

Upper Rio Grande, Basin and Bay Expert Science Team (Upper BBEST)

Sul Ross State University
Room UC 210, Alpine, TX
July 11 - 12, 2011

MINUTES

Members Present: Ryan Smith; Gary Bryant; Jeffery Bennett; and Kevin Urbanczyk. Jack Schmidt participated via teleconference.

Administrative Topics

Budget Update

Ruben Solis, TWDB, noted that the BBEST budget was submitted to the EFAG and should be approved shortly. Members were asked to submit requests for reimbursements (to date) by July 19, 2011 so funds can be disbursed and remaining available funds estimated. He also noted the \$10,000 budgeted for a contract for report preparation was approved and these funds will carry forward into the next fiscal year.

Schedule

Cory Horan, TCEQ, reminded members that this is a consensus based process. Though members may work on individual tasks, all members need to be kept informed, support the work being done and support any conclusions reached. He asked members to think about available times for additional meetings since the one meeting scheduled may not be adequate depending on how much is accomplished over the next two days.

Progress Discussion

Members discussed the various aspects to be covered in the BBEST recommendations report, what is needed for the overlays, and how to document the process used to derive the final recommendations.

Selected Gage Locations

Members discussed gage locations chosen for further study and the data available from each site. Discrepancies between USGS and IBWC gage data were noted and members suggested contracting David Dean to document his analysis of the differences if funds are available.

Literature Review

Rusty Woodburn, Sul Ross University, reported that the literature review was divided into three focus areas (Pecos, Devils, and Rio Grande). Graduate students of Dr. Urbanczyk's are performing the literature reviews for the Rio Grande, Pecos, and Devils basins.

Data Processing and IHA/HEFR Modeling)

The graduate students are also doing the work on the hydrographic separation and HEFR. The basic model is complete for each of the specified gages including subsistence, base, high flow pulses, and overbank flows based on percentiles using the full period of record. Members discussed how data gaps should be handled and the benefits of various periods of record. Members agreed that in areas such as the Rio Grande where there are numerous documented studies, the group should take advantage of existing studies and not duplicate the effort. In choosing the period of record, members debated whether to consider biology

and/or consider impact from human influences over time, and/or represent the full extent of the climate variability over time. Members decided to consider the approach to each gage individually.

Kevin Urbanczyk reported that he has fish collection data from the 1950s to the mid 2000s. No analyses have been done. For this meeting, he separated the data by section, generated trend lines based on relative abundance. Members asked to separate the data by habitat guilds and similar set life types. He created a table showing basic status, reproductive strategy, feeding habits and habitat for each of the species of concern. He suggested, from a channel maintenance perspective, members should go with pre-impact and post-impact morphology of the river and use the fish data to support it.

Dan Opdyke, TPWD, said the HEFR analysis is just a look at hydrologic statistics and the period of record needs to be of sufficient length to capture the highs and lows of the system. He added that additional runs for discrete periods such as 1901-1914 (early set), and 1931-1967 (late set) may show there is little difference in the statistical output. He outlined the advantages and disadvantages of both approaches.

Gage Selection

For the three selected USGS stream gages on the Rio Grande (Rio Grande below Rio Conchos, at Johnson's ranch, and at Foster's Weir), members AGREED to use the following for HEFR and IHA:

- Below Rio Conchos: three runs; the full period of record, early set and late set for HEFR and IHA.
- Johnson's Ranch: one run for period 1937-1967;
- Foster's Weir: one run for "synthetic" period (1962-present).

For the gages at Alamito and Terlingua creeks, members AGREED to graph the annual summaries from the original spreadsheet and pick the point of impact of the earthen dams. Using the date determined from the graphs, members AGREED to the following for HEFR:

- Alamito: three runs; full period from 1932 to present, early period from 1932 to the chosen date, and late period from the chosen date to the present.
- Terlingua: three runs; full period from 1932 to present, early period from 1932 to the chosen date, and late period from the chosen date to the present. SEE BELOW

For IHA there are 7 varying parameters. Members discussed the options for the lower threshold (below which cannot have high flow pulse) and higher threshold (above which cannot have a base flow). The group considered using the 25%-75% option or reviewing data from each gage and choosing individual values. Dr. Opdyke agreed to model a few runs for evaluation during Tuesday's session. He suggested that the subcommittees review these options.

The members discussed the hydrology of the Pecos. The basin appears to be split at Sheffield showing the divide between the spring influence zone and non spring influence zone. Other breaks noted were:

- at I-10
- at I-20 (irrigation vs. no irrigation)
- at F.M. 1776 (no flow above due to lack of gates at the dam)

Members reviewed the periods of record for each of the gages and chose pilot gages for preliminary HEFR analysis and the period of record for use on each test run.

- Pecos River near Orla: one run from 1938 to present (equates to post dam period)
- Pecos River near Girvin: one run from 1940 to present
- Independence Creek: (combine data from two gages) one run for full period
- Langtry: one run from 1960 to present (does not include drought of record)
- Devils River near Juno/Baker's Crossing: one run full period
- Devils River at Pafford's Crossing: one run full period from 1960 to present

Members noted the need to make a map showing all the drainage basins.

Sound Ecological Environment

Member Jeff Bennett presented a draft definition for a sound ecological environment for the Big Bend reach of the Rio Grande based partly on the 2006 SAC definition. Members discussed his proposal and made modifications to reflect basin specific conditions.

SAC Definition: A sound ecological environment is one that:

- sustains the full complement of native species in perpetuity;
- sustains key habitat features required by these species;
- retains key features of the natural flow regime required by these species to complete their life cycles; and
- sustains key ecosystem processes and services, such as elemental cycling and the productivity of important plant and animal populations.

Subcommittees will review the revised definition and provide details qualifying the definition in their respective basins and site specific systems.

Correlated Cross Section Data Collection Effort

Nolan Raphael presented an update on the TWDB correlated cross section data collection effort at the previous meeting. Dr. Opdyke said that there are no habitat suitability curves available and due to time constraints, members have no plans to do an instream flow study to develop those curves. He recommended a report recently released by the Nueces BBEST on sediment and habitat analyses. Members talked about adding velocity measurements and dynamic equilibrium to the data collected for the cross section. Dr. Opdyke explained how the field work is used to support whether the base flows derived from HEFR are reasonable.

Members discussed potential study sites and AGREED to limit locations for sediment and habitat analysis to the Pecos and Devils' River at the gage sites. Members APPROVED the following sites:

- Pecos River at
 - Orla, TX
 - Horsehead Crossing (above Girvin),
 - Pandale (for the lower portion below Independence Creek),
- Independence Creek (near Sheffield)
- Devils River
 - Bakers

Member Jack Schmidt's work was considered adequate to complete the Rio Grande.

Biology

Jeff Bennett presented an update on the biology component and discussed trends he found for select species. He distributed a list of selected species of concern showing their reproductive strategies, habitat characteristics. He talked about the need of finding data available on habitat associations, velocities and substrates to develop habitat suitability indices for different species. He talked about the number of known species in each river and the loss of species over time. He discussed the Pecos River and the declining shift documented in the upper Pecos that may be related to increased salinities. The overall trend in abundance is also declining in the Middle Pecos. He talked about the Devils and reported the trends observed.

Second Day July 12, 2011

Data Processing Status

Kevin Urbanczyk presented an update on the data processing that has been completed. He took the flow data for each gage, created a worksheet designed to determine data gaps and calculated the annual sums for contiguous full years for input into IHA. He used Terlingua Creek data to show the results of IHA using Dr. Opdyke's outline.

Dr. Opdyke discussed the set of parameters that control the hydrographic separation. He talked about how using the daily flows, each day is classified to be either subsistence, base, high flow pulse or an overbank flow for the period of record and HEFR is run just as a summary statistics of each category. He noted that the group chose to use IHA for the hydrograph separation. Members discussed the definitions of the individual flow components, how they need to be adjusted to apply to the different systems and made decisions on how to run HEFR.

Members discussed implementation issues and how flow recommendations in other basins were evaluated on theoretical or proposed water supply projects. During the discussion, members AGREED that implementation procedures developed in other basins would not apply in these systems.

Dr. Opdyke noted that seasonality is an important issue and members need to determine which months define each season for each of the three systems. Members reviewed the data and tentatively considered the following:

- July – October
- November – February
- March – June

Review of Schedule and Assignments

Ryan Smith prepared a spreadsheet on the schedule, time line, and member assignments. Mr. Horan sent an electronic copy of the spreadsheet to each member. Members discussed the time line and added assignments.

Members APPROVED the basic definition of a Sound Ecological Environment as discussed the previous day pending the additional language to address individual systems.

Set Next Meeting

The next meeting is scheduled for Thursday/Friday, August 11-12, 2011 at Sul Ross University. The following meetings are tentatively scheduled for the dates and locations listed below. Members will be notified with the time and location.

Public Comment

There was no public comment.

Adjourn