In Brief

The Fish with a Light

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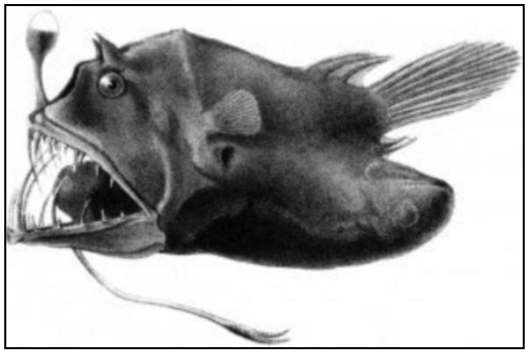
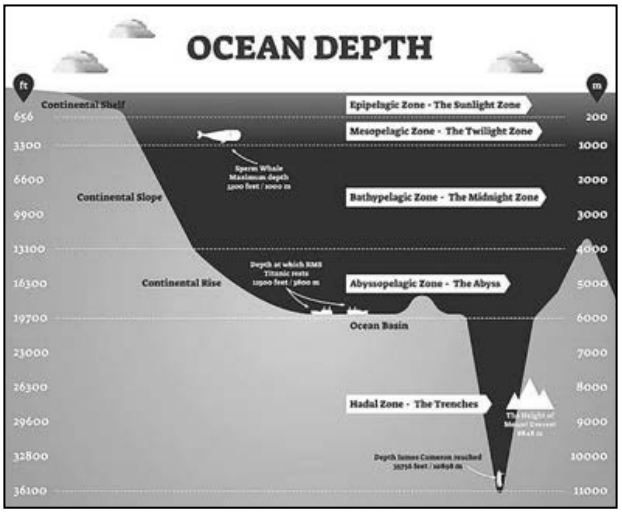
Introduction

The seas past the limit of any nation are to a great extent ungoverned, wild and lawless overflowing with secrets. Its depths are enchanted, shrouding its insides in darkness.

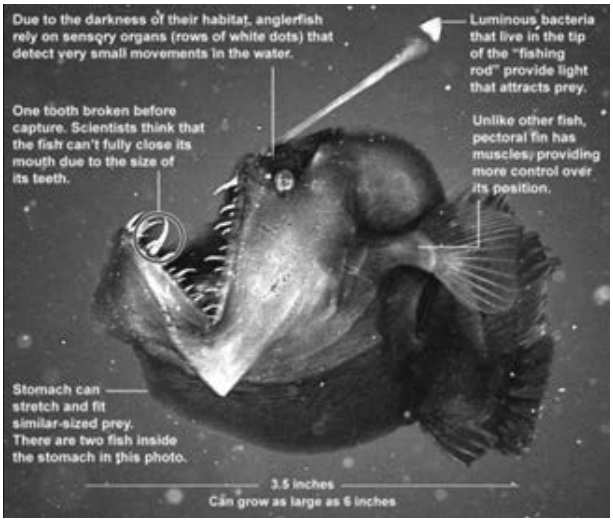




The sea is vertically partitioned into five zones.

1. Epipelagic (till 200 m underneath sea surface)
2. Mesopelagic (200-1000 m)
3. Bathypelagic (1000-4000 m)
4. Abyssopelagic (4000-6000 m)
5. Hadal zone (6000-11000 m)

From the second zone onwards, the sea gets dim and dimmer as next to zero daylight enters and food becomes sparse. In such environmental factors is found the humpback anglerfish also called anglerfish, fangtooth fish or viperfish. The humpback anglerfish or *Melanocetus johnsonii* is a type of black sea devil. It is named after its first discoverer James Yate Johnson (1863).



Systematic Position

Kingdom: Animalia
Phylum: Chordata
Subphylum: Vertebrata
Superclass: Gnathostomata
Class: Actinopterygii
Order: Lophiiformes
Family: Melanocetidae
Genus: Melanocetus
Species: *M. johnsonii* (by Günther, 1864)

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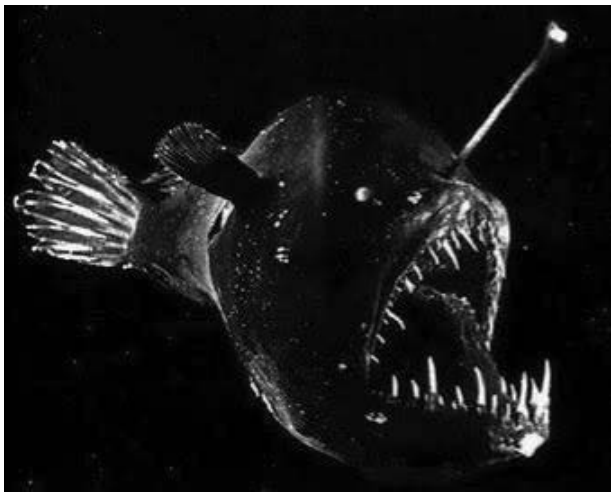


Habitat

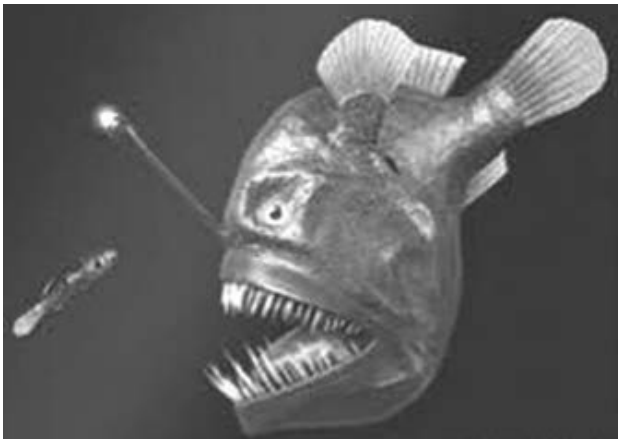
Melanocetus johnsonii occupies the mesopelagic and bathypelagic zones, and is found most usually at depths of somewhere in the range of 100 and 1,500 meters. This wide scope of marine depths is impacted by fish age and irregularity in water temperatures and prey accessibility. They lie half-covered in the sand or mud as they patiently wait for prey in as low as the continental shelf.

The species had been known to be generally present in the calm and tropical seas, just as in South China Sea and East China Sea. With reaches in the far southern and northern latitudes, it is one of the most broadly circulated anglerfish. It has also been accounted for in the waters of the Monterey Canyon.

Habit and Behavior

Feeding habits

M. johnsonii is a dark delicate bodied anglerfish that is dim brown or dark in shading. Female



humpback anglerfish have short, globular bodies, huge heads with an extended mouth that is almost vertical, armed with pointed teeth fit for eating prey bigger than themselves.In the lower mesopelagic and bathypelagic zones, there is almost no light entering from the surface of photic zone. The species live the greater part of their lives in pitch darkness. But, the humpback anglerfish has developed an extraordinary method for predation utilizing bioluminescence and a phenomenal symbiotic relationship.

The name 'anglerfish' is derived from the species' novel method of predation. Anglerfish generally have no less than one long fiber growing from the center of their heads, named the illicium. The illicium is the detached and modified initial three spines of the anterior dorsal fin. The first spine projects over the fish's eyes and ends in an irregular mass of tissue (the esca), and is easily movable.

Female *M. johnsonii*utilize the bulbous esca as a bioluminescent lure prey. The bioluminescence of *M.johnsonii* is brought about by the symbiont *Enterovibrioescacola* on the esca. The bioluminescent bacteria is losing genes and evolving and their relationship with the humpback anglerfish is understood as a type of facultative symbiosis.

M. johnsonii females have enormous mouths with sharp teeth and large stomachs that help them eat almost anything they come across. Their stomachs are exceptionally distensible and extend a lot, permitting them to consume prey weighing a lot more than themselves. Meals are rare in the midnight zone so these fish are ambush predators and are furnished with a

low metabolic rate to endure the unforgiving constraints of its territory.

Sexual Dimorphism and Reproduction

The midnight zone of the sea isn't just dark but extremely deserted. It is henceforth very hard to track down a mate and reproduce for the continuation of species.Humpback anglerfish show an extraordinary sexual dimorphism, with large females and dwarfed males. Females have been found to grow up to 153 mm, while males just develop somewhere in the range of 15.5 and 28 mm. Males lack the bioluminescence hence the prey luring apparatus, yet have enormous eyes and nostrils which might be useful for locating dispersed mates with the assistance of pheromone signals.

Unlike many different species of anglerfish, males of *M. johnsonii*are non-parasitic. Their blood systems don't fuse to create an eternally dependent relationship. *M. johnsonii* males just briefly attach onto the bigger *M. johnsonii* female using its denticular contraption before releasing their sperm. Once, mating is completed, the males detach from the female to find a different mate. Fertilization is external; females discharge eggs into the water and males release their sperm to fertilise the eggs.