

Lanternfish



Description

Lanternfish typically have a slender, compressed body covered in small, silvery deciduous cycloid scales (ctenoid in four species), a large bluntly rounded head, large elliptical to round lateral eyes (dorsolateral in *Protomyctophum* species), and a large terminal mouth with jaws closely set with rows of small teeth. The fins are generally small, with a single high dorsal fin, a forked caudal fin, and an adipose fin. The anal fin is supported by a cartilaginous plate at its base, and originates under, or slightly behind, the rear part of the dorsal fin. The pectoral fins, usually with eight rays, may be large and well-developed to small and degenerate, or completely absent in a few species. In some species, such as those of the genus *Lampanyctus*, the pectorals are greatly elongated. Most lanternfish have a gas bladder, but it degenerates or fills with lipids during the maturation of a few species. The lateral line is uninterrupted.

In all but one species, *Taaningichthys paurolychnus*, a number of photophores (light-producing organs) are present; these are paired and concentrated in ventrolateral rows on the body and head. Some may also possess specialised photophores on the caudal peduncle, in proximity to the eyes (e.g., the "headlights" of *Diaphus* species), and luminous patches at the base of the fins. The photophores emit a weak blue, green, or yellow light, and are known to be arranged in species-specific patterns. In some species, the pattern varies between males and females. This is true for the luminous caudal patches, with the males' being typically above the tail and the females' being below the tail.

Lantern fish are generally small fish, ranging from about 2 to 30 cm (0.79 to 11.81 in) in length, with most being under 15 cm (5.9 in). In life, shallow-living species are an iridescent blue to green or silver, while deeper-living species are dark brown to black. They are the most populous fish species in the open ocean with an approximate density of one per cubic metre.

Ecology

Lanternfish are well known for their diel vertical migrations: during daylight hours, most species remain within the gloomy bathypelagic zone, between 300 and 1,500 m (980 and 4,920 ft) deep, but towards sundown, the fish begin to rise into the epipelagic zone, between 10 and 100 m (33 and 328 ft) deep. The lanternfish are thought to do this to avoid predation, and because they are following the diel vertical migrations of zooplankton, upon which they feed. After a night spent feeding in the surface layers of the water column, the lanternfish begin to descend back into the lightless depths and are gone by daybreak.

Most species remain near the coast, schooling over the continental slope. Different species are known to segregate themselves by depth, forming dense, discrete conspecific layers, probably to avoid competition between different species. Due to their gas bladders, these layers are visible on sonar scans and give the impression of a "false bottom"; this is the so-called deep-scattering layer that so perplexed early oceanographers.

Great variability in migration patterns occurs within the family. Some deeper-living species may not migrate at all, while others may do so only sporadically. Migration patterns may also depend on life stage, sex, latitude, and season.

The arrangements of lanternfish photophores are different for each species, so their bioluminescence is thought to play a role in communication, specifically in shoaling and



courtship behaviour. The concentration of the photophores on the flanks of the fish also indicate the light's use as camouflage; in a strategy termed counterillumination, the lanternfish regulate the brightness of the bluish light emitted by their photophores to match the ambient light level above, effectively masking the lanternfishes' silhouette when viewed from below.

A major source of food for many marine animals, lanternfish are an important link in the food chain of many local ecosystems, being heavily preyed upon by whales and dolphins, large pelagic fish such as salmon, tuna and sharks, grenadiers and other deep-sea fish (including other lanternfish), pinnipeds, sea birds, notably penguins, and large squid such as the jumbo squid, *Dosidicus gigas*. Lanternfish themselves have been found to feed on bits of plastic debris accumulating in the oceans. At least one lantern fish was found with over 80 pieces of plastic chips in its gut, according to scientists monitoring ocean plastic in the Pacific Ocean's eastern garbage patch

Attributions To:

Lanternfish. (2019, May 05). Retrieved from <https://en.wikipedia.org/wiki/Lanternfish>

<p style="font-size: 0.9rem;font-style: italic;">"Lanternfish taxidermy. Deepsea fish"by Fran Martín de la Sierra is licensed under CC BY-NC-ND 2.0</p>