

**South River Science Team Bimonthly Meeting Summary:  
August 10, 2004**

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**Agenda  
South River Science Team  
August 10, 2004**

DEQ Office  
Harrisonburg, VA

9:00	Welcome, Introductions	Don Kain
9:15	DuPont Stormwater Update	Mike Sherrier
9:45	Final Summary of Va. Tech Fish Food Habits Study	Don Orth
10:15	Break	
10:30	Update / Status on Clam Studies	Doug Graber-Neufeld
10:45	Shake & Bake Update	Rob Mason (by phone)
11:15	Floodplain results	Dick Jensen / Annette Guiseppi-Elie
12:00	Lunch	
1:00	Communications / Newsletter / Mercury Brochure / Signs / Publications & presentations (SETAC)	Ralph / Don
1:30	Other topics, updates, etc.	All
2:00	Hypotheses / What we know and what we don't know	Ralph, Don, All
2:30	Agenda / Details for November Expert Panel Meeting (Nov 9 & 10, 2004)	All
	Adjourn	

## **Welcome and introductions. Don Kain**

Attending via phone: Mike Jacobi, USEPA; Erin Mac, DuPont; Rob Mason, U. MD List of Attendees is listed below in Attachment 1, page 6.

## **Stormwater Sampling at DuPont. Ralph Stahl (for Mike Sherrier)**

- Ralph gave a brief history, including data from DEQ and Ralph Turner's detection of Hg in 001 outfall at ~10-30 ng/L concentrations
- Discovery resulted in retest of stormwater on plant at lower detection limits, to determine overall contribution to South River during storm events
- Data collection not yet implemented for Phase II of the study, but close to starting; ISCO automatic samplers have been purchased, and are in the process of being installed.
- Hope to have some data by Expert Panel meeting in November 2004

## **Clam Update. Doug Graber Neufeld**

- Already performed a lot of clam transplants; have used controls to check for differences in uptake resulting from caging- results indicate no effect on uptake from cages
- Growth measurements indicate that clams increase shell length mostly in late spring (important info. for considering "growth dilution" effects)
- Past observations suggests that many clams die off around July
- Will be collecting cages near DuPont. These were placed in May, and will be collected Aug. 28
- Another set of cages placed near Basic Park/Hopeman Pkwy in July; will be collected in Oct. These are also near the Waynesboro WWTP, some eroding river banks, and also near an ox-bow that has relatively high MeHg levels
- Final set deployed near Dooms in July, to be collected in Oct.
- Methyl merc. data collected to date indicates that clam Hg is about 40% MeHg
- Ralph Turner suspects that clams exposed during warmer weather may have greater MeHg accumulation (more methylation occurring during warm weather)
- Doug and Tom hope to run some MeHg analyses on clams in the Dooms cages
- Some help will be needed with Clam Shucking around Aug. 31 (DEQ staff to assist)
- Ralph Stahl inquired as to when a manuscript might be forthcoming; Doug's response was "fairly soon"
- During next year's DEQ 100 year plan fish monitoring, plan to simultaneously collect clams w/ fish, and also perform collections at some sites in spring, summer, and fall
- Doug suggested using Forestry Station, but may not be enough fish to sample (prefer to sample smallmouth bass)
- Ralph T. suggested using a needle biopsy method, but Don Orth observed that there's greater variability due to sex, than to seasonality; therefore, without sex data, seasonal

variation is obscured. Steve Reeser to investigate whether sex can be determined by examining tissue biopsies (chromosomes, genetic, etc.).

- DGIF formulating plans to do a biomass estimate for selected sites on South River; involves exhaustive sampling. If individuals are biopsied in spring and summer, and are marked with an identifying tag, and if there are good chances that many of these will be recaptured in a biomass survey in fall, then wouldn't be necessary to perform sex ID at biopsy; just determine after final biomass collection.
- Refer to Doug's presentation slides in the Presentations folder.

### **Final Summary of Va. Tech Fish Food Habits Study. Don Orth (for Greg Murphy)**

- Differences detected between rivers, sexes and seasons. These are expected to drive some of the planned sampling and analytical events described in the above section
- Terrestrial insects may provide transport of Hg from soil back to fish (June beetles in Basic park ~10 ppm Hg)
- Hg in gastropoda ~ 40% (similar to results in shucked *Corbicula*)
- BASS (Bioaccumulation and Aquatic System Simulation) model might be useful as a river management tool (used in this study). In this study, food and gill uptake were included in model.
- Of necessity, many assumptions were made to flesh out model
- In smallmouth, differences between sexes and seasons apparent. Difference due to sex greater than due to season; 10-20% higher in females, 14-21% higher in spring than in fall w/in sexes
- One caveat mentioned; study essentially performed during period of extreme drought
- Model suggests required sediment Hg reduction of 75% may lower Hg in small fish to below 1ppm (but not the 0.5 ppm level which triggers consumption advisory limiting consumption).
- Ralph Turner obs'd.; difficult to make predictions based on sediment concentrations on the basis of sediment heterogeneity and difficulty in standardizing sediment samples (don't usually get a good correlation between MeHg in sediment and MeHg in invertebrates).
- Refer to Presentations folder.

### **Shake and Bake. Rob Mason**

- Rob wants to rerun, due to observation of reduction in amount of MeHg, w/ treatment which underwent greatest amount of stirring/suspension
- TSS values were higher for soil than for sediment
- Results of ambient river water from Harriston (~17 miles downstream of DuPont footbridge; sampled in Spring) was 0.74 ng/L Dissolved MeHg; 1.5 ng/L total MeHg at Harriston
- Will provide organic matter measurements for sediments and soils
- Doesn't appear to be a lot of Hg fluxing from soils and sediments under treatment
- Results of one sample upstream of DuPont showed high Hg. Dean Cocking suggested that if the sample was taken from an area w/ high deposition of leaves, that

the leaves might have been covered w/ Hg from atmospheric sources. Dick Jensen said those samples were in fact taken from leafy sediments; estimated 90% leaf litter

- Don K suggested that the area behind McGaheysville dam be sampled prior to it's removal; question was brought up as to what the effectiveness of remediation might be if mercury is removed from the river, but is either disturbed from deep sediment left unremediated, or if Hg washes in from floodplains
- Consensus was made that the McGaheysville dam should be sampled prior to demolition late this summer/early this fall
- Refer to Presentations folder.

### **Floodplain Results. Dick Jensen and Annette Guiseppe-Elie**

- Dick Jensen provided history of the sediment/soil study to date
- Annette plans to complete floodplain sampling at Hopeman and Alcoa later this summer/early fall, after overgrown poison ivy has dropped its leaves
- Port Republic soil Hg was about 10 ppm dry weight
- Haven't discovered any high [Hg] in river banks so far
- Dean mentioned that he'd observed high [Hg] upstream of the Genicom ditch during previous investigations
- This data should be useful to Jim Pizzuto for his hydrological study
- See Presentations folder.

### **Communications. Ralph Stahl and Don Kain**

- Question as to whom will replace John Rudd? Ralph Turner suggested someone associated w/ METALICUS, maybe w/a microbial background. Two suggestions were Cindy Gilmore, and Tamer Barkay (sp?).
- Tamer was previously w/ USEPA Gulf Breeze, currently at Rutgers; Erin M. will contact Tamer to discuss joining the SRST
- The possibility of producing a brochure of SRST activities was discussed
- Spanish advisory sign wording has been approved
- Decision made to only post signs on public land (unless private owners were to request them)
- John Schmerfeld asked if turtles were consumed from the river; snapping turtle tissue Hg would probably be high
- For presentation at SETAC, currently 5 abstracts prepared at this point
- Expert panel meeting to be at DEQ-VRO, Nov. 9 and 10
- If a brochure is produced, it may be useful for handing out at county fairs, etc.
- Point made that signs downstream of Front Royal not necessary, since fish consumption is already advised against, due to PCB contamination
- For the end of the first day of the expert panel meeting, Ralph Stahl suggested a press briefing, contacting many local papers, getting quotes from lots of the experts (would need to discuss w/ Bill Hayden to inquire further)
- Newsletter information moving along
- USGS working on TMDL, open invitation to SRST to get involved.

- Need to get TMDL comments in by next week (to Don)
- Ralph T. working on getting mass balance of Hg in vicinity of DuPont- try to do this by Oct., DEQ VRO might be able to help w/ ProbMon gear (flow meter), or could get USGS, DEQ surface water crew from Charlottesville

### **Working Hypotheses. Ralph Stahl**

- Still deciding over whether to look at birds. May issue an RFP for bird study
- Dick and Ralph want to do a MeHg study at every river mile, looking in the oxbow near Allied Redi Mix in Waynesboro, similar to what ORNL did in 97-98.
- Dick suggested having Hydroqual work w/ SRST , as opposed to “taking the data and running with it;” this would reduce likely hood of duplicating past efforts
- May want to look more at Hg speciation in soils and sediment
- DGIF may be able to do some exhaustive sampling to determine fish biomass in some reaches (how much Hg is tied up in the fish?); could do as part of scheduled 2005 creel and angler survey, and part of the 2005 fish tissue Hg sampling
- bioavailability changes depending on sed. characteristics, but pore water MeHg should be 100% available

### **Next Meeting- Expert Panel: 9-10 November 2004 at VRO DEQ**

- Expect to start at 0900, end by 1500 hrs Wednesday.
- Use Tuesday for updates; clam, soils, water column data, atmospheric work
- Ralph S. suggested starting w/ working hypotheses

