

**Diversity of life**  
 Covering almost three-quarters of the Earth's surface, the world's great oceans are home to an incredibly diverse web of life. The World Register of Marine Species currently lists just under a quarter of a million species, with new ones being identified all the time. But even as we begin to discover the astonishing diversity of life and gain insight into their behaviour and physiology, human activity is becoming an increasing threat to the oceans and the life within them.



# OCEANS



Our oceans dominate Earth's natural systems. They control the climate and the carbon cycle, produce half of all the oxygen we breathe and support an astounding diversity of life.



**Dugong**  
*Dugong dugon*  
 Dugongs are more closely related to elephants than to marine mammals such as whales and dolphins. They belong to a group of African mammals known as the Afrotheria. This group contains the dugong, manatee, elephant, aardvark, hyrax, elephant shrew, golden mole and tenrec.



**Moonfish**  
*Lampris guttatus*  
 Thought to be the first-known warm-blooded fish, the moonfish is able to keep its entire body core, including its heart, a constant 5°C warmer than the surrounding water. This allows the fish to dive to great depths and remain there for long periods without having to return to the surface to warm up.



**Red lionfish**  
*Pterois volitans*  
 Much about the venomous lionfish's appearance conveys a sense of danger – from its red and white zebra stripes to its long, elaborate pectoral fins. Its venom is delivered, for purely defensive purposes, via an array of needle-like dorsal fins. A sting is extremely painful to humans, but is rarely fatal.



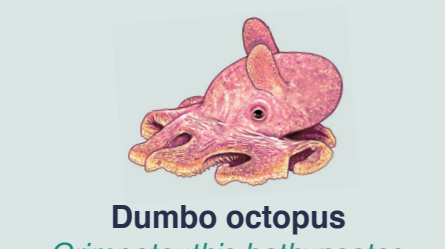
**Coelacanth**  
*Latimeria chalumnae*  
 These primitive-looking fish were thought to have died out with the dinosaurs 66 million years ago. But scientists discovered these 'living fossils' in 1938, of which only two known species exist. Coelacanths represent an early step in the evolution of fish to land-based, four-legged animals like amphibians.



**Sperm whale**  
*Physeter macrocephalus*  
 These giant mammals possess the largest brain of any animals that have ever lived on Earth. Their head contains an oily fluid (which hardens when cold) that regulates their buoyancy during diving and rising in search of food. They can dive to around 1 km depth by holding their breath for 90 minutes.



**Gulper eel**  
*Eurypharynx pelacanoideus*  
 The name of this bizarre looking eel derives from its abnormally large mouth, which is much larger than its body. Its jaw is loosely hinged, so it can open wide enough to swallow an animal much larger than itself. The eel also has a pink light-producing organ that it uses to lure prey towards its enormous mouth.



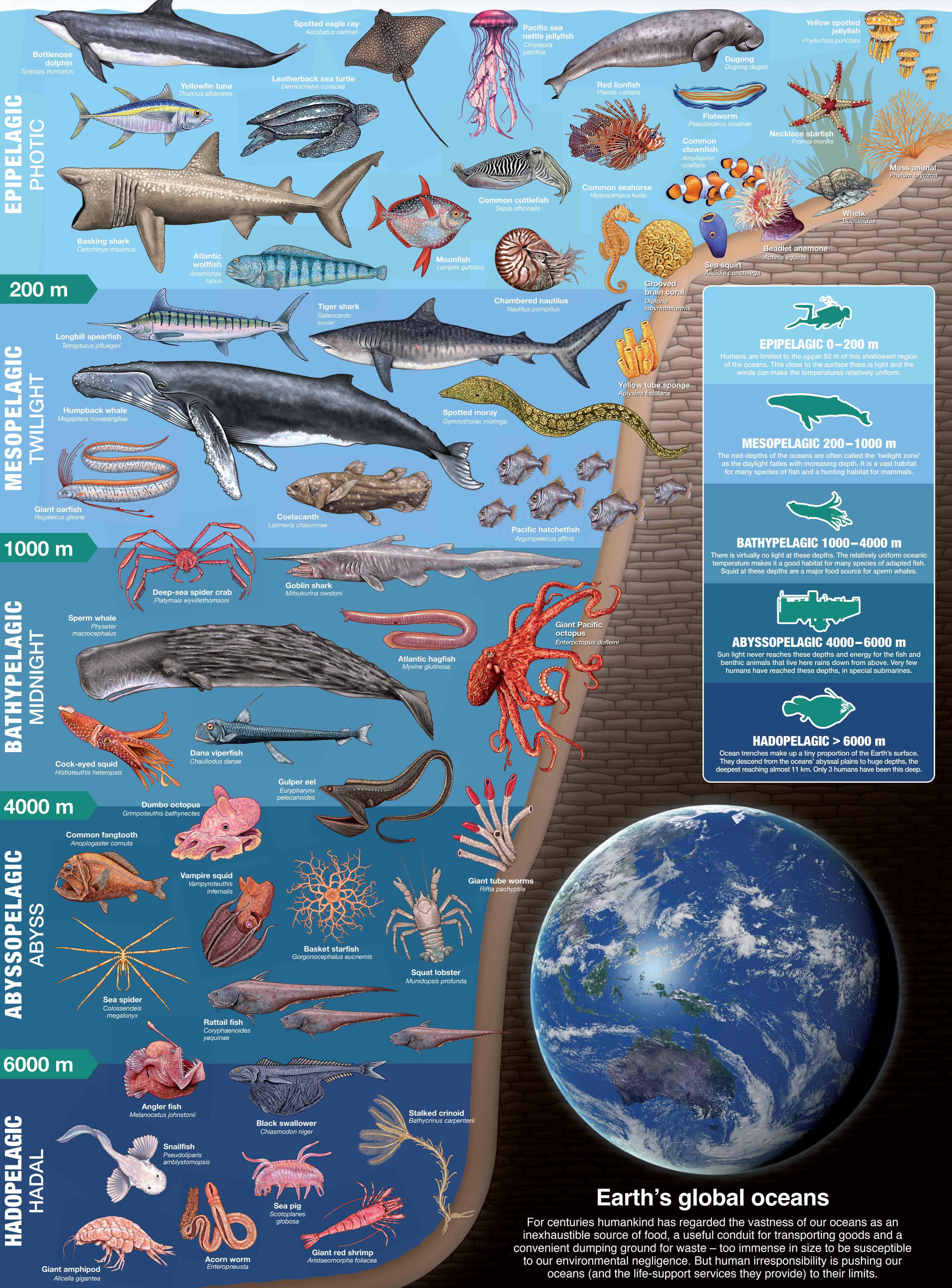
**Dumbo octopus**  
*Grimpoteuthis bathynectes*  
 'Dumbo octopus' refers to an entire genus of deep-sea umbrella octopuses, comprising at least 15 species. Their name derives from their fins, which resemble the ears of Disney's Dumbo the elephant. All live at extreme depths of 3000 m to 7000 m making this group the deepest living of all known octopuses.



**Angler fish**  
*Melanocetus johnstonii*  
 The female angler fish is recognised by a long spine resembling a fishing pole with a lit end, which is used to attract prey. Their large mouth and flexible body allow them to swallow prey twice their own size. A female may host up to six males on her body. The males eventually fuse with her after losing all their internal organs except testes.



**Sea pig**  
*Scotoplanes globosa*  
 Sea pigs are a type of sea cucumber, and are restricted to the cold parts of the ocean where they are the dominant animals. They have five to seven pairs of enlarged tube feet that are hydraulically operated and serve as legs, allowing them to 'walk' along the sea floor.



**EPIPELAGIC 0–200 m**  
 Humans are limited to the upper 50 m of this shallowest region of the oceans. This close to the surface there is light and the winds can make the temperatures relatively uniform.

**MESOPELAGIC 200–1000 m**  
 The mid-depths of the oceans are often called the 'twilight zone' as the daylight fades with increasing depth. It is a vast habitat for many species of fish and a hunting habitat for mammals.

**BATHYPELAGIC 1000–4000 m**  
 There is virtually no light at these depths. The relatively uniform oceanic temperature makes it a good habitat for many species of adapted fish. Squid at these depths are a major food source for sperm whales.

**ABYSSOPELAGIC 4000–6000 m**  
 Sun light never reaches these depths and energy for the fish and benthic animals that live here rains down from above. Very few humans have reached these depths, in special submarines.

**HADOPELAGIC > 6000 m**  
 Ocean trenches make up a tiny proportion of the Earth's surface. They descend from the oceans' abyssal plains to huge depths, the deepest reaching almost 11 km. Only 3 humans have been this deep.

## Earth's global oceans

For centuries humankind has regarded the vastness of our oceans as an inexhaustible source of food, a useful conduit for transporting goods and a convenient dumping ground for waste – too immense in size to be susceptible to our environmental negligence. But human irresponsibility is pushing our oceans (and the life-support services they provide) to their limits.