Stream: Tabeguache Creek (Upper Segment)

Executive Summary

Water Division: 4
Water District: 60
CDOW#: 43480
CWCB ID: 09/4/A-010

Segment: Confluence with Fortyseven Creek to Headgate of Templeton Ditch

Upper Terminus: CONFLUENCE WITH FORTYSEVEN CREEK
(Latitude 38° 22’ 9.52”N) (Longitude 108° 31’ 5.07”W)

Lower Terminus: HEADGATE OF TEMPLETON DTICH
(Latitude 38° 21’ 41.98”N) (Longitude 108° 35’ 24.68”W)

Watershed: San Miguel (HUC#: 14030003)
Counties: Montrose
Length: 5.4 miles
USGS Quad(s): Uravan, Nucla
Flow Recommendation: 4.75 cfs (April 1 - June 30)
1.9 cfs (July 1 - November 30)
1.6 cfs (December 1 to March 31)

Staff Analysis and Recommendation

Summary

The information contained in this report and the associated instream flow file folder forms the basis for staff's instream flow recommendation to be considered by the Board. It is staff's opinion that the information contained in this report is sufficient to support the findings required in Rule 5.40.

Colorado's Instream Flow Program was created in 1973 when the Colorado State Legislature recognized "the need to correlate the activities of mankind with some reasonable preservation of the natural environment" (see 37-92-102 (3) C.R.S.). The statute vests the CWCB with the exclusive authority to appropriate and acquire instream flow and natural lake level water rights. In order to encourage other entities to participate in Colorado's Instream Flow Program, the statute directs the CWCB to request instream flow recommendations from other state and federal agencies. The Bureau of Land Management recommended this segment of Tabeguache Creek to the CWCB for inclusion into the Instream Flow Program. Tabeguache Creek is being considered for inclusion into the Instream Flow Program because it has a natural environment that can be preserved to a reasonable degree with an instream flow water right.

Tabeguache Creek is approximately 27.5 miles long. It begins within the Uncompahgre National Forest at an elevation of 9,840 feet and generally flows in a westerly direction until it terminates at the confluence with the San Miguel River at an elevation of 5,010 feet. Approximately 74% of the land on the 5.4-mile segment addressed by this report is publicly owned. Tabeguache Creek is located within Montrose County and the total drainage area of the creek is approximately 152 square miles.

The subject of this report is a segment of Tabeguache Creek beginning at the confluence with Fortyseven Creek and extending downstream to the headgate of Templeton Ditch. The proposed segment is located approximately 11 miles northwest of Naturita. Staff has received one joint recommendation for this segment, from the BLM & CDOW. The recommendation for this segment is discussed below.

Instream Flow Recommendations

The BLM recommended 4.75 cfs (April - June 30), 1.9 cfs (July 1 - November 30), 1.6 cfs (December 1 - March 31) based on its data collection efforts, staff's water availability analyses and information provided by local stakeholders.

Land Status Review

Upper Terminus	Lower Terminus	Total Length (miles)	Land Ownership	
			% Private	% Public
Confluence with Fortyseven Creek	Headgate of Templeton Ditch	5.4	26%	74%

100% of the public lands are owned by the BLM.

Biological Data

Most of the upper segment is a moderate gradient stream within a confined canyon that allows for some channel movement during high flow events. The substrate consists mostly of cobbles that are regularly moved during high flow events. The narrowleaf cottonwood-sandbar willow-skunkbrush sumac riparian community is vigorous, and shows evidence of new riparian recruitment on sand bars that are formed during high flow events. The upper reach supports a beaver community, and beaver ponds on side channels are common. Fishery surveys indicate that this part of reach provides habitat for a self-sustaining rainbow trout and speckled dace populations.

Field Survey Data

BLM and CDOW staff used the R2Cross methodology to quantify the amount of water required to preserve the natural environment to a reasonable degree. The R2Cross method requires that stream discharge and channel profile data be collected in a riffle stream habitat type. Riffles are most easily visualized, as the stream habitat types that would dry up first should streamflow cease. This type of hydraulic data collection consists of setting up a transect, surveying the stream channel geometry, and measuring the stream discharge.

Biological Flow Recommendation

The CWCB staff relied upon the biological expertise of the cooperating agencies to interpret output from the R2Cross data collected to develop the initial, biologic instream flow recommendation. This initial recommendation is designed to address the unique biologic requirements of each stream without regard to water availability. Three instream flow hydraulic parameters, average depth, percent wetted perimeter, and average velocity are used to develop biologic instream flow recommendations. The CDOW has determined that maintaining these three hydraulic parameters at adequate levels across riffle habitat types, aquatic habitat in pools and runs will also be maintained for most life stages of fish and aquatic invertebrates (Nehring 1979; Espegren 1996).

For this stream, four data sets were collected with the results shown in Table 1 below. Table 1 shows who collected the data (Party), the date the data was collected (Date), the measured discharge at the time of the survey (Q), the accuracy range of the predicted flows based on Manning's Equation (240% and 40% of Q), the summer flow recommendation based on meeting 3 of 3 hydraulic criteria and the winter flow recommendation based upon 2 of 3 hydraulic criteria. It is believed that recommendations that fall outside of the accuracy range of the model, over 250% of the measured discharge or under 40% of the measured discharge may not give an accurate estimate of the necessary instream flow required.

Table 1: Data

Party	Date	Q	250%-40%	Summer (3/3)	Winter (2/3)
BLM/DOW	6/19/2003	2.51	6.3 – 1.0	out of range	2.86
BLM/DOW	6/19/2003	2.13	5.3 – 0.9	out of range	1.80
BLM/DOW	6/2/2006	8.1	3.2 – 20.2	3.89	out of range
BLM/DOW	6/2/2006	8.09	3.2 – 20.2	5.62	out of range

The summer seasonal flow recommendation, which meets 3 of 3 criteria and is within the accuracy range of the R2CROSS model is 4.75 cfs. The flow recommendations of 1.9 cfs (July 1 – November 30) and 1.6 cfs (December 1 – March 31) were lowered due to water availability constraints. It should be noted that the timing of the recommended flows was adjusted as a result of stakeholder input.

Hydrologic Data and Analysis

After receiving the cooperating agency's biologic recommendation, the CWCB staff conducted an evaluation of the stream hydrology to determine if water was physically available for an instream flow appropriation. This evaluation was done through a computation that is, in essence, a "water balance". In concept a "water balance" computation can be viewed as an accounting exercise. When done in its most rigorous form, the water balance parses precipitation into all the avenues water pursues after it is deposited as rain, snow, or ice. In other words, given a specified amount of water deposition (input), the balance tries to account for all water depletions (losses) until a selected end point is reached. Water losses include depletions due to evaporation and transpiration, deliveries into ground water storage, temporary surface storage, incorporations into plant and animal tissue and so forth. These losses are individually or collectively subtracted from the input to reveal the net amount of stream runoff as represented by the discharge measured by stream gages. Of course, the measured stream flow need not be the end point of interest; indeed, when looking at issues of water use to extinction stream flow measurements may only describe intermediate steps in the complex accounting process that is a water balance carried out to a net value of zero.

In its analysis, CWCB staff has attempted to use this idea of balancing inputs and losses to determine if water is available for the recommended Instream Flow Appropriation. Of course, this analysis must be a practical exercise rather than a lengthy, and costly, scientific investigation. As a result, staff has simplified the process by lumping together some variables and employing certain rational and scientifically supportable assumptions. The process may be described through the following description of the steps used to complete the evaluation for this particular stream.

The first step required in determining water availability is a determination of the hydrologic regime at the Lower Terminus (LT) of the recommended ISF reach. In the best case this means looking at the data from a gage at the LT. Further, this data, in the best case, has been collected for a long period of time (the longer the better) including wet and dry periods. In the case of **Tabeguache Creek – Upper** no such gage is available at the LT; although flows have been gaged on Tabeguache Creek. A gage was located in the upstream reaches (Tabeguache Creek near Nucla). However, the data from this gage was of limited value being both old and a short Period of Record (POR). While the use of some of this data might be possible, it made sense to examine nearby drainages for gages with better data records that could serve as "representative" gage stations.

SAN MIGUEL RIVER AT NATURITA, CO (USGS 09175500) was selected as the "representative" gage for the flow regime of Tabeguache Creek – Upper at LT. This gage has a longer and more current data record than the Tabeguache Cr. gage and the San Miguel River gage is near and morphologically similar to Tabeguache Cr. Specifically, the San Miguel gage

has a 53 year POR collected between 1917 and 1981. The gage is at an elevation of 5,392.85 ft above mean sea level (amsl) and has a drainage area of 1,069 mi^2. (Data for this station was modified by removal of data from the San Miguel River near Nucla basin gage to isolate the representative portion of the basin and reduce the effective drainage basin size to 420 mi^2.) While the hydrograph (plot of discharge over time) produced from these gages includes the consumptive use of numerous upstream diversions, the diversions do not preclude the use of the data from the gage. To make the measured data transferable to Tabeguache Creek – Upper above the LT, the consumptive portions of diversions were added back to the measured hydrograph. The "adjusted" hydrograph that resulted could be used on Tabeguache Creek - Upper above the LT by multiplying the "adjusted" gage discharge values by an area ratio; specifically, the area of Tabeguache Creek – Upper above the LT (84.29 mi^2) to San Miguel River at Naturita, CO (modified) (420 mi^2). The resulting proportioned hydrograph was itself "adjusted" to reflect the consumptive irrigation depletions (decreased) and out-of-basin diversions (decreased) that occur upstream of Tabeguache Creek – Upper above the LT. The final hydrograph thus represents a distribution of flow over time that has been reduced to reflect existing human uses.

{The Following discussion is based upon the US Geological Survey's *Techniques of Water-Resources Investigations* Series, *Book 4: Hydrologic Analysis and Interpretation, Chapter A3: Statistical Methods in Water Resources* (Chapter 3: Describing Uncertainty) by D.R. Helsel and R. M. Hirsch. This technical reference provides the scientific background and guidance important to the systematic interpretation of hydrologic data. The document is available online and is a valuable aid to understanding and interpreting the analyses described here.}

The next step in producing a representation of the discharge at Tabeguache Creek – Upper above the LT was to compute the Geometric Mean of the area-prorated data values from the San Miguel River at Naturita, CO (modified) Hydrograph. This step is of value because of the inherent statistical weaknesses found in any collection of data intended to measure natural stream discharge. Without getting into the details of statistical theory, it is worth noting that a set of discharge measurements is inherently inaccurate, no matter how well collected, due to the difficulties attendant to data collection, especially hydrologic data. In this particular case, the short period of record lends even greater merit to the use of this statistical tool. To give deference to this fact and to increase the value of the hydrograph product of this analysis, the Geometric Means of the data were computed and plotted along with the 95% Confidence Intervals about the data. The resultant hydrograph, including recommended Instream Flow values, is displayed in Figure 1 with the data displayed in Table 2.

Figure 1

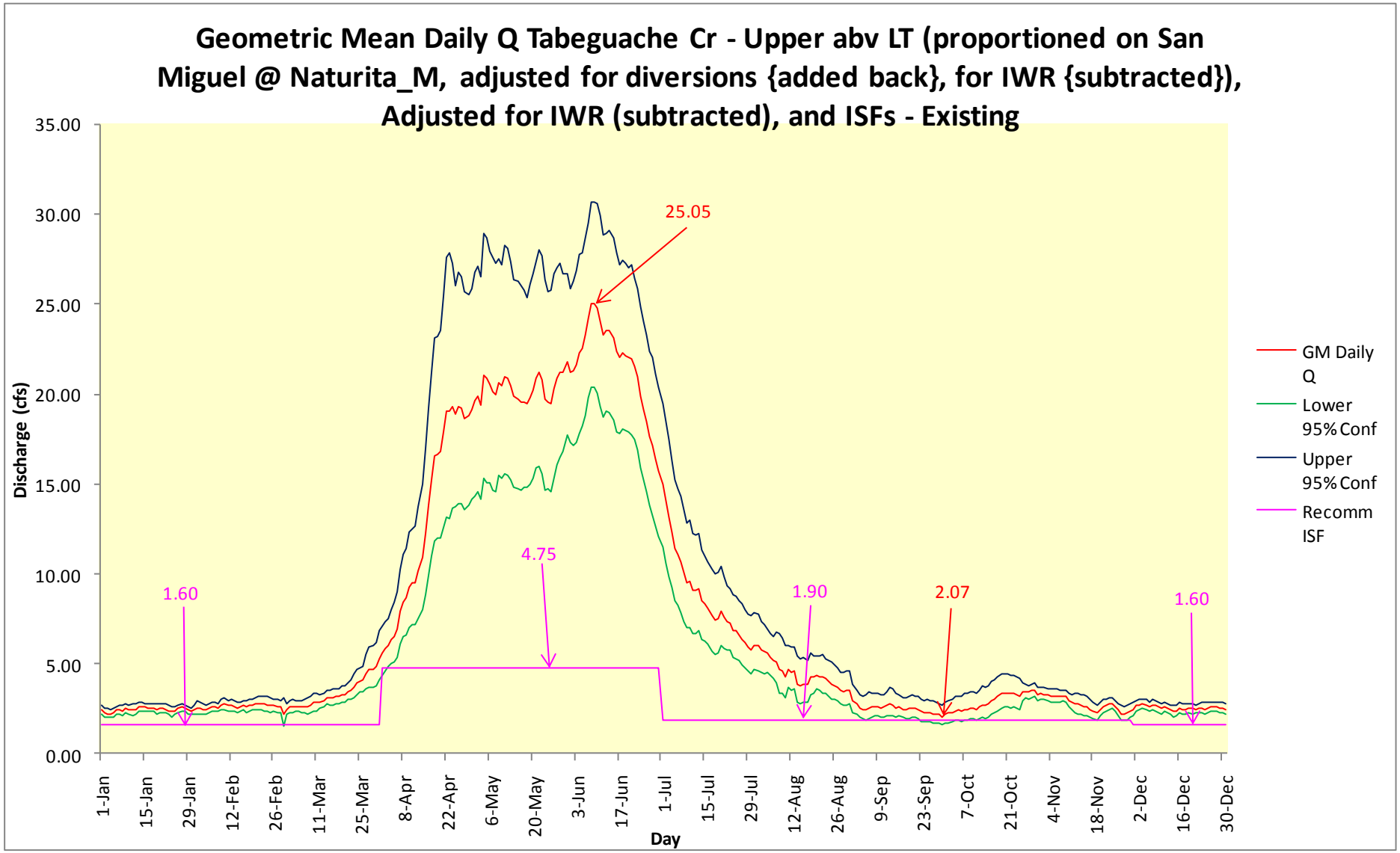

Geometric Mean Daily Q Tabeguache Cr - Upper abv LT (proportioned on San Miguel @ Naturita_M, adjusted for diversions {added back}, for IWR {subtracted}), Adjusted for IWR (subtracted), and ISFs - Existing
Discharge (cfs)
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
25.05
4.75
1.60
1.90
2.07
1.60
1-Jan
15-Jan
29-Jan
12-Feb
26-Feb
11-Mar
25-Mar
8-Apr
22-Apr
6-May
20-May
3-Jun
17-Jun
1-Jul
15-Jul
29-Jul
12-Aug
26-Aug
9-Sep
23-Sep
7-Oct
21-Oct
4-Nov
18-Nov
2-Dec
16-Dec
30-Dec
Day
GM Daily Q
Lower 95% Conf
Upper 95% Conf
Recomm ISF

Table 2. Geometric Mean Discharge and Recommended Instream Flows			
Date	Existing ISF	Recommended ISF	Proportioned Adjusted GM (abv gage) Adj (-) for Irr & (-) OoB from Tabeguache Cr – Upper abv LT
1-Jan		1.60	2.44
2-Jan		1.60	2.30
3-Jan		1.60	2.24
4-Jan		1.60	2.23
5-Jan		1.60	2.28
6-Jan		1.60	2.41
7-Jan		1.60	2.43
8-Jan		1.60	2.37
9-Jan		1.60	2.51
10-Jan		1.60	2.43
11-Jan		1.60	2.41
12-Jan		1.60	2.49
13-Jan		1.60	2.58
14-Jan		1.60	2.61
15-Jan		1.60	2.57
16-Jan		1.60	2.56
17-Jan		1.60	2.55
18-Jan		1.60	2.53
19-Jan		1.60	2.48
20-Jan		1.60	2.50
21-Jan		1.60	2.51
22-Jan		1.60	2.49
23-Jan		1.60	2.40
24-Jan		1.60	2.33
25-Jan		1.60	2.40
26-Jan		1.60	2.51
27-Jan		1.60	2.59
28-Jan		1.60	2.51
29-Jan		1.60	2.41
30-Jan		1.60	2.36
31-Jan		1.60	2.46
1-Feb		1.60	2.53
2-Feb		1.60	2.50
3-Feb		1.60	2.45
4-Feb		1.60	2.45
5-Feb		1.60	2.52
6-Feb		1.60	2.60
7-Feb		1.60	2.60
8-Feb		1.60	2.56
9-Feb		1.60	2.70
10-Feb		1.60	2.75
11-Feb		1.60	2.66
12-Feb		1.60	2.66

13-Feb	1.60	2.62
14-Feb	1.60	2.54
15-Feb	1.60	2.60
16-Feb	1.60	2.67
17-Feb	1.60	2.60
18-Feb	1.60	2.66
19-Feb	1.60	2.73
20-Feb	1.60	2.79
21-Feb	1.60	2.81
22-Feb	1.60	2.78
23-Feb	1.60	2.78
24-Feb	1.60	2.73
25-Feb	1.60	2.68
26-Feb	1.60	2.66
27-Feb	1.60	2.61
28-Feb	1.60	2.58
29-Feb	1.60	2.17
1-Mar	1.60	2.46
2-Mar	1.60	2.60
3-Mar	1.60	2.64
4-Mar	1.60	2.62
5-Mar	1.60	2.63
6-Mar	1.60	2.60
7-Mar	1.60	2.61
8-Mar	1.60	2.59
9-Mar	1.60	2.69
10-Mar	1.60	2.85
11-Mar	1.60	2.84
12-Mar	1.60	2.87
13-Mar	1.60	2.96
14-Mar	1.60	3.15
15-Mar	1.60	3.09
16-Mar	1.60	3.10
17-Mar	1.60	3.17
18-Mar	1.60	3.17
19-Mar	1.60	3.28
20-Mar	1.60	3.32
21-Mar	1.60	3.46
22-Mar	1.60	3.53
23-Mar	1.60	3.70
24-Mar	1.60	3.91
25-Mar	1.60	4.05
26-Mar	1.60	4.09
27-Mar	1.60	4.45
28-Mar	1.60	4.69
29-Mar	1.60	4.71
30-Mar	1.60	4.85
31-Mar	1.60	5.28
1-Apr	4.75	5.58

2-Apr	4.75	5.82
3-Apr	4.75	6.00
4-Apr	4.75	6.33
5-Apr	4.75	6.54
6-Apr	4.75	6.95
7-Apr	4.75	7.93
8-Apr	4.75	8.46
9-Apr	4.75	8.65
10-Apr	4.75	9.30
11-Apr	4.75	9.47
12-Apr	4.75	9.50
13-Apr	4.75	10.16
14-Apr	4.75	10.93
15-Apr	4.75	12.26
16-Apr	4.75	13.78
17-Apr	4.75	15.25
18-Apr	4.75	16.54
19-Apr	4.75	16.64
20-Apr	4.75	16.78
21-Apr	4.75	17.85
22-Apr	4.75	19.06
23-Apr	4.75	19.07
24-Apr	4.75	19.31
25-Apr	4.75	18.93
26-Apr	4.75	19.27
27-Apr	4.75	19.20
28-Apr	4.75	18.66
29-Apr	4.75	18.76
30-Apr	4.75	19.15
1-May	4.75	19.63
2-May	4.75	19.89
3-May	4.75	19.39
4-May	4.75	21.06
5-May	4.75	20.84
6-May	4.75	20.55
7-May	4.75	20.12
8-May	4.75	19.97
9-May	4.75	20.66
10-May	4.75	20.48
11-May	4.75	21.00
12-May	4.75	20.91
13-May	4.75	20.50
14-May	4.75	19.85
15-May	4.75	19.73
16-May	4.75	19.56
17-May	4.75	19.57
18-May	4.75	19.43
19-May	4.75	19.82
20-May	4.75	20.24

21-May	4.75	20.90
22-May	4.75	21.23
23-May	4.75	20.80
24-May	4.75	19.70
25-May	4.75	19.52
26-May	4.75	19.48
27-May	4.75	20.26
28-May	4.75	20.87
29-May	4.75	21.24
30-May	4.75	21.22
31-May	4.75	21.81
1-Jun	4.75	21.18
2-Jun	4.75	21.28
3-Jun	4.75	21.59
4-Jun	4.75	22.26
5-Jun	4.75	22.57
6-Jun	4.75	23.28
7-Jun	4.75	24.22
8-Jun	4.75	25.03
9-Jun	4.75	25.05
10-Jun	4.75	24.78
11-Jun	4.75	24.05
12-Jun	4.75	23.26
13-Jun	4.75	23.51
14-Jun	4.75	23.52
15-Jun	4.75	23.12
16-Jun	4.75	22.35
17-Jun	4.75	22.01
18-Jun	4.75	22.28
19-Jun	4.75	22.15
20-Jun	4.75	22.01
21-Jun	4.75	21.98
22-Jun	4.75	21.51
23-Jun	4.75	20.93
24-Jun	4.75	19.90
25-Jun	4.75	19.12
26-Jun	4.75	18.44
27-Jun	4.75	17.60
28-Jun	4.75	17.10
29-Jun	4.75	16.38
30-Jun	4.75	15.73
1-Jul	1.90	14.98
2-Jul	1.90	14.05
3-Jul	1.90	13.18
4-Jul	1.90	12.35
5-Jul	1.90	11.45
6-Jul	1.90	11.06
7-Jul	1.90	10.66
8-Jul	1.90	10.05

9-Jul	1.90	9.49
10-Jul	1.90	9.60
11-Jul	1.90	9.07
12-Jul	1.90	9.05
13-Jul	1.90	9.18
14-Jul	1.90	8.50
15-Jul	1.90	8.30
16-Jul	1.90	8.09
17-Jul	1.90	7.66
18-Jul	1.90	7.46
19-Jul	1.90	7.52
20-Jul	1.90	7.92
21-Jul	1.90	7.56
22-Jul	1.90	7.32
23-Jul	1.90	7.25
24-Jul	1.90	6.86
25-Jul	1.90	6.81
26-Jul	1.90	6.61
27-Jul	1.90	6.37
28-Jul	1.90	6.18
29-Jul	1.90	5.93
30-Jul	1.90	5.79
31-Jul	1.90	6.03
1-Aug	1.90	5.98
2-Aug	1.90	5.76
3-Aug	1.90	5.67
4-Aug	1.90	5.61
5-Aug	1.90	5.39
6-Aug	1.90	5.18
7-Aug	1.90	5.13
8-Aug	1.90	4.69
9-Aug	1.90	4.64
10-Aug	1.90	4.28
11-Aug	1.90	4.68
12-Aug	1.90	4.56
13-Aug	1.90	4.59
14-Aug	1.90	3.88
15-Aug	1.90	3.77
16-Aug	1.90	3.86
17-Aug	1.90	3.84
18-Aug	1.90	4.24
19-Aug	1.90	4.25
20-Aug	1.90	4.38
21-Aug	1.90	4.31
22-Aug	1.90	4.25
23-Aug	1.90	4.17
24-Aug	1.90	4.01
25-Aug	1.90	3.89
26-Aug	1.90	3.78

27-Aug	1.90	3.69
28-Aug	1.90	3.51
29-Aug	1.90	3.43
30-Aug	1.90	3.49
31-Aug	1.90	3.54
1-Sep	1.90	2.92
2-Sep	1.90	2.75
3-Sep	1.90	2.57
4-Sep	1.90	2.46
5-Sep	1.90	2.45
6-Sep	1.90	2.57
7-Sep	1.90	2.60
8-Sep	1.90	2.62
9-Sep	1.90	2.64
10-Sep	1.90	2.55
11-Sep	1.90	2.60
12-Sep	1.90	2.66
13-Sep	1.90	2.78
14-Sep	1.90	2.70
15-Sep	1.90	2.55
16-Sep	1.90	2.60
17-Sep	1.90	2.47
18-Sep	1.90	2.45
19-Sep	1.90	2.50
20-Sep	1.90	2.57
21-Sep	1.90	2.52
22-Sep	1.90	2.44
23-Sep	1.90	2.33
24-Sep	1.90	2.25
25-Sep	1.90	2.28
26-Sep	1.90	2.28
27-Sep	1.90	2.24
28-Sep	1.90	2.16
29-Sep	1.90	2.18
30-Sep	1.90	2.07
1-Oct	1.90	2.18
2-Oct	1.90	2.24
3-Oct	1.90	2.31
4-Oct	1.90	2.39
5-Oct	1.90	2.41
6-Oct	1.90	2.39
7-Oct	1.90	2.46
8-Oct	1.90	2.46
9-Oct	1.90	2.56
10-Oct	1.90	2.56
11-Oct	1.90	2.48
12-Oct	1.90	2.57
13-Oct	1.90	2.73
14-Oct	1.90	2.67

15-Oct	1.90	2.75
16-Oct	1.90	2.96
17-Oct	1.90	3.04
18-Oct	1.90	3.19
19-Oct	1.90	3.34
20-Oct	1.90	3.37
21-Oct	1.90	3.37
22-Oct	1.90	3.33
23-Oct	1.90	3.36
24-Oct	1.90	3.30
25-Oct	1.90	3.21
26-Oct	1.90	3.41
27-Oct	1.90	3.45
28-Oct	1.90	3.41
29-Oct	1.90	3.50
30-Oct	1.90	3.52
31-Oct	1.90	3.30
1-Nov	1.90	3.35
2-Nov	1.90	3.31
3-Nov	1.90	3.24
4-Nov	1.90	3.22
5-Nov	1.90	3.21
6-Nov	1.90	3.22
7-Nov	1.90	3.20
8-Nov	1.90	3.22
9-Nov	1.90	3.15
10-Nov	1.90	2.97
11-Nov	1.90	2.87
12-Nov	1.90	2.75
13-Nov	1.90	2.74
14-Nov	1.90	2.67
15-Nov	1.90	2.64
16-Nov	1.90	2.58
17-Nov	1.90	2.49
18-Nov	1.90	2.38
19-Nov	1.90	2.25
20-Nov	1.90	2.43
21-Nov	1.90	2.61
22-Nov	1.90	2.66
23-Nov	1.90	2.76
24-Nov	1.90	2.79
25-Nov	1.90	2.64
26-Nov	1.90	2.42
27-Nov	1.90	2.23
28-Nov	1.90	2.21
29-Nov	1.90	2.24
30-Nov	1.90	2.38
1-Dec	1.60	2.46
2-Dec	1.60	2.66

3-Dec	1.60	2.71
4-Dec	1.60	2.78
5-Dec	1.60	2.73
6-Dec	1.60	2.61
7-Dec	1.60	2.72
8-Dec	1.60	2.66
9-Dec	1.60	2.58
10-Dec	1.60	2.49
11-Dec	1.60	2.59
12-Dec	1.60	2.53
13-Dec	1.60	2.42
14-Dec	1.60	2.34
15-Dec	1.60	2.39
16-Dec	1.60	2.56
17-Dec	1.60	2.47
18-Dec	1.60	2.45
19-Dec	1.60	2.55
20-Dec	1.60	2.50
21-Dec	1.60	2.48
22-Dec	1.60	2.51
23-Dec	1.60	2.54
24-Dec	1.60	2.48
25-Dec	1.60	2.57
26-Dec	1.60	2.58
27-Dec	1.60	2.62
28-Dec	1.60	2.58
29-Dec	1.60	2.53
30-Dec	1.60	2.55
31-Dec	1.60	2.48

Existing Water Right Information

Staff has analyzed the water rights tabulation and contacted the Division Engineer Office (DEO) to identify any potential water availability problems. There is one decreed surface diversion within this reach of stream, Skees Ditch (1.92 cfs with an 1915 appropriation). The downstream terminus of this stream segment is the Templeton Ditch (5.5 cfs with appropriations of 1926, 1939 and 1946). Staff has determined that water is available for appropriation on Tabeguache Creek, between the confluence with Fortyseven Creek and the headgate of Templeton Ditch, to preserve the natural environment to a reasonable degree without limiting or foreclosing the exercise of valid existing water rights.

CWCB Staff's Instream Flow Recommendation

Staff recommends the Board form its intent to appropriate on the following stream reach:

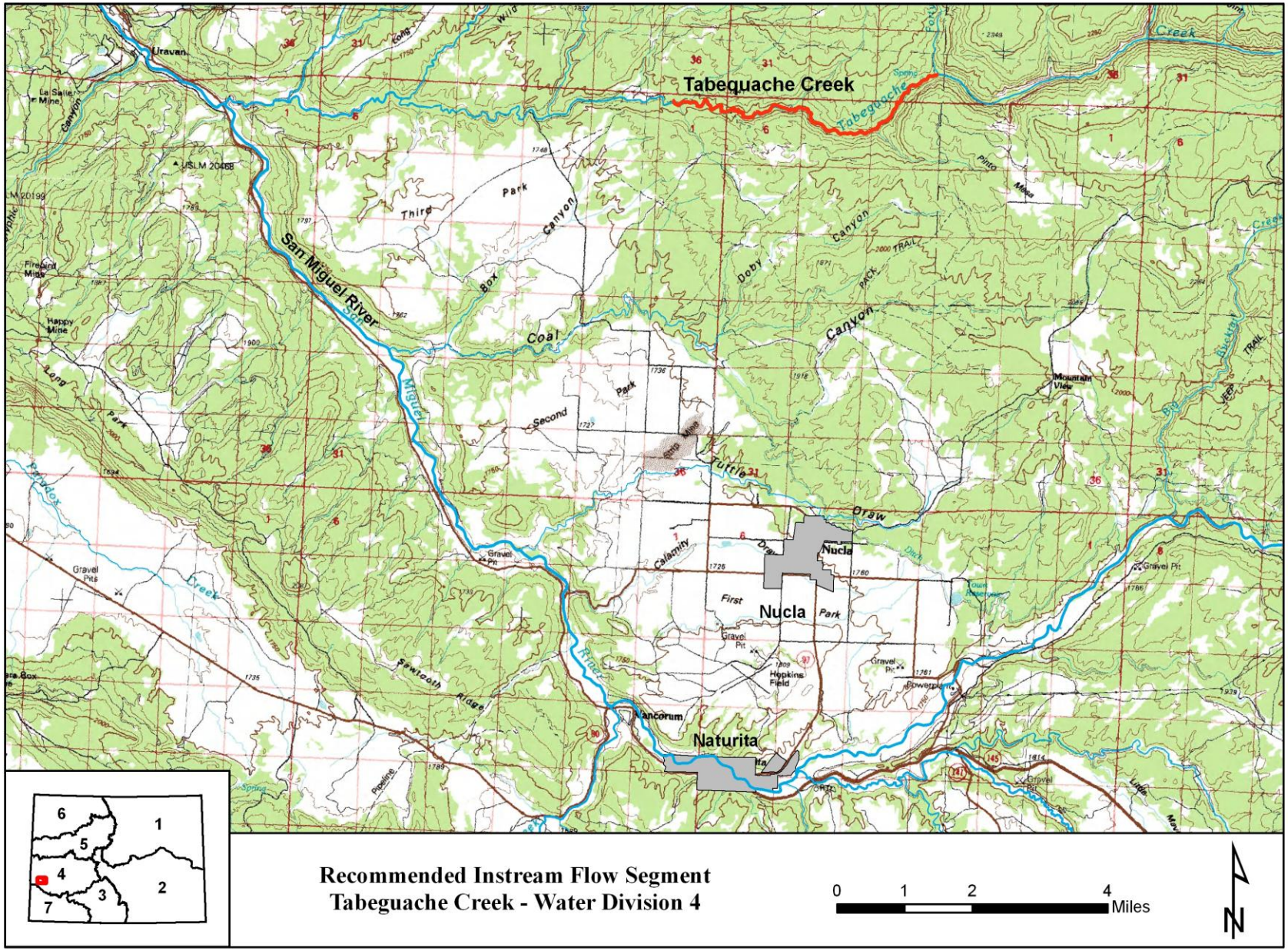
Segment: Confluence with Fortyseven Creek to Headgate of Templeton Ditch

Upper Terminus: CONFLUENCE WITH FORTYSEVEN CREEK
(Latitude 38° 22' 9.52"N) (Longitude 108° 31' 5.07"W)
UTM North: 4252653.7 UTM East: 192633.2
NE SE S33 T48N R15W MMPM
477' West of the East Section Line; 2015' North of the South Section Line

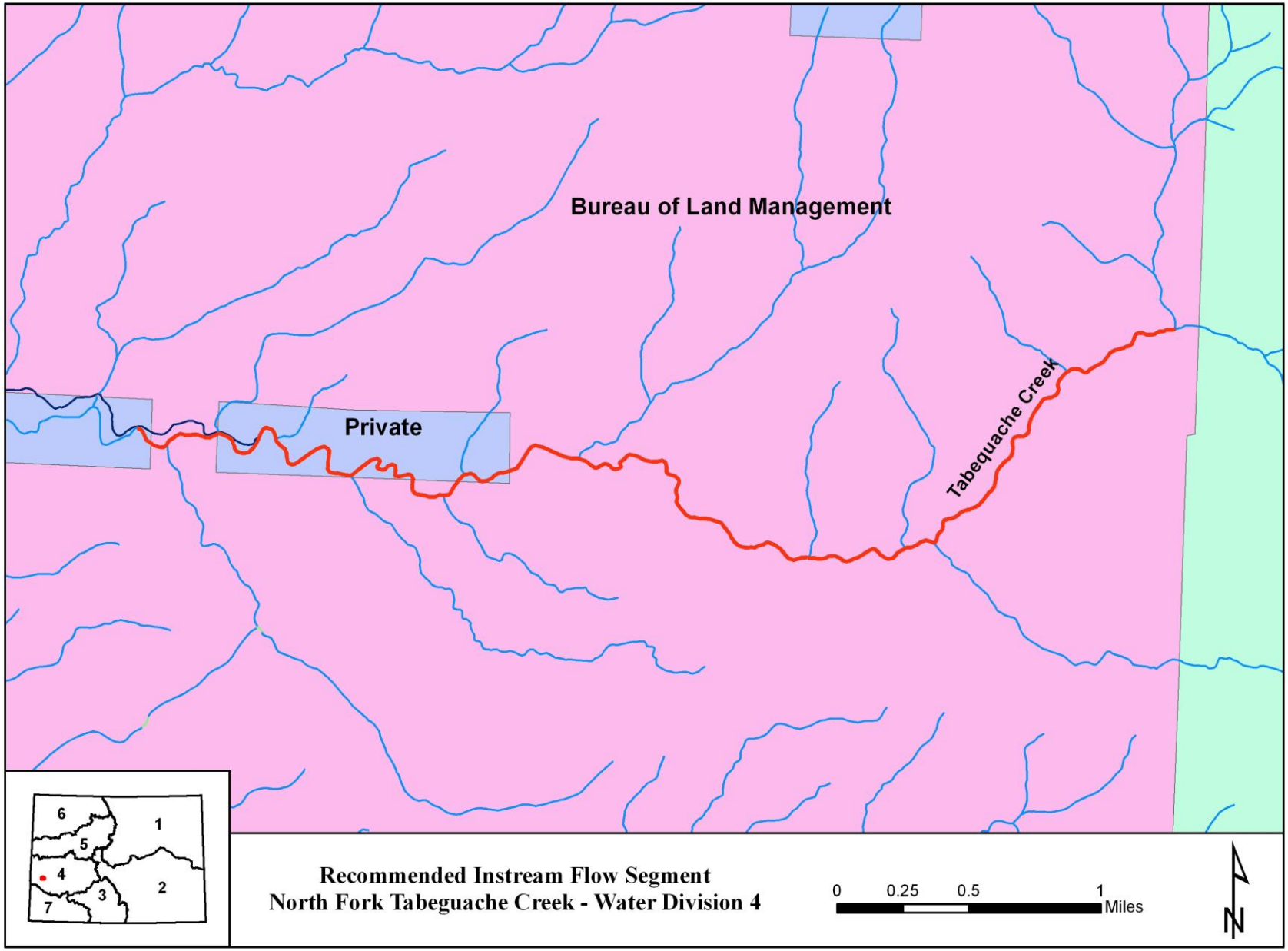
Lower Terminus: HEADGATE OF TEMPLETON DTICH
(Latitude 38° 21' 41.98"N) (Longitude 108° 35' 24.68"W)
UTM North: 4252047.7 UTM East: 186297.8
NW NW S1 T47N R16W NMPM
940' East of the West Section Line; 560' South of the North Section Line

Watershed: San Miguel (HUC#: 14030003)
Counties: Montrose
Length: 5.4 miles
USGS Quad(s): Uravan, Nucla
Flow Recommendation: 4.75 cfs (April - June 30)
1.9 cfs (July 1 to November 30)
1.6 cfs (December 1 to March 31)

Vicinity Map



Land Use Map


Bureau of Land Management
Private
Tabequache Creek
6
1
5
4
2
3
7
Recommended Instream Flow Segment
North Fork Tabeguache Creek - Water Division 4
0
0.25
0.5
1
Miles
N

Topographic & Water Rights Map