

The Ross Sea, Antarctica



A giant sea star slowly moves across the seafloor under the ice in Antarctica.

It's October in Antarctica. Ice covers the sea like a blanket. The place looks lifeless. It's not. Look below the sea ice. You'll see an underwater habitat for fish, sea stars, and more.

It is dark and freezing. Most living things would die here. Stacy Kim wants to learn how the animals here survive. Kim is an oceanographer.

Diving In

Kim must make sure she can survive here. So she carries an air tank on her back. The tank will help her breathe underwater. Her flashlight will let her see in the dark sea. Her diving suit will keep her dry.

Even so, Kim knows she cannot stay under the ice for long. In an hour, she will become dangerously cold.

Cold and Slow

Kim dives in. As soon as she sinks under the ice, she spots something. It is a pale ice fish. This fish is at home here. It has chemicals in its body that keep its blood flowing. In fact, the fish needs the cold. If the water warms too much above freezing, it could die.

As Kim sinks deeper, she clicks on her flashlight. She spots a big jellyfish and red sea stars. She also sees a giant volcano sponge. It must be very old. None of the creatures here grow fast.

The animals here don't move very fast either. They don't need to. Very few predators threaten them.

There also is very little food to eat. Food gives most living things energy. By moving and growing slowly, these creatures save energy. That's why they need less food.

A Coming Feast

Kim's time is almost up. On her way to the surface, she sees algae and tiny plants. They grow just under the ice.

They take energy from the sun. As they grow, other sea life will eat them. This will make a nice summer feast.

When the seasons change, it will be too cold for Kim to dive here. Yet life will go on under the ice.

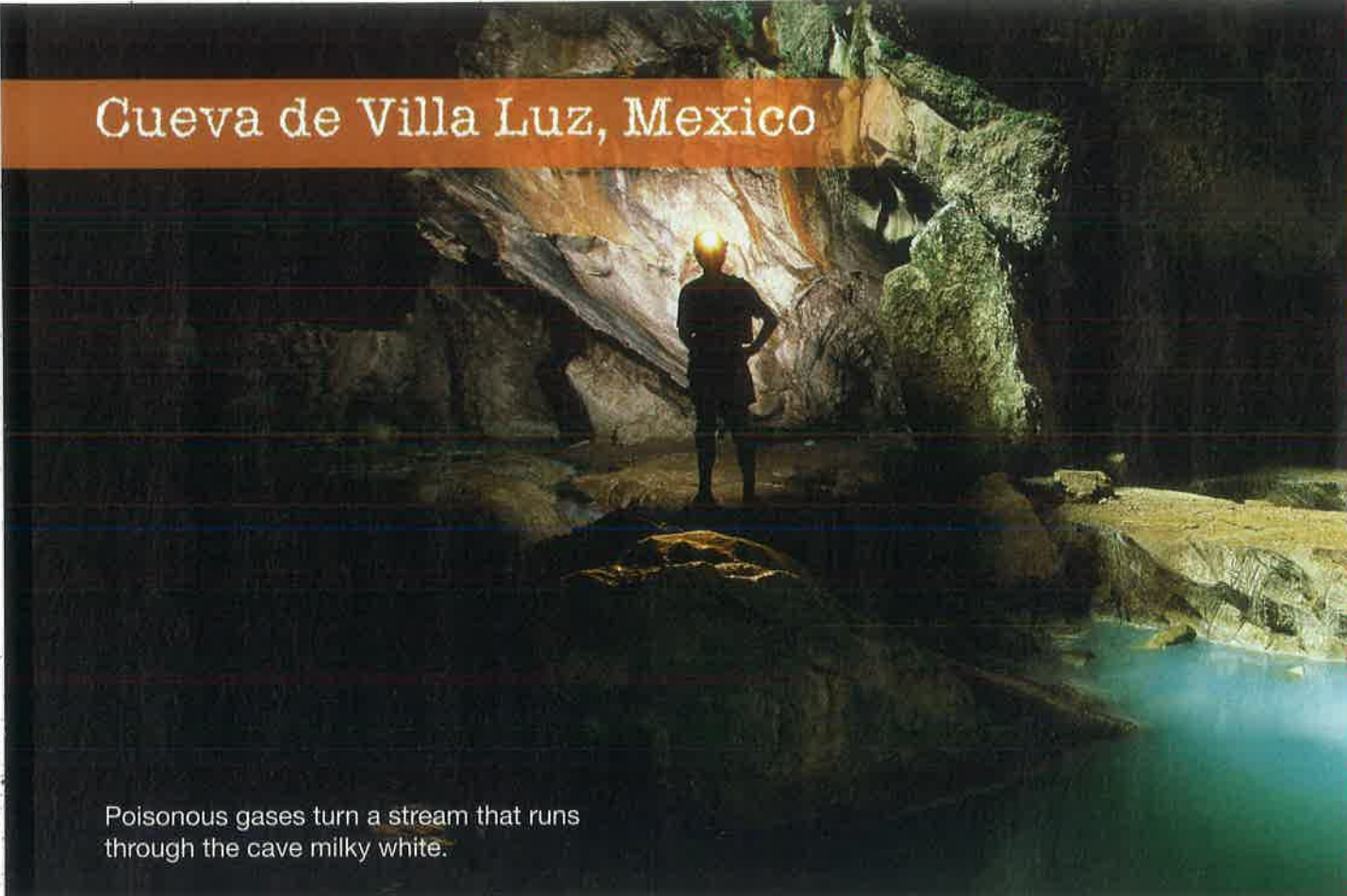


A helmet jellyfish hunts for plankton under the ice.



Tiny crustaceans like this one live in Antarctica's chilly seas.

Cueva de Villa Luz, Mexico



Poisonous gases turn a stream that runs through the cave milky white.

Life is extreme under the ice. It's even more extreme in a cave in Mexico. The air in the cave smells like rotten eggs. It's also poisonous. Gases in it kill most living things.

However, some creatures do live here. They need the gas to survive.

Diana Northup is a biologist. She wants to know more about life in the cave. That means she has to visit it.

Her visit will be dangerous, so she's careful. Her gas mask will protect her from the deadly air. Her gas meter will measure the gas levels. If the levels rise, then she must leave. Fast!

Bats and Bugs

Northup heads into the cave. High above, bats hang from the ceiling. The poisonous gas is heavy. It stays near the ground. It doesn't harm the bats.

There is not much oxygen in the milky stream at her feet. Small fish live here. Their blood holds as much oxygen as possible.

Lots of spiders crawl over the cave walls. Northrup aims her flashlight at them. She sees one spider catch a tiny fly called a midge. Many midges eat plants. Northup doesn't see any plants in the cave. She wonders how the midges survive. What do they eat?



Cave Slime

Northup sees something else on the walls. It's midge **larvae** grazing in slime. Midge larvae are the young form of midges.

The slime the midges are eating is a kind of bacteria. It uses the toxic gas to make food. Strands of slime hang from the ceiling. They look like a runny nose. They're called "snottites."

Northup takes a sample of bacteria. She's careful not to touch it. It makes an acid. It could burn her skin.

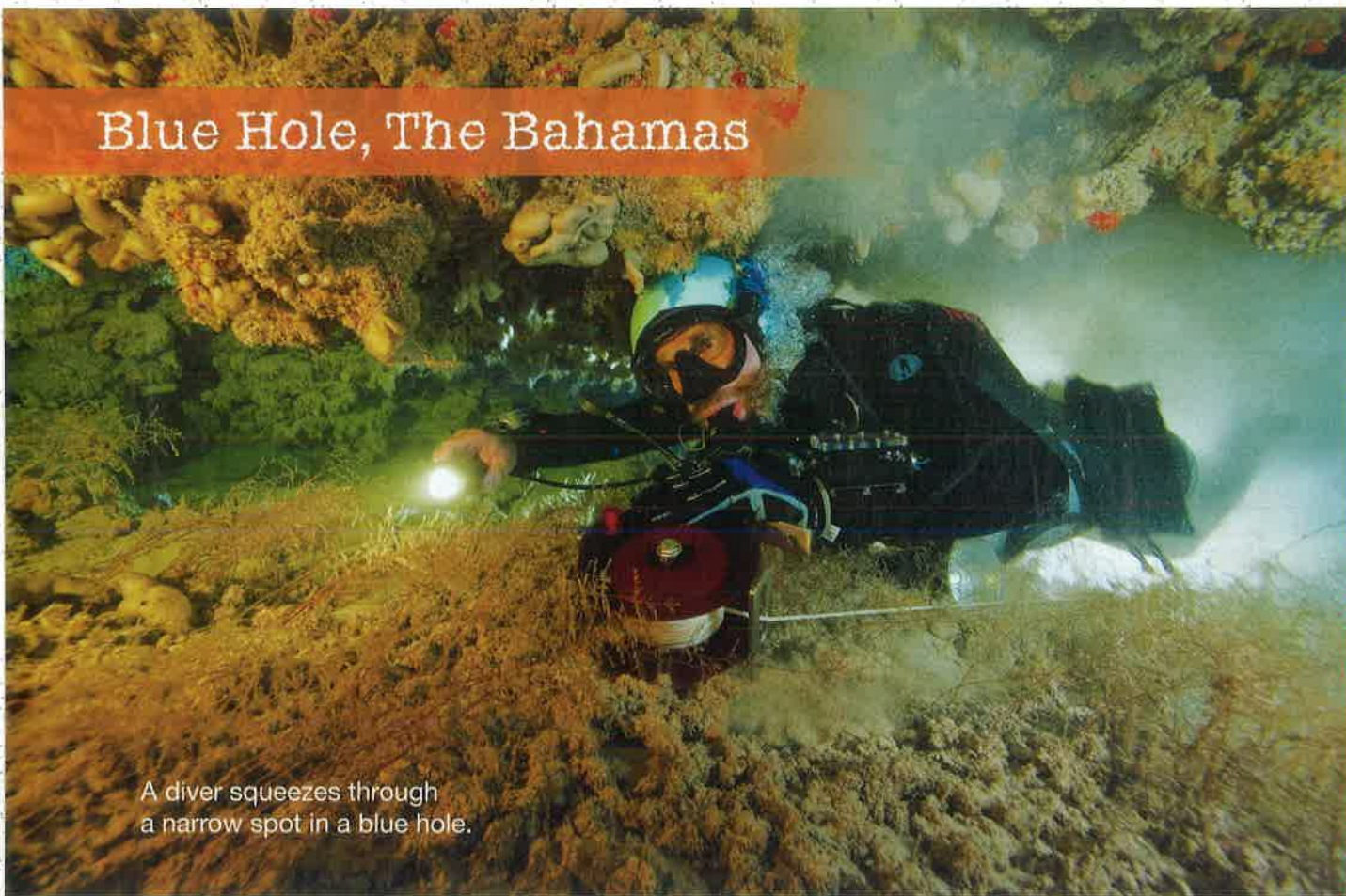
Suddenly, her gas monitor beeps. Northup races out of the cave. She hopes to visit it again some day.

Drippy strands of bacteria hang from a cave ceiling.



These cave fish thrive in water that would kill other fish.

Blue Hole, The Bahamas



A diver squeezes through a narrow spot in a blue hole.

Sea ice and the poisonous cave are extremely dangerous. The underwater caves in the Bahamas are, too. Just ask National Geographic Explorer Kenny Broad. Broad studies these caves that are filled with salt water.

He's about to go in one. There is toxic gas. There is little oxygen or light. Still, the biggest danger is getting lost. The cave is a maze of twists and turns.

That's why Broad carries a rope. It may be his most important tool. He ties the rope to the cave entrance. He holds the other end during his dive.

Entering the Maze

Broad and his team check their tools. Air tanks? Check. Flashlights? Check. Facemasks? Check. His gear is ready and so is he.

Broad drops into the first layer of water. It is fresh water from rain. It's lighter than the salt water beneath. It blocks oxygen and **nutrients** from deeper parts of the cave.

Next, Broad reaches the heavier salt water. Here, bacteria float in the water. They turn the water bright red. Some of the bacteria make toxic gases. Other bacteria eat the gases. Broad swims through to see what's ahead.

Around the Corner

Broad dives deeper. He swims around a corner in the cave. It's dark. He points his flashlight ahead. Tiny creatures swim into the light.

Only small organisms can survive here. They look for food. Tiny shrimps feed on bacteria. Broad sees a remipede. It is like a swimming centipede. The remipede bites a shrimp with its fangs. Then it sucks the animal out of its shell.

The diving team collects samples of the living creatures. Later, they'll study the samples in their lab.

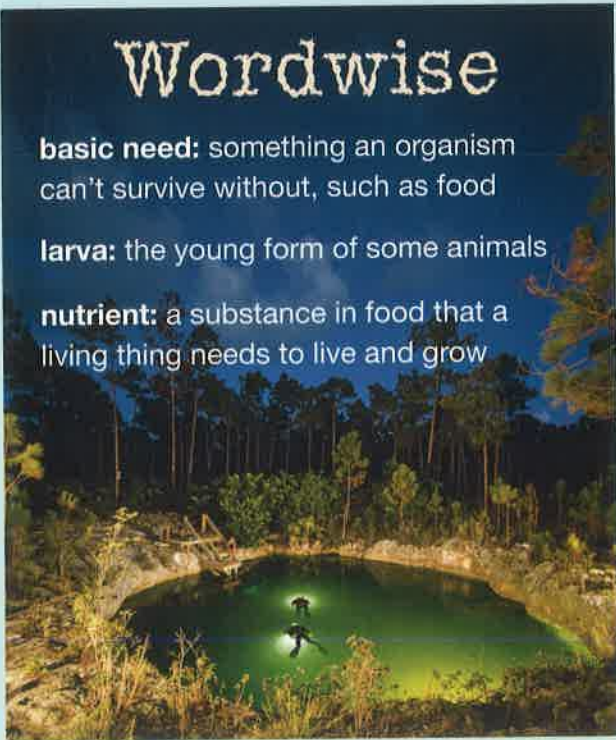
Broad, Northup, and Kim have dangerous jobs. For them, the risk is worth it. They are learning how life survives in extreme places.

Wordwise

basic need: something an organism can't survive without, such as food

larva: the young form of some animals

nutrient: a substance in food that a living thing needs to live and grow



Divers use flashlights to light their way through a Bahamas blue hole.



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