

Memorandum

To: Science Advisory Committee
From: Dan Opdyke, TPWD
Re: Results of HEFR Survey
Date: January 21, 2010

This memorandum reports all of the answers, unedited, that were provided in the Hydrology-based Environmental Flow Regime (HEFR) survey conducted from December 15, 2009 through January 8, 2010.

Thirteen responses were received. Of these, five answered only the first question. Thus, there is only useful feedback from eight. In this analysis of the survey results, only the eight useful surveys are included. Each question is listed, followed by the responses. Questions are numbered and written in bold italics. Responses are in bold text, tables, and column charts. Interpretation is in regular font.

Exportation of the results from the survey engine into Excel resulted in the conversion of all commas in individual responses to semi-colons. My apologies for the resulting excessive use of semi-colons.

1. Are you a voting member of the Sabine-Neches or Trinity-San Jacinto BBEST?

Response	Count	Percent
Yes	3	38%
No	5	62%
No Answer	0	0%

Questions two through eight were only provided to BBEST members. The results presented below are therefore based on the three eligible respondents.

2. When your BBEST chose to use HEFR as one tool to identify instream flow recommendations, did you support that decision?

Response	Count	Percent
Yes	3	100%
No	0	0%
No Answer	0	0%

3. *If you had to do it over again, would you support the use of HEFR as part of the BBEST efforts related to instream flow recommendations?*

Response	Count	Percent
Yes	2	67%
No	1	33%
No Answer	0	0%

4. *If you answered "No" to the last question, why did you answer "No"? Would you use another hydrologic tool? If so, which one and why? Please be specific how the alternative tool is superior to HEFR in the context of SB 3 instream flow recommendations.*

HEFR is very useful for generating statistics on

This response appears to have been truncated.

5. *Did your BBEST use HEFR as one tool to identify freshwater inflow recommendations to your bay/estuary?*

Response	Count	Percent
Yes	2	67%
No	1	33%
No Answer	0	0%

6. *When the decision to use or not use HEFR for freshwater inflows was made by your BBEST, did you support the use of HEFR as one tool to identify freshwater inflow recommendations?*

Response	Count	Percent
Yes	2	67%
No	1	33%
No Answer	0	0%

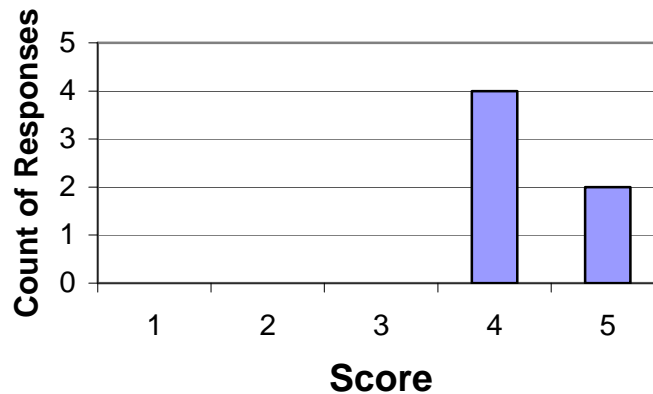
7. *If you had to do it over again, would you support the use of HEFR as part of the BBEST efforts related to freshwater inflow recommendations?*

Response	Count	Percent
Yes	2	67%
No	1	33%
No Answer	0	0%

8. *If you answered "No" to the last question, why did you answer "No"? Would you use another hydrologic tool? If so, which one and why? Please be specific how the alternative tool is superior to HEFR in the context of SB 3 freshwater inflow recommendations.*

HEFR is not a tool that identifies freshwater inflow recommendations. No such 'tool' has been developed. HEFR merely performs statistics on hydrology and outputs such statistics in the flow regime format ascribed to the Texas Instream Flow Program (TIFP). Nowhere has it been documented that such a flow regime is necessary

9. *Please rate the utility and functionality of the hydrographic separation tools provided (IHA and MBFIT). For example, if they jointly provide all of the flexibility you need to separate the hydrograph as desired, score a 5. If they provide none of the flexibility you require, score a 1.*



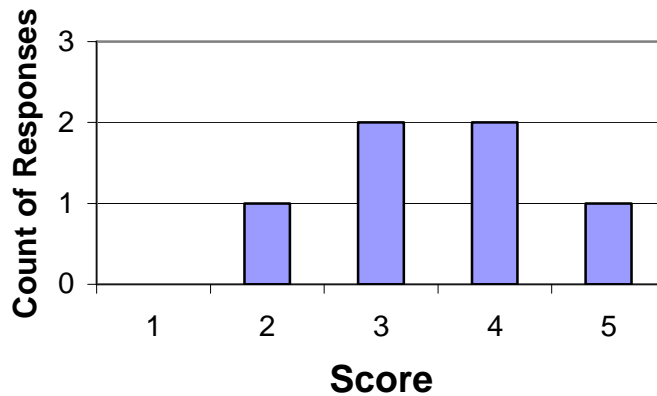
Six of eight survey takers responded.

10. *If you entered a score of 4 or lower in the last question, what additional functionality would you suggest? Please be as specific as possible. Please also note if you have a strong preference for IHA versus MBFIT, or vice versa, and why.*

I prefer IHA only because I am more familiar with it. My use of MBFIT has been minimal.

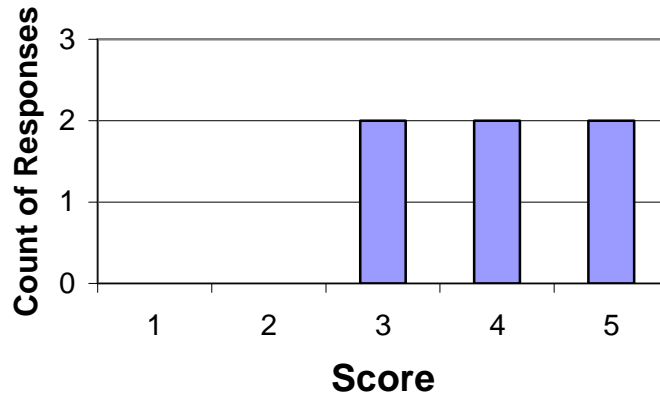
Generally prefer MBFIT to IHA because of ability to set threshold(s). Biggest concern is that IHA classified some rather high flows as base flows. Engineers/hydrologists tend to consider base flows as being well separated from high flow pulses and driven by water table contributions (i.e.; springflow & leakage) to the streams.

11. Please rate the utility of the calculations of subsistence flow recommendations (1 = low/no utility, 5 = perfect for use by BBESTs).



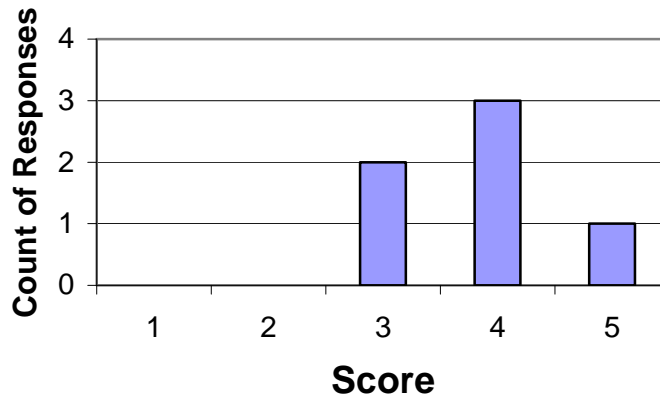
Six of eight survey takers responded.

12. Please rate the utility of the calculations of base flow recommendations (1 = low/no utility, 5 = perfect for use by BBESTs).



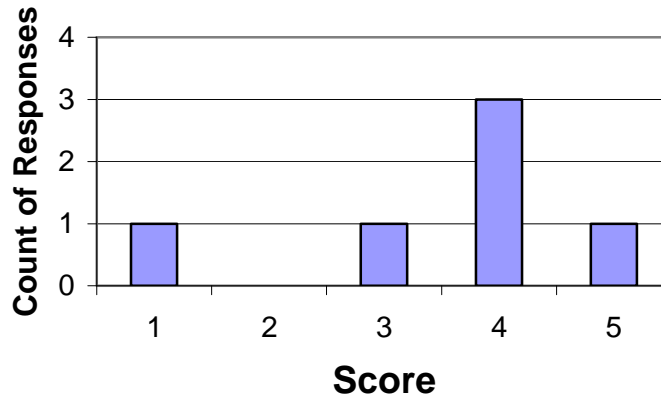
Six of eight survey takers responded.

13. Please rate the utility of the calculations of high flow pulse recommendations (1 = low/no utility, 5 = perfect for use by BBESTs).



Six of eight survey takers responded.

14. Please rate the utility of the calculations of overbank event recommendations (1 = low/no utility, 5 = perfect for use by BBESTs).



Six of eight survey takers responded.

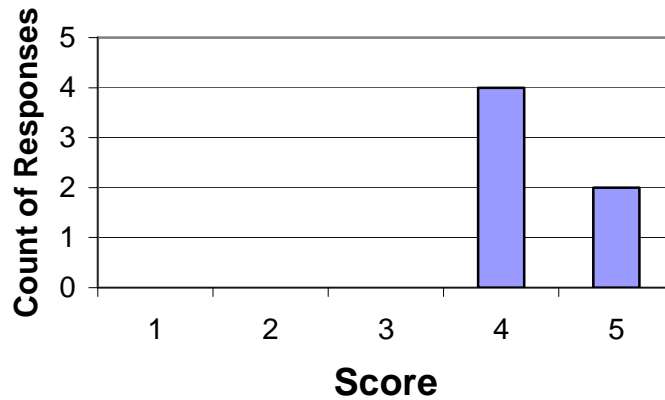
15. If you entered a score of 4 or lower for any of the above questions on subsistence flows, base flows, high flow pulses, or overbank events, how can these calculations be made more useful and/or flexible to meet your needs?

I believe the original method is better than the frequency based approach. However; I don't understand why the three parameters called Hydrologic conditions must share the same exceedance conditions. I would like the felibility to consider volume;duration and peak Q seperatly. For example I may want to set my wet conditions to .5 volume; .4 duration; and .65 peak Q. Also; how about an alternative drop down were I can put in an actual volume (acft or cf)an actual peak discharge (cfs); and an actual duration (# of days). Stats are great but what if I just want to get the frequency of events that I know will meet a particular biological condition. Also how about adding some calculation (if the parameters are known); to calcalte stream power of a particular pulse. Any other engeering calucaltions would be great to. Really any calcualtion that converts the entire hydrograph of a pulse to something more meaingful would be great.

Subsistence - Add routines to HEFR that calculate & summarize 7Q2; 7Q5; 7Q10; etc. Base - See response to item 10. Pulses - Provide more accessible information regarding regression(s) used to calculate volumes & durations and; possibly; eliminate unreasonable results.

I did not analyze this feature; so I cannot comment accurately

16. Please rate the overall flexibility and functionality of HEFR to identify flow components, hydrologic condition, seasons, etc. to meet your needs (1 = low/no utility, 5 = perfect for use by BBESTs).



Six of eight survey takers responded.

17. If you entered a score of 4 or lower for the last question, how can HEFR be made more useful and/or flexible to meet your needs?

Currently; HEFR gives you a characterization of pulses using a few stats that do not consider the whole pulse. I can have to pulse that would be indetical to HEFR; but have very different functionality; ie scouring and loading.

The program should be standalone. I like microsoft products just as much as the next guy; however; I believe that HEFR being incorporated into excel causes severe limitation to that programs potential functionality

18. Please provide feedback on the documentation of HEFR. Is the "Hydrologic Methods..." SAC document sufficient? Too detailed? Too brief? Is other documentation necessary?

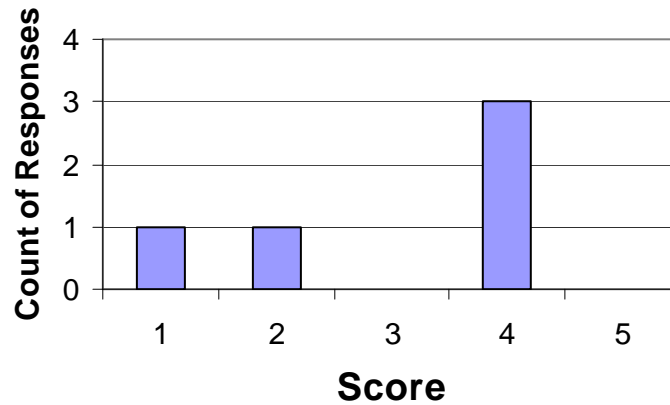
Personally; I thought the document was a great How to guide for HEFR.

I think there needs to be greater discussion about decision points in using HEFR; and also greater discussion of the manner in which outputs may or may not be interpreted and used for deriving environmental flow recommendations. HEFR has great flexibility and utility; but any number of different outcomes can be obtained. Therefore; there is great danger that users of this information may be naive in their interpretations for applications.

Documentation could probably be expanded somewhat (e.g.; regressions for high flow pulse volumes & durations); but is generally adequate.

Better MBFIT documentation might be useful.

19. Please rate the ease of use of the hydrographic separation spreadsheet (IHA/MBFIT) (1 = not easy to use, 5 = very easy to use).



Five of eight survey takers responded.

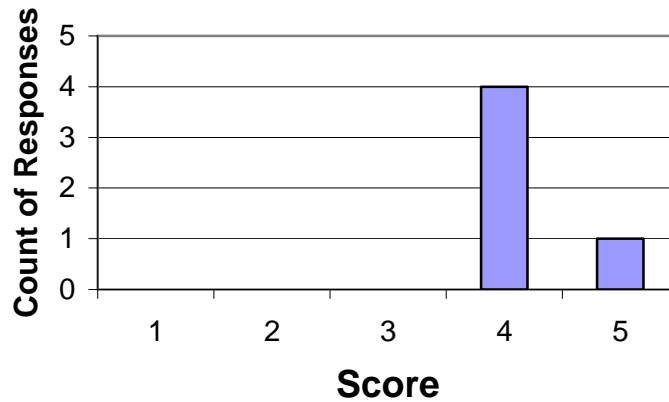
20. If you entered a score of 4 or lower for the last question; how can the hydrographic separation spreadsheet be made easier to use?

I HA is easy to user; but MBFIT is badly documented; and crude in function.

The tools are generally fine . . . the limitations on ease of use are more associated with file management . . . at least for me.

It is not very easy to use; I again believe a stand alone program would be a lot more useful

21. Please rate the ease of use of HEFR (1 = not easy to use, 5 = very easy to use).



Five of eight survey takers responded.

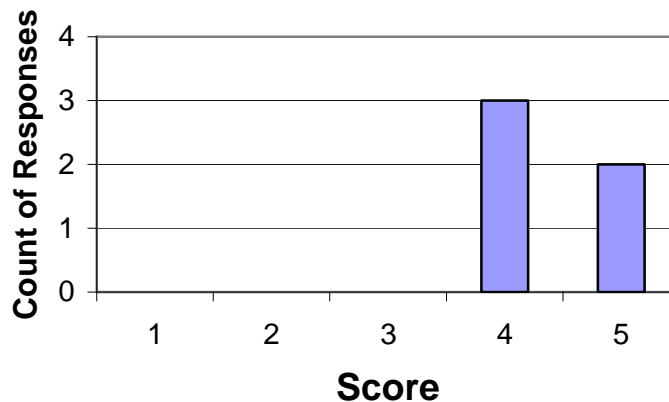
22. *If you entered a score of 4 or lower for the last question, how can HEFR be made easier to use?*

It is pretty good; but I am not giving it a five just yet.

See response to item 15. [This person’s response to item 15 is the one that begins with “Subsistence - Add routines...”]

Very steep learning curve

23. *Please rate the usefulness of HEFR output tables and graphs (1 = not useful (I have to create all of my own outputs), 5 = comprehensive (HEFR outputs everything I need in the format I need)).*



Five of eight survey takers responded.

24. If you entered a score of 4 or lower for the last question, how can HEFR outputs be changed to be more useful to you? What additional outputs would you suggest?

I've already discussed this.

See response to item 15.

25. How can HEFR be modified to more appropriately and easily incorporate information from other scientific disciplines (water quality, biology, geomorphology) in the HEFR input (pre-processing) steps?

I agree HEFR could be better used by the various scientist if it were capable of incorporating information from other scientific disciplines. How to modify it? I'm not sure.

Add other worksheets that take pulse and out put estimates for these other disciplines. Incorporate; a few standard modules.

I think that these other scientific disciplines should generally remain overlays for refinement/adjustment of HEFR outputs . . . rather than a pre-processing consideration.

Allow inputs from webservices

26. Is any part of HEFR unnecessarily complicated?

Response	Count	Percent
Yes	1	12%
No	4	50%
No Answer	3	38%

27. If you answered "Yes" to the last question; please provide feedback on how HEFR is too complicated.

HEFR should remember seasonal setting; you should not have to re-enter your seasonal arrangements every time you use the program

28. Congratulations! You've made it (almost) to the end of the survey. Please provide any additional feedback/comments/criticisms on HEFR here.

This a really good start; but so much more could be done with these pulses. What is the Frequency of the 50%tile stream power pulse.

Many thanks to TPWD and others for taking the initiative to timely provide HEFR as a useful tool for the BBESTs to use. Also many thanks to TPWD staff (i.e.; Dan Opdyke) for HEFR training; ongoing updates/refinements; and clarification of implicit and explicit assumptions.

Possibilities:1. Enable web services to access USGS data from within HEFR 2. Work in conjunction with UT-CRWR and TCEQ on the Env Flow Regimes Workflow project - support for workflow processes; user input/interface; defaults/guidance; unged flow inputs/GIS coordination; graphical output coordination. Details TBD...

A companion memorandum containing HEFR enhancement suggestions based on this survey has also been provided to the SAC.