15 Burnett Court Durango, CO 81301 (970) 247-4874 Fax: (970) 375-2319

File Code:

2500

Date:

March 6, 2017

Linda Bassi Section Chief Colorado Water Conservation Board 1313 Sherman Street, Room 721 Denver, Colorado 80203

Dear Ms. Bassi:

The U.S.D.A. Forest Service ("Forest Service") is writing this letter to formally communicate its recommendation for an instream flow water right on Vallecito Creek pursuant to the rules of the Colorado Instream Flow and Natural Lake Level Program. The stream is located in Colorado Water Division 7.

Natural Environment: The natural environment of lower Vallecito Creek consists of resident self-sustaining populations of rainbow, brown, brook trout, as well as hybridized cutthroat trout. The fishery within this reach is an important part of the aquatic ecosystem of Vallecito Creek and is heavily used for recreational fishing. Vallecito Creek is one of several streams that flows into Vallecito Reservoir; all of these streams serve as important spawning habitat for the resident fishery in this reservoir. The natural environment also consists of various aquatic macroinvertebrates, water dependent wildlife habitat, and healthy riparian vegetation.

Location and Land Status: Vallecito Creek originates at the Continental Divide near Hunchback Pass. Vallecito Creek drains into Vallecito Reservoir and is tributary to the Los Pinos River. Vallecito Creek is located in both La Plata County and San Juan County. The recommended reach is approximately 0.5 miles in length and is entirely located on lands managed by the San Juan National Forest.

Segment: The recommended reach begins at the Weminuche Wilderness boundary and extends to the National Forest Boundary upstream of Vallecito Reservoir.

Upper Terminus Weminuche Wilderness Boundary:

Latitude: 37°28'38.237" N Longitude: 107°32'38.482" W

Lower Terminus Forest Service Boundary:

Latitude: 37°28'17.272" N Longitude: 107°32'51.509" W

Biological Summary: Vallecito Creek is a cold-water, moderate-to-high gradient mountain stream. The recommended reach is located in a moderately confined channel with medium to large-sized substrate including many large boulders and some bedrock outcrops. In general, stream condition is good to excellent. Aquatic habitat is comprised of a good mix of riffles, pools, and runs. The riparian corridor has variable width and diversity throughout the reach and is dominated by mixed conifer forest with scattered narrow leaf cottonwood and aspen. The primary understory species are red-osier dogwood and willow.





Fishery surveys were conducted by Colorado Division of Wildlife in 1977, and 1995. These samples documented self-sustaining populations of rainbow trout (*Oncorhynchus mykiss*), brown trout (*Salmo truta*), brook trout (*Salvelinus fontinalis*) and hybridized cutthroat trout (*Oncorhynchus clarki spp.*).

R2Cross Analysis: In 2016, the Forest Service collected standard R2Cross data and pebble counts at several riffle cross sections in the proposed reach of Vallecito Creek. Data was collected and analyzed using the methodology described in the June 2006 CWCB R2Cross Manual and was processed using the 2008 version of the R2Cross model.

R2Cross can be run using a constant Manning's n that is calculated by the program, or Manning's n can be defined using field measurements of channel roughness. The R2Cross model results, using a constant Manning's n roughness coefficient, are valid or "in range" when the model output yields summer and winter flow recommendations between 0.4 and 2.5 times the stream discharge measured at the time of field survey. The Forest Service collected standard pebble count data at each R2Cross cross section on Vallecito Creek in order to calculate Manning's n roughness coefficient. Pebble counts were used to calculate Manning's n only where initial analysis indicated R2Cross model results were not "in range". For Vallecito Creek, where model results were not in range, the R2Cross field data was processed using the R2Cross model subroutine for a Thorne-Zevenbergen Staging Table. This allowed full utilization of the R2Cross field data collected in 2016. The table below shows a combination of model outputs using the fixed Manning's n subroutine and outputs from the user-defined Thorne-Zevenbergen Manning's n subroutine.

	R2Cross Model Results for Vallecito Creek Outside Wilderness										
LOCATION	DATE OF DATA COLLECTION	CHANNEL TOP- WIDTH	2 OF 3 INSTREAM FLOW CRITERIA	3 OF 3 INSTREAM FLOW CRITERIA							
Cross Section 1	8/25/2016	54.65 feet	*20.9 cfs	*21.6 cfs							
Cross Section 2	8/29/2016	73.57 feet	*76.6 cfs	225.6 cfs							
Cross Section	9/20/2016	55.24 feet	*21 cfs	*28.3 cfs							
		Reach Average	39.5 cfs	91.8 cfs							

^{*} Results calculated using the R2Cross Thorne-Zevenbergen subroutine.

Biologic Instream Flow Recommendation

For the proposed reach of Vallecito Creek from the Weminuche Wilderness boundary to the National Forest boundary, the Forest Service recommends the following:

Biological Instream Flow Recommendation Vallecito Creek Outside Wilderness								
TIME PERIOD	FLOW AMOUNT							
January 1 – March 15	20 cfs							
March 16 – April 15	33 cfs							
April 16 – August 31	92 cfs							
September 1 – October 31	70 cfs							
November 1 – November 15	45 cfs							
November 16 – December 14	31 cfs							
December 15 – December 31	25 cfs							

Based on currently available data and information the Forest Service has determined these are the minimum flow amounts needed for fish population survival and to preserve the natural environment (described above) to a reasonable degree in the subject reach of Vallecito Creek.

Water Availability: All water rights on Vallecito Creek are located on private lands downstream of the recommended reach. There are no water rights on Vallecito Creek within or upstream of the recommended reach.

The CWCB conducts the analysis to determine if water is available for an instream flow appropriation. The Vallecito Creek stream gage located near the upper terminus of the recommended reach provided excellent information regarding water availability. Preliminary analysis indicates that, in general, water is available to meet the Forest Service instream flow recommendation.

The final assessment of water availability could result in reductions of the recommended flow rates and/or modifications of the Forest Service flow recommendation duration. If this is the case, and future investigations indicate additional water is available, the Forest Service would recommend appropriating the additional water up to the recommended flow amounts and duration to preserve the natural environment to a reasonable degree.

Relationship to Land Management Plans:

Forest Service watershed and aquatic habitat conservation is based on several key federal laws that set a consistent land-and-water stewardship vision (see Appendix). These laws direct Forest Service actions to protect watersheds and aquatic habitat through sound management. In addition, the San Juan Forest Plan calls for Vallecito Creek outside the Weminuche Wilderness to be managed to provide ecological conditions sufficient to support a diversity of native and desired non-native fish species and other aquatic biota in the long-term. It also directs that the management of riparian areas restore the composition, structure, and function of these

Linda Bassi

ecosystems. In addition, aquatic habitat should support well-distributed populations of vertebrate and invertebrate species.

Establishing an instream flow water right on Vallecito Creek pursuant to the Colorado Instream Flow and Natural Lake Level Program would assist in meeting the Forest Service management obligations and Forest Plan direction summarized above. Thank you for considering the Forest Service recommendation for Vallecito Creek, a stream with many important resource values including, recreation, aesthetics, wildlife, and aquatic species habitat. If you have any questions regarding our instream flow recommendation, please feel free to contact me or Forest Hydrologist Kelly Palmer at (970) 385-1232 or at kapalmer@fs.fed.us.

Sincerely,

KARA L. CHADWICK

Lara & Chadwick

Forest Supervisor

cc: Maribeth Gustafson, Steve Lohr, Anthony Madrid, Kelly Palmer

Appendix

LAWS, REGULATION, AND POLICY GUIDING U.S. FOREST SERVICE AQUATIC RESOURCE MANAGEMENT

Forest Service watershed and aquatic habitat conservation is based on several key federal laws (listed below in chronological order) that set a consistent land-and-water stewardship vision. These laws direct Forest Service actions to protect watersheds and aquatic habitat through sound management. Brief summaries of these laws and their direction for management related to watersheds and aquatic habitat are included below. Federal regulations contain the current interpretations and direction specific to these laws.

- 1. Organic Administration Act of 1897 (16 U.S.C. 475). This law defines original National Forest purposes to improve and protect the forest, secure favorable conditions of water flows, and furnish a continuous supply of timber. Years of concern about watershed damage led to creation of the National Forest System. Watersheds must be cared for to sustain their hydrologic function as "sponge-and-filter" systems that absorb and store water and naturally regulate runoff. The goals are good vegetation and ground cover, streams in dynamic equilibrium with their channels and flood plains, and natural conveyance of water and sediment.
- 2. Multiple Use-Sustained Yield Act of 1960 (16 U.S.C. 528). This law expands National Forest purposes to include watershed, wildlife and fish, outdoor recreation, range, and timber and to sustain native ecosystems. Renewable surface resources are to be managed for multiple use and sustained yield of the several products and services that they provide. The principles of multiple use and sustained yield include the provision that the productivity of the land shall not be impaired.
- 3. Endangered Species Act of 1973 (16 U.S.C. 1531-1536, 1538-1540). This law conserves endangered and threatened species of wildlife, fish, and plants and the ecosystems on which they depend. Federal agencies must conserve endangered and threatened species and cooperate with State and local agencies to resolve resource issues (Section 2). Each Federal agency shall, with the consultation and help of the Secretary of Interior, ensure that any action authorized, funded, or done by the agency is unlikely to jeopardize the continued existence of any endangered or threatened species or result in adverse modification of their critical habitat (Section 7).
- 4. National Forest Management Act of 1976 (16 U.S.C. 1600-1602, 1604, 1606, 1608-1614). The Forest Service must be a leader in conserving natural resources (Section 2). Programs must protect and, where appropriate, improve the quality of soil and water (Section 5). The overall goal of managing the National Forest System is to sustain the multiple uses of its renewable resources in perpetuity while maintaining the long-term productivity of the land. Maintaining or restoring the health of the land enables the National Forest System to provide a sustainable flow of uses, benefits, products, services and visitor opportunities (36 CFR 219.1 (2005)). The overall goal of the ecological element of sustainability is to provide a framework to contribute to sustaining native ecological systems by providing ecological conditions to support a diversity of native plant and animal species (36 CFR 219.10 (2005)).

Ecological conditions are the components of the biological and physical environment that can affect diversity of plant and animal communities and the productive capacity of ecological systems. These components could include the abundance and distribution of aquatic and terrestrial habitats, roads and other structural developments, human uses, and invasive, exotic species (36 CFR 219.16 (2005)).

- 5. Federal Land Policy and Management Act of 1976 (43 U.S.C. 1752). Rights-of-way for water diversion, storage, and/or distribution systems, and other uses must include terms and conditions to protect the environment and otherwise comply with the requirements of Section 505, including section (a) (ii): "minimize damage to scenic and esthetic values and fish and wildlife habitat and otherwise protect the environment".
- 6. Clean Water Act of 1977 (33 U.S.C. 1251, 1254, 1323, 1324, 1329, 1342, 1344). This series of laws was written to restore and maintain the chemical, physical, and biological integrity of the Nation's waters (Section 101). Congress sought to sustain the integrity of water quality and aquatic habitat so that waters of the United States will support diverse, productive, stable aquatic ecosystems with a balanced range of aquatic habitats. All issues are framed by the intent of Congress to improve and preserve the quality of the Nation's waters (540 F2.d 1023; 543 F2.d 1198; 612 F2.d 1231; 97 S.Ct 1340; 97 S.Ct 1672).

Waters of the United States include perennial and intermittent streams, lakes, wetlands, and their tributaries. Aquatic ecosystems are waters of the United States that serve as habitat for interrelated and interacting communities and populations of plants and animals (40 CFR 230.3). Impacts to flow patterns, temperature, dissolved oxygen, sediment, and pollutant levels must be controlled (33 U.S.C. 1311 and 1314; 843 F2.d 1194; 753 F2.d 759). Physical features needed to support existing uses for anti-degradation include substrate, cover, flow, depth, pools, and riffles (40 CFR 131.10, 230.10, and 230.11).

7. Forest Plans. The purpose of the San Juan National Forest Land and Resource Management Plan (Forest Plan) is to provide strategic guidance for future management of all National Forest System lands managed by the San Juan National Forest. It provides a framework for informed decision making, while guiding resource management programs, practices, uses, and projects.

To ensure the long-term sustainability of ecosystems, humans must manage within the physical and biological capabilities of the land, maintain all of the ecological components and processes, and not irreversibly alter ecosystem integrity and resilience. The concept of sustainability is a fundamental component of the Forest Plan and is guided by the Multiple-Use Sustained-Yield Act (MUSY) and the Federal Land Policy and Management Act (FLPMA). Ecological sustainability is intended to provide the ecological conditions that maintain or restore the diversity of native ecosystems and natural disturbance processes. This in turn will maintain suitable habitats for a wide range of plant and animal species and provide for the diversity and viability of plant and animal species, populations and communities.

For lands managed by the USFS, the Planning Rule in 36 CFR 219.19 specifically requires that "[f]ish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area," and "[f]or planning purposes, a viable population shall be regarded as one which has the estimated numbers and distribution of reproductive individuals to insure [sic] its continued existence is well distributed in the planning area." Regulation 36 CFR 219.26 requires that "[f]orest planning shall provide for diversity of plant and animal communities and tree species consistent with the overall multiple-use objectives of the planning area. Such diversity shall be considered throughout the planning process." In addition, the FLPMA specifies that special uses granted by the Secretary of Agriculture are subject to terms and conditions that "minimize damage to fish and wildlife habitat and otherwise protect the environment." Agency actions should avoid or minimize impacts to species whose viability has been identified as a concern. USFS actions must not result in loss of population viability or create significant trends toward federal listing (FSM 2670.32).

For riparian area and wetland ecosystems, aquatic ecosystems, and terrestrial ecosystems, specific management direction has been developed that is intended to address the legal, regulatory, and policy requirements for species diversity and population viability. The process applied was to identify a range of key ecosystem elements, determine the importance of those elements to maintaining species diversity and population viability (e.g. limiting factors), define desired future conditions and land management objectives for those elements, and ensure that appropriate management standards and guidelines are in place that address the ecological needs of species and populations. In general, management standards have been developed for those elements determined to have an overriding influence on species diversity or long-term population viability, while other elements that have less influence are typically addressed through the application of guidelines.

TOPOG MAPS: Vallecito Reservoir

Vallecito Creek

Southwest Region

Code No. 43884

Section No. 1

Date: 14 October 1977

Primary Drainage: Los Pinos River

Major Drainage: San Juan River, Code No. 40-SJ

Terminus:

Lower

Location: Vallecito Reservoir

T 37 N, R 6 W, Sec. 33

measured flow: 93,6 cfs 10-31-84

Flow: 65.4 c.f.s. Elevation: 7665 ft. Width: 50 ft.

MO: 16 ppm pHTH: 0 ppm pH: 7.1

Conductivity: 96 Mohm/cm Hardness: 4 ppm

Stream Profile: Yes

Water Temperature @ 14:30 - 44°F

Terminus:

Upper

Location: Fall Creek Confluence

T 37 N, R 6 W, Sec. 16

Flow: 65 c.f.s. Width: 40 ft. Elevation: 7916 ft.

pHTH: 0 ppm MO: 16 ppm pH: 7.1

Conductivity: 96 Mohm/cm Hardness: 4 ppm

Stream Profile: Yes

Water Temperature @ 14:30 - 44°F

SECTION SUMMARY

Length: 3.3 Miles Meander Factor: 1.05

Acreage: 18.9 Flow: Normal Width: 45 ft.

Miles: 3.3 County: La Plata

Beaver Dams: None

Physical Stream Damage:

Channelizations: 50%

Accessibility:

Non-surfaced Car: 0.4 Miles

No Established Trail: 2.9 Miles

Land Status:

USFS: 0.3 Miles

Private-Closed: 0.5 Miles

Private-Open: 2.5 Miles

Stocking:

Creel Size: 2.8 Miles

None: 0.5 Miles

Aquatic Vegetation:

Filamentous Algae: Absent

Watercress: No

Vallecito Creek Code No. 43884 Page 2

Stream Size:

Large Stream 36' - 59'

Gradient: 1.4%

Fishery Value: Poor

Fishery Value - Limiting Factors:

Low Temperature A-15 Flash Flood Area A-3 Lack of Reproduction B-4

FISH SAMPLING

Only Station

Elevation: 7900 ft.

Sampling Method: Electro-fishing - 50

Length: 300 ft.

Sampling: Inadequate Scales Collected: No

Estimated % of Fish Biomass:

Rough Fish: 100%

Estimated % of Rough Fish Biomass

Cottids: 100%

ELECTRO-FISHING RECORD

Station No. 1:

Campground

Distance: 300 ft. (0.2755 acre)

Width: 40 ft.

Equipment Used:

110V AC

Personnel:

Weiler, Nehring, Lashmett, Martinez, Rouch, Green

 SIZE LENGTH IN INCHES

 Sta.
 Species
 1
 2
 3
 4
 5
 6
 7
 8
 Total
 Avg.

 1
 Sculpin
 1
 1
 3
 5
 3.6

Comments:

Wt. - 69 g. = ½#/Acre Netted Too Much Water - Too Few People

CDOW STREAM SURVEY (1991 REVISION) LEVEL 2: FIELD SURVEY SUMMARY

STREAM: Vallecito Creek

SEC#: 2

WATER CODE: 43896

CDOW REGION: SW

SURVEYORS: Mike Manzanares, Pete Vanderbilt

DATE OF SURVEY: 09/21/95

SURVEY LOCATION: T:

R:

ELEVATION:

UTM Y: 4150983

STATION #:

UTM ZONE: 13S LOCATION DESCRIPTION: immediately above Fall Creek confluence

STREAM FLOW PROFILE (Y or N): N

IF YES-DATE AND TYPE:

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: NA

STATION LENGTH: NA (FEET)

AVG WIDTH: NA (FEET)

TOTAL STATION AREA: NA (ACRES)

UTM X: 275072

METHOD:

FLOW (CFS) AT TIME OF SURVEY: NA LIMITING FACTORS TO FISHERY: NA

COMMENTS: Purpose of this survey was to collect trout for whirling disease testing. All fish were sacrificed.

LENGTH-FREQUENCY RECORD (CM)

SPECIES	0 	2 4	4 1 6	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	1	44 46	46 48	48 50	50 l UP
BRK				l		1			5	4	1															
LOC							3	1								_							_			_
NAT							1					1				_	_					_		_		_
RBT											3															

SUMMARY INFORMATION

SPECIES	NO. FISH CAUGHT	AVG. LENGTH (CM)	LENGTH RANGE (CM)	AVG. WEIGHT (Grams)	WEIGHT RANGE (Grams)	% TOTAL CATCH	BIOMASS (LB/Acre)	DENSITY (Fish/Acre)	Density Conf. Interval
BRK	12	16.8 (6.6 in)	6.9-20.8	41 g	3-72 g	57 %	NA	NA	NA
LOC	4	13.6 (5.3 in)	12.8-14.2	21	15-25	19	NA	NA	NA
NAT	2	18 (7.1 in)	13.7-22.3	50	20-80	10	NA	NA	NA
RBT	3	21.3 (8.4 in)	20.5-21.9	101	90-115	14	NA	NA	NA

FISH COLLECTION RECORD

WATER: Vallecito Creek # / CODE: 43884	STATION #_A1_ DATE: _10/27/95
LOCATION: several braided stream reaches directly w	vest of 1995 kokanee trap site, about ½ mile
above Vallecito Reservoir and bounded on upstream sid	e by private property
	c by private property.
PERSONNEL: M. Japhet, P. Vanderbilt	PREODE MA
GEAR TYPE: _backpack shocker	EFFORT: _NA
LENGTH OF STATION: NA WIDTH: NA	_ ACREAGE:NA
DOD ESTIMATE MADE? YES X NO	

LENGTH-WEIGHT DATA FILE

SPECIES	LENGTH	WEIGHT	SPECIES	LENGTH	WEIGHT	SPECIES	LENGTH	WEIGHT (g)
	(cm)	(g)		(cm)	(g)		(cm)	(g)
BRK	10		BRK	7*		LOC	10	
	22			8			10	
2	21			10			6	
	10			9			10	
	11		9	9			9	
	14			10			9	
	7*			7			9	
	7*			8			8	
	7			7	1 K		8	
	9			9			11	
	10			7			9	
	8			6			8	
	10						10	
	8		LOC	9			10	
	9			10			9	
	5**			18			10	
	9			10			9	
	7	5		17			8	-
	7			16			8	
	7			8			7	
	7	×		8			7	
	8			8			7	
	8			10				

COMMENTS: Purpose of survey: A total of 35 brook trout and 32 brown trout were collected at this location for whirling disease testing. Brook and brown trout collected at this location in 10/94 tested positive for whirling disease. A small domestic sewage treatment plant releases effluent into this braided section of Vallecito Creek #1. The high water line of Vallecito Reservoir is immediately adjacent to this stream section, as evidenced by 2 fingerling northern pike which were also caught (and released) during electrofishing for these trout.

^{*}these brook trout fingerlings had noticeably bulging eyes

^{**}this fingerling brook trout had a shortened, deformed body





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		100	land.	
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COMMENTS			September 1	
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11.0.10 2012	10. 1			71-1
BONCH MARK 7.555		55		
UTM=135 0274807 41505+1				Sept.

DISCHARGE/CROSS SECTION NOTES CHOSS SECTION NO Vallecito Cr 8/25/16 SHEET __ OF THEAM NAME EDGE OF WATER LOOKING DOWNSTREAM (EF) / NIGHT Gage Reading. TIME ft EGINNING OF MEASUREMENT Velocity (ft/sec) Depth of Observation Revolutions Width Total 五百百五 Yerrical Depth Fram Depth (M) From Install Posnii (H) Mag) Time 1A Mean in (cfs) Tape/Inst Point Vertical (sec) ptr) 4,4 4,43 45/3 BOP 4,74 5.0 5.05 5,5 5.32 LBF 6.0 8.92 7.0 9,58 9.8 8.2 91 9.0 9.4 10,39 10.53 10.0 D 11.0 10.69 0 LEW 31 11.5 -2 12.8 29 11.21 .4 14-6 47 16.4 11-46 ,8 11-89 1.1 2 95 18.2 3 52 12.02 1.2 20.0 2 92 TOP OF ROCK 21.8 11.74 .7 12.34 Ve 40 12.34-23-6 1.1 99 25.4 12.18 2. 1.3 06 12.0 .85 27.2 .05 :7 27.0 11-48 11,40 9 2.17 30.8 1.14 1.88 0 32.6 .67 11,24 1.5 34.4 STATION 0 1.46 TUP ROCK 36.2 12.24 1.5 7 12,06 33 38.0 1.4 68.0 5-60 13 39.8 11,28 .4 11 11,48 5.01 27 BOF 41.6 .41 23 11.93 2 43.4 1.3 59 12.81 45.2 2.1 .09 47.0 12.65 2.0 39 12.36 48.8 DEHONDROCK 1.6 N 10,68 0 REW 50.3 10.55 52.552. 9.85 54-4 9.54 9.34 57.0 9.10 58.0 Elev 58.7 8,50 Station R 63.3 59.9 7.69 5.75 5.60 7.23 68.0 RBF 60.7 6.28 BOP 70.0 5.01 61.5 TOTALS CALCULATIONS PERFORMED BY. CALCULATIONS CHECKED BY: Time: End of Measurement Gage Reading

REW = 50.3

DISHARGE IN ISAAC'S FIELD NOTE BOOK PEBBLE COUNT DATA SHEET

Stream: Vallecto Reach: R4, X51

Date: 8/25/2016

Sampler: Reid Heather Notes: 15th

ments:

Size Range (mm)	Habitat $(r = riffle) p = pool,$ $g = glide)$	Count	
	5 9	1	
<2		HH HH	(19)
2.8		\	(1)
4			
5.6			
8			(4)
11			(1)
16			(1)
22.6		4111	(8)
32		H-1111	(9)
45		THE THE THE THE	(25)
64	-	111-111 1111	(16)
90		1111 111	(12)
128		HHT HTT	(10)
180		HH- titt	(11)
260		111	(3)
>260		THE HEE THE THE THE THE THE	(37)
Bedrock			
TOTAL D50		Total=157	3 I

Note: Enter Total Count and Stream Description (Name, Date, etc.) Check Cell Notes (Alt.+R, N (under FORMULA)) for specific information.

Pebble Count Worksheet and Summary

CC		V	٨	Λ	E	N	IT	S
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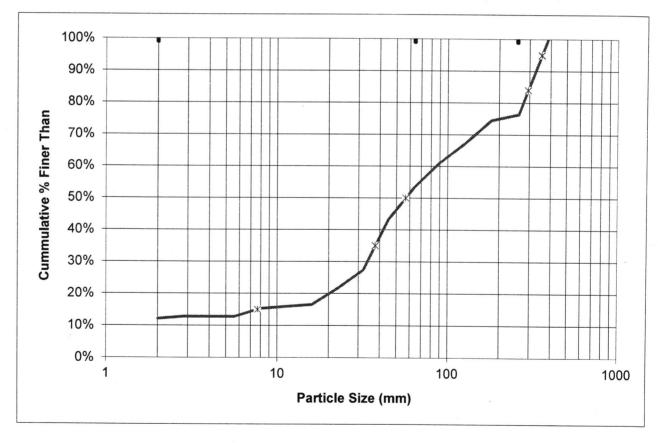
Particle Size	% finer	Total
(mm)	than	Count
<2	12%	19
2 - 2.8	13%	1
2.8 - 4	13%	0
4 - 5.6	13%	0
5.6 - 8	15%	4
8 - 11	16%	1
11 - 16	17%	1
16 - 22.6	22%	8
22.6 - 32	27%	9
32 - 45	43%	25
45 - 64	54%	16
64 - 90	61%	12
90 - 128	68%	10
128 - 180	75%	11
180 - 260	76%	3
>260	100%	37

D84 in Ft	for	0.9667986
R2Cross		0.9667986

STREAM NAME: Vallecito ID NUMBER: R4XS1 DATE: 8/25/2016

CREW: McIntyre, Sutton(Samplers) Cadiente(Notes)

Particle Size	D15	D35	D50	D84	D95
Distribution (mm)	7.7	37.7	56.7	294.7	353.5



FILENAME: Vallecito_Pebble_Counts.xls ENTERED: 9/14/2016





COLORADO WATER MSERVATION BOARD			LO	CATI	ONI	NFC	MAC	ATIO	N	THE STATE		girls from the			CROSI D LI	SECTI	ON NO.	-
DES-SECTION LOCATION 25 /4	rds bello	w X	SI	Betu	Icea	Col	toni	wood	9.	Aspe	^				K4)	
BL9 16 ORSERVERS P GAL SECTION N SUNTY. LA PLATA USGS: VALEA APISI	WATERSHED VALLE	ders	TO TR	McIn 5 For	13 4 13 7	82 V	181	Tur	m	PAR F	KGE:	6	00	E/WW W WATE 438	A COD		IPM	
G TAPE SECTION SAME AS YES	I NO MET	TER TYP	E //	Mer	sh	M	cb	in	1				lbs/	loot	TAPE TI	ENSION		_ lbs
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					C	MMC	AEN'	TS					garant land a					
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to list of the	n when	1 X	5-2	W	25	Ca	indi	ict.	est.									

BETT 8.79/

HEAM NAME	SJINF	#/10	tro Cres	J TA	noloson	Horter CAO	X5-2	4 40	DATE /29/	I SHEET	1 pr 2
шининд оғ і	HEMSHURASH		WATER LOOKING	MASHTENWOO	(EFT) N			MA	TIME 12:05		
State (S)	Distance *	Width	Total #	Water #	Depth	Revolutions	1	CHARLES STATE OF THE PARTY OF T	y (ft/sec)	3/5/	-
Grandove (G) Waterime (W) Rock (F)	Posts (N)	(PC)	Vertical Depth From Tape/Inst (ft)	Depth (h)	Obser- Values (ft)		Time (sec)	At Point	Mean in Vertical	Area **	Omoharge (cfs)
M-Sta	+879		8.79							$\overline{}$	-
BOP	4.0		4.17						1		
	6.2	4	4.57						1		
	7.6		5,27								
DE	8.7		(0.23			 				3	
BF	9.7		4.38					100			
	11.5		7.08		1		·	sin Kada			
	12.4		7.45								11
	14.1		8.02								
	173	Cire.	8.45								
	20.4		9.04	1 9							
	22.6		9.56				61				
	26,7		9.68								
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	33.2		10.07	0.2				0.74			
	34.7		10.37	0.5		BEHONDROCK		D			
	36.2		10.41	0.7				1.12			2
	37.7		16.58	0.8				1.91			
	39.2		10.76	0.6		ONROCK		1.49			
	40.7		11.03	.1.3		ļ		1.57		•	11
	42.2		11.07	1.25		ļ		1.44	, , ,		
	43.7		11.23	1.4				3.44			
940 14	45.2	25 -	11.55	1,4	н.			3.56			
	467		11.43	1.3				2.70			
	482		11-87	2.4				2.57			
7	49.7		11.95	2.3				2.83			
-626	51.2		12.22	2.3				2,98			
	52.7		11.93	1.8	Qui la			3.99			
	54.2		11.90	1.3				2.02			
Lock	55.7	th.	11.39	2.0				3.20			
	57.2		11.75	2.1		-		3.32	1		
	58.7	+-	11.68	1.9		 		2.58	++		
	61.7	-	11.55	1.8		 		2,43	+		
	63.2		11.46	1.85				3.83	+		
	64.7	+	11.61	1,4		 		1.03	+		
W	66.0	V	9.75	B				Ð			
	69.8		9.47								
	72.3	-	9.20								
	73.7		8.87								
	75.8	1	8.47								
	77.2		7.66		- V.						
DTALS	79.0					<			-,		141



FORM #ISF FD 1-85



THEAM NAME NOBSESTITION LOCATION 25 YINGS SECTION XS-1 ATE 8/29/16 OBSERVERS PORTY AND ATER AND SECTION XS-1 ATER AND SECTION SAME AS VEST NO METER TYPE. AND TAPE SECTION SAME AS VEST NO METER TYPE. AND TAPE WEIGHT INDUINON TAPE TENSION MUMBER OF PHOTOGRAPHS. CHANNEL BED MATERIAL SIZE RANGE CHANNEL PROFILE DATA CHANNEL PROFILE DATA CHANNEL PROFILE DATA CHANNEL PROFILE DATA AND TAPE LENGTH O.O. WATER CHANGE OF PHOTOGRAPHS. CHANNEL PROFILE DATA AND TAPE LENGTH O.O. AND TAPE L	COLORADO WATER			LO	CATI	ON	INF	MRO	ATIC	N		Pa	51	20.	-	CROS	1.4.0	10 h h	1:
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Markario extra durante			dro Cre			CONTRACTOR DESCRIPTION OF THE PERSON OF THE	S-SECTION	carametrians commonweller.	8/29/16	SHEET	2 or 2
инина ог м	EASUREMENT	EDGE OF	WATER LOOKING D AKEI	OWNSTREAM	LEFT AIGH	Gage Re	ading.	N/A_"	TIME /2		
State (S) Greenwe (G)	Distance From	WSulth (PC)	Total Vertical	Water Depth	Depth of	Revolutions		Veloci	y (ft/suc)		
Wederline (W) Neck (H)	Profesi Profesi (H)		Dagth From Yape/Inst (ft)	(PM)	Observation (ft)		Time (sec)	At Point	Mean in Vertical	Arms (H ²)	(Cfs)
	81.0		7.12								
BF	83.3		6.37								
	83-6		5.57		-						
BOP	86.5		5.16						+	SE	
M-End	9 7.0		8.79						1		
E MAI			0.77						 		
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F

PEBBLE COUNT DATA SHEET

Stream: Vallecto Creek
Reach: R4 x52

ments:

Date: 8/29/16

Sampler: Parter, Sutton Notes: Anderson

Size Range (mm)	Habitat (r = riffle, p = pool, g = glide)	Count	
<2		mynight	(15)
2.8			
4			(1)
5.6			(2)
8			(1)
11		1111	(4)
16		THE THE TILL	(13)
22.6		INTIM	(10)
32	*.	HTHI	(11)
45		INTIL	(8)
64		IH	(5)
90		INTI	(7)
128		114111	(8)
180		HITHIHIII .	(22)
260		1 MANAGED AND AND AND AND AND AND AND AND AND AN	(13)
>260		M MMMMMMMMMMI	(42
			(,,,
Bedrock			
TOTAL D50		Total: 162	

Note: Enter Total ount and Stream Description (Name, Date, etc.) Check Cell Notes (Alt.+R, N (under FORMULA)) for specific information.

Pebble Count Worksheet and Summary

Particle Size	% finer	Total
(mm)	than	Count
<2	9%	15
2 - 2.8	9%	0
2.8 - 4	10%	1
4 - 5.6	11%	2
5.6 - 8	12%	1
8 - 11	14%	4
11 - 16	22%	13
16 - 22.6	28%	10
22.6 - 32	35%	11
32 - 45	40%	8
45 - 64	43%	5
64 - 90	48%	5 7 8
90 - 128	52%	8
128 - 180	66%	22
180 - 260	74%	13
>260	100%	42

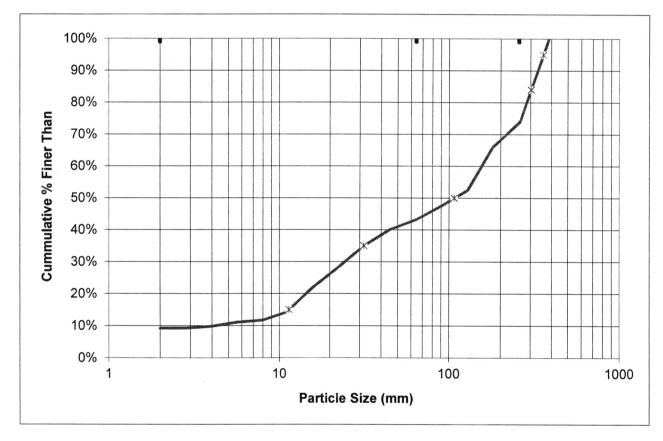
COMMENTS:

D84	in	Ft	fo	r	- (0.9	90	3718
R2C	ros	s						3718

Vallecito STREAM NAME: ID NUMBER: R4XS2 8/29/2016 DATE:

CREW: Porter, Sutton(Samplers) Anderson(Notes)

Particle Size	D15	D35	D50	D84	D95
Distribution (mm)	11.4	31.7	107.3	301.9	356.2







SUPPLEMENTAL DATA SAG TAPE SECTION SAME AS VEST NO METER TYPE MOTS METER TYPE METER NUMBER. CHANNEL BED MATERIAL SIZE RANGE STATION STATION STATION STATION STATION DISTANCE FROM TAPE ME ROD READING ITS WE Tape & Stane LB O.O WE Tape & Stane LB O.O WE TAPE WEIGHT MUMBER TO READING ITS STATION SAG TAPE WEIGHT BOOM TAPE WEIGHT	1-	CROSS-SE	CTICH	WATER COMMENT	
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AQUATIC INSECTS IN STREAM SECTION BY COMMON OR SCIENTIFIC ORDER NAME			01		
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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 8 7 8 9 10 11 12 AQUATIC INSECTS IN STREAM SECTION BY COMMON OR SCIENTIFIC DROER NAME	455; 4-	1-6457	1,6-	645	
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	13 14	14 15	>15	TOTAL	
		100	land.		
COMMENTS					
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11.0.10 2012	10. 1			71-1	
BONCH MARK 7.555		55			
UTM=135 0274807 41505+1				Sept.	

DISCHARGE/CROSS SECTION NOTES CHOSS SECTION NO Vallecito Cr 8/25/16 SHEET __ OF THEAM NAME EDGE OF WATER LOOKING DOWNSTREAM (EF) / NIGHT Gage Reading. TIME ft EGINNING OF MEASUREMENT Velocity (ft/sec) Depth of Observation Revolutions Width Total 五百百五 Yerrical Depth Fram Depth (M) From Install Posnii (H) Mag) Time 1A Mean in (cfs) Tape/Inst Point Vertical (sec) ptr) 4,4 4,43 45/3 BOP 4,74 5.0 5.05 5,5 5.32 LBF 6.0 8.92 7.0 9,58 9.8 8.2 91 9.0 9.4 10,39 10.53 10.0 D 11.0 10.69 0 LEW 31 11.5 -2 12.8 29 11.21 .4 14-6 47 16.4 11-46 ,8 11-89 1.1 2 95 18.2 3 52 12.02 1.2 20.0 2 92 TOP OF ROCK 21.8 11.74 .7 12.34 Ve 40 12.34-23-6 1.1 99 25.4 12.18 2. 1.3 06 12.0 .85 27.2 .05 :7 27.0 11-48 11,40 9 2.17 30.8 1.14 1.88 0 32.6 .67 11,24 1.5 34.4 STATION 0 1.46 TUP ROCK 36.2 12.24 1.5 7 12,06 33 38.0 1.4 68.0 5-60 13 39.8 11,28 .4 11 11,48 5.01 27 BOF 41.6 .41 23 11.93 2 43.4 1.3 59 12.81 45.2 2.1 .09 47.0 12.65 2.0 39 12.36 48.8 DEHONDROCK 1.6 N 10,68 0 REW 50.3 10.55 52.552. 9.85 54-4 9.54 9.34 57.0 9.10 58.0 Elev 58.7 8,50 Station R 63.3 59.9 7.69 5.75 5.60 7.23 68.0 RBF 60.7 6.28 BOP 70.0 5.01 61.5 TOTALS CALCULATIONS PERFORMED BY. CALCULATIONS CHECKED BY: Time: End of Measurement Gage Reading

REW = 50.3

DISHARGE IN ISAAC'S FIELD NOTE BOOK PEBBLE COUNT DATA SHEET

Stream: Vallecto Reach: R4, X51

Date: 8/25/2016

Sampler: Reid Heather Notes: 15th

ments:

Size Range (mm)	Habitat $(r = riffle) p = pool,$ $g = glide)$	Count	
	5 9	1	
<2		HH HH	(19)
2.8		\	(1)
4			
5.6			
8			(4)
11			(1)
16			(1)
22.6		4111	(8)
32		H-1111	(9)
45		THE THE THE THE	(25)
64	-	111-111 1111	(16)
90		1111 111	(12)
128		HHT HTT	(10)
180		HH- titt	(11)
260		111	(3)
>260		THE HEE THE THE THE THE THE	(37)
Bedrock			
TOTAL D50		Total=157	3 I

Note: Enter Total Count and Stream Description (Name, Date, etc.) Check Cell Notes (Alt.+R, N (under FORMULA)) for specific information.

Pebble Count Worksheet and Summary

CC		V	٨	Λ	E	N	IT	S
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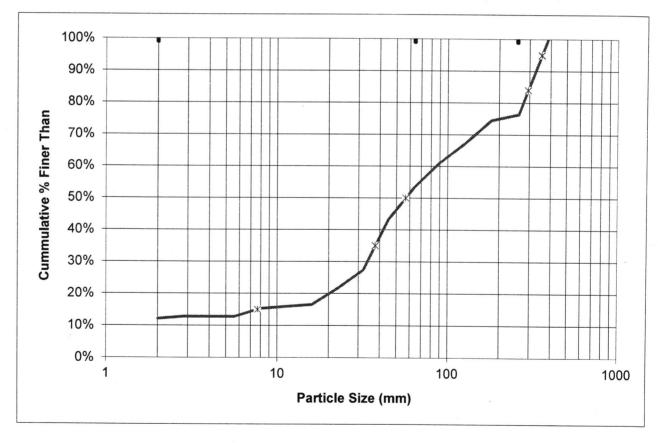
Particle Size	% finer	Total
(mm)	than	Count
<2	12%	19
2 - 2.8	13%	1
2.8 - 4	13%	0
4 - 5.6	13%	0
5.6 - 8	15%	4
8 - 11	16%	1
11 - 16	17%	1
16 - 22.6	22%	8
22.6 - 32	27%	9
32 - 45	43%	25
45 - 64	54%	16
64 - 90	61%	12
90 - 128	68%	10
128 - 180	75%	11
180 - 260	76%	3
>260	100%	37

D84 in Ft	for	0.9667986
R2Cross		0.9667986

STREAM NAME: Vallecito ID NUMBER: R4XS1 DATE: 8/25/2016

CREW: McIntyre, Sutton(Samplers) Cadiente(Notes)

Particle Size	D15	D35	D50	D84	D95
Distribution (mm)	7.7	37.7	56.7	294.7	353.5



FILENAME: Vallecito_Pebble_Counts.xls ENTERED: 9/14/2016





COLORADO WATER MSERVATION BOARD			LO	CATI	ONI	NFC	MAC	ATIO	N	THE STATE		girls from the			CROSI D LI	SECTI	ON NO.	-
DES-SECTION LOCATION 25 /4	rds bello	w X	SI	Betu	Icea	Col	toni	wood	9.	Aspe	^				K4)	
BL9 16 ORSERVERS P GAL SECTION N SUNTY. LA PLATA USGS: VALEA APISI	WATERSHED VALLE	ders	TO TR	McIn 5 For	13 4 13 7	82 V	181	Tur	m	PAR F	KGE:	6	00	E/WW W WATE 438	A COD		IPM	
G TAPE SECTION SAME AS YES	I NO MET	TER TYP	E //	Mer	sh	M	cb	in	1				lbs/	loot	TAPE TI	ENSION		_ lbs
ETER NUMBER. HANNEL BED MATERIAL SIZE RANGE		u			ALI6/5	_		BAPHS	TAKEN	YESIN		MI	UMBER			_	3	
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Tage of State RB	0:0		+				KET			-	2) "	u d	- Lune (3)				na (
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STREAM ELECTROFISHED VESINO)		TROFISI	-	CONTRACT OF THE PARTY		W	Alban Frois	JGHT Y	MIST RESIDE	NATIONAL PROPERTY.	0.2 4	Non-Laboratoria					
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SPECIES (FILL IN)		+	+										_	-				-
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BETT 8.79/

HEAM NAME	SJINF	#/10	tro Cres	J TA	noloson	Horter CAO	X5-2	4 40	DATE /29/	I SHEET	1 pr 2
шининд оғ і	HEMSHURASH		WATER LOOKING	MASHTENWOO	(EFT) N			MA	TIME 12:05		
State (S)	Distance *	Width	Total #	Water #	Depth	Revolutions	1	CHARLES STATE OF THE PARTY OF T	y (ft/sec)	3/5/	-
Grandove (G) Waterime (W) Rock (F)	Posts (N)	(PC)	Vertical Depth From Tape/Inst (ft)	Depth (h)	Obser- Values (ft)		Time (sec)	At Point	Mean in Vertical	Area **	Omoharge (cfs)
M-Sta	+879		8.79							$\overline{}$	-
BOP	4.0		4.17						1		
	6.2	4	4.57						1		
	7.6		5,27								
DE	8.7		(0.23			 				3	
BF	9.7		4.38					100			
	11.5		7.08		1		·	sin Kada			
	12.4		7.45								11
	14.1		8.02								
	173	Cire.	8.45								
	20.4		9.04	1 9							
	22.6		9.56				61				
	26,7		9.68								
EW	31.7	1.5	9.75	8	图 器 武			a			
	33.2		10.07	0.2				0.74			
	34.7		10.37	0.5		BEHONDROCK		D			
	36.2		10.41	0.7				1.12			2
	37.7		16.58	0.8				1.91			
	39.2		10.76	0.6		ONROCK		1.49			
	40.7		11.03	.1.3		ļ		1.57		•	11
	42.2		11.07	1.25		ļ		1.44	, , ,		
	43.7		11.23	1.4				3.44			
940 14	45.2	25 -	11.55	1,4	н.			3.56			
	467		11.43	1.3				2.70			
	482		11-87	2.4				2.57			
7	49.7		11.95	2.3				2.83			
-626	51.2		12.22	2.3				2,98			
	52.7		11.93	1.8	Qui la			3.99			
	54.2		11.90	1.3				2.02			
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	57.2		11.75	2.1		-		3.32	1		
	58.7	+-	11.68	1.9		 		2.58	++		
	61.7	-	11.55	1.8		 		2,43	+		
	63.2		11.46	1.85				3.83	+		
	64.7	+	11.61	1,4		 		1.03	+		
W	66.0	V	9.75	B				Ð			
	69.8		9.47								
	72.3	-	9.20								
	73.7		8.87								
	75.8	1	8.47								
	77.2		7.66		- V.						
DTALS	79.0					<			-,		141



FORM #ISF FD 1-85



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PEBBLE COUNT DATA SHEET

Stream: Vallecto Creek
Reach: R4 x52

ments:

Date: 8/29/16

Sampler: Parter, Sutton Notes: Anderson

Size Range (mm)	Habitat (r = riffle, p = pool, g = glide)	Count	
<2		mynight	(15)
2.8			
4			(1)
5.6			(2)
8			(1)
11		1111	(4)
16		THE THE TIME	(13)
22.6		INTIM	(10)
32	·	HTHI	(11)
45		INTIL	(8)
64		IH	(5)
90		INTI	(7)
128		114111	(8)
180		HITHIHIII .	(22)
260		1 MANAGED AND AND AND AND AND AND AND AND AND AN	(13)
>260		M MMMMMMMMMMI	(42
			(,,,
Bedrock			
TOTAL D50		Total: 162	

Note: Enter Total ount and Stream Description (Name, Date, etc.) Check Cell Notes (Alt.+R, N (under FORMULA)) for specific information.

Pebble Count Worksheet and Summary

Particle Size	% finer	Total
(mm)	than	Count
<2	9%	15
2 - 2.8	9%	0
2.8 - 4	10%	1
4 - 5.6	11%	2
5.6 - 8	12%	1
8 - 11	14%	4
11 - 16	22%	13
16 - 22.6	28%	10
22.6 - 32	35%	11
32 - 45	40%	8
45 - 64	43%	5
64 - 90	48%	5 7 8
90 - 128	52%	8
128 - 180	66%	22
180 - 260	74%	13
>260	100%	42

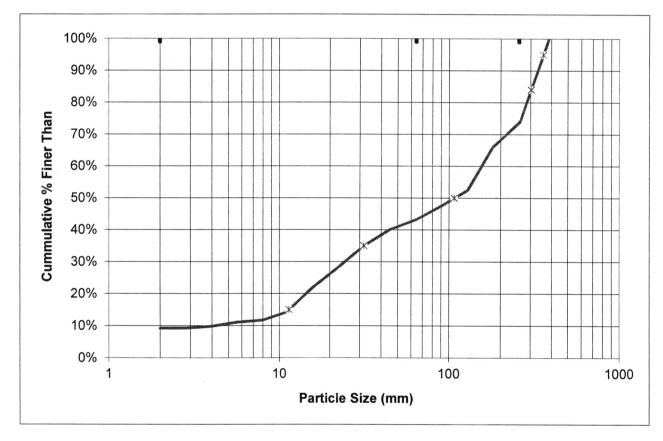
COMMENTS:

D84	in	Ft	fo	r	- (0.9	90	3718
R2C	ros	s						3718

Vallecito STREAM NAME: ID NUMBER: R4XS2 8/29/2016 DATE:

CREW: Porter, Sutton(Samplers) Anderson(Notes)

Particle Size	D15	D35	D50	D84	D95
Distribution (mm)	11.4	31.7	107.3	301.9	356.2







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TREAM NAME.	1/-1/-	c: to	Cr. R.	ench 4	/	CNOS	S-SECTION	×53	DATE 9/20	16 SHEET.	LorL
EGINNING OF N	NAME AND ADDRESS OF THE OWNER,	_	VATER LOOKING D		(LEFT) NIGH	(T Gage Re	7			om /	
	Distance	Width	Total	Water	Depth	Revalutions		Velocity	The state of the s		
State (S) Grassimo (G) Vasterimo (W) Reck (F)	France Install Provid (N)	(PC)	Vertical Depth From Yape/Inst	Depth (M)	of Observation (ft)	_	Time (sec.)	Åt Point	Mean in Vertical	Area (ft ²)	(cfe)
BM			4.58								
BOP	5.0.		4.25	<u>s</u>							
	5,2		4.64								
	6.4		5.52								
Bouldes	7.2		5.74								
dee &	7-3		8.91								
	8.2		9.71						-		
	10.0		10.12				 		 		
	11.3		10.71				1				-
LEW	13.7	2.0	11.25	Ø				Ø	}		-
	15.7	L.	11.53	0,3				0.66			
1000000	17.7		11.90	0.6				2.00	-		
1	19.7		17.08	0.8				2.70			
10.0	21.7		12.29	0.9	0			2.57		ļ	
Rock	23.7		11.36	0.8				2,07		 	
	25.7	<u>.</u>	12.42	1.3			-	1.27		-	190
fock.	27.7		12.12	0.8				1.59	┼		
Rock	29.7		12.00	0.95	-		 	0.62	+	+	
ROCK	31.7		11.90	0.6				1.36	+	+	
	33.7	-	12.01	0.8	 	 	+	2.15	+		
ROCK	35.7	-	11.90	0.6		ļ	-		╂───	 	-
	37.7		12.60	1.2				0.3			
	39.7		12.38	1.1	<u> </u>		-	0,88		 	
Rock.	41.7		11.60	1.1			 	2.59		-	-
	43.7		12.89	1.3			-	1.44	 	 	
	45.7		12.73	1.4				1.71	 	+	
	47.7	<u> </u>	13.14	1.8				0.7	-	 	
ROCK	48.7		13.09	0.5	ļ			1.35	-		+
62-1/	51.7		12.58	0.8			-		 	+	
EDDY	53.7	-	11.79	0.6	 	 	+	Ø	+	1	1
REW	54.1	4	11-25	10	 	 	+	- W	1	1	
	56.0		10.03	+	1		+		1	1	
	587	 	9.40	+	 	 	1	1	1		
	60.9	 	8.26	+	†	 					
RBF	62.5	 	7.75							1	1
<u> </u>	63.5		6.98							-	1
	65.4		5.89							-	
BOP	69.0		5.82								
·BM			4.58				4-			-	+
							1			+	4
				1	1		-	1,	 	+	+
TOTALS	1	1					- 1		-, ., .,	.1	1

Note: Enter Total Count and Stream Description (Name, Date, etc.)
Check Cell Notes (Alt.+R, N (under FORMULA)) for specific information.

Pebble Count Worksheet and Summary

Particle Size	% finer	Total
(mm)	than	Count
<2	12%	19
2 - 2.8	13%	1
2.8 - 4	13%	0
4 - 5.6	13%	0
5.6 - 8	15%	4
8 - 11	16%	1
11 - 16	17%	1
16 - 22.6	22%	8
22.6 - 32	27%	9
32 - 45	43%	25
45 - 64	54%	16
64 - 90	61%	12
90 - 128	68%	10
128 - 180	75%	11
180 - 260	76%	3
>260	100%	37

COMMENTS:

D84 in Ft for	0.9667986
R2Cross	

STREAM NAME:

Vallecito

ID NUMBER:

R4XS3

*Data originally collected at XS1

DATE:

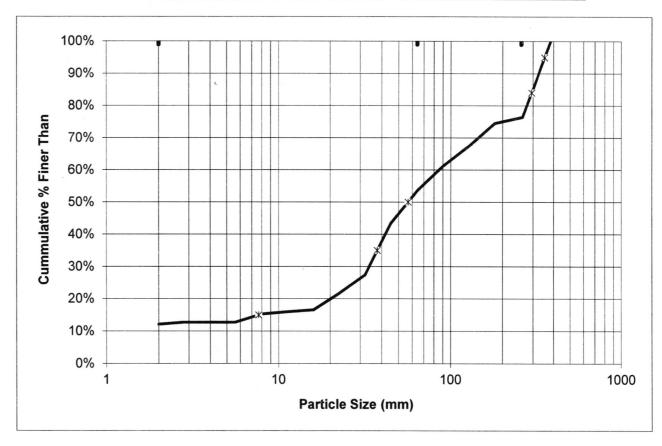
8/25/2016

CREW:

McIntyre, Sutton(Samplers) Cadiente(Notes)

Particle Size Distribution (mm)

D15	D35	D50	D84	D95
7.7	37.7	56.7	294.7	353.5





FIELD DATA FOR



INSTREAM FLOW DETERMINATIONS

COLORADO WATER ONSERVATION BOARD			1000	LO	CAT	ION	INF	MRO	ATIC	N						CROS	S-SEC	TION NO	Li
TREAM NAME Vallecit	0 (ræk			7 !										- 11	RY	XB	X	4
OSS-SECTION LOCATION	west		s su	tran	Jus	st	done	5	tre	an	06	10	ride		of top	e held	64		
OBSERVE	 /)	c 11		17	1	1 -		1/	11	cln	-30-					<u></u>			
EGAL SECTION	N.	-	CTION	11	AUO		KSHIP	27		NIS		GE:	6		E/V		NA	1	-
ESCRIPTION COUNTY.	NW	ATERBHE		16		1	\neg	WATE	DIVISI					00	WW3	8 8	4	, Company	
La Plata		Va	lleci	10				-											
USFS: - TA	ita +	Kes																	
50.70	<i></i>			5	UPF	LEN	AEN'	TAL	DAT	1						٠		5500	
AG TAPE SECTION SAME AS	YES/NO	M	TER TYP	E 1	larsi														
ISCHARGE SECTION-	163710	DATE RATE	EO.	//		ALIE/S			840	TA	PE WEI	GHT	<u>.</u>				ENSIO	H	. Ibs
HANNEL BED MATERIAL SIZE R	ANGE					ALIG/		нотоб					M	MBER	OF PH	OTOGE	iaphs.	4	
											dsq.								
			suf-		HAI	INE	L PR	OFI	ED	AIA							- 1994 -	1 0	EGENO
STATION	DISTANCE HE				ROD	READIN	ig (ta	11/2					8	Str	194				
S Tape & Stake LB		0.0		-													ke (8		
Tage w Stave R6		0:0		┼			K E					Stehan (1)							
WS @ Tape LB/RB		0.0		-	_	N						X	Photo ()						
2) W\$ Upstream	7-	1		1	9,	70									7	648	3 Direc	tion of	
3) WS Downstream	ff.	. 4		1	10	21		\dashv		010	0 604	81	(8	649	2_		->	<	
SLOPE , 51	127		019									-		Q					
, 			6 8	AQ	TAU	IC S	AMP	LIN	SU	MM	ARY							4.00	
STREAM ELECTROFISHED YE	\$/X0	DISTAN	CE ELEC	TROFISI	HED	h		F	SH CAL	IGHT Y	ESNO			WATER	CHEM	ISTRY	SAMPL	ÉD AE:	(NO)
	1	LENGT	H - FREC	DUENCY	DISTR	(eutic	3H BY C	N E-1M	H SIZ		200	economic de la companya del companya de la companya del companya de la companya d		1Z	13	14	15	>15	101
			 '-	2	1	-	5	8	7		•	10	11	-	13	-			
SPECIES (FILL IN											-					T			
SPECIES (FILL IN)			+	 			-								-	+	+	1	1
SPECIES (FILL IN)			+														1		F

ETREAM NAME.	Vallec	; 10					CAOS R 4	S-SECTION	но X54	9/20/14	SHEET	LorL
EGINNING OF L	MEASUREMENT		WATER LOOKING	DOWNSTREAM	LEFT / RIC	знт	Gage Re	/	"		15 ->	_
State (S)	Distance	Width	Total	Water	Depth	Revo	lutions		Veloci	ty (ft/sec)	STATION	DEPT
Grassimo (G) Waterime (W) Rock (III)	France Install Provid \$16	en)	Vertical Depth Fram Tape/inst (ft)	Depth (N)	Observation (ft)			Time (sec)	At Point	Meanin Vertical	100	(cree
ВМ			9.06							COMMEN	84.0	6.24
-BOP	4.0		3.74								87.0	5.38
	4.5		4.20		Si Si	Street, London			3,2	RBOP	89.3	4.79
Fig. 1. Company	7.5		4.73							BM		9.06
	9,0		5.74			-			August		A THE	
	11-0		6.42		100	 				+		
	13.0		7.12			-				18.5%		
LBF	15.0		7.73			-					1	a constant
	17.0		8.14	 		100		Anisa 1	200	-		6)
	20.5		8.65			-			Maria	-		
	24.0		9.19			1		1	124			
	27.0		9.41		11.5		111	1			* *	and the second
	30.0		9 59				1		1959 E			-
	33.0		9.97	-		-4/8 4				7.00		
16.1	35.0		9.79	.00	-		1.818	N	10		and the same	
LEW	36.7		10.14		1	and the same	10, 7	Arrival II	1.06			-
	38.2		10.40	.15	198	-		364	1.31			
	41:2		1	,45		2.4	rd Rock	1	0.47	+		
	42.7		10.69	.75		Den"	ld. Kock		0 21		-	
	44 2		11.04	. 85		2 1	nd Rock		0.61		 	
						Den	A C KOCK					
	45.7		11.25	.80		├			2.41	+		287
7			11.37	.70		241	1		1.52	+	-	
lock !	487		11.0	.40	12000	1001	Rock	-	0.51	+	-	3/2
	50.2		11.85	.70		-	-		-	0.00	 	
	51 7			1.0		 			1.04	-	 	
	53.2		11.68	1.0		\vdash			3.06	+	1	-
	56 2		11.72	.90		-			1.52	+	 	
	57 7		11.60	1.0		1			1.102	1		
	59.2		11.75	.48		on	Rock		1.73			
	100.7		11.42	.80					2-17			
	62 2		11.49	.90				0.0	1.35			
	63.7	d d	11.49	.60					.96		Service Control	
ROCK	65.2		10.82	.6		on R	SCL	/	.61			
- 1	66.7		11 14	1.0		Beh	ind Rock	16497	Ø	+		
SEW	67.7		10.14	ø		+			p	+	 	
VV	71.0		0.70			-		-		-		-
25	73.5		9,40	 		├		-			 	
	77.2		7.73			 		-	-	-	1	
	79.5		6.31			-		-	-	+	 	
TOTALS	82.3		10.31						~ '.,'		1	1
nd of Measure	ement Time		Gage Readin		CALCULA					CALCULATIONS		

PEBBLE COUNT DATA SHEET.

Stream: Vallecito Cr.

Reach: R4×57 X54

Comments:

Date: 9/20/16

Sampler: D. Anderson, R. Sutter Notes: H. M = Intyre

Size Range (mm)	Habitat (r = tiffle, p = pool, g = glide)	Count	
<2		JH III .	(N)
2.8			(3)
. 4			(2)
5.6			(4)
8		Ш	(5)
11		MI	(u)
16	1	JHT!	(6)
22.6		JHT JHT III	(13)
32		HI HI HI III	(19)
45		HTHTH	(15)
64		WHII .	(7)
90		JHT 111	(8)
128		IHTII	(7)
180		JHT JHT JHT III	(18)
260		HT II	(7)
>260		HTHTHTHIMI	(24
Bedrock			
TOTAL D50		1-55	187

Note:Enter Total Count and Stream Description (Name, Date, etc.)
Check Cell Notes (Alt.+R, N (under FORMULA)) for specific information.

Pebble Count Worksheet and Summary

Part	icle Size	% finer	Total
(mm)	than	Count
	<2	7%	11
2	2.8	9%	3
2	8 - 4	10%	2
4	- 5.6	13%	3 2 4 5
5	6.6 - 8	16%	5
8	3 - 11	19%	4
1	1 - 16	23%	6
16	- 22.6	31%	13
22	.6 - 32	43%	19
3	2 - 45	53%	15
4	5 - 64	57%	7
6	4 - 90	63%	8 7
90) - 128	67%	7
12	8 - 180	79%	18
18	0 - 260	83%	7

100%

26

>260

COMMENTS:

D84 in	Ft for	0.8685102
R2Cros	SS	0.8685102

STREAM NAME: Vallecito
ID NUMBER: R4X62 X54
DATE: 9/20/2016

CREW: Porter, Sutton(Samplers) Anderson(Notes)

Particle Size	D15	D35	D50	D84	D95
Distribution (mm)	7.1	25.3	40.6	264.7	341.9

