Stream: North Fork Escalante Creek

Executive Summary

Water Division: 4
Water District: 40
CDOW#: 40080
CWCB ID#: 06/04/A-002

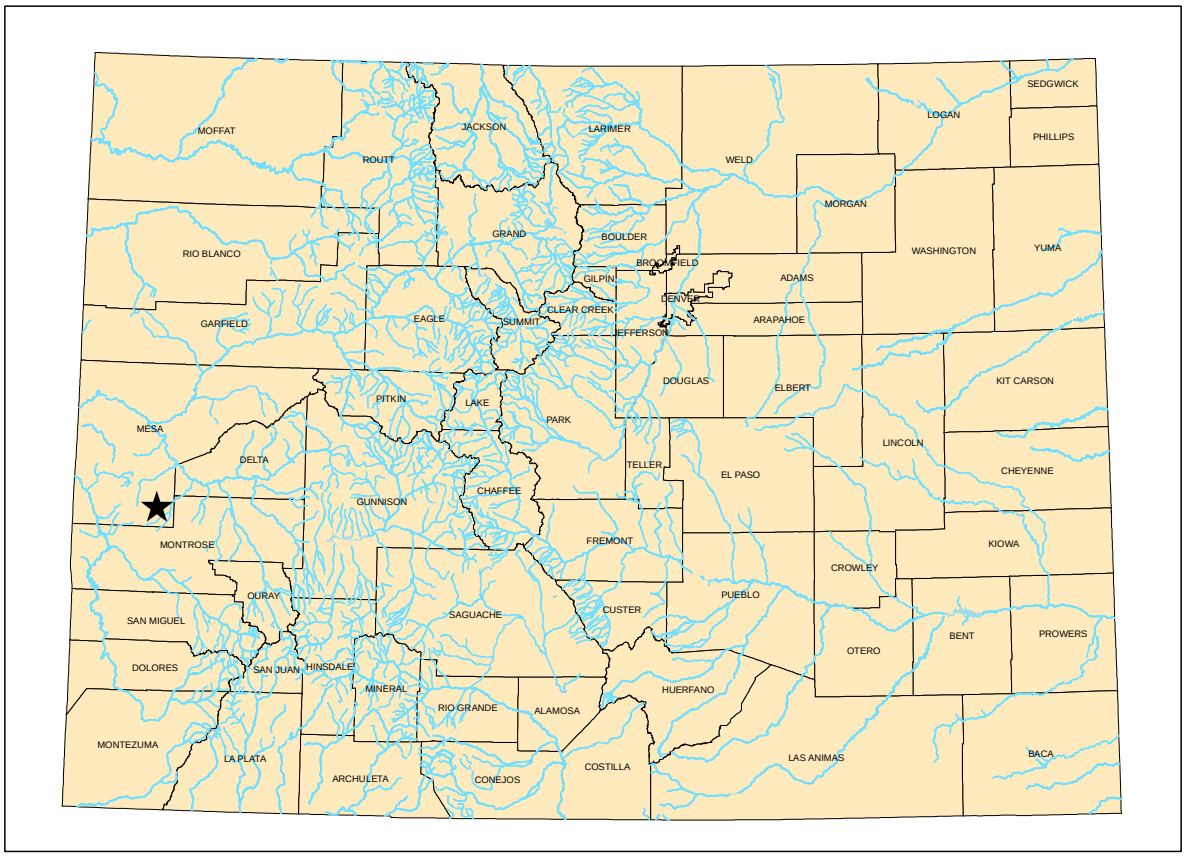
Segment:

Upper Terminus: Points Creek
Latitude: 38d35'05.7"N Longitude: 108d35'03.88"W
UTM North: 4276811.575 UTM East: 187768.695
SE1/4, NW1/4, Sctn19, T50N, R15W
2325 ft. E of the W Section Line, 2048 ft. S of the N Section Line

Lower Terminus: Campbell Ditch
Latitude: 38d38'16.29"N Longitude: 108d25'27.97"W
UTM North: 4282156.094 UTM East: 201924.957
NE1/4, SW1/4, Sctn34, T51N, R14W
1180 ft. E of the W Section Line, 1379 ft. N of the S Section Line

Counties: Mesa
Length: 10.26 miles
USGS Quad(s): Snipe Mountain, Kelso Point, Escalante Forks
ISF Appropriation: 3.7 cfs (April 1 – June 14)
0.6 cfs (June 15 – March 31)

North Fork Escalante Creek



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 5i.

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 North Fork Escalante Creek to the CWCB for inclusion into the Instream Flow Program. North Fork Escalante 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. The BLM is very interested in protecting stream flows because North Fork Escalante Creek supports a robust trout fishery and a vigorous riparian environment in a relatively undisturbed area.

North Fork Escalante Creek is 10.88 miles long. It begins at its headwaters on the northeastern flank of the Uncompahgre Plateau at an elevation of approximately 8,900 feet. It terminates at

the confluence with the Gunnison River at an elevation of approximately 4,800 feet. Approximately 72% of the 16.7-mile segment addressed by this report is located on federal lands. North Fork Escalante Creek is located within Mesa County. The total drainage area of the creek is approximately 15.4 square miles. North Fork Escalante Creek generally flows in a northeasterly direction.

The subject of this report is a segment of the North Fork Escalante Creek beginning at the confluence with Points Creek and extending downstream to the headgate of the Campbell Ditch. The proposed segment is located west of the City of Delta. The staff has received one recommendation for this segment from the BLM. The recommendation for this segment is discussed below.

Instream Flow Recommendation(s)

BLM recommended 3.7 cfs (April 1 – June 14), 0.6 cfs (June 15 – March 31) based on data collection efforts on June 2, 2004, June 17, 2003, and July 30, 2004. The modeling results from these survey efforts are within the confidence interval produced by the R2Cross model.

Land Status Review

Upper Terminus	Lower Terminus	Total Length (miles)	Land Ownership	
			% Private	% Public
Points Creek	Campbell Ditch	10.88	28%	72%

Biological Data

The BLM has conducted field surveys of the fishery resources on this stream and have found a natural environment that can be preserved. As reported in the letter from BLM to the CWCB "North Fork Escalante Creek is a remote, high-gradient stream with large substrate size. Water quality, cover, channel stability, and food supplies are good for salmonids. Fish surveys indicate a self-sustaining population of Colorado River Cutthroat Trout. However, it appears that the genetic quality of these trout may have been diminished by stocking efforts several decades ago. The riparian community is vigorous and diverse."(See BLM Fish Survey in Appendix B).

Field Survey Data

BLM 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. Appendix B contains copies of field data collected for this proposed segment.

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 segment of stream, three 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.

Table 1: Data

Party	Date	Q	250%-40%	Summer (3/3)	Winter (2/3)
BLM	06/17/2003	4.26	10.7 – 1.7	4.9	1.7
BLM	06/02/2004	5.57	13.9 – 2.2	2.9	(1)
BLM	07/30/2004	1.3	3.3 – 0.5	3.2	1.1

BLM = Bureau of Land Management DOW = Division of Wildlife
(1) Predicted flow outside of the accuracy range of Manning's Equation. ? = Criteria never met in R2CROSS Staging Table.

Biologic Flow Recommendation

The summer flow recommendation, which meets 3 of 3 criteria and is within the accuracy range of the R2CROSS model is 3.7 cfs (See Table 1). The winter flow recommendation, which meets 2 of 3 criteria and is within the accuracy range of the model is 1.4 cfs. However, the winter recommendation was reduced to reflect actual water availability after the snowmelt runoff period. The recommendations were derived by averaging the results of the three data sets. It is our belief 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.

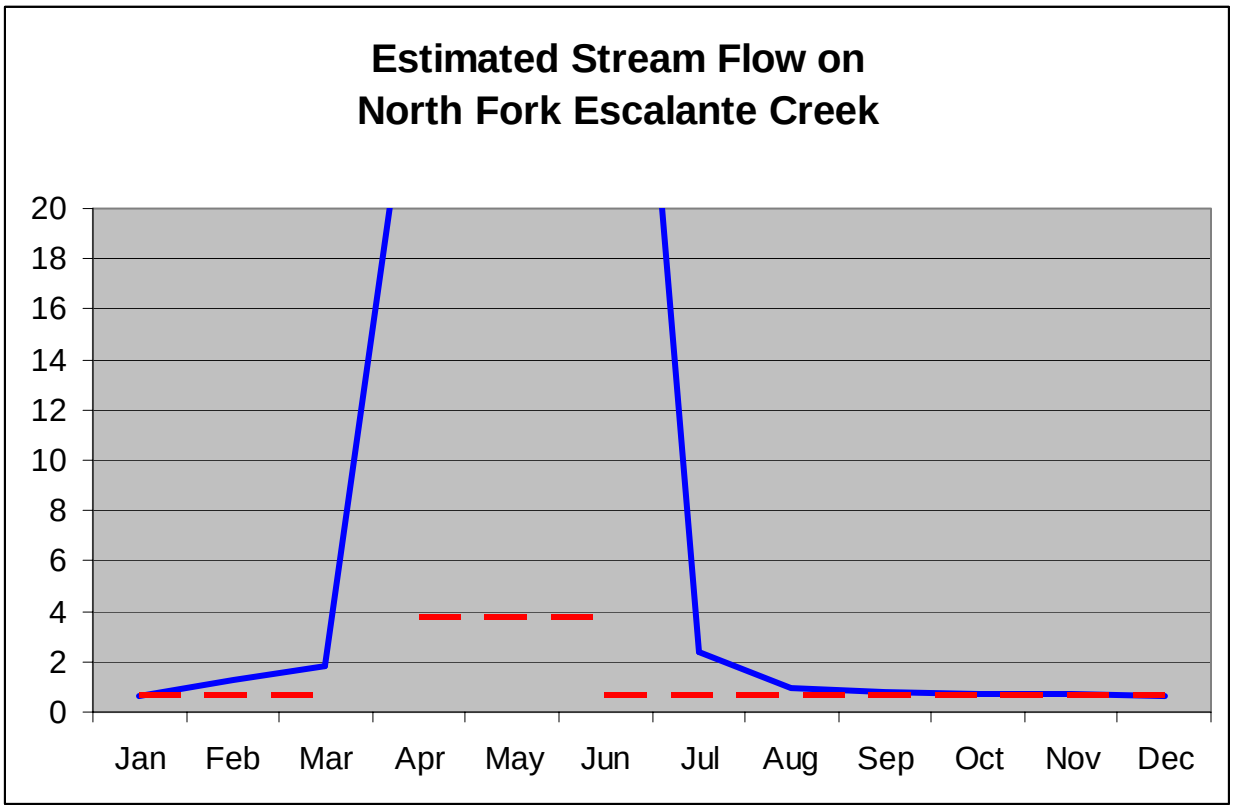
Hydrologic Data

After receiving the BLM's biologic recommendation, the CWCB and BLM staff, conducted an evaluation of the stream hydrology to determine if water was physically available for an instream flow appropriation. Although there is a substantial amount of streamflow gage data available for the Uncompahgre Plateau and Glade Park, most of this data is severely impacted by diversions and irrigation use. This situation makes it difficult to estimate the natural flow regime for the watersheds on the Plateau. Without specific gage data to evaluate, the next best approach is a regional equation that estimates annual flow characteristics. The USGS has developed regional equations (Estimation of Natural Streamflow Characteristics in Western Colorado, Water Resources Investigations Report 85-4086, 1985) that apply to the Uncompahgre Plateau and Glade Park based on basin drainage area, mean annual precipitation, mean basin elevation and mean basin slope. The report "Uncompahgre Plateau and Glade Park Annual Hydrograph Estimation" in Appendix C, explains staff's water availability analysis in more detail. Table 2 below displays the estimated stream flow of North Fork Escalante Creek. For this reach, the

synthetic hydrograph shows that the summer flow recommendation of 3.7 cfs is available from April 1st to June 14th. The winter flow recommendation of 0.6 cfs is available June 15th to March 31st.

Table 2: Estimated Stream Flow on North Fork Escalante Creek:

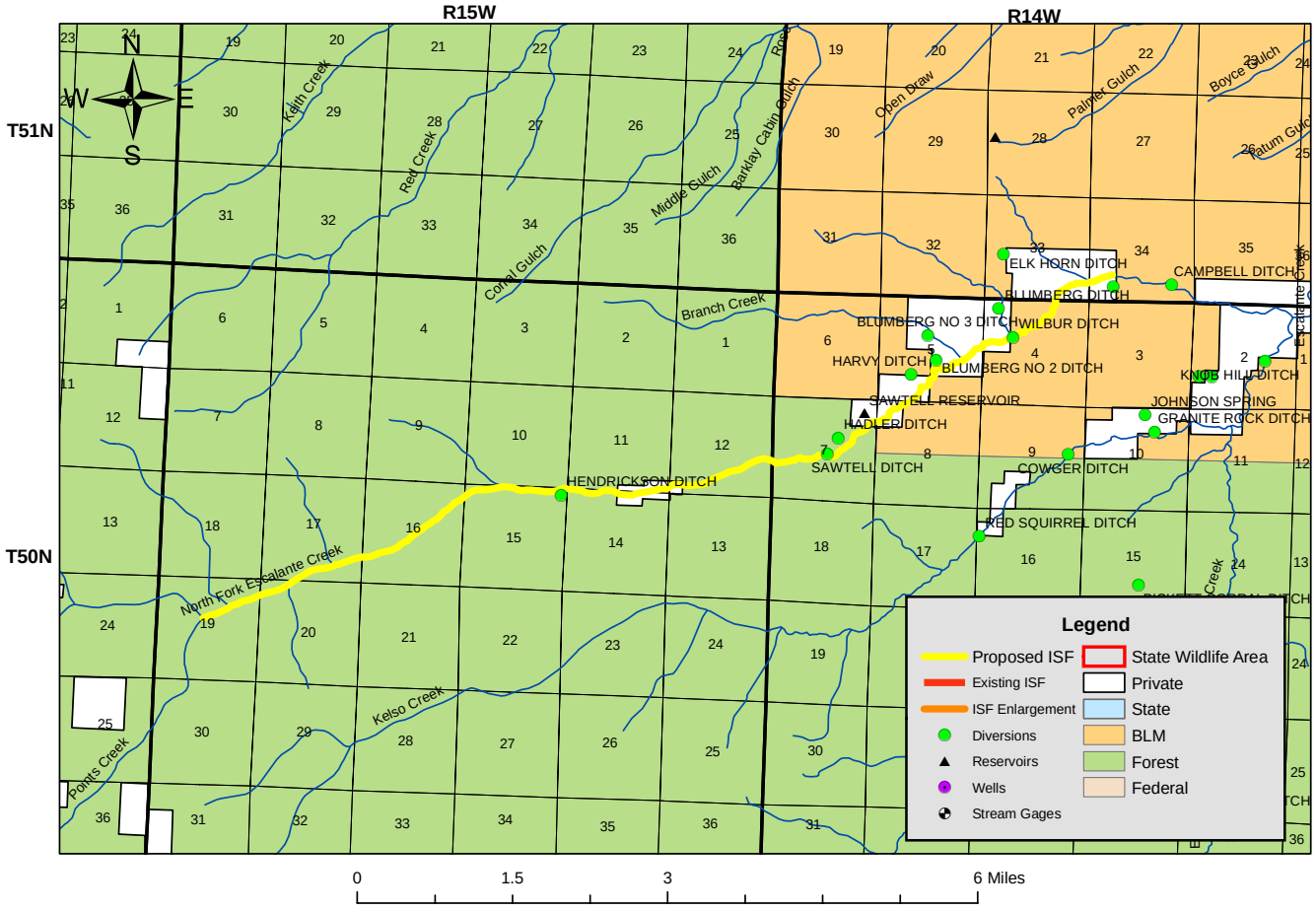
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
(cfs)	0.60	1.29	1.86	28.26	103.07	47.29	2.42	0.93	0.77	0.73	0.71	0.65



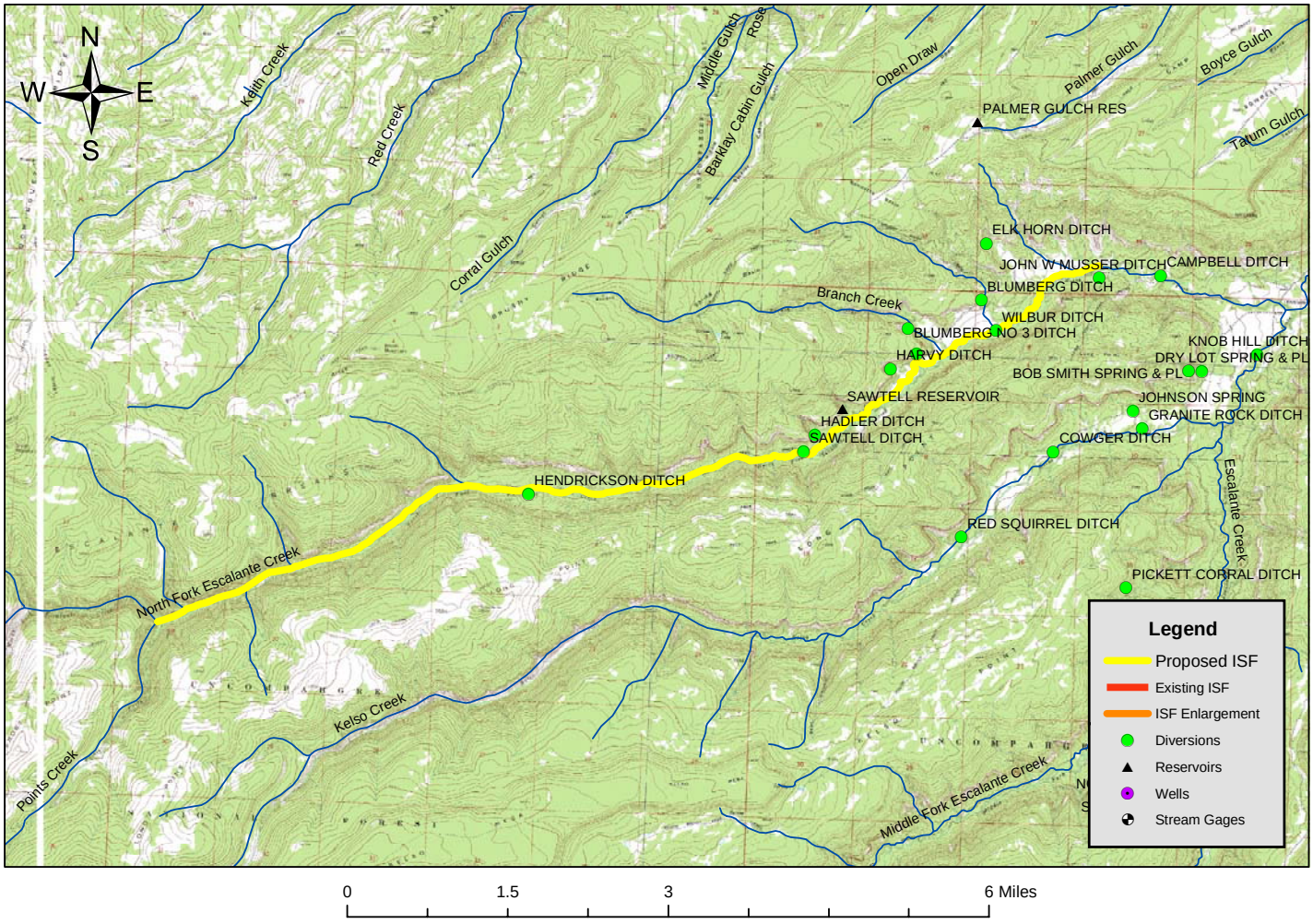
Existing Water Right Information

Staff has analyzed the water rights tabulation and consulted with the Division Engineer Office (DEO) to identify any potential water availability problems. There are six decreed surface diversions within this reach of stream, the Hendrickson Ditch, Sawtell Ditch, Blumberg Ditches No 1-3, and Wilbur Ditch. Staff is working with the owner of these water rights to develop terms and conditions to recognize existing decreed and non-decreed uses to include in the decree. Based on this analysis and conversations with the Division Engineer and water commissioner, Staff has determined that water is available for appropriation on North Fork Escalante Creek, from Points Creek to the Campbell Ditch, to preserve the natural environment to a reasonable degree without limiting or foreclosing the exercise of valid existing water rights.

North Fork Escalante Creek



North Fork Escalante Creek



CWCB Staff's Instream Flow Recommendation
Based on the BLM recommendation, staff recommends the Board form its intent to appropriate on the following stream reach:

Stream Name: North Fork Escalante Creek

Segment:

Upper Terminus: Points Creek
Latitude: 38d35'05.7"N Longitude: 108d35'03.88"W
UTM North: 4276811.575 UTM East: 187768.695
SE1/4, NW1/4, Sctn19, T50N, R15W
2325 ft. E of the W Section Line, 2048 ft. S of the N Section Line

Lower Terminus: Campbell Ditch
Latitude: 38d38'16.29"N Longitude: 108d25'27.97"W
UTM North: 4282156.094 UTM East: 201924.957
NE1/4, SW1/4, Sctn34, T51N, R14W
1180 ft. E of the W Section Line, 1379 ft. N of the S Section Line

Counties: Mesa
Length: 10.26 miles
USGS Quad(s): Snipe Mountain, Kelso Point, Escalante Forks
ISF Appropriation: 3.7 cfs (April 1 – June 14)
0.6 cfs (June 15 – March 31)

APPENDIX – A
ISF Recommendation

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Colorado State Office
2850 Youngfield Street
Lakewood, Colorado 80215-7093

www.co.blm.gov

IN REPLY REFER TO:
CO-932
7250

DEC 14 2005

Mr. Dan Merriman
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, Colorado 80203

Dear Mr. Merriman.

The Bureau of Land Management (BLM) is writing this letter to formally communicate its instream flow recommendation for North Fork Escalante Creek, located in Water Division 4.

Location and Land Status North Fork Escalante Creek is tributary to Escalante Creek approximately 20 miles southwest of the City of Delta This recommendation covers the stream reach beginning at the confluence with Points Creek and extends downstream to the headgate of the Campbell Ditch Approximately 72% of the 10.88 mile reach is federally owned, while the remaining 28% is privately owned.

Biological Summary. North Fork Escalante Creek is a remote, high-gradient stream with large substrate size. Water quality, cover, channel stability, and food supplies are excellent for salmonids Fish surveys indicate a self-sustaining population of Colorado River Cutthroat Trout. However, it appears that the genetic quality of these trout may have been diminished by stocking efforts several decades ago. The riparian community is vigorous and diverse, and provides sufficient cover to keep stream temperatures at suitable levels for salmonids even during periods of low flow

R2Cross Analysis. BLM's data analysis, coordinated with the Division of Wildlife, indicates that the following flows are needed to protect the fishery and natural environment to a reasonable degree.

> 3.70 cubic feet per second is recommended for the snowmelt runoff period from April 1 to June 14. This recommendation is driven by the average velocity criteria. Many portions of this reach are low gradient with large substrate, and it is important to provide adequate velocity for fish spawning and incubation of eggs Protecting flows during this time period is also important for recharging the alluvial aquifer, which discharges water to the stream and maintains flow levels during later summer.
>
> 0.6 cubic feet per second is recommended from June 15 through March 31. BLM analysis of flow regimes on the Uncompahgre Plateau shows that this is the amount of water typically available in the stream during this time period. This flow comes very close to meeting the wetted perimeter and average velocity criteria. This flow rate will allow fish to survive in pools, provide limited physical habitat in riffles between pools, and will prevent the riparian environment from being seriously stressed.

Water Availability. There are multiple decreed diversions located in the lower four miles of this stream reach, including Blumberg Ditches 2 and 3, McCarthy Ditch No. 2, Hadler Ditch, Elk Horn Ditch, Campbell Ditch, and John Musser Ditch. However, diversion records confirm that the lowest of these ditches, the Campbell Ditch, consistently diverts water even in dry years Since existing stream gages on lower Escalante Creek are heavily affected by irrigation diversions, BLM does not recommend using that data as a direct indication of water availability. As an alternative, we recommend using the synthetic hydrograph methodology developed by BLM for the Uncompahgre Plateau to obtain an estimate of water availability. This methodology incorporates data from the lower Escalante Creek gage, but makes adjustments for irrigation diversions.

Relationship to Management Plans. This stream segment is important to BLM for several reasons. The trout fishery is one of the few lower elevation trout fisheries on the Uncompahgre Plateau. This fishery has been maintained because of the remote location of the creek and very low fishing pressure. In addition, BLM plans to embark on a significant planning effort for the Dominguez-Escalante region in the future, and the planning effort will incorporate this creek The plan will address the increasing recreational use in the area and the role that the creeks in these watersheds play in management for sensitive species and recreation uses.

The BLM requests that the Board recognize that this recommendation is based only upon the minimum flows necessary to support cool and cold-water fishery values BLM may wish to work with the Board and/or through the Colorado water rights system to appropriate flows to optimally protect fish values and to protect other water-dependent values specified in BLM resource management plans.

Data sheets, R2Cross output, fishery survey information, and photographs of the cross section are enclosed to support this recommendation We thank both the Division of Wildlife and the Water Conservation Board for their cooperation in this effort

If you have any questions regarding our instream flow recommendation, please contact Roy Smith at 303-239-3940.

Sincerely,

Linda M. Anania
Deputy State Director
Resources and Fire

/s/ Linda M. Anañia

4 Enclosures

cc. Jim Ferguson, Uncompahgre Field Office
Dennis Murphy, Uncompahgre Field Office
Barb Sharrow, Uncompahgre Field Office

APPENDIX – B
Field Data

COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

COLORADO DIVISION OF WILDLIFE

LOCATION INFORMATION

STREAM NAME: North Fork Escalante Creek | CROSS-SECTION NO.: 1

CROSS-SECTION LOCATION: 1.7 miles upstream from Escalante Forks

DATE: 6-2-04 | OBSERVERS: R. Smith, D. Smith, C. Claar

LEGAL DESCRIPTION: ¼ SECTION: SE | SECTION: 34 | TOWNSHIP: 51 (N)/S | RANGE: 14 E/(W) 6th PM N.M.

COUNTY: Mesa | WATERSHED: Gunnison | WATER DIVISION: 4 | DOW WATER CODE: 40080

MAP(S): USGS: Escalante Forks 7.5' | Zone 12 | 0724667 | 6295 ft. | 4279414

USFS:

SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION: YES / NO | METER TYPE: Mark-McBirney

METER NUMBER | DATE RATED | CALIB/SPIN ____ sec | TAPE WEIGHT surveyed lbs/foot | TAPE TENSION: surveyed lbs

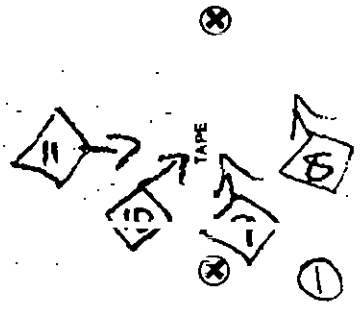
CHANNEL BED MATERIAL SIZE/RANGE: gravel to 8" boulders | PHOTOGRAPHS TAKEN: YES/NO | NUMBER OF PHOTOGRAPHS: 4

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)
⊗ Tape @ Stake LB	0.0	surveyed
⊗ Tape @ Stake RB	0.0	surveyed
① WS @ Tape LB/RB	0.0	7.61 / 7.61
② WS Upstream	14.0	7.41
③ WS Downstream	14.0	8.21

SLOPE | 0.80 / 28.0 = 0.0285714

SKETCH



LEGEND: Stake ⊗ | Station ① | Photo ◇→ | Direction of Flow

AQUATIC SAMPLING SUMMARY

STREAM ELECTROFISHED YES/NO | DISTANCE ELECTROFISHED ____ ft | FISH CAUGHT YES/NO | WATER CHEMISTRY SAMPLED YES/NO

LENGTH-FREQUENCY DISTRIBUTION BY ONE-INCH SIZE GROUPS (1.0-1.9, 2.0-2.9, ETC.)

SPECIES (FILL IN)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	>15	TOTAL

AQUATIC INSECTS IN STREAM SECTION BY COMMON OR SCIENTIFIC ORDER NAME

caddisfly, mayfly

COMMENTS

pH = 8.4 Stream temp = 16.0 C.
TDS = 310

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: North Fork Escalante | CROSS-SECTION NO: 1 | DATE: 6-2-04 | SHEET 1 OF __

BEGINNING OF MEASUREMENT: EDGE OF WATER LOOKING DOWNSTREAM (0.0 AT STAKE) | LEFT / RIGHT | Gage Reading. ____ ft | TIME 1:15

Features: Stake (S) Grassline (G) Waterline (W) Rock (R)	Distance From Initial Point (ft)	Width (ft)	Total Vertical Depth From Tape/Inst (ft)	Water Depth (ft)	Depth of Observation (ft)	Revolutions	Time (sec)	Velocity (ft/sec): At Point	Velocity (ft/sec): Mean in Vertical	Area (ft^2)	Discharge (cfs)
LS	0.0		5.71								
G	1.6		6.36								
W	3.1		7.61	Ø							
	3.5		7.95	0.35				0.10			
	4.0		8.08	0.50				0.36			
	4.5		8.08	0.50				0.79			
	5.0		8.08	0.45				1.35			
	5.5		7.87	0.30				1.96			
	6.0		8.00	0.40				2.04			
	6.5		8.13	0.50				1.86			
	7.0		8.11	0.50				1.85			
	7.5		8.06	0.45				2.10			
	8.0		8.03	0.40				2.28			
	8.5		7.84	0.20				2.06			
	9.0		7.92	0.25				0.50			
	10.0		7.96	0.30				1.64			
	11.0		7.94	0.30				1.32			
	12.0		8.13	0.30				1.51			
	13.0		7.96	0.35				0.58			
	14.0		7.95	0.35				0.70			
	15.0		7.87	0.25				0.06			
W	15.8		7.61	Ø							
G	19.0		6.54								
RLS	20.6		6.27								

TOTALS

End of Measurement | Time 1:40 | Gage Reading ____ ft | CALCULATIONS PERFORMED BY | CALCULATIONS CHECKED BY

COLORADO WATER CONSERVATION BOARD
INSTREAM FLOW / NATURAL LAKE LEVEL PROGRAM
STREAM CROSS-SECTION AND FLOW ANALYSIS

LOCATION INFORMATION

STREAM NAME.	NF Escalante Ck
XS LOCATION	1.7 miles us from Escalante Forks
XS NUMBER	1
DATE	2-Jun-04
OBSERVERS	R.Smith, D Smith and C Clapp
1/4 SEC·	SE
SECTION·	34
TWP.	51N
RANGE	14W
PM:	N.M
COUNTY.	Mesa
WATERSHED	Gunnison
DIVISION.	4
DOW CODE	40080
USGS MAP	Escalante Forks 7.5' quad
USFS MAP·	0

SUPPLEMENTAL DATA

*** NOTE ***
Leave TAPE WT and TENSION
at defaults for data collected
with a survey level and rod

TAPE WT.	0 0106
TENSION·	99999

CHANNEL PROFILE DATA

SLOPE·	0 0285714

INPUT DATA CHECKED BY: . . . . DATE .. ..

ASSIGNED TO . ... DATE... .. ..

STREAM NAME	NF Escalante Ck
XS LOCATION	1 7 miles us from Escalante Forks
XS NUMBER	1

SUMMARY SHEET

MEASURED FLOW (Qm)=	5 57	cfs
CALCULATED FLOW (Qc)=	5 58	cfs
(Qm-Qc)/Qm * 100 =	-0 3	%
MEASURED WATERLINE (WLm)=	7 61	ft
CALCULATED WATERLINE (WLc)=	7 62	ft
(WLm-WLc)/WLm * 100 =	-0 1	%
MAX MEASURED DEPTH (Dm)=	0 50	ft
MAX CALCULATED DEPTH (Dc)=	0 51	ft
(Dm-Dc)/Dm * 100	-2 0	%
MEAN VELOCITY=	1 25	ft/sec
MANNING'S N=	0 099	
SLOPE=	0 0285714	ft/ft
4 * Qm =	2 2	cfs
2 5 * Qm=	13 9	cfs

RECOMMENDED INSTREAM FLOW

FLOW (CFS)	PERIOD

RATIONALE FOR RECOMMENDATION

RECOMMENDATION BY AGENCY DATE

CWCB REVIEW BY DATE

STREAM NAME NF Escalante Ck
XS LOCATION 1 7 miles us from Escalante Forks
XS NUMBER 1

Constant Manning's n

STAGING TABLE
"GL" = lowest Grassline elevation corrected for sag
"WL" = Waterline corrected for variations in field measured water surface elevations and sag

	DIST TO WATER (FT)	TOP WIDTH (FT)	AVG DEPTH (FT)	MAX DEPTH (FT)	AREA (SQ FT)	WETTED PERIM (FT)	PERCENT WET PERIM (%)	HYDR RADIUS (FT)	FLOW (CFS)	AVG VELOCITY (FT/SEC)
"GL"	6 54	17 18	1 20	1 59	20 59	18 09	100 0%	1 14	57 10	2 77
	6 62	16 85	1 14	1 51	19 22	17 71	97 9%	1 09	51 65	2 69
	6 67	16 64	1 11	1 48	18 39	17 47	96 6%	1 05	48 39	2 63
	6 72	16 43	1 07	1 41	17 56	17 24	95 3%	1 02	45 22	2 58
	6 77	16 22	1 03	1 36	16 74	17 00	94 0%	0 98	42 16	2 52
	6 82	16 01	1 00	1 31	15 94	16 76	92 7%	0 95	39 19	2 46
	6 87	15 80	0 96	1 26	15 14	16 53	91 4%	0 92	36 33	2 40
	6 92	15 59	0 92	1 21	14 36	16 29	90 1%	0 88	33 57	2 34
	6 97	15 38	0 88	1 16	13 58	16 06	88 8%	0 85	30 90	2 28
	7 02	15 17	0 84	1 11	12 82	15 82	87 5%	0 81	28 34	2 21
	7 07	14 96	0 81	1 06	12 07	15 59	86 2%	0 77	25 88	2 14
	7 12	14 75	0 77	1 01	11 32	15 35	84 9%	0 74	23 51	2 08
	7 17	14 54	0 73	0 96	10 59	15 11	83 6%	0 70	21 25	2 01
	7 22	14 33	0 69	0 91	9 87	14 88	82 3%	0 66	19 09	1 93
	7 27	14 12	0 65	0 86	9 16	14 64	81 0%	0 63	17 03	1 86
	7 32	13 91	0 61	0 81	8 46	14 41	79 7%	0 59	15 08	1 78
	7 37	13 70	0 57	0 76	7 77	14 17	78 4%	0 55	13 23	1 70
	7 42	13 50	0 53	0 71	7 09	13 93	77 0%	0 51	11 48	1 62
	7 47	13 29	0 48	0 66	6 42	13 70	75 7%	0 47	9 84	1 53
	7 52	13 08	0 44	0 61	5 76	13 46	74 4%	0 43	8 31	1 44
	7 57	12 87	0 40	0 56	5 11	13 23	73 1%	0 39	6 89	1 35
"WL"	7 62	12 66	0 35	0 51	4 47	12 99	71 8%	0 34	5 58	1 25
	7 67	12 44	0 31	0 46	3 84	12 75	70 5%	0 30	4 39	1 14
	7 72	12 23	0 26	0 41	3 23	12 51	69 2%	0 26	3 32	1 03
	7 77	12 02	0 22	0 36	2 62	12 27	67 9%	0 21	2 38	0 91
	7 82	11 81	0 17	0 31	2 02	12 04	66 5%	0 17	1 57	0 77
	7 87	11 32	0 13	0 26	1 44	11 52	63 7%	0 13	0 92	0 64
	7 92	9 88	0 09	0 21	0 91	10 02	55 4%	0 09	0 47	0 51
	7 97	5 74	0 09	0 16	0 51	5 84	32 3%	0 09	0 26	0 50
	8 02	4 54	0 06	0 11	0 26	4 60	25 5%	0 06	0 09	0 37
	8 07	2 86	0 02	0 06	0 07	2 88	15 9%	0 02	0 01	0 21
	8 12	0 39	0 00	0 01	0 00	0 39	2 2%	0 00	0 00	0 07

2.2
139

Criteria / Interpolation

1. 0.2' ave depth : $\frac{0.03}{0.05} = \frac{x}{0.81}$

$x =$ 2.06 cfs

2. 50% WP = $\frac{17.7}{23.1} = \frac{x}{0.21}$

$x =$ 0.42 cfs

3. 1 ft/sec $\bar{V}$ = $\frac{0.07}{0.12} = \frac{x}{0.94}$

$x =$ 2.93 cfs

STREAM NAME. NF Escalante Ck
XS LOCATION 1.7 miles us from Escalante Forks
XS NUMBER· 1

DATA POINTS= 24

VALUES COMPUTED FROM RAW FIELD DATA

FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL	WETTED PERIM	WATER DEPTH	AREA (Am)	Q (Qm)	% Q CELL
LS	0 00	5.71			0 00		0 00	0 00	0.0%
1	1.60	6 36			0 00		0 00	0.00	0 0%
W	3 10	7 61			0 00		0.00	0 00	0 0%
	3 50	7.95	0 35	0 10	0.52	0 35	0 16	0 02	0 3%
	4.00	8 08	0.50	0 36	0 52	0 50	0 25	0 09	1 6%
	4.50	8.08	0.50	0 79	0 50	0.50	0 25	0 20	3 5%
	5.00	8 08	0 45	1 35	0 50	0.45	0.23	0 30	5 5%
	5 50	7.87	0 30	1.96	0 54	0.30	0 15	0 29	5.3%
	6 00	8.00	0 40	2.04	0 52	0 40	0 20	0 41	7.3%
	6 50	8 13	0 50	1.86	0 52	0 50	0.25	0.47	8.3%
	7 00	8 11	0.50	1 85	0.50	0 50	0.25	0 46	8 3%
	7 50	8 06	0.45	2 10	0 50	0 45	0 23	0 47	8 5%
	8 00	8 03	0 40	2 28	0 50	0.40	0 20	0 46	8 2%
	8 50	7.84	0 20	2.06	0 53	0 20	0 10	0 21	3 7%
	9.00	7 92	0.25	0 50	0.51	0 25	0.19	0.09	1.7%
	10 00	7 96	0 30	1 64	1 00	0.30	0 30	0.49	8.8%
	11 00	7 94	0 30	1.32	1 00	0 30	0.30	0 40	7 1%
	12 00	8 13	0 50	1 51	1 02	0 50	0 50	0 76	13 6%
	13 00	7.96	0 35	0 58	1 01	0 35	0.35	0 20	3 6%
	14 00	7 95	0 35	0 70	1.00	0 35	0 35	0 25	4 4%
	15 00	7 87	0.25	0 06	1 00	0 25	0 23	0.01	0.2%
W	15 80	7 61			0 84		0 00	0 00	0 0%
1	19 00	6.54			0 00		0 00	0 00	0 0%
RS	20 60	6 27			0.00		0 00	0 00	0.0%
TOTALS ----------					13 04	0 5 (Max.)	4 47	5 57	100 0%

Manning's n = 0.0987
Hydraulic Radius= 0 342794991

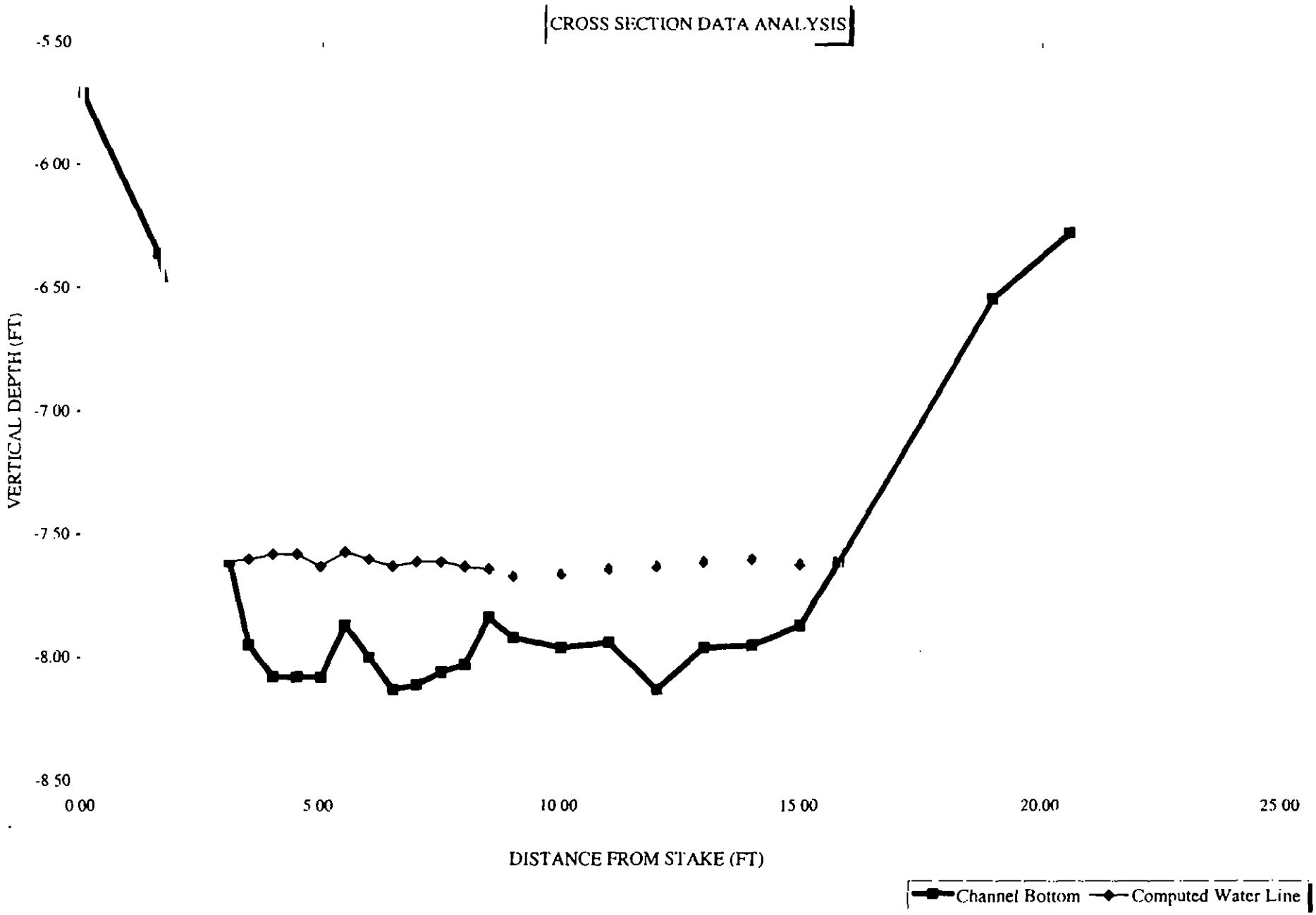
STREAM NAME NF Escalante Ck
XS LOCATION 1.7 miles us from Escalante Forks
XS NUMBER. 1

WATER LINE COMPARISON TABLE

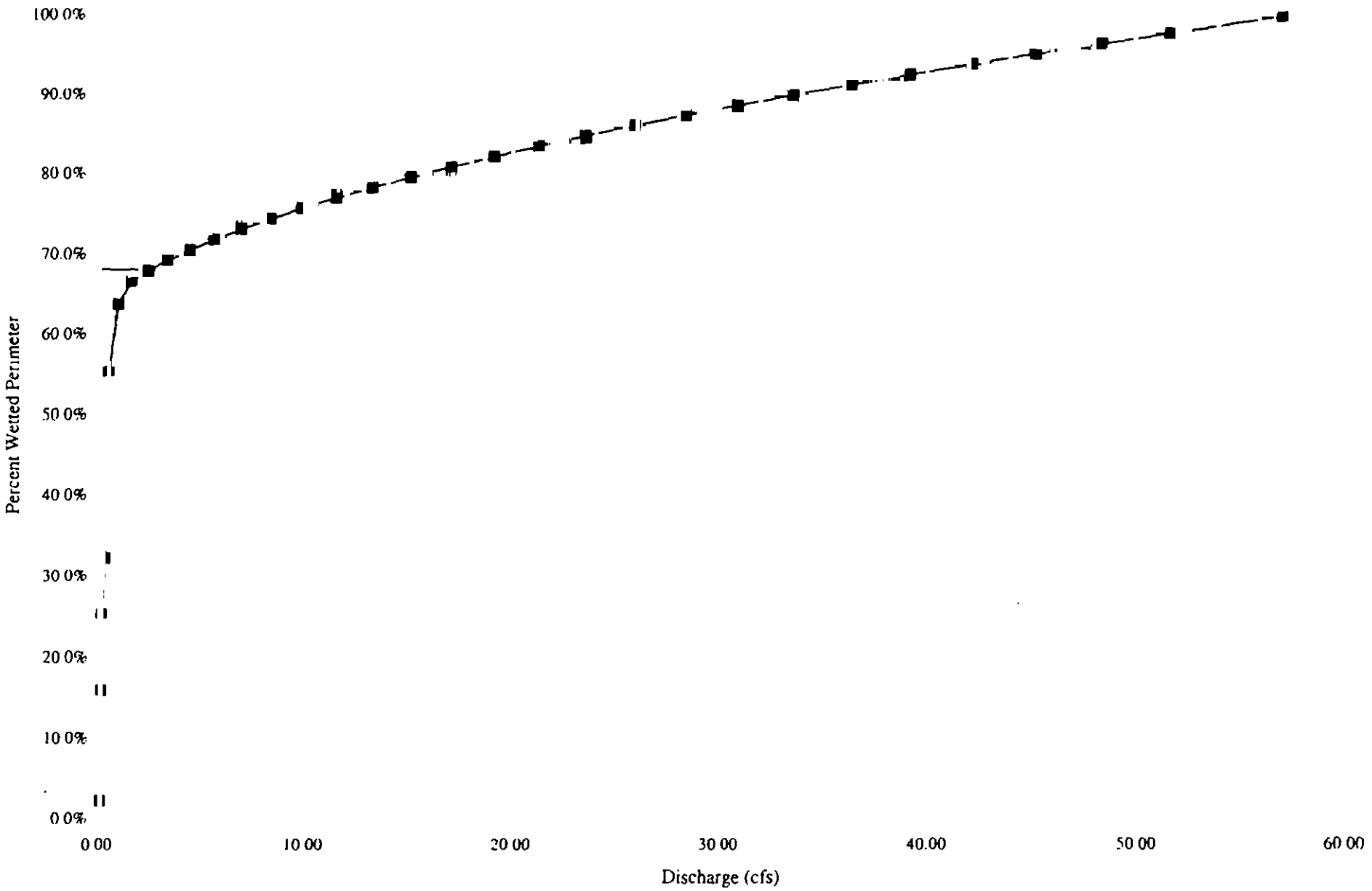
WATER LINE	MEAS AREA	COMP AREA	AREA ERROR
	4.47	4 60	2.9%
7 36	4.47	7 91	76.9%
7.38	4.47	7 63	70 7%
7.40	4 47	7.36	64 6%
7 42	4.47	7 09	58 6%
7.44	4 47	6.82	52 6%
7 46	4 47	6 55	46 6%
7.48	4 47	6.29	40 6%
7 50	4 47	6.02	34.7%
7 52	4.47	5.76	28.8%
7.54	4.47	5.50	23.0%
7 56	4 47	5 24	17 2%
7 57	4.47	5 11	14.3%
7.58	4 47	4.98	11 5%
7 59	4 47	4.85	8 6%
7.60	4.47	4 73	5 7%
7.61	4 47	4.60	2 9%
7.62	4 47	4.47	0.1%
7.63	4 47	4.35	-2 8%
7.64	4 47	4 22	-5 6%
7.65	4.47	4.09	-8 4%
7.66	4 47	3.97	-11 2%
7 68	4.47	3 72	-16.8%
7 70	4 47	3 47	-22 3%
7 72	4 47	3 23	-27 8%
7.74	4 47	2 98	-33 2%
7.76	4 47	2 74	-38 6%
7 78	4.47	2 50	-44.0%
7.80	4 47	2.26	-49 4%
7 82	4 47	2 03	-54.7%
7.84	4 47	1.79	-59.9%
7.86	4 47	1.56	-65 1%

WATERLINE AT ZERO
AREA ERROR = 7 620

NF Escalante Ck



Percent Wetted Perimeter vs. Discharge



COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

COLORADO DIVISION OF WILDLIFE

LOCATION INFORMATION

STREAM NAME: North Fork Escalante Creek | CROSS-SECTION NO: 1

CROSS SECTION LOCATION: 1100 ft upstream from USFS-private boundary

DATE: 7-30-04 | OBSERVERS: R. Smith, D. Smith, K. Kubik

LEGAL DESCRIPTION: ¼ SECTION: NE/4 | SECTION: 7 | TOWNSHIP: 50 (N) S | RANGE: 14 E (W) | PM: N.M.

COUNTY: Mesa | WATERSHED: Gunnison | WATER DIVISION: 4 | DOW WATER CODE: 40080

MAP(S): USGS | USFS

GPS 12 S 0721105 4277306

SUPPLEMENTAL DATA

Elev. 6600 ft

SAG TAPE SECTION SAME AS DISCHARGE SECTION: (YES) NO | METER TYPE: Marsh-McBirney

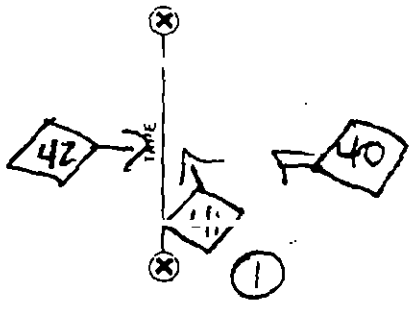
METER NUMBER | DATE RATED | CALIB/SPIN ____ sec | TAPE WEIGHT surveyed lbs/100' | TAPE TENSION surveyed lbs

CHANNEL BED MATERIAL SIZE RANGE: gravel to 6" cobbles | PHOTOGRAPHS TAKEN (YES) NO | NUMBER OF PHOTOGRAPHS: 3

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)
(X) Tape @ Stake LB	0.0	surveyed
(X) Tape @ Stake RB	0.0	surveyed
(1) WS @ Tape LB/RB	0.0	5.18 / 5.12
(2) WS Upstream	6.0	5.06
(3) WS Downstream	10.0	5.74

SLOPE: 0.68 / 16.0 = 0.0425



AQUATIC SAMPLING SUMMARY

STREAM ELECTROFISHED (YES) NO | DISTANCE ELECTROFISHED ____ ft | FISH CAUGHT (YES) NO | WATER CHEMISTRY SAMPLED (YES) NO

LENGTH - FREQUENCY DISTRIBUTION BY ONE-INCH SIZE GROUPS (1.0-1.8, 2.0-2.9, ETC.)

SPECIES (FILL IN)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	>15	TOTAL
See attached survey CRN and CRNX																	

AQUATIC INSECTS IN STREAM SECTION BY COMMON OR SCIENTIFIC ORDER NAME

mayfly, caddisfly, snails, damselfly

COMMENTS

TDS: 340 Temp = Ph: 8.4 Temp = 19.5° C

Heavy silt loading.

DISCHARGE/CROSS SECTION NOTES

STREAM NAME North Fork Escalante | CROSS SECTION NO 1 | DATE 7-30-04 | SHEET 1 OF 1

BEGINNING OF MEASUREMENT | EDGE OF WATER LOOKING DOWNSTREAM (0.0 AT STAKE) | LEFT / RIGHT | Gage Reading 0.2 ft | TIME 4:05 pm

Features: Stake (S) Gressline (G) Waterline (W) Rock (R)	Distance From Initial Point (ft)	Width (ft)	Total Vertical Depth From Tape/Inst (ft)	Water Depth (ft) ✓	Depth of Observation (ft)	Revolutions	Time (sec)	Velocity (ft/sec) At Point ✓	Velocity (ft/sec) Mean in Vertical	Area (m^2)	Discharge (cfs)
RS+G	0.0		4.35								
	2.0		4.68								
W	5.0		5.12	Ø				0			
	5.5		5.16	Ø				0			
	6.0		5.20	0.05				0.69			
	6.5		5.22	0.05				0.86			
	7.0		5.28	0.10				0.87			
	7.5		5.34	0.10				1.05			
	8.0		5.32	0.15				1.32			
	8.5		5.32	0.15				0.96			
	9.0		5.35	0.15				1.30			
	9.5		5.26	0.2				0.98			
	10.0		5.36	0.1				0.90			
	10.5		5.42	.15				1.27			
	11.0		5.49	.15				1.47			
	11.5		5.36	0.2				1.45			
	12.0		5.40	0.15				0.88			
	12.5		5.36	0.15				1.69			
	13.0		5.41	0.1				Ø			
	13.5		5.46	0.2				0.91			
	14.0		5.46	0.2				0.85			
R	14.5		5.20	Ø				Ø			
	15.0		5.50	0.2				1.13			
	15.5		5.50	0.1				0.50			
W	16.0		5.18								
	16.9		4.60								
G	17.3		4.39								
LS	20.2		3.12								
TOTALS											

End of Measurement | Time 4:25 | Gage Reading 0.2 | CALCULATIONS PERFORMED BY | CALCULATIONS CHECKED BY

COLORADO WATER CONSERVATION BOARD
INSTREAM FLOW / NATURAL LAKE LEVEL PROGRAM
STREAM CROSS-SECTION AND FLOW ANALYSIS

LOCATION INFORMATION

STREAM NAME.	North Fork Esacalante Creek
XS LOCATION	100 ft upstream from USFS-private boundary
XS NUMBER·	1
DATE·	30-Jul-04
OBSERVERS:	R Smith, D. Smith, K Kubik
1/4 SEC	NE
SECTION:	7
TWP	50 S
RANGE.	14 W
PM:	NM
COUNTY:	Mesa
WATERSHED.	Gunnison
DIVISION·	4
DOW CODE	40080
USGS MAP.	Escalante Forks 7.5
USFS MAP	0

SUPPLEMENTAL DATA

*** NOTE ***
Leave TAPE WT and TENSION
at defaults for data collected
with a survey level and rod

TAPE WT:	0 0106
TENSION·	99999

CHANNEL PROFILE DATA

SLOPE.	0 0425

INPUT DATA CHECKED BY ... . DATE.... .....

ASSIGNED TO· ... .DATE.. .. ... .

STREAM NAME	North Fork Esacalante Creek
XS LOCATION	100 ft upstream from USFS-private boundary
XS NUMBER	1

SUMMARY SHEET

MEASURED FLOW (Qm)=	1 33	cfs
CALCULATED FLOW (Qc)=	1 46	cfs
(Qm-Qc)/Qm * 100 =	-9 7	%
MEASURED WATERLINE (WLm)=	5 20	ft
CALCULATED WATERLINE (WLc)=	5 24	ft
(WLm-WLc)/WLm * 100 =	-0 7	%
MAX MEASURED DEPTH (Dm)=	0 20	ft
MAX CALCULATED DEPTH (Dc)=	0 26	ft
(Dm-Dc)/Dm * 100	-31 5	%
MEAN VELOCITY=	1 17	ft/sec
MANNING'S N=	0 068	
SLOPE=	0 0425	ft/ft
4 * Qm =	0 5	cfs
2 5 * Qm=	3 3	cfs

RECOMMENDED INSTREAM FLOW

FLOW (CFS)	PERIOD

RATIONALE FOR RECOMMENDATION

RECOMMENDATION BY AGENCY DATE

CWCB REVIEW BY DATE

STREAM NAME North Fork Esacalante Creek
XS LOCATION. 100 ft upstream from USFS-private boundary
XS NUMBER· 1

DATA POINTS= 29

VALUES COMPUTED FROM RAW FIELD DATA

	FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL	WETTED PERIM	WATER DEPTH	AREA (Am)	Q (Qm)	% Q CELL
	RS	0 00	4 35			0.00		0 00	0 00	0.0%
1	GL	0 00	4 35			0.00		0 00	0 00	0.0%
		2 00	4 68			0.00		0 00	0 00	0.0%
	W	5 00	5 12	0 00	0 00	0.00		0 00	0 00	0.0%
		5 50	5 16	0 00	0 00	0 00		0 00	0 00	0.0%
		6 00	5 20	0 05	0 69	0 50	0 05	0.03	0 02	1.3%
		6 50	5.22	0 05	0 86	0.50	0 05	0 03	0.02	1 6%
		7.00	5.28	0 10	0 87	0 50	0 10	0 05	0.04	3 3%
		7 50	5.34	0.10	1.05	0 50	0 10	0 05	0 05	3 9%
		8 00	5 32	0 15	1 32	0.50	0.15	0.08	0 10	7 4%
		8 50	5.32	0.15	0 96	0 50	0 15	0 08	0.07	5 4%
		9 00	5 35	0 15	1.30	0 50	0 15	0.08	0 10	7 3%
		9.50	5 26	0 05	0 98	0.51	0.05	0.03	0 02	1.8%
		10 00	5.36	0 10	0 90	0 51	0 10	0 05	0.05	3.4%
		10 50	5.42	0.15	1.27	0 50	0 15	0 08	0.10	7 2%
		11 00	5 49	0 15	1.47	0 50	0 15	0.08	0 11	8 3%
		11 50	5 36	0 20	1 45	0.52	0.20	0.10	0 15	10 9%
		12 00	5.40	0 15	0 88	0.50	0.15	0 08	0 07	5 0%
		12 50	5 36	0 15	1.69	0 50	0 15	0 08	0 13	9.5%
		13.00	5 41	0 10	0 00	0.50	0.10	0.05	0.00	0 0%
		13 50	5 46	0.20	0 91	0 50	0 20	0.10	0.09	6 8%
		14 00	5 46	0 20	0.85	0 50	0.20	0 10	0 09	6 4%
	R	14.50	5 20	0 00	0 00	0 56		0.00	0.00	0 0%
		15 00	5 50	0 20	1.13	0.58	0 20	0 10	0.11	8.5%
		15.50	5 50	0 10	0 50	0 50	0 10	0.05	0.03	1 9%
	W	16 00	5 18			0 59		0 00	0 00	0.0%
		16 90	4 60			0.00		0 00	0 00	0 0%
1	GL	17 30	4.39			0 00		0 00	0.00	0 0%
	LS	20 20	3.12			0 00		0 00	0 00	0.0%
	TOTALS					10 80	0.2 (Max.)	1.25	1.33	100.0%

Manning's n = 0 0684
Hydraulic Radius= 0 11571968

STREAM NAME: North Fork Esacalante Creek
XS LOCATION 100 ft upstream from USFS-private boundary
XS NUMBER. 1

WATER LINE COMPARISON TABLE

WATER LINE	MEAS AREA	COMP AREA	AREA ERROR
	1.25	1.60	28.0%
4 95	1.25	4 45	256 0%
4.97	1 25	4 20	236.1%
4 99	1 25	3 96	216.5%
5.01	1.25	3.71	197.1%
5.03	1.25	3 48	178 0%
5 05	1 25	3 24	159 2%
5 07	1 25	3.01	140.6%
5 09	1 25	2 78	122 3%
5.11	1 25	2.55	104.3%
5 13	1.25	2.33	86 6%
5.15	1 25	2.12	69.3%
5 16	1.25	2 01	60 8%
5 17	1.25	1 91	52.5%
5 18	1.25	1.80	44.2%
5 19	1.25	1.70	36 1%
5 20	1.25	1 60	28 0%
5 21	1 25	1 50	20 2%
5.22	1.25	1 41	12.6%
5 23	1.25	1.31	5 1%
5 24	1.25	1 22	-2 2%
5 25	1 25	1.13	-9.4%
5.27	1 25	0 96	-23.5%
5.29	1 25	0.79	-36.9%
5.31	1.25	0 63	-49 5%
5.33	1.25	0 49	-60 7%
5.35	1.25	0 38	-69.7%
5.37	1 25	0.28	-77.8%
5 39	1 25	0 20	-84.4%
5 41	1.25	0.13	-89.3%
5.43	1 25	0.08	-93.4%
5.45	1 25	0 04	-96 5%

WATERLINE AT ZERO
AREA ERROR = 5.237

STREAM NAME North Fork Esacalante Creek
XS LOCATION 100 ft upstream from USFS-private boundary
XS NUMBER 1

Constant Manning's n

"GL" = lowest Grassline elevation corrected for sag
STAGING TABLE "WL" = Waterline corrected for variations in field measured water surface elevations and sag

	DIST TO WATER (FT)	TOP WIDTH (FT)	AVG DEPTH (FT)	MAX DEPTH (FT)	AREA (SQ FT)	WETTED PERIM (FT)	PERCENT WET PERIM (%)	HYDR RADIUS (FT)	FLOW (CFS)	AVG VELOCITY (FT/SEC)
"GL"	4 39	17 06	0 75	1 11	12 75	17 64	100 0%	0 72	46 00	3 61
	4 44	16 68	0 72	1 06	11 95	17 25	97 8%	0 69	41 95	3 51
	4 49	16 29	0 68	1 01	11 13	16 84	95 4%	0 66	37 85	3 40
	4 54	15 89	0 65	0 96	10 33	16 42	93 1%	0 63	33 96	3 29
	4 59	15 49	0 62	0 91	9 54	16 01	90 7%	0 60	30 28	3 17
	4 64	15 10	0 58	0 86	8 78	15 60	88 5%	0 56	26 80	3 05
	4 69	14 72	0 55	0 81	8 03	15 20	86 2%	0 53	23 52	2 93
	4 74	14 30	0 51	0 76	7 31	14 76	83 7%	0 49	20 48	2 80
	4 79	13 88	0 48	0 71	6 60	14 32	81 2%	0 46	17 65	2 67
	4 84	13 46	0 44	0 66	5 92	13 89	78 7%	0 43	15 01	2 54
	4 89	13 04	0 40	0 61	5 25	13 45	76 3%	0 39	12 58	2 39
	4 94	12 62	0 37	0 56	4 61	13 01	73 8%	0 35	10 35	2 24
	4 99	12 21	0 33	0 51	3 99	12 58	71 3%	0 32	8 32	2 09
	5 04	11 79	0 29	0 46	3 39	12 14	68 8%	0 28	6 50	1 92
	5 09	11 37	0 25	0 41	2 81	11 70	66 3%	0 24	4 87	1 73
	5 14	10 85	0 21	0 36	2 26	11 17	63 3%	0 20	3 48	1 54
	5 19	10 15	0 17	0 31	1 73	10 45	59 2%	0 17	2 34	1 35
"WL"	5 24	9 14	0 14	0 26	1 25	9 40	53 3%	0 13	1 46	1 17
	5 29	8 18	0 10	0 21	0 81	8 39	47 6%	0 10	0 77	0 95
	5 34	5 77	0 08	0 16	0 45	5 93	33 6%	0 08	0 36	0 80
	5 39	3 73	0 06	0 11	0 21	3 84	21 8%	0 05	0 13	0 64
	5 44	2 06	0 03	0 06	0 07	2 11	12 0%	0 03	0 03	0 45
	5 49	0 58	0 01	0 01	0 01	0 58	3 3%	0 01	0 00	0 23

Range = 0,5 - 3,3

1. 0.2 $\bar{d}$: 0.17 2.34
0.20 x
0.21 3.48

$\frac{0.03}{0.04} = \frac{x}{1.14} = 0.86$ $x = 3.20$ cfs

2. 50% wetted perimeter

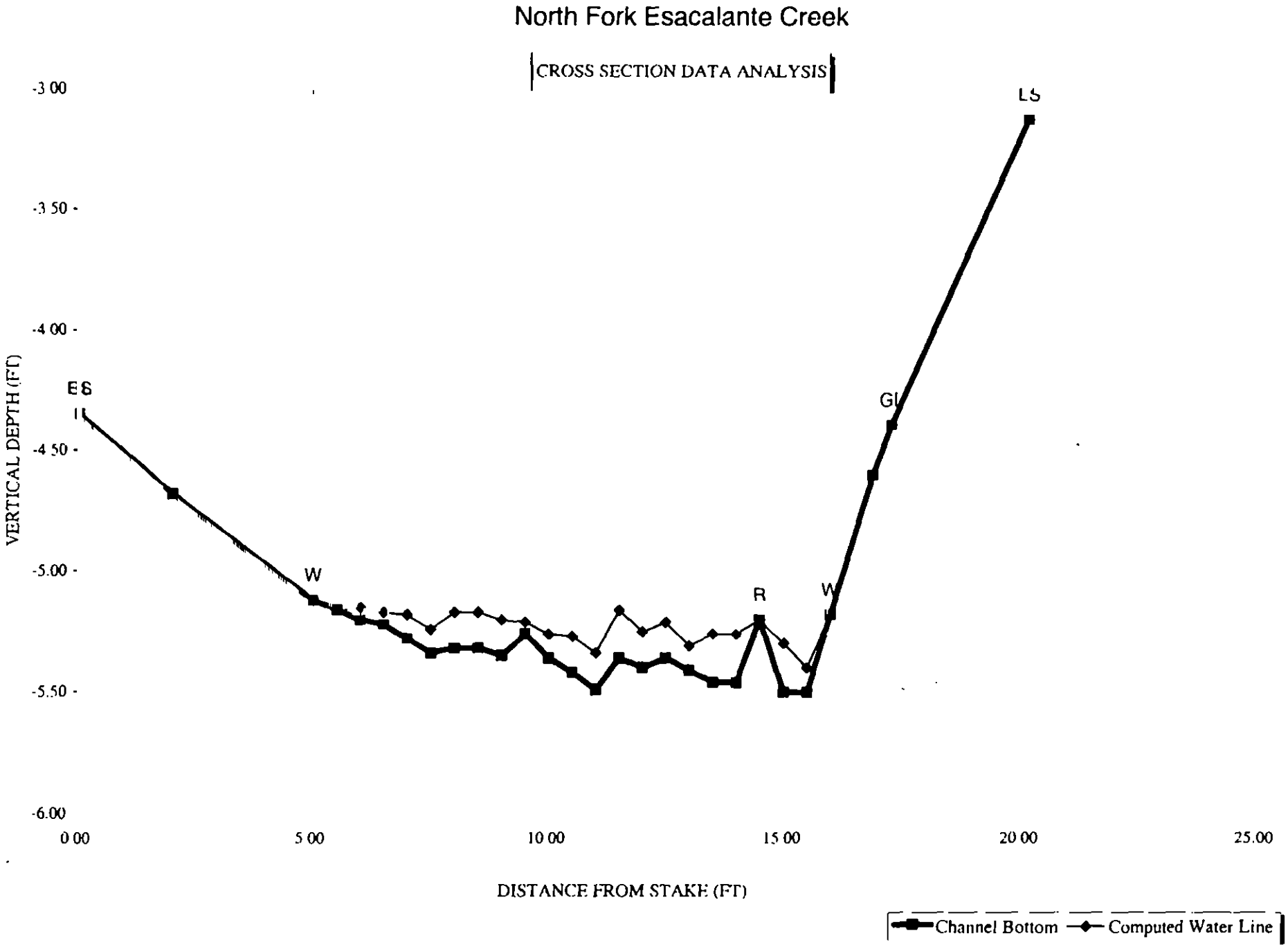
0.533 1.46
0.500 x
0.476 0.77

$\frac{0.03}{0.05} = \frac{x}{0.69} = 0.41$ $x = 1.05$ cfs

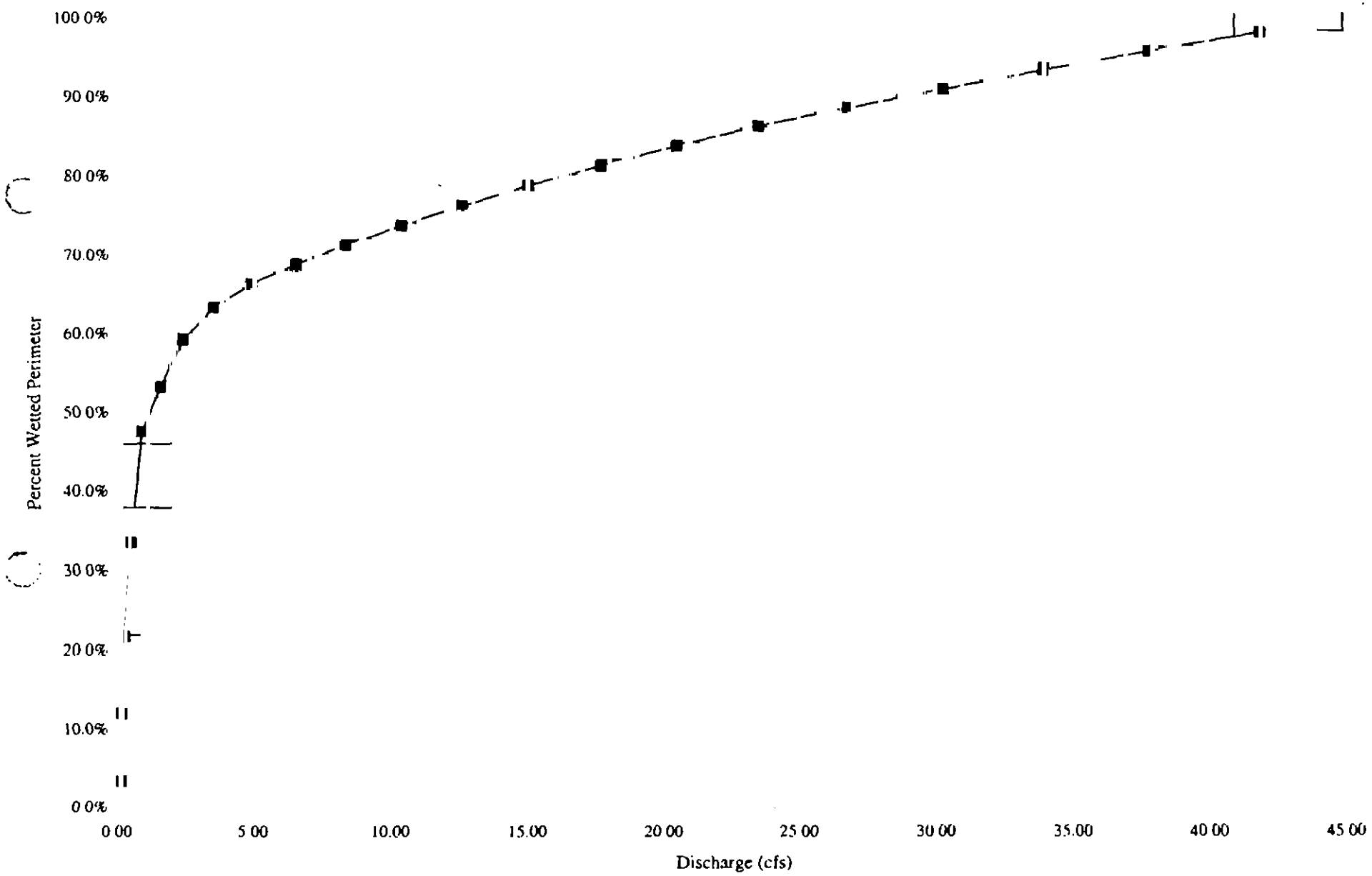
3. 1 ft/sec ave. velocity

1.17 1.46
1.00 x
0 95 0 77

$\frac{0.17}{0.22} = \frac{x}{069} = 0.53$ $x = 0.93$ cfs


North Fork Esacalante Creek
CROSS SECTION DATA ANALYSIS
-3 00
-3 50 -
-4 00 -
-4 50 -
-5.00 -
-5.50 -
-6.00
VERTICAL DEPTH (FT)
ES
W
R
W
GL
LS
0 00
5 00
10 00
15 00
20 00
25.00
DISTANCE FROM STAKE (FT)
Channel Bottom
Computed Water Line

Percent Wetted Perimeter vs. Discharge



COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

COLORADO DIVISION OF WILDLIFE

LOCATION INFORMATION

STREAM NAME: N. Fk. Escalante Creek | CROSS-SECTION NO.: 1

CROSS-SECTION LOCATION: 1.5 miles upstream from Escalante Forks

DATE: 6-17-03 | OBSERVERS: R. Smith, D. Murphy, J. Skinner, M. Uppendahl

LEGAL DESCRIPTION: ¼ SECTION: SE | SECTION: 34 | TOWNSHIP: S (N)/S | RANGE: 14 E (W) | PM: N.M.

COUNTY: Mesa | WATERSHED: Gunnison | WATER DIVISION: 4 | DOW WATER CODE: 40080

MAP(S): USGS: Escalante Forks 7.5' | USFS: 12S 0724863 4279401

SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION: (YES)/NO | METER TYPE: Marsh-McBirney

METER NUMBER | DATE RATED | CALIB/SPIN ____ sec | TAPE WEIGHT surveyed ____ lbs/foot | TAPE TENSION surveyed ____ lbs

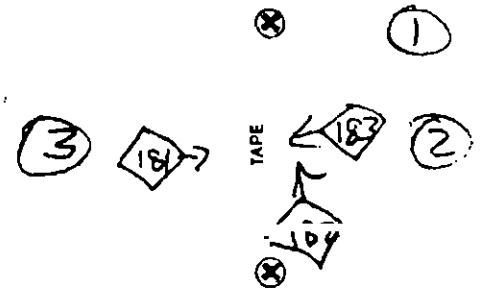
CHANNEL BED MATERIAL SIZE RANGE: .3" cobbles to 2' boulders | PHOTOGRAPHS TAKEN: (YES)/NO | NUMBER OF PHOTOGRAPHS: (3)

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)
⊗ Tape @ Stake LB	0.0	surveyed
⊗ Tape @ Stake RB	0.0	surveyed
① WS @ Tape LB/RB	0.0	6.88 / 6.86
② WS Upstream	6.0'	6.86
③ WS Downstream	12.0'	6.94

SLOPE | 0.08 / 18.0' = 0.0044

SKETCH



LEGEND: Stake ⊗ | Station ① | Photo ◇ | Direction of Flow

AQUATIC SAMPLING SUMMARY

STREAM ELECTROFISHED YES/(NO) | DISTANCE ELECTROFISHED ____ ft | FISH CAUGHT YES/NO | WATER CHEMISTRY SAMPLED (YES)/NO

LENGTH - FREQUENCY DISTRIBUTION BY ONE-INCH SIZE GROUPS (1.0-1.9, 2.0-2.9, ETC.)

SPECIES (FILL IN)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	>15	TOTAL

AQUATIC INSECTS IN STREAM SECTION BY COMMON OR SCIENTIFIC ORDER NAME

Caddisfly, mayfly abundant

COMMENTS

Conductivity: 350 Ph: 8.5 Temp: 18°C

FORM #ISF FD 1-85

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: N. Fk. Escalante Ck. | CROSS SECTION NO: 1 | DATE: 6-17-03 | SHEET 1 OF 1

BEGINNING OF MEASUREMENT | EDGE OF WATER LOOKING DOWNSTREAM (0.0 AT STAKE) | LEFT / RIGHT | Gage Reading 0.5 ft | TIME 4:10

Features (Stake (S), Grassline (G), Waterline (W), Rock (R))	Distance From Initial Point (ft)	Width (ft)	Total Vertical Depth From Tape/Inst (ft)	Water Depth (ft)	Depth of Observation (ft)	Revolutions	Time (sec)	Velocity (ft/sec) At Point	Velocity (ft/sec) Mean in Vertical	Area (ft^2)	Discharge (cfs)
G	1.8		5.50								
	2.6		6.15								
W	3.5		6.88	Ø				Ø			
	4.0		6.95	Ø				Ø			
	4.5		7.06	0.20				Ø			
	5.0		7.06	0.20				0.46			
	5.5		7.14	0.25				0.44			
	6.0		7.12	0.25				0.12			
	6.5		7.27	0.25				0.27			
	7.0		7.34	0.40				0.39			
	7.5		7.33	0.50				0.77			
	7.75		7.39	0.50				1.01			
	8.0		7.42	0.55				0.94			
	8.25		7.36	0.50				1.72			
	8.50		7.41	0.50				1.88			
	8.75		7.40	0.50				1.49			
	9.0	1.0	7.40	0.55	0.5			1.43	1.0		
	9.5		7.35	0.45				1.81			
	9.75		7.41	0.40				2.63			
	10.0		7.46	0.55				1.77			
	10.25		7.47	0.65				1.92			
	10.50		7.41	0.60				1.71			
	10.75		7.35	0.50				1.91			
	11.0		7.36	0.45				1.44			
	11.5		7.42	0.60				1.35			
	12.0		7.42	0.50				0.60			
	12.5		7.42	0.60				0.30			
	13.0		7.28	0.40				0.67			
	13.5		7.15	0.30				Ø			
	14.0		7.04	0.20				Ø			
	14.5		7.02	0.20				.08			
	15.0		7.02	0.25				.17			
W	16.0		6.86	Ø				Ø			
	17.0		6.40								
	18.5		5.99								
G	19.0		5.66								

TOTALS

End of Measurement | Time 4:30 | Gage Reading 0.5 ft | CALCULATIONS PERFORMED BY | CALCULATIONS CHECKED BY

COLORADO WATER CONSERVATION BOARD
INSTREAM FLOW / NATURAL LAKE LEVEL PROGRAM
STREAM CROSS-SECTION AND FLOW ANALYSIS

LOCATION INFORMATION

STREAM NAME	NF Escalante Creek
XS LOCATION	1 5 miles us from Escalante Forks
XS NUMBER	1
DATE	6/17/03
OBSERVERS	Smith, Murphy, Skinner and Uppendahl
1/4 SEC	SE
SECTION	34
TWP	51N
RANGE	14W
PM	N M
COUNTY	Mesa
WATERSHED	Gunnison
DIVISION	4
DOW CODE	40080
USGS MAP	Escalante Forks 7 5' quad
USFS MAP	

SUPPLEMENTAL DATA

*** NOTE ***
Leave TAPE WT and TENSION
at defaults for data collected
with a survey level and rod

TAPE WT	0 0001
TENSION	99999

CHANNEL PROFILE DATA

SLOPE	0.0044

INPUT DATA CHECKED BY . . DATE . .

ASSIGNED TO . . .DATE . .

SUMMARY SHEET

MEASURED FLOW (Qm)=	4 26 cfs
CALCULATED FLOW (Qc)=	4 17 cfs
(Qm-Qc)/Qm * 100 =	2 3 %
MEASURED WATERLINE (WLm)=	6.92 ft
CALCULATED WATERLINE (WLc)=	6 87 ft
(WLm-WLc)/WLm * 100 =	0 7 %
MAX MEASURED DEPTH (Dm)=	0 65 ft
MAX CALCULATED DEPTH (Dc)=	0 6 ft
(Dm-Dc)/Dm * 100	8 4 %
MEAN VELOCITY=	0 95 ft/sec
MANNINGS N=	0 052
SLOPE=	0.0044 ft/ft
4 * Qm =	1 7 cfs
2 5 * Qm=	10 7 cfs

RECOMMENDED INSTREAM FLOW

FLOW (CFS)	PERIOD
4.86	summer

RATIONALE FOR RECOMMENDATION

RECOMMENDATION BY . . . . . AGENCY . . . . . DATE . . . . . .

CWCB REVIEW BY. . . . . DATE: . . . . .

STREAM NAME NF Escalante Creek
XS LOCATION 1 5 miles us from Escalante Forks
XS NUMBER 1

GL = lowest Grassline elevation corrected for sag
WL = Waterline corrected for variations in field measured water surface elevations and sag

STAGING TABLE

	DIST TO WATER (FT)	TOP WIDTH (FT)	AVG DEPTH (FT)	MAX DEPTH (FT)	AREA (SQ FT)	WETTED PERIM (FT)	PERCENT WET PERIM (%)	HYDR RADIUS (FT)	FLOW (CFS)	AVG VELOCITY (FT/SEC)
	5 66	17	1 32	1 81	22.36	17 86	100 00%	1 25	49 47	2 21
	5.87	16 41	1 14	1 6	18 77	17 13	95 90%	1 1	38	2 02
	5 92	16 28	1 1	1 55	17 96	16 96	95 00%	1 06	35 52	1 98
GL	5 97	16 14	1 06	1 5	17 15	16 79	94 00%	1 02	33 11	1 93
	6 02	15.93	1 03	1 45	16 34	16 55	92.70%	0 99	30 86	1 89
	6 07	15 68	0 99	1 4	15 55	16 28	91 20%	0 96	28 73	1 85
	6 12	15 44	0 96	1 35	14 78	16 01	89 70%	0 92	26 67	1 8
	6 17	15 19	0 92	1 3	14 01	15 74	88 10%	0 89	24 66	1.76
	6.22	14 95	0 89	1 25	13 26	15 47	86 60%	0 86	22 77	1 72
	6 27	14 7	0 85	1 2	12 51	15 2	85 10%	0 82	20 93	1 67
	6 32	14 46	0 82	1 15	11 79	14 93	83 60%	0 79	19 16	1 63
	6 37	14 21	0 78	1 1	11 07	14 67	82 10%	0 75	17 47	1 58
	6 42	14 01	0 74	1 05	10 36	14 43	80 80%	0 72	15.83	1 53
	6 47	13 84	0 7	1	9.67	14 23	79 70%	0 68	14 22	1 47
	6 52	13 67	0 66	0 95	8 98	14 03	78 60%	0.64	12 7	1 41
	6 57	13.5	0 62	0 9	8 3	13 83	77 50%	0 6	11.24	1 35
	6 62	13 33	0 57	0 85	7.63	13 63	76 40%	0.56	9 87	1 29
	6 67	13 16	0 53	0.8	6 97	13 44	75.20%	0 52	8 57	1 23
	6 72	12 99	0 49	0 75	6 32	13 24	74 10%	0 48	7 34	1 16
	6 77	12 81	0 44	0 7	5.67	13 04	73 00%	0 43	6 2	1 09
	6 82	12 64	0 4	0 65	5 03	12 84	71 90%	0 39	5 13	1.02
	6 87	12 41	0 35	0 6	4 41	12 58	70 50%	0 35	4 17	0.95
	6 92	11 87	0 32	0 55	3 8	12 03	67 40%	0 32	3 35	0.88
	6 97	11 31	0 28	0 5	3 22	11 46	64 20%	0 28	2 63	0 82
WL	7 02	10 1	0 26	0 45	2 67	10 24	57 30%	0 26	2 08	0 78
	7 07	8 75	0 25	0 4	2 2	8 88	49 70%	0 25	1 65	0 75
	7 12	8 07	0 22	0 35	1 78	8 19	45 90%	0.22	1 22	0 69
	7 17	7 22	0 19	0 3	1 4	7 33	41 00%	0 19	0 89	0 63
	7 22	6 86	0 15	0 25	1 05	6 96	39 00%	0 15	0 57	0.54
	7.27	6 49	0 11	0 2	0 72	6 57	36 80%	0 11	0 31	0 44
	7 32	5 95	0 07	0 15	0 41	6 02	33 70%	0 07	0 13	0 32
	7 37	4 13	0 04	0 1	0 15	4 18	23 40%	0 04	0 03	0 21
	7 42	0 61	0 03	0 05	0 02	0 62	3 50%	0 03	0	0 18

Range 1.7 – 10.7 cfs

Criteria

1) $0.2' \overline{d}$ = 1.0 cfs

2) 50% WP = 1.65 cfs

3) 1 ft/sec $\overline{V}$ = 4.86 cfs

STREAM NAME NF Escalante Creek
XS LOCATION 1 5 miles us from Escalante Forks
XS NUMBER 1

INPUT DATA # DATA POINTS= 37 VALUES COMPUTED FROM RAW FIELD DATA

FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL	WETTED PERIM	WATER DEPTH	AREA (Am)	Q (Qm)	%Q CELL
S & G	1 8	5 5	0	0	0	0	0	0	0 00%
	2 6	6 15	0	0	0	0	0	0	0 00%
W	3 5	6 88	0	0	0	0	0	0	0 00%
	4	6 98	0	0	0	0	0	0	0 00%
	4 5	7 06	0 2	0	0 51	0 2	0 1	0	0 00%
	5	7 06	0.2	0 46	0 5	0 2	0 1	0 05	1 10%
	5 5	7 14	0 25	0 44	0 51	0 25	0 13	0 06	1 30%
	6	7 12	0 25	0 12	0 5	0 25	0 13	0 02	0 40%
	6 5	7 27	0.25	0 27	0 52	0 25	0.13	0.03	0.80%
	7	7 34	0 4	0 39	0 5	0 4	0 2	0 08	1 80%
	7 5	7.33	0 5	0 77	0 5	0 5	0 19	0 14	3 40%
	7 75	7 39	0 5	1 01	0 26	0 5	0 13	0 13	3 00%
	8	7 42	0 55	0 94	0 25	0 55	0 14	0 13	3 00%
	8 25	7 36	0 5	1 72	0 26	0 5	0 13	0 22	5 00%
	8 5	7 41	0.5	1 88	0 25	0 5	0 13	0 24	5 50%
	8 75	7 4	0 5	1 49	0 25	0 5	0 13	0 19	4 40%
	9	7 4	0 55	1.43	0 25	0 55	0 14	0 2	4 60%
	9 25	7 4	0 5	1 8	0 25	0 5	0 13	0 23	5 30%
	9 5	7 35	0 45	1 81	0 25	0 45	0 11	0 2	4 80%
	9 75	7 41	0 4	2 63	0 26	0 4	0 1	0 26	6 20%
	10	7 46	0 55	1 77	0 25	0 55	0 14	0 24	5 70%
	10 25	7 47	0 65	1 92	0.25	0 65	0 16	0 31	7 30%
	10 5	7 41	0 6	1 71	0 26	0 6	0 15	0 26	6 00%
	10 75	7 35	0.5	1 91	0 26	0 5	0 13	0 24	5 60%
	11	7 36	0 45	1 44	0 25	0 45	0 17	0 24	5 70%
	11 5	7 42	0 6	1 35	0 5	0 6	0 3	0 41	9 50%
	12	7 42	0 5	0 6	0.5	0 5	0 25	0 15	3 50%
	12 5	7 42	0 6	0 3	0.5	0 6	0 3	0 09	2 10%
	13	7 28	0 4	0 67	0 52	0 4	0 2	0 13	3 10%
	13.5	7 15	0 3	0	0 52	0.3	0 15	0	0 00%
	14	7 04	0 2	0	0 51	0 2	0 1	0	0 00%
	14 5	7 02	0 2	0 08	0 5	0 2	0 1	0 01	0 20%
	15	7 02	0 25	0 17	0 5	0 25	0 19	0 03	0 70%
W	16	6 86	0	0	1 01	0	0	0	0 00%
	17	6 4	0	0	0	0	0	0	0 00%
	18 5	5 99	0	0	0	0	0	0	0 00%
S & G	19	5.66	0	0	0	0	0	0	0 00%
					=	=	=	=	=
	TOTALS ————				12 16	0 65	4 41	4.26	100 00%
					(Max)				

Manning's n = 0 0518

STREAM NAME NF Escalante Creek
XS LOCATION 1 5 miles us from Escalante Forks **PROOF SHEET**
XS NUMBER 1

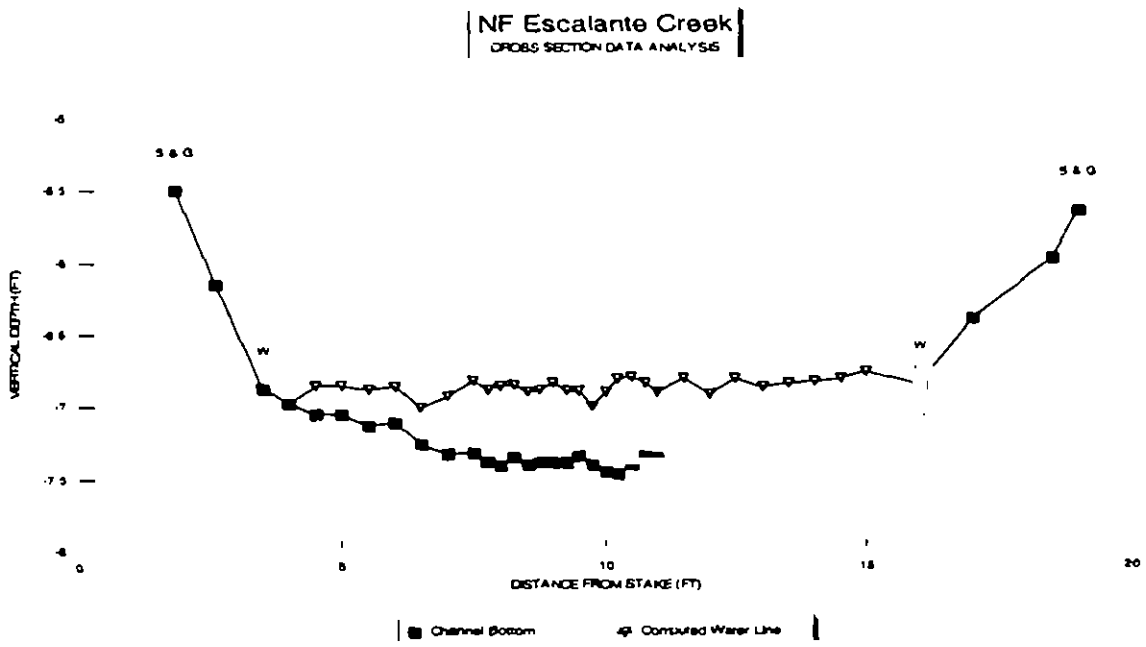
WATER LINE COMPARISON TABLE

WATER LINE	MEAS AREA	COMP AREA	AREA ERROR
6 67	4 41	7 03	59 60%
6 69	4 41	6 77	53 60%
6 71	4 41	6 51	47 70%
6 73	4 41	6 25	41 80%
6 75	4 41	5 99	35 90%
6 77	4 41	5 73	30 10%
6 79	4 41	5 48	24 30%
6 81	4 41	5.22	18 50%
6 83	4 41	4 97	12 80%
6 85	4 41	4 72	7 10%
6 87	4 41	4 47	1 40%
6 88	4 41	4 34	-1 40%
6 89	4 41	4 22	-4 20%
6 9	4.41	4 1	-7 00%
6 91	4 41	3 98	-9 80%
6 92	4 41	3 86	-12 50%
6 93	4 41	3 74	-15 20%
6 94	4 41	3 62	-17 80%
6 95	4 41	3 5	-20 50%
6 96	4 41	3 39	-23 10%
6 97	4 41	3 27	-25 70%
6 99	4 41	3 05	-30 80%
7 01	4 41	2 83	-35 80%
7 03	4 41	2 62	-40 50%
7 05	4 41	2 43	-44 90%
7 07	4 41	2 24	-49 10%
7 09	4 41	2 07	-53 00%
7 11	4 41	1 9	-56 90%
7 13	4 41	1 74	-60 60%
7 15	4 41	1 59	-64 00%
7 17	4 41	1 44	-67 30%

WATERLINE AT ZERO
AREA ERROR = 6 875

INPUT DATA # DATA POINTS= 37

FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL	A	Q	TAPE TO WATER
S & G	1 8	5 5	0	0	0	0	0
	2 6	6 15	0	0	0	0	0
W	3 5	6 88	0	0	0	0	0
	4	6 98	0	0	0	0	0
	4 5	7 06	0 2	0	0 1	0	6 86
	5	7 06	0 2	0 46	0 1	0 05	6 86
	5 5	7 14	0.25	0 44	0 13	0 06	6 89
	6	7 12	0 25	0 12	0 13	0 02	6 87
	6 5	7 27	0.25	0 27	0 13	0 03	7 02
	7	7 34	0 4	0 39	0 2	0 08	6 94
	7 5	7 33	0.5	0 77	0 19	0 14	6 83
	7 75	7 39	0 5	1 01	0 13	0 13	6 89
	8	7 42	0 55	0 94	0 14	0 13	6 87
	8 25	7.36	0 5	1 72	0 13	0 22	6 86
	8 5	7 41	0 5	1 88	0 13	0 24	6 91
	8 75	7 4	0 5	1 49	0 13	0 19	6 9
	9	7 4	0 55	1 43	0 14	0 2	6 85
	9 25	7 4	0.5	1 8	0 13	0 23	6 9
	9 5	7 35	0 45	1 81	0 11	0 2	6 9
	9 75	7 41	0 4	2 63	0 1	0 26	7 01
	10	7 46	0 55	1 77	0 14	0 24	6 91
	10 25	7 47	0 65	1 92	0 16	0 31	6 82
	10 5	7 41	0 6	1 71	0 15	0 26	6.81
	10 75	7 35	0 5	1 91	0 13	0 24	6 85
	11	7 36	0 45	1 44	0 17	0 24	6 91
	11 5	7 42	0 6	1.35	0 3	0 41	6 82
	12	7 42	0 5	0 6	0 25	0 15	6 92
	12 5	7 42	0 6	0 3	0 3	0 09	6 82
	13	7 28	0 4	0 67	0 2	0 13	6 88
	13 5	7 15	0 3	0	0 15	0	6 85
	14	7 04	0 2	0	0 1	0	6 84
	14 5	7 02	0 2	0 08	0 1	0 01	6 82
	15	7 02	0 25	0 17	0 19	0 03	6 77
W	16	6 86	0	0	0	0	0
	17	6 4	0	0	0	0	0
	18 5	5 99	0	0	0	0	0
S & G	19	5 66	0	0	0	0	0
				TOTALS	4 41	4 26	


NF Escalante Creek
CROSS SECTION DATA ANALYSIS
S & G
S & G
W
W
VERTICAL DEPTH (FT)
-6
-6.5
-6
-6.5
-7
-7.5
-8
0
5
10
15
20
DISTANCE FROM STAKE (FT)
Channel Bottom
Computed Water Line

COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

LOCATION INFORMATION

STREAM NAME: North Fork Escalante Creek | CROSS SECTION NO: 1

CROSS SECTION LOCATION: 100 ft. upstream from USFS - private boundary

DATE: 7-30-04 | OBSERVERS: R. Smith, D. Smith, K. Kubik

LEGAL DESCRIPTION: ¼ SECTION: NE/4 | SECTION: 7 | TOWNSHIP: 50 (N) S | RANGE: 14 E (W) | PM: N.M.

COUNTY: Mesa | WATERSHED: Gunnison | WATER DIVISION: 4 | DOW WATER CODE: 40080

MAP(S): USGS | USFS

GPS 12 S 0721105 4277306

SUPPLEMENTAL DATA

Elev. 6600'

TAPE SECTION SAME AS DISCHARGE SECTION (YES/NO) | METER TYPE: Marsh-McBirney

METER NUMBER | DATE RATED | CALIB/SPIN ____ sec | TAPE WEIGHT surveyed ____ lbs/1000' | TAPE TENSION surveyed ____ lbs

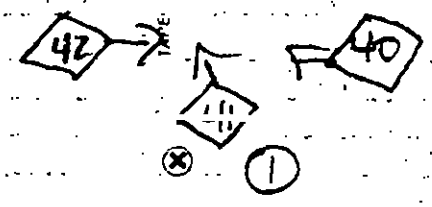
CHANNEL BED MATERIAL SIZE RANGE: gravel to 6" cobble | PHOTOGRAPHS TAKEN (YES/NO) | NUMBER OF PHOTOGRAPHS: 3

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)
⊗ Tape & Stake LB	0.0	surveyed
⊗ Tape & Stake RB	0.0	surveyed
① WS & Tape LB/RB	0.0	5.18 / 5.12
② WS Upstream	6.0	5.06
③ WS Downstream	10.0	5.74

SECTION

SLOPE: 0.68 / 16.0 = 0.0425



LEGEND: Stake ⊗ | Station ① | Photo ◁ | Direction of Flow

AQUATIC SAMPLING SUMMARY

STREAM ELECTROFISHED (YES/NO) | DISTANCE ELECTROFISHED ____ ft | FISH CAUGHT (YES/NO) | WATER CHEMISTRY SAMPLED (YES/NO)

LENGTH - FREQUENCY DISTRIBUTION BY ONE-INCH SIZE GROUPS (1.0-1.9, 2.0-2.9, ETC.)

SPECIES (FILL IN)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	>15	TOTAL
See attached survey CRN and CRNx																	

AQUATIC INSECTS IN STREAM SECTION BY COMMON OR SCIENTIFIC ORDER NAME

mayfly, caddisfly, snails, damselfly

COMMENTS

TDS: 340 Temp = Ph: 8.4 Temp = 19.5° C

Heavy silt loading.

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: North Fork Escalante | CROSS SECTION NO: 1 | DATE: 7-30-04 | SHEET: 1 of 1

BEGINNING OF MEASUREMENT: EDGE OF WATER LOOKING DOWNSTREAM (GOAT STAKE) | LEFT / RIGHT | Gage Reading: 0.2 | TIME: 4:05 pm

Features (Staff (S), Gaugestring (G), Waterline (W), Rocs (R))	Distance From Initial Point (ft)	Width (ft)	Total Vertical Depth From Tape/Inst (ft)	Water Depth (ft) ✓	Depth of Observation (ft)	Revolutions	Time (sec)	Velocity (ft/sec) At Point ✓	Velocity (ft/sec) Mean in Vertical	Area (ft²)	Discharge (cfs)
RS, G	0.0		4.35								
	2.0		4.68								
W	5.0		5.12	0				0			
	5.5		5.16	0				0			
	6.0		5.20	0.05				0.69			
	6.5		5.22	0.05				0.86			
	7.0		5.28	0.10				0.87			
	7.5		5.34	0.10				1.05			
	8.0		5.32	0.15				1.32			
	8.5		5.32	0.15				0.96			
	9.0		5.35	0.15				1.30			
	9.5		5.24	0.2				0.98			
	10.0		5.36	0.1				0.90			
	10.5		5.47	.15				1.27			
	11.0		5.49	.15				1.47			
	11.5		5.36	0.2				1.45			
	12.0		5.40	0.15				0.88			
	12.5		5.36	0.15				1.66			
	13.0		5.41	0.1				0			
	13.5		5.46	0.2				0.91			
	14.0		5.46	0.2				0.85			
R	14.5		5.20	0				0			
	15.0		5.50	0.2				1.13			
	15.4		5.50	0.1				0.50			
W	16.0		5.18								
	16.9		4.60								
G	17.3		4.39								
LS	20.2		3.12								
TOTALS											

End of Measurement | Time: 4:25 | Gage Reading: 0.2 | CALCULATIONS PERFORMED BY | CALCULATIONS CHECKED BY

COLORADO WATER CONSERVATION BOARD
INSTREAM FLOW / NATURAL LAKE LEVEL PROGRAM
STREAM CROSS-SECTION AND FLOW ANALYSIS

LOCATION INFORMATION

STREAM NAME	North Fork Esacalante Creek
XS LOCATION	100 ft upstream from USFS-pnvate boundary
XS NUMBER.	1
DATE:	30-Jul-04
OBSERVERS.	R Smith, D Smith, K. Kubik
1/4 SEC:	NE
SECTION.	7
TWP:	50 S
RANGE.	14 W
PM.	NM
COUNTY:	Mesa
WATERSHED:	Gunnison
DIVISION	4
DOW CODE	40080
USGS MAP.	Escalante Forks 7 5
USFS MAP.	0

SUPPLEMENTAL DATA

*** NOTE ***
Leave TAPE WT and TENSION at defaults for data collected with a survey level and rod

TAPE WT	0.0106
TENSION:	99999

CHANNEL PROFILE DATA

SLOPE:	0 0425

INPUT DATA CHECKED BY. . ... DATE .. ..

ASSIGNED TO ... . DATE .. ..

STREAM NAME	North Fork Escalante Creek
XS LOCATION	100 ft upstream from USFS-private boundary
XS NUMBER	1

SUMMARY SHEET

MEASURED FLOW (Qm)=	1 33	cfs
CALCULATED FLOW (Qc)=	1 46	cfs
(Qm-Qc)/Qm * 100 =	-9 7	%
MEASURED WATERLINE (WLm)=	5 20	ft
CALCULATED WATERLINE (WLc)=	5 24	ft
(WLm-WLc)/WLm * 100 =	-0 7	%
MAX MEASURED DEPTH (Dm)=	0 20	ft
MAX CALCULATED DEPTH (Dc)=	0 26	ft
(Dm-Dc)/Dm * 100	-31 5	%
MEAN VELOCITY=	1 17	ft/sec
MANNING'S N=	0 068	
SLOPE=	0 0425	ft/ft
4 * Qm =	0 5	cfs
2 5 * Qm=	3 3	cfs

RECOMMENDED INSTREAM FLOW

FLOW (CFS)	PERIOD

RATIONALE FOR RECOMMENDATION

RECOMMENDATION BY . . . . AGENCY . . . . DATE . .

CWCB REVIEW BY . . . . . DATE .

STREAM NAME North Fork Escalante Creek
XS LOCATION 100 ft upstream from USFS-private boundary
XS NUMBER 1

DATA POINTS= 29

VALUES COMPUTED FROM RAW FIELD DATA

	FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL	WETTED PERIM	WATER DEPTH	AREA (Am)	Q (Qm)	% Q CELL
	RS	0 00	4 35			0.00		0.00	0 00	0.0%
1	GL	0 00	4 35			0.00		0 00	0.00	0 0%
		2 00	4 68			0.00		0 00	0 00	0 0%
	W	5 00	5.12	0 00	0.00	0 00		0.00	0 00	0.0%
		5 50	5.16	0 00	0 00	0 00		0.00	0 00	0.0%
		6.00	5 20	0 05	0 69	0 50	0 05	0 03	0 02	1 3%
		6 50	5 22	0 05	0 86	0.50	0.05	0 03	0.02	1 6%
		7 00	5 28	0 10	0 87	0 50	0 10	0 05	0 04	3.3%
		7.50	5 34	0.10	1 05	0.50	0.10	0.05	0 05	3.9%
		8 00	5.32	0 15	1.32	0.50	0.15	0 08	0 10	7 4%
		8.50	5.32	0 15	0 96	0.50	0 15	0 08	0 07	5 4%
		9 00	5 35	0.15	1.30	0 50	0 15	0 08	0 10	7 3%
		9 50	5.26	0 05	0.98	0.51	0.05	0 03	0 02	1 8%
		10.00	5 36	0 10	0 90	0 51	0 10	0 05	0.05	3 4%
		10.50	5 42	0 15	1 27	0 50	0.15	0.08	0.10	7.2%
		11 00	5 49	0 15	1 47	0.50	0.15	0.08	0 11	8 3%
		11 50	5.36	0 20	1.45	0.52	0 20	0 10	0 15	10 9%
		12.00	5 40	0 15	0 88	0 50	0 15	0.08	0 07	5 0%
		12 50	5 36	0 15	1 69	0 50	0 15	0.08	0 13	9 5%
		13 00	5 41	0.10	0 00	0 50	0.10	0 05	0.00	0 0%
		13 50	5 46	0.20	0 91	0 50	0 20	0 10	0 09	6.8%
		14.00	5.46	0.20	0 85	0.50	0.20	0 10	0 09	6.4%
	R	14.50	5 20	0.00	0 00	0 56		0 00	0 00	0.0%
		15 00	5 50	0 20	1.13	0.58	0.20	0 10	0 11	8 5%
		15.50	5 50	0.10	0 50	0 50	0 10	0 05	0.03	1 9%
	W	16 00	5 18			0 59		0 00	0 00	0.0%
		16.90	4 60			0 00		0.00	0 00	0 0%
1	GL	17.30	4 39			0.00		0 00	0.00	0 0%
	LS	20 20	3 12			0.00		0.00	0.00	0 0%
	TOTALS ----------					10 80	0 2 (Max)	1.25	1.33	100.0%

Manning's n = 0 0684
Hydraulic Radius= 0 11571968

STREAM NAME. North Fork Escalante Creek
XS LOCATION 100 ft upstream from USFS-private boundary
XS NUMBER 1

WATER LINE COMPARISON TABLE

WATER LINE	MEAS AREA	COMP AREA	AREA ERROR
	1.25	1 60	28 0%
4.95	1.25	4.45	256.0%
4.97	1.25	4.20	236 1%
4.99	1 25	3.96	216.5%
5.01	1 25	3 71	197.1%
5.03	1.25	3 48	178.0%
5.05	1 25	3.24	159.2%
5 07	1.25	3 01	140.6%
5.09	1 25	2 78	122 3%
5 11	1.25	2.55	104.3%
5.13	1 25	2.33	86.6%
5.15	1.25	2 12	69.3%
5.16	1.25	2.01	60.8%
5 17	1 25	1.91	52.5%
5 18	1.25	1 80	44.2%
5.19	1.25	1 70	36.1%
5 20	1 25	1.60	28 0%
5.21	1.25	1 50	20.2%
5 22	1 25	1 41	12.6%
5.23	1 25	1.31	-5 1%
5.24	1.25	1.22	-2.2%
5 25	1.25	1.13	-9.4%
5.27	1.25	0 96	-23.5%
5 29	1.25	0 79	-36 9%
5 31	1 25	0.63	-49 5%
5.33	1.25	0.49	-60.7%
5 35	1.25	0 38	-69.7%
5 37	1.25	0 28	-77.8%
5 39	1 25	0.20	-84.4%
5 41	1.25	0.13	-89 3%
5.43	1.25	0 08	-93 4%
5 45	1.25	0 04	-96 5%

WATERLINE AT ZERO --
AREA ERROR = 5.237

STREAM NAME: North Fork Esacalante Creek
XS LOCATION: 100 ft upstream from USFS-private boundary
XS NUMBER: 1

Constant Manning's n

STAGING TABLE
"GL" = lowest Grassline elevation corrected for sag
"WL" = Waterline corrected for variations in field measured water surface elevations and sag

	DIST TO WATER (FT)	TOP WIDTH (FT)	AVG DEPTH (FT)	MAX DEPTH (FT)	AREA (SQ FT)	WETTED PERIM (FT)	PERCENT WET PERIM (%)	HYDR RADIUS (FT)	FLOW (CFS)	AVG VELOCITY (FT/SEC)
"GL"	4 39	17 06	0 75	1 11	12 75	17 64	100 0%	0 72	46 00	3 61
	4 44	16 68	0 72	1 06	11 95	17 25	97 8%	0 69	41 95	3 51
	4 49	16 29	0 68	1 01	11 13	16 84	95 4%	0 66	37.85	3 40
	4 54	15 89	0 65	0 96	10 33	16 42	93 1%	0 63	33 96	3 29
	4 59	15 49	0 62	0 91	9 54	16 01	90 7%	0 60	30 28	3 17
	4 64	15 10	0 58	0 86	8 78	15 60	88 5%	0 56	26 80	3 05
	4 69	14 72	0 55	0 81	8 03	15 20	86 2%	0 53	23 52	2 93
	4 74	14 30	0 51	0 76	7 31	14 76	83 7%	0 49	20 48	2 80
	4 79	13 88	0 48	0 71	6 60	14.32	81 2%	0 46	17 65	2 67
	4 84	13 46	0 44	0 66	5 92	13 89	78 7%	0 43	15 01	2 54
	4 89	13 04	0 40	0 61	5 25	13 45	76 3%	0 39	12 58	2 39
	4 94	12 62	0 37	0 56	4 61	13 01	73 8%	0 35	10 35	2 24
	4 99	12 21	0 33	0 51	3 99	12 58	71 3%	0 32	8 32	2 09
	5 04	11 79	0 29	0 46	3 39	12 14	68 8%	0 28	6 50	1 92
	5 09	11 37	0 25	0 41	2 81	11 70	66 3%	0 24	4 87	1 73
	5 14	10 85	0 21	0 36	2 26	11 17	63 3%	0 20	3 48	1 54
	5 19	10 15	0 17	0 31	1 73	10 45	59 2%	0 17	2 34	1 35
"WL"	5 24	9 14	0 14	0 26	1 25	9 40	53 3%	0 13	1 46	1 17
	5 29	8 18	0 10	0 21	0 81	8 39	47 6%	0 10	0 77	0 95
	5 34	5 77	0 08	0 16	0 45	5 93	33 6%	0 08	0 36	0 80
	5 39	3 73	0 06	0 11	0 21	3 84	21 8%	0 05	0 13	0 64
	5 44	2 06	0 03	0 06	0 07	2 11	12 0%	0 03	0 03	0 45
	5 49	0 58	0 01	0 01	0 01	0 58	3 3%	0 01	0 00	0 23

Range = 0,5 - 3,3

1. 0.2 d : 0.17 2.34
0.20 x
0.21 3.48

$\frac{0.03}{0.04} \cdot \frac{x}{1.14} = 0.86$

x = 3.20 cfs

2. 50% wetted perimeter

0.533 1.46
0.500 x
0.476 0.77

$\frac{0.03}{0.05} \cdot \frac{x}{0.69} = 0.41$

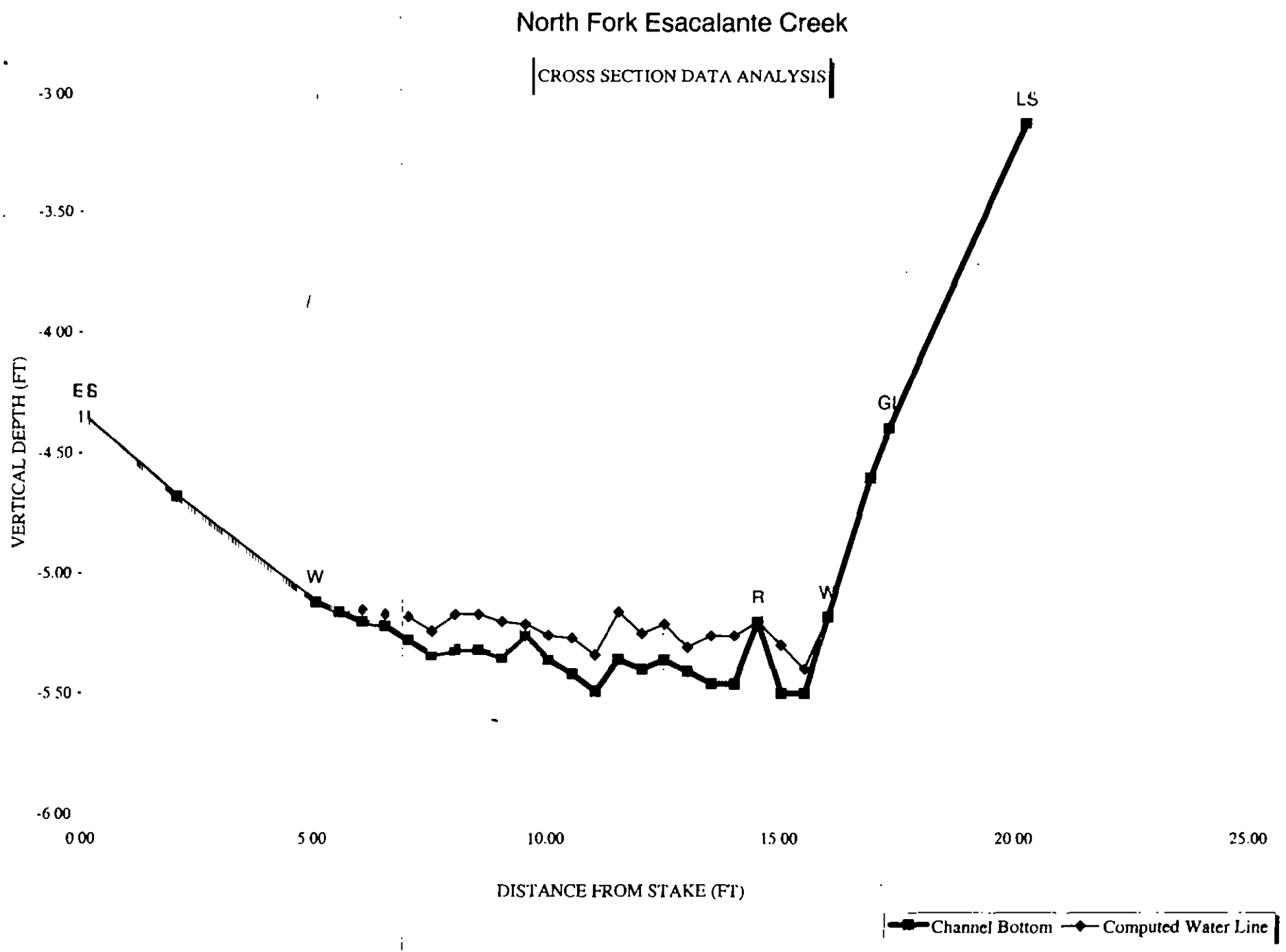
x = 1.05 cfs

3. 1 ft/sec ave. velocity

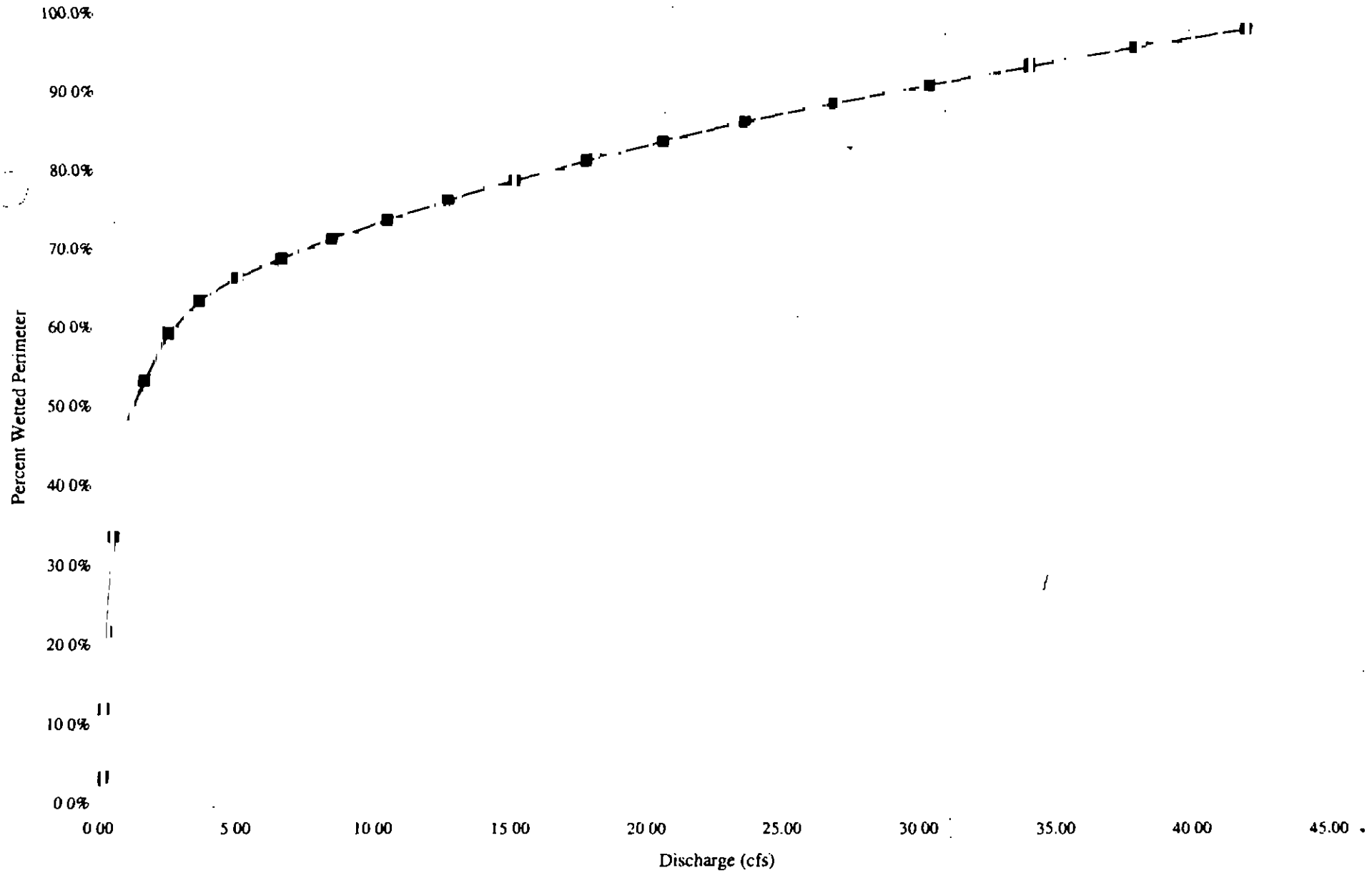
1.17 1.46
1.00 x
0.95 0.77

$\frac{0.17}{0.22} \cdot \frac{x}{0.69} = 0.53$

x = 0.93 cfs


North Fork Esacalante Creek
CROSS SECTION DATA ANALYSIS
-3 00
-3.50
-4 00
-4 50
-5.00
-5 50
-6 00
VERTICAL DEPTH (FT)
ES
W
R
W
LS
0 00
5 00
10.00
15 00
20 00
25.00
DISTANCE FROM STAKE (FT)
Channel Bottom
Computed Water Line

Percent Wetted Perimeter vs. Discharge



COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

COLORADO DIVISION OF WILDLIFE

LOCATION INFORMATION

STREAM NAME: North Fork Escalante Creek | CROSS-SECTION NO.: 1

CROSS-SECTION LOCATION: 1.7 miles upstream from Escalante Forks

DATE: 6-2-04 | OBSERVERS: R. Smith, D. Smith, C. Claar

LEGAL DESCRIPTION | ¼ SECTION: SE | SECTION: 34 | TOWNSHIP: 51 (N/S) | RANGE: 14 (E/W) 6th P.M. N.M.

COUNTY: Mesa | WATERSHED: Gunnison | WATER DIVISION: 4 | DOW WATER CODE: 40080

MAP(S) USGS: Escalante Forks 7.5' | Zone 12 | 0724667

USFS: 6295 ft. | 4279414

SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION: YES / NO | METER TYPE: Mark-McBirney

METER NUMBER: | DATE RATED: | CALIB/SPIN ____ sec | TAPE WEIGHT surveyed lbs/foot | TAPE TENSION surveyed lbs

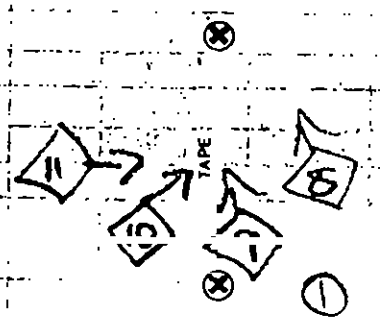
CHANNEL BED MATERIAL SIZE RANGE: gravel to 8" boulders | PHOTOGRAPHS TAKEN (YES/NO) | NUMBER OF PHOTOGRAPHS: 4

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)
⊗ Tape @ Stake LB	0.0	surveyed
⊗ Tape @ Stake RB	0.0	surveyed
① WS @ Tape LB/RB	0.0	7.61 / 7.61
② WS Upstream	14.0	7.41
③ WS Downstream	14.0	8.21

SLOPE: 0.80 / 28.0 = 0.0285714

SKETCH



LEGEND: Stake ⊗ | Station ① | Photo ◇ | Direction of Flow

AQUATIC SAMPLING SUMMARY

STREAM ELECTROFISHED YES/NO | DISTANCE ELECTROFISHED ____ ft | FISH CAUGHT YES/NO | WATER CHEMISTRY SAMPLED (YES/NO)

LENGTH - FREQUENCY DISTRIBUTION BY ONE-INCH SIZE GROUPS (1 0-1 9, 2 0-2.9; ETC.)

SPECIES (FILL IN)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	>15	TOTAL

AQUATIC INSECTS IN STREAM SECTION BY COMMON OR SCIENTIFIC ORDER NAME

caddisfly, mayfly

COMMENTS

pH = 8.4 Stream temp = 16°C

TDS = 310

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: North Fork Escalante | CROSS-SECTION NO: 1 | DATE: 6-2-04 | SHEET 1 OF ___

BEGINNING OF MEASUREMENT | EDGE OF WATER LOOKING DOWNSTREAM (0.0 AT STAKE) | LEFT / RIGHT | Gage Reading ___ ft | TIME 1:15

Features: Stake (S) Grassline (G) Waterline (W) Rock (R)	Distance From Initial Point (ft)	Width (ft)	Total Vertical Depth From Tape/Inst (ft)	Water Depth (ft)	Depth of Observation (ft)	Revolutions: Time (sec)	Velocity (ft/sec): At Point	Velocity (ft/sec): Mean in Vertical	Area (ft^2)	Discharge (cfs)
LS	0.0		5.71							
G	1.6		6.36							
W	3.1		7.61	Ø						
	3.5		7.95	0.35			0.18			
	4.0		8.08	0.50			0.36			
	4.5		8.08	0.50			0.79			
	5.0		8.08	0.45			1.35			
	5.5		7.87	0.30			1.96			
	6.0		8.00	0.40			2.04			
	6.5		8.13	0.50			1.86			
	7.0		8.11	0.50			1.85			
	7.5		8.06	0.45			2.10			
	8.0		8.03	0.40			2.28			
	8.5		7.84	0.20			2.06			
	9.0		7.92	0.25			0.50			
	10.0		7.96	0.30			1.64			
	11.0		7.94	0.30			1.32			
	12.0		8.13	0.30			1.51			
	13.0		7.96	0.35			0.58			
	14.0		7.95	0.35			0.70			
	15.0		7.87	0.25			0.06			
W	15.8		7.61	Ø						
G	19.0		6.54							
RLS	20.6		6.27							

TOTALS

End of Measurement | Time 1:40 | Gage Reading ___ ft | CALCULATIONS PERFORMED BY | CALCULATIONS CHECKED BY

COLORADO WATER CONSERVATION BOARD
INSTREAM FLOW / NATURAL LAKE LEVEL PROGRAM
STREAM CROSS-SECTION AND FLOW ANALYSIS

LOCATION INFORMATION

STREAM NAME	NF Escalante Ck
XS LOCATION	1.7 miles us from Escalante Forks
XS NUMBER:	1
DATE	2-Jun-04
OBSERVERS.	R.Smith, D Smith and C Clapp
1/4 SEC:	SE
SECTION	34
TWP	51N
RANGE.	14W
PM	N.M.
COUNTY:	Mesa
WATERSHED	Gunnison
DIVISION	4
DOW CODE:	40080
USGS MAP:	Escalante Forks 7 5' quad
USFS MAP	0

SUPPLEMENTAL DATA

*** NOTE ***
Leave TAPE WT and TENSION
at defaults for data collected
with a survey level and rod

TAPE WT.	0 0106
TENSION:	99999

CHANNEL PROFILE DATA

SLOPE.	0.0285714

INPUT DATA CHECKED BY ..... DATE.....

ASSIGNED TO ..... DATE .....

STREAM NAME	NF Escalante Ck
XS LOCATION	1 7 miles us from Escalante Forks
XS NUMBER	1

SUMMARY SHEET

MEASURED FLOW (Qm)=	5 57	cfs
CALCULATED FLOW (Qc)=	5 58	cfs
(Qm-Qc)/Qm * 100 =	-0 3	%
MEASURED WATERLINE (WLm)=	7 61	ft
CALCULATED WATERLINE (WLc)=	7 82	ft
(WLm-WLc)/WLm * 100 =	-0 1	%
MAX MEASURED DEPTH (Dm)=	0 50	ft
MAX CALCULATED DEPTH (Dc)=	0 51	ft
(Dm-Dc)/Dm * 100	-2 0	%
MEAN VELOCITY=	1.25	ft/sec
MANNING'S N=	0 099	
SLOPE=	0 0285714	ft/ft
4 * Qm =	2 2	cfs
2 5 * Qm=	13 9	cfs

RECOMMENDED INSTREAM FLOW

FLOW (CFS)	PERIOD

RATIONALE FOR RECOMMENDATION

RECOMMENDATION BY AGENCY DATE

CWCB REVIEW BY DATE

STREAM NAME NF Escalante Ck
XS LOCATION 1 7 miles us from Escalante Forks
XS NUMBER 1

Constant Manning's n

STAGING TABLE
"GL" = lowest Grassline elevation corrected for sag
"WL" = Waterline corrected for variations in field measured water surface elevations and sag

	DIST TO WATER (FT)	TOP WIDTH (FT)	AVG DEPTH (FT)	MAX DEPTH (FT)	AREA (SQ FT)	WETTED PERIM (FT)	PERCENT WET PERIM (%)	HYDR RADIUS (FT)	FLOW (CFS)	AVG VELOCITY (FT/SEC)
"GL"	6 54	17 18	1 20	1 59	20 59	18 09	100 0%	1 14	57 10	2 77
	6 62	16 85	1 14	1 51	19 22	17 71	97 9%	1 09	51 65	2 69
	6 67	16 64	1 11	1 46	18 39	17 47	96 6%	1 05	48 39	2 63
	6 72	16 43	1 07	1 41	17 56	17 24	95 3%	1 02	45 22	2 58
	6 77	16 22	1 03	1 36	16 74	17 00	94 0%	0 98	42 16	2 52
	6 82	16 01	1 00	1 31	15 94	16 76	92 7%	0 95	39 19	2 46
	6 87	15 80	0 96	1 26	15 14	16 53	91 4%	0 92	36 33	2 40
	6 92	15 59	0 92	1 21	14 38	16 29	90 1%	0 88	33 57	2 34
	6 97	15 38	0 88	1 16	13 58	16 06	88 8%	0 85	30 90	2 28
	7 02	15 17	0 84	1 11	12 82	15 82	87 5%	0 81	28 34	2 21
	7 07	14 96	0 81	1 06	12 07	15 59	86 2%	0 77	25 88	2 14
	7 12	14 75	0 77	1 01	11 32	15 35	64 9%	0 74	23 51	2 08
	7 17	14 54	0 73	0 96	10 59	15 11	83 6%	0 70	21 25	2 01
	7 22	14 33	0 69	0 91	9 87	14 88	82 3%	0 66	19 09	1 93
	7 27	14 12	0 65	0 86	9 16	14 64	81 0%	0 63	17 03	1 86
	7 32	13 91	0 61	0 81	8 46	14 41	79 7%	0 59	15 08	1 78
	7 37	13 70	0 57	0 76	7 77	14 17	78 4%	0 55	13 23	1 70
	7 42	13 50	0 53	0 71	7 09	13 93	77 0%	0 51	11 48	1 62
	7 47	13 29	0 48	0 66	6 42	13 70	75 7%	0 47	9 84	1 53
	7 52	13 08	0 44	0 61	5 76	13 46	74 4%	0 43	8 31	1 44
	7 57	12 87	0 40	0 56	5 11	13 23	73 1%	0 39	6 89	1 35
"WL"	7 62	12 66	0 35	0 51	4 47	12 99	71 8%	0 34	5 58	1 25
	7 67	12 44	0 31	0 46	3 84	12 75	70 5%	0 30	4 39	1 14
	7 72	12 23	0 26	0 41	3 23	12 51	69 2%	0 26	3 32	1 03
	7 77	12 02	0 22	0 36	2 62	12 27	67 8%	0 21	2 38	0 91
	7 82	11 81	0 17	0 31	2 02	12 04	66 5%	0 17	1 57	0 77
	7 87	11 32	0 13	0 26	1 44	11 52	63 7%	0 13	0 92	0 64
	7 92	9 88	0 09	0 21	0 91	10 02	55 4%	0 09	0 47	0 51
	7 97	5 74	0 09	0 16	0 51	5 84	32 3%	0 09	0 26	0 50
	8 02	4 54	0 06	0 11	0 26	4 60	25 5%	0 06	0 09	0 37
	8 07	2 86	0 02	0 06	0 07	2 88	15 9%	0 02	0 01	0 21
	8 12	0 39	0 00	0 01	0 00	0 39	2 2%	0 00	0 00	0 07

2.2
13.9

Criteria / Interpolation

1. 0.2' ave depth = $\frac{0.03}{0.05} = \frac{x}{0.81}$

$x =$ 2.06 cfs

2. 50% WP = $\frac{17.7}{23.1} = \frac{x}{0.21}$

$x =$ 0.42 cfs

3. 1 ft/sec $\bar{V}$ = $\frac{0.07}{0.12} = \frac{x}{0.94}$

$x =$ 2.93 cfs

STREAM NAME. NF Escalante Ck
XS LOCATION 1.7 miles us from Escalante Forks
XS NUMBER. 1

DATA POINTS= 24

VALUES COMPUTED FROM RAW FIELD DATA

FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL	WETTED PERIM	WATER DEPTH	AREA (Am)	Q (Qm)	% Q CELL
LS	0 00	5 71			0 00		0 00	0 00	0 0%
1	1.60	6 36			0.00		0 00	0 00	0 0%
W	3 10	7.61			0.00		0.00	0 00	0 0%
	3.50	7 95	0 35	0 10	0 52	0.35	0 16	0.02	0.3%
	4.00	8 08	0.50	0 36	0 52	0 50	0 25	0.09	1.6%
	4 50	8 08	0.50	0 79	0.50	0 50	0 25	0.20	3.5%
	5.00	8 08	0.45	1 35	0.50	0 45	0 23	0.30	5.5%
	5 50	7 87	0 30	1 96	0.54	0 30	0 15	0.29	5.3%
	6 00	8.00	0 40	2 04	0.52	0 40	0 20	0.41	7.3%
	6.50	8.13	0 50	1 86	0.52	0 50	0 25	0 47	8.3%
	7.00	8 11	0 50	1.85	0 50	0 50	0.25	0 46	8 3%
	7.50	8.06	0.45	2.10	0 50	0.45	0 23	0 47	8 5%
	8 00	8 03	0.40	2 28	0.50	0 40	0 20	0 46	8 2%
	8.50	7.84	0 20	2 06	0 53	0.20	0 10	0 21	3 7%
	9.00	7 92	0.25	0.50	0 51	0.25	0.19	0.09	1.7%
	10 00	7.96	0 30	1 64	1 00	0 30	0 30	0.49	8.8%
	11.00	7.94	0 30	1.32	1 00	0 30	0 30	0 40	7 1%
	12 00	8 13	0 50	1 51	1 02	0 50	0 50	0 76	13 6%
	13 00	7 96	0 35	0 58	1.01	0 35	0.35	0 20	3 6%
	14 00	7 95	0 35	0 70	1.00	0.35	0 35	0 25	4.4%
	15 00	7.87	0.25	0 06	1 00	0.25	0.23	0 01	0 2%
W	15.80	7 61			0 84		0.00	0 00	0 0%
1	19.00	6 54			0.00		0 00	0.00	0 0%
RS	20 60	6 27			0 00		0.00	0 00	0.0%
TOTALS ----------					13 04	0 5 (Max.)	4 47	5 57	100 0%

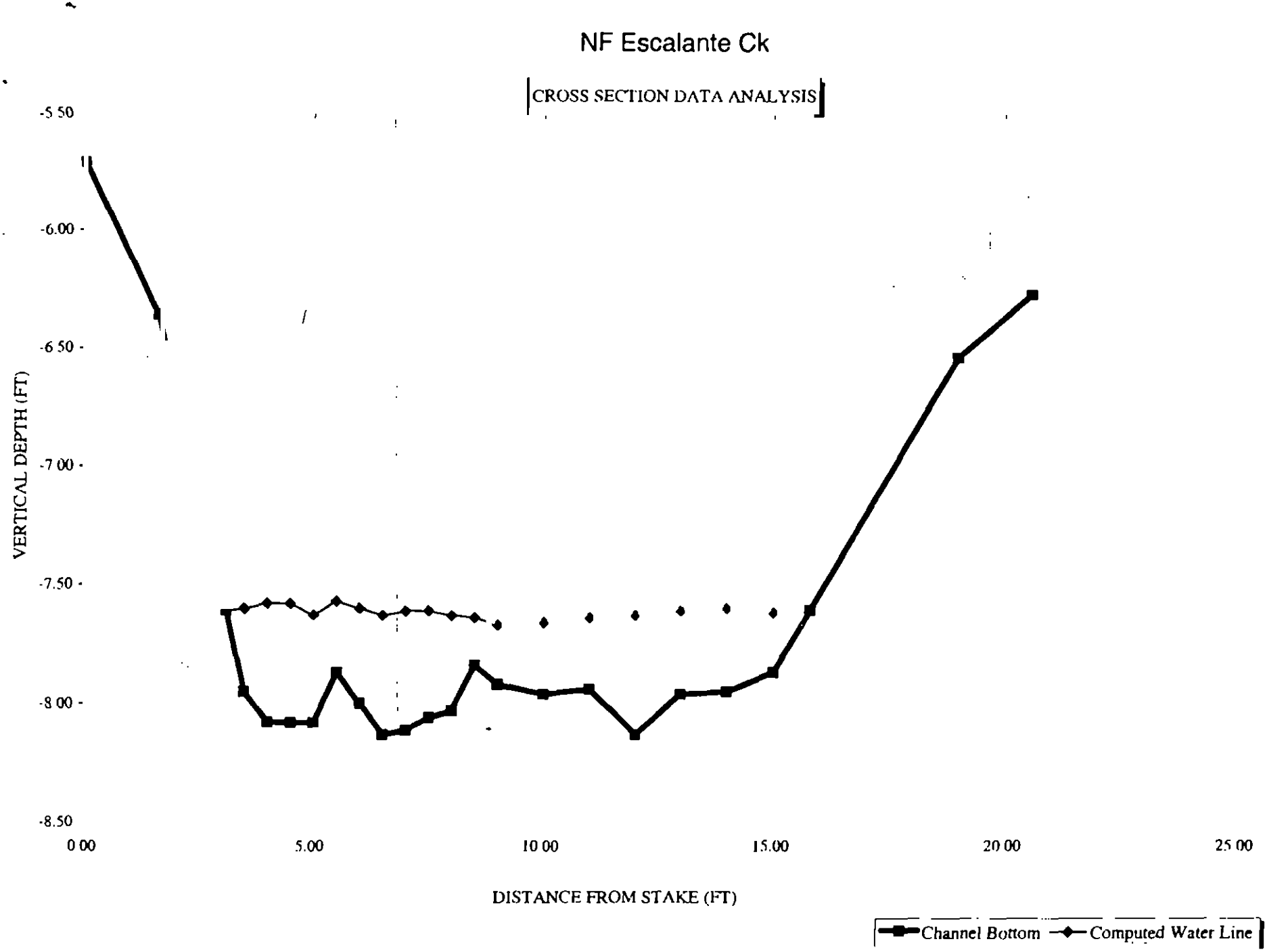
Manning's n = 0 0987
Hydraulic Radius= 0.342794991

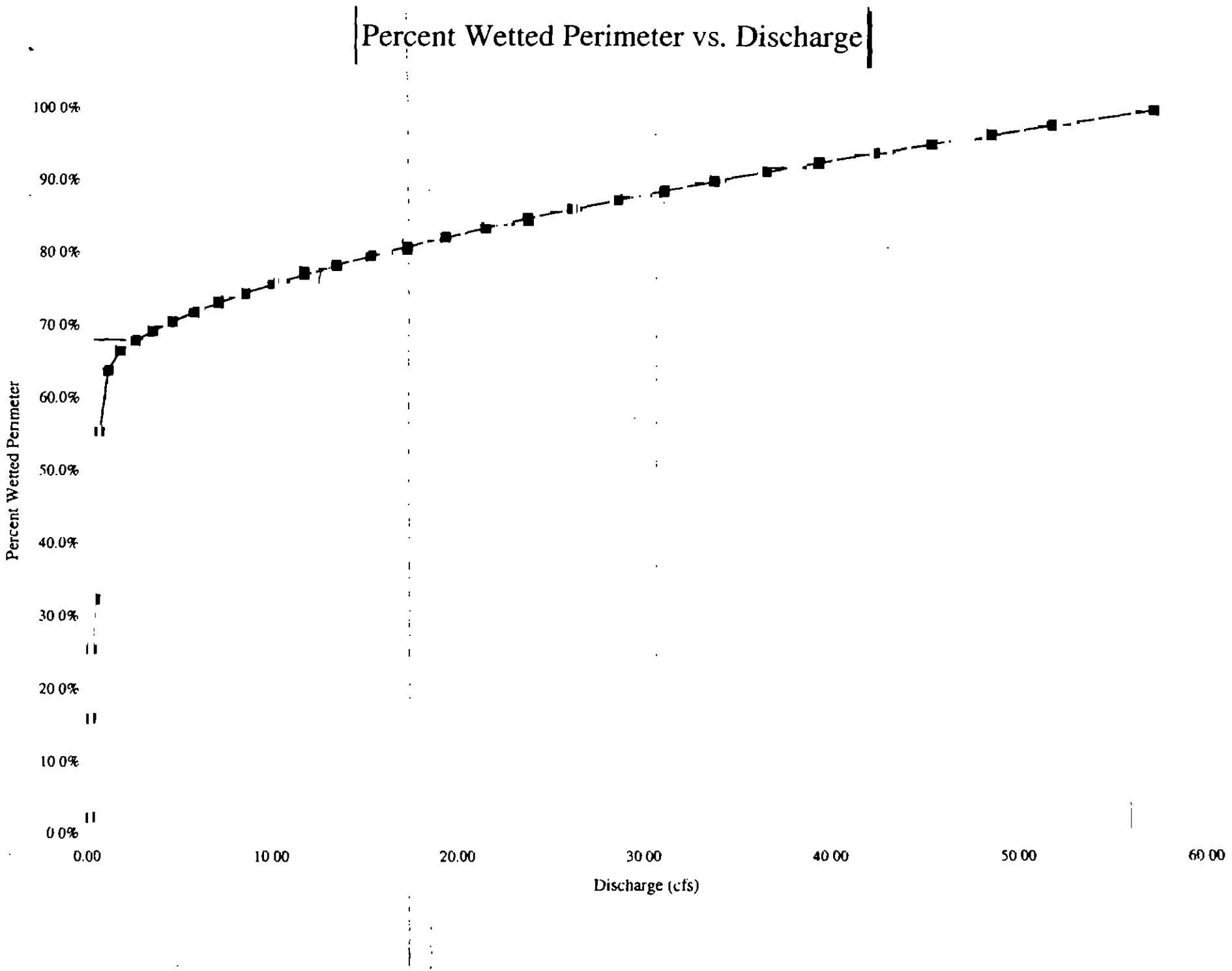
STREAM NAME NF Escalante Ck
XS LOCATION. 1 7 miles us from Escalante Forks
XS NUMBER. 1

WATER LINE COMPARISON TABLE

WATER LINE	MEAS AREA	COMP AREA	AREA ERROR
	4 47	4.60	2 9%
7.36	4 47	7 91	76.9%
7.38	4.47	7.63	70 7%
7.40	4 47	7 36	64 6%
7.42	4.47	7.09	58.6%
7.44	4.47	6 82	52 6%
7.46	4 47	6.55	46.6%
7.48	4.47	6 29	40 6%
7.50	4.47	6.02	34.7%
7 52	4.47	5 76	28 8%
7.54	4 47	5.50	23.0%
7.56	4.47	5.24	17.2%
7 57	4 47	5 11	14.3%
7.58	4.47	4.98	11 5%
7 59	4.47	4.85	8.6%
7.60	4 47	4 73	5.7%
7 61	4.47	4.60	2 9%
7 62	4.47	4.47	0.1%
7.63	4 47	4 35	-2.8%
7 64	4.47	4.22	-5 6%
7.65	4.47	4 09	-8.4%
7 66	4.47	3 97	-11 2%
7 68	4.47	3.72	-16.8%
7.70	4 47	3 47	-22 3%
7 72	4 47	3.23	-27 8%
7.74	4 47	2 98	-33.2%
7.76	4 47	2.74	-38.6%
7.78	4.47	2 50	-44.0%
7.80	4 47	2.26	-49 4%
7.82	4 47	2 03	-54.7%
7 84	4 47	1.79	-59.9%
7 86	4.47	1 56	-65.1%

WATERLINE AT ZERO
AREA ERROR = 7.620


NF Escalante Ck
CROSS SECTION DATA ANALYSIS
-5 50
-6.00 -
-6 50 -
-7 00 -
-7.50 -
-8 00 -
-8.50
VERTICAL DEPTH (FT)
0 00
5.00
10 00
15.00
20 00
25 00
DISTANCE FROM STAKE (FT)
Channel Bottom
Computed Water Line


Percent Wetted Perimeter vs. Discharge
100.0%
90.0%
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
Percent Wetted Perimeter
0.00
10.00
20.00
30.00
40.00
50.00
60.00
Discharge (cfs)

COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

COLORADO DIVISION OF WILDLIFE

LOCATION INFORMATION

STREAM NAME: N. Fk. Escalante Creek | CROSS-SECTION NO.: 1

CROSS-SECTION LOCATION: 1.5 miles upstream from Escalante Forks

DATE: 6-17-03 | OBSERVERS: R. Smith, D. Murphy, J. Skinner, M. Uppendahl

LEGAL DESCRIPTION | ¼ SECTION: SE | SECTION: 34 | TOWNSHIP: 51 (N)/S | RANGE: 14 E/(W) 6th PM N.M.

COUNTY: Mesa | WATERSHED: Gunnison | WATER DIVISION: 4 | DOW WATER CODE: 4008D

MAP(S) | USGS: Escalante Forks 7.5' | 12S 0724863 4279401

USFS:

SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION (YES)/NO | METER TYPE: Marsh-McBirney

METER NUMBER: | DATE RATED: | CALIB/SPIN ____ sec | TAPE WEIGHT surveyed ____ lbs/foot | TAPE TENSION surveyed ____ lbs

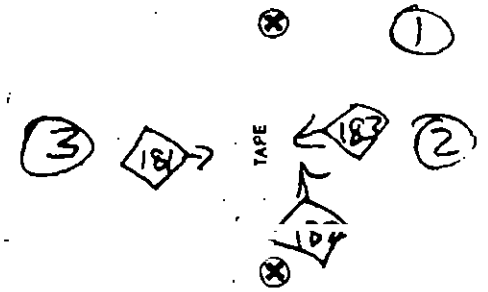
CHANNEL BED MATERIAL SIZE RANGE: 3" cobbles to 2' boulders | PHOTOGRAPHS TAKEN (YES)/NO | NUMBER OF PHOTOGRAPHS (3)

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)
⊗ Tape @ Stake LB	0.0	surveyed
⊗ Tape @ Stake RB	0.0	surveyed
① WS @ Tape LB/RB	0.0	6.88 / 6.86
② WS Upstream	6.0'	6.86
③ WS Downstream	12.0'	6.94

SLOPE | 0.08 / 18.0' = 0.0044

SKETCH



LEGEND: Stake ⊗ | Station ① | Photo ◇ | Direction of Flow

AQUATIC SAMPLING SUMMARY

STREAM ELECTROFISHED YES/(NO) | DISTANCE ELECTROFISHED ____ ft | FISH CAUGHT YES/NO | WATER CHEMISTRY SAMPLED (YES)/NO

LENGTH - FREQUENCY DISTRIBUTION BY ONE-INCH SIZE GROUPS (1.0-1.9, 2.0-2.9, ETC.)

SPECIES (FILL IN)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	>15	TOTAL

AQUATIC INSECTS IN STREAM SECTION BY COMMON OR SCIENTIFIC ORDER NAME

Caddisfly, mayfly abundant

COMMENTS

Conductivity = 350 Ph = 8.5 Temp = 18° C

FORM #ISF FD 1-85

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: N. Fk. Escalante Ck. | CROSS-SECTION NO: 1 | DATE: 6-17-03 | SHEET 1 OF 1

BEGINNING OF MEASUREMENT: EDGE OF WATER LOOKING DOWNSTREAM (0.0 AT STAKE) | LEFT / RIGHT | Gage Reading: 0.5 ft | TIME: 4:10

Features: Stake (S) Grassbank (G) Waterline (W) Rock (R)	Distance From Initial Point (ft)	Width (ft)	Total Vertical Depth From Tape/Inst (ft)	Water Depth (ft)	Depth of Observation (ft)	Revolutions	Time (sec)	Velocity (ft/sec): At Point	Velocity (ft/sec): Mean in Vertical	Area (ft^2)	Discharge (cfs)
G	1.8		5.50								
	2.6		6.15								
W	3.5		6.88	Ø				Ø			
	4.0		6.98	Ø				Ø			
	4.5		7.06	0.20				Ø			
	5.0		7.06	0.20				0.46			
	5.5		7.14	0.25				0.44			
	6.0		7.12	0.25				0.12			
	6.5		7.27	0.25				0.27			
	7.0		7.34	0.40				0.39			
	7.5		7.33	0.50				0.77			
	7.75		7.39	0.50				1.01			
	8.0		7.42	0.55				0.94			
	8.25		7.36	0.50				1.72			
	8.50		7.41	0.50				1.88			
	8.75		7.40	0.50				1.49			
	9.0		7.40	0.55				1.43			
	9.5		7.35	0.45				1.81			
	9.75		7.41	0.40				2.63			
	10.0		7.46	0.55				1.77			
	10.25		7.47	0.65				1.92			
	10.50		7.41	0.60				1.71			
	10.75		7.35	0.50				1.91			
	11.0		7.36	0.45				1.44			
	11.5		7.42	0.60				1.35			
	12.0		7.42	0.50				0.60			
	12.5		7.42	0.60				0.30			
	13.0		7.28	0.40				0.67			
	13.5		7.15	0.30				Ø			
	14.0		7.04	0.20				Ø			
	14.5		7.02	0.20				.08			
	15.0		7.02	0.25				.17			
W	16.0		6.86	Ø				Ø			
	17.0		6.40								
	18.5		5.99								
G	19.0		5.66								

TOTALS

End of Measurement | Time 4:30 | Gage Reading 0.5 ft | CALCULATIONS PERFORMED BY | CALCULATIONS CHECKED BY

COLORADO WATER CONSERVATION BOARD
INSTREAM FLOW / NATURAL LAKE LEVEL PROGRAM
STREAM CROSS-SECTION AND FLOW ANALYSIS

LOCATION INFORMATION

STREAM NAME	NF Escalante Creek
XS LOCATION	1 5 miles us from Escalante Forks
XS NUMBER	1
DATE	6/17/03
OBSERVERS	Smith, Murphy, Skinner and Uppendahl
1/4 SEC	SE
SECTION	34
TWP	51N
RANGE	14W
PM	N M
COUNTY	Mesa
WATERSHED	Gunnison
DIVISION	4
DOW CODE	40080
USGS MAP	Escalante Forks 7 5' quad
USFS MAP	

SUPPLEMENTAL DATA

*** NOTE ***
Leave TAPE WT and TENSION
at defaults for data collected
with a survey level and rod

TAPE WT.	0 0001
TENSION	99999

CHANNEL PROFILE DATA

SLOPE	0.0044

INPUT DATA CHECKED BY . . . DATE . .

ASSIGNED TO . . DATE . . .

SUMMARY SHEET

MEASURED FLOW (Qm)=	4 26 cfs
CALCULATED FLOW (Qc)=	4 17 cfs
(Qm-Qc)/Qm * 100 =	2 3 %
MEASURED WATERLINE (WLm)=	6 92 ft
CALCULATED WATERLINE (WLc)=	6 87 ft
(WLm-WLc)/WLm * 100 =	0 7 %
MAX MEASURED DEPTH (Dm)=	0 65 ft
MAX CALCULATED DEPTH (Dc)=	0 6 ft
(Dm-Dc)/Dm * 100	8 4 %
MEAN VELOCITY=	0 95 ft/sec
MANNINGS N=	0 052
SLOPE=	0 0044 ft/ft
4 * Qm =	1 7 cfs
2 5 * Qm=	10.7 cfs

RECOMMENDED INSTREAM FLOW

FLOW (CFS)	PERIOD
4.86	Summer

RATIONALE FOR RECOMMENDATION

RECOMMENDATION BY. . . . . AGENCY . .. . . . DATE.. . . .. .

CWCB REVIEW BY· .. .. DATE.. ....

STREAM NAME NF Escalante Creek
XS LOCATION 1.5 miles us from Escalante Forks
XS NUMBER 1

"GL" = lowest Grassline elevation corrected for sag
"WL" = Waterline corrected for variations in field measured water surface elevations and sag

STAGING TABLE

	DIST TO WATER (FT)	TOP WIDTH (FT)	AVG DEPTH (FT)	MAX DEPTH (FT)	AREA (SQ FT)	WETTED PERIM (FT)	PERCENT WET PERIM (%)	HYDR RADIUS (FT)	FLOW (CFS)	AVG VELOCITY (FT/SEC)
	5.66	17	1.32	1.81	22.36	17.86	100.00%	1.25	49.47	2.21
	5.87	16.41	1.14	1.6	18.77	17.13	95.90%	1.1	38	2.02
	5.92	16.28	1.1	1.55	17.96	16.96	95.00%	1.06	35.52	1.98
"GL"	5.97	16.14	1.06	1.5	17.15	16.79	94.00%	1.02	33.11	1.93
	6.02	15.93	1.03	1.45	16.34	16.55	92.70%	0.99	30.86	1.89
	6.07	15.68	0.99	1.4	15.55	16.28	91.20%	0.96	28.73	1.85
	6.12	15.44	0.96	1.35	14.78	16.01	89.70%	0.92	26.67	1.8
	6.17	15.19	0.92	1.3	14.01	15.74	88.10%	0.89	24.68	1.76
	6.22	14.95	0.89	1.25	13.26	15.47	86.60%	0.86	22.77	1.72
	6.27	14.7	0.85	1.2	12.51	15.2	85.10%	0.82	20.93	1.67
	6.32	14.46	0.82	1.15	11.79	14.93	83.60%	0.79	19.16	1.63
	6.37	14.21	0.78	1.1	11.07	14.67	82.10%	0.75	17.47	1.58
	6.42	14.01	0.74	1.05	10.36	14.43	80.80%	0.72	15.83	1.53
	6.47	13.84	0.7	1	9.67	14.23	79.70%	0.68	14.22	1.47
	6.52	13.67	0.66	0.95	8.98	14.03	78.60%	0.64	12.7	1.41
	6.57	13.5	0.62	0.9	8.3	13.83	77.50%	0.6	11.24	1.35
	6.62	13.33	0.57	0.85	7.63	13.63	76.40%	0.56	9.87	1.29
	6.67	13.16	0.53	0.8	6.97	13.44	75.20%	0.52	8.57	1.23
	6.72	12.99	0.49	0.75	6.32	13.24	74.10%	0.48	7.34	1.16
	6.77	12.81	0.44	0.7	5.67	13.04	73.00%	0.43	6.2	1.09
	6.82	12.64	0.4	0.65	5.03	12.84	71.90%	0.39	5.13	1.02
	6.87	12.41	0.35	0.6	4.41	12.58	70.50%	0.35	4.17	0.95
	6.92	11.87	0.32	0.55	3.8	12.03	67.40%	0.32	3.35	0.88
	6.97	11.31	0.28	0.5	3.22	11.46	64.20%	0.28	2.63	0.82
"WL"	7.02	10.1	0.26	0.45	2.67	10.24	57.30%	0.26	2.08	0.78
	7.07	8.75	0.25	0.4	2.2	8.88	49.70%	0.25	1.65	0.75
	7.12	8.07	0.22	0.35	1.78	8.19	45.90%	0.22	1.22	0.69
	7.17	7.22	0.19	0.3	1.4	7.33	41.00%	0.19	0.89	0.63
	7.22	6.86	0.15	0.25	1.05	6.96	39.00%	0.15	0.57	0.54
	7.27	6.49	0.11	0.2	0.72	6.57	36.80%	0.11	0.31	0.44
	7.32	5.95	0.07	0.15	0.41	6.02	33.70%	0.07	0.13	0.32
	7.37	4.13	0.04	0.1	0.15	4.18	23.40%	0.04	0.03	0.21
	7.42	0.61	0.03	0.05	0.02	0.62	3.50%	0.03	0	0.18

Range 1.7 – 10.7 cfs

Criteria

1) $0.2' \cdot \overline{d} = 1.0$ cfs.

2) 50% WP = 1.65 cfs

3) 1 ft/sec $\overline{V}$ = 4.86 cfs

STREAM NAME NF Escalante Creek
XS LOCATION 1.5 miles us from Escalante Forks
XS NUMBER 1

INPUT DATA # DATA POINTS= 37 VALUES COMPUTED FROM RAW FIELD DATA

FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL	WETTED PERIM	WATER DEPTH	AREA (Am)	Q (Qm)	% Q CELL
S & G	1 8	5 5	0	0	0	0	0	0	0 00%
	2 6	6 15	0	0	0	0	0	0	0 00%
W	3 5	6 88	0	0	0	0	0	0	0 00%
	4	6 98	0	0	0	0	0	0	0 00%
	4 5	7 06	0 2	0	0 51	0 2	0 1	0	0 00%
	5	7 06	0 2	0 46	0 5	0 2	0 1	0 05	1 10%
	5 5	7 14	0 25	0 44	0 51	0 25	0 13	0 06	1.30%
	6	7 12	0 25	0 12	0 5	0 25	0.13	0 02	0 40%
	6 5	7 27	0.25	0 27	0 52	0 25	0 13	0 03	0 80%
	7	7 34	0.4	0 39	0 5	0 4	0 2	0 08	1 80%
	7 5	7 33	0 5	0.77	0 5	0 5	0 19	0 14	3 40%
	7 75	7 39	0 5	1 01	0 26	0 5	0 13	0 13	3 00%
	8	7 42	0 55	0 94	0 25	0 55	0 14	0 13	3 00%
	8 25	7 36	0 5	1 72	0 26	0 5	0 13	0 22	5 00%
	8 5	7 41	0 5	1 88	0 25	0 5	0 13	0 24	5 50%
	8 75	7.4	0 5	1 49	0 25	0 5	0 13	0 19	4 40%
	9	7 4	0 55	1 43	0 25	0 55	0.14	0 2	4 60%
	9 25	7.4	0 5	1 8	0.25	0 5	0 13	0.23	5 30%
	9 5	7 35	0 45	1 81	0 25	0 45	0 11	0 2	4 80%
	9 75	7 41	0 4	2 63	0 26	0 4	0 1	0 26	6 20%
	10	7 46	0 55	1 77	0 25	0 55	0 14	0 24	5 70%
	10 25	7 47	0 65	1 92	0 25	0 65	0 16	0.31	7 30%
	10 5	7 41	0 6	1 71	0 26	0 6	0 15	0 26	6 00%
	10 75	7.35	0 5	1 91	0 26	0 5	0 13	0.24	5 60%
	11	7 36	0 45	1 44	0 25	0 45	0 17	0 24	5 70%
	11 5	7 42	0 6	1 35	0 5	0 6	0 3	0 41	9 50%
	12	7 42	0 5	0 6	0 5	0 5	0 25	0 15	3 50%
	12 5	7 42	0 6	0 3	0 5	0 6	0 3	0 09	2.10%
	13	7 28	0 4	0 67	0 52	0 4	0 2	0 13	3 10%
	13 5	7 15	0 3	0	0 52	0 3	0 15	0	0 00%
	14	7 04	0 2	0	0 51	0 2	0 1	0	0 00%
	14 5	7 02	0 2	0 08	0.5	0 2	0 1	0 01	0 20%
	15	7 02	0 25	0 17	0 5	0 25	0 19	0 03	0.70%
W	16	6 86	0	0	1 01	0	0	0	0 00%
	17	6 4	0	0	0	0	0	0	0 00%
	18 5	5 99	0	0	0	0	0	0	0 00%
S & G	19	5.66	0	0	0	0	0	0	0 00%
				=	=	=	=	=	
	TOTALS ————				12 16 (Max)	0 65	4 41	4.26	100 00%

Manning's n = 0 0518

STREAM NAME NF Escalante Creek
XS LOCATION 1.5 miles us from Escalante Forks **PROOF SHEET**
XS NUMBER. 1

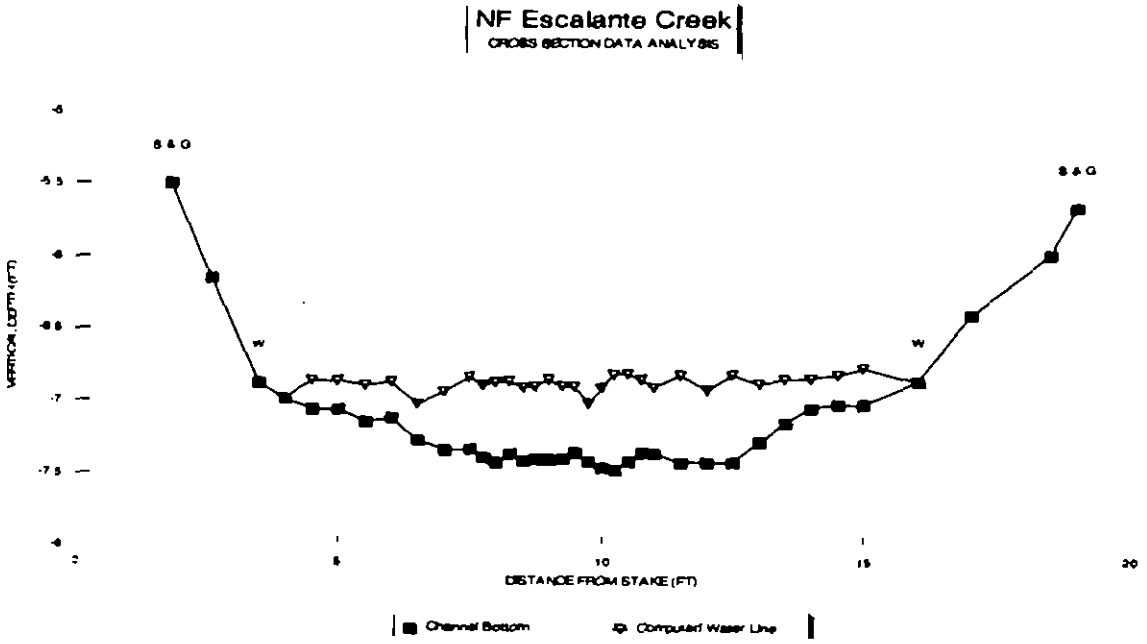
WATER LINE COMPARISON TABLE

WATER LINE	MEAS AREA	COMP AREA	AREA ERROR
6.67	4 41	7 03	59 60%
6 69	4 41	6.77	53 60%
6 71	4 41	6 51	47 70%
6 73	4 41	6 25	41 80%
6 75	4 41	5 99	35 90%
6 77	4 41	5 73	30 10%
6 79	4 41	5 48	24 30%
6.81	4 41	5 22	18 50%
6 83	4 41	4.97	12 80%
6 85	4 41	4 72	7.10%
6 87	4 41	4 47	1 40%
6 88	4 41	4 34	-1 40%
6 89	4 41	4 22	-4.20%
6 9	4 41	4.1	-7 00%
6 91	4 41	3 98	-9 80%
6 92	4 41	3 86	-12 50%
6 93	4 41	3 74	-15 20%
6 94	4 41	3 62	-17 80%
6 95	4 41	3.5	-20 50%
6 96	4 41	3 39	-23 10%
6 97	4 41	3 27	-25.70%
6 99	4 41	3 05	-30 80%
7 01	4 41	2 83	-35 80%
7 03	4 41	2 62	-40 50%
7 05	4 41	2 43	-44 90%
7 07	4 41	2.24	-49 10%
7 09	4 41	2 07	-53 00%
7 11	4 41	1 9	-56.90%
7.13	4 41	1 74	-60 60%
7.15	4 41	1 59	-64 00%
7 17	4 41	1 44	-67 30%

WATERLINE AT ZERO
AREA ERROR = 6 875

INPUT DATA # DATA POINTS= 37

FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL	A	Q	TAPE TO WATER
S & G	1 8	5 5	0	0	0	0	0
	2 6	6 15	0	0	0	0	0
W	3 5	6 88	0	0	0	0	0
	4	6 98	0	0	0	0	0
	4 5	7.06	0.2	0	0 1	0	6 86
	5	7 06	0 2	0 46	0 1	0 05	6 86
	5 5	7 14	0 25	0 44	0 13	0 06	6 89
	6	7.12	0 25	0.12	0 13	0 02	6 87
	6 5	7 27	0.25	0 27	0 13	0 03	7 02
	7	7 34	0 4	0 39	0.2	0 08	6 94
	7 5	7.33	0 5	0 77	0 19	0 14	6 83
	7.75	7 39	0.5	1.01	0 13	0 13	6 89
	8	7 42	0 55	0 94	0 14	0 13	6 87
	8 25	7 36	0 5	1 72	0 13	0 22	6 86
	8 5	7 41	0 5	1 88	0 13	0 24	6 91
	8 75	7 4	0 5	1 49	0 13	0.19	6 9
	9	7 4	0 55	1 43	0.14	0 2	6 85
	9 25	7 4	0 5	1 8	0 13	0 23	6 9
	9 5	7.35	0 45	1 81	0 11	0 2	6 9
	9 75	7 41	0 4	2 63	0 1	0 26	7 01
	10	7 46	0 55	1 77	0 14	0 24	6 91
	10 25	7 47	0 65	1 92	0 16	0 31	6 82
	10 5	7 41	0 6	1 71	0 15	0 26	6 81
	10 75	7 35	0 5	1 91	0 13	0 24	6 85
	11	7 36	0 45	1 44	0 17	0 24	6 91
	11 5	7 42	0 6	1 35	0 3	0 41	6 82
	12	7 42	0 5	0 6	0 25	0 15	6 92
	12 5	7 42	0 6	0 3	0 3	0 09	6 82
	13	7 28	0 4	0 67	0 2	0 13	6 88
	13 5	7 15	0 3	0	0 15	0	6 85
	14	7 04	0 2	0	0 1	0	6 84
	14 5	7 02	0 2	0 08	0 1	0 01	6 82
	15	7 02	0 25	0 17	0 19	0 03	6 77
W	16	6 86	0	0	0	0	0
	17	6 4	0	0	0	0	0
	17 5	5 99	0	0	0	0	0
S & G	19	5 66	0	0	0	0	0
				TOTALS	4 41	4 26	


NF Escalante Creek
CROSS SECTION DATA ANALYSIS
B & G
B & G
W
W
-5.5
-6
-6.5
-7
-7.5
-8
0
5
10
15
20
DISTANCE FROM STAKE (FT)
Channel Bottom
Computed Water Line

rainbows found

Etc

COLORADO STREAM SURVEY (1976 REVISION)

Surveyed by: Smith and Weiler

(X) if stream has no fishery value ☐

	Record Data
Code No.	40080
Date	10/28/77
Section No.	1
Stream Name:	ESCALANTE CR, NO. FK
Primary Drainage:	Escalante Creek
Major Drainage	Gunnison River, 34-G
Lower terminus	FISHERY
Location:	Confluence with Escalante Cr
T.	50 N
R.	14 W
S.	2
Width	8 ft.
Elevation	6175 ft.
Flow (c.f.s.)	1.4 cfs
pH	8.4
phth	0 ppm
MO	224 ppm
EDTA	205 ppm
Conductivity	390 Mohm/cm
X if stream profile obtained	
Upper terminus	
Location:	Headwaters
T.	50 N
R.	16 W
S.	34
Width	1 ft.
Elevation	8720 ft.
Flow	
pH	
phth	
MO	
EDTA	
Conductivity	
X if stream profile obtained	
Section Summary	
Meander factor	1.1
Length in Miles	16.7 Miles
Width in feet	4.5 ft.
Acreage	10.0
Observed Flow	
X if inundated by reservoir	
Mileage unsectioned	
Counties where section located	
County	Mesa
Miles	16.7
County	
Miles	
County	
Miles	

	Record Data
Region	Southwest
Beaver Dams	
Number (count or estimate)	Unknown
Estimated acreage	
Physical stream damage (% of section affected) NONE	
Bank degredation	
Channelization	
Dredging	
Mine tailing encroachment	
Road encroachment	
Accessibility (miles)	
Surfaced	
Non-Surfaced car	0.1 Miles
4-Wheel	5.0 Miles
Established trail	5.0 Miles
No established trail	6.6 Miles
Boat only	
No access	
Land Status and mileage	
USFS	11.4 Miles
BLM	1.7 Miles
Municipal	
Div. of Wild.	
Private, no public access	3.6 Miles
Private, open to public	
State Land Board	
County	
Mixed small tracts, open	
Mixed small tracts, closed	
Stocking	
Miles creel size 1961-73	
Miles fingerling	
Miles Fry RB-1971	1 Mile
Miles not stocked	16.7 Miles
Aquatic Vegetation	
Filamentous algae (X one)	
Absent	X
Rare	
Common	
Abundant	
Watercress	
X if present	
Size Classification (X one)	
Large river > 100'	
River 60-99'	
Large stream 36-59'	
Medium 20-35'	
Small 10-19'	
Minor 4-9'	X
Very small stream < 4'	
Gradient (computer entry)	
Percent per mile	2.9%

	Record Date
Fishery Value (X one)	////////////
None	
Poor	X
Below average	
Average	
Above Average	
Excellent	
Fishery Value - limiting factors	////////////
Excessive Siltation E-1	
Flash Flood Area A-3	
High Temperature A-14	
FISH SAMPLING	////////////
Lower or only station	////////////
Elevation	6250 ft.
Describe or map station location below	

	Record Date
Upper Station	////////////
Elevation	
Describe or map station location below	

Sampling method	Electro-fishing-50
Length - feet	300 ft.
Sampling adequate	X
Sampling inadequate	
X if scales collected	
Estimated % fish biomass	////////////
Rough Fish	
Game Fish	100%
Est. % rough fish biomass	////////////
Bullheads	
Carp	
Cottids	
Dace	
Minnows	
Suckers	
Sunfish	

Sampling method	
Length - feet	
Sampling adequate	
Sampling inadequate	
X if scales collected	
Estimated % fish biomass	////////////
Rough Fish	
Game Fish	
Est. % rough fish biomass	////////////
Bullheads	
Carp	
Cottids	
Dace	
Minnows	
Suckers	
Sunfish	
Combined stations	////////////
Estimated % fish biomass	////////////
Rough Fish	
Game Fish	
Est. % rough fish biomass	////////////
Bullheads	
Carp	
Cottids	
Dace	
Minnows	
Suckers	
Sunfish	
No. of game fish 6.0 per mile.	

ELECTRO-FISHING RECORD

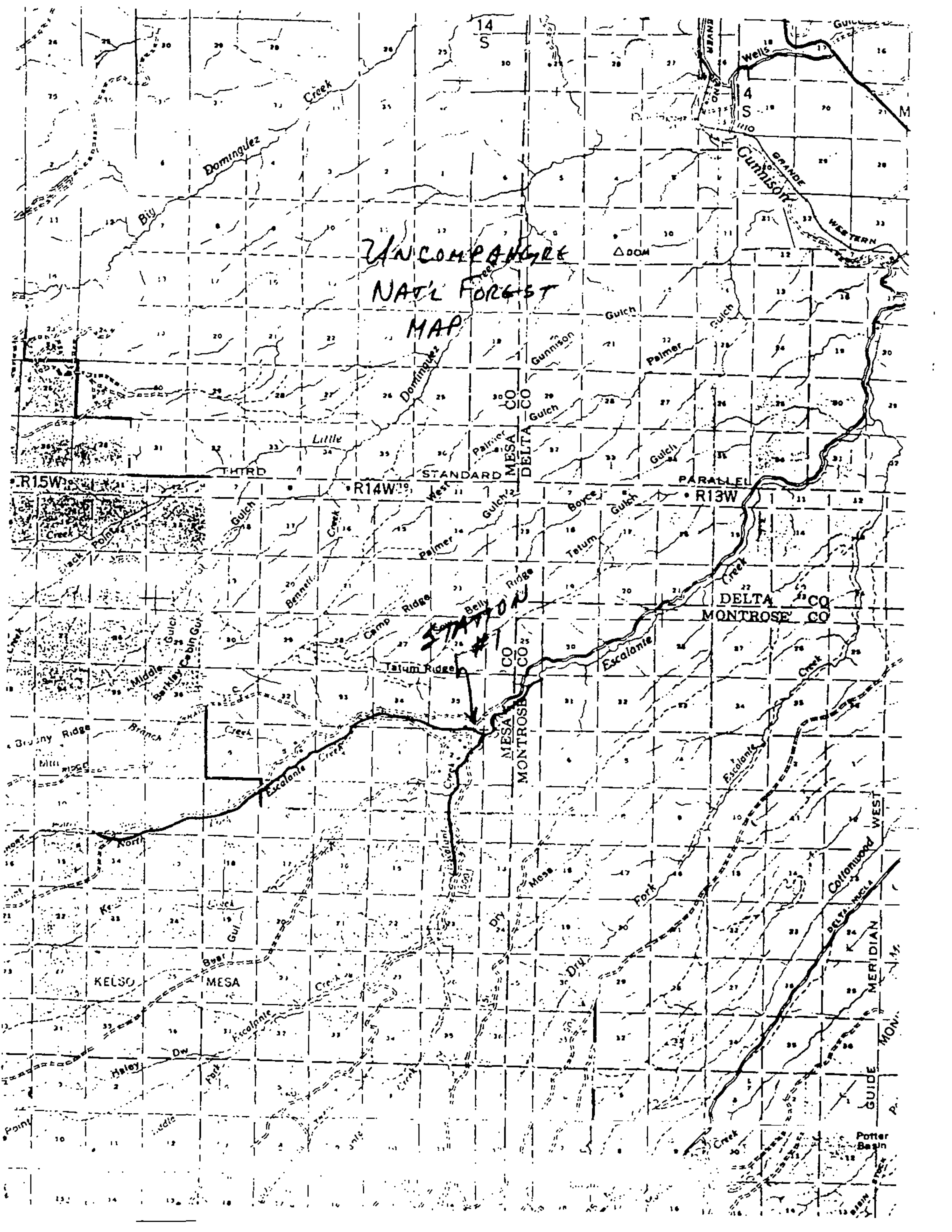
Station No. 1: Bridge Crossing Above Confluence with Escalante Creek
Distance. 300 ft. (0.055) acre) Width: 8 ft.

Equipment Used: Battery Back Pack

Personnel: Weiler, Nehring, Lashmett, Rouch

		SIZE LENGTH IN INCHES									
Sta.	Species	-0.9	1	2	3	4	5	6	Total	Avg.	%Biomass
1	Rainbow				1	1			2	4.4	100%

Total Wt. - 43 g. = 1.7#/Acre Netted



UNCOMPAHGRE NAT'L FOREST MAP
STATION #1
14 S
4 S
Gunnison
GRANDE
WESTERN
Big Dominguez Creek
Dominguez
Little
Gunnison Gulch
Palmer Gulch
Gulch
MESA CO
DELTA CO
THIRD STANDARD PARALLEL
R15W
R14W
R13W
West Creek
Palmer
Boyce
Tatum
Bennett
Camp Ridge
Belly Ridge
Tatum Ridge
Creek
DELTA CO
MONTROSE CO
Escalante
MESA
MONTROSE
Brushy Ridge
Branch
Middle
Berkley Cabin Gul
Escalante Creek
North
Fork
Mesa
Dry
Dry
Fork
Escalante
Cottonwood
WEST
MERIDIAN
GUIDE
KELSO
MESA
Bear
Creek
Escalante
Haley
Point
Potter Basin

☒ '72-'73 FISHERIES INVENTORY / 1041 RELATED DATA

Stream Code 4 0 0 8 0

'72-'73 Inventory S - _ _ _ _ _

Percent Open to Public _____, ('72 Inventory)

Stream Name North Fork Escalante Creek

1041 Form

- Quality of Water ____,
- Pool-riffle Ratio 1,
- Temperature of Water ____,
- Clarity of Water ____,
- Fish Food Supply 7,
- Condition of Fish 7,
- Legal Access 3,
- Physical Access* —,
- Aesthetic Value 9,
- Meanders Value ____,
- Improvement Potential ____,

'72 Inventory

- Stocking Status _____, (regularly, occasionally, rarely or never)
- Population Status _____, (normal, over-populated, under-populated)

☐ MINIMUM STREAM FLOW DATA

SB-97 Computer run Step A

- Maximum Channel Width _____,
- Maximum Wetted Perimeter _____,
- Maximum Depth _____,

"Filed on" Blue book

- Decreed Flow _____,
- Initial Month _____,
- Initial Day _____,
- Initial Year _____*

STOCKING AND FISH SAMPLING DATA

STREAM CODE 40080

STOCKING

STOCK 79-83 1 YRS

STOCKYRS Y N N N N

SPECIES-SIZE STOCKED:

N..3 ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

FISH SAMPLING

SAMPLE DATE: 10 / 28 / 77

METHODS: ELEC ___ ___ ___

	SPECIES	#TAKEN	AVG. LENGTH (cm)	RANGE (cm)	AVG. WT (g)	RANGE (g)	%TOTAL CATCH
1.	Ro	2	11.2	8-10	22		100
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
13.							
14.							
15.							

COLORADO DIVISION OF WILDLIFE

Page__ of__

Length-Weight Data File

Stream Name North Fork Escalante CDOW Water Code 40080 Date 7-30-01

Gear S-R electroshocker Effort — Station No. —

Species Code	Total Length	Weight	Species Code	Total Length	Weight	Species Code	Total Length	Weight
Crn	24.6	150						
Crnx	26.1	182						
Crn	25.7	144						
Crn	25.5	150						

Comments: All fish healthy.

S1, 300, 150-300V

CDOW STREAM SURVEY (1991 REVISI

LEVEL 2: FIELD SURVEY SUMMARY

STREAM: Escalante Cr (N. Fk) (Hooven) SEC#: — WATER CODE: _____ CDOW REGION: SW

SURVEYORS: David Smith / Rod Smith DATE OF SURVEY: 30 July 04

SURVEY LOCATION: T 50N R 14W S 7 ELEVATION: 6600 ft. STATION #: —

UTM ZONE: 12S UTM X: 0721105 UTM Y: 4277306

LOCATION DESCRIPTION: At private-F.S. boundary

STREAM FLOW PROFILE (Y or N): Y IF YES-DATE AND TYPE 30 July 04, R2 Cross

HABITAT EVALUATION (Y or N): N IF YES-DATE AND TYPE —

WATER CHEMISTRY ANALYSIS (Y or N): N IF YES-ATTACH SEPARATE ANALYSIS SHEET —

FISH PRESENT (Y or N): Y POP. EST. METHOD: — STATION LENGTH: ~250 (FEET)

AVG. WIDTH: 8 (FEET) TOTAL STATION AREA: .046 (ACRES)

FLOW (CFS) AT TIME OF SURVEY: ≈ 1 cfs METHOD:

LIMITING FACTORS TO FISHERY: A 10, 11, 14, 16; B 3, 5; C 1, 21; E 1

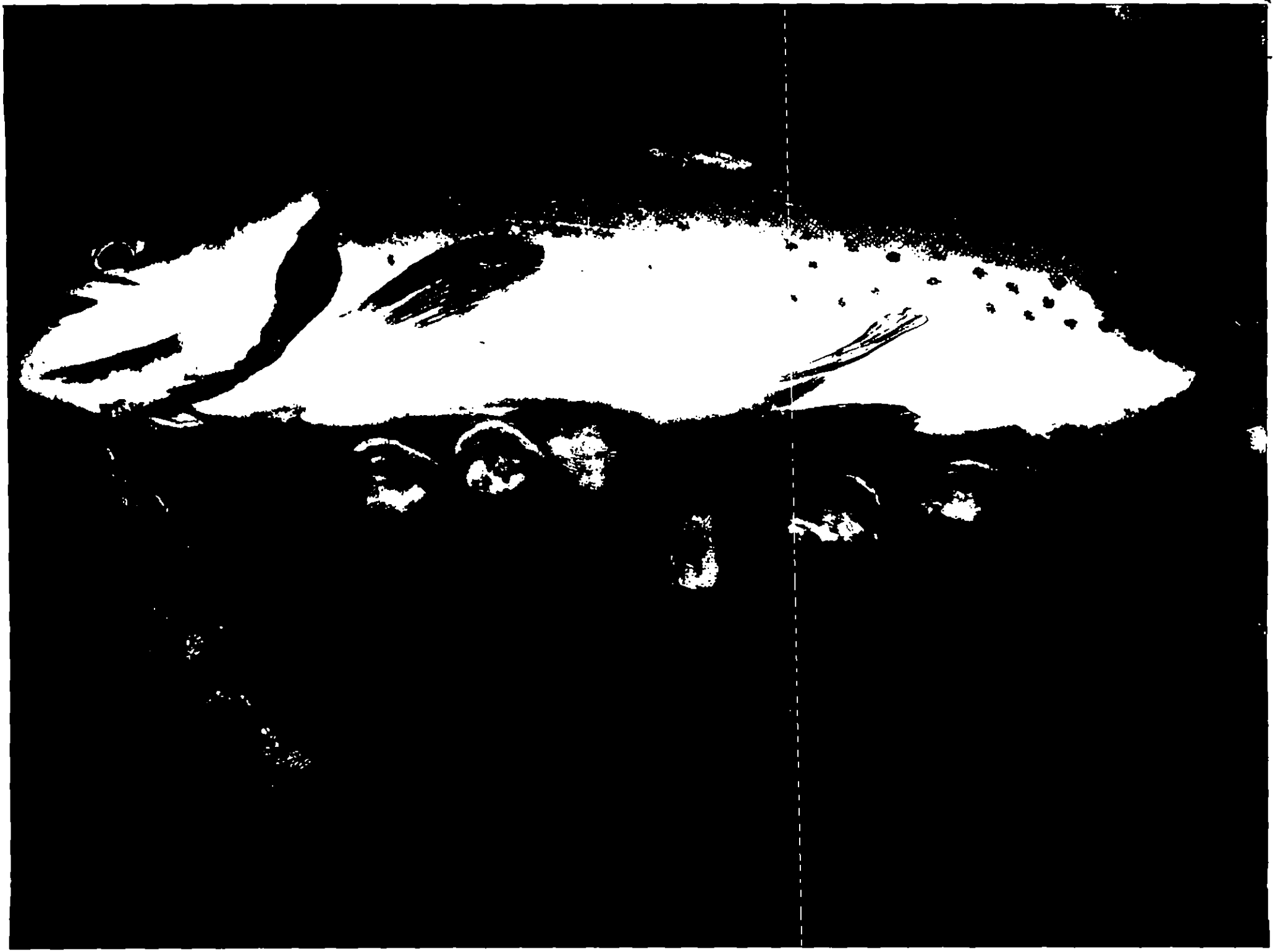
COMMENTS: Many areas in pools have deep pockets of silt. Many caseflies larvae ~1.5" long. Plenty of macro's, crane fly, caddis fly, stone fly, many insect eggs

LENGTH FREQUENCY RECORD (CM)

IES	0–2	2–4	4–5	6–8	8–10	10–12	12–14	14–16	16–18	18–20	20–22	22–24	24–26	26–28	28–30	30–32	32–34	34–36	36–38	38–40	40–42	42–44	44–46	46–48	48–50	50 UP
CRN													•													
CRNc													•													

SUMMARY INFORMATION

SPECIES	NO. FISH CAUGHT	AVG. LENGTH (CM)	LENGTH RANGE (CM)	AVG. WEIGHT (Grams)	WEIGHT RANGE (Grams)	% TOTAL CATCH	BIOMASS lb/Acre	DENSITY No./Acre	DENSITY Conf. Int.
CRN	3	25	24-26	148	144-151	75%	9695	65	
CRN	1	26	26	182	182	25%	3958	21	



APPENDIX – C
Water Availability Analysis

WD	ID	WRNAME	STRTYPE	WRSTRNO	WRSTRNAME	CTY	Q10	Q40	Q160	SEC	TS	RNG	PM	USETYPE	DCRAMT	DCRUNITS	ADJTYPE	ADJDATE	PADJDATE	APRODATE	ORDNO	ADMINNO	PRIORNO	CANO	SEQNO	PLANS	ALTERID	COMMENT
40	859	BLUMBERG DITCH	1	3	ESCALANTE CREEK	39		NW	NW	4	50 N	14 W	N	1	0.62	C	S	2240	1512	-6148	0	19773.12113	1	CA0456	1		0	P261
40	860	BLUMBERG NO 2 DITCH	1	3	ESCALANTE CREEK	39		SE	NW	5	50 N	14 W	N	1	1.37	C	S	2240	1512	-5857	0	19773.12404	2	CA0456	1		0	P262
40	910	TATUM BURTON DITCH	1	3	ESCALANTE CREEK	15		SW	SE	15	51 N	13 W	N	1	0.87	C	S	2240	1512	-5854	0	19773.12407	3	CA0456	2		0	P263
40	875	ELK HORN DITCH	1	3	ESCALANTE CREEK	39		SE	SW	33	51 N	14 W	N	1	0.45	C	S	2240	1512	-5782	0	19773.12479	4	CA0456	1		0	P264
40	887	MCCARTHY DITCH	1	3	ESCALANTE CREEK	15	NE	NE	NE	29	15 S	97 W	S	1	1.05	C	S	2240	1512	-5372	0	19773.12889	5	CA0456	1		0	P265
40	890	MOW DITCH	1	3	ESCALANTE CREEK	15	NE	NE	NW	17	15 S	97 W	S	1	0.2	C	S	2240	1512	-4260	0	19773.14001	6	CA0456	1		0	DECREE STATES 50S. LOC ERROR P266
40	882	JOHN W MUSSER DITCH	1	3	ESCALANTE CREEK	39	NW	SW	SE	34	51 N	14 W	N	1	2.22	C	S	2240	1512	-4027	0	19773.14234	7	CA0456	2		0	P267
40	862	BOISE DITCH	1	3	ESCALANTE CREEK	15			NW	31	15 S	97 W	S	1	1.25	C	S	2240	1512	-3591	0	19773.1467	8	CA0456	1		0	P268
40	866	CAMPBELL DITCH	1	3	ESCALANTE CREEK	39	NW	SE	SE	34	51 N	14 W	N	1	1.42	C	S	2240	1512	-2920	0	19773.15341	9	CA0456	2		0	P269
40	877	HADLER DITCH	1	3	ESCALANTE CREEK	39		SW	NE	7	50 N	14 W	N	1	0.15	C	S	2240	1512	-2799	0	19773.15462	10	CA0456	1		0	P270
40	861	BLUMBERG NO 3 DITCH	1	3	ESCALANTE CREEK	39		SE	NW	5	50 N	14 W	N	1	0.59	C	S	2240	1512	-2464	0	19773.15797	11	CA0456	1		0	DECREE STATES 15N. LOC ERROR P271
40	876	GRANITE ROCK DITCH	1	3	ESCALANTE CREEK	39	NE	SW	NE	10	50 N	14 W	N	1	0.5	C	S	2240	1512	-2196	0	19773.16065	12	CA0456	2		0	P272
40	911	WILBUR DITCH	1	3	ESCALANTE CREEK	39				4	50 N	14 W	N	1	0.42	C	S	2240	1512	-1612	0	19773.16649	13	CA0456	1		0	P273
40	880	HARVY DITCH	1	3	ESCALANTE CREEK	39		NW	SE	5	50 N	14 W	N	1	0.1	C	S	2240	1512	-1385	0	19773.16876	14	CA0456	1		0	P274
40	898	POVERTY DITCH	1	3	ESCALANTE CREEK	15			SE	36	15 S	98 W	S	1	0.5	C	S	2240	1512	-1003	0	19773.17258	15	CA0456	1		0	P275
40	911	WILBUR DITCH	1	3	ESCALANTE CREEK	39				4	50 N	14 W	N	1	0.32	C	S	2240	1512	440	0	19773.18701	16	CA0456	2		0	P276
40	888	MCCARTHY DITCH NO 2	1	3	ESCALANTE CREEK	39		NW	NE	7	50 N	14 W	N	1	0.57	C	S	2240	1512	815	0	19773.19076	17	CA0456	1		0	P277
40	7155	ALUM SPRING	4	3	ESCALANTE CREEK	43	SE	SW	NE	5	50 N	13 W	N	9W	0.011	C	O	26664		9604	0	27865		W0425-438	1		0	
40	7158	BADLANDS SPRING	4	3	ESCALANTE CREEK	43	NW	SE	NW	33	15 S	99 W	S	9W	0.01	C	O	26664		9604	0	27865		W0425-438	1		0	
40	7168	BENLOW SPRING	4	3	ESCALANTE CREEK	15	NW	SE	NW	15	51 N	13 W	N	9W	0.025	C	O	26664		9604	0	27865		W0425-438	1		0	
40	7164	COTTONWOOD SPRING	4	3	ESCALANTE CREEK	39	SE	SE	SW	25	51 N	14 W	N	9W	0.0334	C	O	26664		9604	0	27865		W0425-438	1		0	
40	7162	EAST TWO-WAY SPRING	4	3	ESCALANTE CREEK	43	SE	NW	NW	29	51 N	13 W	N	9W	0.0334	C	O	26664		9604	0	27865		W0425-438	1		0	
40	7163	LITTLE COTTONWOOD SPRING	4	3	ESCALANTE CREEK	43	NW	NE	SE	25	51 N	14 W	N	9W	0.0334	C	O	26664		9604	0	27865		W0425-438	1		0	
40	7152	LOCKHART SPRING	4	3	ESCALANTE CREEK	15	NW	NW	NW	24	51 N	13 W	N	9W	0.02	C	O	26664		9604	0	27865		W0425-438	1		0	
40	7167	LOWER TATUM GULCH SPRING	4	3	ESCALANTE CREEK	15	SW	SE	SE	35	15 S	98 W	S	9W	0.031	C	O	26664		9604	0	27865		W0425-438	1		0	
40	7169	SOW BELLY SPRING	4	3	ESCALANTE CREEK	43	NW	NE	NW	29	51 N	13 W	N	9W	0.02	C	O	26664		9604	0	27865		W0425-438	1		0	
40	7170	TATUM GULCH SPRING	4	3	ESCALANTE CREEK	43	SW	SW	NE	30	51 N	13 W	N	9W	0.02	C	O	26664		9604	0	27865		W0425-438	1		0	
40	867	CAPT H A SMITH DITCH	1	3	ESCALANTE CREEK	15	SW	SE	SW	15	51 N	13 W	N	1	1.33	C	S	13663	10999	92	0	29260.18353	H32	CA2563	1		0	D HAS 2 HGT ONE ON W SIDE A ONE ON E SIDE OF CR. P1274
40	866	CAMPBELL DITCH	1	3	ESCALANTE CREEK	39	NW	SE	SE	34	51 N	14 W	N	1	2.5	C	S	13663	10999	2241	0	29260.20502	H57	CA2563	1		0	P1307
40	882	JOHN W MUSSER DITCH	1	3	ESCALANTE CREEK	39	NW	SW	SE	34	51 N	14 W	N	1	1	C	S	13663	10999	2241	0	29260.20502	H57	CA2563	1		0	. P1309
40	910	TATUM BURTON DITCH	1	3	ESCALANTE CREEK	15		SW	SE	15	51 N	13 W	N	1	1	C	S	13663	10999	2241	0	29260.20502	H57	CA2563	1		0	LOC IN DECREE NOT SUFFICIENT. P1308
40	876	GRANITE ROCK DITCH	1	3	ESCALANTE CREEK	39	NE	SW	NE	10	50 N	14 W	N	1	1	C	S	13663	10999	2251	0	29260.20512	H58	CA2563	1		0	P 1310
40	899	RED SQUIRREL DITCH	1	3	ESCALANTE CREEK	39	NW	SW	NW	16	50 N	14 W	N	1	1	C	S,CA	13663	10999	4164	0	29260.22425	H85	CA2563	4		0	ON KELSO CR CA 10/25/1948 P3418
40	899	RED SQUIRREL DITCH	1	3	ESCALANTE CREEK	39	NW	SW	NW	16	50 N	14 W	N	1	1.32	C	S	13663	10999	4164	0	29260.22425	H85	CA2563	1		0	. LOC ON KELSO CR. P1361
40	899	RED SQUIRREL DITCH	1	3	ESCALANTE CREEK	39	NW	SW	NW	16	50 N	14 W	N	1	1	C	S,C	13663	10999	4164	0	29260.22425	H85	CA2563	3		0	P1361
40	872	COWGER DITCH	1	3	ESCALANTE CREEK	39		SW	NW	10	50 N	14 W	N	1	2	C	S	13663	10999	6666	0	29260.24927	H110	CA2563	1		0	P1394
40	897	PICKETT CORRAL DITCH	1	3	ESCALANTE CREEK	39		NE	SW	22	51 N	14 W	N	1	0.25	C	S,CA	13663	10999	7045	0	29260.25306	H113	CA2563	3		0	CA 5/7/1948 P3387
40	897	PICKETT CORRAL DITCH	1	3	ESCALANTE CREEK	39		NE	SW	22	51 N	14 W	N	1	0.87	C	S	13663	10999	7045	0	29260.25306	H113	CA2563	1		0	P1398
40	897	PICKETT CORRAL DITCH	1	3	ESCALANTE CREEK	39		NE	SW	22	51 N	14 W	N	1	0.25	C	S,C	13663	10999	7045	0	29260.25306	H113	CA2563	2		0	P1398
40	3368	BEAVER DAM RESERVOIR	3	3	ESCALANTE CREEK	43	NW	NW	SE	8	49 N	15 W	N	1	36	A	S	13663	10999	9376	0	29260.27637	H7	CA2563	1		0	P1555
40	3368	BEAVER DAM RESERVOIR	3	3	ESCALANTE CREEK	43	NW	NW	SE	8	49 N	15 W	N	1	150	A	S,CA	13663	10999	9376	0	29260.27637	H57	CA2563	2		0	DATE 3/2/1960. P2327
40	3368	BEAVER DAM RESERVOIR	3	3	ESCALANTE CREEK	43	NW	NW	SE	8	49 N	15 W	N	1	150	A	S,C	13663	10999	9376	0	29260.27637	H57	CA2563	5		0	P1555
40	905	SOUTH FORK DITCH	1	3	ESCALANTE CREEK	39	SW	NE	SW	26	51 N	14 W	N	1	0.7	C	S	13663	10999	10014	0	29260.28275	H142	CA2563	1		0	P1432
40	905	SOUTH FORK DITCH	1	3	ESCALANTE CREEK	39	SW	NE	SW	26	51 N	14 W	N	1	0.32	C	S,C	13663	10999	10014	0	29260.28275	H142	CA2563	2		0	P1423
40	905	SOUTH FORK DITCH	1	3	ESCALANTE CREEK	39	SW	NE	SW	26	51 N	14 W	N	1	0.32	C	S,CA	13663	10999	10014	0	29260.28275	H142	CA2563	3		0	CA 5/7/1948 P3380
40	1332	SAWTELL DITCH	1	3	ESCALANTE CREEK	39		SE	SW	1	50 N	14 W	N	1	2	C	S,C	13663	10999	13366	0	31627	H166	CA2563	1		0	P1459

40	1332 SAWTELL DITCH	1	3 ESCALANTE CREEK	39		SE	SW	1	50 N	14 W	N	1	2 C	S,CA	13663	10999	13366	0	31627	H166	CA2563	2	0	CA 12/3/1948 P3420
40	3480 SAWTELL RESERVOIR	3	3 ESCALANTE CREEK	43		NE	NE	7	50 N	14 W	N	1	5 A	S,C	13663	10999	13366	0	31627	H77	CA2563	1	0	P1574
40	3480 SAWTELL RESERVOIR	3	3 ESCALANTE CREEK	43		NE	NE	7	50 N	14 W	N	1	5 A	S,C,AB	13663	10999	13366	0	31627	H77	75CW0188	2	0	5.00A ABANDONED BY CW I74*188 03/07/1975
40	878 HARRY WALKER DITCH	1	3 ESCALANTE CREEK	15	SW	SE	NW	31	15 S	97 W	S	8	0.25 C	S	19803	13663	4139	0	31924.224	J141	CA3503	2	0	. P1956
40	878 HARRY WALKER DITCH	1	3 ESCALANTE CREEK	15	SW	SE	NW	31	15 S	97 W	S	1	0.5 C	S	19803	13663	4139	0	31924.224	J140	CA3503	1	0	. P1956
40	1291 HENDRICKSON DITCH	1	3 ESCALANTE CREEK	39	NE	NE	NE	15	50 N	15 W	N	1	3 C	S	19803	13663	6301	0	31924.24562	J164	CA3503	1	0	P1983
40	911 WILBUR DITCH	1	3 ESCALANTE CREEK	39				4	50 N	14 W	N	1	3.25 C	S	19803	13663	9602	0	31924.27863	J183	CA3503	3	0	P2010
40	890 MOW DITCH	1	3 ESCALANTE CREEK	15	NE	NE	NW	17	15 S	97 W	S	1	3 C	S	19803	13663	10333	0	31924.28594	J187	CA3503	2	0	AKA MOW DITCH ENLARGEMENT P2015
40	3478 CEDAR WASH RESERVOIR	3	3 ESCALANTE CREEK	15				9	51 N	12 W	N	89	2.3 A	S	19803	13663	13606	0	31924.31867	J223	CA3503	1	0	P2068 AKA- CLUB GULCH RESERVOIR
40	887 MCCARTHY DITCH	1	3 ESCALANTE CREEK	15	NE	NE	NE	29	15 S	97 W	S	1	2 C	S	19803	13663	14366	0	32627	J235	CA3503	2	0	. LOC INCORRECT. P2081
40	860 BLUMBERG NO 2 DITCH	1	3 ESCALANTE CREEK	39		SE	NW	5	50 N	14 W	N	1	2 C	S	19803	13663	16228	0	34489	J253	CA3503	3	0	DIVR. FROM N.F. OF ESCALANTE CR. P2103
40	860 BLUMBERG NO 2 DITCH	1	3 ESCALANTE CREEK	39		SE	NW	5	50 N	14 W	N	8	0.5 C	S	19803	13663	16228	0	34489	J254	CA3503	2	0	DIVR FROM N.F. OF ESCALANTE CR. P2103
40	3479 PALMER GULCH RES	3	3 ESCALANTE CREEK	15	SW	SW	NW	28	51 N	14 W	N	89	0.75 A	S	19803	13663	16604	0	34865	J258	CA3503	1	0	. P2108
40	864 BRIDGE DITCH	1	3 ESCALANTE CREEK	15	SW	SE	SE	30	15 S	97 W	S	1	0.125 C	S	23407	19803	3774	0	38064.22035	K19	CA4808	1	0	P2506
40	898 POVERTY DITCH	1	3 ESCALANTE CREEK	15			SE	36	15 S	98 W	S	1	0.75 C	S	23407	19803	11397	0	38064.29658	K59	CA4808	2	0	P2600
40	864 BRIDGE DITCH	1	3 ESCALANTE CREEK	15	SW	SE	SE	30	15 S	97 W	S	1	0.625 C	S	23407	19803	12905	0	38064.31166	K61	CA4808	2	0	P2506
40	872 COWGER DITCH	1	3 ESCALANTE CREEK	39		SW	NW	10	50 N	14 W	N	1	2 C	S	23407	19803	13667	0	38064.31928	K63	CA4808	2	0	P2606
40	876 GRANITE ROCK DITCH	1	3 ESCALANTE CREEK	39	NE	SW	NE	10	50 N	14 W	N	1	2.5 C	S	23407	19803	13676	0	38064.31937	K64	CA4808	3	0	P2608
40	894 KNOB HILL DITCH	1	3 ESCALANTE CREEK	39	NE	NW	SE	2	50 N	14 W	N	1	0.4 C	S	23407	19803	13681	0	38064.31942	K65	CA4808	1	0	P2610
40	899 RED SQUIRREL DITCH	1	3 ESCALANTE CREEK	39	NW	SW	NW	16	50 N	14 W	N	1	3.68 C	S	23407	19803	17654	0	38064.35915	K88	CA4808	2	0	. P2666
40	857 BASS DITCH	1	3 ESCALANTE CREEK	15	NW	SE	SW	17	15 S	97 W	S	1	1 C	S	23407	19803	19089	0	38064.3735	K105	CA4808	1	0	P2704
40	894 KNOB HILL DITCH	1	3 ESCALANTE CREEK	39	NE	NW	SE	2	50 N	14 W	N	1	1.5 C	S	23407	19803	19190	0	38064.37451	K107	CA4808	2	0	P2610
40	3368 BEAVER DAM RESERVOIR	3	3 ESCALANTE CREEK	43	NW	NW	SE	8	49 N	15 W	N	1	247.27 A	S,C,AB	23407	19803	20718	0	38979	K144	75CW0264	6	0	ABANDONED BY CW 74/264 3/11/1975 AKA BEAVER DAM RES 1ST
40	3368 BEAVER DAM RESERVOIR	3	3 ESCALANTE CREEK	43	NW	NW	SE	8	49 N	15 W	N	1	247.27 A	S,C	23407	19803	20718	0	38979	H144	CA4808	4	0	AKA BEAVER DAM RES 1ST ENLT P2775
40	3368 BEAVER DAM RESERVOIR	3	3 ESCALANTE CREEK	43	NW	NW	SE	8	49 N	15 W	N	1	219 A	S	23407	19803	20718	0	38979	H144	CA4808	3	0	AKA BEAVER DAM RES 1ST ENLT P2775
40	906 SOUTH FORK DITCH	1	3 ESCALANTE CREEK	39	SE	SE	NE	2	50 N	14 W	N	1	5 C	S,C	23407	19803	21869	0	40130	K170	CA4808	1	0	P2835
40	906 SOUTH FORK DITCH	1	3 ESCALANTE CREEK	39	SE	SE	NE	2	50 N	14 W	N	1	5 C	S,CA	23407	19803	21869	0	40130	170	W0072	2	0	CA/W72/3/22/1971/P2835 OLD CA W480‡
40	1328 EJM SPRING & PL	7	3 ESCALANTE CREEK	39	SE	NW	NE	17	49 N	15 W	N	89	0.011 C	S	26664	26298	1920	0	44559.20181		W1541	1	0	
40	1329 KELSO SPRING AREA PL	7	3 ESCALANTE CREEK	39	NW	SE	SE	5	49 N	15 W	N	89	0.026 C	S	26664	26298	3082	0	44559.21343		W1541	1	0	
40	1326 BOB SMITH SPRING & PL	7	3 ESCALANTE CREEK	39	SW	NW	SW	2	50 N	14 W	N	89	0.001 C	S	26664	26298	11810	0	44559.30071		W1541	1	0	
40	1327 DRY LOT SPRING & PL	7	3 ESCALANTE CREEK	39	SE	NW	SW	2	50 N	14 W	N	89	0.002 C	S	26664	26298	11810	0	44559.30071		W1541	1	0	
40	1330 LITTLE JOHN SPRING PL	7	3 ESCALANTE CREEK	43	NW	NE	SW	29	49 N	14 W	N	89	0.067 C	S	27029	26664	19115	0	44925.37376		W2031	1	0	W2031 4/8/1974
40	3626 LITTLE JOHN SPRING POND	3	3 ESCALANTE CREEK	43	NW	NE	SW	29	49 N	14 W	N	89	1 A	S	27029	26664	19115	0	44925.37376		W2031	1	0	INCLUDES PIPELINE
40	1331 REAMS SPRING NO 1 & 2 PL	4	3 ESCALANTE CREEK	39	NE	NE	NW	36	51 N	14 W	N	89	0.016 C	S	27394	27029	7336	0	45290.25597		W2388	1	0	SECOND SP LOCATED NENENW SEC 36 ACCUM TO TAL .016CFS
40	890 MOW DITCH	1	3 ESCALANTE CREEK	15	NE	NE	NW	17	15 S	97 W	S	1	5 C	S	27394	27029	26404	0	45290.44665		W2285	3	0	FILED 7/8/1974 AKA MOW DITCH ENLARGEMENT + EXTENSION
40	2320 CAPS SPRINGS	4	3 ESCALANTE CREEK	15	NE	NE	NE	21	51 N	13 W	N	9Q	0.02 C	S	31047	30681	29930	0	48942.48191		84CW0270	1	0	OTHER USE IS WILDLIFE
40	2399 OLD FAITHFUL SPRING NO 1	4	3 ESCALANTE CREEK	39	SE	NE	NW	16	49 N	15 W	N	9	0.03 C	S	32142	31777	24624	0	50038.42885		87CW0145	1	0	HAS SECOND SPG FOR LIVESTOCK & DOMESTIC USE
40	2400 OLD FAITHFUL SPRING NO 2	4	3 ESCALANTE CREEK	39	NE	SE	NW	16	49 N	15 W	N	89	0.04 C	S	32142	31777	24624	0	50038.42885		87CW0145	1	0	0.01 CFS FOR DOMESTIC USE
40	2500 ABBOTT DITCH AND PL	7	3 ESCALANTE CREEK	43	SW	SE	SW	25	51 N	14 W	N	1	0.05 C	S,C	33238	32873	33115	0	51376		90CW0145	1	0	
40	2500 ABBOTT DITCH AND PL	7	3 ESCALANTE CREEK	43	SW	SE	SW	25	51 N	14 W	N	1	0.05 C	S,CA	33238	32873	33115	0	51376		96CW0252	2	0	
40	2499 ABBOTT SPRING NO 3	4	3 ESCALANTE CREEK	43	NW	NE	NW	36	51 N	14 W	N	18	0.033 C	S	33238	32873	33161	0	51422		90CW0145	1	0	
40	2633 DIDN'T MAKE IT SPRING	4	3 ESCALANTE CREEK	43	SW	SE	NW	30	51 N	13 W	N	9W	0.004 C	S	34334	33969	12877	0	52230.31138		93CW0227	1	0	
40	2634 HASSLE SPRING	4	3 ESCALANTE CREEK	43	NW	SW	NW	30	51 N	13 W	N	9W	0.033 C	S	34334	33969	12877	0	52230.31138		93CW0227	1	0	
40	2638 KEYHOLE SPRING	4	3 ESCALANTE CREEK	15	NW	NE	NW	10	51 N	13 W	N	9W	0.004 C	S	34334	33969	12877	0	52230.31138		92CW0227	1	0	
40	2635 SOW BELLY SPRING NO 2	4	3 ESCALANTE CREEK	43	NW	NE	NW	29	51 N	13 W	N	9W	0.004 C	S	34334	33969	12877	0	52230.31138		93CW0227	1	0	
40	2636 SOW BELLY SPRING NO 3	4	3 ESCALANTE CREEK	43	NW	NE	NW	29	51 N	13 W	N	9W	0.009 C	S	34334	33969	12877	0	52230.31138		93CW0227	1	0	
40	2637 WEST TWO-WAY SPRING	4	3 ESCALANTE CREEK	43	SE	NW	NW	29	51 N	13 W	N	9W	0.007 C	S	34334	33969	12877	0	52230.31138		93CW0227	1	0	
40	2631 COTTONWOOD SPRING NO 2	4	3 ESCALANTE CREEK	15	SW	NW	SE	20	51 N	13 W	N	W	0.011 C	S	34334	33969	29930	0	52230.48191		93CW0227	1	0	
40	2632 NUTCRACKER SPRING	4	3 ESCALANTE CREEK	43	NW	SW	SE	20	51 N	13 W	N	W	0.004 C	S	34334	33969	29930	0	52230.48191		93CW0227	1	0	

40	2693	POTHOLE SPRING	4	3	ESCALANTE CREEK	15	SE	SW	NW	21	51 N	13 W	N	W	0.007	C	S	34334	33969	29934	0	52230.48195	93CW0227	1	0	
40	2731	CAP SMITH SPRING	4	3	ESCALANTE CREEK	15	SW	SW	NE	15	51 N	13 W	N	19W	0.05	C	S	35064	34699	20894	0	52960.39155	95CW0213	1	0	
40	2787	BULL PASTURE SPRING NO 2	4	3	ESCALANTE CREEK	39	SW	NE	SW	5	49 N	15 W	N	89	0.011	C	S	35064	34699	34802	0	53063	95CW0062	1	0	
40	2778	CORNER SPRING	4	3	ESCALANTE CREEK	39	NW	NW	SE	5	49 N	15 W	N	89	0.011	C	S	35430	35064	35217	0	53478	96CW0210	1	0	
40	2807	BEAR SPRING	4	3	ESCALANTE CREEK	43	SE	SW	NE	32	50 N	13 W	N	9	0.02	C	S	35795	35430	19359	0	53691.3762	97CW0006	1	0	
40	2806	DOZER SPRING	4	3	ESCALANTE CREEK	43	NE	SE	SW	32	50 N	13 W	N	9	0.02	C	S	35795	35430	19359	0	53691.3762	97CW0006	1	0	
40	2805	FALL CABIN SPRING	4	3	ESCALANTE CREEK	43	SE	NE	NE	31	50 N	13 W	N	189	0.05	C	S	35795	35430	19359	0	53691.3762	97CW0006	1	0	
40	2791	DEJOHN SPRING NO 1	4	3	ESCALANTE CREEK	39	SW	NW	NE	17	49 N	15 W	N	89	0.033	C	S	35795	35430	34700	0	53691.52961	97CW0010	1	0	DOMESTIC USE REMAINS CONDITIONAL
40	2792	DEJOHN SPRING NO 2	4	3	ESCALANTE CREEK	39	SW	NW	NE	17	49 N	15 W	N	89	0.033	C	S	35795	35430	34700	0	53691.52961	97CW0010	1	0	DOMESTIC USE REMAINS CONDITIONAL
40	2924	JOHNSON SPRING	4	3	ESCALANTE CREEK	39	NW	NW	NE	10	50 N	14 W	N	8	0.033	C	S,C	36525	36160	36468	0	54729	99CW0226	1	0	
40	5245	TRIBENDURE EXEMPT WELL	2	3	ESCALANTE CREEK	15	NW	SW	NW	10	50 N	14 W	N	8	0.033	C	S	36891	36525	33328	0	54786.51589	00CW0219	1	0	
40	3868	TRIBENDURE POND #1	3	3	ESCALANTE CREEK	15	NE	SW	NW	10	50 N	14 W	N	15*	0.017	A	S	36891	36525	35292	0	54786.53553	00CW0219	1	0	
40	3869	TRIBENDURE POND #2	3	3	ESCALANTE CREEK	15	NE	SW	NW	10	50 N	14 W	N	15*	0.14	A	S	36891	36525	35292	0	54786.53553	00CW0219	1	0	
40	6135	TRIBENDURE SPRING	4	3	ESCALANTE CREEK	15	NW	SW	NW	10	50 N	11 W	N	15*	0.044	C	S	36891	36525	35292	0	54786.53553	00CW0219	1	0	
40	2979	SHREEVES SPRINGS 1-3	4	3	ESCALANTE CREEK	39	SW	SE	NW	23	50 N	16 W	N	389	0.1	C	S	36891	36525	36755	0	55016	00CW0116	1	0	COMMERCIAL USE CONDITIONAL
40	6142	JOHNSON SPRING #2	4	3	ESCALANTE CREEK	39	NW	SW	NW	10	50 N	14 W	N	18*	0.111	C	S,C	38352	37986	38106	0	56367	04CW0061	1	0	

Water Yield Estimates

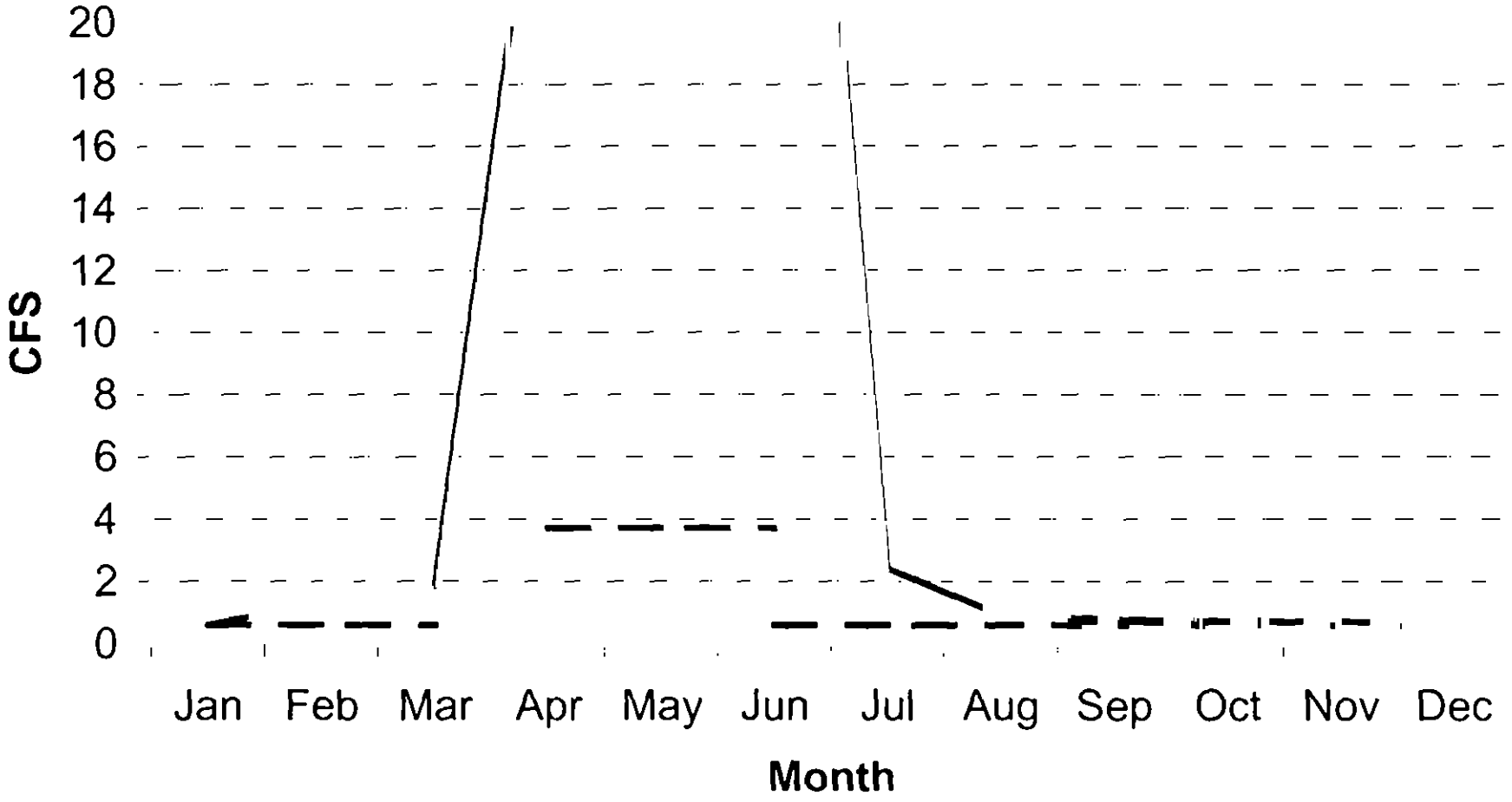
Watershed **North Fork Escalante Creek**
Location

Drainage Area Square Miles	39 07
Mean Basin Elev. Ft	7873
Mean Basin Elev -5000 ft/1000 ft	2 873

Mean Annual Flow cfs	15 770
Mean Annual Yield AF	11417

	%of flow	AF/Month	AF/Day	Mean Monthly flow cfs
Jan	0 0032	36 542	1 179	0 595
Feb	0 0065	74 226	2 560	1.293
Mar	0 0100	114 193	3.684	1 860
Apr	0 1470	1678 644	55 955	28 260
May	0 5541	6326 319	204 075	103 068
Jun	0 2461	2809 160	93 639	47 292
Jul	0 0130	148 452	4 789	2.419
Aug	0.0050	57.097	1 842	0.930
Sep	0.0040	45.677	1.523	0 769
Oct	0 0039	44 535	1 437	0 726
Nov	0 0037	42 252	1 408	0 711
Dec	0 0035	39 968	1 289	0 651

Estimated Stream Flow in North Fork Escalante Creek



Colorado Water Conservation Board
Estimation of Natural Streamflow Characteristics
Based upon USGS WRI 85-4086

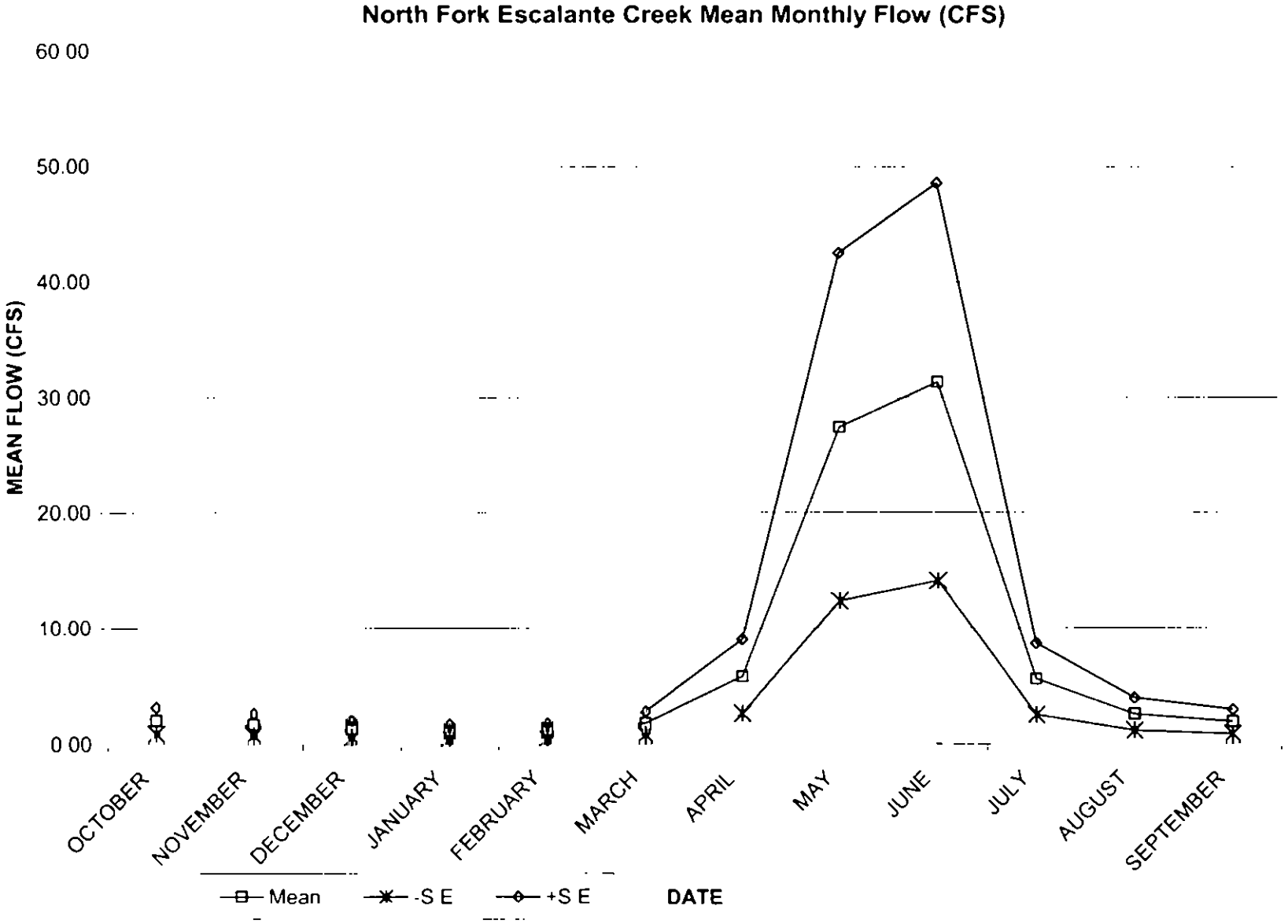
By: Francis Rengers and Mark Mitsch — Date: 6/30/2005

STREAM	North Fork Escalante Creek			
COUNTY	COUNTY NAME		BASIN AREA (MI²)	15 4 / 15 4
REGION	1		MEAN ELEV (FEET)	9123 / 4 123
1=MT,2=SW,3=NW,4=RG			MEAN PPT (INCHES)	21 / 11
CROSS-SECTION			MEAN SLOPE (FT/FT)	0 001 / 0 001
LOCATION				
AVE ANNUAL FLOW (CFS)				

PERCENT DURATION	FLOW (CFS)
90	0 70
70	1 20
50	1 93
25	5 80
10	28 44

2-YR 7 DAY LOW FLOW (CFS)	0 58
10-YR 7 DAY LOW FLOW (CFS)	0 24
50-YR 7 DAY LOW FLOW (CFS)	0 12

MEAN MONTHLY FLOW	AVERAGE FLOW (CFS)	-S E	+S E
OCTOBER	2 04	0 92	3 16
NOVEMBER	1 69	0 76	2 62
DECEMBER	1 30	0 59	2 02
JANUARY	1 10	0 50	1 71
FEBRUARY	1 15	0 52	1 78
MARCH	1 79	0 81	2 78
APRIL	5 79	2 61	8 98
MAY	27 41	12 34	42 49
JUNE	31 34	14 10	48 57
JULY	5 58	2 51	8 66
AUGUST	2 55	1 15	3 95
SEPTEMBER	1 90	0 85	2 94


North Fork Escalante Creek Mean Monthly Flow (CFS)
60 00
50.00
40.00
30 00
20.00
10.00
0 00
MEAN FLOW (CFS)
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
Mean
-S E
+S E
DATE

Uncompahgre Plateau and Glade Park Annual Hydrograph Estimation

Although there is a substantial amount of streamflow gage data available for the Uncompahgre Plateau and Glade Park, most of this data is severely impacted by diversions and irrigation use. This situation makes it difficult to estimate the natural flow regime for the watersheds on the Plateau. Without specific gage data to evaluate the next best approach is a regional equation that estimates annual flow characteristics The USGS has developed regional equations (Estimation of Natural Streamflow Characteristics in Western Colorado, Water Resources Investigations Report 85-4086, 1985) that apply to the Uncompahgre Plateau and Glade Park The equation that applies is as follows:

$$Q_{ann} = 9.7 \times 10^{-2} (A^{0.888})(E_b^{1.74})(1.98)(365)$$

Q_{ann} = mean annual volume in acre - feet

A= drainage area in square miles

E_b = (mean basin elevation -5000)/1000

In order to verify the validity of this equation, the results were checked against gages that provided estimates of the natural annual discharge. Three gages were located that provide a diversion free estimate of a natural hydrograph.

Spring Creek near Beaver Hill: Period of record; 1978 -1980

Potter Creek near Olathe: Period of record; 1980

Hay Press Creek above Fruita Reservoir #3: Period of record; 1984 – 1987

Using the period of record for each of the gages a mean annual volume was calculated and compared to the results obtained using the regional equation.

Spring Creek near Beaver Hill:

Mean annual gage volume: 11,100 ac-ft

Annual volume regional equation: 11,300 ac-ft

Potter Creek near Olathe.

Mean annual gage volume: 5,000 ac-ft

Annual volume regional equation. 6,000 ac-ft

Hay Press Creek above Fruita Reservoir #3:

Mean annual gage volume: 575 ac-ft

Annual volume regional equation 625 ac-ft

The largest comparative difference in these gages is Potter Creek at about 17% This is well within the standard error of the regional equation. However, the gage record for each of these creeks is limited Therefore, two other creeks with a longer representative period of record were chosen to compare with the regional equations.

Escalante Creek near Delta Period of record, 1977 – 1988

Tabeguache Creek near Nucla. Period of record; 1947 –1952

Both of these gages are affected by diversions and irrigation. Using data obtained from Colorado River Decision Support Systems (Colorado Water Conservation Board, Department of Water Resources) that reflects diversion volumes, along with local estimates of irrigated acreage and return flows, the annual gage volumes were adjusted for these variations to estimate a natural annual volume

Escalante Creek near Delta.

Mean annual adjusted gage volume. 84,000 ac-ft

Annual volume regional equation. 75,000 ac-ft

Tabeguache Creek near Nucla:

Mean annual adjusted gage volume: 15,000 ac-ft

Annual volume regional equation: 13,900 ac-ft

The gage data-regional equation comparison between these two gages coupled with the results from Potter Creek, Hay Creek, and Spring Creek indicates that the regional

equations apparently provide a reasonably accurate estimate of the total annual flow volume.

Once total annual volumes can be estimated, the question then becomes how to allocate this volume over a 12-month period. A mean annual monthly distribution was calculated using the annual hydrographs from Potter Creek, Spring Creek, and Hay Press Creek. These three creeks were used since they are the best unaltered representations of a natural plateau flow regime. The monthly distribution of volume based on a percentage of annual total volume is as follows:

January. 0 32
February. 0 6
March. 1.0
April: 14.7
May: 55.4
June 24 6
July. 1.3
August: 0 55
September: 0.45
October: 0 39
November 0.35
December: 0.34

The regional equation with the proper input values was used to generate estimates of annual volumes for the following Uncompahgre Plateau and Glade Park watersheds. These annual volumes were then distributed according to the monthly distributions above. The distribution of water volumes across the months of the year was translated into mean monthly flows in the following spreadsheets.

APPENDIX – D
Diversion Records

N Flc

Structure Name: JOHN W MUSSER DITCH **Water District:** 40 **ID Number:** 882

Acres Irrigated 0
CIU A

Source	ESCALANTE CREEK							
Location	Q160	Q40	Q10	Section	Twnshp		Range	PM
	SE	SW	NW	34	51	N	14 W	N

Distance from section lines From N/S line From E/W line

UTM Coordinates (NAD 83) Northing (UTM y) 4281971 5 Easting (UTM x) 201931.6 GPS

Latitude/Longitude (decimal degrees) 38 6362 -108.4243

Measuring Device/Recorder 1 FT PF

Contact DICK MILLER(OWNER) Phone

Address DELTA COLO Cell Phone

E-mail

Water Rights Summary Total Decreed Rate(s) Abs 3 2200 Cond 0 0000 AP/EX 0 0000

Total Decreed Volume(s) Abs 0 0000 Cond 0 0000 AP/EX 0 0000

Water Rights -- Transactions

Seq #	Case Number	Adjudication Date	Appropriation Date	Admin Number	O #	Priority Number	Decreed Amount	Adj Type	Uses	Comments
2	CA0456	2/17/1905	12/20/1888	19773 14234	0	7	2 22 C	S	1	P267
1	CA2563	5/28/1937	2/18/1906	29260 20502	0	H57	1 C	S	1	P1309

Diversion Summary in Acre-Feet - Total Water through Structure

IYR	FDU	LDU	DWC	Max Q	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Total
1970	05/25	10/31	152	4	0	0	0	0	0	0	13 9	180	89 3	51 4	59 5	30 7	425
1971	05/14	10/31	154	4	0	0	0	0	0	0	142	214	69 3	31 3	99 2	119	675
1972	05/01	10/26	179	4	0	0	0	0	0	0	212	147	79 3	120	105	49 6	714
1973	05/18	10/31	167	4	0	0	0	0	0	0	111	187	162	115	133	122	833
1974	04/08	10/24	200	4	0	0	0	0	0	159	237	192	101	130	133	107	1062
1975	05/14	10/31	171	4	0	0	0	0	0	0	131	208	183	90 7	151	131	898
1976	04/26	10/31	189	4	0	0	0	0	0	19 8	183	208	171	100	129	113	925
1977	11/01	10/31	219	3 5	60 3	0	0	0	0	48 1	164	72 6	101	101	98 2	101	766
1978	04/21	10/29	192	5 95	0	0	0	0	0	87 9	344	225	115	117	118	113	1122
1979	04/27	10/28	171	4 6	0	0	0	0	0	31 7	251	200	193	113	53 2	161	1006
1980	05/27	10/23	150	5 35	0	0	0	0	0	0	4 96	203	219	125	127	91 2	771
1981	05/11	10/05	148	3 5	0	0	0	0	0	0	129	151	143	109	97 6	21 8	652
1982	06/04	09/16	105	4	0	0	0	0	0	0	0	154	140	90.3	50 8	0	436
1983	06/03	10/24	123	3 1	0	0	0	0	0	0	0	128	121	97 3	69 9	110	527
1984	06/01	10/10	132	5 3	0	0	0	0	0	0	0	284	260	130	119	39 7	834
1985	05/13	10/31	166	5	0	0	0	0	0	0	160	209	163	200	169	206	1109
1986	06/04	10/16	135	3 4	0	0	0	0	0	0	0	159	167	154	145	77 8	705
1987	05/20	10/31	81	3 75	0	0	0	0	0	0	83 3	212	169	0	0	81 8	546
1988	11/01	10/04	226	3	178	184	184	172	178	0	0	57 6	42 8	38 6	93 2	11 9	1142
1989	04/25	07/13	80	3 2	0	0	0	0	0	38 1	127	66 2	33 3	0	0	0	265
1990	04/09	08/29	143	3 5	0	0	0	0	0	152	139	110	98 7	86 3	0	0	588
1991	05/07	10/24	97	2 6	0	0	0	0	0	0	96 9	110	74 2	0	23 8	28 8	333
1992	04/08	10/21	183	3 5	0	0	0	0	0	159	101	120	88 7	41 5	70 4	52 1	633
1993	04/29	10/07	132	2	0	0	0	0	0	5 95	50 6	55 5	94 7	76 9	73 4	13 9	370
1994	03/14	10/09	197	3 75	0	0	0	0	71 4	119	175	191	182	61 0	78 3	22 3	901
1995	04/17	10/31	198	1 6	0	0	0	0	0	34 5	97 0	89 3	92 2	87 3	61 9	61 5	523
1996	04/13	09/30	171	1 5	0	0	0	0	0	53 6	92 2	86 8	76 9	68 4	59 5	0	437
1997	05/21	10/16	149	2 5	0	0	0	0	0	0	32 7	108	152	153	148	79 3	675
1998	05/13	10/01	142	2	0	0	0	0	0	0	67 8	111	122	108	89 3	2 98	503
1999	04/20	10/14	178	2	0	0	0	0	0	43 6	120	104	109	122	119	55 5	674

Structure Name: JOHN W MUSSER DITCH **Water District:** 40 **ID Number:** 882

2000	04/23	10/10	171	4	0	0	0	0	0	63 5	186	89 3	48 6	176	158	29 8	752
2001	05/15	10/31	170	2	0	0	0	0	0	0	67 4	119	115	92 2	110	81 3	585
2002	05/30	10/31	99	2	0	0	0	0	0	0	7 93	109	49 1	74 4	0	32 7	273
2003	04/25	10/30	189	1 5	0	0	0	0	0	17 9	92 2	88 8	76 9	79 8	89 3	89 3	534
		Minimum		1 5	0	0	0	0	0	0	0	55 5	33 3	0	0	0	265
		Maximum		5 95	178	184	184	172	178	159	344	284	260	200	169	206	1142
		Average		3 4147	7 61	5 43	5 43	5 08	7 35	30 5	106	145	120	92 6	89 4	65 9	682

Diversion Comments

IYR	NUC Code	Acres Irrigated	Comments
1970		100	
1971		100	
1972		100	
1973		100	
1974		100	
1975		100	
1976		100	
1978		100	
1979		100	
1980		100	
1981		100	
1983		100	
1984		100	
1985		100	
1987		100	
1988		100	
1989		100	
1990		100	
1991		100	
1992		100	
1993		100	
1994		100	
1995		100	
1996		100	
1997		100	
1998		100	
1999		100	
2000		100	
2001		100	
2002		100	
2003		100	

N FK

Structure Name: CAMPBELL DITCH **Water District:** 40 **ID Number:** 866

Acres Irrigated 0
CIU A

Source ESCALANTE CREEK

Location

Q160	Q40	Q10	Section	Twnshp		Range		PM
SE	SE	NW	34	51	N	14	W	N

Distance from section lines *From N/S line* *From E/W line*

UTM Coordinates (NAD 83) *Northing (UTM y)* 4281999 5 *Easting (UTM x)* 202849 8 *GPS*

Latitude/Longitude (decimal degrees) 38 6368 -108.4138

Measuring Device/Recorder 9 IN PF

Contact DICK MILLER(OWNER) *Phone*

Address DELTA COLO *Cell Phone*

E-mail

Water Rights Summary

Total Decreed Rate(s)	*Abs*	3 9200	*Cond*	0 0000	*AP/EX*	0 0000
Total Decreed Volume(s)	*Abs*	0 0000	*Cond*	0 0000	*AP/EX*	0 0000

Water Rights -- Transactions

Seq #	Case Number	Adjudication Date	Appropriation Date	Admin Number	O #	Priority Number	Decreed Amount		Adj Type	Uses	Comments
2	CA0456	2/17/1906	1/1/1892	19773 15341	0	9	1 42	C S		1	P269
1	CA2563	5/28/1937	2/18/1906	29260 20502	0	H57	2 5	C S		1	P1307

Diversion Summary in Acre-Feet - Total Water through Structure

IYR	FDU	LDU	DWC	Max Q	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Total
1970	05/18	09/30	134	4	0	0	0	0	0	0	86 8	200	58 5	65 7	56 5	0	467
1971	05/14	10/05	142	4	0	0	0	0	0	0	128	189	77 1	66 6	108	27 3	597
1972	05/05	10/19	100	2 5	0	0	0	0	0	0	133	139	12 2	0	15 9	30 1	331
1973	05/30	10/05	129	4	0	0	0	0	0	0	15 9	236	167	122	131	27 3	701
1974	05/10	10/17	161	4	0	0	0	0	0	0	142	162	86 1	38 5	25 8	35 7	490
1975	05/14	10/16	156	3	0	0	0	0	0	0	96 2	169	122	83 8	85 3	63 5	620
1976	05/21	10/21	154	3 5	0	0	0	0	0	0	54 5	194	97 9	61 5	80 3	62 5	551
1977	04/01	07/29	99	3	0	0	0	0	0	178	153	71 3	19 3	0	0	0	422
1978	05/23	10/31	154	3 55	0	0	0	0	0	0	42 9	174	58 1	13 8	22 0	147	458
1979	05/22	10/28	146	1 5	0	0	0	0	0	0	19 8	82 7	83.3	73 8	34 9	67 4	361
1980	06/17	10/23	129	4	0	0	0	0	0	0	0	111	194	60 6	69 1	63 9	498
1981	05/08	09/21	91	3 5	0	0	0	0	0	0	147	177	21 8	48 0	52 1	0	446
1982	06/04	09/16	105	6 3	0	0	0	0	0	0	0	249	154	122	44 4	0	571
1983	06/03	10/24	109	3	0	0	0	0	0	0	0	102	123	63 1	44 6	66 0	399
1984	05/30	10/10	129	2	0	0	0	0	0	0	5 95	98 2	94 7	88 3	101	29 8	418
1985	06/05	10/03	115	3	0	0	0	0	0	0	0	140	76 4	89 8	74 4	7 44	388
1986	06/12	09/11	92	2 5	0	0	0	0	0	0	0	75 4	122	122	52 6	0	373
1987	06/03	07/28	56	2 75	0	0	0	0	0	0	0	142	135	0	0	0	277
1988	06/14	10/04	98	1 75	0	0	0	0	0	0	0	54.1	31 5	31 7	65 5	11 9	194
1989	05/12	07/13	63	1 5	0	0	0	0	0	0	19 0	56 5	27 6	0	0	0	103
1990	04/13	08/21	131	2 5	0	0	0	0	0	89 3	108	44 3	30 5	16 7	0	0	288
1991	05/07	10/16	89	2 25	0	0	0	0	0	0	68 7	96 2	42 1	0	14 9	20 8	242
1992	04/08	10/21	183	2	0	0	0	0	0	90 7	98 7	83 7	52 5	24 5	38 7	27 1	415
1993	06/17	10/07	113	1 5	0	0	0	0	0	0	0	41 7	64 0	46 1	44 6	10 4	206
1994	03/14	10/09	196	2 25	0	0	0	0	53 6	89 3	114	133	134	44 3	54 7	14 3	639
1995	05/25	10/23	152	1 5	0	0	0	0	0	0	20 8	89 3	87 9	78 6	61 0	45 6	383
1996	04/13	09/30	171	1 5	0	0	0	0	0	53 6	92 2	86 8	65 0	61 5	59 5	0	418
1997	05/21	10/05	138	2	0	0	0	0	0	0	27 3	93 2	122	122	119	19 8	504
1998	05/13	10/01	142	1 5	0	0	0	0	0	0	56 5	89 3	92 2	91 7	74 4	2 48	406
1999	03/30	10/07	192	2	0	0	0	0	7 93	119	122	119	122	122	119	27 8	761

Structure Name: CAMPBELL DITCH **Water District: 40** **ID Number: 866**

2000	04/23	10/11	172	4	0	0	0	0	0	63 5	245	89 3	58 5	176	29 8	10 9	674
2001	05/15	10/31	170	2	0	0	0	0	0	0	50 6	92 2	107	61 5	101	81 3	493
2002	05/21	10/31	164	2	0	0	0	0	0	0	34 7	109	49 1	89 3	74 4	76 9	433
2003	04/25	08/25	123	2	0	0	0	0	0	23 8	117	59 5	61 5	49 6	0	0	311
		Minimum		1 5	0	0	0	0	0	0	0	41 7	12 2	0	0	0	103
		Maximum		6 3	0	0	0	0	53 6	178	245	249	194	176	131	147	761
		Average		2 7162	0	0	0	0	1 81	20 8	64 9	119	84 0	62 9	54 6	28 7	436

Diversion Comments

IYR	NUC Code	Acres Irrigated	Comments
1970		74	
1971		74	
1972		74	
1973		74	
1974		74	
1975		74	
1976		74	
1978		74	
1979		74	
1980		74	
1981		74	
1983		74	
1984		74	
1985		74	
1987		74	
1988		74	
1989		74	
1990		74	
1991		74	
1992		74	
1993		74	
1994		74	
1995		74	
1996		74	
1997		74	
1998		74	
1999		74	
2000		74	
2001		74	
2002		74	
2003		74	

Structure Name: BLUMBERG DITCH N Fk **Water District:** 40 **ID Number:** 859

Source	ESCALANTE CREEK								*Acres Irrigated*	0
Location	Q160	Q40	Q10	Section	Twnshp		Range		PM	*CIU* A
	NW	NW		4	50	N	14	W	N	

Distance from section lines *From N/S line* *From E/W line*

UTM Coordinates (NAD 83) *Northing (UTM y)* 4281636 7 *Easting (UTM x)* 200155 1 *GPS*

Latitude/Longitude (decimal degrees) 38 6326 -108 4445

Measuring Device/Recorder

Contact DICK MILLER(OWNER) *Phone*

Address DELTA COLO *Cell Phone*

E-mail

Water Rights Summary	*Total Decreed Rate(s)*	*Abs*	0 6200	*Cond*	0 0000	*AP/EX*	0 0000
	Total Decreed Volume(s)	*Abs*	0 0000	*Cond*	0 0000	*AP/EX*	0 0000

Water Rights -- Transactions

Seq #	Case Number	Adjudication Date	Appropriation Date	Admin Number	O #	Priority Number	Decreed Amount	Adj Type	Uses	Comments
1	CA0456	2/17/1906	3/1/1883	19773.12113	0	1	0 62 C	S	1	P261

Diversion Summary in Acre-Feet - Total Water through Structure

IYR	FDU	LDU	DWC	Max Q	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Total
1970	06/18	09/17	92	0 6	0	0	0	0	0	0	0	15 5	36 9	36 9	20 2	0	109
1971	06/11	10/19	131	0 6	0	0	0	0	0	0	0	23 8	36 9	36 9	35 7	22 6	155
1972	05/01	10/31	184	0 6	0	0	0	0	0	0	36 9	35 7	36 9	36 9	35 7	35 5	217
1973	05/31	10/15	138	0 5	0	0	0	0	0	0	1 19	35 7	36 9	36 9	35 7	17 9	164
1974	05/10	10/10	154	0 6	0	0	0	0	0	0	26 2	35 7	36 9	36 9	35 7	11 9	183
1975	06/09	09/11	95	0 6	0	0	0	0	0	0	0	26 2	36 9	36 9	13 1	0	113
1976	06/04	10/07	126	0 6	0	0	0	0	0	0	0	32 1	36 9	36 9	35 7	8 33	149
1977	05/01	10/06	159	0 6	0	0	0	0	0	0	36 9	35 7	36 9	36 9	35 7	7 14	189
1978	06/13	10/09	93	0 15	0	0	0	0	0	0	0	3 57	5 55	6 35	2 18	1 79	19 4
1979	06/14	10/14	109	0 2	0	0	0	0	0	0	0	2 78	3 07	3 07	3 97	5 55	18 4
1980	06/17	10/23	129	0 6	0	0	0	0	0	0	0	7 74	16 5	8 33	30 7	22 8	86 1
1981	06/19	08/20	63	0 25	0	0	0	0	0	0	0	4 76	13 7	7 93	0	0	26 4
1982	06/09	09/16	100	0 5	0	0	0	0	0	0	0	21 8	26 3	13 2	6 35	0	67 6
1983	06/24	08/25	63	0 5	0	0	0	0	0	0	0	6 94	30 7	24 8	0	0	62 5
1984	05/15	10/10	118	0 75	0	0	0	0	0	0	0	16 9	40 5	31 1	29 8	9 92	126
1985	06/12	10/03	114	0 5	0	0	0	0	0	0	0	18 8	30.7	30 7	29 8	2 98	113
1986	06/18	10/31	136	0 5	0	0	0	0	0	0	0	12 9	30 7	30 7	29 8	30 7	134
1987	06/03	10/20	140	0 65	0	0	0	0	0	0	0	36 1	40 0	38 0	35 7	23 8	173
1988	06/03	07/07	35	0 6	0	0	0	0	0	0	0	33 3	8 33	0	0	0	41 7
1989	04/25	08/13	87	0 6	0	0	0	0	0	5 95	32 3	35 7	14 1	6 94	0	0	95 0
1990	04/28	06/04	38	0 65	0	0	0	0	0	3 87	37 7	4 76	0	0	0	0	46 3
1991	05/07	10/16	163	0 6	0	0	0	0	0	0	29 8	35 7	36 9	36 9	35 7	19 0	193
1992	04/17	10/21	188	0 6	0	0	0	0	0	16 7	36 9	35 7	36 9	36 9	35 7	25 0	223
1993	05/18	10/11	147	0 6	0	0	0	0	0	0	16 7	35 7	36 9	36 9	35 7	13 1	174
1994	03/17	10/19	217	0 6	0	0	0	0	17 9	35 7	36 9	35 7	36 9	36 9	35 7	22 6	258
1995	05/25	10/23	152	0 65	0	0	0	0	0	0	9 03	38 7	40 0	40 0	38 7	29 7	195
1996	05/03	08/14	104	0 6	0	0	0	0	0	0	34 5	32 7	16 1	6 94	0	0	90 2
1997	05/22	10/16	148	0 6	0	0	0	0	0	0	11 9	35 7	36 9	36 9	35 7	19 0	176
1998	05/13	10/01	142	0 5	0	0	0	0	0	0	18 8	29 8	30 7	30 7	29 8	0 99	140
1999	05/01	10/07	160	1	0	0	0	0	0	0	61 5	59 5	61 5	61 5	59 5	13 9	317
2000	05/10	09/29	51	1	0	0	0	0	0	0	0	0	0	43 6	57 5	0	101

Structure Name: BLUMBERG DITCH **Water District:** 40 **ID Number:** 859

2001	05/15	10/31	170	1	0	0	0	0	0	0	16 9	27 4	17 3	44 8	46 1	42 7	195
2002	05/21	10/31	137	1	0	0	0	0	0	0	21 8	53 2	11 5	2 98	14 9	20 8	125
2003	04/25	10/30	189	0 5	0	0	0	0	0	5 95	30 7	29 8	30 7	30 7	29 8	29 8	187
		Minimum		0 15	0	0	0	0	0	0	0	0	0	0	0	0	18 4
		Maximum		1	0	0	0	0	17 9	35 7	61 5	59 5	61 5	61 5	59 5	42 7	317
		Average		0 6029	0	0	0	0	0 53	2 00	14 6	26 4	27 9	27 7	25 6	12 9	137

Diversion Comments

IYR	NUC Code	Acres Irrigated	Comments
1970		40	
1971		40	
1972		40	
1973		40	
1974		40	
1975		40	
1976		40	
1978		40	
1979		40	
1980		40	
1981		40	
1983		40	
1984		40	
1985		40	
1987		40	861
1988		40	
1989		40	
1990		40	
1991		40	
1992		40	
1993		40	
1994		40	
1995		40	
1996		40	
1997		40	
1998		40	
1999		40	
2000		40	
2001		40	
2002		40	
2003		40	


1.5.2001


1.5.2001


1. 5. 2001


1.5.2001