

WILLIAM S. COOPER AWARD

The William S. Cooper Award is given by ESA for recent contributions in geobotany, physiographic ecology, plant succession, or the distribution of organisms along environmental gradients. The year 2000 award goes to Paul K. Dayton, Mia J. Tegner, Peter B. Edwards, and Kristin L. Riser for their paper, "Temporal and spatial scales of kelp demography: the role of oceanographic climate," published in *Ecological Monographs* 69(2):219–250. Like other recent Cooper Award winners, this paper has large amounts of data from a system where data are difficult to obtain, synthesizes experimental and descriptive studies, and addresses fundamental questions about stability of communities in the face of disturbance along environmental gradients. Here, the Award is given for the first time to the study of an oceanic (or for that matter, any fully aquatic) system.

In several notable recent papers, the authors have been able to extend competition and environmental gradient analyses commonly used in terrestrial systems to the kelp forest community offshore at Point Loma, California. The study examined relative competitive abilities of several genera (*Macrocystis*, *Pterygophora*, *Eisenia*, and *Laminaria*) with contrasting morphological and life history traits, over a depth gradient of 8–23 m, and during two contrasting climatic periods; a cold-water nutrient-rich La Niña (1988–1989) and a warm-water nutrient-stressed El Niño period (1992–1994). One of their key findings is that competitive exclusion of other genera by *Macrocystis* during episodes when the water is nutrient rich leaves longer lasting impacts on the composition and functioning of the system than other types of oceanographic climate and disturbance events. The other genera still persist, however, because *Macrocystis* is negatively impacted by physical disturbance and episodes of low-nutrient water that open light gaps where *Pterygophora* and *Laminaria* can flourish for a time. The system diversity is therefore main-

tained by continuous fluctuation in the oceanographic climate. Integration across spatial scales is also achieved by showing that large-scale processes associated with La Niña and El Niño events, and medium-scale events such as storms, cause a cascade of effects on small-scale processes that mediate intra- and interspecific competition.

The four authors are at the Scripps Institution of Oceanography, University of California, San Diego. A rich variety of experiments, conducted in waters near San Diego over a period of many years, were brought together for this landmark synthesis on kelp forest demography. For a comprehensive study at this level, the authors are wholly deserving of the W. S. Cooper Award and the congratulations of our Society.

William S. Cooper Award Subcommittee: Lee E. Frelich (Chair), Roger Del Moral, Ronald Neilson, James Runkle, Rebecca Sharitz, Sara Webb, Susan Will-Wolf



Left to right: Paul K. Dayton, Mia J. Tegner, Kristin L. Riser, and Peter B. Edwards
