



CALIFORNIA SEA GRANT COLLEGE PROGRAM

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FOR IMMEDIATE RELEASE

November 12, 2003

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{Note to reporters/editors: Please contact California Sea Grant for details on the research projects listed below that will be conducted in your area.}

Biologists, Physicists and also a Historian and Anthropologist Win California Sea Grant Awards

A Point Reyes ornithologist who studies a penguin-like seabird that feeds on commercially exploited fish stocks, an anthropologist at California Polytechnic State University who thinks prehistoric people may have put an early dent in sea otter populations and a UC San Diego historian of science now curious about the origins of U.S. fisheries policy are among this year's recipients of California Sea Grant research grants.

Others receiving awards include a biologist at California State University who will look at whether migrating geese are overgrazing – or actually helping – eelgrass beds in Humboldt Bay and a marine chemist at Scripps Institution of Oceanography whose recent discovery of a new genus of marine bacteria may facilitate the development of antibiotics that can fight “super germs.”

“On behalf of California Sea Grant, I am delighted to initiate a new set of research projects for 2004,” said California Sea Grant Director Russell Moll. “What is most exciting about these new studies is the diversity in topics that include sociological studies of fishing in California and archeological studies of historical coastal development. The new projects will continue the long tradition in excellence of research supported by California Sea Grant.”

In all, California Sea Grant awarded funding for 14 new marine science projects, all of which were reviewed by outside researchers for their scientific merit and relevance to current marine issues. Many of the awards come with support for graduate students. The new projects are slated to begin in March 2004.

“I am very excited and a little surprised about the grant,” said William Sydeman, an ornithologist and director of the marine ecology division at PRBO Conservation Science, formerly the Point Reyes Bird Observatory. “It is quite wonderful.”

Sydeman studies marine mammals, seabirds and other animals at the top of the food chain and lately has been investigating the effects of climate change and climate variability on the ecosystem around the Farallon Islands – home to some of the largest seabird and marine mammal colonies in the United States.

For his Sea Grant project, he and colleague Nadav Nur, also at PRBO Conservation Science, will study the dietary habits of a diving seabird called the murre. The bird – the Northern Hemisphere’s counterpart to the penguin – feeds on krill as well as squid, juvenile rockfish, juvenile hake and juvenile salmon, all of which are fished commercially.

“What we hope to do is look at the birds’ feeding habits and relate this to their population size,” he said. From this, the scientists will be able to estimate the amount of food required to sustain the birds. The method can be repeated for other species in other places within the California Current system.

“In the past, we’ve looked at fish stocks and said ‘How much can we take?’” he said. “A different level of questioning is to ask ‘What can we take and maintain sufficient reserves for the ecosystem?’”

State and federal lawmakers now require ecosystem-based fisheries management plans. This project, Sydeman said, will help agencies meet new mandates.

While Sydeman looks to future fisheries management plans, two other winners will delve into the past for clues about human dimensions of fisheries and coastal resource management.

Terry Jones, an anthropologist at California Polytechnic State University in San Luis Obispo, is one of the country’s leading authorities on the region’s prehistory. Among his noteworthy projects was a reconstruction of the prehistory of Big Creek Reserve.

With his Sea Grant award, Jones will study a collection of bone and shell fragments excavated from Diablo Canyon during construction of the San Luis Obispo Nuclear Power Plant. The remains are believed to represent one of the longest, continuous records of coastal inhabitation in western North America.

California Sea Grant is interested in seeing whether Jones’ work will shed light on the degree to which early humans hunted marine mammals, such as sea otters, and

the effects of this exploitation on the structure of marine mammal populations and kelp forest communities.

The Chumash Indians, who inhabited Central California for many thousands of years before the Spanish arrived in the 18th century, were avid hunters of sea otters and foraged extensively for shellfish such as abalone and mussels.

Jones wants to see whether there is archaeological evidence of changes in the assemblages of species hunted and fished over time. This rare window into the past, perhaps as far back as 8,000 B.C., will help scientists develop a longer term perspective and knowledge of the characteristics of past coastal ecosystems and the effects of predation on them.

“I think we are going to see that the marine nearshore ecosystem was affected by people very early on,” Jones said. “Practically every species in the marine ecosystem was being exploited regularly for 10,000 years, but it was still a very productive system.”

Looking at the more recent past, UC San Diego history professor Naomi Oreskes and Sea Grant Trainee Carmel Finley will give a detailed historical analysis of the complex interactions of science, politics and the livelihoods of fishers in the management of U.S. fisheries.

“People have known for more than 100 years that fisheries are in trouble,” Oreskes said. “Why didn’t it get sorted out earlier? That is where historians come in.”

As part of their project, they will explore the origins and scientific underpinnings of basic fisheries management concepts such as Maximum Sustainable Yield, as well as the influence of Cold War attitudes on American fisheries policy. A major goal of the project is to explore the historical factors that influenced the regulation – and subsequent rapid collapse – of the West Coast groundfish fishery.

“I hope that we can get science and policy people to think a little more deeply about issues and not to repeat the same mistakes over and over,” Oreskes said.

In addition to the projects funded by California Sea Grant, the National Sea Grant office has awarded four new grants to California scientists working on topics that Congress has identified as areas of national priority.

Recipients of National Sea Grant awards:

Arun Dhar and Kurt Klimpel of Super Shrimp Inc. in National City will study a

viral disease plaguing pond-raised shrimp around the world.

David Chapman, a biologist at UC Santa Barbara, will study the biology of the invasive, non-native kelp *Undaria pinnatifida*, which has recently invaded California.

Brian Tsukimura and Fred Schrieber, biologists at California State University at Fresno, will investigate the reproduction and basic biology of Chinese mitten crabs, a highly aggressive non-native species in the San Francisco Bay-Delta.

Lee Kats and Jay Brewster, biologists at Pepperdine University, will address issues related to the establishment and spread of two species of exotic crayfish.

Recipients of California Sea Grant Awards:

Terry Jones, a professor of anthropology at California Polytechnic State University, will look at how prehistoric people exploited sea otters and other marine species.

Ronald Tjeerdema, James Moore and Mark Viant of UC Davis and Carolyn Friedman of the University of Washington are studying a lethal abalone disease and treatments for it.

Daniel Morse, a professor of molecular genetics and biochemistry at UC Santa Barbara, is investigating high-tech compounds from marine sponges.

William Fenical and Paul Jensen, marine chemists at Scripps Institution of Oceanography, are searching for new antibiotics and anticancer compounds from a newly discovered group of marine bacteria.

Laurence Breaker, a physical oceanographer at Moss Landing Marine Laboratories, is investigating the feasibility of using an 83-year record of ocean temperature as a proxy for other ocean parameters.

Philippe Roux and William Kuperman, acousticians at Scripps Institution of Oceanography, are building an instrument that will use sound waves to count fish in a tank or pond.

Jeffrey Graham, a physiologist and marine biologist at Scripps Institution of Oceanography, will tag and track sharks in the Southern California Bight.

Falk Feddersen and Robert Guza, coastal oceanographers at Scripps Institution of Oceanography, will use a Sea Grant-developed drifter to study the physics of the

surf zone.

Naomi Oreskes, a professor of history at UC San Diego, is reconstructing a history of the decision-making process that led to the collapse of the West Coast groundfish fishery.

Philip Hastings and Ronald Burton, professors of biology at Scripps Institution of Oceanography, will develop a DNA database for all species of marine fish in California.

William Sydeman and Nadav Nur of the PRBO Conservation Science are studying the feeding habits of seabirds – work that has applications in the development of ecosystem-based fisheries management.

Frank Shaughnessy and Jeffrey Black of Humboldt State University will study the effects of grazing geese on eelgrass beds in Humboldt Bay.

Drew Talley of UC Davis, Jeffrey Crooks of the Tijuana River National Estuarine Research Reserve and Lisa Levin of Scripps Institution of Oceanography will evaluate the effectiveness – and impacts – of recent efforts to eradicate an invasive non-native plant called tamarisk.

Ronald Burton of Scripps Institution of Oceanography, Carolyn Friedman of the University of Washington, Thomas McCormick of the Channel Islands Marine Resource Institute and James Moore of UC Davis will gather basic biological information needed to develop a recovery plan for endangered white abalone.