

Maui Ocean Center's Marine Life Profile: Reef Triggerfish

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Common Name: Reef Triggerfish

Hawaiian Name: *Humuhumu nukunuku apua'a*

Found in Exhibit: Shallow Reef, Discovery Pool

What kind of fish is unique enough to be printed on the back of t-shirts, have its own song, and be voted as the Hawaiian state fish? The *humuhumu nukunuku apua'a*, of course! But it's not just the funny sounding name that is so special about the reef triggerfish, also known as the Picasso or rectangular triggerfish. They can physically lock themselves into openings in the rocks or reef, swim forward or backward, and grunt like a pig when approached or taken out of the water.

Triggerfish have unique defense mechanisms that keep them from becoming lunch for bigger fish. When being chased by a predator, the *humuhumu* will dart into a *puka*, or hole, in the reef, erect the first of two dorsal spines, and use the second spine (the trigger) to lock the first one in place. They can also extend their pelvic bone to wedge themselves in from the bottom. These mechanisms prevent the predator from being able to remove the triggerfish from the *puka*. Triggerfish will often use the same *puka* to sleep in at night. The ability for the *humuhumu* to swim forward or backward by undulating their dorsal (top) and anal (bottom) fins also improves its chance for escape. They can also use their tail for quick bursts of speed, but rely on the dorsal and anal fins for their primary source of locomotion.

In Hawai'i, there are at least ten different species of triggerfish, all called *humuhumu*, which means "pieces stitched together", possibly because of the bold color patterns on some of the species. *Humuhumu nukunuku apua'a* actually refers to two different species of fish, the reef triggerfish and the lagoon triggerfish, which is not as common.

Nukunuku apua'a is generally translated as "snout like a pig", due to the shape of the mouth and the grunting sounds they make when harassed. The grunting noise is believed

to be caused by certain muscles moving two bones together, and the sound resonates in the fish's swimbladder. This grunting noise may serve to alert other fish of danger.

Reef triggerfish are fairly common on shallow reef flats, but are difficult to approach or photograph. Reef triggerfish are also considered one of the most aggressive triggerfish; they often display aggression towards others of the same species, or other species of the same size. Reef triggerfish are not only found in Hawai'i, but throughout the Indo-Pacific region, off the coast of Africa, and in the Red Sea.

Triggerfish have tough skin and strong, small jaws with chisel-like teeth. Their eyes are placed about a third of the way back, near the top of their bodies. This may help the triggerfish scan for food along the ocean floor, and may reduce damage to the eyes while rooting around in the sand for food. The *humuhumu* feed on invertebrates with hard skeletal parts, like crabs, mollusks, and sea urchins, as well as algae. Some species of triggerfish also eat plankton. As they dig their food out of the sand, they sometimes are seen expelling clouds of silt or sand from their gills.

Humuhumu are primarily solitary, except during spawning time when they form pairs. One exception is the *humuhumu* 'ele 'ele, or black durgon, which is often seen schooling. This species seems to predominate in areas where fish are fed by snorkelers; a practice that brings out the worst of the aggressive nature of the *humuhumu*. During the breeding season, the females lay a nest of eggs attached to the bottom where the eggs are externally fertilized by the male parent. The nest is then aggressively guarded by the female parent while the young are developing.

Triggerfish are edible, but are not very popular as a food source. The early Hawaiians would trap them by placing cooked pumpkins or sweet potatoes in baskets and then placing the baskets in the water. They would either be eaten, or dried and used as cooking fuel if the preferred fuel, such as kukui nuts, was low. Triggerfish could even be used as a substitute for pigs in some religious ceremonies.

The *humuhumu nukunuku apua'a* were voted as Hawai'i's favorite fish in 1984, and with approval from the State Legislature, it became the state fish. Even though that designation expired five years later, the reef triggerfish has since been reinstated as the "official state fish".