



Environmental Issues

Problem Statement

Clean and dependable water sources are crucial to meeting environmental as well as municipal, agricultural, and economic development needs. It is difficult to place a monetary value on environmental water needs, in large part because it is hard to identify stakeholders with a financial interest in maintaining streamflows. However, ecotourism in the form of wildlife-watching provides an economic boost of greater than \$100 million to the regional economy. And the direct impact to the region of recreational and commercial fishing in the lower Laguna Madre area exceeds \$222 million and \$63 million, respectively. Other recreational needs tied to water resources in the Lower Valley (i.e., tourism at coastal resorts not related to fishing) need to be quantified.

Water resources are vital to the health of people in the Lower Rio Grande Valley as well as to the wildlife, fisheries and habitat throughout the region. Environmental water needs need to be recognized and incorporated into planning efforts in order to ensure sustainability within the region.



Facts

The quantity of water in the Rio Grande continues to decline. Because of low flows, the river ceased to reach the Gulf of Mexico several times in 2001 and 2003.

In-stream flows are necessary for the health of aquatic life in rivers and streams and for recreational uses of these areas. Water flowing into the Gulf of Mexico and the Laguna Madre and its associated estuaries is not wasted water, but is essential for supporting aquatic species in rivers and streams, maintaining salinity regimes, providing adequate amounts of nutrients, maintaining open connections with marine habitats for use by many species of marine organisms and aiding in the control of problematic aquatic vegetation. The health of many recreational and commercial fisheries depends on these flows.

Native wildlife habitat along riparian areas (river corridors) is shrinking due to increases in agriculture and urban population growth and land use. Habitat and water needed to sustain these ecosystems are necessary for wildlife species, including threatened and endangered species. Extensive investment has been made through federal and state refuges and other lands for wildlife management purposes, which also have provided the Lower Rio Grande Valley with significant economic benefits from tourism.

Flows in the Lower Rio Grande are being threatened by the proliferation of nuisance water weeds (water hyacinth and hydrilla). At the same time, these water weeds are harming the habitat needed by aquatic species. Managing water weeds could both increase flows and improve habitats for fish and wildlife.

The quality of the water in the Rio Grande also is an issue. Water sources for municipalities, agriculture, wildlife, fisheries and recreation currently are adversely affected by excessively high levels of nutrients, such as phosphorus and



nitrogen, as well as bacteria from non-point source runoff and untreated wastewater. Excessive nutrient levels contribute to hypoxia, which occurs periodically in the Rio Grande and regularly in the Arroyo Colorado, causing massive fishkills.

New technologies such as desalination (treating sea water, brackish groundwater, and brines associated with oil and gas production) can improve water quality and provide additional flows. While desalination has relatively fewer impacts on the environment than other water management strategies, the issue of brine disposal is important and needs to be resolved.

In some cases, bans on fish consumption have been implemented because of high levels of such contaminants as polychlorinated biphenyls (PCBs) and persistent organochlorine pesticides.

Potential Solutions

- Increase international and interstate cooperation on water issues to recognize and plan for meeting environmental water needs.
- Continue regional, state, interstate, and national recognition of and cooperation in addressing environmental water needs.
- Improve water rights policy to allow water to be left in a stream throughout the stream's course.
- Provide incentives and/or resources to enhance the Texas Water Trust.

- Establish scientifically and ecologically based minimum flows for streams and inflows to bays and estuaries.
- Increase education of the public concerning the environmental aspects of water issues.
- Work with nongovernmental entities (i.e., environmental organizations) to develop ways to finance and implement increases in flows.
- Increase the overall volume of flows in the Lower Rio Grande, thus creating additional sources of water that might be allocated to streamflows.
- Seek ways to remove nuisance aquatic vegetation from the LRGV, thus increasing stream flows and improving habitat.
- Improve education programs aimed at informing the public of the importance of the ecosystems associated with the Lower Rio Grande Valley.

Barriers to Solutions

- Lack of public understanding of water quantity and quality issues, especially in regard to environmental concerns.
- Limited funding at state and federal levels to adequately address environmental water needs.
- Lack of effective interstate and international cooperation regarding current water treaty provisions.
- Lack of a long-term plan for sustainable management of the transboundary Rio Grande basin.