Our Ocean Backyard

Gary Griggs

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200 Miles up and 7 Miles down

Fifty years ago now, a young woman enrolled at UCSC excited and determined to major in languages so she could travel and see the world. She was disappointed, however, when she was informed by her advisor that she also had to take three science classes. This wasn’t exactly what she wanted to hear, but she soon realized that she had no choice if she intended to graduate. One of the three courses she decided to take was an introductory oceanography class that I happened to be teaching.

It was perhaps the 2nd or 3rd week of spring quarter when this young student appeared at my office door with some questions, actually a lot of questions. One of the first was “What is it that oceanographers actually do anyway?”. In my enthusiasm and excitement in my own early career in oceanography, I recall going into some depth in attempting to answer her question and then many subsequent questions. I hauled out maps and charts and photographs of the seafloor, pulled out samples of different kinds of marine sediments and microfossils and put them under a microscope, and grabbed whatever else I had scattered around my office to show her what oceanographers actually studied.

Kathy returned to my office many times as her interest in oceanography grew. By the end of her freshman year she had decided to change her major from languages to Earth Sciences. She delved into each new course with her increasing enthusiasm and curiosity. After completing her undergraduate degree in Earth Sciences and graduating from UCSC in 1973 she entered a Ph.D. program at Dalhousie University in Nova Scotia. As part of her graduate work she participated in several oceanographic expeditions to study the Mid-Atlantic Ridge, which was followed by a fellowship to extend this work with a submersible dive to the deep-sea floor of the Atlantic Ocean.

Kathy, among her many other skills and talents, had also become a pilot, and immediately after graduating from Dalhousie with her Ph.D. she interviewed to become an astronaut. In 1978, she accepted her first full-time job as she joined NASA’s eighth class of astronauts, which included six women, a first for NASA.

Over the next six years, she trained, studied and supported other missions until she got to the front of the line. Sally Ride had become the first American woman in space the year before, and in early 1984, Kathy learned that she and Sally were scheduled for an October mission during which Kathy was slated for a spacewalk outside the shuttle. Things went as planned and near the end of that first flight she spent several hours outside the shuttle testing out new technology for refueling an orbiting satellite to extend its life span. With this flight and space walk, Kathy Sullivan became the first American woman to perform a spacewalk and the first woman and only the second person in the history of the planet who had been both to the bottom of the ocean and also into space.

She went on to spend more than 530 hours in space on three different shuttle missions, but saw her work with the Hubble Space Telescope as one of her most lasting contributions. She and a fellow astronaut were in charge of overseeing the development of tools and procedures to ensure that future astronauts would be able to keep this complicated scientific instrument running smoothly for years to come. The job of building and then deploying this telescope so it could be serviced in space under challenging conditions, Kathy recalls in her own words, was a big one. “Imagine putting on two full-body snowmobile suits, bolting a bucket on your head and wearing heavy gloves under mittens. Now go change the spark plugs on your car.” This portion of Kathy Sullivan’s career is covered in her fascinating new book – *Handprints on Hubble* – *An Astronaut’s Story of Invention*.

In 1993, after 15 years as a space shuttle astronaut, Kathy accepted a nomination from President Bill Clinton to serve as the chief scientist at NOAA, the National Oceanic and Atmospheric Administration, where she managed the agency’s initiatives on climate change and marine biodiversity.

She went from NOAA to become the president of the Columbus, Ohio, Center of Science and Industry, and then was appointed the director of the Battelle Center for Mathematics and Science Education Policy at Ohio State University. In 2011, she returned to NOAA after being nominated by President Barack Obama and unanimously confirmed by the U.S. Senate to serve as the agency’s deputy administrator.

Three years later she became NOAA’s 10th administrator and led the agency’s efforts to coordinate observations from space, land, and sea to provide the best weather and climate forecasts possible. She saw her role as keeping “*the pulse of the planet, to measure and monitor the things that can help us make those better decisions; and then broker, package and transmit the information to us, as a weather forecast, or to heads of state or to fishermen*.”

Today, June 7, 2020, 50 years after taking that first oceanography class at UCSC, out in the western Pacific, Kathy Sullivan will join explorer Victor Vescovo in a two-person submersible and descend to the deepest spot in the world’s oceans, the Challenger Deep in the Marina Trench, seven miles beneath the surface of the Pacific Ocean. With this dive she will become the first woman and only the fifth person in history to descend to the deepest spot in the world’s oceans.