

# Mapping the Organizational Landscape in the Colorado River Delta: the Big Picture on Binational Collaboration

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Early on a September morning in 2003, the meeting room of the Water Resources Research Center at the University of Arizona is already bustling with what appears to be a group of friends or long-time coworkers. This is the Second Binational Meeting on Colorado River Delta Restoration, an informally coordinated event attended by representatives of a wide range of Mexican and U.S. nonprofit organizations, community groups, universities, and government agencies. Although some participants have not seen each other for months, it is clear that their communication has been ongoing. Most have worked on restoring the Colorado River Delta for the past several years and keep each other informed through an electronic network and monthly conference calls.

It was not always like this. In fact, until around ten years ago, scarcely any conservation work was underway in the delta. Despite the fact that this area – the largest desert delta in the Western Hemisphere – began to significantly deteriorate nearly 75 years ago, scientists and conservation communities on either side of the border paid remarkably little attention to the region. Then, in the early 1990s, a group of researchers led by Dr. Carlos Valdés-Casillas, then director of Centro de Conservación de Recursos Naturales (CECARENA), and Dr. Edward Glenn of the Environmental Research Laboratory at the University of Arizona (UA), started assessing vegetation distribution, presence of wildlife, hydrology, and water quality in the delta, and became convinced of its potential for restoration. Soon after, the conservation organizations Pronatura Sonora of San Luis Río Colorado, Sonora, and the Sonoran Institute, based in Tucson, Arizona, initiated

a joint community outreach program. Interest in the Colorado River Delta by ecologists and others subsequently and rapidly increased, and today universities, conservation NGOs, museums, government agencies, and community groups from the United States and Mexico are working in diverse ways to restore this globally important ecosystem.

## **A Growing Bi-National Network**

Several landmark reports and meetings in the past five years have formed the foundation for the current network of binational collaboration.

1998: CECARENA, the UA, Pronatura Sonora, the Sonoran Institute, California State University at Dominguez Hills, and Environmental Defense jointly publish a report on binational efforts in the delta (Valdés-Casillas, et al.).

1999: *A Delta Once More* (Pitt, et al.), a landmark report that galvanized the interest of scientists and conservationists in the delta, is published by Environmental Defense.

1999: More than 80 participate at a workshop in Mexicali, Baja California, on Colorado River water issues, discussing possible restoration and management solutions.

2000: The Udall Center for Public Policy at the University of Arizona and the University of California Institute for Mexico and the United States (UC MEXUS) sponsor a binational public symposium in Riverside, California, focused on public policy and the institutional framework that

led to the current conditions in the Lower Colorado, the Colorado River Delta, and the Upper Sea of Cortés.

2001: A symposium on the Colorado River Delta – called for by a modification (Minute 306) in 2000 of the 1944 U.S. Mexico Water Treaty – is held in Mexicali to improve understanding of delta management issues, as well as to identify obstacles to meeting restoration needs.

2002: The Sonoran Institute, Environmental Defense, Pronatura Sonora, and Centro de Investigación en Alimentación y Desarrollo (CIAD) organize an experts workshop, “Mapping Conservation Priorities in the Colorado River Delta,” in Tijuana to review delta conditions and map a recovery plan.



*Mexico's allocation of Colorado River Water crosses the international border at San Luis Río Colorado (top); irrigated agriculture in the delta area (bottom). Photos provided by Steve Cornelius.*

### **Working on All Levels**

Currently more than 20 nonprofit and academic groups are actively working to restore the delta. These range from Mexican community organizations like the Asociación Ecológica de Usuarios del Río Hardy y Colorado (AEURHYC) to U.S. advocacy groups like Defenders of Wildlife. Collectively they conduct biological and socioeconomic research, implement on-the-ground habitat restoration, carry out community outreach and education, and advocate policy reform. Each group has targeted staff and resources to match its mission and expertise; all have a good record of sharing information and resources to meet their objectives.

### **Active Research**

The UA, Pronatura Sonora, IMADES (Instituto del Medio Ambiente y el Desarrollo Sustentable del Estado de Sonora), and the Sonoran Institute have assessed ecological conditions in the Ciénega de Santa Clara, the riparian corridor of the Colorado River, and the Río Hardy wetlands. UA researchers have also surveyed landowner interests in conserving riverine forests and analyzed the quality of the water being delivered to Mexico through agricultural drains. The Pacific Institute published a study on the historical and current hydrology of the delta region. The Sonoran Institute and Environmental Defense, with assistance from Squires, Sanders and Dempsey, LLP, explored creative means of leasing and delivering water for conservation. Scientists at the UA, Centro de Investigación Científica y de Educación Superior (CICESE), Universidad Autónoma de Baja California, and others are documenting the connection between freshwater flows and upper gulf biota. Much of the information being generated by this research is archived by the UA and the Sonoran Institute at a Web-based data and information exchange for delta stakeholders at [www.ag.arizona.edu/colorado\\_river\\_delta](http://www.ag.arizona.edu/colorado_river_delta).

### **Resource Management**

In June 1993, Mexico created the Upper Gulf of California and Colorado River Delta Biosphere Reserve. For the past

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## **For more information...**

### **CEDO Intercultural: [www.cedointercultural.org/](http://www.cedointercultural.org/)**

Based in Puerto Peñasco, Sonora, nonprofit CEDO aims to "advance and share knowledge about the Upper Gulf of California and surrounding Sonoran Desert and promote conservation and sustainable use of its natural and cultural resources."

### **Centro de Conservación de Recursos Naturales (CECARENA): [uib.gym.itesm.mx/](http://uib.gym.itesm.mx/)**

CECARENA, at the Technological Institute of Monterrey, is a partner in the Wetlands International of the Americas program in Mexico, and has been involved in investigating and implementing numerous long-term restoration projects. It works with other organizations on the Río Hardy wetlands.

### **Centro de Investigación en Alimentación y Desarrollo (CIAD): [www.ciad.mx/](http://www.ciad.mx/)**

With branches in Hermosillo and Guaymas, Sonora, CIAD is a public research institution that investigates alternative solutions to problems of the food sector in Mexico, and carries out studies, consultancies, and services for the agricultural, industrial and commercial sectors, and fisheries.

### **Centro de Investigación Científica y Educación Superior de Ensenada (CICESE): [www.cicese.mx/](http://www.cicese.mx/)**

CICESE's Biological Division, UBEA, was established in 2001 and is based in Ensenada, Baja California. It is dedicated to investigating, studying, and resolving biological and environmental problems that affect terrestrial, coastal, and marine ecosystems in northwestern Mexico.

### **Comisión Nacional de Áreas Naturales Protegidas (CONANP): [www.conanp.gob.mx/](http://www.conanp.gob.mx/)**

CONANP is a commission of the Mexican federal government in charge of administering natural protected areas, promoting sustainable regional development in these and other priority regions, and helping to preserve biodiversity.

### **Conservation International México: [www.ci-mexico.org.mx/](http://www.ci-mexico.org.mx/)**

The Gulf of California branch of Conservation International is based in Guaymas, Sonora, and focuses on scientific research and management of natural resources, with a particular interest in fisheries and the protection of natural areas.

### **Defenders of Wildlife: [www.defenders.org/](http://www.defenders.org/)**

This nongovernmental organization is dedicated to the protection of all native wild animals and plants in their natural communities, focusing on problems related to the accelerating rate of extinction of species and associated loss of biological diversity, and habitat alteration and destruction.

### **Environmental Defense: [www.edf.org/](http://www.edf.org/)**

Environmental Defense is a national nonprofit organization dedicated to protecting the environmental rights of current and future generations. The organization "evaluates environmental problems and works to create and advocate solutions that win lasting political, economic and social support because they are nonpartisan, cost-efficient and fair."

### **Instituto del Medio Ambiente y Desarrollo Sustentable de Sonora (IMADES): [www.imades.org/](http://www.imades.org/)**

IMADES is a state agency of Sonora that aims to establish the means to conserve natural resources, promote sustainable development, and further ecological understanding of the region of northwest Mexico.

### **National Wildlife Federation: [www.nwf.org/](http://www.nwf.org/)**

NWF's education and advocacy programs related to wildlife conservation have recently been expanded to Mexico with the goal of "strengthening the capacity of environmental groups in Mexico to influence the public debate about conservation of their own natural resources."

### **Pacific Institute: [www.pacinst.org/](http://www.pacinst.org/)**

The Pacific Institute for Studies in Development, Environment, and Security is a nonprofit, independent organization that conducts research in the areas of sustainable development, international security, and environmental change and works with policymakers, activists, and the general public to develop solutions to related problems.

### **Pro Esteros: [www.cicese.mx/~proester/](http://www.cicese.mx/~proester/)**

Pro Esteros is a binational nonprofit citizen's group dedicated to the protection and conservation of the coastal lagoons of Baja California. It was formed in 1988 in response to growing concerns expressed by North American biologists over the deterioration of the Punta Banda marsh.

### **Pronatura Sonora: [www.pronatura.org.mx/](http://www.pronatura.org.mx/)**

With chapters in several states, Pronatura is Mexico's largest nongovernmental environmental organization; its mission is to conserve flora, fauna, and priority ecosystems while promoting development in harmony with nature.

### **Sonoran Institute: [www.sonoran.org/](http://www.sonoran.org/)**

The nonprofit Sonoran Institute partners with groups such as county officials, public land managers, ranchers, developers, and environmental advocates, to initiate sound conservation practices in western North America. One of its four projects in the Sonoran Desert ecoregion focuses on the Colorado River Delta.

### **University of Arizona (UA):**

#### **[www.ag.arizona.edu/colorado\\_river\\_delta/](http://www.ag.arizona.edu/colorado_river_delta/)**

Research relevant to the Colorado River Delta is being undertaken in a number of UA academic departments, including geosciences, hydrology, renewable natural resources, and the Environmental Research Laboratory.

### **Universidad Autónoma de Baja California:**

#### **[iio.ens.uabc.mx/](http://iio.ens.uabc.mx/)**

The Marine Research Institute at UABC in Ensenada studies the upper Gulf of California and the Colorado River Delta, focusing on environmental geosciences, molecular biology, and coastal resource management.

### **University of California Institute for Mexico and the U.S. (UCMEXUS): [ucmexus.ucr.edu/](http://ucmexus.ucr.edu/)**

The primary mission of UCMEXUS is the development of a coordinated approach to Mexican studies throughout the University of California system. UCMEXUS supports binational collaborative research on issues of transboundary water resources in the Colorado River Delta and the Upper Gulf of California.

10 years, Mexico's Comisión Nacional de Áreas Naturales Protegidas (CONANP) has provided consistent leadership for the reserve and maintains close working relationships with many local and international groups, researchers, and especially IMADES, to raise awareness of the biological and social values of the reserve and improve its management.

### **Community Outreach and Education**

Pronatura Sonora and the Sonoran Institute have led the way in working with the communities of the Colorado River Delta region, designing a pilot restoration project on priority stretches of the Río Hardy and building the capacity of AEURHYC to speak for the needs of local residents. These organizations, together with Conservation International and the Intercultural Center for

the Study of Deserts and Oceans (CEDO), have conducted tours of the lower Colorado River and Delta for Mexican environmental journalists, providing them with the chance to experience the complexities of the delta and learn about opportunities for water policy reform. Recently a Mexican group, Pro Esteros, and the National Wildlife Federation separately contributed to efforts to directly engage the Cucapá communities in Mexico and the United States, respectively, in delta conservation.

The restoration and conservation of the Colorado River Delta requires firm commitment, sound policy, and concerted action by the Mexican and U.S. governments. However, the experience of the past ten years proves that nongovernmental organizations, communities, and universities can play significant roles in facilitating dialogue,

managing information, and providing fresh insights that effectively build scientifically valid, socially just, and sustainable conservation choices. The successful restoration of the Colorado River Delta depends on this expanding multidisciplinary network of collaborators.

### **References.....**

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- Valdés-Casillas, C., E.P. Glenn, O. Hinojosa-Huerta, Y. Carillo-Guerrero, J. Garcia-Hernandez, F. Zamora-Arroyo, M. Munoz-Viveros, M. Briggs, C. Lee, E. Chavarria-Correa, J. Riley, D. Baumgartner, and C. Condon. 1998. *Wetland Management and Restoration in the Colorado River Delta: The First Steps*. CECARENA-ITESM, Campus Guaymas and NAWCC, Mexico.