

**COMMITTEE ON THE FACULTY RESEARCH LECTURE**  
**Annual Report, 2003-04**

To the Academic Senate, Santa Cruz Division:

The Committee on the Faculty Research Lecture is pleased to recommend Professor Mary Wilcox Silver of the Department of Ocean Sciences as the Faculty Research Lecturer for 2004-2005. Professor Silver is a pioneering biological oceanographer and an exceptional citizen of the UCSC and scientific communities.

Professor Silver began her scientific career when she entered the doctoral program in biological oceanography at Scripps Institution of Oceanography at UC San Diego in 1964. She received her Ph.D. in 1971 and, in 1972 was appointed assistant professor of marine studies at UCSC. She is a founding member and leading developer of the highly respected UCSC Ocean Sciences Program.

Internationally recognized as a leader in biological oceanography, Professor Silver's research on marine aggregates—mixtures of living and nonliving matter that form marine communities—and the marine ecology of plankton has profoundly influenced the fundamental understanding of the transport of carbon and nutrients in water column biogeochemical cycles. Her findings have affected research directions for the entire field of oceanography and have often caused the oceanographic community to rethink and change the prevailing wisdom of the time.

Professor Silver is best known for her studies of marine aggregates that began in the mid-1970s. Her work demonstrated that “marine snow”—small flocs and flakes of nonliving particles more than 0.5 millimeters in diameter and readily visible to the unaided eye—is a major source of sinking organic matter in the water column of the world's oceans. Her findings that marine snow is the site of intense microbial activity had a major impact on the basic understanding of the way that decomposition and nutrient regeneration processes occur in the ocean and the ways in which microbial populations interact. This work resulted in the first estimates of the abundance of marine snow and the communities of microorganisms that inhabit them. It also showed that many planktonic organisms thought to be "free-living" actually reside on particles. Because these organisms are abundant and active, the particles are actually semi-isolated microhabitats for dense and unique microbial communities. Professor Silver's collective body of work on marine snow stands out as one of the great individual contributions in modern biological oceanography.

Most recently, Professor Silver has applied her expertise to one of the most pressing issues of ocean health—harmful algal blooms—with the accompanying transfer of the phytoplankton toxins throughout the food web. This issue is receiving increasing attention because of growing human populations near the coasts, the greater consumption of marine food sources by humans, and the more frequent and widespread occurrence of harmful algal bloom events. Professor Silver is focused on determining the environmental conditions leading to toxin production by phytoplankton and the role of planktonic intermediates in transmission of neurotoxins to higher organisms, including humans.

Professor Silver's research has been repeatedly recognized by her scientific community. She was recipient of the *Mary Sears Woman Pioneer in Oceanography Award* in 2002 and co-recipient of the *Henry Bryant Bigelow Award in Oceanography* in 1992 from the Woods Hole Oceanographic Institution; named to give the 2001 *Ricketts Memorial Lecture* by the Monterey Bay National

Marine Sanctuary; elected as a *Fellow of the California Academy of Sciences* in 1997; selected as the *Wiese*

*Distinguished Lecturer of the Year* (Department of Marine Sciences), University of South Alabama in 1996; first recipient of the *Distinguished Women Scientist Award* from Duke University in 1995; and recipient of the *1995-96 Outstanding Faculty Award* from UCSC Division of Natural Sciences.

Professor Silver's long-lasting contributions to her students, colleagues, department, university, and scientific field are truly extraordinary in number and quality. She has been instrumental in establishing, growing, and maturing UCSC's programs in marine and ocean sciences. She has taught well over 4,000 UCSC students and has sponsored and encouraged many young marine biologists and oceanographers. She has served as department chair and devoted considerable effort to many departmental and campus committees. Recently, she served as Chair of the *Special Committee for Merit Equity Review* established by the Academic Senate, which produced an influential and thorough report analyzing the influence of gender and ethnicity on faculty compensation at UCSC. Professor Silver also served as a special advisor to the Committee on Privilege and Tenure.

Professor Mary Silver is clearly an outstanding choice as a Faculty Research Lecturer and receives the committee's unanimous recommendation.

Respectfully submitted,

**COMMITTEE ON THE FACULTY RESEARCH LECTURE**

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John Vesecky  
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