

**South River Science Team  
April 12, 2005  
AGENDA**

**Admin, Safety, Communications**

8:30	Welcome, housekeeping, introductions	Don Kain
8:45	SRST Safety Program	Mike Liberati
9:00	Newsletter	Mike Liberati
9:15	SRST Office, Waynesboro	Mike Liberati / Ronn Daniel
9:30	Brochure	Ralph Stahl
9:45	Database / GIS	Mike Sherrier

**Technical Studies**

10:00	Creel Study	Mike Liberati / Steve Reeser
10:20	Fish / Clam Sampling	Bill Van Wart / Ted Turner
10:30	Periphyton Study	Mike Newman
11:00	Bird Study	Dan Cristol / Rebecka Brasso
11:30	Geomorphology	Jim Pizzuto / Katie Skalak

12:00	Lunch	
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12:45	Garden Study	Bill Berti / Dean Cocking
1:05	Flux Chambers	Rich Landis
1:30	Surface Water Samplings	Dick Jensen / Ralph Turner
1:50	Reference Area(s) recon	Dick Jensen / Ralph Turner
2:00	Ecological Study Plan(s)	Ralph Stahl
2:30	2005 Fieldwork spreadsheet	Ralph Stahl
3:00	Wrap-up and Adjourn	

**Introductions.** Self-introductions were made by all. See Attachment 1 for the list of attendees.

### **Safety Program Proposal. Mike Liberati**

- Due to increased field activities by multiple crews, Mike suggested a contractor safety plan to address field safety, and to establish procedures to address accidents and emergencies in the field
- Preplan activities; provide for home base support, equipment checks, emergency contact phone numbers; provide field plan to base support
- Discussed whether DEQ could get a cell phone on the Hg budget for field use
- Emergency Response Team in Waynesboro can locate via GPS cords (teams should always take GPS into field)
- Know the location of the nearest medical facilities
- In May, discussed how to go about getting first aid training for field personnel.

### **Newsletter. Mike Liberati**

- Suggested that "From the Team" discuss the Geomorphology study
- Could also include historic fish tissue information; address issue of no observed decreases in fish tissue Hg
- Bob Luce pointed out that information provided w/ state fishing license suggests that skinning and baking reduce Hg contamination, but this isn't accurate (only works for PCBs)
- Still considering Newsletter Web site, w/ database access

### **SRST Office in Waynesboro. Mike Liberati, Ronn Daniel and students**

- Due to the increase in activity of the Science Team in Waynesboro, DuPont is creating an office in the old Red Cross building, downtown across from the Municipal building
- Location has good visibility, provides for an opportunity to educate the public
- Plan to make displays, provide information inside front third of the office for visitors; public is encouraged to come in and look around
- Public area will be about 12x25', and is being designed by Ronn and students.
- Ronn and students presented models of proposed design
- Will attempt to design displays to draw people in off the street; will probably have a computer station

### **Fish Brochure. Ralph Stahl**

- Spanish is just about done, should be ready in the next few months

### **Database / GIS. Mike Sherrier**

- Database will be map-based, will be able to call up all data available from a given site from a map
- Metadata will be available for each data set
- Plan on an Arc-View interface; progress ongoing
- Currently migrating data into database now
- Will take a few months to include data from hard-copy reports (older information)
- Will use EPA aerial photos, in process of ortho-rectifying photos (Mike believes this includes the 2002 set used on DEQ viewer)
- Have contracted to fly 26 miles of the river, use Lydar to generate topo info, with 2' contours, true color photographs, stereo pairs "total package"
- D. Kain asked if old reports will be in database? Yes, as PFD files. Will also include field notes, photos, etc.

### **Stormwater Progress. Mike Sherrier**

- Currently ready to collect stormwater samples, hope to have 3 storms worth of data by next SRST meeting

### **Hg Bird Study. Rebecka Brasso (for Dan Cristol)**

- Breeding season just beginning
- Trembal units plot GPS
- Planning to go downstream to South Fork Shenandoah River in 2006
- Have placed 300 tree swallow boxes
- Chickadees and bluebirds are in some of the boxes (some sparrows)
- Check boxes every 2-3 days until eggs are laid; once eggs are laid, don't check boxes until after eggs hatch (to avoid parental abandonment)
- Probably will be able to do kingfishers; lots of them per river mile, will try to sample them this year
- Tree swallows line nests w/ grass cup w/ a circular lining of feathers
- Screech owl boxes may have gone up too late for nesting, but they may be using them for roosting
- Will put up more owl boxes for next year

### **Creel Study. Mike Liberati, Steve Reeser**

- Creel clerks in field for interviews
- SFSR surveys, using "bus route"/ completed trip surveys

- Will use different design for different rivers
- Start in April, run for 6 months
- Mike Newman asked if they'll keep statistics on refusals (to answer surveys)- Yes
- Schedule will be randomly generated, will have someone out in the field 40 hours/week

### **Fish Tissue. Bill Van Wart**

- Weather currently putting us behind schedule
- Plan to sample Doods and Grottoes tomorrow
- Will probably be forced to go into May
- Collected 9 stocked trout carryovers from Constitution Park to test if there's any Hg accumulation in carry-overs (not previously addressed since it was assumed that there weren't many carry-overs)

### **Periphyton Study Proposal. Mike Newman**

- Grant in processing stage w/ DuPont
- Study is intended to address trophic level transfer of Hg
- Sites will be selected at clam Hg jump points found by Tom Benzing
- Plan to do methyl mercury in periphyton
- Using Visual Sampling Plan Program to select sites (references)
- Will try to do regression to see what's driving Hg in periphyton
- Iron and Manganese scavenge Hg
- Can use SEM/EMAX to find relative concentrations of Hg in viewing window; uses x-ray liberation signatures to measure elements in "window"
- Will use natural substrate to collect periphyton (so as not to bias samples); but may use artificial substrates next year.
- May be able to determine how much mercury is in all the periphyton in the river, extrapolate from results from this year's study

### **Geomorphology. Katie Skalak, Jim Pizzuto**

- Floated from DuPont to Crimora
- Mapped eroding banks, geomorphology
- Divided reach into areas of varying erosion extent (miles of eroded banks/ mile of river)
- In the process of looking to see if there's correlations between total Hg and eroding banks
- Currently viewing banks as Hg reservoirs
- Working hypothesis is that Hg is stored in eroding banks
- Will try to integrate working hypothesis into model for transport and other dynamics

- Need to determine bank erosion rates, and to collect data during storm events
- TMDL models use similar framework for transport dynamics
- Plan for about 1 month field work this summer
- Jim will give us a prioritized list of banks that he's got interest in; we'll (DuPont or DEQ) get permission to sample those banks
- John Schmerfeld asked if the study will attempt to address floodplain deposition? - Yes, probably in the future, but at a lower priority
- Preliminary data indicates highest slope correlates to the lowest erosion rates (have observed this during floats)
- Does a storm flush mud out of the edge eddies? Will want to try to determine this.

### **Acid Rain Study in Shenandoah National Park. Jack Cosby (UVA) and Chris Moore**

- Will be looking at mercury in headwater tributary streams in Shenandoah National Park. Several of these streams enter South River.
- Trout range between 0.02 and 0.1 ppm Hg; found spatial patterns
- Strong correlation between pH, ANC, and fish Hg
- Payne Run had highest fish Hg
- Divide into North and South distributions

### **Flux Chamber Studies. Rich Landis**

- Probably deploy 1st at Dooms, in depositional areas to measure methyl Hg flux
- Plan to deploy the third week in May
- Need to verify permission for access to Dooms property

### **Garden Hg Exposure. Dean Cocking, Bill Berti, Annette Guiseppi-Ellie**

- MDL 0.003 mg Hg/Kg; 0.1 ppm quantitation limit
- Collected new soil samples (see if there's any change between years)
- Hoping to produce three publications from the project
- Once Hg in plants is analyzed, will perform risk analysis
- Assume all Hg is MeHg (very conservative assumption)
- At this point, doesn't seem to be a need to pursue this further.

### **Surface Water Studies. Dick Jensen, Ralph Turner**

- Still hopeful that the Lumex can be used to sniff out high concentrations of Hg in soils, banks in the future
- Perform search for reference sites on the Middle and North Rivers, and upstream on the South River (for ecological study)

- In the oxbow/ Steel Run site, found lots of iron (will scavenge Hg) important to consider this in future studies in this area
- 0.94 ng/L total Hg, 0.39 ng/L diss. in Middle R., near Verona
- Initial samples of sediment from 1930 mill race area near DuPont - results are low
- Water sampling at 1000' intervals from Waynesboro to Crimora
- Found near-bank, calm eddies that had elevated concentration of diss. Hg and MeHg
- Ralph Turner said that there's a tight correlation of MeHg to total diss. Hg
- Graph of 1000' interval results shows increasing concentration as proceed downstream, but then levels off, presumably due to fewer eroding banks (Jim P. and Ralph T.)?

### **Ecological Study. Ralph Stahl**

- April 27, comment period for DuPont/NRDC Sierra Club over
- Spreadsheet w/ field work will start to include atmospheric deposition (equipment deployed at Dept. of Forestry near garden)

### **Next Meeting, June 7 (Tuesday)**

**Figure 1. List of Attendees.**

**SOUTH RIVER SCIENCE TEAM MEETING – April 12, 2005**

Name	Organization	Phone No.	E-Mail Address
Don Kain	DEQ	540-574-7815	DGKAIN@DEQ.VIRGINIA.GOV
Stephen Reiser	VDGIF	540-248-9260	Steve.Reiser@djif.virginia.gov
Rick Webb	UVA	540-468-2881	rwebb@virginia.edu
Ronn Daniel	JMU	540-568-5850	danielrm@jmu.edu
BILL BERTI	DUPONT	302-366-6762	WILLIAM.R.BERTI@USA.DUPONT.COM
DEAN COCKING	JMU	540-568-6566	cockingula@jmu.edu
Annette GUISEPPI-ELIE	DuPont	804-383-4524	annette.guiseppi-elie@usa.dupont.com
Ralph Stahl	DuPont	302-892-1369	ralph.g.stahl-jre.usa.dupont.com
Mark Richards	DEQ	804-698-4992	marichards@deg.virginia.gov
Don Orth	VT	540-231-5573	dorth@vt.edu
Robert Brent	DEQ	540-574-7818	rbrent@deg.virginia.gov
PAUL BUGAS	VDGIF	540-248-9360	paul.bugas@djif.virginia.gov
Billy Flint	JMU	540-568-4012	flintwb@jmu.edu
Bill Jordan	VDH	540-332-7830	William.Jordan@Vdh.virginia.gov
Michelle Trickett	DEQ Intern	540-515-3602	mtrickett@deg.virginia.gov
Alex Barron	DEQ	(804) 698-4119	ambarron@deg.virginia.gov
TED TURNER	DEQ	(540) 574-7858	tturner@deg.virginia.gov
BILL VANWART	DEQ	910-574-7861	wjvanwart@deg.virginia.gov
Ralph Turner	RTGeo	604-915-8219	rrtgeo@direct.ca
Vicki JENSEN	UES	302-547-6286	JENSEN@DELAWARE.NET
Jim Pizzuto	U. Delaware	302-831-2710	pizzuto@udel.edu
Katke Skalak	Udel	302-831-6602	kskalak@udel.edu
MIKE SHERRIER	DuPont/URS	302-892-1168	michael.p.sherrier@usa.dupont.com
Bob Luce	FCSR	540-869-3764	lucerw@shentel.net
Sumalee Hoskin	US FWS	804-683-6694	Sumalee-hoskin@fws.gov
Mike Newman	VIMS	804-684-7725	newman@vims.edu
Rich Landis	DuPont	302-892-7452	richard.c.landis@usa.dupont.com
Allen Gutshall	VDH	540-332-7830	Allen.Gutshall@Vdh.virginia.gov
John SCHMERFELD	USFWS	(804) 693-694X107	john_schmerfeld@fws.gov
Alison Corcoran	JMU	571-241-6688	corcorag@jmu.edu
Jack Cosby	U.VA.	434-924-7787	b.j.cosby@virginia.edu
Brenda Kennell	IVISTA	540-944-7320	Brenda.L.Kennell@ivista.com