
A MEETING OF
The Arroyo Colorado Total Maximum Daily Load
(TMDL) Workgroup
May 23, 2005
3:00 pm - 6:00 pm
Room 1003 of the Natural Resources Center
Texas A&M University-Corpus Christi Campus – Corpus Christi, TX

Attendees:

Mr.	Andy	Garza	TSSWCB
Mr.	Chris	Onuf	US Geological Survey
Ms.	Clare	Lee	U.S. Fish And Wildlife Service
Mr.	Dr. Kim	Jones	TX A&M Kingsville
Ms.	Laura	De La Garza	TX Sea Grant
Dr.	Ni-Bin	Chang	TAMUK
Mr.	Richard	Kiesling	USGS
Ms.	Rocky	Freund	Nueces River Authority
Mr.	Javier	Davila	Student
Ms.	Zahra	Elkassabgi	Student
Ms.	Bette	Harrison	Student
Ms.	Annette	Hernandez	TX A&M University
Mr.	Roger	Miranda	TCEQ
Ms.	Earlene	Lambeth	TCEQ

Earlene Lambeth opened the TMDL Workgroup meeting with introductions before the meeting was turned over to the chair of the workgroup, Roger Miranda with the TCEQ. Roger stated that the TMDL or “further study.” Workgroup, through the TCEQ had partnered with the USGS. Roger reported that USGS had been putting equipment in the Arroyo, testing, and collecting initial data in order to see the best way to structure the project. He also reported that data could be viewed “real time” at the USGS website from the Rio Hondo station.

Roger began his presentation with a review of the TMDL process. He explained that it is a requirement of the state by the federal government and that it is enforced to bring water quality back to standards.

Therefore, the AC had a TMDL study conducted which began in 1988 and concluded in 2002. The results of the model identified a need to reduce pollutant loading by 90% in order to meet water quality standards. With this, Roger was asked to do a zero or natural run with the model and even under natural conditions, the AC would have trouble meeting WQ standards. The implications include either the standards are not appropriate or something else is wrong with the Arroyo Colorado.

There are physical problems with the AC: it is dredged, there is no significant riparian environment for much of the course, it is a leveed floodplain with a pilot channel within the levee so there is no benefit of a canopy which would reduce temperature and increase the solubility of oxygen, there are areas where bank instability is noted, it has excess amounts of TSS which act as a vehicle to transport phosphorous to the Port of Harlingen and at that point the velocity is reduced as it goes into the turning basins, the sediment drops, the photo zone increases in the very nutrient rich waters and the result is algal blooms. He reported that in addition to the nutrient loading problems, the physical condition of the Arroyo Colorado is conducive to the depletion of dissolved oxygen (DO) and the decrease in water quality. He explained that is why there is a habitat component to the plan and that they have not given up on a TMDL for the AC.

The goal of the "Phase II" TMDL study is to reduce uncertainty in the analysis, to determine how much of the problem is associated with loading and how much is due to the physical condition of the AC. They want to reduce the uncertainty of parameters that had to be pulled from literature, like, algal productivity, algal mortality, and settling rates. They are investigating rates and constants usually used in models as imperial values recorded in the literature for similar systems. They want the right values for the AC.

The quality assurance project plan (QAPP) has just been completed to conduct monitoring. The plan is to start monitoring in January after approval from the EPA. Laura will get the QAPP to the group and post it on the website. The main emphasis of study is reach dynamics. Two reaches have been identified, one that straddles Rio Hondo and one beyond Camp Perry. Collection is a synoptic survey of intense data collection for two periods; one in a non-critical time (winter, average flow) and a critical collection period next summer. The goal is to collect during average conditions for oxygen production and algal growth rates, mortality for grazing, and settling rates. The basic need is to come up with the rates for the AC and use them in the new model which will be more complex and sophisticated than what was used in the first TMDL model for the AC. This will be a fully dynamic, 3-D model which will look at the water column in the vertical, lateral, and direction of flow.

Roger reported that the TCEQ is partnering with Dr. Wes Rosenthal of the Blackland Research Institute to look for funding to shift the watershed model from the HSPF (hydrologic simulation program in Fortran) to a better model which simulates contributions from Ag in a more mechanistic manner. The SWAT model does a better job in determining and modeling loads from Ag.

Roger stated that sampling is conducted up- and down-stream and could incorporate sediment sampling to determine if there are huge amounts of phosphorous and nitrogen in the sediment. They had planned to look at sediment-nutrient cycling and were going to core, take to a lab, and incubate to find out mass-balance but had to cut out because they ran out of money, in fact, running out of money. Started with a budget of \$191,000 from TCEQ with a USGS match of 60% but that is being spent faster than thought and sampling has not been started. Therefore, if another way of sampling is not found, the scope of work may change. Sampling at the Rio Hondo site is currently happening but there is no money to operate for the next two years. Will do reach dynamics and get rates and constants but may not get a calibration data set due to lack of funding.

Richard Kiesling with the USGS gave a presentation and the meeting was adjourned.

3:00 OPENING (ROGER MIRANDA)

- Welcome
 - Purpose of Meeting
 - Introductions
 - General House Keeping (facilities, refreshments, breaks, meeting format)
- Background, TMDL Project History, and Current TMDL Project Status
- Review of TMDL Results (identification of data gaps)
- Next Steps in TMDL Development (addressing data gaps)
- Discussion

4:00 BREAK

4:10 ARROYO COLORADO TMDL II QAPP (RICHARD KIESLING - USGS)

- Continuous and Semi-Continuous Monitoring
- Turn Basin Inflow, Deposition, Outflow
- Sediment Oxygen Demand and Nutrient Cycling
- Flow, Hydrodynamics, and Atmospheric Parameters
- Productivity and Algal Dynamics

5:10 OPEN DISCUSSION (moderated by Earlene Lambeth – TCEQ)

5:55 CLOSURE (ROGER MIRANDA)

- Expected Outcomes for Next Meeting
- Questions and Comments