

Attachment A: Environmental and Recreation TAG Comments Received through November 3, 2017

Comment Number	Comment Author	Organization	Subject	Section Reference	Comment	Response
1	Jason Roudebush	Ducks Unlimited	Online Tool	3.1.1.2	Re Online Mapping Tool: Yes, a digital platform that hosts the stream segment (every 0.1 mile) data for the South Platte would be the most effective way to access the information used to generate the BIP. To my knowledge, this data is not currently accessible. Additionally, we could include recreational public access points, public lands, etc.	The current SWSI Update effort does not have the resources to execute the 0.1 mile disaggregation for the spatial unit statewide, however it will be noted as a potential long term goal for future efforts.
2	Jason Roudebush	Ducks Unlimited	Database Content	3.1.1.3	Attributes: Wildlife Refuges are an important recreational attribute. I don't think it's appropriate to place them under hunting/birding because hunting is not allowed. Some discussion about how wildlife refuges will be categorized will be helpful.	Currently Wildlife Refuges are not a specified attribute; however, they could be added if spatial data are available (categorized under Federal Protections).
3	Jason Roudebush	Ducks Unlimited	Flow Tool	3.2.2	Specific to the South Platte: The location of plains fish, particularly threatened or endangered is important for assessing value of water projects that increase baseflow. Indicator locations will be critical for grant writing and evaluation.	We will work with the modeling team to identify indicator locations where Statemod output will best reflect flow needs for plains fishes. The macro categories will be modeled using one indicator species and will coordinate this selection with available indicator and gage data.
4	Mickey O'Hara	Colorado Water Trust	Online Tool	3.1.1.2	An online mapping tool would be valuable to the NGO community, and would likely also be valuable to the BRTs. Some users may prefer to have GIS data available for download, such as consultants hired for the next update of BIPs.	Agreed. The SWSI Update team is working on a Data Dissemination and Access Plan. An online tool is one component, but more detailed datasets will also be available for download.
5	Mickey O'Hara	Colorado Water Trust	Database Content	3.1.1.3	Will the Instream Flow Protections included in the E&Rdb include acquisitions? Will temporary acquisitions be included?	Yes, instream flow data will be incorporated based on most recent available data. If temporary acquisition data is available, we will include it. In addition, we may add "temporary" as a project status field (i.e. completed, on going, planned, etc.).
6	Mickey O'Hara	Colorado Water Trust	Flow Tool	3.2	Will the Flow Tool be available to users outside of the BRTs? This seems like a valuable tool to help guide Water Plan implementation.	Yes, it will be publicly available.
7	Mickey O'Hara	Colorado Water Trust	Process		The next round of the BIPs will, ideally, be standardized across the state (to the degree possible). The methods presented in the TM should help ensure that the next round of the BIPs will be as useful as possible, to as many stakeholders as possible.	Thanks for the comment. That's correct, the E&Rdb will be designed to help BRTs achieve this outcome.
8	Tammy Allen	WQCD	Process	1	We recommend including a purpose discussion for updating the methodologies and revising the database. For example, are the updates specifically to help individual roundtables further their nonconsumptive (now environmental and recreational) projects and methods identified in the BIPs or is there going to be a concerted effort to make the information consistent across the state rather than unique at the basin scale which could then support statewide discussions about environmental and recreational needs weighted equally as M&I and Agricultural demands? A purpose discussion could also clarify intended end users (e.g., the information is being updated specifically for roundtables and BIP updates or the information is being updated for use by/meet the needs of multiple agencies, organizations). A more specific discussion about intended end users could also help better define the methodology, e.g., using SWRF or NHD to meet the needs of/be consistent with the targeted end users.	We appreciate the feedback. We will add a clarifying "purpose" and end user discussion. In summary, the purpose is to create greater access and use more up-to-date content, while the end users are BRTs, BIP consultants, SMP, etc. There will be no limit or constraint on who can use database. We have added language to the memo to provide a better overview of the purpose of the database updates.
9	Tammy Allen	WQCD	Database Content	3.1	We assume CWCB has the WQCC aquatic life and recreation use classification data spatially by segment, but if not these data are available in WQCD shapefiles. We also have macroinvertebrate data for a measure of environmental health, impaired waters data, watershed plan boundaries and a number of other dataset/layers we have been using for recovery potential and healthy watershed indices evaluation tools.	Water Quality will be added as a macro category in the database and relevant data sources will be reviewed. Unfortunately, the data likely will not be able to be incorporated into Flow Tool due to timestep limitations.
10	Tammy Allen	WQCD	Database Content	3.1	If not already planned, pathogens (E. coli) and cyanobacteria, or blue-green algae, and/or cyanotoxins data should be included.	More information on the data source is needed but can be added.
11	Tammy Allen	WQCD	Database Content	A-1	"Outstanding Waters" is listed twice. Please see previous comments about additional water quality data WQCD can provide.	General DB cleanup and consolidation will occur as part of the SWSI Update

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12	Laura Belanger	WRA	Database Content	General	Makes sense for BRTs to update data in next round of BIPs rather than SWSI attempting to do so	Agreed. The basin plans updates will help refine relevant data, especially project data.
13	Laura Belanger	WRA	Process	General	Looks like a lot of good work has gone into standardizing data from the last round of BIPs - while maintaining BRTs' orig intent	Thanks for the feedback - that's our intent.
14	Laura Belanger	WRA	Database	3.1	I was unable to locate a copy of the E&Rdb online. Is this something that would eventually be accessible to the public via the CWCB website?	Yes. Final SWSI data products will be available on the CWCB website or similar state data portal (e.g. Colorado Information Marketplace). Interim documents related to the SWSI process are available on the SWSI Update CWCB webpage: http://cwcb.state.co.us/WATER-MANAGEMENT/WATER-SUPPLY-PLANNING/Pages/SWSIUpdate.aspx
15	Laura Belanger	WRA	Process	3.1 table 3	Will BRTs be required to input data to the E&Rdb? Wasn't clear based on the Measuring Success metrics as those made it sound like it might be optional. Can/should this be required?	These details have yet to be determined, but the CWCB will establish guidelines to promote more consistency in the forthcoming updates to BIPs, while maintaining enough latitude to address local issues. The tools and data developed by this SWSI Update are designed to directly support BIP Updates.
16	Laura Belanger	WRA	Process	3.1 table 3	Actions all look like steps in the right direction and should be useful.	Thanks for the feedback.
17	Laura Belanger	WRA	Process	3.1.1.1	Response to Q for E&R TAG. If these tools, procedures and user interface tools are developed during the SWSI update and provided up front to BRTs as next BIP round kicks off, and BRTs asked to format data/analysis consistent w/tools, that should streamline data processing time requirements.	Thanks for the feedback.
18	Laura Belanger	WRA	Spatial Unit	3.1.1.1	The desire to have a consistent spatial unit seems extremely challenging. I'm not sure I'm correctly understanding the CDM recommendation to use the SWRF dataset. Doesn't Fig 4 illustrate that the SWRF dataset doesn't cover many higher order stream segments? Are all current (and potential) E&R projects and priority segments covered by the SWRF dataset?	The SWRF data were discussed in detail during the TAG workshop resulting in agreement to use the data as the spatial foundation of the E&Rdb due to its consistency, accuracy, and ongoing statewide maintenance.
19	Laura Belanger	WRA	Spatial Unit	3.1.1.1	While obviously cumbersome, allowing BRTs to append and/or disaggregate reaches as appropriate for a specific project or attribute (as done in the SPBIP), is likely to help avoid issues down the line. Could start with SWRF (or another) and during SWSI develop the convention for appending and disaggregating reaches to ensure is consistent and well thought out.	The SWRF is the reporting unit that is tied to unique spatial coverages for all DB content, which will in turn be available in the event of future disaggregation or the selection of different spatial unit.
20	Laura Belanger	WRA	Process	3.1.1.2	Excel-based templates, standard reports are useful.	Thanks for the feedback.
21	Laura Belanger	WRA	Online Tool	3.1.1.2	Online Mapping Tool: In my experience ArcGIS online maps are often overly simplified and lack functionality. Adding E&R data to the existing CWCB data viewer map with selectable layers seems preferable.	Thanks for the feedback.
22	Laura Belanger	WRA	Online Tool	3.1.1.3	If anything comparable (mapping, databases) will be developed for Ag, M&I...is there any upfront standardization across datasets to be done?	Yes, various tools and data products will be provided for all aspects of the SWSI Update. For the first time this SWSI Update focuses on providing data and tools to assist with Basin Implementation Plans and other efforts (in addition to summary reports similar to past efforts). Due to unique issues with each sector of the analysis and resource limitations, the data will likely not be entirely standardized.
23	Laura Belanger	WRA	Flow Tool	3.2.1	I have quite a few questions about the Flow Tool. The Flow Tool will evaluate scenarios against "historical gage data" and a baseline/current conditions scenario. Given that depletions are likely to change over time in many locations with historical gage data, if summary statistics are used to evaluate results, finer resolution statistics may be useful for historical gage data to highlight any changes over time. What period of record will be used?	The Flow Tool for SWSI is intended to highlight the relationship between water in the stream (based on output from the SWSI modeling of each planning scenario in the year 2050) and the E&R attributes at each representative location. As such, the tool will help display how attributes may be impacted under the different scenario conditions. The period of record for historical gage data varies by basin, but usually includes reliable data to 1950 or earlier. Due to technical and resource limitations for this SWSI Update modeling will be performed on a monthly timestep, though we are planning to include a placeholder in the architecture of the tool for the disaggregation of daily data. Basin Roundtables may potentially expand modeling efforts to a daily timestep to better evaluate E&R impacts and other issues.

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24	Laura Belanger	WRA	Flow Tool	3.2.1	With any model, including the Flow Tool, to the extent possible, clearly document and convey where its use is appropriate as well as possible shortcomings. For example, it was explained to me that due to node locations, the WFET did not work on the Crystal River where upstream diversions deplete the stream, but return flows from those diversions accrue to back at the next node in the model, missing significant impacts in the intervening reach. Similarly if a tool has been found to be more appropriately applied to a certain type of stream, e.g. headwaters versus sandy bottom stream, that information should be documented and shared. Any model output should be ground truthed by those familiar with local conditions.	Guidance will be developed and coupled with clear documentation of what the Flow Tool can and cannot do. It is important to note that the SWSI Update will provide a wealth of useful data, but is ultimately a broad, and resource-limited, statewide analysis that cannot adequately address numerous local issues.
25	Laura Belanger	WRA	Flow Tool - timestep	3.2.2	Using a model with a monthly timestep to evaluate E&R metrics is less than ideal for many of the metrics. This is a statewide exercise so high level analyses may be necessary, but it's important that results be meaningful and not overlook important impacts. For example, most CO ISFs are very small so in many cases monthly data are not going to be very useful in assessing impacts to ISFs. Also, sub monthly higher flows are critical for many E&R metrics. How is this addressed?	We understand the importance of daily data for E&R metrics, but currently do not have the resources or fully developed technical tools to perform statewide modeling analyses for the entire SWSI Update at this resolution. Future BIPs and/or SWSI efforts may likely address this issue.
26	Laura Belanger	WRA	Flow Tool	3.2.2 - 3.2.4	There is a sentence "Based on these outputs, we can assign a condition class, or score, for indicator locations that can be intersected with proposed projects to determine sufficiency of proposed actions or protections." There could be many situations where the local community, which is very familiar with specific streams, documents issues and projects but Flow Tool resolution is insufficient and gives these same streams a higher score. What happens when such a discrepancy surfaces? Clearly stating up front the role a Flow Tool can play in scenario planning, its usefulness and limitations, as well as how it should be used and results viewed in relation to other analyses/data will be important to ensuring the tool and results are utilized correctly.	Thanks for the feedback. The Flow Tool is a first step to address the complex issue of project/flow sufficiency. It's development will be iterative and will rely on informed application by individual stakeholders. The appropriate use and limitations of the tool will be noted in its documentation.
27	Dave Graf	CPW	Flow Tool - timestep		Question 1 for me is how committed would the State be to downscale the monthly hydrology to daily; we've seen that to be the most effective way to integrate the non-consumptive needs, since fisheries are not limited by monthly flows, but rather, those acute events or persistent low flows. If you can get to the daily flows, then statistical lenses like IHA can be used to parse out components of flow that are most important for fisheries persistence. Also, I know the 'boater days' analyses are predicated on comparisons of daily streamflows - so far in the CO and Yampa, the modeling we've seen does a good job reflecting daily fluctuations.	We understand the importance of daily data for E&R metrics, but currently do not have the resources or fully developed technical tools to perform statewide modeling analyses for the entire SWSI Update at this resolution. Future BIPs and/or SWSI efforts may address this issue.
28	Dave Graf	CPW	Process		I do have some questions, but largely as it relates to process amongst the BRTs, HOW the integration of State information might occur, and also what I think might be most effective for them to continue their work, since they are all at different levels of effort.	Thanks for the comment. This is the first SWSI analysis conducted within the context of Colorado's Water Plan and Basin Implementation Plans. A primary goal is to provide integrated tools and data sets for Basin Roundtables to update their BIPs with more efficiency and consistency.