IN THE PAST YEAR, SCRIPPS INSTITUTION OF OCEANOGRAPHY welcomed a new chancellor to UC San Diego and conducted a successful search for its new director, Margaret Leinen. I am pleased to report Dr. Leinen joined us on October 1, 2013.

During his six-year term, Scripps Emeritus Director Tony Haymet brought financial stability to the institution, allowing needed investments in many important initiatives. For example, a year ago, UC San Diego launched the Scripps marine biology undergraduate major. Enrollment in the wide-range of Scripps undergraduate offerings is growing rapidly. Faculty size remains stable and seven new recruits across all the disciplines at Scripps joined in the past year—making 48 new academic appointments since Tony began as director.

Despite growing fiscal restraint in research funding, Scripps-sponsored research remains steady at more than $150 million annually. Scientists at Scripps successfully competed for funding from a range of federal, state, and local agencies, foundations, and companies to support innovative research and education. Scripps is grateful for continued philanthropic support to provide seed funds, stability for our students, and needed infrastructure investments.

Scripps actively participated in campus-wide strategic planning efforts. Several new initiatives, including the Center for Oceans and Human Health and the Center for Aerosol Impacts on Climate and the Environment, attest to the importance of increasing cross-campus collaboration and interdisciplinary approaches to scientific problems.

In June, Scripps celebrated the opening of the Marine Ecosystem Sensing, Observation, and Modeling Laboratory, whose construction was funded by the National Institute of Standards and Technology and UC San Diego. As its name suggests, the building brings together collaborators at the interfaces of a range of disciplines and consolidates expertise near the new NOAA Southwest Fisheries Science Center. The new Scripps research vessel Sally Ride, funded by the Office of Naval Research, will be completed in 2015. These are among many infrastructure improvements initiated during Tony’s directorship.

With great sadness, I note the passing of three of our esteemed scientists: Victor Anderson, Devendra Lal, and Edward Frieman. They are sorely missed. In addition to his many other significant accomplishments, Ed Frieman served as Scripps director from 1986-1996.

Finally, it has been a pleasure and an honor to serve as Scripps interim director during its 110th year, and I thank all of Scripps and our friends for supporting me during this endeavor.

Interim Director
Scripps Institution of Oceanography
UC San Diego
CHANCELLOR KHOSLA LEADS UC SAN DIEGO STRATEGIC PLANNING

DURING THE 2012-2013 YEAR, Chancellor Pradeep K. Khosla led a strategic planning process for UC San Diego. “This process has helped us to sharpen our mission to be a student-centered, research-oriented, service-oriented public university,” said Chancellor Khosla. “Going forward, every decision we make will be based on these eight words.”

The strategic planning process began last November with town hall meetings, interviews, focus groups, and surveys, to gather input and ideas from a wide range of campus and community members on what they envision and want for UC San Diego’s future. Scripps Interim Director Cathy Constable and many Scripps academics, students, and staff participated in a variety of planning activities. The information-gathering phase is complete, and the Chancellor and the Executive Vice Chancellor have worked with cabinet and council members to finalize a mission statement, overarching values and goals for the campus, which can be viewed on the strategic planning website: plan.ucsd.edu. That framework will lead to the first draft of the strategic plan.

ON OCTOBER 1, 2013, UC San Diego welcomed Margaret Leinen, Ph.D., as Vice Chancellor for Marine Sciences, Director of Scripps Institution of Oceanography, and Dean of the School of Marine Sciences. Dr. Leinen is a highly distinguished, award-winning oceanographer and an accomplished executive with extensive national and international experience in ocean science, global climate and environmental issues, federal research administration, and non-profit startups.

“Dr. Leinen’s experience leading innovation and creating collaborative programs make her the right choice for Scripps and a key campus partner in implementing UC San Diego’s strategic plan,” said Chancellor Pradeep K. Khosla. “Our strategic planning process has sharpened our mission to be a student-centered, research-focused, service-oriented public university. Scripps is one of UC San Diego’s pillars of excellence whose fundamentals are extremely strong.”

“I am honored to be chosen as Scripps Director and UC San Diego Vice Chancellor,” said Dr. Leinen. “I am excited by the combination of Scripps’s 110 years of research and educational excellence and UC San Diego’s culture of interdisciplinary innovation.”

Dr. Leinen replaces Tony Haymet, who served as UC San Diego Vice Chancellor for Marine Sciences from 2006 until his retirement from the administrative post at the end of 2012.

Additional information and external comments can be found at https://scripps.ucsd.edu/news/13104
UNDERGRADUATE EDUCATION:
EXPANSION AND GROWTH

UNDERGRADUATE EDUCATION AT SCRIPPS CONTINUES TO THRIVE.

The educational endeavor at Scripps Institution of Oceanography, UC San Diego, continues to expand and successfully place graduates in a wide range of leading-edge industries. Undergraduate education began on the Scripps campus 75 years ago as part of an oceanography degree program through UCLA. In 1964, Scripps added an undergraduate degree program in earth sciences.

Undergraduate education at Scripps expanded with the roll out of a new major in marine biology, which graduated the first student, Tsz Fung (Garfield) Kwan in Spring 2013. The major joins the existing earth sciences major and a minor in marine science as part of our undergraduate offerings.

The new major is growing and now has 143 students, 56 of them incoming freshmen. Two of these are Robins Scholars, beneficiaries of a scholarship named for Charles Robins, a longtime supporter of students throughout UC San Diego. Robins Scholar Jeffrey Wilde said that he had always loved the ocean, but decided on marine biology as a major after a recent dive in Fiji. He was excited to learn about the new major offered by UC San Diego given Scripps’s reputation.

“I anticipate the Robins scholarship benefitting me not just at UC San Diego as an undergraduate, but also in the future, potentially making an impact on the trajectory of my entire life,” Wilde said.

Graduate education at Scripps has also continued to flourish. From fall 2012 to summer 2013, Scripps conferred 25 doctorates. Many of these new Ph.D.s have continued at Scripps as postdoctoral researchers, while several others have launched careers in industry and government, working with companies such as ExxonMobil, the office of Senator Edward J. Markey, the Salk Institute, and Citizens Climate Lobby.

SURF is a 10-week summer internship program at Scripps Institution of Oceanography, UC San Diego, that is part of the National Science Foundation-supported Research Experiences for Undergraduates (REU) program. It encourages undergraduates – particularly those from underserved communities who have shown potential – to consider careers in oceanography, marine biology, earth science, or related sciences. Besides working in labs or performing field research with scientists, undergraduates are briefed on how to apply for graduate school and other practical knowledge they would need to take the next step toward science careers.

This year, NSF supported 10 SURF student fellowships, said Scripps academic coordinator Jane Teranes. After receiving 450 applications, Scripps researchers supported another nine fellowships using other sources of funding for the 2013 edition of SURF. Angelica Gilroy was looking for a paid internship in 2011 when she had a conversation with an academic coordinator at Scripps Oceanography. By the end of it, she wound up on a path to a career in physical oceanography. Now she studies ocean heat transport in Antarctica’s coastal waters with Scripps oceanographer Susan Eile as her adviser.
Scripps scientists currently engage in nearly 400 active research projects across the globe. Last year, they successfully competed for more than $150 million in sponsored research encompassing physical, chemical, biological, geological, and geophysical studies of the oceans, atmosphere, and Earth.

Research Highlights

IMPROVING HURRICANE FORECASTING With funding from the Hurricane Sandy Relief appropriations bill, Scripps scientists are working to improve weather and hurricane forecasts. One project will improve observations of the tropical ocean and atmosphere crucial to understanding and forecasting El Niño-Southern Oscillation (ENSO) variability, including its impacts on North American extreme rainfall events, droughts, and temperature. By augmenting the equatorial Pacific distribution of Argo floats (see “Measuring the Pulse of the Planet” on page 9) and gliders, the project will improve our understanding of the evolving physical state of the tropical Pacific Ocean, reduce future operational costs of maintaining the observatory, and provide real-time data to operational weather centers.

While scientists have made dramatic improvements in hurricane track forecasts, accurate intensity forecasts are still problematic due to a lack of observational data. Current observational capabilities from space, coastal radar, ships, and sparsely distributed moorings, gliders, floats, and drifters are insufficient to provide the necessary density of subsurface ocean and sea surface atmospheric observations (wind and pressure). Another project will develop a modern generation of hurricane instruments for targeted, real-time ocean observations, which will significantly improve the reliability of storm intensity predictions.

HIATUS IN RISING GLOBAL TEMPERATURES EXPLAINED

New research by Scripps climate scientists indicates that cooler eastern Pacific Ocean waters tempered the warming effect of increased atmospheric greenhouse gases on worldwide temperatures. From 1950-2000, global-mean temperatures rose by 0.13° C per decade, but have since leveled off. Scripps scientist Yu Kosaka and Revelle Chair Shang-Ping Xie concluded that natural variability in eastern Pacific Ocean cooling caused the break in rising temperatures. The hiatus was a contentious and widely publicized issue when the Intergovernmental Panel on Climate Change (IPCC) recently released its Fifth Assessment Report. The Scripps study contributed to the discussion of the hiatus contained in the IPCC report, providing evidence that it is temporary and does not affect the long-term climate warming trend.

The paper “Recent global-warming hiatus tied to equatorial Pacific surface cooling” appeared in the August 2013 journal Nature. The National Science Foundation, the National Basic Research Program of China, and the NOAA Climate Program Office supported the research.

STATE-OF-THE-ART LABORATORY OPENS

Research in the new Marine Ecosystem Sensing, Observation and Modeling (MESOM) laboratory ranges from ecosystem dynamics, conservation, and the formation of clouds to the chemistry and physics of ocean systems impacted by a changing climate. The facility brings together Scripps scientists who are building upon a long history of research on marine ecosystems and their response to climate variability and change. Researchers and engineers in the new lab develop physical, biological, and chemical sensors and autonomous oceanographic platforms. They use observed and theoretical data to develop physical and biological models, forecasts, and other products with an overarching goal of developing programs to provide the scientific foundation for marine ecosystem forecasting. The building, co-funded by the National Institute of Standards and Technology, is on track to be the first LEED Platinum lab building at UC San Diego.
## Statement of Activity

### REVENUE

<table>
<thead>
<tr>
<th>Sponsored Research</th>
<th>FY '11-'12</th>
<th>FY '12-'13</th>
<th>FY '12-'13</th>
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<td>UC Sponsored Research</td>
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<td>262,495</td>
<td>41,125</td>
</tr>
</tbody>
</table>

**University of California Support**

- State General Funds
- Student Fee Funds
- Benefits for UCSD FTE
- Core Funds (includes $2M to cover OP tax)
- Indirect Cost Recovery from prior year F&A (overhead)

**Earned Revenue**

- Birch Aquarium at Scripps (BAS)
- Recharge Unit Revenues
- Intellectual Property & Royalty Income
- Other Revenue
- (mostly Scripps Forum, Martin Johnson House)

**Private Giving**

- 2 Private Gifts
- 3 Private Grants

**Interest Income**

- Interest Income
- Endowment Yield

**TOTAL REVENUE**

- 185,209,642
- 187,422,888

### Expenses

#### Research Programs - SEEK

- Sponsored Research
- Shands
- Oceanographic Collections
- Contract & Grant Administration
- Research Development & Planning
- Research Infrastructure & Support Units

#### Instruction Programs - TEACH

- Birch Aquarium at Scripps
- Communications (SIO share) & Web Group
- Development (SIO share)
- Diversity
- Special Events
- Conference Facilities
- (Forum debt service, staff, maintenance)

#### Institutional Support

- SIO Administration
- IT Services
- Facilities Maintenance & Capital Improvements
- OP tax on non-core expenditures

#### TOTAL EXPENSES

- 5
- 178,922,385
- 185,154,020

Net Carryforward/(Deficit) from Current Activities

1,287,235

1,531,132

### Extramural Funding

- U.S. Department of Agriculture
- U.S. Department of Commerce
- U.S. Department of Defense
- National Oceanic and Atmospheric Administration
- National Institute of Standards and Technology
- U.S. Department of Energy
- U.S. Department of Interior
- U.S. Fish and Wildlife Service
- U.S. Geological Survey
- National Aeronautics and Space Administration
- National Institutes of Health/Department of Health and Human Services
- National Science Foundation
- California Bay-Delta Authority
- California Coastal Commission
- California Department of Boating and Waterways
- California Department of Parks and Recreation

### Footnotes:

1. UCSD's budget model changed in FY 12-13. General Funds, Student Fees, and UCSD are now considered Core Funds.
2. $4.0M includes only gifts received and available for spending in UC Regents funds in the current year. With bequests, pledges, contributions to endowment, and gifts booked with the UCSD Foundation, total SO Development fundraising was $9.52M in FY 12-13.
3. Private grants are typically restricted funds and considered Sponsored Research; however, UCSD counts as Private Giving.
4. Excludes funds transferred to UCSD Facilities Design and Construction or Facilities Management and spent by those units on SIO projects. FY 12-13 total facility/capital improvement expenses paid by SIO were approximately $5.7M.
5. This statement does not reflect all annual expenditures associated with operating SIO. Services provided by campus departments are captured in UCSD financial reports, e.g., utilities, custodians, payroll, central IR, general accounting, purchasing, business contracts, central IT, transportation & parking, physical planning, community relations, real estate, deferred maintenance, facilities management.

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<table>
<thead>
<tr>
<th>REVENUE</th>
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<td>Contract &amp; Grant Administration</td>
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<td>OP tax on non-core expenditures</td>
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<tr>
<td>TOTAL EXPENSES</td>
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<td>Net Carryforward/(Deficit) from Current Activities</td>
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SOURCES OF REVENUE
FY 12/13
TOTAL: $187.4M

PRIVATE SUPPORT
FY 12/13
TOTAL: $9.32M

AWARDS BY SPONSOR
FY 12/13
TOTAL: $154.6M

California Energy Commission
California State Coastal Conservancy
California State Lands Commission
San Francisco Bay Conservation and Development Commission
Alaska Department of Fish and Game
City of San Diego
Environment Canada
Japan Aerospace Exploration Agency
U.S. Israel Binational Science Foundation
Alaska Longline Fishermen’s Association
Alfred P. Sloan Foundation
BP Group
Chevron Corporation
Commonwealth Scientific & Industrial Research Organisation
ConocoPhillips Company
The David and Lucile Packard Foundation
Electromagnetic Geoservices AS
Environmental Defense Fund
ExxonMobil Corporation
The Prince Albert II of Monaco Foundation
Fugro
Gordon and Betty Moore Foundation
Idemitsu Petroleum Norge
Institut Catàlia De Ciències Del Clima
The J.M. Kaplan Fund
JX Nippon Oil and Gas Exploration Corporation
KM's Technologies
Life Sciences Research Foundation
National Geographic Society
Neptune Minerals, Inc.
Niko Asia Limited
The Ocean Foundation
Orange County Sanitation District
PADI Foundation
Petrobras
Petroleum Geo-Services
Repsol
Rock Solid Images
The San Diego Foundation
SeaWorld & Busch Gardens Conservation Fund
Seabed Geosolutions
Shell International Exploration and Production Inc.
Southern California Coastal Water Research Project
Southern California Edison
StatOil
Total S.A.
UC MEXUS
University of the Free State
Waitt Foundation
WesternGeco
Woodside Energy, Ltd.
Birch Aquarium at Scripps. Thanks so much for all you do, and we appreciate the support of the Friends of the Collections, Director’s Circle, Director’s Cabinet, and Ellen Lehman and Charles Kennel.

Support for this fellowship came from many people, and was reflected in the creation of an endowed fellowship in his name. Sparking his interest in the ocean from a young age, Prof. Graham’s dedication to the ocean was evident throughout his distinguished career, and this was certainly passed away. Prof. Graham touched the lives of so many, and his generosity will have a tremendous impact for generations to come. Prof. Lal endowed both a graduate fellowship and a fund for academic excellence at Scripps – both of which represent the extraordinary generosity and commitment that Prof. Lal exhibited throughout his lifetime.

Another remarkable faculty member, Jeffrey Graham, recently passed away. Prof. Graham touched the lives of so many throughout his distinguished career, and this was certainly reflected in the creation of an endowed fellowship in his name. Support for this fellowship came from many people, and was generously matched by Ellen Lehman and Charles Kennel.

Every gift to Scripps makes a difference, and we are particularly grateful for all the members of E.W. Scripps Associates, the Friends of the Collections, Director’s Circle, Director’s Cabinet, and Birch Aquarium at Scripps. Thanks so much for all you do, and we look forward to welcoming you to campus in the near future.
Financial Support
From July 1, 2012 to June 30, 2013

Mary Anne and Jud J. Brown
Jillian and Brian Buchanan
Anna Marie and James L. Cairns
Marilyn L. and John E. Cameron
Ellen and Matthew Carberry
Mary and Joseph Cheh
Chenanugo Trust
Tashawha J. Chow Trust
Peter B. Clark
CleanTECH San Diego
Dana and Bay Cobb
Nancy L. and Tracy D. Coker
Gina and Brian Conkle
Courtney Ann Coyle and Steven P. McDonald
Joyce and Michael Critelli
Luis A. Da Silva
Patricia and Dennis DeConcini
Mary and George Dejong
Maria and Luis Delgado
William H. Dishar
Eloise S. and Russell E. Duff
Andrew Engel and Maryanne Domn
Victor and Louise Engleman
Environmental Financial Products LLC
The Eve and Ora DeConcini and
Thu Family Foundation
Cody Festa
Jane and Thompson Fetter
Diane and Elliot Feuerstein
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Deborah Reynolds and James S. Frank
Joy and Edward A. Friedman, Ph.D.
Elaine and Murray L. Gallimon, J.D.
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Renita Greenberg
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Karlene and Walter C. Guyfarth
Sally Ann Hagan
Kathy and William K. Hagan
and George Hage
George Halligowski
Frances B. and Thomas A. Harders
Zandra Rhodes and Salah M. Hassanein
Paula and George Hauer
Judy Hao
Susan and Ronald J. Heller
Dyanne Hoffman
Mary Susan Howard
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Helene and Sam Iacobellis, Sr.
Patricia Masters and Douglass Innan
Patricia and Hart Isacys, Jr.
Atsushi Ishimatsu
Nora and Alan* Jaffe
Bret Jongesen and Susan Urigui
Adrianus J. Kalmijn
Kristin Kelly
James B. Kenny II
Richard John Kerr
Shirley and William S. Kimmich
Faye and James D. Kitchel
Steven Knapenberger
Paul Mueller and Clare Kristofko
La Jolla Shores Surfing Association
Sharon and Joel Labovitz
Cindy and Fred Lawley
Bertha Lebus Charitable Trust
Ruth and Ronald Leonardi
Michelle and William S. Letcher
Jennifer D. and K. Alan Lombro
Donna Lucas
Joy and Ronald Mankoff
H. H. Mansfield
Joanne and Martin Marugg
Barbara Maurais
Susan B. McLellister
Anne and Andy McCormon
Susan Lee Waggoner and
Steven C. McCracken
Carmen McKenna
Adrian de P. McKibbin and
Elizabeth de Bevec McKibbin
Salina Wallach and Kendall Melville
Marilyn and Jordan Messersmith
Monica Cacciari and Jeffrey Meyer
Barbara and Howard G. Miletstein
Chuck Mitchell
Mary Coakley Munir and Walter H. Munir
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Eleanor Musick and Abraham P. Overduin
Lucy A. Neale
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Carol and Russell Penniman
Peters & Freedman, LLP
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Una Marie Pierce
Brigit and Alan Pitcairn
PWC Institutional Investments
Peggy and Peter G. Preuss
R.T. Vanderbilt Trust
Erica and Steven M. Ratner
Lawrence A. Ray and Julie A. Jackson-Ray
James A. Raymond
Jacob C. Reinholt
Robert W. Rex
Adrian and Ethosine Richards
Pia Alp-Roach and Sean Roach
Jonathan Rosen
Reuben and Sarah Rosen
Aliston Fleming and Brock J. Rosenthal
Sandra and Robert A. Rosenthal
Sharon and Robert Rubin
Dora Saikhon
San Diego Repertory Theatre
Richard Sander
Allan Sauter
C. H. Friedman* and Lynn Schenk
Nancy and William T. Schneider*
Sarah Schulte
Scientific Computing International
Jocelyn A. and Charles B. Scott
Cindy J. Scripps and Jeff Wachs
Mrs. Edward W. Scripps II
Amy and Keith Scripps
Theresa and Thomas G. Scripps
Jean Johnson-Sexton and Wilson B. Sexton
Elizabeth N. Shapiro
Carolyn S. and Richard C. Shell
Irene Shimatsu
Molly and Edward T. Shonex
Georgia Doerr Simmons and
William Simmons

Daniel M. Smargon and Audrey M. Viterbi
Linda Smith
Carol and Stuart Smith
Alice and Richard Smell
Nancy E. Snyder
Society for the Study of Evolution, Inc.
Margaret M. and Clinton R. Spanjer
Barbara and Robert W. Starkey
Cindy and Kevin E. Stephens
Ruth Stern and Morton Levy
Ronald E. Stoner
Barbara and Sam Takahashi
Anne C. Tautman and David Boyle
TCSD Cares Inc.
The T. Rowe Price Program for Charitable Giving
Tierra Verde Resources Inc.
Ann McGowan-Tuskes and Paul Tuskes
Union Bank, N.A.
Hugh B. Vanderbilt, Jr.
Elizabeth L. Verrick
Cheryl and Donald Ward
Virginia and James Wells
James W. Wickes
Peter H. Wiebe
Diana F. and Robert J. Wilder
Pat and Donald Wilkins
Diane Williams
The Wilson Sexton Foundation
Elizabeth and Clinton D. Winant
Karlin Winner
Patricia W. Wong
Cynthia York and David Wahl
Sybil and Herbert* York
May Zawadieh
Bebe and Marvin Zigman
ZZZX Foundation Inc.

LEGEND
○ Director’s Circle Member
($100,000+ cumulative giving)
■ Director’s Cabinet Member
(A select group of advisors who will
work toward expanding awareness and
support of Scripps research, education,
and outreach programs)
◆ E.W. Scripps Associates Member
($1,000+ annual unrestricted donation)
◆ Friends of the Collections Member
($1,000+ annual donation to Scripps
Oceanographic Collections)
◆ Ellen’s Circle Member
($1,000+ annual donation to Birch
Aquarium at Scripps)
◆ York Society Member
(Individuals that have generously included
UC San Diego in their estate plans)
◆ Deceased

NOTE: Anonymous represents generous gifts
from members of the Director’s Circle, Director’s Cabinet, E.W. Scripps Associates, York Society, and various friends and supporters.
Scripps researchers develop, install, and operate long-term global and regional observing systems to monitor, study, and predict environmental events. These observations improve our ability to understand and predict environmental change, and increase our knowledge and understanding of natural hazards such as earthquakes, volcanoes, tsunamis, storm waves, floods, erosion, hurricanes, tornadoes, wildfires, and harmful algal blooms. Scripps has a long history of initiating and maintaining long-term environmental observing programs in the oceans, atmosphere, and on land at regional to global scales. This legacy is perhaps best illustrated by the well-known Keeling Curve CO₂ record. These iconic measurements, begun in 1958 by Scripps’s Charles David Keeling, comprise the longest continuous record of CO₂ concentrations in the Earth’s atmosphere. In May 2013, concentrations of this greenhouse gas rose above 400 parts per million for sustained lengths of time throughout much of the Northern Hemisphere for the first time in human history.

Another observing milestone reached this year was the millionth ocean profile collected by the global array of robotic floats known as Argo. Launched in 1998, Argo consists of a fleet of more than 3,600 free-drifting profiling floats communicating via satellite and deployed throughout the world’s oceans. Argo is one of the primary sources of data about the climatic state of the oceans, providing observations that improve scientific understanding of air-sea interaction, ocean currents, interannual variability, El Niño, mesoscale eddies, water mass properties and transformation, and computations of global ocean heat content. Argo data also drive computer models of the climate system, improving our ability to forecast seasonal climate variations.

With the support of David DeLaCour’s transformational estate gift, the aquarium launched its Leopard Shark Research & Conservation Initiative, appointing Andy Nosal as the aquarium’s DeLaCour Fellow for Ecology & Conservation. Nosal, who earned his Ph.D. from Scripps Institution of Oceanography in Dec. 2012, specializes in shark ecology, with a focus on La Jolla’s leopard sharks. As the DeLaCour Fellow, he will spend three years working with Birch Aquarium staff to develop education programs about sharks for the public.

To raise awareness about this initiative, Birch Aquarium opened ElasmoBeach in the summer of 2013. Featuring a 13,000-gallon tank that showcases sharks, rays, and other marine life that live close to our shore, ElasmoBeach teaches visitors why sharks are critical to the ocean’s health and why La Jolla Shores is so important to them.

Through the Leopard Shark Research & Conservation Initiative, the aquarium hopes to raise public awareness and appreciation of the local leopard shark population as well as the Matlahuayl State Marine Reserve, a protected area where the sharks congregate annually. The story of the leopard shark and its relatives is an important one—a story the aquarium is communicating with Nosal’s help, made possible through the vision and generosity of David DeLaCour.
Scripps operates one of the largest academic research fleets in the world.

For more than a century, Scripps has served as a pioneering innovator in the scientific exploration of the oceans. Today, Scripps research vessels are seagoing laboratories with state-of-the-art sensing systems and instruments that support a wide range of global ocean-going science, including studies of the deep sea, marine life, climate change, ocean circulation, and seafloor processes.

Thousands of scientists, students, engineers, and explorers use Scripps research vessels every year. About half of these scientists are from Scripps and other University of California campuses, and the remainder are affiliated with other U.S. academic institutions, government laboratories, international collaborators, and K-12 schools. Crewed by dedicated women and men who are recognized globally for their skill in the demanding field of scientific ship operations, Scripps research vessels are adept at a broad range of missions, from intensive day trips off the California coast for student instruction to sustained overseas deployments involving back-to-back projects each lasting a month or more.

Signal achievements in 2012-2013 included the discovery and exploration of submarine methane springs offshore San Diego using the Scripps Remotely Operated Vehicle Trident aboard R/V Melville, the installation and evaluation of a $1.2M "robot arm" funded by the National Science Foundation aboard R/V Roger Revelle to improve the safety and reliability of CTD deployments in all weather conditions, a successful NSF-sponsored program aboard R/V New Horizon to teach graduate students skills required for success as future chief scientists, and a series of major mooring and towed-instrument programs aboard R/V Robert Gordon Sproul that have proven it to be "The Little Ship That Could."
SCRIPPS RESEARCH VESSELS RANGE WORLDWIDE to provide our researchers with state-of-the-art observational capabilities across the global ocean. Over the past five years our Global Class ships (R/V Roger Revelle and R/V Melville) have conducted extended operations across the remote Pacific, Indian, and Atlantic oceans. Our Intermediate Class vessel (R/V New Horizon) has focused on the eastern Pacific, including important work in the Gulf of Alaska, the Gulf of California, and in the California Current. R/V Robert Gordon Sproul, our Regional Class vessel, has served our local needs from the Southern California Bight to Northern California. During this period, Scripps-operated ships completed 275 separate research missions, carrying to sea 4,162 scientists, students, engineers, and explorers from 308 different institutions.