

**FERC PROJECT NO. 2009**  
**ROANOKE RAPIDS AND GASTON HYDROPOWER RELICENSING PROJECT**

**FL3 and FL4 Cooperative Management Team**  
**Roanoke Rapids Power Station**  
**Draft Minutes to January 28, 2008 Meeting**

Participants: Bennett Wynne (NCWRC), Jackie White (UNC), Steve McIninch (VCU), Dave Hopley (VCU), Andrew Garey (VCU), Holly Houtz (VCU), Jean Richter (USFWS RRNWR), Bob Graham (Dominion), Jim Thornton (Dominion), Jim Mead (NCDWR - phone), Panos Diplas (VT – via phone), Marte Gutierrez (VT – via phone), David Liu (VT – via phone), Soonkie Nam (VT – via phone)

The meeting began with a round of introductions.

**Review of minutes from 7/10/07 meeting**

The minutes were accepted. All Action Items had been attended to except one related to Chuck Peoples and Len Smock reviewing the suitability of the Quankey Creek downstream study site. Jean indicated she can install In-situ mini-troll pressure monitors in Quankey and Looking Glass creeks to track water level changes. **Action Item:** It was agreed Jean and Drew will coordinate installation of mini-trolls at Quankey and Looking Glass creeks during this year's February-March macroinvertebrate sampling. **Action Item:** Bob is to look for contact information related to the Quankey Creek landowner. *(Bob sent a letter describing the study and requesting access approval to a representative of Centura Bank & Trust of Dallas, TX (the contact used by the Halifax Co. tax assessors office) on 2/19/07, but never received a response.)*

**Seedling survival studies**

a) Water Level Gages

Jean reported that Chuck had installed 48 water level monitors along the seedling survival study transects in August 2007. Chuck will be spot checking the gages to ensure they are operating correctly. Bob noted Chuck has sent him gage location maps in Arcview format. Jackie noted a significant proportion of the gages are located in areas impacted by hydropower peaking as indicated by the Townsend flood model. **Action Item:** Bob is to forward the files showing gage locations to Jean. *(1/31/08 Bob could not locate files – has requested Chuck resend to entire CMT).*

b) Biological studies

Jackie provided an overview of her research to assess tree seedling establishment and survival conducted during 2007. She reviewed site selection, sampling protocol and

preliminary results from year one of her study. Of particular note to the CMT was 28 of 98 total vegetation plots had been established in floodplain areas likely to be inundated during Roanoke Rapids peaking operations, as indicated by the Townsend flood model. Jackie's looking at seedlings less than and greater than 1 year, and noted considerable differences in survival over the year, at least in part attributable to drought conditions during 2007. Jean noted there was relatively little peaking activity during 2007 due to the dry conditions, and that it would be beneficial to include figures representing Roanoke River hydrographs in future annual reports so the relative magnitude and frequency of hydropower peaking during each study year could be assessed. **Action Item:** UNC and VCU annual reports are to include a plot or depiction of river flows for each study year. **Action Item:** Bob is to send Jackie's presentation to CMT. (*Done 1/31/08*).

Jackie discussed several likely modifications to her study for 2008. These included establishing more sites for relatively rare species/communities, examining the potential to refine study of the potential impacts of 20,000 cfs flood flows and possible lab work to determine the tolerances of various species to prolonged inundation. **Action Item:** Steve is to send Bob the reference for his wife's work on inundation of wetland species for distribution to the CMT.

### **Potential interim changes to USACE flood control**

Jim Thornton described efforts to alter flood control releases from Kerr Reservoir to reduce the impacts of prolonged flooding of vegetation in the Roanoke River floodplain during the growing season. He noted that two general proposals are being considered, one developed by TNC and another by SEPA and Dominion. The "SEPA" proposal attempted to match decreases in floodplain inundation achieved by the TNC proposal while preserving more power generation. Of particular importance to the CMT is the possibility the USACE could implement interim changes to its flood control procedures that may affect the baselines studies being conducted for Dominion. If this comes to pass, the CMT will need to review river flows and assess impacts to baseline studies. It was noted the CMT could extend the length of the baseline study period to incorporate the new flood control procedures. **Action Item:** Bennett is to send Jean and Bob WRC's comments to the USACE scoping letter. (*Done 1/29/08*).

### **Within-day fish and macroinvertebrate studies, and Within-week (tributary) macroinvertebrate studies**

Steve provided an overview of the mainstem river fish studies, much of which he noted had been completed and presented at the 7/10/07 meeting. Preliminary analyses had indicated some differences existed between pre- and post-peaking community indices, and among Roanoke River study sites and between Roanoke River and Neuse River study sites in the longitudinal studies. However, Steve believed the Neuse's flow and channel morphology were considerably different than those of the Roanoke, and could be important factors in the apparent differences seen in the longitudinal studies. Considerable discussion followed regarding selection of an appropriate reference river

for fish studies (with additional discussion related to concerns for the macroinvertebrate comparisons). Steve has a graduate student interested in comparing the James and Roanoke rivers to examine how the fisheries dynamics may respectively be driven by fisheries versus flow regulation. However, the tidal influence of the James in the Coastal Plain may be an obstacle. Bennett felt a better comparison would be with the Cape Fear River, and suggested potential sampling reaches that Steve and Dave will investigate. **Action Item:** Steve is to provide Bob with an estimate of additional costs associated with sampling the Cape Fear River in 2008.

Drew provided an update on the macroinvertebrate sampling prior to lunch, and discussion followed the VT erosion presentation. In regards to the study of pre- versus post-peaking community structure, preliminary data and analysis did not indicate any large differences between pre- and post-peaking benthic communities. However, Drew did not believe the qualitative sampling protocols being used to look for hydro peaking effects were effective for determining changes in abundance or direct measures of peaking effects. Drew recommended sampling invertebrate drift before and during peaking events to assess direct effects on the invertebrate community, and that the drift sampling replace the existing qualitative community sampling. (*Note: there was some confusion regarding the drift sampling being conducted in addition to or replacing the current program, and Drew has clarified the drift sampling was indeed proposed to replace the current program*). There was discussion about sampling protocol, and Drew indicated he would try to work on that during the February and March peaking period prior to the anadromous fish spawning season characterized by uniform weekly flows. Bob offered to help as he could.

Regarding the macroinvertebrate longitudinal sampling, Drew indicated there were some significant differences among study sites, but he could not attribute the cause to any particular factor or combination of factors. He recommended continued sampling during 2008 with continued ponar effort as an ancillary quantitative sampling effort, and expanded qualitative sampling of habitats the ponar does not sample effectively. In regards to the tributary macroinvertebrates, community indices for the downstream (impacted) Looking Glass Run site indicated impaired conditions, but a similar impairment was not seen at Quankey Creek (*note previous discussion regarding flow in Quankey in 7/10/08 minutes and above review of said minutes*). The upper site of the “reference” stream in the Tar River basin (Tyson Creek) possessed significantly different macroinvertebrate habitat than that at the Roanoke basin upper study sites, making comparisons questionable. Drew will be looking for a better reference tributary to provide information on the expected variability between upstream and downstream sites in streams such as those being studied. **Action Item:** Drew is to provide Bob with an estimate of additional costs associated with replacing the current sampling program for pre- vs. post-peaking with drift sampling and other recommended changes to the sampling program.

**Action Item:** Bob is to keep Drew apprised of R. Rapids peaking ops for test sampling.

**Action Item:** The CMT recognized a need for input from DWQ regarding replacing DWQ protocol sampling with drift sampling, and interpretation of macroinvertebrate data. Bob to contact DWQ regarding increased participation.

**Action Item:** Bob is to distribute VCU budget modifications to the CMT for review.

### **Erosion studies**

David provided an update on Virginia Tech's efforts to characterize streambank stability and calibrate/develop models to assess the impacts of different release scenarios. David provided an overview of factors that contribute to streambank erosion and failure, and presented the overall objectives of the VT study. These included determining the mechanisms underlying streambank erosion and failure, assessing the effect of fluctuation water levels, and suggesting discharge patterns that may reduce erosion and bank failure. Detailed information was presented regarding study sites, and field and laboratory methods being used for the bank stability analysis, along with some preliminary analyses. The modeling approach was described, and the three generalized modeling scenarios:

- **Scenario 1 (General condition)**
  - **Steady state conditions with peak and low discharges**
- **Scenario 2 (Typical critical condition)**
  - **Rapid drawdown**
- **Scenario 3 (Under a constant discharge volume)**
  - **Different release rates, peak discharge, duration, and frequency**

Panos indicated that despite the challenges the Department of Civil and Environmental Engineering has had to face this year, the work is progressing well. Lab tests, data analysis and modeling efforts are ongoing. The next field effort will likely occur in May, but there is the potential for a trip in March. Jean asked if it would be possible for some field measures to be obtained following a major flood or peaking event. Panos felt this was a possibility provided the timing was right, with a special trip occurring during the summer months more logistically feasible than during the school year. Jean offered the use of USFWS boats for the field work if need and appropriate boat operation training was obtained. **Action Item:** Panos is to keep Bob apprised of schedule for field efforts.

**Action Item:** VT graduate students will check into Federal boat operation training through VT Fish and Wildlife Cooperative Research Unit (contact: Dick Neves).

**Action Item:** Panos will let Bob know of possible model software upgrade costs.

### **Next meeting**

Likely late summer. A meeting may be called earlier if needed for budget discussions or other matters.