

Western Region

Channel Islands NP recently initiated a broad-based natural resources monitoring program to assess ecosystem health, discover abnormalities in system structure and function, define limits of natural variation, and test hypothesis of cause-and-effect among system components. A modified "Delphi" technique was used to select index species for population dynamics monitoring. An ecological systems analysis is being used to evaluate the Delphi design and to integrate the monitoring program. It will also be used to develop hypotheses about system dynamics.

The first phase of systems analysis was begun in 1985. In December, two 2-day workshops held at park headquarters in Ventura, Calif., began development of a conceptual ecological model of the park. The workshops also introduced 11 members of the park staff and 10 local scientists to a systems approach developed by Prof. Bernard C. Patten, University of Georgia, and adapted to Channel Islands NP by his research group. Working with Dr. Patten and his team, Drs. Mia Tegner, Scripps Institute of Oceanography, James Kremer and Richard Zimmerman, University of Southern California, Charles Cooper, San Diego State University and David Parker, California Department of Fish & Game, developed a framework for marine ecosystem models in the park and produced a 100 compartment provisional kelp forest model.

In a second workshop, Paul Collins, Santa Barbara Museum of Natural History, Steve Junak, Santa Barbara Botanic Garden, Ronnie Fowler, University of California Santa Barbara (UCSB), Mark Sogge, U.C. Davis, Lyndal Laughrin, UCSB Santa Cruz Island, developed a framework for island ecosystem models, produced provisional models of grasslands and sea cliffs on San Miguel Island, and began construction of adjacency matrices describing component interactions for those models.

The workshops were organized by Gary Davis and William Halvorson, NPS research scientists assigned to Channel Islands NP.

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On Jan. 27-28, 1986 more than 80 scientists, educators and technicians gathered at the Ash Mountain headquarters of Sequoia NP to review progress and discuss future priorities for the acid precipitation/air pollution research program underway in the park.

Presentations were made on such topics as the transport of pollutants, concentrations of particulates and gasses in the atmosphere, the sensitivity of aquatic, soil and plant communities to pollutants, and the use of remote sensing to detect the health of forest ecosystems. The meeting documented the occurrence of man-caused pollutants as well as the existence of highly sensitive ecosystems. Areas of additional research needs that could help predict the nature and extent of such potential impacts were discussed.

The meeting was followed by a workshop of NPS site coordinators for those parks involved in long-term acid deposition research. The workshop, jointly organized by Bill Gregg (WASO acid deposition coordinator), David Graber and David Parsons (SEKI research scientists) provided a forum for program review and comparison. Research protocols and future priorities also were reviewed. Participants included Bob Stottlemyer (Mich. Tech and ISRO), Jill Baron (Water Resources and ROMO), John Aho (OLYM), Bob Edmonds (U. Wash.), Tom Stohlgren (SEKI), Rick Webb (U. Virginia and SHEN), John Melack (U. Calif. Santa Barbara), and Kathy Tonnesen (Calif. Air Resources Board).

The research program, which represents one of the largest of its kind in the western United States, is a joint effort of such groups as NPS, the State of California Air Resources Board, the USGS, the USFS, NASA and several universities and private utility interests. Investigators represent over a dozen separate universities as well as federal and state agencies. The program is expected to last at least through 1991, which represents the scheduled end of the National Acid Precipitation Assessment Program, the Congressionally mandated study of sources, transport and potential impacts from acid precipitation.