

**South Fork Rivanna Reservoir Stewardship Task Force
DRAFT Minutes of Task Force Members Meeting
October 13, 2008**

A meeting of the members of the South Fork Rivanna Reservoir (SFRR) Stewardship Task Force was held on Monday, October 13, 2008, at 6:00 p.m. in the basement conference room of City Hall, Charlottesville, VA.

SFRR Stewardship Task Force Members Present: Ms. Holly Edwards ó Charlottesville City Council, Mr. Mark Fletcher ó citizen from University of Virginia (UVA) representing recreational interests on the SFRR, Mr. Michael Gaffney ó Rivanna Water & Sewer Authority Board of Directors, Mr. Thomas Jones ó citizen representing property owners along SFRR, Ms. Karen Joyner ó Ivy Creek Foundation, Mr. Chris Lee ó Charlottesville Regional Chamber of Commerce, Mr. John Martin ó Rivanna River Basin Commission, Ms. Wren Olivier ó Sierra Club, Dr. Liz Palmer ó Albemarle County Service Authority Board of Directors, Mr. Dennis Rooker ó Albemarle County Board of Supervisors, Mr. Ridge Schuyler ó The Nature Conservancy, Ms. Dede Smith ó Citizens for Sustainable Water Supply, and Ms. Sally Thomas ó Chair, member of the Albemarle County Board of Supervisors and representing the League of Women Voters.

SFRR Stewardship Task Force Members Absent: None

Also Present: Ms. Tamara Ambler ó RWSA Water Resources Manager, Mr. Tom Frederick ó RWSA Executive Director, Ms. Lee Catlin ó Albemarle County Community Relations Director, Mr. Greg Harper ó Albemarle County Water Resources Manager.

Minutes of Previous Meetings

Mr. Jones expressed concern over indication in the minutes of September 8 that there had been a scientific basis used for establishing the reservoir depth at more than 8 to 10 feet. He suggested deleting the sentence regarding hydrilla growth. Mr. Rooker moved for approval of the minutes with the suggested sentence deleted. Dr. Palmer seconded the motion, which passed unanimously.

Ms. Thomas noted that several task force members had issues with November meeting times. No resolution was reached, so Ms. Thomas agreed to work on the meeting dates further.

She said that the Task Force has agreed to distribute a questionnaire seeking public input, noting that it is on the county's website, the city's website, and has been distributed through other sources - including direct emails to constituents. Ms. Thomas noted that Ms. Catlin of Albemarle County is spearheading the process, and there is a public hearing scheduled for October 27th.

Ms. Thomas stated that there were eight people who signed up to speak today.

Ms. Leslie Middleton addressed the group, stating that she would like to encourage them to continue the work they're doing, citing their methodical work and the charge brought forth from the city and county. She also said that this task force has been asked to consider dredging as an alternative to the current plan, and there is a very strong link between the two issues. "I trust that you will stay on a steady course of working your way through your charge ...I know it's really hard to get through all of these issues...it's a very complex issue, as sedimentation behind dams is starting to be a worldwide problem."

Tim Wilson addressed the Board, stating that he is a city resident, and he thanked the task force members for their work. He said that there seems to be some lack of agreement as to the group's charge, and after looking at the resolution it is clear that the request from the Board of Supervisors was to undertake a study of the South Fork Rivanna Reservoir and the viability and merits of managed dredging. Mr. Wilson suggested that there be a comprehensive study on managed dredging, using experts in the field, instead of just having a series of meetings.

Ms. Thomas noted the six points of the Task Group's charge, as posted on the walls of the meeting room.

Tom Olivier spoke on behalf of the Piedmont Group of the Sierra Club, noting that the group feels a study to pursue dredging and an alternative to a long-term plan for storage should be considered, including an analysis of the cost and benefits. He encouraged them to move forward with a long-term strategy to look at other options. "We see no language in the resolutions authorizing this task force that would prohibit development of such a recommendation."

Mr. Joe Mooney addressed the Board, stating that he is a city resident and wants to add to the list items to consider activities at the reservoir - he pointed out a Philadelphia Airport dredging study and mentioned there is funding available for that. He also noted that the extension for Charlottesville Regional Airport is on track and could use that fill. Mr. Mooney said that the Philadelphia project should be considered a model for what could be done here, citing that the project received an Al Gore environmental award. He also indicated that Brian Elliott sent an email related to the airport's users - with testimonials from major airline pilots such as Delta - and the opportunity is in place to provide the fill, which would only need to be transported 2.5 miles away. Mr. Mooney said that dredging to the runway was not going to be possible by pumping, and the distance of 2.5 miles was considered too far. "This whole project has been met with negativism and pessimism, but experts have never really studied it."

Kevin Lynch addressed the Board, noting that Charlottesville and Albemarle have both passed resolutions considering dredging, but said that this group was created by four chairs who also presented a charge for this group to look at public resources the reservoir provides - such as water supply - and that is not being done. Mr. Lynch said that when the reservoir was built in 1964, recreation was not considered, it was all about the water supply. He mentioned that the best-case scenario for the dam cost would be \$85 million, not including the pipeline cost. "Rivanna now admits they don't really have a plan...we can't afford to stall any longer." He said that the community paid for dredging in 2003.

Ms. Thomas emphasized that this was the charge when the group was formed.

Richard Lloyd addressed the Board, stating that his concern is what is left behind for future generations, leaving behind a tremendous amount of debt, a reservoir full of sediment and a dam that does nothing. He said that the dams would eventually need to be removed, which would require very expensive stabilization or removal of sediment. Only improving the reservoir, he said, would leave no alternative water supply. "Think what that leaves behind."

Ms. Karen Pape addressed the Board, stating that she became very concerned after hearing the Charlottesville Tomorrow podcast and she is very fond of the reservoir as it is the only one that provides such a variety of uses. She emphasized that the reservoir is irreplaceable, and the RWSA bought 400+ acres to build the Buck Mountain Reservoir but couldn't get the permits. Ms. Pape also asked if the task force was addressing any flood control and management issues, and suggested that perhaps the Army Corps could help address the issue of sediment removal.

Ms. Betty Mooney addressed the Board, stating that Dave Norris has sent an email indicating that water supply was part of the charge of this Task Force, and he doesn't understand why that wasn't considered to be a part of the group's purview. Ms. Mooney said that she wants the group to come up with accurate information, and the data provided thus far has been based on faulty assumptions and erroneous data with no accurate costs for dredging. She indicated that there are private local firms who are eager to do the job for less than the reported \$200 million or more, and if she had been aware of those lower estimates she never would have supported the current plan. Ms. Mooney stated that there have been unsolicited dredging proposals and lots of offers, but there needs to be better data on dredging. "It's up to this task force to get that information and the Mayor says the water supply is part of your charge."

There being no further public comment, Ms. Thomas closed the public hearing.

Ms. Thomas said that when Steven Bowler addressed the group previously, he proposed three different ways to address the reservoir: determining it wasn't doable, calling on local experts, or hiring outside experts. She said that outside experts were hired and most of what's been talked about is ensuring that there was an agreement about what their role is. Ms. Thomas said that taking the second recommendation, they have asked Greg Harper, Water Resources Manager for Albemarle County, to present what he has learned about the reservoir from the perspective of his position.

Mr. Harper presented information on how the reservoir would look like in the future, based on how it's looked in the past, including how the surface of the reservoir has changed so far and how it will change over the next 50 years. He added that volume predictions have already been done to some extent. Mr. Harper provided information on sedimentation, stating that natural streams carry a sediment load, but they are usually in sediment balance. He said that with streams that have been artificially widened, the velocity of the water slows down, and the sediment falls out as the velocity falls. "You get a lot of sediment deposition and then the channel kind of narrows in that section it is now as fast as it was before and it carries sediment further into the wider area of the reservoir."

He focused on the Ivy Creek area of the reservoir, as it delivers significant sediment ó perhaps more than the rest of the reservoir. Mr. Harper said that it widens more quickly and things tend to happen more dramatically there than in the rest of the reservoir. He noted that the oldest photo of the area was from 1974, and he overlaid it with a line delineating the 1974 shoreline ó a surface area 41 acres in size. He then took a 2007 photo and used GIS to stretch the 1974 photo to match the 2007 photo. Mr. Harper pointed out the deposition that has built up over the last 33 years; he also noted areas of erosion. öWe have a combination of deposition and erosion.ö Using GIS without the photos, he pointed out the change in land versus water surface over that timeframe. öOver 33 years, weøve got 6.4 acres ó or 16% of that water body.ö

Ms. Smith commented that she knows the area well and there is a lot of sedimentation present.

Mr. Harper acknowledged that it could increase over time, but there would not likely be any major cut-throughs. öThe farther downstream you get the deeper it isí but certainly the land building in here will continue no doubtí the rate is uncertain.ö He said that the islands in the Ivy Creek area are essentially new lands that are swampy, and further upstream there are islands with water surrounding them.

He also showed images of the South Fork area, noting that the deposition rate has been less than that of Ivy Creek because it is a larger reservoir. Mr. Harper showed images of the shoreline 33 years ago, and a 50-year prediction for South Fork.

Mr. Schuyler highlighted a piece of land that was not in the reservoir 10 years ago, noting that it might be an indication of what the river would look like in 50 years. He said that prior to hiring the USGS to make that prediction, he wanted to make as much of a prediction as possible. Using 1994 imagery, he showed an island near Panorama Farm that gradually built up until the way it existed in a 2007 photo, noting sedimentation in the center of the reservoir and pointing out debris built up in front of a tree that had fallen into the reservoir. He mentioned that it is not one of the two natural lakes in Virginia but was originally a naturally flowing river system.

He reported that as the moving system hit slack water, water carrying sediment slowed down and the sediment dropped out to form an island. He then pointed out log debris, a plume of sediment, and a second island with a big tree on it. Mr. Schuyler presented a photo on which he drew a line around the boundaries of the reservoir as it was in 1994, and one that showed how it changed up until 2007. He emphasized that in 13 years sedimentation has built up, and pointed out trees that are growing on a peninsula built by the sediment. Mr. Schuyler said that he and Ms. Ambler noted that willows and sycamores have grown up, with sediment getting closer and closer to the surface. He pointed out another new peninsula growing, with willows having grown up there just over that 13-year timeframe. Looking back toward the reservoir, he said, there are willows and sycamores growing and land becoming fairly indistinguishable from the floodplain that was there before. Mr. Schuyler said that this is essentially an effort by the river to regain its natural balance, with sediment being carried further downstream until some equilibrium is reached. öIt hits the slack waters, it creates these floodplains which creates this channel, which increases the velocity of water so that the river then regains its free-flowing form.ö

Mr. Lloyd commented that that's what it was before, but as long as it has a dam it can't be natural.

Ms. Smith said that she appreciates those analyses, but they are not expert opinions although they were creative. She said that at three feet down the reservoir looked like it did in 2002 when it was six feet down, and it has come up three feet in six years because of sedimentation that can't be seen just by looking at the surface water. Ms. Smith said that if it continues to do that over the next three years it will essentially be land.

Mr. Gaffney said that another issue to be considered is when a river reaches equilibrium it stops dropping sedimentation.

Mr. Harper replied that that's a long way off, it may be a few hundred years.

Dr. Palmer said that the sediment going down to the bay is really staying here and forming land instead of washing downstream.

Mr. Harper said that a lot of flood plains came from mill dams, and old campsite tools, etc. have been revealed in flood plain areas. He explained that they're eroding at a quicker rate, and the same thing is happening here.

Mr. Rooker commented that there is a long distance from the dam to the Chesapeake Bay, and it would be very hard to assess how much sediment would reach the bay without the dam.

Ms. Thomas said that at the Woolen Mills stream cleanup, they found lots of big pieces of industrial equipment — almost like an archeological find.

Mr. Rooker stated that most environmental groups have opposed dams as they interfere with free-flowing rivers, which seems contrary to having a free-flowing river resulting in detriment to the Chesapeake Bay.

Ms. Thomas said it's a different situation with other rivers such as the Susquehanna.

Mr. Schuyler said that they were simply trying to get some information based on the evidence that they have.

Mr. Martin asked what the estimate was for acreage that had been filled in.

Ms. Ambler said that she did not know for sure, and Mr. Schuyler agreed to try to get that information.

Mr. Harper said his information showed 13.4 acres or 6% so extrapolating that, the next 50 years could yield 20.3 acres or 10%, but he emphasized that the location and extent are conjecture.

Mr. Harper asked the task force to consider if it was worth the money and time to pay for an

extensive study on this.

Ms. Thomas said that part of this group's report could be recommendations for more expert analysis, such as that provided from the USGS, and ultimately others should decide if that's where money should be spent as part of a more in-depth study.

John Martin asked if the land masses would need to be removed to meet the requirements for the river to return to its natural state.

Mr. Schuyler replied that dredging studies that were done indicated the possibility of achieving 90%.

Mr. Martin said that it likely couldn't be done with hydraulic dredging.

Dr. Palmer said that estimates showed the possibility of achieving 80-90% of original capacity, and Gannet Fleming based that on other dredging operations.

Mr. Rooker asked if it would be possible to find out from USGS whether there is an increase in the rate of sedimentation, or does it remain relatively constant, noting that from the data shown here the rate of sedimentation seems to be reasonably constant. "Over 10 year segments, it seems to be relatively smooth."

Mr. Schuyler responded that sedimentation issues would vary depending on localities, climate change, storm events, etc.

Mr. Fletcher said that dredging at different intervals could also have an effect on that model.

Ms. Smith stated that the dredging experts said that the water quality would deteriorate before the river comes to equilibrium.

Ms. Thomas moved to the next agenda item and asked Mr. Frederick to explain the role of this reservoir in the 50-year plan.

Mr. Frederick presented information on the adopted 50-year water supply plan, noting that the reservoir is just "one piece of a much bigger puzzle." He emphasized that the SFRR is a vital source "providing 99% of total water supply once the Sugar Hollow pipeline is not in service. Mr. Frederick emphasized that the South Fork is the source of the water for the proposed new pipeline to fill the Ragged Mountain Reservoir. He said that at some phase a new intake would be proposed, but a location has not been precisely established yet and it would likely be close to the dam. Mr. Frederick explained that the reason for that is the existing intake is 12 million gallons per day. He also said that during public meetings it was noted that development of a maintenance plan for SFRR would include dredging as a potential option but with maintenance as its purpose. Mr. Frederick agreed that dredging can enhance SFRR as a water supply resource, but it would not be vital to the 50-year water supply need.

He said that under the 50-year plan, the South Fork Reservoir would be required to store 200

million gallons of water in the year 2055, of a total useable storage of 2,714 billion.

Mr. Frederick said that Gahagan & Bryant has indicated that sediment is not a short-term threat to the physical operation of water supply withdrawal. While they have no exact or precise answers about the future, he acknowledged, they purport that sediment is not a short-term threat because the water supply withdrawal is occurring at the dam.

Mr. Rooker asked how short-term was being defined.

Mr. Frederick said that at a public meeting in May, Gahagan & Bryant was answering a question to a citizen about dredging and contended that sediment was dropping out further upstream, and also maintained that dredging would not necessarily be needed for water supply purposes within the next 50 years.

Dr. Palmer said that she talked to Gahagan & Brant further just after that public meeting and they estimated it could be 75-100 years before sediment would affect the water supply intake.

Mr. Frederick said that bathometric surveys show that most sediment is dropping in upper to middle sections, not at the lowest end of the reservoir where the intake is.

He also reported that water treatment processes are very advanced today, and technology can overcome almost any adverse water quality issues, so the focus of reservoir water quality becomes more what the community wants beyond the issues of water treatment.

Ms. Thomas asked if there had to be increased treatment with the occurrence of storms and sediment build-up.

Mr. Frederick replied that there is some relationship as far as cost of chemicals, especially if the sediment is fine.

Dr. Palmer asked how much dredging it would take to help the sediment that is washing in now.

Mr. Frederick replied that how far the sediment goes down the reservoir depends on a number of variables, and it's not unreasonable to assume that fine colloidal clay material would pass through the reservoir anyway.

Dr. Palmer asked if the dredging makes the situation any better during wet weather events.

Mr. Frederick replied that intuitively, how fast and quickly sediment settles out depends on the velocity of water so a larger/deeper channel might require a heavier rain to see effects but in a flood-like condition, sediment could be carried over the dam if dredging were performed.

Ms. Thomas asked what the scenario might be with a short fat reservoir versus a long narrow one like Rivanna.

Mr. Frederick replied that if there is organic material in the settled sediment that draws demand

on the water, it can cause deep water to go anaerobic, which does impact water quality; minerals such as manganese and iron can have a negative effect on water quality, and treating it is more costly.

Mr. Rooker commented that the James River is probably moving more rapidly than the South Fork, and asked about the sediment load and quality of water taken out of the two rivers comparatively.

Mr. Frederick responded that consultants have looked at cost of treatment and compared it, but he doesn't recall the exact comparison, noting that typically there is less sediment in reservoir water than river water so that can result in a lower cost of treatment.

Mr. Fletcher asked if RWSA staff does anything when a major storm is heading here - altering intake, altering treatment, etc.

Mr. Frederick said that staff runs laboratory tests hourly, and looks at weather forecasts because during storm events things can change rapidly. He noted that they keep a large inventory of chemicals, make adjustments within water plant, and will take samples at different levels to see if a different gate needs to be opened. Mr. Frederick commented that they must stay awake and alert. He said that at Sugar Hollow Reservoir the bladder can be released and the South Fork has a wide spillway so both reservoirs can handle flood events very well.

Mr. Lee asked what the original capacity of the SFRR was.

Ms. Smith replied that it was 1.7 billion gallons.

Mr. Frederick added that the initial total usable volume was 1.25 billion gallons based on reducing the reservoir water level to the bottom of the lowest intake for water supply purposes. He emphasized that dredging alone can increase storage but doesn't meet the 50-year safe yield target of 18.7 million gallons per day, and according to Gannet Fleming dredging 2.0 million cubic yards would save about five feet from the height of the Ragged Mountain Reservoir with the commitment to provide the same safe yield target.

He said that five feet represents about 4% of the height that is the sum of the existing dam height (67 feet) plus the height (45 feet) the reservoir is supposed to be raised.

Mr. Frederick also reported that the implications of reducing height haven't been discussed with the permitting agencies and that would need to be discussed.

Ms. Smith asked him to discuss current intake figures for South Fork.

Mr. Frederick explained that about 8-10 million gallons are taken out of the South Fork, but ultimately the plan was to provide 16 million gallons per day to the treatment plant; the issued permit also allows up to 25 million gallons per day to be transferred from South Fork to Ragged Mountain. He added that in order to implement more green-friendly plans for withdrawing water under higher flow conditions, these capacity numbers were proposed.

Ms. Smith asked if it had been determined how much can safely be taken out of the South Fork.

Mr. Frederick responded that the required stream flow release is independent of the amount withdrawn for water supply and, as DEQ stipulates, the stream conditions are satisfied first. He emphasized that withdrawals up to the capacities just stated are safe.

Mr. Jones commented that however water supply capacity increases will affect water downstream.

Ms. Smith commented that she learned recently that with 8-9 million gallons of water taken out daily, one truck of sediment is taken to the landfill, so theoretically the more water that is taken out the more sediment would need to be taken out.

Mr. Frederick said that the impurities in the withdrawn water have to be removed if that water is going to be consumed, whether that water is treated at South Fork or pumped to Ragged Mountain Observatory.

Mr. Jones commented that there is an amount that has to be treated if it is going to be consumed, and also asked if the South Fork Dam plays any role in flood control.

Mr. Frederick replied that the South Fork Dam is not designed for downstream flood control.

The discussion then moved to the online survey for public opinion.

Ms. Catlin reminded everyone of links to the survey and the results page, noting that there had been about 50 responses thus far.

Ms. Thomas mentioned the October 27th public hearing, and asked the task force if they would like there to be a presentation at the beginning of that meeting.

Dr. Palmer suggested that it might be beneficial to tell attendees what the task force is all about, including their charge/mission, and work performed to date.

Mr. Jones said it would be helpful to see the results to date prior to that meeting.

Ms. Thomas asked if there was any mechanism to see who's responded, and 1/4 of people have put their names on their responses.

Ms. Catlin replied that she wasn't certain, but agreed to check into it.

Mr. Jones commented that he liked Mr. Frederick's presentation, noting that there is a difference of opinion on whether the discussion should be a conversation about the water supply, and perhaps they should all get on the same page as to whether dredging should be talked about in the context of the water supply.

Mr. Martin said that the water supply plan is done, and this task force is charged solely with SFRR matters.

Mr. Jones said that he doesn't want to reopen the entire matter, but it seems disingenuous to avoid the topic of dredging and the water supply.

Dr. Palmer emphasized that there is a target safe yield, and you can't replace the water supply that a dam would bring with dredging. "That's where it gets really, really complicated to talk about."

Ms. Smith pointed out that a lot has changed since the last meeting, and now it's a financial black hole.

Ms. Catlin stated that perhaps some of those issues should be discussed before or outside of the hearing, because in a legal public hearing, "you sit and listen."

Ms. Smith pointed out that after all comments are received, the task force will have an opportunity to comment.

Ms. Thomas said that in Board of Supervisors meetings, hearing public statements before making comments is helpful.

Mr. Rooker said that questions were raised today about the charge of the committee, and that should be definitely be clarified.

Mr. Gaffney said that the four chairs got together and came up with the tasks for this committee.

Mr. Rooker stated that the best way to develop information was to form a committee, and this task force and its charge resulted from that.

Task force members agreed that at the October 27th public hearing, there would be an introduction and review of the task force's charge, then an opportunity for public comment, and comments to the public about how their input would be used.

Mr. Rooker emphasized that it's important to convey to the public the purpose of the task force and their limitations in terms of budget (or lack thereof), ability to take action, etc.

The task force agreed that what should come out of this effort is a report that consists of specific recommendations "such as studies that would provide more statistical, scientific information related to SFRR beyond what's been done to date" "that will be used as other authoritative bodies see fit."

Ms. Edwards said that she would like to see the sludge and trucking part of the RWSA operation, and asked to go on a "field trip" to visit the facility.

Mr. Frederick agreed to host any members who wanted to attend.

There being no further business, the meeting adjourned at 8:05 p.m.