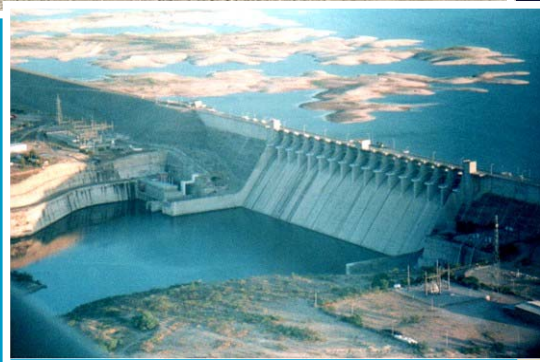


International Boundary and Water Commission United States and Mexico



2003 Annual Report



“The jurisdiction of the Commission shall extend to the limitrophe parts of the Rio Grande (Rio Bravo) and the Colorado River, to the land boundary between the two countries, and to works located upon their common boundary, each Section of the Commission retaining jurisdiction or control over works located within the limits of its own country.”

Article 2, 1944 Water Treaty



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MESSAGE FROM THE COMMISSIONERS

During 2003, the Commission accomplished a variety of actions related to boundary demarcation, maintenance of the channels of the international rivers, control and utilization of the international waters, and monitoring of water quality and quantity. These activities were carried out in accordance with the terms of the applicable boundary and water treaties agreed to by the Governments of the United States and Mexico. Application of these treaties is the responsibility of the International Boundary and Water Commission, United States and Mexico (IBWC).

Additionally, the Commission, through our work teams along the approximately 2000-mile (3000-kilometer) long land and river boundary, conducted technical discussions and supported government-to-government negotiations that led to two Minutes. Minute 309, "Volumes of Water Saved Through the Modernization and Improved Technology Projects for the Irrigation Districts in the Rio Conchos Basin and Measures for their Conveyance to the Rio Grande," signed on July 3, 2003, furthered the establishment of lines of cooperation to carry out conservation projects in Mexico in order to save significant volumes of water and thus increase the available water supply for agricultural and urban demands on both sides of the border. Minute 310, "Emergency Delivery of Colorado River Water for Use in Tijuana, Baja California," signed on July 28, 2003, facilitates emergency water deliveries to meet the demands of the City of Tijuana, Baja California. Also, both governments looked to the Commission for the technical bases for future negotiations regarding the deficit in water deliveries from the Mexican tributaries to the Rio Grande under the 1944 Water Treaty.

For the United States Section, 2003 marked a year of transition in leadership. U.S. Commissioner Carlos M. Ramirez, who was appointed by President George W. Bush in 2001, went on an extended medical leave of absence followed by his resignation for health reasons. For the second half of the year, Principal Engineer Debra J. Little served as Acting Commissioner. Then in December, President Bush announced his intention to appoint Arturo Q. Duran to succeed Ramirez as U.S. Commissioner.

These and other activities are described in this report, which has been prepared in compliance with Article 24 (g) of the 1944 Water Treaty.

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R I O G R A N D E

1944 Water Treaty

The 1944 Water Treaty between the United States and Mexico provides for the distribution of the waters of the Rio Grande between the two countries from Fort Quitman, Texas to the Gulf of Mexico. The measurement of Rio Grande water assigned to each country from six measured Mexican tributaries was accomplished in accordance with the treaty, with two-thirds of these waters assigned to Mexico and one-third to the United States. The preliminary and monthly accounting of the international waters of the Rio Grande was accomplished to determine the national ownership of the waters stored at Amistad and Falcon Dams, the two international storage reservoirs on the Rio Grande; also, the IBWC conducted daily water accounting at the Anzalduas Diversion Dam to provide for the distribution of water to each country.

During the water delivery year that ended on September 30, 2003, Mexico delivered 399,964 acre-feet (493.35 million cubic meters) to the United States under the terms of the 1944 Water Treaty. The treaty requires Mexico to deliver to the United States a minimum annual average of 350,000 acre-feet (431.72 million cubic meters) of water from the six measured tributaries in cycles of five years. Mexico has accumulated a deficit in those deliveries dating back to 1992. The two Sections, with support from the U.S. Department of State and Mexico's Ministry of Foreign Relations, conducted negotiations about water deliveries and deficit reduction. In December, negotiations continued for deliveries during the 2003-2004 cycle year.

The IBWC also initiated discussions for the development of criteria to determine conveyance losses (water lost due to evaporation or used by plants) for Rio Grande water in the reach from Presidio, Texas-Ojinaga, Chihuahua to Amistad and Falcon Dams.

Mouth of the Rio Grande

The IBWC took action in 2003 to address concerns about the mouth of the Rio Grande. During portions of 2001 and 2002, the mouth, located at the Gulf of Mexico, was obstructed by a sandbar. To address this obstruction, federal agencies and both the U.S. and Mexican Sections of the IBWC conducted various inspections of the condition of the mouth and explored alternatives for maintaining flows at the mouth, including dredging, channel stabilization, and jetty construction. In the fall of 2003, sediment in the



Mouth of the Rio Grande

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river mouth was naturally cleared due to heavy rains and high river flows of some 7063 cubic feet per second (200 cubic meters per second).

Lower Rio Grande Flood Control

The IBWC's Lower Rio Grande Flood Control Project provides flood protection along 180 miles (289.6 km) of the river, from the Gulf of Mexico to the area of Peñitas, Texas - Diaz Ordaz, Tamaulipas. Each country maintains an extensive system of levees to hold back high water. The project also includes Anzalduas and Retamal Diversion Dams and floodways in both countries.



IBWC staff at flood workshop

To assure appropriate control operations during Rio Grande floods, the Commission conducted its annual flood workshop with simulated exercises of flood flows through the international dams on the Rio Grande. Additionally, staff reinforced information exchange and tracked weather systems during the year.

Heavy rains in the Lower Rio Grande Valley in September and October coupled with high flows from the Alamo and San Juan Rivers, two Mexican tributaries, caused a significant increase in Rio Grande flow. Crews from the IBWC went into high-water operations, prompting additional monitoring by the Commission's hydrologic personnel. At Anzalduas Dam, Rio Grande flows of over 12,000 cubic feet per second (3,398

cubic meters per second) were recorded in October, approximately ten times greater than flows one month earlier. In response to a request from officials in the City of Matamoros, Tamaulipas, personnel from both sections of the IBWC jointly operated Retamal Dam to divert water into the Mexican floodway for 18 hours on October 17 in order to avoid damage to life and property in the area of Brownsville, Texas–Matamoros, Tamaulipas.

As part of flood control studies on the Lower Rio Grande, in March a binational reconnaissance tour was conducted of the Alamo and San Juan River basin. The tour included site visits to the Las Blancas, Marte R. Gomez, and El Cuchillo Dams, as well as a meeting at the office of Mexico's National Water Commission (CNA) in Monterrey, Nuevo Leon.

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Under Minute 238, signed in 1970, the two countries agreed to improve the Lower Rio Grande Flood Control Project in order to handle a flood at Rio Grande City, Texas of 250,000 cubic feet per second (7080 cubic meters per second), known as the design flood. The U.S. Section completed a Flood Study in 2003 to look at the effects of the design flood, which is expected to occur, on average, less than once per hundred years. Study results show that the Project would not currently be able to handle a flood of that magnitude. According to the study, the U.S. levee would be overtopped along 38 river miles (61.15 km) while the recommended 3-foot freeboard on the levee would be encroached for a length of 64 river miles (103 km). The study also found that the Mexican levee would be overtopped along 57 river miles (91.7 km) and the freeboard would be encroached for a length of 110 river miles (177 km). The two Sections are analyzing the results of the study to develop recommendations to be presented to both governments for improving the flood control project.

Retamal Dam Sediment Removal Environmental Assessment

The U.S. Section initiated an Environmental Assessment of the plan to remove sediment downstream of Retamal Dam, a Commission diversion dam designed to limit flood flows at Brownsville, Texas-Matamoros,



Sediment at Retamal Dam

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Tamaulipas and to enable Mexico to divert its share of Rio Grande floodwaters to its interior floodway. Since the dam was first constructed in the 1970s, sediment has been accumulating in the channel on the United States side of the river. The dynamics of river flow cause sediment to settle in the left portion of the channel below Retamal Dam. An island and sandbar formed downstream of the dam and along the concrete apron downstream of the flood control gates. If sediment continues to build up along the concrete apron, operation of the gates that control flood flow conditions would likely be impaired. Additionally, the sediment buildup has caused the main channel in the river to shift toward the Mexican side, potentially changing the boundary location between the two countries. Technical advisors to the IBWC have recommended removal of the island and sandbar based on their inspections under the Safety of Dams program. The Environmental Assessment is analyzing the alternatives to remove vegetation from the island, dredge the sediment, and reuse or dispose of all the material on vacant land in Mexico.

Operation and Maintenance of Anzalduas and Retamal Dams

Preventive maintenance was carried out on the different components of Anzalduas and Retamal International Dams by both Sections of the IBWC, including sand-blasting, lubrication, and painting of gates and other elements as well as clearing areas adjacent to the dams.

Like Retamal Dam, Anzalduas Dam is a diversion structure located in the Lower Rio Grande Valley. Anzalduas Dam allows for the diversion of the U.S. share of Rio Grande floodwaters to the interior floodway and the diversion of irrigation water into Mexico's canal system.



Anzalduas Dam

Rio Grande Aquatic Weeds

Two exotic weeds, hydrilla (*Hydrilla verticillata*) and water hyacinth (*Eichhornia crassipes*), continued to plague parts of the Lower Rio Grande in 2003. The International Boundary and Water Commission played an important role in coordinating among entities in the United States and Mexico working to address the infestation. Officials released 26,595 sterile grass carp (*ctenopharyngodon*) into the Rio Grande as part of a biological aquatic weed control program sponsored by the Lower Rio Grande Valley Development Council. Hydrilla is the preferred food of the grass carp. Additionally, the United States Army Corps of Engineers released hundreds of thousands of insects -- hydrilla flies (*hydrellia* spp.) and the water hyacinth weevil (*neochetina* spp.) -- which feed on the weeds. Texas Parks and Wildlife coordinated the application of herbicides

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as well as mechanical removal of weeds along a 72-mile (115.8 km) reach of the river. Mexico provided funds to support control efforts.

In addition to the above, the increase in flow due to rainfall in October washed hyacinth and hydrilla into the Gulf of Mexico, considerably improving the conveyance capacity of the river.

Operation and Maintenance of El Morillo Drain

El Morillo Drain, located in the State of Tamaulipas, Mexico, is a binational project that conveys saline irrigation return flows to the Gulf of Mexico, thereby reducing the salinity of the Rio Grande. Consistent with the agreements in Minutes 223 and 303 of the International Boundary and Water Commission, maintenance and rehabilitation of the drain, pump station, and weir were carried out. These works consisted of clearing, grubbing, desilting, and replacement of slabs in some sections of the canal as well as general maintenance of the pump station building, pumps, control panel, and electrical sub-station, among other items. Funding for the project was shared among Mexico, the United States, and Texas irrigators.



Morillo Drain pump

Signing of Minute 309

On July 3, 2003, the IBWC concluded Minute 309, “Volumes of Water Saved with the Modernization and Improved Technology Projects for the Irrigation Districts in the Rio Conchos Basin and Measures for their Conveyance to the Rio Grande,” regarding water conservation projects along a major Rio Grande tributary in the State of Chihuahua.

Minute 309 satisfies the requirements of a 2002 agreement, Minute 308, which called upon the IBWC to provide observations with respect to the estimated volumes of water saved by the Mexican conservation projects and identify necessary measures to ensure the conveyance of the saved waters to the Rio Grande.

As noted in Minute 309, once the conservation projects are completed, an estimated volume of saved water of 321,043 acre-feet (396 million cubic meters) will be transferred to the Rio Grande annually. Completion of the conservation projects is contingent upon the availability of funds. The actual volume conveyed to the Rio Grande will vary depending on precipitation, storage, and irrigation releases in the Conchos Basin.

The agreement provides for IBWC field inspections to view construction and progress of works. The first IBWC field inspection was conducted in December 2003. IBWC engineers visited three irrigation districts in Chihuahua

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-- the Delicias District (005), Rio Florido District (103), and Bajo Rio Conchos District (090). Improvements that are planned are: lining of canals, installation of low pressure supply systems for application of water with multi-gate pipes, land leveling, installation of high pressure systems for drip irrigation and sprinkler systems, and rehabilitation of wet wells and pumping equipment. Completion of the projects and attainment of the projected water savings are expected to take four years. At the time of the engineers' visit, contracts under international funding had just been awarded and actual construction progress was minimal. However, projects undertaken with domestic funding by Mexico were already under construction.



Conchos River irrigation conservation project

Rio Grande Environmental Projects

In compliance with the Joint Declaration of the United States and Mexico of June 2000 to expand cooperation to protect the environment and natural resources of the Rio Grande, the IBWC conducted a tour in August 2003 along the river between Big Bend National Park, Texas and Maderas del Carmen, Coahuila. The purpose of the tour was to observe pilot projects designed to control tamarisk (salt cedar), an invasive exotic tree, and to reduce water losses caused by the plant.

As a result of this visit, several binational activities are planned to control tamarisk in this reach of the Rio Grande and, eventually, in the Conchos River in Mexico for the purposes of conserving water and protecting the environment in both streams.

Projects within the Rio Grande Floodplain

The IBWC approved the following projects within the floodplain of the Rio Grande:

- Proposed construction of sports facilities adjacent to the Reynosa, Tamaulipas Customs Yards downstream of the Hidalgo-Reynosa International Bridge.
- Construction of a temporary access road for the use of a borrow pit at river mile 69.8 (112.3 km) upstream of the Los Fresnos pump station in Cameron County, Texas.
- Improvement of Santa Rita Park on the left bank of the Rio Grande south of Laredo, Texas.
- Construction of a hike and bike trail along the Rio Grande at Laredo, Texas.

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- Construction of the “Ribera del Bravo” ecological tourist corridor at Nuevo Laredo, Tamaulipas.
- Construction of a 24-inch diameter side collector and a pump station on the right bank of the Rio Grande at Ciudad Acuña, Coahuila.
- Filming by DAT Productions, Inc., a subsidiary of Twentieth Century Fox, of a scene for the feature film *The Day After Tomorrow* at a site between American and International Dams at El Paso, Texas-Ciudad Juarez, Chihuahua.
- Coordination of the Juarez 250 international automobile race promoted by the Xtremo Off-Road Club at Ciudad Juarez, Chihuahua.

Water Deliveries to Mexico under the Convention of 1906

In accordance with the Convention of 1906, the United States delivers Rio Grande water to Mexico at Ciudad Juarez, Chihuahua – water that is released from Elephant Butte and Caballo Dams in New Mexico. Due to the regional drought, water allotments to Mexico and users in the United States were significantly reduced in 2003. Mexico received 44% of a full supply, the first time since 1978 that the allotment was cut. In September, at the end of the irrigation season, storage at Elephant Butte bottomed out below 8% – the lowest in a quarter century.

In view of the low levels at Elephant Butte and Caballo Dams, several binational meetings took place with the participation of authorities from both Sections of the IBWC, Mexico’s National Water Commission (CNA), and the United States Bureau of Reclamation concerning water availability, runoff forecasts and the proportional reduction in water deliveries to users in the United States and Mexico in 2003.



Elephant Butte Lake in New Mexico

Officials from both countries participated in tours of Elephant Butte and Caballo Dams along with representatives of the news media in order to observe low storage conditions. Personnel from Mexican irrigation districts and CNA also participated in a meeting and tour of the Elephant Butte Irrigation District in New Mexico during which they observed measurement systems and water management practices used by this district for its diversion dams, canals, irrigated lands, and groundwater wells.

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Additionally, the gates of International Dam were replaced in 2003. The dam, located at El Paso, Texas-Ciudad Juarez, Chihuahua, was built in 1938 to divert Mexico's allotment of Rio Grande water under the Convention of 1906 into that country's irrigation canal, the Acequia Madre. The project consisted of removal of all four old gates, installation of new gates, and modernization of the electrical components. This new design was based on the original plans, allowing the Commission to retain the historical appearance of the dam.

Riverside Dam

Riverside Dam, constructed in the 1920s at El Paso, Texas-Ciudad Juarez, Chihuahua, served as a diversion dam and grade control structure for six decades until the dam failed during a 1987 flood. A temporary cofferdam was erected so that water could continue to be diverted into the adjacent U.S. canal. Over the years, silt accumulated in the main channel to the top of the cofferdam, posing a safety risk in the event of a flood. The affected parties in the United States and Mexico agreed that the old dam and temporary cofferdam were obstructing flows in the Rio Grande. In 2003, the United States Bureau of Reclamation (USBR) removed portions of the Riverside Dam and cofferdam, allowing planning to proceed for the removal of accumulated sediments and a permanent replacement structure.



Work at Riverside Dam

Chamizal Channel Clearing

The IBWC removed sediment from 3.2 miles (5.14 km) of the Rio Grande in El Paso, Texas-Ciudad Juarez, Chihuahua. The sediment was removed from the Chamizal Channel, the concrete-lined river channel built in the 1960s to settle a long-standing boundary dispute between the two countries. The project represented the largest sediment removal effort in nearly two decades, work that was necessary after a 1999 flood filled the channel with a large amount of silt. Crews from the IBWC used heavy equipment to conduct the work. Mexico assisted by transporting part of the spoil for disposal in Mexico. The U.S. Border Patrol and City of El Paso also provided support. Less than half the channel length remains silted. Work to complete sediment removal will continue in 2004.

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INTERNATIONAL BRIDGES, BORDER CROSSINGS, AND BOUNDARY DEMARCATION

West Rail Bridge at Brownsville, Texas–Matamoros, Tamaulipas

The International Boundary and Water Commission participated in coordination meetings for the West Rail Bridge project. The goal of the project is to relocate rail lines outside of the urban area of Brownsville, Texas–Matamoros, Tamaulipas. Currently, trains cause traffic delays in both cities where the rail lines cross busy streets. Additionally, the project is expected to improve safety and reduce noise. The West Rail Bridge across the Rio Grande will be located at river mile 71.7 (km 115) between River Bend, Texas and San Pedro, Tamaulipas 15 miles (24 km) upstream of the current location. The project, estimated to cost \$40 million, will include the relocation of the Mexican river levee.

Progreso International Bridge

The new international bridge at Progreso, Texas–Nuevo Progreso, Tamaulipas was completed in 2003. The project consists of two structures -- a four-lane passenger vehicle bridge (two lanes in each direction) and a two-lane truck bridge (one lane in each direction). The new bridge also has pedestrian walkways covered by canopies. As part of the project, the old bridge was demolished.

Donna-Rio Bravo International Bridge

The IBWC reviewed conceptual plans for the proposed Donna-Rio Bravo International Bridge in the Lower Rio Grande Valley. The bridge will handle both passenger and commercial vehicles. The IBWC Commissioners were expected to approve and sign the plans in early 2004, since construction is planned to start at the end of that year.

Anzalduas International Bridge

The IBWC reviewed construction plans for the proposed Anzalduas International Bridge in the Lower Rio Grande Valley near McAllen, Texas–Reynosa, Tamaulipas. The plans were found to be in accordance with the conceptual plans approved by the IBWC for this project. The bridge will include four vehicle lanes and two pedestrian lanes.

Tornillo-Guadalupe “Fabens” Bridge

The IBWC continued its review of the proposed new Tornillo-Guadalupe Bridge spanning the Rio Grande downstream of El Paso, Texas–Ciudad Juarez, Chihuahua. The IBWC conducted coordination meetings with officials

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from El Paso County and Mexico to assist project sponsors with meeting all conditions for receiving a permit. The IBWC owns the existing bridge, a free two-lane crossing for pedestrians and passenger vehicles. The proposed replacement bridge would be a toll facility able to handle commercial traffic, passenger vehicles, and pedestrians.

International Cordova-Bridge of the Americas

Coordination was accomplished for the annual maintenance of the International Cordova - Bridge of the Americas at El Paso, Texas-Ciudad Juarez, Chihuahua. The IBWC constructed the bridge and is responsible for its maintenance. The toll-free bridge provides pedestrian walkways and 12 lanes of traffic, with separate bridge structures for passenger and commercial vehicles.

Maintenance of the Boundary on International Bridges and Border Crossings

Both Sections worked on inspecting the bridges and international ports for the purpose of observing the condition of the existing boundary demarcation features. Based on the inspections, the Commission undertook the maintenance of the demarcation features on all of the bridges and ports of entry between the United States and Mexico.



Boundary maintenance at the bridges and border crossings

Installation of Reflective Signs on the International Land Boundary

The International Boundary and Water Commission installed three reflective signs in the area of Sasabe, Arizona-Sasabe, Sonora to warn people that they are approaching the international boundary.

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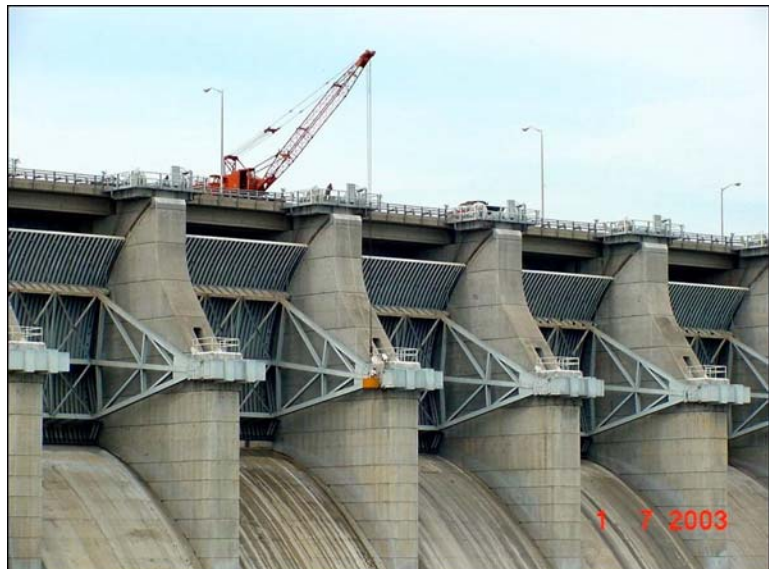
Service Line Crossings

The IBWC approved a project sponsored by Tennessee Gas Pipeline and Compañía Gasoducto del Rio, S.A. de C.V. for a 30-inch diameter natural gas pipeline to cross the Rio Grande near Progreso, Texas-Nuevo Progreso, Tamaulipas. Additionally, the Commission approved a 10-inch petroleum pipeline crossing at Brownsville, Texas-Matamoros, Tamaulipas for P.M.I. Service North America, Inc. and PEMEX-Refinery.

I N T E R N A T I O N A L D A M S

Operation and Maintenance of Amistad Dam

Amistad Dam, located on the Rio Grande near Del Rio, Texas-Ciudad Acuña, Coahuila, is operated jointly by the two Sections of the IBWC. The dam was built for water storage and flood control for both countries; additionally, the dam generates hydroelectric power. At the end of 2003, joint storage was 1,525,460 acre-feet (1,881.634 million cubic meters) or 48.4% of capacity (as compared to 33% of capacity at the end of 2002). Both Sections continued with their normal monitoring and maintenance programs for such things as the radial gates, lighting of the inspection galleries, repair of the drinking water system, vegetation clearing, facilities cleaning, and painting. Based on the recommendations of Safety of Dams technical advisors from the United States and Mexico, special attention was paid to the inspection of Gate No. 14 and replacement of riprap on the west slope of the dam curtain on the Mexican side.



Amistad Dam

For security at the dam facilities, the IBWC coordinated with the Mexican Defense Secretariat (SEDENA) to formalize agreements and conduct inspections; the IBWC also provided institutional coordination for security at the dam and carried out binational activities on water releases, emergency response, flood control, and electrical power generation.

Operation and Maintenance of Falcon Dam

The IBWC's other major dam, Falcon Dam, is located upstream of Roma, Texas-Miguel Aleman, Tamaulipas. Like Amistad Dam, Falcon provides water storage, flood control, and hydroelectric power generation for both countries. At the end of 2003, joint storage was 1,146,681 acre-feet (1,414.416 million cubic meters) or 43.2% of capacity, a significant increase over 2002 when the reservoir ended the year at 27% of capacity. The normal program of monitoring and maintenance of the structural and mechanical elements of the dam continued. Additionally, the IBWC conducted operational activities to release volumes of water as requested by each country.



Falcon Dam spillway gate

The normal program of monitoring and maintenance of the structural and mechanical elements of the dam continued. Additionally, the IBWC conducted operational activities to release volumes of water as requested by each country.

Mexican Section maintenance activities included clearing and grubbing works on the shoulder of the slope upstream and downstream of the curtain to preclude rainwater accumulation on the pavement, which could cause damage. Also, clean-up and painting activities were carried out on the guardrail located on the Mexican curtain of the dam.

The U.S. Section's program included maintenance of piezometers, weirs, observation wells, seepage drains, and the embankment as well as brush removal, mowing, and performance of the annual vertical surveys. The U.S. Section also performed maintenance on the power plant, spillway gates, intake structure, and the houses and grounds of Falcon Village.

The Commission continued its efforts to improve security at the dam, installing new security doors and signs. Additionally, traffic was restricted to passenger vehicles at the port of entry located on the dam itself.

Critical Infrastructure Protection

Another focus of work in 2003 relates to the ongoing threat of terrorists striking the border region. The IBWC took a lead role in the Mexico-United States Critical Infrastructure Protection (CIP) Framework for Cooperation,

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attending various meetings in Mexico City; Washington, DC; and the border region. Through this program, both nations agreed to conduct binational vulnerability assessments of trans-border infrastructure to identify and take required protective measures. The two Sections of the IBWC are the lead agencies for the Water and Dams Working Group. Through this group, the IBWC compiled an inventory of water infrastructure on the border and proposed security enhancements. Officials from Mexico's National Water Commission and the U.S. Department of Homeland Security toured some of the IBWC's critical structures. Of particular concern are Amistad and Falcon Dams. The IBWC has already enhanced security at these two facilities, although additional risk assessments are proposed. The timeliness and quality of the IBWC's work on the Critical Infrastructure Protection program earned praise from the Bilateral Steering Committee.

Safety of Dams Inspection

From March 31 to April 4, 2003, the binational Safety of Dams inspection took place with the participation of advisers from both countries who evaluated the structural and electro-mechanical aspects of Amistad, Falcon Anzalduas, and Retamal Dams. The resulting report concluded that the dams are safe for continued operation and made recommendations for maintenance works that should be undertaken. This inspection takes place every five years.

C O L O R A D O R I V E R

Colorado River Deliveries to Mexico, Operation and Maintenance of Morelos Dam

In 2003, the IBWC provided for the delivery to Mexico of 1.5 million acre-feet (1,850,234,000 cubic meters) of water from the Colorado River in accordance with the 1944 Water Treaty. In order to assure timely delivery of required volumes, weekly delivery programs and modifications to the delivery schedule were agreed to and coordinated.

To effect these deliveries, the Commission operated and maintained the Morelos Diversion Dam near Yuma, Arizona-Los Algodones, Baja California, which diverts water into Mexico's canal system. IBWC personnel provided hydraulic supervision of the dam and conducted corresponding fieldwork to review facility operations. Additionally, the IBWC carried out rehabilitation works on 13 radial gates, including work on the gates' elevating mechanisms and modernization of the operating controls.



Morelos Dam maintenance

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The Commission also monitored the quality of the waters delivered to Mexico and maintained stream gaging stations on the Colorado River.

Salinity

In accordance with agreements to control the salinity of water that Mexico receives from the Colorado River under the 1944 Water Treaty, a project was completed in March to provide better regulation of water deliveries to Mexico at the Southerly International Boundary (SIB) — the southernmost point of the 24-mile (38.6 km) segment of the international boundary formed by the Colorado River. This project consisted of installation of flow control valves and variable speed pumps, an automated control system, and an interconnection canal to bypass part of the Yuma agricultural drain water to the Wellton-Mohawk Bypass Drain, which then conveys these saline waters to the Santa Clara Slough in Mexico. Additionally, in accordance with Minute 242, a 1973 agreement related to salinity of Colorado River deliveries, saline waters are diluted with water pumped from the 242 well field in the United States. These combined efforts will allow for the maintenance of better salinity levels in the waters delivered to Mexico at SIB during the four critical months of the year identified by Mexico's National Water Commission (CNA).

The IBWC also participated in a binational tour of the Upper Colorado River drainage sponsored by the Colorado River Basin Salinity Control Forum. The tour covered salinity control projects in Colorado and Utah. Engineers from both Sections of the Commission participated in the tour along with several officials from CNA. The tour enabled IBWC staff and Mexican water officials to gain a better understanding of conditions in the upper portion of the basin.

Maintenance of the Wellton-Mohawk Bypass Drain



Wellton-Mohawk Bypass Drain

Based on joint field visits, the IBWC and Mexico's National Water Commission identified required maintenance works for the year and formulated, agreed to, and carried out the Wellton-Mohawk Drain maintenance program in order to assure the conveyance and diversion to the Santa Clara Slough in Mexico of saline agricultural drainage waters from the Yuma Valley. While the works were in progress, field trips were undertaken for the supervision of the works, which consisted of the removal of vegetation and weeds from the levees, clearing and grubbing the sides and bottom of the canal, and roadway maintenance. Additionally, the gates of the drain were replaced and their mechanisms rehabilitated.

Silt in the Channel of the Colorado River

Sampling for suspended solids in the water that Mexico receives at the Northerly International Boundary (NIB) was carried out. The calculated volumes of silt have diminished due to the fact that the settling basin constructed upstream is operating normally. The United States is continuing the desilting works in the area of Laguna Dam, removing approximately 49 million cubic feet (1.4 million cubic meters) of silt. Within the IBWC, desilting activities are planned in the area adjacent to Morelos Dam, works which are necessary to guarantee the conveyance capacity of the river.

Boundary and Capacity Preservation Project

The U.S. Section of the IBWC continued work on the Environmental Impact Statement (EIS) for the Lower Colorado River Boundary and Capacity Preservation Project. The purpose of the project is to preserve the international boundary where it is formed by the Colorado River and to improve the river's capacity to convey flood flows safely. The project alternatives consider different river alignments, dredging, and modification of the flood control levees. The USIBWC conducted various stakeholder meetings during the year to inform interested parties about the project and to seek their input. The two Sections of the IBWC continued project coordination in their respective countries. Once the U.S. Section completes the EIS required in the United States, both countries will implement the project jointly.



Colorado River downstream from Morelos Dam

Aquatic Weeds/Giant Salvinia Molesta

The exotic weed giant salvinia (*Salvinia molesta*) continued to challenge water managers in the Lower Colorado River, with weed density the worst on record. For several years, the plant has infested parts of the

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Lower Colorado River and related canals. The IBWC participated in various meetings of the Lower Colorado Giant Salvinia Task Force to discuss means to control the plant and conducted a joint observation of weed conditions in the Mexicali, Baja California area. Control efforts focused on the United States and included spraying of herbicide, mechanical harvesting, and placement of booms in critical areas. The two countries also initiated discussions regarding the possible future use of cyrtobagous, a weed-eating weevil, to control giant salvinia in both countries.

Protection of the Colorado River Delta

The IBWC continued its efforts related to Minute 306, “Conceptual Framework for United States - Mexico Studies for Future Recommendations Concerning the Riparian and Estuarine Ecology of the Limitrophe Section of the Colorado River and its Associated Delta.” Signed in December 2000, the Minute established a framework for binational cooperation to examine issues related to the boundary segment of the Colorado River and the river delta, located in Mexico.

A work group of the IBWC has focused on development of a binational database and a hydrologic model to simulate different levels of environmental benefit deriving from different Colorado River flows. This model will generate information on possible sites for pilot environmental restoration projects in the delta. In November, the IBWC held two binational meetings at which participants discussed courses of action for development of the projects. One of the meetings included non-governmental organizations from the United States who will serve on the Binational Advisory Group on the Colorado River delta that is being established in accordance with Minute 306.

All-American Canal

The All-American Canal was constructed in sandy soil in the 1930s for agricultural irrigation in the Imperial and Coachella Valleys of California. Given the increasing demand for water in the region, water managers plan to line a reach of the canal to prevent water loss through seepage so that this conserved water can be used in urban areas on the coast of California. The preferred alternative for the lining is to construct a 23-mile (37 km) canal parallel to the existing one.

Mexico, through the IBWC, has presented its view that the project would impact Mexico, affecting irrigated areas that depend directly or indirectly on seepage from the All-American Canal by reducing groundwater or increasing the salinity of groundwater.



Aerial view of the All American Canal

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The United States has advised that it will carry out the project to line the All-American Canal. Mexico, through the IBWC, has opposed this action as long as actions to mitigate or eliminate the effects of the lining in Mexico are not identified.

In the search for options for cooperation, the IBWC has facilitated the exchange of information, technical studies, and joint binational field visits. Options for cooperation have been identified, including measures related to management of the excess flows in the Colorado River. During 2003, officials from both countries met and agreed to reactivate a binational work group to identify the existing options, consider previous proposals, and create a space in which to explore options so that both countries can benefit from the project (win-win options).

Binational Coordination Meetings

During the year, various binational meetings were held to provide follow-up on border projects and review their progress. Managers from the International Boundary and Water Commission, United States and Mexico, Mexico's National Water Commission, the United States Bureau of Reclamation, and the State of Baja California held a coordination meeting on Colorado River issues in Las Vegas, Nevada. The meeting included the participation of Commissioner John W. Keys, III of the U.S. Bureau of Reclamation, Commissioner Arturo Herrera Solis of the Mexican Section of the IBWC, and Deputy Commissioner Carlos Marin of the United States Section of the IBWC. The agencies provided progress reports on Colorado River projects and discussed ways to enhance cooperation and coordination between the two countries.

Colorado River Aqueduct Study, San Diego, California–Tijuana, Baja California

A feasibility study for a binational aqueduct to convey Colorado River water to San Diego and Tijuana was completed. The binational study was carried out in accordance with Minute 301, "Joint Colorado River Water Conveyance Planning Level Study for the San Diego, California-Tijuana, Baja California Region," which was signed in October 1999. The IBWC coordinated and facilitated the study, which was funded by a grant from the California Department of Water Resources and the San Diego County Water Authority. The report explored ten different alignments for an aqueduct, including alignments entirely in the United States, entirely in Mexico, and crisscrossing the border. A Work Plan was prepared for additional related studies to be undertaken in 2004 and 2005.

Signing of Minute 310

The feasibility study for a binational aqueduct also analyzed water supply issues for the short term. As a consequence, IBWC Minute 310, "Emergency Delivery of Colorado River Water for use in Tijuana, Baja California," and the related Joint Report of the Principal Engineers were signed in 2003. The agreement allows Mexico to convey a portion of its allotment of Colorado River water through the southern California aqueduct system. Under the agreement, the United States will deliver water to Mexico through a connection at Otay Mesa. All

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costs associated with the deliveries will be borne by Mexico. The agreement was undertaken with the cooperation and participation of the San Diego County Water Authority, the Metropolitan Water District of Southern California, and the Otay Water District, which own and operate the affected conveyance system. Under the framework of this Minute, water deliveries were made through the Otay emergency connection to the City of Tijuana for the months of November and December 2003, with the coordination of IBWC technical personnel.

S A N I T A T I O N A N D W A T E R Q U A L I T Y

Nuevo Laredo, Tamaulipas Sanitation

The Nuevo Laredo International Wastewater Treatment Plant (NLIWTP) is a binational project developed by the IBWC to address Rio Grande water quality concerns in the area of Laredo, Texas-Nuevo Laredo, Tamaulipas. In 2003, the operation and maintenance cost invoices for the plant were presented monthly to the IBWC by the Nuevo Laredo utility (COMAPA), and, in accordance with Minute 297, the IBWC paid the portion of costs corresponding to the United States. The quality of the NLIWTP effluent has been satisfactory, complying with the parameters established in the Minute.

Nuevo Laredo Water Quality Study

The Commission completed and released a water quality report, “Binational Study Regarding the Intensive Monitoring of the Rio Grande Waters in the Vicinity of Laredo, Texas and Nuevo Laredo, Tamaulipas Between the United States and Mexico, November 6-16, 2000.” The objectives of the study were to: 1) make a comparative analysis of water quality conditions in the Rio Grande; 2) enhance permanent water quality programs; and 3) measure the beneficial water quality effects of the Nuevo Laredo International Wastewater Treatment Plant (NLIWTP), which began operation in 1996. The study documents some ongoing water quality concerns in the Rio Grande while, at the same time, demonstrating the highly effective treatment of sewage provided by the NLIWTP.



Nuevo Laredo water quality monitoring

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Nogales Sanitation

The Nogales International Wastewater Treatment Plant (NIWTP), located in Rio Rico, Arizona, treats wastewater from the Cities of Nogales, Arizona and Nogales, Sonora. The plant is jointly owned by the United States Section of the IBWC (USIBWC) and the City of Nogales, Arizona. The USIBWC operates the plant and receives reimbursement from Mexico for costs related to the treatment of sewage originating in Nogales, Sonora and from the City of Nogales, Arizona for treatment of its sewage.



Nogales International Wastewater Treatment Plant

IBWC technical personnel conducted monthly joint field inspection visits of the plant for the purposes of collecting and verifying information on the volumes of wastewater being treated from each city. During 2003, an average of 14.3 million gallons per day (626 liters/second) was treated.

There was continuous communication between the Mexican Section of the IBWC and the government of the State of Sonora in order to effect payment by Sonora for treatment of sewage during the period of October 2000-September 2001 in excess of the capacity assigned to Mexico in IBWC Minute 276. The payment in question was made by the State of Sonora in June 2003. For the period of October 2002 to September 2003, during the months of October, November, and December of 2002 and February and September of 2003, the amount of Mexican sewage treated at the plant exceeded the monthly capacity assigned to Mexico, however the annual capacity assigned to Mexico, an average of 9.9 million gallons per day (434 liters per second) was not exceeded.

The IBWC is also carrying out systematic and intensive sampling every three months to monitor the quality of the influent and effluent at the NIWTP. Mexico continued to provide periodic disinfection of the surface wastewaters in the Nogales Wash, using a chlorinator provided by the United States Section in 2002. This effort was carried out by the Mexican Section in coordination with the Potable Water and Sewerage Commission of the State of Sonora (COAPAES).

Nogales Wastewater Pretreatment

The Binational Pretreatment Technical Committee conducted regular meetings in 2003 with the goal of reducing contaminants entering the sewers -- contaminants that could disrupt the treatment process at the Nogales

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International Wastewater Treatment Plant. The committee includes representatives of the IBWC, the United States Environmental Protection Agency; the Arizona Department of Environmental Quality; the Arizona Department of Water Resources; the City of Nogales, Arizona; Mexico's National Water Commission; and the Potable Water and Sewerage Commission of the State of Sonora. To achieve its objectives, the committee reviewed and exchanged technical information, provided information to residents and businesses, and worked with industry.



Wastewater infrastructure in Naco, Sonora

Naco, Sonora Sanitation

IBWC carried out four joint inspections of the lagoon wastewater treatment systems at Naco, Sonora, known as the West and East Lagoon Systems, for the purpose of observing current operating conditions. The coordinating committee, consisting of representatives of the IBWC, U.S. Environmental Protection Agency, Mexico's National Water Commission, and the Border Environment Cooperation Commission, met several times in 2003. During these meetings, comments were presented on the problems observed in the East Lagoon

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System. Both Sections of the IBWC developed a draft Joint Report of the Principal Engineers with recommendations for measures to improve the quality of the wastewaters at Naco, Sonora.

For several years, the town of Naco, Sonora has experienced periodic problems with fires at the town landfill, an open dump near the border. Smoke from the fires creates an air quality problem for both countries. When fire broke out in late 2003, officials from Mexico and Cochise County, Arizona requested IBWC assistance. In response to the request, the U.S. Section coordinated with the Mexican Section to allow USIBWC personnel and equipment to conduct fire prevention works at the landfill, consisting of digging trenches and covering the trash with dirt.

Mexicali, Baja California Sanitation

The Mexicali, Baja California sanitation infrastructure is comprised of two systems: Mexicali I (Zaragoza) and Mexicali II (Las Arenitas). In the Mexicali I service area, periodic collapses in the sewage collectors result in direct discharges of wastewater into the storm drain system, which then discharges directly into the New River.

To address the problem of discharge of untreated wastewater, programs for wastewater monitoring and industrial pre-treatment were established. Originally proposed by the California Environmental Protection Agency (Cal-EPA) in 2002, the program consists of providing technical assistance and training to personnel from the State Public Services Commissions of Tijuana (CESPT) and Mexicali (CESPM) in order to establish baseline criteria with regard to discharges of wastewater into the systems.

In the year ending in June 2003, \$200,000 from Cal-EPA were applied to this program to carry out wastewater sampling and analysis, training, and equipping laboratories. CESPM, the General Office of Ecology of Baja California (DGE), IBWC, San Diego County, Cal-EPA, and Mexico's National Water Commission participated in this program.



Mexicali lagoons influent

In September, the Border Environment Cooperation Commission (BECC) certified the proposed Mexicali II projects, comprised of a pumping plant, pressure line, and wastewater treatment plant named Las Arenitas. In order to achieve certification, the project had to meet certain requirements, including criteria related to health, the environment, and sustainable development, completion of the U.S. National Environmental Policy Act study and Mexican environmental impact statement, financial analysis by the North American Development Bank, and public participation. The certification was conditional subject to the approval of environmental documentation by Mexico's environmental agency (SEMARNAT) and the United States Environmental Protection Agency.

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Mexicali, Baja California Water Quality

The wastewater monitoring programs for Mexicali, the New River, and Colorado River have been carried out in accordance with timelines set in binational agreements. Binational on-site inspections in the urban area of Mexicali, along the New River, and along the river's tributaries are carried out regularly for the purpose of detecting unauthorized industrial discharges.

Release of Colorado and New River Toxic Substances Study

The Commission completed and released "The Binational Study Regarding the Presence of Toxic Substances in the Lower Colorado and New Rivers." The study was undertaken pursuant to Minute 289, "Observation of the Quality of the Waters along the United States and Mexico Border," dated November 13, 1992. In addition to the IBWC, participating agencies included Mexico's National Water Commission, the United States Environmental Protection Agency, the United States Geological Survey, and state agencies from California and Arizona.

San Diego, California-Tijuana, Baja California Sanitation

The United States Section of the International Boundary and Water Commission operated the South Bay International Wastewater Treatment Plant (SBIWTP) in San Diego, California, which provides advanced primary treatment of wastewater from Tijuana, Baja California. During 2003, major improvements were completed at the SBIWTP including various modifications to implement the recommendations of the Total Suspended Solids (TSS) Optimization Study to improve the plant's TSS removal efficiency and meet or exceed permit requirements. Additionally, a 72-inch sluice gate was installed to improve control of wastewater flows from Mexico. The IBWC also upgraded the SCADA Computer System Programming to increase the ability to monitor and control plant and facility operations.

The State Public Services Commission of Tijuana (CESPT), with financial support from the United States Environmental Protection Agency, completed the Tijuana Master Plan for Water and Wastewater Infrastructure. The plan was developed with the active participation of the community at different meetings in Mexico and the United States. The IBWC ensured that the Master Plan analyzed current and future wastewater generation and included the United States proposal to construct a wastewater treatment plant in Mexico to provide secondary treatment of effluent from the SBIWTP.

Work on the Primary Effluent Return Connection (PERC) advanced considerably during 2003. The PERC is a pipe project to allow treated effluent from the SBIWTP to be returned to Mexico in accordance with Minute 298. Construction by a USIBWC contractor began in September 2003 and was expected to be completed in 2004.

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In the operation and maintenance of the SBIWTP, records are reviewed daily, the treated volumes are reconciled monthly, and the payments by the Mexican authorities for their share of plant operations are made quarterly to the United States Government through both Sections of the IBWC.

In the operational coordination between the Mexican and North American Sanitary Systems (Pumping Plant 1), mechanisms and communication procedures have been established among personnel that operate the systems on both sides of the border.

Significant progress has been made in improving operational coordination between the two countries. A communications protocol has been established among wastewater system operators in both countries, facilitating timely notification in the event of emergency situations or problems, such as equipment failures, which require binational coordination.



Work on the Primary Effluent Return Connection

San Diego, California-Tijuana, Baja California Water Quality

The program to characterize wastewater in the City of Tijuana was carried out jointly between United States and Mexican institutions, including IBWC, the City of San Diego, General Ecology Office of Tijuana (DGE), and the State Public Services Commission of Tijuana (CESPT). Over 224 sites in the urban area of Tijuana have been monitored, with particular emphasis on the principal collectors, sub-collectors, and industrial zones of the city's sanitary sewer system.

Monitoring of coastal water quality was carried out during the year at three stations located along the Mexican coast and five in the territory of the United States.

Implementation of Public Law 106-457

The IBWC advanced negotiations for a Minute designed to meet the objectives of United States Public Law 106-457 regarding treatment of sewage emanating from Tijuana, Baja California. By year's end, draft text was under review by appropriate officials in both countries, with the Minute expected to be signed in early

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2004. Under the terms of the draft minute, secondary treatment of the advanced primary effluent from the South Bay International Wastewater Treatment Plant (SBIWTP) and treatment of additional Tijuana sewage would be provided as follows, if secondary treatment is not provided in the United States:

- Plant capacity of up to 59 million gallons per day, consistent with the Tijuana Master Plan undertaken by EPA and the Tijuana utility (CESPT), which determined the future infrastructure needs through the year 2023.
- Effluent discharged through the South Bay Ocean Outfall would comply with applicable water quality laws in the United States.
- Project implemented through a private-public arrangement.
- Commission oversight of selection of contractors and monitoring and evaluation of the performance of the treatment plant as in previous Commission projects.

O T H E R P R O J E C T S

Tijuana River Watershed Flood Control and Flood Warning Projects

Officials from the United States and Mexico signed an agreement for an Integrated Binational Flood Warning System in the Tijuana River Watershed. The purpose of the project is to provide real-time rainfall and stream flow information to emergency officials on both sides of the border to enable effective decision-making during floods in the Tijuana River Watershed. The flood warning system is the first of its kind along the United States-Mexico border.

A binational technical advisory committee completed design and installation of the flood warning system for high-risk areas in the watershed. Automatic rain gages and river level gages were installed. Specialized communications software allows key emergency agencies to access the Binational Flood Warning System for the communication and exchange of real-time data on precipitation and river levels.

Under the agreement, officials from the U.S. and Mexican Sections of the International Boundary and Water Commission; Mexico's National Water Commission; the U.S. National Weather Service; County of San Diego; City of San Diego; the Civil Protection agencies of Baja California, Tijuana, and Tecate; State of California Department of Parks and Recreation; San Diego State University; and El Colegio de La Frontera Norte will continue to participate in future binational technical meetings facilitated by the International Boundary and Water Commission to coordinate data sharing, gage maintenance, and other issues that may arise.

The IBWC also undertook installation of a new telemetry system at the Rodriguez Dam gaging station. The purpose of the monitoring system is to provide real-time remote monitoring capability for Rodriguez Reservoir. The reservoir is located 11 miles (17.7 km) south of the international boundary; when it spills, the water flows north into the United States and travels through the Tijuana River Valley to the Pacific Ocean. The

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11-mile (17.7 km) distance provides little time to issue warnings or initiate actions to minimize damage due to flood waters. The system provides real-time data on rainfall and reservoir levels to Mexico's National Water Commission, the agency responsible for operation of Rodriguez Reservoir. The information is also transferred to a Hydrolynx transmitter and sent to the other agencies of concern, including the U.S. Section of the IBWC.

Staff from both Sections of the IBWC also conducted quarterly inspections of the Tijuana River Flood Control Channel to determine the physical condition of the channel, identify tributaries to the channel, and estimate flow from the tributaries.



Installation of a telemetry system at Rodriguez Dam

Nogales Flood Warning System and Flood Study

The IBWC facilitated work on a binational Nogales Flood Warning System, including site visits to gaging stations in Mexico. When completed, the project will include a series of stream and rain gages in both countries to provide a warning system for residents on both sides of the border. As part of this project, the United States Army Corps of Engineers, on behalf of the IBWC, worked on the Nogales Flood Study, a detailed hydrologic and hydraulic investigation of the Nogales Wash basin in Sonora. The final report is expected in 2004.

Citizens' Forum Meetings

The United States Section initiated the Lower Rio Grande Citizens' Forum in 2003, selecting community board members from Cameron and Hidalgo Counties in Texas. The purpose of the Citizens' Forum is to promote the exchange of information between the USIBWC and the public about Commission projects and

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related issues. The Lower Rio Grande group is the newest addition to the Citizens' Forum program. The USIBWC previously established the Rio Grande Citizens' Forum in El Paso, Texas-Las Cruces, New Mexico; the Southeast Arizona Citizens' Forum; the Colorado River Citizens' Forum; and the USIBWC Citizens' Forum in San Diego County, California. Each Citizens' Forum conducts quarterly public meetings. The IBWC is interested in conducting these fora in a binational framework in the future.

International Shared Aquifer Resources Management of the Americas Project

Mexican Section Principal Engineer Antonio Rascon and United States Section Technical Planning Chief Jim Stefanov participated in a workshop in Montevideo, Uruguay of the International Shared Aquifer Resources Management (ISARM) of the Americas Project. This project is a joint initiative of the United Nations Educational, Scientific, and Cultural Organization (UNESCO) and the Organization of American States (OAS). The purpose of this initiative is to find ways to manage shared aquifers in a sustainable manner. The main goals of the Montevideo Workshop were to organize future activities of the program and to begin development of a quantitative data inventory on transboundary aquifers in North and South America. Approximately 80% of the western hemisphere countries were represented.

Each country provided a briefing on shared aquifers highlighting their accomplishments in transboundary cooperation. Engineer Rascon provided an overview of the IBWC and a summary of current transboundary water concerns such as the proposed lining of the All American Canal. Technical Planning Chief Stefanov gave a joint presentation with John Klein of the United States Geological Survey on efforts to implement a comprehensive assessment of transboundary aquifers on the U.S.-Mexico border. Both presentations highlighted IBWC cooperation in development of a binational database and modeling efforts for the Hueco Bolson, the shared aquifer of El Paso, Texas-Ciudad Juarez, Chihuahua, which drew considerable attention from the workshop participants.

The IBWC offered to host the next ISARM Workshop in El Paso, Texas, tentatively scheduled for November 2004. The purpose of this Workshop is to present three to four case studies from around the world on transboundary aquifer cooperation. The Hueco Bolson case study will be presented jointly by the U.S. and Mexican delegations. The Workshop will also have a session covering institutional issues related to transboundary aquifers.

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C O N T A C T U S

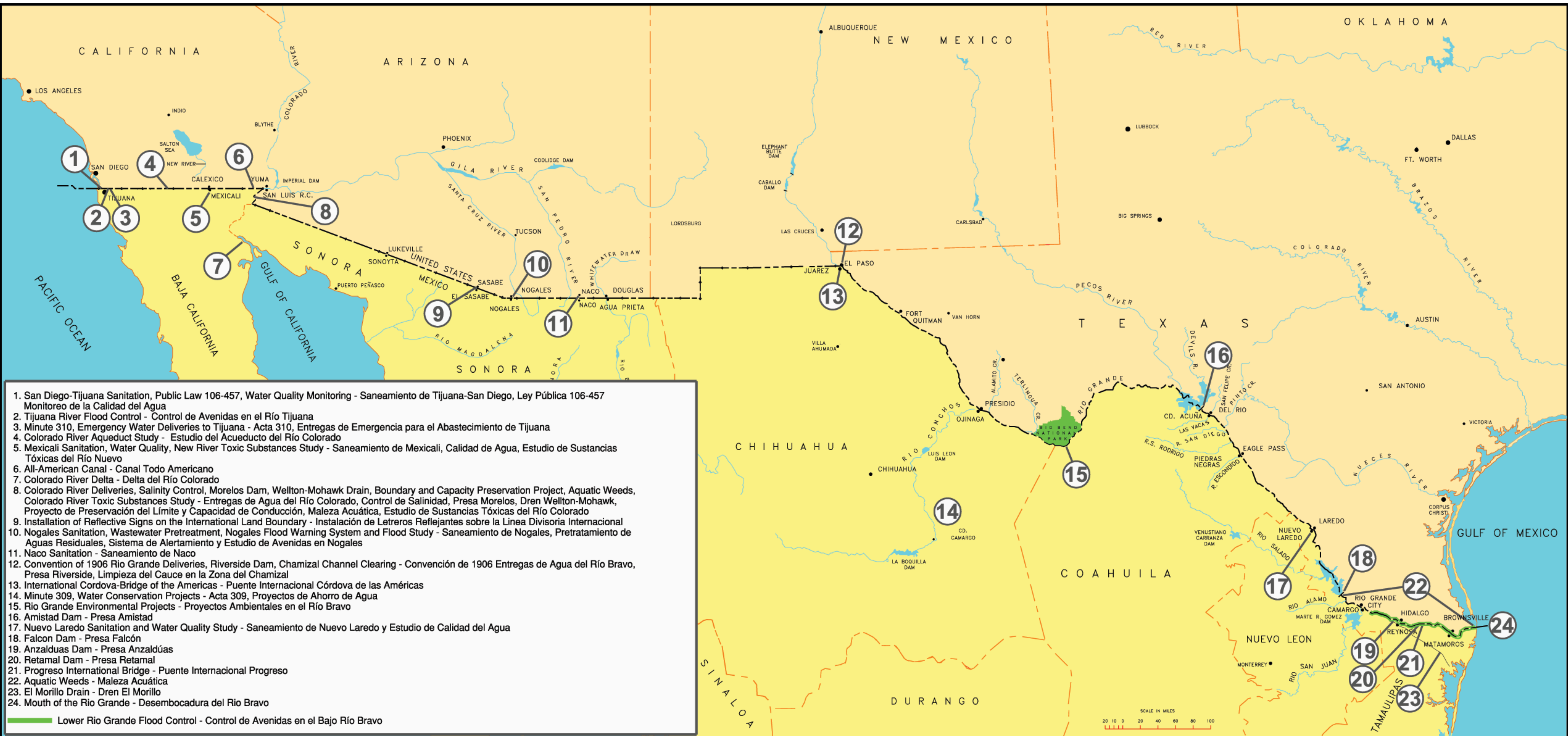
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2 0 0 3 A N N U A L R E P O R T

Projects of the International Boundary and Water Commission Included in the 2003 Annual Report / Proyectos de la Comisión Internacional de Límites y Aguas Incluidos en el Informe Anual 2003



1. San Diego-Tijuana Sanitation, Public Law 106-457, Water Quality Monitoring - Saneamiento de Tijuana-San Diego, Ley Pública 106-457 Monitoreo de la Calidad del Agua
 2. Tijuana River Flood Control - Control de Avenidas en el Río Tijuana
 3. Minute 310, Emergency Water Deliveries to Tijuana - Acta 310, Entregas de Emergencia para el Abastecimiento de Tijuana
 4. Colorado River Aqueduct Study - Estudio del Acueducto del Río Colorado
 5. Mexicali Sanitation, Water Quality, New River Toxic Substances Study - Saneamiento de Mexicali, Calidad de Agua, Estudio de Sustancias Tóxicas del Río Nuevo
 6. All-American Canal - Canal Todo Americano
 7. Colorado River Delta - Delta del Río Colorado
 8. Colorado River Deliveries, Salinity Control, Morelos Dam, Wellton-Mohawk Drain, Boundary and Capacity Preservation Project, Aquatic Weeds, Colorado River Toxic Substances Study - Entregas de Agua del Río Colorado, Control de Salinidad, Presa Morelos, Dren Wellton-Mohawk, Proyecto de Preservación del Límite y Capacidad de Conducción, Maleza Acuática, Estudio de Sustancias Tóxicas del Río Colorado
 9. Installation of Reflective Signs on the International Land Boundary - Instalación de Letreros Reflejantes sobre la Línea Divisoria Internacional
 10. Nogales Sanitation, Wastewater Pretreatment, Nogales Flood Warning System and Flood Study - Saneamiento de Nogales, Pretratamiento de Aguas Residuales, Sistema de Alertamiento y Estudio de Avenidas en Nogales
 11. Naco Sanitation - Saneamiento de Naco
 12. Convention of 1906 Rio Grande Deliveries, Riverside Dam, Chamizal Channel Clearing - Convención de 1906 Entregas de Agua del Río Bravo, Presa Riverside, Limpieza del Cauce en la Zona del Chamizal
 13. International Cordova-Bridge of the Americas - Puente Internacional Córdova de las Américas
 14. Minute 309, Water Conservation Projects - Acta 309, Proyectos de Ahorro de Agua
 15. Rio Grande Environmental Projects - Proyectos Ambientales en el Río Bravo
 16. Amistad Dam - Presa Amistad
 17. Nuevo Laredo Sanitation and Water Quality Study - Saneamiento de Nuevo Laredo y Estudio de Calidad del Agua
 18. Falcon Dam - Presa Falcón
 19. Anzalduas Dam - Presa Anzalduas
 20. Retamal Dam - Presa Retamal
 21. Progreso International Bridge - Puente Internacional Progreso
 22. Aquatic Weeds - Maleza Acuática
 23. El Morillo Drain - Dren El Morillo
 24. Mouth of the Rio Grande - Desembocadura del Río Bravo
- █ Lower Rio Grande Flood Control - Control de Avenidas en el Bajo Río Bravo

SCALE IN MILES
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