



Group C Calibration Targets - Three Springs, Weatherby Springs, Hoagland Tunnel and Spring Creek Spring

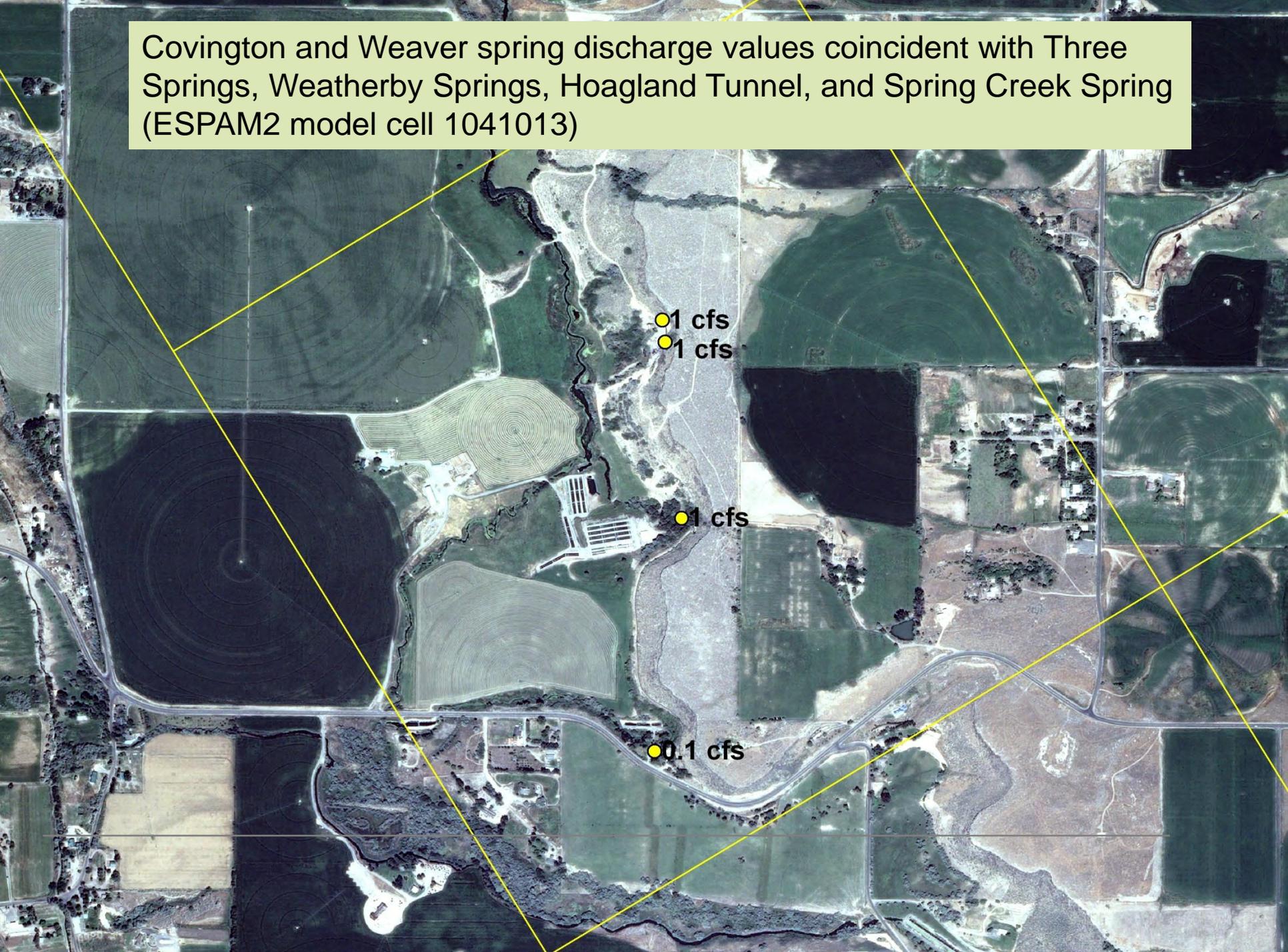
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Calibration targets for Group C Springs

- Group A & Group B spring cells have transient calibration targets based on measured time series data.
- Group C Spring cell calibration targets are based on their ratio to the largest Group C cell in the same river reach (Kimberly to Buhl, Buhl to Lower Salmon Falls, Lower Salmon Falls to King Hill).
- The ratios of cell discharge for Group C cells were calculated from values assigned by Covington and Weaver per previous ESHMC discussions.
- The Group C targets are given lower weight than the Group A & B targets.
- Allan recently discovered that the Covington & Weaver values for the four springs in model cell 1041013 are quite low when compared to water uses supported by spring sources.

Covington and Weaver spring discharge values coincident with Three Springs, Weatherby Springs, Hoagland Tunnel, and Spring Creek Spring (ESPAM2 model cell 1041013)



1 cfs

1 cfs

1 cfs

0.1 cfs

Other Data Sources for Spring Discharge in Cell 1041013

- Three Springs, Weatherby Springs, and Hoagland Tunnel Complex
 - Water is diverted for irrigation and a fish hatchery. Some irrigation diversions occur upstream of the hatchery.
 - On November 15, 1973, IDWR staff measured 73 cfs during a licensing exam at the Jones Hatchery. It is likely this represented most or all of the total spring flow.
 - On August 26, 1993, IDWR staff measured a total spring flow of 50 cfs, including water diverted for irrigation use upstream of the hatchery.
- Spring Creek Spring
 - Water is diverted for irrigation, a fish hatchery, and residential use. The irrigation and residential pipelines divert upstream of the fish hatchery.
 - Peak spring discharge between 1995 and 2008, based on diversions reported to Water District 36A was 6 cfs. Earlier measurement data were not found.

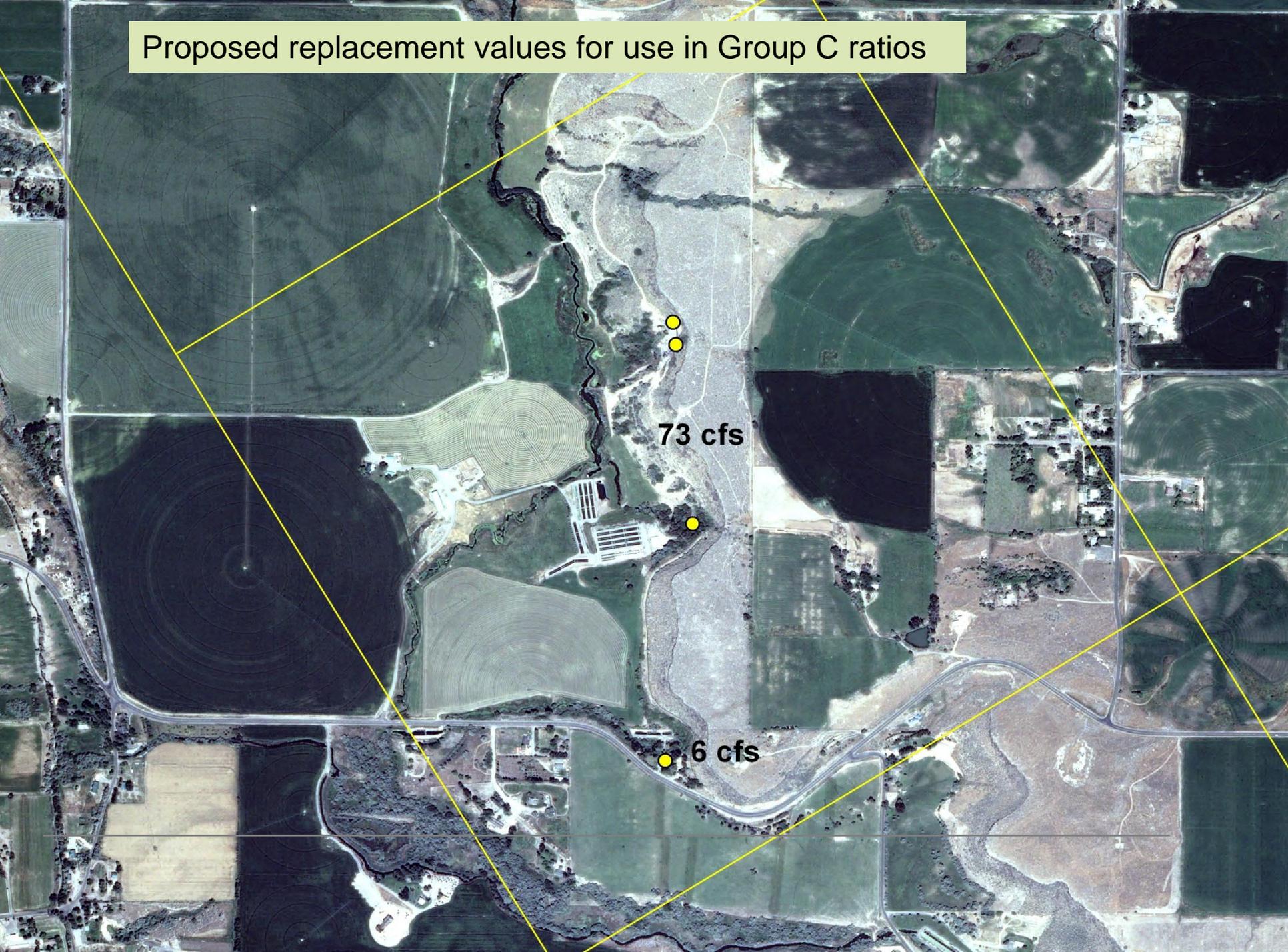
What about other Group C model cells?

- Covington & Weaver values were compared to available diversion records for other model cells, looking for similar issues of this scale.
- Covington & Weaver values for Thousand Springs were approximately 1,000 cfs greater than data obtained from IPCO. This has already been addressed in ESPAM2 with the Group B transient target for the Thousand Springs model cell, as discussed in prior ESHMC meetings between June and November 2010.
- Other large differences were not found.

Proposed Replacement of Covington & Weaver Values

- Covington and Weaver values for various springs in the model domain are based on
 - visual estimates made during the USGS SRP RASA project (1980s?)
 - Nace and others (1958) which reported 1899-1947 data
 - Thomas (1968) which reported 1948-1967 data
 - USGS (1974) which reported 1966-1970 data
 - USGS (1982) which reported data from water year 1981
- Proposed replacement values for cell 1041013
 - Replace 3 cfs mapped by Covington and Weaver with 73 cfs measured at Three/Weatherby/Hoagland Complex in 1973.
 - Replace 0.1 cfs mapped by Covington and Weaver with 6 cfs, based on peak reported diversions at Spring Creek Spring between 1995 and 2008.
 - New ratio for ranking of cell 1041013 within the Buhl to Lower Salmon Falls reach will be based on 79 cfs. This will make cell 1041013 the fourth largest Group C cell in this reach, instead of one of the smallest.
 - Updated Class C spring calculations are posted at http://www.idwr.idaho.gov/Browse/WaterInfo/ESPAM/monitoring_data/Springs/Current_Data/ClassC_Springs.xlsx

Proposed replacement values for use in Group C ratios



73 cfs

6 cfs

Discussion