

Rancher Dick Tynan is still removing trash from his Imperial Beach property after a flood that occurred five months ago. Mostly it's just plastic bottles, Styrofoam and car tires—but he's also found a whole truck, a refrigerator and even a 16-pound bowling ball.

In exchange for this garbage, the Tijuana River took three of his horses—one of them pregnant—drowning them in a brown, watery blend of raw sewage and trash coming in from Tijuana.

Tynan, 68, said this isn't the first time pollution coming in from Tijuana has caused him grief. Every winter, the river floods the Tijuana River Valley with trash, silt and sewage, clogging up the trails around his ranch so that riders can't use them for months.

"When you go out and ride, [the trails] are all full of trash—and I mean waist-deep," he said.

For decades, pollution from across the border has found its way into southern San Diego, stirring up trouble for the environment, the economy and public health. Sensitive salt marsh in the valley is deteriorating, beachgoers at one of the most popular surf spots in the county are getting sick and business owners are losing customers because of beach closures.

As the population in Tijuana has grown exponentially during the past 10 years, the problem has become dramatically worse. Today, more than 25 percent of the 2 million people in Tijuana aren't hooked up to sewer systems—if you consider all the people unaccounted for in the census, that number is closer to 50 percent, say environmentalists with the Imperial Beach-based organization Wildcoast. People who live in communities along the border, known as colonias, try to keep a low profile. The neighborhoods, which sit on steep canyons facing the border, typically don't have water or sewer systems, paved roads or even proper housing.

Antonia Solarzano, a resident of Los Laureles Canyon—home to about 80,000 squatters and one of the main contributors to trash in the valley—said she and her family moved there almost 20 years ago because they were looking for land where they wouldn't have to pay rent. "We're all broke here," she said in Spanish.

Most of the houses are the size of a garage or smaller, their cracked walls patched together with duct tape and blemished with graffiti. Wooden boards are nailed over gaping holes at the bottom of some houses, warding off the starving dogs whose fur, dark with filth and ribs visible beneath, feeds a tornado of hungry flies.

Residents said they dump their trash into ditches in the canyon, and go to the bathroom in holes they dig. All of this gets washed away when it rains—even some of the houses, with their foundations of car tires, go crumbling down with the soil, they said. One resident of Los Laureles said her family finally signed a contract to get their home connected to a water and sewer system within two weeks because they were getting so many complaints from people who live beneath them.

"Since we live up high, the neighbors were getting bothered because all of our [wastewater] was falling onto them," Elizabeth Rios said in Spanish.

Choking the
salt marsh

But the Tijuana River Valley gets the worst of it. Directly across from the canyon on the other side of the border, the valley lies at only five feet above sea level. This setup means that the valley bears the burden of anything that comes pouring down from Los Laureles and four other canyons in Tijuana. Also, raw sewage and trash from throughout the city collect in the Tijuana River, which flows into the valley during heavy storms.

Oscar Romo, a program coordinator at the Tijuana River National Estuarine Research Reserve, compared the valley with “a big, natural net” that captures most of the outflow from the canyon. He said the trash can reach up to 15 or 20 feet high in some areas of the valley, which is home to 2,500 acres of salt marsh—the largest in Southern California. Various endangered birds that live in the estuary, like the light-footed Clapper Rail, become further threatened when they ingest the trash. Sometimes, they mistake Styrofoam beads for fish eggs, or they eat bugs contaminated with mercury and other heavy metals.

But the biggest problem isn’t always the trash—there’s the silt, too. Because of all the construction going on in Tijuana, formerly dense and compacted layers of silt are getting moved around and released from the ground. When it rains, Romo said the silt is “like chocolate,” dissolving into the estuary and destroying the salt marsh.

“Even if it’s perfectly clean water—you know, Perrier drinking water—it’s still going to negatively affect the estuary,” said Doug Liden, environmental engineer at the U.S. Environmental Protection Agency.

Romo explained that saltwater can’t reach places where the silt has built up because the elevation creates a barrier against the ocean. The salt marsh then becomes a freshwater marsh, and endangered plants like the salt marsh bird’s beak, a small, purplish pink flower that grows in only nine other locations, can no longer survive.

Sick from the surf

During heavy storms, the Tijuana River flows all the way out to the ocean on the San Diego side of the border, bringing to sea anything that didn’t get tangled up in the valley’s vegetation. Imperial Beach, one of the prime surf spots in San Diego, suffers most. The main part of the beach is closed about 50 days each year, and the south end down to the border is closed, on average, 200 days annually.

In March, Wildcoast partnered with the Imperial Beach Health Center and San Diego State University’s Graduate School of Public Health, raising \$195,000 to provide more than 1,000 free hepatitis A vaccines for surfers and other swimmers in the area. However, beach-goers say they’re still getting sick from the water.

“There’s a taste you get in the back of your mouth just by being on the beach,” said Steve Smithson, a resident of Imperial Beach who surfs every day. He said that although he has gotten all of the necessary shots, the water still causes skin rashes and digestive disorders.

In a survey Wildcoast conducted this year, 46 percent of beach-goers reported getting sick from the water. Most surfers said they have gotten ear and eye infections—which, if left untreated, can cause neurological damage.

Although the most visible pollution occurs during the rainy season—one resident described the ocean as looking like “a cesspool of death” in the winter, with food wrappers and six-pack plastic rings floating on the surface—Douglas Inman, a coastal expert at the Scripps Institution of Oceanography, said water currents tend to flow from south to north along the coast throughout the year.

Inman explained that because of the way the shoreline is shaped, with Point Loma protruding off the coast in a south-curving hook, everything south of Point Loma is shielded from southbound swells. Instead, most of the swells south of Point Loma are heading directly north from Mexico, so that everything along the coast of San Diego is vulnerable to the millions of gallons of raw sewage discharged daily off the coasts of Tijuana. During the summer, he said, these northbound swells are even stronger because it’s winter in the southern hemisphere and the storms in the south cause the water to move northward more fervently.

Kyle Knox, a pro surfer who grew up in Imperial Beach, said that although most of the beach closures occur during the winter, he thinks the water is dirtier in the summer because of these swells. Often when the beach

closure signs are up, Knox is convinced the water is actually clean, he said. Other times, the water will be obviously dirty and there won't be any signs warning beach-goers to keep out.

Last year, the state stripped its budget of money for water quality testing along the coasts. The county of San Diego, which previously got the largest annual state grant for water monitoring—more than \$300,000—was left to fend for itself.

Although the county could no longer afford to test 106 weekly samples along the coast, Supervisor Greg Cox issued a proposal in March that allocated \$150,000 for at least some continued water-quality testing, which began in April and will continue through October.

"The weather is heating up and more San Diegans will be hitting the beaches, and we don't want to put the public at risk," Cox said in an e-mail. "We want to be able to tell San Diegans to jump right in, the water's fine."

Although wastewater agencies are still sampling at the same number of locations as before, the 55 locations that the state Department of Environmental Health (DEH) used to sample at was cut down to 18 locations—and Imperial Beach isn't one of them.

Mark McPherson, chief of the Land and Water Quality Division at DEH, said the department looked at how many beach closures had occurred in the past at each location during the beach season and weighed that information along with the popularity of the beach, the level of use of the beach by children and the proximity of the beach to tourist locations like high-end hotels. Since most of the closures at Imperial Beach have occurred during the winter, it didn't make the top 18.

Nonetheless, McPherson said there are still three samples being taken from the location by wastewater agencies, "so it's not like we don't have any data down there." He also added that he is writing a proposal to sample from at least one location in Imperial Beach during the winter. Each sample is analyzed for three kinds of bacteria, which are usually good indicators of other pathogens in the water, he said. If department officials detect significant levels, they post warning signs on the beach and update the department webpage and podcasts.

Unfortunately, 24 hours elapses between the time a sample is collected and the time results are in, McPherson said. So, sometimes when the warning signs go up, the water quality isn't dangerous anymore. "It's not uncommon, but, unfortunately, it's the best that technology has now," he said.

Kyle Knox's uncle, Jeff Knox, who's lived in Imperial Beach his whole life, said most surfers don't rely on warnings from the county about water quality anymore. "We've developed our own sort of litmus test for whether or not we go in the water," he said.

If they smell chlorine, Knox said surfers know they're getting wastewater from the South Bay International Wastewater Treatment Plant, which treats about half of the sewage from Tijuana to primary standards. Although it'll be upgraded to secondary standards by 2011, the plant has been discharging off of Imperial Beach in violation of the Clean Water Act—which mandates that ocean outfall must be treated to secondary standards—since it was built in 1999. If Knox smells that distinctive odor, he knows to keep away.

"Other times we'll get the smell of sewer—of shit," he said. Then the surfers know they're either getting runoff from the Tijuana River or, if it hasn't been raining, the raw sewage discharged about six miles south of the border by the Punta Bandera sewage treatment plant in Tijuana, where capacity is exceeded by millions of gallons each day. That odor indicates that the surfers should definitely stay out of the water, Knox said.

Then there are times during the winter when the water is just chocolate brown—a sure indicator that the Tijuana River is flowing, bringing silt, raw sewage and trash into the sea.

Knox said he's sure he's become sick from the water, because within 24 hours of surfing, he has gotten stomachaches, diarrhea, vomiting, skin rashes and even eye infections.

"God knows what chemicals we're exposed to," he said.

Rick Gersberg, a public health professor at San Diego State University, said funding for research has always been scarce. In 2006, he conducted a study that found the hepatitis A virus in almost 80 percent of water samples taken at Imperial Beach, and other enteroviruses in 93 percent of the water samples. Currently, his lab is testing fish from Imperial Beach for mercury and other heavy metals, the pesticide DDT, the pollutant PCB and other carcinogens. Although he's detected some mercury in the fish, Gersberg said the levels aren't significant enough to do any damage—he said you could eat hundreds of fish before getting sick. However, his lab has only tested nine fish. He said they'll probably test about 30 more, but it'll take several months to raise enough money because each sample costs hundreds of dollars.

Mark James, an Imperial Beach fisherman, said he fishes from the pier every day but no longer eats all of his catch. Despite studies like Gersberg's, he said he's concerned about the amount of mercury in the fish and only eats his catch once or twice a month, selling the rest.

Bad reputation,
bad business

Businesses in the area have also been affected by the pollution, said Jay Novak, a member of the Tijuana River Citizens' Council and owner of a surfboard design shop in Imperial Beach.

"When the beaches are closed, tourists are not going to want to come here," he said. "And if they do come here and notice that there are signs warning them not to go into the water, they're not going to come back."

Tynan, the rancher whose horses were killed in the December flood, said three of his renters left his barn afterward because the amount of trash left on his property impeded their ability to ride.

The river valley used to be the horse capital of California, he said—even the famous racehorse Seabiscuit used to live there. But since the pollution problems from Tijuana have escalated, the area's reputation has deteriorated.

"Anything associated with the name Tijuana gets a bad rep," said John Gabaldon, president of the Tijuana River Valley Equestrian Association. He said it's hard enough fighting those stereotypes, let alone dealing with the consequences of people not wanting to ride in the valley because of how much trash has accumulated.

"They want a nice pristine area to ride in," he said. "So the [pollution] does hold down business levels and economic activity in this valley."

He said the reason the problem has gone on so long is because the Tijuana River Valley is made up of a checkerboard of stakeholders, each of which has been blaming someone else for the problem—the city of San Diego, the county, the city of Imperial Beach, the U.S. Border Patrol, the International Boundary and Water Commission, U.S. Fish and Wildlife and more.

The other main obstacle has been the fragmentation of the issue into a United States and a Mexico issue, instead of a single unified one, said McCue of Wildcoast. "There needs to be a way to address this problem at the watershed level," he said.

While most of the 1,700 square miles of Tijuana River watershed are in Mexico, one-third of the watershed lies in the U.S. For years, the only solution to the pollution was to work “at the end of the pipe,” with groups like Wildcoast organizing cleanups of all the trash washed in during rainstorms, McCue said. After every rain, community groups would be back at square one.

“Everyone has to put in their little part, and not one person or one group is going to be able to provide this ultimate solution,” he said. “It’s really going to take everyone working together.”

For the first time, coordinated efforts are being made to address the problem on a permanent basis, McCue said. Last summer, the Tijuana River Valley Recovery Team formed, joining together more than 20 local, state and federal agencies with a stake in the valley to find ways to solve its longstanding pollution problem. The team is made up of a policy committee and four action teams—the border team, the cleanup team, the restoration team and the bi-national team—including members from the city, the county, the IBWC and the estuary research reserve.

“We finally have everyone at the table, all the agencies and community groups, to really get together and say, ‘How can we together solve this problem?’” McCue said. “So there is a lot of hope out there.”

Solution to the pollution

By April, the recovery team had already raised almost \$2 million in grants from the National Oceanic and Atmospheric Administration and the EPA. The estimated cost of all the projects they’ve proposed so far—such as installing trash capture devices at the main south entrances to the valley—is more than \$30 million.

“I’m not as concerned with how much money we have or can get as much as how good our plan is to use it,” said John Robertus, executive officer of the San Diego Regional Water Quality Control Board and chair of the policy committee. He said he thinks it will take 10 years and more than \$100 million to put together a sustainable plan.

Jeff Crooks, research coordinator at NOAA and chair of the restoration team, said one of the hardest parts is going to be maintaining the estuary. “I almost think we’re gardeners at this point,” he said. “In a system like this, it’s just going to take continual input and continual effort.... We need to realize we’re in it for the long haul.”

Romo, the researcher from the estuary who’s also chair of the bi-national action team, said one of the biggest obstacles the recovery team faces is the difficulty of getting permits to do what they want to do. Because parts of the river valley are protected under the National Estuarine Sanctuaries program, anyone who wants to dig several feet into the soil to remove trash—essentially altering the land—must first go through lots of red tape.

Also, many areas of the valley are off-limits to cleanups during the bird-nesting season, which lasts from March to September. “Sometimes you find birds nesting in a pile of trash, but nobody can touch them because they’re protected by law,” Romo said.

McCue said Wildcoast has been working with the EPA to model an incentive program that would get residents of Tijuana to recycle their plastic bottles so they don’t end up in the estuary in the first place. He said most of the bottles from Tijuana are made of polyethylene terephthalate, one of the most recyclable plastics in the world. “Yet at the same time, it’s one of the most dangerous plastics to our natural environment,” McCue said. “Every single piece of PET plastic in the history of the world that’s ever been created still exists today.”

Although the biggest difficulty has been working bi-nationally to get at the source of the problem, Liden of the EPA said Tijuana has been doing more than it gets credit for. Earlier this year, a \$9 million sewage treatment plant called Monte de Los Olivos went online in Tijuana to treat the waste of an additional 265,000 residents. Later this year, another one called La Morita should be in operation. Together, these treatment plants—funded by grants from a Japanese bank—will add more than 16 million gallons per day in capacity, significantly decreasing the amount of raw sewage going into the Tijuana River and the ocean.

Before, all of the sewage in Tijuana was diverted either to the international treatment plant in San Diego or to the Punta Bandera plant in San Antonio de los Buenos—a combined capacity of 50 million gallons per day. Every day, more than 5 million gallons of raw sewage were discharged into the ocean in Tijuana because of insufficient capacity.

The Tijuana Public Services Commission is also starting a project to recycle the treated wastewater from the new plants. Liden said the commission will install a new system of pipes that will collect the water and use it for irrigation in parks and businesses. In the next five years, they aim to increase consumption of recycled water by 20 percent, significantly reducing capacity problems at the treatment plants.

“So there is a lot of progress being made, whereas a couple of years ago you would look at it and say, ‘Why isn’t anyone doing anything?’” said Novak, the surf-shop owner.

Many residents say they think that for the first time, a real solution is on the horizon and that, finally, Imperial Beach will get the reputation it deserves—for its waves, its estuary and its less-known treasures.

“It’s the only place in Southern California where you can still ride on the beach,” said Tynan, holding his horse by the reins and smiling. “And that is great.”

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