STAKEHOLDER MEETING 12

September 15, 2015
5:30 – 7:30 PM
Double Bayou Community Building

MEETING SUMMARY

Stakeholders: David Boyd, Roberta Bradford, Tom Douglas, Leroy Ezer, Norma Ezer, Becky Fancher, Clint Fancher, Elga Jackson, Guy Robert Jackson, Scott Jones (GBF), Brandt Mannchen, David Manthei (NRCS), Ollie Mayes, Creola Moore, Alice Rivon, Jerry Shadden (TBCD), Rex Tunze, Bertha White, Kay Willcox, Pudge Willcox

Team Members: Ryan Bare (HARC), Stephanie Glenn (HARC), Brian Koch (TSSWCB), Lisa Marshall (GBEP), Brandie Minchew (Shead), Linda Shead

1. Welcome, Introductions, and Agenda Review

Linda Shead welcomed and thanked everyone for attending the meeting. She also thanked the Galveston Bay Foundation and Scott Jones for bringing the dinner, as well as Chambers County for its continued support: Precinct 2 for the meeting room, Emergency Management for the screen, the Economic Development Office for the PA system, and the Parks Department for getting inmates to set up the tables and chairs. She then reviewed the evening's agenda, which includes a presentation and discussion of tidal mixing and bacteria loads, a presentation on the Galveston Bay Report Card, review of the water quality and implementation chapters and then presentations on the human history section and on the pollution sources and loads chapter.

2. Presentation and Discussion of Tidal Mixing and Bacteria Loads

Stephanie Glenn reviewed briefly the previous discussion on bacteria loads for the upper East Fork watershed, which is the only non-tidal mixing station, with everyone having agreed on a percent reduction goal for that portion of the watershed. She noted that, although the other sampling stations are tidal mixing stations, this evening's presentation and discussion would focus on the Lower West Fork, because it is the only one with a sonde (an automatic, electronic water flow monitoring instrument). The gauge (sonde) installed at the West Fork Lower station can measure flows going forward and backward. Forward flow would be going downstream, toward the bay, and would be positive. Backward flow would be going upstream and would be negative, from the tidal or wind influence from Trinity Bay. This gauge gathered data every 15 minutes continuously from February 24, 2012 to July 6, 2015.

Starting with Trinity Bay and how it effects Double Bayou, the first thing to note is that Trinity Bay is relatively shallow (approx. 6-10 feet in depth). Also, as part of the Galveston Bay system, which is largely enclosed, it is protected from many impacts from the Gulf of Mexico, which means it does not experience as much in the way of tidal effects. A major factor in water patterns of Trinity and Galveston Bay is actually the wind.

An additional factor is the freshwater inflows from the major river systems. In this case, that would be the Trinity River. These inflows have a seasonal pattern, with the largest volume of inflow in April and May, when the salinity in Trinity Bay may drop to near zero. The low inflow season is July to October, and the salinities in Trinity Bay then may be around 10 or up to 25. (Normal sea water is 35).

As a result, the patterns of tide levels in Trinity Bay and Galveston Bay are irregular. They can be "diurnal" – one high and low tide each day – and "semi-diurnal" – two high and two low tides each day, as well as irregular. Stephanie then presented an example graph of the variation in flow over a three-day period in April 2014, when the tidal pattern was diurnal one day, semidiurnal the next, and completely irregular the third day.

So, all of these factors affect how Trinity Bay then affect the flow in Double Bayou, with the strongest response at the West Fork Lower sampling station, which is closest to Trinity Bay. Stephanie presented a table of the flows at each of the sampling stations. (For the table - flows for EFU, EFL and WFU are from grab samples on all routine/targeted samples taken during the Double Bayou WPP sampling period; WFL is from the automatic sonde.) The table shows the minimum, maximum and average flows, with the negative numbers reflecting flow from Trinity Bay into Double Bayou:

Flow, cfs	Min	Max	Average
EFU	-6	572	49
EFL	-49	1390	106
WFU	-70	940	71
WFL	-511	1020	71

For perspective, the Trinity River flows typically range from 12,000 to 16,000 cfs (but may be very much higher). Thus, Double Bayou is a very slow-moving system.

The next consideration was how Trinity Bay might affect bacteria levels in Double Bayou. A statistical analysis showed that the percent exceedances for bacteria criteria were only 18% during negative flows, but 94% during positive flows. The conclusion from this was that tidal mixing dilutes the bacteria concentration. To confirm that Trinity Bay is not itself a source of bacteria, data from samples in the bay near the mouth of Double Bayou were analyzed and showed that the geomean of Enterococci levels from 2001-2014 was only 7.6 MPN/100 mL (and even lower more recently), compared to the geomean of 78 MPN/100 mL at the West Fork Upper station during this project.

All of the tidal irregularity means that some of the typical analysis tools that are used to analyze the level of bacteria in the bayou, as it relates to flow, simply won't work for Double Bayou's flow pattern. Instead, on the days when bacteria were sampled, the flows that were measured every 15 minutes were integrated (a special mathematical sum) to arrive at a total volume of water of the bayou on those days. Then the concentration of bacteria measured in the grab sample for that day

(in CFU/100 mL) was applied to the total volume of water, to arrive at a total bacteria load per day. These loads were graphed according to the volumes and then compared to the maximum load that would meet the bacteria criterion. To plan for meeting the criterion of 35 CFU/100 mL most of the time, but not necessarily during those extreme rainfall events, would require a 59% reduction in load.

Applying a margin of safety (MOS) – a buffer for error if things go wrong with the management measures or the loads are higher than expected – was considered. The group discussed issues of what are natural backgrounds for bacteria levels; that a reduction goal is not a regulatory requirement; the need for adopting a goal that would plan to meet the regulatory target, in order to qualify for implementation funding; how other watersheds have approached the issue; whether to have 0%, 5% or 10% MOS; whether to have one goal for the entire watershed (all 24 subwatersheds), or one goal for the upper 2 watersheds and one for the other 22; and whether monitoring will continue (it will depend on available funding). The remainder of this discussion was postponed until after the other presentations/discussion.

3. Presentation on the Galveston Bay Report Card

Scott Jones began his presentation noting that the Galveston Bay Report Card is a first-ever such report, and that it had relied on public input to find out what people wanted to know about. He described the importance of Galveston Bay, some of its key characteristics, and those of its watershed. The data analysis for the Report Card was developed by the Houston Advanced Research Center, with public outreach by the Galveston Bay Foundation. He encouraged everyone to visit the website – www.GalvBayGrade.org – to get much more detail on how the grades were developed and to download pdfs from the report. The six categories they reviewed and graded were: water quality, wildlife, pollution events & sources, habitat, coastal change, and human health risks. For each category, there are more detailed pieces in the report and on the website, including tables and graphs.

Scott then went on to review some of the highlights of the Bay's grades. The Overall grade is C, indicating that the bay is adequate for now, and faring well considering its challenges. The Water Quality grade is a B, noting that the bay's tributaries are not doing as well as the bay itself in water quality, since the bay has a lot of dilution and mixing. A list of all the grades is below:

Overall:	C
Water Quality:	B
Habitat:	D
Wildlife:	D
Coastal Change	C
Pollution Events & Sources:	D
Human Health Risks:	C

Scott also encouraged everyone to give feedback on the Report Card at the website and/or social media.

4. Review and Comment on the Water Quality Chapter

Linda apologized that hard copies of the chapters that had been presented previously were left behind and not available at this evening's meeting. Stephanie went on to list the key topics covered in the Water Quality chapter: an overview of water quality sampling; discussion of stream type designations and introduction to tidal mixing; graphs of precipitation; results of grab samples for dissolved oxygen and of the 24-hour dissolved oxygen sampling; the bacteria grab sample results;

and a discussion of nutrients and chlorophyll-a. Stephanie noted that reviewing the bacteria geomean graph in this chapter might help when considering the load reductions described in Chapter 5 presented this evening.

Linda began a discussion with asking some questions stakeholders about key elements in the chapter. These questions and stakeholder responses are summarized below:

- Q: What is the importance of "routine" sampling? A: To know the average, normal conditions.
  And not weather dependent conditions.
- Q: What can "targeted, rain-event" sampling tell us? A: That the pollution is coming from the whole watershed, in runoff.
- Q: Which station has the most tidal influence? A: Lower West Fork
- Q: What are two factors that affect the level of dissolved oxygen in the water? A: Bacteria, algae, temperature
- Q: What are two things about the bacteria levels in Double Bayou? A: They're high.
- Q: What's the importance of nutrient levels? A: They're too high; could kill the fish; and they increase the bacteria.

5. Review and Comment on the Implementation Chapter

Brian Koch reviewed the topics covered in the Implementation chapter (Ch. 8). First is an overview of project implementation, followed by the technical assistance provided by stakeholders and entities such as NRCS, TSSWCB, TBCD, and Chambers County. Then the recommended management measures for each category of source are described: wastewater, septic systems, agriculture, wildlife, non-domestic plant/animal, and recreation. A project schedule and milestones are presented – where do we want to be after so many years – plus estimated costs. Tables of all of this information are provided. The part on outreach and education describes how we will get the message out about Double Bayou. The role of the watershed coordinator is a key element of implementation – a person to connect the dots and reach out to the different groups. Potential sources of funding are listed. A place for expected load reductions is provided. Finally, a monitoring plan is presented – so that we can figure out if we are doing the right thing.

Linda reiterated the need for stakeholder help in filling in the numbers in the tables on the management measures. This information will be critical for applying for grants.

6. Presentation on the Human History Section of the State of the Watershed Chapter

Linda proceeded to highlight the major elements of the Human History section of the State of the Watershed chapter: ranching, rice farming and irrigation, oil, special aspects of the three communities (Anahuac, Oak Island, and Double Bayou), and the roles of CLCND and TBCD. She requested that stakeholders review and let her know if anything vital has been left out.

7. Presentation on the Pollution Sources and Loads Chapter

Stephanie briefly summarized key parts of the chapter on Pollution Sources and Loads: the discussion of LDCs and the tidal mixing process, the land use/land cover analysis, the results of the SELECT modeling using the high scenarios (for placing the management measures), the proposed load reduction for the upper watershed from the previous meeting. She noted that the final load reduction for the rest of the watershed still has X's since this meeting's results had not been completed.

8. Completion of the Load Reduction Recommendation

After a few remaining questions and remarks, the group agreed to recommend a goal of a 61% bacteria load reduction across all subwatersheds, which would include a 5% margin of safety.

9. Wrap-Up, Timeframe, Announcements and Next Steps

Linda noted that the latest chapters are up on the website, and that there is still time to provide comments. She presented the currently planned meeting schedule on a flip chart, and described the activities to occur at each of the next/remaining meetings:

- 2nd Tuesday, October 13 – General Meeting – review Ch. 5 and Human History section; present completed management measure tables of chapter 6; provide a complete full plan draft with two weeks for final stakeholder comments
- 2nd Tuesday, November 10 – General Meeting – based on final comments, ask for approval of sending the draft plan out for public comment; present an outline for an executive summary to use as an outreach piece
- End of 2015 – send the plan to EPA for review
- 2016, date t.b.d. – Final General Meeting – Celebrate after update from EPA

Linda thanked everyone for attending.

[Please note: The October meeting and its activities were re-scheduled for November, when the full schedule was revised.]