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The search for knowledge at Scripps Institution of Oceanography at UC San Diego continues a more than century-long endeavor to fully investigate the oceans, land, and atmosphere. Scripps scientists have sailed to tropical islands and ventured under polar ice, observing environments and their inhabitants, collecting specimens and samples, and recording voluminous data for laboratory analysis.

Scripps Oceanography was founded in 1903 largely through the efforts of William E. Ritter, a UC Berkeley professor, and it became part of the University of California in 1912. At that time, it was named Scripps Institution for Biological Research in recognition of the support of philanthropist Ellen Browning Scripps and her half-brother E. W. Scripps, the noted newspaper publisher. The research programs expanded to include all aspects of the oceans, and the name was changed to Scripps Institution of Oceanography in 1925.

Today, Scripps is part of UC San Diego and has become one of the world’s oldest, largest, and most important centers for ocean and earth science research, graduate training, and public service. In its most recent survey of graduate schools, the National Research Council ranked Scripps the number one oceanographic program in faculty quality, distinction, and scholarly publications. Scripps’s preeminence in many scientific fields reflects its continuing commitment to excellence in research, modern facilities, distinguished faculty, and outstanding students... and the vision continues to grow.
Scientific Investigations at Scripps Oceanography span the realms of sea, air, land, and life in efforts to determine how Earth systems work and interact. Among the hundreds of research programs under way at Scripps, many are multidisciplinary, linking discoveries in one subject to advances in other studies. This approach to basic science is now being applied to how the physical environment affects life systems and to aspects of global change, ocean pollution, and marine resources. At Scripps, observation, measurement, and collection of samples and data are accomplished on a global scale by extensive shipboard, ground, and aerial operations, including remote sensing by satellite and the use of wide-ranging instrument networks.
AIR-SEA INTERACTIONS
High-altitude aircraft, research ships, and computer modeling techniques are used to measure the exchange of energy and matter among the atmosphere, clouds, and oceans.

CLIMATE CHANGE
Historical climate records and earlier evidence found in samples from such diverse areas as glacial ice packs and tropical coral reefs are critical to interpreting long-range global climate changes, improving seasonal forecasts, and predicting El Niño events.

COASTAL PROCESSES
Conducting coastal surveys, deploying instrument networks, and designing new technologies are among the approaches used to conserve seashore habitats, manage beach erosion, and forecast coastal conditions.

EARTHQUAKES
The strength, causes, and locations of earthquakes are investigated by exploring the physics of the earth and monitoring seismic activity with local, regional, and global instrument networks.

GEOL OGY
Observational, experimental, and theoretical methods of the basic sciences are used to understand the processes that alter Earth’s crust and to determine the long-term history of the lithosphere, hydrosphere, atmosphere, and biosphere.

GEOPHYSICS
New techniques of seafloor mapping, geological sampling, and remote sensing are yielding a better understanding of the processes involved in seafloor spreading, volcanism, and the formation of minerals.

MARINE BIODIVERSITY & CONSERVATION
The diversity, distribution, and protection of marine life in the world’s oceans are studied through field and lab research and the use of historical data and museum specimens.

MARINE BIOLOGY
The molecular, biochemical, and ecological characteristics of marine bacteria, plants, and animals are examined from the shore to the deep sea.

MARINE CHEMISTRY
Investigations range from analyzing human impacts on the oceans to finding natural marine chemicals that can fight disease.

MARINE FOOD WEB
The cycling of nutrients in the oceans, from microplankton to large fish, is examined to understand how species interrelate and to assess what causes populations to vary over years and decades.

MARINE GENOMICS
Genetic analysis of marine life is increasing our understanding of how organisms have evolved and the roles they play in marine ecosystems, helping scientists analyze the health of the oceans and discover potential pharmaceuticals from the sea.

OCEAN ENGINEERING
The development of new technologies and instrumentation for underwater research, including laser-based and sound-imaging devices, is greatly extending capabilities to work and gather data in the oceans and on the seafloor.

PHYSICAL OCEANOGRAPHY
Measurements of currents and ocean mixing from the sea surface to great depths are giving a clearer account of the cycling of nutrients, chemicals, and heat in the oceans, factors that affect many global environmental systems.
The Scripps campus is situated on 170 acres of shore and hillside along the California coast in La Jolla, 15 miles north of downtown San Diego. Other specialized facilities, including the institution’s ship facility on San Diego Bay, are located throughout San Diego County and Southern California.

The campus resources supporting research and teaching are the most advanced available for marine-related sciences, ranging from an extensive hydraulics laboratory with wind and wave channels to analytical labs with state-of-the-art scanning electron microscopes, a 3-D visualization center, and other high-precision instruments. Virtually every office and lab at Scripps connects to the campus computer network, which supplies a high-speed data link to the San Diego Supercomputer Center.

In addition, Scripps has one of the major marine science libraries in the world and has a variety of geological and biological collections that serve as resources of data and specimens for researchers around the world.

Scripps staff totals about 1,300, including about 100 faculty, nearly 300 other scientists, and nearly 250 graduate students who actively participate in lab studies and fieldwork. There are ship crews, librarians, technicians, various specialists, and visitors from many nations involved in research and educational programs.

The institution’s annual expenditures total more than $140 million. Most funding comes as contracts and grants for basic research from federal agencies, primarily the National Science Foundation, the Department of the Navy, the National Oceanic and Atmospheric Administration, NASA, and the Department of Energy. The state of California provides about 14 percent of the Scripps budget. Private gifts and endowments furnish funds critical to nurturing new areas of research, supporting students, purchasing equipment, and constructing new facilities.
ORGANIZATION

RESEARCH AT SCRIPPS

California Sea Grant College Program
Center for Atmospheric Sciences
Center for Clouds, Chemistry, and Climate
Center for Marine Biodiversity and Conservation
Center for Marine Biotechnology and Biomedicine
Scripps Genome Center
Center for Observations, Modeling, and Prediction at Scripps
Climate Research Division
Geosciences Research Division
Institute of Geophysics and Planetary Physics
Integrative Oceanography Division
Joint Center for Observational Systems Science
Joint Institute for Marine Observations
Marine Biology Research Division
Marine Physical Laboratory
Physical Oceanography Research Division

STUDIES AT SCRIPPS are generally grouped into the three basic academic sections of Biology, Earth Science, and Oceans and Atmosphere, with major research divisions in:

- Applied Ocean Sciences
- Biological Oceanography
- Climate Sciences
- Geosciences
- Geophysics
- Marine Biology
- Marine Chemistry and Geochemistry
- Physical Oceanography

In addition, there are several interdisciplinary groups, specialized research units, and university institutes.
**GRADUATE STUDIES**

**SCRIPPS OFFERS INSTRUCTION** leading to degrees in oceanography, marine biology, and earth sciences. Graduate students are enrolled in the Ph.D. program, which usually takes six years to complete. Although students are not admitted specifically for an M.S. degree, it is possible to obtain an M.S. on the way to completing the Ph.D. Scripps curricular areas include: applied ocean science, biological oceanography, climate sciences, geosciences, geophysics, marine biology, marine chemistry and geochemistry, and physical oceanography. There are also many specialized areas of study related to the research efforts of individual faculty.

**UNDERGRADUATE STUDIES**

Scripps offers more than 50 undergraduate courses covering a wide breadth of earth and marine sciences on several different levels. In addition to formal coursework, dozens of UCSD undergraduates, from a wide variety of majors, benefit each year from individual and group research projects with Scripps faculty and researchers.

**SHIP OPERATIONS**

**SCRIPPS SHIPS HAVE STEAMED** more than six million nautical miles from local coastal waters into all the world’s oceans. With four research vessels and the 355-foot platform FLIP, Scripps has one of the largest academic fleets in the United States. The two larger ships, Melville and Roger Revelle, have sophisticated bathymetric survey systems. Trips vary from one-day cruises to months-long expeditions that sometimes venture into remote areas. Home port is Scripps’s Nimitz Marine Facility on San Diego Bay.
OUTREACH

ON ANY GIVEN DAY, Scripps personnel may be plying the oceans or working in a lab, but frequently they are found outside the academic research world. They might be talking to elementary school classes or working with high school teachers to develop new science curricula. They may be testifying at a government hearing on scientific policies, advising a federal agency on environmental issues, or consulting with an industrial company on new biotechnologies. Much of the basic science done at Scripps has applications that go well beyond the search for general knowledge, and Scripps places an increasing emphasis on its role as a regional, national, and international resource.

THE WONDERS AND ADVENTURE of oceanography are introduced to children and adults alike at Birch Aquarium at Scripps. Exhibits include outdoor tide pools, colorful marine life tanks, and hands-on displays about ocean sciences and Scripps research. Visitors of all ages can participate in guided tours, discovery labs, ocean-related classes, field activities, and expeditions. Birch Aquarium hosts about 400,000 visitors a year, including tens of thousands of schoolchildren. The aquarium’s outreach van, the Planet Earth Express, takes educational programs to schools and community events throughout Southern California and beyond.