Update on Water Quality in the Lower Rio Grande in New Mexico

Brian Hanson Chris Canavan
Rio Grande Citizen's Forum
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The Paso del Norte Watershed Council received a grant to develop a Watershed Based Plan to protect and improve water quality in the Lower Rio Grande in New Mexico

The grant also funded a water quality sampling program, a bacterial source tracking study and outreach

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Paso del Norte 319(h) Watershed Restoration Project Area

Landcover

- Water
- Developed
- Barren
- Forested
- Shrub/Scrub
- Grassland
- Planted/Cultivated
- Wetland
- City of Las Cruces
- River Sample Sites

107 miles of the Rio Grande

- Elephant Butte Irrigation District collected monthly water samples for 2 years
- Dr. Roby's lab at Dona Ana Community College processed the E. coli samples

- Dr. King at NMSU supervised a Graduate student that modeled E. coli concentrations in the river and analyzed water quality data

Dr. Smith from NMSU collected 400 water samples for Source Tracking (discover which species)

- **Outreach during 2010 and 2011 provided the public with water quality information**

Watershed Tour November 2010

- **Outreach during 2010 and 2011 provided the public with water quality information**

Dia del Rio October 2011

Dia del Rio October 2010

Sponsored by
Rio Grande International
Study Center

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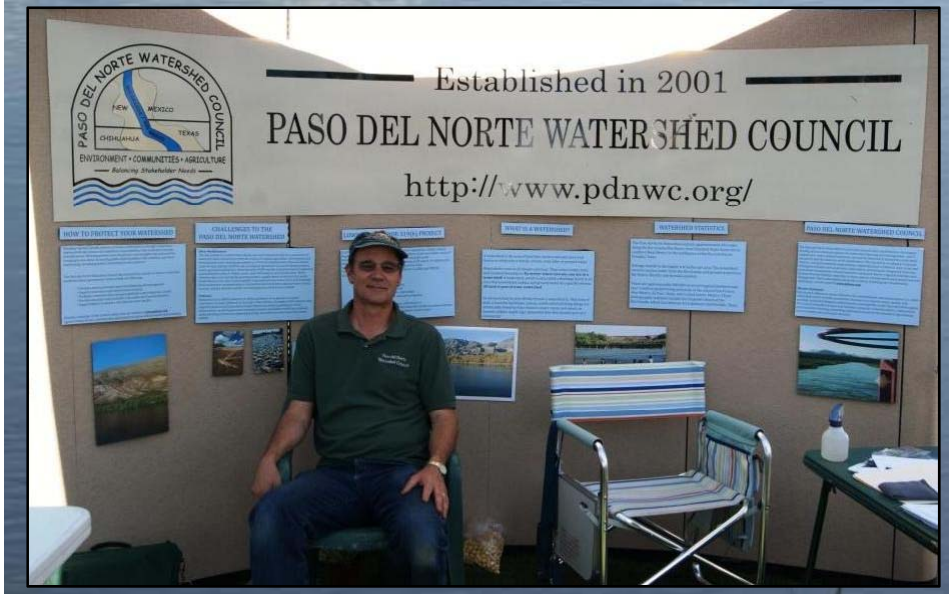
Enchilada Fiesta
October2011



Earth Day
April 2011

A stakeholder group was formed to develop and guide the Watershed Based Plan

So, what will the Report say to reduce pollution in the Rio Grande?

The Watershed Based Plan
will address the possible sources of E. coli
and
best management practices to reduce E. coli

Possible sources of E. coli bacteria according to a NM Environment Department document

1. Impervious surface/parking lot runoff
2. Urbanized high density areas
3. Municipal point source discharges
4. On-site treatment systems
5. Confined feeding operations
6. Waste from pets
7. Rangeland grazing
8. Waste from waterfowl
9. Waste from wildlife other than waterfowl

Possible Sources

Impervious surface/parking lot runoff

The City of Las Cruces as well as Dona Ana County has a well-managed plan for stormwater runoff.

For more information go to:
www.las-cruces.org/Departments
www.donaanacounty.org

Possible Sources

Urbanized high density areas

The City of Las Cruces has a Storm Water Management Plan that addresses common water quality pollutants:

- E. coli bacteria, such as pet waste
- Yard waste
- Restaurant grease
- Oil
- Suspended solids
- Sediment

Residential and commercial developers are required to submit a plan that contains measures to control sediments.

Possible Sources

Municipal point source discharges

The City of Las Cruces' Jacob Hands Wastewater Treatment Plant processes and treats approximately 4 billion gallons of sewage a year before it is discharged into the Rio Grande

Possible Sources

On-site treatment systems

Failing septic systems or cesspools can be a major source of pollution to ground water and rivers. In Albuquerque, 16% of the E. coli came from humans. Replacing septic systems with centralized treatment plants can help.

Inspect and pump septic systems as needed: Every 1-5 years, depending on the number of residents

Possible Sources

Runoff from confined animal feeding operations

- Provide stormwater basins and protective berms to keep stormwater on-site
- Remove livestock pens from the active floodplain or channel
- Dispose of waste properly

Possible Sources

Waste from Pets

<u>Domestic animals: Pet waste:</u>
Always remember to pick up after your pet

A study in Albuquerque found 22% of the E. coli bacteria came from canines

Dog waste can have as much as 200 million colony forming units of E. coli bacteria in 1 gram of waste (.04 ounces) Univ. of Nevada

Possible Sources

Rangeland Grazing

Proper Management such as rest and rotation practices can maintain a healthy rangeland. This can reduce erosion and stormwater flows, and increase infiltration. Healthy riparian strips next to rivers and streams can stop E. coli input to streams.

Possible Sources

Waste from Waterfowl

Waterfowl are particularly fond of waters that have low vegetation surrounding the edge of the pond

A study in Albuquerque found that 33% of the E. coli bacteria came from avian sources

Allowing the vegetation to grow along the water banks can decrease the concentration of waterfowl

Physical barriers close to the water's edge, like a wire fence or bird netting, will also help

Possible Sources

Waste from wildlife other than waterfowl

High populations of warm-blooded wildlife (birds and mammals) can create high concentrations of waste. If specific locations are noted, habitat can be created to encourage them to move or they can be scared away

Wikipedia.org

doh.state.fl.us

A healthy watershed will ensure good water quality

Measures that will help –

- Ensure best management practices are effective (monitor)
- Sources of E. coli are contained and treated
- Water treatment plants are in compliance
- Leaky septic systems are replaced with centralized sewage treatment
- Land Management stops E. coli from entering the waterway (riparian areas)
- Watershed Health Education and Water Quality Outreach continues

A healthy watershed will ensure good water quality

Two approaches that can help in urban areas include

- Green Infrastructure and
- Low Impact Development

Green Infrastructure

An interconnected network of natural areas and other open spaces that conserves natural ecosystem values and functions,

sustains clean air and water, and

provides a wide array of benefits to people and wildlife

Benefit & McMahon 2006 in "Identifying and Protecting Healthy Watersheds", March 2011 draft, Environmental Protection Agency

Green Infrastructure

The main elements are hubs and links. Hubs tend to be large areas of natural vegetation and links tend to be linear features (e.g., streams) that connect hubs.

Provides land protection and growth

www.conservationfund

Green Infrastructure

Constructed features that use living vegetation to capture, clean and infiltrate runoff.

Examples include curb cuts that direct water to vegetated depressions (bioretention basins) with native vegetation.

Low Impact Development

Developed to reduce stormwater runoff volumes and reduce pollutant loading to lakes and rivers like the Rio Grande.

So what is it?

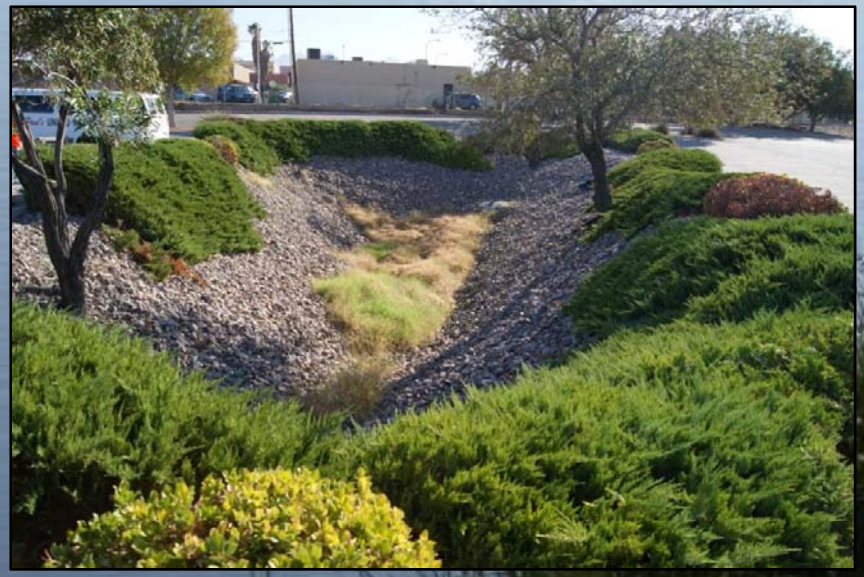
Low Impact Development

LID manages stormwater in small, cost effective landscape features located on each lot rather than being conveyed to large, costly holding structures. This is achieved by developing ways to prevent, retain, detain, use and treat runoff.

How?

Low Impact Development

This can be achieved by mimicking natural conditions through landscaping that promotes ground water recharge



The Watershed Council promotes projects to improve water quality and quantity, ecosystem integrity, the quality of life, and economic sustainability in the Paso del Norte watershed.

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319 grants provide resources for solving water quality problems through regional collaboration

Brian Hanson Watershed Coordinator

bhanson@nmda.nmsu.edu

Chris Canavan

chris.canavan@state.nm.us

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