

Galveston Bay Freshwater Inflows Group 7 August 2002 Meeting Summary

Participants Present: Jim Adams, John Bartos, Dana Blume, Richard Browning, Woody Frossard, Ken Kramer, Cindy Loeffler, Carl Masterson, Bob McFarlane, Bruce Moulton, Paul Nelson, Gary Powell, Linda Shead, Jeff Taylor, Pudge Willcox, Woody Woodrow

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

Others Present: Todd Chenoweth (TNRCC), Anne Day (COH), David Harkin (Espey Consultants), Robert Istre (GCWA), David Parkhill (KBR), Ximena Simmons (POHA), Tony Smith (Espey Consultants)

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. Approval of the May 1, 2002 meeting summary was deferred until the next meeting due to time constraints. Comments can be sent to Lisa Gonzalez via email at GonzalezL@cl.uh.edu by August 23, 2002.
3. **Weeks** then asked if anyone had comments on the WAM presentations given at the Region H meeting.

Several attendees expressed interest in seeing the WAM presentation images in more detail, possibly even looking at the WAM runs on a monthly basis. The TNRCC responded by saying that the latest version of the WAMs will be available on the TNRCC web site in October.

Weeks then stated that a hard copy of Tony Smith's Region H WAM presentation would be available at the October GBFIG meeting as would handouts from Richard Browning and Tony Smith's TRA/Ward study presentation. Electronic copies of the presentations will be placed on the GBFIG web site as soon as they are available.

Woodrow asked that with information on the San Jacinto River Basin showed that there were times when MinQ would not be met, is GBFIG correct in placing emphasis on the Trinity River Basin instead of the San Jacinto River Basin?

Harkin replied that the lowest primary control point (PCP) for the San Jacinto River Basin was at Morgan's Point. There are times in the period of record that low flows at that PCP did not meet MinQ even with diversions from the Trinity River Basin.

Bartos asked the group to keep in mind that the numbers used to create MaxH, MinQ and MinQsal will change as will MaxH, MinQ and MinQsal.

Weeks then asked if there were any comments on the presentation given by Richard Browning and Tony Smith to the Region H group.

Callaway stated that she agreed with moving toward the direction of looking at drought conditions to avoid intensifying and prolonging the duration of a future drought. She is interested in the period just before the drought occurs to see if there is any difference in human behavior.

Kramer asked Browning to repeat the five conditions mentioned in the presentation and asked about the time frame of the study.

Smith replied that several of the conditions included inflows, spatial, distribution and salinity. **Browning** stated that the time frame was open. It took quite a long time to pull the data together and tasks 1-8 are being worked on now.

Weeks then opened the floor to other discussions.

Powell clarified that Max H does not represent the optimum or maximum harvest for the Galveston Bay system. Only those flows that were at the median and below were looked at. Max H represents the maximum harvest given the lower amount of water (the non-inferior set of solutions). Each point on the curve is the maximum harvest given the amount of flow that corresponds on the x-axis.

Reservoir applications in the model appear to be a worst-case analysis. The agencies have not recommended anything that looks like that. The TWDB likes to use Zone 1 of the environmental planning criteria while TPWD likes to use Max H. Other agencies may pick a different amount. No one ever intended on releasing Max H in Zone 1, Min Q in Zone 2, etc.

Taylor asked Powell if indeed harvest (Max H, Min Q...) is associated only with the associated flow regime, meaning that the Min Q and Max H values do not apply to flows that are less than or greater than those depicted along the x-axis of the curve graph?

Powell replied, yes that is a correct statement. If one tries to find a solution for a flow amount that lies off of the curve, then a limit has been exceeded or a requirement or objective has not been met. For estuary maintenance one has to be on the competent part of the curve. 4.0-5.2 million acre-feet of flow can maintain the productivity of the Galveston Bay system. When looking at the fisheries harvest graphs, not every species

maximizes as a result of increased flows. The solutions were based on 10-50th percentile flows, not on 25-75th percentile flows because more flows do not automatically mean increased abundance for all species.

B&E requirements are only placed on Zone 1 in the planning criteria because those amounts can be met 50% of the time. Outside of that, things other than harvest need to be looked at such as public health and water quality levels.

Browning stated the zone issue is not the worst case. The worst case would have been requirements to meet Max H in zones 1-3.

Loeffler stated that it is important to move on and use the WAMs as a tool to look at the details more closely. WAM results can be looked at to study reservoir levels to determine at what times Max H and Min Q can be met and not met.

Taylor stated that GBFIG agreed on Max H flows of 5.2 million acre-feet for 50% of the time. The group was looking at flow regimes outside of the curve. The time element is only applicable to the period of time that lies within the curve.

Weeks suggested that this discussion be continued at the October meeting after the presentation materials have been reviewed.

Shed asked to clarify that no one in GBFIG intended that water suppliers would supply all of the water needed for the Bay. There are others solutions being considered. She then asked if Max H needed to be recomputed using fisheries independent data since harvest data was used in the original Max H calculations.

Browning stated that instead of doing that, he would like to suggest to the agencies that some of the database revisions be re-run. WAM modeling is simple compared to B&E modeling which has a substantial range of uncertainty regarding cause and effect. If flow is reduced to zero, then there is still 70-80% productivity because productivity is largely affected by factors other than inflow.

Weeks suggested that this discussion be continued at the October meeting after the presentation materials have been reviewed.

4. **Villalon** provided a presentation on the project scope of work for Region H Task 4.6-Galveston Bay Inflow Impacts, which will assess the impacts of various management strategies for Regions H and C. Subtasks are as follows:

1. Compile Galveston Bay inflow estimates from existing WAM models (Natural and Runs 1, 3 and 8). Develop spatial and aggregate percentiles. In this step, the available information from existing WAMs will be compiled and the final information will be obtained from the TNRCC. Data will be compiled spatially by basin. WAM runs with the exception of Run 1 used authorized area capacities.
2. Develop year 2060 reservoir area-capacity relationships.
3. Model (Runs 1, 3 and 8) Galveston bay inflows under existing water rights and reservoir conditions (Year 2000). Develop spatial and aggregate percentiles.
4. Model (Runs 1 and 3) Galveston Bay inflows incorporating Region H and Region C water management strategies, using year 2060 reservoir-area capacities. Develop spatial and aggregate percentiles.
5. Coordinate with the TWDB Hydrologic and Environmental Monitoring Division to assess impacts on water quality in Galveston Bay, resulting from the spatial distribution of inflows.
6. Prepare memorandum report summarizing results

Time frame: Next 6-9 months

A one-page handout was provided.

Graml then reported on inflows to Galveston Bay (Subtask 1 above). He obtained updated models for the Neches-Trinity and San Jacinto-Brazos Coastal Basins. Flows from portions of the Neches-Trinity that go to Sabine and flows from the San Jacinto-Brazos that do not go into West Bay were not included. A six-page set of spreadsheets was provided. Updates on Runs 3 and 8 were done by consultants in Spring 2002. Graml recently updated Run 1.

Naturalized flow in the GBFIS study was for the period of record 1946-1980. The period of record is now 1946-1996. In the handouts, percentile represent the percentage of time flows are not being met. As an example if the percentile equals 13%, then flows are not met 13% of the time and are met 87% of the time. Monthly statistics are combined together and summed at the bottom of the spreadsheets. Data on an annual basis does take into account monthly variation.

Aggregate inflows for naturalized flow and WAM Runs 1,3 and 8 are summarized in the handout as are monthly inflow statistics and inflows by basin (Natural and Runs 1, 3 and 8).

Naturalized flow represents historical flow conditions without the influence of man's activities (i.e. water rights and water use).

As seen in the spreadsheet on page 2 of handout, Run 8 (current conditions) is close to meeting GBFIG goals. This is an aggregate value (West Bay and Trinity Bay are combined).

As seen in the spreadsheet on page 3 of handout, Run 1 (full authorized diversions with return flows) targets are met on the aggregate fairly well. Problems months for Max H are April (targets met 37% of time) and June (targets met 36% of time).

As seen in the spreadsheet on page 4 of handout, Run 3 (full authorized diversions with no return flows) goals are not met quite as well.

The last page of the handout is a summary page. Table 5 at the bottom of the page replaces the table in the 1998 GBFIG report.

Powell asked what is the maximum likely hood run since return flows never equal zero or 100%.

Graml replied that the current condition run (Run 8) is good, but keep in mind Runs 3 and 8 are based on assumptions made in the permitting process. They may or may not be realistic, but the TNRCC is required to model them so that the issued permits will not exceed the amount of available water. Run 3 is based on a set of legal assumptions. The permit arena works best on the worst-case scenario.

Run 8 is a conservative estimate. It simulates artificial, current conditions. In this run the water right is the maximum used in the last 10 years and the return flow is the minimum of the last 5 years.

Chenoweth said that GBFIG and Region H are free to work with numbers that they think are a more realistic assumption.

Loeffler suggested using the runs as bounds for what really occurs.

Shed stated keep in the mind that GBFIG would use the runs for planning purposes, not for permitting purposes.

Masterson asked what the difference was between Sum and Actual on the last page of the handout. **Graml** replied that Sum is a more dramatic statistic and is not as realistic. Sum is calculated by removing the Historic-min out of the individual basins and adding together. Actual is calculated by adding all flows and running statistics on the total.

5. **Weeks** then thanked the SJRA for use of the facilities and for providing lunch and refreshments

Presentation materials will be posted on the GBFIG web site when they are obtained by EIH. Gary Powell has a process graphic on how the data work will be done and will provide it for GBFIG distribution.

Discussions cut off today due to time constraints will be continued at the next meeting. Tentative dates are October 22 and October 24.

Meeting adjourned.