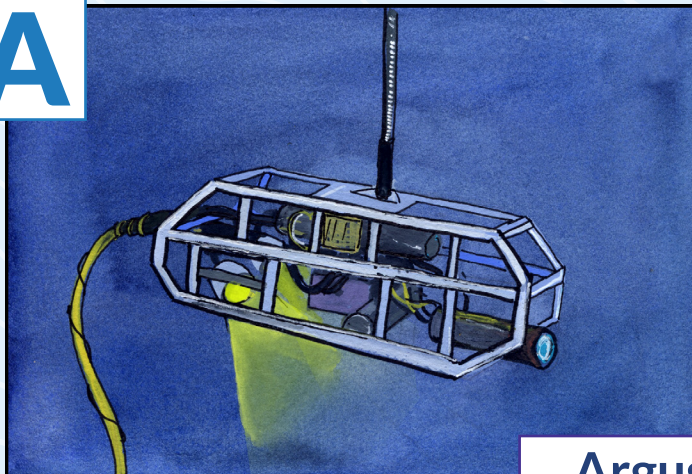
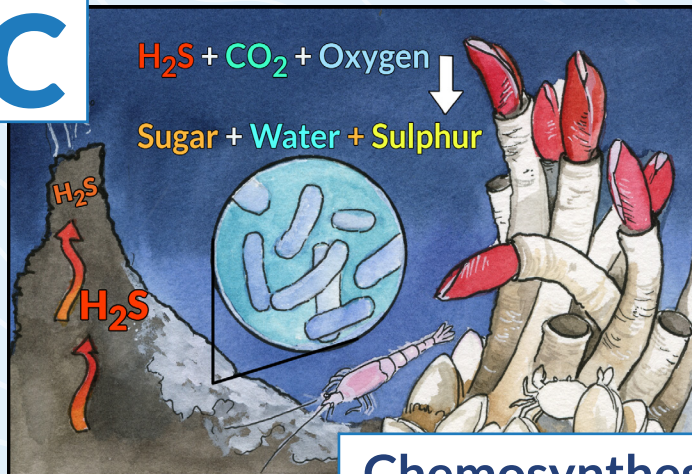
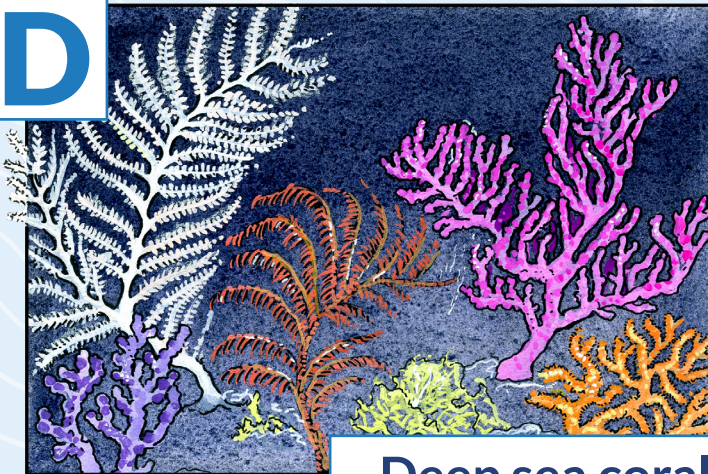


A**Argus****B****Basalt****C****Chemosynthesis****D****Deep sea corals**

Basalt

Volcanic rock erupts on the seafloor and rapidly cools into formations like basalt cliffs, pits, and rounded pillows.



Argus

Named for a mythological many-eyed monster, remotely operated vehicle *Argus* keeps a watchful lookout over ROV *Hercules* on deep dives.



Deep sea corals

Some corals live below 1000 meters in total darkness and catch falling food particles 'marine snow' instead of using sunlight to feed from zooxanthellae.



Chemosynthesis

The impressive ability of bacteria to convert chemicals from within the Earth (not sunlight) into energy. This reaction fuels the food web for many deep sea areas.

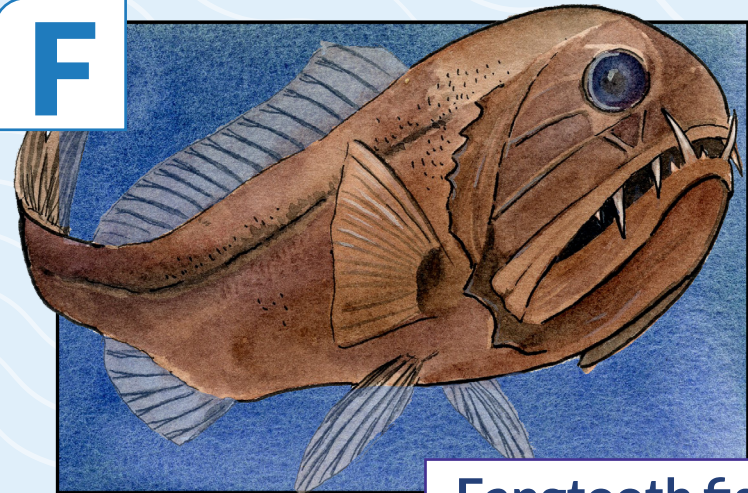


E



Explorers

F



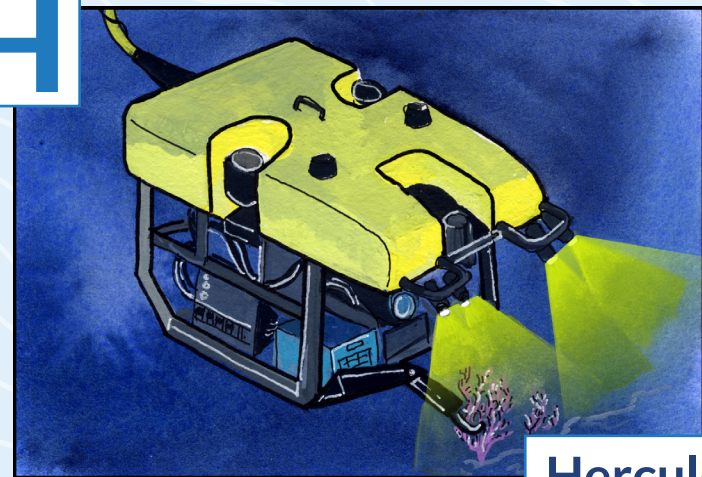
Fangtooth fish

G



Googly-eyed stubby squid

H



Hercules

Fangtooth fish

Fangtooth fish have the largest teeth-to-body mass ratio in the ocean and can live as deep at 5,000m hunting small fish and squid.



Explorers

Explorers are always eager to learn more, pushing the boundaries of technology or going where no one has gone before.



Hercules

Car-sized ROV *Hercules* conducts seafloor science for explorers by collecting samples, images, video, and data down 2.5 miles deep.

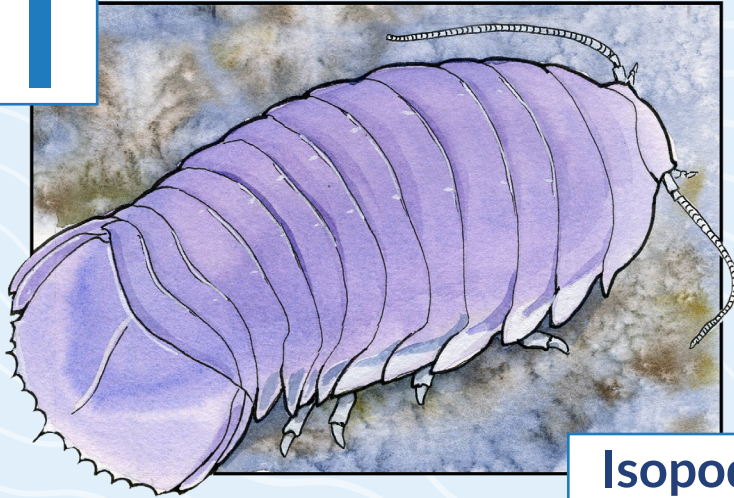


Googly-eyed stubby squid

At home in the Northern Pacific, Stubby Squid is a nocturnal hunter, burrowing in sand to hide from its food of shrimp and crab.

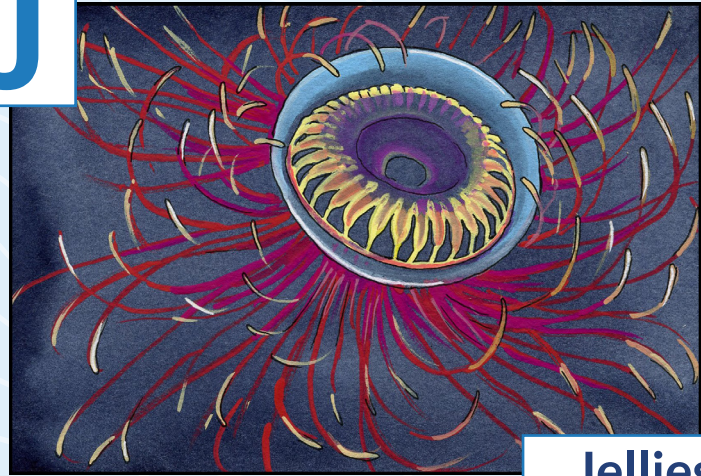


I



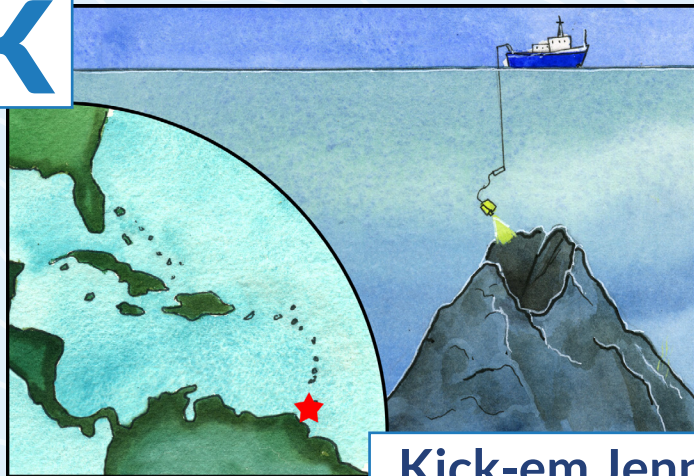
Isopod

J



Jellies

K



Kick-em Jenny

L



Laboratory

Jellies

Found worldwide, free swimming jellies often have long tentacles including some that sting to capture their food.



Isopod

Giant isopods are armored crustaceans who can grow to the size of a rugby ball and scavenge food that sinks to the seafloor.



Laboratory

In the laboratories aboard *Nautilus*, explorers process geological and biological samples for further studies onshore.

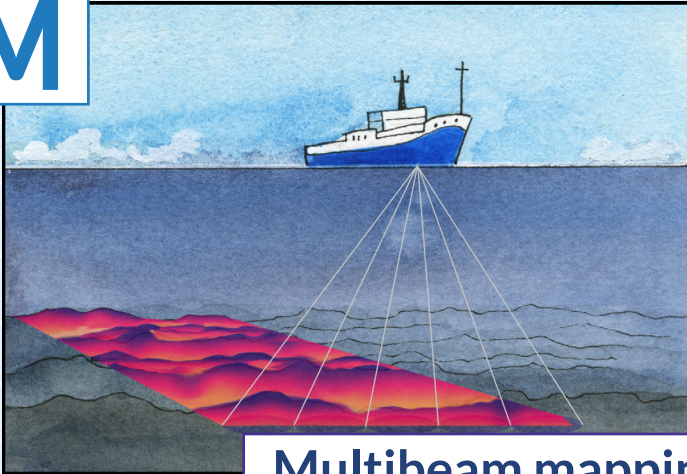


Kick-em Jenny

Kick 'em Jenny is the most-active underwater volcano in the Caribbean in the waters of Grenada. The volcano erupted most recently in 2017.

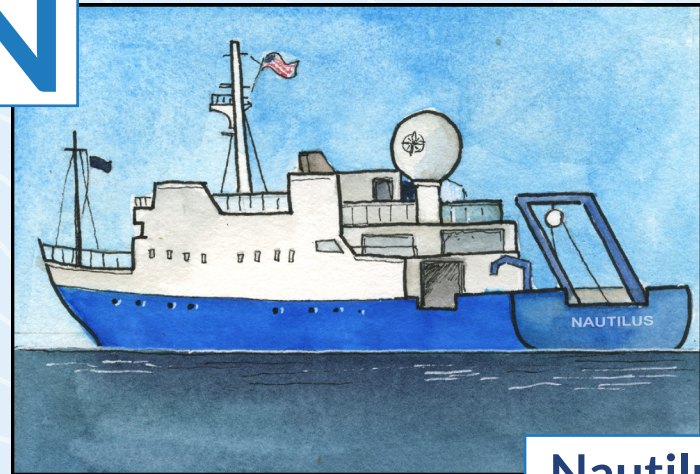


M



Multibeam mapping

N



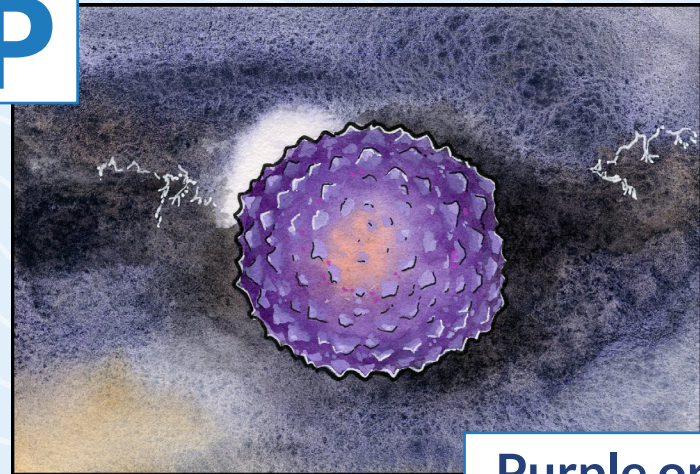
Nautilus

O



Octopus nursery

P



Purple orb

Nautilus

Exploration vessel *Nautilus* is a 211-ft ship that carries 48 explorers who seek to understand parts of our ocean no one has seen before.



Multibeam mapping

A multibeam echosounder uses sound pings to measure the distance (depth) to the seafloor allowing scientists to map seamounts, canyons, and vent fields.



Purple orb

Glowing from beneath a ledge, purple orb at first stumped scientists, but is likely a new species of snail with its shell hidden in the skin.

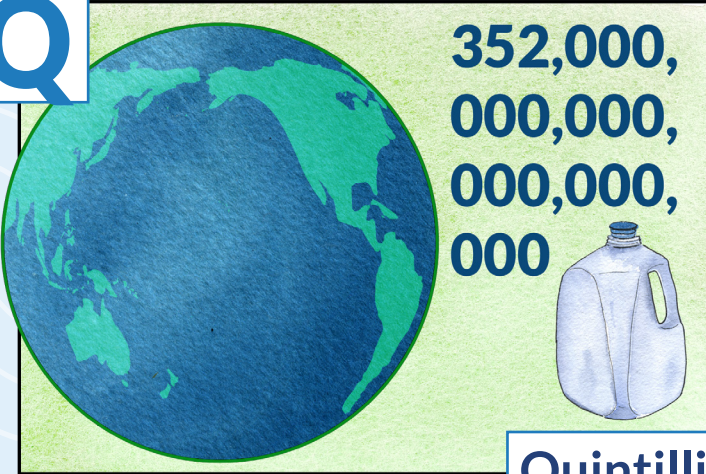


Octopus nursery

An octopus nursery was discovered along cliff edges of Davidson Seamount where thousands of females brood and protect their eggs in warm vent systems.



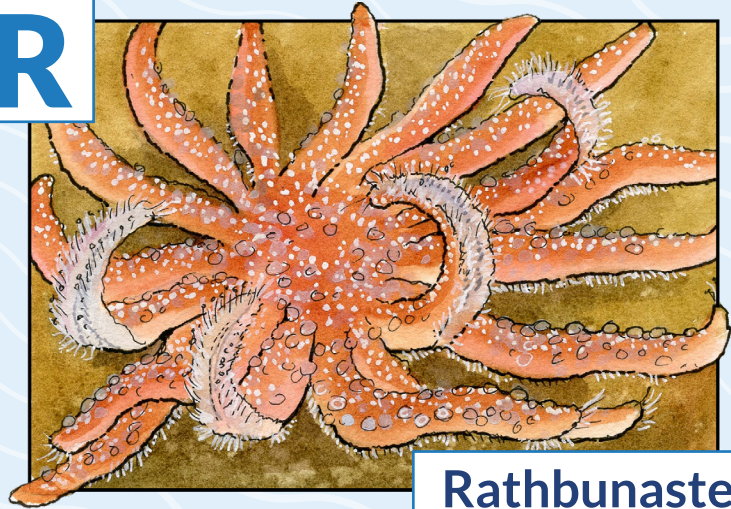
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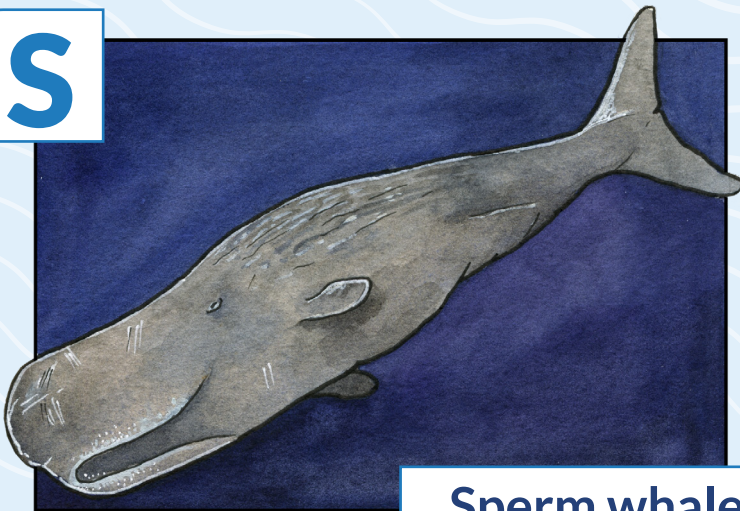
Quintillion

R



Rathbunaster

S



Sperm whale

T



Tube worms

Rathbunaster

Rathbunaster seastars grow up to 2 feet wide with 20 arms reaching up to catch tasty shrimp!



Quintillion

The ocean contains 352 quintillion gallons of water (352+18 zeros). Earth is the only planet in the solar system with liquid water on it's surface.



Tube worms

Sometimes called lipstick worms, tubeworms thrive in extreme environment hydrothermal vents growing as large as 13 feet, gaining energy from chemosynthetic bacteria in thier bodies.

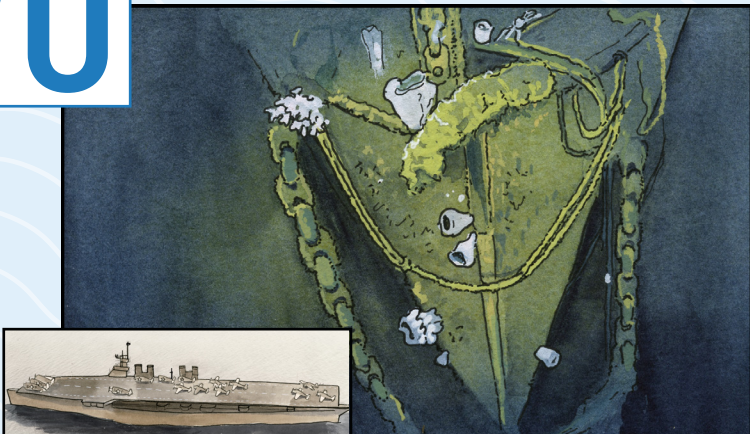


Sperm whale

While diving in the Gulf of Mexico, the team got suprised by an curious investigation from a sperm whale - the largest toothed whale in the world!



U



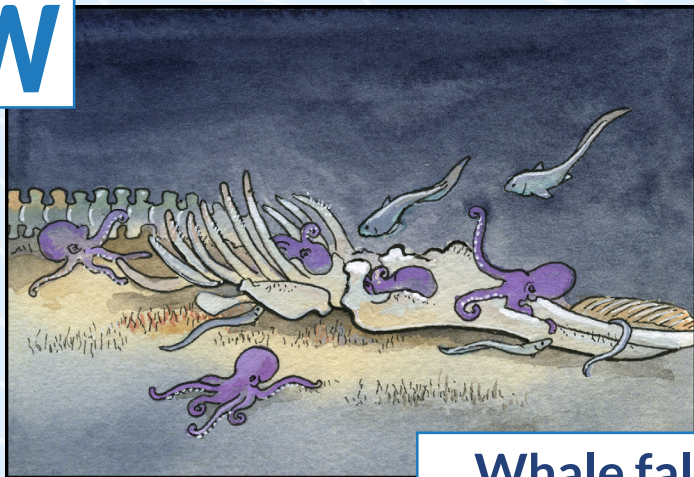
USS Independence

V



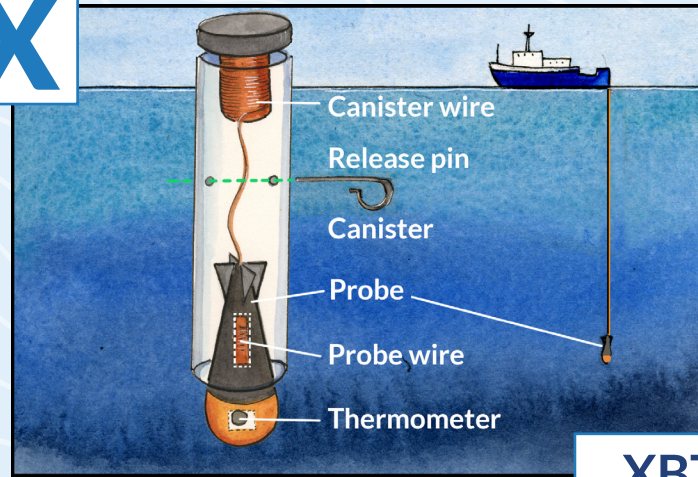
Vents

W



Whale fall

X



XBT

Vents

Hydrothermal vents form at plate boundaries when water enters seafloor cracks, gets heated by magma, and billows up out of the rock creating chimneys.



USS Independence

WWII aircraft carrier *USS Independence* had an active service career before being scuttled in 1951 offshore of Central California where she was located as a living reef in 2016.



X_{BT}

eXpendable BathyThermograph: a probe deployed from the ship to measure water temperature at different depths while the ship drives.

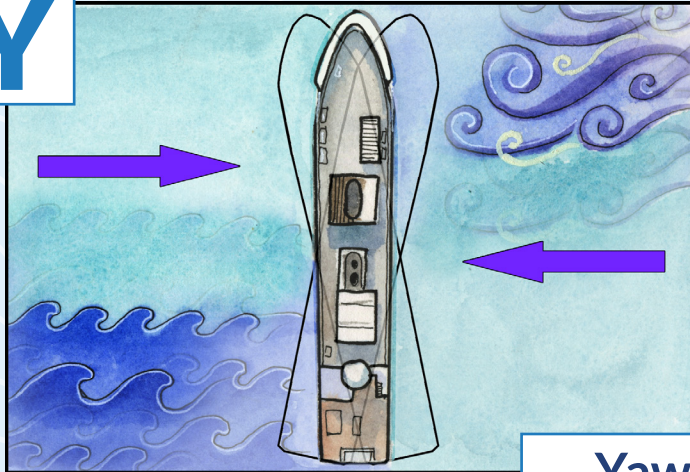


Whale fall

The location where a dead whale lands on the seafloor, allowing organisms like crabs, worms, octopus, and fish to eat the carcass.



Y

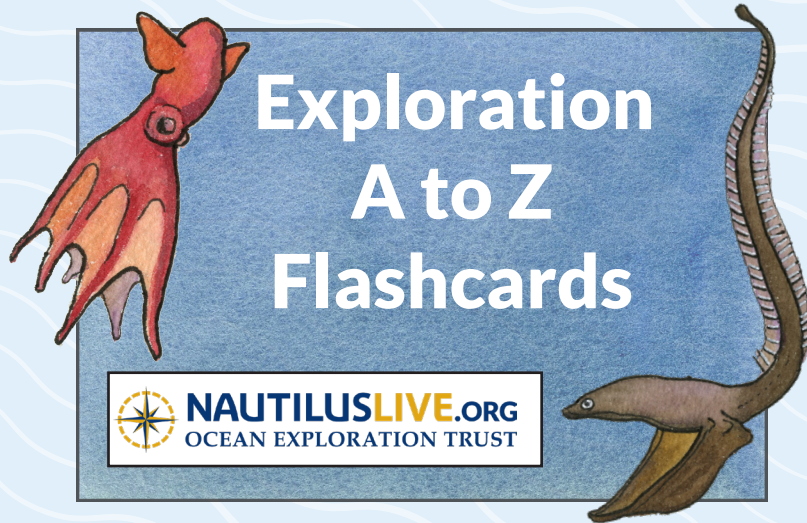


Yaw

Z



Zooplankton



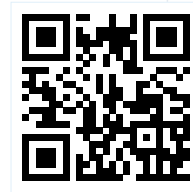
Zooplankton

Zooplankton are teeny animals and larvae of larger animals swimming in the water column. They are eaten by many animals as part of the shallow and deep-sea food webs.



Yaw

One of the six types of ship motion, yaw is the swiveling motion when waves and wind come from opposite sides.



Explore!

Discover the amazing world of the ocean from A to Z! On each card, you can scan the QR code to dive in to exploration videos and images. Explore more at NautilusLive.org/education.

