



The Paso del Norte Watershed Based Plan

*Mitigation Measures to Reduce
Bacterial Pollution in the Rio Grande*



RIO GRANDE CITIZEN'S FORUM

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NEW MEXICO
ENVIRONMENT
DEPARTMENT

Project Timeline / Activities

- State of New Mexico issued a TMDL for *E. coli* bacteria in 2007.
- PdNWC received 319(h) grants in 2006 and 2010.
- Preliminary watershed plan produced in 2008.
- The preliminary plan recommended a water quality sampling program and increased stakeholder outreach.
- Monthly sampling effort initiated in 2008 to present.
- Working group stakeholder meetings held.

Project Timeline / Activities

- Data analysis conducted and results presented at public meetings including the RGCF in January 2013.
- Watershed plan draft completed in August 2013.
- Submitted to EPA for review in September 2013.
- EPA requests revisions to the draft December 2013.
- Extensive re-write conducted March - May 2014.
- Final draft submitted to EPA May 2014.
- EPA accepts the final draft June 2014.

E. Coli bacteria as a pollutant

- Enters the environment via feces of warm blooded animals.
- Most strains of *E. coli* are not harmful to humans.
- *E. coli* is used as an indicator of fecal contamination.
- Potential diseases: typhoid, hepatitis A, dysentery, and cholera.
- *E. coli* 0157 is toxic (spinach, lettuce, salsa incidents).
- WQ Standard in New Mexico for *E. coli* is-
 - 126 coliform-forming units/100 mL (geometric mean).
 - 410 coliform forming units/100 mL (single sample).



Fresh vegetables are grown in the region.



Swimming is enjoyed by many in the heat of the summer.

Elements of the Watershed Plan

1. Identification of causes and sources
2. Estimate of needed load reductions
3. Description of management measures
4. Estimate of technical and financial assistance
5. Information / education component
6. Schedule for implementation
7. Description of measureable milestones
8. Criteria developed to determine if load reductions are achieved
9. Monitoring component to evaluate effectiveness



Paso del Norte 319(h) Watershed Restoration Project Area

Landcover

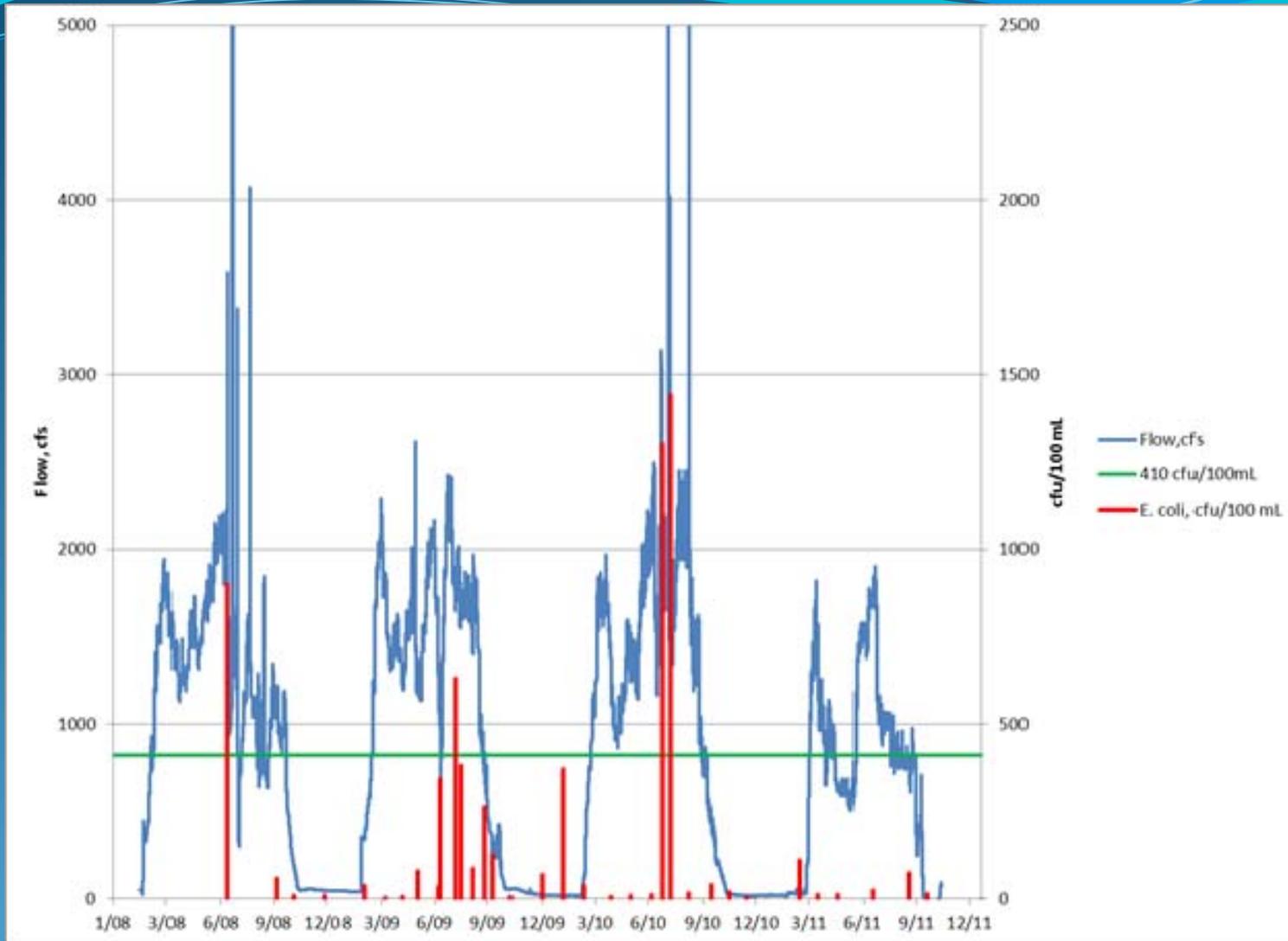
Water	Shrub/Scrub	City of Las Cruces
Developed	Grassland	River Sample Sites
Barren	Planted/Cultivated	
Forested	Wetland	

Monitoring Efforts

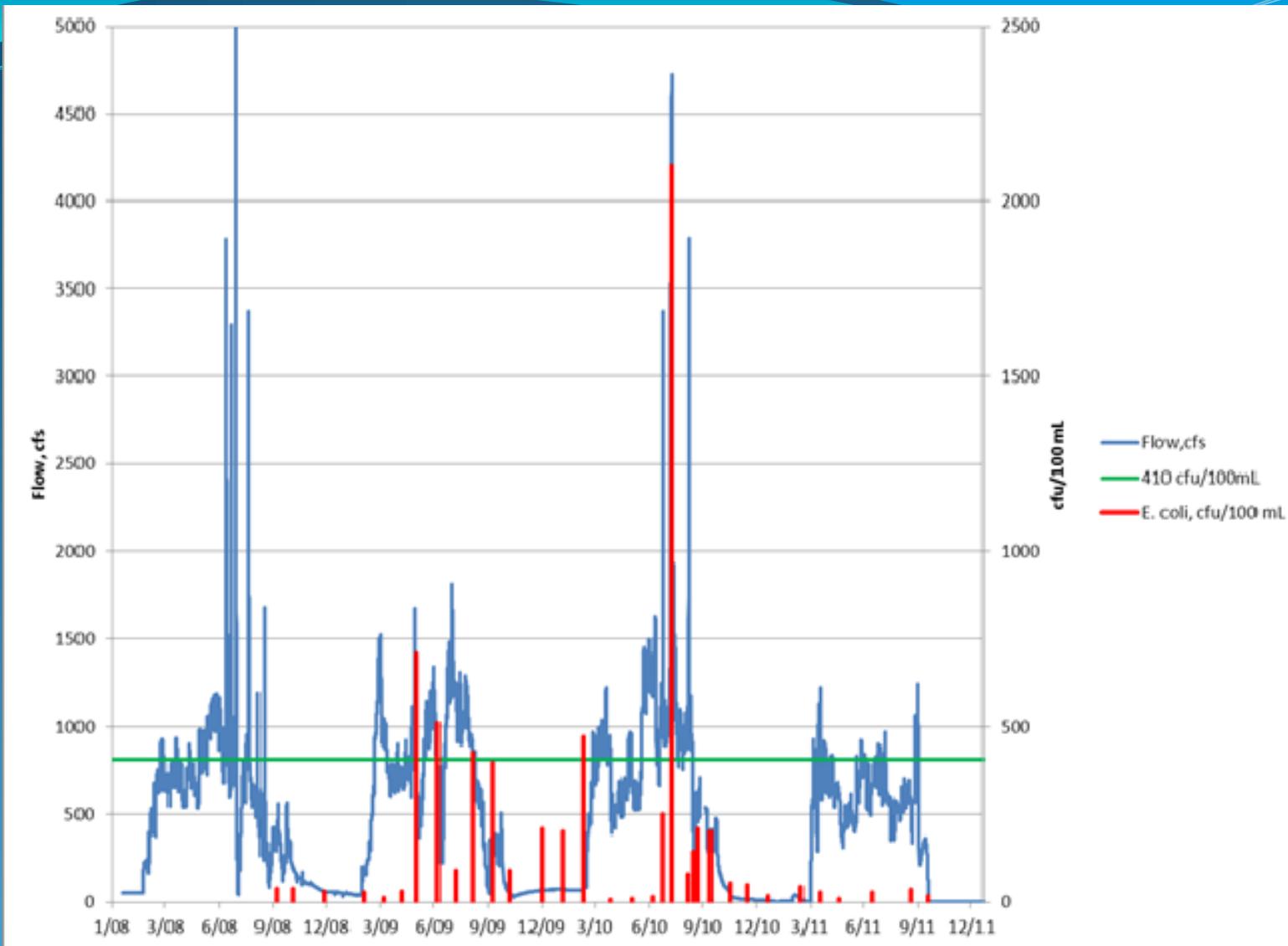
The Elephant Butte Irrigation District began a monitoring program in 2008 that consists of sampling the main stem of the Rio Grande, agricultural drains return flows, and stormwater sampling.

This effort is still ongoing.





Flow and routine *E. coli* sampling results for the Rio Grande at Hayner Bridge.



Flow and results of routine *E. coli* sampling at the Rio Grande at Anthony Bridge.

Preliminary Conclusions

From January 2009-December 2011 only 7% of the samples exceeded the 410 cfu/100 mL criterion for *E. coli* (15 out of 215 samples).

Out of those 15 samples 7 were directly related to stormwater runoff events.

Anthony Bridge sampling revealed a pattern of elevated *E. coli* concentrations unrelated to stormwater runoff.

Some drains contain high concentrations of *E. coli*.

Microbial Source Tracking

A microbial source tracking study began in the fall of 2010 to determine the source host organism at select sites.

Source tracking samples were collected at the Anthony Bridge site and East Drain.

Two additional source tracking sites were chosen. They were located at Leasburg Cable and Sunland Park below the WWTP outfall.

Additional Sampling Efforts

NMED began collecting *E. coli* samples in April 2011 in the River and at all permitted discharges from Elephant Butte Dam downstream. An additional station was added for this effort at the USGS gage at Corchesne Bridge in El Paso. Sampling continued through March 2012.

Conclusions

Impairment from *E. coli* is highly associated with stormwater runoff over much of the watershed.

The exception occurs at the bottom of the reach in the vicinity of Anthony and Sunland Park.

The project demonstrated that drains at the bottom of the watershed are a contributing factor to the *E. coli* problem.

A portion of this may also have been related to the Vado WWTP and Sunland Park WWTP.

Current Mitigation Efforts

- R-Cubed Manure Digester along dairy row.
- New Santa Teresa WWTP to be constructed.
- Project under development for a constructed wetland at the terminus of Montoya Drain.
- Joint enforcement efforts between NMED and EBID to curb manure and trash disposal in EBID drains.

http://smiley.nmsu.edu/pdnwc/docs/2014/PdNWC_WBP_revision_5-27-14.pdf

Questions/Comments

Discussion