

**Meeting Summary (Draft)  
Technical Advisory Committee  
Rivanna River Basin Commission**

September 15, 2009 9:00 am– 12:00 pm  
The Nature Conservancy  
490 Westfield Road, Charlottesville

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**Technical Advisory Committee:**

Sam Austin (USGS/ TAC Chair)  
Darren Coffey (Fluvanna County)  
Missy Creasy (City of Charlottesville)  
Joanna Curran (UVA)  
Stephanie Golon (Greene County)  
Greg Harper (Albemarle County)  
John Murphy (StreamWatch)  
Bill Kittrell (TNC)  
Alyson Sappington (TJSWCD, TAC Vice Chair)  
Jeff Sitler (UVA)

**Commission:**

Marvin Moss (RRBC Chair)  
Robbi Savage (RRBC Vice Chair)  
John Martin  
Leslie Middleton (Executive Director)  
Rose Brown (Recording Secretary)

**Guests:**

Greg Garman (VCU)  
Michael Collins (Conserv)  
Sarah Morehouse (TJSWCD intern)

**1. Introductions**

**2. Review and adopt meeting agenda**

The agenda was adopted without changes.

**3. Review and approve Meeting Summary from July 14 meeting**

Darren Coffey had emailed two edits prior to the meeting. No other changes were made. Darren Coffey motioned to approve the Summary, and Alyson Sappington seconded the motion. All were in favor, and the Meeting Summary was approved.

**4. Reports from sub-committees and related projects**

a. Monitoring Subcommittee

John Murphy noted that the last Monitoring Subcommittee meeting was on September 8, 2009. During the meeting, the committee members discussed the NFWF grant and decided to conduct the required BMP monitoring in phases. The first stage will include monitoring the Charlottesville High School bioswale. Two automatic samplers will be purchased and installed as soon as possible. The first phase also includes biomonitoring, habitat assessments, and geomorphology at Greene County Park and Fluvanna High School. The Fluvanna High School monitoring is already under way. There are still questions about monitoring of the Crozet wetlands and whether or not there will be BMP or stormwater monitoring of BMPs at Greene County Park and Fluvanna High School.

The Monitoring Subcommittee also discussed broader strategies and the need to prioritize long-term monitoring needs. The committee brainstormed the following ideas for long term monitoring: creation of a database (building from the StreamWatch Rivanna Data Center); a repository of studies and reports (to make them more available to the TAC); an RRBC GIS system; a Rivanna BMP inventory; sediment core data (random or targeted selection of locations around the watershed, to help understand historic deposition); sediment fingerprinting; stream gauges for flow data; and stream surveys.

Leslie Middleton and Sam Austin noted that at the next meeting, the TAC would focus on revisiting the entire list of long-term ideas, as well as brainstorming directions for the TAC and RRBC's future focus.

John Murphy said that the Monitoring Subcommittee had spent a lot of time discussing flow monitoring vs. nutrient and flow monitoring for the NFWF BMPs. John recommended focusing only on flow monitoring because he believed nutrient monitoring to be potentially variable, and that it is difficult to collect meaningful nutrient reduction data with the time and money available. The committee noted that the NFWF grant requires reporting the amount of nutrients and sediment reduction achieved. The Monitoring Subcommittee believes that it may be difficult to collect useful nutrient data, but that the TAC will learn a lot from the process. Jeff Sitler pointed out that if TMDLs are going to require communities to conduct nutrient monitoring, then it will be very useful to commence with this kind of monitoring.

Joanna Curran gave an update about the recent Request For Proposals from the Chesapeake Bay Program. The Chesapeake Bay Program is looking for supplements to non-tidal monitoring and wants to better understand changes to water regimes and sediment transport. This may be an opportunity to receive more funds for stormwater monitoring. Joanna Curran is submitting a proposal on behalf of UVA. The Chesapeake Bay Program has one existing station in the Rivanna watershed, and more would have to be established. This would be a 6-year monitoring effort, renewable on a yearly basis. UVA has already been monitoring stormwater on UVA grounds, so they have experience in implementing such a program. The budget proposed by the Chesapeake Bay Program is between \$300K and \$1.4 million. A cost-share match is required, and UVA would like to show community involvement. RRBC projects could be used to meet match requirements. The deadline for the proposal is next week. John Murphy stated that it is

still unclear if the Chesapeake Bay Program would allow for the monitoring of various new sites instead of just their own site. Leslie Middleton stated that Greg Garman from VCU has invited the RRBC to partner for the same grant application, and that Greg Garman would discuss this later in the meeting.

b. Watershed Modeling

Greg Harper stated that the Watershed Modeling Subcommittee is on hiatus until the completion of the land cover map. The RRBC expects to receive the final map at the end of December.

c. Rainwater harvesting

Alyson Sappington reported that the RRBC and TJSWCD had written a letter to Governor Kaine including about additional 35 signatories requesting that rainwater harvesting guidelines be promulgated. An acknowledgement of this letter has been received from the VA Department of Health stating that guidelines would be complete at end of September. Alyson Sappington and Leslie Middleton will follow up with a phone call to the Commissioner of the Health.

The RRBC and TJSWCD also cosponsored a recent rainwater harvesting webinar with another webinar scheduled for October 27, 2009 as a way to assist localities in implementing rainwater harvesting. Alyson Sappington noted that one challenge is the need for guidelines for the maintenance of rainwater harvesting systems.

John Martin stated that rain barrels build consciousness in community, and that rain barrel programs have been successful. He added that the Albemarle County Service Authority is giving a \$30 rebate to its customers who purchase a rain barrel. He suggested that the RRBC could acknowledge this by sending a letter to the Service Authority in support of the rebates.

d. Land Cover Map

John Murphy reported that the map would not distinguish various types of fields (hay vs. pasture vs. tilled fields/row crops). However, orchards, vineyards, golf courses, pine plantations, and forest harvests will be identified. There will be a category for open lands, but he is not sure what will be included. Lawns in exurban area have been differentiated a little better so as not to overestimate the forested area in exurban areas. 2009 aerial maps will be used for most of the map, and both 2007 and 2009 data will be used to map impervious surfaces. Darren Coffey noted that there would not be a separate category for mixed forest. Instead, evergreen will be distinguished from deciduous forest. Christine May asked why tilled agriculture cannot be categorized, since it is visible on aerial maps. Greg Harper stated that there might be a bare soil category, and perhaps tilled agriculture would be classified under that. Robbi Savage asked why junkyards are not individually distinguished, since they are a known source of pollution. Leslie Middleton replied that it is easy to locate them manually using aerial maps. Greg Harper also replied that junkyards might not be a land cover, but rather a land use. In either case, their impact will not be ignored. Darren Coffey stated that the project partners wanted this project to be as automated as possible, to use as little staff time as possible, and to need as little manual

‘clean-up’ as possible. This will allow the map to be reproduced in years to come so that it can be used for accurate comparisons.

e. StreamWatch Land Use Effects study

John Murphy stated that StreamWatch expects to release the report in May or June 2010. StreamWatch is also awaiting the Land Cover Map mapping data. StreamWatch staff have collected and assembled most of the other data. One of the highlights of the report will be the relationship between impervious surfaces and site conditions.

**5. Reports from localities (stormwater, comp plans, ordinances, environmental)**

a. Albemarle

Greg Harper reported that Albemarle County is working on multiple master plans, including Pantops and Crozet. After the recent release of the report *Before the Storm*, Albemarle County has worked with the authors of the report (Rivanna Conservation Society, Southern Environmental Law Center, and UVA Environmental Law and Conservation Clinic) to amend some ordinances relating to erosion control and windows of time for construction lands to remain unplanted. Other changes have been made relating to parking lot sizes. Capital projects include the Crozet stormwater facility and the Woodbrook lagoon project, a 7-acre former sanitary lagoon, which will be converted for stormwater management, which is in its 2<sup>nd</sup> phase of design. The county is also working on its annual MS4 report to the VA Department of Conservation and Recreation. Albemarle County operates and maintains 6 major dams, and the county has to conduct a breach analysis for these dams. Greg Harper and Gregor Patsch are conducting this study, which is due in December.

b. Charlottesville

Missy Creasy reported that the City of Charlottesville is reviewing the critical slopes ordinance. There is also a planned change to the Land Use matrix, which has not been updated since 2003. All of the BMPs in the city – approximately 82 – have been inspected recently and will be put an annual review cycle by the City. Charlottesville will be implementing some changes to parking requirements to reduce impervious cover. The next comprehensive plan will begin next spring/summer. One focus will be an updated land use plan. John Martin asked if there has been a change in the city’s stand on the reservoir dredging feasibility study. Missy replied that she does not know.

c. Fluvanna

Darren Coffey reported that Fluvanna County adopted a new comprehensive plan in March. This will lay the foundation for possible changes to parking and landscaping requirements as a way to minimize stormwater. Fluvanna County is also using the *Before the Storm* report to shape some potential ordinances. Robbi Savage stated that Fluvanna could strategize with the authors of the report about buffer recommendations. Darren Coffey replied that he does not recommend a buffer ordinance *per se* but rather a strengthening of the landscaping requirements.

Marvin Moss added that several landowners working with Virginia Outdoors Foundation would be putting their properties under easement. This means that about one-third of the shoreline of the Rivanna will be under easement between Palmyra and Columbia. These properties are mostly on the north side of the river and are not floodplain.

d. Greene

Stephanie Golon reported that Greene County is working on its comprehensive plan review. In addition to what the Board of Supervisors hope for, citizens and the Planning Commission have identified important issues, including buffer ordinances, parking ratios, and landscaping. The County wants to address the potential of residential use of wind turbines. Missy Creasy noted that Virginia Beach City recently passed a new wind turbine ordinance with very basic language. There are discussions underway with RRBC staff and others about projects at Greene County Park. Darren Coffey asked for an update about the Wal-Mart construction. Stephanie Golon replied that the site plan and the building have been approved. Greene County staff want to identify BMPs in the County and will be seeking an intern for that project.

**6. Go-around from TAC members: research, academic projects**

- a. Sam Austin from US Geological Survey reported that he is involved in two projects characterizing surface water flows. One project is a cooperative project with DEQ, characterizing surface flow as a function of land use. This project includes some basins within the Rivanna watershed. The project will result in two publications last updated in '80s and '90s – to be published late next year. Greg Harper stated that the reports could contain good information for the Watershed Modeling Subcommittee and requested an early draft if one is available.
- b. Alyson Sappington from the TJSWCD introduced Sarah Morehouse, one of five interns in the Hardware watershed project. The interns documented streamside land use, with GPS coordinates and photos. Sarah is finishing the last parts of the written report. TJSWCD may call on the RRBC to write a letter of support about cost-share operation with regards to horse boarding. The TJSWCD has approved a horse boarding operation for cost share, but DCR claims that a boarding operation is not a business.
- c. Robbi Savage from Rivanna Conservation Society reported that there is a Rivanna River cleanup on September 26, a Watershed Teacher Summit on October 16, and a Youth Watershed Summit on October 17.
- d. Joanna Curran from UVA reported that she is involved in a project looking at river change in response to stormwater and dam removal. UVA is monitoring Meadow Creek on the grounds of UVA. Some fourth year students will also be monitoring Meadow Creek in the north part of Charlottesville. A high school student, through a Governors School program, will also be performing some stormwater monitoring,. UVA is currently looking at how dam removals can be accomplished so that they are not destructive to the downstream environment. Using a model, they will scale for 3 types of dams – east coast, midwest and west coast.
- e. Bill Kittrell from The Nature Conservancy (TNC) reported that TNC is continuing to do land protection in the Rivanna watershed. The Secretary of the Interior has formed a

program called Treasured Landscapes, which will focus on iconic large-scale landscapes in US. This will include the funding of research and conservation programs. One area of interest to the program is the Chesapeake Bay and its watershed. This could bring funding and awareness to our area.

- f. John Murphy from StreamWatch noted that the Hardware watershed project is providing important data. As it is not always possible to get the needed resolution from aerial maps, it may be more and more important to walk streams in order to determine land use. StreamWatch has gathered some useful cattle data using Google maps. Referring to an article, he pointed out that relative to macroinvertebrate community integrity, sediment is the number one factor, but the second most important factor is nutrients – therefore these cattle data are important. StreamWatch has received Level 3 certification from DEQ; therefore StreamWatch data are equivalent to DEQ-obtained data.
- g. Christine May from JMU reported that she is studying the effects of disturbance of river channels on fish communities. She has also worked on experimental flood releases from dams and is helping to guide forestry practices, where possible.

## 7. Commission Report

- a. Chair, RRBC

Marvin Moss thanked the TAC for its work. For a 2-year organization, the RRBC has a large mission and has taken measures very quickly and effectively. The recommendations from the TAC have made this possible. Initial guidance from the TAC has helped the RRBC to move forward in obtaining state and federal grants. Marvin Moss commented that the TAC is an affable and cooperative group, and stressed the importance of maintaining this kind of dialogue between planners and scientists/academics.

- b. Other Commissioners

There were no other reports from Commissioners

- c. Executive Director

Due to lack of time, the notes for this report were distributed (see attached).

### **Presentation: Mike Collins/Conserv: Ecosystem Services**

Mike Collins gave a PowerPoint presentation about Ecosystem Services and proposals for a "Riavnna Exchange." Several years ago, Mike Collins and three colleagues submitted a proposal to TNC for a pilot project, which led to the creation of *Conserv* as a 501c6. Conservation real estate involves place-based, market-based conservation, i.e. implementing government's environmental policies through commerce. *Conserv* is not a policy or advocacy program, but instead is examining how to get landowners and developers to go beyond compliance through the creation of bioregional markets around keystone assets. *Conserv* views nature as a vendor of services for civilization, and landowners should be paid for the services that their land provides. Some aquatic ecosystem services include water filtration, storage, base flow, soil maintenance

and enhancement, culture, and beauty. Some ideas for the Rivanna basin to consider: water utility payments for water quality; local carbon offsets; asset leasing (hunting/fishing); and regulatory offsets.

*Conserv* is currently working in the Rappahannock basin on a Rappahannock Exchange. The Rappahannock Commission is hosting a market-based symposium on December 9, 2009. *Conserv* has written more than \$1 million of grant proposals looking for funding to make the Rappahannock Exchange a national demonstration model. The first step of this project will be to form an Ecosystems Service council, of which more than half of the members will be from the private sector. A business plan will be created, which will be rooted in environmental policy goals.

There is already a strong "brand" for the Rivanna watershed in this region as well as a drive for conservation. The RRBC could create a Rivanna Exchange study committee. An example of a program would be the Rivanna Exchange Visa. Visa could give a 1% reduction in rate for those who meet a 'gold standard.' Local mortgage companies could give small reduction for a pre-set 'gold standard.'

Jeff Sitler asked if businesses have been interested in participating in these types of programs. Mike Collins replied that many businesses already see the benefits of 'green' niche marketing. Many businesses are looking for a platform for marketing their 'green' products. *Conserv* has seen more resistance from governmental agencies, which have concerns that creating conservation markets could allow the private sector to operate without oversight. However, this is not how ecosystem exchange will work. It is based on environmental metrics and goals. It is locally based, and local staff would set standards, monitor and regulate.

#### **8. Presentation: Greg Garman, PhD, Virginia Commonwealth University, Assessment Tools for Healthy Waters pilot program**

Greg Garman handed out a pre-publication copy of DCR's Healthy Waters pamphlet.

The INSTAR program has its origins in the Clean Water Act, Section 303, which contains elements for both restoration and protection. Historically, most funding and focus has been for the restoration process. But streams cannot actually be restored; they can be rehabilitated, to a certain point. This is a very expensive process, and one can never hope to achieve true restoration. The second clause of Section 303 involves identifying waters that are equal or exceed water quality standards and protecting those waters.

EPA granted funds to Virginia to pilot the Healthy Waters initiative. INSTAR (Integrated Stream Assessment Resource) is a tool that VCU had already developed to identify and prioritize healthy streams statewide. INSTAR is a stream database and a decision support tool. Through probabilistic site selection, over 2000 streams have been represented in the database. Data include biological, geomorphology, stream habitat, and landscape. VCU worked with Worldview Solutions, Inc. to create a mapping interface in the database.

From current data, INSTAR results point to the following factors that impact stream health: land

use, imperviousness, riparian buffers, limited access to streams, natural flow regimes, groundwater inputs, limited bio-pollution (non-indigenous species), best management practices.

It is difficult to define stream 'health.' Typically, it is based on biotic integrity, but this depends on having reference conditions for comparison. INSTAR can build "virtual reference streams" using models and metrics (macroinvertebrate data, fish data, and habitat data). Healthy is defined as >70% comparable to appropriate regional reference conditions. VCU will build specific reference model(s) for the Rivanna streams, based just on data collected within Rivanna basin. VCU will develop the synoptic, probabilistic database for Rivanna macroinvertebrates, fishes, and habitat that will be available online, placing the Rivanna basin into the broader Chesapeake Bay context.

John Murphy commented that StreamWatch has had trouble identifying a true reference condition stream in this watershed. No streams are in pre-European contact condition, but there are some that are almost 100% forested, and those have been used as reference sites. John wondered if INSTAR would find any reference or even healthy streams, according to StreamWatch definitions. Greg Garman replied that VCU could analyze macroinvertebrate, fish and habitat data, and also analyze just the macroinvertebrate data, to see if there are different results. Leslie Middleton asked if VCU also uses other data, such as DEQ data. Greg replied that VCU does use other data, but not StreamWatch data or some of DEQ's data because it is not probabilistic. INSTAR is focused only on probabilistic data.

Darren Coffey asked if it stands to reason that Rivanna streams may score more toward the healthy side, since streams in the eastern side of the state have scored that way. Greg Garman replied that if healthy is defined just using Rivanna data, then maybe not. If the Rivanna data is defined within the context of the whole state, then perhaps the Rivanna scores will be relatively high. Leslie Middleton noted that when the RRBC is ready to send a message about this project to the community, both perspectives would be used.

## **9. Wrap up, confirm next TAC meeting topics, and adjourn by 12:00 pm**

The meeting adjourned at 12:12pm.

Upcoming meetings:

Next TAC meeting: November 17, 9 am to 12 p.m.  
Ivy Creek Natural Area: Education Building  
1780 Earlysville Road, Charlottesville, VA 22901

**Technical Advisory Committee  
Rivanna River Basin Commission  
Executive Director's Report September 15, 2009**

1. Commission Update
  - The Rivanna River Basin Commission is transferring fiscal agency from TJSWCD to itself, a process that is almost completed. Accounting will be done in-house and all contracts are being re-executed with the RRBC as agent.
  - John Martin will be nominated as Treasurer at the next RRBC meeting.
  - Website very close: we will need your feedback!
2. NFWF Grant
  - NFWF funding has been requested for transfer to RRBC.
  - Contracts/sub-grants with localities and technical contractors are being developed over the next two months.
  - Tasks 1 (BMPs), Task 2 (monitoring BMPs) and Task 3 (Inventory of Retrofit Opportunities) will be the focus of the first year.
  - Task 4 (workshops leading to watershed-wide symposium) and Task 5 (developing incentives) will be the focus of Year Two and planned based on locality needs once the proposed stormwater regulation changes are better known.
3. Commission will host second Rainwater Harvesting webinar on Tuesday, October 27.
4. Healthy Waters pilot program: working with TJPDC to focus on Greene County Comp Plan (2009), zoning and ordinance changes (2010) with respect to "shovel ready language and policies" to implement "healthy waters language."
5. Proposed stormwater regulation amendments
  - September 16 - Joint Committee for Administrative Review
  - September 17 – VA SWC Board (public comments on revised amendments)
  - October 6 - VA SWC Board with public comments and vote
  - Take effect July 1, 2010 with 15 months for localities (and DCR) to establish and approve programs
  - There is an opportunity for the RRBC to take a leadership role in working with our local programs' (MS4 permittees) to ensure offsets take place (a) within our watershed, and (b) at most desirable locations
6. RRBC role to may be to assist localities and provide coordinated watershed response to impacts from:
  - Chesapeake Bay TMDL issuance in 2010
  - New stormwater regulations
  - VPDES higher water quality standards and retrofit of existing developed areas

Sept 23 RRBC Executive Committee Meeting 10 am – noon 5<sup>th</sup> Street Ext.

Oct 22 RRBC full Commission meeting 3 pm – 5 pm field trip around Cville

6 pm – 8 pm RRBC meeting at CHS