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The diver pushes down through the dark and murky waters, inching closer and closer to his end goal. A sigh of relief is audible when the object that is to be retrieved comes into sight. The reassurance is short-lived, however, as the diver is met with another obstacle, a sudden buzzing on his wrist. A glance at the device on his wrist reveals a depleted oxygen supply. Now faced with a possible life-threatening situation, a decision needs to be made. Does the diver continue on his mission and retrieve the object, potentially with no oxygen, or retreat to the surface empty-handed?

The human body is extremely limited in capabilities and capacity once underwater. The scenario described above, while fictional, portrays the limitations of current underwater technology. Undersea medicine, also known as diving or hyperbaric medicine, is an area of STEM research that particularly captivates me. The deep waters of our seas and oceans are symbolic of how little we understand about the underwater world. The potential reward of putting time, money, effort, and resources into understanding what goes on under the surface is far too great to ignore.

Ever since I was a toddler, the idea of technology combined with the human body had always fascinated me. This fact coupled with the childhood obsession with Aquaman and Poseidon made it natural for me to become interested in the particular field of undersea medicine. With our supply of natural resources rapidly declining around the world, materials, and opportunities underwater present themselves as one of the obvious solutions to some of the world's problems. Exploring the seas gives us access to new plants, rocks, and materials all of which may provide us with new food or medicinal sources. Exploring the seas allows us to map, predict, and better understand natural disasters like earthquakes, tsunamis, and hurricanes. The possibility of entering a field where I can develop technology, help impact the lives of others and future generations, and work in a setting that has inspired me since my childhood is my holy grail.

Undersea medicine is critical to the core of the United States Naval and Marine Corps. To expand the warfighting dominance and potency of our military, a complete understanding of potential inhibitory factors that prevent our divers and submarine personnel from reaching their end goals is critical. Knowledge of undersea medicine is essential in treating various illnesses, and in fully understanding the long-term psychological and cognitive effects associated with the act of diving. Undersea medicine is necessary for the development of new technologies and assistance procedures to help aid the United States Naval and Marine Corps. Technologies that improve breathing capabilities, increase possible time spent underwater, and prevent any water-related illnesses are in our future. It is our job to work toward this future by realizing the importance and untapped potential of this field.

Dr. Sandra Chapman, who is Program Officer at the Office of Naval Research, is a scientist who inspires me greatly. Dr. Chapman has worked in various fields, organizations, and roles before coming to the Office of Naval Research. Her career path is truly an inspiration because it is an embodiment of the idea that a set path in life is not necessary. Dr. Chapman worked and explored various fields throughout her life including cancer research at the National Institute of Health. Her "nontraditional" path allowed her to truly find her passion, something she truly loved doing every day before committing to a job. Her story disapproves of the common notion that we need to find our purpose or path in life at a young age. Life is a long journey with many stops on the way, some journeys may take longer than others, but eventually, at some point, happiness and success will be reached. At this moment, I want to pursue a career related to undersea medicine, but as Dr. Chapman has shown me, it is important to be open-minded and be patient on my journey.

At the rate technology and science are growing every day, the possibilities of where we could be in 15 to 20 years are unbelievable. The field of undersea medicine is slowly gaining popularity and with the right type of funding and support, could become a vital part of our future in 2040. Divers may be able to dive into water without thermal gear or dry suits. By this time we could have figured out a way to synthesize our oxygen from the oxygen supply in water which would eliminate the need for oxygen tanks, and allow for unlimited time to be spent underwater. Technology has the chance to be at the point where we could negate the negative effects of the intense pressure underwater allowing submarines and ships to go further than ever before. The presence of both humans and vehicles underwater for long periods and in deeper water presents the chance for scientific discoveries. New plants, animals, and materials all have the chance to become part of our daily lives in ways of medicine, clothing, food, and infrastructure. Reaching the seafloor allows us to map, predict, and understand volcanoes, hotspots, and earthquakes. The Navy and Marine Corps can become unstoppable underwater warfighting forces.

I look forward to the future. The future where I am potentially working in the field of undersea medicine. The future where I am making a difference in people's lives. The future is where the United States Navy and Marine Corps personnel have an absolute advantage over an enemy force. However, to reach this point, the seeds must begin to be planted today. Awareness, funding, and support are necessary to inspire young students like myself to become our future STEM leaders. After all, a building is only as strong as its foundation.