

International Boundary and Water Commission

United States and Mexico



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“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 over that part of the works located within the limits of its own country...”

Article 2, 1944 Water Treaty



(Front Cover, view of the Rio Grande)

Introduction

During the year 2002, the Commission performed various actions related to boundary demarcation, maintenance of the channels of the international rivers, and the control and use of the international waters, including monitoring the quantity and quality of the waters. These activities were performed in accordance with the terms of the international treaties on boundaries and waters entered into by the Governments of the United States and Mexico, whose application is entrusted to the International Boundary and Water Commission.

Additionally, the Commission conducted technical discussions and supported government to government negotiations to arrive at the agreement established in Minute 308, "United States Allocation of Rio Grande Waters During the Last Year of the Current Cycle," signed June 28, 2002. This agreement established the bases for the assignment of water to the United States in accordance with the 1944 Water Treaty, improved data exchange, and cooperative efforts toward water conservation infrastructure works in Mexico. Both governments looked to the Commission to provide technical bases for future actions for negotiations regarding the deficit in water deliveries to the United States.

This and other activities are described in this report, which has been prepared in accordance and in compliance with Article 24, paragraph G, of the 1944 Water Treaty.

Mexican Section personnel on left. Standing, left to right, Luis Antonio Rascon M., Principal Engineer; Gilberto Elizalde H., Principal Engineer. Seated, left to right, Jose de Jesus Luevano G., Secretary; J. Arturo Herrera S., Commissioner



U.S. Section personnel on right. Standing, right to left, Carlos Marin, Principal Engineer; Debra J. Little, Principal Engineer. Seated, right to left, Manuel R. Ybarra, Secretary; Carlos M. Ramirez, Commissioner



I. LAND BOUNDARY

International Boundary Demarcation

Both Sections participated in quarterly inspections to denote the conditions of boundary demarcation previously performed at the land ports of entry and international bridges. Additionally, the Mexican Section performed maintenance work on the international boundary demarcation at 11 ports of entry and 10 international bridges. The U.S. Section completed the demarcation of the boundary at 21 ports of entry.

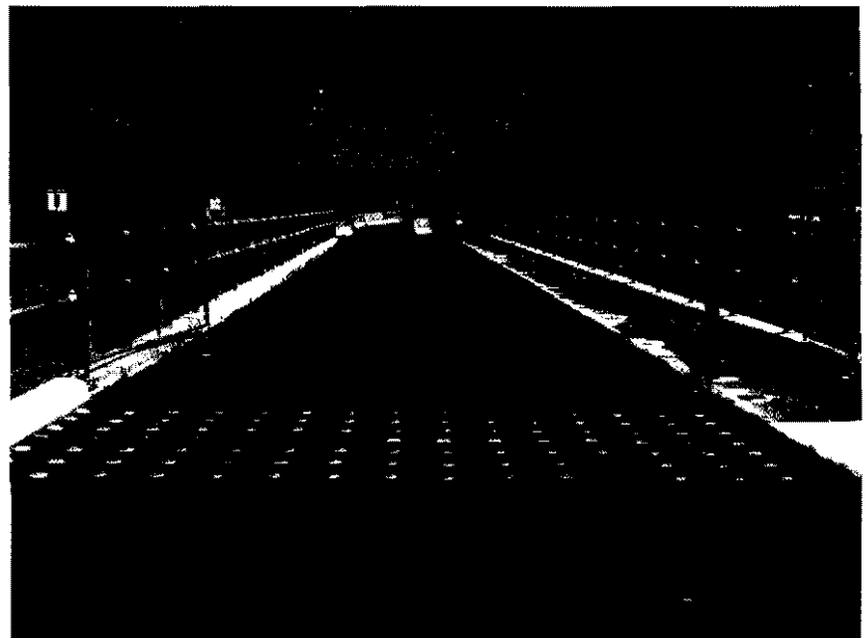
II. SANITATION AND WATER QUALITY

San Diego, California/Tijuana, Baja California Sanitation

During 2002, operation of the South Bay International Wastewater Treatment Plant (IWTP) in San Diego continued, providing advanced primary treatment of 25 million gallons per day (1100 liters per second) of wastewater from Tijuana. As part of these operations and related matters, the two Sections systematically exchanged monitoring data for the plant, worked to characterize influent flows to determine the contaminant concentrations that could affect the efficiency of the plant, and installed new ADS flow meters at the pumping stations.

The USIBWC implemented process changes at the IWTP to improve the rate of solids removal from the wastewater. Additionally, the IBWC conducted consultations with both governments to explore the possibility of building the secondary treatment module of the IWTP in Mexican territory.

In a related project, in accordance with Minute 298, the Commission coordinated works for the construction of the Primary Effluent Return Connection, which will allow the return of the IWTP effluent to Mexico when the ocean outfall is not in operation or for other uses in Mexico. As part of this effort, the Mexican Section of the IBWC completed the construction of necessary works in Mexico.



Boundary demarcation at the Ft. Hancock-Porvenir Bridge

San Diego, California/Tijuana, Baja California Water Quality Monitoring

Both Sections conducted water quality monitoring along the coast in United States territory from the international boundary north to the City of Coronado and in Mexico from the international boundary south to Playa Blanca. The results of this monitoring were distributed to agencies on both sides of the border.

The USIBWC, along with the California Regional Water Quality Control Board and the City of San Diego, initiated a new Off-Shore Satellite Imagery monitoring program for the coast north and south of the South Bay Ocean Outfall, the pipe that discharges treated wastewater from the IWTP.

The IBWC also participated with the California State Water Resources Control Board, the City of San Diego, and the State Public Services Commission of Tijuana (CESPT) in the monitoring and industrial pre-treatment program in Tijuana, a program that was expanded to new sites in 2002. The goal is to reduce industrial waste in the sewage stream. The Commission considers it necessary to start the complementary program to determine the origin of toxicity (an indicator of impacts on certain aquatic organisms) in IWTP effluent.

Flood Control in the Tijuana River

The Tijuana River, which flows north from Tijuana, Baja California into the United States at San Diego, California, has a history of flooding on both sides of the border. The Commission developed a Joint Report of the Principal Engineers for the installation of telemetry at Rodriguez Dam to facilitate the availability of real-time water level and precipitation data. The Commission held the annual flood control meeting with United States and Mexican authorities in Tijuana, B.C. for the exchange of information on such things as storage levels at the dams in the United States and Mexico, discharges from the dams, and potential impacts. Both Sections participated in the quarterly inspection of the Tijuana River Flood Control Channel.

Mexicali, Baja California Sanitation

Both Sections continued the coordination of the Binational Technical Committee (BTC) for the implementation of the Mexicali sanitation project. Certified by the Border Environment Cooperation Commission (BECC) in December of 1997, the project consists of wastewater treatment infrastructure for the Mexicali I and II service areas. Both Sections coordinated the BTC's proposals for interim solutions to reduce wastewater discharges into the New River until a modified project for the Mexicali II area is certified by the BECC.



Mexicali Sanitation



Nogales Sanitation

During 2002, operation and maintenance of the Nogales International Wastewater Treatment Plant (NIWTP) continued, providing treatment of an average of 14.76 million gallons per day (650 liters per second) of sewage from the sister cities of Nogales, Arizona and Nogales, Sonora. About two-thirds of the sewage treated at the plant originated in Mexico.

The USIBWC performed systematic sampling of the influent and effluent at the NIWTP as well as intensive sampling every three months. The effluent is not currently meeting applicable discharge standards in the United States. Discussions continued among the two Sections of the IBWC; the United States Environmental Protection Agency; the City of Nogales, Arizona; and the State of Arizona about the planned upgrade of the treatment plant to comply with updated U.S. water quality standards. There



Nogales International Wastewater Treatment Plant

were also several binational meetings to discuss industrial wastewater pretreatment in both countries with the goal of reducing toxic chemicals that pass through the plant, thereby improving plant efficiency.

Uncontrolled wastewater discharges into the Nogales Wash, which flows north across the international boundary, continued in 2002. To address this problem, the Commission provided chlorine to allow for disinfection in Mexico of flows in the Wash.

Naco, Arizona/Naco, Sonora Sanitation

The IBWC coordinated the rehabilitation of the sewage lift station in Naco, Sonora in conjunction with the local sanitation commission and the North American Development Bank, reducing transboundary sewage flows at Naco. In December, the IBWC provided binational coordination to allow United States Section equipment and personnel to undertake fire prevention activities at the Naco, Sonora landfill; in the past, dump fires had caused transboundary air quality problems.

III. COLORADO RIVER

Water Deliveries, Operation and Maintenance of Morelos Dam

The IBWC operated and maintained Morelos Dam to ensure the delivery of Colorado River water to Mexico in accordance with the 1944 Water Treaty. Three gates were repaired as part of the Commission's maintenance and rehabilitation program for the dam. The IBWC assured the delivery of 1.5 million acre-feet (1,850.234 million cubic meters) of water to Mexico from the Colorado River. To accomplish the above, weekly requests for deliveries and modifications to the schedule were coordinated between the two Sections of the Commission.

The Commission also operated and maintained the stream gaging stations required to measure the volumes and monitor the quality of the waters delivered to Mexico in the limitrophe section of the Colorado River.

Operation and Maintenance of the Wellton-Mohawk Drain (Minute 284)

The IBWC prepared and executed the annual maintenance program for the Wellton-Mohawk Drain, which diverts high-salinity waters originating from irrigation districts in U.S. territory before they flow into the Colorado River. As part of these actions, IBWC joint site visits were conducted with the United States Bureau of Reclamation and Mexico's National Water Commission to identify works needed to assure the continued proper operation of the drain.



Morelos Dam

Salinity (Minute 242)

In accordance with Minute 242, Mexico receives annually a volume of 1,360,000 acre-feet (1,677.5 million cubic meters) of water from the Colorado River at the Northerly International Boundary (NIB). This water must have an annual flow-weighted average salinity not to exceed 115+/- 30 parts per million (ppm) U.S. count and 121+/-30 ppm Mexican count above the annual flow-weighted average of waters arriving above Imperial Dam in conformance with Minute 242 limits. Both Sections of the IBWC monitored and exchanged information on the salinity of the Colorado River. On the basis of joint computations conducted by the IBWC, it was determined that NIB deliveries in 2002 met the salinity requirements of Minute 242.



Through the Commission and the U.S. Bureau of Reclamation, measures were undertaken to reduce salinity at the Southerly International Boundary (SIB). These measures included construction of a diversion canal into the Wellton-Mohawk Drain, installation of a variable speed pump and automatic controllers for remote operation of the system, and purchase of equipment for continuous monitoring of salinity at the NIB and SIB.

Forecasts and Interim Surplus Criteria

Both Sections of the IBWC coordinated periodic meetings with Mexico's National Water Commission and the U.S. Bureau of Reclamation to review Colorado River forecasts. These meetings included exchange of information and necessary coordination on this topic.

The Government of the United States developed an interim 15-year plan for the use and control of surpluses in the Lower Basin. The implementation of this plan by U.S. officials began in 2002. Mexico expressed its disagreement through diplomatic means about the impact of this plan on Mexico.

Sediment in the Channel of the Colorado River

Sediment removal was conducted in the Laguna Dam area in the United States with a plan to remove 2 million cubic yards (1.5 million cubic meters) of sediment. This project will be completed during 2004. Additionally, continuous monitoring was conducted on sediments carried into the Morelos Dam area. Sediment build-up has decreased due to satisfactory performance of the sedimentation basin constructed within the river channel upstream of Morelos Dam during the U.S. Bureau of Reclamation dredging operations completed in 2001.



Colorado River

Aquatic Weeds in the Colorado River

In 1999, the invasive aquatic plant *Salvinia Molesta* was detected in the waters of the Colorado River. In 2002, field visits and monitoring were conducted to determine the extent of the plant in Mexico in both the Colorado River and Mexico's canal system. Mexico participated in meetings of the U.S. work group for the control and eradication of *Salvinia Molesta*. Within the IBWC, proposals were discussed for the control of this invasive plant, including installation of physical barriers and the printing and distribution of an informational brochure.

All-American Canal

Due to the increased demand for Colorado River water, the U.S. Bureau of Reclamation, in coordination with the four major water users in Southern California, has proposed to line a portion of the All-American Canal near the border with Mexico with the intent of recovering seepage from the canal. Mexico expressed its disagreement over the impact that this lining will have in Mexico. Options have been identified that might be of interest to Mexico to minimize or eliminate the effects of the lining.

Protection of the Colorado River Delta

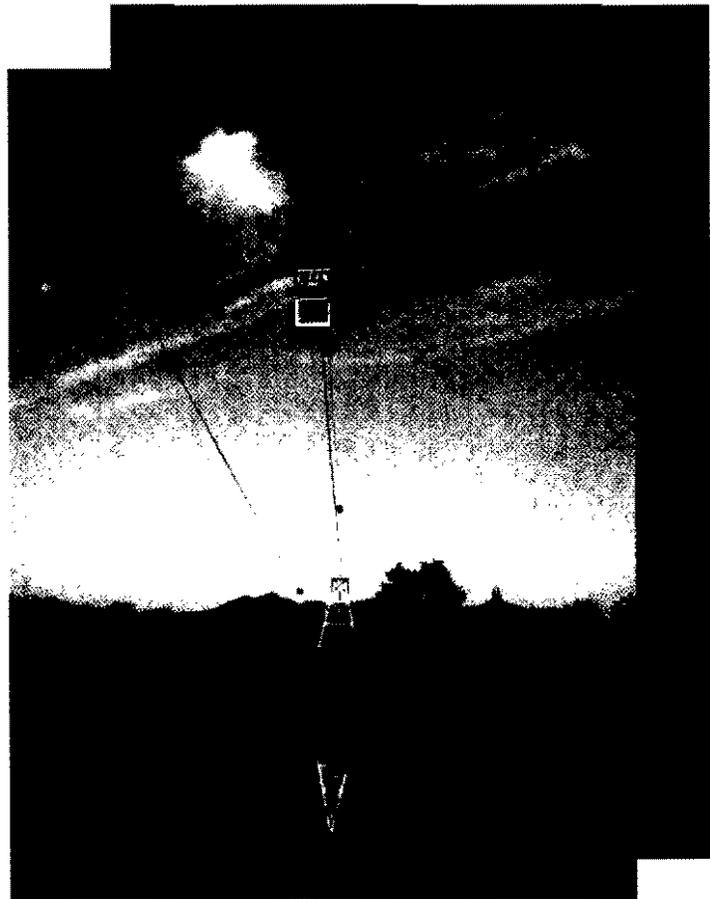
In furtherance of Minute 306, the IBWC coordinated activities, through establishment of a binational work group, related to conservation of the Colorado River Delta including binational meetings at which issues related to the conservation of the delta, the development of a hydraulic model, and actions needed for the delta's protection and restoration were discussed.

Binational Meetings

In January in Las Vegas, Nevada, the United States Bureau of Reclamation and the IBWC conducted their Annual Binational Meeting on Colorado River issues, attended by U.S. Section Commissioner Carlos M. Ramirez, Mexican Section Commissioner Arturo Herrera, and Reclamation Commissioner John Keys, III. Participants discussed specific Colorado River issues such as sediment, salinity, water deliveries, the All-American Canal, and the Delta.

Water Quality Monitoring of the Colorado and New Rivers

The IBWC coordinated preparation of intensive studies of the quality of the waters of the Colorado and the New Rivers within the framework of Minute 289. This has required conducting systematic sampling events of the waters of the Colorado River in its international segment and of the New River at the international boundary. The studies allow identification of water quality problems, definition of remedial actions, and observation of the beneficial impact of the sanitation works constructed. The IBWC continued to coordinate periodic joint site visits to observe the



Colorado River gaging station



sanitation problems in the New River, which flows north from Mexicali, Baja California into Imperial County, California. These problems include uncontrolled industrial and domestic wastewater discharges, and dumping of solid waste into the channel of the river and its tributaries.

Colorado River Aqueduct - San Diego, California/Tijuana, Baja California

In accordance with Minute 301, the Commission facilitated the development of a joint feasibility study for an aqueduct to convey Colorado River water to the San Diego/Tijuana area. The study, performed by United States and Mexican consultants, included analysis of alignment options considering site characteristics and costs. The final report, delivered in February, generated basic information useful to both countries. With coordination by the Commission, the Binational Technical Subcommittee met to define the scope of complementary activities for the study to be developed in 2003.

Emergency Potable Water Connection at Otay Mesa

The Commission arranged for the completion of improvements on Mexican and U.S. territory at the Otay, California site to provide water to the City of Tijuana in case of emergency. This emergency connection will permit Mexico to convey a portion of its allotment of Colorado River water via the U.S. conveyance system in order to meet drinking water needs in Tijuana. The Commission prepared draft agreements for use of the emergency connection. These documents were agreed to by affected entities in the United States and Mexico and an agreement is expected to be formalized in 2003.



Emergency water connection at Otay Mesa

IV. RIO GRANDE

Convention of 1906

The IBWC coordinated the required schedules, operated the diversion dams at El Paso, Texas/Ciudad Juarez, Chihuahua, and measured and monitored the scheduled deliveries to effect a full annual allocation of 60,000 acre-feet (74 million cubic meters) to Mexico in 2002. Mexico diverted its waters into the Acequia Madre Canal for irrigation in the Juarez Valley, Chihuahua.

Operation and Maintenance of Amistad Dam

Both Sections of the IBWC performed maintenance on this international dam, which is used for water storage, flood control, hydroelectric power, and recreation. The IBWC operated the dam to ensure that releases met the water delivery requests of the two countries. At the end of 2002, reservoir storage was at 33% of capacity. Additionally, monitoring and maintenance of all known sinkholes in the vicinity of Amistad Dam continued in conformance with the recommendations from the Commission's Joint Technical Advisors. Weekly safety of dams inspections were conducted.

The Commission undertook activities to enhance the security of the dam and associated structures, including work toward closing the waters of the reservoir to all boating and fishing within 300 meters of the curtain of the dam. Power plant personnel attended black start training related to restoring hydroelectric power generation and transmission in the event of a blackout.



Amistad Dam maintenance

Operation and Maintenance of Falcon Dam

The U.S. and Mexican Sections of IBWC performed preventive maintenance on the Falcon International Dam, which, like Amistad, is used for water storage, flood control, hydroelectric power, and recreation. At the end of 2002, the reservoir was at 27% of capacity.

Special attention was given to security issues at both Amistad and Falcon Dams, with training provided to power plant personnel. Homeland security measures included strengthening access doors and gates, increased presence of personnel, and controlling access to certain areas. Additionally, weekly safety of dams inspections were conducted.



Laredo, Texas/Nuevo Laredo, Tamaulipas Sanitation

The Commission provided systematic oversight of the Nuevo Laredo International Wastewater Treatment Plant in order to assure adequate operation and maintenance conditions at the plant. During 2002, an average of 23.5 million gallons per day (1031.95 liters per second) of wastewater from the City of Nuevo Laredo was treated at the plant.

IBWC technical staff coordinated the development of proposed potable water, wastewater collection, and wastewater treatment systems in Nuevo Laredo, Tamaulipas, within the framework of IBWC Minute 294.

1944 Water Treaty

The IBWC continued to work on issues related to the deficit in deliveries to the United States from Mexico's Rio Grande tributaries. On this matter, the Commission on June 28, 2002 signed Minute 308, "United States Allocation of Rio Grande Waters During the last Year of the Current Cycle," which includes allotments to the United States in conformance with the 1944 Water Treaty, increased data exchange, and cooperative efforts toward water conservation infrastructure works in Mexico.

The Commission operated and maintained the gaging stations on the main stem of the Rio Grande, its tributaries, and major **diversion channels in support of joint international water accounting and flood control.**

The Commission **also completed water accounting for the Rio Grande and its tributaries, generating weekly and monthly reports to determine the national ownership of waters stored at Amistad and Falcon International Dams.**

Aquatic Weed Control

The IBWC coordinated binational meetings for the discussion and identification of measures for control of aquatic weeds, which have invaded the channel of the Rio Grande from the Anzalduas Diversion Dam downstream to Brownsville, Texas/Matamoros, Tamaulipas. The meetings were conducted in coordination with affected agencies from both countries. Actions were identified for the control of hydrilla and water hyacinth through mechanical, biological, and chemical means. \$50,000 provided by the Mexican Section through the USIBWC was used to support actions



Weeds in Rio Grande near Brownsville-Matamoros

implemented by the Texas Parks and Wildlife Department to control aquatic weeds in the international reach of the Rio Grande.

Rio Grande Water Quality

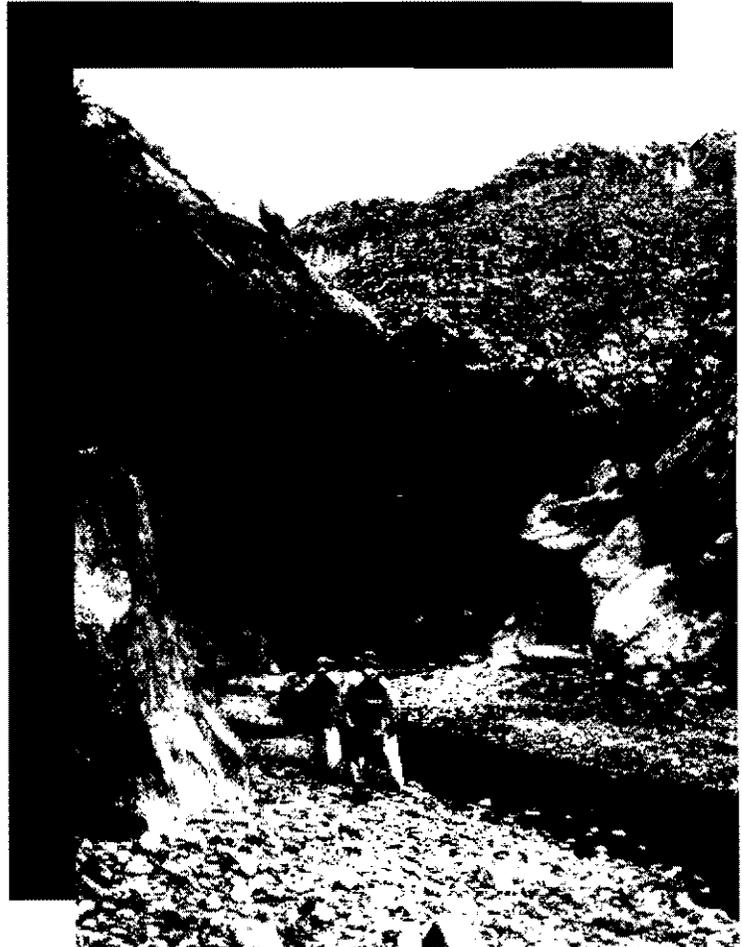
The IBWC continued its work on water quality studies, conducted within the framework of Minute 289, including work on the final report on Phase III of the joint Rio Grande Toxic Substances Study, begun in 1998.

For the second half of 2002, a special study in the Big Bend area of Texas and adjacent areas in Mexico was conducted with the cooperation of IBWC, the Texas Commission on Environmental Quality (TCEQ), U.S. Geological Survey (USGS), Big Bend National Park Service personnel, and personnel from the Maderas del Carmen and Cañon de Santa Elena Protected Areas in Mexico. In this study, the partners collected mine tailings as well as sediment and water samples from the main stem of the Rio Grande and tributaries. These data, and data collected by other organizations, will be analyzed and used to create a final report.

Operation and Maintenance of Anzalduas and Retamal Diversion Dams

Both Sections of the IBWC performed preventive maintenance for the Anzalduas and Retamal International Dams on the Rio Grande. Anzalduas Dam is used to divert Rio Grande waters into Mexico and for flood control.

At Retamal Dam, which is designed to divert Rio Grande floodwaters, start-up tests were conducted for the emergency generator and the gates were spot sandblasted and painted in addition to normal maintenance.



Big Bend area water quality sampling



Hydraulic Studies

The USIBWC conducted hydraulic studies in 2002 to determine water surface flood elevations at the following sister cities: Presidio, TX / Ojinaga, Chih.; Del Rio, TX / Ciudad Acuña, Coah.; Eagle Pass, TX / Piedras Negras, Coah.; Laredo, TX / Nuevo Laredo, Tamps.; and in the Lower Rio Grande Valley. These studies were shared with the Mexican Section for their review and comment. The reports will be available in 2003 and will be released to competent authorities in meetings planned for 2004.

Mouth of the Rio Grande

The mouth of the Rio Grande was blocked by a sandbar for much of 2002, reconnecting with the ocean after fall rains increased the river's flow. The USIBWC initiated the development of two studies about the closure of the Rio Grande mouth. The studies are expected to be completed in 2003.

Operation and Maintenance of the Morillo Drain (Minute 303)

Located in the State of Tamaulipas, this drain intercepts saline irrigation return flows before they enter the Rio Grande, improving water quality in the river. Operated and maintained by Mexico, the drain's costs are shared by the two countries. Work performed in 2002 by a private contractor and Mexico's National Water Commission (CNA) included sediment removal, clearing, and vegetation removal along 5.4 miles (8.7 km) of the drain. The Mexican Section provided follow-up and coordination of the annual maintenance works conducted by CNA.

V. BOUNDARY-WIDE PROJECTS

Critical Infrastructure Protection

The Mexico-United States Critical Infrastructure Protection (CIP) Framework for Cooperation was established to protect the populations and critical cross-border infrastructure from terrorist attack. The CIP Steering Committee, co-chaired by the United States Department of Homeland Security and Mexico's Secretary of Governance, includes representatives from more than 20 federal agencies from both countries. Within this bilateral framework, the IBWC was designated as the lead agency for the Water/Dams Working Group, which worked toward establishment of goals to improve security at various joint international projects.

Citizens' Forums

The USIBWC expanded its Citizens' Forum program in 2002, establishing community boards in southeastern Arizona and San Diego, California to assist the U.S. Section with its outreach efforts. The USIBWC had previously established a Citizens' Forum board in the area of El Paso, Texas and Las Cruces, New Mexico. The purpose of the program is to facilitate the exchange of information between the USIBWC and the community about Commission activities and related projects. The Mexican Section is working on organizing these Citizens Forums in Mexican border cities and hopes that these groups will begin their work in 2003.

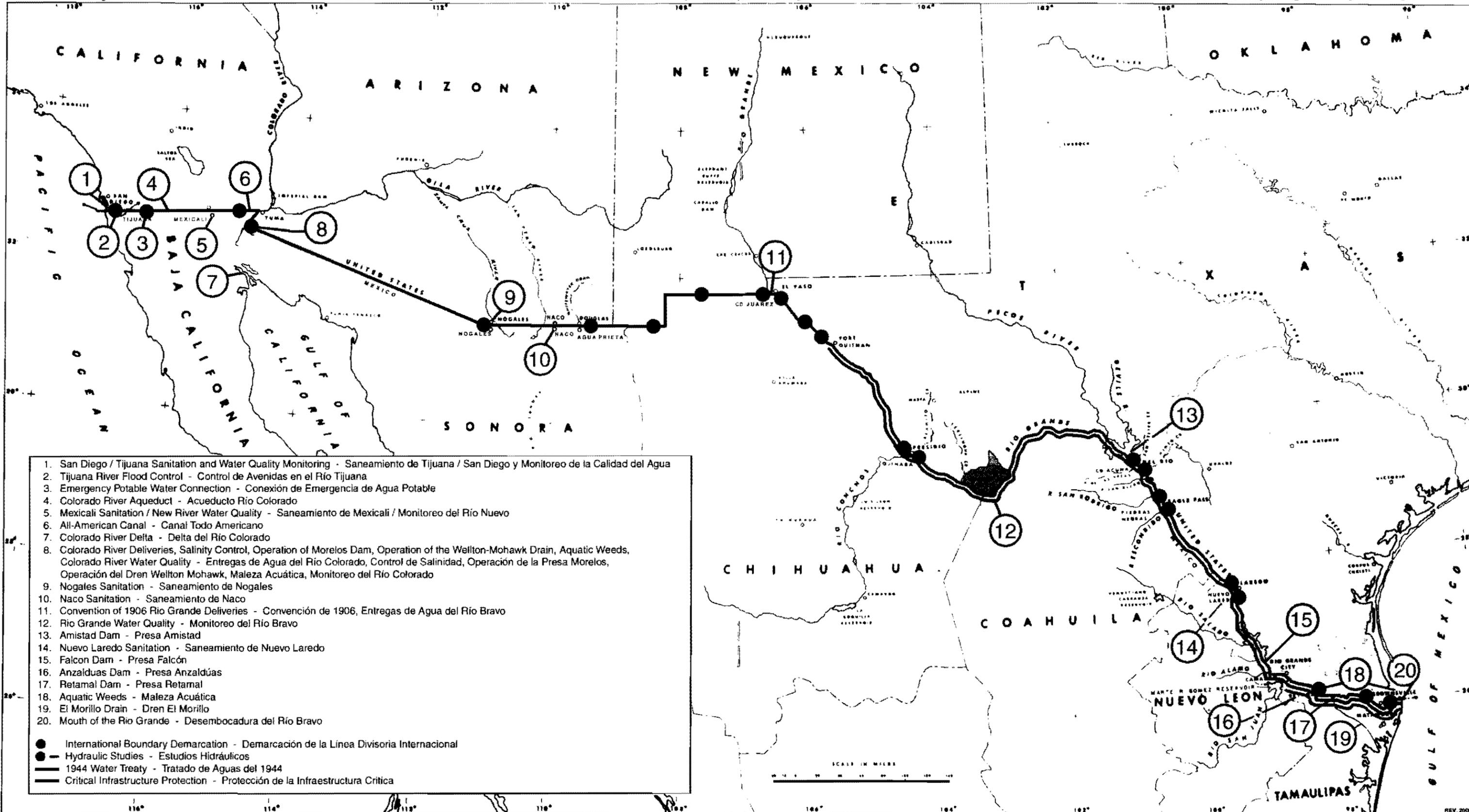
“The decisions and agreements of the original U.S. and Mexican Boundary Commissions became the foundation for future boundary relations, initiating open and professional negotiations for boundary administration.”

Paula Rebert, *La Gran Línea, Mapping the United States-Mexico Boundary, 1849-1857*

“Along the river that divides the U.S. from Mexico, a third country is emerging. Its inhabitants share family and economic ties....there are different voices to be heard here on this border; they speak in the accents of one river, one country.”

Bill Moyers, *One River, One Country: The U.S. Mexico Border*

Projects of the International Boundary and Water Commission (2002) / Proyectos de la Comisión Internacional de Límites y Aguas (2002)



1. San Diego / Tijuana Sanitation and Water Quality Monitoring - Saneamiento de Tijuana / San Diego y Monitoreo de la Calidad del Agua
 2. Tijuana River Flood Control - Control de Avenidas en el Río Tijuana
 3. Emergency Potable Water Connection - Conexión de Emergencia de Agua Potable
 4. Colorado River Aqueduct - Acueducto Río Colorado
 5. Mexicali Sanitation / New River Water Quality - Saneamiento de Mexicali / Monitoreo del Río Nuevo
 6. All-American Canal - Canal Todo Americano
 7. Colorado River Delta - Delta del Río Colorado
 8. Colorado River Deliveries, Salinity Control, Operation of Morelos Dam, Operation of the Wellton-Mohawk Drain, Aquatic Weeds, Colorado River Water Quality - Entregas de Agua del Río Colorado, Control de Salinidad, Operación de la Presa Morelos, Operación del Dren Wellton Mohawk, Maleza Acuática, Monitoreo del Río Colorado
 9. Nogales Sanitation - Saneamiento de Nogales
 10. Naco Sanitation - Saneamiento de Naco
 11. Convention of 1906 Rio Grande Deliveries - Convención de 1906, Entregas de Agua del Río Bravo
 12. Rio Grande Water Quality - Monitoreo del Río Bravo
 13. Amistad Dam - Presa Amistad
 14. Nuevo Laredo Sanitation - Saneamiento de Nuevo Laredo
 15. Falcon Dam - Presa Falcón
 16. Anzalduas Dam - Presa Anzalduas
 17. Retamal Dam - Presa Retamal
 18. Aquatic Weeds - Maleza Acuática
 19. El Morillo Drain - Dren El Morillo
 20. Mouth of the Rio Grande - Desembocadura del Río Bravo
- International Boundary Demarcation - Demarcación de la Línea Divisoria Internacional
 ● — Hydraulic Studies - Estudios Hidráulicos
 — 1944 Water Treaty - Tratado de Aguas del 1944
 — Critical Infrastructure Protection - Protección de la Infraestructura Crítica