

Butterflyfish, Angelfish, King Angelfish

Butterflyfish and Angelfish are tropical marine fishes, and favorites of marine aquarists. They have round, laterally compressed discus-shaped bodies with small fan shaped tails. Both live in reef environments, are usually found in pairs, and are diurnal. At one time they were classified as the same family, Chaetodontidae. Now, this term refers to the Butterflyfish, and the Angelfish are classified as Pomacanthidae. Their similarities are believed to result from their convergence to fill a common niche in the reef environment. Differences in internal anatomy, particularly of the nervous systems, have been discovered recently, suggesting origins from two separate lines.

There are two readily identifiable differences. First, Angelfish always have at least one prominent spine on the posterior edge of the gill cover, while Butterflies have spiny dorsal fins. Second, Angels have a blunt shaped head while Butterflyfish have a beak-like snout.

Butterflyfish

Class: Osteichthyes (ray-finned fishes)
Order: Perciformes (perch-like fishes)
Family: Chaetodontidae (Butterflyfish)

Butterflyfish (Chaetodontidae) (key-toe-dawn-tid-ee) are named for the narrow rows of tiny teeth in their jaws, “Chaeto” means bristle, and “donte” means teeth. The common name “Butterflyfish” is derived from their bright colors and darting movements around coral reefs, similar to butterflies in a field of wildflowers. Over 125 species of Butterflyfish, have been identified.

They are found in most oceans, with more diversity and higher population in the Indo-Pacific. Most Butterflyfish are not territorial, but have a large home range area closely associated with live corals and usually dwell in depths of 60 feet or less. Butterflyfish are usually seen in pairs, as they mate for life, but some species are seen singly or in small schools.

Butterflyfish are omnivores. Their diet consists of polyps (the soft part of corals), worms, crustaceans, sea anemones, and some algae gained by scraping the reef with their teeth.

The body is a flattened disk shape with spiny dorsal fin, fan-shaped tail, and a small but prominent beak-like mouth. They are 6 to 12 inches long. They maneuver quickly using their pectoral fins, but are not built for distance swimming. Juveniles are usually colored the same as the adults, most in black and white with bright yellow. Most have a vertical band through the eye, and one or two spots on their body. Predators are fooled by the false eyespots, as the Butterflyfish swims off in the opposite direction from what they anticipated.

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Butterflyfish mate for life, and if separated one will swim higher up for a better view to find and reunite with its mate. They spawn at dusk, following a long and vigorous courtship. Male and female will circle each other until one swims off, and they chase one another. Then the female swims up in a shallow arc with the male slightly behind and below her, both eggs and sperm are released at the top of the arc. The eggs float, and the male and female settle back down to the bottom. Spawning occurs throughout the year. The eggs are released in large numbers, 3000 to 4000. They are less than 1 mm in diameter, and hatch within a day.

The larvae are unique to the butterflyfish. Called tholichthys, they look almost prehistoric. They are translucent gray in color, laterally compressed with large bony plates extending from the back of the head which is encased in bony armor. When they are about nickel size, they sink down to the bottom and by dawn they look like miniature copies of the adults.

Butterflyfish seek shelter at sundown. They are a favorite meal of moray eels, larger reef fishes, sharks, and other night predators. If threatened during the day the Butterflyfish will flee. Some species have been observed with lowered head and erect dorsal fins, facing a predator fish when escape seems impossible. However, they are not known to be aggressive, and usually swim away from divers.

Some species of Butterflyfish:

Raccoon Butterflyfish (*Chaetodon lunula*) are yellow, darkening toward the dorsal fin with black and white markings resembling a mask around the eyes. They have been seen being cleaned by Wrasse.

Blacknosed Butterflyfish (*Johnrandallia nigrirostris*) are small, up to 6 inches long, yellow with black bands through dorsal, anal and caudal fins, and a black face. They are also known as Barberfish or el barbero, and are cleaner fish. They are found from the Sea of Cortez to Equador, including the Galápagos Islands, mostly in large schools at depths of 10 to 120 feet.

Scythe Butterflyfish (*Chaetodon falcifer*) are white with black and yellow edges, a black band through the eye, and have a black scythe shaped mark on the side. They are found from Catalina Island to the Galápagos along rocky inshore reefs at depths up to 450 feet.

Vagabond Butterflyfish (*Chaetodon vagabundus*) are white with two patches of narrow dark lines set at a right angle, with a black band through the eye, another at the posterior of the body, and a third band through the caudal fin.

Chevroned Butterflyfish (*Chaetodon trifascialis*) are white with black chevrons on their sides and a black bar through the eye. The caudal fin is black with a yellow edge. They are, uncharacteristically, very territorial, and spawn at full and new moons.

Angelfish

Class: Osteichthyes (ray-finned fishes)

Order: Perciformes (perch-like fishes)

Family: Pomacanthidae (Angelfish)

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Angelfish are round flattened disk shaped fish with bluntly rounded heads and smooth even fins. The dorsal fin has no breaks, and there are prominent spikes on the rear edge of the gill cover. Of the 74 species that have been identified, most are found in the Indo-Pacific and 7 species are in the Caribbean. Angelfish are usually found in rocky areas or near reefs at depths of 15 to 100 feet.

Angelfish are usually found in pairs, although some species form harems of one male and a group of females. In harems, if the male disappears the largest female will develop brighter colors and become a male within two or three weeks.

Angelfish spawn at dusk, following a courtship of rapid rushing and circling by the male. The larger male swims behind the female and nudges her abdomen with his snout and she releases 25 to 75 thousand eggs while he releases his sperm at the same time. The small (0.5 -0.9 mm diameter) eggs float and the adults sink down to the bottom. *Centropyge interruptus* spawn daily from May through October unless the water temperature falls below 72°F.

The eggs hatch in 15 – 20 hours into minute pro-larvae attached to yolk sacs, and lacking fins, gut or effective eyes. Within 48 hours the yolk is absorbed and the larvae look hairy because they have long thin teeth on each side of their scales. They are not very active, but grow quickly. When 3 or 4 weeks old they are 15 – 20 mm long and settle to the bottom as juveniles. Juveniles and adults are different in color and markings and were once thought to be different species. Juveniles are strongly site attached and aggressive.

One of the largest threats to the Angelfish is the marine aquarium industry. In the 1990s, angelfish accounted for 54% of the total fish landing income in Florida. On average, 71,793 fish were sold to dealers for \$544,000 per year.

King Angelfish

King Angelfish (*Holacanthus passer*) are also known as Passer Angelfish, White-banded Angelfish, Angel Real in Mexico, and Pez bandera in the Galápagos Islands. They are found in the Pacific Ocean in rocky areas near shore at depths of 15 to 100 feet. They are not found in the Atlantic. King Angelfish are abundant in the Galápagos Islands, and often seen in large schools. King Angelfish have been observed setting up cleaner stations and cleaning hammerhead sharks and mantas.

Like other angels, King Angelfish have a laterally flattened, round body with small fan-shaped tails and a spine at the back edge of the gill cover. They are 6 inches to 1 foot in length. Adults are dark blue or black with a white vertical bar just behind the pectoral fin. Females have yellow pectoral fins, males have white. Juveniles are usually orange or hazel brown with blue vertical stripes and yellow pectoral fins. As they grow, their colors fade. King Angels are monogamous mates for life. They live about 15 years.

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King Angels dine on sponges, algae, plankton and invertebrates. When kept in aquariums they require special diets which include plant or vegetable matter.

Recently a possible new hybrid was noted in the Cabo San Lucas area. Angelfish reproduce by spawning. Fishing boats have brought in Clarion Angelfish (*H. clarionensis*), and the hybrid seems to be the result of this fish and the King Angelfish (*H. passer*).

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