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ARTICLE-A-DAY™

Animals of the Ocean

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Life in the Ocean

The ocean is filled with many different kinds of animals.

In the Zone

NOAA

Killer whales breach, or jump out of the water.

An ocean is a large body of salt water. It can be divided into three zones, or layers. The deeper the water, the colder it gets. Why? Sunlight reaches only the water near the ocean's surface. Take a look in each zone to see some of the animals that live there.

Sunlit Zone (surface to 650 feet)

The top layer of the ocean is called the sunlit zone. It is lit by enough sunlight for plants to grow. All plants and most marine animals live in this zone. Whales live here because they need to swim to the surface to breathe air.

Some fish here have special shapes to protect them from predators. A predator is an animal that eats another animal for food. The porcupine fish puffs up and raises its spines when danger is near.

Twilight Zone (650 feet to 3,300 feet)

The ocean is colder in the twilight zone. Only dim light reaches this area. There is not enough light

for plants to grow. Fewer sea creatures are found here than in the sunlit zone. Jellyfish and octopuses are often found here.

noaa.gov

Jellyfish

Many jellyfish have stinging tentacles that they use to defend themselves and to capture prey. Prey is an animal that is caught and eaten by a predator. Octopuses use the suction cups on their tentacles to hold on to prey.

Midnight Zone (3,300 feet to 19,800 feet)

It is pitch-dark and very cold in the midnight zone. No plants grow here. Many of the animals have sharp teeth and big jaws. Other creatures, such as the ratfish, have large eyes to see in the dark. Ratfish swim along the bottom of the ocean and eat smaller sea animals, such as shrimp and sea stars.

Some animals, like the hatchetfish, have body parts that glow in the dark. That helps them to attract prey.

A Family Reunion

In July [2002], a group of orcas swam to a beach in western Canada. There, they rubbed their bellies on the smooth pebbles along the beach. The group included a young female orca named Springer.

Orca Facts

- An orca is sometimes called a killer whale.
- A male orca can grow to weigh 9 tons.
- An orca is a mammal that breathes air.
- Orcas are not whales. They are dolphins.

The following January, a lone orca was spotted in Puget Sound near Washington state. Scientists figured out that the orca was about 2 years old and that she had been orphaned.

During spring, the orphaned orca stayed in Puget Sound. She swam near boats, and many people got to see her. They named her Springer.

As the months passed, the orca became sickly. She developed a skin rash. Scientists then captured Springer. They treated the rash, and Springer got better.

Like Peas in a Pod

NOAA

Orca

After Springer had recovered, scientists decided that they should return the orca to the ocean. Before releasing her, they attached a radio transmitter to Springer. The radio allows scientists to track her.

In July, wildlife experts loaded Springer onto a jet-powered boat. The boat traveled about 400 miles north to western Canada. Scientists knew that a pod, or group of orcas, related to Springer was there.

Springer was put back into the ocean. Soon scientists saw her swimming with her pod. An aunt and three cousins are part of the pod. Springer's family reunion seemed to be a happy one.

How to Spy on Sharks

Fish Finders

A pointy gray fin, a toothy smile—almost everyone knows what a shark looks like. But scientists don't know much about how the big fish live. That's starting to change.

photos.com

By learning where sharks spend their time, scientists can help protect the animals from danger.

Scientists have been collecting information about sharks around the world with satellite tracking tags. Researchers place the tags into the flesh of a shark and release the fish into the water. The tags collect information about where the sharks travel and how deep and fast they swim. Scientists program the tags to stay fastened to the shark for a certain amount of time and then pop off and float to the ocean's surface. Then the tags send the information they gathered to a satellite in space, which transmits the information to the scientists.

Satellite tags help scientists learn which shark species migrate (move from one area to another), where they go, and what they do there. A few years ago, researchers tracked a great white shark that traveled from Africa to Australia and back. The shark, nick-named Nicole, swam 12,400 miles in nine months. That's halfway around the planet!

Saving Sharks

People often think of sharks as fearsome killers, but the truth is that people pose a great danger to sharks.

Shark attacks always make the news, but they are rare. The International Shark Attack File says that, on average, sharks kill five to 15 people a year worldwide. Every summer, the number of shark attacks begins to rise compared with previous months, but researchers say it is not because sharks are more aggressive. The reason for the increase is that people are spending more time in the water—surfing, swimming, and fishing in shark habitat. Still, an attack is very unlikely. A person is 30 times more likely to be killed by lightning than by a shark.

Meanwhile, fishermen kill about 100 million sharks each year. Populations of great white sharks and other species are shrinking. Scientists hope to discover important areas where sharks like to spend time so those areas can be protected.

Shark Sub

Ocean explorer Fabien Cousteau has created a shark shaped submarine! Cousteau, the grandson of famed ocean explorer Jacques Cousteau, has traveled inside the shark sub to see how sharks behave when they don't know they are being watched.

Penguins: Up Close and Personal

By ReadWorks

A penguin is a type of bird that lives in water and on land. The black-and-white appearance of penguins is known as countershading, which is a form of camouflage that helps keep them safe in the water. Wild penguins are found only in the Southern Hemisphere. Most live within the polar region in very cold climates around Antarctica; however, some species of penguins live in warmer climates in South Africa, New Zealand, and some countries in South America. While there are over 17 different types of penguins, this passage will focus on only three: the emperor penguin, the king penguin, and the little blue penguin.

The biggest of all penguins, the emperor penguin, is almost three-and-a-half feet tall—that is almost as tall as the average first grader! And they can weigh up to 88 pounds. Incredibly, emperor penguins breed on the ice in Antarctica during winter. They face temperatures of -22 degrees Fahrenheit and below. After the female lays an egg, the male keeps the egg warm and protects it for a period of two months—during which time he doesn't eat at all! The female makes a hunting trip for those two months, sometimes traveling up to 50 miles to reach the ocean. When she returns, she regurgitates food for the chick, and then the male goes and finds food for himself. In the wild, emperor penguins live 15 to 20 years. Also, they have the deepest dive of all birds: up to 1,850 feet!

The second-largest penguin is called the king penguin. A king penguin can weigh up to 30 pounds. During breeding, like the emperor penguin, a king penguin keeps its egg warm on its feet under a

pouch of loose skin. However, king penguins tend to live in slightly warmer climates than emperor penguins; they choose beaches without snow or ice to lay their eggs. The king penguin has a very distinctive coloring, with orange highlights on its head, beak, neck, and upper breast.

A third type of penguin is called the little blue penguin, also known as the fairy penguin. These penguins get their name from both their small size and the color of their feathers, which are a light blue instead of black and white like many other types of penguins. Little blue penguins are the smallest of all penguin types, only growing up to a little over one foot tall. They weigh only two or three pounds! They like to live on sandy or rocky beaches, and they can only be found in Australia and New Zealand. They face threats from natural predators such as seagulls, seals, and sharks, and also from introduced predators such as cats, dogs, and foxes. Unlike emperor penguins and king penguins, little blue penguins build nests for their eggs. And while emperor penguin parents take two-month-long shifts protecting their young, little blue penguins take turns more often, switching every few days. Their eggs hatch after only 36 days, and their average lifespan is 6.5 years.

Penguins have evolved so that they can spend time both in water and on land—although they are much more graceful in the water than they are on land! (Look at how they waddle awkwardly on land and how they glide smoothly through the water.) While penguins cannot fly, they do have small wings called flippers that help them swim underwater. An interesting fact about penguins is that they can remain underwater for as long as 20 minutes at a time before coming up for air. They also get their food from the seas. Small fish and squid make up the bulk of their average diet. Penguins seem to have mastered the art of hunting—they catch their prey with their beaks and swallow them whole! Some penguins spend much of their lives in water, only coming to land to mate and rear their chicks.

Deep-Sea Detectives

A couple of years ago, a volcano erupted more than 8,000 feet underwater. Today, researchers 500 miles off the coast of Mexico are getting a close look at the aftermath. The eruption covered 9 square miles of the ocean floor with hot liquid rock called **lava.** Scientists are studying how quickly deep-sea creatures come to live on the lava flow.

The Crew: Two scientists and a pilot took a dive in *Alvin,* a submarine. They used cameras to take pictures and robotic arms to take samples.

The Clues: The lava cooled within seconds of the eruption into **bulbous,** or rounded, shapes. The lava is broken by deep-sea vents that spew **toxic,** or poisonous, chemicals.

The Scene: The eruption took place along the mid-ocean ridge, the most active volcanic region on Earth.

The Deep-Sea Creatures

Bacteria: The crew made an amazing discovery! Chemicals from the vents attracted tiny organisms called bacteria.

Tube Worms: Over time, scientists think that the bacteria will help tube worms grow in the area.

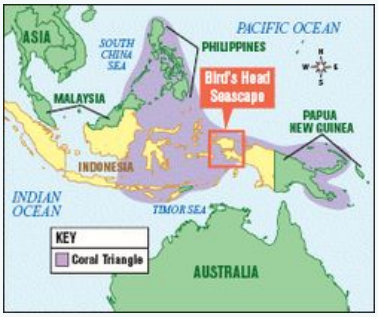
Crabs: Later, crabs will come to feed on organisms, such as the tube worms, near the vents.

Starting Over

The dark zone of the ocean floor has no sunlight. The temperature there is almost freezing. Yet even after the eruption, living creatures are moving to this place to form a **food web.** (A food web links plants and animals that depend on each other for food.) Life is starting over.

Under the Sea

Scientists make a splash with the discovery of new marine species.



WR News

Scientists in Indonesia think they have found hidden treasure—52 new types of marine animals! The researchers believe that the 24 types of fish, 20 types of corals, and 8 types of shrimp are new to science.

The researchers spotted the new species off the coast of Papua, a province on one of the more than 13,500 islands that make up Indonesia. The area, Bird's Head Seascape, is one of the world's most diverse marine regions.

"These Papuan reefs are literally 'species factories,'" says Mark Erdmann of Conservation International, who led the expedition. Many of the species are believed to be endemic to the area, meaning they are not found anywhere else.

Trouble in Paradise?

Bird's Head Seascape is part of Asia's "Coral Triangle." The Triangle covers about 70,000 square miles in the Indian Ocean. It is home to more than 1,200 species of fish and almost 600 kinds of reef-building corals.

But the marine marvels off Papua's coast may be in danger. The Indonesian government is considering a plan to increase commercial fishing in the east, near Papua, because Indonesia's western seas are overfished.

Wildlife groups are against the plan. They say it is imperative, or absolutely necessary, to protect Bird's Head Seascape. "It's extremely important because this area is the center of coral reef biodiversity," Sherry Flumerfelt of the Coral Reef Alliance told *WR News*. *Biodiversity* refers to the variety of species in a particular environment. We need to "make sure these species are protected," says Flumerfelt.

Star Species

Here are a few of the standout species that scientists recently spied in Indonesia.

A bottom-dwelling epaulette shark uses its fins to "walk" across the ocean floor in search of shrimp, crabs, snails, and small fish.

When it's time to attract a mate, a male flasher wrasse ditches its drab brown hue for some brighter colors.

There are three times more fish in the Bird's Head Seascape than in the Hawaiian Islands, including this newly discovered one.