Erin Petersen

To solve a problem, it can be useful to take inspiration from the natural world. Full of evolution and innovation, the environment can provide so many answers to issues we could never solve on our own. To solve a very pressing problem, the Department of the Navy has been studying a natural subject that many would consider a bit unusual; the structure of seal whiskers!

Seals take in their surroundings using highly sensitive whiskers, the structure of which has evolved over hundreds of years. Tiny bumps on each whisker reduce its vibrational noise, a term that refers to the 'fluttering' of an object. This special structure interferes less with the flow of fluids, water in the case of seals, allowing each of the whiskers to be used with maximum efficiency.

Inspired by the shape and drag reducing functionality of seal whiskers, Navy researchers and engineers have been experimenting with computational models of seal whiskers. They are using these models to further their understanding of the way whiskers move in fluid flow fields. With the data collected, wind tower shapes are being designed that allow more turbines to fit into small amounts of space and harvest a greater amount of energy.

This topic inspires me because it shows that humanity can use what they learn from nature to further positive progress. In a world full of so many seemingly insurmountable issues, people can use science to find solutions! Seal whiskers, as unassuming as they are, can inspire incredible, innovative technology. Energy efficient technology will help the Navy and Marine Corps save money, preserve the planet for future corps, and lead the United States in improving their infrastructure. As society moves forward, the Navy and Marine Corps of today must move forward as well. Investing in scientific studies such as these is one major way to remain relevant and competent on a quickly changing planet. That is why so many resources are put into scientific research. The information these scientists, engineers, and researchers are gaining is invaluable, and one scientist stands out in particular.

Dr. Christin Murphy is a marine biologist that studies various aspects of nature and uses what she observes to help solve modern day problems. She works at the Bio-Inspired Research and Development Lab in Newport, Rhode Island, a lab that studies, among other things, the structure of seal whiskers. Her career inspires me to work hard and achieve my goals. Dr. Murphy knew what she wanted to do with her life since she was in high school, and so she set her mind to her goal and succeeded. It is truly encouraging to see a person achieve their dreams - it makes me believe that I can achieve mine!

I am fascinated with marine ecology, and just like Dr. Murphy, I want to work in the environmental field when I am older. I know this dream is attainable, but it can seem quite intimidating to a teenager. Seeing Dr. Murphy help the planet while doing what she loves, in the same line of work I want to pursue, really makes my dreams feel like they can become reality. She makes me want to reach farther and not settle for less! If she can do it, I can do it too.

Scientists like Dr. Murphy will become even more important in the years to come. It is clear that the science and technology regarding seal whiskers will advance rapidly over the next 15 to 20 years. Every year, the global population grows, and energy consumption further skyrockets. Energy efficiency is absolutely necessary, and lives depend on the scientific advances made by these studies. There will be a huge demand for the information gathered, and as scientists rush to meet these demands, the science and technology inspired by seal whiskers will become more complex and applicable to everyday life.

By 2040, whisker-inspired technologies will be widespread. Energy efficient structures such as the improved wind turbines will be widespread, providing energy and power to homes and workplaces. These new advances will enable the Navy and Marine Corps of the future to be more sustainable, save money, and depend less on outdated energy resources such as fossil fuels. These advances will allow the Navy and Marine Corps to move forward.

At first glance, seal whiskers may seem to be an unusual topic of study for the Navy and Marine Corps, but the natural world can be an excellent resource in a variety of ways. To solve their problems, these researchers are taking inspiration from the ingenious inventions of an evolving Earth, and they are learning more and more every day. The applications for energy efficiency and planetary welfare are endless, and there is no telling how the technology surrounding this topic will advance. It is pretty amazing to think that all of this came from a whisker!