



The Flow

December 2017

Friends of the Santa Cruz River Newsletter

President's Message: Accountability and Cooperation—Now is the Time

By Sherry Sass

Friends of the Santa Cruz River has been concerned for some time that the binational sewage pipe, the International Outfall Interceptor (IOI), could be broken by erosive floods in the Nogales Wash under which it lies. Our warning is encapsulated in a short video we had made earlier this year, called "Flirting With Disaster" (viewable on foscraz.org or YouTube at <https://www.youtube.com/watch?v=qKEqWGBz5CE>).

We are sad to say this eventuality has now come to pass. The waters of the Wash and the Santa Cruz River that it flows into have been contaminated, and the safety of our drinking water supplies has been put at risk. An easy fix is not in sight. Even after repairs to this breach are eventually made, it is probable that a similar or worse disaster will repeat itself somewhere along the 9-mile IOI, when, inevitably, erosive floods flow down the Wash again, and expose, then break the pipe, discharging raw sewage and industrial pollutants into our communities, our river, and our aquifer.

Although the International Boundary and Water Commission (IBWC) has developed a plan to insert a resin sleeve into the existing IOI, and FOSCR supports this repair strategy where the IOI currently leaks into our groundwater, it will not solve the persistent problem of the location of the IOI.

As long as the IOI remains underneath the deteriorated, unstable and undersized Nogales Wash, the threat of more and larger IOI ruptures remains a reality. This binational sewage pipe must be removed from the bed of the Wash if future public health disasters like this one are to be avoided in the future. IOI relocation will not come cheap or easy. However, barring a major overhaul of the entire Nogales Wash watershed (most of which is in Mexico), repeated

erosive floods will inevitably threaten the IOI and thus threaten the health of all Santa Cruz County residents as well as the ecological health of the river ecosystem. Most ominously, since many of Santa Cruz County's residents depend for their drinking water on the aquifer that underlies the river, our drinking water supply also faces a long-term and significant threat from repeated discharges of contaminated water into the river.

This is a matter of true national security; if we don't have clean drinking water and are not protected from public health threats, how secure are we? The IBWC must take responsibility for this border crisis and first, repair the IOI. But second and more importantly, they must get the IOI out of the Nogales Wash.

As a first step, we need to establish the IBWC's responsibility for the IOI.

Federal legislation is currently in committees in both houses of Congress:

S. 551 in the Senate: "Nogales Wastewater Fairness Act" sponsored by John McCain

HR. 1410 in the House, co-sponsored by Reps. Martha McSally and Raul Grijalva

Please contact your federal representatives and urge them to get these essential bills through Congress, so we can start to address the complex issues surrounding the failing IOI and the inadequate and dysfunctional Nogales Wash. Our water security is at stake!



Celebrate the River art contest, second prize in age group.
Title: The River Reflection; Artist: Zulma Garza; School: Wade Carpenter; Age Group: 12+

Birds & the Monsoon

By Marty Jakle

I love them both, although I must admit I have a love/hate relationship with the monsoons—weeds, chiggers, sweat, etc. But I love how green it is, especially this year. And the monsoon doesn't officially end until the end of September.

This has been a good year not only for rainfall, but also birds. Southeastern Arizona is nationally famous for its

birding because of its close proximity to Mexico and this year was a banner one. The blue ribbon bird for our area this year was the Rose-throated becard. This bird is a species that barely dribbles over the U.S. border into Arizona and Texas. Some years it doesn't even cross the border. This year we



Rose-throated becard

Cruz River, will be lost. Some of you who grew up back East like me may know this bird by its local name "rain crow".

It's hard to believe that many of the birds that we just saw in the spring on their migration through our area like some of the shorebirds, sparrows and warblers have been North, in some cases as far as Alaska, are now on their migration South. They've made it to their nesting grounds, mated, raised young and are headed South again. A perfect example is the Rufous Hummingbird, that pugnacious little spitfire of a hummer, that is a bright orange. You probably know it as the feisty little hummer that hangs around a few days in the spring and again a few months later and chases all the other hummers away from "his" feeder.

But it's not always birds that are the main attraction outside. This morning I was doing my weekly bird census of my property and saw a vining milkweed which had grown up into a mesquite tree. The milkweed's white clusters of flowers were cover by Painted Lady butterflies. The orange/black butterflies on the white flowers with a green background reminded me of a Christmas tree.



Yellow-billed Cuckoo

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The Flow is published by Friends of the Santa Cruz River (FOSCR), a nonprofit, volunteer organization dedicated to ensuring the continued flow of the Santa Cruz River, the life-sustaining quality of its waters, and the protection of the riparian biological community that it supports.

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Opinions expressed in guest articles are those of the author's and not necessarily those of FOSCR.

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were lucky in that two pairs were found along the Santa Cruz River, one near Tubac and the other near Tumacacori. Many birders came here and were able to see this rare species. Besides the becard, other rarities in our area this year were the Varied Buntings, Green Kingfishers, Thick-billed & Tropical Kingbirds, and other local specialties.

Another bird which is found fairly commonly along the Santa Cruz River, but is rare in most of the West, is the Yellow-billed Cuckoo. This species is doing okay in the east, but in most of the western states its population is in a nosedive. It was declared distinct from those in the East was listed by the Federal Government as a threatened species in 2014. Currently, a petition to delist this species is under consideration. If this species loses its threatened status the protection of its habitat, mainly riparian habitat like the Santa

Nogales Wash and IOI Climate Change Concerns

By Ben Lomelli and
Blue Evening Star

Every storm that hits Nogales, Arizona puts pressure on the deteriorating sewage pipe that carries 14 million gallons of sewage daily, mostly from Mexico, right through the small city of Nogales, Arizona to the Nogales International Wastewater Treatment Plant (NIWTP) in Rio Rico, Arizona.

This pipe, the International Outfall Interceptor (IOI), was constructed in 1971. Its path to the NIWTP lies mostly under the Nogales Wash. It is protected from erosive flood flows by the concrete-lined floor of the Wash and several feet of dirt.

Because of upstream urbanization and its deteriorated condition, the IOI is in danger of becoming exposed and bursting every year during heavy summer monsoon flood flows in the Nogales Wash. Additionally, the IOI continues to leak raw sewage into the groundwater aquifer system that provides drinking

water for most of the community.

Friends of the Santa Cruz River commissioned a short video documenting the IOI problem to inform as many people as possible and to create a unified voice to urge federal decision makers to fund a proper repair for this failing infrastructure complex. This film can be viewed on the Friends of the Santa Cruz Facebook page or website.

Climate Change Concerns

The Nogales Wash is located in an arid-semiarid desert landscape. It lies within the Upper Santa Cruz River Basin in southeastern Arizona. There are two major precipitation periods in the typical southeastern Arizona water year. The first and most dramatic is the summer monsoon season (July-Sept), in which 50% of annual precipitation occurs. A secondary wet season during the fall and winter months is caused by Pacific frontal storm movement.

Potential climate change-related impacts are of concern for Nogales Wash (and the IOI) because all credible predictions

are for warmer and drier conditions overall, but with less frequent but more intense storms.

Detention basins constructed in Mexico are too few, too small (appear to be designed for about a 25-year storm), and have quickly filled up with sediments. Many more are needed and all need to be regularly maintained. Watershed improvements are also needed to stabilize eroding soils and thus reduce excessive sediment flows. Revegetation of bare soils, water-harvesting, erosion control, retro-fitting of storm water BMPs (Best Management Practices) and LID (Low Impact Development) approaches would all help reduce storm water peak flows and excessive sediment transport.

Therefore, as long as the contributing watershed in Mexico continues to produce abrasive sediment-laden peak flows that far exceed the conveyance capacities of Nogales Wash, all our local stormwater infrastructure remains at risk. As long as the IOI remains underneath the deteriorated unstable and undersized Nogales Wash, the threat of IOI ruptures remains a reality that will most likely be increased by climate change.



Celebrate the River art contest, first prize in age group. Title: Extinction is Forever; Artist: Karina Torres; School: Wade Carpenter; Age Group: 12+

About the Student Art

Friends of the Santa Cruz River has been offering an educational program to local schools that provides presentations on the river to student groups and then sponsoring an art contest.

This year's Power Point was shown in 10 local schools and was titled "Our Wonderful Watershed." The presentation contained information on the flow of the river, the importance of the aquifer, and the plant and animal life that depend on the river was created and presented by students of Global Community Communications Schools (GCCS)

While there was much more art submitted and many additional winners, the art featured in this issue of *The Flow* is by two students from Wade Carpenter in Nogales and one from Global Community Communications Schools in Tumacacori. The student art from this year's contest was recognized and displayed at the Americana Hotel in Nogales, Arizona.

We look forward to the 8th Annual Celebrate the River Student Art Contest in May 2018. We are excited to begin working with the Corridor Keepers in Santa Cruz County in 2018, as well as merging with the Living River of Words Art Contest, held in Pima County for the past 16 years.

Earth Harmony Festival Speaker Panel: An International Watershed Crisis Right in Our Neighborhood! Where Do We Go From Here?

By Blue Evening Star

An informative and fascinating panel discussion on the recent IOI sewage pipe breach, that poured millions of gallons of raw sewage and heavy metal contaminants into the Nogales Wash and the Santa Cruz River, was held during the Earth Harmony Festival—at Avalon Organic Gardens & EcoVillage in Tumacacori, Arizona—on Sunday, October 8, 2017.

The focus of the speaker panel was: Finding Permanent Solutions for Nogales Stormwater Problems; Drinking Water and Sanitation Concerns in Southern Arizona.

This panel was produced and filmed by Global Change Media (<http://global-change.media>).

The entire one-hour long speaker panel can be viewed on the Friends of the Santa Cruz River Facebook page.

Here is a preview of many of the highlights of this important community forum.

Panel Moderator:

- **Natalie A. Brassill, M.S.**, The University of Arizona—Cooperative Extension College of Agriculture & Life Sciences, Department of Soil, Water & Environmental Science

Panelists:

- **Ben Lomeli**—Environmental Consultant/Hydrologist; IBWC Citizen's Council Board Member SEACF; SCC FCD Advisory Board; Friends of the Santa Cruz River Board member
- **Bill Beaver**—Santa Cruz County GIS Analyst
- **Ruben Reyes**—District Director, Rep. Raul Grijalva (D-AZ3), IOI Congressional Staff Lead for Congressman Grijalva

- **Charlene LaPlante**—Santa Cruz County Chief Civil Deputy County Attorney

The general format of the panel discussion was as follows:

1. Natalie Brassill gave a brief history of the Nogales Wash
2. Panelists each spoke on the following topics:
 - The breach of the IOI in July 2017
 - Permanent solutions to the Nogales Wash/IOI problem
3. Questions to panel members from the audience

Brief History of Nogales Wash/IOI (as presented at International Boundary & Water Commission (IBWC) Citizen's Council Meeting on September 21, 2017)

In the 1940s the City of Nogales (CON) reported that raw sewage from Mexico was pouring into Nogales, Arizona. The CON asked the IBWC for help. The IBWC brokered a deal to build a Wastewater Treatment Plant 1.5 miles from the border in Nogales. This was paid for by Mexico and CON. This facility processed 6 million gallons daily (mgd). The CON agreed to maintain the Plant and the 1.5 mile-long pipeline to the plant.

In the early 1970s there were about 45,000 people living in Nogales, Sonora. The CON requested that a larger treatment plant be built and located outside the city limits of Nogales, Arizona. This was done, but Mexico insisted that the new location was not relevant to their international agreement, and refused to pay for the pipe that carries the sewage an additional 9 miles to the new site. This pipe is the IOI.

The new plant in Rio Rico processes 14 mgd or more. It actually processed 19 mgd for decades, until the Los Alisos plant was built a few years ago in Sonora.

In 1996, CON asked IBWC to take over ownership of the NIWTP and they agreed. There is a legal battle in court over who is legally responsible for maintenance and repair of the Nogales Wash and the IOI.

On September 20, 2017 a legal decision was made about IOI ownership. The ruling is that the IBWC is a partial owner of the IOI and legally responsible to pay for all IOI repairs and changes. Mexico is not responsible and CON is supposed to pay a fraction of costs. The IBWC will appeal and fight this.

The Breach of the IOI in July 2017

Ben Lomeli:

We were extremely lucky. This was a partial breach in a single area. It could have been multiple, full breaches. The breach was discovered in 2 days. It could have taken a lot longer to discover.

The entire IOI is threatened by flooding and erosion, as well as sediment scouring the Wash during floods and constantly inside the pipe.

Bill Beaver:

Manhole 89 was an "exposed toadstool" due to erosion in the Nogales Wash. A neighbor in the area has photos to prove it.

Responding to emergencies is not enough.

Earlier this year, people from Santa Cruz, Cochise, and Yuma Counties participated in an emergency preparedness training. The breach of the IOI was deemed the most likely and



"Panel..." , con't

dangerous emergency we face, and that is what this FEMA training, in Maryland, focused on. When the breach happened, we were somewhat prepared as a result of the training.

Ruben Reyes:

Science cannot be debated, but politics keeps a solution from being implemented.

This is not a City or County issue. It is a National and International issue.

Either we fix the IOI now, at a relatively minimal cost, or we will be forced to fix it when it is a true disaster and monumentally expensive.

The recent breach of Manhole 89 was "good" in that it has brought this issue to everyone's attention in a way that cannot be ignored.

This is a situation where all entities are willing to work together.

Charlene LaPlante:

This emergency brought together a coalition of City, County, State and Federal agencies.

What has been done so far is a band-aid, a temporary solution.

The Army Corps of Engineers is prevented by statute from doing anything

but emergency repairs. Santa Cruz County is prevented by statute from owning or maintaining a sewage system.

There were many blessings that came out of the breach of Manhole 89. The US Army Corps of Engineers worked with the CON and County on bank reinforcement on several sites along the Nogales Wash. Some of these were on private property that was not accessible. After shoring up 4 of the 6 sites that the Army Corp identified as being dangerously eroded, they ran out of funds. The County purchased the materials for the last 2 sites, and the labor was done by the State National Guard with the CON Public Works Department. managing the heavy equipment.

Permanent Solutions to the Nogales Wash/IOI Problem

Ben Lomeli:

We need to get the IOI out of the Nogales Wash. It has to be at the same elevation so lateral connections are not a problem. Or put it deeper, below the scour line.

A key concept in hydrologic engineering is not to place a pipeline in a Wash. Sometimes a pipe will be put across a Wash but always under scour line. Hav-

ing the IOI placed under 9 miles of the Nogales Wash is very challenging.

A permanent solution will require looking at the Nogales Wash as a whole system. Washes meander, erode, change, and flood.

The Union Pacific Railroad Line is a very significant player. One possibility is to move the IOI underneath the railroad.

The IOI is leaking raw sewage into our drinking water! Groundwater is also leaking into the IOI. This is happening constantly.

IBWC's proposal to all IOI problems is a Cure-In-Place (CIPP) lining. This is a "sock" in the pipe that is sealed to the inside of the IOI with steam. Estimated cost is 40 million dollars.

It would be better to put CIPP only in the sections of the IOI that are known to be leaking, to avoid the unnecessary expense of installing CIPP the entire 9 miles of the IOI.

There is also a need to install sensors so we know immediately when the IOI breaks.

Bill Beaver:

Has heard estimates of 3 billion dollars to move the IOI.

If not at same elevation after moved it will have to have pumps, which is very expensive.

How about moving the Railroad and using that corridor for the IOI?

County Flood Control District proposes building retention basins to reduce the flood flows in key areas by 50%. Estimated 40 million dollars.

This was a "normal" monsoon season. We have not had a "normal" monsoon season for 30 years.

Natalie Brassill:

There are many ways to slow water and to allow for infiltration of water. Collection of sediment is always a problem. Plant native species to slow water.

Watershed Management Group in Tucson has designed a green landscaping plan for the Lower Santa Cruz River that will slow the water in floods and allow for increased infiltration.



Celebrate the River art contest, first prize in age group. Title: Hummingbird in Santa Cruz Sunset; Artist: Sympleahtae Raymond; School: Global Community Communications Schools; Age group: 9-11



"Panel...", con't

Ruben Reyes:

Step One is to find scientific solutions for the environmental concerns. Step Two is for all stakeholders to get behind a scientifically sound plan for a permanent solution. Step Three is for all united stakeholders (including private landowners, the railroad, County and City) to put political pressure on Congress to get the job done. It will take Congressional action. The Arizona delegation is already behind it.

When Congressman Grijalva talks about border infrastructure, this is what he is referring to.

Charlene LaPlante:

All entities must work together.

Questions and Answers

1. *What measures are in place (or should be in place) to protect the community from a plague of raw sewage, should that occur?*

FOSCR RiverWatch does monthly water testing of the river. ADEQ also does water testing.

County needs to be ready to get the word out community-wide in all media outlets, and to post signs immediately.

People should get their wells tested if within ½ mile of the river. (County recommends if within 100 feet of the river.)

Best action is to prevent it.

When in doubt, boil your drinking water.

Can also filter drinking water in home.

2. *What measures are being taken to improve statutes that govern IOI?*

The IBWC Treaty with Mexico should be updated.

Editor's Note: Update from Laura M. Norman, Ph.D., Research Physical Scientists, U.S. Geological Survey, Western Geographic Science Center.

"We had a meeting in June with the binational community about storm-water control in Nogales. I was asked to present the rainfall/runoff modeling research

I have done with the Land Change Science Program, that got bolstered with funds from the International Boundary and Water Commission (IBWC) and US Northern Command (NORCOMM). We had a simultaneous translator and 25 people from all over (El Paso, Texas; Juarez, Chihuahua; Hermosillo, Sonora; Nogales, Sonora; and Nogales, Arizona, as well as Tucson, Arizona).

"Outcome: The binational Commissioners decided the issue warranted a revision to the Treaty and current International policy. They will make a new 'Minute' between the United States and Mexican Sections of the IBWC, to strategize a framework for Binational Cooperation on Transboundary Storm-water Control in the Nogales Watershed!"

3. *What action can concerned activists take now?*

Look at FOSCR website for talking points for letters to Congress.

Just mentioning concern that the IOI needs to be fixed is a good place to start and will get their attention.

Join FOSCR! Attend FOSCR board meetings and find out what you can do to help.

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When you select Friends of the Santa Cruz River as the organization you want to donate to, everytime you shop at smile.amazon.com, Amazon will donate a portion of the purchase price of eligible purchases to FOSCR.

Friends of the Santa Cruz River would like to express our heartfelt appreciation to Global Change Media for creating this awesome panel discussion during the Earth Harmony Festival, and to each panelist who participated.

Special thanks to Natalie Brasill for doing such a fantastic job of moderating the panel. She was successful in helping the panelists to present a lot of complicated information in a way that was understandable, and inspiring, to everyone.

Please take the time to view the entire speaker's panel, on Friends of the Santa Cruz River Facebook page, and to share it with others.

Generous Donations Matched By Toro

Does your employer match your charitable donations? It might be worth asking.

Our Treasurer, John Szafranski, became a Lifetime FOSCR Member with his donation last year of \$500, and then doubled it through his

former employer, the Toro Company. The Toro Foundation is about to double John's second donation as well!

Thanks to the Foundation and, of course, John, for their generosity and continuing support of FOSCR.

TORO

MEMBERS MOST WELCOME—AND NEEDED

FOSCR couldn't do it without your help. Do what? Well how about, make a short film, "Flirting with Disaster" about the problems with the IOI. FOSCR also works with schools to engage students to learn about the river and express it through art--Celebrate the River art contests. FOSCR communicates with officials on important issues affecting the river and the watershed.

If you're not a Facebook user, you can renew or join by filling out and mailing the membership/donation form below. Or you can use PayPal by visiting our website at foscr.org, clicking on "ABOUT FOSCR", then "JOIN US". You can select your level of support and pay with your credit card. Using PayPal allows you to donate annually—reminding you when it's time to renew your contribution.

FRIENDS OF THE SANTA CRUZ RIVER

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☐ Yes, please send me links to take action!





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