Watershed Assessment Program Team Meeting
CSREES Southern Region Water Quality Project
Renaissance-Richardson Hotel, Dallas TX
July 11 and 12, 2005

Attending

- Sam Dennis, Tennessee State University
- Darren Hickman, NRCS Fort Worth
- Brad Lamb, NPS Coordinator, Region 6 EPA
- Jerry Lemunyon, NRCS Fort Worth
- Cristine Morgan, Texas A&M University
- Fred Moore, Water Quality Liaison, Region 6 EPA
- David Radcliffe, University of Georgia
- Craig Runyan, New Mexico State University
- Forbes Walker, University of Tennessee

State and Agency Reports
Objective: Overview of each state's watershed modeling and monitoring activities and agency interests

- Georgia Report -- David Radcliffe
  - Monitoring Activities
    - Large number of headwater streams with different land-uses being monitored using ISCO automated samples
    - Measuring flow, sediment, P, and bacteria (grab samples)
    - Most difficult problem is getting accurate measurements of flow
    - State is doing extensive monitoring associated with TMDLs
  - Modeling Activities
    - Working mostly with SWAT to model flow, sediment, and P
    - Limited work with HSPF
    - Using PEST software to do sensitivity analysis, auto-calibration, and prediction uncertainty of SWAT and HSPF
    - State is doing very little TMDL modeling except for lake model work which has been done by consultants
  - GIS and Remote Sensing Activities
    - Little work being done in this area by ag scientists
    - Good land-use data layers being developed by UGA Institute of Ecology
  - Sources of Funding
    - CSREES 406 Integrated Water Quality Program
    - 319 projects
  - What Products Can We Provide Extension
    - Unlikely we will be training county agents or extension specialists to run models

- There may be watershed assessment tools short of models that extension would want to use -- Target Tool in BASINS for example

- Tennessee Report -- Forbes Walker and Sam Dennis
  - Erosion and runoff are major water quality concerns
  - TMDL development is being done with BASINS and HSPF
  - UT is using AgNPS and SWAT
  - UT Extension is using Integrated Pollutant Source Identification (IPSI) model
    - Simple planning tool developed by TVA
    - Uses low altitude infrared photos and photo interpretation to get land-use including quality of grass cover (poor, good, etc.)
    - Estimates erosion loss for each field in a watershed with USLE
  - UT water quality project in Pond Creek watershed in eastern TN
  - UT comparing IPSI with other sediment models
  - Concerns about accuracy of TMDL models
  - Few people working on watershed modeling; fewer on monitoring
  - Planning tools may be more appropriate for extension than models
  - Need better resolution land-use coverage (10 m or better)
  - Need for tools that can identify sources in a form that can be communicated to farmers
  - UT has funding from TVA, EPA 104(b), and 319
  - Extension specialists and agents have little or no knowledge of watershed issues
  - Sam Dennis just got a 406 grant for "Facilitation of 1890 Institutions' Water Resource Education, Extension, and Research Efforts"

- Texas Report -- Cristine Morgan
  - Focus on field-scale models INWATBAL and PALMS
  - Working with precision farming group
  - Concern is nitrate leaching
  - Remote sensing is a focus
  - Lots of TMDL related modeling and monitoring occurring in North Bosque River watershed related to P
  - Interested in incorporating a water quality/quantity component in Master Farmer program

- New Mexico Report -- Craig Runyan
  - Two groups at NMSU are working in modeling and monitoring
    - Water Task Force
    - Center for Applied Remote Sensing
  - 6-year effort in remote sensing has been very successful and resulted in good coordination on campus
  - Not many off-campus deliverables
  - Most of the work is related to water quantity

- o Snowmelt Runoff Model (SRM) is being used quite successfully to predict snowmelt based on remote sensing of areal extent of snowpack
  - o SRM is used as input to Semi-distributed Land-Use Runoff Processes (SLURP) model which predicts stream flow
  - o SLURP is being tested for predicting water flow in the Rio Grande watershed
  - o Large watershed model for a specific basin is intended for use by extension personnel
  - o Consultants are very interested in using this
  - o Role of extension has been in estimating "consumptive use need" of farmers

- NRCS Report -- Jerry Lemunyon
  - o Current focus on Conservation Effects Assessment Project (CEAP) designed to provide watershed scale benefits information
  - o Watershed studies
    - Funding watershed studies at ARS sites, sites awarded through 406 competitive grants program, and at "special effects watersheds"
    - Unlikely to add many more new watersheds unless they are in regions that are under-represented with current set of watersheds
  - o Survey of 13,000 users on how conservation practices have changed as a result of farm programs
  - o Modeling component
    - Will use results of survey to run watershed scenarios with and without changed practices to quantify benefits
    - Will be based on 8-digit HUCs
    - Modeling done by Temple, TX group using SWAT, APEX/EPIC, and CENTURY

- EPA Report -- Brad Lamb
  - o Emphasis on showing that funds that have been provided by Congress to improve water quality are having an effect
  - o Looking for success stories
  - o EPA is focused on watershed planning to ensure effective use of funds
    - TetraTech has developed a draft handbook for EPA on watershed planning
    - Region 6 is considering forming an academic consortium to advise EPA on how to do training for watershed planning

- Overall Conclusions
  - o There's lots of interest and expertise in the group related to remote sensing
  - o Unlikely that county agents or extension specialists will be setting up and running watershed models
    - But they might use watershed-specific models that are already set up and can be used to test scenarios

- More likely that deliverables could be assessment tools that help characterize a delineated watershed
  - Land-cover and DEM data are useful data for assessment tools
- Consultants are probably more interested in models than county agents
- If models can be set up to predict flow (and pollutants) on large high-profile watersheds in states, there will be a demand for the model
  - "Build it and they will come"
- A common interest between modelers and extension personnel is effectiveness of BMPs

Objective: Start developing plans for southern region "Symposium on Watershed Modeling and Monitoring"

- Agreed to pursue co-sponsoring a conference on watershed modeling of P with the Southern Extension and Research Activity (SERA) 17
  - Conference planned for summer of 2006
  - Likely venues are Fort Worth, Austin, or San Antonio
  - 3-day conference
    - Day 1 devoted to input from model users on what they need
    - Day 2 devoted to new science and theory for models
    - Day 3 devoted to BMP effectiveness and calibration
  - Eucha-Spavinaw watershed planned as a case study and it may be useful to add North Bosque River as a second case study to provide contrast
  - Our team would focus on programming for user-oriented day 1
    - Invite speakers that represent different user groups (extension, producers, agencies, non-profits)
    - Also encourage attendance by regional extension specialists and county agents with special interests in watershed assessment
    - Seek funding to provide travel subsidies
    - Need to get word out early if we want to local government personnel to attend so they can plan budgets
- Agreed to ask Regional Water Quality Project for funding to support conference ($5,000 to $10,000)
- EPA Region 6 may be able to match support funding
- NRCS will be providing $10,000 or more

Objective: Identify other areas for cooperation

- Group members should think of cooperating on grant proposals that address program team theme of watershed modeling and monitoring
  - EPA Region 6 may be able to provide multi-state funding through 319 program
  - CEAP program is a potential area for group to cooperate
    - Probably best to think of a proposal that would add on to a watershed that is already being funded