

# A Farquhar Field Guide



The fishes and other wildlife of Farquhar Atoll, Seychelles

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Second Edition, 2021





## Introduction

In 2013, flyrods in hand, I got to experience Farquhar Atoll. The experience was unparalleled. Farquhar and the Seychelles are a marine paradise rivaling any marine experience one is likely to find on the planet.

Fishing across a wide variety of marine habitat our group of anglers were constantly exclaiming “Whoa... What was THAT!” as an extraordinary variety of fishes, large and small came to hand. Struck by the lack of a basic primer to the marine life that an angler might observe and possibly catch, I set out to write a field guide to the fish and other marine wildlife. I have ignored the birds because there are a number of good bird guides available.

While once upon a time trained as a wildlife biologist, I make no claim to being an authority on anything Indian Ocean, piscatorial or oceanographic. This guide is not a commercial undertaking—its sole purpose is informational and educational.

This guide presents more than 70 fish species presented by family along with a sampling of commonly encountered reptiles and invertebrates. For each species I provide a physical description, its range, habitat, and field notes. The fishes are organized by major families and creole names are included when known. I have intentionally avoided a great deal of technical jargon, but an illustration of fish anatomy and glossary of terms is provided.

In April 2018 I returned to Farquhar to find it as much of a marine paradise as before... but changed and more vulnerable. A massive cyclone struck the atoll in April 2016 with winds that exceeded 250 kmh (155 mph). Tropical Cyclone Fantala flattened the atoll’s terrestrial landscape. The marine world had seen some significant changes as well, from the conduct of its artisanal

fisheries as well as the recreational fisheries. The Government of Seychelles’ commitment to protecting its marine heritage had grown as had research and ongoing field work.

To quote the American conservationist Aldo Leopold, “To keep every cog and wheel is the first precaution of intelligent tinkering.” So, anglers, scientists, and others interested in conserving Farquhar and the rest of the Seychelles atolls need to keep all the pieces healthy. This field guide is an introduction to some of the most visible cogs and wheels we need to recognize and protect.

My hope is that the flyfishing community-- anglers, guides, and outfitters—by experiencing Farquhar and its rich natural resources will become fierce advocates for its wise management and continued protection.

For this guide’s strengths I acknowledge the intellectual contributions of many. I alone assume the responsibility for acts of omission and misidentification. I welcome all comments, contributions, and corrections.



Whitney and Sarah Tilt with a Farquhar giant trevally.

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## Seychelles

The Republic of Seychelles is a 155-island nation in the Indian Ocean off the east coast of Africa. Most of its population and commerce is centered on the island of Mahé and in Victoria, its capital. Creole, also called Seselwa, is the mother tongue of most Seychellois. Under the constitution, Creole, English, and French are recognized as national languages.

The Seychelles have long been a transit point for trade between Africa and Asia. Initially a haven for pirates, the French began to exert control beginning in 1756 when a Stone of Possession was laid by Captain Nicholas Morphey and named in honor of Jean Moreau de Séchelles, Louis XV's Minister of Finance.



The British contested France's control over the islands from the beginning. When the British frigate Orpheus arrived in 1794 a status of capitulation was negotiation granting the island's citizens the privileged position of neutrality. Britain eventually assumed full control upon the surrender of Mauritius in 1810, formalized in 1814 at the Treaty of Paris. The Seychelles became a crown colony in 1903 and was granted its independence in 1976 as a republic within the Commonwealth.

Of the 155 islands in the Seychelles only 40 are inhabited. The archipelago is divided into 4 major groupings: Granitics, Amirantes, Farquhar, and Aldabra. The Granitics (in reference to their volcanic/granite composition) are the most populated and most visited of the Seychelles, consisting of 45 islands including Mahé, Praslin, and La Digue. To the west of the Granitics lies the Amirantes comprising 29 coral islands including Alphonse, Desroches, Poivre Atoll, and St. Joseph Atoll. South-southwest of the Amirantes lies the 13 coral islands in the Farquhar Group including Farquhar Atoll and Providence Atoll. To the west of Farquhar lies the Aldabra Group, 67 coral islands including Aldabra Atoll, Assumption Island, and Cosmoledo Atoll.

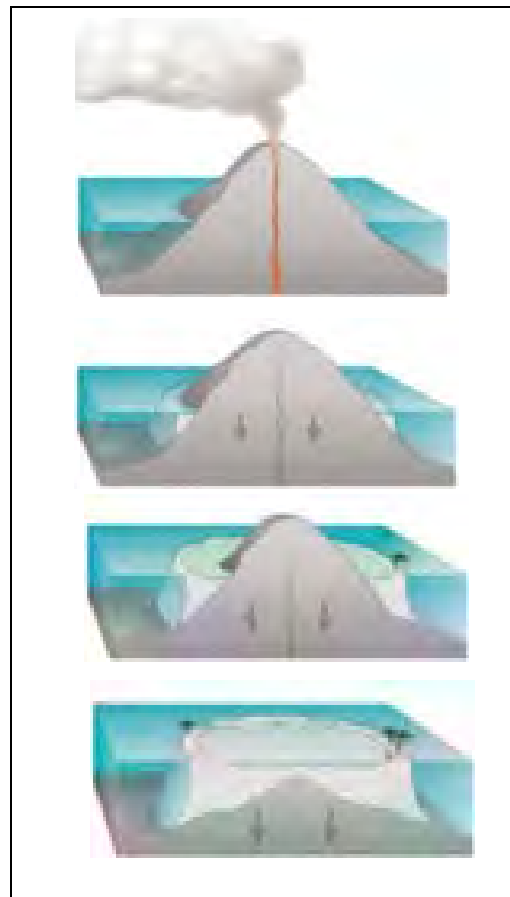
## Farquhar

Latitude: -10° 7' 18.54" (-10.121817)  
 Longitude: 51°S 9' 47.49" (51.163192)



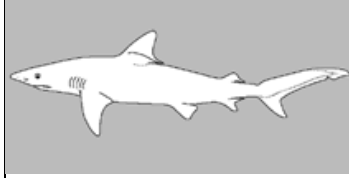
Farquhar Atoll was discovered by Portuguese navigator João da Nova in 1501. It lies 770 km (479 mi) southwest of Mahé; 1,374 km (854 mi) ESE of Zanzibar; and 278 km (173 mi) northeast of Madagascar. The entire atoll measures 170.5 km<sup>2</sup> (65.8 mi<sup>2</sup>) but less than five percent is dry land. Its human population is listed as between 15 and 50 settled on Île du Nord (North Island).

Like many of the Seychelles islands, Farquhar is an atoll, a circular coral reef enclosing a lagoon. The ring reef is typically broken up into a series of coral islands, or cays, of varying sizes providing both terrestrial habitats vital to nesting birds and sea turtles. The remainder is a diverse mix of extensive flats, deeper central lagoon waters punctuated with coral bommies, and open leads that connect the lagoon waters to those of the surrounding ocean.



The diagram depicts the typical origin of an atoll, transitioning from birth of a volcanic oceanic island, formation of a fringing barrier reef, and resulting atoll as the volcanic seamount gradually subsides and sea level rises over the intervening millennia.





**Requiem sharks** (Carcharhinidae), 12 genera and 60 species, have sleek, powerful bodies, pointed snouts, prominent dorsal fins positioned in front of ventral fins, round eyes with nictitating membranes and a lower lobe on their tail fins. With 48 species worldwide, these are the animals that come to our mind's eye when the word "shark" is uttered. Requiem sharks account for fully half of all shark attacks and most species should

be considered potentially dangerous. They can be difficult to identify to species without detailed observation of shape, coloration, and markings.

**Blacktip reef shark** (Reken bar)  
*Carcharhinus melanopterus*



Blacktip reef shark, photo: [whatsthatfish.com/](https://www.whatsthatfish.com/) / Wikimedia Commons.

**Description:** Pale grayish-brown body above and white below, with a white band on the sides extending forward from above the anal fin; short, wide, rounded snout; and moderately large, oval eyes. Distinguished by the prominent black fin tips, highlighted by lighter-colored borders, particularly on the first dorsal fin and the lower caudal fin lobe; pectoral fins are large and narrowly sickle-shaped, tapering to points; first dorsal fin is high with a curving "s"-shaped rear margin positioned over the rear tips of the pectoral fins; second dorsal fin is shorter and placed above the anal fin; no ridge present between the dorsal fins. Caudal fin is heterocercal. Commonly range 91-120 cm (36-47 in) TL, up to 200 cm (79 in) and 13.6 kg (30 lb).

**Habitat:** Coastal lagoons and outer slopes usually in 1-20 meters of water. Range Indo-Pacific.

**Notes:** One of the three most common sharks inhabiting coral reefs in the Indo-Pacific, the blacktip reef shark is fast-swimming and active. The species may be encountered alone or in small groups. Blacktip reef sharks have small home ranges and exhibit strong site fidelity, remaining within same local area for up to several years at a time. Like other Requiem sharks, this shark is viviparous with females

giving birth to 2-5 young on a biennial, annual, or possibly biannual cycle.

Blacktip reef sharks are active predators of small fishes, cephalopods, and crustaceans. Generally timid and skittish, the blacktip reef shark is difficult to approach and seldom poses a danger to humans unless roused by food. Humans wading through shallow water do run the risk of having their legs mistakenly bitten. In turn blacktips, particularly small individuals, fall prey to larger fishes, including groupers, gray reef sharks, tiger sharks, and larger members of their own species. Blacktips are harvested for their meat, fins, and liver oil, but are not considered to be a commercially significant species.

**Bull shark** (Reken gro latet)  
*Carcharhinus leucas*



Bull Shark, photo: University of Tampa Shark Lab

**Description:** Gray body with white underside. Caudal fin is heterocercal, the second dorsal fin is smaller than the first, and inter-dorsal ridge absent. Adult females commonly 260 cm (102 in) and up to 400 cm (158 in) TL, with a maximum recorded weight of 316 kg (697 lb).

**Habitat:** Found worldwide in temperate and tropical waters, favoring warm, shallow waters along coasts and in rivers. Species can thrive in both saltwater and freshwater and is known to travel far up rivers.

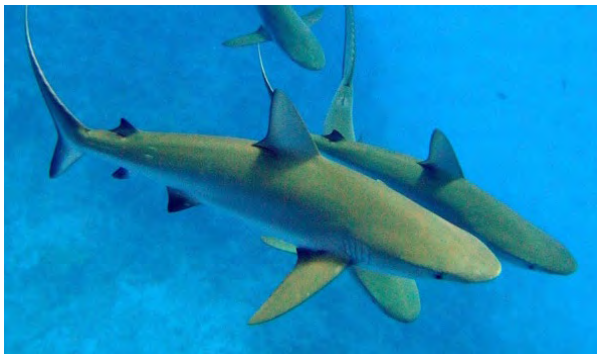
**Notes:** The bull shark's common name comes from its stocky shape, broad flat snout, and aggressive, unpredictable behavior. Since they inhabit coastal waters, bull sharks may pose more threat to humans than any other shark species—they are believed responsible for the majority of near-shore shark attacks on humans.

Bull sharks are extremely territorial and can exert a bite force of up to 600 kg (1,300 lb), pound for pound the highest known for any fish. Its diet consists mainly of fishes along with crustaceans, sea turtles, marine mammals, and even birds. Commonly hunting in murky waters where their presence is difficult to detect, they use a "bump-and-bite" technique to capture their unsuspecting prey.

Humans pose the biggest threat to bull sharks and they are commonly caught in both commercial and recreational fisheries, typically as by-catch rather than targeted fisheries.

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**Gray reef shark** (Reken bar)  
*Carcharhinus amblyrhynchos*



Gray reef shark. Photo: Paula Ayotte, NOAA, Wikimedia Commons.

**Description:** Streamlined, moderately-stout gray body, often with a bronze sheen, and white ventral side; long, blunt snout and large, round eyes. Distinguished by its plain or white-tipped first dorsal fin, the dark tips on the other fins, and distinctive broad black margin on the rear edge of its tail; inter-dorsal ridge absent. Individuals from the western Indian Ocean have a narrow, white margin at the tip of the first dorsal fin (usually absent from Pacific populations). Gray reef sharks that spend time in shallow water eventually darken in color, due to tanning. Gray reef sharks are typically less than 190 cm (75 in) long with a maximum

reported length of 260 cm (102 in) and 34 kg (75 lb).

**Habitat:** Shallow coastal waters, outer reef slopes in 1-274 meters of water. Most commonly seen in shallow water near the reef drop-offs of less than 60 meters. Range: Indo-Pacific.

**Notes:** Also known as a blacktail reef shark, the species is one of the most common reef sharks in the Indo-Pacific. They are fast-swimming, agile predators that feed primarily on fish and cephalopods. Their aggressive demeanor enables them to dominate many other shark species on the reef, despite their moderate size. Gray reef sharks maintain a specific home range that is social rather than territorial. During the day, these sharks often form groups of five to 20 individuals near coral reef drop-offs, splitting up in the evening to hunt. The species is viviparous with litters of 1-6 pups born every other year.

Gray reef sharks commonly perform a threat display involving a "hunched" posture with characteristically dropped pectoral fins, and an exaggerated, side-to-side swimming motion. This species has been responsible for a number of attacks on humans, so should be treated with caution, especially if they begin to display. Gray reef sharks are taken in many fisheries and are susceptible to local population depletion.

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**Oceanic whitetip shark** (Reken gran lezel)  
*Carcharhinus longimanus*



Oceanic Whitetip shark, accompanied by pilotfish (*Naukrates doctor*). Photo: Thomas Ehrensperger, Wikimedia Commons)

**Description:** Pelagic shark distinctive for its long, white-tipped, rounded fins that are significantly larger than most other shark species. Body is stocky, bronze-brown to bluish-gray dorsally and white ventrally. Snout rounded and eyes circular, with nictitating membranes.



Species commonly grows to 270 cm (106 in), and up to 400 cm (158 in) TL, with a maximum published weight of 167 kg (368 lb). Females are typically larger than males.

**Habitat:** Inhabits deep ocean waters in tropical and warm temperate seas with water temperatures greater than 18 °C (64 °F). Range: circumglobal.

**Notes:** The oceanic whitetip shark is an aggressive, but relatively slow-moving, predator feeding principally on pelagic cephalopods and fish; it is also known to eat stingrays, sea turtles, gastropods, crustaceans, birds, and mammalian carrion. The species dominates feeding frenzies and is suspected to be responsible for many fatal attacks on humans—preying on survivors of shipwrecks or downed aircraft in the open ocean. In turn, the species is subject to commercial fishing pressure and taken as by-catch, especially in long-line fisheries. Its large fins are highly valued as the chief ingredient of shark fin soup and, as with other shark species, the whitetip faces mounting fishing pressure throughout its range.

Of note, the species has two principal types of teeth. Teeth in the upper jaw are large, broad, and triangular with serrated edges while teeth in the lower jaw are smaller, fang-like, with a thin serrated tip.

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### Sicklefin lemon shark

*Negaprion acutidens*



Sicklefin lemon shark, photo: courtesy of Tetiaroa Society.

**Description:** A stout-bodied shark with short, broad head, and widely-spaced dorsal fins of nearly equal size. Body is a plain yellowish-brown or gray above and lighter below. Snout rounded or almost wedge-shaped with small nostrils bearing triangular flaps of skin in front. Eyes small, spiracles absent, and short furrows are present at the corners of the mouth. The anal

fin has a strong notch in the rear margin. As its common name suggests, its fins (especially the dorsal, pectoral, and pelvics) are more sickle-shaped than the lemon shark (*N. brevirostris*) of the Americas. The species commonly grows to 220-240 cm (87-95 in), and up to a maximum reported length of 380 cm (150 in). As with other members of its family, the sicklefin lemon shark is viviparous, giving birth to 1–13 pups every other year in shallow nursery areas, following a gestation period of 10–11 months.

**Habitat:** On or near bottoms of bays, estuaries, and offshore reefs, in 1-30 meters of water. Range Indo-Pacific.

**Notes:** Unlike most requiem sharks, the sicklefin lemon shark is capable of actively pumping water over its gills so it is often observed sluggishly cruising along or lying motionless on the bottom. The species is a home-body, typically staying within two kilometers of its home territory. Its diet comprises bottom- and shore-dwelling fish supplemented with cephalopods and crustaceans. The species has been documented resting on the bottom and eliciting cleanings by “cleaner” wrasses, during which a shark opens its mouth and stops respiring for as long as two minutes to give the wrasses ample time to clean their mouths and gills of unwanted parasites.

Sicklefin lemon sharks are cautious and tend to retreat if approached. However, they are potentially dangerous to humans and are known to respond aggressively when provoked. They are actively fished by gillnets, longlines, and beach nets with the meat sold fresh, dried, and salted. Their fins used for shark fin soup and the oil from their liver processed for vitamins. The species is highly susceptible to local overfishing, due to its slow reproductive rate and limited movements.

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### Tiger shark (Demwazel)

*Galeocerdo cuvier*

**Description:** Powerful shark with a large blunt nose and wedge-shaped head. A stout body is blue or green in color with a light yellow or white under-belly. Its common name derives from the pattern of dark stripes down its body which resemble a tiger's; these stripes fade as the shark matures. Tiger sharks have a heterocercal tail

with the upper lobe of the caudal fin longer than the lower lobe.

The tiger shark ranks among the largest of the sharks routinely attaining sizes of 300–420 cm (118-9.8–165 in) and weights of 385-635 kg (845-1,400 lb), with the largest reported tiger sharks exceeding 850 kg (1,875 lb).



Tiger shark. Note "tiger" stripping, Photos by Albert Kok, Wikimedia Commons.

**Habitat:** Coastal and offshore reefs to 75 meters of water and deeper. Range circumglobal.

**Notes:** An apex predator, the tiger shark is a solitary, mostly nocturnal, hunter. Two adaptations allow tigers and other sharks to hunt in darkness and detect prey: small pits on the snout containing electro-receptors called ampullae of Lorenzini detect electric fields including the weak electrical impulses generated by prey. Tiger sharks also use their lateral lines to detect minute vibrations in the water. Its diet includes a wide variety of prey ranging from fish and crustaceans to seals and marine mammals. Due to high risk of predatory attacks, dolphins often avoid regions inhabited by tiger sharks. Tigers are also known to attack injured or ailing whales.

Tiger sharks have serrated teeth, making it easy to tear flesh and crack the bones and shells of their prey, such as sea turtles. Like most sharks, teeth are continually replaced by rows of new teeth. Due to its tendency to swallow virtually anything it encounters the tiger shark has been nicknamed "the garbage can of the sea." Stomach contents have included horses, goats, dogs, and cats, as well as less edible items such as car tires, license plates, and oil cans.

The tiger shark is regarded as one of the most dangerous shark species to humans--surpassed only by the great white shark for recorded

attacks on humans. Tiger sharks often visit shallow reefs, harbors, and canals, increasing the potential for encounters with humans. As with other large sharks, their greatest predator is man, and the tiger shark is considered a near threatened species due to fishing and finning by humans.

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### Whitetip reef shark (Reken andormi) *Triaenodon obesus*



Whitetip reef shark. Photo; NOAA, Wikimedia; bottom: unknown, Wikimedia.

**Description:** Distinguished by its slender body, short broad head, tubular skin flaps beside the nostrils, oval eyes with vertical pupils, and white-tipped dorsal and caudal fins. It is a relatively small shark, commonly to 160 cm (62 in), but growing to 213 cm (84 in) TL and weighting up to 18.3 kg (40 lb).

**Habitat:** Lagoons and outer reef slopes in 3-122 meters of water. Range: Indo-Pacific. It is typically found on or near the bottom in clear water, at depths of 8-40 meters.

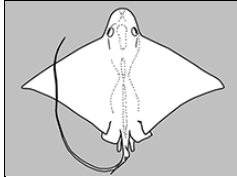
**Notes:** The whitetip reef shark is one of the most common sharks found in and around reefs. During the day, whitetips spend much of their time resting inside caves. Unlike many other requiem sharks, which must constantly swim to breathe, the whitetip can pump water over its gills enabling it to lie still on the bottom. At night, whitetip reef sharks emerge and form groups to hunt fish, crustaceans, and octopus. Their elongate bodies allow them to effectively explore crevices and holes for hidden prey. Individuals may stay within a particular area of the reef for months to years, time and again returning to the same shelter. Whitetips are viviparous, giving birth to live young.

Whitetips share reef habitat with other shark species—each having their own niche—nurse

sharks patrol the lagoon-side of reefs, whitetips live in amongst the coral reef while blacktip reef sharks prefer the higher energy coastal waters and outer slope waters.

Whitetip reef sharks are rarely aggressive towards humans, though they may investigate

swimmers and divers. The species is targeted for food and is vulnerable to unregulated fishing activity across its range, especially because of its low reproductive rate and reef habitat preferences.



**Rays** (Myliobatiformes), two genera and 19 species, are one of the four orders of batoids (rays and skates), cartilaginous fishes related to sharks. In general, rays have ventral gill openings; eyes and spiracles on dorsal surface; body generally strongly horizontally-flattened; no anal fin; and pavement-like teeth for crushing hard shells. In most species of bottom-dwelling rays, water for breathing is taken in chiefly through the spiracle rather than the mouth. Most rays give birth to live young (some have eggs encased in a horny capsule); and the snout may function as an electroreceptor. Three families are represented here: stingrays (Dasyatidae), mantas or devilrays (Mobulidae) and eagle rays (Aetobatidae).

### Cowtail stingray

*Pastinachus sephen*



Cowtail stingray Photo; eNil, Portsmouth UK, Wikimedia Commons.

**Description:** A large, plain-colored stingray with an angular snout and pectoral disc; dark brown or black dorsally without conspicuous markings, white ventrally. Tail long and broad-based, almost twice body length; upper caudal finfold absent but with tall caudal finfold at end of tail; one or two long stings (spines) on tail, further behind tail base than in most stingrays. Teeth high-crowned and uniquely hexagonal. Grows commonly to 65 cm (26 in) wide and a maximum length about 183 cm (72 in). The large, flag-like ventral fold on its tail, best observed when the ray is swimming, is distinctive.

**Habitat:** Found in lagoons, reef flats, and reef faces on sandy bottoms to depths of 60 meters. They are amphidromous and known to enter

estuaries and rivers far from the sea. Widespread in the tropical waters of the Indo-Pacific.

**Notes:** The species are solitary foragers on bony fishes, worms, shrimp, and crabs. Commonly they are seen lying sand-covered and motionless. Foraging adults are sometimes accompanied by remoras or members of the trevally family. Stingrays are preyed upon by hammerhead and requiem sharks, as well as bottlenose dolphins. Targeted by commercial fisheries as a source of high-quality shagreen, a type of leather, as well as food, populations are under threat from heavy exploitation in portions of its range.

The tail sting is extremely dangerous to humans, capable of delivering an excruciating wound; fatalities have been recorded. On Farquhar, fishermen who catch stingrays will commonly cut off the stings and then release them.

### Manta rays *Manta sp.*

**Description:** Mantas are known for their large size, long triangular pectoral fins, broad heads, and cephalic lobes located on either side of their mouths. Mantas are black dorsally and white ventrally. Commonly the dorsal surface exhibits white markings around the wing tips and head. They have horizontally flattened bodies, twice as wide as long with eyes on the sides of their heads behind the cephalic lobes and gill slits on their ventral surfaces. Tails are shorter than bodies and lack stingers. A small dorsal fin is located at the base of the tail.

**Habitat:** Tropical to temperate waters, oceandromous, reef-associated. Range: Circumtropical



Giant mantas. Photo courtesy of Enric Sala, National Geographic Image Collection.

**Notes:** The giant manta (*Manta birostris*) can reach 1,350 kg (3,000 lb) and more than 7 meters (23 ft) wide. The smaller reef manta ray (*Manta alfredi*) typically grow to 3-3.5 meters (9-11 ft) in width. Mantas move through the water by the wing-like movements of their pectoral fins, swimming continuously to keep oxygenated water passing over their gills and to filter feed large quantities of zooplankton, including shrimp, krill, planktonic crabs “on the wing.” In turn mantas are preyed upon by large sharks and killer whales. Females produce live pups after a gestation of over a year. Mantas are observed to breach, jumping completely out of the water for reasons that remain unclear -- possibly removal of parasites, mating rituals, and/or communication. Both manta species are vulnerable to entanglement in fishing nets, habitat impacts, and direct harvesting for their gill rakers used in Traditional Chinese Medicine.

Their two cephalic lobes or “horns” on the sides of their mouth help direct food-laden water into their mouths, and these horns earned them the name “devilfish.”

### White-spotted eagle ray

*Aetobatus narinari*

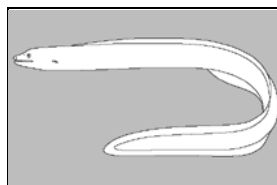
**Description:** Broad, horizontally flattened bodies with triangular wings that are almost twice as wide as long. Dorsal surface is gray-brown, nearly black, with numerous white spots and ventral surface is white. Tail is long and slender with a single venomous stinger. Wingtip to wingtip, commonly 140 cm (55 in), growing to 230 cm (90 in) and weighting up to 230 kg (500 lb).

**Habitat:** Open water of costal lagoons and outer reefs, to at least 60 meters depth. Range: Circumglobal.

**Notes:** Feeds on polychaete worms, bivalves, gastropods, cephalopods, shrimps, and small fishes Often observed digging with their snouts in the sand in search of food, a cloud of sand surrounding the ray. The ray's specialized tooth structure enables it to crush the hard shells of mollusks. In turn, spotted eagle rays are preyed upon by killer whales and large sharks. The species is commonly observed leaping out of the water. Rays are oviparous, the female retaining the eggs then releasing the pups. Species is harvested for the Southeast Asia and African markets and collected for commercial marine life trade for display in aquariums; considered Near Threatened on the IUCN Red List.



White-spotted eagle ray. Photo; Nicholas Lindell Reynolds, Wikimedia Commons.



**Moray Eels** (Muraenidae), 16 genera and 205 species found worldwide in tropical and temperate seas. Morays are a diverse group of eels with large mouths and numerous teeth, often with fanglike canines. Dorsal fin origin usually before the gill openings; median fins confluent with caudal fin; no pelvic and pectoral fins. Gill openings as small roundish lateral openings. Vicious reputation is undeserved, although some species will bite if provoked. Feed mainly on crustaceans, cephalopods and small fishes.

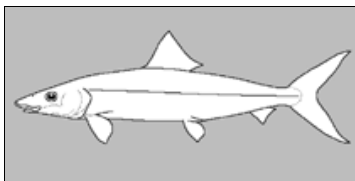
**Peppered moray (Kong)**  
*Siderea picta*

**Description:** Long eel-like body, grayish with closely-speckled, irregular dark markings. Young yellowish with irregularly spaced roundish, hollow-centered spots that fade with age. Length to 140 cm (55 in.). Species inhabits shallow waters, reef flats and rock crevices where it feeds opportunistically on fish and crustaceans.

There are numerous species of moray in the Seychelles. The peppered moray is one that the angler may likely see slithering across a bommie head or through a tidal pool.



Peppered moray, photo by author



**Bonefishes** (Albulidea) are marine fishes (rarely brackish and freshwater), comprising 3 genera and 13 species in tropical seas. Able to tolerate oxygen-poor situations by inhaling air into a lung-like air bladder. Feed on benthic invertebrates. Spawn in open water, eggs are pelagic. Highly prized sportfishes.

**Bonefish (Banane)**  
*Albula vulpes*



Jason Miller and Jako Lucas celebrate a big bone, photo by Jeremy Miller. Below, too many bonefish to count (good problem to have), photo by Flycastaway.

scientific name, *Albula vulpes*, from the Latin for "white fox." An amphidromous species, it lives in inshore tropical waters and moves onto shallow mudflats to feed with the incoming tide. Tolerates oxygen poor water by inhaling air into a lung-like airbladder.

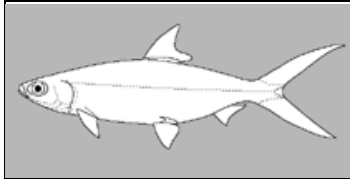
Adults may be found singly, in pairs, or shoaled together. They feed on crustaceans, mollusks, and benthic worms, commonly seen rooting in the mud or sand for a morsel. Flesh is quite edible but bony. Bonefish are highly prized saltwater gamefish known for their blistering runs, and tremendous fighting power. Despite their importance as a premier gamefish, little is known about bonefish population and fishery dynamics.

**Description:** The sole genus of the Albulidae, bonefish are silvery in color with dusky fins. Viewed head-on bonefish are broader on the bottom than on top. Fish weigh up to 8.6 kg (19 lb) and measure up to 90 cm (35 in) TL.

**Habitat:** Lagoons and flats, 1-25 meters of water. Range: circumtropical.

**Notes:** Bonefish blend well into their habitats; often appearing as moving shadows as they patrol the flats, giving them their nickname of the "gray ghost" which is also reflected in their





**Milkfish** (Chanidae) comprise one genus and one species found in marine, brackish, and occasionally fresh waters. Milkfish have fusiform and compressed bodies, terminal mouths, and cycloid scales. Valued as food fish in Southeast Asia where it is cultured extensively in ponds.

### Milkfish (Bangus, Lbin)

*Chanos chanos*



**Description:** Generally symmetrical and streamlined appearance; body olive green dorsally and flanks silvery. Fins unpaired with dark margins, single dorsal fin, large deeply forked tail, and ventral fins at mid-body below dorsal fin. Overall, milkfish appear as super-sized minnows. Averages 100 cm (40 in) TL, and up to 170 cm (67 in); weights up to 14 kg (31 lb).

**Habitat:** Near surface of lagoons, seaward reefs, and offshore marine waters; also ventures into estuaries and even freshwater streams. Range: Indo-Pacific.

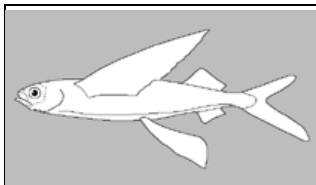
**Notes:** Adults occur in small-to-large schools nearshore. Can be observed surface feeding on algae, small benthic invertebrates, and even fish eggs and larvae. Its eggs and larvae are pelagic up to 2-3 weeks before migrating to mangrove swamps, estuaries, and sometimes lakes; return to marine waters to mature sexually and reproduce.

Milkfish are an important seafood in Southeast Asia and some Pacific Islands. It is the national fish of the Philippines where it is called “bangus.” Larvae are collected from rivers and inshore waters, grown in culture ponds, and marketed fresh, smoked, canned or frozen. Milkfish can grow in water as hot as 32° C (90° F). Common name derives from “milky” appearance of the meat when cooked.

For the angler, milkfish are in a league of their own, described as an ‘oversized mullet with an oversized tail on a double dose of steroids.’ Most commonly algae imitation flies are presented to fish feeding at the surface with the hope a fish eats before becoming spooked.



Milkfish. In hand and feeding on surface in scum line (photos: Flycastaway)



**Flyingfishes** (Exocoetidae) comprise 7 genera and some 71 species found in the Atlantic, Indian, and Pacific Oceans. Distinctive, unusually large pectoral fins can be used for gliding flights. Some species have over-sized pelvic fins giving them a four-winged appearance. Caudal fin deeply forked; the upper lobe shorter than the lower. Attains 45 cm (18 in) maximum length; usually less than 30 cm (12 in).

**Description:** Soaring out of warm ocean waters worldwide, the streamlined shape of flyingfish helps them gather enough underwater speed to break the surface, and their large, wing-like pectoral fins get them airborne. Some species of flying fish have enlarged pelvic fins as well,

which allows them greater maneuverability and longer glide distances—up to 400 meters.

**Habitat:** Pelagic marine waters worldwide in tropical and subtropical areas of the Pacific, Atlantic and Indian oceans.

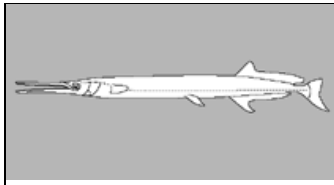
**Notes:** Diet is primarily zooplankton; in turn they are an important food source for many marine predators including tunas, billfish, cetaceans, and pelagic seabirds. The fish's "flying" helps them escape swimming predation. Flying fish have evolved a diversity of reproductive strategies but many spawn pelagically, laying their eggs in the open ocean with either buoyant eggs that float on the ocean surface or non-buoyant eggs that have stringy filaments which get wound up in floating debris. Other species of flyingfish spend their lives in coastal areas.

Flying fish fuel important commercial fisheries in Asia and are also commonly fished in other

places, including the Caribbean. As well as the fish meat, flyingfish roe is a common ingredient in sushi.



Photo courtesy of Smithsonian Tropical Research Institute.



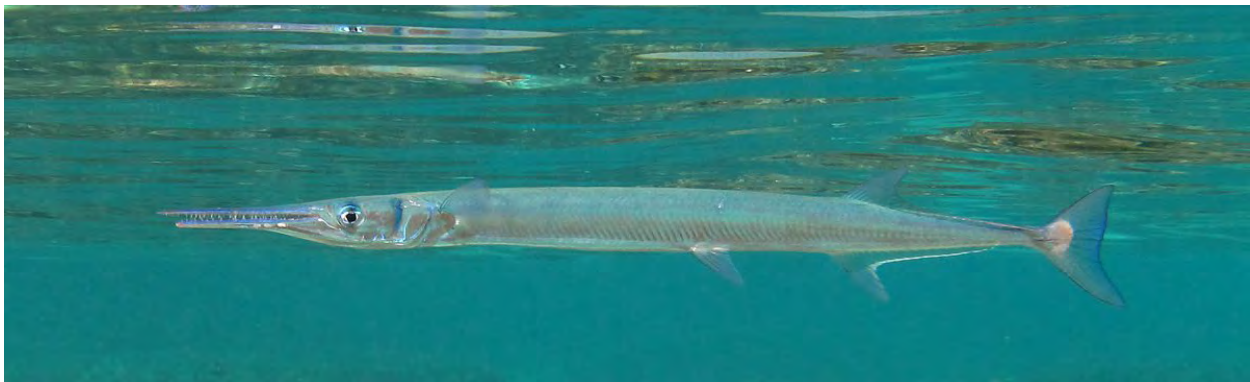
**Needlefishes** (Belontiidae), comprising 10 genera and 47 species in marine and fresh waters, are elongate fishes with both upper and lower jaws extended into long beaks typically filled with sharp teeth. Dorsal and anal fins posterior in position; pectoral fins short. Lateral line extends from pectoral fin origin along ventral margin of body. Carnivorous, feeding largely on smaller fishes.

**Hound needlefish**  
*Tylosurus crocodilus*

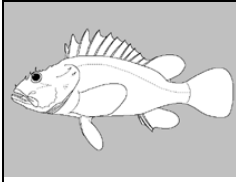
**Description:** The species is larger, stouter and rounder than other needlefish species and the largest member of the family. Body is long and silvery with elongate jaws and numerous needle-like teeth. The dorsal surface is dark blue and white ventrally. Tail is forked with larger lower lobe and black keel on the base. A darkish bar or bars is often present on the gill cover. Grows commonly to 90 cm (35 in) and recorded up to 150 cm (59 in) in length and 6.4 kg (14 lb.).

**Habitat:** Surface waters of lagoons and inshore reefs. Range: circumtropical.

**Notes:** Species is also known as crocodile needlefish or crocodile longtom in reference to its long, toothy snout. They swim or hover just below the water surface searching for prey—solitary or in small groups. Fishermen are wary of large crocodile needlefish as a result of their impressive teeth and tendency to leap out of the water when frightened and potentially causing injury to bystanders. The species is considered a good food fish, but its market is limited due to its greenish-colored flesh.



Hound Needlefish. Photo: Philippe Bourjon, Wikimedia Commons.



**Scorpionfishes** (Scorpaenidae) comprise some 230 species in 24 genera across all tropical and temperate seas. Body compressed; head usually with ridges and spines; usually one dorsal fin, often notched. Dorsal, anal, and pelvic spines can bear venom glands. Most species live on or near the bottom and feed on crustaceans or fishes. The family contains the world's most venomous fishes, many of them brightly colored.

### Indian lionfish

*Pterois miles*



Lionfish. Alexander Vasenin, Wikimedia Commons

**Description:** Characterized by colorful bands of red, white, cream, or black, showy pectoral fins and venomous spiky fin rays. They have fleshy tentacles above their eyes and below the mouth; fan-like pectoral fins; long, dorsal spines, and an array of other spines and soft rays. An adult lionfish can grow as large as 45 cm (18 in) TL.

**Habitat:** Coastal, lagoon, and seaward reefs in 2-50 meters. Range: East Indo-Pacific.

**Notes:** Also known as devil firefish, the species is slow-moving and conspicuous, relying on its warning coloration and waving fins to discourage would-be predators. They are active hunters, however, who ambush their prey by using their outstretched pectoral fins to slowly press and corner their quarry.

The spines of this species deliver a venomous sting that can last for days and cause extreme pain, sweating, respiratory distress, and even paralysis. The venom is a combination of protein, neuromuscular toxin, and neurotransmitter (acetylcholine). If stung by a lionfish, seek medical attention immediately.

Lionfish are a popular marine ornamental fish and were accidentally (or intentionally) released into the Atlantic, with the first lionfish reported in South Florida waters in 1985. Since then, the species has firmly established itself as a

disruptive and destructive invader. It is now one of the top predators in many coral reef environments of the southeast United States.

### Reef stonefish

*Synanceia verrucosa*



Reef stonefish. Photo: J.E. Randall, FishBase

**Description:** Colors of the reef stonefish artfully match its surroundings and is extremely well camouflaged. It is armed with 12-14 stout grooved spines, each with a large venom sack at its base. The common name "stonefish" alludes to the species' solitary and sedentary behavior: lying motionless on the bottom, or burying itself partly into the substrate, waiting for unsuspecting prey to swim by. Grows to 35 cm (14 in) TL.

**Habitat:** Sandy or rubble areas of reef flats and shallow lagoons and in small pools during low tide Range: Indo-Pacific.

**Notes:** Stonefish are masters of camouflage, perfectly mimicking the rock and vegetation around them, sometimes complete with algae growing on their bodies. Feeds on small fishes and crustaceans. Very few reef walkers, snorkelers or scuba divers ever see them. Once disturbed they commonly assume a tight, curved-tailed stance until left alone to resume their sedentary, camouflaged existence.

The names "scorpionfish" and "waspfish," reference the species' venomous dorsal, pelvic and anal spines—needle-sharp venomous spines capable of penetrating sandals and sandshoes.

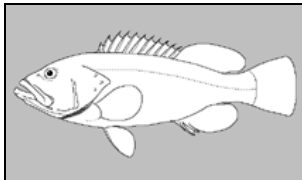


The effects of the venom on humans include severe pain, shock, paralysis, and can be fatal. While stonefish are in no way aggressive toward intruders, they are so well camouflaged that the unsuspecting wader or diver might not see the hidden danger.

In the field, the reported first aid practice is to immerse the affected part into hot water to

break down the venom (as hot as victim can stand without being scalded).

**PRECAUTIONS:** As with stingrays, stay alert when wading or snorkeling. Wear protective footwear when wading in the shallows and shuffle your feet; avoid stepping down onto sandy areas between the corals without careful inspection.



**Sea Basses: Groupers** (Serranidae) are a large family of fishes found in tropical and temperate oceans, with 70 genera and 566 species. General characteristics include operculum bearing 3 spines, lateral line complete and continuous, not reaching onto caudal fin, dorsal fin may be notched, with 7-12 spines and three spines on anal fin. Caudal fin usually rounded, truncate, or lunate; rarely forked. Groupers are protogynous hermaphrodites and known to grown to 300 cm (118 in) in length and weight up to 400 kg (880 lb). As a family, seabasses are high-value commercial food fish.

**Slender grouper** (Seval dibwa)  
*Anyperodon leucogrammicus*



Slender grouper. Top: adult slender grouper (photo by Leonard Low, Wikimedia); bottom: sub-adult (photo © Messersmith.name/wordpress)

Though not traditionally targeted by commercial fishing, the slender grouper is deleted by over-fishing in some areas while juveniles are targeted for the aquarium trade.



**Description:** Reef-associated species with large, pointed heads and slender bodies with greenish to brownish-gray color; reddish spots present overall. Sides with 3-4 pale stripes of variable intensity; rounded caudal fin; short pelvic fins; canine teeth at front of jaws are rudimentary or absent. Juvenile slender grouper have alternating blue and red-gold stripes, and 1-2 black spots at caudal base. Slender grouper are non-migratory, growing to 52 cm (21 in).

**Habitat:** Sheltered coral-rich areas and clear waters in lagoon and seaward reefs, in 5-80 meters of water. Range: Indo-West Pacific.

**Notes:** Species feeds mainly on fishes and likely on crustaceans. Juveniles mimic species of small-lined wrasses (*Halichoeres* sp.) or dark damsels in surge zones. This mimicry allows them to more closely approach their prey.

**Peacock grouper**  
*Cephalopholis argus*



**Description:** A widely distributed grouper, dark brown-to-yellowish body covered in many small, black-edged blue spots. The spots are smaller and more numerous on the head and there are commonly five to six pale vertical bars apparent

posterior to the pectoral fins and a large white patch occurs on the breast. Fins also spotted, and may be dark blue in color, usually with narrow white band along posterior margins on the dorsal, anal, and caudal fin. The tail is rounded, and the front part of the dorsal fin bears nine spines, with the triangular membranes at the tips of the spines being orange in color. Small individuals are dark brown with numerous small, dark-edged iridescent blue spots. Larger specimens sometimes develop four to six lighter vertical bars on the back half of body. Coloration may pale or darken rapidly. Can reach a length of 60 cm (24 in).

**Habitat:** Tide pools to outer reef slopes in 1-15 meters of water. Range: Indo-Pacific.

**Notes:** Also known as peacock hind, its specific epithet "argus" derives from its resemblance to the "hundred staring eyes" of the monster Argus in Greek mythology. Peacock grouper hunt by lying in wait and surging forward, preferring juvenile surgeonfish and crustaceans. The species may follow and cooperate with another predator species, such as octopus or moray, or camouflage themselves in a school of surgeonfish. Multiple individuals may cooperate to harass a moray to get it to flush prey for them. They are most active in twilight.



Peacock grouper. Top photo by Sarah Tilt; bottom: Matthias Kleine, Wikimedia Commons.

**Coral hind (Vyey zannana)**  
*Cephalophis miniate*

**Description:** Brightly colored fish with orange-red to reddish-brown body with numerous dark-edged blue spots. A narrow blue margin is present on all fins except pectorals. Sets of irregular, oblique olivaceous bars are

occasionally evident. Juveniles may be yellow with scattered faint blue spots. It is a medium-sized reef fish capable of growing to 41 cm (16 in) in length.



Coral hind. Photo by J.E. Randall, FishBase

**Habitat:** Coastal, lagoon and seaward reefs in 2-150 meters of water; more often found in exposed rather than protected reef areas. Range: Indo-Pacific.

**Notes:** Also known as blue-spotted grouper or rockcod, the species feeds on fishes and crustaceans, and forms harem groups comprising a dominant male and 2-12 females. These groups occupy territories of up to 475 square meters, subdivided into secondary territories each defended by a single female. The species faces threats from both overfishing and habitat degradation (fish-bombing, sedimentation). It is a relatively abundant species of economic importance to local fisheries and captured by hook and line, spear, and traps. It is a component of the live reef fish trade.

**Tomato grouper (Msye angar)**  
*Cephalopholis sonnerati*



Tomato grouper. Photo ©ppfotos.com

**Description:** Deep-bodied fish with slightly concave head profile. Coloration is bright orange-red to reddish-brown with a dense network of red spots on its head that become more loosely scattered and fainter on the body and fins. Fin and tail margins commonly with pale white margins. Species grows to a maximum reported length of 57 cm (23 in).

**Habitat:** Rocky substrates, bommies, lagoons, and outer reefs in 10-150 meters of water. Range: Indo-Pacific.

**Notes:** The tomato grouper is a reef-associated species occurring at moderate depths with juveniles usually found near sponges or coral heads. The species is primarily solitary, feeding on small fishes and crustaceans including shrimps, crabs and mantis shrimp. They commonly frequent cleaner shrimp stations. The tomato grouper is one of several similar appearing "orange-red" groupers that also include the flagtail grouper (*C. urodeta*), strawberry grouper (*C. spiloparaea*), and golden hind (*C. aurantia*). The literature often confuses these species and there is little in the way of authoritative classification.

There is evidence that this species forms spawning aggregations, increasing their vulnerability to over-fishing. A primary threat to tomato grouper is loss of habitat due to impacts such as reef bleaching. Fishing poses a threat as it is largely unregulated and can generally be assumed to be increasing. Species is also a favorite in the live reef fish trade as a result of its bright coloration.

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**Brown-spotted grouper** (Vyey makonde)  
*Epinephelus chlorostigma*



Brown-spotted grouper. Above photo: Jean-Lou Justine, FishBase; below photo: Richard Field, FishBase.

**Description:** Reef-dwelling fish with pale-whitish body covered with dense pattern of small dark brown spots on head, body, and fins, absent

on ventral side. Its tail is slightly concave compared with the rounded tails of most groupers. A transient color phase of the species has 3-4 rows of large dark spots overlaid on top of the small-spot pattern.



Like other groupers, its mouth is cavernous and capable of being opened to the width of the body diameter. It grows commonly to 50 cm (20 in) and up to a length up to 80 cm (30 in) and 7 kg (15.5 lb.).

**Habitat:** Found over a wide range of habitats like seagrass beds, mud bottoms, and outer reef slopes. Range: Indo-West Pacific.

**Notes:** The brown-spotted grouper is largely solitary, feeding on small fishes and crustaceans, mainly mantis shrimp and crabs. This species is a protogynous hermaphrodite with the change in sex from female to male commonly occurring between 35-45 cm, though not all females change sex.

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**Blacktip grouper** (Madanm dilo)  
*Epinephelus fasciatus*



Blacktip grouper. Note black-tipped dorsal spines; below: light variant, photo © Didier Brandelet, Biosphoto.

**Description:** The species has a reddish-brown body with contrasting body bars. Top of its head reddish-brown with two pale bands across nape and it may have a dark red cap above the eyes. As its common name suggests, the tips of its dorsal fin spines are typically black. A light variant of the species exhibits pale-coloring, 5-6 darker bands of variable intensity, and dark red-

orange on nose and forehead. The blacktip grouper commonly grows to a length of 22 cm (8.5 in), and up to 40 cm (16 in) TL and up to 2 kg (4.5 lb).



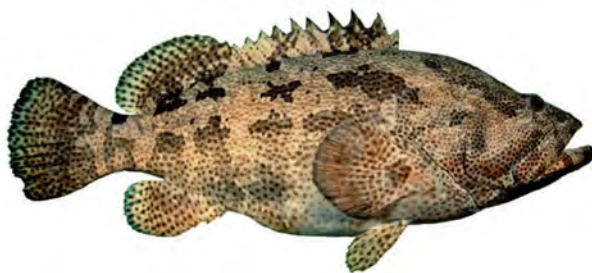
**Habitat:** Coastal, lagoon and seaward reefs in 3-160 meters of water. Range: Indo-Pacific.

**Notes:** The blacktip grouper is one of the most widespread and common of all grouper species, feeding day and night among the corals on crustaceans and smaller fishes by ambush. Often found in groups of 10-15 individuals.

Species is impacted by loss of habitat from coral reef bleaching, dynamiting of reefs, fishing with poisons and netting on reefs. Most of the fishing effort for blacktip grouper is small-scale, but largely unregulated, and assumed to be increasing. The species is also captured for the live reef fish trade.

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### Brown-marbled grouper (*Vvey masata*) *Epinephelus fuscoguttatus*



Brown-marbled grouper, photo by J.E. Randall.

**Description:** Stocky and laterally-compressed body, pale yellowish-brown body with many irregularly sized and shaped dark brown or gray blotches, darkest along the back, and numerous close-set small dark brown spots throughout. Large mouth with canines and many small teeth; fins are large and rounded. Species sports a small black saddle atop caudal peduncle. Juveniles with series of five vertical irregular

dark-brown blotches; and the head, body and fins have numerous close-set, small brown spots, and small black saddle dorsally on caudal peduncle. Species grows up to 120 cm (48 in), but average length is 50 cm (20 in).

**Habitat:** Coastal waters, lagoon and outer reef slopes, 1-60 meters of water. Range: Indo-West Pacific.

**Notes:** Ambush predator feeding primarily on fishes, crustaceans, and cephalopods. It is solitary and sedentary, defending a well-defined territory. The brown-marbled grouper can be confused with the camouflage grouper (*E. polyphekadion*), page 15, but is distinguished by the presence of an indentation above the eye and a more deeply incised dorsal fin membrane.

Brown-marble groupers are relatively long-lived, 40 years or older, and inherently vulnerable to fishing while also heavily sought after for the live reef food fish trade. Harvested extensively from the wild, including the targeting of spawning aggregations, and either sold directly or grown out to market size in captivity. Efforts are being made to culture the species in hatcheries. Species can be ciguatoxic in some areas.

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### Honeycomb grouper *Epinephelus merra*



Honeycomb grouper, photo: J. E. Randall, FishBase

**Description:** Relatively small grouper with a pale body overlaid with dense, dark brown spotting, with the pale spaces between the spots forming a honeycomb pattern, hence its common names “honeycomb” and “wire-netted” grouper. Body is approximately three times longer than deep with a wide and distinctively rounded tail. Species grows to a maximum reported length of 32 cm (13 in).

**Habitat:** Shallow lagoons and sheltered outer reefs in 1-20 meters of water. Range: Indo-Pacific.

**Notes:** A widely-distributed and common grouper feeding on fish and crustaceans. The honeycomb becomes increasingly piscivorous as it grows and matures. Individuals spend their entire life in one small area, having no significant movement from their home reef. The genus *Epinephelus* are protogynous hermaphrodites. This sex change usually happens in the non-breeding season and can be caused by social stimuli, age, growth, and body size. The initial trigger for the sex change remains unknown.

Although it is heavily fished in some areas it appears resilient to low-to moderate levels of fishing pressure provided spawning aggregations are not targeted.

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**White-blotched grouper** (Vyey plat)  
*Epinephelus multinotatus*



White-blotched grouper, photos by author and Ben Pierce.

**Description:** Dark purplish-gray body and scattered irregular whitish spots and blotches on head, body, and fins (absent in preserved fish). The rear edge of tail is straight or slightly concave. Species grows commonly to 75 cm (30 in) TL and a maximum reported length of 100 cm (39 in).

**Habitat:** Coastal and offshore coral and rocky reefs in 1-110 meters of water. Range: Indo-Asian Pacific.

**Notes:** Juveniles frequent inshore coral reefs where they are reported to mimic certain species of damselfish (*Neopomacentrus* sp.), presumably to get closer to their unsuspecting

prey. Adults and juveniles feed on small fishes and crabs.

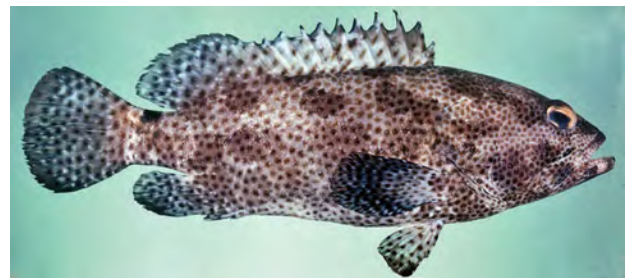
White-blotched grouper is commonly fished by trap and line fisheries throughout its range. Overfishing is reported from the Mahé plateau, by the local fisheries, though fishing pressure reputedly light in the outer islands and atolls.



**Camouflage grouper** (Vyey goni)  
*Epinephelus polyphekadion*

**Description:** Head, body, and fins pale brown, covered with small dark brown spots; upper half whitish, head and body with irregular dark blotches superimposed over the dark spots; dark spots extend all over head, including lower jaw, lips, and inside of mouth; numerous small white spots on fins. A prominent black saddle blotch present on caudal peduncle; caudal fin rounded and pelvic fins short. Grows to 90 cm (35 in) TL.

**Habitat:** Clear water of coral-rich lagoons and outer reefs; caves and large crevices in 1-46 meters of water. Range: Indo-Pacific.



Camouflage grouper, photo by J.E. Randall, Pacific Regional Live Reef Fish Trade Initiative

**Notes:** Adults solitary or in small schools. Feeds mainly on crustaceans and fishes, sometimes on cephalopods and gastropods. Although camouflage grouper are widely distributed, they may be particularly susceptible

to overfishing, especially spearfishing and live reef fish trade, as they are easy to approach underwater. Also, they are easy to target in their spawning aggregations in outer reef channel pass habitat. Habitat degradation of coral reefs also has the potential to affect camouflage grouper numbers. Frequently ciguatoxic in the Marshall Islands.

May be confused with the brown-marbled grouper (*E. fuscoguttatus*), page 14, but the adult camouflage grouper lacks an indentation above the eye, and its dorsal fin membrane is not as deeply incised as that of the brown-marbled grouper.

**Potato grouper** (Vyey toukoula)  
*Epinephelus tukula*



Potato grouper, photo: Richard Ling, Wikimedia Commons

**Description:** Large reef fish with generally pale brownish-gray body, large round or ovate dark blotches on body, and dark gray bands and blotches on head; large adults may be nearly black in color. Spoke-like markings radiate from eyes. The species can grow to an impressive size with a maximum recorded length of 200 cm (79 in) TL and over 90 kg (200 lb).

**Habitat:** Coastal, lagoon and seaward reefs in 5-50 meters of water, preferring deep reef channels and seamounts with current flows.  
**Range:** Indo-Asian Pacific.

**Notes:** Feeds on reef fishes, skates, crabs, and spiny lobsters. It can be exceedingly territorial and aggressive towards intruders. At the same time, the species can also be quite approachable and is commonly hand fed by divers in certain

areas (note: generally, not a good idea for the diver or the fish).

The potato grouper is a valued fish for table fare, and it is easily speared or caught on hook and line. It forms spawning aggregations which increases its vulnerability to harvest. The potato grouper's abundance is patchy over its range, and it has been fished out of many locations though still found in relative abundance in remote or managed locales like Farquhar Atoll.

**Black-saddled coral grouper**  
(Vyey babonn zonn), *Plectropomus laevis*



Light-phase blacksaddle, photo by Jako Lucas. Below, dark phase, photo: J.E. Randall, Pacific Regional Live Reef Fish Trade Initiative

**Description:** Species exhibits two distinct color variations: the pale variation has a whitish body with five black-dark brown saddles on body (including black band above eye) and yellow lips, fins, and tail; the dark variation has a dark gray to reddish-brown head, lighter body with 3-5 dark bars or saddles—it is much less conspicuous than the light phase. Both variations have small, dark-edged blue spots on head, body, and fins (often less conspicuous in light phase). Species attains a length of 100 cm (39 in) TL and a weight of 18 kg (40 lb).



**Habitat:** Coral-rich areas of lagoons and seaward reefs, channels, and outer shelf reefs, in 4-90 meters of water. **Range:** Indo-Pacific.

**Notes:** Also known as a footballer cod (due to light phase's resemblance to football jersey), the species is a voracious piscivore whose prey comprises a variety of large reef fishes, including other groupers and variety of fishes and crustaceans. This diet of large fish can result in potentially high concentrations of ciguatera toxins. The species migrates over short distances to spawn, forming large aggregations. Juveniles may mimic species of pufferfish. Considered an excellent table fish, the species is exploited over much of its range and is an important part of the live reef food fish trade.

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**Marbled coral grouper (Babonn)**  
*Plectropomus punctatus*



Marbled coral grouper, light and darker phases. Can also be very red, photos by author.

**Description:** Relatively large, aggressive fish with prominent canines and jaw teeth. Its body varies from red-to-brown with distinct marbling often present. Exhibits distinctive blue margins on fins, eyes red with blue outlines, and the posterior tail margin is squared. Reported to grow to 96 cm (38 in) TL and 17.3 kg (38 lb).

**Habitat:** Shallow coral and rocky reefs, in 3-62 meters of water. Range: Indian Ocean.



**Notes:** Also known as marbled leopard grouper or mottled coraltrout, the species occurs solitary or in small groups, often drifting above the bottom with the current in search of food. It

feeds exclusively on fishes, including parrotfish, wrasse, and triggerfish. While the species is commonly caught on Farquhar, there is very little information on its biology and population status. It is heavily fished in parts of the range where it has become relatively uncommon.

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**Yellow-edged lyretail grouper (Krwasan)**  
*Variola louti*



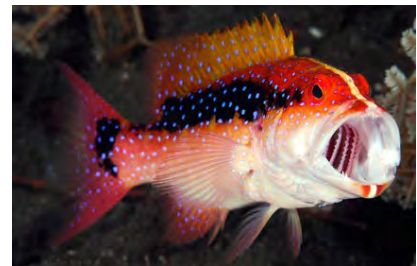
Lyretail grouper, photo Jean-Lou Justine, FishBase; below: juvenile, photo: Luiz Rocha © 2009.

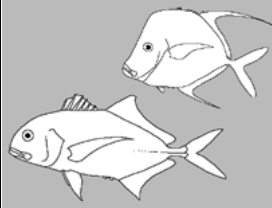
**Description:** Distinguished by bright red to violet-brown, spotted body and lunate tail with a bright, yellow-edged margin. It reaches up to 83 cm (33 in) in length and 12 kg (26 lb) in weight.

**Habitat:** Clear waters of lagoons and outer reefs, 3-240 meters of water, preferring islands and offshore reefs rather than continental shores. Range: Indo-Pacific.

**Notes:** Lyretail grouper feed mainly on fishes, and on crabs, shrimps, and mantis shrimp. As juveniles, their appearance is markedly different, resembling the goatfishes that may shadow them as they feed.

Lyretail grouper are good to eat. As a result, the species has suffered sharp declines in regional fisheries (up to 70 percent decline over last 20 years), but fisheries managers note its large range may provide a buffer to overfishing. It may not be sold in Mauritius because of cases of ciguatera poisoning.





**Jacks and Pompanos** (Carangidae) are strong, fast-swimming predators of reef waters and open sea with some 30 genera and 147 species. They are generally silvery in color with laterally compressed or torpedo-shaped bodies, large eyes, steep forehead, slender caudal peduncle and widely forked caudal fin. They commonly have detached finlets found behind dorsal and anal fins. Large juveniles and adults with two dorsal fins. Members of the family vary widely in size, and are widely fished for harvest and for recreation.

**Giant trevally** (Karang ledan)  
*Caranx ignobilis*



Giant trevally. Light and dark phases, photos by author.

**Description:** Distinguished by its steep head profile, strong tail scutes, and silvery color with occasional dark spots. The “GT” has an ovate, moderately compressed body with the dorsal profile more convex than the ventral profile, particularly anteriorly. The dorsal fin is in two parts, the first consisting of eight spines and the second of one spine followed by 18-21 soft rays. It is the largest fish in the genus *Caranx*, growing to an average size of 80 cm (32 in). a maximum recorded size of 170 cm (67 in) and weight of 80 kg (176 lb).

**Habitat:** Wide range of marine environments, from estuaries, shallow bays and lagoons as a juvenile to deeper reefs, offshore atolls, channels and seaward reef slopes to 80 meters of water as an adult. Range: Indo-Pacific.



**Notes:** The GT is an apex predator in most of its habitats and is known to hunt individually and

in schools, predominantly preying on fish with crustaceans, cephalopods, mollusks, and even birds (i.e., sooty terns) part of their potential diet. The species deploys a range of hunting strategies, including using rays and sharks as “platforms of opportunity,” riding their backs to shield their presence and ambushing unsuspecting prey. Spawning occurs at specific stages of the lunar cycle, when large schools congregate to spawn over reefs and bays.

The fish grows relatively fast and reaches sexual maturity at three years of age. Larger adult trevally appear to exhibit sexual dimorphism in their coloration, with males having dusky to jet-black bodies, while females are a much lighter colored silvery-gray. Other observers attribute the dark phase to dominance or excitement.

The eye of the giant trevally has a horizontal band in which ganglion and photoreceptor cell densities are markedly greater than the rest of the eye. This adaptation is believed to give the fish a panoramic view of its surroundings. By removing the need to constantly search by moving the eye, giant trevally improve their ability to detect prey or predators. The species is both an important commercial species and sought-after gamefish.

The Pacific crevalle jack (*C. caninus*) is a similar-looking jack, growing to 100cm and 18 kg, while its Atlantic counterpart, crevalle jack (*C. hippos*), grows to 124 cm TL and 32 kg.

**Bluefin trevally** (Karang ver)  
*Caranx melampygus*

**Description:** A strong swimming predatory fish, adults are distinctive with their electric blue fins, tapered snout, and numerous blue and black spots on their sides. Juveniles lack this distinctive coloration. The species grows commonly to 60 cm (24 in), and a reported maximum length of 117 cm (46 in) and weights exceeding 43 kg (94 lb).



**Habitat:** Coastal and oceanic waters associated with reefs. Range: Indo-Pacific.

**Notes:** Adult bluefin trevally prey primarily on fish, supplemented by cephalopods and crustaceans. They display a wide array of hunting techniques ranging from aggressive open-water attacks and reef ambushes to shadowing larger species such as rays to snapping up any prey items missed by the larger fish. The species is a popular target for both commercial and recreational fishermen.



Bluefin trevally. Displaying vibrant dorsal colors. Photos by Penelope Pierce.

The rapid decimation of the Hawaiian bluefin trevally population by overfishing has led to increased research in the aquaculture potential of the species. Despite its popularity as a table fish, cases of ciguatera poisoning have been reported, especially in species larger than 50 cm (20 in).



### **Bigeye trevally** *Caranx sexfasciatus*

**Description:** Similar to other jacks, bigeye trevally have a compressed oblong body, overall silvery coloration, slender tail base, and widely forked tail. A line of dark scutes form a keel from the tail forward into the back third of the body. Its eye is large relative to body size, hence the common name. A white tip is commonly present

on the second dorsal fin and a small black spot present on upper end of gill cover. Juveniles are silvery-yellow with 5-6 dark vertical bands on their sides. The specific epithet *sexfasciatus*, meaning 'six banded', references its juvenile appearance. Species grows commonly to 60 cm (24 in) and known to reach 120 cm (47 in) TL and 18 kg (40 lb) in weight.



Bigeye trevally, adult, photo by Jako Lucas; below: juvenile.

**Habitat:** Inshore coastal waters, around islands and seamounts, and outer reefs to 50 meters. Range: Indo-Pacific.

**Notes:** Commonly found in large slow-moving schools during the day, then dispersing into smaller groups or individuals to hunt at night for a variety of fish, crustaceans, and other invertebrates. Juveniles target primarily crustaceans while the diet of adults is primarily fish. Adults gather in large aggregations for spawning.

The bigeye trevally is of varying importance to both commercial and recreational fisheries throughout its range. Like all the trevally, bigeyes are strong, aggressive fighters on a flyrod.



### **Rainbow runner (Galate)** *Elagatis bipinnulata*

**Description:** Sleek, long, slender-bodied pelagic fish easily distinguished by the brilliant coloration which gives the fish its name—iridescent blue-to-green back, yellow lateral stripe with narrow light-blue or bluish-white stripe above and below, silvery-white undersides, and yellow-to-olive fins and tail. Its torpedo-shape is unusual for a jack which are

most commonly laterally compressed in shape. Grows commonly to 90 cm (35 in) TL and up to 180 cm (70 in) and 42 kg (93 lb).



Rainbow runner, photo © Florent Charpin, reefguide.org.

**Habitat:** Outer reefs and offshore marine waters.  
**Range:** Circumtropical.

**Notes:** Rainbow runners are fast swimming predators, commonly forming schools that prey on small fish, cephalopods, and a wide variety of planktonic crustaceans. The species reaches sexual maturity at around 60 cm (24 in), and spawning occurs at different times throughout its range. While the rainbow runner is rarely targeted as a commercial fish, large numbers of the species often turn up as bycatch from tuna and shark fisheries. The species is a valued gamefish.

### Golden trevally

*Gnathanodon speciosus*



Golden trevally. Top photo by Jako Lucas; juvenile, photo by J.E. Randall, FishBase.

**Description:** Compressed, oblong body, with the dorsal profile slightly more convex than the ventral profile. Distinguished by fleshy, protractile lips and its coloration, which ranges from bright yellow with black bars as a juvenile to a golden-silvery color as an adult; adults often exhibit black blotches or spots on sides. It is known to grow commonly to 70 cm (28 in) and

up to 120 cm (47 in) TL and 15 kg (33 lb) in weight.

**Habitat:** Inshore waters, lagoons, and seaward reefs. **Range:** Indo-Pacific

**Notes:** Feeds by rooting for crustaceans as well as small fishes. Adults form schools and are noted for their behavior of closely swimming around sharks and other large fishes. Small juveniles live among the tentacles of jellyfish to gain protection from predators. Spawning aggregations gather at night at different times of the year throughout its range.

Golden trevally are a commercially important species in many regions, marketed fresh, salted or dried. Several Asian countries currently farm the fish in caged aquaculture. Due to their brilliant coloration, juveniles are popular in the aquarium trade. The species is a valued gamefish.



### Small-spotted dart

*Trachinotus baillonii*



Small-spotted dart, photo by author.

**Description:** A smaller, but energetic, member of the Jack family, silvery in color, with blunt rounded snout, elongate dorsal and anal fins, long widely forked tail lobes, and narrow caudal peduncle. One to five small black spots in a row, centered on or near the lateral line. The number of spots may increase with age. In addition,

leading edges of fins and tail are black-margined. Grows commonly to 35 cm (14 in) and up to 60 cm (24 in) TL and weighs up to 1.5 kg (3.3 lb).

**Habitat:** Coastal waters, lagoons, seaward reefs, often in surge zones along sandy beaches.  
**Range:** Indo-Pacific.

**Notes:** Also known as the black-spotted dart, adults commonly occur at the edge of the surf near a reef, usually in pairs or small groups. Small-spotted darts feed on small fishes. They are occasionally taken by trolling and line fishing.

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### Snubnose pompano

*Trachinotus blochii*



Snubnose pompano. Top photo by Steve Barrett. Next photo courtesy of Yellow Dog Flyfishing Adventures.

**Description:** To an ichthyologist the species is a snubnose pompano, to an angler it is an Indian Ocean permit. The species is similar in appearance to the permit found in the western Atlantic Ocean (*T. falcatus*) and shares the same reputation as a hard-fighting trophy species on a flyrod and light tackle.

Snubnose pompano are distinguished by their elongated, scythe-like dorsal and anal fins, and long deeply forked tails; leading edges are typically black and fins yellow-orange tinged. Larger adults commonly have yellow hues radiating from fins into body. Unlike many of the jacks, snubnose pompano do not have scutes radiating forward from the tail (see bigeye trevally for comparison). Body color silver and face with blunt rounded snout. Grows commonly to 94 cm (37 in) and up to 122 cm (48 in) TL and up to 36 kg (80 lb) in weight.

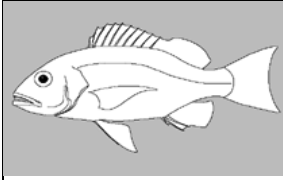
**Habitat:** Coral and rocky reefs in 10-50 meters.  
**Range:** Indo-West Pacific Oceans.



**Notes:** Very little information is readily available on the biology and behavior of the snubnose pompano. From field observations and assuming similar behavior as that of *T. falcatus*, adults frequent channels and holes, moving up on sandy flats and mud bottoms to feed. Adults feed on mollusks, crabs, shrimps, and small fishes; juveniles on benthic invertebrates. Adults are found solitary or in schools while juveniles commonly found in large schools moving across flats and surf zones along sandy beaches. It is assumed that they spawn offshore with young moving into protected coastal waters. A sought-after gamefish and considered excellent table fare.



GTs on the flat.  
Photo by Jeremy Miller



**Snappers** (Lutjanidae), comprising some 17 genera and 113 species, are small-to-medium sized predatory fishes with robust elongate-to-ovate, moderately compressed, bodies; a single dorsal fin that may be notched in the middle or deeply incised between the spines; caudal fin truncate to deeply-forked; and jaws commonly with distinct canine teeth. Family includes the snappers, jobfishes, and fusillers.

### Small-toothed jobfish

*Aphareus furca*



Small-toothed jobfish, photos by author.

**Description:** A silvery purplish-brown snapper becoming silvery bluish-grey below with dark margins on the operculum and whitish to yellowish-brown fins. Body elongate, slender; mouth large, tail large and deeply forked. Last ray of dorsal and anal fins lengthen into long filaments (photo below). Small juveniles have a yellow tail. Jaw teeth small, disappearing with age. Average size approximately 9-10 inches (25 cm), up to 27.5 inches (70 cm) TL.

**Habitat:** Inshore coral and rocky reefs, 1-122 meters. Range: Indo-Pacific

**Notes:** Also known as a snapper jobbyfish, adults found singly or in small groups. Feeds mainly on fishes, but also eats crustaceans. Often curious and approachable. A popular gamefish taken mainly with hand lines or vertical longlines.



### Green jobfish (Zob gri)

*Aprion virescens*

**Description:** Streamlined, cylindrical body with strongly forked tail, short pectoral fins, and a

blunt head with a groove in front of the eye. Its coloration is greenish-gray with pale vertical banding. Species is benthopelagic, feeding mainly on fishes, shrimp, crabs, and cephalopods. Jobfish grow commonly to 90 cm (35 in) and up to 112 cm (44 in) TL and 15.4 kg (34 lb).



Green jobfish, photo by Bob Kiesling.

**Habitat:** Deep lagoons, channels, and outer reef slopes in 5-150 meters of water. Range: Indo-Pacific.

**Notes:** Jobfish are considered excellent eating, mainly marketed fresh but also dried and salted. Large individuals may be ciguatoxic.

The rusty jobfish (*A. rutilans*) has an overall blue-grey or mauve to overall reddish body, growing commonly to 79 cm (31 in) and up to 110 cm (43 in) TL.

### Bohar snapper (Varvara)

*Lutjanus bohar*



Bohar snapper, red phase (with remora), photo by author; below: light phase, photo by Jeremy Miller.

**Description:** Bohars have a red and a light phase. The red phase is orange-red with brownish-to-black shading along the back and usually on the uppermost rays of the pectoral fin. The light phase has silvery flanks and dark fins. Both have large orange eyes with dark pupils. Typical of many snappers, the species has distinct grooves that run from the eyes to the nostrils. Young and some adults display one-to-two silvery-white spots on back. Large adults mostly plain red without spots. The species commonly grows to 76 cm (30 in) and up to 90 cm (35 in) TL and 12.5 kg (28 lb).



**Habitat:** Lagoons and outer reefs in 5-150 meters of water. Range: Indo-Pacific.

**Notes:** Also known as the two-spot snapper, the species feeds mainly on fish supplemented by other prey such as crustaceans. Adult snappers will gather in large schools on the outer reef edges or above sandy areas, often to form spawning aggregations. Research shows the fish to be long lived—documented up to 56 years. The bohar snapper is an important commercial fish in many areas and sought after as a game fish. Large individuals can potentially cause ciguatera poisoning. The origin of the word "Bohar" is not clear.

### **Humpback red snapper (Terez)** *Lutjanus gibbus*

**Description:** Medium-sized fish with a sloping, triangular head and a shallow forked tail with rounded lobes. Its coloration is red-to-gray with a brown-red tail and yellow-orange markings around base of the pectoral fin. The species commonly grows to 45 cm (18 in) and up to 50 cm (20 in) TL.

**Habitat:** Lagoons, passages, and outer reef slopes with the juveniles preferring seagrass beds and sheltered coral reefs; sub-adults and adults preferring sloping substrates. Range: Indo-Pacific.



Humpback snapper, ©photo: Melbourne Aquarium.

**Notes:** Also known as a paddletail snapper, the species feeds on fish and a variety of invertebrates including shrimps, crabs, mantis shrimp, and echinoderms. It is a commercially important species as well as being sought after as a game fish. Like many large reef-dwelling fish, there are reports of the species causing ciguatera poisoning.

### **Reef snappers** *Lutjanus sp.*

The common name "snapper" is derived from their habit of snapping their jaws when hooked.

Following are a few examples of the numerous species of tropical snappers found in and around lagoons and reefs, commonly caught by anglers and in the Seychelles nearshore artisanal fishery:

**Bengal Snapper (Madras), *L. bengalensis*.** Bright yellow dorsally and flanks with light blue stripes framed with dark edges; the lowest stripe separates its yellow flanks from a white ventral surface.



Bengal snapper. Photo (c) Mark Rosenstein, iNaturalist.

**Bluestripe snapper (Madras), *L. kasmira*.** Bright yellow body with four narrow brilliant blue stripes along the sides, a silvery-white belly with faint greyish stripes, and bright yellow fins.



Bluesripe snapper. Photo: Bernard Picton, Wikimedia Commons.

**One-spot snapper**, *L. monostigma*. A common reef snapper found solitary or in small groups. Adults generally silvery-white with prominent yellow fins and tail; body may also appear darker reddish brown. Commonly displays a horizontally elongate black spot on rear flank. This spot reportedly can be turned on or off at will. Like most snapper, larger individuals are good table-fare; flesh may be ciguatoxic.



One-spot snapper. Photo: J. E. Randall, FishBase.

**Bigeye Snapper** (Madras Rouz), *L. lutjanus*. Silver-white flanks marked by a broad yellow stripe extending from eye to caudal base and several finer yellow lines below; fins yellow and head and dorsal surface pink-red.



Bigeye snapper. Photo courtesy of reefguide.org.

**Blackspot snapper**, *L. ehrenbergii*. Back and upper sides dark brown, lower sides and belly whitish with a silver sheen; usually a series of 4-5 narrow yellow stripes on the sides below the lateral line; a distinct round, black spot on the

back below the posterior part of the spinous portion of the dorsal fin.



Black-spot snapper. Photo: Derek Keats, Flickr.

**Longspot snapper** (Ziblo), *L. fulviflamma*. Also known as dory snapper, back and upper sides brown, lower sides whitish or light brown and belly whitish to yellow, usually a series of 6-7 yellow stripes on the sides and a prominent black spot at level of lateral line, below base of anterior part of soft portion of dorsal fin.

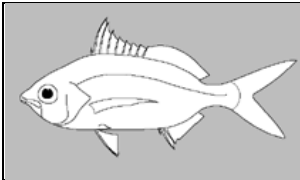


Longspot snapper. Photo: R. Field, FishBase.

**Emperor red snapper** (Bourzwa), *L. sebae*. Body generally red or pink. Juveniles and young adults display 3 distinct darker red bands on body against a paler background. Large adults become uniformly red. A darker color form is also occasionally seen with orange-brown body and brown stripes.



Emperor red snapper. Photo: J. E. Randall, FishBase



**Mojarras** (Gerreidae), comprising 8 genera and 53 species, are silvery fishes with moderately deep, compressed bodies, single dorsal fin; dorsal and anal fins with a sheath of scales along their base; and deeply forked tails. Mouth very protractile, extending downward when protruded, tiny, brush-like teeth in jaw. Species similar in appearance to each other members of the family.

### Strongspine silver-biddy

*Gerres longirostris*



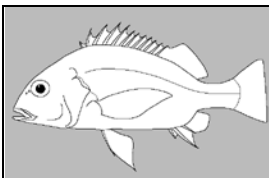
Silver biddy, photo by author.

**Description:** Head and body olive-green above, becoming silvery below; dorsal fin hyaline or slightly yellowish while pectoral and anal fins hyaline. Caudal fin dusky with dark margin

along back edge. Prominent dark stripes or dashes generally present along scale rows above lateral line; and 4-9 somewhat oblique dusky bars or columns of ovoid dark spots immediately below lateral line in specimens over 10 cm (4 in). Commonly grow to 20 cm (8 in).

**Habitat:** Clear coastal waters up to about 50 meters depth, preferring shallow waters over sand or mud bottoms, from coral reefs to brackish waters. Range: Indo-Pacific.

**Notes:** On Farquhar, anglers will commonly see and catch silver biddies in shallow waters along sandy beaches where they feed by sorting benthic invertebrates from the sand using their protrusible mouth and ejecting the raked sand out their gill covers. Spawning occurs at sea throughout the seasons.



**Grunts** (Haemulidae), 19 genera and 134 species, are medium-to-large fish with thickened lips, continuous dorsal fins, typically rounded to truncate tails, small conical jaw teeth, and pharyngeal teeth in throat. Juveniles of many species undergo dramatic appearances changes as they mature. Pelagic spawners and important food fishes.

### Oriental sweetlips (Vyey Sesil)

*Plectorhinchus vittatus*

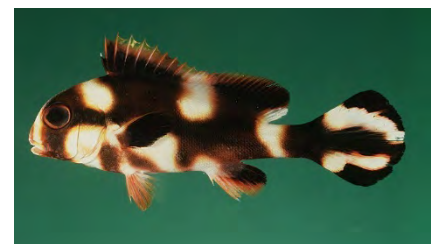


Oriental sweetlips. Above: adult, photo: Mark Rosenstein, iNaturalist; below: juvenile, photo: J.E. Randall, FishBase.

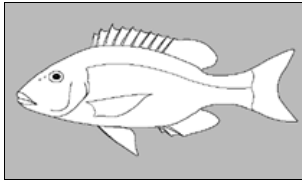
**Description:** Distinct juvenile, sub-adult, and adult appearances. Juveniles swim with an undulating motion and are dark brown with several large irregular white spots bordered with

yellow-orange-red. Sub-adults are white with irregular pattern of broad horizontal black bands and spots and a yellow forehead. As adults, species retains the white body and black horizontal stripes while dorsal; caudal and anal fins becoming yellow with black spots. Adult oriental sweetlips grow to 72 cm (28 in) with a maximum reported size of 85 cm (33 in) TL.

**Habitat:** Coastal reefs, lagoons, and seaward reefs in 2-25 meters of water. Range: Indo-West Pacific.



**Notes:** One of the most common grunts on Farquhar. Adults may be solitary or occur in aggregations. They are nocturnally active but drift in the open during the day.



**Emperors** (Lethrinidae) include 5 genera and 41 species of fishes found in tropical waters of the Pacific and Indian oceans, commonly found on or near reefs. Emperors tend to be benthic feeders, consuming invertebrates and small fishes. Some species have molariform teeth which they use to eat shelled invertebrates, such as mollusks and crabs.

**Spangled emperor** (Kaptenn rouz)  
*Lethrinus nebulosus*



Spangled emperor, photo by author.

**Description:** Moderately deep body, elongate snout; yellowish-bronze body with numerous blue spots/dashes; scale centers white or light blue; sometimes irregular dark indistinct bars on sides; blue streaks or series of blue spots radiating forward and ventrally from eye. Fins blue-yellowish hyaline; spines present on leading half of the dorsal and anal fins. Juveniles variable with blotches or stripes. Grows commonly to 70 cm (28 in) and up to 87 cm (34 in) TL and up to 8.4 kg (18.5 lb).

**Habitat:** Flat sand bottoms in vicinity of reefs to 75 meters; also frequents seagrass beds and mangrove areas. Range: Indo-West Pacific.

**Notes:** Adults are highly active and fast swimming, found in small schools or solitary. Feed mainly on echinoderms, mollusks, and crustaceans. Juveniles form large schools in sheltered areas. Very important commercial and sport fish in some regions.

**Longface emperor** (Gel long)  
*Lethrinus olivaceus*

**Description:** Distinctive for its relatively slender body and long snout; body color gray to olive, lighter ventrally, often with scattered irregular dark blotches. Snout with wavy dark streaks on upper jaw, especially near corner of mouth, commonly edged with red; 10 spines present on

leading half of the dorsal and three on anal fins. Grows commonly to 70 cm (28 in) and up to 100 cm (34 in) TL, and up to 14 kg (31 lb).

**Habitat:** Sand bottoms of lagoon and outer slopes in 1-185 meters of water. Juveniles are found in shallow sandy areas, often in schools. Adults along coastal slopes and drop-offs, usually solitary. Range: Indo-West Pacific.



Longface emperor, (c) photo by Dennis Polack, Fishwisepro.com.

**Notes:** The longface is the largest member of the Emperor family. As it is primarily a fish-eater all its teeth are pointed. Found solitary or in groups; highly active and fast swimming.

**Yellowlip emperor** (Bawa)  
*Lethrinus xanthochilus*



Author with yellowlip emperor. Photo by Sarah Tilt.

**Description:** Body and snout moderately elongate; body color yellowish-gray with a mottled and blotched pattern; lighter ventrally. Lips yellowish, color of upper lip more intense; fins bluish grey and mottled; bases of fins lighter and edges of dorsal and caudal fins reddish. Base



of pectoral fins with prominent red spot. Grows commonly to 59 cm (23 in) and up to 70 cm (28 in) and 5.4 kg (12 lb).

**Habitat:** Sand and rubble bottoms near reefs in 5-30 meters of water. Range Indo-Pacific.

**Notes:** Adults active and fast swimming, typically solitary or in small schools; juveniles found in seagrass beds.



area around the eye is often yellow or orange with a black spot found at pectoral fin axil. Species is quick to assume a bolder pattern of 4 broad, blackish bars on body with pale interspaces covering 3-4 scale rows. Juveniles distinct for black bar through eye, body with 3 dark brown-to-blackish bars, two posterior bars extending onto the dorsal fin, and orange band on caudal fin lobes. Grows to an average length of 40 cm (16 in) and up to 60 cm (24 in) and 5.9 kg (13 lb).

**Habitat:** Sand and rubble areas near reefs, lagoons and outer slopes to 100 meters of water. Range: Indo-Pacific.

**Notes:** Also known as bigeye emperor, solitary fish are often encountered, but large adults usually form larger aggregations. They are nocturnal feeders on gastropods, brittle stars, and sea urchins, as well as assorted crabs, worms, tunicates, and sea cucumbers. The species is commercially important as a food fish and is also popular as a game fish. It can also be found in the aquarium trade.

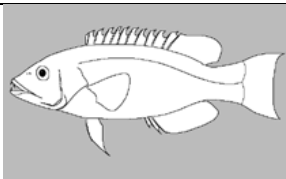
## Humpnose bigeye bream

*Monotaxis grandoculis*



Humpnose bream. Plain phase, photo by Richard Zerpe. Bold phase, photo: Dwayne Meadows, NOAA, Wikimedia.

**Description:** Description: Adults can assume two color patterns. In lighter phase, body is generally bluish-gray grading to whitish on ventral parts; lips are yellow-to-pinkish; and the



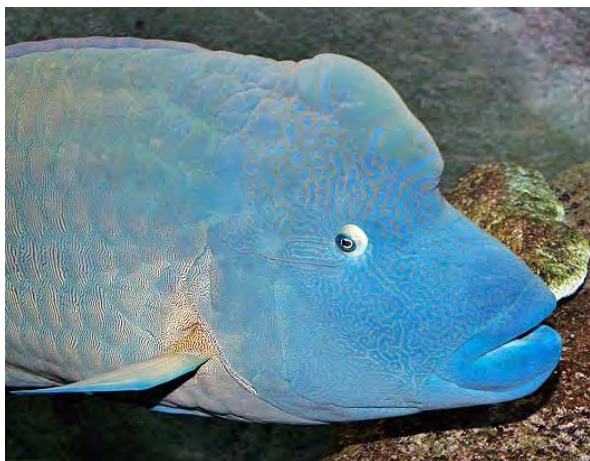
**Wrasses** (Labridae) are a large family with an estimated 70 genera and 559 species. They vary enormously in size and form but generally have a single long-based dorsal fin (lacking distinct notch between spinous and soft rays), well-developed pectoral fins used for swimming, thick lips, jaws with well-developed canine teeth and smooth-edged (cycloid) scales. Most species are sand burrowers preying on benthic invertebrates, planktivorous, and some small species remove ectoparasites of larger fishes (i.e., cleaner wrasses). Most species change color and sex with growth: an initial phase of both males and females, females able to change sex, and often brilliantly colored terminal male phases. Males dominate several females.

## Humphead wrasse

*Cheilinus undulatus*

**Description:** Largest member of the Labridae family, with males reaching 229 cm (90 in) and weights exceeding 190 kg (421 lb). Deep-bodied fish, adults develop large hump on forehead becoming more prominent as the fish ages, hence its common name. Lips fleshy with two strong canines in jaw. Coloration varies

markedly by sex and age. Adults typically olive-to-green body with a vertical dark bar on each scale above and behind pectoral fins; head of adults blue-green to blue with highly irregular undulating yellowish lines; two black lines extending posteriorly from eye. Juvenile coloration lighter-to-white with dark scale bars and prominent black lines extending posteriorly from eyes, as well as two lines extending diagonally up and back from eye and two diagonally downward on snout in front of eye.



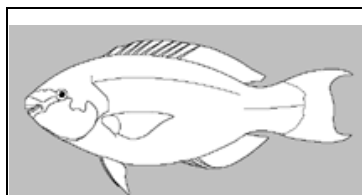
Humphead wrasse. Above: adult, (c) photo fir0002, Wikimedia; upper right: subadult, photo by Ben Pierce; below right: juvenile, photo by author.



This species actively selects branching hard and soft corals and seagrasses. Humpheads are long-lived but have a very slow breeding rate. Its numbers have declined due to a number of threats, including the live reef food fish trade, spearfishing, and habitat loss (e.g., fishing with sodium cyanide and dynamite). The IUCN Red List lists the species as endangered.

**Habitat:** Lagoon, outer coral reef slopes, channel slopes, in water 1-60 meters deep. Range: Indo-Pacific.

**Notes:** Also known as Napoleon wrasse or Māori wrasse, the species are very opportunistic predators, preying primarily on crustaceans, mollusks, fish, and echinoderms. They are one of the few predators of toxic animals such as the sea hare and boxfish and have even been reported preying on crown-of-thorns starfish.



**Parrotfish** (Scaridae) comprise 10 genera and 100 species. Closely related to the wrasses, they swim primarily with pectoral fins, commonly change sex from female to male, and generally exhibit two or more color patterns as they mature. Unlike wrasses, teeth are fused into powerful, parrot-like, beaks capable of scraping filamentous algae from coral and rock. Most Scaridae live in harems with a single dominant mature male and 2-7 females with which they exclusively mate.

**Bumphead parrotfish** (Filanbaz)  
*Bolbometopon muricatum*



Bumphead parrotfish. Above, adult: photo courtesy of Yellow Dog Flyfishing; below, photo: Richard Ling, Flickr.

**Description:** Largest species of parrotfish, growing to lengths of 130 cm (51 in) and weighing up to 46 kg (100 lb). Adult bumpheads have a prominent hump on forehead (often pinkish-white in appearance) and a uniform greenish-gray body. Juveniles do not have the humped head, tend to be browner in color, and have five vertical rows of whitish spots on their flanks. They are known to live to an age of 40 years or more.

**Habitat:** Adults found in clear outer lagoons and seaward reefs up to a depth of 30 meters. Juveniles found in lagoons, often in seagrass beds. Range: Indo-Pacific.

**Notes:** Species is gregarious and usually occurs in small aggregations, also forming larger groups of 75 individuals and more. Species spawns pelagically around outer reef slopes, promontories, and channel mouths during a lunar cycle. Bumpheads feed on benthic algae and live corals, using their heads to ram and loosen corals and algae. An individual bumphead is thought to ingest over five tons of reef structure annually, contributing significantly to the bio-erosion of reefs. The fish sleeps in caves and grottos at night, usually in large groups.



While the species is a favorite challenge for catch & release anglers, the fish is targeted by consumption fisheries throughout its range, including spearfishers and netters who harvest them as they sleep. Overharvesting combined with habitat degradation have caused widespread declines across its range. Bumpheads are listed as vulnerable by the IUCN.

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### Two other examples of parrotfish

#### Bullethead parrotfish

*Chlorurus sordidus*



Bullethead parrotfish, photo by J.E. Randall, FishBase.

**Description:** Known by many common names including burnt parrotfish, shabby parrotfish

and daisy parrotfish, males (terminal phase) are greenish with pinkish to purplish scale margins, a pale yellowish-to-pinkish cheek, a bluish-to-pale purplish snout, and a pale green caudal peduncle. Females (initial phase) are pale reddish-brown on the head and anterior body, becoming darker posteriorly with 3-4 vertical pairs of small white spots, and often a broad white area posteriorly enclosing a prominent black spot on the caudal peduncle. Juveniles have alternating dark brown and white stripes along the head and body.

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#### Steephead parrotfish

*Chlorurus strongylocephalus*



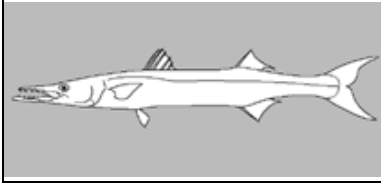
Steephead parrotfish (blue/green phase), (c) photo by Embudum, Picasa.

**Description:** One of the most common parrotfish encountered on Farquhar. It has a rounded forehead with a steep face profile (hence its common name), parrot beak, and two distinct color variations: blue-green and red-yellow. In the first, the body is shades of blue-green with lavender-pink scale edges, blue snout and pale blue below jawline. The red variation has reddish body with yellow or blue margins on fins and tail. Grows up to 80 cm (31 in) in length.

**Habitat:** Habitat: Sheltered reefs and reef flats to 50 meters. Range Pacific.

**Notes:** This species is most common on reef fronts and flats. The maximum age recorded for the bluntheads is 9 years (males) and 8 years (females). This species is widespread and not generally targeted in any particular fishery. It is harvested in some areas and maybe experiencing localized population declines.

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**Barracudas** (Sphyraenidae), one genus and 29 species in the Atlantic, Indian, and Pacific oceans. Elongated body, large mouth with the lower jaw projecting forward bearing strong fanglike teeth. Well-developed lateral line. Voracious predators of other fishes. Attacks on humans have been reported. Pelagic spawning in schools. Food and game fish with large specimens potentially ciguatoxic.

**Great barracuda** (Tazard)  
*Sphyraena barracuda*



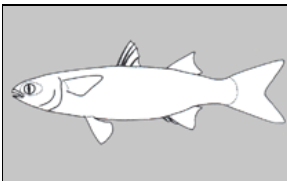
Great barracuda, photo: Lban712, Wikimedia Commons.

**Description:** Large, aggressive fish with elongate bodies; large, pointed pike-like heads; and fang-like teeth set into powerful jaws. The lower jaw juts out beyond the upper. Teeth are unequal in size and set in sockets in the jaws and on the roof of the mouth. Two dorsal fins are widely separated, with the first having 5 spines and the second having one spine and 9 soft rays. Prominent lateral line extending from head to

tail. Body is silvery overall with a dark green-blue coloration on its dorsal surface, scattered dark blotches along flanks, and pale on the ventral side. Its fins may be yellowish or dark. Grows commonly to 140 cm (55 in) and up to 200 cm (79 in) TL; recorded weights up to 50kg (110 lb).

**Habitat:** Range of habitats from open seas to inner harbors; typically inhabiting shallow waters to 15 meters and reefs. Juveniles commonly shelter among mangroves, estuaries, and shallow inner reef areas. Range: circumtropical.

**Notes:** Species is commonly ciguatoxic in the Indo-Pacific. Known to attack humans, usually with one quick, fierce strike, but such documented instances are uncommon. Other species found in Indian Ocean include the yellowtail barracuda (*S. obtusata*), bigeye barracuda (*S. forsteri*), pickhandle barracuda (*S. jello*), and blackfin barracuda (*S. genie*).



**Mullets** (Mugilidae), comprising 26 genera and 78 species, are found in all tropical and temperate seas. Spinous (4 spines) and soft dorsal fins widely separated. Lateral line barely visible, if present. Mouth of moderate size. Long gill rakers. Travel in schools and feed on fine algae, diatoms, and detritus of bottom sediments. Important forage and food fishes.

**Striped mullet**  
*Mugil cephalus*



Striped mullet, photo: J.E. Randall, FishBase.

**Description:** Olive-gray dorsally, silvery on sides with faint gray-brown stripes along scale rows; shading to white ventrally. Snout blunt; edges of caudal fin usually dark. Common length 30-50 cm (12-20 in) TL.

**Habitat:** fresh, brackish, and marine habitats in depths ranging between 0–120 meters. Range: coastal waters of the tropical, subtropical, and temperate zones of all seas.

**Notes:** Often seen in schools over sand and mud bottoms, prone to breaking the water's surface when startled or chased by predators. Adults feed on algal and detrital material on or near the bottom, collecting food on gill rakers while expelling inorganic sediments from gill openings; juveniles feed on zooplankton. Sexually mature at 3-to-4 years; females reported to spawn 0.8 to 2.6 million eggs which develop at sea. Commonly viewed as "bait" mullet are very important forage fish as well as food fish.



**Surgeonfishes** (Acanthuridae), including the surgeonfishes, tangs, and unicornfishes, are a family of 6 genera and some 86 species of marine fish living in tropical seas, usually around coral reefs. The distinctive characteristic of the family is their scalpel-like modified scales, one or more on either side of the peduncle. The spines are dangerously sharp and may seriously injure anyone who carelessly handles a member of this family. The dorsal, anal, and caudal fins are large, extending most of the length of the body. The mouths are small and have a single row of small, close-set teeth adapted to grazing on algae. Surgeonfishes sometimes feed as solitary individuals, but they often travel and feed in schools. Feeding in schools may be a mechanism for overwhelming the highly aggressive defense responses of small territorial damselfishes that vigorously guard small patches of algae on coral reefs.

**Yellowfin surgeon** (Sirizyen Lezel Zonn)  
*Acanthurus xanthopterus*



Yellowfin surgeon, photo: Jako Lucas.

**Description:** Purplish-grey body with a dull yellow band in front of eye. Dorsal and anal fins yellowish with 4-5 dull yellow stripes alternating with blueish hue. Outer third of pectoral fins yellow. Caudal fin deeply concave (sickle-shaped), purplish with whitish band at base. Overall colors change as fish matures with local variations. Single sharp spine located on either side of peduncle. Grows commonly to 50 cm (20 in) and up to 70 cm (28 in) TL.

**Habitat:** Juveniles inhabit shallow, protected, turbid inshore waters while adults are commonly found in deeper areas of protected bays, lagoons, sand slopes, and reef habitats. Range: Indo-Pacific.

**Notes:** Genus *Acanthurus* from the Greek for "thorn tail" in reference to the scalpel-like spines. Yellowfin surgeons are a schooling species, feeding on variety of filamentous algae, diatoms, and detritus. They are commonly observed moving across seagrass flats. This is the species of surgeonfish most likely caught by anglers if presented with an algae pattern fly.

**Powderblue surgeon** (Sirizyen)  
*Acanthurus leucosternon*

**Description:** Bright blue body with a blackish face, white area on the chin and chest, white band at the base of the lips, a yellow dorsal fin and caudal peduncle, and white pelvic and anal fins. Body is oval in shape and laterally compressed. Caudal fin crescent shape. The caudal peduncle has a "surgeon's scalpel," a single spine on each side that folds into a groove. Average size approximately 19 cm (8 in), up to 54 cm (21 in) TL.



Powderblue surgeon, photo: Amada44, Wikimedia Commons.

**Habitat:** Shallow coastal waters and island coral reefs, reef flats, and along upper seaward slopes. Range: Indian Ocean.

**Notes:** Also known as a powder blue tang, the species will not take a fly, but its powder-blue shape is often observed in shallow water over reefs as it feeds in pairs or in larger groups on filamentous algae. It does not undergo color changes as it matures, as some tangs, surgeonfish, and unicornfish do. Found throughout the Seychelles, it can be confused with the Royal or Blue Tang (*A. hepatus*), which is darker blue with a black stripe from eye to tail and black tip on its dorsal fin.

## **Bluespine unicornfish**

*Naso unicornis*



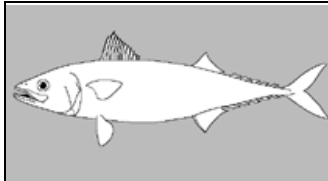
Jako Lucas with Bluespine unicornfish, photo: Brian, Alphonse Fishing Co.

**Description:** Large greenish-grey body, somewhat paler ventrally, with blue peduncular plates and keel spines. Lips whitish or blue; blue area is sometimes present around pectoral fin; dorsal and anal fins yellowish with narrow blue margins; caudal fin orangish basally, shading to gray, with a broad, pale greenish posterior

border and caudal filaments are edged in blue. Adult fish feature a distinctive tapering, bony, horn on the forehead projecting forward at level of eye (not extending beyond tip of snout). The horn first appears as a bump on forehead at a length of about 12 cm (5 in). Bluespines have a pair of plates on the caudal peduncle bearing well-developed forward-curving knife-like spines. Grows commonly to 50 cm (20 in) and up to 70 cm (29 in) TL.

**Habitat:** Adults prefer channels, lagoons, and seaward reefs with strong surge while juveniles frequent shallow protected bays and harbors. **Range:** Indo-Pacific.

**Notes:** Also known as unicorn surgeonfish or unicorn tang, the species is herbivores, feeding on macroalgae like leafy brown algae. Typically observed in small groups, sometimes solitary. When courting, males may perform displays using rapid colors changes to their horn and other body parts. It is an important food fish in parts of its range.



**Tunas & Mackerels** (Scombridae), comprising 15 genera and 54 species, are found in all tropical and subtropical seas. They are streamlined, powerful open-water predators with deeply forked (lunate) tails, 2 dorsal fins that fold into grooves, and finlets between the second dorsal and tail. Two or more small keels extend from each side of the narrow tail base.

## **Wahoo (Kin fis)**

*Acanthocybium solandri*

**Description:** Long slender body, dorsal and anal finlets present, pointed snout, and large mouth with strong, triangular, compressed and finely serrate teeth. Appearance is an iridescent blue back and silvery-yellow flanks marked with 24-30 cobalt blue vertical bars. Grows commonly to 170 cm (67 in) and up to 250 cm (98 in) TL, and weights to 83 kg (183 lb).

**Habitat:** Pelagic, often found near seamounts or reefs. **Range:** worldwide in tropical and subtropical seas.

**Notes:** A prized gamefish known in Hawaii as ono and Central America as peto. Feeds on fishes and squids. Eggs and larvae are pelagic. It is considered the third fastest-swimming fish in the ocean after the sailfish and striped marlin.



Wahoo, photo courtesy of marinesciencetoday.com

Wahoo may be distinguished from the related Barred Spanish mackerel (*Scomberomorus commerson*) by a fold of skin which covers the mandible when its mouth is closed. It is sometimes confused with the great barracuda (page 30) but is easily distinguished as the barracuda has prominent scales, larger, dagger-like teeth, and lacks the caudal keels and blade-like tail characteristic of the wahoo and other scombrids.

**Mackerel tuna (Bonit)**  
*Euthynnus affinis*



Mackerel tuna, photo by author.

**Description:** Small tuna with robust, elongate and fusiform body; distinctive dark-striped pattern extending posterior from middle of first dorsal fin; lower sides and belly silvery white; and 2-5 dark spots below the pectoral fin and above the ventral fin (not always present). Commonly grows to 60 cm (24 in) and up to 100 cm (39 in) TL and weights to 14 kg (31 lb).

**Habitat:** Warm pelagic waters including oceanic islands and archipelagos. Range: Indo-West Pacific.

**Notes:** Also known as kawakawa, the species prefers to stay close to the coast and juveniles frequent bays and harbors. It is a highly migratory species and frequently forms large mixed species schools. Mackerel tuna feed on small fish, particularly herrings, pilchards, and silversides, as well as squids, crustaceans, and zooplankton. In turn they are prey to larger tunas, billfish, and sharks. Similar to the little tunny (*E. alletteratus*) of the Atlantic Ocean.

**Dogtooth tuna (Ton ledan)**  
*Gymnosarda unicolor*



Dogtooth tuna. Illustration: © Diane Rome Peebles, IGFA.org.

**Description:** Stocky, streamlined shape with dorsal and anal finlets, an undulating lateral

line, and pale tips on the rear dorsal and anal fins. Its coloration is blue-green on the back, silver-blue on the side, and whitish on the belly. Dogtooth tuna commonly grow to 190 cm (35 in) and up to 248 cm (98 in) TL, and weights to 131 kg (288 lb).

**Habitat:** offshore waters around coral reefs. Range Indo-West Pacific.

**Notes:** Dogtooth tuna frequent reef environments, with smaller fish being more commonly found near shallow reef areas and larger ones haunting reef drop off areas and seamounts. The species is an apex predator in its environment, sharing that position with giant trevally, Napoleon wrasse, and large groupers, as well as reef, bull and tiger sharks. An aggressive predator, the dogtooth tuna is an opportunistic feeder capable of taking a wide variety of prey items. In most areas its diet likely consists of schooling fish including fusiliers, carangids such as rainbow runners, and smaller scombrids. Species is marketed canned and frozen; adults may be ciguatoxic.

**Yellowfin tuna (Ton zonn)**  
*Thunnus albacares*



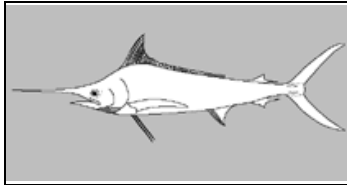
Yellowfin tuna. Illustration: NOAA FishWatch.

**Description:** Streamlined, stocky fish with large, deep body. Coloration is dark metallic blue on top, yellow changing to silver flanks, a paler belly, and series of some 20 broken, nearly vertical lines on its flanks. Second dorsal fin and the anal fin, as well as the finlets between those fins, and the tail are bright yellow, giving this fish its common name. The second dorsal and anal fins can be very long in mature specimens, reaching almost as far back as the tail and giving the appearance of sickles or scimitars. The yellowfin tuna is among the larger tuna species, reaching lengths up to 239 cm (94 in) TL and weights up to 200kg (440 lb).

**Habitat:** Pelagic, found off reefs and drop-offs on occasion. Range: circumglobal in tropical and temperate seas.

**Notes:** Yellowfin tuna are a popular sport fish in many parts of their range and are prized for their speed and strength when fought on rod and reel. Many anglers believe that yellowfin are, pound for pound, the fastest and strongest of all big game tunas. The flesh of yellowfin is prized and often marketed as ahi. Yellowfin

tuna are epipelagic fish that inhabit the mixed surface layer of the ocean above the thermocline. Sonic tracking has found that although yellowfin tuna mostly occupy the top 100 meters of the water column, they are capable of diving to considerable depths. An individual tagged in the Indian Ocean spent 85 percent of its time in depths shallower than 75 meters (246 ft) but was recorded as having made dives of 578 to 1,160 meters (1,895 to 3,800 ft).



**Billfishes** (Istiophoridae) comprise 5 genera and 11 species distributed across most tropical and subtropical waters. Distinctive spear-like bill with a rounded cross-section; dorsal fin extending over much of body length, sometimes resembling a sail; very narrow pelvic fins; two keels on each side of caudal peduncle in adults. Dorsal fin can be depressed into a groove. Bill used for stunning prey fish. Very popular game fish.

**Indo-Pacific sailfish** (Dyab lavwal)  
*Istiophorus platypterus*



Flycastaway guides show off a sailfish; photo: Flycastaway.

**Description:** Dark blue on top, brown-blue laterally, silvery white underbelly. Its upper jaw is elongated in the form of a spear; first dorsal fin greatly enlarged in the form of a sail with its front squared off, highest at its midpoint; pelvic fins very narrow, reaching almost to the anus; body covered with embedded scales, blunt at end; lateral line curved above pectoral fin, then straight to base of tail. Grows commonly to 270 cm (106 in) and up to 348 cm (137 in) TL, with a maximum recorded weight of 100 kg (220 lb).

**Habitat:** Marine waters in tropical, subtropical, and warm temperate areas of the Pacific, Atlantic and Indian oceans.

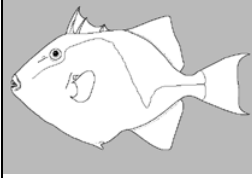
**Notes:** One of six stocks of sailfish, the Indo-Pacific sailfish is an oceanic and epipelagic species is usually found above the thermocline to depths of 40 meters. The sailfish is considered the fastest fish in the ocean, recorded to reach speeds of up to 112 kmh (70 mph), using its speed and bill to hunt fast-swimming tuna and mackerel, as well as other fishes, crustaceans, and cephalopods. It is theorized that the fish's sail acts as a heating and cooling system due to a network of blood vessels found in the oversized dorsal fin, and its "sail-raising" behavior at or near the surface waters before and after high-speed bursts.

This species has a fast growth rate, reaching sexual maturity at 2.5 years and living up to 13 years. No external sexual dimorphism evident but females grow larger than males, in part because fecundity (egg production) increases sharply with size of the female.

Sailfish is a commercially important fish that is also caught as bycatch in global long-line tuna fisheries. It is also a favorite gamefish, known for its aerial displays and dogged fights on rod and reel. Sport fishing is also considered a potential impact to sailfish as they are relatively accessible inshore as compared to other billfish.

Blue marlin (*Makaria mazara*), black marlin (*Makaria indica*), and swordfish (*Xiphias gladius*) are also found in the deep offshore waters of the Seychelles.





**Triggerfish** (Balistidae), 12 genera and 43 species, have laterally-compressed bodies with distinctive two-part dorsal fins. The forward dorsal is a stout, elongate spine that can be held erect and locked into place by a rigid second spine. This “trigger” must be depressed to lower the first spine. Triggerfish use this locking fin mechanism to firmly wedge themselves in a crevice as a defense against predators. The eyes of a reef triggerfish are set atop the head, move independently, to scan its surrounds for possible predators and prey. They have powerful jaws and strong teeth, capable of scraping algae off coral, and inflicting a painful bite to the unwary angler or diver. Triggerfish swim in a very characteristic manner, propelling themselves through the water using countering motions of their oversized dorsal and anal fins.

### Moustache triggerfish

*Balistoides viridescens*



Moustache triggerfish, photo by Sarah Tilt.

**Description:** Largest species of triggerfish in the Indian Ocean with a length of up to 75 centimeters (30 in). The fish has several color forms with the fish commonly encountered on Farquhar typically having yellow bodies, yellow fins and tails, a dark dappled mask above the eyes, yellow-pink snout, and a dark “moustache” band on the upper lip.

**Habitat:** Lagoons and reefs to depths of 50 meters. Range: Indo-Pacific.

**Notes:** Also known as the titan triggerfish, the species is diurnal and tends to be solitary. It feeds on sea urchins, mollusks, crustaceans, tube worms and coral, turning over rocks, stirring up sand, and biting off pieces of branching coral. Other fish are often attracted by this feeding behavior hoping to dine on left-over detritus and smaller organisms the trigger has stirred up. The species is commonly observed on the grass beds at low tide, tail waving in the air as it concentrates on pulling some morsel out of a crevice. They are very territorial and will attempt to drive off fish and other intruders from their home turf.

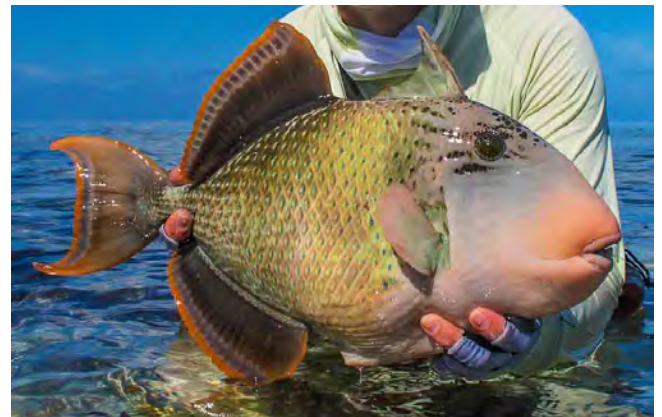
The moustache triggerfish is usually wary of divers and snorkelers, but during the reproduction season the female will vigorously

guard her nest, typically placed in a flat sandy area, against any intruders. The fish may “escort” the intruder away from its nest and nip them painfully. Although bites are not venomous, the strong teeth can inflict serious injury. The flesh of larger individuals can be ciguatoxic.

### Yellowmargin triggerfish

*Pseudobalistes flavimarginatus*

Yellowmargin triggerfish, photo by Flycastaway.



**Description:** Shape and colors dramatically change as yellowmargin triggerfish mature. As small juveniles, they sport black and white markings dorsally and a bright yellow belly with blue spots; as sub-adults they typically are pale yellow with scattered spots and dark fins with pale margins; as adults they have a tan-to-green-flesh-colored body with spots, dark fins with yellow-orange fin margins, and a peach snout. Adults grow to 60 cm (24 in).

**Habitat:** Lagoons and sheltered reefs, in 2-50 meters of water. Range: Indo-Pacific.

**Notes:** Also known as peachface or pineapple triggerfish, the species feeds on tips of coral branches, gastropods, crustaceans, tunicates, and sea urchins. Individuals may change gender

as they mature. Females guard their nests aggressively. The young form small aggregations while adults are generally solitary or found in pairs. They are marketed fresh and dried-salted and may be ciguatoxic in certain areas.

### White-banded triggerfish

*Rhinecanthus aculeatus*



White-banded triggerfish, photo by Francois Libert, Flickr.

**Description:** Small, colorful species of triggerfish easily distinguished by its angular body, distinctive color pattern (resembling blocks of colors), fin arrangement, and characteristic dorsal spine. Commonly grows to

15 cm (6 in) and may reach 30 cm (12 in).

**Habitat:** Lagoon and reef flats, in water up to 4 meters. **Range:** Indo-Pacific.

**Notes:** The bright, angular coloration of this triggerfish gives rise to another common name, "Picasso." They are frequently seen in reef pools and sandy openings in the turtle grass where they eat just about anything from algae and detritus to mollusks, crustaceans, worms, corals, and sea urchins. They are observed restlessly patrolling their territories which they vigorously defend against intruders, including divers, especially when guarding their nests.

White-banded triggers are known to be quite vocal, making a snorting sound as part of a defensive puffing behavior. This behavior gives rise to its Hawaiian name of Humu-humu-nuku-nuku-apu'a, which translates to "fish who comes out of the water and sounds like a pig." Larger white-banded triggerfish are occasionally targeted by anglers and the species is popular in the aquarium trade.



Caution: take care around a triggerfish's mouth. They are not aggressive, but they have very powerful jaws.



Ciguatera fish poisoning arises from consuming reef fish whose flesh contains certain toxins—such fish are described as ciguatoxic. Ciguatoxins do not harm the fish that carry them, but they are poisonous to humans. They cannot be smelled or tasted and are not destroyed by cooking.

Ciguatoxin is produced by *Gambierdiscus toxicus*, a type of dinoflagellate that grows on and around coral reefs in tropical and subtropical waters. These are eaten by herbivorous fish which in turn are eaten by carnivorous fish and the toxins bioaccumulate as they move up the food chain. Many reef-associated fish are potentially ciguatoxic including groupers, wrasses, triggerfish, snappers, and barracuda to name a few.

Symptoms of Ciguatera fish poisoning typically develop within 1-3 hours of toxin ingestion and include vomiting, diarrhea, numbness of extremities, mouth and lips, reversal of hot and cold sensation, muscle and joint aches. The symptoms may last from days to weeks or even months depending on the individual. There is no specific treatment for ciguatera fish poisoning once it occurs and no known antidote.

**Reptiles.** Air-breathing vertebrate animals covered in special skin made up of scales and/or bony plates. Class Reptilia includes crocodiles, snakes, lizards, turtles, and tortoises—some 8,700 species. They are the descendants of dinosaurs and share a common ancestor with birds. Unlike birds and mammals, reptiles do not maintain a constant internal body temperature; their metabolism depends on the temperature of their environment.

### Seychelles giant tortoise

*Aldabrachelys gigantea*



Giant tortoise. Above, adult "George." Below, hatchling raised on Farquhar, photos by author.

**Description:** The giant tortoise's carapace is a brown or tan color with a high, domed shape. It has stocky, heavily scaled legs to support its heavy body. The neck of the tortoise is very long which helps the animal reach food up to a one meter off the ground. Similar in size to the famous Galápagos giant tortoise, its carapace averages 120 cm (47 in) in length and the average weight of a male is around 250 kg (550 lb). Females are generally smaller than males, with average specimens measuring 90 cm (35 in) in length and weighing 150 kg (330 lbs).



**Habitat:** Aldabra Atoll, and outlying populations in granitic and coralline islands of the Seychelles.

**Notes:** The giant tortoises of the Indian Ocean islands have been in decline since the first human settlement of the islands. They were extirpated from many islands by 1840 as a result

of being relentlessly harvested, along with their eggs, in great numbers by European sailors as a source of fresh meat. Today, Aldabra is the one natural population of the species with several additional reintroduced populations on both the coralline islands (including Farquhar) and granitic islands of the Seychelles. The total population is estimated at over 100,000, mostly on Aldabra. Impacts from rising sea level are a major concern given the species' dependence on low-lying Aldabra and other coralline islands.

The giant tortoise is primarily an herbivore, eating grasses, leaves, and woody plant stems. They occasionally consume small invertebrates and carrion, even eating the bodies of other dead tortoises. They will quickly discover vegetable gardens and other delights, knocking down fences with ease. As fresh water is typically in short supply in the tortoises' natural habitat, they obtain most of their moisture from their food.

### Green sea turtle

*Chelonia mydas*



Green sea turtle. Photo by Brocken Inaglory, Wikimedia Commons; bottom: juvenile turtle, photo, Mark Thorpe, Wikimedia Commons.

**Description:** Teardrop-shaped carapace, paddle-like arms, well-adapted for swimming; and a beaked head at the end of a short neck. Carapace comprises 5 central scutes flanked by 4 pairs of lateral scutes. They have a single pair of prefrontal scales (compared to other species of sea turtles that have multiple pairs). The

carapace is black at hatching, but changes color over the course of 27-50 years as the turtle matures. Carapaces of juveniles turn dark brown to olive, while those of mature adults range from entirely brown to spotted or marbled with variegated rays. Flippers are dark-colored and lined with yellow, and the plastron is yellowish. Unlike the closely related hawksbill turtle, the green turtle's snout is very short, and its beak is unhooked; upper jaw sheath has a finely toothed edge while lower jaw has stronger, serrate, more defined denticulation. The flippers of mature green sea turtles have a single claw (as opposed to the hawksbill's two), although a second claw is sometimes prominent in young specimens. Adult green turtles grow to 150 cm (59 in) long and an average weight of 68–190 kg (150–420 lb).



**Habitat:** Tropical and subtropical oceans around the world, with two distinct populations in the Atlantic and Pacific Oceans.

**Notes:** The green sea turtle is the largest hard-shelled sea turtle. They are unique among sea turtles in that they are herbivores, eating mostly seagrasses and algae. Their diet gives their fat a greenish color, giving rise to their common name. Adults favor shallow lagoons, feeding mostly on various seagrasses. Like other sea turtles, green sea turtles migrate long distances between feeding grounds and nesting beaches. Females crawl out on beaches, dig nests and lay eggs during the night. Later, hatchlings emerge and scramble into the water. Those that reach maturity may live to 80 years in the wild.

While protected in many countries, green turtles remain widely harvested for their meat and eggs. Additionally, turtles are caught in fishing nets and trawls as bycatch as well as suffering loss of nesting habitat causing by shoreline development. The species is listed as endangered by the

IUCN and CITES and is protected from all forms of exploitation in most countries.

### Hawksbill sea turtle

*Eretmochelys imbricate*



Hawksbill sea turtle, photos by author.

**Description:** Similar in appearance to other marine turtles with a generally flattened body shape, teardrop-shaped carapace, and flipper-like arms, adapted for swimming in the open ocean. The hawksbill is easily distinguished from other sea turtles by its sharp, curving beak (hence the common name “hawksbill”), saw-like appearance of its shell margins, and presence of two visible claws on each flipper. The carapace has five central scutes and four pairs of lateral scutes (similar to other sea turtles), but the posterior scutes overlap in such a way as to give the rear margin of its carapace a serrated appearance, similar to the edge of a saw.

The turtle's carapace has an amber background patterned with an irregular combination of light and dark streaks, with predominantly black and mottled-brown colors radiating to the sides. Adult hawksbill sea turtles have been known to grow up to 100 cm (39 in) in length, weighing around 80 kg (180 lb) on average. The maximum recorded weight is 127 kg (280 lb).

**Habitat:** Tropical and subtropical oceans, world-wide.

**Notes:** The life cycle of hawksbills has a number of distinct phases including a pelagic phase, from hatching to about 20 cm; benthic phase, when the immature turtles are found in foraging areas; and a reproductive phase when they reach sexual maturity. While this turtle lives part of its life in the open ocean, it spends more time in

shallow lagoons and coral reefs. Hawksbill sea turtles are omnivores, principally eating sea sponges in addition to algae, sea anemones, and jellyfish, including Portuguese man o' war.



On land the tracks of hawksbill sea turtles are asymmetrical, because they crawl with an alternating gait. By contrast, the green sea turtle and the leatherback turtle crawl rather symmetrically.

The World Conservation Union classifies the hawksbill as critically endangered. Historically, the shells from hawksbills were highly valued as

the primary source of tortoiseshell utilized for combs, eyeglasses and other decorative uses. In addition, their meat is considered a delicacy in Asia. Another major impact is the result of by-catch in trawl and net fisheries.



Sea turtle tracks, likely hawksbill, coming ashore to nest. Photo by author.



**Invertebrates.** Animals lacking a backbone, such as arthropods, mollusks, annelids, and coelenterates. Invertebrates comprise more than 90 percent of animal species and about 30 different phyla including animals as diverse as corals, mollusks, crustaceans, and cephalopods touched on here.

(Image courtesy of fcdeljesus, Slideshare)

## Corals (Class Anthozoa)



Great Barrier Reef corals. Photo: Australian Museum.

**Description:** Corals are marine invertebrates in class Anthozoa that typically live in compact colonies of many identical individual "polyps."

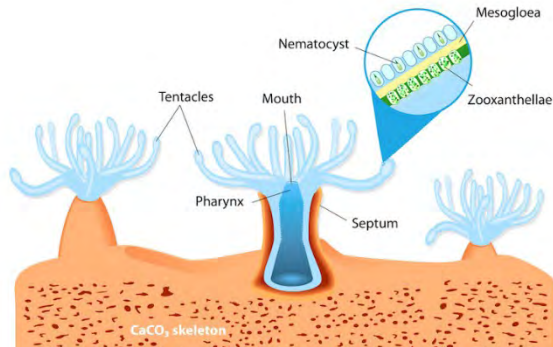
The group includes the important reef builders that secrete calcium carbonate to form a hard skeleton. A coral "head" is a colony of myriad genetically identical polyps. Each polyp is a spineless animal typically only a few millimeters in diameter and a few centimeters in length. A set of tentacles surround a central mouth opening. An exoskeleton is excreted near its base.

**Habitat:** Subtropical and tropical waters. Range: circumtropical.

**Notes:** Over many generations, the colony creates a large skeleton characteristic of the class. Corals are divided into two subclasses, depending on the number of tentacles or lines of symmetry, and a series of orders corresponding to their exoskeleton: 1) Hermatypic corals in the subclass Scleractinia are the "stony" corals that

build reefs; and 2) Ahermatypic corals are the “soft” corals like sea fans and sea pens that are flexible, undulating in the current, with proteinaceous rather than calcareous skeletons.

A total of 44 genera and 140 species of stony-hard skeleton (Scleractinian) corals were identified at Farquhar by one research team.



Coral Anatomy, illustration courtesy of Body Glove.

**Mollusks.** A large phylum comprising some 85,000 extant species, mollusks include the gastropods (e.g., snails, nudibranchs, conch), bivalves (e.g., clams, mussels), and cephalopods (e.g., octopuses and squids). They have a soft unsegmented bodies and live in aquatic or damp habitats. Most have an external calcareous shell.

### Giant clams, *Tridacna* sp.



Giant clam in reef bed. Photo by author.

**Description:** Giant clams are likely the most famous and distinctive bivalve of the Indian Ocean. They have heavy shells, fluted with 4–6 folds, and a brightly colored mantle. When disturbed, the species “clams up”, retracting its mantle and tightly closing its two shell valves. The giant clams of the South Pacific and Indian

Oceans are the largest mollusks on Earth, capable of reaching 120 cm (47 in) in length and weighing more than 225 kg (496 lb).

**Habitat:** Shallow coral reef habitats. **Range:** Indo-Pacific.

**Notes:** The giant clam gets only one chance to find a nice home. Once it fastens itself to a spot on a reef, it remains there for the rest of its life. Their primary food source are the sugars and proteins produced by the billions of single-celled dinoflagellate algae that live in their tissues. The algae get a safe home and regular access to sunlight for photosynthesis as the clam opens its valves and exposes its multi-colored mantle to sunlight. They clam also siphons water to filter out passing plankton.

The popular notion that giant clams lie in wait for unsuspecting swimmers to grab their leg or shallow them whole is total fiction. In fact, the clam’s closing reaction is quite slow.

The giant clam’s large size and easy accessibility has invited overfishing with the resulting collapse of natural stocks in many areas across their range, and extirpation in some of the species. Giant clams are favorites both on the table and in aquaria, and their status is dire in much of its range. In response to their scarcity, species of giant clam are being farmed in some areas including Black Pearl Seychelles Ltd. which specializes in breeding the maxima clam, or small giant clam (*Tridacna maxima*).

### Cone snail, *Conus* sp.

**Description:** Cone snails are a large genus of small-to-large carnivorous and predatory sea snails. Their shells are commonly geometrically cone-shaped, exhibit a large variety of colors and patterns; local varieties and color forms of the same species often occur. Cone snails use a hypodermic-like modified radula tooth and a venom gland to attack and paralyze their prey before engulfing it. The radula is sometimes likened to a harpoon as it is barbed and can be extended some distance out from the mouth of the snail. Smaller cone snails mostly hunt and eat marine worms while larger cone snails prey on small bottom-dwelling fish.

**Habitat:** Sand bottoms, rocky substrate, coral reefs. **Range:** tropical and subtropical seas from tidal shallows to deeper waters.



Conus sp. Photo by University of Melbourne.

**Notes:** All *Conus* species are venomous and capable of "stinging" humans. Live cone snails should be handled with great care or preferably not at all. Depending on species and location, the snail's venom contains a variety of different toxins that vary in their effects; some are extremely toxic. The sting of small cone snails may be no worse than a bee sting, but the sting from a few of the larger species of species can be serious, occasionally even fatal to humans. In recent years cone snail venom is showing great promise as a source of new, medically important substances, such as painkillers, derived from cone snail toxins.

### Tiger cowry, *Cypraea tigris*



Tiger cowry. Photo by author.

**Description:** A solid, thick, heavy inflated shell, up to 13 cm long. Dorsally white or pale reddish-brown with dark spots and commonly a reddish longitudinal stripe.

**Habitat:** Under coral and boulders in shallow or deep water. **Range:** Indo-Pacific.

**Notes:** The tiger cowry is one of a family (Cypraeidae), known collectively as cowries, distinctive for their rounded to oval flat-based shells with shiny surfaces, a narrow aperture bearing "teeth" on both sides, and bold color patterns. About 100 species are recorded in the western Indian Ocean. Cowries are a favorite in the shell trade.

### Bigfin reef squid (Calamars) *Sepioteuthis lessoniana*



Bigfin reef squid, photo courtesy of Science News. Below, a squid that "flew" into a boat and sprayed it with its ink, photo by author.

**Description:** Member of the Lologinidae family of pencil squids, the species has a long, robust mantle, its width about 40 percent of length; fins very large, broadly ovate in outline extending the entire, or almost entire, length of the mantle. Tentacular clubs long with sucker rings bearing with 14-23 sharp teeth; arm suckers with 19-29 teeth. Like other squid, they are animals with eight arms and two non-retractable tentacles. Their "shell" is an internal chitinous "pen," usually narrow and translucent.



**Habitat:** Coastal environments and inshore waters to 100 meters deep. **Range:** Indo-West Pacific.

**Notes:** Bigfin reef squid are strong swimmers and can "fly" for short distances out of the water, which is commonly observed on Farquhar as boats are moving at top speed from one spot to another. Feed on pelagic crustaceans and small fish. Females lay strings of 5-7 eggs among shallow-water corals. They are harvested throughout their range and marketed fresh and also dried.

**Crustaceans.** Part of the phylum Arthropoda with some 67,000 described species including crabs, lobsters, crayfish, shrimp, krill and barnacles. Crustaceans are found in a wide range of habitats - most are free-living freshwater or marine animals, but some are terrestrial (e.g., woodlice), some are parasitic (e.g., fish lice), and some sessile, not moving after they settle and begin growth (e.g., barnacles).

### Hermit crabs

*Paguroidea* Superfamily



Hermit crab. Photo by author.

**Description:** Hermit crabs are decapod (10-footed) crustaceans comprising more than 1,100 species. Most have a soft spirally curved abdomen which is protected by an empty gastropod shell that is adopted and carried around by the crab. The tip of the abdomen is adapted to clasp the central column (columella) of the snail shell. This habit of living in a second-hand shell gives rise to the popular name "hermit crab."

**Habitat:** Wide range of habitats, from land to deep sea, from polar to tropical oceans. Range: world-wide.

**Notes:** As hermit crabs grow and molt, they must find a larger shell and abandon their previous one. Several hermit crab species use "vacancy chains"—when a new, bigger shell becomes available, hermit crabs gather around it and form a queue. When the largest crab moves into the new shell, the next biggest crab moves into the newly vacated shell, and so on working its way through the queue. Hermit crabs are also known to have "house envy." When one hermit crab is perceived to have a better shell, others may gang up on the unlucky crab and pry it from its home and then compete for who gets to occupy it. The coconut crab (below) is a shell-less hermit crab.

Hermit crabs are scavengers. One of the best opportunities to see a variety of hermit crabs on Farquhar is to sit after dinner under the palapa and observe the hermit crabs come to clean the sand for any and all morsels. The next morning this "cleaning crew" has swept the area clean as if raked.

### Coconut crab

*Birgus latro*



Coconut crab, brown and blue (below) phases. Photos by author.

**Description:** A species of terrestrial hermit crab and the largest land-living arthropod in the world. It can grow to up to 200 meters (79 in) in length from leg to leg and weigh up to 4.1 kg (9.0 lb). Adult carapace and leg color variable from reddish-brown to purple-blue.

**Habitat:** Sandy soils on Pacific islands closely matching the distribution of the coconut palm. Range: Indian Ocean and the central Pacific



Ocean on isolated islands and atolls. It has been extirpated from most areas of its historical range where there are significant human populations,



including mainland Australia and Madagascar.

**Notes:** Also known as a robber crab or palm thief, the coconut crab exhibits a number of adaptations to life on land. Like hermit crabs, juvenile coconut crabs use empty gastropod shells for protection, but the adults develop a tough exoskeleton on their abdomen and stop carrying a cast-off shell. Coconut crabs have evolved organs known as "branchiostegal lungs," which are used in place of vestigial gills for breathing. Adult coconut crabs cannot swim and will drown if immersed in water for any period of time.

The species has developed an acute sense of smell which it uses to find potential food sources. Mating occurs on dry land, but the females travel to the shallow marine waters to release their fertilized eggs as they hatch. The larvae are planktonic for 3–4 weeks, before settling to the sea floor and entering an empty snail shell. Sexual maturity is reached after about 5 years, and the total lifespan may be over 60 years. As they cannot swim as adults, coconut crabs are believed to have colonized their island range as planktonic larvae.

Adult coconut crabs feed on fruits, nuts, seeds, and the pith of fallen trees; they will eat carrion and other organic matter opportunistically. The species is popularly associated with the coconut and has been widely reported to climb trees to pick coconuts, which it then opens to eat the flesh. While coconut crabs can climb trees, and are capable of eventually opening a coconut, it is not a significant part of the crab's diet. Coconut crabs are hunted widely for their meat. In the

absence of precise information, the IUCN lists the species as Data Deficient.

**Brown land crab** (Tyangoman)  
*Cardisoma carnifex*



Brown land crab. Photo by author.

A large land crab found on both granitic and coralline islands. As its common name suggests, the species is common in mangroves and rocky inland areas. Carapace is red-purple and slate-grey on dorsal surface. Males develop enlarged claws with one larger than the other. Its diet is primarily vegetarian.

**Natal lightfoot crab** (Karkasaye)  
*Grapsus tenuicrustatus*



Natal lightfoot crab. Photo by author.

Distinctively colored crab found actively clambering over rocks in the splash zone. Carapace rounded with green and white transverse markings. "Fingertips" slightly spooned and light-colored. Feeds primarily on algae in the intertidal and littoral zone.

**Horned ghost crab** (Loulou Grangalo)  
*Ocypode ceratophthalmus*

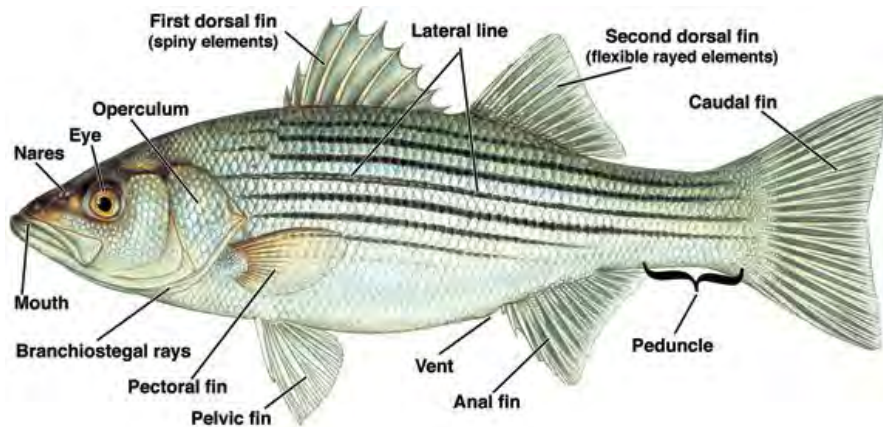


This species of ghost crab is unmistakable for the eyestalks of adults featuring elongated “horns” above the eyes. Color usually light green with small yellow spots. Found widely in sandy beach habitats throughout the Seychelles, the species may be seen during day but is most active from dusk to dawn. Horned ghost crabs typically burrow in the littoral fringe of sand beaches.

The common name “ghost crab” alludes to the subfamily’s generally pale coloration, its feeding at night, and its fast, seemingly ghostly movement. Ghost crabs are scavengers, feeding on living and dead plants and animals, including turtle eggs and newly-hatched turtles.

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**Glossary**



Source: anatomy.com

**Amphidromous** - migrating from fresh to salt water or from salt to fresh water at some stage of the life cycle other than the breeding period.

**Anterior** - the front.

**Benthic**- associated with the bottom of a body of water such as an ocean or a lake, including the sediment surface and some sub-surface layers.

**Benthopelagic** - occupying the water column just above the ocean bottom.

**Bommie** - outcrop of coral reef, often resembling a column that is higher than the surrounding platform of reef and which may be partially exposed at low tide.

**Carapace** – bony or chitinous shield covering part or all of the back of crabs and other animals.

**Caudal peduncle** – narrow region that connects the caudal fin to the body.

**Cephalopods** - mollusks characterized by bilateral body symmetry, a prominent head, and a set of arms or tentacles, including squid and octopus. Fishermen sometimes call them inkfish, referring to their common ability to squirt ink.

**Ciguatera** - food borne illness caused by eating certain reef fish whose flesh is contaminated with toxins originally produced by

dinoflagellates such as *Gambierdiscus toxicus* (see page 36).

**Ciguatoxic** – contaminated with ciguatoxins.

**Circumglobal** - extending around the circumference of the world's tropical seas and extending north or south into temperate waters.

**Circumtropical** - extending around the circumference of the world's tropical seas.

**Crepuscular** - animals most active during twilight (i.e., dawn and dusk).

**Crustaceans** - very large group of arthropods (see page 42).

**Cycloid scales** – scales with smooth posterior margin. Compare with Ctenoid scales that have spiny or indented margins.

**Echinoderms** - phylum of marine animals; adults are recognizable by their radial symmetry, and include sea stars (starfish), sea urchins, sand dollars, and sea cucumbers.

**Epipelagic** - residing in the upper part of the oceanic zone into which enough light penetrates for photosynthesis to take place.

**Finlet** - small fins, generally behind the dorsal and anal fins. In some fish such as tuna, they are rayless, non-retractable, and found between the last dorsal and/or anal fin and the caudal fin.

**Fusiform** – streamlined, more or less torpedo-shaped with a slightly rounded head and a long, thin tapering body.

**Gastropods** - part of the phylum Mollusca (mollusks), the class Gastropoda includes snails and slugs. There is an extraordinary number of diversity of species within this class, second in number only to insects, with 60,000 to 80,000 living snail and slug species. Gastropods were previously known as univalves, referring to a primary trait of gastropods which is presence of a single external or internal shell (as compared with bivalves like clams).

**Gill raker** – projection on gill arches that filters food particles from water.

**Harem** - living in harems, with one male herding or controlling many females.

**Hermaphrodite** – an individual that possesses functional male and female organs.

**Heterocercal** - one lobe of the caudal (tail) fin is larger than the other and is an extension of the vertebral column. In the case of sharks, the top lobe is the larger one.

**Hyaline** - having a glassy, translucent appearance.

**Indo-Pacific** - extending from western or central Indian Ocean east to the Pacific Islands of Hawaii or French Polynesia, and occasionally on to scattered islands east, or to the shore of the Western Hemisphere.

**Initial phase** – sub-adult phase.

**Lateral line** - sense organ used to detect movement and vibration in the surrounding water. For example, fish can use their lateral line system to follow the vortices produced by fleeing prey. In most species, it consists of a line of receptors running along each side of the fish.

**Littoral** - relating to, or situated on or near a shore especially of the sea.

**Lunate** – shaped like the crescent of a new moon.

**Mantle** – layer of tissue on the dorsal (back) surface of a gastropod primarily responsible for the secretion of the shell in mollusks.

**Molariform teeth** - squarish teeth used for grinding food.

**Mollusks** - large phylum of invertebrate animals (page 40).

**Nictitating membrane** - transparent inner eyelid in birds, reptiles, and some fish and mammals that closes to protect and moisten the eye. Also called third eyelid.

**Oceanodromous** – living and migrating within the oceans.

**Omnivorous** - feeding on plants and animals.

**Oviparous** - producing young by means of eggs that are hatched after they have been laid by the parent. Compare with ovoviviparous and viviparous.

**Peduncle** - Narrow part of the body to which the tail is attached.

**Pelagic** – living in the open ocean.

**Pharyngeal teeth** - teeth located in the throat behind the gills.

**Phytoplankton** – plankton consisting of microscopic plants.

**Piscivore** - carnivorous animals whose diet is principally fish (piscivorous).

**Plankton** - tiny animals (zooplankton) or plants (phytoplankton) that float or drift in the water.

**Polychaete worms** – group of annelid worms, generally marine. Each body segment has pair of fleshy protrusions that bear many bristles.

**Posterior** – the rear.

**Protogynous hermaphrodites** - animals that are born female and change sex to male at some point in their lifespan.

**Protractile** – body part, such as the mouth of a fish, capable of being protruded or extended.

**Radula** – ribbon tongue bearing row of teeth in a mollusk.

**Ray** – cartilaginous and jointed fin support.

**Scombrids** - belonging to the Scombridae, the family of the mackerels, tunas, and bonitos.

**Scutes** - bony external plate or scale, as on the shell of a turtle, the scales of tuna, or skin of crocodiles.

**Spine** - a sharp, unjointed projection, often part of a fin.

**Spiracle** - a small opening behind each eye. In some sharks and rays, responsible for intake of water that is then expelled from the gills.

**Symbiosis** - relationship between two organisms which is of mutual benefit.

**Terminal phase** - sexually mature adult.

**Thermocline** - steep temperature gradient in a body of water such as an ocean or lake, marked by a layer above and below which the water is at markedly different temperatures.

**TL** - total length, measured from the tip of the snout to the tip of the longer lobe of the caudal fin.

**Viviparous** - whelping live young rather than eggs. Compare with oviparous and oviparous.

**Ventral** – lower region or underside.

**Zooplankton**- plankton consisting of animals, including the larvae of corals, rotifers, sea anemones, and jellyfish, living in the water column and incapable of swimming against a current.

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	Gray reef shark	
	Oceanic whitetip shark	
	Sicklefin lemon shark	
	Tiger shark	
	Whitetip reef shark	
Rays	Cowtail stingray	
	Manta rays	
	White-spotted eagle ray	
Eels	Peppered moray	
Bonefish	Bonefish	
Milkfish	Milkfish	
Flyingfish	Flyingfishes	
Needlefish	Hound needlefish	
Scorpionfish	Indian lionfish	
	Reef stonefish	
Groupers	Slender grouper	
	Peacock grouper	
	Coral hind	
	Tomato grouper	
	Brown-spotted grouper	
	Blacktip grouper	
	Brown-marbled grouper	
	Honeycomb grouper	
	White-blotched grouper	
	Camouflage grouper	
	Potato grouper	
	Black-saddled grouper	
	Marbled coral grouper	
Yellow-edged lyretail		
Jacks & Pompano	Giant trevally	
	Bluefin trevally	
	Bigeye trevally	
	Rainbow runner	
	Golden trevally	
	Small-spotted dart	
	Snubnose pompano (permit)	
Snappers	Small-toothed jobfish	
	Green jobfish	
	Bohar snapper	
	Humpback red snapper	

	Bengal snapper	
	One-spot snapper	
	Bigeye snapper	
	Blackspot snapper	
	Longspot snapper	
	Emperor red snapper	
Biddies	Strongspine silver-biddy	
Grunts	Oriental sweetlips	
Emperors	Spangled emperor	
	Longface emperor	
	Yellowlip emperor	
	Humpnose bigeye bream	
Wrasses	Humphead wrasse	
Parrotfish	Bumphead parrotfish	
	Bullethead parrotfish	
	Steephead parrotfish	
Baracuda	Great barracuda	
Mullet	Striped mullet	
Surgeonfish	Yellowfin surgeon	
	Powderblue surgeon	
	Bluespine unicornfish	
Tunas and Mackerels	Wahoo	
	Mackerel tuna	
	Dogtooth tuna	
	Yellowfin tuna	
Billfish	Indo-Pacific sailfish	
Triggerfish	Moustache triggerfish	
	Yellowmargin triggerfish	
	White-banded triggerfish	
Turtles	Seychelles giant tortoise	
	Green sea turtle	
	Hawksbill sea turtle	
Anthozoa	Corals	
Mollusks	Giant clams	
	Cone snail	
	Tiger cowry	
	Bigfin reef squid	
Crustaceans	Hermit crabs	
	Coconut crab	
	Brown land crab	
	Natal lightfoot crab	
	Horned ghost crab	

*A Farquhar Field Guide* features more than 80 marine fish and other species observed on Farquhar Atoll in the Seychelles. This guide was compiled by Whitney Tilt of Bozeman, Montana, USA for the informational use of Flycastaway and others fortunate enough to make Farquhar their angling destination. It is anticipated that this publication will be an iterative undertaking, continuing to grow and expand as additional field observations are recorded.



Copies of *Farquhar Field Guide* are available as PDF and hard copy from the author ([whitneytilt@gmail.com](mailto:whitneytilt@gmail.com)) and Flycastaway (<http://flycastaway.com>).

