Galveston Bay Freshwater Inflows Group
22 May 2006 Meeting Summary

Participants Present: John Bartos, Richard Browning, David Buzan, Nicole Cass, Ken Kramer, Cindy Loeffler, Carl Masterson, Robert McFarlane, Linda Shead, Ann Sheridan, Jeff Taylor, Mary Ellen Whitworth, Pudge Willcox, Woody Woodrow

Support Team Present: Glenda Callaway, Pris Weeks, Jim Dobberstine, David Parkhill

Others Present: Wendy Gordon (TCEQ), Carla Guthrie (TWDB), Norman Johns (NWF), Brandt Mannchen (HSC), Mike Rickman (NTMWD), Chuck Settle (Espey Cons), Ruben Solis (LCRA), Berna Detta Williams (City of League City)

1. The Galveston Bay Freshwater Inflows group met at the E.B. Cape Center in Houston, Texas at 1:30 pm. Self-introductions were made.
2. The agenda and the time allotment were approved.
3. The October 11, 2005 GBFIG draft summary was approved with changes.
4. The following updates were provided by GBFIG members:
    a. **Loeffler** provided an update on the Environmental Flows Advisory Committee, which last met Thursday May 18th, 2006. In part, the meeting discussion involved what other areas of the country are doing to protect environmental flows. Many of the examples given were from the Pacific Northwest (the flow volumes in question in that area are less than they are here); there has been some success with purchasing and leasing water rights. A number of organizations were invited to attend the meeting (e.g.: The Texas Chemical Council, Environmental Defense, others) and talk about their concerns regarding SB3 should similar language be drafted and put to the legislature again. The Science Advisory Committee was also appointed. The next meeting is currently scheduled for June 12th in Austin, Texas, at the Texas parks & Wildlife offices.
    b. **Buzan** provided an update on the Tri-agency Stakeholder process; the interagency technical subcommittee is currently looking into where the TPWD Coastal Fisheries data fits into determining how the data should work and how it might address fresh water inflows. Their next meeting is currently scheduled for Thursday May 25th in Austin, Texas.
    c. **Buzan** provided an update on the Texas Parks & Wildlife Freshwater Inflows Group, which meets quarterly (last met in April '06) and is planning to meet again on July 20th. Discussion is currently centered on analysis of the science of fresh water inflows & how it might be used to manage those inflows. Summaries of the

meetings will be on the website; anyone wishing to be included on the e-mail list or receive additional information should let Dave know. **Weeks** suggested that GBFIG may be able to link to their website from the HARC/GBFIG site.

5. Impacts of Regional Water Plans

a. Tom **Gooch** provided an overview of the Region C regional water plan (See slides for more detail), which covers a 16-county area including Dallas, Denton, and Tarrant counties, and is projected to grow to 13+ million people by 2060. The region does not have abundant groundwater sources; 90% of supply is from surface water sources. The area is predicted to suffer a 2 million acre-foot pre year shortage by 2060. Management strategies include conservation, indirect reuse, connecting some existing reservoirs and adding new ones;1/3 of supply is currently connected. Projections to 2060 indicate that 1.7 million acre-feet will be from new supplies and 250 thousand acre-feet in new reuse, resulting in higher return flows to the Trinity River (the primary surface source for Region C). The projected cost of the 50-year plan is approximately $14 billion. The state data center shows increased migration rates from 2000-2006 than in the 1990's; it is expected that this will continue. Population increases generally result in increased demand; it is recommended that they continue to monitor and update plans as necessary. **Mannchen** inquired whether any consideration was given to downstream users? **Gooch** responded that they used the consensus method at deriving the plan, however nothing is in detail until such time as action is taken (e.g.: reservoirs put on-line). **Loeffler** inquired whether the projected 2060 return flows are a result of water brought in from outside of the basin? **Gooch** responded affirmatively, indicating that filling the projected need would require imports along with conservation, which would in-turn yield higher return flows.

b. David **Parkhill** provided an overview of the Region H water plan (See slides for more detail), noting that as a result of GBFIG interest, the region conducted analysis looking at the impact of regional water plans on Galveston Bay. Region H covers 15 counties with populations projected to grow to 10.9 million people by 2060. Regional water needs are expected to grow to 3.4 million acre-feet per year by 2060 from the current requirement of 2.1 million acre feet. The Trinity, San Jacinto, and Brazos river basins all contribute to regional supply. The municipal segment currently accounts for 40.7% of demand; this segment is expected to account for 50.8% of the estimated need by 2060. 75% of the supply is surface water, 25% is ground water; groundwater use has been reduced as a result of subsidence regulations. The major strategies include conservation, of-channel reservoirs, operation of two BRA/COE reservoirs, a 30-million gallon-per-day desalination

plant, 60-million gallon per day reuse, and 115-million gallon per day indirect wastewater reuse.
Municipal demand reduction of 100,000 acre-feet per year is recommended, along with agricultural irrigation demand reduction of 77.9 thousand acre-feet per year. Direct reuse of wastewater in the Houston Ship Channel industrial segment, and indirect reuse of City of Houston and north Harris County waste water was also discussed; the regional plan recommends reuse of less than 50% of return flows. The plan attempts to minimize the impact of water management strategies. Natural flows range from 2.5 million acre-feet per year to 20+ million acre-feet per year; man-made variability would alter this by some small portion; with no return flows the volume really drops. Monthly flows are also important; median flows exceeded the targets ½ of the time. Strategies focus on conservation, reuse, and reservoirs with protection of unique stream segments included.

Dr. Barney Austin's Region H instream flows slide presentation was briefly reviewed at this point, followed by a 15-minute break.

6. **Weeks** opened the discussion regarding the path forward by looking at hypothetical scenarios. Each scenario's author was asked to discuss their scenario(s) a bit to aid understanding.
    a. **Weeks** noted that scenarios developed by Stephanie Glenn and Lisa Gonzalez were developed in-part by pulling information off of the TWDB website.
    b. **Buzan** discussed scenarios developed by TPWD, indicating that they looked at it from the point of view of trying to mimic natural flows, where high rainfall would result in higher inflows, and dryer weather would result in reduced flows.
    c. **Johns** discussed scenarios developed by NWF took the point of view of enveloping protective criteria and looking at what other regions in the U.S. are doing (e.g.: Apalachicola estuary; Florida, Alabama, Georgia), moving from basic to protective criteria.

    After some discussion, it was agreed that the group should work in a large group during this meeting due to time constraints and then move to working in smaller groups in a future meeting. **Callaway** started by noting that we need to work toward strategies to determine what to do. **Woodrow** noted that rainfall patterns over the last 18 months have gone from normal to dry; it might be worthwhile to compare against scenarios. **Callaway** inquired how the City of Houston triggers its conservation measures. **Settle & Taylor** responded that it is determined by pre-existing criteria based on reservoir level, pumping rates/volume in the system, pressures, etc. **Taylor** added that they have never had a water supply shortage, but if they were to do anything, it would likely be triggered by water reservoir levels, not rainfall; the time noted in the proposed scenarios (2 months) is too short to be considered a drought;

COH would look at 2 years or more. **Taylor** also noted that reservoir operations are much different from a drought management plan to COH users due to greater flexibility. **Gordon** stated that management could work in concert with natural conditions; when there are high flows, use that to freshet the bay, and then manage drought conditions differently. **Johns** added that he liked the idea of managing cognizant of the weather, but recommended trying to mimic natural patterns and not simply managing toward some minimum flow. **Taylor** added that the Galveston Bay system is unique; there is a baseline of flow from Dallas due to reuse which may increase over time. **Shead** noted concerns where there may be gaps due to serious draught conditions; concerned what these volumes may be and what volumes would be required for the "freshets"; she also noted that we need to know what actions water managers could take and what impact they might have, and then market this concept of water management to the public. **Wilcox** commented in regard to **Woodrow's** observation of rainfall patterns by stating that while our problem has traditionally been too much water in the river, that is not currently the case; the Wallisville saltwater lock is currently in its longest lockdown (closed) condition since the 1950's, having been extended to nearly one year. **Gordon** noted that thinking geographically about how to apportion inflow is also important, and that the state is seeking guidance on this subject. **Parkhill** inquired how much of a critical low flow condition is a problem; are we certain what these values are? **Woodrow** stated that natural low flows are OK, but he is concerned with repeated artificial deductions on top of these natural patterns; the organisms in the system are adapted to natural conditions, but may not be able to adapt to the artificial ones; we need to establish a relationship between weather and inflow; salinity may be one tool. **Buzan** added that we need to be cognizant of sediment and nutrient supplies as well. **Loeffler** agreed, and added that while coastal fisheries data may not work for specific details and areas, using indicators like oysters/dermo may be helpful, or possibly organism movement into refuge areas to escape salinity increases; while we can't do too much about drought conditions, we might be able to provide refuge for these organisms to escape into until conditions moderate.

7. **Next Steps: Weeks** began the discussion of next steps by indicating that our next meeting is scheduled for mid-September 2006. **Bartos** noted that while he likes the scenarios, we should not throw out the strategies that we discussed prior, as these may look different with the new Dallas reuse information available. **Buzan** suggested that members of the group might identify important elements of a response scenario (i.e.: timing; 2 months v. 2 years). **Shead** added that we might narrow the scenarios down to two or three. **(Buzan** inquired whether someone from GBFIG would be available to provide an update at the TPWD meeting on July 20th; **Weeks** indicated she would try to identify a candidate.)

The meeting was adjourned at 4:35 pm.