

ECOSYSTEM-BASED MANAGEMENT IN THE COLORADO RIVER DELTA
BY: KAREN HAE-MYUNG HYUN
A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY
IN MARINE AFFAIRS
UNIVERSITY OF RHODE ISLAND. 2008

ABSTRACT

The Colorado River Delta (CRD) is only 8% of its original size and is mainly sustained on agricultural run-off from the Mexicali Valley. Clearly current management of this ecosystem has not been effective and a new paradigm is needed. Ecosystem-based management (EBM), the process of controlling human activities to protect, conserve, and enhance the quality of ecosystems to meet current and future needs, provides a way forward. This study uses nine common EBM principles to analyze legislation, research, management plans, and community actions of six major CRD institutions, establishing a governance baseline. This study also utilizes scenario analysis to depict a desired future state for the CRD. A gap analysis examines the difference between the baseline or the current state and the scenario or the future state to identify voids in EBM operation. Specific recommendations include extending Intentionally Created Surplus to Mexico, testing Mexico's National Water Law amendments, and adding a Minute to the U.S.-Mexico Water Treaty to make EBM functional. Furthermore, the EBM principles of ecosystem valuation, the precautionary approach, and adaptive management can be made more operable through cooperative restoration, experimentation, and demonstration, strengthening the CRD governance system. These recommendations are time-sensitive. Intensified droughts and population growth are placing increasing demands on Colorado River water. There is currently a window of opportunity to dedicate an instream flow to the CRD and encourage EBM via the recommendations from this study. EBM in the CRD could then be a model for the management of other deltaic systems.