

LEVELED Book • O

# Deep in the Ocean



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Written by Natalie Rompella

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## Focus Question

How would you describe the deep ocean and what lives there?

# Words to Know

adaptable  
marine  
sensors

species  
submersible  
sulfur

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Front cover: The deep ocean fangfish has a bony, hard body. This strong body works like a shell to help protect it from both the freezing temperatures and heavy water pressure found at depths of about 4,876 meters (16,000 ft).

Title page: The tunicate attaches itself to the walls of deep ocean canyons. It waits for small sea life to swim past its wide-open mouth.

Page 3: The deep ocean anglerfish uses the bright end of a spine like a fishing pole to attract prey.

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## Correlation

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The small, deep ocean sea pig roams the ocean floor, often in herds, eating tiny sea animals and microbes that live in the mud.

## Deep Underwater

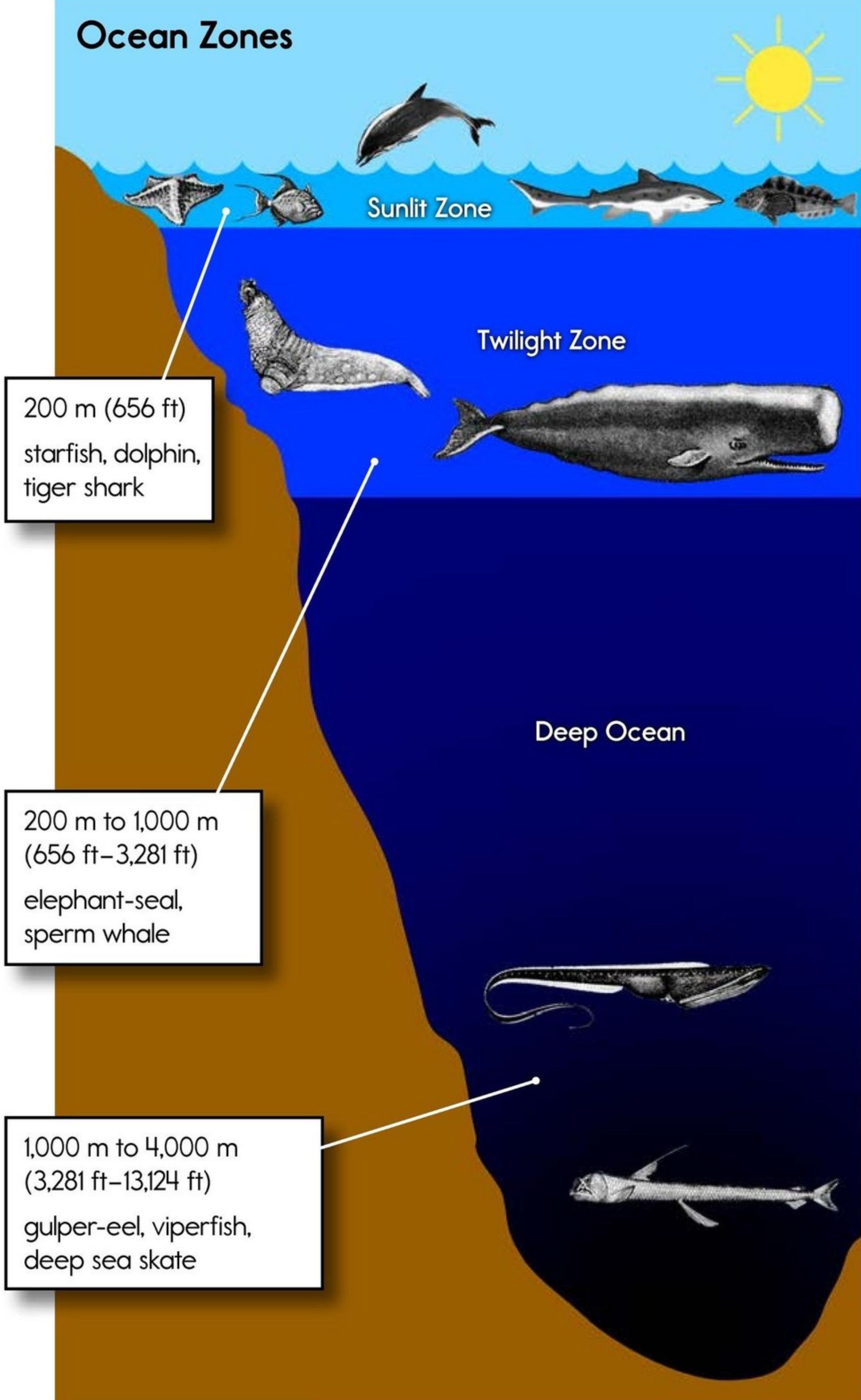
Imagine taking a trip to the deepest part of the ocean. What kinds of things would you expect to see? Would it be dark or light? Would the water be clear or cloudy? Would it be warm or cold? Would you find strange new animals and plants?

Sunlight warms the surface, or shallow parts, of the ocean down to about 200 meters (656 ft). Plants and animals that need sunlight and warm water live there, such as dolphins and sharks. Deep in the ocean, other animals, including squid and viperfish, live in water that is cold and dark.



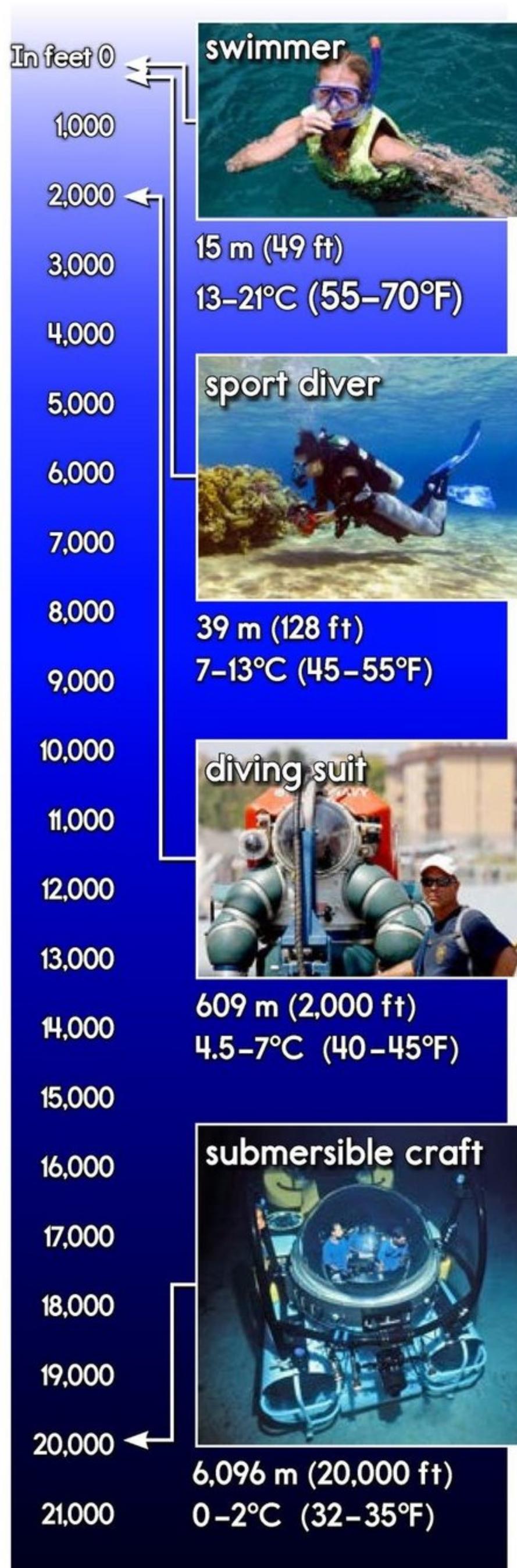
The warm, shallow waters of tide pools are home to species of starfish, anemones, mussels, and tiny crabs.

## Ocean Zones



# Diving Deep in the Ocean

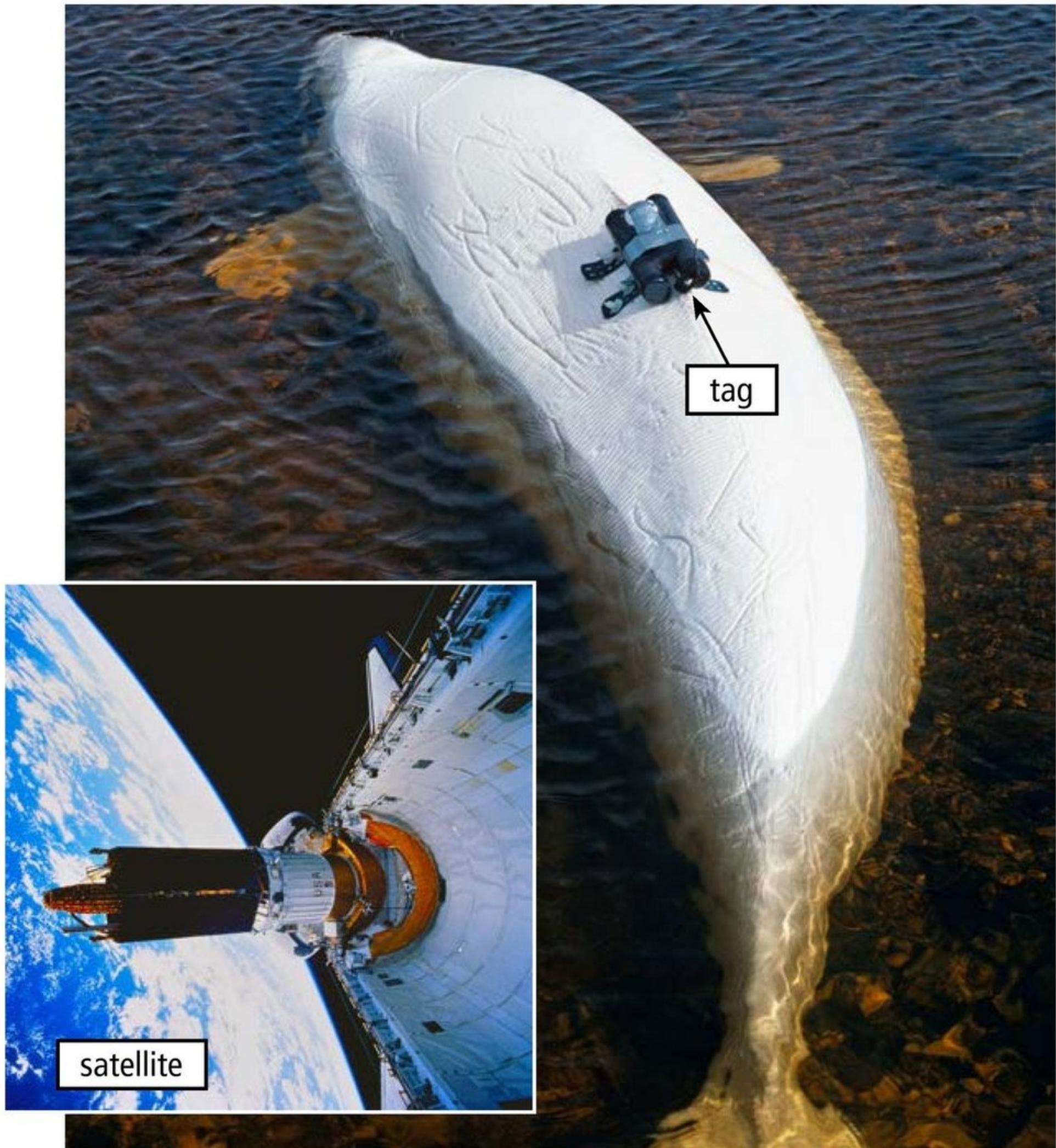
The deep ocean, below 1,000 meters (3,281 ft), is freezing cold. The weight of water, or water pressure, below 39.6 meters (130 ft) can harm you. Sport divers wear air tanks filled with a mixture of gases for safety. Deep divers wear a special hard diving suit to protect them from the water pressure. For really deep dives, groups of two or three scientists ride in a small submarine called a **submersible**.





## Oceanographers

Scientists who study the ocean are called *oceanographers* (oh-shuh-NOG-ruh-furs). They often live for months on a ship and work seven days a week. Some study what a sea animal eats and where it lives. Others study the ocean water itself. All of them have to understand biology and chemistry. Biology is the study of living things. Chemistry is the study of what things are made of.



## Using Satellites for Tracking

Satellites can help to track sea animals' travels. Scientists tag some animals with electronic **sensors**. A satellite can track the signal from the tag on the animal's fin or back. Tracking the signal shows where the animal goes.



Lionfish, or turkeyfish, swim among coral sea fans off the Solomon Islands. Their long, feathery spines can sting any predator that comes too close. Native to the South Pacific, lionfish were first spotted in United States' waters in 2000.

## Counting the Sea Animals

What types of animals live in the ocean? Where do they live? How many are there? Oceanographers studied and counted animals for ten years to learn the answers. They looked at all the world's oceans from the North Pole to the South Pole. The surprising report is called the **Census of Marine Life**. Released in 2010, it contains information from more than 540 different groups of researchers.

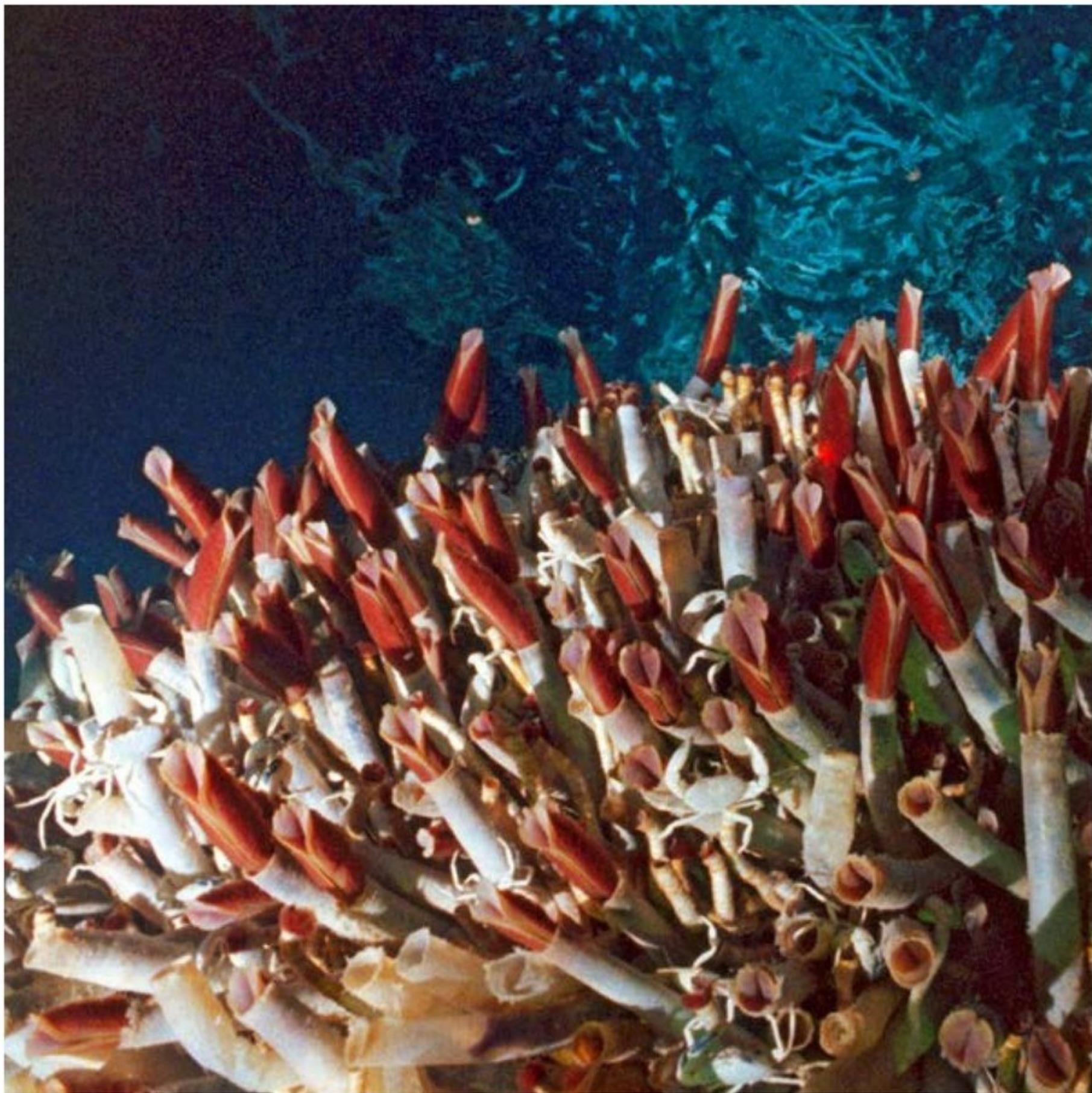


The leafy sea dragon blends in with the plants of its surroundings. Its eyes move independently of each other so it can look in two directions at once. The male sea dragon carries the eggs for the female and gives birth.

## The Census of Marine Life

The first surprise was where things lived: *everywhere*—in all water levels and temperatures! Marine **species** lived in the hottest and coldest places in the oceans. Some species lived in deep places without light or oxygen.

Another surprise was how many new species were discovered. More than twelve hundred new marine species have been described.



Over 2 kilometers (1.3 mi) deep in the ocean, giant tube worms live in the hot water that bubbles up from a lava pillar.

## Living in Hot and Cold Water

The very cold Deep Ocean Zone has *hot volcanoes* in it. The water temperature at a volcano can be 400°C (752°F), which is hot enough to melt lead. Some species of shrimp, crabs, worms, and bacteria live in this very hot water. These animals use **sulfur** to live rather than sunlight.

Huge groups of Arctic sea life were also found living in freezing water. Some species of squid, cod, and jellyfish live under solid ice that is 700 meters (2,296 ft) thick. Many of these species slow down their movements to save energy so they don't freeze.



The Antarctic ice fish has no red blood cells. Its thinner blood contains a type of antifreeze that allows it to survive in the frigid waters beneath ice that would freeze the blood of most fish.

## What Did We Learn?

Scientists learned that life is even more **adaptable** than they had originally thought. Animals living in the deep ocean have found ways to survive in harsh environments. These environments are places where it would be impossible for most other species to survive.



The big-eyed Atlantic gonate squid lives in the cold, deep waters of the northern Atlantic Ocean.

The marine census counted more than 230,000 species. More than 6,000 new species had never been seen before! Some creatures were see-through. Some had warning lights that turned on and off. Others had long feelers instead of eyes. Some had teeth so long that they overlapped their jaws. Some made their own antifreeze to stay warm.

What else lives in the deep ocean? Scientists keep finding new species and new facts. The more they look, the more they find. They think that only one-fourth of all marine life has been counted. Only some of those species have even been described yet. There are many more surprises to come!

## Explore More

To learn more about the Census of Marine Life, A Decade of Discovery, go to its website at: [www.coml.org](http://www.coml.org)

Each week, new discoveries are added to the marine census project using a map on Google Earth: [www.comlmaps.org/census-on-google-earth](http://www.comlmaps.org/census-on-google-earth)

On the Internet, search terms such as: *deep sea species, nudibranch, blind lobster, or NASA oceanography*

## Glossary

<b>adaptable</b> ( <i>adj.</i> )	able to change to fit a new or specific situation or environment (p. 14)
<b>marine</b> ( <i>adj.</i> )	of or relating to the sea (p. 10)
<b>sensors</b> ( <i>n.</i> )	devices that sense and react to a signal or a change in conditions (p. 9)
<b>species</b> ( <i>n.</i> )	groups of living things that are physically similar and can reproduce (p. 11)
<b>submersible</b> ( <i>n.</i> )	a small vessel that can operate under water, especially at deep levels (p. 7)
<b>sulfur</b> ( <i>n.</i> )	a yellow chemical element that is common and has an unpleasant smell when it burns (p. 12)

# Deep in the Ocean

A Reading A-Z Level O Leveled Book

Word Count: 643

## Connections

### Writing

Would you want to be an oceanographer when you grow up? Why or why not? Write a paragraph using details from the text to support your answer.

### Science

Choose and research an animal that lives in the deep ocean. Create a poster. Include a picture and at least five interesting facts about the animal and its habitat.



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