

## **Galveston Bay Freshwater Inflows Group 1 May 2002 Meeting Summary**

**Participants Present:** John Bartos, Reed Eichelberger, Woody Frossard, David Jenkins, Ken Kramer, Carl Masterson, Bob McFarlane, Bruce Moulton, Chris Paternostro, Linda Shead, Ann Sheridan, Jeff Taylor, Pudge Willcox, Woody Woodrow

**Support Team Present:** Glenda Callaway, Lisa Gonzalez, Greg Graml, Andy Sterbenz, Pris Weeks

**Others Present:** David Parkhill (KBR), Ernest Rebuck (TWDB)

1. The Galveston Bay Freshwater Inflows Group (GBFIG) met at the San Jacinto River Authority (SJRA) offices in Conroe, Texas. Self-introductions were made.
2. The March 25, 2002 meeting summary was approved with two minor changes.
3. **Weeks** outlined the meeting agenda and noted that it would change as the group discussion evolved.
4. The following updates were provided by GBFIG members:

**Bartos** provided an update on the Region H meeting held at SJRA earlier in the day. He stated that the draft infrastructure finance report was addressed at the Region H meeting. Policy recommendations will be going to the Texas Water Development Board (TWDB). The policy recommendation most applicable to GBFIG was that related to Bay and Estuary Program funding. The recommendation states that funding to regional Bay and Estuary Programs is insufficient to increase scientific knowledge and should be increased. The recommendation mentions other bays and estuaries in addition to Galveston Bay (i.e., Sabine Lake and Matagorda Bay), but recognizes Galveston Bay as an integral part of the State economy.

**Callaway** added that in the draft recommendations, there was a recommendation related to Watermasters, but that recommendation was removed from the list. There may still be controversy regarding the use of Watermasters in this region.

**Woodrow** added that at a recent conference in Austin there was some discussion of Watermasters. There was no open admission from the TNRCC, but it was discussed that since all water rights information is self-

reported, Watermasters might be good mechanism to really let one know what is going on in the watershed.

There was no update on Region C activities.

**Shead** announced that the Texas Coastal Society meeting will be held in Galveston on May 19-26, 2002. More information is available at <http://www.thecoastalsociety.org/tcs18/>.

5. **Graml** then proceeded to give a presentation on the next steps of the GBFIG process. At the March 2001 meeting he had talked about quantitative inflow objectives. The group also knows that spatial and temporal distribution is important as well. The group needs to keep in mind the frequencies at which certain inflow targets should be met, e.g. Max H met 50% of the time, etc...

The group needs to come up with some measures to enable the comparison of the different management strategies. The LCRA matrix is one example. The LCRA matrix looked at how management strategies impacted fisheries harvests, water supply, recreational use, etc. LCRA looked at impacts in wet and dry years. GBFIG will want to keep this in mind as it looks at criteria by which to measure management scenarios.

LCRA "cases" were actually different operational policies and had the operation scenarios described under the main heading. The "case" column in the LCRA matrix would actually be a GBFIG management scenario under our matrix. Such a matrix would allow GBFIG to develop a quantitative framework.

**Bartos** asked how GBFIG should start such a process, by brainstorming different scenarios and filling in the blanks?

**Graml** suggested looking at measurement criteria and refining them. He suggested modeling management scenarios that would derive statistical results to allow for the comparison between scenarios. The group needs to look at impacts on things other than freshwater inflows (e.g. fisheries harvests, etc.).

**Bartos** stated that the GBFIG has already set its goals. **Shead** suggested that GBFIG develop a matrix where one column is an overall target recommended to Region H with another column describing number of times meeting Max H at what percentage and then look at monthly inflow levels.

**Parkhill** suggested that if this is done first, it might shed some light on the other scenarios.

**Callaway** stated that LCRA columns relate to things for which they have long-term data. Taylor stated that the hydrologic data GBFIG would need are buried within the B&E analyses. He suggested that the group focus on LCRA columns 16, 17 and 18. Column 16 focuses on the importance of salinity. Columns 17 and 18 focus on sequential months of target inflows.

**Shead** suggested using oysters as an indicator species. **Callaway** asked if that data is available. **Graml** stated that the data would be modeled and not necessarily be historic. **Shead** stated that the modeled data would need to be grounded to historic data.

**McFarlane** stated that one cannot optimize for all species all of the time. Oysters are tolerant of various salinities and will do well wherever there is suitable substrate. When graphing oyster harvest versus inflows, there are large differences among the five sub-bays. Many other factors such as pathogens influence oyster populations. Different parts of the Bay have different requirements. We are pretending that freshwater inflows are the only important factor.

**Masterson** asked if GBFIG could come up with management strategies based on only one factor.

**Jenkins** stated that the data shows that freshwater inflows have a significant impact on Bay resources. We have a water supply argument. The available data is pretty good, but not perfect.

**Woodrow** stated that GBFIG is not trying to artificially manage the system, but is trying to figure out how to compensate for man's withdrawals from the system. When conditions are fine, leave it alone. We need to balance things out to avoid causing an artificial drought. Somewhere along the line, this discussion has to be tied to weather conditions.

**Graml** replied that if one sees not extending a drought as being important, then consider a criteria as the maximum period that you would like to see below or above normal flow.

**Shead** stated that the group is really looking at salinity. **Callaway** suggested looking at rainfall. **McFarlane** suggested looking at salinity to measure effect.

**Kramer** stated that he is reluctant to follow the same path as LCRA. They were concerned with how much water should be released from reservoirs and when. If GBFIG has a matrix it would be much less quantitative than LCRA's. GBFIG can show impacts, but not necessarily with numbers.

**Jenkins** asked if LCRA established one parameter and then built around it.

**Moulton** concurred with Jenkins saying that the LCRA process is as unique as the Nueces.

**Woodrow** asked Moulton how the LCRA strategy determined drought contingency. He also stated that the Galveston Bay system doesn't have reservoirs like the LCRA.

**Moulton** replied that the LCRA process looked at reservoir levels, other water conservation strategies and drought contingency levels. He stated that it would be hard to do this for the Galveston Bay system given that there are so many water rights. Man-induced effects should be avoided. Drought contingency measures get built in.

**Jenkins** asked as an example, if conditions are approaching drought, do certain contingencies kick in? **Moulton** replied, yes they are built into the water right agreement (e.g. at levels of 50%, PSA's do this ...).

**Callaway** stated that looking at quantitative analyses over a duration of months will help the group focus.

**Graml** stated that the LCRA analyses are actually easy to create and are based on reservoir operations rules. GBFIG has many other management scenarios and can model some of them (such as purchase water rights).

**Paternostro** stated that the group appears to need quantitative data such as Bay salinities and reservoir levels to judge management scenarios. There are gaps in the historical data sets. Models might be important.

**Moulton** stated that conservation plans were mentioned earlier. Most water right holders must have a water conservation plan. A management plan is not required, but conservation would be just one aspect of a management plan.

**Jenkins** asked if there is a hydrologic model of the San Jacinto and Trinity River systems. **Moulton** replied, yes, the WAM's.

**Weeks** announced that after a short break the group would once again break up into small groups. She wanted the group discussions to keep in mind:

- Measurement criteria for management scenarios
- When, where and how much is the ultimate goal

- What types of inflows need to be measured and where should they be measured
- How does one incorporate Max H, Min Q, and Min Qsal
- What level of quantitative detail does the group need

## **BREAK**

6. After the break, the small working groups convened. Each group then reported to the larger group on what they had discussed.

<b>Group 1</b> ( <i>Callaway, Kramer, Sheridan, Sterbenz and Willcox</i> ):
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**Callaway** reported that this group focused on the last two pages (the list of measures) of the LCRA matrix. Most cases are relevant to Galveston Bay with the exception of # 1 and # 2 (lack of water is not an issue for rice farmers).

#'s 5, 6 and 7 would be interesting to address for Lakes Livingston and Conroe and Houston.

#'s 8, 9 and 10 appear to be simulated and may or may not be relevant for Galveston Bay.

#'s 11-18 could be answered by the recent freshwater inflow work done by the TWDB and TPWD. Look at the five sub-bays of Galveston Bay rather than the whole Bay.

#'s 19-20 are useful, but are scenario-specific.

#'s 21-24 are useful for looking at reservoir operations.

Spatial considerations: Look at the five sub-bays of Galveston Bay; must identify rainfall gage locations; use data from the flow gages at Romayor and/or Wallisville.

Temporal considerations: Model on monthly and maybe daily basis depending on the location.

Max H, Min Q, and Min Qsal should be used to define scenarios.

When talking about inflow targets, inflows must be related to species. To do this the group needs to know the nursery period for each species.

**Woodrow** stated spring and fall are the important nursery times of year. **Moulton** agreed that the spring freshet (April/May) and fall freshet (September/October) are important nursery periods.

**McFarlane** added that the pink shrimp nursery period is January-February; the brown shrimp nursery period is March-April (pushed out of the Bay by water); and the white shrimp nursery period is June-October (pushed out of the Bay by temperature).

**Woodrow** recommended the group talk in terms of monthly periods rather than a larger grouping of time.

**Parkhill** stated that the goal of the GBFIG process is not just to get a management scenario for a management plan. GBFIG's work could impact how regulatory decisions are made (i.e. a permit decision).

**Shead** recommended using the Region H recommendations (e.g. Max H at 5.2 million acre-feet) and determining if the percent needed is needed every month or only during some months. **Parkhill** agreed and added that the group should also determine where do you want the 5.2 million-acre feet to come into the system.

**Group 2** (*Jenkins, Moulton, Parkhill, Paternostro and Shead*):

**Shead** reported that this group focused on inflow versus salinity because other factors are not directly affected by human activities. There is only one inflow location that matters (the Trinity River). Other sub-bays cannot be controlled as directly as can Trinity Bay.

**Paternostro** added that Trinity Bay has the largest delta, the biggest nursery and the least amount of human impact.

**Shead** then stated the group should determine critical months based on productivity and cumulative effects when discussing frequency over time.

**Callaway** asked if the Trinity could be modeled. **Jenkins** replied that the group needs to discuss the WAM and B&E models to see if they would be more useful than developing new models.

**Group 3** (*Bartos, Eichelberger, Graml, Masterson, McFarlane and Woodrow*):

**Graml** reported that the group discussed salinity as an important measure. There was debate over relating inflows to salinity. This group

suggested looking at Max H, Min Q, and Min Qsal in relation to Trinity Bay.

**Woodrow** was interested in evaluating inflows for a management scenario versus inflows at current conditions. One could compare inflows to naturalized flows. There is a current condition scenario (based on actual diversions) in the WAM. This could serve as a baseline instead of using naturalized conditions, which we will never see again, as a baseline.

**Callaway** asked how 1986 and 1996 compared to historical drought/rainfall levels. What is current as opposed to the historic period if using current period as a baseline?

**Woodrow** stated that watershed inflows need to be related to weather conditions.

The next meeting was discussed. It is hoped that a WAM presentation will be available. Discussions from today should be continued.

**Jenkins** wants to focus on the lower end (Min Q and/or MinQ sal) rather than on Max H and build from there.

**Shed** suggested that group decide if Trinity Bay be used to evaluate management scenarios. How does the group decide target frequencies and time period? Which LCRA approaches does the group want to discuss?

**Weeks** will send out an email to the group in July regarding the next meeting date. SJRA was thanked for the use of their facilities for the meeting.