

SCRIPPS INSTITUTION OF OCEANOGRAPHY, UC SAN DIEGO

*The Future of*

# Aquaculture

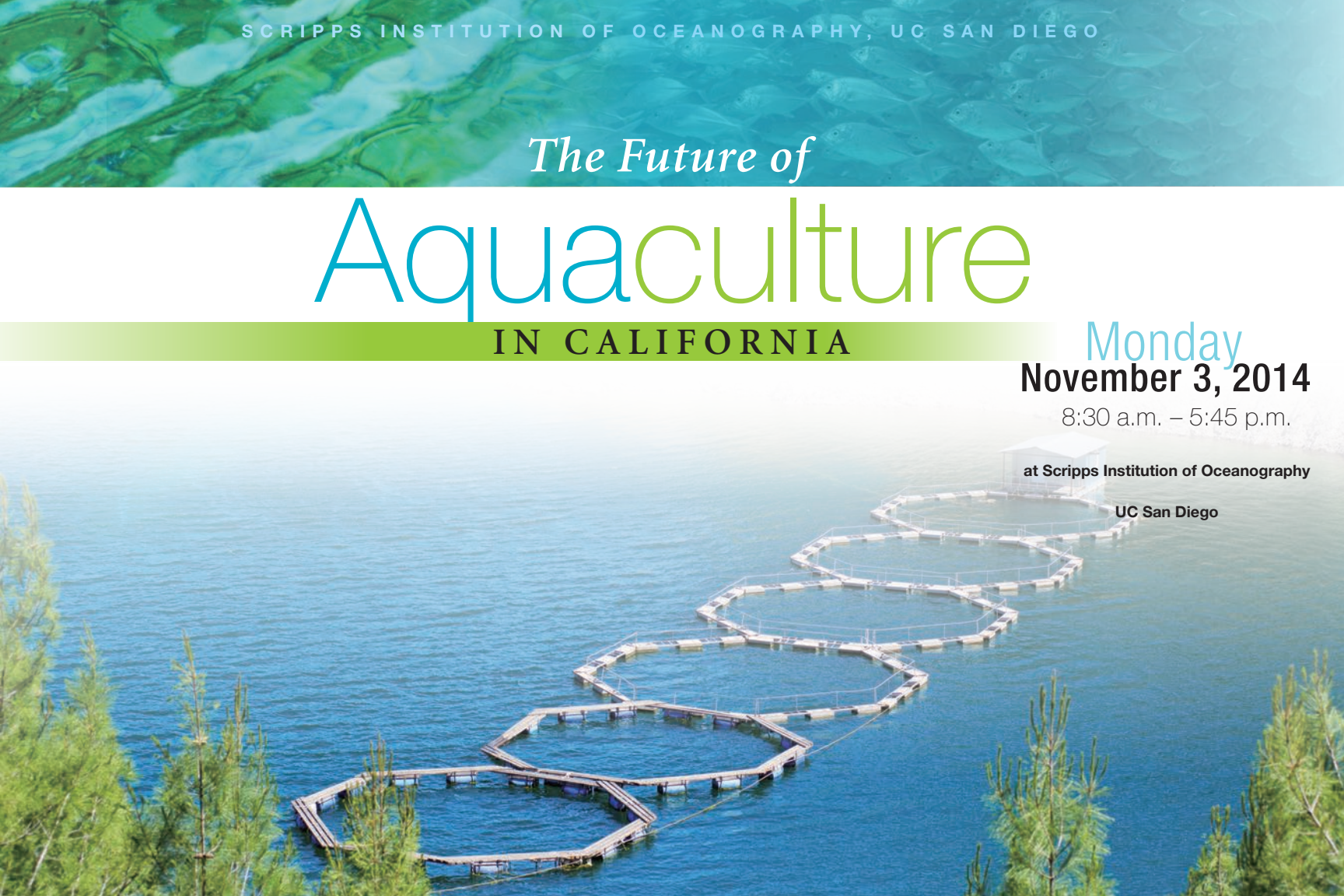
IN CALIFORNIA

Monday  
**November 3, 2014**

8:30 a.m. – 5:45 p.m.

at Scripps Institution of Oceanography

UC San Diego





# The Future of Aquaculture in California

**at Scripps Institution of Oceanography, UC San Diego**

VISION FOR EVENT: Scripps Institution of Oceanography is hosting private sector business leaders, innovative scientists, and visionary thinkers for a high-level informal gathering and discussions focused on aquaculture in California. Priorities include private sector entrepreneurs sharing challenges, problems, and opportunities in aquaculture, along with scientists exploring potential research and visionary solutions. Through this, we seek to create relationships that will initiate research and funding opportunities. The format is also exposing students to entrepreneurs and their stories, with interactions that could lead to mentorship and employment.



# PROGRAM

8:30 - 9:30am **NETWORKING SESSION** Hand-crafted coffees and pastries provided by Joes on the Nose and Bread & Cie on the outdoor patio. Students are invited to participate.

9:30am

## Program

**Margaret Leinen**, Director, Scripps Oceanography

10 minutes

- Welcome
- Brief overview of Scripps Oceanography
- Goals for today's sessions

9:40am

**Paul Olin**, Aquaculture Specialist, Sea Grant/Scripps Oceanography

15 minutes

- Brief history of aquaculture in California, U.S., and globally

10:00am

## **PANEL 1: What species? Why, Where?**

45 minutes

**Facilitator:** Don Kent (Hubbs-SeaWorld Research Institute)

**Panel members:** Thomas Grimm (Carlsbad Aquafarms), Rob Brown (Synthetic Genomics), and Dave Checkley (Scripps Oceanography)

11:00am

## **PANEL 2: Biological and Environmental Sustainability**

45 minutes

**Facilitator:** Dale Squires (NOAA)

**Panel members:** Phil Cruver (Catalina Sea Ranch) and Doug Bush (The Cultured Abalone)

12:00pm

**LAB TOUR 1-** Hamdoun Lab and Experimental Aquarium with Sascha Nicklisch, Hubbs Hall



1:00pm	<b>PANEL 3: Education and social aspects</b> <b>Facilitator:</b> Theresa Sincrope-Talley (Sea Grant/Scripps Oceanography) <b>Panel members:</b> Jerry Schubel (Aquarium of the Pacific), Andrew Spurgin (Chef and Restaurateur), and Margaret Spring (Monterey Bay Aquarium)	45 minutes
2:00pm	<b>LAB TOUR 2:</b> Mitchell Lab: Algae for feed and fuel with Dominick Mendola, Sverdrup Hall	
3:00pm	<b>PANEL 4: Aquaponics and recirculating aquaculture</b> <b>Facilitator:</b> Steve Mayfield (Biological Sciences, UC San Diego) <b>Panel members:</b> Heather Fetterly (UC San Diego student), Amha Belay (Earthise Nutritionals) and Paul Wills (Harbor Branch Oceanographic Institute)	45 minutes
4:00pm	<b>PANEL 5: What did we learn? Where do we go from here?</b> <b>Facilitator:</b> Margaret Leinen <b>Panel members:</b> Robert McBride (Sapphire Energy), Bill Fox (World Wildlife Fund), and Rex Ito (Prime Time Seafood)	45 minutes
5:00pm	<b>LAB TOUR 3:</b> Fish Collections Tour with H.J. Walker, Vaughan Hall	
4:45 - 5:30pm	<b>SUNSET NETWORKING SESSION</b> Students are invited to participate.	
5:45pm	<b>On-campus event concludes</b> <ul style="list-style-type: none"><li>• Guests are encouraged to enjoy lunch at Caroline's between sessions.</li><li>• There will also be gourmet sandwiches and beverages on-site.</li></ul>	

# BIOS

## **Norm Abell**

Principal, Acacia Pacific Aquaculture

## **Rebecca A. Richards**

Principal, Acacia Pacific Aquaculture

Acacia Pacific Aquaculture is in the business of aquaculture development and project management. Founding principals Norm Abell and Rebecca Richards have 10 years marine aquaculture experience in aquafarm ownership growing culinary and restorative shellfish and seaweed and marine aquaria live-feed, along with over 25 years experience in all aspects of business development.

## **Neil Aeschliman**

MBA candidate at UC San Diego's Rady School of Management

Neil avidly reads about aquaculture and sustainable seafood during his spare time. Currently, he is continuing an internship with Bumble Bee Foods focusing on traceability within sustainability. Upon graduation this spring, he plans to find a career opportunity in sustainable seafood to help feed nine billion people and heal the oceans.

## **Eric Allen**

Associate Professor of Marine Biology, Scripps Oceanography

## **Dominique Barnes**

Master's Graduate Student, Scripps Oceanography

## **Amha Belay**

### **Senior Vice President and Chief Technology Officer, Earthrise Nutritionals**

Our mission at Earthrise Nutritionals is to benefit the health of our consumers by producing, developing, manufacturing, and marketing the highest quality Spirulina and Spirulina-based nutritional products in the world. The first 'Rising of the Earth' was seen from the moon's surface by the Apollo astronauts in 1969. This powerful image represents our awakening to the miracle of our living planet, our home. Earthrise® was chosen as our trademark in 1978 when we first introduced Spirulina blue-green algae. This rediscovery of the origins of life brought remarkable health benefits to ourselves, our society, and our planet. And so we have dedicated these gifts to a new awareness of our 'Earth Rising.'

## **Jessica Blanton**

### **Graduate Student, Scripps Oceanography**

Jessica is a doctoral student with Eric Allen at Scripps Institution of Oceanography, characterizing the microbial ecology of the fish gastrointestinal tract. Her research focuses on marine species in wild and aquaculture settings, with the goal of establishing a basic understanding of the gut microbiome's role in fish health.

## **Julia Brown**

### **Vice Chair, Scripps Oceanography Director's Cabinet**

Life science industry executive, most recently with Amylin Pharmaceuticals, Inc. Currently serves on board of directors of three early-stage drug development companies. Trustee and immediate past chair of UC San Diego Foundation Board.

## **Rob Brown**

### **Senior Director of Discovery, at Synthetic Genomics (SGI)**

Rob Brown joined SGI in May 2007 with 17 years of experience in molecular biology and gene expression. He manages a multifunctional team in the design and development of microbes for the production of advanced biofuels and conducts and guides research on microbial metabolic pathway engineering. Previously at Diversa Corporation, Rob was a senior scientist who worked on recombinant expression of industrial enzymes and animal vaccines. He earned a B.Sc. (Hons.) in Biotechnology at Demontford University, and a Ph.D. at The Open University, while based at the Centre for Applied Microbiology and Research (U.K.), working on bacterial pathogenesis.

## **Doug Bush**

### **General Manager and Partner, The Cultured Abalone Farm**

## **Jim Carlberg**

### **Aquaculture consultant**

Jim was president of Kent SeaTech for 15 years, from 1994-2009, and the vice president of Kent BioEnergy for four years, from 2008-2012. Jim is knowledgeable about California aquaculture past and present and the business of doing aquaculture in California today. He has a lifetime of experience in aquaculture of fish, algae, and aquaculture systems. As of December 2012 he has been working as an independent consultant in aquaculture and wastewater treatment.





## **Dave Checkley**

Director, Cooperative Institute for Marine Ecosystems and Climate

Editor-in-Chief, *Fisheries Oceanography*

Professor of Oceanography, Scripps Oceanography

Dave Checkley is a professor at Scripps Institution of Oceanography. He specializes in biological and fisheries oceanography. He received his bachelor's degree from the University of Washington and a doctorate from Scripps. He is director of Scripps CalCOFI (California Cooperative Oceanic Fisheries Investigations) and CIMEC (Cooperative Institute for Marine Ecosystems and Climate). His research includes the effects of climate on sardine and anchovy populations and ocean acidification on white seabass.

## **Phil Cruver**

CEO, Catalina Sea Ranch

Catalina Sea Ranch, LLC, headquartered at Terminal Island in the Port of Los Angeles, has secured the first permit for offshore aquaculture in U.S. federal waters from the U.S. Army Corps of Engineers, which was unanimously approved by the California Coastal Commission. This 100-acre project will annually produce 2.5 million pounds of sustainable mussels grown 30 feet under the water surface six miles offshore for putting a dent in our nation's \$11.2 billion seafood deficit. We have partnered with Verizon to transmit environmental data over their network for independent and transparent scientific analyses. Science-based data will lead to best practices and responsible regulatory criteria for the future of marine spatial planning and the advancement of offshore aquaculture.

## **Dino D'Auria**

EVP / Chief Banking Officer, Silvergate Bank

## **Penny Dockry**

**Operations Manager, Center for Marine Biodiversity and Conservation (CMBC), Scripps Oceanography**

Penny Dockry is the Operations Manager for the Center for Marine Biodiversity and Conservation (CMBC) at Scripps Institution of Oceanography and administrator for the Scripps-Master of Advanced Studies in Marine Biodiversity and Conservation. She served as project coordinator for the NSF-Integrated Graduate Education and Research Training (IGERT) project (2003-2013). The center promotes a holistic, interdisciplinary approach in the education of future leaders in marine conservation and in the direction and application of research to the conservation of marine biodiversity. Penny provides leadership and support in program planning, development, and marketing of campus-wide projects. She establishes and maintains research and education collaborations with diverse UC San Diego departments and with partners from government agencies and conservation organizations around the world.

## **Phaedra Doukakis-Leslie**

**Academic Coordinator, Center for Marine Biodiversity and Conservation, Scripps Oceanography**

**Research Scientist, NOAA NMFS Southwest Regional Office**

## **Mark Drawbridge**

**Senior Research Scientist, Hubbs-SeaWorld Research Institute (HSWRI)**

Mark Drawbridge became involved with HSWRI in 1986 while participating in the institute's nearshore fish surveys as part of his Master's degree research. Prior to completing his degree at San Diego State University in 1990, Mark spent a year of his graduate program at the University of Queensland in Queensland, Australia. The institute hired Mark in 1989 as research technician for the Ocean Resources Enhancement and Hatchery Program (OREHP) field assessment program. By 1999, after demonstrating his scientific excellence and high productivity, Mark was promoted to a senior research biologist to direct the institute's aquaculture and fisheries research programs. These programs currently support over 30 full-time employees at facilities located in San Diego, Carlsbad, Catalina Island, and Mexico.



## **Heather Fetterly**

**Aquaponics Project Student, Biological Sciences, UC San Diego**

Heather Fetterly is a Masters student in the UC San Diego biology department, working in John Shurin's ecology lab. She is monitoring annual nutrient fluctuations at an aquaponics farm in Vista, California, and is exploring ways to increase produce yield through foliar fertilization.

## **William Fox, Jr.**

**VP Fisheries, World Wildlife Fund**

Fox is vice president for Fisheries Conservation, WWF-U.S., and has authored or co-authored over 60 scientific publications. He is also a U.S. Commissioner to the Inter-American Tropical Tuna Commission and vice chair of the Board of the International Seafood Sustainability Foundation. He began his scientific career with NOAA's National Marine Fisheries Service (NMFS) and for eight years he was professor of marine biology and fisheries at the University of Miami's Rosenstiel School of Marine and Atmospheric Science. Later he held senior NOAA positions such as director of the National Marine Fisheries Service and director of the NMFS Office of Science & Technology and NMFS Southwest Fisheries Science Center. He holds degrees specializing in marine biological systems and fisheries science from the University of Miami and University of Washington.

## **Bill Gerwick**

**Principal Investigator, Center for Marine Biotechnology and Biomedicine, Scripps Oceanography**

Bill Gerwick is professor of oceanography and pharmaceutical sciences at UC San Diego. His research is broadly centered on marine biotechnology and development of high-value products from marine algae and cyanobacteria. One major focus is the discovery and development of pharmaceutical lead compounds (cancer, inflammation, neurosciences) from these marine life forms. Another major research area is understanding the speciation and biosynthesis of fuel-relevant molecules from marine algae and cyanobacteria. The lab integrates knowledge and culture of the organisms with techniques and methods in organic and analytical chemistry, biochemistry, and pharmacology.

## **Adam Gordon**

### **Member, Scripps Oceanography Director's Cabinet**

Adam leads two real estate development companies in New York City, one focusing on design-driven residential and the other on luxury and urban infill self-storage. He has broad interests in historic preservation, environmental causes, and food and wine.

## **Thomas Grimm**

### **CEO, Carlsbad Aquafarm**

Tom is a naturalist, inventor, filmmaker, and farmer. He is CEO of Carlsbad Aquafarm, a shellfish farm growing oyster and mussel since 1984. The farm is committed to producing healthy seafood in a sustainable manner that preserves our ocean's resources. Carlsbad Aquafarm's future plans include developing a hatchery focused on breeding hybrid lines of faster-growing, deeper-cupped oyster that are resistant to increasing ocean acidification. Tom's approach to developing a sustainable model of aquaculture for Southern California is based on building a farm with a "triple bottom line" model that cultures healthy, native shellfish, while protecting the marine environment in a manner that is economically sound, socially equitable, and ecologically responsible.

## **Kristian Anders Gustavson**

### **Director of Research & Explorations, Below the Surface**

Currently working as an oceanography instructor/lecturer and as the director of Research & Explorations for Below the Surface, Kristian Gustavson has been named one of *Outside* magazine's Chief Inspiration Officers, 'Hero of the Heartland' from the American Red Cross, and one of San Diego's 'Men of Style' from *Riviera* magazine. With a Master's degree from Scripps Institution of Oceanography, UC San Diego, Gustavson leads a variety of projects aimed at 'driving innovation' from the lab to the market for clean water and clean energy projects. He is the current land-speed record holder for an algae-fueled motorcycle and has entered it in the Baja 1000.

# BIOS

## **Amro Hamdoun**

Researcher, Center for Marine Biodiversity and Conservation (CMBC), Scripps Oceanography

## **Sean Hayes**

Acting Deputy Director, NOAA/Southwest Fisheries Science Center (SWFSC)

After growing up on a sheep farm in upstate New York, Sean received degrees from SUNY Cobleskill, Cornell, and UCSC. He joined the NMFS SWFSC to study ecology and hatchery interactions of coastal salmonids in 2002. Sean now leads ocean surveys for juvenile salmon and field operations in the California Central Valley and is currently serving a rotation as acting deputy director of SWFSC in La Jolla.

## **Mark Hildebrand**

Researcher, Marine Biology Research Division, Scripps Oceanography

Hildebrand's research is focused on marine diatoms. His work uses gene expression and transformation technologies to understand the cell and molecular biology of diatom growth and development. Using genomic, transcriptomic, proteomic, transgenic, and high-resolution imaging approaches is a major research focus. Another major interest is in the use of diatoms as a source of lipids for biofuels production, which includes understanding mechanisms controlling lipid synthesis and carbon partitioning. His interests include development of universal transgenic approaches that could be applied to multiple species in a genus, or even to an entire class of algae. These approaches would be applied to understand the regulation of lipid synthesis and to generate transgenics or isolate mutant strains for large-scale production.

## **Rex Ito**

### **Founder and President, Prime Time Seafoods**

Rex Ito has been involved in commercial aquaculture and seafood import and distribution since 1981. Part of the generation of pioneering shrimp farming biologists in Ecuador in the 1980s, Rex formed Prime Time Seafood in 1989, and has focused on the import and sales of fresh tuna, celebrating 25 years in business. Since 2001 Prime Time has been involved in pen farming in Baja California, developing and operating bluefin tuna ranches, and is the founding partner of Pacifico Aquaculture in Ensenada, which is currently growing, harvesting, and marketing white seabass and striped bass. Located at LAX, PT is the marketing arm of bluefin tuna, Mexican yellowtail (hiramasa), seabasses.

## **Amber Jackson**

Graduate Student, Center for Marine Biodiversity and Conversation (CMBC), Scripps Oceanography

## **Debbie Johnson**

Catalina Sea Ranch/Southern California Marine Institute

## **Michael Jones**

### **President, The Maritime Alliance**

Michael is president of two San Diego-based, maritime related non-profits: The Maritime Alliance (a 501c6 industry association / tag line "Promoting BlueTech & Blue Jobs"®) and TMA Foundation (a 501c3 educational non-profit – tag line "Fostering Innovation through Collaboration"®). Together, they focus on promoting sustainable, science-based ocean industries. Michael speaks five languages and has traveled extensively.



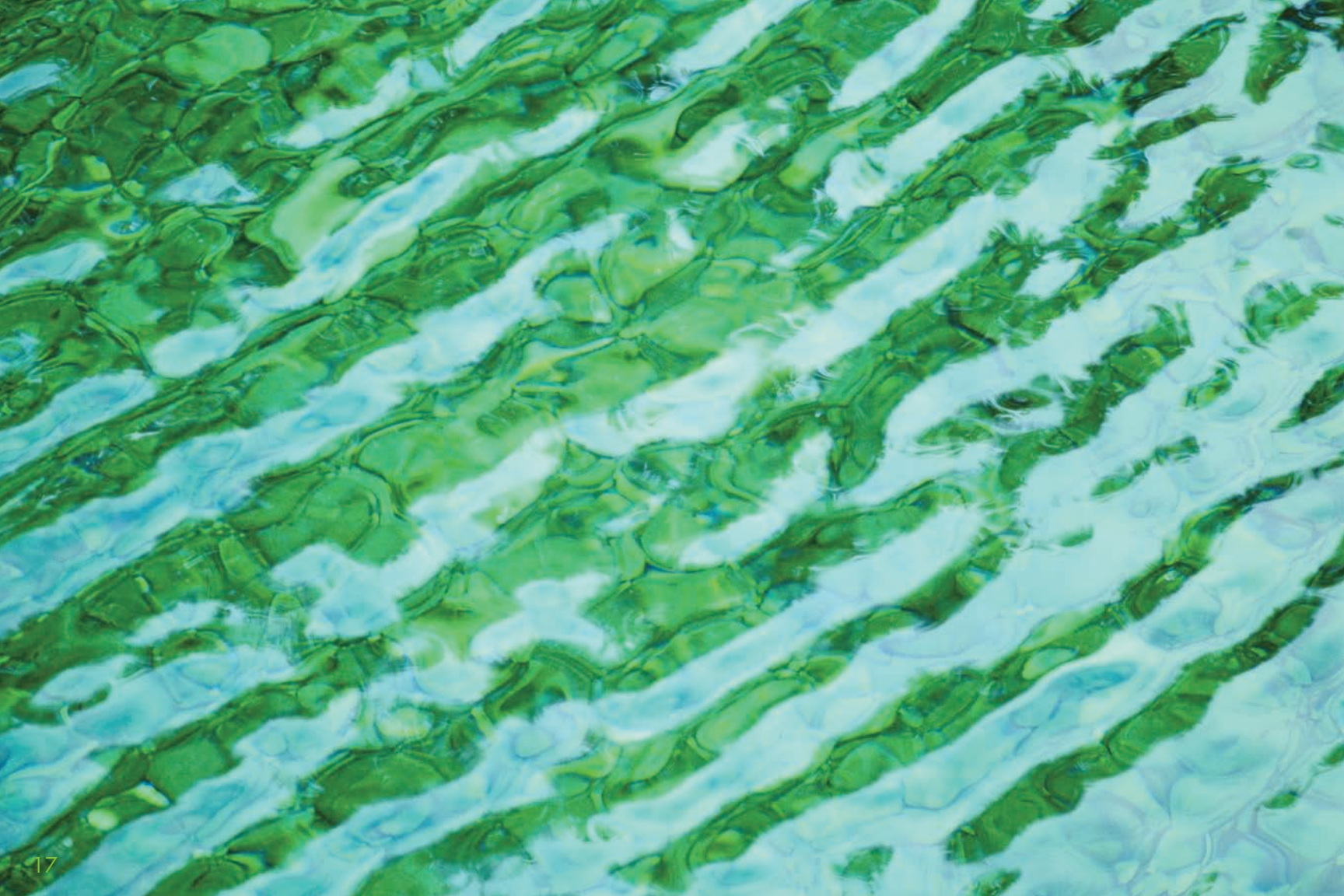
## **Don Kent**

### **President, CEO, Hubbs-SeaWorld Research Institute**

Don Kent is president of Hubbs-SeaWorld Research Institute, an international marine research institute that is dedicated to ensuring that future generations experience the benefits of a healthy environment by gaining scientific knowledge and finding practical solutions to the most critical conservation challenges facing marine ecosystems and species. Don came to the institute in 1977 as an SDSU graduate student working on the growth characteristics of striped bass. He has participated on numerous institute programs studying gray whales, assessing noise effects on animals, minimizing killer whale impacts on fishing operations and, closest to his interest, the development of marine finfish aquaculture. Don has led the institute since 1998. In that time the institute has experienced the largest expansion in its history. Don was instrumental in initiating the Ocean Resources Enhancement and Hatchery Program (OREHP), a highly successful partnership of the recreational fishing community, the California Department of Fish and Game, and the California Legislature, created to investigate ways to counteract the depletion of California's coastal marine fisheries through stock enhancement. He is also responsible for the planning and construction of the Leon Raymond Hubbard, Jr. Marine Fish Hatchery in Carlsbad, where they have reared, raised, and released more than one million white seabass into California waters over the last 20 years.

## **Mike Kraft**

### **Director of Sustainability, Bumble Bee Seafoods**



## **Margaret Leinen**

### **Director, Scripps Oceanography**

Margaret Leinen is the director of Scripps Institution of Oceanography and vice chancellor for Marine Science of University of California at San Diego. The 111-year-old Scripps Institution is one of the world's largest oceanographic research institutions. Leinen is an ocean biogeochemist and paleoceanographer whose research includes study of ocean carbon cycling and the role of the oceans in climate. She is also the president-elect of the American Geophysical Union, the largest geoscience society in the world, and has also served as the president of The Oceanography Society and chair of the AAAS Section on Atmospheric and Hydrospheric Science. She served as assistant director for Geosciences, U.S. National Science Foundation (NSF) from 2000-2007. She has been the vice chair of the International Geosphere Biosphere Programme, chair of the US Global Change Research Program, and vice chair of the U.S. Climate Change Science Program.

## **Lisa Levin**

### **Director, Center for Marine Biodiversity and Conservation (CMBC), Scripps Oceanography**

Lisa Levin is the director of the Center for Marine Biodiversity and Conservation at Scripps Institution of Oceanography. Her current research focuses on issues related to hypoxia, ocean acidification, and water quality effects on the structure and function of benthic invertebrate and fish communities. She and her students conduct laboratory and field studies with mussels, squid, echinoderms, and fish.

## **Chris Lischewski**

**President, Bumble Bee Seafoods**

Chris Lischewski is the president and CEO of Bumble Bee Seafoods, the largest branded seafood company in North America. Bumble Bee, headquartered in San Diego, operates primarily in wild capture fisheries and is actively involved in improving the sustainability of the world's wild capture stocks, which are currently operating at or above Maximum Sustainable Yield. Bumble Bee realizes that future growth in global seafood supply will come from aquaculture and recognizes that like wild fisheries, there are significant challenges to overcome to ensure responsible long-term management of aquaculture fisheries.

## **Lynette Locatelli**

**Wellness Educator, Tower Garden by Juice Plus**

Lynette Locatelli is a wellness educator teaching the power of a healthy lifestyle. She offers guidance and various solutions through education and tools such as the Tower Garden by Juice Plus. The Tower Garden is a state-of-art aeroponic growing system that brings a farmer's market to your home.

## **Daniel Margulies, Jeanne Wexler, Maria Stein**

**Research Scientists, with the Inter-American Tropical Tuna Commission (IATTC)**

These researchers conduct research on the early life history and reproductive biology of tropical tunas, mostly in Panama at the IATTC's Achotines Laboratory. They conduct ecological and aquaculture-related studies of eggs, larvae and juveniles of yellowfin tuna, and in recent years have also conducted comparative studies of Pacific bluefin early life history in Japan with Kinki University.

## **Steve Mayfield**

**Manager, California Center for Algae Biotechnology (Cal-CAB) & Food and Fuel for the 21st Century (FF21), UC San Diego, Biological Sciences**

# BIOS

## **Robert McBride**

### **Associate Director of Cultivation, Sapphire Energy**

Sapphire Energy combines algae, sunlight, and CO<sub>2</sub> to create new sources of energy, proteins, and chemicals that are low carbon, scalable, and sustainable. Sapphire Energy developed the world's first renewable source of drop-in crude oil from algae and has demonstrated the company's ability to scale this process from the lab to the world's first demonstration scale Green Crude Farm in New Mexico.

## **Dominick Mendola**

### **Senior Development Engineer, Scripps Oceanography**

Dominick Mendola, has worked in marine science and aquaculture for 51 years, including 14 years at UC San Diego's Scripps Institution of Oceanography, where he is currently a senior development engineer managing algae biofuels and bio-products research and teaching algae bio-production at UCSD Extension. He was a founder and aquaculture systems designer and/or senior operations manager for a number of ecologically-based aquaculture companies, which grew a variety of fish and shrimp for human consumption or developed ecological aquatic systems for municipal wastewater treatment. His last company, CalBioMarine Technologies, Inc., cultured marine invertebrates and algae desired for their anticancer and anti-inflammatory natural products. Mendola received his B.S. in marine invertebrate biology from SDSU and his Ph.D. in Marine Bioprocess Engineering from Wageningen University in The Netherlands.

## **Greg Mitchell**

### **Research Biologist, Scripps Oceanography**

B. Greg Mitchell is a research biologist at Scripps Institution of Oceanography with expertise in aquatic photosynthesis, photosynthetic physiology of microalgae, optics, modeling, and satellite remote sensing. His published work on algae photosynthetic physiology and ecology ranges from sub-cellular to the global scales. Mitchell is a founder and associate director of the California Center for Algae Biotechnology based at UC San Diego and a founder and member of the Board of Directors of the Algae Biomass Organization, host organization for the annual Algae Biomass Summit, the most prominent algae biomass conference in the world.

## **Sascha C. T. Nicklisch**

### **Protein Biochemist – Postdoctoral Researcher at Scripps Oceanography, Hamdoun Lab**

Sascha is interested in the prediction of pollutant/drug persistence and bioaccumulation in food fish and mammals. He is currently working on the biochemical characterization of mammalian and fish ABC transporters in vivo and in vitro. In particular, he analyzes the molecular interactions of drugs and persistent organic pollutants (POPs) with multidrug resistance (MDR) transporter ABCB1 from yellowfin tuna and mouse. Sascha aims to combine structural and functional information from these interaction patterns to guide the future design of green chemicals and pharmaceuticals.

## **Paul Olin**

### **Aquaculture Specialist, California Sea Grant, Scripps Oceanography**

Paul Olin is an aquaculture specialist for California Sea Grant based in Santa Rosa, California, just North of the Golden Gate. His research interests include monitoring recovery of endangered coho salmon in the Russian River, development of techniques to farm purple-hinge rock scallops, development of policy and environmental models for net-pen farming of marine finfish, and fostering international collaborations with aquaculture researchers in Japan and Korea.



## **Raul H. Piedrahita**

Chair, Dept. of Biological and Agricultural Engineering, UC Davis

## **Zach Plopper**

Coastal and Marine Director, WILD COAST

Zach has been on the WILD COAST team since 2008 when he began managing WILD COAST's Wildlands Conservation Program. His GIS expertise, 15 years travel experience on the Baja California Peninsula, and mastery in the field helped WILD COAST achieve the conservation of over 330 miles of coastline in Northwest Mexico. Now he is WILD COAST's Coastal and Marine Director and in charge of all matters related to San Diego County's Marine Protected Areas. Zach holds a bachelor degree in Urban Studies and Planning from UC San Diego and a Master's degree in Urban Planning from UCLA. Zach is a native of San Diego with over 22 years of water time on the San Diego coastline.

## **Allison Prange**

Master's Graduate Student, Scripps Oceanography

Allison is a 2014 graduate of Scripps Institution of Oceanography in the Master's of Marine Biodiversity and Conservation program. She is currently working as a graduate scientist in Dimitri Deheyn's lab at Scripps Oceanography on the bio-accumulation of metals in red sea urchins in high pollution areas of San Diego County. Red sea urchins are best known for their gonads or 'uni', which is consumed raw and considered a delicacy.



## **David Rudie**

### **CEO, Catalina Offshore Products**

Dave Rudie founded Catalina Offshore Products in 1977, diving for seaweed and sea urchins off Catalina Island by day and processing the harvest in his garage at night for next-day delivery. Once exclusively a sea urchin wholesaler, the company has grown to become one of Southern California's premier seafood purveyors. Today Catalina Offshore Products specializes in species found off the West Coast from Baja to the Pacific Northwest and features an internet retail business and walk-in fish market in addition to its wholesale operation. The company actively supports responsible fishing innovations and as a result, nearly 75% of its inventory is sustainable. Dave's commitment to sourcing better seafood choices from responsible fisheries or farms has enabled Catalina Offshore Products to work with a network of sustainability partners. Some of these include: Seafood for the Future, the Aquarium of the Pacific's nonprofit seafood advisory program in Long Beach, and Trace and Trust, which connects chefs and consumers with the farmers and fishermen who harvested their food. In his role as CEO Dave also contributes his expertise to numerous initiatives including Southwest Fisheries management; Blue Economy; the San Diego Oceans Foundation; and the California Sea Urchin Commission, where he has long been involved in independent sea urchin fishery research. Dave is also the newly appointed president of the California Fisheries and Seafood Institute.

## **Jerry R. Schubel**

### **President and CEO, Aquarium of the Pacific**

Jerry Schubel has been president and CEO of the Aquarium of the Pacific since 2002. He was recruited to make the aquarium a place not only of entertainment and informal education, but also a place for the exploration of important, complex, and often controversial ocean and environmental issues by bringing together experts, stakeholders, and policy-makers. Offshore aquaculture is one of the issues the aquarium has focused on. He holds a Ph.D. in oceanography from Johns Hopkins University.

## **Theresa Sinicrope-Talley**

### **Coastal Specialist, California Sea Grant, Scripps Oceanography**

The California Sea Grant Extension Program, based at Scripps Institution of Oceanography, UC San Diego, consists of eight Extension Specialists positioned throughout the state. Specialists discover and transfer science-based knowledge to help California and its residents to better balance the competing needs of using and conserving coastal and marine resources for future generations. Theresa is a coastal specialist for California Sea Grant based in San Diego. Her research interests include coastal and wetland ecology and conservation and exploring ways to increase diverse, local, native species in fisheries and farms to improve the health of ecosystems, urban communities, and seafood producing livelihoods alike. She uses research to encourage environmental stewardship and to train the next generation of scientists and informed citizens.

## **Margaret Spring**

### **Vice President of Conservation and Science and Chief Conservation Officer, Monterey Bay Aquarium**

Margaret directs the aquarium's conservation and science efforts, which include research programs involving sea otters, white sharks, Pacific bluefin tuna, and other species, as well as its respected Seafood Watch program and ocean policy initiatives. She also serves on a number of boards and management committees including: the Ocean Studies Board, the California Ocean Science Trust, the Center for Ocean Solutions, the Monterey Institute of International Studies' Center for the Blue Economy, and the Monterey Bay Fisheries Trust.

## **Andrew Spurgin**

### **Chef/Restaurateur, former Scripps Oceanography Director's Cabinet Member**

## **Dale Squires**

### **Senior Scientist, NOAA/Southwest Fisheries Science Center**

Dale Squires, an economist, is senior scientist, NOAA Fisheries, adjunct professor of economics at UC San Diego, and on the Scientific and Advisory Committees of the International Seafood Sustainability Foundation and the International Pole and Line Foundation. He has worked on fisheries issues around the globe, ranging from artisanal fisheries to global tuna fisheries.

## **John Stires**

### **Postdoctoral Research Scientist, Mike Latz Lab, Scripps Oceanography**

John's current work is focused on understanding bioluminescence, cell signaling, and cytoskeletal properties of dinoflagellates that affect cell signaling. Because dinoflagellates can be primarily toxic to shellfish and secondarily to humans, John is interested in the ecology (the broad view) and the physiology/biochemistry (the close-up view) of the health of aquaculture settings as affected by dinoflagellate and other algal blooms. Having been trained as an analytical chemist, he is interested in p-CO<sub>2</sub>, ocean acidification, as well as surface adhesion of shellfish to growing surfaces, each other, and fouling issues.

## **Steve Strachan**

### **Chair, Scripps Oceanography Director's Cabinet**

### **President, Strachan Explorations**

Steve is president of Strachan Exploration, Inc., an oil and gas exploration and production company based in Denver, Colorado. He also currently serves as chairman for the Northwestern University Library Board of Governors in Evanston, Illinois; past-president for the Colorado Children's Chorale in Denver, Colorado; and as chair of the Director's Cabinet at Scripps Institution of Oceanography.

## **John Strauss**

Executive Vice President / Division Sales Coordinator  
Commercial Banking, Southern CA  
Wells Fargo & Company

John A. Strauss is an executive vice president and division sales coordinator for Wells Fargo's Southern CA Commercial Banking team. With more than 30 years of banking experience, John joined Wells Fargo in 1988 as a Commercial Banking Relationship Manager in Los Angeles. In his current role, John is focused on supporting the Commercial Banking teams relative to new business development activities and cross-sell efforts with prospective and existing clients. John is active in the community and a regular participant in various Wells Fargo Community volunteer events, specifically Red Cross, Ronald McDonald House of Orange County, TW Learning Center/Earl Woods Scholarship Program, and MIKA.

## **Kelly Stromberg**

Hatchery Manager, Catalina Sea Ranch

## **Ron Troyano**

Managing Co-partner, Alchemy Cultural Fare and Cocktails

Ron Troyano has been the managing co-partner of the sustainable South Park eatery Alchemy since its establishment in 2009. Ron believes in business that gives back to the community it serves; he co-created the Scratch Culinary Education Training Program to teach school food service personnel various scratch cooking techniques to support the healthy school food movement. He has been a member of the American Sommeliers Association for eight years and is an acting member of the San Diego Farm to School Task Force, San Diego Food System Alliance and sits on the boards of the San Diego Hunger Coalition and The Front Burner fund.

# BIOS

## **Jennifer Taylor**

### **Assistant Professor, Scripps Oceanography**

Jennifer is a new assistant professor of marine biology at Scripps Institution of Oceanography and her main focus of research is on crustacean biology.

## **Daniel Terracin**

### **Operations/Species Analyst, Catalina Offshore Products**

Daniel Terracin joins Catalina Offshore Products as the Operations and Species Inventory Analyst, supporting all facets of the fin fish, pelagic, and shellfish business at CatalinaOP. Dan completed his studies at the University of Washington with a Bachelor of Science in Biology – Ecology, Evolution and Conservation. He was awarded Dean’s list status on multiple occasions during his time at UW. For the last three years Dan has supported the Foster School of Business and the University of Washington as a mentor. Dan has also worked in roles with FishWise, California Department of Fish and Wildlife, Scripps Institution of Oceanography, and the UW School of Aquatic and Fisheries Science.

## **Rick Timm**

### **President, SeaBotix**

SeaBotix is the world’s leading manufacturer of MiniROV systems with a pedigree of underwater expertise. Rick earned his engineering degrees from Clarkson University and brings 35 years of experience in operations, sales, and marketing of complex technical products. An early supplier to SeaBotix, he has been involved in SeaBotix since the beginning. Now acting as president, Rick is responsible for overseeing all aspects of the company. Rick helps to ensure the engineers are on track, production is going smoothly, finances are in order, and sales are coming in.

## **Russ Vetter**

**Senior Scientist, NOAA/Southwest Fisheries Science Center (SWFSC)**

Russ Vetter is senior scientist for Biotechnology and Aquaculture at the Southwest Fisheries Science Center. Previously he served as director of the Fisheries Resources Division, SWFSC. His current research interests center on the genomics and physiology of *Seriola* species (yellowtail) as they relate to improving sustainable yellowtail aquaculture.

## **Ted Waitt**

**Chairman, Waitt Foundation**

**Co-founder, Gateway, Inc.**

The Waitt Foundation, established by Gateway, Inc., co-founder Ted Waitt in 1993 concentrates on reversing the rapid decline of ocean health with a speciality in public-private partnership and through supporting a variety of national and international programs. Partnering with unique coalitions of government, foundations and philanthropists, NGOs, academics, and business, the Waitt Foundation supports high impact projects with the ultimate aim to “restore our oceans to full productivity.”

## **Jeff Wilber**

**Silvergate Bank**

## **Paul Wills**

**Associate Research Professor, Harbor Branch Oceanographic Institute**

Paul Wills earned his Ph.D. from Southern Illinois University in 1998. In 2006 he joined Harbor Branch Oceanographic Institute and is currently an associate research professor and the institute’s associate director for research. He conducts research on aquaculture of marine fish, including Florida pompano, red drum, and cobia, in recirculating aquaculture systems and currently leads a team of scientists developing a recirculating Land Based Integrated Multi-Trophic Aquaculture system.

# BIOS

## **Debbie Zmarzly**

### **Interim Director, Birch Aquarium at Scripps Institution of Oceanography**

Scripps alumna Debbie Zmarzly was named interim director of Birch Aquarium at Scripps in October 2014. She has been with Birch Aquarium since 1993, devoting more than 20 years to making science accessible and interpreting Scripps research for the public. As project scientist and exhibit curator, Debbie has developed content for a variety of projects, ranging from the biology of coral reefs, sharks, seahorses, and whales, to El Niño, Earth's climate history, and earthquakes. She was most recently named the aquarium's director of programming, tasked with setting and accomplishing strategic goals for the aquarium's educational programming, including exhibits, school programs, volunteer services, and public programs.



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