

Oceans are important—

not just for surfing, swimming, and seafood. For one thing, ocean currents affect weather and climate around the world. For another, the health of the ocean, as a natural habitat, is important for the organisms that live there.

It is easier to see how humans affect ecosystems that are observable. But humans also affect the ocean and the world that is under water. In turn, the ocean affects the Earth all around us.

Do you ever wonder about what goes on deep in the ocean?



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Part of studying a problem that you are trying to fix is figuring out what causes what. Sometimes two things happen at the same time. That is called a *correlation*. But because two things happen at the same time doesn't mean that one caused the other. Imagine that every time the weather is cooler, you catch a cold. That doesn't mean the cooler temperatures caused the cold. A virus is the cause. But you might say that cooler temperatures correlate with getting a cold. They seem to happen at the same time. Here is another example: The temperature of planet Earth is rising, and sea levels are rising. These two things are happening at the same time. In this case, scientists have figured out the two pieces of data are not just *correlational*. That is, rising temperatures are melting sea ice. Melting sea ice is causing sea levels to rise. This is a cause and effect relationship. Scientists would say that these data show a causal relationship. All of this is important for the health of the organisms in the ocean. But it is also for all of us who depend on the ocean.

The world's oceans fascinated Dr. Ashanti Johnson from an early age. To the young girl from Dallas, Texas, the oceans "represented the unknown." She loved that they are "so vast and diverse." Growing up, Dr. Johnson wanted to be just like Jacques Cousteau. Mr. Cousteau was a famous scientist and undersea explorer. A television series introduced many people to *The Undersea World of Jacques Cousteau*. He dedicated his life to studying the sea and

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the organisms that call it home. “My first exposure [to oceanography] was watching him on TV,” Dr. Johnson recalls.

By the time she was in elementary school, Dr. Johnson knew she wanted to spend her life studying the oceans. She attended public school in Dallas. There, she conducted science research projects. After high school, she enrolled in the Marine Science program at Texas A&M University. While in college, she noticed something: Her chosen field was not as diverse as the oceans she loved. In fact, Dr. Johnson was the first African-American to receive a degree in marine science from Texas A&M. She later became the first African-American to earn a Ph.D. in oceanography.

Dr. Johnson became a professor in marine and environmental sciences, but much of her most important work has taken place outside the classroom. While teaching at the University of South Florida, Dr. Johnson started a mentoring program. Through the program, minority students gain exposure to different types of science. Students get the opportunity to meet others with similar interests. They also get connected with mentors. A mentor is a person with experience that can act as a role model. Dr. Johnson’s program aims to help students achieve successful science careers. Another goal is to increase diversity within scientific fields. In 2009, Dr. Johnson received the Presidential Award for Excellence. President Obama honored her for promoting the participation of minority students in STEM (Science, Technology, Engineering, and Mathematics). Today, Dr. Johnson continues to inspire others much like Jacques Cousteau inspired her as she was growing up. Like all scientists, she can inspire, and she can advise. She can use her findings to help us understand what to do to protect oceans and marine life. Then, it is up to us to make a difference.



Amid coral mounds and humphead parrotfish, a diver collects photo-documentation of the biota at Wake Atoll

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