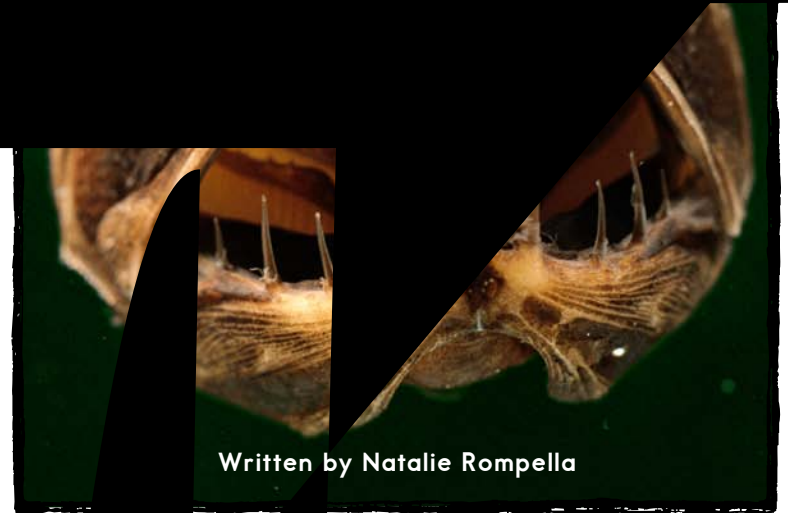


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# Deep in the Ocean



Written by Natalie Rompella

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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).

Back cover: The blind, hairy-legged yeti crab is a new species. It was discovered near Easter Island, off the coast of Chile, in South America. The yeti crab lives in total darkness at depths of about 2.25 kilometres (1.4 mi).

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

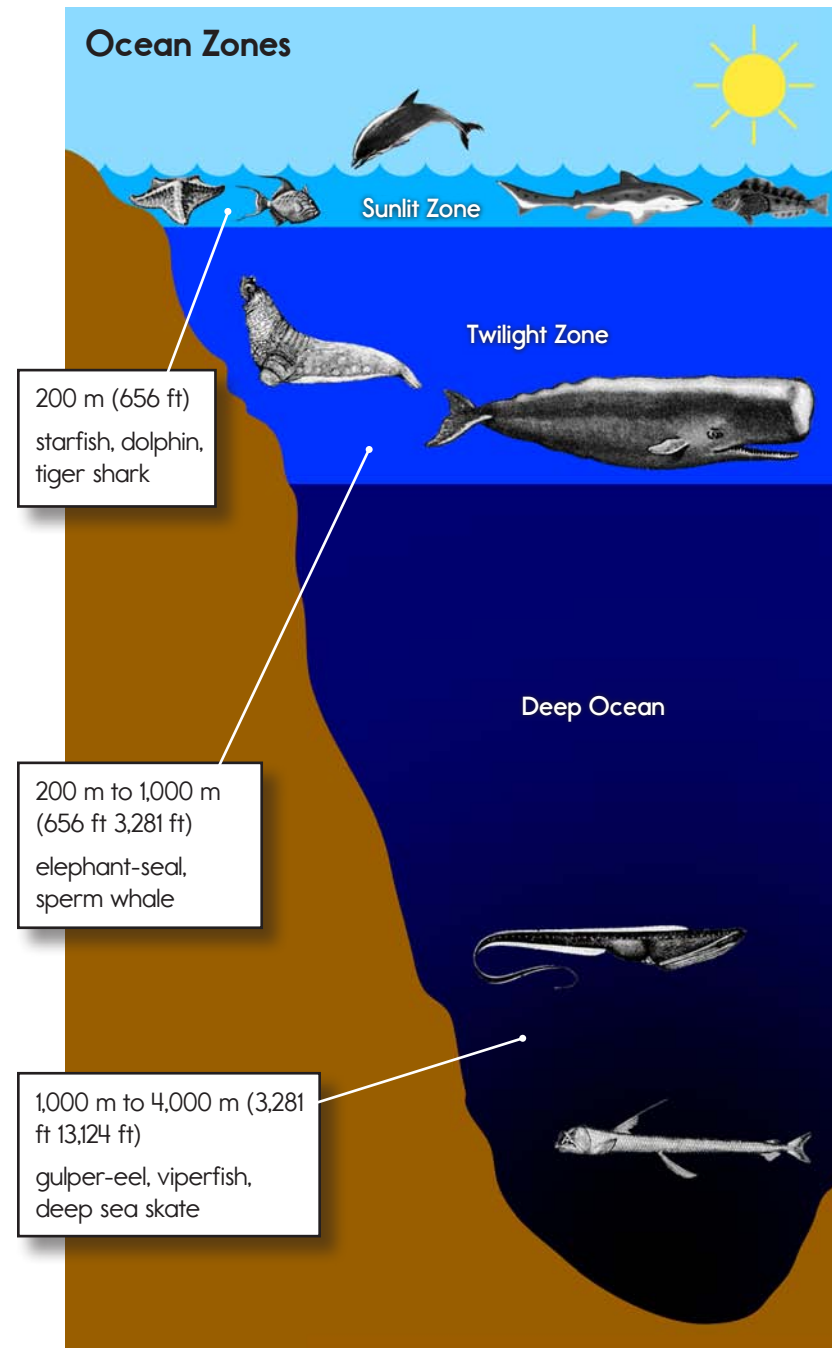
## Deep Underwater

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

Sunlight warms the surface, or shallow, parts of the ocean. Plants and animals that need sunlight and warm water live there. Deep in the ocean, other animals 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.



## Diving Deep in the Ocean

The deep ocean is freezing cold. The weight, or **water pressure**, of very deep water can harm you.

Sport divers wear air tanks for safety. Deep divers wear a special diving suit. Scientists ride in a small submarine called a **submersible**.

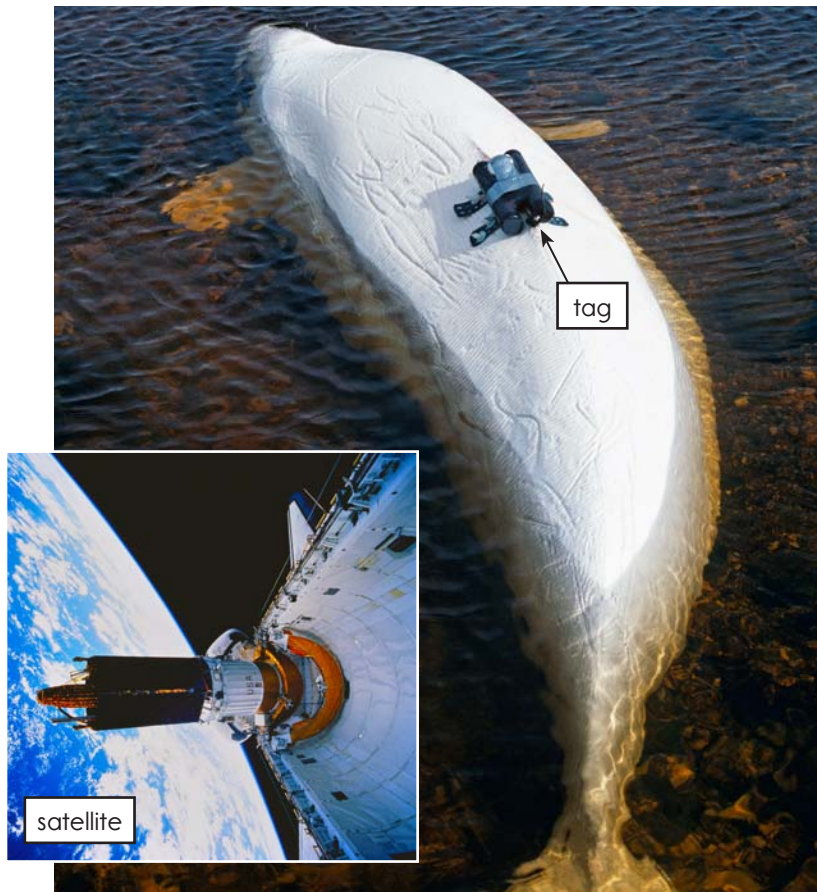


## Oceanographers

Scientists who study the ocean are called **oceanographers** (oh-shuh-NOG-ruh-furs). They often live for months on a ship. Some study what a sea animal eats and where it lives.

## Using Satellites for Tracking

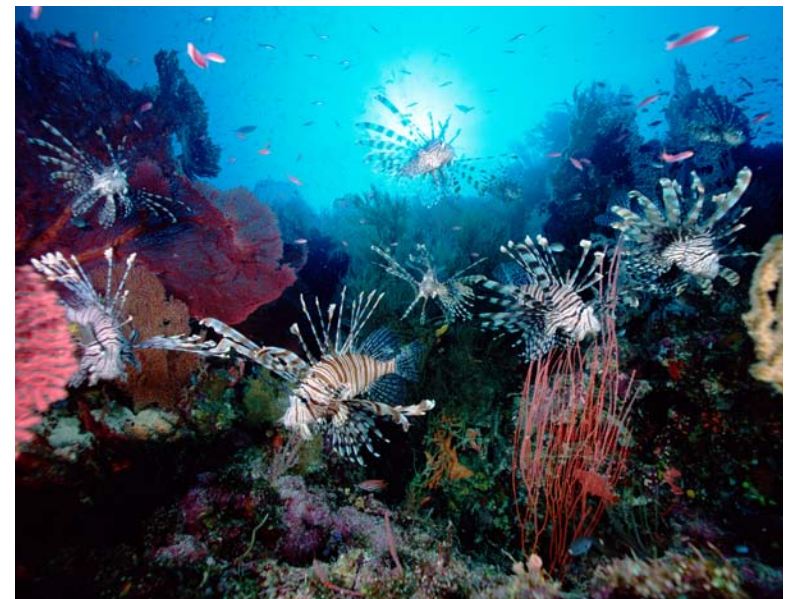
Satellites can help to track sea animals' travels. Scientists **tag** some animals. A satellite can track the signal from the tag. The signal shows where the animal goes.



## Counting the Sea Animals

What animals live in the ocean?  
Where do they live? How many are there? Oceanographers studied and counted animals for ten years to find out.

The surprising report is called the **Census of Marine Life**.



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.



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!* Marine **species** lived in the hottest and coldest places. Some species lived in deep places without light or oxygen.



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). Some species of shrimp, crabs, worms, and bacteria live in this very hot water.

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.



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.



(Main) The big-eyed Atlantic gonate squid lives in the cold, deep waters of the northern Atlantic Ocean. (Inset) The flapjack octopus is sometimes called *Dumbo* for its resemblance to the elephant cartoon character. The flapjack has webbing between its tentacles.

## What Did We Learn?

The marine census counted over 230,000 species. Over 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.



What else lives in the deep ocean? Scientists keep finding new species and new facts. They think that only one-fourth of all marine life has been counted. So 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>marine</b> ( <i>adj.</i> )	of or relating to the sea (p. 10)
<b>oceanographers</b> ( <i>n.</i> )	scientists who study the ocean and everything in it (p. 8)
<b>species</b> ( <i>n.</i> )	a group 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>tag</b> ( <i>v.</i> )	to put a label on an object to tell something about the object, such as who owns it or where it belongs (p. 9)
<b>water pressure</b> ( <i>n.</i> )	the force that water puts on an object (p. 7)