Illustration: Devangi Majumdar, AIS Gurugram 46, XII I

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In the hidden corners of our planet, a few extraordinary lifeforms have mastered the art of survival, enduring for centuries and millennia. From jellyfish to sharks, these remarkable beings unlock nature's greatest secrets of resilience. Vibha Arya, X A, and Devangi Majumdar, XII I, AIS Gur 46, take you on a journey through time as we explore Earth's most enduring creatures.

OLD SOULS of the SEA

Immortal Jellyfish

Lifespan: Biologically immortal
Brass tacks: A small, translucent jellyfish with a bell-shaped body and around 90 fine tentacles. Found in the Mediterranean Sea and other warm oceans.
What makes it resilient: Capable of cellular regeneration and reverting to its juvenile form through transdifferentiation. This unique ability draws scientific interest for its potential in ageing and regenerative medicine.

Greenland Shark

Lifespan: 250 to 500 years
Brass tacks: The longest-living vertebrate. Lives in Arctic and North Atlantic waters, at depths of up to 7,218 feet. Grows slowly due to a low-metabolic rate. Likely scavengers, guided by a strong sense of smell.
What makes it resilient: Contains high levels of urea and trimethylamine oxide, acting as natural antifreeze, aiding buoyancy, and allowing it to survive year-round.

Black Coral

Lifespan: Over 4,000 years
Brass tacks: Found globally at depths up to 26,000 feet. Despite the name, black corals can appear white, red, green, yellow, or brown. Traditionally used in rituals and medicine, now often used in jewellery.
What makes it resilient: Has a tough protein-chitin skeleton that deters predators. Lacks symbiotic algae, allowing it to thrive in dark deep-sea.

Antarctic Sponge

Lifespan: 1,550 to over 15,000 years
Brass tacks: Inhabits depths of 100-2000 metres under extreme cold and pressure. Growth is extremely slow, with some specimens showing no growth for a decade. Composed of siliceous, glass-like tissues with antimicrobial properties.
What makes it resilient: Acts as an ecosystem engineer, offering habitat and shelter to marine organisms. Its symbiotic microbes help it survive in nutrient-poor, low-light conditions.

Ocean Quahog Clam

Lifespan: Over 500 years
Brass tacks: Native to the North Atlantic. Characterised by two hard shells connected by a hinge, and a siphon for filter-feeding. Growth rings are used to determine age. It is one of the last surviving species of the Jurassic era.
What makes it resilient: Its sturdy shell enables it to burrow into sediment for protection. Studied as a natural archive, it offers valuable records of historical climate and ocean conditions.

Red Sea Urchin

Lifespan: Over 200 years
Brass tacks: Found along the Pacific coast, especially on rocky shores. Features a dome-shaped body with a hard shell and movable spines. Has five sharp teeth used for feeding and boring into surfaces.
What makes it resilient: Can regenerate damaged spines. Highly responsive to touch and light, helping it detect and avoid threats.

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