

Pearly nautilus

Wikipedia

Having survived relatively unchanged for millions of years, nautilus represent the only living members of the subclass [Nautiloidea](#), and are often considered "[living fossils](#)."

The name "Nautilus" originally referred to the *Argonauta*, otherwise known as paper nautilus, because the ancients believed these animals used their two expanded arms as sails. However, this octopus is not closely related to the Nautiloidea.

1Anatomy

The nautilus is similar in general form to other cephalopods, with a prominent head and [tentacles](#). Nautilus typically have more tentacles than other cephalopods, up to ninety. These tentacles are arranged into two circles and, unlike the tentacles of other cephalopods, they have no [suckers](#), are undifferentiated and retractable. The [radula](#) is wide and distinctively has nine teeth. There are two pairs of [gills](#).

Most nautilus species never exceed 20 centimetres

Shell

Nautilus are the sole living cephalopods whose bony body structure is externalized as a [shell](#). The animal can withdraw completely into its shell and close the opening with a leathery hood formed from two specially folded [tentacles](#). The shell is coiled, [aragonitic](#),^[3] [nacreous](#) and pressure resistant, imploding at a depth of about 800 metres. The nautilus shell is composed of 2 layers: a [matte](#) white outer layer, and a striking white [iridescent](#) inner layer. The innermost portion of the shell is a pearlescent blue-gray. The **osmena pearl**, contrarily to its name, is not a [pearl](#), but a [jewelry](#) product derived from this part of the shell.

Internally, the shell divides into [camerae](#) (chambers), the chambered section being called the [phragmocone](#). The divisions are defined by [septa](#), each of which is pierced in the middle by a duct, the [siphuncle](#). As the nautilus matures it creates new, larger camerae, and moves its growing body into the larger space, sealing the vacated chamber with a new septum. The camerae increase in number from around four at the moment of [hatching](#) to thirty or more in adults.



Nautilus shells: *N. macromphalus* (left), *A. scrobiculatus*(centre), *N. pompilius* (right)

The shell coloration also keeps the animal [cryptic](#) in the water. When seen from above, the shell is darker in color and marked with irregular stripes, which helps it blend into the dark water below. The underside is almost completely white, making the animal indistinguishable from brighter waters near the surface. This mode of [camouflage](#) is named [countershading](#).

The nautilus shell presents one of the finest natural examples of a [logarithmic spiral](#), although it is not a [golden spiral](#). The use of nautilus shells in art and literature is covered at [nautilus shell](#).

Tentacles

Nautilus tentacles differ from those of other cephalopods. Lacking pads, the tentacles stick to prey by virtue of their ridged surface.^[4] Nautiloids have a powerful grip. Attempts to take an object already seized by a Nautilus, may tear tentacles away from the creature, which remain firmly attached to the surface of the object.^[4] Two pairs of tentacles are separate from the other 90-ish, the pre-ocular and post-ocular, situated before and behind the eye. These are more evidently grooved, with more pronounced ridges. They are extensively [ciliated](#) and serve an olfactory purpose.^[4]

[\[edit\]](#)Physiology

[\[edit\]](#)Buoyancy and movement

In order to swim, the nautilus draws water into and out of the living chamber with its [hyponome](#), which uses [jet propulsion](#). While water is inside the chamber, the [siphuncle](#) extracts [salt](#) from it and diffuses it into the blood. The animal adjusts its [buoyancy](#) by [osmotically](#) pumping gas and fluid into or out of the camerae along the siphuncles. This limits them; they cannot operate under the extreme [hydrostatic pressures](#) found at depths greater than approximately 800 metres (2,600 ft).

In the wild, nautilus usually inhabit depths of about 300 metres (980 ft), rising to around 100 metres (330 ft) at night to feed, mate and to lay [eggs](#).

[\[edit\]](#)Senses

Unlike many other cephalopods, they do not have good vision; their eye structure is highly developed but lacks a solid [lens](#). They have a simple "[pinhole](#)" eye open to the environment.

Instead of vision, the animal is thought to use [olfaction](#) as the primary sense for [foraging](#), locating or identifying potential mates.

[\[edit\]](#) **Reproduction and lifespan**

Nautilus reproduce by laying [eggs](#). Gravid females attach the fertilized eggs to rocks in shallow waters, whereupon the eggs take eight to twelve months to develop until the 30 millimetres (1.2 in) juveniles hatch. Females spawn once per year and regenerate their [gonads](#), making nautilus the only cephalopods to present [iteroparity](#) or [polycyclic spawning](#).

Nautilus are [sexually dimorphic](#), in that males have four tentacles modified into an organ, called the "spadix," which transfers sperm into the female's mantle during mating.

The lifespan of nautilus is about 20 years, which is exceptionally long for a cephalopod.

[\[edit\]](#) **Ecology**

[\[edit\]](#) **Diet**

Nautilus are [predators](#) that feed mainly on [shrimp](#), small [fish](#) and [crustaceans](#), which are captured by the tentacles. Due to the limited energy they expend in swimming, nautilus only need to eat once a month.

[\[edit\]](#) **Range and habitat**

Nautilus are only found in the [Indo-Pacific](#), from 30° N to 30° S latitude and 90° to 185° W longitude. They inhabit the deep slopes of [coral reefs](#).

[\[edit\]](#) **Evolution**

[Fossil](#) records indicate that nautilus have not evolved much during the last 500 million years. Many were initially straight-shelled, as in the extinct genus [Lituites](#). They developed in the [Cambrian](#) period and became a significant sea [predator](#) in the [Ordovician](#) period. Certain species reached over 2.5 metres (8 ft 2 in) in size. The other cephalopod subclass, [Coleoidea](#), diverged from the Nautilidae long ago and the nautilus has remained relatively unchanged since. [Extinct](#) relatives of the nautilus include [ammonites](#), such as the [baculites](#) and [goniatites](#).

Nautilus were much more extensive and varied 200 million years ago.

[\[edit\]](#) **Taxonomy**

The genus *Nautilus* contains six species.

Conservation:

Not listed on IUCN Red List but under fishing pressure for meat and shells which are commercially valuable.