

YOUR PASSPORT TO

THE
COLOR
OF SCIENCE™



Water
EDITION

PASSPORT

Passport No.

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Celebrating Diversity

in the study of Water

For over a decade, **The Color of Science™** Program has highlighted the amazing contributions to science, technology, engineering and math (STEM), made by women and persons of color. This “Passport to the Color of Science” showcases the genius, creativity and commitment to the scientific enterprise of just some of these great women and men. We hope you enjoy reading these short biographies of some of the brilliant minds that help make our world a better place and enhance our own living experience. Hopefully one day you can meet them, as they are also, just really, really cool people!

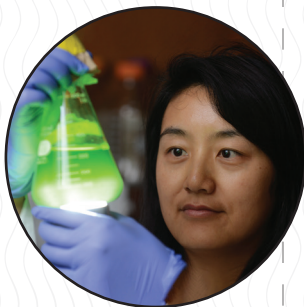
Dr. Frederic Bertley
COSI's President and CEO, and the
founder of The Color of Science Program



Xiaozhen (Jen) Mou, PhD

Microbial Ecologist

Dr. Mou studies the smallest forms of life that live on land and in water – microorganisms. She studies who they are, how many of them there are and what they are doing in the natural and man-made environments. Microbes perform many important functions that bigger organisms cannot do, such as producing certain toxins and degrading pollutants. By studying microbes, we can better manage land and ocean resources.



Fun Fact:

In one drop of seawater, there are 50,000 microbes!



Robert Hamilton, PhD

Ecology Researcher & Professor
at Kent State University

As a researcher, Dr. Hamilton studies insects that live in the water, chemicals in the water, and measure water quality. He performs research in ponds, streams, lakes, rivers, and wetlands.

As a professor, he also educates students about living organisms and where and how they live. Dr. Hamilton's research is important because by studying these waters, we can better monitor pollution and its effects on the environment. We see the results of human activities and can make changes that benefit the environment.



Did you know?

Plastic waste kills an estimated 1 million aquatic animals in the sea every year.



Laura Johnson, PhD

Research Scientist

Dr. Johnson studies the water quality of rivers and streams throughout Ohio and Michigan.

Specifically, her lab measures the amount of sediment, as well as nitrogen and phosphorus (a.k.a., nutrients) in the water.

Nitrogen and phosphorus make up fertilizer used to grow food or even your lawn, and are needed by all living things (including you) in order to stay alive and grow.



Interesting Fact:

Of all water on Earth, less than 0.01% is fresh surface water, yet humans are dependent on this tiny fraction for drinking water, agriculture, and industry, elements essential for survival.



Meg Daly, PhD

Marine Biologist, Professor at The Ohio State University

Dr. Daly studies sea anemones, simple animals that are found in every ocean and at all depths, from the shore to the deepest parts of the ocean. She is interested in understanding how many species there are, and why they live where they live. Understanding the scope and organization of biodiversity can help us understand the ecological and evolutionary processes that generate it. These processes are harder to study in oceans because we are land animals, and the things that affect organisms in aquatic environments are not so obvious to us.



Fun Fact:

Dr. Daly once got in a submersible and traveled two miles deep into the ocean.



Carlos Del Castillo, PhD

Chief of the Ocean Ecology Laboratory at
NASA Goddard Space Center

Dr. Del Castillo works to track temperature changes in the atmosphere, on land, in the ocean, in the cryosphere and the ice caps. He began his career at the University of Puerto Rico, where he studied the effects of oil pollution in tropical marine environments.



Image Credit: NASA

Did you know?

Water regulates the Earth's temperature.



Idelisa Bonnelly, PhD

Marine Biologist

Dr. Bonnelly is a marine biologist, and widely considered the “mother of marine conservation in the Caribbean”. She was the founder of the study of biology in the Dominican Republic, as well as the founder of the Institute of Marine Biology and the Dominican Foundation for Marine Research. She aided in the creation of the first Humpback Whale Sanctuary of the North Atlantic.



Image Credit: The Royal Society's Twitter page @royalsociety

Fun Fact:

Humpback Whales can grow to 60 feet long, and they can weigh a whopping 40 tons!

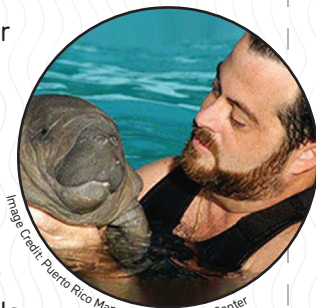


Antonio Mignucci, PhD

Biological Oceanographer

Dr. Mignucci is the founder of Red Caribeña de Varamientos, an international conservation organization that is dedicated to the care, treatment and rehabilitation of injured or stranded marine mammals.

He is also the director of the Puerto Rico Manatee Conservation Center. Mignucci is an expert in tropical marine mammals in danger of extinction, especially the Caribbean manatee.



Did you know?

Manatees never leave the water but typically come up for air every 5 minutes.



Ashanti Johnson, PhD

Geochemist & Chemical Oceanographer

Dr. Johnson is one of the first Black female chemical oceanographers, and is the first Black woman to earn a doctoral degree in oceanography from Texas A&M University. Johnson has also made several notable contributions to STEM education, which earned her the 2010 Presidential Award for Excellence in Science, Mathematics, and Engineering.



Interesting Fact:

Biological oceanographers and marine biologists study plants and animals in the marine environment.



Eugenie Clark, PhD

Ichthyologist (Scientist of fish)

Dr. Clark was a world class American ichthyologist, (or scientist of fish) often described as “The Shark Lady.” The main body of her research was carried out on poisonous fish and sharks, which had captured her attention since she was a young girl. Eugenie was one of the first to use scuba gear to conduct underwater scientific research, undertaking more than 70 deep dives in submersibles, even into her nineties. Eugenie discovered an effective shark repellent in the form of a creamy secretion given off by a flatfish called the Moses sole.



Fun Fact:

A person can live about a month without food, but only about a week without water.



Leanne Armand, PhD

Marine Scientist

Dr. Armand is a specialist in Southern Ocean dynamics and sea ice. Her work has helped to explain how sea ice steers the circulation of the ocean. She has also analyzed the distribution of diatoms, (a single-cell microscopic phytoplankton) which affects the physical mass of the sea, measuring salinity, nutrients and temperature. These are all things that can have a major impact at an environmental level.



Interesting Fact:

Water expands by 9% when it freezes. Frozen water (ice) is lighter than water, which is why ice floats in water.



Ayana Elizabeth Johnson, PhD

Marine Biologist

Dr. Johnson is a marine biologist, policy expert, and conservation strategist. Dr. Johnson is founder and CEO of Collectiv, a consulting firm for conservation solutions grounded in social justice.

Ayana earned a BA from Harvard University in Environmental Science and Public Policy, and a Ph.D. from Scripps Institution of Oceanography in marine biology, where she studied the ecology and socio-economics of sustainably managing coral reefs.



Image Credit: Green Diversity Initiative

Did you know?

The average total home water use for each person in the U.S. is about 50 gallons a day.



Lonnie Johnson, MS

Inventor

Lonnie Johnson is an inventor, who created the famous Super Soaker water gun toy. Dr. Johnson is also an aerospace engineer, and entrepreneur, whose work history includes a U.S. Air Force term of service and a twelve-year stint at NASA, including the Jet Propulsion Laboratory. Johnson also worked on high-performance Nerf dart guns, and focuses today on inventions related to clean energy.



Image Credit: biography.com

Fun Fact:

The original Super Soaker prototype combined PVC pipe, acrylic glass, and an empty plastic soda bottle.



Melissa Cristina Marquez, PhD Shark Researcher

Through her marine education and conservation program, Dr. Marquez is working to increase representation of women in STEM as well as dispelling common misconceptions about sharks like those often shared in the media.

She also jumped at the opportunity "to be that Latina scientist on TV" when she was asked to co-host a Discovery Channel show during Shark Week in which she explored Cuba's waters.



Did you know?

Shark skin feels similar to sandpaper.



Kathy Sullivan, PhD Geologist and Former NASA Astronaut

Dr. Sullivan has made history in Space and in the Ocean. After becoming the first American woman to walk in space in the 80's, in 2020, she became the first woman to dive to the Challenger Deep in the Mariana Trench, the deepest part of the Earth's oceans. Sullivan was Under Secretary of Commerce for Oceans and Atmosphere and Administrator of the National Oceanic and Atmospheric Administration. She is the first person to travel to both Challenger Deep and into space. She is also a past president and CEO of COSI.



Fun Fact:

The Mariana Trench is deeper than the highest mountain is tall.



Dawn Wright, PhD

Geographer & Oceanographer

Dr. Wright is a geographer and oceanographer. She is a leading authority in the application of geographic information system technology to the field of ocean and coastal science, and played a key role in creating the first GIS data model for the oceans. Wright was the first Black female to dive to the ocean floor in the deep submersible.



Image Credit: ESRI

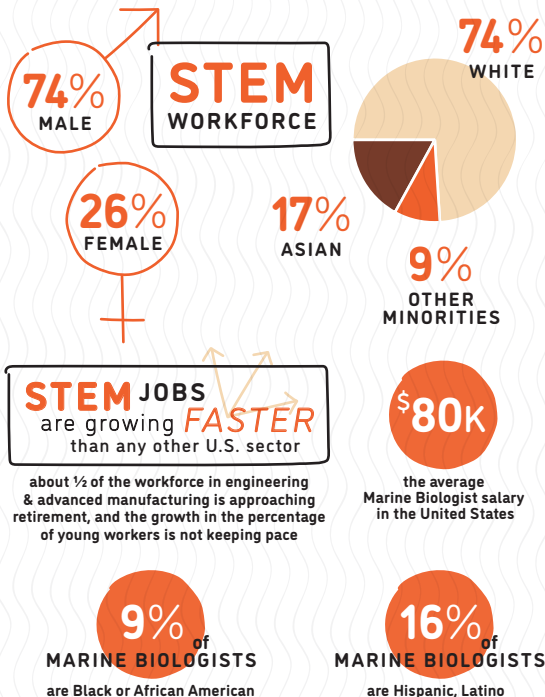
High-paying career alert!

On average, Oceanographers make around \$110k per year.



FUN FACTS

WHY WE NEED DIVERSITY in STEM





For more information on
the Color of Science™
please visit:
cosi.org/colorofscience
#scienceisforeveryone



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