

SRA Minutes: October 16, 2012

Duane Wilding started the minutes when the meeting was opened by SRA President John Wright at 7:05 p.m. (Stand-in Secretary Thistle Cone arrived at about 7:15 p.m.)

Introduction was made of tonight's speakers: Andrew Muller, professor at Naval Academy and his wife, Diane Muller, Riverkeeper for the South River.

Dr. Andrew Muller is a physical oceanographer with a degree in geology and oceanography. His presentation centers on water quality investigations surrounding the question: **"What is the Problem, Our Creeks, or the Bay?"**

He modeled tidal elevation changes. The Bay is an estuary, with the tide at the mouth being about 3' and at Annapolis, about 1'.

He also studies the salinity and tidal currents; comparing the surface and the bottom. Friction and shallowness of the Bay dominates the dynamics. There is no Coriolis effect due to the narrowness of the Bay. Stratification occurs with the salt water on the bottom and fresh water on top. Winds are a factor in the mixing.

In 2005, there was hypoxia and anoxia in the Bay. The Bay is really a flooded river valley. Winds are not usually strong enough to mix it sufficiently. The Bay is salt driven – as compared to the ocean, which is thermally driven. But why is there low dissolved oxygen (DO) in the rivers?

Looking at the dissolved oxygen in the large Virginia tributaries: Research seems to indicate the flushing rate of the river. But it seemed possible under certain conditions, that the low DO levels from the Bay could transfer up the rivers. These rivers are deeper than the small rivers further north, like the Severn.

Sampling the tributaries: Showed graphs of Temp, pH, DO, nutrients in the South River, etc. Comparing those profiles to the large Virginia rivers. Winds are significant in mixing the stratified temperature gradients.

Low DO is not caused by stratification in the Bay. But it enhances the low DO when stratification occurs.

Discussion followed that budgets for monitoring at DNR have been reduced, so the modeling is based on sampling done only once a month in most places ... Maybe twice a month in the summer in the Bay.

There are some continuous monitoring buoys, but they are at one spot, usually at the mouth of a river, which is not adequate to monitor low DO up the tributaries. And they take some monitoring buoys out during storms to protect them. So there is no data for the storm periods, which is important to understand the impacts of these events.

For the summer months, there are weekly samples up the middle of the South and Severn Rivers. The DO is low as they go up the river. This is the opposite of what we see in the deep Virginia rivers. Graphs were shown for 2009 and 2010.

REMUS is a probe from the Navy (former mine sweepers) that we can send up the river. It carries monitoring devices. In 2011, by June 15, already Round Bay had low DO. This was right after the Conowingo Dam release. The salinity was pretty uniform even up the tributaries. The temperature was high though. It was going anoxic already in June. Already even in March sometimes it starts to go anoxic in Round Bay.

In the South River, the hypoxia and anoxia come and go, whereas the Severn seems to be getting anoxic and staying anoxic ... Unless you have a significant event.

Hypoxic squeeze: the idea that lakes heat up, top down. Then DO gets low. The liveable portion of the lake is limited. DO is low below. The top is too hot. Habitat is squeezed. Fish can get killed by being trapped behind the hypoxic fence.

Round Bay is like a bathtub. There's a sill on each end. It takes a strong wind from the southeast to mix it. A wind from the northeast can actually enhance the stratification because the fresh water gets blown downstream and the salt front can come up.

The main stem of the Bay is mainly the Susquehanna River. If you could figure out which tributaries are the main problem, that could help. They could be prime targets for restoration efforts.

For nutrients, phosphorus (P) is very high. When DO goes low, P is emitted from sediments.

They showed a video of the blob of algae in the South River from The Patch. The biologists noted that the species was the kind usually found at sewage treatment plants.

Conclusions:

The tributaries are experiencing poisoning from within. Some bacteria are getting nutrients directly from ammonia, not nitrogen.

Creeks and internal dynamics are the root cause of hypoxia and anoxia.

Need to reduce the sediment because the phosphorus is carried by the sediment. Phosphorus comes from 300 years of clearcutting. Overdeveloped and put sewage into it. Lots of water cuts deep channels and carries more sediment.

We also need to keep nitrogen down, as both are factors in algae blooms and low DO.

On Broad Creek on the South River, if you get up stream you can see silted in docks. When Rt. 50 was put in, it changed the hydrodynamics. Same with Weems Creek: silted in areas are visible. Silt from building 97 filled the Severn River areas.

Q: Are there solutions for aeration projects that might help DO? A: These are very local in effect. And it is very energy intensive.

Dr. Muller's idea: "Acrylic oysters." A pump that runs on methane that could filter the water.

The business meeting began:

August minutes were approved.

Treasurer's Report:

As of Sept. 18, 2012		As of Oct. 16, 2012
Checking:	\$29,768.48	\$28,571.15
Investments:	<u>\$45,050.83</u>	<u>\$45,050.83</u>
Total:	\$74,819.31	73,621.98

The difference between the last two month's balances is due to the \$1,000 grant that was awarded to Maryland Therapeutic Riding for their stormwater mitigation project through the Marshall Dowling Memorial Stormwater Action Fund.

Old Business

Dick Spenser reported on construction site monitoring. The group visited the sites of reported problems with Richard Klein. Residential sites seem to be good for a while, but they tend to lapse for a while; so it's not entirely within the guidelines. But our monitoring seems to be working to help keep an eye on these sites.

Dick Spenser also met with several County Departments and inspectors and a group from SRA. Discussed information systems. They are more than happy to work with us to look at the BMP issue.

Dick also went to the Chesapeake Watershed Forum in WV.

SRA will be asked (by the County, I think) to identify stormwater facilities that need maintenance the most to help prioritize use of funds.

Bob Whitcomb reported on the Oyster Program. There were six distribution points for the spat. We put out about 1,360 cages. It's the largest number of volunteers of any of the groups on the Bay. First newsletter is out to participants. Glad to hear from Dr. Muller that the reef is in the right place for oysters to survive (near the mouth).

Sign project is progressing at Jonas Green Park. Rain garden, nitrogen-reducing septic systems, living shoreline, oysters. Signs are on English on one side and Spanish on the other. Hope to have them installed early in 2013.

Ken Hatch participated in a cleanup on Sept. 8 around the Naval Academy Bridge along with the midshipmen. There was a ceremony attended by Senator Cardin. Midshipmen Action Group (MAG).

Mike Robinson reported on the phragmites removal, including midshipmen, on Plum Creek. The method they use is binding and cutting the bunch and applying herbicide to the tops of the cut pieces.

Call for articles for the next issue of our The Log newsletter. September's meeting will be the rescheduled for December (John Flood). The September meeting was cancelled due to weather.

BMPs will be examined at the Belvoir Farms community.

Question about a county is doing dredging project. They're about to be dredging the channel around Ben Oaks and Indian Landing boatyard. And any fingers that landowners might have paid for; and Saltworks Creek area. They had asked for permission to use the docks at Carrollton Manor. Ben Oaks had said no to the use of their dock, due to the truck traffic.

On Oct. 22, Richard Klein and others will be taking County Councilman Dick Ladd on a tour of BMPs in the Ben Oaks area.

SRA is getting the 2012 Environmental Award from the County Democratic Central Committee. Oct. 30th we are invited to accept the award.

November 13 is next meeting (not the usual third Tuesday) because Arlington Echo is closed Thanksgiving Week.

The suggestion was made to include AA County stormwater staff at our next meeting, where the guest speaker will be the Montgomery County stormwater program manager, Amy Stevens.

Meeting was adjourned at about 8:35 p.m.