

## **Scripps Institution of Oceanography, UC San Diego Talking Points**

### **OVERVIEW**

• Scripps Institution of Oceanography is one of the oldest, largest, and most important centers for ocean and earth science research, education, and public service in the world. Research at Scripps Oceanography encompasses studies of the oceans, atmosphere, and earth. Now in its second century of global explorations and discovery, Scripps's leadership in many scientific fields reflects its continuing commitment to excellence in research, modern facilities and ships, distinguished faculty, and outstanding students - and the horizons continue to expand. (Founded in 1903)

### **FACILITIES**

• The Scripps campus is nestled along the coastal bluffs of La Jolla Shores on 170 acres. STATS: 74 buildings; 850,000 gross square feet

4 Key Locations:

- Scripps main campus, La Jolla
- Nimitz Marine Facility, Point Loma (ships' port)
- Elliott Field Station, Scripps Ranch (storage)
- Mt. Soledad Laboratories, La Jolla (laboratories)

### **FINANCIAL**

• Scripps Institution of Oceanography's total budget for the most recent fiscal year exceeded \$160M. Scripps generates over \$113M/year in sponsored research funding from federal, state, and local government agencies and private organizations. Scripps faculty and researchers leverage ~\$10M/year of UC research funds to capture ~\$100M/year of federal research funding.

### **SCRIPPS PH.D GRADUATE STUDENTS – FALL 2009**

Unofficial enrollment; official number expected in late October

•Total Enrollment: 238      •Male: 124      •Female: 114

Scripps Ph.D degrees are conferred by UC San Diego in 3 fields:  
oceanography, earth sciences, marine biology

### **RESEARCH FLEET**

• Scripps operates one of the largest U.S. academic fleets with four oceanographic research ships and one research platform for worldwide exploration. The Scripps research vessels are seagoing laboratories with state-of-the-art systems and instruments, which scientists use to study marine life, the ocean floor, the atmosphere, and all properties and phenomena in the oceans. Scripps vessels are capable to traveling everywhere in the world's oceans, with the exception of where there is solid ice.

### **SCRIPPS OCEANOGRAPHIC COLLECTIONS**

• The Scripps Oceanographic Collections make up the largest and most complete university-based oceanographic collection in the world. The Scripps Collections are irreplaceable since they record the state of the ocean environment at specific points in time over the past century. Priceless collections: pelagic invertebrates; marine vertebrates; benthic invertebrates; cored sediments and microfossils; and dredged rocks.

## **CLIMATE LEGACY**

- Scripps has been at the forefront of climate change research for more than 50 years, beginning with the early studies of Charles David Keeling on carbon dioxide concentrations and the vision of former Scripps Director Roger Revelle of the future of the earth and the impact of greenhouse gases. Scripps studies the role of the oceans in the climate system and the interaction among the ocean, land, atmosphere, and ice on the planet.
- The inception of the "Keeling Curve," a history of atmospheric carbon dioxide levels, marked a key moment in American science history. The record began in March 1958 at a small observatory on the top of Hawaii's Mauna Loa. The Keeling Curve provided the first clear evidence that carbon dioxide was accumulating in the atmosphere as the result of humanity's use of fossil fuels. It turned speculations about increasing CO<sub>2</sub> from theory into fact. In 2008, the Weather Channel recognized the "discovery of global warming" by Keeling's group as history's Biggest Weather Moment.

## **THE FOUNDING OF UC SAN DIEGO**

- Scripps Oceanography is the cornerstone for UC San Diego and was instrumental in providing the jumpstart for UC San Diego's accelerated rise to excellence. Roger Revelle, director of Scripps Oceanography from 1951-64 and one of the world's most highly regarded oceanographers, provided the leadership that laid the foundation for UC San Diego. He played a pivotal role in establishing the high standards in science that UCSD is so well known for, as well as providing vision in the creative recruitment of rising stars, such as Harold Urey.

## **BIRCH AQUARIUM AT SCRIPPS**

- Birch Aquarium at Scripps, the public exploration center of Scripps Institution of Oceanography, brings to life the wonders of the ocean! The mission of Birch Aquarium is to provide ocean science education, to interpret Scripps Institution of Oceanography research, and to promote ocean conservation. Birch Aquarium is self-supporting, raising funds through admissions, membership, programs, grants, and donations.

## **EXTRAORDINARY SCIENCE AT SCRIPPS**

- Scientists at Scripps study the entire earth as a integrated system: land, life, water, and air.

**LOCAL IMPACT:** Scripps provides value to the state of California through its research in snowpack and water resources, earthquakes and other natural hazards, and coastal monitoring programs.

**CDIP:** Coastal Data Information Program,

CDIP is a robust network of about 20 buoys along the California coast, transmits wave height, swell direction, and water temperature in near real-time to its website. Backed by three decades of knowledge, CDIP delivers maps and models with present wave activity, also called "nowcasts," as well as three- and five-day forecasts, all with impressive accuracy. The CDIP web site is visited by thousands of daily Internet visitors from the weekend surfer to harbor managers to Navy navigators

**NATIONAL INFLUENCE:** Scripps scientists are often called up to provide information and to present testimony before the U.S. Congress and advise federal agencies on research, education, and outreach.

### **DRUGS FROM THE SEA – BENEFIT TO SOCIETY**

Although the oceans cover 71 percent of the planet's surface, much of their biomedical potential has gone largely unexplored. Until now. Scientists with the Center for Marine Biotechnology and Biomedicine (CMBB) at Scripps seek novel approaches and discovery in the marine environment that are uncovering marine resources for new antibiotics and drugs for the treatment of cancer.

### **BIOFUELS – A NEW SOURCE OF ENERGY**

Scripps scientists (Greg Mitchell) are looking at new alternatives for energy: Algae and cyanobacteria are photosynthetic organisms that use solar energy to create biomass energy. Carbohydrate stores light energy in its molecular bonds. That stored energy can be used to sustain life, or to burn as biofuels.

**GLOBAL REACH:** Since 1903, Scripps Institution of Oceanography has been leading the global effort to understand the ocean, atmosphere, and Earth for the benefit of society and the environment. Although Scripps is based on a beachside campus at the University of California, San Diego, along the Pacific Ocean, its laboratory is the entire globe.

### **IPCC/NOBEL PEACE PRIZE**

The Intergovernmental Panel on Climate Change (IPCC), a United Nations-sponsored body of scientists that includes several from Scripps Oceanography, won the 2007 Nobel Peace Prize along with former Vice President Al Gore. About a dozen Scripps scientists contributed to the Fourth Assessment Report. IPCC mandates that panel contributors represent a broad range of scientific disciplines and countries, so the size of the Scripps contingent is impressive. Much of what is referenced the IPCC's reports on the state of climate change research is work that is done at Scripps.

### **SEEKING SOLUTIONS TO THREATS TO THE OCEANS**

Today, Scripps scientists focus a great deal of attention to the plights and threats facing our oceans on a global scale. Scripps is investigating the sources -- and solutions -- to such impacts as:

- declining fish populations
- rising CO<sub>2</sub> concentrations and how much the oceans can absorb
- increasing ocean acidification
- rising noise levels in the oceans
- rising sea levels and their impacts to coastlines everywhere, and
- increasing use of the oceans as a trash dump

Scripps scientists strive to understand and confront the problems facing the oceans and earth today so we can leave the planet a little better off for the next generation.

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Sept. 24, 2009