Paloma Del Valle

A figure in the distance stands looking over on the horizon as he approaches the sparkling blue sea. His body is protected by a wet suit and devices that will allow him to experience the mystic sea without any worry for his safety. He closes his eyes as he descends into the ocean, feeling confident in his skills but also in the efficiency of his equipment and the people who developed it. The shadowy figure is a naval diver, on a mission to defend our nation, with nothing more than the protection designed by engineers and scientists working for the Office of Naval Research's Undersea Medicine Program. Through the application of Undersea Medicine, peace of mind within the Navy and the Marine Corps is fostered and the possibilities for the future of undersea technology are endless.

The human body is not accustomed to being underwater, which poses a significant challenge for sailors and Marines whose careers revolve around water and undersea operations. However, The Department of Naval Undersea Medicine focuses on eradicating this challenge through the development of devices and technology that ensure the diver's safety. Undersea Medicine combines aspects of evolutionary biology, genetics, computer science, comparative physiology, and engineering to develop the most effective and sophisticated undersea devices. I am truly inspired by the complex integration of scientific fields within the Undersea Medical program and its efforts in revolutionizing these technologies as each new development is designed for the sole purpose of safety and prevention. As a coalition of individuals so dedicated to conducting extensive research on this subject matter, I believe anything is possible for the future of undersea technological discoveries. These remarkable efforts equip the Navy and Marine Corps with the necessary knowledge and devices to maintain a healthy lifestyle while working underwater. New improvements can be made every day, but the question will always begin with how to make this technology safer and more efficient, which is why I consider this subject to be one of the most vital components for the Navy and Marine Corps today and in the future.

Behind some of the department's most successful undersea medical technology research is Dr. Sandra Chapman, the program officer for the Undersea Medicine Program under the Office of Naval Research. Dr. Chapman has worked with organizations such as the National Institute of Health and the U.S. National Institute of Allergy and Infectious Diseases before initiating her journey with the Office of Naval Research. In the video, Dr. Chapman alludes to the instant in which she was captivated by the biomedical science field, which she says was when she precipitated DNA for the first time. As a student who is also captivated by the wonders of genetics and how DNA can determine so much about living organisms, I was able to relate to her instant connection to her field of study. Impassioned to become a geneticist and one day finding solutions to the severity of hereditary medical risks, I often draw inspiration from professionals such as Dr. Sandra Chapman. I am inspired by her passion to ameliorate the undersea medical field and the resilience that drives her to develop new and creative ideas for future technological advancements. Determined to follow in the footsteps of individuals like Dr. Chapman, I have faith in my aspirations and in the possibility that one day I will be the future of the genetics field.

Under Dr. Chapman's leadership, the Undersea Medicine program has developed numerous possibilities for the future of the field and how it can expand in the next several decades through technological, medical, and scientific advancements. In her work, Dr. Chapman mentioned that the popular superhero character, "Aquaman" has sparked a large interest in the program. They are looking to put forth a device that will potentially mimic gills, allowing people to breathe "better" underwater, with the addition of a display that will allow divers to obtain vital information on their bodies including temperature and potential risks. Additionally, by modeling after marine mammals and sea nomads

(humans that spend more than 90% of their time in the water); researchers can begin the process in which they can examine the environmental, genetic, and evolutionary factors that constrict humans from “surviving” underwater for extended periods of time. By the year 2040, we can expect that such research and ideas will eventually result in the development of devices that can turn an ordinary individual into a real life “Aquaman”. With high hopes, predictions for the next several decades indicate these devices may not only be restricted to government and military use. The agenda suggests that the future can make the devices available to civilians who enjoy snorkeling and exploring the ocean for leisure. It is also worth mentioning that the development of undersea medical technology will allow us to thrive in the understanding of the human body under certain environmental conditions, therefore paving the way for more extensive medical research in the future. The Navy and Marine Corps will be prepared for various underwater conditions and allow for divers, ships, and submarines to remain tranquil under any circumstance; due to the reliability that future undersea devices entail.

In essence, the Underwater Medical Program is constantly working towards finding solutions to the medical and technological problems that the Navy and Marine Corps encounter while at sea. The program’s devotion to fostering practicality, peace of mind, and safety inspires me to devote my time to obtain the same results within my own profession and career field. In accordance with the program’s desire to model Aquaman’s ability to effortlessly switch from land to water, I seek to one day model my passion for genetics and eradicating the severity of hereditary medical risks after Dr. Chapman’s resilience to improve undersea technology. Just like the shadowy figure on the horizon, my imaginative aspirations only afloat the rocky waves the research will present to me, but the great unknown fuels my passions as far as the great abyss of the seemingly dark ocean.