Pecos River WPP Implementation Spring Field Day Minutes

Monday, April 23, 2012: Fort Lancaster

33 people attending

10:30 AM: Gary Bryant opened with meeting introductions

Dr. Larry Hauck, Texas Institute of Applied Environmental Research

Dissolved Oxygen Modeling for the Pecos River

- the importance of dissolved oxygen (DO) in the water and its impacts on aquatic life communities
- the existing DO impairment on the Pecos River was also discussed and is the reason the DO modeling is being done
- the intent of the modeling is to provide information on what factors are causing the DO impairment and to evaluate potential practices that can be used to improve DO
- the model is currently being developed and should begin to reveal what may be causing low DO levels later this summer
- the DO modeling handout from these meetings is attached

Amy Porter, Upper Pecos Soil and Water Conservation District

Developing a Comprehensive Management Plan

- provided an overview of conservation planning
  - the interview process, the purpose of a plan, and the planning process
- described technical assistance available
- described financial assistance available
  - provided an overview of water quality management plans (WQMPs) focusing on what the plans are and how they are used to improve both water quality and meet producer goals
    - WQMPs are a voluntary program with 9 different practices eligible for financial assistance
    - cost share is available on a 60/40 basis; $15,000 maximum per operating unit
  - Tyler Hinrichs with USDA-NRCS described the financial assistance available through USDA programs including EQIP and CCRP
- Amy and Tyler described how the producer hosting the field day participated in the Soil and Water Conservation District WQMP program, the USDA EQIP and CCRP programs, and the 319 Grant prescribed burning program
- if interested in a WQMP, contact Amy

Lunch was provided by the Crockett County AgriLife Extension Service.

Ken Saunders, Texas Parks and Wildlife Department
Mike Montague, US Fish and Wildlife Service
Fish Populations in the River

- current fish populations in the lower Pecos River are in good health
- up river, poor water quality is contributing to the decline of fish species
- habitat upstream is pretty good, but low flows and poor water quality limit species occurrence upstream

After lunch, the meeting moved to Live Oak Ranch

Patrick Meadows, Live Oak Ranch
Implemented Practices using Cost Share Opportunities

- viewed solar powered water wells which were providing water for the ranch livestock and funded using cost share opportunities
- how the system worked for the ranch was discussed in detail
- a CCRP site on Live Oak Creek was toured and assistance through the riparian rehabilitation program was discussed

Mark Muegge, Texas AgriLife Extension Service
Saltcedar Leaf Beetle Update

- provided an overview of current Saltcedar Leaf Beetle populations and impacts
- the Tunisian beetles are doing really well and showing promising results; especially in their migrations away from release sites
- the beetle seems to be the best long-term and cost effective control of saltcedar along the river

Amy Porter, Upper Pecos Soil and Water Conservation District
Chemical control of saltcedar

- provided an overview of the chemical control of saltcedar through the 319 Grant
- Fall 2011 2,642 acres of saltcedar were treated in the Pecos River Watershed
- provided through the 319 Grant at no cost to the landowner
- initial efforts of herbicide application can now be seen
- herbicide was applied in Reeves, Culberson, Ward, and Pecos counties
- herbicide applied is specific to vegetation, yet is nonselective amongst different types of vegetation
- discussed method of application

Bill Davis, Texas Forest Service

Prescribed Saltcedar Debris Burning

- discussed plans to begin burning dead saltcedar on the lower portions of the River
- burning activities would begin at Iraan and move to the south to I-10
- as of now, the burning activities are to begin the first part of May and then move further down the river as weather and time permit

Oscar Mestas, Texas Forest Service

Tree Mortality from Drought

- tree mortality will be highly dependent upon the rain coming this year
- if the drought persists, there will be more drought damage to the trees in the area and mortality will certainly increase
- fire behavior passing through areas where juniper died from the drought was discussed; while dead needles are on branches the trees are more flammable; once the dead needles fall to the ground the dead juniper and needles will have less impact on fire behavior

Gary Bryant, Texas AgriLife Extension Service

Pecos River WPP Implementation Update

- discussed current watershed protection plan (WPP) implementation activities and summarized work to implement the WPP to this point
- upcoming items are a current no cost extension on the existing contract
- it is also time for everyone to begin thinking about a project proposal to continue WPP implementation for 2013 through 2016
- an addendum to the WPP is also being developed and will include:
    - description of implementation progress to date
    - review of water quality and quantity data
    - inclusion of additional management needs across the watershed and a revision of
    - existing management needs currently described in the WPP
- provided an update on the environmental flows program involving the Pecos River and Rio Grande River
- Landowners were encouraged to contact Gary or Amy Porter to convey any ideas that they think should be included in a future proposal or the WPP addendum

Field Day Concluded @ About 3:30 PM

Tuesday April 24, 2012: Santa Rosa Springs

40 people attending

10:30 AM: Gary Bryant opened the meeting with introductions

Schuyler Wight, Santa Rosa Springs Ranch

Santa Rosa Springs Restoration

- an overview of the history of Santa Rosa Springs was provided
- management practices implemented to rehabilitate the springs to their current condition were discussed
- many attendees asked Mr. Wight questions about the specific practices implemented

Oscar Mestas, Texas Forest Service

Tree Mortality from Drought

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Lunch and refreshments were provided by the Sandhills Soil and Water Conservation District and the Upper Pecos Soil and Water Conservation District.

Greg Murdoch, National Weather Service

West Texas Fire Weather

- Explained why meteorologists are interested in fire
- Red Flag Warnings, what they are and what they are NOT
- Red Flag season in the Trans Pecos
- Described the newly created Red Flag Index
- Weather patterns of large and destructive fires; forecasting these patterns

Amy Porter, Upper Pecos Soil and Water Conservation District

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provided an overview of water quality management plans (WQMPs) focusing on what the plans are and how they are used to improve both water quality and meet producer goals

WQMPs are a voluntary program with 9 different practices eligible for financial assistance

cost share is available on a 60/40 basis; $15,000 maximum per operating unit

- Amy described how the producer hosting the field day participated in the Soil and Water Conservation District WQMP program, the USDA EQIP program, and the 319 Grant chemical control of saltcedar and biological control of saltcedar programs

- if interested in a WQMP, contact Amy

Dr. Larry Hauck, Texas Institute of Applied Environmental Research
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Following the discussion on the dissolved oxygen impairment, a discussion on the salt levels of the River ensued. The discussion centered on the surface water quality standard for total dissolved solids that is currently set at 15,000 mg/L. A debate occurred as to whether the standard should be lowered to 6,000 mg/L.

Field Day relocated to the Pecos River

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- initial efforts of herbicide application can now be seen
- herbicide was applied in Reeves, Culberson, Ward, and Pecos counties
- herbicide applied is specific to vegetation, yet is nonselective amongst different types of vegetation
- discussed method of application
- participants viewed saltcedar on the west bank that was devoid of leaves due to the herbicide application in 2011 and saltcedar on the east bank that was fully leafed out as the landowner did not elect to participate in the program

Mark Muegge, Texas AgriLife Extension Service

Saltcedar Leaf Beetle Update

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Pecos River Watershed Protection Plan

2012 Spring Field Days

Dissolved Oxygen Modeling for the Pecos River

-An Overview of Need and Tool –

Larry Hauck
Texas Institute for Applied Environmental Research
Tarleton State University

Why a need for dissolved oxygen (DO) modeling?

- WPP for Pecos River indicates need to further assess DO impairment in Upper Pecos River.
- WPP also indicates a need to develop recommended management measures to address DO impairment.
- EPA required development of model in order to move forward with funding for chemical saltcedar control and technical and financial incentives for water quality management plans.

Where is the Pecos River DO impaired?

- According to 2010 303(d) List: From US Hwy 67 upstream to US Hwy 80 (Bus IH 20); abundant aquatic vegetation was identified as part of the cause of impairment (See **Figure 1**)

What modeling tool will be used and why use this tool?

- QUAL2K will be applied – a stream/river water quality model; divides Pecos River into computational elements along the river's length; predicts DO and various potential water quality pollutants.
- QUAL2K and its sister model, QUALTX, have been applied extensively in Texas – parts of Rio Grande, Trinity River, Canadian River, Red River, and many smaller streams and creeks.

What does QUAL2K do?

- QUAL2K will be applied to the Pecos River for the prediction of DO, salinity, water temperature, and various potential pollutants that impact DO (See **Figure 2** for basic processes).
- QUAL2K will be calibrated and validated against actual historical water quality data collected in the Pecos River in recent years to build confidence that the model adequately predicts DO in the Pecos. (See **Figure 3** for an example from Upper Oyster Creek near Houston, TX)
- QUAL2K will be applied to the Pecos River to evaluate possible management practices. (See **Figure 4** for an example from Upper Oyster Creek near Houston, TX)

Which management practices might be evaluated by QUAL2K?

- Check dams, weirs or other devices (e.g., pumps) to increase oxygen exchange between atmosphere and water.
- Benefits of saltcedar control (e.g., reduced salt to Pecos and increased streamflow)
- Benefits of salt control in New Mexico (above Red Bluff Lake) and subsequently on Pecos River in Texas.
- Other measures to increase streamflow and/or reduce salt loading.

How will the QUAL2K results be used?

- Estimate benefits of implementing various management measures.
- Provide information for landowner to make decisions to revise and update the Pecos River WPP.

Time frames for model completion.

- To develop calibrate/validate model: completed August-September 2012
- To model BMP scenarios: completed October-November 2012
- To release draft report for landowner review: draft due approximately January 2013

Input needs from landowners for model inputs.

- Locations of persistent seeps/springs and estimate of low flow under summer conditions.
- Locations and description of any unusual or atypical situations in the Pecos River
- Thoughts on management practices.

Figure 1. Picture of aquatic vegetation on Pecos River at US Hwy 67

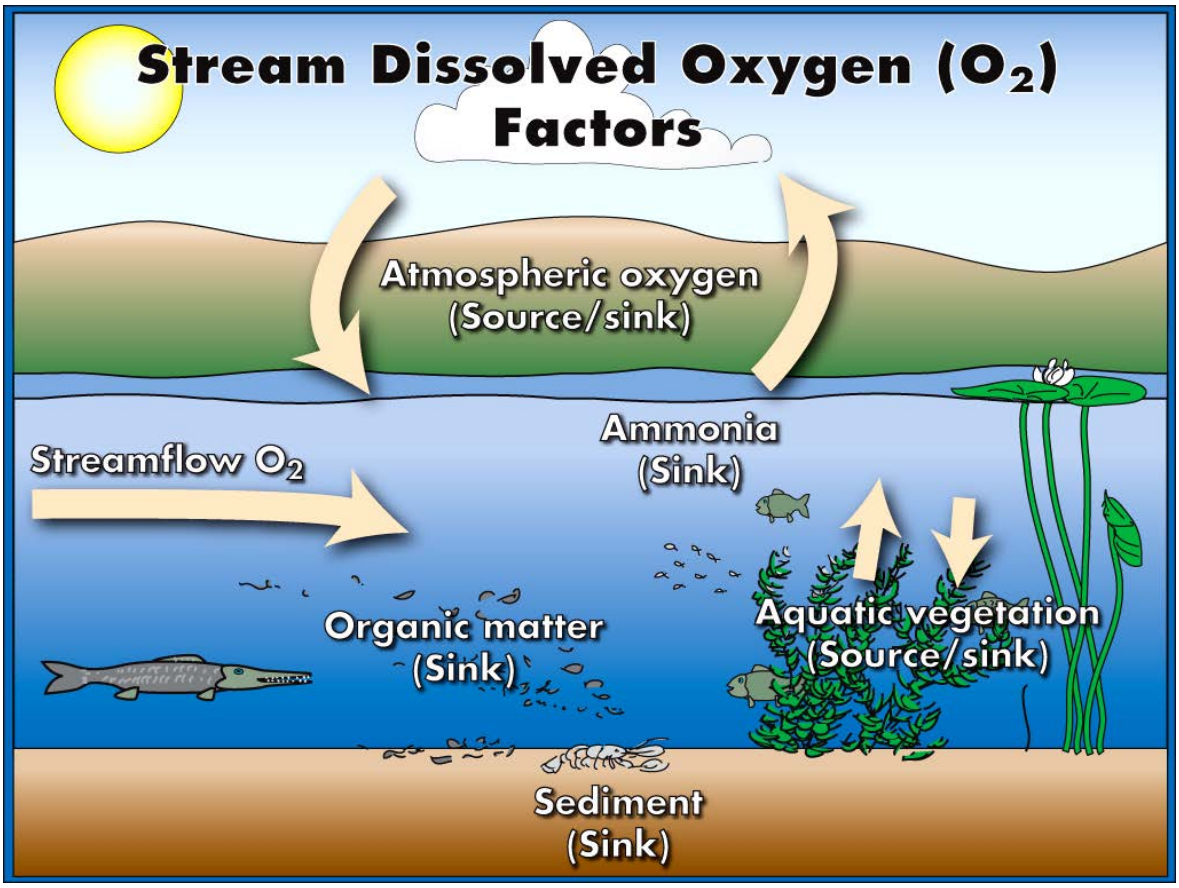

Figure 2. Schematic of processes affecting DO levels which are modeled in QUAL2K

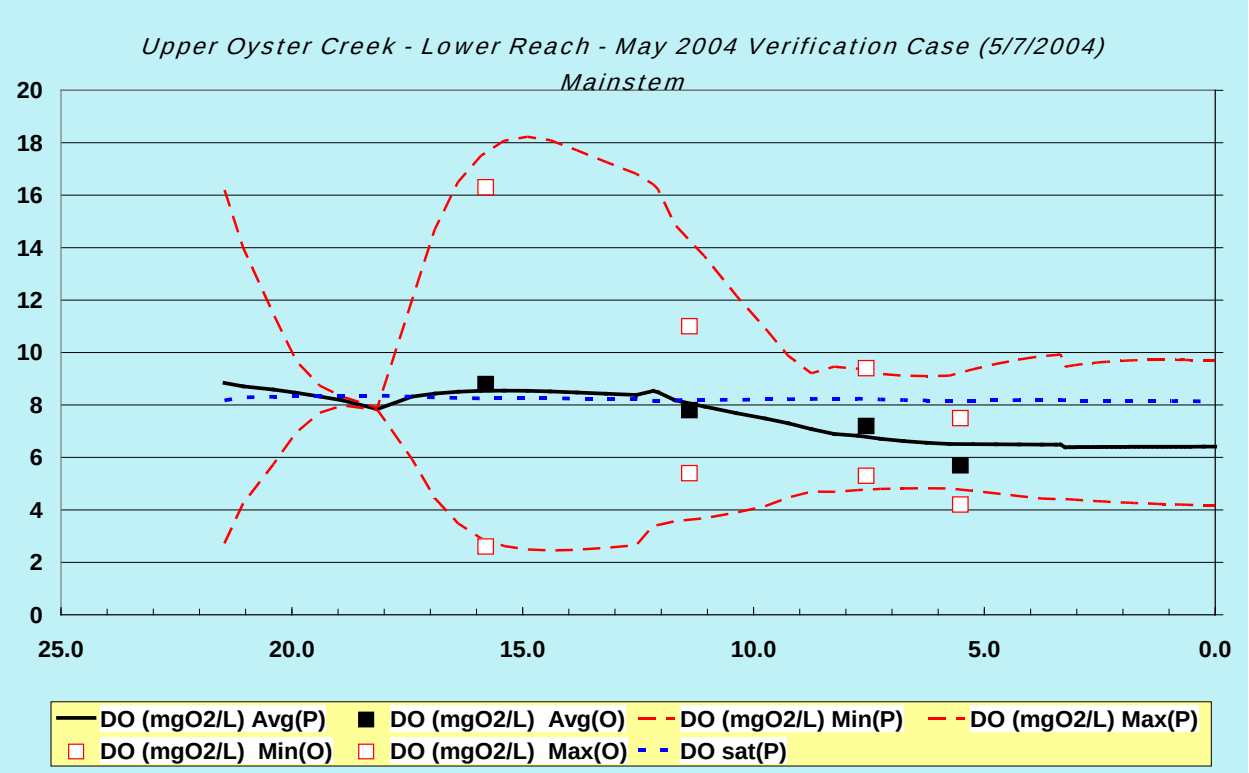

Figure 3. Example dissolved oxygen calibration / validation for Upper Oyster Creek

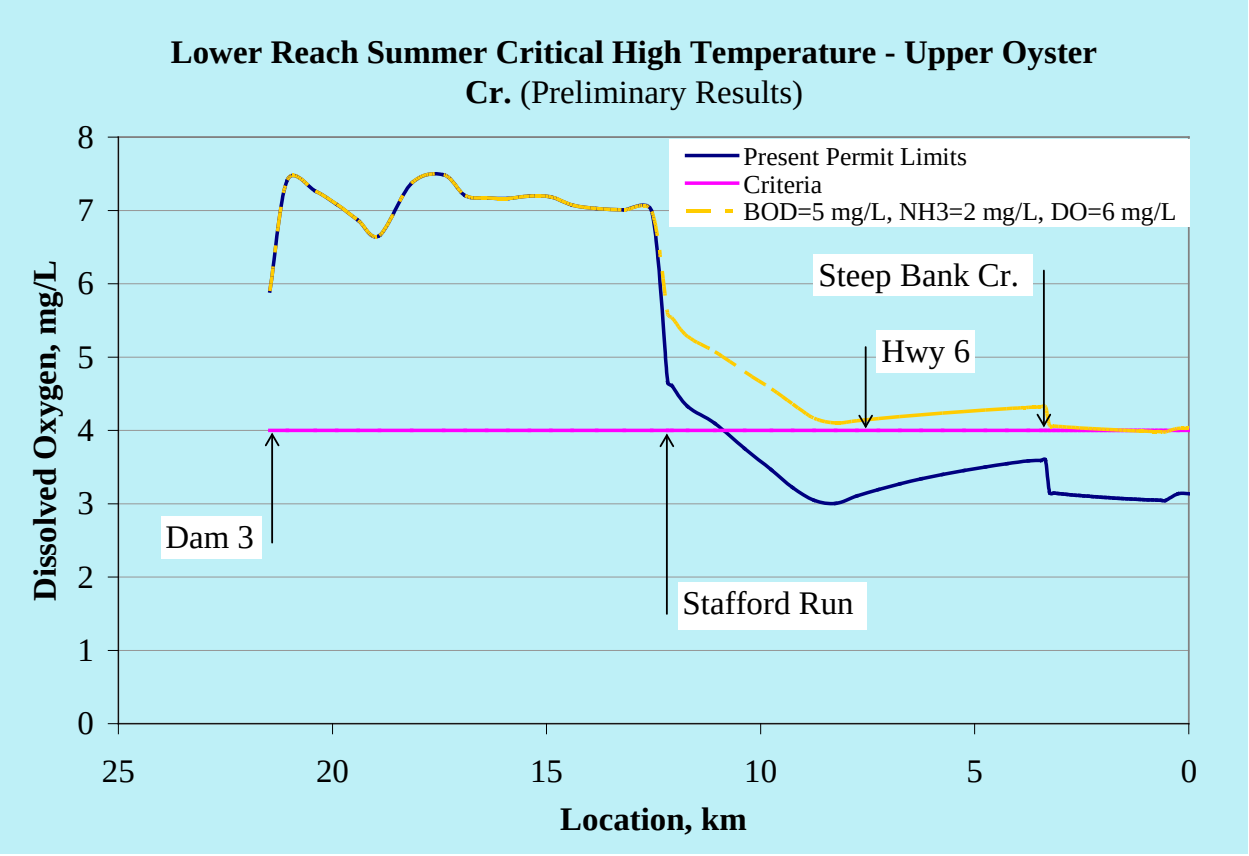

Figure 4. Example QUAL2K application on Upper Oyster Creek evaluating increased permit limits on domestic wastewater treatment plant discharges