

11

U.S. History  
History-Social  
Science Standard  
11.9.7.



**CONTAMINATED  
WITH SEWAGE  
KEEP OUT**

---

**AVOID ALL CONTACT**  
**NO SWIMMING, WADING, SURFING OR WATER SKIING**

COUNTY OF SAN DIEGO DEPT. OF HEALTH SERVICES

**MANTENGASE FUERA  
EL MAR ESTA CONTAMINADO  
CON AGUAS NEGRAS**

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**EVITE TODA CLASE DE CONTACTO**  
**NO NADE, NO ANDE DESCALZO, NO SE META AL  
MAR CON LA TABLA O EL ESQUI ACUATICO**

CONDADO DE SAN DIEGO  
DEPARTAMENTO DE SERVICIOS DE SALUBRIDAD

**QUARANTINED**

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**DO NOT EAT MUSSELS  
FROM THESE WATERS  
FROM MAY 1 TO OCT. 31**  
**THE DARK MEAT FROM CLAMS SHOULD  
BE DISCARDED AND NOT EATEN.**



# The United States and Mexico: Working Together

## California Education and the Environment Initiative

Approved by the California State Board of Education, 2010

### The Education and the Environment Initiative Curriculum is a cooperative endeavor of the following entities:

California Environmental Protection Agency  
California Natural Resources Agency  
California State Board of Education  
California Department of Education  
Department of Resources Recycling and Recovery (CalRecycle)

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### Office of Education and the Environment

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# The Tijuana River: Part I

## A Shared Resource



If you walk along the sand at Imperial Beach, you will see gulls and sunbathers, you are likely to see empty beverage containers, bleach bottles, plastic toys, tires, oil containers, or even a refrigerator door. You might also see a yellow sign that says *Keep Out! Sewage Contaminated Water. Exposure May Cause Illness.*

The San Diego County Department of Environmental Health closed the beach at the mouth of the Tijuana River for 198 days in 2006. Environmental problems cross political borders at this special place where land, river, and ocean merge with two socially and economically different countries.

The Tijuana River is a trans-boundary watershed, with drainages running across the border between United States and Mexico. Most of the river flows through Mexico. There it passes the cities of Tecate and Tijuana. It enters the United States 3 miles (4.8 kilometers) before draining into the Pacific Ocean. The river meets the sea at the protected Tijuana River National Estuarine Research Reserve. The Reserve lies at the meeting point of terrestrial, freshwater, and marine habitats. It provides refuge for several threatened and endangered



Warning sign, Imperial Beach, California

species. Years ago, hiking upstream from the reserve, you might have been able to see dolphins and deer in the same day. However, those mammals no longer live in the estuary.

### Human Activity

Today, human activities threaten the Tijuana River watershed. The area is designated as a biodiversity hotspot and a “Wetland of International Importance.” It is home to many threatened species. Experts think that Tijuana’s current population of 1.5 million will double by 2020. San Diego’s population will increase by 1.3 million. This rapid growth means that more people will need homes, water, and places to dispose of wastes. Rapid growth is a particular problem for Mexico because it lacks infrastructure, like facilities for wastewater.

Citizens of both countries move to the border region seeking work. Migration to the region has grown since the mid-1990s. At that time, the new North American Free Trade Agreement (NAFTA) eased trade restrictions between United States and Mexico. NAFTA led to an explosion in the number of *maquiladoras*. *Maquiladoras* are assembly plants. Many of them are American-owned, but



Wastewater flowing, Los Laureles Canyon, Tijuana, Mexico

they operate on the Mexican side of the border. There, the owners take advantage of Mexico’s lower wages and more abundant labor supply. They also take advantage of less strict enforcement of environmental regulations. Most of the profits from the

*maquiladoras* flow back across the border to American and multinational corporations.

### Problems and Issues

Money is not the only thing that flows across the border. Litter and the byproducts of manufacturing flow into the



Illegal dumping and wastewater, Tijuana, Mexico

river. Mexico's infrastructure, funding, and environmental regulations are not as strong as those in the U.S. and sometimes cannot effectively deal with the industrial waste and toxic chemicals dumped on soil and into waterways. These toxins travel downstream. They pollute both surface water and groundwater. They also pollute the coastal waters of the Pacific Ocean. Scientists have found that the river is contaminated with sewage, sediment, trash, nutrients, pesticides, and heavy metals. Each of these having the potential to affect the health of humans, as well as other animals and plants.

The growing need for housing is another problem caused by economic growth

in the region. Many housing developments have been built on crumbling hillsides above the river. Their construction

has removed the vegetation that holds the hillsides in place. When rain falls, water runs off the concrete, rather than soaking into the ground. The water erodes the hillsides and carries soil into the river. This sediment pulses into the river with each storm, choking the channel and threatening to bury the estuary in a layer of silt.

Sediment is not the only thing flushed downriver during a storm. Tijuana lacks adequate sewage treatment. With each rainstorm, a million gallons of raw sewage overflow downstream from Tijuana. This enormous load of organic waste poses a human health problem. The torrents also



Heron eating fish from polluted river

sweep recyclable materials, plastics, trash, and even discarded appliances into the river.

Debris overwhelms the border fence. The drainage gates in Smuggler's Gulch and Goat Canyon are open all the time. This allows the current to carry debris downstream, where it pollutes the estuary and litters the beach. Once it

flows out to sea, it causes even more problems. The water and sediment that flow into Goat Canyon are caught by large basins at the head of the canyon on the U.S. side. The problems do not stem only from Mexico. Wastewater infrastructure in San Diego is old and in disrepair. Population growth in San Diego further stresses an overburdened system.

Environmental changes on one side of the border do not stay there. The river flows across the border without regard to local infrastructures, and environmental and economic laws. What enters the river upstream always flows downstream. Because of this, neither Mexico nor the United States can solve these problems without working together.



Trash on Imperial Beach, California

## New River

The New River winds from the Mexicali Valley of Mexico northward through a rural, desert and farming region that begins at the U.S.–Mexico border at the City of Calexico, through the Imperial Valley and north to the Salton Sea. For decades, from both sides of the border, the New River has been the dumping ground for increasing quantities of treated wastewater from cities and industries, raw, untreated sewage, runoff from agriculture, and storm water. Sometime in the 1950s, the river became so polluted that people described the odor from its water channel as “overpowering.” High concentrations of fecal coliform bacteria, silt, nutrients, such as nitrate and phosphate, and volatile organic compounds made the water and soil in and around the New River unsafe for human use. These pollutants affected the ecology of the river, impairing its animal and plant life. People

complained of health problems that they thought were being caused by the polluted river.



## Big Bend National Park

**Big Bend National Park** is located in southwest Texas. It includes more than 800,000 acres of diverse landscapes including deserts and mountains. A tourist to this area in the 1970s could see for hundreds of miles. Today, however, air pollution makes a clear view of the area a rarity. In fact, the National Park Service believes that Big Bend National Park has the dirtiest air of all parks in the west. Studies show that the pollution sources are mostly coal-burning power plants in Texas, Mexico, and the eastern United States. Urban areas in Texas are another source. The particulates from these power plants contribute to the haze in the national park and influence the natural and human systems present. The air quality is associated with respiratory illnesses in humans. The acid compounds in the air are starting to influence the grasslands as well.



### Ciudad Juárez–El Paso Border Crossing

The Ciudad Juárez–El Paso Border Crossing is one of the busiest checkpoints connecting the United States and Mexico. Vehicle traffic is steadily increasing due to population growth and a fast growing economy. In 2001, more than one million trucks crossed the border between Ciudad Juárez and El Paso, Texas. Air quality is getting worse. In August 2003, the Texas Commission on Environmental Quality found that vehicles idling on the international bridges produced about 22% of area-source carbon monoxide emissions in the El Paso–Ciudad Juárez area. Waits of one hour or longer are common. Particulate matter emitted

from older Mexican trucks contributes much of the air pollution. Public health officials worry about this pollution. Scientists have connected the number of infants and children suffering and dying from respiratory infections to the air quality in the region. The number of poor children being rushed to hospitals for these problems is steadily increasing.



### Asarco Smelter

The Asarco Smelter (copper and lead mine) near El Paso is owned by the American Smelting and Refinery Company (Asarco). Asarco is a Mexican mining company with headquarters in the United States. By the 1920s, Asarco had the largest mining operation in Mexico. It had several plants located along the border, including a large copper and lead mine in El Paso, Texas. In 1969, El Paso had the highest concentration of lead in the air of any city in Texas. The plant employed more than 1,000 people in the 1990s. It produced almost 1 million tons of raw materials each year. Due to low copper prices, the plant closed in 1999. In this same decade, the water and soil in

the El Paso area were found to have high levels of arsenic and lead. The U.S. Environmental Protection Agency said that decades of emissions from the mine contaminated the soil. Citizens of El Paso, Texas and Ciudad Juárez, Chihuahua fear that the mining waste will eventually end up in the Hueco Bolson (hu-way-co bowl-sohn) Aquifer, their primary source for drinking water.

### Colorado River Basin

The Colorado River Basin begins in the Rocky Mountains in Colorado. It drains southwest, ending in the Gulf of California. The Colorado River is the subject of many laws and legal quarrels. It supplies water to the highly populated and arid southwest. Signed in 1922, the Colorado River Compact allocated 7.5 million acre feet to the Upper Basin states (Colorado, Wyoming, New Mexico, and Utah). The compact called for the same allocation to the Lower Basin states (Arizona, Nevada, and California). A treaty signed with Mexico in 1945 stated that Mexico should also receive 1.5 million acre feet. A total of 16.5 million acre feet are

allocated. Yet studies show that, on average, the Colorado River delivers only 13.5 million acre feet annually. The quantity of water is not the only problem. As the water continues south, it becomes more and more contaminated with pesticides and salt from farms in the United States. By the time the water remaining in the river reaches Mexican cities and the Gulf of Mexico, the salinity and pesticide levels are so high, the water damages the ecosystems in the Gulf. That water is not safe to use in agriculture. The poor water quality has affected the health of the people and the economy in the region.



### **The New River:**

Today, thanks to binational cooperation between the United States and Mexico, this waterway is dramatically becoming a cleaner and safer resource for the human communities and ecosystems that depend upon it. Beginning in the 1980s, the countries began working together to determine what to do about the New River and how to improve its water quality. Many state and federal agencies on both sides of the border joined together to come up with both short-term “quick fixes,” as well as longer-term solutions to tackle the sources of the pollution entering the river. Over \$50 million dollars have been invested in projects, paid for jointly by the U.S. and Mexico, to control and treat the sewage and runoff before it enters the waterways. These projects include the installation of modern sewer pipes and sewage cleaning equipment, the construction or modernization of pumping stations and sewage treatment plants (including the Las Arenitas Wastewater Treatment Plant), and the treatment of runoff from cities, storms, and agricultural areas. This joint effort has substantially improved the New River’s ability to support wildlife and has resulted in measurably cleaner water flowing through the New River.

### **Big Bend National Park:**

Because air quality was getting worse on both sides of the border, the United States and Mexico formed a Binational Air Work Group in 1990. This group’s purpose is to discuss the air quality issue. They began by trying to investigate where the pollution originated. But the two countries never came to an agreement over the source. Eventually, Mexico pulled out of the group and did not participate in further research.

### **Ciudad Juárez-El Paso Border Crossing:**

Both sides of the border are cooperating to address the issue of air quality in the region. Local communities, with the support of national agencies, are working to promote alternative fuels, like biodiesel. They are also making more fuel-efficient trucks available to Mexican drivers. The national governments are working to reduce idling from trucks on the international bridges. They are managing traffic better and making border crossings more efficient. El Paso and Ciudad Juárez are also using U.S. EPA grants to train mechanics to repair vehicle exhaust systems.

Another success story relates to Metales y Derivados (may-**tal**-ays ee dair-ee-**vah**-dohs), an abandoned lead smelting facility. This smelter was once owned by a U.S. corporation. It was closed down in 1994 for failing to comply with Mexican environmental laws and regulations. The abandoned site contains about 6,000 tons of hazardous wastes that pose health risks to Mexican citizens. The two countries are working together to cleanup this site.

### **Asarco Smelting (copper and lead mine) near El Paso:**

In 1999, Asarco suspended operations in El Paso. They closed the plant because of falling copper prices and because Asarco's air quality permit was not renewed. (The company applied to renew its state air quality permit with the states of Texas and New Mexico. Both states denied the company a permit.) Some cross-border cooperation has occurred. The Mexican Senate's Border Affairs Commission hosted a binational forum on Asarco in 2005. At the forum, local lawmakers, non-governmental organizations, and federal agencies met to discuss Asarco. The group focused on air and soil quality issues, the mining operations, and safe cleanup of the byproducts.

### **The Colorado River Basin:**

In 2005, seven states and the U.S. federal government began to renegotiate the water allocations for the states along the Colorado River. Various U.S. agencies have partnered with Colorado Basin communities to implement wetland restoration projects. Such projects help preserve natural systems along the river and improve the river's water quality. U.S. and Mexican authorities agree the two countries need to cooperate to improve water quality. They also need to increase water availability for people on both sides of the border. The two nations have begun discussing water needs and ways to protect the limited water source for everyone.



U.S.–Mexico border at Rio Grande River in Texas

# Background on the Rio Grande or *Río Bravo*

The Rio Grande or *Río Bravo* (its name in Mexico) begins in the Rocky Mountains in Colorado and runs south through New Mexico. Eventually, the river becomes part of the border between the United States and Mexico. This river is at the center of an international controversy pitting the United States against Mexico. Two major concerns involving the Rio Grande are water allocation and water quality.

Several factors have created a water shortage problem in parts of the Rio Grande. An ongoing drought since the 1990s has decreased the amount of groundwater. That means Mexico has less water to give to Texas. A 1944 treaty says Mexico must give Texas a certain amount of Rio Grande water. But, because of the drought, Mexico has been unable to deliver. A water shortage becomes more of a problem as the area's population grows. Another concern is invasive weeds that grow in the

water. These weeds, such as the water hyacinth, use a lot of water. All three problems—drought, growing demand, and aquatic weeds—have reduced the flow in the Lower Rio Grande. As a result, sandbars have formed. They prevent water from flowing to the Gulf of Mexico, which then affects downstream communities, agriculture, and natural systems. Experts estimate the economic impacts at \$400 million annually.



Tractor spraying chemicals on field

A second major issue with the Rio Grande is water quality. The population of the region along the river is growing rapidly. Wastewater treatment cannot keep up. Many people in the region cannot get safe water. Raw sewage increases the amount of bacteria in the water. The bacteria, in turn, increase the risk of people getting diseases like hepatitis A. Agricultural runoff also pollutes the water, harming the natural river systems. Water quality issues are especially difficult for the poorer communities in the area. These include indigenous groups, farmers, and colonia residents. Many have little access to clean water or adequate sewage treatment facilities.

The environmental issues surrounding the Rio Grande are binational, and therefore, the two nations' governments are working together to address water quality and water allocation issues in the region. The U.S. Environmental Protection Agency (U.S. EPA) is one of those agencies. The *Secretaría de Medio Ambiente y Recursos Naturales* (SEMARNAT) is the other. The two agencies have created a binational program to improve the natural and human systems in the region.



Water tank at a Mexican home

### Who are the Stakeholders?



Border Environment  
Cooperation  
Commission (BECC)



Santa Fe  
Environmental  
Group  
(flag of Santa Fe)



U.S. Fish and  
Wildlife Service  
(official symbol)



Residents of  
Ciudad Juárez, Mexico  
(official city seal)



City Planners in  
Brownsville, Texas  
(official city seal)



Maquiladora  
Owners



Farmers in  
Northern  
Mexico



The Kikapu

### Conference Roles

#### Speech Writer

Responsibility: To write a three to four minute speech about your stakeholder group.

You must include:

- background on your group (who you are, where you are located)
- how you influence or are influenced by the Rio Grande/Río Bravo
- what factors affect your decisions about the river
- your goals involving the river

#### Speaker

Responsibility: To present the three-four minute speech at the “Conference on Environmental Partnerships.” Because you are presenting the speech, you should practice reading the speech before the conference. You may also be involved in writing the speech. You should also be familiar with the map you will show the audience during your presentation at the conference. That map is being made or found by your Cartographer.

#### Cartographer

Responsibility: To create or find a map that shows where your group is located and how it is connected to the Rio Grande/Río Bravo. (If your group is the Border Environment Cooperation Commission (BECC) or U.S. Fish and Wildlife Service, you should prepare a general map of the region that shows the main cities and communities, as well as where the river flows.)

#### Researcher/Editor

Responsibility: To make sure the content presented in the handout and speech is accurate, the content on the map is accurate, and vocabulary is used correctly. While the other members of the group are writing and preparing maps, you should help provide content to be included in the speech, map, and any handouts your group chooses to give out.

#### Designer of Handout (optional)

Responsibility: To create a handout to share with the other conference members. The handout should include some background on your group, how you are connected to the Rio Grande/Río Bravo, your goals, and how you suggest attaining those goals.

## The Stakeholders and Conference Roles

Lesson 4 | page 2 of 2

The following tool will be used by the class to score your group's presentation:

### Group Presentation Scoring Tool

Presentation Elements	4 points	3 points	2 points	1 point
<b>Speech</b>	It was well written and presented details clearly. It adhered to the time limit.	It was well written and presented. It was too short/too long.	It lacked depth of content and/or was difficult to follow. It did not adhere to the time limit.	It Included limited information. The speaker was unprepared.
<b>Handout (optional)</b>	It contains information on all of the four requirements, clearly presented.	It contains information on three of the four requirements, clearly presented.	It contains information on two of the four requirements. The information may not be clearly presented.	It contains information on one of the four requirements. The information may not be clearly presented.
<b>Map</b>	It neatly and accurately shows the region and how the group is connected to the river.	It shows the region and how the group is connected to the river.	It is hard to read and does not show how the group is connected to the river.	It is hard to read and/or inaccurate.
<b>Total Points:</b>				

# The La Paz Agreement

The United States and Mexico first began to work together to address environmental problems in 1983. That year, the presidents of both countries signed the La Paz Agreement. The main goal of the La Paz Agreement was to protect and improve the environment of the border region. The agreement had three important parts.

The first part defined the border region as the area 62 miles (100 kilometers) north and south of the actual border. The two nations still use this definition of the border region today.

A second part of the agreement formed several working groups. Each working group specializes in a specific environmental issue: water, air, land, pollution prevention, and enforcement of environmental laws. Experts from both countries serve on each of the working groups.

A third part of the agreement identified problems of immediate concern to both nations. These problems are sewage and waste in the Tijuana River, poor infrastructure in the border cities, illegal movement of hazardous waste from the United States into Mexico, and air pollution in the urban areas and at the border crossings.

Since the two nations signed the La Paz Agreement, progress has occurred, especially in addressing air quality problems. The La Paz Agreement opened up the dialogue between the United States and Mexico and created a structure for cooperation. However, in the decades following the agreement, environmental conditions along the border continued to deteriorate. Some critics complain that progress is too slow. The La Paz Agreement does not specifically require enforcing the two nation's domestic environmental laws. Questions about the effectiveness of the agreement remain.

Even with the concerns about the effectiveness of the agreement, the United States and Mexico continue to use this agreement. It has paved the way for other agreements. Several programs, including the Border 2012 Program (which another group is examining), were created to support the La Paz Agreement and resolve the issues it identified in 1983.



Trash and recyclable materials, Tijuana, Mexico

# NAFTA's Environmental Provisions

Canada, the United States, and Mexico signed the North American Free Trade Agreement (NAFTA) in 1993. This agreement aimed to increase trade by lowering tariffs and other laws that regulated commerce between the countries. At the time, many people were concerned about how the lowering of these trade barriers would affect the environment. What would happen if one country had weaker environmental laws than the others? Many companies would race to open factories in that country to avoid the cost of proper waste disposal or of meeting emissions standards. The other concern was that more trade would increase population and industrial growth in the region. This growth would affect the ecosystems of the border region. Because of these concerns, United States and Mexico felt it was important to include environmental provisions in the trade agreement.

The leaders of Canada, the United States, and Mexico signed the North American Agreement on Environmental Cooperation (NAAEC) along with NAFTA. This agreement created the Commission for Environmental Cooperation (CEC). The CEC's goal is to improve environmental cooperation among the countries by providing a process for airing public concerns and settling disputes. The CEC also has the power to fine countries if they fail to enforce their own environmental laws.

The NAAEC recognized that, in order to protect and improve the environment of the border region, environmental projects needed money. Therefore, the agreement called for creation of two additional groups: The Border Environment Cooperation Commission (BECC) and the North American Development Bank (NADB). The BECC helps

communities in the border region design projects that will help improve and protect the environment. The NADB helps the community determine the costs of their projects. Once the cost is determined, NADB decides whether or not to give money to the community to begin the project.

People have several concerns regarding the NAAEC. First, NADB relies on United States and Mexico to contribute equal amounts of money to support the projects that the communities create. Many wonder if it is fair to ask all the countries to contribute the same amount of money. A second concern is that NAFTA is a trade agreement, not an environmental agreement. Some believe that environmental issues will not get enough attention as part of a trade agreement, where improving the economy, not the environment, is the goal.



Worker in a maquiladora

# Border 2012 Program

The Border 2012 Program began in 2002. Its overall goal is to help carry out the efforts Mexico and the United States are making under the La Paz Agreement of 1983. It is active in the 14 “sister-cities” along the U.S.–Mexico border. Overall, the Border 2012 Program has six specific goals:

- Goal 1: Reduce Water Contamination
- Goal 2: Reduce Air Pollution
- Goal 3: Reduce Land Contamination
- Goal 4: Improve Environmental Health
- Goal 5: Establish Emergency Preparedness and Response Protocols
- Goal 6: Promote Environmental Stewardship

The Border 2012 Program is currently working on six projects. The first is providing adequate and clean water to the human and natural systems in the region. The second is improving the air quality in the region by decreasing the emissions from cars, industry, and urban sources. The third is decreasing land contamination resulting from the improper disposal of solid and hazardous waste. The fourth task is improving the health of the people who inhabit the region. The fifth task is developing an emergency response plan in the event of a natural or human-caused disaster in the region. The sixth task is increasing the environmental responsibility of local industries, especially the maquiladoras. The plan is to solve these problems and documented improvements by the year 2012.

The approach of the Border 2012 Program differs from that provided in most treaties and agreements. The traditional approach involves decisions made by government officials, far away

from the affected region. In the Border 2012 Program, local people and communities give their input and make decisions. People from the ten border states, as well as the Indian nations living in the border region, can actively participate in decisions about their environment.

The Border 2012 Program has been very successful in looking at the environmental problems, planning for changes, and implementing the changes. All interested parties in the border region continue to support the program.



Oil tank washed up on a beach

# The Tijuana River: Part 2

## Working Together to Find Solutions

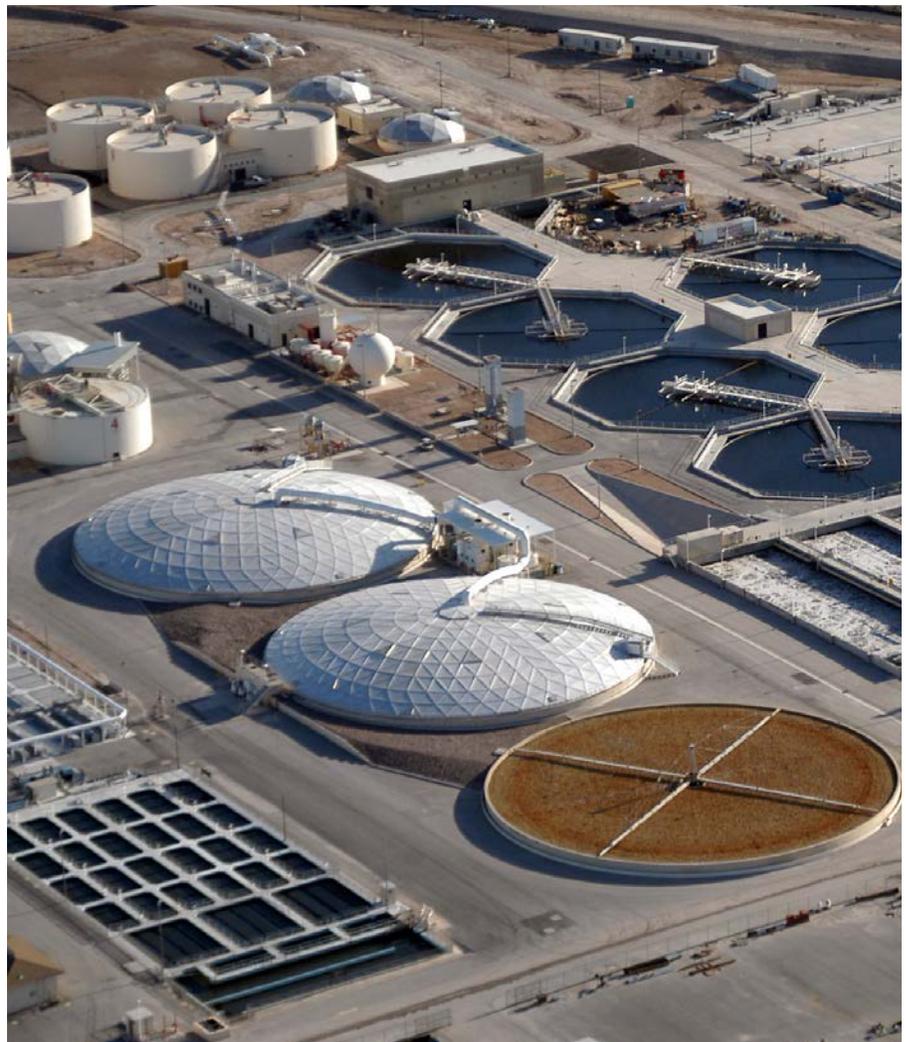


In 2003, the mayors of Tecate and Tijuana became board members of the Tijuana River National Estuarine Research Reserve (TRNERR). This area has come under the protection of a group of several federal, state and local governmental agencies, who aim to improve relations and management strategies on both sides of the river.

Researchers from both the United States and Mexico monitor water quality and wetland species at TRNERR. They look for ways to improve the health of the estuary. One project involves building sedimentation basins to catch sediment and debris. Another project digs sediment from filled marshes and removes nonnative plants that threaten native growth. In addition, the Reserve runs a visitor center to educate the public. Representatives of the Reserve also work to train teachers on both sides of the border.

### Other Binational Efforts

In 2006, the City of Tijuana and the State of California worked together to clean up Los Laureles Canyon. The canyon had become home to an unplanned housing development. Tijuana and California built the South Bay International



Wastewater treatment plant



Water testing at the Tijuana Estuary

**Wastewater Treatment Plant.** This facility supplements the capacity of Tijuana’s sewage treatment system.

Working together, San Diego and Tijuana are seeking to restore the river. They have also organized joint riverbank cleanups.

The U.S. Environmental Protection Agency works with groups in both United States and Mexico to support wastewater projects in the area. The goal of these projects is to maintain the health of the border region. Recently, researchers from Mexican and U.S. universities developed a Tijuana River atlas. This atlas includes maps and photographs. It also includes information about topography,

climate, population, and land use in the river’s watershed. Policymakers and planners in both countries can use this atlas to help make decisions. This project is a first step toward

building communication and partnerships.

### From the Roots Up

Current efforts to manage the resources of the Tijuana River take a “grassroots” approach. This means educating and working with people living in the area on both sides of the river. The goal is to give residents a sense of stewardship and responsibility. Outreach programs and restoration projects are happening in San Diego, Tecate, and Tijuana. They encourage people to become aware of issues that affect the river, and to think about solutions. If the people of the Tijuana River watershed have knowledge, tools, and support to live well with the natural environment, they will be able to make a difference on both sides of the border.



Gathering trash and recyclable materials on Coastal Clean-up Day







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EDUCATION

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## California Education and the Environment Initiative

