

EDUCATION

Scripps Oceanography students are the next generation of ocean, earth, and atmospheric science leaders. Whether they are studying ice shelves in Antarctica, manta rays in the Gulf of Mexico, science policy in Paris, or volcanoes in South America, these movers and shakers are unified in their goals of finding solutions for today's environmental challenges.



Peeking into the Underwater World of Leopard Seals

While a graduate student at Scripps, alumnus Doug Krause led research that uncovered details about the underwater foraging ecology of leopard seals through the use of cutting-edge technology, including unmanned aerial systems and Crittercams—small video cameras mounted to animals' bodies to record their movements. Krause worked with NOAA Fisheries' Antarctic Ecosystem Research Division and National Geographic Remote Imaging (Crittercam) to attach Crittercams to the backs of seven different leopard seals at Cape Shirreff, a remote NOAA field camp located in the Antarctic Peninsula, one of the top three fastest warming areas on the planet.



The resulting footage was nothing short of spectacular, riddled with surprises, drama, and a rare up-close view of life below the surface. The powerful marine mammals were caught on camera engaging in behavior such as food stealing, fighting, and food hoarding. Researchers were also surprised to discover that the leopard seals spent the majority of their time foraging for fish along the seafloor, and some seals had even developed specialized techniques for hunting and catching bottom-dwelling ice fish.

"Leopard seals are often portrayed as these large, ferocious, apex predators, and in many cases they are—but using these new approaches we've learned that their foraging is much more dynamic, and is even more adaptable than we had previously known," said Krause.



Another Stellar Year for Scripps' Academic Programs

In 2016, Scripps' educational offerings continued to expand as the department welcomed an unprecedented 11 new faculty members, including five with joint appointments across other UC San Diego departments such as Anthropology, Biological Sciences, the School of Global Policy and Strategy, and Family Medicine and Public Health. These cross-disciplinary faculty appointments will help bridge Scripps science with other fields, enabling Scripps students to remain at the forefront of efforts to understand and protect our planet.

The inaugural class of students in the Master of Advanced Studies in Climate Science and Policy (MAS CSP) program graduated in summer 2016. This interdisciplinary professional degree program is designed to bridge the gap between climate change science and public policy. With one successful year under its belt, the MAS CSP program will continue to flourish and grow in the years to come. The MAS program in Marine Biodiversity and Conservation also finished a strong year with capstone presentations by students in June of 2016.

Two other student-driven research symposia were held in 2016, one for undergraduate students and the other for master's and doctoral students. Both events highlighted the depth and breadth of student research at Scripps, ranging from climate change and fisheries to seismology and medicines from the sea.

Scripps students continue to receive numerous awards and accolades for their research. Notably, graduate



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student Nastassia Patin was awarded the Frieman Prize for her work in characterizing the diversity of marine bacterial species, and Maitreyi Nagarkar was named “Outstanding Graduate Student” by UC San Diego’s Sustainability Office for her community outreach efforts and marine biology research.

For the sixth consecutive year, the diversity-focused Scripps Undergraduate Research Fellowship (SURF) educated students from universities across the United States, including

the U.S. Virgin Islands. The SURF program successfully builds a pipeline for underrepresented students into higher education programs, and since its inception, seven former SURF students have gone on to pursue PhDs at Scripps.

The education program continues to expose students to new opportunities. This year, thanks to fellowship support and UC Ship Funds, several Scripps students conducted research onboard a Scripps research vessel, including the new R/V *Sally Ride*. These transformative at-sea research experiences—in addition to in-the-field opportunities—are some of the many reasons why Scripps attracts the best and brightest students. In addition, the education department is working with new staff in the Scripps Director’s Office and the UC San Diego Office of Innovation and Commercialization to help students learn about opportunities to engage with the business community.