Ed Ricketts Memorial Award and Lecture

Ed Ricketts was born in Chicago in 1897 and studied ecology at the University of Chicago. He moved to the Monterey Peninsula in 1923 and opened Pacific Biological Laboratories, providing specimens and slides to research institutions. Ricketts met John Steinbeck in 1930 and became a major influence on the author writing and philosophy, serving as the inspiration for many notable Steinbeck characters. On their famous trip aboard the *Western Flyer*, Ricketts and Steinbeck explored the Gulf of California and collaborated on the book "The Sea of Cortez." Ricketts also wrote "Between Pacific Tides," an ecological handbook of intertidal marine life that is still used as a textbook at many universities. The scientific catalogue of organisms documented by Ricketts, both aboard the *Western Flyer* and during his other studies, has been invaluable to marine scientists. His work and unconventionally holistic approach to science has inspired generations of researchers.

Ricketts Award Criteria

The Ed Ricketts Memorial Award was created to honor people who have exhibited exemplary work throughout their career and advanced knowledge, appreciation, conservation and/or protection of the marine environment.

The Ricketts Award recognizes lifetime achievement in the fields of marine science conservation, or education, based in part on Ed Ricketts' exemplary ability to study natural history and share knowledge in a compelling and holistic manner.

Recipients are selected by the Research Activity Panel of Monterey Bay National Marine Sanctuary. Nomination and selection processes shall consider the following:

<u>Achievement and Sharing of Knowledge</u>
- Contribution to, and impact upon, field of study
- Ability to give an engaging and inspirational lecture

<u>Collaboration and Engagement</u>
- Exceptional collaboration, communication and engagement
- Engagement with all ways of learning about and understanding the natural world

<u>Mentorship and Development</u>
- Active mentorship and development of all learners

Nominees do not have to be local to the Monterey Bay area.

Ricketts Lecture Abstracts

Recipients of the Ed Ricketts Memorial Award (including lecture titles, abstracts and bios) are listed below.

Year	Recipient	Title of Lecture
2025	David A. Ebert	*Searching for Lost Sharks*
2024	Daniel P. Costa	*Beyond Pacific Tides: How Technology Has Provided a Window into the Secret Life of Marine Mammals*
2023	Tim Thomas & Linda Yamane	*What's up Doc: When History and Science Collide!* *Weaving the Past With the Present*
2022	Rick Starr	*Chasing Seascapes: Patterns of Scale and Connectivity in Coastal Oceans*
2021	Mark Silberstein	*-no lecture-*
2020	Terrie M. Williams	*From "Doc" and Dogs to Denizens of the Deep: How understanding biological design will save the oceans and ourselves*
2019	James Harvey	*Research, Teaching, and Mentoring: Musings of a Generalist Optimist*
2018	Steven Haddock	*Beneath Pacific Tides: The wondrous glowing realm of deep-sea biodiversity*
2017	Fiorenza Micheli	*Under pressure: Vulnerability and resilience of coastal systems of the California Current*
2015	Peter Raimondi	*Investigation of sea star wasting: The critical importance of citizen science*
2014	Francisco Chavez	*The Oceanography of the MBNMS Today and in the Future*
2013	Mark Carr	*What Would Ed Do? Innovations in Science and Management of Kelp Forest Ecosystems in the 21st Century*
2012	Ken Johnson	*What Does $4,000,000,000/Year in Agriculture Mean to Our Coastal Ocean? Lessons from LOBO (the Land/Ocean Biogeochemical Observatory)*
2011	Michael S. Foster	*The Biology of Giant Kelp: Implications for Kelp Forests and Beyond*
2010	Rikk Kvitek	*From "You've Got to be Kidding!" To "Ah-Ha!" Hope for Our Oceans Through Insight and Innovation*
2009	Bruce Robison	*Heroes of Future Past: Deep Pelagic Research in Monterey Bay*

Year	Recipient	Title of Lecture
2008	James P. Barry	*Changing the World One Breath at at Time: Humans, Climate, and Ocean Ecosystems*
2007	Gary Griggs	*California's Central Coast: Observations, Changes and Human Impacts*
2006	David Epel	*Lessons Learned: How Worldwide Pollution Happened in the Past, How it's Happening Again and a Solution for the Future*
2005	Barbara A. Block	*Hot Tuna: Electronic Tagging of Highly Migratory Fish Reveal New Insights for Fisheries Management and Oceanography*
2004	John Pearse	*The Health of the Ocean's Intertidal: Then, Now, and in the Future*
2003	James Estes	*Defaunated Food Webs: Vertebrate Consumers and Nature's Balance*
2002	Jane Lubchenco	*Seas the Day - Navigating Uncharted Waters in Ricketts' Backyard*
2001	Mary Silver	*A Local Story: Harmful Algae in Monterey Bay*
2000	Paul K. Dayton	*Long-Term Changes in Kelp Forests and Their Assemblages*
1999	Joseph Connell	*Long-Term Dynamics of Corals on Heron Island, Great Barrier Reef*
1998	George Somero	*Faunal Changes in Monterey Bay: Is Global Warming Starting to "Hurt"?*
1997	Greg Cailliet	*Below Pacific Tides: The Predictability, Diversity and Importance of Habitats for Marine Fishes*
1996	Steve Webster	*Ed Ricketts, Where Are You When We Need You?*
1995	Dick Parrish	*Sardines*
1994	Wayne Sousa	*Mudsnails in Space: the Metapopulation Dynamics of Cerithidea californica*
1992	Jim Childress	*Deep Stuff*
1991	Walter Munk	*Acoustic Thermometry of Ocean Climate, in Gestation*
1990	Gene Haderlie	*Historical Perspectives on Research in Monterey Bay*
1989	John Martin	*Iron in the Ocean*

Year	Recipient	Title of Lecture
1988	Sandy Lydon	*History of Peoples of Monterey Bay*
1987	Dick Barber	*Recruitment to Eastern Pacific by Larvae Riding El Niño Currents*
1986	Joel Hedgepeth	*History of Natural History Exploration Hereabouts*

2025 Ed Ricketts Memorial Award and Lecture
Sanctuary Exploration Center, Santa Cruz, CA
December 10, 2025

David A. Ebert

Pacific Shark Research Center, Moss Landing Marine Laboratories, San Jose State University

Searching for Lost Sharks

"*Jaws*" was the first summer blockbuster movie that people went to see again, and again, thus changing the movie industry and the way people went to movies forever. The movie brought world-wide attention to sharks, both exploitative and sensational. The negative consequences of sharks being overfished, culled from popular beaches or fished for sport have been well documented. It is hard to find an article or news report that does not state and restate that sharks are overfished and populations declining globally. However, rarely mentioned is how the movie gave birth to the modern field of shark science, conservation, and education. After WWII shark "research" mainly focused on preventing shark attack due to sensational stories of sailors and airmen who surviving combat found themselves stranded in the ocean with sharks. After the movie came out, and despite the sensational headlines, public and scientific interest in sharks increased and laid the foundation for contemporary shark research. The field of shark science may eventually have come into its own, but it was this movie that really put sharks in the public conscience. From my perspective, Peter Benchley's real legacy is having brought the plight of sharks out of the shadows and to the forefront of public attention. Without his timely book and an exceptionally well-made blockbuster movie, the fields of shark science and conservation may never have come into being, and the vast majority of sharks would still remain lost from the public's conscience, with many suffering dire consequences!

About David A. Ebert

Dr. Dave Ebert has devoted his life to studying the ocean's most elusive, dangerous and yet fascinating predator - the shark! Author of 38 books and over 800 publications, including the popular "Sharks of the World" and "Sharks, Rays, and Chimaeras of California", Dave holds numerous positions including Director of the Pacific Shark Research Center, past President of the American Elasmobranch Society, Scientific Advisor to the United Nations Food and Agriculture Organization, Research Associate at the California Academy of Sciences and South African Institute for Aquatic Biodiversity, and the IUCN Shark Specialist Group. A popular television guest, Dave has appeared on various programs for the BBC, Discovery Channel, and National Geographic. As a regular on Shark Week, Dave has lead expeditions in search of the rarest, most elusive sharks in the world. He has even discovered new shark species while filming on location. Dave is founder of the *Lost Sharks* project, co-host of the popular podcast *Beyond Jaws*, and producer of the documentary series *Searching for Lost Sharks: Extinct or Alive!*

2024 Ed Ricketts Memorial Award and Lecture
Sanctuary Exploration Center, Santa Cruz, CA
September 25, 2024

Daniel P. Costa

Department of Ecology and Evolutionary Biology, University of California Santa Cruz

Beyond Pacific Tides: How Technology Has Provided a Window into the Secret Life of Marine Mammals

Like most studies of animal behavior, marine mammal research started as a purely observational discipline. Animals were observed on beaches or swimming near shore, followed by boats or airplanes. While informative, these observations provided only a restricted view of where the animals spent most of their time: underwater. Gaining a window into their deep, dark world, often thousands of miles at sea, required developing devices to record, archive, and transmit information on their otherwise mysterious lives. We've come a long way from the simple capillary gauges that recorded the depth of the single deepest dive to tags that tell us how deep, how long, how fast, when, and where they sleep, along with information on the physical and biological characteristics of the ocean. This talk will examine how technology has provided insights into the behavior and physiology of marine mammals in nature.

About Daniel P. Costa

Dr. Daniel Costa, a distinguished professor of ecology and evolutionary biology, and the former Director of the Institute of Marine Sciences at UC Santa Cruz, is a globally acknowledged authority on the physiology, ecology, and behavior of marine mammals. His research, deeply rooted in oceanography and Earth history, has been instrumental in the development and application of electronic tags for tracking marine mammals and gathering oceanographic data. His leadership roles at regional, national, and international levels further underscore his influence in the field.

After earning a B.A. in zoology at UCLA and his Ph.D. in biology at UC Santa Cruz, Dan was a postdoctoral scholar at Scripps Institution of Oceanography before returning to UC Santa Cruz in 1983. A fellow of the California Academy of Sciences, the Society for Marine Mammalogy, and the Ecological Society of America. Dan held the Ida Benson Lynn Chair in Ocean Health at UC Santa Cruz from 2008 to 2013. He has served on the U.S. Ocean Resources and Research Advisory Panel, the Ocean Studies Board of the National Academy of Sciences, and as a program manager for the Office of Naval Research. He has also held leadership positions on large multi-institutional projects and research consortia, such as the Tagging of Pacific Predators (TOPP) program, which he co-founded, the Southern Ocean Observing System, and the Central and Northern California Ocean Observing System. He received the Antarctica Service Medal, and Costa Spur in Antarctica was named in his honor in 2006. In 2022, he was awarded the Outstanding Faculty award at UC Santa Cruz, and, in 2024, was awarded the Fellows Medal from the California Academy of Sciences.

View recorded lecture at: Webinar Recording

2023 Ed Ricketts Memorial Award and Lecture
Sanctuary Exploration Center, Santa Cruz, CA
November 8, 2023

Tim Thomas

Maritime Heritage and Fisheries Historian

What's up Doc: When History and Science Collide!

In September of 1939, nineteen-year-old Monterey Nisei (second generation Japanese American) abalone diver Roy Hattori, was diving for Red Abalone in about sixty-feet of water, just south of Point Conception when he came across some unusual looking abalone. He knew right away that these abalone were different and perhaps even a new species. Roy collected several of them and sent them to the surface in his abalone basket. Upon returning to Monterey, he took them to his friend and known expert in marine shells, Andrew Sorensen, to help identify them. Sorensen was stumped! Together, they took the shells to Hopkins Marine Station where none of the scientists there were of any help. Eventually Sorensen sent one of the shells to his friend Malacologist, Dr. Paul Bartsch of the Smithsonian Institution.

Roy's first instincts were correct, it was a new species. Bartsch called it a White Abalone, because of its whitish tan colored mantel and named it after his friend, Andrew Sorensen, *Haliotis sorenseni*. A name that has held for almost eighty-five years. Perhaps it's time to make a change. Or at least an addition.

In recently recovered correspondence between Sorensen and Bartsch, Sorensen states in a letter dated June 20th, 1940, …***it was Hattori who brought up the original large ones that you named H. sorenseni***. In Sorensen's own words, it was in fact, Roy who first discovered the White Abalone. Sorensen felt guilty that it was named after him. *Haliotis sorenseni hattorii* seems appropriate.

Why does any of this matter? Scientists have told me that even if the name was changed to include Hattori, they would still call it *Haliotis sorenseni*. But that's irrelevant! It matters because history is history, science is science and truth is truth!

About Tim Thomas

Tim Thomas worked as a curator for the Monterey Maritime and History Museum for 16 years, and has developed programs with the Monterey Bay Aquarium, California State Parks, and Monterey Bay National Marine Sanctuary (MBNMS). Tim was part of the expedition team that mapped and characterized the wreck of the Airship *Macon* in 2006, with the Monterey Bay Aquarium Research Institute and MBNMS. He is author of the books "The abalone King of Monterey: 'Pop' Ernest Doelter," "The Japanese on the Monterey Peninsula," co-author of "Monterey's Waterfront" and co-author of "Abalone Diving along the California Coast." He is a popular speaker and leads walking tours of Monterey. Tim is also on the board of directors of the Japanese American Citizens League of the Monterey Peninsula, curator of Japanese American Heritage Center/Museum, and is the current chair of the City of Monterey's Museums and Cultural Arts Commission.

View recorded lecture at: Webinar Recording

2023 Ed Ricketts Memorial Award and Lecture
Sanctuary Exploration Center, Santa Cruz, CA
November 8, 2023

Linda Yamane

Rumsen Ohlone Artist, Historian and Culture Bearer

Weaving the Past With the Present

I grew up knowing of my local Native heritage, but little of the culture once practiced by my Rumsen ancestors. A close relationship with my paternal grandmother, and her penchant for telling family stories, instilled in me a strong sense of belonging — both to my extended family and to the land. But as I grew older, and wondered more and more about the specifics of what had been lost — the sound of our language, the nature and style of our songs, the location of our villages, the shapes and names of our baskets and how they were made and used — it was surely the loss that inspired me to search for answers.

In this presentation I will share some of this journey of discovery, along with some of my baskets, boats, dance regalia, and material harvesting, all of which reflect the richness of the Monterey Bay area, the relationship its indigenous people have always had with the land, and the depth of their resourcefulness and esthetic values.

About Linda Yamane

Linda Yamane is a Rumsen Ohlone artist, historian and culture bearer living in Seaside, California. She has spent nearly four decades researching and reviving Rumsen basketry, language, stories, songs, and a variety of ancient traditional Ohlone technologies. Through painstaking work with published and unpublished sources, especially the field notes of linguist and ethnographer John P. Harrington, she has pieced together aspects of Ohlone culture and Rumsen history that were once thought lost. Wax cylinder recordings made in Monterey in 1902, as well as later aluminum disc recordings, have made it possible to return some traditional songs back to the Rumsen community. She is known statewide and internationally as a master Ohlone basketweaver, having brought this art back into everyday practice.

Yamane has incorporated her knowledge of traditional Ohlone culture into her artwork, and has illustrated Monterey and San Francisco Bay Area interpretive signs for the National Park Service, San Francisco PUC, Santa Clara County Parks and various other agencies.

She created two books of Ohlone stories, published by Oyate: *When the World Ended/How Hummingbird Got Fire/How People Were Made—Rumsien Ohlone Stories*, and *The Snake That Lived in the Santa Cruz Mountains and Other Ohlone Stories*. She also authored *Weaving a California Tradition: A Native American Basketmaker* (Lerner Publications) and was editor for *A Gathering of Voices: The Native Peoples of the Central California Coast* (Santa Cruz Museum of Art and History). She has co-authored and contributed to several other books, including *In Full View: Three Ways of Seeing California Plants*, by Keator/Yamane/Lewis (Heyday) and *First Coastal Californians* edited by Lynn H. Gamble (SAR Press).

In June 2022, Yamane formally organized more than 300 Rumsen people from known and documented lineages as the Rumsen Ohlone Tribal Community, an act intended to create a more tangible identity and facilitate cultural sharing and learning. A private Facebook group allows members to ask questions, get answers, learn Rumsen language and songs, share family stories and photos, plan events, and get to know each other. A website — RumsenOhlone.com — is a resource for Rumsen history and culture, with plans to expand its content in 2024. Members look forward to reaching out to other Rumsen descendants who may also want to join their community efforts.

In July 2023, Linda Yamane and Violet Smith (Rumsen/Ramaytush Ohlone) were selected by the Alliance for California Traditional Arts (ACTA) as one of twenty-four apprenticeship pairs to participate in ACTA's year-long Apprenticeship Program, during which Linda will teach Ohlone coiled basketry to Violet. In September 2023, Yamane was also awarded ACTA's Living Cultures Grant to form an Ohlone dance group, teach community members to make traditional dance regalia, and reconstruct some Rumsen dances based on her research. At age 74, Yamane is passionate about passing her knowledge on to younger generations so that the beauty and truth of Rumsen Ohlone culture will live into the future.

View recorded lecture at: Webinar Recording

2022 Ed Ricketts Memorial Award and Lecture
Sanctuary Exploration Center, Santa Cruz, CA
October 26, 2022

Rick Starr

Research Faculty, Moss Landing Marine Laboratories

Chasing Seascapes: Patterns of Scale and Connectivity in Coastal Oceans

Terrestrial scientists have long used principles of landscape ecology to predict the effects of human activities on land. In marine environments, however, the science of seascape ecology is relatively new, and we are finding that ecological paradigms generated from landscape ecology do not always translate well to seascapes. As human activities, climate change, and natural stressors increase in spatial distribution and magnitude in coastal oceans, new ecological models will be needed to accurately predict and mitigate the effects of human uses. The science of seascape ecology is rapidly advancing our understanding of coastal ocean habitats, species-habitat associations, and species connections, and its use is going to be more important in the future.

About Rick Starr

Rick Starr has been productive and innovative in many facets of marine science. Throughout his career he has advanced marine research, exploration, education, and conservation. Rick has been principal investigator or chief scientist for an impressive list of research cruises, including 168 submersible dives as a researcher and 6 more as a pilot. Rick began his career as an estuarine and wetland ecologist. In the early 1980s he joined Jim Harvey and Mary Yoklavich at then-remote camps at Baja's San Ignacio Lagoon to deploy newly developed equipment in gray whale tagging studies. He was program manager at Oregon DFW assessing the habitat and ecology of shrimp, squid, and scallops. For the next 28 years (and counting) he has focused on fish population biology and the design and assessment of marine protected areas while serving as Sea Grant Marine Advisor, Director of the California Sea Grant Extension Program, and adjunct professor at the Moss Landing Marine Laboratories. He has advanced study designs and techniques to quantify fish size, movement and population density using SCUBA, ROVs, submersibles and hydro-acoustics. He pioneered techniques to surgically implant fish tracking devices at depth using SCUBA. He has conducted research on and assisted with development of MPAs in California, Belize, Mexico, Costa Rica, and Spain. He is author or co-author of at least 70 journal articles and 90 other technical or public reports. More detail can be found on his lab's web page: https://mlml.sjsu.edu/research-faculty/richard-starr/

Rick has been influential in the policy arena. Among the many delegations and committees on which he has served are seminal science advisory bodies that shaped the implementation of the California Marine Life Protection Act and the design of the Marine Protected Area Monitoring Initiative. Rick served 20 years on the MBNMS RAP, including 7 years as vice chair. His California Collaborative Fisheries Research Program has engaged over 1,500 recreational fishermen in the coproduction of data to assess the effectiveness of MPAs. As adjunct professor Rick has taught and mentored students for 25 years at MLML and CSUMB, and has been the primary thesis advisor or a thesis committee member for 26 graduate students. He has co-authored at least a dozen publications with his graduate students. For younger students, Rick was a founder and inaugural board president (1996 – 2005) for Camp SEA Lab, a non-profit organization that fosters science, exploration, and stewardship through marine-oriented programs that have served over 25,000 school-age kids.

View recorded lecture at: Webinar Recording

2021 Ed Ricketts Memorial Award
-No Lecture-

Mark Silberstein

Executive Director, Elkhorn Slough Foundation
Mark is a great naturalist (like a muddy Ed Ricketts). As a grad student and affiliate of Moss Landing Marine Labs he was one of the Benthic Bubs who explored benthic communities along the west coast of North America and dug into soft bottoms in the Arctic and Antarctica. Mark was the first Research and Education Coordinator for the Elkhorn Slough National Estuarine Research Reserve and the founding executive director of the Elkhorn Slough Foundation, which has grown to be a key partner of the National Estuarine Research Reserve. He has been instrumental in acquiring, restoring and monitoring over 4,000 acres of habitat-rich land in the Elkhorn watershed. In concert with the Reserve, research programs have been established that span water quality, weather monitoring, biological monitoring, estuarine conservation research, and geographical ecology. Mark has made a career of educating people (from kids to Congress members) regarding the beauty and special ecological value of the Slough. For nearly 40 years Mark has worked to conserve and restore what he considers the 'cosmic center of the universe' and to be the even keel and catalyst bringing together varied interests from across the land management spectrum to build a lasting place for conservation and research. Mark has a wealth of observations and experiences to draw from, and he is a wry and witty storyteller. Based on his explorations of wide geographic latitudes, his deep infatuation with creatures that live in the mud, and his hands-on experience advancing marine conservation, Mark has given countless fascinating presentations to a wide variety of audiences.

About Mark Silberstein

Trained as a marine zoologist, Mark has worked on the study and conservation of coastal wetlands for four decades. Working with a group of community volunteers, Mark developed the land trust function of the Elkhorn Slough Foundation, which is aggressively working to conserve and restore the Elkhorn Slough, one of the last remaining estuarine wetlands on the central coast. Mark was on a team of conservationists that developed a watershed conservation plan for the Elkhorn watershed that led to significant funding for land acquisitions here. Mark chaired NOAA's Blue Ribbon Panel on National Estuarine Research Reserves. He has been honored by the Environmental Law Institute, The Nature Conservancy, Sierra Club and the Monterey Bay National Marine Sanctuary. Mark is known for pursuing collaborative approaches to conservation and for a fondness for mud.

2020 Ed Ricketts Memorial Award and Lecture
ONMS Webinar Series
January 21, 2021

Terrie M. Williams

Director, Center for Marine Mammal Research and Conservation, University of California, Santa Cruz

From "Doc" and Dogs to Denizens of the Deep: How understanding biological design will save the oceans and ourselves

In the early 1900s, the Pacific Biological Laboratories under Ed Ricketts was a storehouse of biological wonders that provided preserved marine and terrestrial specimens for study by scientists around the world. As a college student, those specimens created a foundational curiosity in biological design that shaped my entire career. For three decades, my lab and colleagues have examined how evolutionary processes in animal design conspire with modern anthropogenic pressures to challenge the survival of marine-living mammals. Marked morphological and physiological modifications necessary for transitioning from land to the sea not only represent adaptive benefits, they also provide insights into biological vulnerability (Biological Achilles' heels) to human-induced disturbances. We find that the most recently evolved (‹ 10 MYA) marine-living mammals, represented by polar bears and sea otters, incur higher energetic costs for locomotion and thermoregulation compared to highly-adapted marine species from older (› 50 MYA) lineages as represented by cetaceans and manatees. Along with the energetic challenges, fur insulation and paddling forms of swimming leaves marine bears and otters vulnerable to the impacts of catastrophic oil spills. Conversely, extreme specialization for aquatic thermoregulation, swimming, and deep-diving by species such as whales and dolphins avoids these energetic problems, but can lead to increased susceptibility to environmental perturbations including extreme temperature changes and oceanic noise. Preventing animal extinctions due to our human activities will obviously depend on species-specific solutions, facilitated by recognizing how animals were originally built to survive.

About Terrie M. Williams

Terrie M. Williams is a comparative eco-physiologist with 35 years of research experience concerning the exercise physiology of terrestrial and aquatic mammals such as African lions, sea otters, narwhals, polar bears, and Weddell seals. As a Professor at the University of California- Santa Cruz, she directs the Integrative and Comparative Energetics (ICE) Lab and the Marine Mammal Physiology Project. Her research expeditions have taken her from the polar regions of the Arctic and Antarctic as well to the savannahs of Africa and the mountainous California coast. She developed many of the instruments used in her studies including submersible heart rate microprocessors for monitoring the diving responses of dolphins and whales as they feed at sea, and the S.M.A.R.T (Species Movement, Acceleration, and Research Tracking) collar that integrates the energetics and behavior of terrestrial carnivores hunting across diverse landscapes. Terrie and her students strive to understand the ecological significance of large mammals and the physiological adaptations necessary for species survival in a world that is constantly changing due to human impacts. On her most recent project, she is deploying her heart rate monitors on narwhals and is also measuring their thermal biology using infrared technology. Her primary goal is to understand how the presence of humans may disrupt the normal daily routine of these remarkable deep diving whales. Dedicated to solving challenges faced by underrepresented groups in the sciences she has written and managed GAANN education grants, and is especially interested in introducing field research to students. She has written several popular books, including, The Odyssey of KP2, about her efforts to conserve endangered Hawaiian monk seals which won the 2012 AAAS/Subaru Award for Science Book and Film Prize (Young Adult Science Books).

View recorded lecture at: Webinar Recording

2019 Ed Ricketts Memorial Award and Lecture
Sanctuary Exploration Center, Santa Cruz, CA
September 17, 2019

James Harvey

Director, Moss Landing Marine Laboratories

Research, Teaching, and Mentoring: Musings of a Generalist Optimist

In my research life I consider myself a generalist. I have mostly been interested in marine vertebrates, which has included fish, turtles, birds, and mammals. Foraging ecology has generally been the topic, and this had led to use of loggers and cameras to understand what prey are taken, how choices are made by predators, and what influences prey choice. I will share a bit of information about the foraging ecology of harbor seals, humpback whales, and leatherback turtles. Involved in these and many other studies have been my 88 graduate students. My interactions with them and their successes have been my greatest accomplishment. But it is clear that the educational process we used in the past no longer works that well. We need new methods, better forms of communication, and stronger connections to the topics students find relevant. I will spend a bit of time discussing the changing academic landscape. With so much negativity around regarding environmental issues, politics, lack of funding, I will end my musings with an optimist perspective.

About James Harvey

Dr. James Harvey has been Director of the Moss Landing Marine Laboratories (MLML) since 2013. Prior to that, starting in 1989, he was on the faculty of MLML, teaching and mentoring graduate students in Vertebrate Ecology. He was himself a 1979 graduate of the MLML Master's program, and earned a Ph.D. in Oceanography (with minors in Wildlife Ecology and Statistics) at Oregon State University in 1987.

Jim has had a productive research career with approximately 140 journal article authorships or co-authorships, in a diverse field including ecology, morphology, and behavior of marine mammals, birds, and turtles. In these studies, Jim, his colleagues and graduate students have utilized VHF/satellite-telemetry to study marine mammal/fisheries interactions. He has also been very active in vertebrate sampling techniques and experimental design, age and growth, population and trophic dynamics, and marine mammal stranding studies. Jim has participated on at least 17 scientific advisory boards. His teaching ranged from Statistics to Marine Birds and Mammals, and he has been major advisor for 88 master's theses and served on an additional 30 thesis committees. For additional information on his productivity, see: https://mlml.sjsu.edu/jim-harvey/, at which his impressive CV can be accessed.

Beyond his impressive research and teaching contributions, Jim has been a notable team player in the marine science world around the sanctuary. He has been on research committees for the Elkhorn Slough National Estuarine Research Reserve and on the Research Activity Panel (RAP) of MBNMS. In addition, he has partnered on grants and cooperative projects with many other researchers at most Monterey Bay research institutions. Under his direction, MLML has been host to countless meetings and forums to bring scientists and the public together to focus on important issues of the day, from hosting the Administrator of NOAA and U.S. Representatives to Assemblyman Mark Stone's annual environmental breakfast to a wide variety of scientific gatherings.

Most members of the RAP can add volumes to this brief description of Jim's work. He's an excellent speaker, with a wide variety of topics to draw from and would give a fascinating Ricketts lecture.

View recorded lecture at: Facebook Live Recording

2018 Ed Ricketts Memorial Award and Lecture
Moss Landing Marine Laboratories, Moss Landing, CA
April 10, 2018

Steven Haddock

Senior Scientist/Marine Biologist, Monterey Bay Aquarium Research Institute

Beneath Pacific Tides: The wondrous glowing realm of deep-sea biodiversity

While Ed Ricketts helped catalog the life along our coastlines, living in the ocean just a few miles offshore are creatures more alien than any science fiction movie. Most of these are so fragile that they haven't been observed until recently. Now, using submersibles combined with lab methods like genome-scale sequencing, we can address centuries-old questions of how the tremendous variety of animals has arisen. Much of the diversity of the open sea is within the gelatinous groups — not only familiar medusae, but in the shimmering comb jellies and the elongated siphonophores, which are rarely seen alive. We can also study the many ways they have adapted to the challenges of the vast deep sea, including the how and why they produce bioluminescent light. To us, this is like a magical superpower, but in the ocean, it is the rule rather than the exception. A huge diversity of organisms — from bacteria and single-celled algae to jellies, squid, and sea cucumbers — use light in their daily (and nightly) lives. In addition to serving a variety of functions for the organisms, bioluminescent and fluorescent molecules have direct biotech applications that improve human well-being. Extending our research into the deep sea gives a broader appreciation of life in the earth's largest habitat.

About Steven Haddock

Steve Haddock is a Senior Scientist at MBARI and an Adjunct Professor at the University of California, Santa Cruz. He studies phylogeny, genetics, ecology, bioluminescence, and biodiversity in gelatinous organisms. He has been a very active RAP member since 2010 and currently serves as the Research Alternate on the Sanctuary Advisory Council. In addition to his many scientific journal publications, Steve is an author of the books *Practical Computing for Biologists*, and *Scientific Blue-water Diving*. Steve has engaged the international public with his Jellywatch.org program, where information on gelatinous organisms is logged onto a web site by volunteer observers, and his Bioluminescence Web Page. His photos have appeared in *National Geographic* and the *New York Times*, and his video productions have reached hundreds of thousands of viewers on the Internet. Steve has become well known for his spectacular presentations, including unique animations and beautiful bioluminescent images. This work was particularly well received by the public during his two presentations at Sanctuary Currents, “What glows below… bioluminescence in the deep-sea” in 2012 and “Sourcing the crowd: the unique science behind your day at the beach” in 2015. He is a highly respected scientist with an ability to share information to the public in a way that would be outstanding for a Ricketts Award Lecture.

2017 Ed Ricketts Memorial Award and Lecture
Sanctuary Exploration Center, Santa Cruz, CA
February 10, 2017

Fiorenza Micheli

Professor, Hopkins Marine Station, Stanford University, Pacific Grove

Under pressure: Vulnerability and resilience of coastal systems of the California Current

The productive and diverse ecosystems of the California Current region are under increasing pressure from climate variability and extremes, and from intense human use. Through examples of field research in Baja California and California, Dr. Micheli will discuss how natural ecosystems and coastal communities are responding, and the importance of citizen science and participation for strengthening coastal systems in the face of environmental change.

About Fiorenza Micheli

Dr. Fiorenza Micheli is a marine ecologist and conservation biologist conducting research and teaching at the Hopkins Marine Station of Stanford University, in Pacific Grove, California, where she is the David and Lucile Packard Professor of Marine Science. Micheli's research focuses on the processes shaping marine communities and incorporating this understanding in the management and conservation of marine ecosystems. Her current research projects investigate social and ecological drivers of the resilience of small-scale fisheries to climatic impacts in Baja California, Mexico, the impacts of coastal hypoxia and ocean acidification in the California Current region, the ecology and conservation of sharks, and the function and establishment of Marine Protected Areas in the Mediterranean Sea. She is a Pew Fellow in Marine Conservation, a fellow of the California Academy of Sciences, and senior fellow at Stanford's Woods Institute for the Environment.

2015 Ed Ricketts Memorial Award and Lecture
California State University, Monterey Bay, Seaside, CA
April 25, 2015

Peter Raimondi

Professor, University of California, Santa Cruz

Investigation of sea star wasting: The critical importance of citizen science
Sea stars along much of the North American Pacific coast are dying in great numbers from a mysterious wasting syndrome. Similar die-offs have occurred before in the 1970s, 80s, and the 90s, but never before at this magnitude and over such a wide geographic area. *Pisaster ochraceus* and many other species of sea stars have been affected by the current sea star wasting syndrome event. The paper by Hewson et al. "Densovirus associated with sea-star wasting disease and mass mortality" provides evidence for a link between a densovirus (SSaDV) and sea star wasting syndrome (SSWS). However, even assuming that the disease is related to a pathogen it is unclear what caused the outbreak to initiate, particularly because the virus identified has been present in the system for decades. This event is probably the most rigorously described disease event in a marine system. This is due to three major elements. First – there were existing monitoring efforts along the west coast including PISCO, NPS and BOEM efforts. Second, a website was developed rapidly that acted as a repository for observations and as a portal for depicting (using interactive graphics) the spread of wasting geographically, temporally and by species. Third, there was a massive infusion, enabled through upload capacity in the website, of citizen science observations. These were high quality, geographically and temporally explicit observations that provided a huge augmentation to traditional science observations. This event, the response to it and the formal incorporation of citizen science provides a model for future events where rapid data acquisition is essential.

About Peter Raimondi

Peter Raimondi is a professor in and chair of the Department of Ecology and Evolutionary Biology at UC Santa Cruz. He received his PhD from UC Santa Barbara in 1988 and prior to his appointment at UC Santa Cruz had post-doctoral fellowships at the University of Melbourne in Australia and at UC Santa Barbara. He is the author of 100+ peer reviewed papers and technical reports on a wide range of topics, such as coral recruitment, kelp forest and rocky shore ecosystems, demography, molecular genetics, marine protected areas, wave energy, ecotoxicology, once-through cooling at power plants and desalinization facilities, nearshore oceanography and particularly design of monitoring programs. He is a principal investigator with the Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO), a multi-university consortium designed to conduct interdisciplinary research that informs coastal marine management and policy. He advises numerous panels, including the California Marine Life Protection ACT (MLPA), the California Coastal Commission Scientific Advisory Panel, the Statewide Ocean Desalinization Task Force, National Marine Sanctuary Program (NOAA) and the California State Water Board Advisory Panel. His current projects include: (1) Population and essential habitat assessment for the endangered species, black abalone (2) linking genetics to ocean circulation models to assess metapopulation connectivity of Kelp populations, (3) Assessment of patterns of biodiversity along the west coast of North America, (4) Baseline assessment of coastal resources in newly established marine protected areas in California and, (5) Assessment of biological effects resulting from intakes from discharges into state of California coastal waters. Dr. Raimondi has more recently started a project assessing the patterns and effects of seastar wasting along the west coast of North America.

2014 Ed Ricketts Memorial Award and Lecture
California State University, Monterey Bay, Seaside, CA
April 26, 2014

Francisco Chavez

Senior Scientist, Monterey Bay Aquarium Research Institute

The Oceanography of the MBNMS Today and in the Future

Debris is defined as the remains of something broken down or destroyed. In keeping with the theme of the conference I use the definition liberally to include carbon dioxide (CO_2) resulting from the burning of fossil fuels. The increase of CO_2 in the atmosphere resulting from the burning of fossil fuels leads to changes in climate as well as an increase in ocean acidity. I use historical records to describe variations in the oceanography and ecosystems of the Pacific and in the waters of the Monterey Bay National Marine Sanctuary (MBNMS). Past variations allow for speculation about what might occur in the future.

About Francisco Chavez

Francisco Chavez is a biological oceanographer with interests in how climate variability and change regulate ocean ecosystems on local and basin scales. He was born and raised in Peru, has a BS from Humboldt State and a PhD from Duke University. He was one of the founding members of the Monterey Bay Aquarium Research Institute (MBARI) where he has pioneered time series research and the development of new instruments and systems to make this type of research sustainable. Chavez has authored or co-authored over 200 peer-reviewed papers with 10 in *Nature* and *Science*. He is past member of the National Science Foundation Geosciences Advisory Committee, has been heavily involved in the development of the US Integrated Ocean Observing System (IOOS), is a member of the Governing Board of the Central and Northern California Coastal Ocean Observing System (CeNCOOS) and the Science Advisory Team for the California Ocean Protection Council. Chavez is a Fellow of the American Association for the Advancement of the Sciences; honored for distinguished research on the impact of climate variability on oceanic ecosystems and global carbon cycling. He was awarded a Doctor *Honoris Causa* by the Universidad Pedro Ruiz Gallo in Peru in recognition of his distinguished scientific career and for contributing to elevate academic and cultural levels of university communities in particular and society in general.

2013 Ed Ricketts Memorial Award and Lecture
California State University, Monterey Bay, Seaside, CA
April 27, 2013

Mark Carr

Professor, Department of Ecology and Evolutionary Biology, University of California, Santa Cruz

What Would Ed Do? Innovations in Science and Management of Kelp Forest Ecosystems in the 21st Century

Edward Ricketts was among the exceptional marine natural historians of the 20th century. His creative and diligent observations of species and communities through time generated insights into the environmental processes and species interactions that shape rocky intertidal ecosystems. Today we emulate these approaches by combining long-term observations with emerging technologies to generate insights into the processes that determine geographic patterns of community structure, population replenishment and productivity of kelp forest ecosystems. By combining remotely sensed oceanographic and seafloor features with advanced diving technology and large scale, long-term surveys we reveal the processes that drive the structure of coastal marine communities and provide insights into their conservation and management.

About Mark Carr

Dr. Mark Carr is a Professor in the Department of Ecology and Evolutionary Biology at the University of California at Santa Cruz (https://rclab.ucsc.edu/). He received his BA in Biology at UC Santa Cruz, his MS at San Francisco State University and Moss Landing Marine Laboratories, and his PhD at UC Santa Barbara. Before coming to UCSC, he was a postdoctoral fellow in the Zoology Department at Oregon State University and a faculty researcher at UC Santa Barbara.

Mark's research focuses on the population and community ecology of tropical and temperate coastal marine fishes, and coastal marine ecosystems. Much of his research has focused on the oceanographic processes and habitat features (e.g. giant kelp forests) that influence patterns of fish recruitment and population replenishment; interactions within and between species that regulate marine populations; and biotic and abiotic processes that influence the structure and functions of kelp forest ecosystems. To explore each of these, he combines long-term, large scale monitoring studies and field experiments. His ecological research informs management and conservation topics including artificial reefs, ecosystem-based management of kelp forest ecosystems, the design and evaluation of marine protected areas, collaborative fisheries research, ecosystem-based fisheries management, and large-scale, long-term monitoring studies. He is a principal investigator with the Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO), a multi-university consortium designed to conduct interdisciplinary research that informs coastal marine management and policy.

Mark teaches undergraduate and graduate courses in ecology, marine ecology, and marine conservation. His graduate students study the ecology of coastal marine fishes, freshwater salmonids, and kelp forest ecosystems. He is a Fellow of the California Academy of Sciences, and an Aldo Leopold Leadership Fellow. He served as Co-chair of the Science Advisory Team to California's Marine Life Protection Act (MLPA) and California's Ocean Protection Council (OPC). He sits on the steering committee for CAMEO, a funding program for marine ecosystem research jointly sponsored by the U.S. National Science Foundation and the National Marine Fisheries Service.

2012 Ed Ricketts Memorial Award and Lecture
California State University, Monterey Bay, Seaside, CA
April 14, 2012

Ken Johnson

Monterey Bay Aquarium Research Institute

What Does $4,000,000,000/Year in Agriculture Mean to Our Coastal Ocean? Lessons from LOBO (the Land/Ocean Biogeochemical Observatory)

Monterey Bay sits at the end of the Salinas Valley, one of the most productive and intensely farmed systems in the country. The value of Monterey County crop sales exceeded $4,000,000,000 in 2010 and agriculture is the largest element of Monterey County's economy. The runoff from this system flows in to Monterey Bay and presents a variety of potential impacts on the ecosystem, including stimulation of algal blooms due to excess nutrients. A delicate balance is required to maintain a sustainable food supply and to protect the ocean environment, which is a focal point of tourism, the second largest element of the County's economy. Managing such an ecosystem requires a timely flow of reliable information about the state of environment; just as running a business requires timely information on expenditures, revenues and projections of future opportunities. In modern business, the information must flow in real time, with up-to-date information on current market conditions, variable production costs and a multitude of other parameters required to remain competitive.

The focus of this talk will be on the benefits and opportunities that arise from using real time information systems in the environment. The Land-Ocean Biogeochemical Observatory (LOBO) is a network of chemical and biological sensors that have been operated in the waters of Elkhorn Slough, the Old Salinas River Channel and in Monterey Bay since 2003. Data flows directly to the Internet, where it is available to the public at www.mbari.org/lobo. The lessons learned in tracking nitrate concentrations as they flow through this system, and their impacts on the environment will be the main emphasis.

About Ken Johnson

Ken Johnson is a Senior Scientist at the Monterey Bay Aquarium Research Institute, where his work focuses on development of novel chemical sensors for seawater and their use throughout the world ocean. He received his BS degrees in Chemistry and Oceanography from the University of Washington in 1975 and his Ph.D. from Oregon State University in 1979. After 10 years at UC Santa Barbara, Ken moved to the Monterey Bay area with joint appointments at Moss Landing Marine Laboratories and the Monterey Bay Aquarium Research Institute in 1988. He moved to MBARI full time in 1999. Ken's interest in agriculture stems both from participating in ocean iron fertilization experiments during the 1990's and from working in the fields picking strawberries as a young teenager.

2011 Ed Ricketts Memorial Award and Lecture
California State University, Monterey Bay, Seaside, CA
April 9, 2011

Michael S. Foster

Moss Landing Marine Laboratories

The Biology of Giant Kelp: Implications for Kelp Forests and Beyond

The distribution and abundance of organisms is the dynamic outcome of interactions between their life histories and biological requirements, and the environment. This is especially obvious in plants that cannot pull up their holdfasts and swim away to avoid unfavorable conditions. Thus plant population dynamics, combined with knowledge of their biology, can be used to understand environmental change from the inside out. Giant kelp (*Macrocystis pyrifera*) is an especially good indicator of conditions in the nearshore ecosystem as it samples from the bottom to the surface at scales from microns to kilometers, responds relatively rapidly to variation in substrate, sedimentation, light, nutrients and wave forces, and the responses can be assessed remotely.

The efficacy of using giant kelp as an indicator is shown by a re-analysis of the extent and causes of kelp forest declines in southern California beginning in the 1940s. Declines were primarily in two large, mainland kelp forests and the patterns of decline reflected increases in sedimentation, reduction in benthic light, and increases in toxic chemicals from sewage discharge and coastal development. Low nutrients and high temperatures during the 1957-9 El Niño caused additional losses. The forests began to recover in the 1960s - 1970s with improvements in sewage management but complete recovery has not occurred due to habitat loss and likely continued sedimentation and impaired water quality. This and other examples illustrate how giant kelp populations can inform about past and present environmental change. They also show that from giant kelp's point of view marine reserves with more and bigger fish are fine, but successful management largely depends on maintaining benthic and water quality.

About Michael S. Foster

Mike Foster's interest in marine science began in 1964 while an undergraduate in the Spring Course at Hopkins Marine Station. This led to a Ph.D. from UC Santa Barbara in 1972, and 30 years as a professor at Moss Landing Marine Laboratories. His primary research interest is the population and community ecology of macroalgae. His research has ranged across many habitats and themes, including the causes of intertidal zonation, the structure and organization of kelp and rhodolith communities, and the impacts of oil spills and thermal discharges from power plants on temperate reefs.

Mike has been a Fulbright Scholar in Mexico, and is a Fellow of the California Academy of Sciences. His interests in understanding nature continue to be inspired by his early mentors and friends Michael Neushul and Isabella A. Abbott, the enthusiasm and abilities of his students and colleagues, and the magnificence of seaweeds.

2010 Ed Ricketts Memorial Award and Lecture
California State University, Monterey Bay, Seaside, CA
April 10, 2010

Rikk Kvitek

Professor, California State University Monterey Bay

From "You've Got to be Kidding!" To "Ah-Ha!" Hope for Our Oceans Through Insight and Innovation

Need, frustration, breakthrough and surprise is a trajectory common to many enterprises, especially science, where answers are often sought beyond the "You've Got to Be Kidding!" edge of what seems possible. Indeed, it is often frustration-induced lateral thinking that brings us to those Ah-Ha! moments of insight, innovation and breakthrough. Choosing or being forced to see things differently can make all the difference. Now, with our coastal oceans and communities facing the unprecedented threats of global warming, climate change, sea level rise, acidification, pollution, storm intensification, fishery declines, coastal erosion, harmful algal blooms, and more, we are in need of Ah-Ha! insights and solutions more than ever before. Not the least of which being ways to enhance public environmental literacy. Ecosystem Based Management (EBM) has been championed for over a decade as the pursuit and use of deeper ecosystem understanding to drive effective adaptive management solutions for the sustainable use of environmental goods and services. But it is difficult to understand, let alone agree upon and manage what you cannot see. Recent advances in our ability to collect and utilize spatially explicit data for the visualization of California's marine ecosystems have sprung from and lead to surprising insights that are making EBM both possible and personal. Here I use the ambitious, multi-institutional California Seafloor Mapping Project as a case in point for how transformational technology and data are changing for the better the way the public, agencies and scientists see, manage and interact with the marine environment. Stunning imagery, basic and applied scientific collaborations and breakthroughs, enhanced public environmental literacy, critical work force development, innovative resource utilization, and effective policy and management decisions are all now flowing from this type of strategic investment in state-of-the-art marine environmental data.

About Rikk Kvitek

Rikk Kvitek is an outstanding marine scientist, educator, and public servant who has focused most of his work over the last 20+ years on applied projects in Monterey Bay and Elkhorn Slough. He received his M.S. in invertebrate zoology at Moss Landing Marine Laboratories and then his Ph.D. at the University of Washington. Upon graduation, he spent many years as a benthic ecologist working in polar and coastal systems. He finally accepted a faculty position as a professor at CSUMB, where he has created and now oversees that university's very successful geospatial curriculum (GIS, GPS, Remote Sensing) and also created and directs CSUMB's Seafloor Mapping Lab (SFML), which is within the Spatial Information, Visualization and Analysis (SIVA) Center. He served as interim dean of Science, Media Arts, and Technology, but is now back to teaching and research full time.

Dr. Kvitek and his students have provided detailed, timely, and accurate information about seafloor terrain, habitats, and ecology to a variety of government agencies around the Monterey Bay including the MBNMS, the California Coastal Commission, and the California Department of Fish and Game. He is an accomplished teacher and uses the Seafloor Mapping Lab with its two research vessels, side scan sonar, multibeam bathymetry unit, and ROV as a real-world, hands-on "classroom" for dozens of undergraduate students each semester. Thus, he provides unprecedented opportunities for these students to gain first hand experience with state-of-the-art marine technologies for seafloor mapping and habitat characterization, as well as the processes of analyzing data and preparing it for publication.

The majority of the dozens of projects that Dr. Kvitek has completed with his students directly benefit the Sanctuary and other stakeholders around the bay (as well as elsewhere in California, the Pacific Northwest, and even Antarctica). For example, his students have done multibeam mapping of SIMoN priority habitat areas within the MBNMS. They have characterized the benthic and planktonic communities of Elkhorn Slough National Estuarine Reserve and mapped underwater erosion rates and locations in the Slough. They have conducted extensive seafloor mapping and habitat characterization projects for MBNMS, as well as other Sanctuaries including Channel Islands, Cordell Banks, and Olympic Coast. The experiences students have gained through these projects have enabled them to move right into excellent jobs with local agencies (e.g., California Department of Fish and Game) and to get into some of the most competitive graduate school programs in the country. In summary, Rikk Kvitek has contributed in substantial ways to the Monterey Bay National Marine Sanctuary, many local agencies, and hundreds of students, many of whom are now, as graduates, assuming leadership roles related to the management of ocean resources in our communities.

2009 Ed Ricketts Memorial Award and Lecture
California State University, Monterey Bay, Seaside, CA
April 18, 2009

Bruce Robison

Senior Scientist, Monterey Bay Aquarium Research Institute

Heroes of Future Past: Deep Pelagic Research in Monterey Bay

Henry Bryant Bigelow, Tage Skogsberg, Rolf Bolin and Eric Barham are names we seldom hear these days but each man played an important role in the development of our understanding of the animals that live in the deep waters of Monterey Bay. In 1928 Bigelow conducted a reconnaissance survey of the waters and plankton of Monterey Bay. Skogsberg initiated the first long-term hydrobiological survey of Monterey Bay that ran from 1929 to 1937. Bolin surveyed deep waters over the Monterey Submarine Canyon in the 1950s; and Barham brought new methods to bear on questions of animal distribution patterns over the Canyon. The legacy of these four scientists is a historical record of oceanographic conditions and biological patterns in the water column of Monterey Bay that reaches back eighty years.

In 1995 MBARI began a new time-series of pelagic measurements using technologies that could only have been dreamed of in 1928. This time series is the only data set of its kind and because of it, Monterey Bay is becoming the world's reference community for deep pelagic ecology. When we compare data from the historic surveys with the current one we find both similarities and differences in the species composition, relative abundance, and vertical distribution of animals in the deep water column - patterns that tell us how the midwater community has changed over the long term. The modern data set has also revealed significant short-term variations that may reflect an accelerated rate of change due to human influence. Ed Ricketts contributed directly to the surveys of Bigelow and Skogsberg; he was a friend to Bolin; and an inspiration to Barham and all who follow.

About Bruce Robison

Dr. Bruce Robison received his PhD from Stanford University in 1973. He spent two years conducting postdoctoral research at the Woods Hole Oceanographic Institution, before returning home to California, and to UC Santa Barbara. In 1987 he joined the newly formed Monterey Bay Aquarium Research Institute.

Robison's research is focused on the biology and ecology of deep sea animals, particularly those that inhabit the oceanic water column. He pioneered the use of undersea vehicles for these studies and he led the first team of scientists trained as research submersible pilots. As pilot or observer, Robison has spent a good portion of his career in deep water, aboard more than a dozen different submersibles. At MBARI, his research team has focused on the development of remotely operated vehicles as research platforms for deep-sea research.

Bruce Robison is a Fellow of the American Association for the Advancement of Science and a Fellow of the California Academy of Sciences. In 2002 he received the Marine Technology Society's Lockheed-Martin Award for Ocean Science and Engineering. In 2007 he was a Resident Scholar at the Rockefeller Foundation's Bellagio Center. His research in deep-sea ecology has carried him throughout the Pacific, to the Atlantic, and to the oceanic waters around Antarctica. He is the author of two books and more than ninety scientific publications on a wide range of organisms from fishes, squids and jellies to krill, dolphins and algae.

2008 Ed Ricketts Memorial Award and Lecture
California State University, Monterey Bay, Seaside, CA
April 5, 2008

James P. Barry

Senior Scientist, Monterey Bay Aquarium Research Institute

Changing the World One Breath at a Time: Humans, Climate, and Ocean Ecosystems

Science and technology have improved human health and promoted the rapid growth of world population, while simultaneously accelerating our exploitation of fossil fuels to provide energy for modern life. This has led to a massive increase in emissions of carbon dioxide to the atmosphere and serious concern for our role in ongoing climate change. Rare 20 years ago, links between global warming and changes in terrestrial and marine ecosystems are now commonplace. Less widely known is the role played by the oceans in the climate system, the effects of CO2 emissions on ocean chemistry, and their potential consequences for ocean ecosystems. In only the past few years a new term, "ocean acidification" has been coined to describe the rapid increase in ocean acidity caused by the influx of waste CO2 from the atmosphere. Projections of future ocean chemistry driven by our rapidly rising CO2 emissions are startling, with increases in ocean acidity unseen for many millions of years. How will this event affect the health of ocean ecosystems? Oceanographers are now attempting to identify the possible consequences of changing ocean conditions on phytoplankton productivity, coral reef health, deep-sea animals, and marine food chains. The fossil record of analogous events in Earth's geologic history suggests that the future ocean ecosystems could be quite different. Should we care?

About James Barry

With degrees in biology, zoology and biological oceanography, James Barry is a Senior Scientist at the Monterey Bay Aquarium Research Institute (MBARI), a non-profit research institute in Moss Landing, California. As an oceanographer and marine ecologist, Barry has pursued a number of research interests at MBARI, supported mainly through the use of remotely operated vehicles (ROVs) diving in the deep waters off Central California. His research program focuses principally on the biology and ecology of marine animals, with research themes that have spanned various topics, such as; 1) chemosynthetic biological communities in the eastern Pacific and Japan, 2) benthic-pelagic coupling in polar and temperate continental shelf and slope habitats, and 3) the effects of climate change and ocean acidification on marine ecosystems. For the past several years, Barry's research has centered on studies of the consequences of rising ocean acidity on marine organisms, from either the direct injection of waste CO2 into the deep-sea, or by the passive influx of carbon dioxide from the atmosphere.

2007 Ed Ricketts Memorial Award and Lecture
California State University, Monterey Bay, Seaside, CA
March 3, 2007

Gary B. Griggs

Director, Institute of Marine Sciences and Professor of Earth Sciences, University of California, Santa Cruz

California's Central Coast: Observations, Changes and Human Impacts

About Gary Griggs

Dr. Griggs received his B.A. in Geology in 1965 from the University of California, Santa Barbara and a Ph.D. in Oceanography from Oregon State University in 1968. He has been a Professor of Earth Sciences at the University of California, Santa Cruz since 1968 and has served as Chairman of the Department of Earth Sciences, Associate Dean of Natural Sciences, and has been the Director of the Institute of Marine Sciences and Long Marine Laboratory since 1991. He has served as Chair of the University of California Marine Council since its inception in 1999. He also serves on the executive committee of the Consortium for Oceanographic Research and Education (CORE) and on the California Sea Grant Advisory Board. In 1998 he was given the Outstanding Faculty Award in the Division of Physical and Biological Sciences at UC Santa Cruz. In 2003 he was given the CSBPA Joe Johnson Coastal Research Award. The UCSC Alumni Association honored him with a Distinguished Teaching Award in 2007.

His research and teaching have been focused on the coast of California and include coastal processes, hazards, and coastal engineering. He was a senior Fulbright scholar in Greece, has also conducted collaborative marine research in Italy and New Zealand. Dr. Griggs has written over 140 articles for professional journals as well as co-authored several books: The Earth and Land Use Planning; Geologic Hazards, Resources and Environmental Planning; Living with the California Coast; California’s Coastal Hazards: A Critical Assessment of Existing Land Use Policies and Practices; Coastal Protection Structures and Their Effectiveness; Living with the Changing California Coast and The Santa Cruz Coast: Then and Now.

2006 Ed Ricketts Memorial Award and Lecture
California State University, Monterey Bay, Seaside, CA
March 4, 2006

David Epel

Professor, Marine Sciences, Hopkins Marine Station of Stanford University

Lessons Learned: How Worldwide Pollution Happened in the Past, How it's Happeneing Again and a Solution For the Future

How is it possible to contaminate the entire globe with man-made chemicals? We saw this happen in the 1960's with DDT and the PCBs, and many of us were certain that the lessons learned then would prevent a similar occurrence ever happening again.

Well, we were wrong. One surprise was that new man-made chemicals called perfluorocarbons, were turning up in albatross and polar bears. We see these every day as stain repellants such as Scotchguards or non-stick cookware such as Teflons. Others, such as the synthetic fragrances put into detergents, have been found in fish and mussels. Somehow these chemicals got out of their bottles and into the world I will describe the detective work that led to these findings and the new insights that begin to explain how the seemingly solid stuff from frying pans and carpet coatings can escape into the environment and contaminate the globe.

This news sounds grim, but there are solutions. One comes from our research that shows how these chemicals accumulate in organisms. This research suggests ways to modify these chemicals so that they can still have their good side but without the untoward consequences. But what if we are wrong, and we learn too late that other chemicals are contaminating the globe? Global monitoring can detect such chemicals before they become problems. I will present ideas about such a worldwide surveillance system, how they are being better understood and followed as we progress into the 21st.

About David Epel

David Epel is the Jane and Marshall Steel Jr. Professor of Marine Sciences at Stanford University's Hopkins Marine Station. He received his PhD from UC Berkeley, and did post-doctoral work at the University of Pennsylvania. His past research used the embryos of marine organisms to study fertilization and early development. His recent work focuses on how these embryos protect themselves and this new path led to his interest on how pollutants can become global contaminants that affect oceanic as well as human health.

Epel has been a Guggenheim Fellow and Overseas Fellow of Cambridge, is a Fellow of the American Association for the Advancement of Science, the California Academy of Sciences and the 2004 Distinguished Fellow in Science and Technology of California State University, Monterey Bay. He also was awarded the Allan A. Cox Medal for Fostering Excellence in Undergraduate Research at Stanford University.

He and his wife Lois have been residents of the Monterey Peninsula since 1965 except for seven years when he was a professor at the Scripps Institution of Oceanography. Locally, Epel has served on the Board of the Monterey Bay Aquarium, the Monterey Bay Aquarium Research Institute and recently the Executive Committee of the Sierra Club. He is one of the founders of the Coastal and Ocean Round Table, a venue where leaders in government, business and academe discuss issues of the marine environment.

2005 Ed Ricketts Memorial Award and Lecture
California State University, Monterey Bay, Seaside, CA
March 12, 2005

Barbara A. Block

Tuna Research and Conservation Center, Hopkins Marine Station, Stanford University, Pacific Grove, CA

Hot Tuna: Electronic Tagging of Highly Migratory Fish Reveal New Insights for Fisheries Management and Oceanography

Top marine predators such as tunas, sharks, billfishes, mammals and sea turtles have historically been difficult to study due to their size, speed and range over the vast oceanic habitat. The development of small microprocessor-based data storage tags that are surgically implanted or satellite-linked provide marine researchers new technology for examining their movements, physiology and behaviors. When biological and physical data from the tags are combined with remote sensing, the relationship between the movements and behaviors of organisms can be linked to environment. Tag-bearing marine animals can function as autonomous ocean profilers providing oceanographic data wherever their migrations take them. These new animal-collected oceanic data complement more traditional methodologies for ocean observation. We have deployed over 1000 electronic tags on Northern bluefin tuna in the Atlantic and Pacific oceans. The tagging data are providing new insights into their seasonal movements, habitat utilization, breeding behaviors and population structures in both oceans. In addition, the data are revealing migration corridors, hot spots and physical oceanographic patterns that are key to understanding how Northern bluefin tunas use the open ocean environment. The data are critical for establishing new boundaries for domestic and international management. Similar data are now being obtained simultaneously for twenty pelagic species in the Tagging of Pacific Pelagics (TOPP) program. Animal tracks are simultaneously being mapped upon images from multiple satellites that provide information on ocean structure, circulation, and production, which collectively define the attributes of biological hot spots. The results provide important new data for conservation and management of pelagic ecosystems in the 21st century.

About Barbara A. Block

Professor Barbara Block, the Prothro Professor of Biology at Stanford University's Hopkins Marine Station and the Co-Director of the Tuna Research and Conservation Center, has made remarkably broad contributions to marine science. Her work ranges from molecular studies of heat-generating mechanisms in warm-bodied pelagic fish like tuna and swordfish, to the development of informed conservation policies for these highly exploited species. Her field studies have revealed the vast distances over which these species move, a finding that fisheries policy makers must take into account. Her tracking studies also seek to identify the breeding sites of tuna, to better enable protection of these species during critical stages of their life histories. For her extraordinary studies in molecular evolution, thermal physiology, field behavior and conservation, Dr. Block has been recognized with several major awards, including a McArthur Foundation Fellowship, a National Science Foundation Presidential Young Investigators Award, and a Pew Foundation Marine Conservation Fellowship. As one of the world's leading marine scientists in the areas of evolutionary physiology and conservation, Dr. Block is a most deserving recipient of the Ricketts Award.

2004 Ed Ricketts Memorial Award and Lecture
California State University, Monterey Bay, Seaside, CA
March 6, 2004

John Pearse

Joseph M. Long Marine Laboratory University of California, Santa Cruz

The Health of the Ocean's Intertidal: Then, Now, and in the Future

The intertidal region along the world's shorelines acts as a dynamic interface between land, air, and sea. Particles in the air fall onto the land and sea to be washed into the intertidal from both directions, and other materials of terrestrial and marine origins mix in the intertidal to become airborne in bursts of spray. The intertidal is most of all a zone of changes in space and time, and on many scales. Sites only a few meters or even centimeters apart differ dramatically in continually varying physical challenges from wave force or stagnation, sudden peaks or drops in temperature, and rain or desiccation. And both subtle and abrupt changes occur over time scales ranging from minute-to-minute variations to slow shifts over centuries and millennia. People are seizing an ever-increasing role in shaping the intertidal region, including the animals and plants found there. In turn, changes seen in the intertidal can serve people as a "miner's canary" of the health of the ocean. My talk will explore changes seen in the rocky intertidal of central California during the 20th century, and how they are being better understood and followed as we progress into the 21st.

About John Pearse

Dr. John Pearse is an institution in the Monterey Bay region. As one of the leading invertebrate zoologists and ecologists for several decades in his position at U.C.S.C., John has set a standard. He is best known for his work in the rocky intertidal, especially for his long-term survey approach and for including grade school students in his studies, something that was noted and supported by the California Sea Grant College Program and now is also supported by the Monterey Bay National Marine Sanctuary. He also has taught subtidal ecology courses and has influenced many students. His work on the reproduction of echinoderms is well respected. Even though John is retired from UCSC, he continues to be active, both at his research activities and at being involved in public issues relating to the Sanctuary and its remarkable marine resources.

2003 Ed Ricketts Memorial Award and Lecture
California State University, Monterey Bay, Seaside, CA
March 15, 2003

James Estes

Adjunct Professor of Biology U.S. Geological Survey and Institute of Marine Sciences Long Marine Lab U.C. Santa Cruz

Defaunated Food Webs: Vertebrate Consumers and Nature's Balance

Food webs are defined by who eats whom, thus establishing a complex network of pathways by which species may be connected with one another in nature. While this dimension to food web complexity has been well studied in many ecosystems, little is known about how food webs work. For example, ecologists are still struggling to understand such fundamental questions as the relative importance of bottom-up vs. top-down control, and the effects of direct vs. indirect food web linkages in population regulation. My lecture will explore these questions as they relate to large vertebrates, especially apex or high trophic-level predators. The progressive loss of global biodiversity has been disproportionately great for large vertebrates, in part because these animals are intrinsically rare and in part because people selectively exploit them. This pattern is well known for prehistoric, historic, and modern times. But the consequences of these losses to ecosystem function are poorly known, and in truth they have been a matter of minor concern to resource managers and policy makers in the larger scheme of things. I will argue that the selective defaunation of large vertebrates from the world's ecosystems has been instrumental in a wide array of indirect effects, most of which are undesirable to human welfare. Three examples (two from terrestrial ecosystems, one from the marine realm) will be used to illustrate how changes in the abundance and distribution of large vertebrates may have caused ripple effects – ecological chain reactions – to spread across their associated food webs, sometimes with important yet unforeseeable consequences. These examples, like many others, contain elements of uncertainty. I will conclude with a discussion of the implications of this uncertainty to science and policy, focusing in particular on ocean ecosystems.

About James A. Estes

Jim Estes received a B.A from the University of Minnesota in 1967, a M.S. from Washington State University in 1969, and a Ph.D from the University of Arizona in 1974. Following completion of his graduate studies, Dr. Estes moved to Alaska where he worked for the U.S. Fish and Wildlife Service on a variety of issues concerning arctic marine wildlife until 1978. In 1979 he moved to Santa Cruz. He is currently a research scientist with the US Geological Survey and holds adjunct faculty positions in biology and marine sciences at the University of California at Santa Cruz.

Dr. Estes' primary research interest concerns the nature and importance of species interactions, especially those resulting from the influence of apex predators. He has employed a wide range of experimental, comparative, and historical approaches to understanding the dynamics of species interactions in coastal marine ecosystems. Much of his field research has focused on the direct and indirect influences of sea otter predation in kelp forest ecosystems. This work now provides one of the better-known examples of the keystone species concept, indirect species interactions, and trophic cascades. He has authored or co-authored more than 100 scientific papers and supervised the training of 27 graduate students. He is a Pew Fellow in Marine Conservation, a Fellow of the California Academy of Sciences, and a Distinguished Alumnus of the University of Arizona. He has served on the editorial boards of Ecology/Ecological Monographs, Animal Conservation, Marine Ecology Progress Series, and Frontiers in Ecology and the Environment; on the Science Advisory Board for the National Center for Ecological Analysis and Synthesis; on the Southern Sea Otter Recovery Team; and as a National Research Council Study Panel member.

2002 Ed Ricketts Memorial Award and Lecture
California State University, Monterey Bay, Seaside, CA
March 9, 2002

Jane Lubchenco

Wayne and Gladys Valley Professor of Marine Biology, Oregon State University

Seas the Day - Navigating Uncharted Waters in Ricketts' Backyard

A broad suite of ocean-based and land-based activities is changing the nearshore ecosystems of the California Current Systems (CCS) off the West Coast of Washington, Oregon and California, in unprecedented ways. These changes present formidable challenges to meeting the goals of protecting and restoring marine ecosystems. New scientific understanding about how these ecosystems function, how they are changing, and how they provide the goods and services people expect is providing critical new insight into how we can navigate the unchartered waters of ocean protection and restoration. PISCO (the Partnership for Interdisciplinary Studies of Coastal Oceans) is a unique consortium of marine ecologists, oceanographers, physiologists, molecular biologists, biomechanics experts and other marine scientists dedicated to a more integrated understanding of the dynamics of the inner shelf region of the CCS. Among other approaches, PISCO utilizes and develops new technology to tackle long-standing, unresolved, and critical questions. Highlights of PISCO's new insights into Rickett's back yard will be presented.

2001 Ed Ricketts Memorial Award and Lecture
Hyatt Hotel, Monterey, CA
March 17, 2001

Mary Silver

Professor of Ocean Sciences, Ocean Sciences Department, University of California, Santa Cruz

A Local Story: Harmful Algae in Monterey Bay?

In coastal waters worldwide, accounts of harmful algal blooms are on the rise. The Monterey Bay region has long been known as hosting toxic algae (phytoplankton) that can cause human illness. Indeed, the original connection between shellfish poisoning and algal toxins resulted from shrewd detective work by physicians and marine scientists investigating a shellfish poisoning event that affected individuals from Monterey Bay to San Francisco in the late 1920s. Since then, California has achieved the record of having the longest running monitoring program for paralytic shellfish toxins, the agent of poisoning in the 20's event and one of the most dangerous marine toxins. Since 1991, however, poisoning events involving seabirds and marine mammals have pointed to the presence of previously unknown algal toxins in the Monterey Bay region. At least 3 and possibly classes of algal toxins have now been found locally. Because of the animal kills, the Monterey Bay region has become a center for research on algal toxins, not so much due to potential dangers to humans, but to the opportunity the toxins have provided local scientists to examine physiological and ecological processes that these dramatic tracers highlight. Indeed, reports of medical problems caused by algal toxins are rare in Monterey Bay, whose coastal waters are still relatively clean. Fortunately, the unusually heightened state of awareness of these toxins provides a measure of local protection not found in many other regions of the world. Research on the patterns of occurrence of toxic species, the passage of the toxins through food chains, plus the development of powerful new technologies for their detection, suggest that the Monterey Bay research community will help protect regional fisheries as well as clarify the oceanographic and biological context of a phenomenon increasingly present in coastal regions around the world.

2000 Ed Ricketts Memorial Award and Lecture
Cocoanut Grove, Santa Cruz, CA
March 18, 2000

Paul K. Dayton

Professor, Oceanography, Scripps Institution of Oceanography, University of California, San Diego

Long-Term Changes in Kelp Forests and Their Assemblages

This lecture will discuss the importance of long-term data with examples from southern California kelp forests and the California Cooperative Oceanic Fisheries Investigations (CalCOFI) program. In addition, once there are long-term data over large areas, it is possible to expand the synthesis with satellites. So, with good time series data one can vary the scales of interest and develop a more comprehensive understanding of the systems in question. Some such data are available in the Monterey area, but considering the high density of marine biologists and the keen public interest, one might have expected more baseline studies. While many are now underway, an argument can be made for a larger CalCOFI analog with several transects across the shelf. Remote stations and buoys can offer important physical insights, but it takes a real shipboard program to collect the biological samples so necessary to our future understanding of these large scale patterns.

1999 Ed Ricketts Memorial Award and Lecture
Embassy Suites, Seaside, CA
March 20, 1999

Joseph Connell

Research Professor of Biology, University of California, Santa Barbara

Long-Term Dynamics of Corals on Heron Island, Great Barrier Reef

At Heron Island, Great Barrier Reef, Australia, over a 30 year period, the abundance and recruitment of reef-building corals varied drastically, at several scales of space and time. At five of the six study areas, the abundance of corals declined nearly to zero at some time during the study period. Recurrent hurricanes were a major cause of coral mortality. Hurricane damage varied considerably among the different study areas. At different sites, both the degree of damage caused, and the rate and maximum extent of recovery thereafter, were influenced by the history of previous damage and recovery. Recruitment of corals also varied at different spatial and temporal scales. Recruitment varied substantially among years, but years of high rates were not consistent among the different study areas. Recruitment rate increased as free space increased, at 3 of the 4 shallow sites; free space was preempted by either corals or macroalgae. The spatial scales over which coral abundance varied gave evidence of the scales at which the underlying causal mechanisms operated. An individual hurricane usually caused about the same damage to all sites within a habitat, but its effects less often extended into another habitat. The temporal scales in which coral abundance varied also differed among habitats. The time scale between a trough and the next peak in abundance is at least 20 years, probably longer, in the shallower and deeper depths, while at intermediate depths, this time scale was about 10 years.

1998 Ed Ricketts Memorial Award and Lecture
Cocoanut Grove, Santa Cruz, CA
March 7, 1998

George N. Somero

Hopkins Marine Station, Stanford University

Faunal Changes in Monterey Bay: Is Global Warming Starting to Hurt?

Surveys of marine fauna at Cabrillo Point, near Hopkins Marine Station (HMS), have shown dramatic shifts in species composition over the past 60+ years (Barry et al. 1995, Science 267:672). Abundances of species with southern centers of distribution have increased whereas abundances of northern-occurring species have decreased. Correlated with these faunal changes are increases in water temperature (up to ~2.2 degrees C in maximal summer temperature). To elucidate whether these changes in faunal composition and habitat temperature might be causally linked, scientists at HMS are examining physiological systems that are of importance in establishing thermal tolerance. Data on crustaceans and molluscs suggest that key physiological systems, including heart function in crabs and protein synthetic capacity and ability to mount the heat shock response in molluscs (mussels and snails), may be "living on the edge" of their thermal tolerance ranges. Further increases in habitat temperature, especially in summer maxima, may have pronounced influences on species composition and the costs of living, e.g., energy demands for repair of heat-damaged proteins, of intertidal species.

About George Somero

The 1998 recipient of the Ricketts memorial Lecture Award is Dr. George N. Somero. George N. Somero received his Ph.D. from Stanford University. His group studies how changes in protein sequence, and in the intracellular milieu in which protein function occurs, enable organisms to succeed in diverse environments.

The abilities of organisms to thrive in environments with different physical and chemical properties depend on adaptive variations in proteins. By comparing homologous proteins from animals adapted to different temperatures, Professor Somero's group has shown that only minor differences in habitat temperature are sufficient to favor evolutionary changes. Comparisons of proteins from closely related congeneric species have shown that minor changes in protein sequence outside of active sites are adequate to effect adaptive change. These comparative studies of protein variants allow deduction of structure-function relationships in proteins (e.g., by revealing the types of amino acid substitutions that alter enzymes' kinetic properties and structural stabilities). Temperature effects on protein expression are also studied, e.g., seasonal shifts in isozyme expression patterns, and both seasonal and daily alterations in expression of heat shock proteins. All of these biochemical and molecular studies are considered in light of the role that adaptation to the environment plays in establishing biogeographical patterning in nature.

Although most emphasis in studies of molecular evolution has been on proteins and nucleic acids, Professor Somero's group has shown that adaptive variation in the "micromolecular" constituents of cells (e.g., protons, inorganic ions, and the low molecular weight organic solutes that comprise the largest share of osmotically active substances) is of great importance in ensuring satisfactory protein structure and function. Their studies of the evolution of the intracellular milieu have explained why many marine organisms contain within their cells unusual organic molecules at high concentrations (e.g., accumulation of urea in sharks and their relatives) and why intracellular pH varies with body temperature.

Professor Somero received a Guggenheim Fellowship and is a member of the National Academy of Sciences and a fellow of the American Association for the Advancement of Science.

1997 Ed Ricketts Memorial Award and Lecture
Cocoanut Grove, Santa Cruz, CA
March 15, 1997

Gregor M. Cailliet

Moss Landing Marine Laboratories

Below Pacific Tides: The Predictability, Diversity and Importance of Habitats for Marine Fishes

Over the years, many studies have been done on assemblages of fishes in California's diverse marine habitats. In virtually every case, the assemblages have proven to be quite predictable in that similar groups of species co-occur. Indeed, one could argue that simply knowing an assemblage of fish species can allow one to predict the habitat from which they came. In addition, the high diversity of habitats in California probably generates the high species diversity of marine fishes associated with them. This predictability and diversity can be influenced, however, by long-term variations in environmental (climatic, oceanographic) conditions. Thus, the mobile (e.g. water column, sediment, drift algae, etc.) or fixed (e.g. reef, rocky outcrop, etc.) nature of habitats can also have an influence on the fishes that associate with them. Likewise, different life stages of fishes with different life styles can occupy different habitats, thus somewhat clouding the relationship between habitat and fish assemblage. Nevertheless, fish assemblages characteristically have a predictable structure in a given habitat.

The importance of habitats to their marine fish inhabitants is difficult to evaluate, but habitats can be defined as providing space and structure, shelter, food, reproductive habitat or nursery areas for marine fishes. Most of the work on marine fishes and their habitats has been in the shallow, more accessible areas such as the rocky intertidal and subtidal. The majority of the studies done in my laboratory by myself, my colleagues and my students has been in relatively deep water. In this talk, I will review the relationship between fishes and their marine habitats, ranging from shallow to deep.

About Gregor Cailliet

The 1997 recipient of the Ricketts Memorial Lecture Award is Dr. Gregor M. Cailliet. Dr. Cailliet has been trekking down to Pacific tidepools and depths beyond for at least three decades, always generating excitement and interest in those that accompany him. Greg grew up surfing with his father on the beaches of southern California, and brought this appreciation of the natural environment to his life-long studies of marine fishes. He has demonstrated sustained excellence as an outstanding educator, enthusiastic researcher, and concerned adviser to all members of our coastal community. His contributions on diverse topics of marine biology, ecology, and fisheries have made him a leader in ocean science at local, national, and international levels.

Greg Cailliet received his Bachelor and Doctorate degrees in Biological Sciences from the University of California, Santa Barbara. As a professor at Moss Landing Marine Laboratories since 1972, he has been the major advisor of over 75 graduate students and has served on the committees of countless others. Many of Greg's students are now contributing to marine science as educators, federal and state biologists, and resource managers. Greg Cailliet's research interests range from shallow water fish assemblages of Elkhorn Slough to feeding habits, habitats, age and growth of deep-sea fishes in the Monterey Submarine Canyon and of pelagic sharks worldwide. His 75+ scientific papers, many co-authored with his graduate students, represent a lasting contribution to the fields of marine ichthyology, biology and ecology.

Greg was a founding member of the Elkhorn Slough National Estuarine Research Reserve Advisory Committee and the founding chair of the Research Activity Panel for the Monterey Bay National marine Sanctuary. He is a Fellow of the California Academy of Sciences and has been the President of the American Elasmobranch Society and the Western Society of Naturalists.

1996 Ed Ricketts Memorial Award and Lecture
Naval Postgraduate School, Monterey, CA
March 8, 1996

Steve Webster

Director of Education, Monterey Bay Aquarium

Ed Ricketts, Where Are You When We Need You?

On this Tenth Anniversary of the Ed Ricketts Memorial Lecture, it is appropriate that we take a moment to revisit the Cannery Row of the thirties and forties and remind ourselves who Ed Ricketts was and the legacy he has left with generations of marine scientists in the intervening half-century. The distinctions are considerable between the 'Doc' character in John Steinbeck's *Cannery Row*, and the Ed Ricketts who operated the Pacific Biological Laboratories, authored *Between Pacific Tides* and, with Steinbeck, co-authored *The Sea of Cortez*. We will retrace the voyage of the Western Flyer to the Sea of Cortez in 1940, and draw from that expedition the rich combination of science, philosophy and comraderie that it was. We will also consider the things to be learned by drawing parallels between of the Sea of Cortez and Monterey Bay, then and now.

As we plan for the future of our young Monterey Bay National Marine Sanctuary, and select the priority issues and challenges to be addressed in the evolution of the sanctuary's management, what would Ed Ricketts be saying and doing were he alive today? How would he view the current state of the Bay's living resources; the lively marine research and education enterprise; the advent of the ATOC projects and the return of the gray whales, elephant seals and sea otter? What would be Ed's view of the current state of the living resources of the sanctuary, and of the Sea of Cortez? What would Ed have to say about 'Building Community Connections in Science, Education and Conservation'? And what would he advise as the best, most effective ways to get there? And, finally, why DO we need Ed Ricketts now, more than ever?

About Steve Webster

The 1996 recipient of the Ricketts Memorial Lecture Award is Dr. Steven K. Webster. Dr. Webster has been the Director of Education for the Monterey Bay Aquarium since 1981, having been one of its four conceptual parents and the coordinator of the project from 1976. Dr. Webster studied biology at Stanford, receiving his A.B. degree in 1961, then taught at Northfield Mount Hermon School, in Massachusetts, for five years. In 1965 he returned to Stanford and Hopkins Marine Station in Pacific Grove, where he received a Masters degree in education and his Doctorate in Biological Sciences on the respiratory physiology of the purple sea urchin. From 1971 to 1977, he taught invertebrate zoology at San Jose State University and led several summer marine biology courses for divers in the Caribbean on Grand Cayman and St. Croix.

Over the years, Dr. Webster has served on the boards of many organizations, including the Monterey Bay Chapter of the American Cetacean Society, the Cannery Row Foundation, the Lyceum of the Monterey Peninsula, the State Underwater Parks Advisory Board, and the Friends of Moss Landing Marine Laboratories. He is Vice Chair of the Monterey Bay National Marine Sanctuary Advisory Council, Chairman of one of AMBAG's Technical Advisory Committees and was the organizer of the MBNMS Education Panel.

Dr. Webster has been a diving instructor and underwater photographer for 30 years. He is a popular speaker on natural history topics ranging from Monterey Bay to the Caribbean, the Sea of Cortez and the Galapagos Islands. His field guide to Caribbean Reef Invertebrates (Sea Challengers) is in its second printing.

1995 Ed Ricketts Memorial Award and Lecture
Marriott Hotel, Monterey, CA
December 26, 1995

Dick Parrish

National Marine Fisheries Service, Pacific Fisheries Environmental Group

Sardines

1994 Ed Ricketts Memorial Award and Lecture
Naval Postgraduate School, Monterey, CA

Wayne Sousa

University of California, Berkeley

Mudsnails in Space: The Metapopulation Dynamics of Cerithidea californica

1992 Ed Ricketts Memorial Award and Lecture
Monterey Bay Aquarium, Monterey, CA

Jim Childress

University of California, Santa Barbara

Deep Stuff

1991 Ed Ricketts Memorial Award and Lecture
Monterey Bay Aquarium, Monterey, CA

Walter Munk

Scripps Institution of Oceanography

Acoustic Thermometry of Ocean Climate, in Gestation

1990 Ed Ricketts Memorial Award and Lecture
Monterey Bay Aquarium, Monterey, CA

Gene Haderlie

Naval Postgraduate School

Historical Perspectives on Research in Monterey Bay

1989 Ed Ricketts Memorial Award and Lecture
Monterey Bay Aquarium, Monterey, CA

John Martin

Moss Landing Marine Laboratories

Iron in the Ocean

1988 Ed Ricketts Memorial Award and Lecture
Monterey Bay Aquarium, Monterey, CA

Sandy Lydon

Cabrillo College

History of Peoples of Monterey Bay

1987 Ed Ricketts Memorial Award and Lecture
Monterey Bay Aquarium, Monterey, CA

Dick Barber

Monterey Bay Aquarium Research Institute

Recruitment to Eastern Pacific by Larvae Riding El Niño Currents

1986 Ed Ricketts Memorial Award and Lecture
Monterey Bay Aquarium, Monterey, CA
March 8, 1986

Joel Hedgepeth

History of Natural History Exploration Hereabouts