

Forward

“Ecosystem management” has become the new paradigm for the conservation and management of natural resources in the 1990’s. This shift from traditional conservation and management of individual species is driven in part by our greater appreciation of the impacts of environmental change on the sustainability of biological systems and the diversity of species within those systems. In the 20 years between the first major global conference on the environment held in 1972 and the 1992 United National Conference on Environment and Development, several prominent scientists noted that “marked degradation and dysfunction had occurred in most of the earth’s ecosystems”. As evidenced in the following document, the Salton Sea is clearly one of the systems that has markedly degraded during this period. This proceeding from a recent workshop on the Salton Sea summarizes the perspectives of approximately 100 scientists, managers, and others regarding approaches that must be taken if the Sea is to serve as a functional ecosystem in support of the surrounding human population.

Ecosystem degradation is intimately associated with human economic, social, cultural, and physiological well-being. In this context, it is critical, as noted by others, that we identify processes that have led to degradation of ecosystems like the Salton Sea, recognize the early signs of ecosystem dysfunction, and understand the consequences of ecological change for the human community, both in terms of utilitarian values and existence values. These needs have resulted in the emergence of a new area of focus called “ecosystem health” which has been defined as “a systemic approach to the preventative, diagnostic, and prognostic aspects of ecosystem management, and to the understanding of relationships between ecosystem health and human health. It encompasses the role of social values and attitudes in shaping our conception of health at human and ecosystem scales. ... Its focus [has] preventive, as well as curative and rehabilitative aspects.” An ecosystem health perspective was pursued at the Saving The Salton Sea workshop.

Stakeholders, scientists, and managers all agree that rehabilitation of the Sea is essential and requires that current ills be rectified in a manner that allows the Sea to sustain social values of importance to the human populations of the Imperial and Coachella Valleys, as well as society in general. The complexity of saving the Salton Sea is reflected in the multi disciplinary organization of the workshop, consisting of 5 teams which considered the physical environment, biological environment, cultural resources, pathogens and disease, and contaminants. Nothing less than a fully integrated and collaborative effort by individuals from the physical, biological, and engineering sciences, in conjunction with the many stakeholders involved, can provide the information and understanding required to assure that the most appropriate engineering approaches are taken to stop further deterioration of the Sea and return this ecosystem to a desired level of quality. Key questions previously identified by others addressing ecosystem degradation must include: What are the

critical ecosystem functions that must be maintained for economic and societal well-being? What are the impacts of transformation on the health of fish and birds, as well as humans? How are societal values influenced by changes in the landscape in which they arise, and how do these values in turn impact the landscape?

Success in saving the Salton Sea requires that physical and biological scientists work together to describe system properties such as nutrient flows, energy transformation, community structure and other aspects of the ecosystem and how these components will be affected by various engineering approaches to reduce salinity and water levels; health specialists will need to assess fish, wildlife, and human disease implications; social and cultural interests must be fully considered to assure that engineering alternatives provide for the enhancement of human community values; and the sustain ability of agriculture and other economic investments of the area must be fully supported by the actions to be taken. This challenge is of Herculean proportions but not beyond successful accomplishment. The importance of the Salton Sea to the economic, social, and biological values of the region and the costs associated with any technological efforts to save the Sea demand success. The continued deterioration of the Sea despite more than a decade of various response actions clearly illustrates the need for a more holistic and integrated effort. A blue print for constructing this coalition has emerged from the latest Salton Sea workshop. Investments must now be made to provide the working capital and expertise required to produce the information and knowledge that will lead to successful rehabilitation of the Sea.

Milton Friend
Director, National Wildlife Health Center
Biological Resources Division, USGS