

**From:** Mussetter, Bob [mailto:Bob.Mussetter@tetrattech.com]  
**Sent:** Friday, April 05, 2013 6:21 AM  
**To:** Reinthal, Peter N - (pnr); Scott M. Deeny; Duncan Patten; Davidson Rebecca F  
**Cc:** 'Craig Sommers'  
**Subject:** RE: Message from KMBT\_751

Thanks, Peter. I was aware that there are some diversions between the wilderness boundary and the gage, but don't have a very good handle on the size or frequency of use. I was hoping to get some info on that next week. Maybe more conversations with Mark will help.

**Bob**

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**From:** Reinthal, Peter N - (pnr) [mailto:pnr@email.arizona.edu]  
**Sent:** Thursday, April 04, 2013 9:09 PM  
**To:** Mussetter, Bob; Scott M. Deeny; Duncan Patten; 'Davidson Rebecca F'  
**Cc:** 'Craig Sommers'  
**Subject:** RE: Message from KMBT\_751

Bob -

The USGS notes are correct and accurate. Mark Haberstick of TNC informed me that the old gauge site was upstream of the current site on the Miller property, before 2008 and this coincides with USGS notes. However, just so you don't think I am totally losing it, there was another gauge at the Wilderness boundary but it was a BLM gauge.

Mark pointed out a problem with the USGS gauge site that I referred to today - there currently are (and have been) several diversions that are sometimes active between the wilderness and the USGS gauge. I don't think this is an issue because you have done such a nice job with the USGS versus upper canyon flow but it is something to be aware about.

Peter N. Reinthal, PhD  
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520-621-7518

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**From:** Mussetter, Bob [Bob.Mussetter@tetrattech.com]  
**Sent:** Thursday, April 04, 2013 11:04 AM  
**To:** Scott M. Deeny; Duncan Patten; 'Davidson Rebecca F'; Reinthal, Peter N - (pnr)  
**Cc:** 'Craig Sommers'; Davidson Rebecca F ([Rebecca.Davidson@srpnet.com](mailto:Rebecca.Davidson@srpnet.com))  
**Subject:** RE: Message from KMBT\_751

Here are the notes for the USGS Aravaipa Creek gage. The remarks section has the history of when and how far the gage has been moved.

**Bob**

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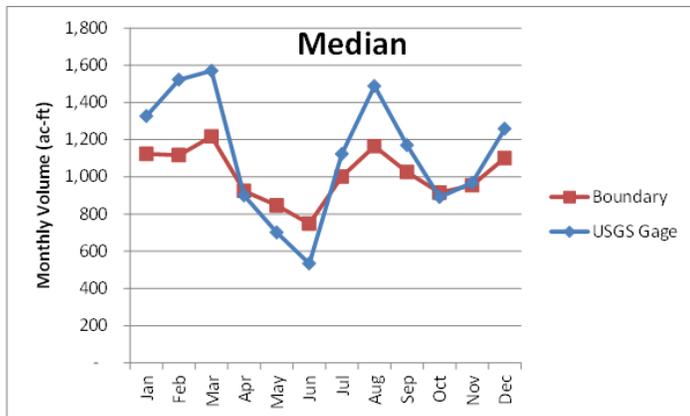
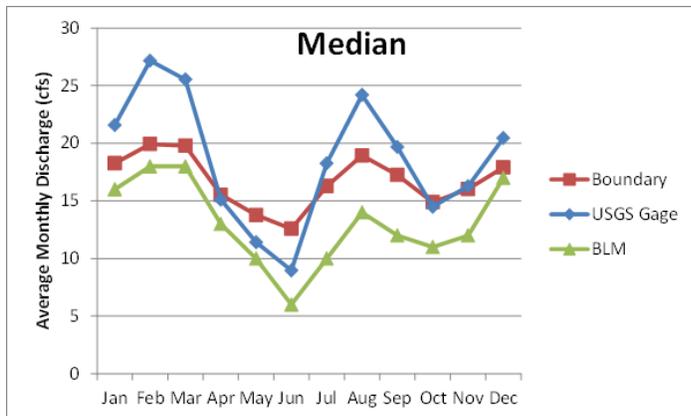
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**From:** Mussetter, Bob  
**Sent:** Thursday, March 28, 2013 12:25 PM  
**To:** 'Scott M. Deeny'; Duncan Patten; 'Davidson Rebecca F'; 'Reinthal, Peter N - (pnr)'  
**Cc:** 'Shaw Lucas M'; 'Craig Sommers'  
**Subject:** RE: Message from KMBT\_751

Attached are two versions of monthly flow duration curves for Aravaipa Creek. The USGS gage flows are taken from the available record for the period from 1967 through 2012 (note that no records are available for 2003 and 2004). The Boundary flows were estimated using the modified relationship that I provided last week. The plots in the *Linear* file are in the same format as the BLM report so you can easily compare them. We typically plot flow duration curves with a logarithmic scale for the discharge and a probability scale for the Exceedence Percentages because it stretches out the tails of the curve, in the range of low and high flows that we're often interested in evaluating.

I'm also including a couple of plots showing the median monthly discharge and volume based on these curves. In general, the USGS gage flows are higher than the Boundary flows in the winter and late-summer/fall monsoon season and lower during the baseflow period, as expected. I've also included the BLM median monthly flows that, according to the report, are based only on the pre-1984 portion of the flow record. It appears that this period must have been quite dry compared to the longer record. I need to look at this more thoroughly to understand why the difference is so big.



Please give me a call if you have questions.

**Bob**  
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