

**Buffalo & White Oak Bayous  
Bacteria TMDL Stakeholder Group  
June 26, 2002**

**Stakeholders Present:** Theo Glanton, Rod Hainey, Catherine Elliot, Carole Lenz, Mary Ellen Whitworth, Courtney Miller, Latrice Babin

**Stakeholders Absent:** Bennie Billington, Neil Bishop, Brenda Bradley, Linda Broach, Ralph Calvino, Claire Caudill, Cynthia Chappell, Terry Hershey, Scott Jones, Helen Lane, Mike McClellan, Mike Montgomery, Colleen O'Brien, Mike O'Brien, Donna Phillips, Evelyn Born Shanley, Linda Shead, Kerry Whelan

**Support Team Present:** Andrea Dunn, Paul Jensen, Michael Bloom, Om Chawla, Earline Lambeth, Carl Masterson, Hanadi Rifai, Ron Stein, Yu-Chun Su, Monica Suarez, Pris Weeks

**Others Present:** Sandra Alvarado (TNRCC), Sam Eaton (Parsons), Trent Martin (HCPC), Randy Palachek (Parsons), William Pugatch (TNRCC), Mel Vargas (Parsons), Kathy Ramsey

**Materials Distributed:**

- 6/26/02 meeting Agenda
  - Meeting Responses (responses to questions raised in March 7, 2002 stakeholder meeting)
  - Total Maximum Daily Load for Fecal Pathogens in Buffalo Bayou and White Oak Bayou – Responses to Comments from Last Meeting
  - Theo Glanton's paper on TMDL Committee Presentation Fecal Data
  - Hanadi Rifai's PowerPoint presentation of the Total Maximum Daily Load for Fecal Pathogens in Buffalo Bayou and White Oak Bayou (Project Status)
1. The meeting for the Buffalo and White Oak Bayous Bacteria TMDL Stakeholder Group was held on Wednesday, June 26, 2002 from 3:00 to 6:00 p.m. at the H-GAC offices, 3555 Timmons Lane, Houston, Texas 77227, 2<sup>nd</sup> Floor Conference Room A. **Pris Weeks** of the Environmental Institute of Houston (EIH) welcomed participants and self-introductions were made. **Pris Weeks** announced that **Andrea Dunn** was replacing John Matthews who took meeting minutes in March and suggested that, because **Andrea Dunn** does not have a background in biology, the meeting be taped. There was no opposition to the recommendation and **Carl Masterson** began the cassette recording. **Pris Weeks** then called for an approval of the March 7, 2002 meeting minutes that were posted on the web. The group was asked to review the minutes. No correction requests were voiced and the minutes were approved.
  2. **Pris Weeks** then asked **Sandra Alvarado**, Project Manager of a new bay systems TMDL to give an update to the group. **Sandra Alvarado** indicated that she is working on a TMDL that is addressing areas closed to oyster harvest. The TMDL covers six segments which include the East, West, Galveston, Upper Trinity, Lower Trinity and Chocolate bays. The contractor for the project is currently delineating watersheds, land use and land cover. The goal is to estimate the bacterial loadings on the bays. To do so, an interagency workgroup was convened that consists of the Texas Department of Health, Texas Parks and Wildlife, Texas Department of Water Conservation and the General Land Office. **Sandra Alvarado** indicated that she was keeping in touch with **Ron Stein** as it seems logical to learn about each other's projects. **Pris Weeks** thanked **Sandra Alvarado** for her update and called for questions. **Trent Martin** asked what issues the TMDL would address and **Sandra Alvarado** replied that coliforms are the main issue.
  3. **Pris Weeks** mentioned her desire to poll the group regarding the potential need for increasing the timing/frequency of meetings based on issues, like those brought up during the March 7 meeting that need more attention. **Pris Weeks** indicated that the questions from the March 7 meeting would be addressed at this meeting and posed the question of whether the group was getting closer to the point of having more policy discussions and whether the

group felt a need to schedule meetings more frequently. . **Pris Weeks** was concerned that the level of stakeholders in attendance might mean the poll would need to wait until the following meeting.

**Ron Stein** suggested that the goal of this TMDL was to arrive at basic allocations for source and non-point sources by the end of August. The basic process is to come to a decision on permissible loadings and create an implementation plan to achieve those goals. He added that contributions from stakeholders are an important part of knowing the requirements and needs in watersheds and what options are available and therefore, it would be useful to meet regularly to talk about these options. **Pris Weeks** asked about a timeline for policy recommendations with regard to implementation. **Ron Stein** indicated that the recommendations would kick in parallel with the TMDL process which he expects to take a year. **Pris Weeks** asked if this meant meeting as many times as necessary to complete the work in a year's time. **Ron Stein** clarified this by explaining the target is one year after the completion of the TMDL (which he expects is the end of next summer). **Pris Weeks** asked the group about the best times for a regularly scheduled meeting adding that several of the stakeholders were not present for this meeting. **Mary Ellen Whitworth** stated that several of the stakeholders were not present for individual issues and not due to the time of the meeting. This concluded the Updates portion of the meeting.

4. **Pris Weeks** offered the floor to **Theo Glanton** to discuss the question raised at the March 7 meeting regarding the concentration of *E. coli* from fertilizers in the sediment on the banks of the Buffalo and White Oak Bayous (Comment 1). In other words, is there a relationship between fertilizers and levels of bacteria in the bayous? To study this, PBS&J took samples by their offices and at Buffalo Bayou at the West Belt. A local nursery selling various types of enhanced soils was also sampled. Data from typical City of Houston processed sludge was also included in this study (see handout: TMDL Committee Presentation Fecal Data). All samples were tested using Most Probable Number (MPN) versus a filter membrane test. Fertilizer samples ranged from 2.8 to 12,000 MPN/g Dry Weight and soil samples ranged from 22 to 820 MPN/g Dry Weight. **Theo Glanton** pointed out that the difference between the methods used to count fecal bacteria in soil and water samples means that one cannot make a direct correlation between MPN/g and cfu/dL. Thus, it is difficult to draw a direct comparison between the bayou fecal concentrations and the soil derived values. **Paul Jensen** asked if **Theo Glanton** had any idea how much of these fertilizer products are sold in the area. **Theo Glanton** indicated that it would take a large amount of work to try and quantify these amounts. **Rod Hainey** added that, as a homeowner, he purchases 50 bags of mulch a year. **Theo Glanton** then added that they ran the tests twice because the first time the test did not take the dilutions high enough and the numbers were not static. The numbers depend on temperature, moisture and how they were sampled out of the bag. He added that the numbers were for fecal not *E. coli*. **Trent Martin** asked if there was any indication of the age of the bags and whether the numbers decrease in time. **Theo Glanton** suggested that the numbers decrease when the food source is gone but that there is no way of knowing when that happens or how long it takes.
5. **Paul Jensen** then presented information regarding Comment 2 from the March 7 meeting. He first discussed methods for Source Tracking Showing Sources of Non-Human Origin which included DNA, biochemical and chemical methods. Of the three types of DNA tracking (polymerase chain reaction, pulsed-field gel electrophoresis and ribotyping), **Paul Jensen** pointed out that the pulsed-field method requires the development of a database to correlate data. Active efforts to identify fingerprints exist at TAMU, TAMU-CC, UT++, USGS and USDA. Most methods require a large fingerprint database and, based on published literature on the topic, the utility of the database appears to decrease with distance. **Paul Jensen** indicated that there is an extensive amount of work going on in this field but that the work to date is not definitive. **Mel Vargas** indicated that there are a number of studies around the nation trying to compare DNA and biochemical approaches and that people working on these projects are trying to do a better job of looking at confidence levels. Based on price, data needed and confidence levels, the DNA method is the most expensive and data intensive but

has a higher confidence level. **Michael Bloom** mentioned a paper presented on the antibiotic resistance approach used in New Mexico that is available on the EPA Region 6 website (<http://www.epa.gov/region6/water/npdes/sw/ms4/conference.htm>). He described the lack of confidence in the method as the most outstanding issue of the report. **Pris Weeks** asked to what extent this affects the TMDL (that we might not have a good characterization)? **Paul Jensen** said that the TMDL is not as concerned with naming background sources but rather identifying the anthropogenic sources. **Hanadi Rifai** concurred. **Paul Jensen** added that if there were real opportunities to control, for example, the bird population, then the background information would be helpful. **Michael Bloom** added that in some cases, knowledge of specific background sources is helpful in selecting management strategies (as in an agricultural setting with cows causing a problem) but that in urban watersheds it is a different challenge. He suggested identifying possible management strategies before studying background levels further. There were no further comments or questions on this item.

6. **Yu-Chun Su** presented information regarding Comment 3 from the March 7 meeting: Contribution of Bacteria from Sediment on Stream Banks. According to the presentation, heat-tolerant bacteria exists in the natural environment, including soils, vegetation, etc. Two soil samples were collected on 6/13/02 from Buffalo Bayou at the West Belt from under and away from the bridge. The samples were analyzed by the City of Houston PW&E WW Operation QC lab. The under bridge sample resulted in 760 MPN/g dry weight FC level and the away from bridge sample resulted in an 820 MPN/g dry weight FC level. Assuming 80% moisture content and 2.63 g/cm<sup>3</sup> soil density, 800 MPN/g dry weight = 42,080 MPN/dL wet weight. These numbers are comparable to the numbers derived from last summer's wet sample. **Yu-Chun Su** added that pigeons live under the Beltway 8 bridge. Additionally, he noted that the EPA has a limit on dry sludge which equals 1,000 MPN/g dry weight and that the 800 MPN/g dry weight is approaching that limit. He concluded that dry sediment are background soils that contribute to bacteria loads and that whether this load is controllable or not is a stakeholder issue. **Hanadi Rifai** stated that sediment has bacteria. **Yu-Chun Su** concurred. There were no further questions or comments on this issue.
7. **Hanadi Rifai** presented data regarding Comment 4: Contribution from Upstream of Barker and Addicks Dams. She indicated that her goal was to clarify the Barker and Addicks dams impact on Buffalo Bayou. **Hanadi Rifai** indicated that Piney Point controls the operation of the dams and that there is not much historical data up or downstream of the dams. The data shown was 1980s data collected from 1978 through 1981. The mean FC (cfu/dL) at the Addicks tributaries (going into the dam) was 6307 while the reservoir mean was 1090 and the discharge was 737. The mean FC (cfu/dL) at the Barker tributaries (going into the dam) was 3220, while the reservoir mean was 763 and the discharge was 663. These numbers exceed the standard in general. According to **Hanadi Rifai** from 1981-1993 the time series of FC data at Barker Dam shows that about half of the time what is coming out of the dam is higher than we would like to see. Likewise at the Highway 6 location. The time series of FC data at Dairy Ashford indicates that the input from Addicks exceeds limits coming into the area. Overall there is a 60% exceedance coming into both the bayous. Due to the high percent of flow actually released from the dams during dry weather conditions, the discharge will be treated as a point source input. **Hanadi Rifai** wondered how we implement plans above these segments adding that TNRCC will have to handle this issue. According to **Hanadi Rifai**, they can work with the problem in the model but implementation is still a problem, which would require much discussion. To conclude, there are historically high levels of fecal coliform observed within and downstream of the reservoirs, the reservoirs are attenuating the bacteria levels but they are not completely eliminated, during dry weather conditions, most of the upstream bayou flow originates from the reservoirs, and the reservoirs will be treated as a single point-source input in the TMDL. **Sandra Alvarado** asked if the reservoirs are on the 303d list. **Ron Stein** answered that they are not really reservoirs but rather flood control structures. **Carl Masterson** added that Buffalo Bayou watershed goes all the way to Katy. **Michael Bloom** asked if the flow and bacteria data indicate that the load leaving the reservoir exceeds the allowable load for the downstream segments? **Hanadi Rifai** answered that yes it did, but at that point the modeling team could omit that load from the analysis to determine

the allowable load for the downstream segments separately. However for implementation this is an issue because the management of dams has something to do with it in that there are operational limits. She added that you must assume you are at the limit starting out. **Yu-Chun Su** added that whether they are considered point-source or non-point source this is a problem. **Hanadi Rifai** added that a monitoring gauge would help get a handle on how the reservoirs are managed. **Ron Stein** indicated that the complexity of the problem requires looking at a bigger project and noted that he would address this at the end of the meeting. **Hanadi Rifai** indicated that the upstream gauge is not clear.

8. At this point, **Monica Suarez** and **Hanadi Rifai** presented information regarding Comment 5 from the March 7 meeting: Contribution of 45 Waste Water Treatment Plants (WWTPs) Not Sampled. There are three reasons why these WWTPs were not sampled: the facility is no longer in operation (14 plants), the request to collect samples was declined (6 plants), information from TNRCC database regarding location and/or operator was incorrect or the operator not responsive (25 plants). The geometric mean of *E. coli* at WWTPs is 3.4 cfu/100 mL. For plants that were not sampled, the team will assign an EC value based on the flow-weighted geometric mean of the subwatershed. **Hanadi Rifai** explained that often times the permit address was different from the plant location making it impossible to find the plant if the owners did not respond to UH requests for information. **Pris Weeks** asked if the TNRCC would help the team get into the plants that declined the collection request. **Latrice Babin** of Harris County Pollution Control offered her database. **Hanadi Rifai** indicated that they used the database and still did not gain access to 25 WWTPs. **Latrice Babin** indicated that her organization has the keys to the WWTPs. **Rod Hainey** interjected that **Latrice Babin** could take the team into the WWTPs. **Carole Lenz** indicated that the team did not have the authority to enter the plants to collect samples. **Latrice Babin** indicated that if they could synchronize their schedules she could go with the team. **Paul Jensen** asked if the team was sure the 25 plants are not ghost plants and that they did not file DNRs. **Hanadi Rifai** restated the question to clarify: "do they all exist?" **Theo Glanton** asked if DNRs are part of public record and **Carl Masterson** confirmed this. **Rod Hainey** asked what the problem was getting access to the plants. **Monica Suarez** indicated that there was not enough time on the team's part or on the WWTPs operator's part. **Ron Stein** asked if it is critical to sample the six WWTPs missed. **Hanadi Rifai** indicated that it is not critical but that the data would be nice to have. **Monica Suarez** indicated that levels were not high in the WWTPs visited and attributed this to either operating correctly or because they were notified the team was coming. She added that there is data that exists that says these plants do exceed limits. **Hanadi Rifai** stated that the data is not necessary for developing the TMDL but it would be necessary for the implementation and added that the team does have flow records that will be added in the data. **Mel Vargas** added that **Hanadi Rifai's** statement regarding the complexity of constructing an implementation plan with limited data could not be emphasized enough. **Pris Weeks** asked if there were ways to get additional data. **Mel Vargas** responded that there are a number of ways to get additional data, but the benefit is uncertain given the cost and time it would take to secure the data.
9. **Paul Jensen** then presented information on Comment 6 from the March 7 meeting regarding the possibility of setting new and less stringent standards for urban areas. He stated that in the year 2000 TNRCC revised its water quality standards, including those for contact recreation. A bacterial indicator study recommended a number of changes to standards. Some, like the use of *E. coli* were adopted. Another, setting out methods to determine whenwaters were suitable for swimming were not adopted. These recommendations did not get implemented but will be reviewed and considered in the next standards revisions. The recommendation included dividing the water of the state into four groups: A – managed swimming areas, B – stable waters, C – smaller, variable waters, and D – non-contact areas. In groups A and B, bacterial data routinely collected would be employed in screening for contact recreation criteria. The difference between A and B is that A waters would be managed by government entities and would need tests that can be used immediately. **Paul Jensen** noted that Austin does this today with Barton Springs Pool and that Galveston and Corpus Christi do not do that today but both have the ability to do so. For C areas, data would

be screened only when conditions are suitable for swimming. Physical criteria in these cases would include: velocity of less than two feet/second, a depth greater than 18 inches, water clarity sufficient to see bottom or have a known bottom, and temperature greater than 59°F. These criteria are easily judged, measured and observed by personnel already tasked with collecting samples. Objections to these recommendations include adding responsibility and additional burden to field personnel. **Paul Jensen** explained that this was the recommendation of the study, but other ways to address the problem of small highly variable streams not always being suitable should be envisioned. Alternative ideas include: making use definition more specific by subdividing contact recreation definitions, and using EPA's suggestion of different criteria from 1986 based on use: designated beach, moderate full body contact, lightly used full body contact, infrequently used. **Paul Jensen** suggested that the term "contract recreation" is too broad and must be made more specific by dividing contact recreation into swimming and wading/boating. In this scenario entities would use existing criteria for swimming areas and use less strict criteria for areas that are only used for wading. **Paul Jensen** added that high flow exclusion reduced 303d listed segments and that smaller streams are more influenced by runoff that is high in bacteria. Likewise, smaller streams also are more likely to not have physical attributes for swimming and that high flow exclusion are a function of the watershed. **Ron Stein** explained that for this TMDL the goal is to meet current standards but added that we should be aware of these recommendations during the course of the work. **Om Chawla** added that some bayous are near residential areas and wondered how to address kids that swim in these waterbodies. **Hanadi Rifai** added that there were "No Swimming" signs put up on Galveston beaches recently citing high levels of bacteria. **Mel Vargas** indicated that water quality managers were doing a bad job in letting kids swim in those areas and suggested that maybe a new message is needed that educates people about high fecal counts in urban streams. He then added that communities must start talking about the ideas **Paul Jensen** addressed in his presentation. **Yu-Chun Su** asked if we are going to apply criteria to storm sewers during flooding. If not, then should it be said that people swimming in those waters are swimming at their own risk? **Paul Jensen** indicated that the Texas Department of Health has always counseled against swimming in natural waters but added that some waters are perfectly suitable for swimming. **Hanadi Rifai** added that kids can swim in six inches of water. **Carl Masterson** asked **Rod Hainey** if Jersey Village would be willing to post signs. **Rod Hainey** suggested that the first question asked would be "why?" He suggested this is a public information issue. **Michael Bloom** related a story about a time when presented information about storm water treatment ponds and was asked about drownings in such ponds. A municipal government representative who favored pond use stood up and said, "what do you want us to do, fence the streets?" **Carl Masterson** acknowledged that there are liability issues associated with this matter. **Randy Palacheck** agreed adding that we will always have this issue even if signs are posted and someone gets sick. **Hanadi Rifai** reminded the group that there is still a risk calculation that 1/1000 might get sick. **Carl Masterson** replied that mothers are not concerned about the risk calculation. **Mary Ellen Whitworth** brought up the \$1 million the Buffalo Bayou Partnership spent and the expectation that the water should be clean. She explained that the proposal is for small boating areas and creating a wetlands area at Waugh Drive. **Paul Jensen** indicated that there are a lot of things that can be done to improve the water quality but that when flows are high the quality of the water is affected. **Michael Bloom** inquired about what the Buffalo Bayou Partnership plans envision and **Mary Ellen Whitworth** discussed diversion channels where White Oak and Buffalo Bayou come together (much like San Antonio's Riverwalk) but added that other parts would be left very natural. **Pris Weeks** asked for clarification that for the purposes of this TMDL that the group is using what we have as current standards. **Ron Stein** confirmed this. There were no more questions for comments on this topic.

10. **Hanadi Rifai** then gave a project status (see handout titled Total Maximum Daily Load for Fecal Pathogens in Buffalo Bayou and White Oak Bayou). Major project tasks are stakeholder/public education and involvement, assessment of current levels and trends of bacterial indicators of fecal pathogens in the bayous, assessment of major sources, transport, and fate of bacterial indicators of fecal contamination, application of models to elucidate the

sources and major processes controlling observed levels of FC, and TMDL allocation analysis. Progress to date (since March) includes the completion and submission of the quarterly report, nearly complete storm sewer sampling, development of HSPF model for both bayous. **Hanadi Rifai** indicated that many storm sewers exceeded the EC concentration limits. To study this, **Monica Suarez** and other team members did reconnaissance using maps from the City of Houston. The team found undocumented outfalls (many on White Oak Bayou) and could not determine their sources. The outfalls were color coded by origin. Three of seven outfalls on Buffalo Bayou and approximately three of eight outfalls on White Oak Bayou were discharging more than the allowable loads of *E. coli*. Overall, half of the time the storm sewers exceeded the standard. Interestingly, Buffalo Bayou's wastewater contained less EC and FC than that of White Oak Bayou but the reverse is true for stormwater. This might have been a function of data on the day it was collected. The *E. coli* load for point source and illicit discharges was  $1.82E+12$  MPN/yr and  $7.89E+13$  MPN/yr respectively for Buffalo Bayou,  $5.83E+14$  MPN/yr and  $7.24E+13$  MPN/yr respectively for White Oak Bayou, and  $6.09E+14$  MPN/yr and  $2.31E+14$  MPN/yr respectively for the total. Therefore the point source loads were approximately three times the load of illicit discharges overall. **Mel Vargas** asked if point source loads include storm water conveyances and **Hanadi Rifai** replied that the data considered WWTP outfalls only. To date the hydraulic calibration and sensitivity analysis has been completed for both Buffalo and White Oak bayous. The bacteria calibration and sensitivity analysis is ongoing. These two calibrations make the flow of the model mimic the flows of the bayous. **Hanadi Rifai** noted that Tina and **Yu-Chun Su** worked on the models. The hydraulic calibration and sensitivity analysis consisted of changing the hydraulic parameters one by one, calculating the root mean square difference between model output and USGS gauged flow data and selection of the "best match" values (minimizing total RMS ) of parameters within reasonable range. Calibration points included: Buffalo Bayou at Dairy Ashford, West Belt, Piney Point and Shepherd; White Oak Bayou at Heights; CC at Deihl. The number of simulations conducted for Buffalo and White Oak bayous were 51 and 41 respectively. Graphs of the model as compared to the USGS Gauge show close matches on low and high flows. For all practical purposes the hydraulic portion of the model is complete. The next step is to add bacteria data into the model. The data includes sources and sinks of bacteria, fate and transport (net decay = die-off minus regrowth) and calibration against historical data. The process for point source data includes identifying WWTPs, obtaining flow and water quality data for each source and input this information for each segment along with illicit input for each model segment. The team has five years of WWTP flow data, WWTP effluent concentrations, storm sewer flows and concentrations. The team will assign average values to unsampled subwatersheds and combine WWTP and storm sewer values while assuming a constant over time. Dry and wet air deposition sources include bird droppings, pet wastes, wastes of other animals, other bacteria loadings on surface. The data can be modeled as loading rates in cfu/acre/month, can be subwatershed specific and season specific however the team does not have the subwatershed and season specific data. Therefore, data on hand will be used and dry and wet deposition will be used as a calibration parameter. Sediment and source sink will also be used a calibration parameter. Storm water runoff and upstream inflow is "best guess" for bacteria buildup and wash-off however the team has some data for inflow from upstream watershed including flow, dissolved concentration and concentration in sediment. Fate and transport data for first-order decay rates is available. The model is an *E. coli* model because that is the standard. **Hanadi Rifai** indicated that if EC data is not available then the team is converting FC to EC assuming  $FC/EC = 200/126$ . She added that the group might need to discuss whether the model should be an FC model. The model is currently in the midst of calibration and should be complete in a couple of weeks. **Sandra Alvarado** asked if the model takes into account elevation and land use. **Hanadi Rifai** answered yes, that the model uses land use and land cover data from H-GAC. There were no other questions or comments about the presentation.

11. **Ron Stein** then discussed this TMDL in relation to greater Houston area. There are complexities outside the bayous that contribute to bacteria loads and that there are potentially

a large number of segments of the watershed that will be identified as impaired by bacteria. Ultimately bacteria contributions to estuaries will be studied as well. For this reason, Houston is a test site for urban bayous. He indicated that he has discussed with colleagues the possibility that the most efficient way of addressing the problem is to deal with all of these areas as a complete system which means using information gained to conduct this TMDL to TMDLs on other bayou segments in the Houston area and estuaries. The plan is to come up with allocations of bacteria loads that White Oak and Buffalo Bayou can sustain and take the information and expand the study out to the Houston metro area focusing on bacteria sources we can control. This translates to a Houston-wide implementation that includes upstream contributions to Buffalo Bayou. **Ron Stein** added that this is also an appropriate time to look at issues of use including what sort of water quality is reachable and what standard we can and should meet, keeping in mind the plan must be one that is phased in over a number of years because there is enough uncertainty and complexity to warrant a close inspection of incremental changes in the watershed. **Carl Masterson** asked if this means not having an implementation plan for this TMDL. **Ron Stein** indicated that TNRCC is discussing that option now. **Pris Weeks** asked if the parameters for this stakeholder group have changed to which **Ron Stein** replied that the TNRCC is discussing the options and will bring them back to the group for consideration. **Pris Weeks** asked if the question of what is achievable is a question the group will answer or TNRCC will answer and how this will affect the process of the group. **Ron Stein** indicated that the group will be involved as more information is gathered regarding background levels as they relate to current standards. **Catherine Elliot** asked if it is better to determine the background levels of the watersheds before expanding the TMDL to the metro area. **Ron Stein** indicated that the need to expand the study to include upstream contributions reflects the risk of spending time and money on Buffalo Bayou and White Oak Bayou alone without considering other contributions. **Catherine Elliot** indicated that the plan sounds as if the agency is trying to grab too much at one time. **Pris Weeks** referred to the presentation that indicated upstream contributions are significant but lay outside of the TMDL. **Catherine Elliot** indicated she was still concerned about side banks. The group then discussed the Comment 4 data presented earlier in the meeting. **Catherine Elliot** indicated that the focus should continue to be on segments rather than the entire metro area. **Carl Masterson** explained that this matter is a procedural one because as a TMDL stakeholder group the group must create an action plan for this TMDL. He then asked if this is the time to be focusing on the entire Houston area. **Ron Stein** indicated this was only being discussed in the agency and that it may be decided that the group will continue as planned. **Hanadi Rifai** hoped that a detailed study of Buffalo Bayou would be complete first. **Carl Masterson** indicated that he was referring to the legal requirements of the group. **Pris Weeks** questioned if the stakeholders would be involved in this decision. **Ron Stein** indicated that this TMDL will be concluded and new projects might come from this project. **Pris Weeks** clarified that she was referring to the Watershed Action Plan and whether stakeholders would have a say in this? **Ron Stein** confirmed this.

12. **Pris Weeks** indicated that this discussion should be addressed another time as the meeting was running late. The group agreed and the meeting was adjourned.