Mollusca (P); Gastropoda (C); Vetigastropoda (O); Turbinidae (F).
- **Description:** Turbinate shape with length generally greater than width. Outside brownish or cream-colored, often marbled with irregular axial stripes of darker brown and/or green. Aperture mostly bright orange to golden yellow.





Echinometra mathaei

- **Habitat/biology:** Lives in the back reef and in the tidal zone. Burrows its hole in the carbonate rocks, using teeth and spines. Mostly feeds on floating debris caught with its spines or podia.
- **Reproduction:** Dioecious; sexual reproduction with external fertilization; oviparous.
- **Maximum size:** Test around 9 cm (3.5 in), spines around half of test diameter.
- **Importance:** Not commercial.
- **Distribution:** Widespread in tropical and subtropical zones of Indo-Pacific.

Hedgehog sea urchin

- **Systematics:** Animalia (K); Echinodermata (P); Echinoidea (C); Regularia (O); Echinometridae (F).
- **Description:** Small urchin; dark color, thick red-brown spines with a white ring at the base.





Linckia laevigata

- **Habitat/biology:** Protected shallow reef areas, mostly in seagrass or coral rubble. Feeds on encrusting organisms and debris; may also feed on young corals. While starfish are well-known for their regenerative abilities, most need part of the central disc to survive; *Linckia* species are among just a few starfish that can regenerate an entire star from a single arm.

- **Reproduction:** Can reproduce sexually with external fertilization and asexually.

- **Maximum size:** 30 cm (11.8 in).

- **Importance:** Aquarium: commercial and show aquarium.

- **Distribution:** Widespread in Indo-Pacific.

AVE'AU MOANA

Blue starfish

- **Systematics:** Animalia (K); Echinodermata (P); Asteroidea (C); Valvatida (O); Ophidiasteridae (F).
- **Description:** Bright deep blue. Usually has 5 arms, but specimens with 4, 6, or even 1 are also found. This variability is a result of this species' exceptional ability to regenerate damaged arms and/or to shed individual arms as a means of asexual reproduction.



Image: P. Laboute, IRD

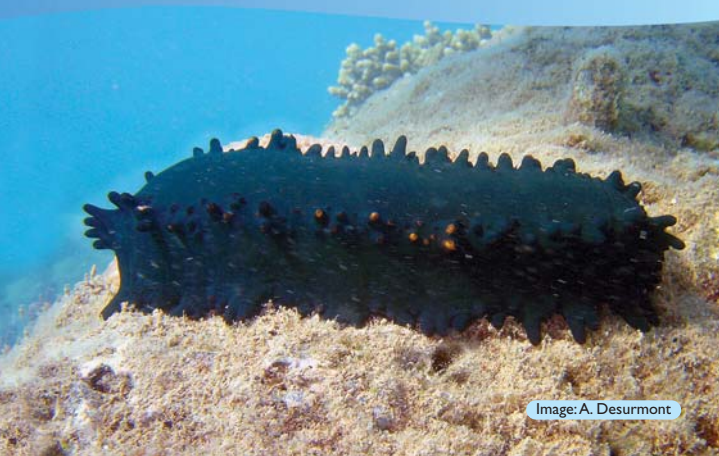


Stichopus chloronotus

- **Habitat/biology:** Reef species, preferring hard substrates and mostly occurring on reef flats and upper slopes. Shallow-water populations smaller in size than those found in deeper waters.
- **Reproduction:** Can reproduce sexually with external fertilization and asexually by transversal fission. Spawning behavior involves an upright posture of males and females followed by a swaying back and forth while gametes are released.
- **Maximum size:** 35 cm (13.8 in).
- **Importance:** Fisheries: commercial (beche-de-mer trade).
- **Distribution:** Widespread in Indo-Pacific, excluding the Persian Gulf and Hawaii.

Greenfish

- **Systematics:** Animalia (K); Echinodermata (P); Holothuroidea (C); Aspidochirotida (O); Stichopodidae (F).
- **Description:** Body firm and rigid with quadrangular section, flattened ventrally. Characteristic double row of large papillae. Black to very dark green.





Panulirus penicillatus

- **Habitat/biology:** In shallow waters at seaward edges of reef, in clear waters. Nocturnal and not gregarious. Often found in deep caves during daytime, and strongly clinging to rocks at surf zones or areas with strong current during nighttime.
- **Reproduction:** Sexual reproduction with external fertilization; oviparous; larval pelagic stage may last 7 to 8 months. Females reproductive all year round in southwestern Pacific.
- **Maximum size:** 40 cm (15.7 in) body length.
- **Importance:** Fisheries: commercial. Considered a threatened species by IUCN.
- **Distribution:** Indo-Pacific from eastern coast of Africa to the Red Sea, Japan, Australia, French Polynesia, Hawaii and offshore islands near the western coasts of America.

Pronghorn spiny lobster

- **Systematics:** Animalia (K); Arthropod (P); Malacostraca (C); Decapoda (O); Palinuridae (F).
- **Description:** Body dark blue and brown; males usually darker than females; eyes black; membrane areas at outer base of antenna light blue; legs striped with white lines.





Palola (Eunice) viridis

- **Habitat/biology:** Spends most of its lifetime burrowed in hard substrate.

- **Reproduction:** The swarming of palolo is a classic example of the coordinated mass spawning of a simple marine organism. Once a year, their hind end breaks off and swims spiraling to the surface to shed eggs and sperm. The worms emerge from their burrows on the evenings of the last quarter moon of spring or early summer. In the Samoan archipelago, this is seven days after the full moon in October or November. The reproductive frenzy only lasts for a few hours. Swarming occurs for two or three consecutive nights with the second night usually having the strongest showing. Over the course of the next year, the head end (or atoke) regenerates and eventually produces a new epitoke.

- **Maximum size:** About 30 cm (12 in).

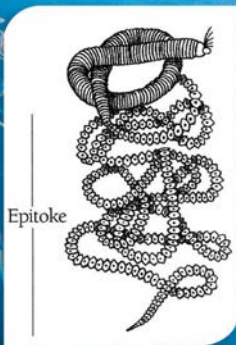
- **Importance:** A traditional delicacy.

- **Distribution:** Palola species have been recorded from all major oceans.

PALOLO

Palolo worm

- **Systematics:** Animalia (K); Annelida (P); Polychaeta (C); Eunicida (O); Eunicidae (F).
- **Description:** Worm composed of two distinct sections: front section is the basic segmented polychaete with eyes, mouth, etc., rear section is a string of segments called the “epitoke” that contain reproductive gametes colored blue-green (females) or tan (males). Each epitoke segment bears a single, tiny eyespot that can sense light (islanders use a lantern to attract the palolo to their nets).





Acropora formosa

- **Habitat/biology:** Reef slopes and lagoons. Many tiny tubes on end and sides of branches, called a “polyp cup” or coral-lite, holding a polyp made of soft tissue, shaped like a sea anemone, with tentacles around a mouth. The polyp produces the hard calcium skeleton that forms the branch. Polyps contain zooxanthellae, or symbiotic algae. Polyps extend their tentacles at night to feed on tiny animals (zooplankton). During the day, tentacles are retracted and zooxanthellae within the coral produce food, using energy from sunlight.

- **Reproduction:** Hermaphrodite; can reproduce sexually with external fertilization and/or asexually (broken pieces are able to grow and form new corals). The fertilized egg forms a tiny larva called a planula that swims for a few days, before settling on the bottom where it metamorphoses into a polyp. The polyp begins to form a skeleton and produces additional polyps.

- **Maximum size:** Branches reach 2.5 cm (1 in) or less in diameter and half a meter (2 ft) or more in length. Fast growing, up to 10 cm (4 in) per year.

- **Importance:** Aquarium: commercial. Staghorn are one of the many types of coral that build the reefs that protect our shores and provide habitat and food for thousands of marine species.

- **Distribution:** Indo-Pacific: Red Sea and east Africa, north to Ryukyu Islands (Japan), and east to French Polynesia. Absent in Hawaii.

AMU'AMU

Staghorn coral

- **Systematics:** Animalia (K); Cnidaria (P); Anthozoa (C); Scleractinia (O); Acroporidae (F).
- **Description:** Called staghorn coral because it has branches like the horns of a deer. Cylindrical branches taper slowly and evenly to a point. Sides of branches are rough. Branches connect to sub-branches a few times in a foot length of branch. Usually brown, sometimes blue.



Image: D. Fenner

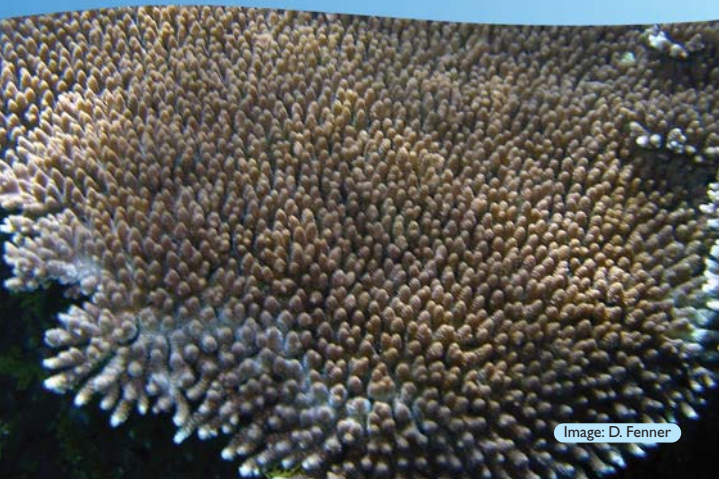


Acropora hyacinthus

- **Habitat/biology:** Upper reef slopes and outer reef flats. Same biology as the staghorn coral (*Acropora formosa*).
- **Reproduction:** Same as the staghorn coral (*Acropora formosa*).
- **Maximum size:** Tables reach about 2 m (6.5 ft) diameter, about 60 cm (2 ft) above attachment. Tables grow at moderate rates, around 5 cm (2 in) per year in diameter.
- **Importance:** Aquarium: commercial. Table corals are one of the many types of coral that build the reefs that protect our shores and provide habitat and food for thousands of marine species.
- **Distribution:** From Indonesia, Australia (both sides), north to Ryukyu Islands (Japan) and Hawaii, and east to Pitcairn Islands.

Table coral

- **Systematics:** Animalia (K); Cnidaria (P); Anthozoa (C); Scleractinia (O); Acroporidae (F).
- **Description:** A thick stem in the center supports a circular “tabletop”. Sometimes there is a second table on top of a larger table. The tabletop has tiny vertical branches that taper to a blunt tip. Usually brown, pink or green.





Porites lobata

- **Habitat/biology:** Back reef margins, lagoons and fringing reefs. Biology comparable to the staghorn coral (*Acropora formosa*).
- **Reproduction:** Same as the staghorn coral (*Acropora formosa*).
- **Maximum size:** 6 m (20 ft) or more in diameter. These corals grow slowly, 0.5–1.0 cm (0.2–0.4 in) per year, so large individuals may be up to 1000 years old, the oldest animals on earth.
- **Importance:** Aquarium: commercial. Smooth star corals are one of the many types of coral that build the reefs that protect our shores and provide habitat and food for thousands of marine species.
- **Distribution:** Present in all Indo-Pacific coral reefs, from east coast of Africa, Red Sea, Japan, Hawaii, west coast of Central Pacific, and to Pitcairn Islands in the east. Also along Pacific coast of Central America.

Smooth star coral

- **Systematics:** Animalia (K); Cnidaria (P); Anthozoa (C); Scleractinia (O); Poritidae (F).
- **Description:** Boulder, massive or hill form. This coral begins as a small sheet on rock, but grows to become a dome or hill that can be very large. The surface often has rounded smooth lumps of various sizes between 2.5 and 25 cm (1–10 in) diameter. There are tiny spots on the surface about 1.5 mm diameter ($1/16$ in). Brown/cream, yellow or green.





Fungia scutaria

- **Habitat/biology:** Each mushroom coral is covered by one polyp, sometimes the tentacles are visible on the septa.
- **Reproduction:** Same as the staghorn coral (*Acropora formosa*).
- **Maximum size:** 30 cm (1 ft) diameter.
- **Importance:** Aquarium: commercial.
- **Distribution:** From east coast of Africa, Red Sea, Japan, Hawaii, and to Pitcairn Islands in the east.

AMU MAFOLAFOLA

Mushroom coral

- **Systematics:** Animalia (K); Cnidaria (P); Anthozoa (C); Scleractinia (O); Fungiidae (F).
- **Description:** Looks like the cap of a mushroom. Shaped like a wheel, the top of the disc has radiating thin sharp ridges called septa and a slit in the center that is a mouth. The bottom usually has spines. Brown, blue or yellow, with bright green, blue or white tentacular lobes. Not attached to the reef.



Image: D. Fenner



Halophila ovalis

- **Habitat/biology:** Mostly found in shallow sandy places. Anchored to the substrate by roots that bind the sediment and absorb nutrients. Also uses the leaves to absorb nutrients from seawater, and for photosynthesis.

- **Reproduction:** Dioecious, but sexual reproduction by underwater pollination is rare and vegetative growth by means of the rhizomes ensures the survival of this species.

- **Maximum size:** Leaves up to 7 cm (2.7 in) long and 2 cm (0.8 in) wide.

- **Importance:** Provides settlement and nursery habitat for juveniles of marine species. Also provides food for turtles. Stabilizes the sediment by binding and trapping the sand with its rhizome and root system. Also an important environmental indicator as it responds quickly to environmental changes.

- **Distribution:** Indo-West Pacific, east to Hawaii and French Polynesia.

LIMU FOE

Paddleweed

- **Systematics:** Plantae (K); Magnoliophyta (D); Liliopsida (C); Hydrocharitales (O); Hydrocharitaceae (F).
- **Description:** Seagrass with delicate oval- or paddle-shaped dark green leaves, around 4 cm (1.5 in) long, always in pairs. Each leaf with 10–25 very faint veins running from the midrib to the margin. Rhizomes usually light green to white with one or more roots at each node.



Image: P. Skelton



Halimeda opuntia

- **Habitat/biology:** Structure of calcium carbonate, the same material that corals are made of. Grows in the lower intertidal zone of coral reefs or on dead corals below the low tidemark in calm shallow waters.
- **Reproduction:** When ready to reproduce, the outer segments start to form miniature balls containing male or female reproductive cells (gametes). When timing is right (usually after midnight), gametes, which are active and motile, are released in the water column where fertilization takes place. The resulting individuals will eventually settle on a favorable substrate where they will grow.
- **Maximum size:** Up to 10 cm (4 in) or more; can form extensive beds and banks to 100 m (330 ft) wide.
- **Importance:** Very important as the skeleton forms a big component of the sediment in many tropical reefs (especially in atoll countries). Most of the beach sand in the tropics is made from the dead skeletons of *Halimeda* algae. Also eaten by fish (e.g. parrotfish and triggerfish) and invertebrates.
- **Distribution:** Widespread in all tropical and subtropical waters.

LIMU AMU-MEAMATA

Cactus seaweed

- **Systematics:** Protoctista (K); Chlorophyta (D); Chlorophyceae (C); Caulerpales (O); Halimedaaceae (F).
- **Description:** Resembles a flattened string of beads (segments), straggly in appearance, fairly flexible. Various shades of green, depending on calcium level in the water as well as light intensity. Forms clumps, attached to the substrate by many holdfasts (roots).





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