

CORPS OF ENGINEERS
WATER RESOURCES ACTIVITIES IN THE STATE OF TEXAS

The Corps of Engineers (Corps) Civil Works Strategic Plan focuses on the need to develop innovative and collaborative approaches to water resources development. The approach advocated in the strategic plan emphasizes:

- A holistic approach for analyzing problems and solutions,
- Collaboration, partnerships, and teamwork for deriving and implementing solutions,
- Attention to the watershed as a logical geographic area for managing water resources,
- An emphasis on efficiencies to achieve more within existing resources.

The Corps has a long history of working in partnership with state and local agencies in Texas, which has led to a strong foundation for water policy and financial decisions. In the past, the partnership focused on the implementation of projects to address specific water resources issues for a community or region of the State. Examples include multipurpose projects for flood damage reduction, ecosystem restoration, and recreation, such as those found in the cities of Dallas, Fort Worth, Austin, and Houston; the navigation projects along the Texas coast; a number of environmental restoration projects such as those along the San Antonio River; and, the 26 Corps lakes in Texas which provide about 35% of the state's drinking water supply. Today, using the framework of the Corps' Civil Works Strategic Plan and working in partnership with the Texas Water Development Board (TWDB) and the water providers in Texas, in addition to our traditional projects, the Corps is devoting more attention to assisting with the implementation of the 2002 Texas State Water Plan. Actions in support of the water plan range from data collection to technical assistance to issuance of Section 404 permits that enable the implementation of local or regional projects to basin-wide studies that seek to balance all uses of the water resource.

In recent years, Congress has funded the Corps, under the Texas Water Allocation Assessment (TWAA), to assess the water resources issues in Texas and to identify opportunities for Federal assistance. Using annual appropriations made available under this appropriation, the Corps, in cooperation with the TWDB, has identified a number of projects that will assist the State in implementation of the State Water Plan. Studies conducted primarily by architect-engineer firms or Texas universities under contract to the Corps include:

- A study of the potential for existing Corps reservoirs to make more water available for water supply needs identified by the 16 State water planning regions by altering reservoir operations. This study concluded that existing reservoirs might provide as much as an additional 400,000 acre-feet per year or 10-13% of the additional 50-year water need. Studies are now proceeding on the individual reservoirs identified.
- Preliminary system operation studies on the Sulphur and Mid-Brazos Rivers to identify potential changes in the operation of Corps reservoirs that could achieve increased reservoir yields to meet projected water supply needs. A similar study is being initiated in 2005 for the Corps reservoirs in the Upper Trinity River Basin.
- Development of a comprehensive, GIS-based model to assess impacts of water management alternatives on multiple parameters, including water quality, water quantity, water rights, and flood control in order to assist water managers in making more informed decisions.
- Brush management studies conducted by the Water Resources Institute at Texas A&M University that have documented the effectiveness of brush management measures on in-stream flows and reservoir yields. The studies have resulted in the recommendation of Federal projects for brush control at Lake O.C. Fisher and within other reaches of the Concho River.
- Instream flow analysis, including collection of data and development of models, to aid in the assessment of the potential minimum environmental flows needed to sustain healthy riverine ecosystems and coastal estuaries.
- Studies and data collection conducted by the TWDB to update the National Hydrography Dataset (NHD) for the State of Texas.
- Studies to determine the feasibility of reallocating existing storage at Lake Texoma to meet future water supply needs for adjacent communities and the DFW Metroplex.

Future studies being considered include additional reallocation studies at Corps reservoirs, development of additional hydrologic and GIS models for use by the TWDB, and studies to minimize the impacts of desalination brine on the ecology of surface-water environments.

The Corps Planning Assistance to States (PAS) Program provides authority to assist States, local governments, and other non-Federal entities in the preparation of comprehensive plans for the development, utilization, and conservation of water and related land resources. Typical studies conducted under the PAS program include water supply and demand studies, water quality studies, and environmental conservation/restoration studies. Through the PAS program, Federal funding has been leveraged with matching funds from the TWDB to conduct hydrographic surveys of Texas lakes. The surveys are used to determine the amount of storage available for water supply to meet current and future water supply needs. Since 2000, some of the lakes surveyed in coordination with the TWDB include Canyon, Arrowhead, Lake Fork, Lake Kickapoo, Lake Worth, Aquilla, Granger, Grapevine, Limestone, Proctor, B.A. Steinhagen, Lake Palestine, and Lake Crook. The TWDB provides the information and data obtained from these studies to the Regional Planning Groups for their use in identifying available surface water supply. As future Federal funding becomes available, the Corps and TWDB will perform these surveys at additional lakes across the State of Texas.

The Nueces River Basin Feasibility Study is a comprehensive watershed study designed to identify potential flood damage reduction, ecosystem restoration, and water supply opportunities along with minimum in-stream ecosystem flow requirements in a way that balances upstream and downstream water needs. Several of the potential opportunities identified in the Nueces River Basin were included as water management strategies for Region L and Region N in the 2002 Texas State Water Plan. The study is currently evaluating individual projects and preliminary combination of projects to determine cumulative benefits, preliminary costs, and environmental effects. The objectives of the study are to maintain adequate freshwater inflow to bays and estuaries; to enhance ecosystem values of the study area by implementing water quality improvement features such as wetland restoration, nurturing habitat for selected aquatic species unique to the region, and re-vegetating selective riparian and wetland areas with native plant species that have high wildlife habitat value and a capacity to improve water quality of runoff; to increase the productivity of river deltas and estuaries of the basin through ecosystem restoration projects; to increase recharge to the Edwards Aquifer, thereby creating more spring flows for endangered species and critical ecosystems and enhancing water supplies; to identify projects that could reduce flood damages in the 100-year floodplains of the basin; to examine previously identified alternatives for potential benefits including ecosystem restoration and/or flood damage reduction; and, to provide multipurpose benefits with all alternatives examined, including, but not limited to water supply, water quality, recreation, economic, and environmental.

The Sulphur River Basin Feasibility Study is a comprehensive watershed study to review opportunities for ecosystem restoration, flood damage reduction, and water supply. The Sulphur Basin was identified in the State Water Plan as a recommended site for a new water supply reservoir to meet the future needs of the DFW Metroplex. Preliminary analysis of the basin has identified the potential for obtaining additional reservoir yields of approximately 300,000 acre-feet per year through reallocation of Wright Patman, and operation of Wright Patman and Jim Chapman Lakes as a system. This study will address cumulative impacts of various water management strategies identified to solve local as well as regional water resource-related problems.

The Middle Brazos River Basin Feasibility Study is a comprehensive watershed study that is reviewing opportunities for ecosystem restoration and water supply. Initial studies reviewed the feasibility for construction of ecosystem restoration features along the North Bosque River to reduce the water quality impacts to Waco Lake from agricultural operations. Working with the Brazos River Authority, current studies include a system operation assessment of the existing nine Corps reservoirs within the basin to evaluate various water management strategies.

Beginning in October 2005, with the receipt of fiscal year 2006 funding, the Corps' Galveston District will be initiating the Neches River Basin Comprehensive Study. This study will focus on development of a watershed management plan for use as the framework for future studies that will better integrate the diverse objectives within the basin. The goal of the study will be to bring all Federal, State, and local governments and agencies together to identify the water resources needs and opportunities for the region.

This overview is representative of the ongoing collaboration between the Corps and the State of Texas in the effort to meet the State's future water supply needs. The Corps looks forward to continuing collaboration with the TWDB, Texas water supply agencies and other partners involved in the preservation and development of the State's water resources to develop plans that will meet the water supply requirements of future generations of Texans while also preserving, improving and enhancing the riverine environment