Board Meeting Agenda

Russ Baggerly, Director
Mary Bergen, Director
Bill Hicks, Director
Pete Kaiser, Director
James Word, Director

CASITAS MUNICIPAL WATER DISTRICT
June 13, 2012
3:00 P.M. – DISTRICT OFFICE

Right to be heard: Members of the public have a right to address the Board directly on any item of interest to the public which is within the subject matter jurisdiction of the Board. The request to be heard should be made immediately before the Board's consideration of the item. No action shall be taken on any item not appearing on the agenda unless the action is otherwise authorized by subdivision (b) of ¶54954.2 of the Government Code and except that members of a legislative body or its staff may briefly respond to statements made or questions posed by persons exercising their public testimony rights under section 54954.3 of the Government Code.

1. Public Comments

2. General Manager comments.

3. Board of Director comments.

4. Consent Agenda

   a. Minutes of the May 23, 2012 Board Meeting.
   b. Resolution approving membership in American Society of Safety Engineers in the amount of $200.
   c. Recommend approval of Leak Relief in the amount of $591.36 to Pamela White.

   RECOMMENDED ACTION: Adopt Consent Agenda

5. Bills

6. Committee/Manager Reports

   a. Water Resources Committee Minutes
   b. Recreation Committee Minutes
   c. Executive Committee Minutes
   d. Finance Committee Minutes

7. Recommend approval of the payment to the Bureau of Reclamation in the amount of $317,944.82 for the M&I and interest portion of the Safety of Dams obligation.

RECOMMENDED ACTION: Motion approving recommendation

8. Discussion regarding the scheduling of Board meetings through the summer months.

RECOMMENDED ACTION: Direction to staff

9. Information Items:

a. Monthly Cost Analysis for operation of Robles, fisheries and fish passage.
b. Lake Casitas Recreation Area Report for April, 2012.
c. 2011 Robles Progress Report.
d. News Articles.
e. Investment Report

10. Closed Session

a. (Govt. Code Sec. 54956.9 (c))
Conference with Legal Counsel – Anticipated Litigation (One case).

11. Adjournment

If you require special accommodations for attendance at or participation in this meeting, please notify our office 24 hours in advance at (805) 649-2251, ext. 113. (Govt. Code Section 54954.1 and 54954.2(a).

Minutes of the Casitas Municipal Water District
Board Meeting Held
May 23, 2012

A meeting of the Board of Directors was held May 23, 2012 at Casitas' Office, Oak View, California. Directors Baggerly, Word, Hicks, Bergen and Kaiser were present. Also present were Steve Wickstrum, General Manager, Rebekah Vieira, Clerk of the Board, and Attorney, John Mathews. There were two staff members and four members of the public in attendance. President Baggerly led the group in the flag salute.

1. Public Comments

Dennis Leary – resident of Ojai addressed the board regarding Ojai Flow. Up until last night I supported Plan A but now I feel Plan A is not so good and am switching my support to Plan B. Plan A is a can of worms. I feel the only ones who will win are the lawyers. In Plan B the City of Ojai itself will attempt to own its own water system. It will deal with Golden State and as far as your concerned, however you vote, I will continue to do my thing. If I were you I would take the chance to get out. All of us will benefit better from Plan B. The City would take responsibility for its own water and it will still be in the spirit of FLOW; Friends of Locally Owned Water. You are still a local group but you can have problems. Rates could go up if the State gets its way. What's in it for us if we win? We get to have our own water. What's in it for you? Way I see it and I'm just guessing, if Plan A is successful, you have more customers, more money and more influence. If not successful you could end up with both sides angry at you. Current rate payers will blame you, new people they also will blame you if things don't go well. People quickly forget how bad Golden State is. We have to get out from the Golden State system. We would appreciate your help.

Pat McPherson, Chairman of Ojai FLOW group explained I am here today to convey some of the feelings we are getting from the people in Ojai. You have had our petitions for a year. When I go to the market I get stopped and asked what is happening. I can't answer them. Even Russ can not say what is happening. I realize you are not doing nothing. Think about it how this looks from the outside. A year passes, taxpayers ask for you to do something and we have not got a response one way or the other. We need something. When do you cut bait? When is it over? That is where we are at. Our original plan was correct. You have the best interest of the Ojai watershed. That is why the Defense Fund and Surfrider endorsed the plan. They see the benefit of it. The problem is Golden State is adding $10,000 to the value every day. Every day there is a delay it will cost us rate payers more then it did yesterday. There will reach a point where we may not be able to afford it. We would appreciate it if you would just say what you will do. It is getting close to the end.

President Baggerly explained we are constricted and can't discuss them. In today's agenda is my report on the day spent at ACWA. One of the sessions was on conservation and commercial industrial institutional water users. Some

guy from Cal America spoke on what they had done to conserve water. I thought about all the money they spent and they take it and use it as a justification for a rate increase. I felt empathy for the people that live in Golden State area and am sorry we can't discuss things. I do understand.

2. General Manager comments.

Mr. Wickstrum reported on the negotiation session with the Bureau of Reclamation on the Safety of Dams and we are getting close to a final contract. We will have a lump sum number for the M & I and interest portion and will want to pay that quickly and then pay off the Ag portion over about 38 years. This has been a decade worth of discussions. We are close.

Mr. Wickstrum then discussed a leak on Grand Avenue which is on the Matilija Conduit. There is a series of different service laterals and some of them have been abandoned. Additionally there have been Edison outages here locally. Up at Avenue 2 pump plant we had the insulators blow off the transformers. We are moving to get a replacement in at the site.

3. Board of Director comments.

Director Kaiser mentioned the minor earthquakes Monday morning and asked if we check the dam. Mr. Wickstrum explained that we have sensors on the dam and Denver will give us a call. We check the face and tunnel for conditions immediately after. Director Kaiser then mentioned that the State is going through training exercises. Mr. Wickstrum informed him that Neil Cole was involved in an exercise a week or two ago and that we have a relationship with the Bureau and the local Sheriff.

Director Word stated we are making progress on the SOD. It will be nice to get over that frustration. Everybody is feeling the frustration on the FLOW issue, and the subject is part of every meeting. It is a complicated issue and tough to get information we want.

President Baggerly clarified that SOD is for Safety of Dams and is a repayment of our 15 percent of a 30 million dollar seismic retrofit of the dam that took place over ten years ago. The Bureau has been trying to figure out the costs so we can pay off our percentage. President Baggerly then informed the board of the appeal by the Stop the Truck coalition that has appealed the decision on the Ojai Quarry and he asked if the board would like him to attend to make sure the record is straight. We asked them to protect us from sediment and they said the 1995 EIR will do just fine. Director Hicks thought it would be good for him to attend.

4. Consent Agenda ADOPTED

a. Minutes of the May 7, 2012 Board Meeting.

b. Resolution requesting that the General District Election to be held on November 6, 2012 be consolidated with other elections called to be held on the same day and in the same territory.

The consent agenda was offered by Director Word, seconded by Director Kaiser and passed by the following roll call vote:

AYES:	Directors:	Kaiser, Bergen, Hicks, Word, Baggerly
NOES:	Directors:	None
ABSENT:	Directors:	None

Resolution is numbered 12-22.

5. Bills APPROVED

On the motion of Director Hicks, seconded by director Bergen and passed, the bills were approved.

6. Committee/Manager Reports APPROVED FOR FILING

a. Recreation Committee Minutes

On the motion of Director Word, seconded by Director Bergen and passed, the Committee/Manager Reports were approved for filing.

7. Presentation of the Hydrology Report

Todd Evans provided a brief presentation of the hydrology report which covered the water year from October 2010 to September 2011.

8. Recommend granting a temporary easement to the Ventura County Watershed Protection District for the purpose of treatment/removal of non-native plants within Casitas' property in the Ventura River. APPROVED

On the motion of Director Word, seconded by Director Bergen and passed, the above recommendation was approved.

9. Recommend authorization of Change Order No. 1 in the amount of $29,993.55 for the Rincon 2(M) Pipeline Replacement, Station 65-76, Specification 11-346. APPROVED

On the motion of Director Hicks, seconded by Director Kaiser and passed, the above recommendation was approved.

10. Information Items:

a. 2012 ACWA Spring Conference report from Director Word.
b. 2012 ACWA Spring Conference report from Director Hicks.

c. 2012 ACWA Spring Conference report from Director Baggerly.
d. News Articles.

President Baggerly moved the meeting to closed session at 3:33 p.m.

11. Closed Session

a. (Govt. Code Sec. 54956.9 (c))
Conference with Legal Counsel – Anticipated Litigation (One case).

President Baggerly moved the meeting out of closed session at 3:57 p.m. with Mr. Mathews reporting that staff met with the board regarding anticipated litigation and no action was taken except to set a special meeting closed session to discuss this item tentatively on June 6.

12. Adjournment

President Baggerly adjourned the meeting at 3:57 p.m.

_____
Bill Hicks, Secretary

CASITAS MUNICIPAL WATER DISTRICT
Inter-Office Memorandum

DATE: June 8, 2012

TO: Board of Directors

FROM: Assistant to General Manager, Rebekah Vieira

Re: Membership in American Society of Safety Engineers

RECOMMENDATION:

It is recommended that the Board of Directors adopt a resolution authorizing membership in the American Society of Safety Engineers in the amount of $200.00.

BACKGROUND:

In January the Board adopted a resolution authorizing memberships however, the budgeted membership in American Society of Safety Engineers was not listed. This membership is beneficial for the District's Safety Officer and it is recommended that it be approved.

CASITAS MUNICIPAL WATER DISTRICT

RESOLUTION APPROVING MEMBERSHIP IN
AMERICAN SOCIETY OF SAFETY ENGINEERS

Whereas, the Water Code section 71597 provides that the Board may obtain memberships in associations for the purpose of furtherance of subjects relating to the powers and duties of the district by passing a resolution with 4/5^{ths} vote, and

Whereas, the Board considered memberships at its Board Meeting in January; and

Whereas, the membership in the American Society of Safety Engineers was not listed in the adopted membership resolution however the membership is budgeted and beneficial for the Safety Officer.

Now, Therefore Be It Resolved by the Board of Directors of the Casitas Municipal Water District that the following membership is approved:

1. Membership in the American Society of Safety Engineers in the amount of $200.

ADOPTED this 13th day of June, 2012.

Signed:

_____
Russ Baggerly, President of the Board

Attest:

_____
Bill Hicks, Secretary

CASITAS MUNICIPAL WATER DISTRICT
Inter-Office Memorandum

DATE: May 22, 2012

TO: Steve Wickstrum - General Manager

FROM: Denise Collin - Accounting Manager

Re: Leak Relief Request – Pamela White
12523 Treeranch Road
Account Number: 70-01341-01

RECOMMENDATION:

Approve Leak Relief Request of $591.36

BACKGROUND AND OVERVIEW:

Pamela White was advised by CMWD staff on Feburary 7, 2012 that there was high consumption and it was confirmed by District Customer Service.

A Leak Dector service was hired and found a broken pipe under the house. The leak was repaired, Ms. White satisifies all the criteria nessessary for Leak Relief.

Leak Relief Calculation - Bi Monthly Customer

Date: Thursday, May 10, 2012 — IS CUSTOMER A RESIDENTIAL CUSTOMER ONLY [Y] s/b Y

Account Name: WHITE, PAMELA — WAS LEAK AT LEAST 2X NORMAL OVER AVG FOR SAME PERIOD -- refer to calculations below

Account Number: 70-01341-01 — DOCUMENTATION s/b Y ANY RELIEF 5 YR [N] s/b N (no)

Leak Usage Period	Bill Date	Year 1 Usage	Year 2 Usage	Year 3 Usage	Leak Usage
12/08/11-02/03/12	02/28/2012	38	39	28	376
Following Billing Period	Bill Date				
02/03/12-04/03/12	04/03/2012	26	61	45	183
		64	100	73	559

Brief Description:

1. USAGE Qualification: 79 Double the Usage? YES

Total units billed for two billing cycles (four month period)	559
2007-2009 History of same period of Leak - 3 years averaged - times two billing cycles	79
Total units Qualified for Relief:	480
Units divided by two to split leak between Customer and District	240

Originally billed as:			Total	Should be billed as:		
Tiers	Rate	Total	Units to be billed	Tiers	Rate	Total
20	$0.831	$ 16.62		20	$ 0.831	$ 16.62
14	$ 1.267	$ 17.74		14	$ 1.267	$ 17.74
66	$ 1.668	$ 110.09		66	$ 1.668	$ 110.09
276	$ 2.464	$ 680.06		36	$ 2.464	$ 88.70
376		$ 824.51	136 --------->	136		$ 233.15

Date_____ Declined_____

Date 5/11/12 Approved by: Denise Cole (under $500)

Date 5/11/12 Pass to Board by Denise Cole (over $500.)

Date_____ Approved by Board_____

Less: Leak Relief Granted

Amount of relief: $ 591.36

CASITAS MUNICIPAL WATER DISTRICT
Payable Fund Check Authorization
Checks Dated 5/21/12-6/6/12
Presented to the Board of Directors For Approval June 13, 2012

Check	Payee			Description	Amount
000334	Payables Fund Account	#	9759651478	Accounts Payable Batch 052412	$115,572.76
000335	Payables Fund Account	#	9759651478	Accounts Payable Batch 053012	$458,598.00
000336	Payables Fund Account	#	9759651478	Accounts Payable Batch 060612	$134,144.30
					$708,315.06
000337	Payroll Fund Account	#	9469730919	Estimated Payroll 6/14/12	$150,000.00
					$150,000.00
				Total	$858,315.06

Publication of check register is in compliance with Section 53065.6 of the Government Code which requires the District to disclose reimbursements to employees and/or directors.

The above numbered checks,
000334-000337
have been duly audited is hereby certified as correct.

Denise Collin 6/6/12
Denise Collin, Accounting Manager

Signature

Signature

Signature

A/P Fund

Publication of check register is in compliance with Section 53065.6 of the Government Code which requires the District to disclose reimbursements to employees and/or directors.

000334	A/P Checks:	011860-011878
	A/P Draft to P.E.R.S.	
	A/P Draft to State of CA	
	A/P Draft to I.R.S.	
	Void:	
000335	A/P Checks:	011879-011966
	A/P Draft to P.E.R.S.	053023
	A/P Draft to State of CA	053022
	A/P Draft to I.R.S.	053021
	Void:	011916-011917
000336	A/P Checks:	011967-012030
	A/P Draft to P.E.R.S.	
	A/P Draft to State of CA	
	A/P Draft to I.R.S.	
	Void:	012004

The above numbered checks,
have been duly audited are hereby
certified as correct.

Denise Collin 6/6/12

Denise Collin, Accounting Manager

_____

Signature

_____

Signature

_____

Signature

CERTIFICATION

Payroll disbursements for the pay period ending 05/26/12
Pay Date of 05/31/12
have been duly audited and are
hereby certified as correct.

Signed: Denise Collin 5/29/12
Denise Collin

Signed: _____
Signature

Signed: _____
Signature

Signed: _____
Signature

^

VENDOR SET: 01 Casitas Municipal Water D
BANK: * ALL BANKS
DATE RANGE: 5/21/2012 THRU 6/06/2012

VENDOR I.D.	NAME	STATUS	CHECK DATE	INVOICE AMOUNT	DISCOUNT	CHECK NO	CHECK STATUS	CHECK AMOUNT
C-CHECK	VOID CHECK	V	5/30/2012			011916		
C-CHECK	VOID CHECK	V	5/30/2012			011917		
C-CHECK	VOID CHECK	V	6/06/2012			012004		

* * T O T A L S * *	NO			INVOICE AMOUNT	DISCOUNTS	CHECK AMOUNT
REGULAR CHECKS:	0			0.00	0.00	0.00
HAND CHECKS:	0			0.00	0.00	0.00
DRAFTS:	0			0.00	0.00	0.00
EFT:	0			0.00	0.00	0.00
NON CHECKS:	0			0.00	0.00	0.00
VOID CHECKS:	3	VOID DEBITS	0.00			
		VOID CREDITS	0.00	0.00	0.00	

TOTAL ERRORS: 0

VENDOR SET: 01 BANK: * TOTALS:	3		0.00	0.00	0.00
BANK: * TOTALS:	3		0.00	0.00	0.00

VENDOR SET: 01 Casitas Municipal Water D
BANK: AP ACCOUNTS PAYABLE
DATE RANGE: 5/21/2012 THRU 6/06/2012

VENDOR	I.D.	NAME	STATUS	CHECK DATE	INVOICE AMOUNT	DISCOUNT	CHECK NO	CHECK STATUS	CHECK AMOUNT
00021		AWA OF VENTURA COUNTY							
	I-051612	Meeting on 5/23, TP Attending	R	5/21/2012	50.00		011860		
	I-051612A	Meeting 5/23/12, E&M Attending	R	5/21/2012	75.00		011860		125.00
01153		RUSS BAGGERLY							
	I-May 12	Reimburse Expenses 5/12	R	5/21/2012	767.73		011861		767.73
01270		SCOTT LEWIS							
	I-Apr 12	Reimburse Expenses 4/12	R	5/21/2012	749.45		011862		749.45
01944		Luke Soholt							
	I-051612	Advanced Water Treatment Class	R	5/21/2012	341.50		011863		341.50
00270		WELLS FARGO BANK							
	C-050912C	Accrue Use Tax	R	5/21/2012	59.33CR		011864		
	D-050912C	Accrue Use Tax	R	5/21/2012	59.33		011864		
	I-050912	5 Ipod Touch for WP Scanning	R	5/21/2012	962.12		011864		
	I-050912A	Blinds for Guest Services	R	5/21/2012	98.35		011864		
	I-050912B	Boat Launch Direction Sign	R	5/21/2012	164.99		011864		1,225.46
00274		JAMES WORD							
	I-052112	Reimburse Expenses 5/12	R	5/21/2012	1,024.12		011865		1,024.12
00004		ACWA HEALTH BENEFITS AUTHORITY							
	I-Jun 12	Health Insurance 6/12	R	5/24/2012	105,084.19		011866		105,084.19
01985		AFLAC/FLEX ONE							
	I-080950ER	Service Fee 12/11	R	5/24/2012	125.00		011867		
	I-317989ER	Service Fee Invoice 5/12	R	5/24/2012	125.00		011867		250.00
00821		BEST BEST & KRIEGER LLP							
	I-677658	Matter # 82356.00001 4/12	R	5/24/2012	767.00		011868		
	I-677659	Matter # 82356.00002	R	5/24/2012	1,260.59		011868		2,027.59
01616		FRED BRENEMAN							
	I-051812	5/13/12-5/26/12	R	5/24/2012	391.00		011869		391.00
00724		BUREAU OF RECLAMATION							
	I-052112	Application & Fees for Filming	R	5/24/2012	500.00		011870		500.00
	Collected from Damon Productions, Inc								
09081		LARRY CHAVEZ							
	I-051812	Landscape Maintenance License	R	5/24/2012	95.00		011871		95.00
	Exam & Textbook								

VENDOR SET: 01 Casitas Municipal Water D
BANK: AP ACCOUNTS PAYABLE
DATE RANGE: 5/21/2012 THRU 6/06/2012

VENDOR	I.D.	NAME	STATUS	CHECK DATE	INVOICE AMOUNT	DISCOUNT	CHECK NO	CHECK STATUS	CHECK AMOUNT
02310		Flora Gardens							
	I-595	Plants for Waterpark	R	5/24/2012	124.43		011872		124.43
02357		Neil Gavigan							
	I-051612	Camping Fee Refund	R	5/24/2012	75.00		011873		75.00
00122		BILL HICKS							
	I-May 12	Reimburse Expenses 5/12	R	5/24/2012	1,095.12		011874		1,095.12
02215		Scott MacDonald							
	I-052312 Course and Manual	Advanced Water Treatment	R	5/24/2012	228.50		011875		228.50
00383		ON DUTY UNIFORMS & EQUIPMENT							
	I-104744	LCRA APSO Uniforms	R	5/24/2012	496.00		011876		496.00
01283		Verizon Wireless							
	I-1080599651	Dist Ofc Monthly Cell Chrgs	R	5/24/2012	592.55		011877		
	I-1080600438	LCRA Monthly Cell Charges	R	5/24/2012	155.12		011877		747.67
02358		Valerie Zanni							
	I-051612	Camping Fee Refund	R	5/24/2012	75.00		011878		
	I-051612A	Camping Fee Refund	R	5/24/2012	75.00		011878		
	I-051612B	Camping Fee Refund	R	5/24/2012	75.00		011878		225.00
00420		AE Group Mechanical Engineers,							
	I-CASITAS20121	D.O. HVAC & Lighting Report	R	5/30/2012	420.00		011879		
	I-CASITHVAC20121	D.O. HVAC & Lighting Design	R	5/30/2012	5,950.00		011879		6,370.00
00014		AQUA-FLO SUPPLY							
	I-316086	PVC Pipe & Cement for WP	R	5/30/2012	98.24		011880		
	I-318795	Valve for F Camp	R	5/30/2012	72.72		011880		
	I-319975	Materials for Butterfly Valves	R	5/30/2012	147.17		011880		318.13
00840		AQUA-METRIC SALES COMPANY							
	I-0043183IN	1" Meters for Warehouse Stock	R	5/30/2012	2,094.34		011881		2,094.34
01703		ARNOLD LAROCHELLE MATTHEWS							
	I-34677	Matter No: 5088-008, Apr Svcs	R	5/30/2012	1,368.00		011882		
	I-34678	Matter No: 5088-001, Apr Svcs	R	5/30/2012	4,263.00		011882		
	I-34679	Matter No: 5088-009, Apr Svcs	R	5/30/2012	456.00		011882		6,087.00
01666		AT & T							
	I-000003362786 Acct#C604513638777	Local, Regional, Long Distance	R	5/30/2012	762.28		011883		
	I-000003390883	T-1 Lines, C602222128777	R	5/30/2012	893.50		011883		1,655.78

VENDOR SET: 01 Casitas Municipal Water D
BANK: AP ACCOUNTS PAYABLE
DATE RANGE: 5/21/2012 THRU 6/06/2012

VENDOR	I.D.	NAME	STATUS	CHECK DATE	INVOICE AMOUNT	DISCOUNT	CHECK NO	CHECK STATUS	CHECK AMOUNT
00030		B&R TOOL AND SUPPLY CO							
	I-1245229000101	Terry Cloth Rags for Stock	R	5/30/2012	346.26		011884		346.26
09065		ERIC BEHRENDT							
	I-052912	Windows Desktop OS Class	R	5/30/2012	131.00		011885		131.00
02059		Berkadia G							
	I-052112	MIra Monte Loan P & I	R	5/30/2012	17,037.50		011886		17,037.50
00055		CASITAS BOAT RENTALS							
	I-Apr 12 Gas	Gas for Boats at LCRA	R	5/30/2012	1,274.33		011887		1,274.33
01384		CLEAN HARBORS ENVIRONMENTAL SE							
	I-6W1219823A	Hazardous Waste Removal	R	5/30/2012	126.00		011888		126.00
00546		COASTAL BUSINESS MACHINES, INC							
	I-0266684IN	Rebuild Power Backup Units	R	5/30/2012	218.28		011889		218.28
01843		COASTAL COPY							
	I-407852	Copier Usage at LCRA	R	5/30/2012	87.64		011890		
	I-407853	Copier Usage for Dist Ofc	R	5/30/2012	50.77		011890		138.41
00059		COASTAL PIPCO							
	I-S1721971001	Irrigation Controllers, LCRA	R	5/30/2012	264.01		011891		
	I-S1724614002	PVC Parts for O & M Cust Svc	R	5/30/2012	41.83		011891		
	I-S1725304001	Parts for Irrigation, A Camp	R	5/30/2012	38.98		011891		
	I-S1725311001	PVC Parts for Treatment Plant	R	5/30/2012	49.36		011891		394.18
00061		COMPUWAVE							
	I-SB02070350	Printer Cartridges for Admin	R	5/30/2012	757.17		011892		
	I-SB02070387	Anti-Virus Software Renewal	R	5/30/2012	1,012.35		011892		1,769.52
00062		CONSOLIDATED ELECTRICAL							
	I-9009656449	Repair Parts for Solar Lights	R	5/30/2012	834.37		011893		
	I-9009657566	Electrical Wire for Telemetry	R	5/30/2012	178.25		011893		
	I-9009658691	LED Replacement Lights, TP	R	5/30/2012	136.73		011893		1,149.35
01001		CUSTOM PRINTING							
	I-118118	Rate Notice Newsletters	R	5/30/2012	819.40		011894		819.40
00182		DEWITT PETROLEUM							
	I-0018331IN	Gas & Diesel at LCRA	R	5/30/2012	3,660.86		011895		
	I-0018964IN	Gas for Main Yard	R	5/30/2012	6,406.55		011895		10,067.41

VENDOR SET: 01 Casitas Municipal Water D
BANK: AP ACCOUNTS PAYABLE
DATE RANGE: 5/21/2012 THRU 6/06/2012

VENDOR	I.D.	NAME	STATUS	CHECK DATE	INVOICE AMOUNT	DISCOUNT	CHECK NO	CHECK STATUS	CHECK AMOUNT
00085		DON'S INDUSTRIAL SUPPLIES, INC							
	I-348756	Gasket for 4M Reservoir, PL	R	5/30/2012	11.76		011896		11.76
00086		E.J. Harrison & Sons Inc							
	I-5458	Acct#1C-00053370	R	5/30/2012	114.55		011897		
	I-5481	Acct#1C-00054230	R	5/30/2012	1,504.00		011897		1,618.55
10085		ELIFEGUARD, INC.							
	C-32292A	Accrue Use Tax	R	5/30/2012	1.88CR		011898		
	D-32292A	Accrue Use Tax	R	5/30/2012	1.88		011898		
	I-32292	Lifeguard Uniforms, Waterpark	R	5/30/2012	25.90		011898		25.90
00093		FEDERAL EXPRESS							
	I-789323365	LCRA Docs to Boating&Waterways	R	5/30/2012	28.40		011899		28.40
00099		FGL ENVIRONMENTAL							
	I-203160A	Nutrient Profile, WQ	R	5/30/2012	1,666.00		011900		1,666.00
00101		FISHER SCIENTIFIC							
	C-0214960	Credit Freight, Inv#9505859	R	5/30/2012	64.37CR		011901		
	C-0567405	Credit Broth, Inv#8876249	R	5/30/2012	115.41CR		011901		
	I-8876249	Lab Testing Supplies	R	5/30/2012	353.01		011901		
	I-8974835	Lab Testing Supplies	R	5/30/2012	70.88		011901		
	I-9505859	Broth, Credit Memo Received	R	5/30/2012	179.78		011901		423.89
	See CM#0214960 & 0567405								
00104		FRED'S TIRE MAN							
	I-58275	4 Tires for Eq#26, LCRA Truck	R	5/30/2012	769.35		011902		
	I-58450	2 Tires for Club Car CC2, LCRA	R	5/30/2012	115.11		011902		884.46
00485		FRUIT GROWERS SUPPLY COMPANY							
	I-91027123	Rain Boots for Dist Maint	R	5/30/2012	24.81		011903		24.81
02362		Norman Garber							
	I-052912	Refund for Work Order No. 155	R	5/30/2012	633.53		011904		633.53
02158		Google, Inc.							
	I-200041592	Additional Email Accts, LCRA	R	5/30/2012	233.52		011905		233.52
00115		GRAINGER, INC							
	I-9833786529	Marking Chalk for Engineering	R	5/30/2012	316.73		011906		
	I-9835337040	Impact Wrench for E&M	R	5/30/2012	122.50		011906		439.23

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01052		HARBOR FREIGHT TOOLS USA, INC							
	I-113213	Impact Wrench for Dist Maint	R	5/30/2012	53.61		011907		
	I-115530	Trailer Jack for LCRA Maint	R	5/30/2012	30.02		011907		83.63
00369		HARRINGTON INDUSTRIAL PLASTICS							
	I-01373084	Plastic Sheet for Cover in WP	R	5/30/2012	174.46		011908		174.46
01574		INDUSTRY LABELS CO.							
	I-27909	Printer Ribbon for Waterpark	R	5/30/2012	246.77		011909		246.77
01022		KELLY CLEANING & SUPPLIES, INC							
	I-71380	Janitorial Services, LCRA	R	5/30/2012	300.00		011910		300.00
00360		LESLIE'S POOL SUPPLIES, INC							
	I-142293501	Chemicals & Filters for WP	R	5/30/2012	626.29		011911		626.29
00328		LIGHTNING RIDGE							
	I-8249	T-Shirts for Dist Maint	R	5/30/2012	270.52		011912		270.52
02359		Douglas McLeod							
	I-050812	Irrigation Controller Rebate	R	5/30/2012	250.00		011913		250.00
00329		MCMASTER-CARR SUPPLY CO.							
	I-27354171	Hot Plate for Telemetry	R	5/30/2012	301.47		011914		301.47
00151		MEINERS OAKS ACE HARDWARE							
	I-492152	Supplies for Waterpark	R	5/30/2012	38.79		011915		
	I-492259	Paint for Life Jackets, WP	R	5/30/2012	12.84		011915		
	I-492469	Yardstick, Clamp for Fisheries	R	5/30/2012	5.87		011915		
	I-492987	Yellow Jacket Traps, Waterpark	R	5/30/2012	107.55		011915		
	I-493074	Adapter for Irrigation,Picnic8	R	5/30/2012	81.91		011915		
	I-493328	Lopper for O & M Cust Svc	R	5/30/2012	33.67		011915		
	I-493953	Storage Boxes, Tape for WP	R	5/30/2012	80.56		011915		
	I-494023	Drill Bits for Dist Maint	R	5/30/2012	13.29		011915		
	I-494050	Washer, Cover for LCRA Maint	R	5/30/2012	1.74		011915		
	I-494134	Paint Supplies for Waterpark	R	5/30/2012	48.12		011915		
	I-494248	PVC Couplings, TP Turbidimeter	R	5/30/2012	3.60		011915		
	I-494321	Paint Supplies for Waterpark	R	5/30/2012	64.96		011915		
	I-494362	Supply Line for I Camp	R	5/30/2012	15.21		011915		
	I-494434	Primer, Drill Bit for Dist Mnt	R	5/30/2012	32.69		011915		
	I-494483	Supplies for Pump Plants	R	5/30/2012	8.84		011915		
	I-494484	Batteries for Pump Plants	R	5/30/2012	1.39		011915		
	I-494491	Knee Pads for LCRA Maint	R	5/30/2012	27.11		011915		
	I-494598	Clamps, Mender Hose, Maint	R	5/30/2012	7.57		011915		
	I-494779	Paint Supplies for Lagoon, WP	R	5/30/2012	49.31		011915		
	I-494790	Silica Sand for Waterpark	R	5/30/2012	9.64		011915		
	I-495103	Wire Brushes, Padlock, WP	R	5/30/2012	74.30		011915		
	I-495219	Cutter for Pipelines	R	5/30/2012	17.90		011915		

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	I-495362	Bolts & Screws for Pipelines	R	5/30/2012	7.79		011915		
	I-495368	Push Pins for Pump Plants	R	5/30/2012	5.41		011915		
	I-495489	Trailer Hitch, Gloves for PL	R	5/30/2012	36.63		011915		
	I-495655	Cleaning Supplies for PL Shop	R	5/30/2012	13.70		011915		800.39
00980		MISCO							
	I-CF8472	Ejector Maintenance Parts, TP	R	5/30/2012	357.74		011918		357.74
01157		MURCAL, INC.							
	I-24002	Murphy Switch for UOPP	R	5/30/2012	210.99		011919		210.99
00163		OFFICE DEPOT							
	I-609375278001	Office Supplies	R	5/30/2012	119.18		011920		
	I-610310780001	Office Supplies	R	5/30/2012	75.41		011920		
	I-610502286001	Office Supplies	R	5/30/2012	81.72		011920		276.31
00607		OJAI ELECTRIC							
	I-071317	Controller Work at Waterpark	R	5/30/2012	2,774.00		011921		2,774.00
00165		OJAI LUMBER CO, INC							
	I-2431581	Lumber for Canal Bridge Repair	R	5/30/2012	3,458.75		011922		
	I-2432159	Lumber for District Maint	R	5/30/2012	74.07		011922		3,532.82
00166		OJAI PRINTING & PUBLISHING							
	I-0086500IN	Day Use Tags for LCRA	R	5/30/2012	807.06		011923		807.06
00602		OJAI TRUE VALUE							
	I-41805	Keys Made for Carts at LCRA	R	5/30/2012	21.24		011924		
	I-41829	Tubing, Filters for TP	R	5/30/2012	44.79		011924		66.03
00169		OJAI VALLEY SANITARY DISTRICT							
	I-14504	Cust#99991	R	5/30/2012	6,347.41		011925		6,347.41
02361		Cheryl Olson							
	I-052312	Camping Fee Refund	R	5/30/2012	35.00		011926		35.00
00734		ONESOURCE DISTRIBUTORS							
	I-S3770617001	Strobe Tube, Treatment Plant	R	5/30/2012	58.03		011927		58.03
01381		ONTRAC							
	I-7408663	Refrigerated Sample to Biovir	R	5/30/2012	3.87		011928		3.87
00170		OXNARD AUTO ELECTRIC COMPANY							
	I-115586	Repair Stihl Combimotor, WP	R	5/30/2012	81.45		011929		81.45

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10072		PERMACOLOR,INC							
	I-274679	Coat UOPP Unit#2 Pipe	R	5/30/2012	161.08		011930		161.08
00627		PORT SUPPLY							
	I-3554	Supplies for Patrol Boat	R	5/30/2012	279.79		011931		279.79
01334		POWER MACHINERY CENTER							
	I-E67000	Club Car Lease, Y13634	R	5/30/2012	798.20		011932		
	I-E67009	Club Car Lease, Y13864	R	5/30/2012	602.67		011932		1,400.87
01439		PRECISION POWER EQUIPMENT							
	I-1754	Chains for Saws, Dist Maint	R	5/30/2012	70.76		011933		
	I-1755	Chain Saw Oil for Dist Maint	R	5/30/2012	42.79		011933		
	I-1756	Chain for Dist Maint	R	5/30/2012	19.98		011933		133.53
10042		PSR ENVIRONMENTAL SERVICE, INC							
	I-5463	Gas Tank Inspections, LCRA	R	5/30/2012	210.00		011934		
	I-5464	Gas Tank Inspections,Main Yard	R	5/30/2012	210.00		011934		420.00
02216		Purchase Power							
	I-052012	Refill Postage Meter	R	5/30/2012	2,525.00		011935		2,525.00
00788		QUINN COMPANY							
	I-PC010281799	Coolant for Eq#115, Dozer	R	5/30/2012	65.59		011936		65.59
00313		ROCK LONG'S AUTOMOTIVE							
	I-5217	Lamps for Eq#27, LCRA	R	5/30/2012	27.78		011937		
	I-5348	Service Transmission, EQ#27	R	5/30/2012	406.20		011937		
		Also, Renew Right Head Lamp Plug, Renew Oil Pressure Sending Unit							
	I-5359	Replace Alternator, EQ#26	R	5/30/2012	418.82		011937		
	I-5363	Lamp for Eq#13, Lab Truck	R	5/30/2012	27.66		011937		
	I-5398	Repair Vacuum Hose, Eq#27	R	5/30/2012	45.46		011937		925.92
00725		SMART & FINAL							
	I-167304	Vinegar, Simple Green, TP	R	5/30/2012	46.82		011938		46.82
00608		SMITH PIPE & SUPPLY INC.							
	I-2399346	Coupler Valve for Picnic #8	R	5/30/2012	49.84		011939		49.84
00215		SOUTHERN CALIFORNIA EDISON							
	I-051912	Acct#2237011044	R	5/30/2012	21.26		011940		
	I-052212	Acct#2312811532	R	5/30/2012	71.59		011940		
	I-052212A	Acct#2266156405	R	5/30/2012	167.37		011940		
	I-052212B	Acct#2157697889	R	5/30/2012	2,340.15		011940		
	I-052612	Acct#2210507034	R	5/30/2012	10,404.44		011940		13,004.81

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10100		SPECIALTY MARINE, INC							
	I-1138	Oil Change for New Patrol Boat	R	5/30/2012	207.63		011941		207.63
00048		STATE OF CALIFORNIA							
	I-060112	State Water Plan Payment	R	5/30/2012	181,725.00		011942		181,725.00
02057		Swank Motion Pictures, Inc.							
	I-RG1687693	Rent Puss in Boots,Movie Night	R	5/30/2012	321.00		011943		321.00
02163		Toro Enterprises, Inc.							
	I-043012	Rincon 2M Pipeline Replacement	R	5/30/2012	85,202.36		011944		85,202.36
01662		TYLER TECHNOLOGIES, INC.							
	I-02542698	Custom Report, Prop 218 Labels	R	5/30/2012	5,000.00		011945		
	I-02542985	Online UB Payment Fees	R	5/30/2012	153.00		011945		5,153.00
00185		Univar USA Inc							
	I-LA764181	Hydrochloric Acid, Waterpark	R	5/30/2012	1,303.09		011946		
	I-LA764432	Sodium Hypochlorite, Waterpark	R	5/30/2012	3,038.82		011946		4,341.91
00825		USA BLUEBOOK							
	I-674656	WQ Testing Reagents	R	5/30/2012	57.85		011947		
	I-674782	WQ Testing Reagents	R	5/30/2012	791.33		011947		849.18
00258		VENTURA STEEL, INC							
	I-127242	Rolled Steel, Reservoir Vent	R	5/30/2012	133.45		011948		133.45
00271		WEST COAST AIR CONDITIONING							
	I-S39848	Dist Ofc A/C Repair	R	5/30/2012	560.80		011949		
	I-S40026	Replace TXVs,Dist Ofc A/C Unit	R	5/30/2012	1,627.00		011949		
	I-S40027	PM Service, Dist Ofc A/C Unit	R	5/30/2012	185.00		011949		
	I-S40509	Nitrite for Dist Ofc A/C Unit	R	5/30/2012	26.81		011949		2,399.61
1		General Pavement Man							
	I-000201205230562	UB Refund	R	5/30/2012	33.93		011950		33.93
1		Joan Minster							
	I-000201205230563	UB Refund	R	5/30/2012	16.80		011951		16.80
1		Marjorie G Hatton							
	I-000201205230564	UB Refund	R	5/30/2012	60.00		011952		60.00
1		Joan Minster							
	I-000201205230566	UB Refund	R	5/30/2012	43.71		011953		43.71

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1		Holly Wilson							
	I-000201205230565	UB Refund	R	5/30/2012	14.04		011954		14.04
1		Samuel E Robinson							
	I-000201205230567	UB Refund	R	5/30/2012	60.00		011955		60.00
1		Paul Backes							
	I-000201205290571	UB Refund	R	5/30/2012	35.00		011956		35.00
1		Robert Hunter							
	I-000201205290570	UB Refund	R	5/30/2012	35.00		011957		35.00
1		Wesley Mikes							
	I-000201205290569	UB Refund	R	5/30/2012	42.50		011958		42.50
1		Lee M Price							
	I-000201205290572	UB Refund	R	5/30/2012	35.00		011959		35.00
1		David Robieson							
	I-000201205290568	UB Refund	R	5/30/2012	42.50		011960		42.50
1		Richard L Willms							
	I-000201205290573	UB Refund	R	5/30/2012	35.00		011961		35.00
00124		ICMA RETIREMENT TRUST - 457							
	I-CUI201205300574	457 CATCH UP	R	5/30/2012	423.08		011962		
	I-DCI201205300574	DEFERRED COMP FLAT	R	5/30/2012	2,692.30		011962		
	I-DI%201205300574	DEFERRED COMP PERCENT	R	5/30/2012	128.30		011962		3,243.68
01960		Moringa Community							
	I-MOR201205300574	PAYROLL CONTRIBUTIONS	R	5/30/2012	16.75		011963		16.75
00985		NATIONWIDE RETIREMENT SOLUTION							
	I-CUN201205300574	457 CATCH UP	R	5/30/2012	423.06		011964		
	I-DCN201205300574	DEFERRED COMP FLAT	R	5/30/2012	4,027.68		011964		4,450.74
00180		S.E.I.U. - LOCAL 721							
	I-UND201205300574	UNION DUES	R	5/30/2012	610.50		011965		610.50
00230		UNITED WAY							
	I-UWY201205300574	PAYROLL CONTRIBUTIONS	R	5/30/2012	45.00		011966		45.00
00188		PETTY CASH							
	I-053112	Replenish Petty Cash	R	6/01/2012	274.30		011967		274.30

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00695		AAA SERVICES CO.							
	I-2453	Repair Garage Pressure Washer	R	6/06/2012	861.64		011968		861.64
00011		ALERT COMMUNICATIONS							
	I-120500847101	Call Center 6/12	R	6/06/2012	289.40		011969		289.40
00029		AMERICAN TOWER CORP							
	I-1251733	Tower Rent, Red Mtn, Rincon Pk	R	6/06/2012	1,519.77		011970		1,519.77
00417		APPLIED INDUSTRIAL TECHNOLOGY							
	I-85991088	Gasket Material for 4M Resrvr	R	6/06/2012	109.63		011971		109.63
00014		AQUA-FLO SUPPLY							
	C-321686	Threaded Ball Returned	R	6/06/2012	22.99CR		011972		
	I-321582	Threaded Ball for Waterpark	R	6/06/2012	22.99		011972		
	I-321689	Ball Valve PVC, Waterpark	R	6/06/2012	51.06		011972		
	I-325678	PVC Pipe for UOPP Switch	R	6/06/2012	17.59		011972		
	I-326371	Pipe Insulation for UOPP	R	6/06/2012	4.93		011972		73.58
00020		AVENUE HARDWARE, INC							
	I-46463	Hose Clamps, Quick Sorb, Dam	R	6/06/2012	67.32		011973		67.32
00030		B&R TOOL AND SUPPLY CO							
	I-1246042000101	Safety Glasses for Stock, PL	R	6/06/2012	91.63		011974		91.63
00679		BAKERSFIELD PIPE & SUPPLY INC							
	I-S1796021001	Nipples for Warehouse Stock	R	6/06/2012	47.40		011975		
	I-S1796021002	Couplings for Warehouse Stock	R	6/06/2012	104.93		011975		
	I-S1796632001	Gaskets for UOPP & 4M	R	6/06/2012	45.05		011975		
	I-S1798361002	Raw Water Supply Line Replace	R	6/06/2012	653.79		011975		
	I-S1798361003	Raw Water Supply Line Replace	R	6/06/2012	106.24		011975		957.41
01680		BLR-BUSINESS & LEGAL REPORTS							
	I-37074687	BLR Safety Subscription	R	6/06/2012	995.00		011976		995.00
02363		Roy Bollinger							
	I-052912	Camping Fee Refund	R	6/06/2012	170.00		011977		170.00
01616		FRED BRENEMAN							
	I-060412	5/27/12-6/9/12	R	6/06/2012	391.00		011978		391.00
02356		Carboline Company							
	I-20871409	Lazy River Paint	R	6/06/2012	691.38		011979		691.38

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00511		Centers for Family Health							
	I-14570	Drug Tests	R	6/06/2012	495.00		011980		495.00
00059		COASTAL PIPCO							
	I-S1726010001	Nozzles for A & F Camp	R	6/06/2012	64.82		011981		64.82
00061		COMPUWAVE							
	I-SB02070487	Printer for Gate	R	6/06/2012	308.88		011982		
	I-SB02070596	Toner Cartridges for Admin	R	6/06/2012	869.53		011982		1,178.41
02034		D.K. Mechanical							
	I-2271	Repair PTO Switch, Water Truck	R	6/06/2012	203.22		011983		203.22
02364		Damon Production, Inc.							
	I-052112	Commercial Fee Refund	R	6/06/2012	400.00		011984		400.00
00182		DEWITT PETROLEUM							
	I-0019234IN	Gas & Diesel for LCRA	R	6/06/2012	4,523.01		011985		4,523.01
00662		Diamond A Equipment							
	I-EX01305	4 WD Front Mounted Mower	R	6/06/2012	20,270.25		011986		
	I-IX29473A	Rod for Mower, Eq#277	R	6/06/2012	36.84		011986		20,307.09
00090		ENVIRONMENTAL RESOURCE ASSOC							
	I-653503	Performance Testing Samples	R	6/06/2012	152.14		011987		152.14
00099		FGL ENVIRONMENTAL							
	I-204262A	Wet Chemistry-NO3	R	6/06/2012	43.00		011988		
	I-204263A	Wet Chemistry-NO3	R	6/06/2012	18.00		011988		61.00
00104		FRED'S TIRE MAN							
	I-58431	4 Rear Tires for Eq#55,Flatbed	R	6/06/2012	708.29		011989		
	I-58460	4 Tires for Eq#31, LCRA Van	R	6/06/2012	569.59		011989		1,277.88
00216		THE GAS COMPANY							
	I-052912	Acct#00801443003	R	6/06/2012	563.81		011990		
	I-053012	Acct#18231433006	R	6/06/2012	43.44		011990		607.25
01292		GEORGE YARDLEY CO							
	I-11067	Coyote R/R Solenoid Valve	R	6/06/2012	408.11		011991		408.11
00491		GIBBS INTERNATIONAL TRUCK CTR							
	I-11776G	Mirror Glass for #81, Util Trk	R	6/06/2012	39.13		011992		
	I-342802V	Mirror Glass for #81, Util Trk	R	6/06/2012	39.13		011992		78.26

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01052		HARBOR FREIGHT TOOLS USA, INC							
	I-117940	Electric Fly Swatters, LCRA	R	6/06/2012	17.12		011993		17.12
02365		Thomas Hass							
	I-052912	Camping Fee Refund	R	6/06/2012	110.00		011994		110.00
00126		CAROLE ILES							
	I-May 12	Reimburse Mileage 5/12	R	6/06/2012	42.73		011995		42.73
00127		INDUSTRIAL BOLT & SUPPLY							
	I-00127738	Washers for Grand Ave PP	R	6/06/2012	5.58		011996		5.58
02182		Industrial Coating and Restora							
	I-051112	Lazy River Repairs, Retention	R	6/06/2012	3,764.90		011997		3,764.90
00131		JCI JONES CHEMICALS, INC							
	I-547033	Chlorine for TP, CM#547072	R	6/06/2012	1,770.00		011998		
	I-547641	Chlorine for TP, CM#547740	R	6/06/2012	1,770.00		011998		3,540.00
02366		Francis Kiess							
	I-060212	Camping Fee Refund	R	6/06/2012	40.00		011999		40.00
00145		MAGNUM FENCE & SECURITY, INC.							
	I-8890	Parts for Kiddie Pool Fence	R	6/06/2012	61.12		012000		61.12
09881		Marzulla Law, LLC							
	I-1802	File#4139.0003 May Services	R	6/06/2012	58.50		012001		58.50
02367		Ken McMahon							
	I-053112	Camping Fee Refund	R	6/06/2012	215.00		012002		215.00
00151		MEINERS OAKS ACE HARDWARE							
	C-496213	Return Inv#486891	R	6/06/2012	9.64CR		012003		
	I-491823	Cap Light, Sockets, Pipelines	R	6/06/2012	17.37		012003		
	I-494927	Paint Supplies, Padlock, WP	R	6/06/2012	73.50		012003		
	I-495105	Shade Canopy for Dist Maint	R	6/06/2012	203.76		012003		
	I-495785	Padlocks for WP Gate	R	6/06/2012	39.02		012003		
	I-495787	Padlock for Lagoon Equip, WP	R	6/06/2012	17.56		012003		
	I-495997	Keys Made for Event Area, LCRA	R	6/06/2012	7.99		012003		
	I-496202	Battery for Line Locator, PL	R	6/06/2012	9.64		012003		
	I-496211	Tamper, Gloves for Waterpark	R	6/06/2012	47.48		012003		
	I-496278	Threadlocker for LCRA Maint	R	6/06/2012	7.50		012003		
	I-496279	Grease, Hose Clamps for DM	R	6/06/2012	10.52		012003		
	I-496281	Work Jeans for Dist Maint	R	6/06/2012	123.28		012003		
	I-496337	Paint Supplies for Pipeline	R	6/06/2012	35.52		012003		
	I-496481	Insect Spray, Drill Bits, DM	R	6/06/2012	21.29		012003		
	I-496595	Blade & Batteries for Pipeline	R	6/06/2012	13.38		012003		
	I-496607	Pan and Glue for Dist Maint	R	6/06/2012	23.76		012003		

VENDOR SET: 01 Casitas Municipal Water D
BANK: AP ACCOUNTS PAYABLE
DATE RANGE: 5/21/2012 THRU 6/06/2012

VENDOR	I.D.	NAME	STATUS	CHECK DATE	INVOICE AMOUNT	DISCOUNT	CHECK NO	CHECK STATUS	CHECK AMOUNT
	I-496801	Yellow Jacket Traps, Masks, WP	R	6/06/2012	68.45		012003		
	I-496855	Bolts & Screws for WP	R	6/06/2012	1.88		012003		
	I-496897	Chlorine and Socket for PP	R	6/06/2012	23.25		012003		735.51
02368		Anne Mercer							
	I-052112	Irrigation Controller Rebate	R	6/06/2012	250.00		012005		250.00
00144		BOB MONNIER							
	I-May 12	Reimburse Mileage 5/12	R	6/06/2012	105.33		012006		105.33
00165		OJAI LUMBER CO, INC							
	I-2432131	Wood, New Miter Saw Bench, PL	R	6/06/2012	127.86		012007		127.86
01051		OJAI VALLEY CARD & GIFT							
	I-6126505	Calculator for LCRA	R	6/06/2012	7.93		012008		7.93
00169		OJAI VALLEY SANITARY DISTRICT							
	I-14505	Cust#20594 Sewer Service	R	6/06/2012	150.63		012009		
	I-14587	Cust#52921 Sewer Service	R	6/06/2012	50.21		012009		200.84
01627		OSCAR'S TREE SERVICE							
	I-9951	Tree Inspection Report	R	6/06/2012	4,800.00		012010		4,800.00
10072		PERMACOLOR,INC							
	I-274688	Powder Coat Rincon Tank Hood	R	6/06/2012	204.63		012011		204.63
00627		PORT SUPPLY							
	C-003515A	Credit Inv#003515	R	6/06/2012	16.80CR		012012		
	I-4706	LED Lights for M Camp	R	6/06/2012	75.59		012012		58.79
00184		POWERSTRIDE BATTERY CO, INC							
	I-V578926	Battery for Lights, Camp M R/R	R	6/06/2012	185.50		012013		185.50
01439		PRECISION POWER EQUIPMENT							
	I-1744	Chainsaw Service & Parts, PL	R	6/06/2012	83.24		012014		83.24
01421		RHINO MARKING & PROTECTION SYS							
	C-44200A	Accrue Use Tax	R	6/06/2012	9.06CR		012015		
	D-44200A	Accrue Use Tax	R	6/06/2012	9.06		012015		
	I-44200	PL Damage Assessment Tools	R	6/06/2012	160.85		012015		160.85
00313		ROCK LONG'S AUTOMOTIVE							
	I-5461	Lube & Oil, Rear Brakes, #55	R	6/06/2012	877.96		012016		877.96

VENDOR SET: 01 Casitas Municipal Water D
BANK: AP ACCOUNTS PAYABLE
DATE RANGE: 5/21/2012 THRU 6/06/2012

VENDOR	I.D.	NAME	STATUS	CHECK DATE	INVOICE AMOUNT	DISCOUNT	CHECK NO	CHECK STATUS	CHECK AMOUNT
01456		RYAN HERCO PRODUCTS CORP							
	I-7381026	PVC End Connectors, TP	R	6/06/2012	77.57		012017		77.57
02344		ServiceMaster Building Mainten							
	I-10290	Janitorial Service D.O. 6/12	R	6/06/2012	1,032.00		012018		1,032.00
00608		SMITH PIPE & SUPPLY INC.							
	I-2403200	Blue Spray Indicator, Dist Mnt	R	6/06/2012	109.14		012019		109.14
02003		Sostre & Associates							
	I-1913	Rate Calculator for Website	R	6/06/2012	500.00		012020		500.00
00215		SOUTHERN CALIFORNIA EDISON							
	I-053012	Acct#2210503702	R	6/06/2012	4,683.99		012021		
	I-060112	Acct#2210505426	R	6/06/2012	1,883.64		012021		
	I-060112A	Acct#2210502480	R	6/06/2012	68,272.12		012021		
	I-060112B	Acct#2237789169	R	6/06/2012	22.64		012021		
	I-060212	Acct#2269631768	R	6/06/2012	19.37		012021		74,881.76
01147		SUPERIOR GATE SYSTEMS							
	I-2686	Auto Gate Repair, Olive St	R	6/06/2012	310.00		012022		310.00
01696		SUPERIOR MACHINE							
	I-1705	Machine Flanges for UOPP	R	6/06/2012	208.00		012023		208.00
00498		BRIAN TAYLOR							
	I-May 12	D-4 Classes & Dist Renewal	R	6/06/2012	264.90		012024		264.90
00225		UNDERGROUND SERVICE ALERT							
	I-520120092	108 New Tickets	R	6/06/2012	162.00		012025		162.00
00928		US POSTMASTER							
	I-053112	Postage for Newsletter	R	6/06/2012	4,300.00		012026		4,300.00
00257		VENTURA RIVER COUNTY WATER							
	I-053112	Acct#0537500A	R	6/06/2012	46.64		012027		
	I-053112A	Acct#0350100A	R	6/06/2012	14.70		012027		61.34
00258		VENTURA STEEL, INC							
	I-126678	Steel Meter Lids for Pipelines	R	6/06/2012	143.40		012028		143.40
09955		VENTURA WHOLESALE ELECTRIC							
	I-164554	Breaker for Coyote Restroom	R	6/06/2012	52.55		012029		52.55

VENDOR SET: 01 Casitas Municipal Water D
BANK: AP ACCOUNTS PAYABLE
DATE RANGE: 5/21/2012 THRU 6/06/2012

VENDOR	I.D.	NAME	STATUS	CHECK DATE	INVOICE AMOUNT	DISCOUNT	CHECK NO	CHECK STATUS	CHECK AMOUNT
02186		Weinerth and Sons Bee Removal							
	I-050712	Remove Bees, M-12 Campsite	R	6/06/2012	140.00		012030		140.00
00128		INTERNAL REVENUE SERVICE							
	I-T1 201205300574	Federal Withholding	D	5/30/2012	22,003.90		053021		
	I-T3 201205300574	FICA Withholding	D	5/30/2012	20,170.90		053021		
	I-T4 201205300574	Medicare Withholding	D	5/30/2012	5,624.76		053021		47,799.56
00049		STATE OF CALIFORNIA							
	I-T2 201205300574	State Withholding	D	5/30/2012	7,075.87		053022		7,075.87
00187		CALPERS							
	I-PER201205300574	PERS EMPLOYEE PORTION	D	5/30/2012	10,011.43		053023		
	I-PRR201205300574	PERS EMPLOYER PORTION	D	5/30/2012	11,953.42		053023		21,964.85

* * T O T A L S * *	NO			INVOICE AMOUNT	DISCOUNTS	CHECK AMOUNT
REGULAR CHECKS:	168			631,474.78	0.00	631,474.78
HAND CHECKS:	0			0.00	0.00	0.00
DRAFTS:	3			76,840.28	0.00	76,840.28
EFT:	0			0.00	0.00	0.00
NON CHECKS:	0			0.00	0.00	0.00
VOID CHECKS:	0	VOID DEBITS	0.00			
		VOID CREDITS	0.00	0.00	0.00	

TOTAL ERRORS: 0

VENDOR SET: 01 BANK: AP TOTALS:	171	708,315.06	0.00	708,315.06
BANK: AP TOTALS:	171	708,315.06	0.00	708,315.06
REPORT TOTALS:	174	708,315.06	0.00	708,315.06

Casitas Municipal Water District
Reimbursement Disclosure Report (1)
Fiscal Year 2011/12
July 1, 2011-May 31, 2012

Date paid	Board of Director/ Employee	Description	Amount Paid
7/7/11	Luke Soholt	T2 Exam and Certification	$ 125.00
7/13/11	Scott Lewis	Airfare to CMWD 6/20-6/28	$ 264.50
7/13/11	Scott Lewis	Personal Vehicle Miles to Newport (Round Trip)	$ 198.90
7/13/11	Scott Lewis	Lodging in Newport, OR 6/6-6/9	$ 281.76
7/13/11	Scott Lewis	DNA Lab Supplies	$ 650.67
7/13/11	Scott Lewis	Lodging at CMWD 6/20-6/28	$ 381.20
7/13/11	Scott Lewis	Car Rental at CMWD 6/20-6/28	$ 482.62
7/21/11	Pete Kaiser	Lodging in D.C. 7/11-7/13	$ 801.50
8/24/11	Curtis Orozco	Safety Boot Purchase	$ 115.00
8/31/11	Ron Yost	Possessory Tax (Dam Tender House)	$ 521.68
9/8/11	Mike Shields	Safety Boot Purchase	$ 113.53
9/8/11	Ron Yost	Safety Boot Purchase	$ 115.00
9/15/11	Scott Lewis	Airfare to CMWD 8/20-8/26	$ 401.80
9/15/11	Scott Lewis	Lodging at CMWD 8/20-8/26	$ 529.57
9/15/11	Scott Lewis	Car Rental at CMWD 8/20-8/26	$ 262.60
9/15/11	Tracy Medeiros	D2, D3 Review Class	$ 257.25
9/23/11	Tracy Medeiros	Water Distribution System Class	$ 113.04
9/23/11	Jim Weber	Safety Boot Purchase	$ 115.00
10/6/11	Lisa Barbee	Advance for Calpers Forum	$ 680.16
10/12/11	Scott Lewis	Airfare to CMWD 9/26-9/30	$ 344.50
10/12/11	Scott Lewis	Lodging at CMWD 9/26-9/30	$ 356.76
10/12/11	Scott Lewis	Car Rental 9/26-9/30	$ 211.80
10/12/11	Scott MacDonald	Advance for AWWA Fall Conf	$ 394.00
10/12/11	Luke Soholt	Advance for AWWA Fall Conf	$ 394.00
10/14/11	Lisa Kolar	Pesticide Exam Fees	$ 140.00
10/14/11	Lisa Kolar	Advance for Travel to Pesticide Exam	$ 120.80
10/20/11	Mark Passamani	Lodging at Safety Seminar 9/6-9/7	$ 148.00
10/20/11	Suzi Taylor	Chapstick for Giveaway at Ojai Day	$ 240.00
10/28/11	Mary Bergen	Airfare to Sacramento 9/19-9/20	$ 289.40
10/28/11	Mary Bergen	Car Rental in Sacramento 9/19-9/20	$ 113.15
11/2/11	Eric Behrendt	Lodging for Vibration Class 10/24-10/28	$ 598.88
11/2/11	Eric Behrendt	Personal Vehicle Miles to Class (Round Trip)	$ 210.90
11/2/11	Scott MacDonald	D3 Certification	$ 100.00
11/9/11	Neil Cole	Underground Training Class for Todd Evans	$ 125.00
11/9/11	Scott Lewis	Airfare to CMWD 10/25-10/28	$ 280.80
11/9/11	Scott Lewis	Lodging at CMWD 10/25-10/28	$ 240.81
11/9/11	Scott Lewis	Car Rental at CMWD 10/25-10/28	$ 228.55
11/9/11	Cinnamon McIntosh	Advance for Backflow Class	$ 872.79
11/9/11	Suzi Taylor	Foor for Chamber Mixer at LCRA	$ 482.63
11/17/11	Luke Soholt	Fees for D3 Certification	$ 100.00
11/17/11	Robert Vasquez	Safety Boot Purchase	$ 170.00
12/1/11	Gerardo Herrera	D3 Certification & Exam Fee	$ 140.00
12/1/11	Bob Monnier	Stormwater Course	$ 171.39
12/1/11	Bob Monnier	Small Water System Course	$ 111.55
12/8/11	Dale Godfrey	Tile, Blades for Showerstall, LCRA	$ 100.48
12/15/11	Bill Hicks	Lodging & Parking ACWA 11/29-12/2	$ 631.62
12/15/11	Scott Lewis	Airfare to CMWD 11/29-12/2	$ 260.80
12/15/11	Scott Lewis	Lodging at CMWD 11/29-12/2	$ 240.81
12/15/11	Scott Lewis	Car Rental at CMWD 11/29-12/2	$ 282.77
12/15/11	Cinnamon McIntosh	Reimburse Expenses from Backflow Class	$ 415.57
12/15/11	Ronald Merckling	Lodging & Parking ACWA 11/29-12/2	$ 631.62
12/15/11	James Word	Lodging & Parking ACWA 11/29-12/2	$ 631.62
12/15/11	John Parlee	Safety Boot Purchase	$ 170.00
12/20/11	Russ Baggerly	Lodging & Parking ACWA 11/29-12/2	$ 631.62
12/20/11	Carol Belser	Lodging & Parking DFG 12/14-12/15	$ 142.83
12/20/11	Luke Soholt	Safety Boot Purchase	$ 170.00
12/20/11	Mike Werber	District End-of-Year Luncheon 12/16/11	$ 468.95
12/28/11	Troy Garst	Safety Boot Purchase	$ 138.35
12/28/11	Gerardo Herrera	Safety Boot Purchase	$ 166.24

Casitas Municipal Water District
Reimbursement Disclosure Report (1)
Fiscal Year 2011/12
July 1, 2011-May 31, 2012

1/9/12	Scott Lewis	Tuition Fall Term 2011	$	1,614.47
1/9/12	Scott Lewis	Airfare to CMWD 1/5/12-1/13/12	$	290.80
1/9/12	Bob Monnier	T5 Certification	$	155.00
1/9/12	Mike Shields	D4 Renewal	$	105.00
1/9/12	Luke Soholt	Water & Wastewater Hydraulics, Class & Manual	$	229.50
1/27/12	Willis Hand	Safety Boot Purchase	$	132.75
2/8/12	Joel Cox	Safety Boot Purchase	$	159.80
2/15/12	Scott Lewis	Lodging CMWD 1/5/12-1/13/12	$	662.22
2/15/12	Scott Lewis	Car Rental 1/5/12-1/13/12	$	228.14
2/16/12	Willis Hand	Renew D4 Certificate	$	105.00
2/16/12	Scott MacDonald	Safety Boot Purchase	$	138.35
2/29/12	Larry Chavez	Safety Boot Purchase	$	144.78
3/9/12	Scott Lewis	Airfare to CMWD 2/13/12-2/28/12	$	241.20
3/9/12	Scott Lewis	Telemetry Solar Panels & Hardware	$	149.20
3/9/12	Scott Lewis	Lodging CMWD 2/13/12-2/18/12	$	411.38
3/9/12	Scott Lewis	Car Rental CMWD 2/13/12-2/18/12	$	345.24
3/9/12	Scott Lewis	Airfare to CMWD 3/6/12-3/13/12	$	241.20
3/28/12	Carol Belser	Lodging PRS Annual Conf. 3/20-3/22	$	572.96
3/28/12	Tracy Medeiros	Water Treatment Seminar 2/9/12	$	150.00
3/28/12	John Parlee	Water Treatment Seminar 2/9/12	$	150.00
3/28/12	Brian Taylor	Safety Boot Purchase	$	170.00
4/4/12	Neil Cole	Damage Investigation Webinar 3/28/12	$	125.00
4/4/12	Neil Cole	Professional License Renewal	$	125.00
4/4/12	Eric Grabowski	Safety Boot Purchase	$	170.00
4/11/12	Scott Lewis	Lodging CMWD 3/6/12-3/13/12	$	602.03
4/11/12	Scott Lewis	Car Rental 3/6/12-3/13/12	$	343.16
4/11/12	Scott Lewis	Solar Panels for Fisheries Use	$	138.50
4/11/12	Scott Lewis	Winter Term Tuition	$	1,385.53
4/18/12	Mike Shields	Lodging AWWA Conf 4/3/12-4/5/12	$	306.70
4/18/12	Mike Shields	Personal Vehicle Mileage to AWWA Conf	$	352.98
4/25/12	Mark Passamani	OSHA Compliance Seminar 4/17/12	$	199.00
5/9/12	Neil Cole	Autocad Subscription	$	142.51
5/21/12	Russ Baggerly	ACWA Conference Lodging 5/9/12-5/11/12	$	419.98
5/21/12	Russ Baggerly	ACWA Conference Mileage 5/9/12-5/11/12	$	308.58
5/21/12	Scott Lewis	Airfare to CMWD June (Postponed from May)	$	261.20
5/21/12	James Word	ACWA Conference Lodging 5/8/12-5/11/12	$	629.97
5/21/12	James Word	ACWA Conference Mileage 5/8/12-5/11/12	$	294.15
5/21/12	Luke Soholt	Advanced Water Treatment and Motor & Pump Maintenance Class & Manuals	$	341.50
5/24/12	Scott MacDonald	Advanced Water Treatment Class & Manual	$	228.50
5/24/12	Bill Hicks	ACWA Conference Lodging 5/8/12-5/11/12	$	629.97
5/24/12	Bill Hicks	ACWA Conference Mileage 5/8/12-5/11/12	$	283.05
5/30/12	Eric Behrendt	Windows Desktop OS Class	$	131.00

Note:

1) Reimbursement Disclosure Report prepared pursuant to California Government Code 53065.5

CASITAS MUNICIPAL WATER DISTRICT
Inter-Office Memorandum

DATE: May 24, 2012

TO: Board of Directors

FROM: General Manager, Steve Wickstrum

Re: Water Resources Committee Meeting of May 21, 2012

RECOMMENDATION:

It is recommended that the Board of Directors receive and file this report.

BACKGROUND AND OVERVIEW:

1. **Roll Call**.
   Director Baggerly and Director Hicks.
   Staff – Ron Merckling
   Public – None

2. **Public Comments**. None.

3. **Board Comments**.
   None.

4. **Manager Comments**.
   The General Manager reported that he had met with Mr. Bert Rapp, General Manager for Ventura River County Water District, regarding resale water rates and water allocation adjustments made in 2010. It was a positive meeting to help Mr. Rapp gain an understanding of rate structure and cost of service, and summarize the actions taken in 2010 to restore an appropriate allocation to his water agency.

5. **Overview of Section 15 of the Rates and Regulations.**
   The Committee discussed the Water Efficiency and Allocation Program (WEAP) and recent progress being made to revise this program. The Committee agreed that the revisions need to be simplified and in place before a drought event occurs in the District.

CASITAS MUNICIPAL WATER DISTRICT
Inter-Office Memorandum

DATE: June 5, 2012

TO: Board of Directors

FROM: General Manager, Steve Wickstrum

Re: Recreation Committee Meeting of June 4, 2012

RECOMMENDATION:
It is recommended that the Board of Directors receive and file this report.

BACKGROUND AND OVERVIEW:

1. **Roll Call**. Directors Kaiser and Hicks, PSM Carol Belser, GM Steve Wickstrum

2. **Public comments**. None.

3. **Board/Management comments**.
The General Manager asked about the progress of the Ojai Wine Festival. PSM Belser reported that staff are preparing for the event and working with the Ojai Rotary Club to host the event on June 10th.

Director Hicks reported on the positive activities at the 2012 Kid's Fishing Day. The work of staff and volunteers is greatly appreciated.

Director Kaiser asked if the park store was operating in accordance with the agreement. PSM Belser indicated that she has observed the store operating within the terms of the agreement. The Committee suggested continued meetings with Gary Wolfe to assure appropriate levels of service to the public. It was noted that Mr. Wolfe may be considering the improvement to the boat rental building.

The General Manager shared the LCRA ad in the Ventura County Summer Guide. The Committee commented on the ad and PSM Belser gave credit to PSO Aaron Wall for the development of the full page ad. PSM Belser explained that LCRA is doing more public outreach in Ventura County, where over half of the LCRA patrons live.

4. **Update on memorial Day weekend conditions.**
PSM Belser presented that Memorial Day weekend was very busy with sold out campgrounds. The Water Park sold out on Sunday and was near capacity on Saturday and Monday. No major incidents occurred in the park over the weekend. PSM Belser suggested purchasing a slightly larger portable restrooms to accommodate the peak visitation days.

5. **Update on Preparations for summer activities.**
Staff are busy making preparation for the Wine Festival, mowing the event parking area and making last repairs to the water park before opening to summer use.

6. **Discussion regarding land use planning.**
The Committee discussed various land use suggestions and the need for appropriate land use and financial planning before taking any actions. Staff should look at short and long term projects, planning, and look for funding opportunities. One specific topic discussed was the District's efforts to manage sewage collection and hauling, which should be converted to a pipeline system.

7. **Review of Incidents and Comments.**
The committee reviewed various reports made by staff on incidents that occurred in the LCRA. There were no major issues.

CASITAS MUNICIPAL WATER DISTRICT
Inter-Office Memorandum

DATE: June 5, 2012

TO: Board of Directors

FROM: General Manager, Steve Wickstrum

Re: Executive Committee Meeting of June 5, 2012

RECOMMENDATION:
It is recommended that the Board of Directors receive and file this report.

MEETING:

1. Roll Call. Director Baggerly and Director Word, Steve Wickstrum and Ron Merckling

2. Public Comments. None.

3. Board/Manager comments.
Director Baggerly noted that Item 5 of this agenda is pulled from discussion and referred to the Finance Committee.

   The Committee discussed the need to determine the availability of Directors during the summer months and set meetings accordingly.

   Director Baggerly suggested a change in the name of the landscape conservation program to something related to the Ventura River watershed. Staff will consider renaming the program.

4. Discussion regarding attendance at the CSDA General Manager Leadership Summit.
The General Manager presented a recent notice of the CSDA General Manager Leadership Summit. It was suggested that the General Manager attend.

5. Ojai Valley Sanitary District Request to install radio repeaters on District property.
This item was not discussed and has been referred to the Finance Committee.

6. Request by Ojai Valley School for a Water Conservation Recommendation letter.
In recent emails to the District, the Ojai Valley School (OVS) has requested a commendation letter from the District for water conservation actions by OVS. The Committee discussed the merits of request and concluded that a commendation letter was not appropriate at this time. Staff will write a letter to OVS to explain this conclusion.

7. Membership in the American Society of Safety Engineers in the amount of $200.
It was brought to the Committee's attention that the subject membership had not

placed on the list of memberships that is approved by the Board in January of each year. The subject membership is budgeted and is important to the District's Safety Officer. The Committee supported payment of the membership and suggested getting the membership on the list. It was further suggested by Director Baggerly that the Safety Officer provide the Board a report on the progress with the safety program of the District.

CASITAS MUNICIPAL WATER DISTRICT
Inter-Office Memorandum

DATE: May 25, 2012

TO: Board of Directors

FROM: General Manager, Steve Wickstrum

Re: Finance Committee Meeting of May 25, 2012

RECOMMENDATION:

It is recommended that the Board of Directors receive and file this report.

BACKGROUND AND OVERVIEW:

1. **Roll Call**.
   Director Bergen and Director Word
   Staff – Steve Wickstrum and Denise Collin

2. **Public comments**. None.

3. **Board/Management comments**.

   The General Manager reported that there had been a question regarding recent issues on Wall Street and the District's investments. The investments are safe and adequately insured, and not exposed to the recent issues.

4. **Review of the Financial Statement for March 2012.**
   The Committee reviewed the financial statement. Denise Collin reported that all taxes have been received and booked and interest revenue is on budget target. The Committee reviewed the financial statement and addressed general topic questions.

5. **Review of the Water Consumption for March 2012.**
   Water sale dropped considerably in April 2012 due to the rainfall events and a notable reduction in sales in the irrigation classification. Overall, sales are on track with the budget to attain approximately 15,000 acre-feet.

6. **Review of the draft budget for FY 2012-13.**
   The Committee was presented an adjusted budget. Denise Collin adjusted the budget to reflect the appropriate cost of living adjustment to salaries and the two carryover projects. The Committee suggested that all fees are being collected at the recreation Area, noting that pet fee collection has declined from last year's numbers.

7. **Request for Leak Relief from Pamela White.**
   The Committee reviewed the leak relief request which has met all requirements provided

by the District's rates and regulations. Because it is greater than $500, it must be considered by the Board of Directors. The Committee also suggested the Executive Committee take another look at the leak relief program and consider changes and/or removal of the program.

CASITAS MUNICIPAL WATER DISTRICT
Inter-Office Memorandum

DATE: June 7, 2012

TO: Board of Directors

FROM: General Manager, Steve Wickstrum

Re: Safety of Dams Obligation

RECOMMENDATION:

It is recommended that the Board of Directors approve the payment of the M&I and interest portion of the Bureau of Reclamation (USBR) Safety of Dams (SOD) obligation.

BACKGROUND:

In 1998, the USBR determined that there were uncertainties in the foundation of Casitas Dam that may have significant consequences in the event of an earthquake, such that the USBR recommended specific modifications to the dam's downstream foundation, crest width, and intake and outlet works. The modifications were funded through the Safety of Dams Act, which required a match of 15 percent by the local partner. The Act provided that interest be bore on the M&I equivalent (42.67%) of the project and no interest on the Irrigation equivalent (57.33%) of the project.

The Casitas Dam Modernization Project (Project) began in 1999 and was substantially complete by 2002. Follow-up tasks were performed by the USBR through 2008. The final Project cost totaled $34,982,658.91. The principle obligation of the District, based on 15 percent of the project costs, is $5,247,398.84. The District also has an obligation to pay interest that has accrued on the M&I portion of the Project. In 2003, the District made a partial payment on the M&I and interest obligation.

The District has been negotiating a repayment contract for the Project and as a part of the negotiations is the determination of the cost obligations of the District. The District has expressed to the USBR the desire to pay the M&I portion of the obligation as soon as possible, removing the future accrual of interest from the obligation, and reach a long term repayment contract for the remaining Irrigation obligation. The USBR has prepared and delivered a Bill for Collection for the M&I obligation. The interest during construction (IDC) has been updated through May 2012. The interest during construction is $204,645.74 and the remaining M&I principle is $113,229.08. The total bill is $317,944.82.

The SOD Ad Hoc Committee has reviewed the M&I costs and interest. The payment of the bill is moved to the Board of Directors for consideration of payment during the current fiscal

year.

If the District pays the M&I and interest costs, the USBR will move forward with the finalization of a repayment contract for the Irrigation obligation of the Project. The proposed schedule for finalization of the contract is December 2012, with the proposed first payment date of February 2014.

FAX

For: Steve Wickstrom

Fax number: (805) 649-3001

From: Ma Teresa Killian

Fax number: (916)978-5392

Date: 06/07/2012

Regarding: Casitas MWD Bills

Number of pages: 7 including cover sheet

UNITED STATES DEPARTMENT OF INTERIOR PAGE: 1 OF 3
DIV VEND-ID BUREAU OF RECLAMATION DOCUMENT-ID
2 M4826 1 BD120520W531B

BILL FOR COLLECTION BILL DATE: 06/07/12
DUE DATE: 07/07/12

MAIL TO: BUREAU OF RECLAMATION - MID-PACIFIC
P.O. BOX 301502
LOS ANGELES, CALIFORNIA 90030-1502

AMOUNT DUE $204,645.74

PAYER: CASITAS MUNICIPAL WATER DISTRI
1055 VENTURA AVENUE

CASITAS CA 93022-9699

FOLD HERE

---DESCRIPTION---

000 CONTRACT NO: 8-07-20-W1531
CASITAS MUNICIPAL WATER DISTRICT
SAFETY OF DAMS MODIFICATION PROGRAM

IDC DUE AS OF MAY 30,2012 $ 204,645.74

CC: FRESNO/MP440 (M.LE BARRE)
SCC-442 (R. BALLEW)
MP-3600 (C. LEE)

04

PLEASE NOTE THE DUE DATE PRINTED ON THIS BILL. BILLS NOT PAID IN FULL BY THE DUE DATE WILL BE ASSESSED THE FOLLOWING:

TO ENSURE PROPER CREDIT PLEASE RETURN LOWER PORTION WITH YOUR PAYMENT

LN#	TC	TT	FND	PROGRAM	JOB NO.	ORGANIZ	RSRC	---DESCRIPTION---	----AMOUNT----
001	BD	RV	602	07674961	1002000	2000000	522N01	IDC (SOD)	$204,645.74

DOCUMENT ID: BD120520W531B
VEND-ID: M4826 1
VENDOR NAME: CASITAS MUNICIPAL WATER D
DOC TYPE: R

INTEREST	$.00
ADMINISTRATIVE CHARGES	$.00
PENALTY	$.00
AMOUNT DUE THIS BILL	$204,645.74

IMPORTANT INFORMATION ON REVERSE SIDE

UNITED STATES DEPARTMENT OF INTERIOR PAGE: 3 OF 3
BUREAU OF RECLAMATION

DIV	VEND-ID		DOCUMENT-ID
2	M4826	1	BD120520W531B

BILL FOR COLLECTION BILL DATE: 06/07/12
DUE DATE: 07/07/12

----------DESCRIPTION----------

ACCOUNT NUMBER: _____ EXPIRATION DATE _____
BILL NO.: _____ _____ _____
SIGNATURE DATE

3. PAYMENT MAY BE ELECTRONICALLY TRANSFERRED TO BUREAU OF RECLAMATION. THE ELECTRONIC TRANSFER MUST INCLUDE THE FOLLOWING INFORMATION AND REFERENCE THE BILL NUMBER:

ACH (REMITTANCE EXPRESS)		EFT (FEDWIRE)	
ABA NO. (ROUTING NO.):	051036706	ABA NO. (ROUTING NO.)	021030004
ACCOUNT NO.:	312018		
ALC	14060905	ALC	14060905

**********NOTICE TO CUSTOMERS MAKING PAYMENT BY CHECK**********
IF YOU SEND US A CHECK, IT WILL BE CONVERTED INTO AN ELECTRONIC FUNDS TRANSFER (EFT). THIS MEANS WE WILL COPY YOUR CHECK AND USE THE ACCOUNT INFORMATION ON IT TO ELECTRONICALLY DEBIT YOUR ACCOUNT FOR THE AMOUNT OF THE CHECK. THE DEBIT FROM YOUR ACCOUNT WILL USUALLY OCCUR WITHIN 24 HOURS, AND WILL BE SHOWN ON YOUR REGULAR ACCOUNT STATEMENT. YOU WILL NOT RECEIVE YOUR ORIGINAL CHECK BACK. WE WILL DESTROY YOUR ORIGINAL CHECK, BUT WE WILL KEEP THE COPY OF IT. IF THE EFT CANNOT BE PROCESSED FOR TECHNICAL REASONS, YOU AUTHORIZE US TO PROCESS THE COPY IN PLACE OF YOU ORIGINAL CHECK. IF THE EFT CANNOT BE COMPLETED BECAUSE OF INSUFFICIENT FUNDS, WE MAY TRY TO MAKE THE TRANSFER UP TO 2 TIMES. AND WE WILL CHARGE YOU A ONE-TIME FEE OF $30, WHICH WE WILL ALSO COLLECT BY EFT.
****

PRIVACY ACT-A PRIVACY ACT STATEMENT REQUIRED BY 5 U.S.C. - 552A(E)(3) STATING OUR AUTHORITY FOR SOLICITING AND COLLECTING THE INFORMATION FROM YOUR CHECK, AND EXPLAINING THE PURPOSES AND ROUTINE USES WHICH WILL BE MADE OF YOUR CHECK INFORMATION, IS AVAILABLE FROM OUR INTERNET SITE AT WWW.USBR.GOV. FURNISHING THE CHECK INFORMATION IS VOLUNTARY, BUT A DECISION NOT TO DO SO MAY REQUIRE YOU TO MAKE PAYMENT BY SOME OTHER METHOD.

UNITED STATES DEPARTMENT OF INTERIOR PAGE: 1 OF 3
BUREAU OF RECLAMATION

DIV	VEND-ID		DOCUMENT-ID
2	M4826	1	BD120520W531A

BILL FOR COLLECTION

BILL DATE: 06/07/12
DUE DATE: 07/07/12

MAIL TO: BUREAU OF RECLAMATION - MID-PACIFIC
P.O. BOX 301502
LOS ANGELES, CALIFORNIA 90030-1502

AMOUNT DUE $113,299.08

PAYER: CASITAS MUNICIPAL WATER DISTRI
1055 VENTURA AVENUE

CASITAS CA 93022-9699

FOLD HERE

----------DESCRIPTION----------

000 CONTRACT NO: 8-07-20-W1531
CASITAS MUNICIPAL WATER DISTRICT
SAFETY OF DAMS MODIFICATION PROGRAM

M&I REIMBURSABLE COST AS OF MAY 30,2012
($34,982,658.91) (15%) (42.67%)-($2,125,766.00) = $ 113,229.08

CC: FRESNO/MP440 (M.LEBARRE)
SCC-442 (R. BALLEW)
MP-3600 (C. LEE)

04

PLEASE NOTE THE DUE DATE PRINTED ON THIS BILL. BILLS NOT PAID IN FULL BY THE DUE DATE WILL BE ASSESSED THE FOLLOWING:

TO ENSURE PROPER CREDIT PLEASE RETURN LOWER PORTION WITH YOUR PAYMENT

LN#	TC	TT	FND	PROGRAM	JOB NO.	ORGANIZ	RSRC	---DESCRIPTION---	----AMOUNT----
001	BD	RP	611	07671213	0000000	2000000	511N01	REPAYMENT	$113,299.08

DOCUMENT ID: BD120520W531A
VEND-ID: M4826 1
VENDOR NAME: CASITAS MUNICIPAL WATER D
DOC TYPE: R

INTEREST	$.00
ADMINISTRATIVE CHARGES	$.00
PENALTY	$.00
AMOUNT DUE THIS BILL	$113,299.08

IMPORTANT INFORMATION ON REVERSE SIDE

UNITED STATES DEPARTMENT OF INTERIOR
BUREAU OF RECLAMATION

DIV	VEND-ID		DOCUMENT-ID
2	M4826	1	BD120520W531A

BILL FOR COLLECTION

BILL DATE: 06/07/12
DUE DATE: 07/07/12

----------DESCRIPTION----------

ACCOUNT NUMBER: _____ EXPIRATION DATE _____
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Explanation of changes to IDC worksheet presented during May 22, 2012 negotiation session:

FY2009/FY2010: Calculations to determine IDC during a fiscal year where there were zero costs incurred corrected from previous version. The amount of $14,088.72 has been changed.

FY2009 amount is corrected to $8,867.17. FY2010 amount is corrected to $9,335.62.

FY2009/FY2010 original amount total: $14,088.72 + $14,088.72 = $28,177.44

FY2009/FY2010 corrected amount total: $8,867.17 + $9,335.62 = $18,202.79

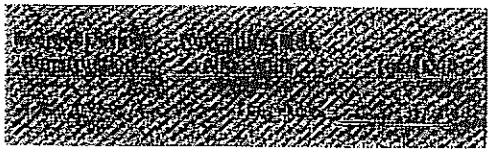
FY 2011 IDC added: $9,829.04

FY2012 (Sep 11 – May 12) added: $6,805.13

VENTURA PROJECT
INTEREST DURING CONSTRUCTION
ADDITIONS AND REPLACEMENTS

25 Year Repayment

G.L. 1720 A7676100
Cost Auth Casitas Dam - SOD Modification



	Year	Total IDC Costs
IDC	1999	809.62
	2000	49,470.09
	2001	106,610.84
	2002	119,789.77
	2003	6,557.79
	2004	8,786.60
	2005	10,583.53
	2006	11,859.67
	2007	13,024.30
	2008	14,051.89
	2009	8,867.17
	2010	9,335.62
	2011	9,829.04
	2012	6,805.13
Sub Total IDC		376,390.06
Less 2003 Payment		(171,744.32)
Total IDC Due		204,645.74

	Year	Total Costs	Reimbursable 15%	M&I Allocation 42.67%	2003 Payment	Outstanding M&I Balance
Costs	1999	518,947.65	77,842.15	33,215.24	(33,215.24)	0.00
	2000	28,456,929.04	4,268,539.36	1,821,385.74	(1,821,385.74)	0.00
	2001	5,437,702.35	815,655.35	220,030.14	(220,030.14)	(0.00)
	2001	4,857.24	728.59	310.89	0.00	310.89 1/
	2002	760,516.01	114,077.40	48,676.83	(48,676.83)	0.00
	2003	629,250.42	94,387.56	40,275.17	(2,458.05)	37,817.12
	2004	505,374.81	75,806.22	32,346.51	0.00	32,346.51
	2005	286,764.34	43,014.65	18,354.35	0.00	18,354.35
	2006	175,409.40	26,324.91	11,232.84	0.00	11,232.84
	2007	184,342.19	27,645.33	11,796.26	0.00	11,796.26
	2008	22,515.46	3,377.32	1,441.10	0.00	1,441.10
	2009	0.00	0.00	0.00	0.00	0.00
	2010	0.00	0.00	0.00	0.00	0.00
	2011	0.00	0.00	0.00	0.00	0.00
	2012	0.00	0.00	0.00	0.00	0.00
		34,982,658.91	5,247,398.84	2,239,065.08	(2,125,766.00)	113,299.08
	Xfr to Plant in Service	(34,982,658.91)				
	Difference	0.00				

1/ Outstanding balance is M&I portion of recoverable non funded costs (solicitors costs). Interest during construction is not calculated on non funded costs. See fiscal year 3001 worksheet, line 2.

Based on 1 year repayment period through 2002, & 25 year from 2003 forward

Casitas Municipal Water District
Monthly Cost Analysis
2011/2012

06/06/2012

	Marzula & Marzula *11-5-21-5049-12*	Operation of Robles *11-5-??-????-14*	Fisheries *11-5-28-50??-??*	Project Name Fish Passage	Cost of the Fish Passage
2003/2004	***0.00***	***132,143.20***	***6,066.93***		
2004/2005	***0.00***	***298,006.35***	***39,124.63***		***8,079,888.06***
2005/2006	***274,270.75***	***144,052.92***	***93,406.52***		***0.00***
2006/2007	***194,409.73***	***110,707.78***	***188,651.75***		***114,790.04***
2007/2008	***21,111.90***	***117,299.80***	***272,644.56***		***0.00***
2008/2009	***1,207.75***	***88,201.00***	***307,739.00***		***0.00***
2009/2010	***216,797.47***	***124,874.54***	***342,756.94***		***0.00***
2010/2011	***169,932.80***	***148,506.23***	***373,535.60***		
				Expenditures	
July	691.67	5,316.70	21,434.00		
August	1,457.70	2,986.95	24,849.61		
September	0.00	14,252.92	26,760.88		
October	25.63	11,707.92	31,235.08		
November	0.00	10,201.99	20,761.81		
December	492.25	7,659.84	35,777.04		
January	0.00	16,834.31	22,949.92		
Feburary	1,423.79	4,986.34	30,596.67	***Less: Grants***	
				CA Coastal Conservancy	-1,750,000.00
March	1,612.84	1,709.32	33,419.29	CA Dept of Fish & Game	-1,500,000.00
				CA Dept of Fish & Game	-1,000,000.00
April	10.97	2,060.15	24,407.77	Pacific States Marine *(Timber Debris Fence)*	-8,988.86
May	58.50	3,508.26	37,876.51	Pacific States Marine *(Vaki Shroud)*	-18,980.00
June					
Total Cost YTD	***5,773.35***	***81,224.70***	***310,068.58***	**Total Cost TD**	***8,194,678.10***
				Less: Grant Funding	***-4,277,968.86***
Total Project Cost	***883,503.75***	***1,245,016.52***	***1,933,994.51***	**Total Project Cost**	***3,916,709.24***

Total: Operation of Robles, Fisheries and Fish Passage ***7,095,720.27***

CASITAS MUNICIPAL WATER DISTRICT
LAKE CASITAS RECREATION AREA

DATE: May 31, 2012

TO: Steve Wickstrum, General Manager

FROM: Carol Belser, Park Services Manager

SUBJECT: Recreation Area Monthly Report for April 2012

Visitation Numbers

The following is a comparison of visitations for April 2012:

	April 2011	April 2012	March. 2012
Visitor Days	82,536	73,144	37,276
Camps	7,666	4,535	2,576
Cars	20,634	18,286	9,319
Boats	1,024	480	489
Kayaks & Canoes	15	8	5

Fiscal Year to Date Visitation	
2010/2011	521,576
2011/2012	518,736
% Change	-0.545

Administration

A ten year Concession Agreement with Lake Casitas Marina Inc., Gary Wolfe, President, to provide Park Store services was approved by the Board of Directors.

Staff received a long anticipated response from the Department of Fish and Game regarding our inquiry as to when they will resume trout plants in Lake Casitas. Unfortunately, the Department has not yet begun their Biological Assessment required to render a Biological Opinion to make the determination to resume trout plants in Lake Casitas. In short, Casitas is still under a DFG trout stocking moratorium that they started in January 2010. Casitas can and will continue to plant purchased trout or one of the eight species of fish allowed by DFG.

The Ventura County Corporate Games Disc Golf event was held April 14. Staff reported approximately 40 participants and spectators.

Ventura Comets Radio Controlled Airplane Club held a Float Fly April 21 and 22 attracted 29 campers to the Recreation Area and had 52 participants as reported by the Club.

Boating

There were 19 cables sold for new inspections, 19 vessel re-inspections, and 1,129 boats were retagged. Three failed the first inspection.

PSO and APSO staff are continuing to collect data for the creel survey and an opinion survey the first week of each month. The data collected is analyzed by Scott Lewis and will be used in the Fisheries Management Plan.

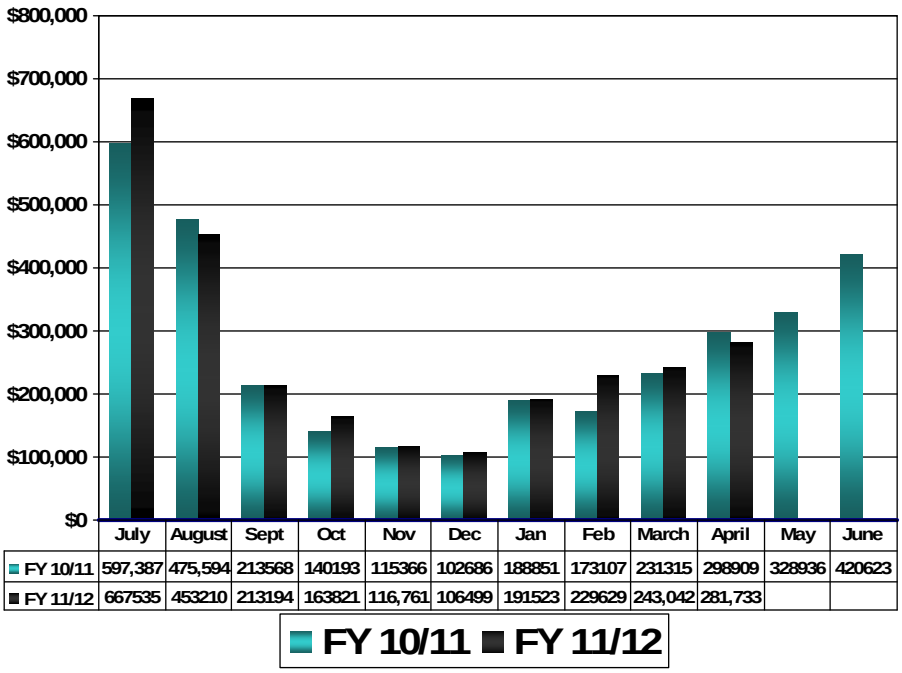
Incidents

There were several incidents that required calls for emergency service for the month of April for alleged: broken finger, broken wrist, adult kidnapping, bicycle accident, found child, DUI, head injury and sudden illness.

Revenue Reporting

The figures below illustrate all Lake Casitas Recreation Area's revenue collected in the respective month (operations, concessions, Water Adventure, etc.) per the District's Financial Summary generated by the Finance Manager.

LCRA TOTAL REVENUE



Casitas Municipal Water District

Interdepartmental Memorandum

To: Steve Wickstrum, General Manager

From: Scott Lewis, Fisheries Program Manager

Subject: Final 2011 Robles Progress Report

Date: 06-08-12

Background

Attached is the final 2011 Robles Progress Report. A complete presentation is planned for the first board meeting in July and any questions about the report or future evaluations can be addressed at that time.

The final report went through numerous revisions and lengthy discussions with regulatory agencies before completion. The Fisheries Monitoring and Evaluation section includes: 1) upstream fish migration impediment evaluation, 2) sandbar monitoring at the mouth of the Ventura River, 3) fish attraction evaluation, 4) fish passage monitoring, 5) downstream fish passage evaluations, and 6) downstream fish migration through the Robles Reach.

The largest section of the report deals with the impediment evaluations. This evaluation will be critical to developing the final operating criteria for future diversions and minimum flow releases. A total of 43 water depth transects at six monitoring sites were completed and analyzed in detail. Since there were no significant flows during 2012, this evaluation will continue in 2013 if sufficient flows occur.

A total of 640 *O. mykiss* juveniles were counted during snorkeling surveys in the area upstream and downstream of the Robles Fish Facility during the fish attraction evaluations in 2011. During the fish passage monitoring evaluations (using the Vaki Riverwatcher), 150 *O. mykiss* were detected migrating upstream through the Robles Fish Facility. Twenty-five *O. mykiss* migrating smolts were captured downstream of the Robles Fish Facility; 16 were radio-tagged and 8 PIT-tagged. This represented the first significant radio tagging to date. The steelhead smolts were migrating at what appears to be normal rates downstream through the Robles Reach. The mean migration rate through the Robles Reach was 2.2 km/day.

2011 Robles Fish Passage Facility
Progress Report

Steelhead smolt with gastric radio tag. Smolt was captured, tagged, and released downstream of the Robles Fish Facility in April 2011.

Casitas Municipal Water District
1055 Ventura Avenue
Oak View, California 93022

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY

Casitas Municipal Water District (CMWD) is implementing the Robles Fish Passage Facility Project (Robles Fish Facility) described in the Biological Assessment (BA) proposed by Bureau of Reclamation (USBOR 2003). The affects of the Robles Fish Facility were analyzed in the Biological Opinion (BO) prepared by the National Marine Fisheries Service (NMFS 2003a). This 2011 Robles Fish Passage Facility Progress Report, as described by the BO, is the culmination of monitoring, evaluation, and operational data collected during the reporting period of 01 July 2010 to 30 June 2011.

The monitoring and evaluation studies related to the Robles Fish Facility conducted during the 2010-2011 reporting period are included in two main sections of this progress report. The Fisheries Monitoring and Evaluation section includes: upstream fish migration impediment evaluation, sandbar monitoring at the mouth of the Ventura River, fish attraction evaluation, fish passage monitoring, downstream fish passage evaluations, and downstream fish migration through the Robles Reach. The Facility Operation section includes: information and data on the facility status, flow observations and control, costs associated with operation and monitoring, assessment of the effectiveness to provide fish passage, recommendations of priorities for future activities, and revisions deemed necessary to the operations.

A total of 43 water depth transects at six monitoring sites were completed and analyzed for the upstream fish migration impediment evaluation in 2011. The sandbar at the mouth of the Ventura River was closed only for short periods during mid October 2011 and was open for potential volitional steelhead passage during the remainder of the reporting period. A total of 640 *O. mykiss* juveniles were counted in the area upstream and downstream of the Robles Fish Facility during the fish attraction evaluations in 2011. This number likely represents multiple counts of some *O. mykiss* due to smolting rates and migration behavior. During the fish passage monitoring evaluations, 150 *O. mykiss* were detected migrating upstream through the Robles Fish Facility in 2011. Twenty-five *O. mykiss* migrating smolts were captured downstream of the Robles Fish

Facility; 16 were radio-tagged, 8 PIT-tagged, and one was not tagged. The mean migration rate through the Robles Reach was 2.2 km/day.

2.0 INTRODUCTION

NOAA Fisheries listed the southern California steelhead, *Oncorhynchus mykiss*, as endangered in 1997 (NMFS 1997) under the Endangered Species Act (ESA, 16 U.S.C. § 1531 et. seq.) of 1973. Steelhead were organized into stocks (i.e., groups) of evolutionary significant units (ESU) that were considered to be substantially isolated from other steelhead stocks reproductively and were an important part of the evolutionary legacy of the species. The southern California steelhead ESU included, at that time, steelhead populations from the Santa Maria River in San Luis Obispo County south to Malibu Creek in Los Angeles County. The ESU was later extended to the US/Mexican border in San Diego County during 2002 (NMFS 2003b). In a later delineating approach, NOAA Fisheries recognized the anadromous life history form of *O. mykiss* as a distinct population segment (DPS) as described under the ESA (NMFS 2005). The DPS policy differs from the ESU by delineating a group of organisms by "marked separation" rather than "substantial reproductive isolation". In the case of *O. mykiss* of the southern California steelhead ESU, this marked separation between the two life history forms was considered valid because of physical, physiological, ecological, and behavioral factors related to its anadromous life history characteristics. Both resident and anadromous *O. mykiss*, where the two forms co-occur and are not reproductively isolated, are still part of the ESU; however, the anadromous *O. mykiss* (i.e., steelhead) are now part of a smaller subset identified as the southern California steelhead DPS.

Rainbow trout (*O. mykiss*) can be generally organized into four large groupings (Behnke 1992; Scott and Crossman 1973): 1) coastal rainbow trout that extend from northern Baja California to northern Alaska near the Kuskokwim River and also the Kamchatkan Peninsula of northeastern Asia, 2) redband trout of the inland Columbia and Frazer River basins, 3) redband trout of the central valley of California, and 4) trout of the Gulf

of California drainages. The taxonomic group of coastal rainbow trout, *O. m. irideus*, exhibit two life history forms; anadromous and resident. The common name for the anadromous life history form is termed steelhead trout and the resident form is generally termed rainbow trout. Throughout the range of coastal rainbow trout, there is a widespread occurrence of the anadromous life history form (Behnke 1992). There are two general life history patterns exhibited by adult anadromous steelhead when they return from the ocean to spawn in fresh water. The patterns are grouped by either summer or winter spawning runs. There are many exceptions to this pattern, but this general characterization has been used to group steelhead spawning runs by the season in which the peak occurs as they return from the ocean (Busby et al. 1996). Summer steelhead are generally found in river systems that drain from farther inland, such as the Columbia River basin. Winter steelhead runs are typically found in the coastal systems where the river systems are not as large. The winter steelhead life history pattern is the most abundant anadromous life history within the natural range of the species (Busby et al. 1996).

3.0 FISHERIES MONITORING AND EVALUATION

The monitoring and evaluation studies and activities related to the modification of the Robles Facility, as outlined in the BO (NMFS 2003a), were intended to achieve three main objectives:

I. Monitor Fish Passage Facility operations and performance.

II. Determine if the Fish Passage Facility functions and operates in such a fashion that migrating steelhead:
    a. Successfully navigate into and through the facility, and
    b. Move through the facility in good physical condition.

III. Determine if the operations at the Robles Diversion are enhancing the opportunity for:
    a. Adult steelhead to migrate upstream to the Robles Facility, and
    b. Smolts and kelts to migrate downstream through the Robles Reach.

5-year Reevaluation of Initial Evaluation and Monitoring Activities

As described in the BO, a 5-year reevaluation of the initial fish flow operations would be conducted to determine if monitoring and evaluations have been completed (NMFS 2003a). The initiation of the 5-year period began in 2006, which was the first year the Robles Fish Facility was fully operational. An annual and ongoing reevaluation began after the 2010 fish passage season. Through the Cooperative Decision Making Process, the Robles Biological Committee will review each of the specific evaluations and determine if the original objectives have been addressed and could be discontinued or if additional study would be needed. It is recommended that all aspects of the monitoring and evaluation for the Robles Fish Facility be continued during 2012. Due to the variable water conditions and insufficient number of adult and juvenile steelhead, the objectives of the monitoring and evaluation program have not yet been accomplished. Each aspect of the monitoring and evaluation will be evaluated annually to determine if sufficient information exist to complete each objective. See Appendix 36 for correspondence among Biological Committee participants related to the 2011 progress report and 2012 study plan.

3.1 Upstream Fish Migration Impediment Evaluation

Introduction

The ability of adult steelhead to swim upstream can be impeded during the migration season at times of low-river flow (NMFS 2003a). Evaluations at shallow water habitat units (i.e., critical riffles) have been commonly used as a method to determine if impediments exist for adult and juvenile steelhead in California rivers (Dettman and Kelley 1986; Bratovich and Kelley 1988; Hager 1996). The Robles Reach, which extends downstream from the Robles Fish Facility approximately 6.5 km (NMFS 2003a) to just upstream of the San Ana Boulevard bridge (Appendix 1), is a wide alluvial section of the Ventura River that is composed of active wash deposits of unconsolidated silt, sand, gravel, and boulders (Tan and Jones 2006). Due to this type of channel

morphology and geology, alluvial channels like the Robles Reach have high infiltration rates that cause channel surface flow to rapidly recede and cease shortly after storm events (Cooke et al. 1992).

An initial assessment of potential passage impediments in relation to river discharge was completed by ENTRIX (1999). The physical characteristics of seven potential impediments were evaluated using the Thompson (1972) passage criteria. The Thompson (1972) passage criteria for adult steelhead at critical riffles is a water depth of 0.6 ft for 25% of the total transect width and a continuous portion equal to 10% of the total transect width. ENTRIX (1999) also evaluated the potential impediments using a criteria of 0.5 ft and 0.6 ft depth for 25% of the total width and a total of 8 ft width for both depths. The resulting discharge required was estimated to be between 40 and 65 cfs. There have been several modifications to the Thompson passage criteria by other researchers; Dettman and Kelly (1986) on the Carmel River used a depth of 0.6 ft over a 5 ft continuous section, a criteria of 0.6 ft depth over an 8 ft section was used on the Santa Ynez River (SYRTAC 2000), and Harrison et al. (2006) used a criteria of 0.6 ft depth over a 10 ft section on the Santa Clara River. Thompson's (1972) depth criterion of 0.6 ft was not based on actual migration observations and was never validated. It has been observed that adult salmonids can successfully move through shallower riffles than the 0.6 ft criterion (Mosley 1982).

The objective of the impediment evaluation is to assess factors that may impede steelhead's ability to migrate to the fish passage facilities (NMFS 2003a). Because of the potential for low-river flows to impede upstream fish migration, the Robles Reach will be the primary focus of the impediment evaluations (NMFS 2003a).

Methods

Selected channel features that may pose an impediment to upstream passage were surveyed multiple times during the fish migration season (January through June) to measure water depth, velocity, and channel width along a transect at each site. The

selected sites were surveyed over a range of discharges from approximately 30-100 cfs (the upper limit was dependent on the ability to safely conduct the surveys), which was correlated with discharge at the Robles Fish Facility. The number of repeated surveys was dependent on the number and duration of significant rain events, rate of hydrograph recession, and time constraints due to other aspects of the monitoring and evaluation program. The impediment surveys will most likely be conducted over a period of 3-4 years given the natural variation of water conditions. The selected impediment sites will be resurveyed as many times as needed to develop a statistically rigorous data set to evaluate fish passage in relation to Robles Fish Facility discharge.

During the initial phase, the Ventura River was surveyed from the mouth to the Robles Fish Facility (23 km) using standard stream survey techniques and was completed in 2008 (CMWD 2008). This provided physical measurements of all habitat units for the selection process. The survey methodology followed Moore et al. (2002) and was equivalent to a level IV survey as described in the California Salmonid Stream Habitat Restoration Manual (Flosi et al. 2002).

Over the course of three meetings and one conference call between 24 January and 18 June of 2009, the Biological Committee (BC) for the Robles Fish Facility completed an impediment site selection process that culminated in the selection of eight sites that would be monitored for the impediment evaluation. The BC reviewed physical parameters of the 379 habitat units surveyed and general river characteristics that included: unit type, length, width, water depth, slope, longitudinal location (river km), step height on step units, discharge at Foster Park and the Robles Fish Facility at the time of the surveys, and a river profile for the 23 km of the Ventura River surveyed. Upon completing an initial assessment of this data, a list of potential sites was developed that the BC visited in the field on 27 May 2009 to determine if monitoring was warranted. This data and field assessment included regular BC members Mike Kinsey (BOR), Stan Glowacki (NMFS), Mary Larson (CDFG), and Scott Lewis (CMWD). Hydrologists Bob Hughes (CDFG) and David Crowder (NMFS) were also involved in this assessment and selection process.

ENTRIX Site Assessments

An effort was made to locate and determine the status of the ENTRIX (1999) sites during 2009. Because there had been numerous bed-mobilizing runoff events after the study was completed, the status of the sites was unknown and needed to be determined. Based on the site descriptions in the ENTRIX (1999) study report, field surveys were conducted to locate and describe the existing channel conditions at the original site locations.

Of the seven sites originally identified by ENTRIX (1999), only four sites were located with any degree of certainty. Of those four sites, all were no longer in the primary low-flow channel. Sites 1-3 were originally located between the Robles Fish Facility and the Hwy 150 bridge. The river channel in the general area where these sites were located has migrated naturally due to bed-mobilizing runoff events (primarily during a 2005 flood event) since the study was completed. The area where sites 1-3 were located may indeed still be within the river channel, but because of GPS field measurement errors (Larry Wise, ENTRIX, personal communication), their exact locations and status could not be determined. Even if those three sites are still within the river channel, there could have been longitudinal migration of the channel features over the last 10 years. Site 4 was originally located just upstream of the Hwy 150 bridge. The channel, based on photos from 2003, migrated laterally approximately 20 m towards the left bank (looking upstream, and all other examples) caused from natural channel meandering. Site 5 was originally located just downstream of Santa Ana Blvd bridge. Based on photos from 2003, the channel has moved latterly approximately 30 m from the right bank towards left bank. This could be partly due to channel modifications made by CalTrans near the bridge in recent years (Mary Larson, CDFG, personal communication). Sites 6 and 7 were both originally located near the community of Casitas Springs. Site 6 was located behind the Arroyo Trailer Park and Site 7 was located approximately 200 yards downstream (ENTRIX 1999). Based on aerial photos of this area prior to the 2005 flood event, the river channel was located considerably closer to the left bank than in 2009. The main low-flow river channel in 2009 was

located on the right bank against the levee that protects Casitas Springs from high water runoff events. This represented approximately a 30 m shift to the right bank for Site 6 and a 50 m shift for Site 7. The main low-flow channel at sites 6 and 7 appeared to have switched between preexisting channels and was not the result of natural meandering over the last 10 years. Of the four original sites that could be located, all would be inundated at higher flows; however, because low-flow river conditions are the focus of the upstream fish impediment evaluation (NMFS 2003a), new sites were needed for future evaluations.

Results

During 2011, a total of 54 water depth transects were completed. Discharge from the Robles Fish Facility ranged from 30 to 100 cfs when transects were conducted. There was a high-flow event that peaked on 20 March 2011. The peak flow of approximately 20,000 cfs at the USGS Foster Park gage station represented a recurrence interval of about 6 years. Data from 11 transects collected prior to the high-flow event could not be used in the 2011 analyses because some impediments sites were altered significantly by the high flow event. It appeared that the lower in the Ventura River a site was, the more an impediment site and the channel were altered. Because of the high-flow event, only 43 transects were analyzed in this report. Data were analyzed by modeling discharge from the Robles Fish Facility and water depth at each site for several passage criteria that resulted in numerous adult steelhead passage criteria discharges.

Site 2, which was located near the Ojai Valley Sanitary District treatment plant at rkm 7.5, was surveyed only once prior to the March high-flow event. The high-flow event substantially changed Site 2 and it no longer appeared to be a potential impediment. Prior to the high flow event, Site 2 was characterized by having a long transverse riffle with dense vegetation that had progressively developed since the January 2005 high-flow event. In addition, approximately 80% of the discharge was flowing through the middle section of the riffle through a series of small channels in the vegetation. After

the March 2011 high-flow event, two additional large channels were scoured through the riffle, one upstream and one downstream of the old primary channel (Appendix 15a). The upper most channel became the new primary channel and was visually estimated to pass approximately 85% of the total site discharge. The old primary channel had approximately 10% of the discharge and the lower new channel passed the remaining 5%. The area of the riffle in which the old primary channel was located received a substantial amount of gravel and cobble deposition from the March flow event. This likely contributed to the decrease of the percentage of total flow post flood in this area of the site. At the time of the visual estimates, numerous depth measurements were also recorded. The new primary channel, which passed 85% of the discharge, had maximum depths that ranged from 1.2 to 3.2 ft in the thalweg and a mean of 2.1 ft for five depths measured. At the time of the depth measurements and visual estimates, the discharge at Foster Park and the Robles Fish Facility was 46 cfs and 30 cfs, respectively. The scour of new channels by the March high-flow event substantially changed the channel at Site 2. Due to the large amount of total discharge and water depths in one of the new channels, during a time of lower flow from the Robles Fish Facility, this site was no longer considered a potential impediment and monitoring was not conducted after the March 2011 high-flow event.

Site 3 was also affected by the March 2011 high-flow event. The site was not altered enough to consider it substantially different. However, the March event did cause significant scour and depositional changes about 600 m upstream of the site where two channels split. These changes forced the vast majority of the river's flow to move to the left channel (looking upstream). Site 3 was originally located next to the Casitas Springs levee in the right channel. After the March 2011 high-flow event, there was approximately 80% of the flow in this new primary channel. The two channels split for 1 km before returning together. This switching between the two channels has occurred in the past. In fact, one of the original ENTRIX (1999) impediment sites was located in this new primary channel. After determining the primary channel had changed, a new impediment site was selected on 27 March and monitoring began on 28 March 2011. It was reasoned that a new site needed to be selected immediately to take advantage of

post-storm flows rather than going through a lengthy Biological Committee selection process and lose a data collection opportunity. The committee was notified of the change in a letter dated 29 April 2011. The new impediment site was located at the upstream end of the new primary channel. After visually surveying the 1 km reach of the new primary channel, the new site (Site 3-2) appeared to be clearly the most significant potential impediment.

Site 3-2 was surveyed four times at discharges at Robles ranging from 30 to 69 cfs and Foster Park discharges ranging from 77 to 258 cfs. The Site 3-2 regression produced plausible results using the Thompson passage criteria (Appendix 3), which were 30 and 86 cfs. The resulting minimum discharges required to meet the three other criteria were negative and therefore not plausible. However, when the regression was forced through the origin, the resulting discharges ranged from 10 to 19 cfs. Minimum passage discharge to meet Thompson criteria were also calculated using the site discharge, which were 93 and 186 cfs (Appendix 4).

Site 4 was surveyed six times at Robles discharges ranging from 31 to 76 cfs. The March high-flow event did not appear to alter Site 4 substantially. To validate and quantify this observation, the percent length and continuous length regressions were tested to compare the 2010 and 2011 results. There was no significant difference between the 2010 and 2011 regressions for the percent length of Site 4 that was ≥ 0.6 ft (p-value = 0.07, one-way ANCOVA). In addition, there was no significant difference between the 2010 and 2011 regressions for the continuous length of Site 4 that was ≥ 0.6 ft (p-value = 0.9, one-way ANCOVA). Therefore, the transect data from 2010 and 2011 were combined into one regression model to increase the sample size that improved the regression statistics. The resulting minimum discharges required to meet the Thompson criteria were 62 and 50 cfs (Appendix 5). The resulting minimum discharges required to meet the three other criteria ranged from 40 to 69 cfs. The minimum discharge to meet the Thompson criteria when using the site discharge were 61 and 43 cfs (Appendix 6). Figures for sites 4, 7, and 8 include individual regression

lines for each year as well as a line for the combined years. The resulting Robles discharges at those site for 2011 are in Appendix 19a.

The March high-flow event caused substantial changes at Site 5. The primary channel changed from the right (Site 5-1) to the left channel (Site 5-2) due primarily to sediment scour and some deposition. Previously, approximately 80% of the discharge was flowing through Site 5-1. After the high-flow event, approximately 60% of the discharge was flowing through Site 5-2. In fact, there was significantly more discharge flowing through Site 5-2 than 5-1 after the high-flow event (one-sided p-value < 0.001, t-test). Because Site 5-2 was the primary channel, it was used in all analyses. Site 5-2 was surveyed five times after the high-flow event. Robles discharge ranged from 30 to 74 cfs. The resulting minimum discharges required to meet the Thompson criteria were 55 and 14 cfs (Appendix 7). One of the resulting minimum discharges required to meet the three other criteria was negative and therefore not plausible. The regression was then forced through the origin and the resulting discharges ranged from 11 to 23 cfs. The minimum discharge to meet the Thompson criteria when using the site discharge were 48 and 3 cfs (Appendix 8)

Site 6, which was located about 1.3 km upstream from Santa Ana bridge, was substantially modified by the March high-flow event (Appendix 15h). A second channel was created that separated about 20 m upstream of the site. The two channels reconnected approximately 200 m downstream. Initial observations indicated that both channels appeared to have similar discharges; therefore, measurements were collected in both channels to determine the primary channel. The original channel had approximately 46% of the flow and the new channel had 54%. However, this small difference was not statistically significant (p-value = 0.12, t-test). After further analysis, the resulting minimum Thompson discharges for the new side channel were not plausible at -203 and -54 cfs. Furthermore, the regression for the percent total length was not statistically significant (p-value = 0.33). The original channel was chosen for final analysis because there was no significant difference in discharge between the two channels, the new channel regression produced non-plausible results, and original

channel had improved regression statistics. The original channel (Site 6-2) was surveyed five times at Robles discharges ranging from 30 to 75 cfs (Appendix 9). The resulting minimum discharges required to meet the Thompson criteria were 64 and 65 cfs. The resulting minimum discharges required to meet the three other criteria ranged from 35 to 96 cfs (Appendix 9). Like the Robles discharge analysis, the site discharge analysis comparing the new channel with the original channel had similar results. The discharge for the Thompson criteria were not plausible at -68 to -440 cfs. Consequently, the original channel for site discharge analysis was deemed most appropriate for the same reasons. The minimum discharge to meet the Thompson criteria when using the site discharge were 31 and 32 cfs (Appendix 10).

Site 7 was not substantially modified by the March high-flow event. There were only two post-storm transects conducted and therefore a valid statistical comparison between the pre and post high-flow event results could not be done. However, the site visually appeared very similar before and after the high-flow event and the one directly comparable discharge produced similar results. As soon as additional data are collected, a comparison will be made. The data from 2010 and 2011 were combined for the final analysis. Site 7 was surveyed five times during 2011 at Robles discharges ranging from 31 to 76 cfs. The resulting minimum discharges required to meet the Thompson criteria were 23 and 53 cfs (Appendix 11). The resulting minimum discharges required to meet the three other criteria ranged from 13 to 26 cfs. The minimum discharge to meet the Thompson criteria when using the site discharge were 17 and 41 cfs (Appendix 12).

Site 8, like Site 7 and 4, was not substantially modified by the March high-flow event. There were only three post-storm transects conducted and therefore a statistical comparison between the pre and post high-flow event results was not suitable. However, the site visually appeared very similar before and after the high-flow event and the data recorded were similar. Like Site 7, when additional data are collected, a comparison will be made. The data from 2010 and 2011 were combined for the final analysis. Site 8 was surveyed five times during 2011 at Robles discharges ranging from

31 to 75 cfs. The resulting minimum discharges required to meet the Thompson criteria were -77 and 6 cfs (Appendix 13). The resulting minimum discharges required to meet the three other criteria ranged from 16 to 28 cfs. The minimum discharge to meet the Thompson criteria when using the site discharge were -74 and -2 cfs (Appendix 14). Photos of the potential impediment sites at a Robles discharge of about 30 cfs are in Appendix 15a-h for reference.

The regression equations and statistics for the four passage criteria using the Robles discharge are in Appendix 16. The calculated minimum discharges to meet the four passage criteria using the Robles discharge are in Appendix 17. The regression equations and statistics for the Thompson passage criteria using the site discharge are in Appendix 18. The calculated minimum discharges to meet the Thompson passage criteria using the site discharges are in Appendix 19.

Discussion

The survey and analytical methods used to evaluate the potential impediments in the Ventura River appeared to be able to produce plausible estimates of minimum discharge needed for adult steelhead passage in most cases. This is assuming that the criteria are valid in determining passage success. The intent of evaluating the impediments using the aforementioned criteria was simply to continue the validation process and determine if similar results could be obtained to that of ENTRIX (1999) on the Ventura River.

ENTRIX (1999) used the criteria developed by Thompson (1972) for adult steelhead at potential impediments, which is a water depth of 0.6 ft for 25% of the total transect width and a continuous portion equal to 10% of the width. ENTRIX also evaluated the potential impediments using a modification that would produce a water depth of 0.6 ft over a continuous width of 8 ft. The transect that required the highest minimum discharge to meet the two criteria was used to determine the discharge needed for adult steelhead passage, which was a range of 40-65 cfs. Although it is not clear, it appears

that NMFS averaged these two numbers and subtracted 10% of the difference [(65+40)/2)-(65-40)x0.1] to develop the initial minimum flow of 50 cfs for the Robles Fish Facility (NMFS 2003a). The discharge estimates by ENTRIX (1999) were generally lower than those produced by field measurements during 2010 and 2011. The mean discharge of all ENTRIX sites for the 25% criterion was about 28 cfs. The mean of the sites, excluding Site 8, reported here was about 53 cfs. There appears to be several possible reasons for the differences that could include: (1) ENTRIX used a modeling approach that was based on data collected from a dry channel. At the time of site selection and survey, any potential side channels were not evident and therefore all of the modeling would have assumed the flowing water would have passed only through the primary channel. (2) Several of the sites surveyed during 2011 included areas that developed secondary and even tertiary channels at higher flows. These sites were also selected when there was no surface water flowing and led to the same potential error. However, the field surveys during 2010 and 2011 revealed that as the discharge increased, surface water began to flow in the side channels resulting in higher discharge estimates. Lastly, (3) vegetation at the lower river sites caused surface channel water to spread out into shallow areas that resulted in higher estimates. Field measurements, like those collected during 2010 and 2011 could detect these types of differences. In contrast, the single transect modeling that ENTRIX conducted was incapable of determining such distinctions. The vegetation growth in the lower river is likely due to the rising ground water downstream of the Robles Reach and inflow from San Antonio Creek that provides perennial water for vegetation establishment and growth.

The 20 March 2011 high-flow event caused substantial changes to the Ventura River channel. These channel changes altered some of the impediment monitoring sites, which necessitated modifications to the monitoring. Site 2 was altered to the point that it no longer appeared to be a potential impediment. This was at least partially because of its location in the Ventura River. The farther downstream a site was, the larger the peak discharge became simply due to the increased drainage area upstream. Other changes were related to new primary channel changes (i.e., switching between two

existing channels) or creation of entirely new channels. However, three sites were not altered substantially and data from transects conducted in both years were combined into one regression model to increase the sample size that improved the regression statistics. Sites that changed little were likely able to dissipate more hydraulic energy as in the case of a wide channel or withstand the hydraulic energy without substantial change in the case of a channel with less mobile substrate (Leopold et al. 1964).

There was a clear difference between minimum discharge results based on Robles discharge as opposed to site discharge used in the analyses. At Site 3-2, the minimum discharge to meet Thompson criteria when using the Robles discharge was 30 and 86 cfs. When using the site discharge in the analysis, the minimum discharge was 93 and 186 cfs. This difference of 63 to 100 cfs was due to the tributary flow from San Antonio Creek, surface runoff, channel recharge, and other smaller drainages and tributaries. Site 3-2 was located downstream of the San Antonio Creek confluence with the Ventura River. The discharge from San Antonio Creek and the Ventura River upstream of their confluence share a similar pattern to their hydrographs. In comparing a 32-day period after the March high-flow event, the discharge between San Antonio Creek and the Ventura River upstream of the confluence was highly correlated (R^2 = 0.99, p-value <0.0001, linear regression). This should not be too surprising since the Ventura River basin is affected by storm precipitation in a similar pattern and produces a similar post-storm hydrograph among tributaries. Therefore, even though the minimum discharge to meet the Robles-based Thompson criteria was less, the additional water needed to meet the site-based Thompson criteria was intrinsically integrated into the Robles-based model given the similar post-storm hydrographs. Because 2011 was the first year data were collected at Site 3-2, only four transects were completed and additional data would be needed before conclusions could be made.

Upstream of the San Antonio Creek and the Ventura River confluence, the Robles-based minimum discharges were generally greater than the site-based discharges. This appeared to be due to the presence of side channels. Simply, the site-based minimum discharge did not include the secondary channel and the Robles-based

minimum discharge did. This difference was generally proportional to the size of the secondary channel. The smallest difference was at Site 4, where there was only a 1 cfs difference for the 25% transect length criterion; 62 cfs for the Robles-based and 61 cfs for the site-based discharges.

Data must be collected at the new impediment sites or additional data collected at sites that changed substantially. Data collected at sites where the bed cross sections changed cannot be combined with previous data and analyzed. This situation applies to sites 3-2, 5-2, and 6-2. For sites where data could be combined for both years, some improvement to regression equations was gained. Site 4 showed significant model improvement for all criteria evaluated. In fact, Site 4 was the most consistent and robust site modeled to date because 1) the model results were similar for all criteria evaluated, 2) the criteria results were from model interpolation and not extrapolation, 3) all models were highly significant (0.001), 4) and the models all conformed to a general conceptual model that would necessitate a negative y-intercept (i.e., no locations on a transect would have a water depth ≥ 0.6 ft before the Robles discharge reached zero).

The limitations of the criteria, method, and/or channel applicability became evident at other sites. Site 7 began to deviate from the conceptual model of a negative y-intercept. Not to a degree that there were non-significant models that produce non-plausible results, only that a more horizontal model was evident for the percent length models; it also suffered from extrapolation issues. Site 8 produce essentially non-plausible results for the percent length models. At -77 and 6 cfs for the Thompson criteria, the limitations were apparent. It appears that for some channel shapes, modeling percent length may not be a valid approach to determine minimum discharge. Even though an absolute measurement will change (e.g., length in feet), a relative measurement (e.g., length as a percent of total) may not.

Additional data analysis may be conducted as more data from each site are collected. Different non-linear models can be explored that could fit the data better and data transformations can be conducted. For example, the Thompson method plots percent

length; however, this is generally not an accepted statistical practice when using standard linear regression. Regardless of the passage criteria ultimately used, the survey and analytical methods used to evaluate the potential impediments appeared to produce reasonable estimates of minimum discharge in many cases. Additional data collection and analysis will likely improve the results.

3.1.1 Sandbar Monitoring

Introduction

The Ventura River, like many other California rivers, typically develops a seasonal sandbar at the mouth during the late spring or summer that is breached by higher river flows in the late fall or winter. If a sandbar does develop, which occurs more often during dry years, the resulting lagoon can provide important rearing habitat for steelhead juveniles because of the abundant food resources available that can facilitate the physiological and behavioral changes associated with smoltification (Cannata 1998) and can also enhance marine survival (Bond et al. 2008).

The primary objective of the sandbar monitoring is to determine if the criteria for initiation of the fish passage augmentation season have been met (NMFS 2003a). As stipulated in the BO, the fish passage augmentation season will extend from 01 January through 30 June of each year and will commence after the sandbar has been breached at least once during the current year's fish flow operations season. During the fish passage augmentation season, several Robles Fish Facility operation criteria must also be implemented (see NMFS 2003a for a complete list of operational criteria).

Methods

During each sandbar inspection, observations and recordings were made that included: date, time, status of the sandbar, general location of the mouth, tidal stage, water temperature, and discharge at the Robles Fish Facility and the USGS Foster Park gage

station. Because the sandbar was open on 01 January 2011, its status was monitored once every two weeks for the remainder of the fish passage season. During the remainder of the year, the sandbar was monitored at least monthly.

Results

During the reporting period, July 2010 through June 2011, the mouth of the Ventura River was inspected 20 times to determine if the sandbar was open or closed. Thirteen of the observations occurred during the fish passage augmentation season (01 January to 30 June 2011) and seven were outside of the fish passage augmentation season. The sandbar was only closed during the October observation; however, this closure was brief in nature because it only occurred during low tides. During high tides, the surface water reached the Pacific Ocean (Appendix 20). In mid December of 2010, the sandbar was open and the Ventura River was flowing into the Pacific Ocean allowing fish to volitionally enter or exit the estuary. On 03 January 2011, the sandbar was also open, which officially initiated the beginning of the fish passage augmentation season. The sandbar was open for the remainder of the 2011 fish passage augmentation season. On the days the sandbar was inspected during the reporting period, the discharge at the USGS Foster Park gage station ranged from approximately 5 to 1,200 cfs and 0 to 364 cfs at the Robles Fish Facility. The river was observed exiting almost exclusively from the west side of the estuary during the reporting period. During the 25 March 2011 observation, the river was exiting from two locations on each side of the sandbar due to the high river discharge. This observation occurred 5 days past the peak of a storm event.

Discussion

The sandbar at the mouth of the Ventura River tends to remain open during average and above average precipitation years and can close at times during years with few significant rain events (Lewis et al. 2010). During 2005 and 2006, the sandbar remained open and did not close until April of 2007 after an extended period of low

precipitation (Appendix 21). During 2008, the sandbar was only closed during October and November and reopened in December. During the period that the sandbar was closed in December of 2007, the lagoon had a surface area of 4.7 ha. During an open period in August of 2008, the estuary had a surface area of 2.8 ha, which represents an approximately 70% increase in surface area during periods when the sandbar was closed (Lewis et al. 2010).

The tendency for the sandbar to remain open in all but very dry years is likely due to a few factors. Although the mid reach of the Ventura River goes dry every year, subsurface water continues to flow and eventually begins to resurface just upstream of the confluence with San Antonio Creek and continues to increase slightly proceeding downstream. Additionally, treated effluent water from the Ojai Valley Sanitary District at rkm 7.5 increases the river discharge by approximately 3 cfs. Finally, tributary flow from San Antonio Creek also adds to the Ventura River through a surface or subsurface connection throughout the year. These factors contribute to the quantity at the mouth of the Ventura River to keep the sandbar from fully forming and closing the outlet during most years. The status of the sandbar indicates changes in the estuary/lagoon that may help determine potential entry and exit condition for adult and juvenile steelhead. It appears that passage conditions remain suitable during most seasons when steelhead are likely migrating. However, conditions optimal for juvenile rearing, which is when the sandbar is closed and a deeper freshwater lagoon is formed, appears limited most years.

3.2 Fish Attraction Evaluation

Introduction

River discharge has been shown to be one of several key environmental factors initiating and facilitating steelhead and other salmonid adult and juvenile migrations in natural fluvial environments (Shapovalov and Taft 1954; Banks 1969; Spina et al. 2005). As adults and juveniles approach fish passage facilities, sufficient discharge and water

velocities become even more important to ensure successful passage through any facility (Clay 1995; Beeman and Maule 2001).

The entrance of the fish ladder at the Robles Fish Facility is located approximately 20 m downstream of the spillway gates and is where fish migrating upstream enter and where fish migrating downstream exit. The downstream end of the ladder is adjacent to a large pool (entrance pool) that was scoured out and maintained by high discharges through the spillway gates. Maximum discharge at the exit of the ladder is 170 cfs (50 cfs through the entire ladder and an additional 120 cfs can be supplemented at the lower end of the ladder). The distance downstream from the entrance pool to the lower most interim rock weir is approximately 200 m. This reach includes all four rock weirs and the facility's low-flow road crossing, which is also the weir used to measure discharge for the Robles Fish Facility. The habitat unit types that can be used by migrants in this reach includes the four pools created by the weirs, a glide created by the low flow road crossing, a riffle, and the entrance pool.

The objective of the fish attraction evaluation is to determine if adult or juvenile steelhead were holding immediately downstream of the Robles Fish Facility during the fish passage augmentation season (NMFS 2003a).

Methods

The fish attraction surveys were conducted on a weekly basis during the fish passage season from January through June of 2011. The particular survey methodology used was determined based on water visibility, river discharge, and expected steelhead life history stage present at the time of the survey. From January through March 2011, which is when the vast majority of adults were expected to be migrating upstream (Shapovalov and Taft 1954), bank surveys were the predominant method used. Beginning in March through the remainder of the fish passage season, snorkel surveys were the predominant method used, which is when steelhead smolts were expected to migrate downstream (Shapovalov and Taft 1954; Spina et al. 2005). Bank surveys

were conducted by one or two surveyors in an upstream direction. The surveyors wore polarized sunglasses to reduce water surface reflection. Snorkel surveys were conducted by one or two surveyors in an upstream direction. All fish species were identified and enumerated to the greatest extent possible that the river conditions and fish densities allowed at the time of the surveys. Lengths of each *O. mykiss* were estimated to the nearest cm if only a few individuals were present. At times of greater abundance, *O. mykiss* were grouped and assigned to the nearest length (cm) category. In order to collect additional information that may help determine *O. mykiss* upstream and downstream movements through the Robles Fish Facility, an upstream study reach was added in 2009. The upstream study reach included observations in the screenbay of the facility and the area immediately upstream of the low-flow fish exit in the forebay. The total distance of this upstream reach was approximately 140 m.

Results

A total of 640 *O. mykiss* were counted from January through June of 2011 in the 340 m study reach (Appendix 22). A total of 7,140 m were surveyed by either bank or snorkel methodologies during the 6-month period. The water temperatures during the study period ranged from 11 °C in January to 22 °C in June and turbidity was less than 14 NTUs. *O. mykiss* were first observed in late January and peaked in late April and early May and remained between approximately 40 to 60 fish for the remainder of the season (Appendix 23). The discharge at the Robles Fish Facility ranged from about 20 to 50 cfs at the time of the surveys. However, during late March between scheduled surveys there was a high-flow event that peaked at Foster Park near 20,000 cfs, which represented a recurrence interval of about 6 years. During the period that *O. mykiss* counts began to increase, the discharge was very constant at about 30 cfs.

The 200 m reach downstream of the fish facility was surveyed on 21 separate occasions, 3 bank and 18 snorkel surveys. A cumulative total of 4,200 m were surveyed from January through June. A total of 205 *O. mykiss* were observed downstream of the Robles Fish Facility (Appendix 24). The peak count for the

downstream reach was 24 *O. mykiss*. After the counts increased in late April, generally between 5 and 20 *O. mykiss* were counted each time for the remainder of the study period.

The 140 m reach upstream of the facility was surveyed on 21 separate occasions, 3 bank and 18 snorkel surveys. A cumulative total of 2,940 m were surveyed from January through June 2011. A total of 435 *O. mykiss* were observed in the upstream reach. Observations of *O. mykiss* upstream of the Robles Fish Facility were somewhat similar to downstream counts. The general pattern of increasing counts in late April and remained relatively consistent for the remainder of the season was similar for both upstream and downstream counts (Appendix 24).

An additional fish attraction survey method was conducted in 2011. This entailed surveying three times per day for five consecutive days following a BO-defined storm event and after a Secchi depth of 1 m was reached in the entrance pool. These surveys were conducted for three storm events and no adult steelhead were observed. Only bank surveys were conducted because the turbidity was too high to conduct snorkel surveys. The BO-defined storm events occurred on 18 February, 26 February, and 20 March. The two February events were relatively small and only yielded a mean daily discharge of 71 and 133 cfs downstream of the Robles Fish Facility. Because of this, the time for the visibility to reach 1 m was only 1 and 2 days, respectively. However, the March event was much larger and 8 days were needed before the visibility reached 1 m. Of the 45 total surveys planned for the post-storm fish attraction study, three were not completed. These were not completed because other aspects of the monitoring program were being conducted during this critical post-storm study period.

Discussion

The total count of 640 *O. mykiss* in the upstream and downstream reaches was in all likelihood the result of repeated counts of *O. mykiss* over the course of the survey season. Because the surveys were conducted weekly, some *O. mykiss* likely remained

in the 340 m reach for more than one week and were counted at least one additional time; most likely several times. Without tracking individual *O. mykiss* (e.g., mark/recapture, telemetry, or other tagging studies), the time spent by *O. mykiss* in close proximity to the Robles Fish Facility cannot be determined by observations alone.

From observational counts alone, the ability to interpret the fine-scale migration behavior of the *O. mykiss* near the Robles Fish Facility is limited. The abundance trends were similar for upstream and downstream observations (Appendix 24). The increase of upstream and downstream counts simultaneously would indicate the downstream migrating *O. mykiss* were not delayed, at least within the one-week sampling interval, as they passed downstream through the Robles Fish Facility. Likely because of the better water conditions, the fish counts remained somewhat consistent in the reaches to the end of the study period. In previous years, as river flows decreased, *O. mykiss* numbers decreased also due to upstream and downstream movement (CMWD 2010). During 2011, the discharge from the Robles Fish Facility remained greater than 25 cfs through the end of the study period and provided *O. mykiss* with sufficient rearing habitat to remain in the study reaches. Cooler water temperatures also likely contributed to the *O. mykiss* remaining in the study reaches through the study period. It was not until the end of June that measured temperatures exceeded 20 °C.

There was a surface water connection to the lower Ventura River for 16 weeks during the study period, from mid February to the end of May. The surface water connection to the lower Ventura River was lost after smolt counts had reached peak numbers at the Robles Fish Facility. The majority of the steelhead smolts likely had an opportunity to migrate downstream and enter the ocean; however, given that the counts remained high, it is clear that a significant portion did not.

Based on qualitative observations during the snorkel surveys, it appeared that most of the *O. mykiss* were going through the smoltfication process. The onset of smoltification can be identified by vanishing parr marks, silvering of the body, and darkening of the

margins of the fins among other characteristics (Chrisp and Bjornn 1978; Hasler and Scholz 1983; Quinn 2005; Spina et al. 2005). During the survey period, 524 *O. mykiss* (82%) were observed and categorized into five classifications that included parr, three transitional phases (T-1, T-2, and T-3), and full smolts following the methods of Hasler and Scholz (1983). This method has been used successfully to classify smolting steelhead (Allen Scholz, Eastern Washington University, personal communication). A total of 80% of *O. mykiss* classified were in early to late smoltification stages (T-1 to full smolt). This would indicate that a downstream smolt migration behavior was likely the primary reason for their occurrence in the fish attraction study reach. Based on snorkel observations during June, it appeared the remaining *O. mykiss* were beginning to revert to a resident form (i.e., lightening of the margin of the fins, coloring across lateral line, and reappearance of parr marks). During this period of smolt reversal, maximum daily water temperatures began to reach 21 °C, which exceeded the temperature limit of smolt regulating enzymes and hormones (Allen Scholz, Eastern Washington University, personal communication) and could explain the residualization observations and lack of emigration.

The total number of *O. mykiss* observed during 2011 was substantially more than in 2010. During the same period in 2010, 147 *O. mykiss* juveniles were counted as compared to the 640 during 2011 (CMWD 2010). The dramatic increase was likely due in part to the improved water condition that provided suitable habitat in the study reach for a greater period. There was at least one adult steelhead that passed upstream through the Robles Fish Facility during 2010; its spawning success was not known. The observed *O. mykiss* were likely a combination of 1+ and 2+ smolts from steelhead broods and resident rainbow trout produced progeny that had smolted and migrated downstream in attempt to reach the ocean.

3.3 Fish Passage Monitoring

Introduction

Monitoring of migratory fish moving through fish passage facilities has been conducted using many different methods that include: visual counting, trapping and hand counting, continuous video recording, PIT tagging, radio telemetry, and acoustical telemetry. In each fish passage application, the particular physical and biological conditions (e.g., variable discharge, turbidity, debris, size of facility, and number of fish) usually dictate which method would be most effective. New technologies have been employed to improve fish passage monitoring in turbid conditions specifically. One such monitoring device is the Vaki Riverwatcher® (Riverwatcher). The Riverwatcher has the capability to operate in greater turbidity than more traditional monitoring equipment. Because of this advertised capability, the Riverwatcher was selected to be used in the Robles Fish Facility by the Technical Advisory Group.

The primary objective of fish passage monitoring is to provide an index of the number of upstream adults and downstream kelts migrating through the Robles Fish Facility (NMFS 2003a). The Riverwatcher was advertised to detect fish down to a fish body depth of about 40 mm (Vaki 2003) and it was not known how well it would work for smolt-sized fish given the debris load in the Ventura River (NMFS 2003a).

Methods

Upstream and downstream migrating fish were monitored passing through the Robles Fish Facility using the Riverwatcher. The Riverwatcher is located in the fish bypass channel, which is the channel between the fish ladder and fish screens. The Riverwatcher consists of two scanner plates with light diodes that transmit beams of infrared light through the water to a corresponding receiver plate. When a fish swims (or debris drifts) through the infrared light beams, it breaks the light signal and a silhouette of the fish is recorded on a computer. Other data recorded when the

Riverwatcher scanner is triggered are: date and time, total length (TL) of the fish (from a length/height ratio), swimming speed (m/sec), and direction of the fish movement (upstream or downstream). In addition, the scanner triggers an underwater camera to record a 10-second video clip (25 frames/sec). Only fish swimming upstream can be recorded in the Riverwatcher computer system because it was only designed for one camera, and that camera is on the upstream side of the scanner. An additional two cameras were installed in 2008-09 so that video of downstream fish could be captured on a digital video recorder (DVR). Both downstream cameras are located upstream of the Riverwatcher scanners in an aluminum tunnel along with the upstream Riverwatcher camera. The downstream digital cameras recorded continuously at 12 frames/sec and captured about 2-3 weeks of data until the DVR data storage drive was full (each week of data required approximately 4 h to review). These two downstream cameras are independent of the Riverwatcher and have to be reviewed separately for downstream detections. Once the DVR memory is full, it is exchanged with a second DVR and the data are reviewed before the DVRs have to be exchanged again.

The Riverwatcher scanner and cameras are positioned at the bottom of an aluminum frame covered with 1/2 inch aluminum bars, spaced 1 1/2 inches on center resulting in 1 inch spacing between the bars (crowder), which directs the fish to swim between the scanner plates. The crowder can be raised and lowered in guide slots of the fish bypass channel with the aid of an A-frame hoist for cleaning or repair. The Riverwatcher is usually operated during the entire flow augmentation season as long as sufficient water elevations in the fish bypass are present and debris and turbidity are low enough so that the crowder will not be damaged and the Riverwatcher will function. The Riverwatcher was operated continuously from mid December 2010 through June 2011 during the reporting period. During this time, the crowder was removed from the fish bypass channel and cleaned or inspected 123 times. During times of higher debris, the cleaning and inspections occurred multiple times per day, and at times of low debris, cleaning and inspections occurred only once every 2-3 days. The crowder was removed for cleaning for a combined total of approximately 34 h during the operation period, which represented 0.9% of the time the Riverwatcher could have possibly been

operated if there were no operational limitations. The Riverwatcher was operated a total of 193 days, which was 96.9% of the time the Riverwatcher could have possibly been operated.

Prior to 2010, each upstream and downstream Riverwatcher detection was reviewed and classified as an adult steelhead, *O. mykiss* non-adult steelhead, other species if identifiable, unknown fish, fish probable, or false detection (see Appendix 25 for detection classification flow chart). At the request of NMFS, this classification system was modified during the review process of the 2010 progress report. All confirmed *O. mykiss* were classified solely as *O. mykiss*. The classifications were determined by using a combination of the silhouette images, estimated lengths, and video clips. In addition, if larger adult sized *O. mykiss* were detected and a useful video clip was recorded, measurements of eye diameter and standard length (SL) were estimated from the video clip to calculate morphometric ratios that were compared to known steelhead and rainbow trout. A commonly used method is to develop ratios of body measurements for comparison to remove the effects of body size so actual differences can be determined (Strauss and Bond 1990). This was done by comparing SL to the ratio of eye diameter in linear regression. Standard length is the length from the snout to the end of the hypural plate near the end of the fleshy caudal peduncle, which is unaffected by caudal fin deformities (Anderson and Neumann 1996). Previous to 2010, the adult steelhead classification was used if the fish observed was an *O. mykiss* and displayed the typical characteristics of an anadromous adult steelhead, such as black spotting on dorsal, adipose, and caudal fins, black spotting on dorsal side of body, silvery body, vertical edge to caudal fin, ≥ 38 cm TL (Shapovalov and Taft 1954), and had an eye diameter/SL ratio ≤ 0.045 (CMWD 2008). The new classification method could have included juvenile resident, smolts, adult resident, and adult anadromous *O. mykiss* migrating throughout the basin. Conceivably, after more data are collected from the downstream trapping component of the monitoring and evaluation, or from other Ventura River basin research projects, a more detailed classification of Riverwatcher detections could be used again. The fish unknown classification was used if the detection was identified to be a fish based on video evidence, but a fish identity could

not be determined due to high turbidity or the fish not swimming through the camera field of view. The fish probable classification was used if no fish was observed in the video, but the silhouette was similar to that of a typical fish silhouette based on previous experience. Even with reasonably good video coverage, smaller fish were still able to pass through the Riverwatcher undetected by the video cameras. This can occur if the fish swim very close, high, or low to the cameras. In addition, this can happen if an upstream fish swims through the scanners then stops before entering the video field of view. High turbidity can also obscure the video detection and identification of fish. The false detection classification was used when no fish was observed in the video and the silhouette was not similar to that of a typical fish silhouette based on previous experience. Because false detections tended to occur frequently during higher discharges when turbidity and debris were also high, it was likely that most false detections were caused by debris, high turbidity, and water turbulence. When turbidity exceeds about 100 NTUs, hundreds of false detections per hour can occur and not until turbidity falls below about 30 NTUs is the Riverwatcher fully operational (Table 1).

Table 1. Riverwatcher operational status over a range of water turbidity (NTUs).

Turbidity (NTU)	Riverwatcher status
> 200	Not operational
100-200	Many false detections
30-100	Scanner operational, but unable to confirm with video
< 30	Video grid detectable
0-30	Riverwatcher fully operational

Results

During the 2011 fish migration season, the Riverwatcher recorded 1,124 total detections, of which 435 were upstream and 698 were downstream (Appendix 26). Of the total upstream detections, 29% (n = 127) were determined to be fish (excluding largemouth bass) and included: 101 *O. mykiss*, 20 probable fish, and 6 unknown fish. Of the total downstream detections, 10% (n = 67) were determined to be fish (excluding largemouth bass) and included 49 *O. mykiss* and 18 probable fish.

The mean date for the upstream migrating *O. mykiss* was 25 May and 05 May 2011 for the downstream migrating *O. mykiss* (Appendix 26). During the migration season, there was a general increase of fish detections for both upstream and downstream (Appendix 27).

Upstream detections occurred essentially at all times of the day, but the modal time was 1200 h (Appendix 28). The majority of downstream detections occurred between about 05:00 h to 13:00 h.

The mean total lengths for both upstream and downstream migrating *O. mykiss* was estimated to be 27 cm (Appendix 26). Overall lengths of upstream and downstream migrating *O. mykiss* ranged from 20 to 46 cm (Appendix 29). The software program that operates the Riverwatcher estimates the TL of a fish detection based on a ratio of height to length (Vaki 2003). This ratio can be changed depending on available data for the target species. Based on morphometric measurements of *O. mykiss* mortalities over the last several years, an *O. mykiss* height to TL ratio was estimated to be 5.1:1 for fish ranging from about 10 to 28 cm. During a validation and calibration pilot study, it was estimated that the Riverwatcher was underestimating the fish heights by about 10 mm. A correction was added to the TL to height ratio to calibrate it to the known fish heights. This calibrated ratio was used to estimate the TL of Riverwatcher detections from January through June of 2010. However, the resulting TL estimates appeared to be over estimated when compared to known *O. mykiss* lengths that were measured in 2009. It was decided that a more accurate method would be to use a regression model to convert Riverwatcher estimated fish heights to lengths. Again, from the morphometric measurements, a sigmoid regression was conducted to develop a model for converting the Riverwatcher fish heights to total lengths ($TL = 687.68 / (1 + \exp(-(D - 50.78)/23.97)) / 10$, p-value < 0.0001, $R^2 = 0.99$, $n = 59$, D = body depth). This regression model will continue to be improved upon as more data becomes available. In general, the Riverwatcher was inefficient at detecting smolt-sized fish passing upstream or downstream and underestimated the size of fish that it did detect.

The physical river conditions of temperature, turbidity, and discharge at the time of passage were similar for upstream and downstream migrating *O. mykiss* and other fish classifications (Appendix 26). The mean water temperature recorded during the time *O. mykiss* were migrating upstream was approximately 18 °C and was 16.7 °C for downstream migrants. The mean turbidity levels at the time of passage for upstream and downstream *O. mykiss* was about 2-3 NTUs. The mean turbidity at the time of the false detections in both upstream and downstream directions was approximately 150-170 NTUs. The discharge from the Robles Fish Facility at the time of upstream passage for *O. mykiss* was a mean of 30 cfs and 31 cfs for downstream *O. mykiss*. Like turbidity, the periods of false detections coincided with higher discharge. For a list of all fish detections, see Appendix 30. The total time the Riverwatcher was not operational because of high turbidity was 4.7 days, which represented 2.6% of the time the Riverwatcher could have been operated if no operational limitations existed.

Discussion

Approximately 939 false detections occurred and were likely due to greater river discharges, associated turbidity and debris, and settings of the Riverwatcher to detect smaller fish. In addition, to increase the chance of detecting any adult steelhead, the Riverwatcher and crowder were left in the ladder for longer periods at high turbidity. Since the Riverwatcher is recommended to be set at a minimum of no less than 40 mm (Vaki 2003), an overestimation of fish passage was likely since all false detections could not be identified and eliminated. For the 2011 season, the minimum height was set at 28 mm so that a large number of false detections could be eliminated while still attempting to detect steelhead smolts. Based on available data from the Ventura Basin, the height of 28 mm was determined to be similar to some of the smallest steelhead smolts expected to emigrate downstream through the Robles Fish Facility. The height of 28 mm corresponds to 146 mm TL and 139 mm FL. *O. mykiss* mortalities found and measured during the course of ongoing field monitoring efforts, and subsequently turned over to NMFS, were all larger than 146 mm TL. The estimated fish detection rate from the validation pilot study and the comparison of snorkel counts to

Riverwatcher detections both indicate that as much as 78-88% of smolt sized *O. mykiss* are not detected by the Riverwatcher. During the 2009 validation pilot study, larger sized fish (i.e., height > 60 mm) appeared to be detected nearly 100% of the time. This height is equal to about 300 mm TL and is larger than what would be expected to be migrating downstream through the Riverwatcher. Before a detection rate correction could be applied to downstream detections, more data would need to be collected on detection efficiency. The highly variable results from the pilot study were not sufficient to develop a correction factor with enough confidence. Like the detection efficiency, the Riverwatcher estimated fish heights were also highly variable and the true error could not be determined. The data collected to date indicates that the Riverwatcher is unable to sufficiently monitor steelhead smolt emigration and given the manufacture's operational recommendations, these results should not be surprising. Additional Riverwatcher validation/calibration tests were conducted during the summer of 2011 in an attempt to further identify the operation limitations of the Riverwatcher. These results will be reported on in the 2012 progress report.

From general observations over the last several years, and supported by observations during the 2009 validation pilot study, *O. mykiss* juveniles do not move through the fish crowder and Riverwatcher quickly. *O. mykiss* tend to swim downstream and back upstream repeatedly before ultimately moving in one direction. This lack of uniform and rapid directional movement is also supported by observations during fish attraction monitoring where *O. mykiss* have been observed repeatedly swimming in and out of the fish ladder on both the upstream and downstream ends. Also, *O. mykiss* that appeared to be the same fish (based on video and length estimates) have been observed on video swimming back and forth through the fish crowder. *O. mykiss* juveniles were observed holding in areas for extended periods of time before either moving downstream or back upstream, which is commonly found in all salmonid smolts (Quinn 2005). During the fish attraction surveys, of the *O. mykiss* that were categorized into smolt transformation stages and all stages were observed. Because the smolt migration rate is positively correlated with the smoltification process (Quinn 2005), some holding and lack of rapid downstream migration would be expected.

The detection of *O. mykiss* passage by the Riverwatcher did not show the same diel migration pattern through the Robles Fish Facility as in 2009 where *O. mykiss* primarily passed downstream just before dawn then passed back upstream just before and after dusk. The reasons for the differences have not been determined at this time. The early morning movement of downstream migrating smolts is common among steelhead throughout its range (Dauble et al. 1989). Monitoring upstream movements of smolts has not been studied specifically and little available data exists to make comparisons. Most smolt monitoring studies do not have volitional passage with passive monitoring like that used at the Robles Fish Facility. Therefore, the opportunity to examine upstream movements is not usually available. The distance of daily migrations are unknown; however, it is likely the fish remained within, or near, the Robles Fish Facility before continuing their downstream migration.

As previously discussed, the Riverwatcher's ability to accurately estimate fish lengths is an area that will need more work to fully determine its usefulness in monitoring smolt-sized *O. mykiss*. However, the use of the regression model to estimate TL from the Riverwatcher's estimate of height produced plausible results. The mean TL of *O. mykiss* detections was larger than what others have documented for steelhead smolts in central and southern California. Shapovalov and Taft (1954) estimated a mean FL for 2+ and 3+ age smolts at approximately 17 cm. Spina et al. (2005) also measured a mean smolt FL of approximately 17 cm. This difference could be due to several reasons. The error associated with the Riverwatcher estimates could be one possible cause. In addition, the regression model used does appear to result in an over estimate when compared to video estimates. Regardless, the Ventura River smolts are indeed larger and this is probably due to faster growth rates in the warmer water as compared to the more northern basins. Age of the migrants might also explain the differences observed; however, no scales of *O. mykiss* were collected for aging.

3.4 Downstream Fish Passage Evaluations

Introduction

Passage evaluations of migrating salmonids through fish passage facilities have been conducted throughout the western United States for many years. Methods to determine if a facility is operating as designed and not causing harm to the intended fish species vary. Early work typically entailed trapping and tagging fish before entering a facility and recapturing them after exiting. Trapping and visual inspections for injuries, PIT tagging, radio telemetry, and acoustical telemetry has been conducted extensively as well.

There are two objectives for the downstream fish passage evaluation. The first objective is to determine if downstream migrants are successfully passing through the Robles Fish Facility. The second objective is to capture and examine steelhead smolts and kelts and determine if there are any injuries that may have been caused by downstream passage through the Robles Facility (NMFS 2003a).

Methods

A weir trap was placed and operated approximately 100 m downstream of the Robles Fish Facility. The weir trap consisted of a live-box (120 cm for all three dimensions) with an internal fyke. The trap was situated in the center of the river channel and thalweg. The live-box internal frame was constructed of PVC pipe and covered with plastic fencing with 1.9-cm diagonal openings. A plastic fence (3-cm openings) supported by T-bar fence posts was extended upstream on both sides of the live-box at 30° angles into the river channel and ended near each bank leaving gaps of approximately 1 m so adult steelhead could pass upstream by the trap location (Appendix 31). Two-meter deflector wings positioned approximately 14 m upstream of the trap were also used to guide shore-orientated smolts toward the thalweg. Because the vast majority of downstream steelhead migrants were expected to be captured from

mid-March through mid-June (Shapovalov and Taft 1954; Dettman and Kelley 1986), the trap was planned to be operated from mid-March through June 2011 or until water temperatures exceeded a daily mean of 22°C, which could negatively impact captured fish (SYRTAC 2000).

The trap was operated only at lower river flows when it would be effective at capturing downstream migrants. The upper limit of river flow operation will be determined after successive seasons. Because base-flow conditions are more likely to be used for downstream passage by steelhead (NMFS 2003a), a weir trap was chosen as the method for this evaluation rather than a rotary screw trap. After assessing representative hydrographs from previous years, evaluating potential screw trap sites, and the potential for capturing downstream migrants with a screw trap at the higher discharges, a screw trap was determined to be much less effective at gathering the data needed to address the objectives of the downstream passage evaluation.

When the trap was in use, it was checked twice per day (in the morning and late afternoon). The trap generally operated from Sunday afternoon through Saturday morning. Data collected included: fork length (mm), weight (g), and a subsample of scales and tissues for aging and genetic analysis. Fish that were to be handled were put into an aerated container with a solution of tricaine methanesulfonate (MS-222) and Stress Coat®. The anesthesia MS-222 is registered by the US Food and Drug Administration for use with food fish (Summerfelt and Smith 1990). The level of anesthesia needed is generally stage 2-4, which is a deep sedation to a total loss of equilibrium (Summerfelt and Smith 1990). A concentration of 60-100 mg/L of MS-222 was used to achieve a short induction time (3-4 minutes) as recommended by Summerfelt and Smith (1990). This concentration allows for a recovery time of less than 5 minutes (Summerfelt and Smith 1990), but from previous experience, anesthetized steelhead smolts generally will most likely recover in less than 3 minutes. Stress Coat® is a synthetic slime coating that replaces the naturally secreted protective slime that is lost during capture and handing of fish. Stress Coat was added to both the

anesthetizing and recovery containers at the manufacture's recommended concentration of 0.25 ml/L.

Scale loss was assessed by examining captured fish and estimating scale loss over three zones on each side of the fish. The three zones were: 1) the caudal zone that included the area above and below the lateral line from the caudal fin to the posterior end of the dorsal fin, 2) the dorsal zone that included the area anterior of the caudal zone to the operculum and above the lateral line, and 3) the ventral zone that included the area anterior of the caudal zone to the operculum and below the lateral line (Marine and Gorman 2005). The percentage of scale loss in each zone was estimated and then weighted by each zone's area proportional to the total area of all six zones. Summing the resulting weighted scale loss yielded the total area of each fish with scale loss. Any physical injury was noted and categorized among the fins, skin, eyes, and head. Within each anatomical category, there are 2-3 types of injuries that could be documented. In general, the scale loss and physical injury methods followed those of Marine and Gorman (2005) and McNabb et al. (1998). Only one weir trap was used initially to determine if there are any significant physical injuries or scale loss occurring. If significant scale loss or physical injuries are occurring, and the Robles Biological Committee deems it necessary, a second trap would be installed and operated upstream of the Robles Fish Facility. To determine if any injuries were the result of passage through the facility, steelhead would be captured, marked, and released upstream the Robles Fish Facility and recaptured downstream of the facility to any differences.

Prior to the operation of the downstream weir trap, an annual fish handling training class was conducted with seasonal fisheries technicians and full-time biologists. This training class was conducted with hatchery rainbow trout and all techniques and procedures were practiced until the fisheries personnel were fully proficient with each. Additional, annual training and review occurred with all other aspects of the monitoring and evaluation program so personnel are proficient at each task that they may be assigned to conduct.

Results

The weir trap was operated from 14 March through 17 June 2011. During the 20 March high-flow event, the weir trap was swept downstream and lost. Just prior to its loss, an attempt was made to remove as much of the trap before the higher flows reached the Robles Fish Facility, but debris overloaded the fish screens and forced water to be spilled earlier than anticipated. A replacement trap was not installed until 04 April 2011, 15 days after the peak flows. Trapping was stopped when the mean daily water temperatures approached 22 °C and there was a forecasted increase of air temperatures.

A total of 25 smolts were captured between 13 March and 10 May 2011; 52% of the smolts were captured during the first two weeks of April (Appendix 32). The mean FL was 203 mm and mean weight was 85 g. The smolts all appeared to be undergoing smoltification; 28% were T-2, 24% were T-3, and 48% were full smolt and the mean condition factor was 1.0. The mean daily water temperature was 14.7 °C on days when smolts were captured. During days smolts were captured, the stream discharge into the Robles Fish Facility ranged from 40 to 177 cfs. All 25 smolts showed signs of descaling. Using the descaling assessment methods described, the descaling ranged from 0.8% to 9.3% with a mean of 3.4%. The most common physical injuries were small but noticeable areas of skin damage to the head region on 22 (88%) *O. mykiss* captured. Other injuries included skin contusions on 4 fish (16%), and 2 fish (8%) showing some fin damage.

Of the 25 smolts captured, 16 were radio tagged and released downstream into the first weir pool. One *O. mykiss* was too small to radio tag and was released into the pool. In order to help understand migration behavior of *O. mykiss* smolts near the Robles Fish Facility and determine condition and travel rate for any recaptured fish, all smolts captured in excess of radio tagging needs were implanted with a PIT tag. There were 8 smolts PIT tagged and released approximately 2 km upstream of the Robles Fish

Facility at the Camino Ciello bridge. No PIT-tagged *O. mykiss* were detected migrating downstream through the fish ladder or were recaptured in the weir trap.

Discussion

The first objective of the downstream fish passage evaluation is to determine if steelhead are successfully passing downstream through the Robles Fish Facility (NMFS 2003a). Previous trapping efforts resulted in limited, but improving capture success. The 25 smolts captured in 2011 was a significant increase over previous years and allowed for a more thorough evaluation. *O. mykiss* juvenile are successfully navigating through the Robles Fish Facility during the expected steelhead smolt migration period considering the following: 1) smolts were captured migrating downstream through the Robles Fish Facility, 2) the fish attraction evaluation observed smolts downstream of the facility, 3) and the Riverwatcher and downstream video cameras detected downstream-migrating *O. mykiss*.

The second objective of downstream fish passage evaluation is to determine if there are any injuries to steelhead smolts or kelts that may be caused by passing downstream through the Robles Fish Facility (NMFS 2003a). The 25 *O. mykiss* smolts captured downstream of the Robles Fish Facility had a mean descaling of 3.4%. It could not be determined how much of this was due to passage downstream through the Robles Fish Facility or the trapping and handling procedures. Smolts are known to easily lose scales, and given that scales were commonly found in the anesthetizing and recovery buckets, much of this loss could likely be due to handling. A literature research will be conducted to determine what level of scale loss other researchers have estimated for steelhead smolts passing through fish facilities versus trapping and handling.

The skin damage on the heads of many of the smolts is thought to be from trapping. This was first noticed with some of the smolts captured prior to the 2011 season, but to a greater degree. After changing the mesh material to a smaller size two successive years, the severity of the injury has been reduced. The location of the skin damage on

the top of the snout and head region suggests that it may result from “nosing” into the mesh to avoid capture while in the trap; this behavior was also observed during removal from the trap. Even though the percentage of smolts with this injury was high, the actual size of the injury was small. The injuries were approximately 2 mm x 10 mm and corresponded to the shape and dimensions of the plastic mesh. The injuries were not skin abrasions, but contusions and the epidermis was not broken. Given this detailed level of *O. mykiss* examinations, small injuries that would likely go unnoticed have been observed. Additional improvements will be made for the 2012 trapping season by adding smoother material to the inside of the trap to determine if the injuries can be reduced or eliminated.

The last smolt was captured on 10 May 2011 and was the only one captured in May. Given that the mean daily water temperature was consistently exceeding 16-17 °C (Appendix 33), the lack of continued downstream migration of *O. mykiss* was not unexpected. These temperatures are known to exceed the temperature limit of smolt regulating enzymes and hormones (Allen Scholz, Eastern Washington University, personal communication) and could explain much of this behavior as the *O. mykiss* residualized. The results of the data indicate that smolts actively migrating were doing so primarily from mid March to mid April. Since the trap was capturing smolts very soon after it was installed, an earlier start to trapping might be necessary to determine the initiation of emigration.

3.5 Downstream Fish Migration through the Robles Reach

Introduction

When the number of fish physically handled in a study is of concern, such as with an endangered species, radio telemetry can be a useful method over others like extensive trapping (Hockersmith et al. 2000). Telemetry migration information of steelhead smolts in the Ventura River would allow for the determination of survival, travel time and rates through select reaches, migration relative to river discharge, habitat use, and passage

success through critical riffles. By tracking the tagged fish until the batteries die, it is anticipated that downstream migration can be monitored all the way to the Ventura River estuary/lagoon and could provide important data on estuary rearing and emigration behavior.

The purpose of the downstream migration evaluation is to determine how successfully smolts are migrating through the Robles Reach (NMFS 2003). Because of the limited number of steelhead smolts most likely passing downstream through the facility, a pilot study using radio telemetry was used for evaluations.

Methods

During the expected smolt migration period of mid-March through mid-June, 16 steelhead smolts captured in the weir trap downstream of the Robles Fish Facility were tagged with radio transmitters and released downstream of the weir trap. Only steelhead smolts that exhibited steelhead smolt characteristics and in good physical condition were tagged. Smolting characteristics include: increased skin reflectance, larger heads, slimmer bodies, longer caudal peduncle, loss of parr marks, and darker margin of the dorsal fin (Beeman et al. 1995; Haner et al. 1995; Ando et al. 2005). These smolting characteristics have been used in southern California to identify steelhead smolts migrating downstream (Spina et al. 2005).

The radio transmitters were manufactured by Advanced Telemetry Systems (ATS) and had transmitter radio frequencies ranging from 149.000 to 150.999 MHz, a pulse rate of 30 per minute, and a pulse width of 18 ms. Each tag had a unique radio frequency so that individual fish, if needed, could be tracked during their downstream migration. The transmitters weighed 0.85 g and had an expected operational life of about 48 days. The dimensions of ATS tags (model number F1435) were 14 mm long with a diameter of 7 mm. The ratio of tag weight to steelhead smolt weight in the air was less than 5%, which ensured that physiological stress will be minimized (Jepsen et al. 2001) and swimming performance was not altered (Brown et al. 1999). Based on the expected

sizes of captured smolts; estimated from steelhead smolts captured in the Santa Clara River (ENTRIX 2000), the maximum tag-to-weight ratio was expected to be closer to approximately 3%. The steelhead smolts were anesthetized with a solution of MS-222 and placed on a water and Stress Coat® soaked foam pad ventral side up and the tags were gastrically inserted (Adams et al. 1998). The tags were lubricated with food-grade glycerin to prevent abrasion (Adams et al. 1998; Hockersmith et al. 2000) and gently inserted through the mouth and into the stomach using a rigid small-diameter tube. The fish were allowed to fully recover to assure they were behaving normally before they were released downstream for tracking; typical recovery occurs in approximately 3 minutes. The estimated time for tagging and recovery were based on previous radio telemetry studies with steelhead smolts (Lewis 2001, 2002, and 2003).

After tagging and recovery, the steelhead smolts were released downstream of the weir trap. Each tagged smolt was located on a daily basis as it migrated downstream for the first week after release and then at least weekly until the battery died, the fish was lost, the fish entered the ocean, was found dead, or the tag was regurgitated. Mobile tracking was done using an ATS radio telemetry receiver (model R2100) and 3-element Yagi antennae. Initial broad scanning was accomplished from locations at higher elevations accessed by a vehicle driven on roads near the Ventura River. Once a general location of a tagged steelhead was found, the final location was determined on foot. This method can yield locations of $\pm$ 10 m (Lewis 2001). All determined locations were recorded on a map and datasheet. Every reasonable effort was made to determine the ultimate final location of each radio tagged steelhead and if any mortality occurred, the cause of the mortality was determined if possible. It was estimated, that at the most, one tag would be lost due to regurgitation during the study period; Hockersmith et al. (2000) measured a short-term regurgitation rate of 1.3% using the gastric method, Adams et al. (1998) measured a regurgitation rate of 4.2%, and Jepson et al. (2001) measured a 5.0% regurgitation rate. Beyond the 30-40 day period, the regurgitation rate typically increases dramatically.

Using the method of radio telemetry to monitor migration through the Robles Reach will provide more usable information while using fewer fish to gather that information; compared to using an additional weir trap at the downstream end of the Robles Reach. It is estimated that no more than one steelhead mortality will occur due to the method and this initial sample size. Hockersmith et al. (2000) measured a mortality rate of 2.4% using the gastric method. Gastric implanted fish also have similar survival rates, overall health, and similar physiological stress as fish with surgically implanted radio or PIT tags (Adams et al. 1998; Hockersmith et al. 2000; Jepsen et al. 2001).

Results

Of the 16 smolts tagged and released downstream of the Robles Fish Facility, 7 smolts were found to have migrated through the Robles Reach (Appendix 34). The number of days to migrate through the Robles Reach ranged from 1 to 8 days and the mean was 3 days. This was a mean migration rate of 2.2 km/day. The range of discharges from Robles during the period from release to initial detection downstream of the Robles Reach was from 30 to 33 cfs for all but one of the tagged smolts. One smolt was detected downstream of the Robles Reach one day after release; a migration rate of about 6 km/day. This occurred as flows were increasing during the March high-flow event. The remaining 9 smolts were found to have moved less than 4 km downstream of the Robles Fish Facility. It appears that a high rate of tag regurgitation occurred during the study. Of the 16 smolts tagged and released downstream of the Robles Fish Facility, 10 smolts appeared to regurgitate their tags. The range of days to regurgitation was estimated to be from 1 to 18 days and the mean was about 6 days. This did not include one *O. mykiss* that was found to move upstream of the Robles Fish Facility. Due to the length of time from release until it was found, an accurate time to tag loss could not be calculated.

Discussion

Even though the high rate of regurgitation limited the number of days that smolt migration behavior could be assessed, the time prior to tag loss did provided important information. It's not known the exact cause of the high tag loss. The size of the tag may have been too small, which could have allowed regurgitation to more easily occur. Before additional tags are used, a literature review will be conducted to determine if there is a correlation of tag and body size to tag loss. There was an attempt to locate all of the tags that were thought to be regurgitated. For fish that had not moved for a period of time, the tag location was determined and the surrounding area was snorkeled. While the snorkeling was occurring, the tag was continuously monitored to determine if any movement occurred that would indicate the fish still had the tag and was moving away from the snorkeler. Even with multiple searches, no tags were found using this method. Tags regurgitated prior to the high-flow event could have been buried by bed-load, but why tags regurgitated after the high flow could not be found is uncertain. The closest a tagged *O. mykiss* was found to the mouth of the Ventura River was at rkm 5, about 200 m downstream of Shell Road bridge. Other tagged smolts were lost and not found after a week or two and it is possible that they migrated down and out of the Ventura River before they could be detected in the lower river. The primary object of the study was to evaluate migration through the Robles Reach and therefore the same effort was not given to searching the lower river. In addition, it was much more difficult to find suitable sites to access and search the lower river and fish could have more easily moved through the lower river undetected. In general, the method of radio telemetry to evaluate movement through the Robles Reach appears useful at addressing this objective. Additional data is still needed to better understand the smolt migration through this reach.

4.0 ROBLES FACILITY OPERATIONS

4.1 Facility Status

The Robles Fish Passage Facility started the 2010-2011 season in a fully functional mode with the exception of the Fish Ladder flow meter. The 2010-2011 season was characterized by an above average rainfall year, 35.99 inches as measured at Casitas Dam. The average annual rainfall at the dam is 24.06 inches. The area experienced an unusually wet December in 2010 with 15.79 inches reported for the month at Casitas Dam and good rainfalls in February and March 2011. Two peak flow events, one with an overlapping peak, as defined by the BA/BO occurred during the Fish Flow Operations Season. Water diversions began on December 19, 2010 and continued through June 14, 2011 with the exception of two days in February. The diversion periods included water that was downloaded from Lake Matilija. Some surface flow continued over the measurement weir through the date this section of the report was prepared in late August 2011.

The 2010 Report identified several projects to be completed during the summer and fall. The principal projects were:

- Adjust interim weir two and three to improve fish passage.
- Replace the mechanical limit switches with optical switches on the brush system.
- Repair or replace the auxiliary water flow meter.
- Relocate the fish passage flow meter to minimize turbulence from the Vaki shroud.
- Update and improve the automated controls for the facility.

A brief description of each project and the project's status is listed below:

Adjust interim weir two and three to improve fish passage-This work was accomplished. Additional adjustments may be made to weir three during fall 2011.

Replace the mechanical limit switches with optical switches on the brush system- This work was accomplished. The new optical limit switches so far have been more reliable then the original mechanical switches.

Repair or replace the auxiliary water flow meter-The meter was found to be intact and functioning. The erroneous readings appear to be from "sloshing".

Relocate the fish passage flow meter to minimize turbulence from the Vaki shroud-Work on this item was begun but the early heavy rains prevented completion. The work will be completed during the summer and fall of 2011.

Update and improve the automated controls for the facility-This work was completed and will continue as Casitas gains additional experience with the system.

4.2 Flow Observations and Control

Flow and level measurement devices are located at various locations within the Robles Fish Passage Facility. The primary points of measuring and recording stream flows entering, flowing through and leaving the Robles Fish Passage Facility are:

- Matilija Creek at Matilija Hot Springs – located approximately 2,100 feet downstream of Matilija Dam – good rating for low to moderate flows – operated by Casitas Municipal Water District, formerly a USGS station;
- Matilija Dam Stage Bubbler-Located at the dam, this gage provides the lake elevation. Under high flows, the dam acts as a weir. This is the primary flow measurement location under high flows and to determine if a peak has occurred.
- North Fork Matilija Creek – located approximately 3,000 feet upstream of its confluence with Matilija Creek – good rating for low to moderate flows – operated by the Ventura County Watershed District;
- Robles-Casitas Diversion Canal – located on the diversion canal approximately 1,300 feet downstream of the Robles headworks – trapezoidal channel with a good rating for flows up to 600 cfs;

- Ventura River near Meiners Oaks (VRNMO) – located approximately 540 feet downstream of the Robles Fish Passage spillway – concrete weir section – good rating to 70 cfs, use of equations above 70 cfs with poor ratings above 1000 cfs (no verifications at higher flows). **Note: This is the most reliable flow measurement for the fish passage and downstream releases.**
- Fish Ladder-A 4 path flow meter by Accusonics located near the Riverwatcher. This flow meter has not been accurate since the installation of the replacement Vaki shroud. **Note: This flow measurement device was not functional during the 2010-11 season.**
- Auxiliary Water Supply-An American Sigma flow meter. This meter did not function properly. The problem is now believed to be "sloshing" in the pipe. Casitas has proposed a solution.

All of the instruments can suffer from inaccuracies from time to time. The inaccuracies can be caused by clogged bubbler lines, electronic creep, debris accumulating on sensors, changes to the measured cross sections, and equipment problems. For this reason, the data were verified against field measurements and observations. The information gathered from each of these locations has been reduced to the daily reporting of flows in the form of average cubic-feet per second. Note: *The spreadsheets are in Appendix 35, entitled "Ventura River Flow Assessment for the Robles Fish Passage Facility – FY 10-11".*

The fish screens remained in place for the entire year.

Two storm peaks occurred this year that triggered BA/BO required supplemental flow releases. The peaks occurred on February 18 and on March 20, 2011. An overlapping peak, as defined by the BO occurred on February 26, 2011. The February peak was relatively small at about 215 cfs. The overlapping peak was the larger peak at 270 cfs. The March peak was the largest peak the system has seen since 2005 at over 6000 cfs. Some flow did go over the cut-off wall during the March peak.

4.3 Costs Associated with Operation and Monitoring

The BA/BO specified that the District provide the costs that are associated with the activity. The following is a summary of the direct costs incurred by the District during the 2010-11 fiscal years:

- **Fisheries Monitoring**:

Salaries & Benefits	$331,623
Equipment/Material	$ 42,356
	$373,979

- **Facility Operations**:

Salaries & Benefits	$ 93,007
Equipment/Materials	$ 14,158
Outside Contracts	$ 15,841
Utilities	$ 5,286
Permit	$ 535
	$128,827

- **Capital Improvements**:

  No capital improvements were made during this fiscal year.

4.4 Assessment of the Effectiveness to Provide Fish Passage

Casitas has entered into an agreement with HydroScientific West to complete the first phase of the performance (hydraulic) testing. Performance testing of the fish screen was completed March 24 and 25. The report for the fish screen portion of the testing is scheduled to be delivered shortly.

Some initial velocity data were collected during 2008 to provide general fish ladder operation parameters. During a downstream release of 50 cfs, velocity measurements were collected at the top, middle, and bottom of the entrance gate #5. Each slide gate

is 18 in wide and 8 ft tall. At each location, four measurements were taken that spanned the width of the gate. This resulted in a total of 12 velocity measurements per gate measurement. Gate #5 was first measured with the total 50 cfs flowing only through it. The mean velocity was 2.0 ft/sec for all 12 measurements. However, the velocity increased with depth. The surface mean velocity was 0.2 ft/sec, the middle of the gate was 2.8 ft/sec, and the bottom was 3.2 ft/sec. With gates #4 and #5 open at 50 cfs, the mean velocity in gate 5 dropped to 1.1 ft/sec. The surface mean velocity was 0.2 ft/sec, the middle of the gate was 2.2 ft/sec, and the bottom was 1.0 ft/sec.

4.5 Recommendations Regarding the Prioritization of Future Activities

The District has completed its sixth season with the fish passage fully operational. Several projects have been identified to improve the functionality and reliability of the system. Other items require repairs. The summer and fall work list includes:

- Modify the diffuser panel in the auxiliary water system.
- Complete the relocation of the fish passage flow meter to minimize turbulence from the Vaki shroud.
- Adjust interim weir three if flow stops in the weir section of the river.
- Modify the differential level sensors at the fish ladder entrance to individually read water levels.

4.6 Recommendations on any Revisions Deemed Necessary to the Operations

Casitas is recommending that the fish screen diffuser panels be replaced. The current diffuser panels are two super-imposed perforated plates with ¼" holes at 3/8" staggered centers. Casitas is proposing to replace the perforated plates with ½" diameter holes on 11/16" staggered centers perforated plates. This year, the brush system worked much better at keeping the screens clean. However, the diffuser panels behind the screens became clogged. The fewer but larger openings of the proposed panels should reduce the clogging.

Casitas has proposed modifying the diffuser panel on the auxiliary water in an email to all BC members. This diffuser appears to be restricting the flow in the auxiliary water system.

Casitas continues to recommend that the construction of the 15-weir portion of the project be put on hold at least until the Matilija Dam Removal Project is completed. Preliminary plans for the High Flow Sediment Bypass and High Flow Fish Passage require this area to be graded to new elevations. The existing temporary weir system has proven to be passable by adult *O. mykiss*.

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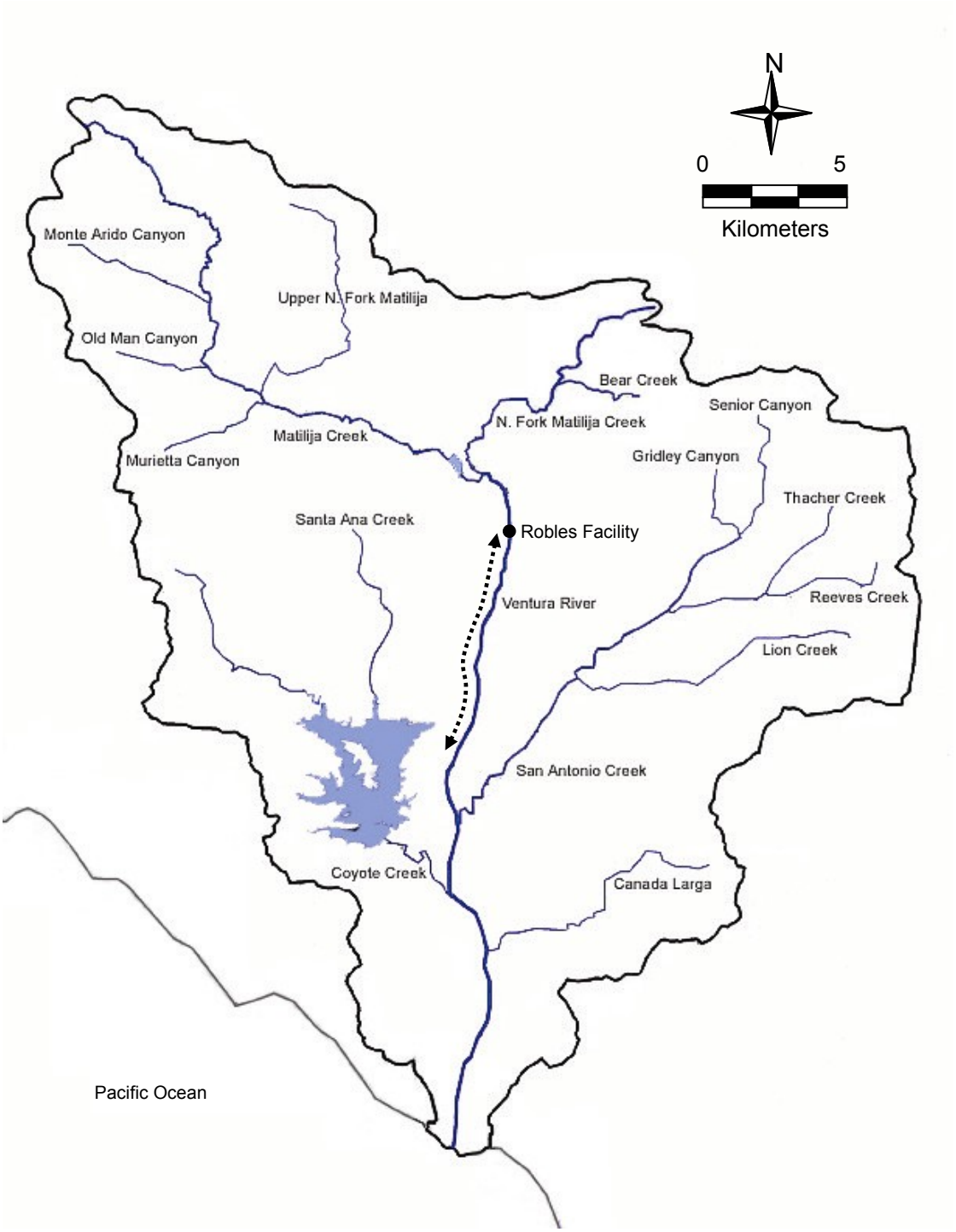
6.0 APPENDIXES



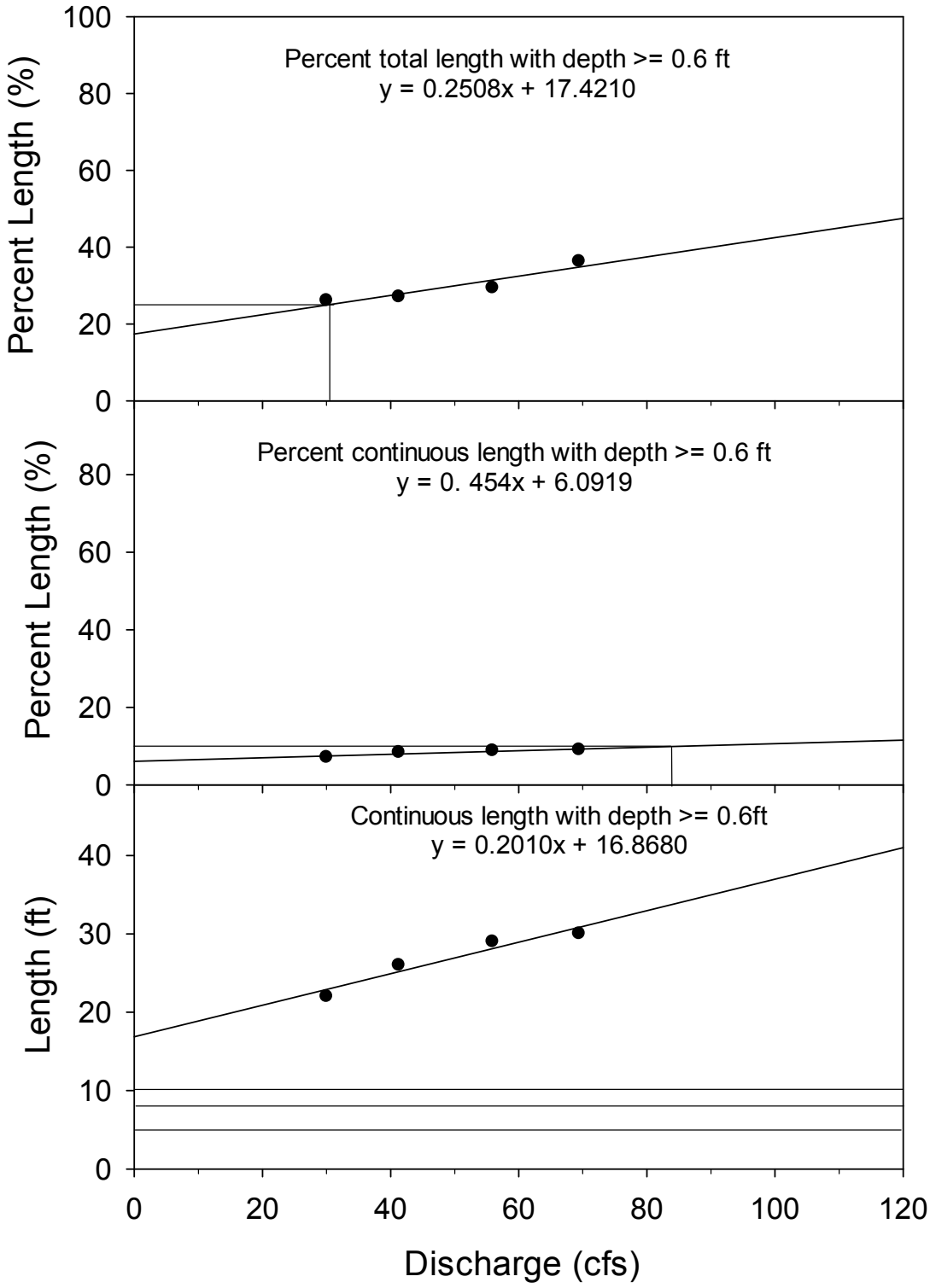
Appendix 1. Basin map of the Ventura River. The Robles Fish Passage Facility is identified by the black dot and the Robles Reach is identified by the dashed line downstream of the Robles Facility.

Appendix 2. Summary data of impediment sites originally selected during 2009 for upstream fish migration impediment evaluations. Several sites were altered by high flows that peaked 20 March 2011 (see text for description).

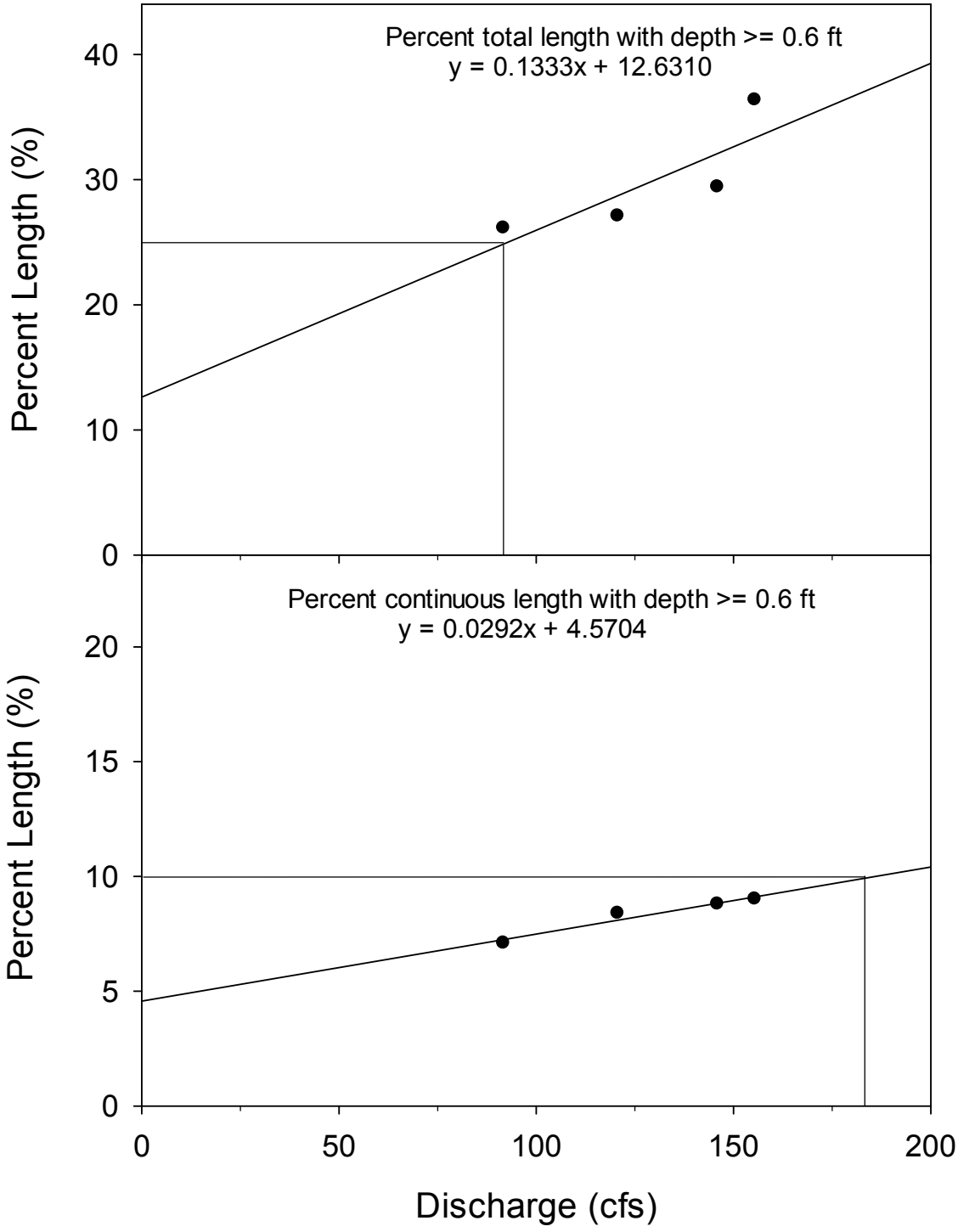
Site	Latitude (N)	Longitude (W)	km	Habitat Type[a]	Site Description	Length (m)	Slope (%)	Percent Substrate[b]						Active Channel Width (m)
								SO	SD	GR	CB	BD	BR	
1			0		River mouth				100					
2	34°20'27"	119°17'53"	7.5	RI	Near treatment plant	16.4	2.8	10	10	15	45	20	0	31.3
3	34°22'07"	119°18'34"	11	RB	Near Casitas Springs at end of levy	22.0	3.7	10	5	10	65	10	0	27.0
4	34°23'05"	119°18'36"	13	RI	0.5 km upstream of San Antonio Cr. confluence	23.8	5.0	0	0	0	15	85	0	27.9
5	34°23'46"	119°18'33"	15	RI	0.4 km downstream of Santa Ana Blvd. bridge	8.4	7.0	0	5	5	45	45	0	50.6
6	34°24'39"	119°18'06"	17	CB	1.4 km upstream of Santa Ana Blvd. bridge	26.1	5.0	0	0	0	65	35	0	33.8
7	34°26'04"	119°18'00"	19	RB	1.1 km upstream of Hwy 150 bridge	31.6	2.0	5	0	10	40	45	0	65.9
8	34°12'15"	119°17'36"	22	CB	1.2 km downstream of Robles Fish Facility	9.2	10.0	0	0	10	45	45	0	32.4

[a]The habitat types are: RB = rapid with protruding boulders, RI = riffle, and CB = cascade over boulders.

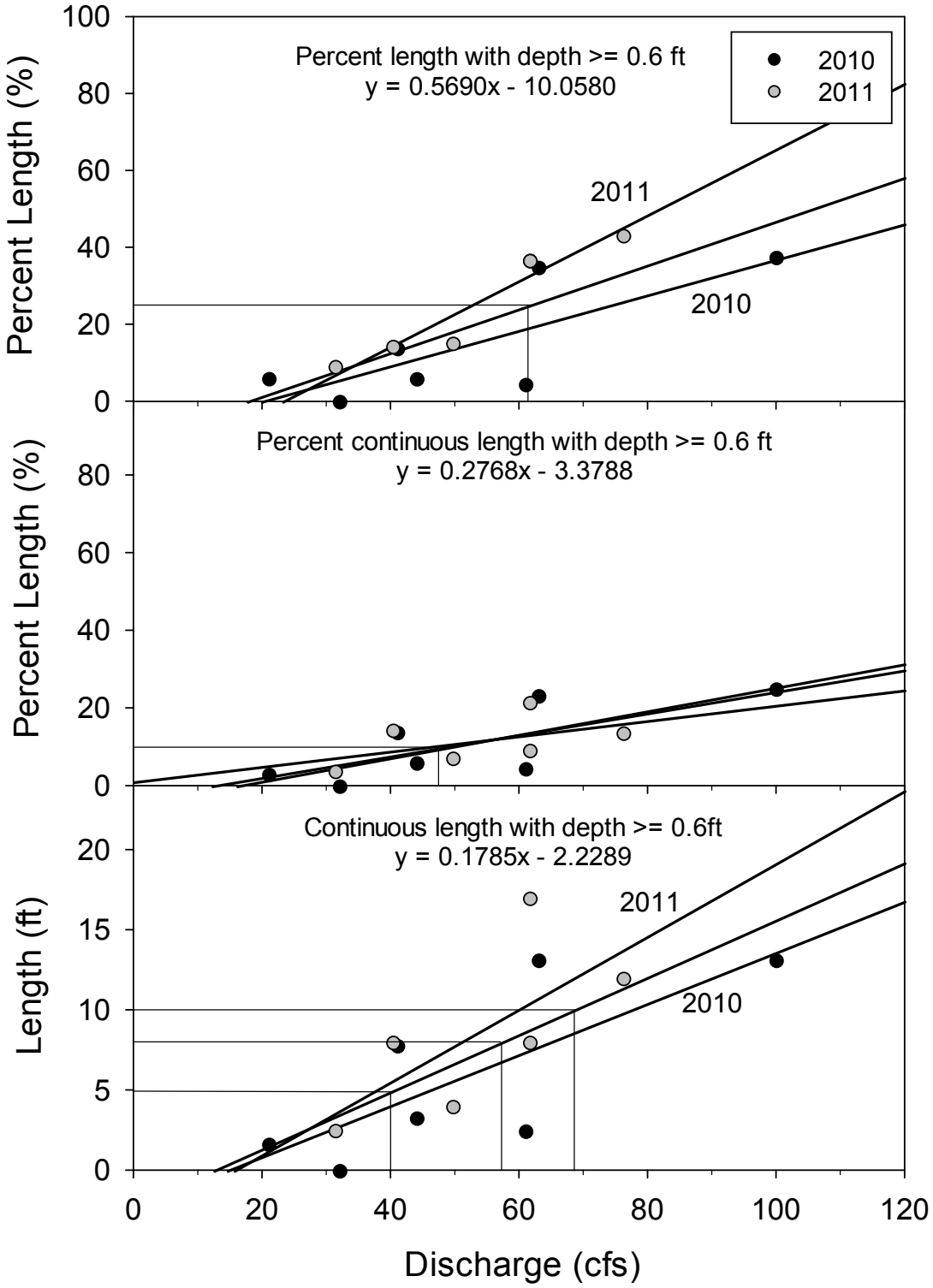
[b]The substrate types are: SO = silt and organics, SD = sand, GR = gravel, CB = cobble, BD = boulders, and BR = bedrock.



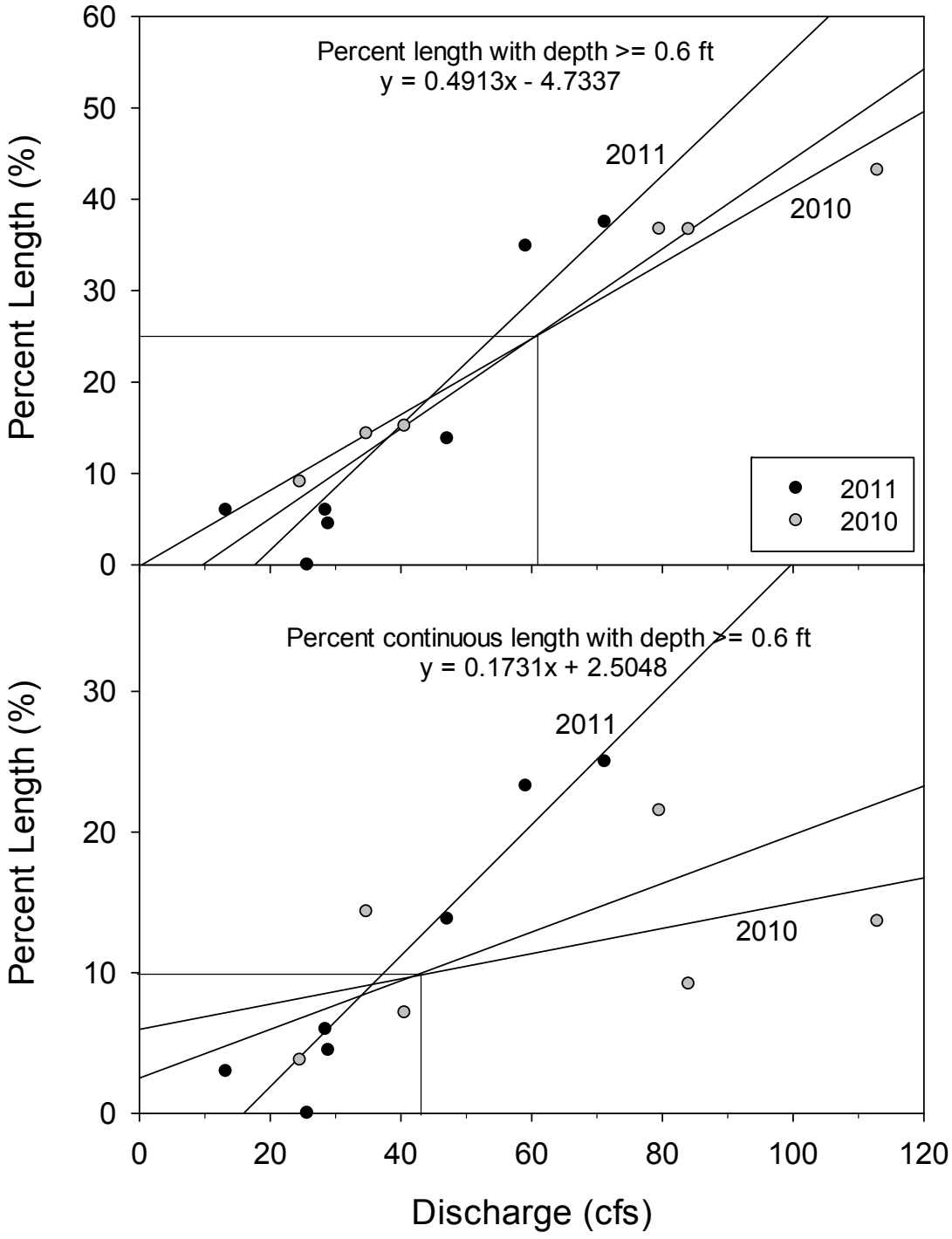
Appendix 3. Relation between Robles discharge and water depth at Site 3-2 near Casitas Springs and resulting discharge for various passage criteria.



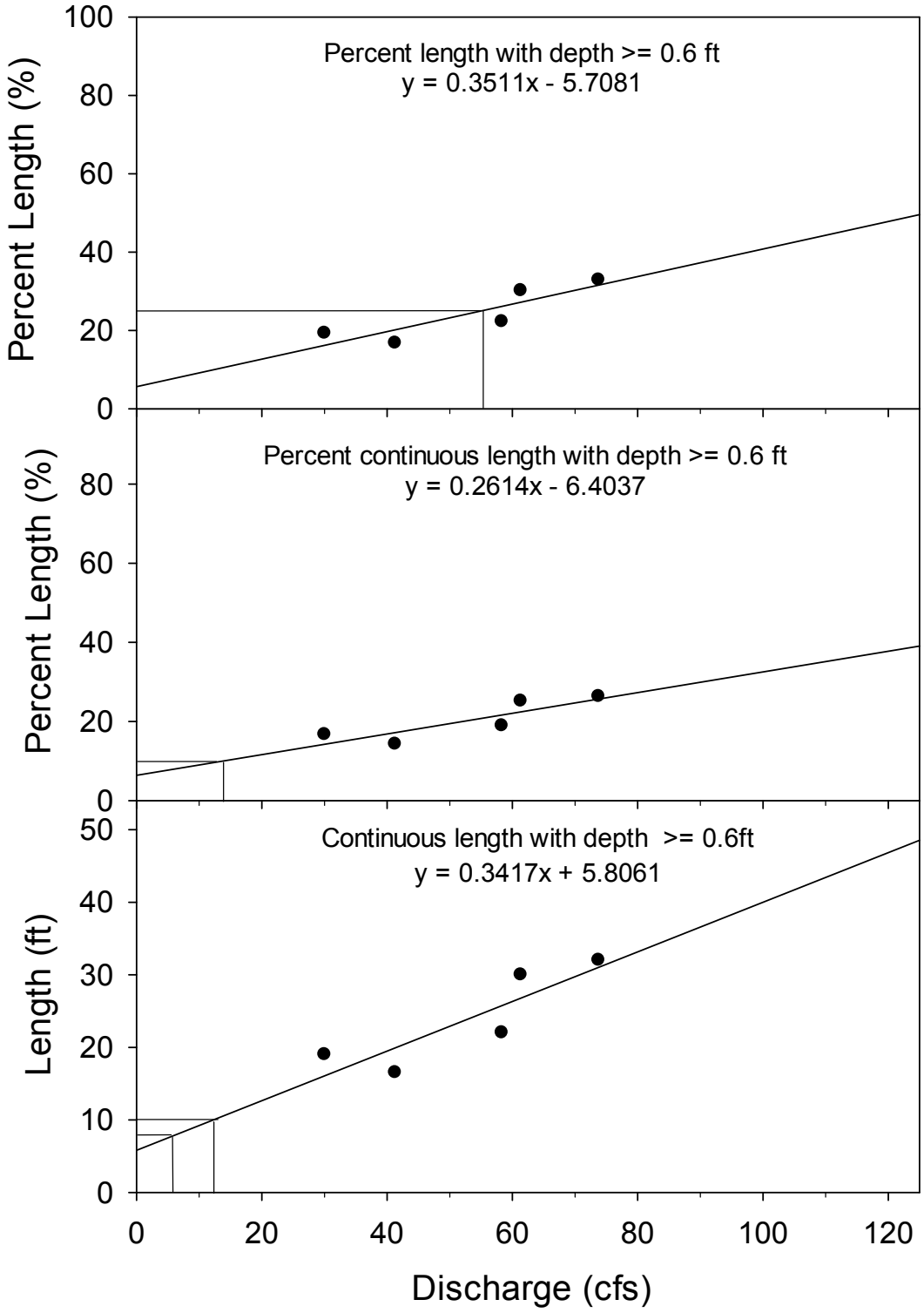
Appendix 4. Relation between site discharge and water depth at Site 3-2 near Casitas Springs and resulting discharge for the Thompson passage criteria.



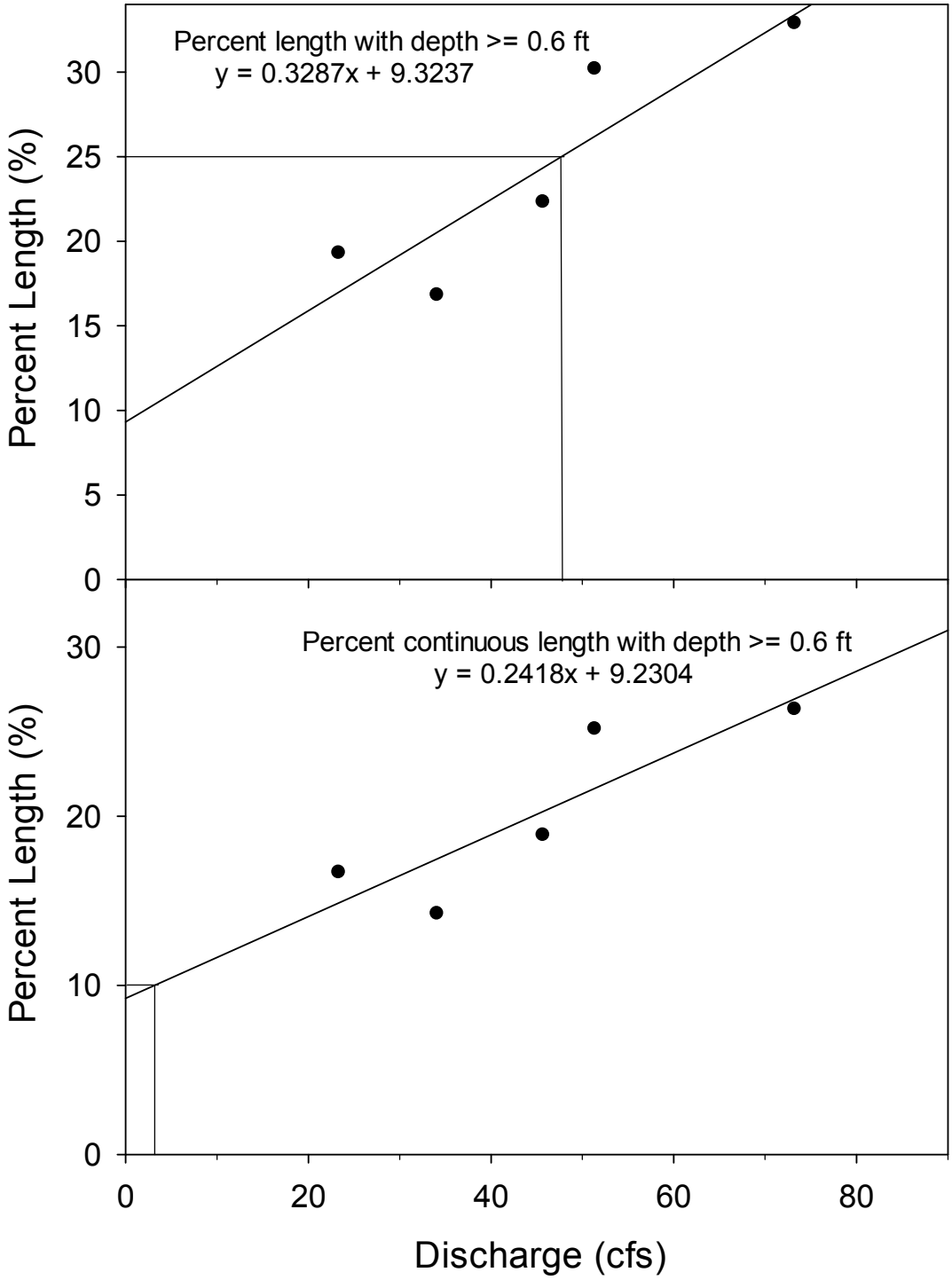
Appendix 5. Relation between Robles discharge and water depth at Site 4 upstream of San Antonio Creek and resulting discharge for various passage criteria.



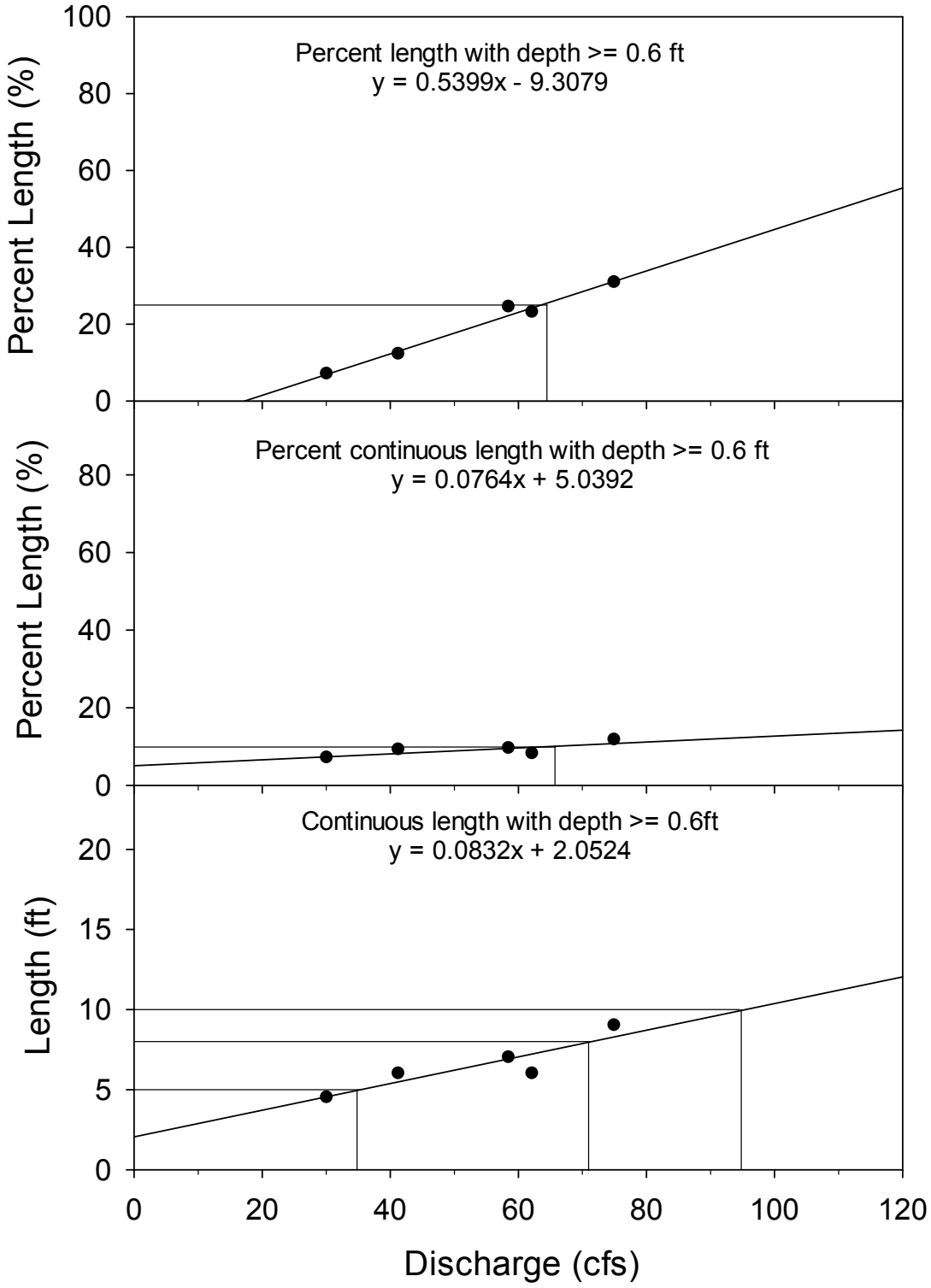
Appendix 6. Relation between site discharge and water depth at Site 4 upstream of San Antonio Creek and resulting discharge for the Thompson passage criteria.



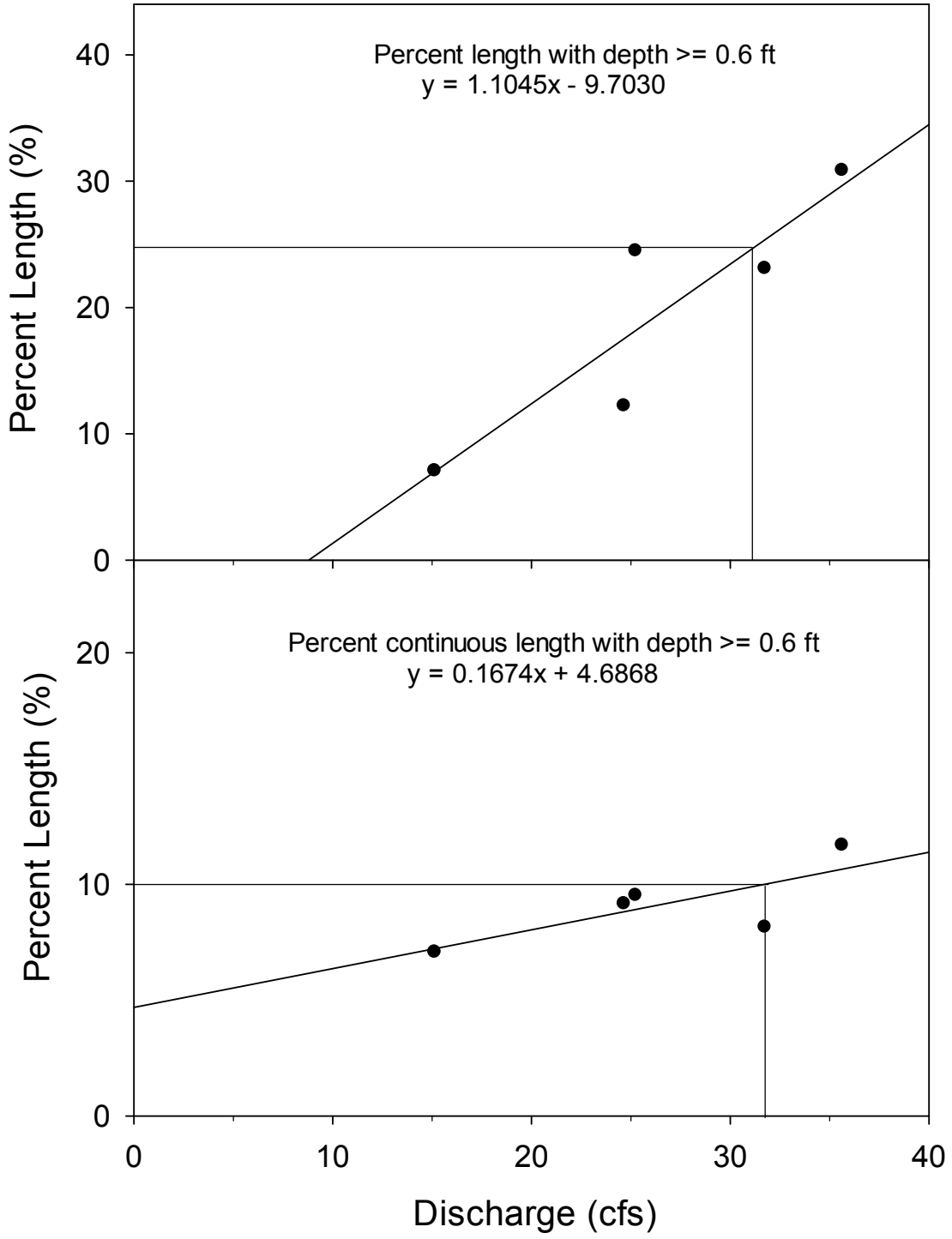
Appendix 7. Relation between Robles discharge and water depth at Site 5-2 downstream of Santa Ana bridge and resulting discharge for various passage criteria.



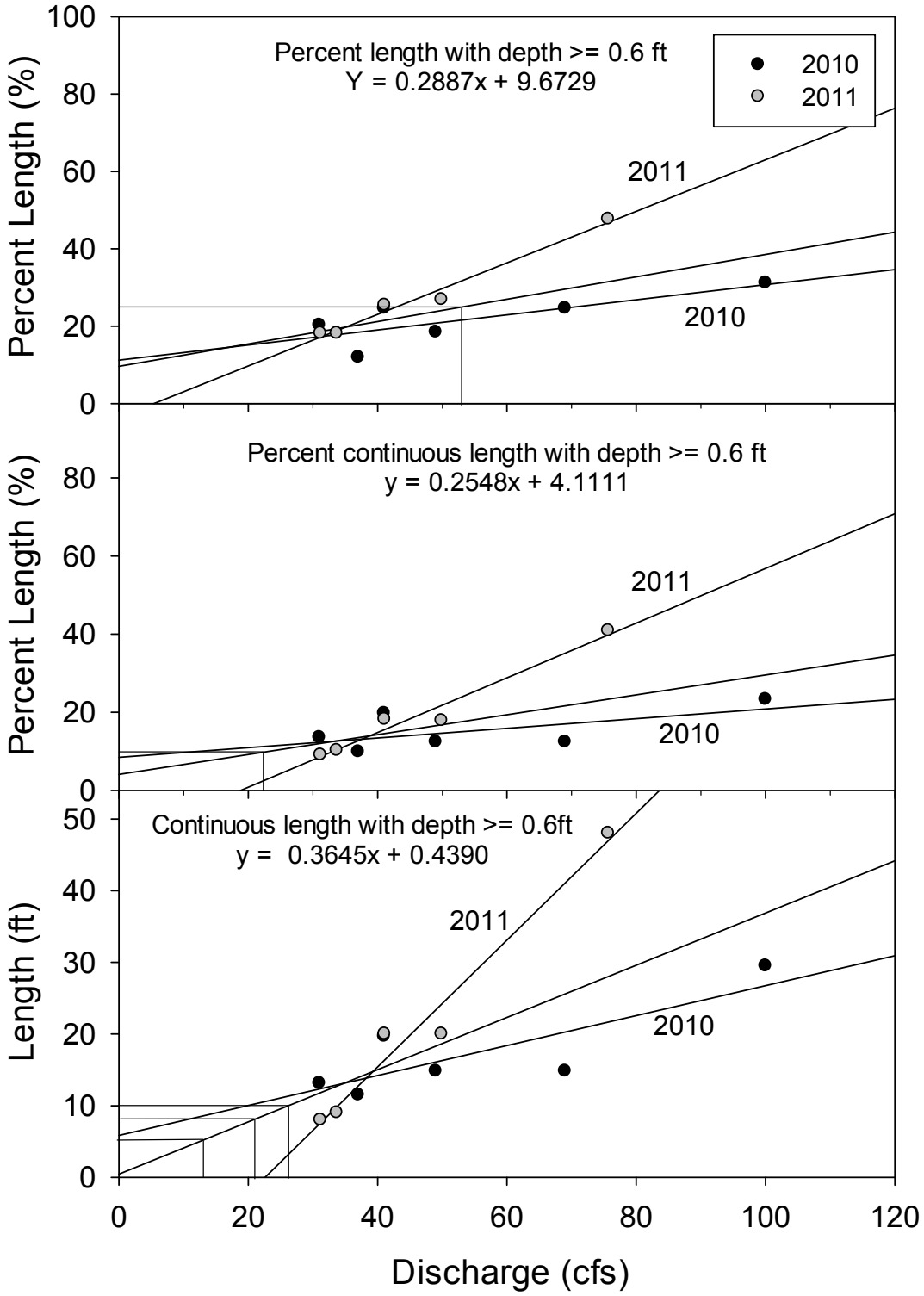
Appendix 8. Relation between site discharge and water depth at Site 5-2 downstream of Santa Ana bridge and resulting discharge for Thompson passage criteria.



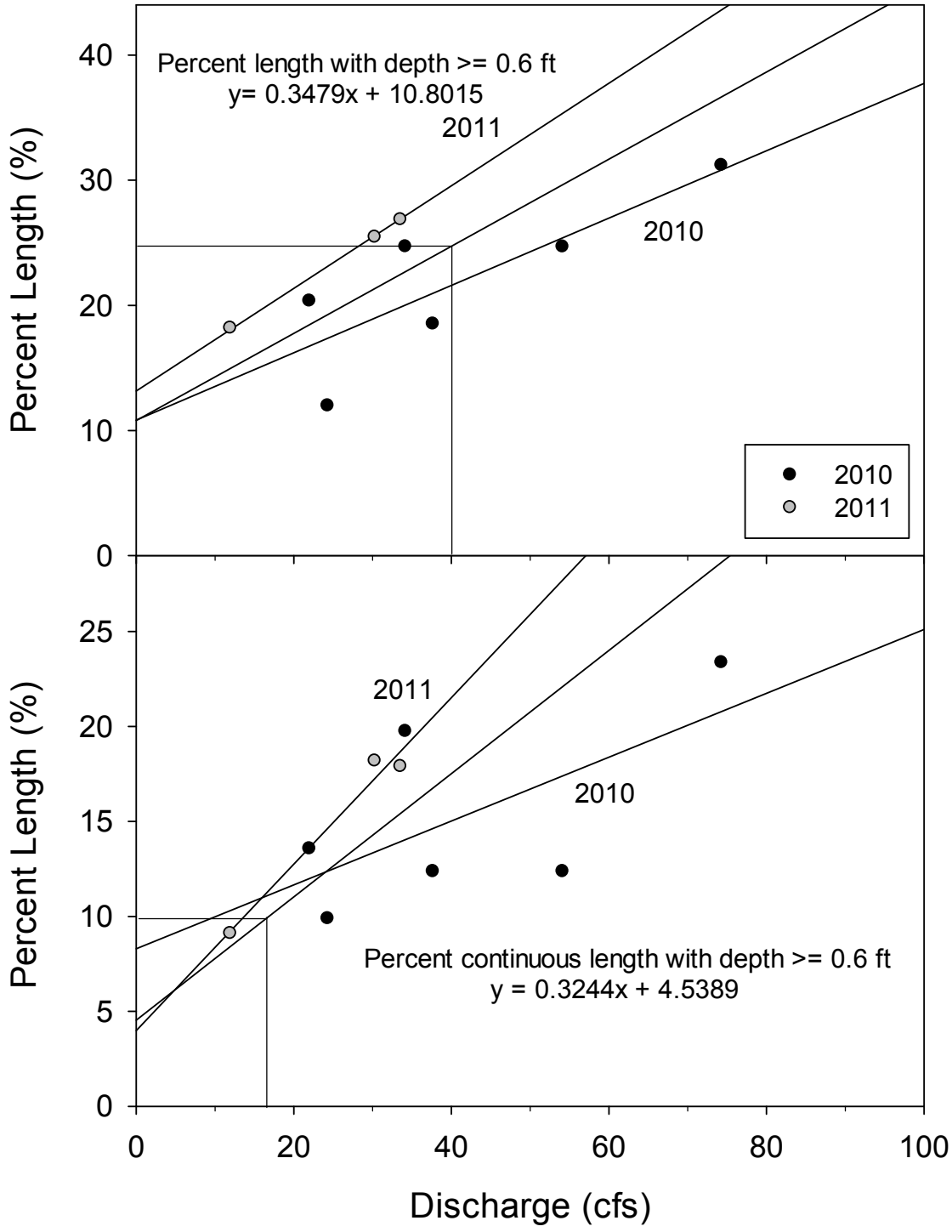
Appendix 9. Relation between Robles discharge and water depth at Site 6-2 upstream of Santa Ana bridge and resulting discharge for various passage criteria.



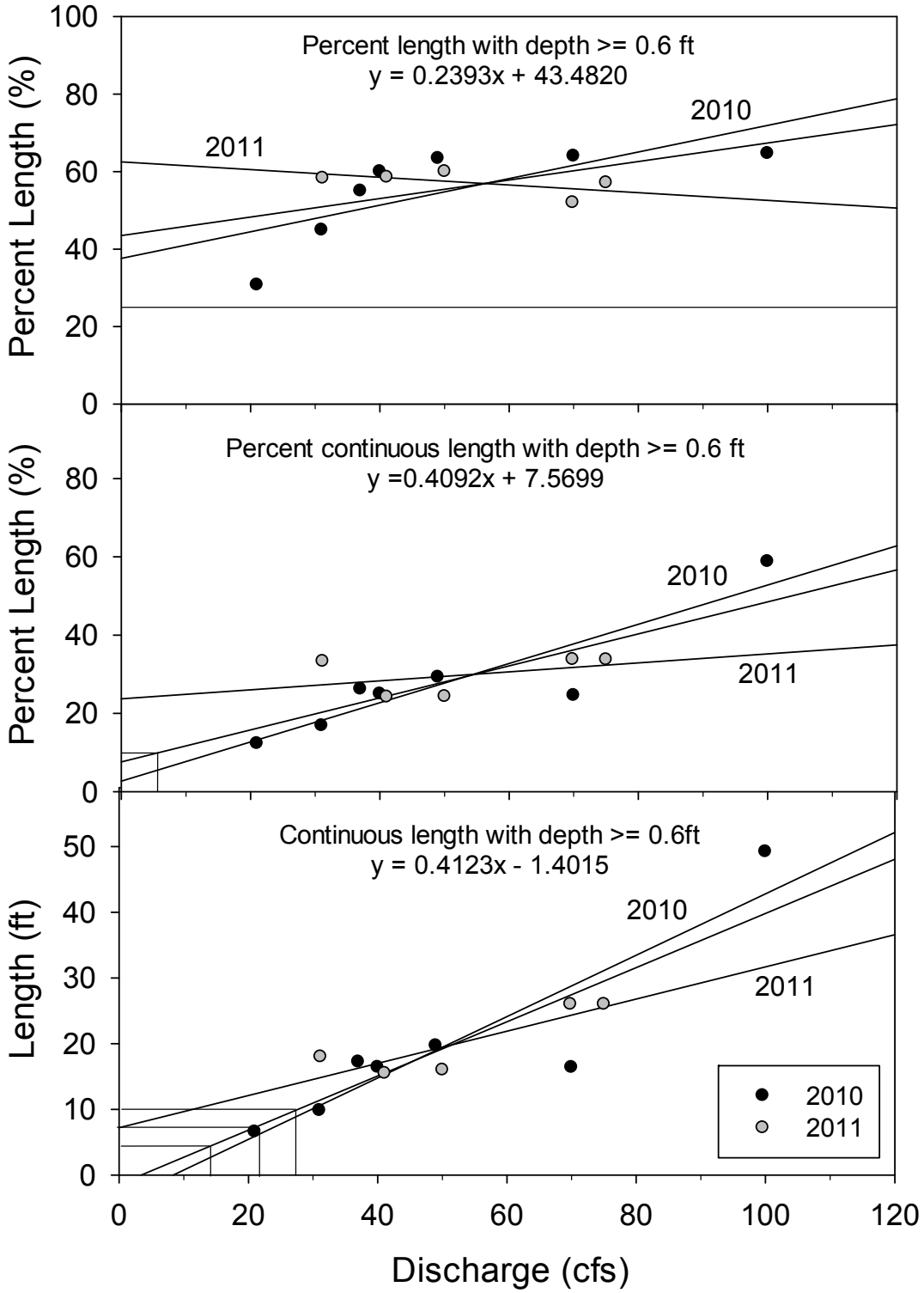
Appendix 10. Relation between site discharge and water depth at Site 6-2 upstream of Santa Ana bridge and resulting discharge for Thompson passage criteria.



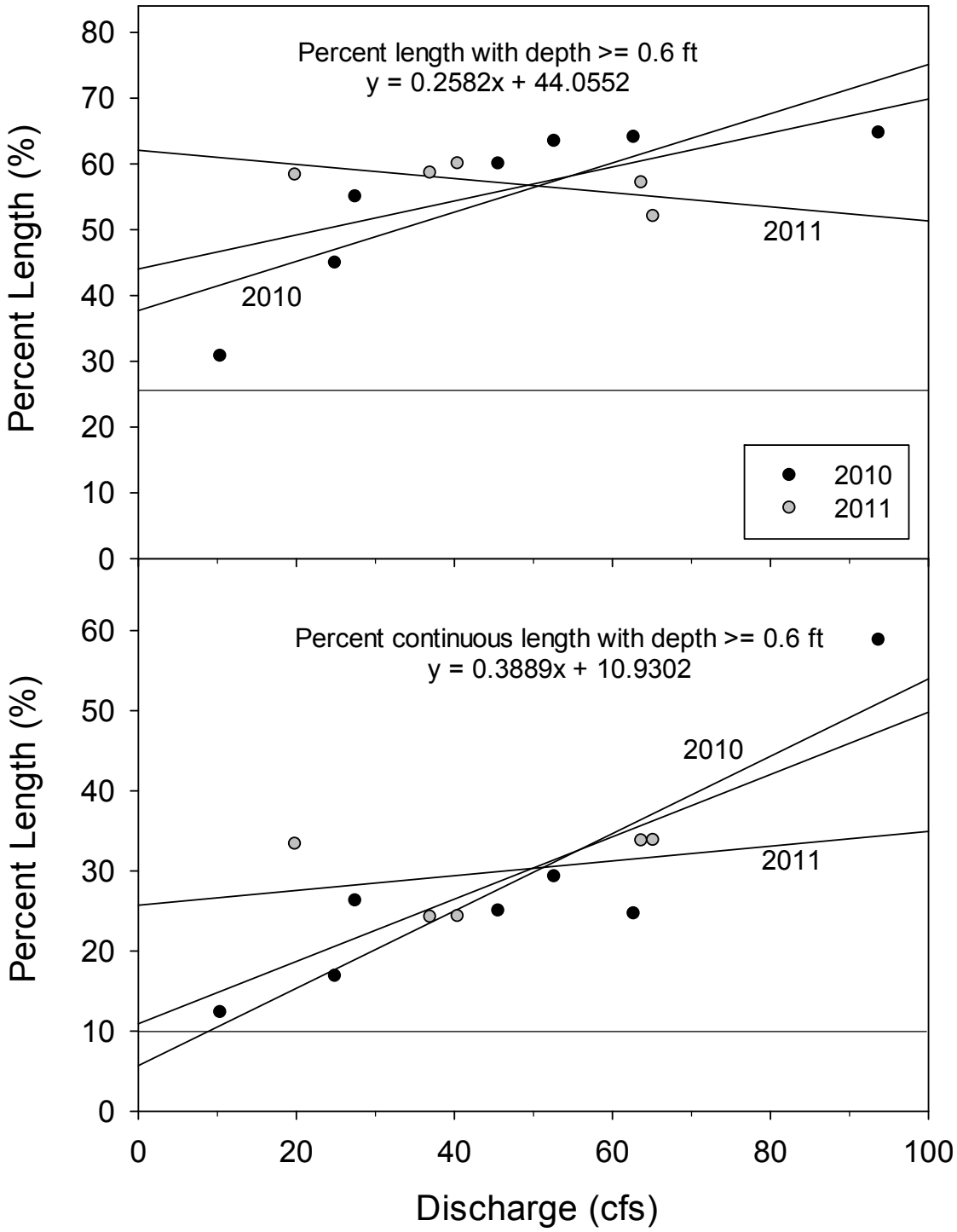
Appendix 11. Relation between Robles discharge and water depth at Site 7 upstream of Hwy 150 bridge and resulting discharge for various passage criteria.



Appendix 12. Relation between site discharge and water depth at Site 7 upstream of Hwy 150 bridge and resulting discharge for Thompson passage criteria.



Appendix 13. Relation between Robles discharge and water depth at Site 8 downstream of the Robles Fish Facility and resulting discharge for various passage criteria.



Appendix 14. Relation between site discharge and water depth at Site 8 downstream of Robles Fish Facility and resulting discharge for Thompson passage criteria.

A.

B.

C.

Appendix 15a. Photos of Site 2 impediment on 13 April 2011 during 64 cfs, as measured at Foster Park USGS gage, looking from: (A) upstream, (B) upstream from upstream edge of impediment, and (C) downstream from upstream edge of impediment.

A.

B.

C.

D.

Appendix 15b. Photos of Site 3-2 impediment on 05 April 2011 during 30 cfs discharge release from Robles Fish Facility, looking from: (A) downstream, (B) upstream, (C) right to left bank, and (D) left to right bank.

A.

B.

C.

D.

Appendix 15c. Photos of Site 4 impediment on 26 April 2011 during 31 cfs discharge release from Robles Fish Facility, looking from: (A) downstream, (B) upstream, (C) right to left bank, and (D) left to right bank.

A.

B.

C.

D.

Appendix 15d. Photos of Site 5-2 impediment on 05 April 2011 during 30 cfs discharge release from Robles Fish Facility, looking from: (A) downstream, (B) upstream, (C) right to left bank, and (D) left to right bank.

A.

B.

C.

D.

Appendix 15e. Photos of Site 6-2 impediment on 05 April 2011 during 30 cfs discharge release from Robles Fish Facility, looking from: (A) downstream, (B) upstream, (C) right to left bank, and (D) left to right bank.

A.

B.

C.

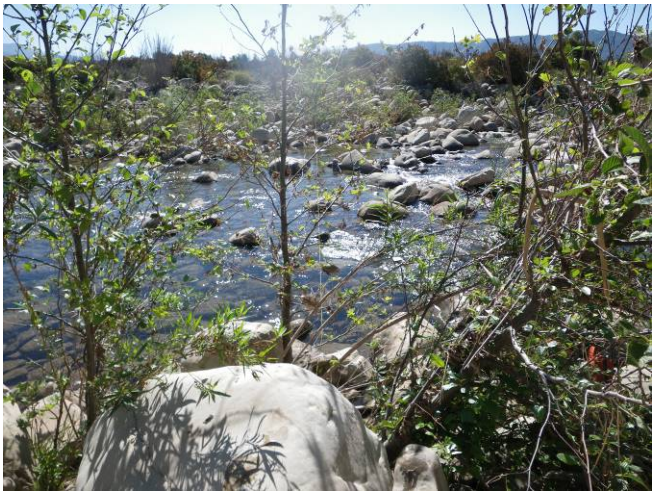
D.

Appendix 15f. Photos of Site 7 impediment on 26 April 2011 during 31 cfs discharge release from Robles Fish Facility, looking from: (A) downstream, (B) upstream, (C) right to left bank, and (D) left to right bank.

A.

B.

C.



D.

Appendix 15g. Photos of Site 8 impediment on 26 April 2011 during 31 cfs discharge release from Robles Fish Facility, looking from: (A) downstream, (B) upstream, (C) right to left bank, and (D) left to right bank.

A.

B.

Appendix 15h. Photos of Site 6 impediment Site 6 looking downstream on 09 March 2011 (A) during 36 cfs discharge release from Robles Fish Facility and looking downstream from similar location on 01 April 2011 (B) during 39 cfs.

Appendix 16. Regression equations and statistics of the four passage criteria using the Robles discharge evaluated at potential impediment sites.

	% Total Length with Depth ≥ 0.6 ft			% Continuous Length with Depth ≥ 0.6 ft			Continuous Length (ft) with Depth ≥ 0.6 ft		
Site	Equation	R^2	p-value	Equation	R^2	p-value	Equation	R^2	p-value
3-2	y = 0.2508x + 17.4210	0.87	0.07	y = 0.0454x + 6.0919	0.83	0.09	y = 0.2010x + 16.8680	0.92	0.04
4	y = 0.5690x - 10.0580	0.61	< 0.01	y = 0.2768x - 3.3788	0.51	0.01	y = 0.1785x - 2.2289	0.50	0.01
5-2	y = 0.3511x + 5.7081	0.76	0.05	y = 0.2614x + 6.4037	0.73	0.06	y = 0.3417x + 5.8061	0.75	0.06
6-2	y = 0.5399x - 9.3079	0.98	< 0.01	y = 0.0764x + 5.0392	0.62	0.11	y = 0.0832x + 2.0524	0.79	0.04
7	y = 0.2887x + 9.6729	0.46	0.02	y = 0.2548x + 4.1111	0.38	0.05	y = 0.3645x + 0.4390	0.49	0.02
8	y = 0.2393x + 43.4820	0.33	0.05	y = 0.4092x + 7.5699	0.66	< 0.01	y = 0.4123x - 1.4015	0.77	< 0.01

Appendix 17. Calculated discharge (cfs) required from the Robles Fish Facility to meet various adult passage criteria.

Site	25% Total length with depth ≥ 0.6 ft[a]	10% Continuous length with depth ≥ 0.6 ft[a]	Minimum discharge to meet Thompson criteria[a]	10ft Continuous length with depth ≥ 0.6 ft[b]	8ft Continuous length with depth ≥ 0.6 ft[c]	5ft Continuous length with depth ≥ 0.6 ft[d]
3-2	30	86	86	-34	-44	-59
4	62	50	62	69	57	40
5-2	55	14	55	12	6	-2
6-2	64	65	65	96	71	35
7	53	23	53	26	21	13
8	-77	6	6	28	23	16

[a]Thompson (1972).
[b]Harrison et al. (2006).
[c]Santa Ynez River Technical Advisory Committee (2000).
[d]Dettman and Kelly (1986).

Appendix 18. Regression equations and statistics for the Thompson passage criteria using the site discharge.

	% Total Length with Depth ≥ 0.6 ft			% Continuous Length with Depth ≥ 0.6 ft		
Site	Equation	R^2	p-value	Equation	R^2	p-value
3-2	y = 0.1333x + 12.6310	0.68	0.18	y = 0.0292x + 4.5704	0.95	0.03
4	y = 0.4913x - 4.7332	0.87	< 0.01	y = 0.1731x + 2.5049	0.38	0.02
5-2	y = 0.3287x + 9.3237	0.80	0.04	y = 0.2418x + 9.2304	0.75	0.06
6-2	y = 1.1045x - 9.7030	0.80	0.04	y = 0.1674x + 4.6868	0.58	0.14
7	y = 0.3479x + 10.8020	0.70	< 0.01	y = 0.3244x + 4.5389	0.65	< 0.01
8	y = 0.2582x + 44.0550	0.40	0.03	y = 0.3889x + 10.9300	0.63	< 0.01

Appendix 19. Calculated discharge (cfs) required at each site to meet Thompson (1972) passage criteria.

Site	25% Total length with depth ≥ 0.6 ft	10% Continuous length with depth ≥ 0.6 ft	Minimum discharge to meet Thompson criteria
3-2	93	186	186
4	61	43	61
5-2	48	3	48
6-2	31	32	32
7	41	17	41
8	-74	-2	-2

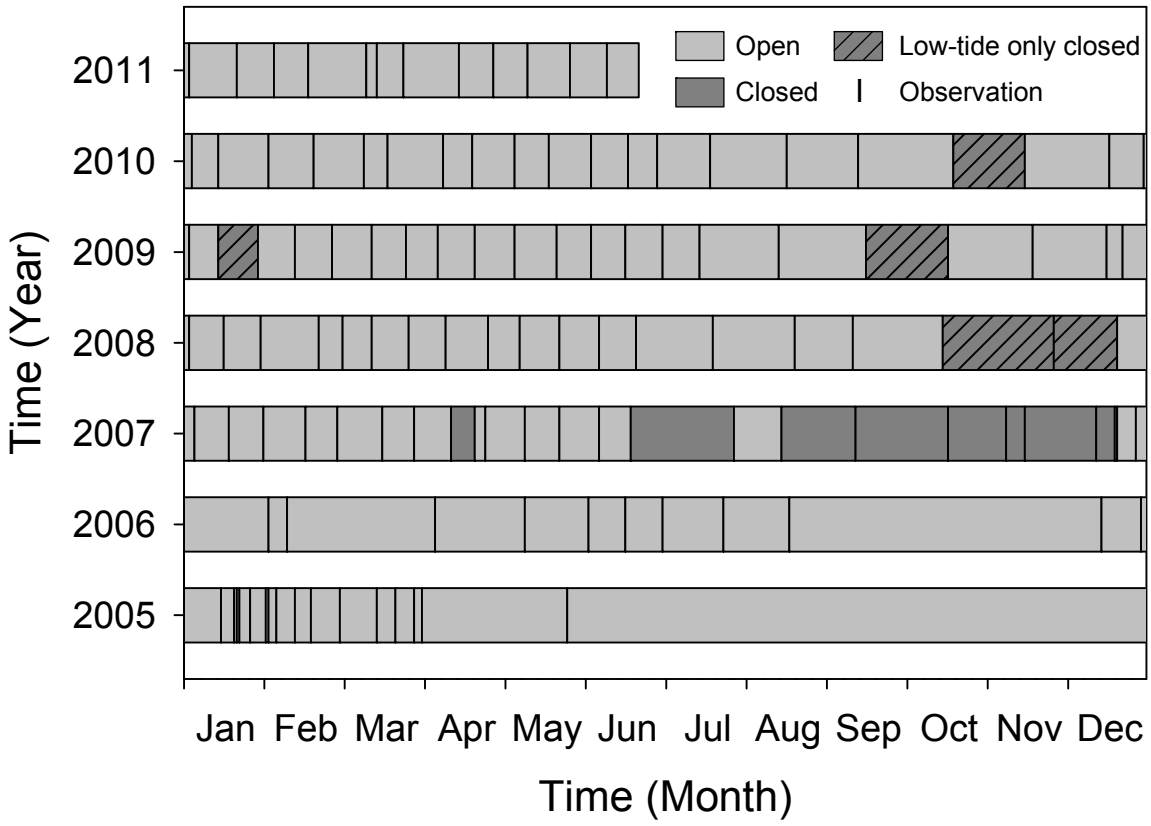
Appendix 19a. Calculated discharge (cfs) required at Robles for 2011 data to meet Thompson (1972) passage criteria.

Site	25% Total length with depth ≥ 0.6 ft	10% Continuous length with depth ≥ 0.6 ft
4	52	45
7	43	33
8	378	-120

Appendix 20. Ventura River sandbar monitoring data from July 2010 through June 2011.

Date	Sandbar Breeched (Y/N)	Time (24h)	Tide Height (ft)	Tidal State	High Tide Time (24h)	High Tide Height (ft)	Low Tide Time (24h)	Low Tide Height (ft)	Mean Daily Discharge at Foster[a] (cfs)	Mean Daily Discharge at Robles (cfs)	Notes
07/19/2010	Y	12:15	2.7	flood	17:05	5.5	10:08	2.1	11.0	1	Open on west bank
08/17/2010	Y	13:00	3.8	flood	16:35	5.3	09:40	2.8	6.4	0	Open on west bank
09/13/2010	Y	14:00	5.4	ebb	13:22	5.5	21:11	0.6	6.1	0	Open on west bank
10/19/2010	N[b]	10:45	3.6	ebb	08:06	5.1	14:28	1.2	7.7	0	If open, on west bank
11/15/2010	Y	15:30	3.2	flood	17:22	3.7	11:58	2.0	4.8	1	Open on west bank
12/17/2010	Y	14:30	0.3	flood	12:14	3.3	13:31	0.1	4.7	1	Open on west bank
12/30/2010	Y	12:40	-0.1	slack	18:46	3.2	12:31	-0.1	35.0	20	Open on west bank
01/03/2011	Y	16:00	-1.1	flood	21:45	3.9	15:22	-1.2	39.0	20	Open on west bank
01/21/2011	Y	15:30	-0.6	ebb	09:45	6.2	16:43	-1.1	26.0	20	Open on west bank
02/04/2011	Y	14:00	1.3	ebb	09:35	5.3	16:23	-0.3	25.0	20	Open on west bank
02/17/2011	Y	13:40	-0.6	ebb	08:08	6.3	15:03	-1.3	31.0	20	Open on west bank
03/11/2011	Y	14:25	2.3	flood	15:38	2.3	08:18	1.0	76.0	32	Open on west bank
03/15/2011	Y	09:15	3.1	ebb	06:25	5.0	13:48	-0.4	72.0	33	Open on west bank
03/25/2011	Y	10:15	0.1	flood	16:59	3.0	09:52	0.1	1180.0	364	Open west and east
04/15/2011	Y	09:00	4.5	ebb	07:58	4.9	14:12	0.0	59.0	31	Open on west bank
04/28/2011	Y	12:15	1.2	ebb	07:31	3.8	13:36	0.9	45.0	30	Open on west bank
05/11/2011	Y	09:30	0.9	ebb	04:09	4.0	11:10	0.4	41.0	31	Open on west bank
05/27/2011	Y	12:30	1.6	slack	07:08	3.2	12:33	1.6	41.0	32	Open on west bank
06/10/2011	Y	12:58	1.8	flood	17:52	5.5	11:08	1.1	45.0	32	Open on west bank
06/22/2011	Y	14:17	3.8	flood	15:59	4.3	09:00	1.0	34.0	27	Open on west bank

[a]USGS gauging station number 11118500, downstream of Foster Park.
[b]Sandbar was closed at low tide and open during some high tides.

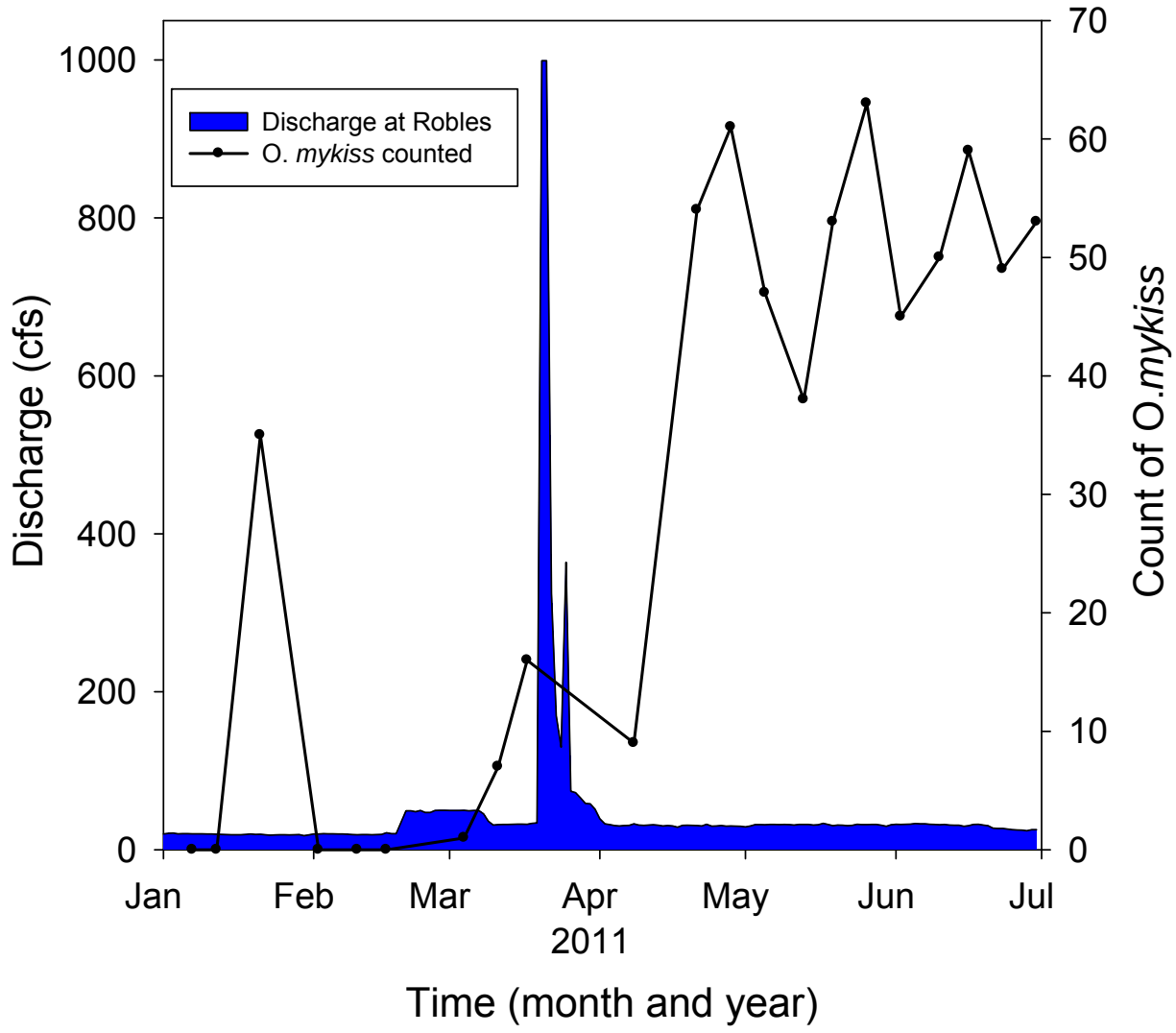


Appendix 21. Sandbar status at the mouth of the Ventura River from 2005 through June of 2011. Each observation is indicated by vertical lines and the sandbar status was assumed to remain the same until the next observation (Lewis et al. 2010).

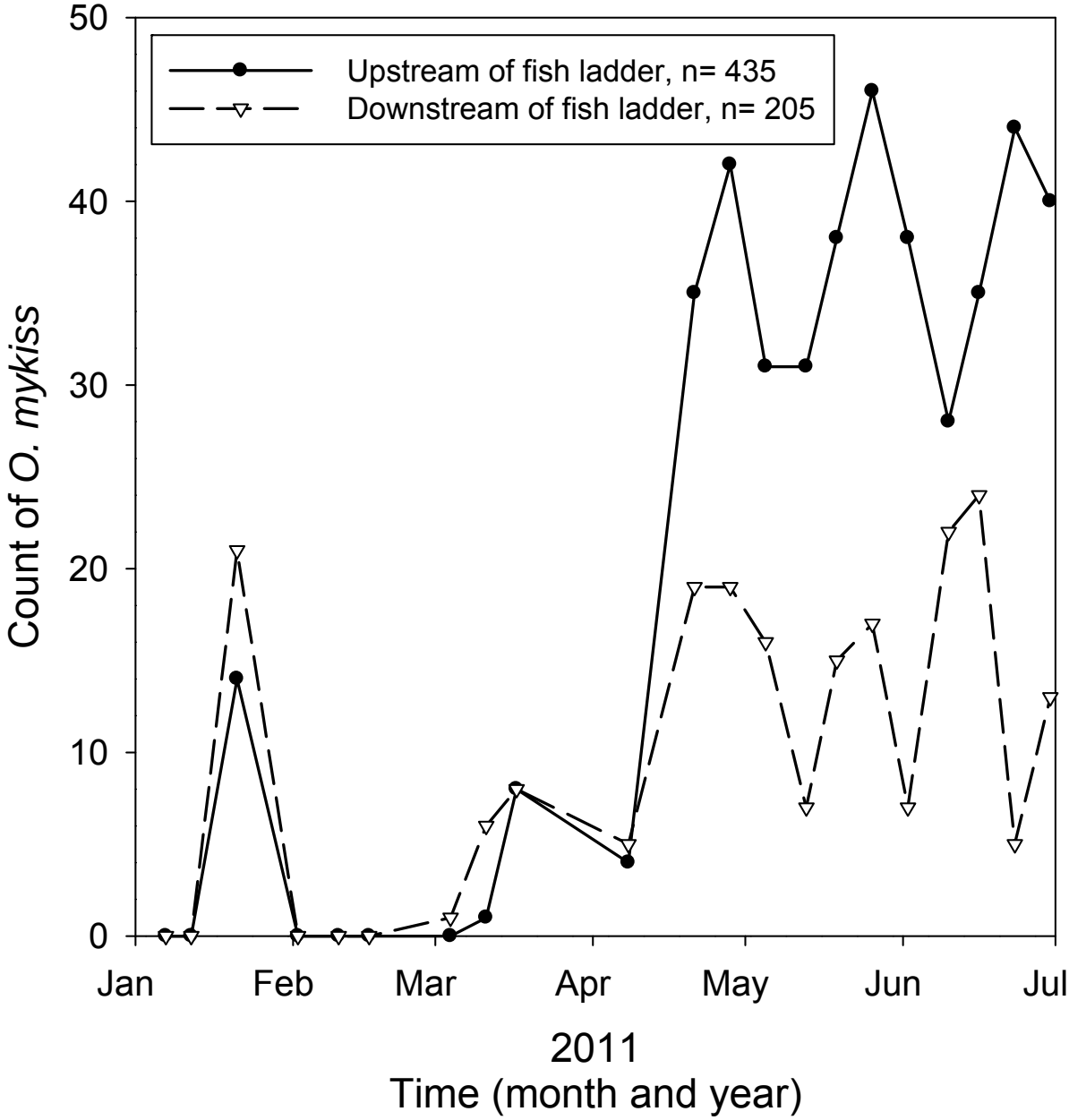
Appendix 22. Fish attraction counts of *O. mykiss* in close proximity to the Robles Fish Facility from January through June of 2011.

Date	Method	Direction	Length (m)	Temp (°C)	Turbidity (NTU)	Robles Discharge (CFS)	Species[a]	Count
7-Jan-2011	BANK	Upstream	140	11	7	20	NFO	0
7-Jan-2011	BANK	Downstream	200	11	7	20	NFO	0
12-Jan-2011	BANK	Upstream	140	11	3	20	NFO	0
12-Jan-2011	BANK	Downstream	200	11	3	20	NFO	0
21-Jan-2011	SNORKEL	Upstream	140	12	4	20	OMY	14
21-Jan-2011	SNORKEL	Downstream	200	12	1	20	OMY	21
2-Feb-2011	SNORKEL	Upstream	140	11	2	20	NFO	0
2-Feb-2011	SNORKEL	Downstream	200	11	1	20	NFO	0
10-Feb-2011	SNORKEL	Upstream	140	11	1	19	NFO	0
10-Feb-2011	SNORKEL	Downstream	200	11	1	19	NFO	0
16-Feb-2011	BANK	Upstream	140	13	6	21	NFO	0
16-Feb-2011	BANK	Downstream	200	13	2	21	NFO	0
4-Mar-2011	SNORKEL	Upstream	140	13	3	50	NFO	0
4-Mar-2011	SNORKEL	Downstream	200	13	3	50	OMY	1
11-Mar-2011	SNORKEL	Upstream	140	14	2	32	OMY	1
11-Mar-2011	SNORKEL	Downstream	200	14	2	32	OMY	6
17-Mar-2011	SNORKEL	Upstream	140	15	7	32	OMY	8
17-Mar-2011	SNORKEL	Downstream	200	15	4	32	OMY	8
8-Apr-2011	SNORKEL	Upstream	140	13	11	33	OMY	4
8-Apr-2011	SNORKEL	Downstream	200	13	9	33	OMY	5
21-Apr-2011	SNORKEL	Upstream	140	15	13	31	OMY	35
21-Apr-2011	SNORKEL	Downstream	200	15	10	31	OMY	19
28-Apr-2011	SNORKEL	Upstream	140	17	6	30	OMY	42
28-Apr-2011	SNORKEL	Downstream	200	17	3	30	OMY	19
5-May-2011	SNORKEL	Upstream	140	18	4	32	OMY	31
5-May-2011	SNORKEL	Downstream	200	18	6	32	OMY	16
13-May-2011	SNORKEL	Upstream	140	18	11	32	OMY	31
13-May-2011	SNORKEL	Downstream	200	18	2	32	OMY	7
19-May-2011	SNORKEL	Upstream	140	17	10	30	OMY	38
19-May-2011	SNORKEL	Downstream	200	17	4	30	OMY	15
26-May-2011	SNORKEL	Upstream	140	18	14	32	OMY	46
26-May-2011	SNORKEL	Downstream	200	18	14	32	OMY	17
2-Jun-2011	SNORKEL	Upstream	140	18	6	32	OMY	38
2-Jun-2011	SNORKEL	Downstream	200	18	2	32	OMY	7
10-Jun-2011	SNORKEL	Upstream	140	18	1	32	OMY	28
10-Jun-2011	SNORKEL	Downstream	200	18	1	32	OMY	22
16-Jun-2011	SNORKEL	Upstream	140	18	1	30	OMY	35
16-Jun-2011	SNORKEL	Downstream	200	18	1	30	OMY	24
23-Jun-2011	SNORKEL	Upstream	140	22	2	27	OMY	44
23-Jun-2011	SNORKEL	Downstream	200	22	2	27	OMY	5
30-Jun-2011	SNORKEL	Upstream	140	21	1	26	OMY	40
30-Jun-2011	SNORKEL	Downstream	200	21	1	26	OMY	13
		Upstream	2,940				Upstream	435
		Downstream	4,200				Downstream	205
		Total	7,140				Total	640

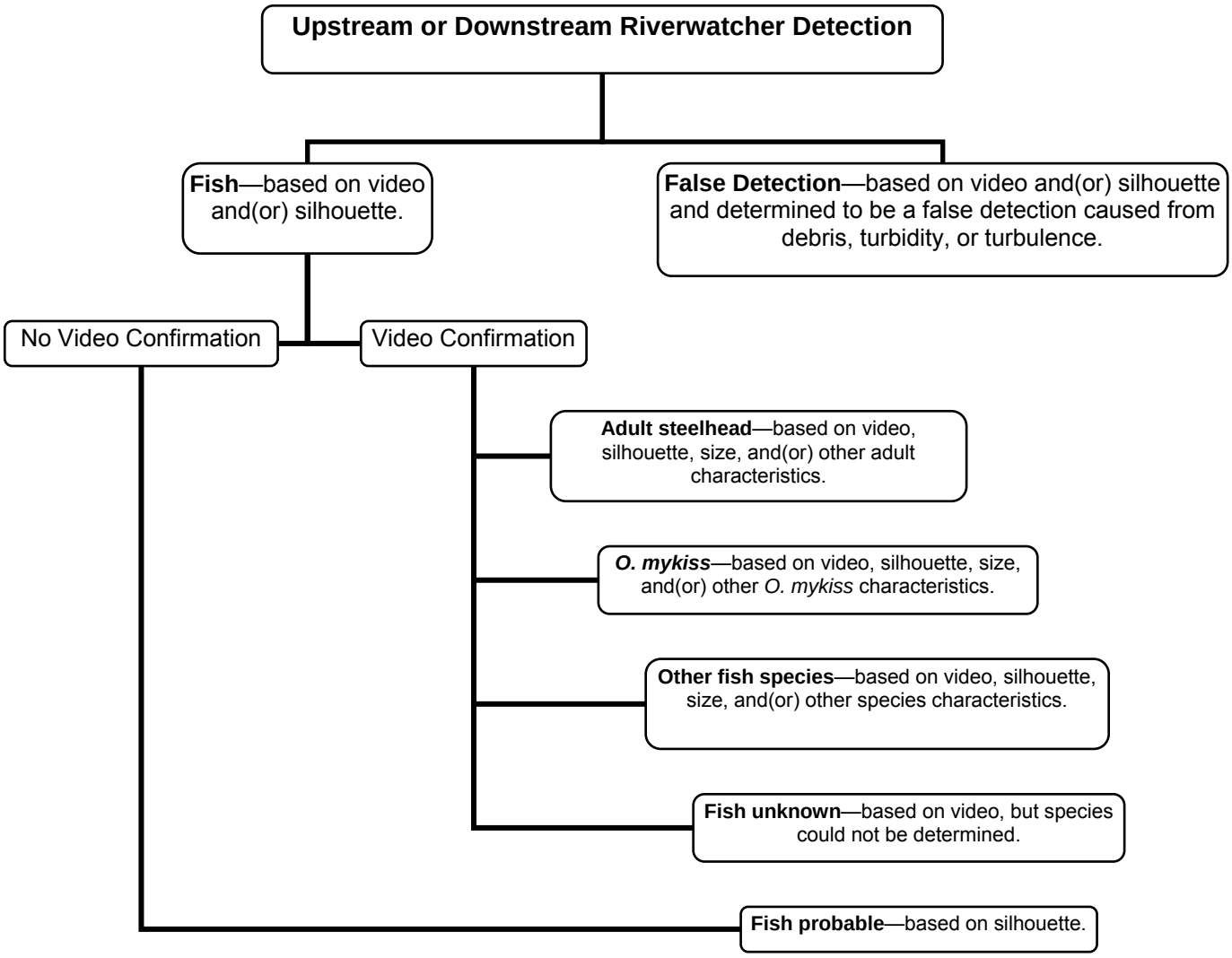
[a]OMY = *O. mykiss* and NFO = no fish observed.



Appendix 23. Total count of *O. mykiss* observed during fish attraction surveys during the fish passage season from January through June 2011 and discharge from the Robles Facility.



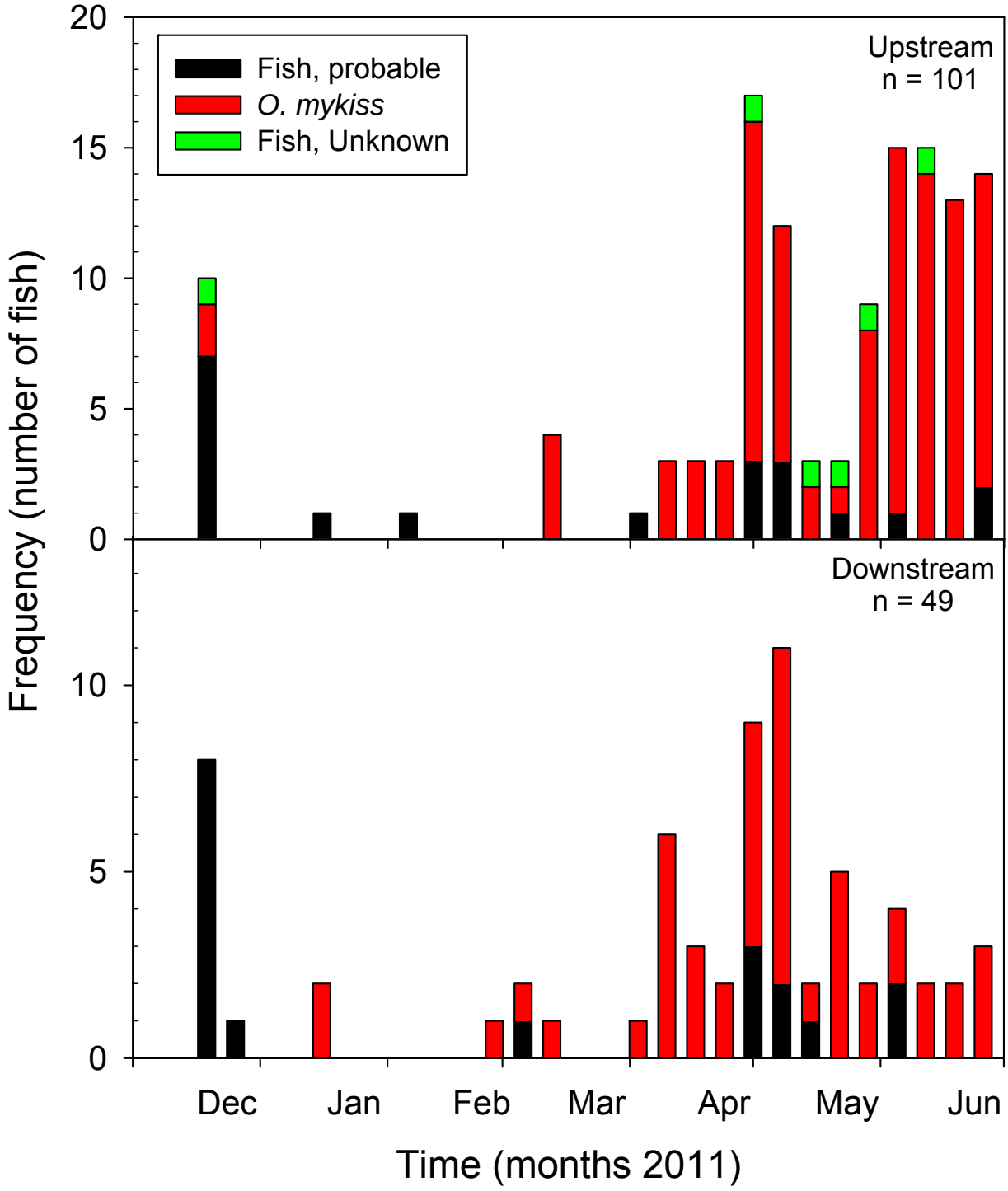
Appendix 24. Count of *O. mykiss* observed during fish attraction surveys upstream and downstream of the Robles Fish Facility during the fish passage season from January through June 2011.



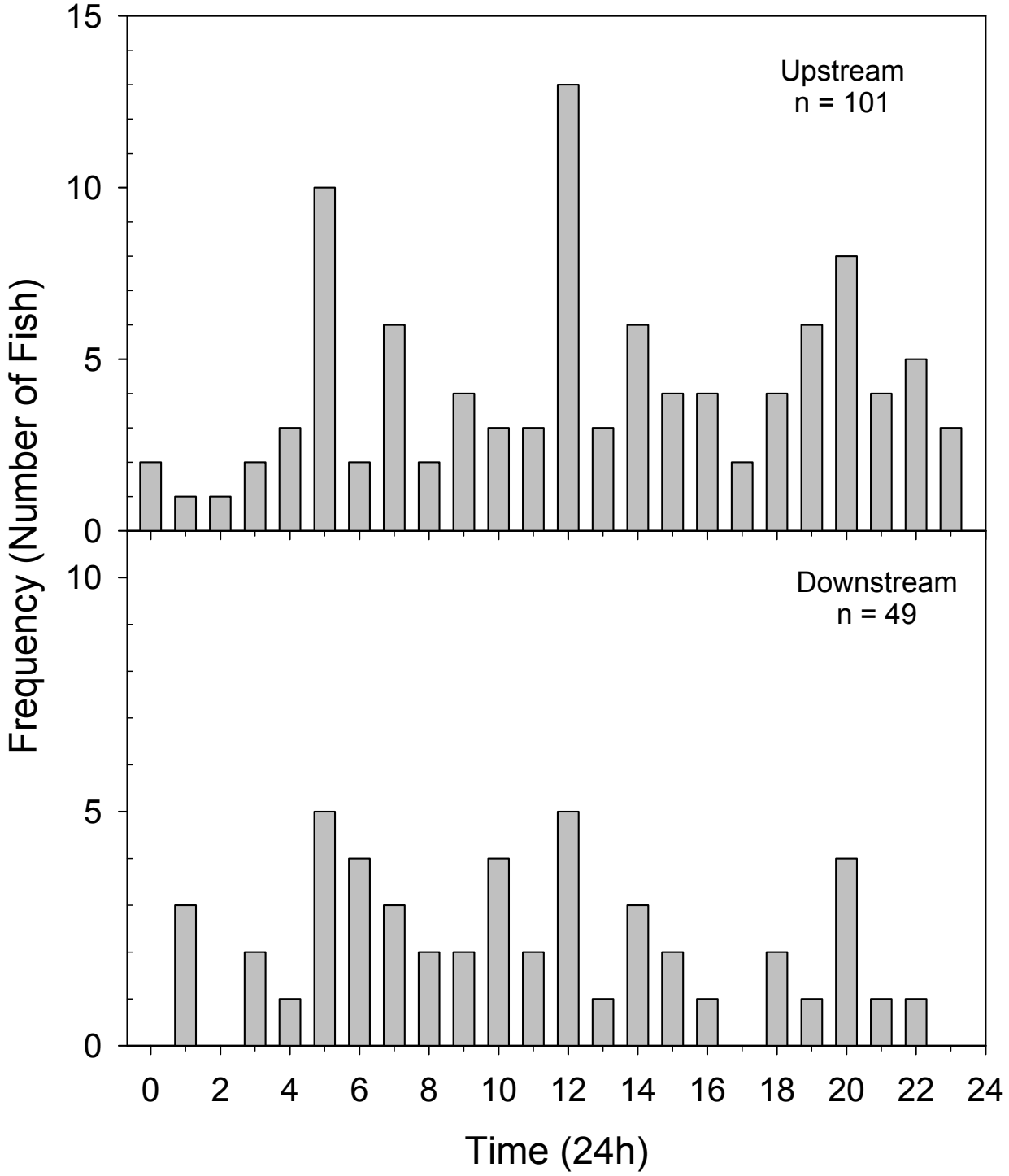
Appendix 25. Riverwatcher detection classification flow chart that outlines the pathways for upstream and downstream detections.

Appendix 26. Summary of Riverwatcher detections classified as fish probable and *O. mykiss* from January through June of 2011.

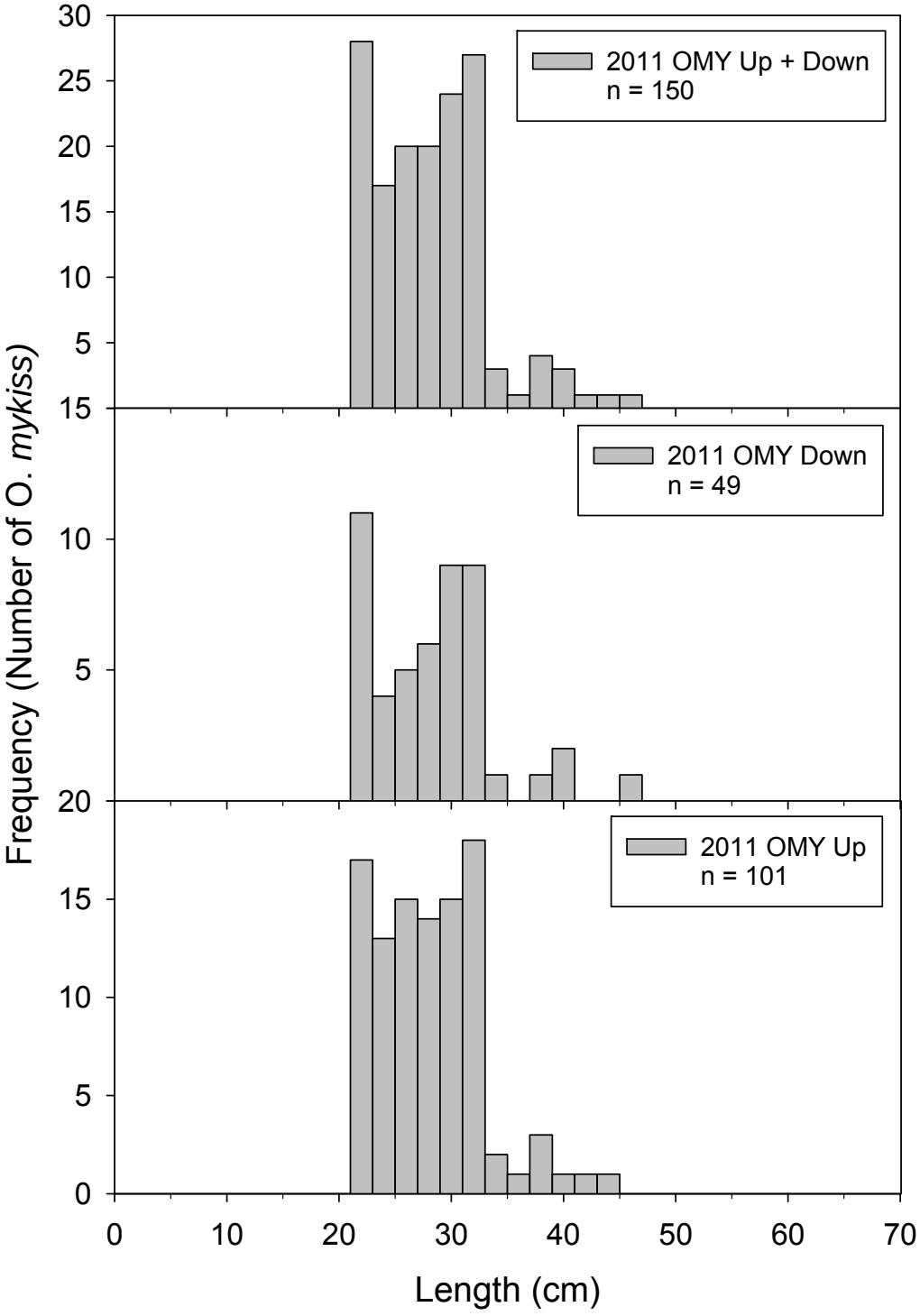
	Upstream	Downstream
O. *mykiss*	101	49
Fish, probable	20	18
False detections	308	631
Fish, unknown	6	
Total	435	698
Mean date-O. *mykiss*	25-May-11	5-May-11
Mean date-fish, unknown	30-Apr-11	
Mean date-fish, probable	18-Mar-11	2-Mar-11
Mean time-O. *mykiss* (24h)	13:14	10:58
Mean time-fish, unknown (24h)	9:03	
Mean time-fish, probable (24h)	12:23	13:54
Mean length-O. *mykiss* (cm)	27	27
Mean length- fish, unknown (cm)	26	
Mean length-fish, probable (cm)	32	30
Mean daily temperature-O. *mykiss* (°C)	18.0	16.7
Mean daily temperature-fish, unknown (°C)	16.9	
Mean daily temperature-fish, probable (°C)	15.2	14.6
Mean daily turbidity-O. *mykiss* (NTU)	3	2
Mean daily turbidity-fish, probable (NTU)	16	21
Mean daily turbidity-fish, unknown (NTU)		7
Mean daily turbidity-false detections (NTU)	171	150
Mean daily discharge-O. *mykiss* (cfs)	30	31
Mean daily discharge-fish, probable (cfs)	29	32
Mean daily discharge-fish, unknown (cfs)	32	
Mean daily discharge-false detections (cfs)	254	240



Appendix 27. Weekly Riverwatcher upstream and downstream detections classified as *O. mykiss*, fish probable, and fish unknown from January through June of 2011.



Appendix 28. Time (24h) of *O. mykiss,* fish probable, and fish unknown passage through the Riverwatcher in upstream and downstream directions from January through June of 2011.



Appendix 29. Length frequency distribution of *O. mykiss* detected passing through the Riverwatcher from January through June of 2011.

Appendix 30. Date, time, TL, direction, discharge, turbidity, and temperature at time of all upstream and downstream Riverwatcher detections that were determined to be fish.

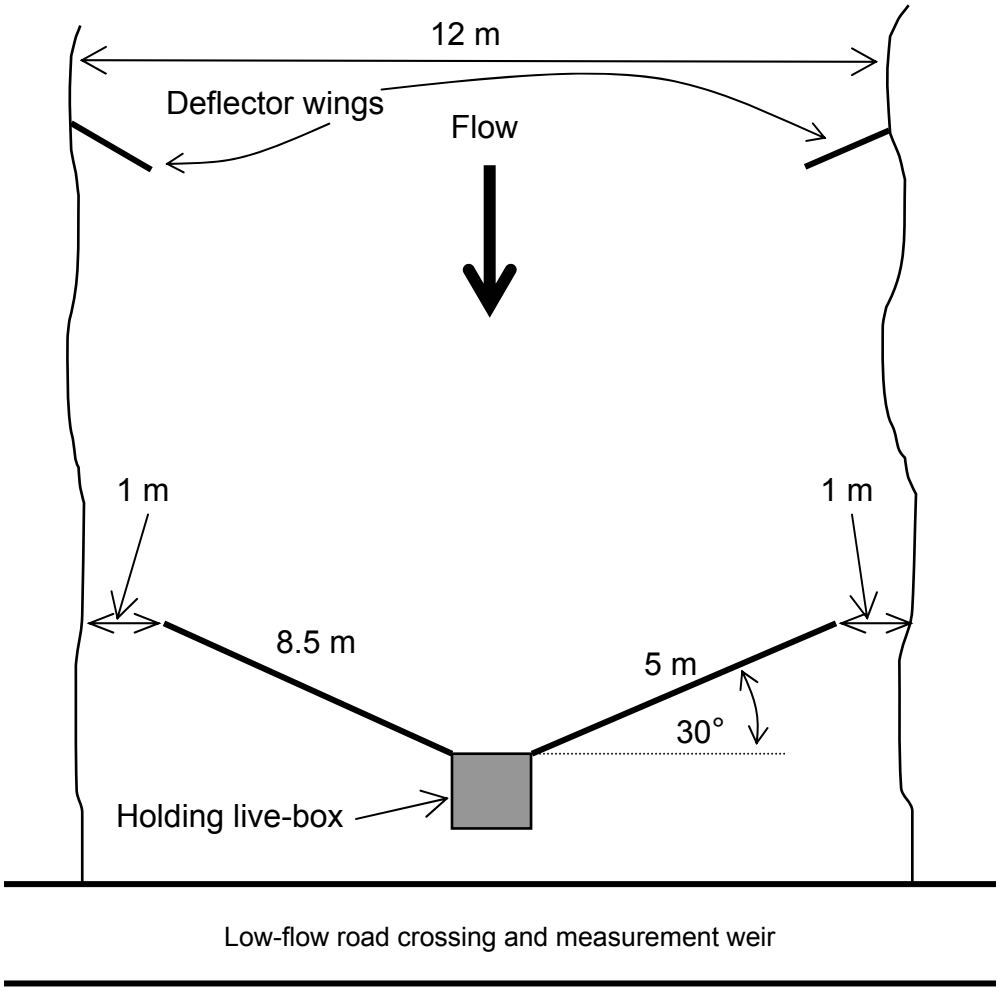
Date	Time (24h)	Fish Category	Total Length (cm)	Direction	Mean Daily Discharge (cfs)	Daily Turbidity (NTU)	Mean Daily Temperature (°C)
24-Dec-2010	11:44	Fish Probable	35	Down	22	48	12.1
24-Dec-2010	11:50	Fish Probable	35	Up	22	48	12.1
24-Dec-2010	12:29	O. mykiss	39	Up	22	48	12.1
24-Dec-2010	12:47	Fish Probable	46	Down	22	48	12.1
24-Dec-2010	13:10	Fish Probable	44	Up	22	48	12.1
24-Dec-2010	14:51	Fish Probable	35	Up	22	48	12.1
24-Dec-2010	15:09	Fish Probable	42	Down	22	48	12.1
24-Dec-2010	15:10	Fish Probable	41	Up	22	48	12.1
24-Dec-2010	15:20	Fish Probable	37	Down	22	48	12.1
24-Dec-2010	16:31	Fish Probable	37	Down	22	48	12.1
25-Dec-2010	8:55	Fish Probable	32	Up	22	29	12
25-Dec-2010	9:16	Fish Probable	42	Down	22	29	12
25-Dec-2010	9:20	O. mykiss	34	Up	22	29	12
25-Dec-2010	9:22	Fish Probable	34	Down	22	29	12
25-Dec-2010	9:23	Fish Probable	34	Up	22	29	12
25-Dec-2010	9:36	Fish Probable	30	Down	22	29	12
25-Dec-2010	9:38	Fish Probable	41	Up	22	29	12
25-Dec-2010	10:06	Fish Unknown	30	Up	22	29	12
26-Dec-2010	1:46	Fish Probable	28	Down	21	18	11.7
22-Jan-2011	9:33	Fish Probable	37	Up	19	2	11.9
22-Jan-2011	10:02	O. mykiss	23	Down	19	2	11.9
22-Jan-2011	13:59	O. mykiss	32	Down	19	2	11.9
6-Feb-2011	15:20	Fish Probable	35	Up	20	2	12.5
4-Mar-2011	21:02	O. mykiss	27	Down	50	2	12.5
11-Mar-2011	3:39	O. mykiss	20	Down	32	1	14.4
11-Mar-2011	14:29	Fish Probable	20	Down	32	1	14.4
14-Mar-2011	19:32	O. mykiss	35	Up	32	1	14.6
16-Mar-2011	5:57	O. mykiss	22	Up	33	1	15.6
16-Mar-2011	20:33	O. mykiss	42	Up	33	1	15.6
17-Mar-2011	1:27	O. mykiss	39	Down	32	3	14.6
18-Mar-2011	21:26	O. mykiss	32	Up	33	2	13.4
9-Apr-2011	8:51	Fish Probable	32	Up	31	4	12.1
9-Apr-2011	20:23	O. mykiss	25	Down	31	4	12.1
12-Apr-2011	2:05	O. mykiss	25	Up	32	2	14.3
12-Apr-2011	15:55	O. mykiss	22	Down	32	2	14.3
13-Apr-2011	20:40	O. mykiss	30	Down	31	2	14.3
14-Apr-2011	1:09	O. mykiss	25	Down	30	2	14
14-Apr-2011	1:34	O. mykiss	27	Up	30	2	14
14-Apr-2011	6:35	O. mykiss	30	Down	30	2	14
15-Apr-2011	8:23	O. mykiss	20	Down	31	2	14.7
15-Apr-2011	10:09	O. mykiss	23	Down	31	2	14.7

Date	Time (24h)	Fish Category	Total Length (cm)	Direction	Mean Daily Discharge (cfs)	Daily Turbidity (NTU)	Mean Daily Temperature (°C)
15-Apr-2011	19:40	O. mykiss	22	Up	31	2	14.7
19-Apr-2011	3:25	O. mykiss	23	Down	31	2	16.1
22-Apr-2011	10:56	O. mykiss	20	Up	30	4	15.4
22-Apr-2011	11:02	O. mykiss	30	Down	30	4	15.4
22-Apr-2011	11:08	O. mykiss	25	Up	30	4	15.4
23-Apr-2011	5:56	O. mykiss	30	Up	32	4	15.9
23-Apr-2011	9:54	O. mykiss	28	Down	32	4	15.9
24-Apr-2011	4:50	O. mykiss	28	Up	30	2	15.3
24-Apr-2011	12:18	O. mykiss	20	Down	30	2	15.3
27-Apr-2011	16:12	O. mykiss	37	Up	30	2	16.2
27-Apr-2011	16:15	O. mykiss	30	Down	30	2	16.2
28-Apr-2011	20:22	O. mykiss	23	Up	30	2	17.2
3-May-2011	6:04	O. mykiss	22	Down	32	3	17.2
4-May-2011	0:57	O. mykiss	32	Up	32	3	18
5-May-2011	5:46	O. mykiss	28	Up	32	3	18.3
5-May-2011	21:22	Fish Probable	22	Up	32	3	18.3
5-May-2011	21:24	Fish Probable	27	Up	32	3	18.3
5-May-2011	21:25	Fish Probable	23	Down	32	3	18.3
6-May-2011	4:36	O. mykiss	27	Down	32	3	18.4
6-May-2011	4:41	O. mykiss	30	Up	32	3	18.4
6-May-2011	6:41	Fish Unknown	30	Up	32	3	18.4
6-May-2011	7:29	O. mykiss	27	Up	32	3	18.4
6-May-2011	8:03	Fish Probable	28	Up	32	3	18.4
6-May-2011	8:43	O. mykiss	32	Up	32	3	18.4
6-May-2011	10:23	O. mykiss	37	Down	32	3	18.4
6-May-2011	11:57	O. mykiss	32	Up	32	3	18.4
6-May-2011	12:27	O. mykiss	25	Up	32	3	18.4
6-May-2011	19:17	O. mykiss	28	Up	32	3	18.4
6-May-2011	23:08	O. mykiss	22	Up	32	3	18.4
6-May-2011	23:08	Fish Probable	22	Down	32	3	18.4
7-May-2011	1:09	O. mykiss	25	Down	32	3	17
7-May-2011	5:18	Fish Probable	25	Down	32	3	17
7-May-2011	5:27	O. mykiss	28	Down	32	3	17
7-May-2011	5:34	O. mykiss	22	Up	32	3	17
7-May-2011	6:39	O. mykiss	41	Up	32	3	17
7-May-2011	10:39	O. mykiss	32	Up	32	3	17
7-May-2011	20:18	O. mykiss	39	Down	32	3	17
7-May-2011	20:45	O. mykiss	25	Up	32	3	17
8-May-2011	7:35	O. mykiss	34	Down	32	2	16.6
8-May-2011	7:53	O. mykiss	27	Down	32	2	16.6
8-May-2011	12:12	O. mykiss	32	Up	32	2	16.6
8-May-2011	12:26	O. mykiss	27	Up	32	2	16.6
8-May-2011	12:26	O. mykiss	20	Down	32	2	16.6
8-May-2011	12:33	O. mykiss	28	Down	32	2	16.6

Date	Time (24h)	Fish Category	Total Length (cm)	Direction	Mean Daily Discharge (cfs)	Daily Turbidity (NTU)	Mean Daily Temperature (°C)
8-May-2011	23:53	O. mykiss	32	Up	32	2	16.6
10-May-2011	6:02	Fish Probable	28	Up	32	2	16.5
10-May-2011	6:21	Fish Probable	27	Down	32	2	16.5
10-May-2011	17:23	O. mykiss	25	Up	32	2	16.5
10-May-2011	20:37	O. mykiss	22	Up	32	2	16.5
11-May-2011	5:12	O. mykiss	27	Down	31	2	16.9
11-May-2011	5:39	O. mykiss	30	Up	31	2	16.9
11-May-2011	6:22	O. mykiss	30	Down	31	2	16.9
11-May-2011	18:53	Fish Probable	30	Up	31	2	16.9
11-May-2011	20:01	O. mykiss	30	Down	31	2	16.9
12-May-2011	5:25	O. mykiss	23	Up	32	3	17.8
12-May-2011	5:36	Fish Probable	27	Up	32	3	17.8
12-May-2011	18:34	O. mykiss	28	Up	32	3	17.8
13-May-2011	18:47	O. mykiss	25	Up	32	3	18
13-May-2011	19:11	O. mykiss	22	Down	32	3	18
13-May-2011	19:54	Fish Probable	23	Down	32	3	18
13-May-2011	22:58	O. mykiss	20	Down	32	3	18
15-May-2011	12:34	O. mykiss	27	Up	31	3	16.7
20-May-2011	12:58	O. mykiss	44	Down	31	3	17.3
20-May-2011	21:32	Fish Unknown	24	Up	31	3	17.3
21-May-2011	18:48	Fish Probable	25	Down	31	3	18
21-May-2011	20:11	O. mykiss	28	Up	31	3	18
23-May-2011	11:48	O. mykiss	30	Down	31	2	17.4
23-May-2011	19:09	Fish Probable	30	Up	31	2	17.4
23-May-2011	21:58	O. mykiss	34	Up	31	2	17.4
24-May-2011	1:57	Fish Unknown	25	Up	32	2	17.5
24-May-2011	5:01	O. mykiss	23	Down	32	2	17.5
25-May-2011	7:00	O. mykiss	25	Down	32	2	18
25-May-2011	18:40	O. mykiss	20	Down	32	2	18
26-May-2011	5:12	O. mykiss	28	Down	32	2	18.3
31-May-2011	12:17	O. mykiss	30	Up	31	2	17.6
31-May-2011	12:38	O. mykiss	20	Up	31	2	17.6
1-Jun-2011	5:47	O. mykiss	25	Up	32	2	17.5
1-Jun-2011	19:32	O. mykiss	20	Up	32	2	17.5
2-Jun-2011	9:10	O. mykiss	27	Up	32	2	17.7
2-Jun-2011	10:02	O. mykiss	27	Down	32	2	17.7
2-Jun-2011	15:37	O. mykiss	25	Down	32	2	17.7
3-Jun-2011	3:43	Fish Unknown	20	Up	32	2	17.5
3-Jun-2011	22:43	O. mykiss	22	Up	32	2	17.5
4-Jun-2011	7:48	O. mykiss	23	Up	33	3	16.7
4-Jun-2011	21:04	O. mykiss	30	Up	33	3	16.7
5-Jun-2011	21:45	O. mykiss	25	Up	33	2	16.4
6-Jun-2011	14:36	O. mykiss	27	Up	33	2	16.9
7-Jun-2011	3:17	O. mykiss	23	Up	33	3	17.9

Date	Time (24h)	Fish Category	Total Length (cm)	Direction	Mean Daily Discharge (cfs)	Daily Turbidity (NTU)	Mean Daily Temperature (°C)
7-Jun-2011	7:40	Fish Probable	22	Up	33	3	17.9
7-Jun-2011	15:13	O. mykiss	25	Up	33	3	17.9
7-Jun-2011	20:01	O. mykiss	23	Up	33	3	17.9
7-Jun-2011	20:35	Fish Probable	20	Down	33	3	17.9
8-Jun-2011	6:22	O. mykiss	28	Down	32	2	17.2
8-Jun-2011	18:17	O. mykiss	28	Down	32	2	17.2
8-Jun-2011	22:44	O. mykiss	37	Up	32	2	17.2
9-Jun-2011	8:06	O. mykiss	25	Up	32	2	18.3
9-Jun-2011	12:29	O. mykiss	25	Up	32	2	18.3
9-Jun-2011	20:29	O. mykiss	22	Up	32	2	18.3
10-Jun-2011	0:07	O. mykiss	25	Up	32	3	17.6
10-Jun-2011	10:41	O. mykiss	22	Up	32	3	17.6
10-Jun-2011	17:07	O. mykiss	25	Up	32	3	17.6
11-Jun-2011	7:59	O. mykiss	28	Up	32	2	16.9
11-Jun-2011	13:58	O. mykiss	28	Up	32	2	16.9
11-Jun-2011	18:46	Fish Probable	23	Down	32	2	16.9
12-Jun-2011	12:48	O. mykiss	20	Up	31	2	16.9
12-Jun-2011	15:55	O. mykiss	25	Up	31	2	16.9
13-Jun-2011	10:21	Fish Unknown	23	Up	31	2	18.5
13-Jun-2011	12:25	O. mykiss	23	Up	31	2	18.5
13-Jun-2011	12:47	O. mykiss	28	Up	31	2	18.5
13-Jun-2011	14:12	O. mykiss	28	Down	31	2	18.5
13-Jun-2011	14:23	O. mykiss	28	Up	31	2	18.5
13-Jun-2011	18:34	O. mykiss	28	Up	31	2	18.5
14-Jun-2011	5:26	O. mykiss	22	Up	31	2	19.7
14-Jun-2011	16:29	O. mykiss	28	Up	31	2	19.7
15-Jun-2011	18:00	O. mykiss	23	Up	30	3	20.3
16-Jun-2011	5:14	O. mykiss	27	Up	30	2	18.4
16-Jun-2011	6:50	O. mykiss	20	Up	30	2	18.4
17-Jun-2011	3:15	O. mykiss	25	Up	32	2	17.9
18-Jun-2011	12:14	O. mykiss	20	Down	32	2	18
18-Jun-2011	12:33	O. mykiss	30	Up	32	2	18
18-Jun-2011	22:40	O. mykiss	23	Up	32	2	18
19-Jun-2011	9:16	O. mykiss	20	Up	31	2	18
19-Jun-2011	22:11	O. mykiss	27	Up	31	2	18
20-Jun-2011	16:07	O. mykiss	27	Up	30	2	19.6
20-Jun-2011	19:05	O. mykiss	27	Up	30	2	19.6
20-Jun-2011	20:30	O. mykiss	28	Up	30	2	19.6
21-Jun-2011	9:20	O. mykiss	28	Up	27	4	21.1
21-Jun-2011	9:34	O. mykiss	28	Down	27	4	21.1
21-Jun-2011	19:13	O. mykiss	23	Up	27	4	21.1
22-Jun-2011	14:20	O. mykiss	30	Down	27	3	21.4
22-Jun-2011	15:12	O. mykiss	28	Up	27	3	21.4
23-Jun-2011	12:51	O. mykiss	22	Up	27	3	21.5

Date	Time (24h)	Fish Category	Total Length (cm)	Direction	Mean Daily Discharge (cfs)	Daily Turbidity (NTU)	Mean Daily Temperature (°C)
23-Jun-2011	23:54	O. mykiss	37	Up	27	3	21.5
25-Jun-2011	7:56	O. mykiss	23	Up	26	4	21.2
25-Jun-2011	11:13	O. mykiss	27	Up	26	4	21.2
25-Jun-2011	14:34	O. mykiss	32	Up	26	4	21.2
26-Jun-2011	4:11	O. mykiss	32	Up	25	4	21.3
26-Jun-2011	5:29	O. mykiss	32	Up	25	4	21.3
26-Jun-2011	7:10	O. mykiss	27	Up	25	4	21.3
26-Jun-2011	14:35	O. mykiss	23	Up	25	4	21.3
26-Jun-2011	16:08	O. mykiss	27	Up	25	4	21.3
27-Jun-2011	13:31	O. mykiss	28	Up	25	4	21.7
28-Jun-2011	5:37	O. mykiss	27	Down	24	4	21.6
28-Jun-2011	13:22	O. mykiss	32	Up	24	4	21.6
29-Jun-2011	7:40	O. mykiss	22	Up	25	3	21.2
29-Jun-2011	8:06	O. mykiss	20	Down	25	3	21.2
29-Jun-2011	8:08	Fish Probable	25	Up	25	3	21.2
29-Jun-2011	14:06	O. mykiss	28	Down	25	3	21.2
29-Jun-2011	14:22	O. mykiss	23	Up	25	3	21.2
29-Jun-2011	14:43	Fish Probable	27	Up	25	3	21.2
29-Jun-2011	22:10	O. mykiss	23	Up	25	3	21.2
30-Jun-2011	14:49	O. mykiss	27	Up	26	3	20.1
30-Jun-2011	15:47	O. mykiss	30	Up	26	3	20.1



Appendix 31. Top view of downstream migrant smolt trap layout in the Ventura River below the Robles Fish Facility.

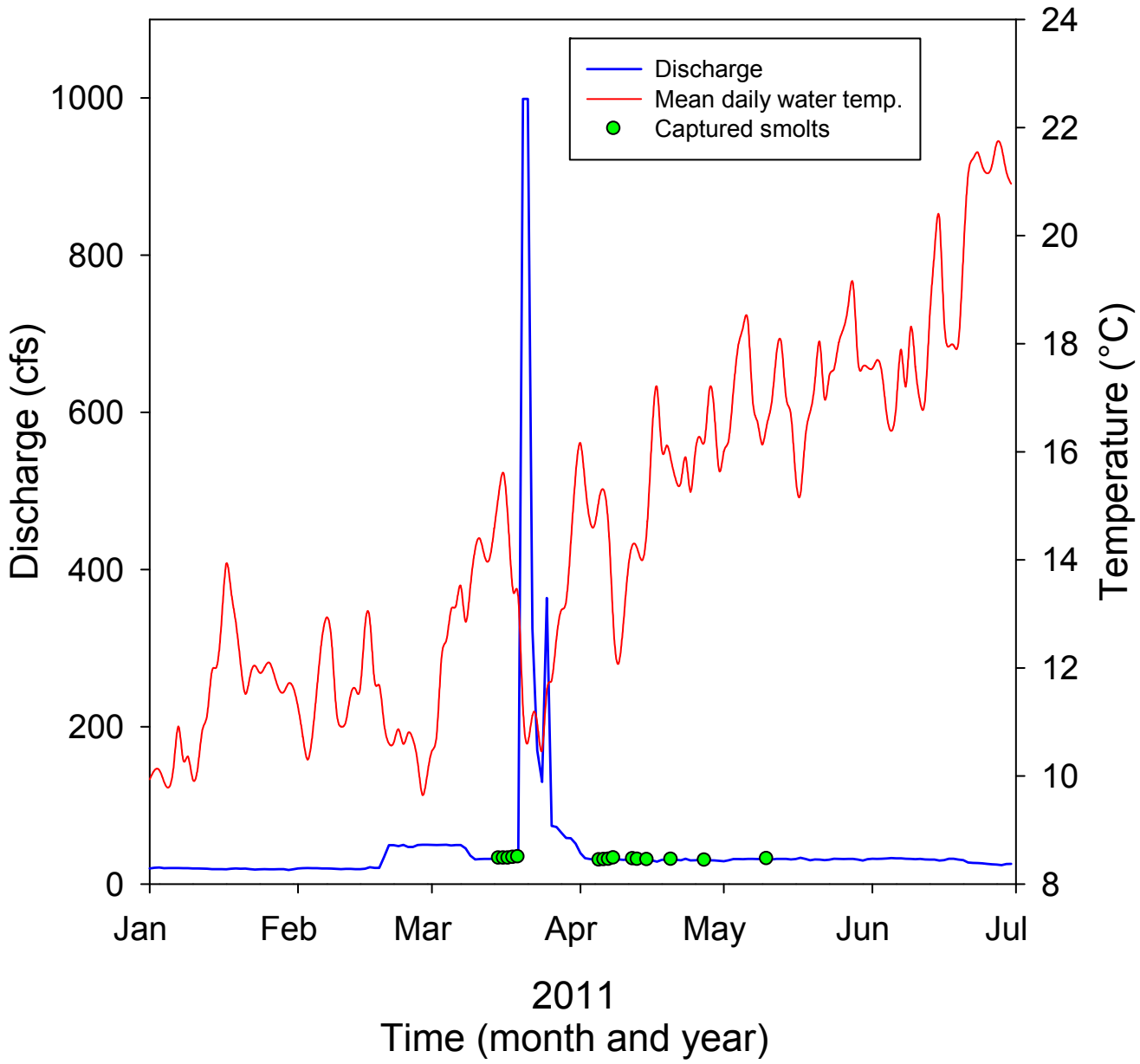
Appendix 32. Data for 25 smolts captured in the downstream weir trap during the spring of 2010.

Date	Time	Fork length (mm)	Weight (g)	Condition factor (K_{FL})[a]	Smolt stage[b]	Scale loss (%)	Mean daily water temp. (°C)	Mean daily facility inflow (cfs)	Mean daily weir discharge (cfs)	Cloud cover (%)	Moon phase (% full)	Tag type	Release site
03/15/2011	11:02	172	50	0.98	T2	1.5	15.3	42	33	60	71	Radio	Weir Pool 1
03/16/2011	9:25	225	114[b]	1.00	T3	3.2	15.6	41	33	40	81	Radio	Weir Pool 1
03/16/2011	9:47	209	94[b]	1.03	T3	3.9	15.6	41	33	40	81	Radio	Weir Pool 1
03/16/2011	15:29	188	60	0.90	T3	3.7	15.6	41	33	60	81	Radio	Weir Pool 1
03/17/2011	9:42	184	66	1.06	T3	2.8	14.6	40	32	100	89	Radio	Weir Pool 1
03/18/2011	9:23	162	41	0.97	T2	4.7	13.4	40	33	10	95	Radio	Weir Pool 1
03/19/2011	9:31	196	72	0.96	T2	2.0	13.3	44	34	100	100	Radio	Weir Pool 1
03/19/2011	9:31	199	81	1.03	T2	0.8	13.3	44	34	100	100	Radio	Weir Pool 1
04/05/2011	9:45	206	90[c]	1.03	FS	1.6	15.2	177	30	0	2	Radio	Weir Pool 1
04/06/2011	10:11	214	101	1.03	FS	3.5	15.3	166	31	75	5	Radio	Weir Pool 1
04/06/2011	10:22	224	115	1.02	FS	4.3	15.3	166	31	75	5	Radio	Weir Pool 1
04/07/2011	9:15	204	85	1.00	T3	3.2	14.4	157	31	100	10	Radio	Weir Pool 1
04/07/2011	16:09	208	84	0.93	FS	2.3	14.4	157	31	50	10	Radio	Weir Pool 1
04/07/2011	16:18	156	42	1.11	T2	2.3	14.4	157	31	50	10	None	Weir Pool 1
04/08/2011	9:51	248	156	1.02	FS	4.9	12.6	151	33	10	17	Radio	Weir Pool 1
04/08/2011	10:00	224	111	0.99	FS	2.8	12.6	151	33	10	17	Radio	Weir Pool 1
04/12/2011	10:00	190	66	0.96	T3	3.3	14.3	120	32	0	56	Radio	Weir Pool 1
04/13/2011	10:40	183	62	1.01	T3	4.2	14.2	116	31	100	66	PIT	Camino Ciello
04/13/2011	10:49	182	67	1.11	FS	2.3	14.2	116	31	100	66	PIT	Camino Ciello
04/13/2011	10:57	210	87	0.94	FS	3.0	14.2	116	31	100	66	PIT	Camino Ciello
04/15/2011	9:45	217	99	0.97	FS	3.8	14.7	107	31	NA	86	PIT	Camino Ciello
04/20/2011	10:26	213	108	1.12	T2	9.3	15.8	98	31	100	95	PIT	Camino Ciello
04/20/2011	10:33	244	142	0.98	FS	4.3	15.8	98	31	100	95	PIT	Camino Ciello
04/27/2011	9:18	211	100	1.06	FS	2.7	16.2	77	30	0	32	PIT	Camino Ciello
05/10/2011	9:34	202	68	0.83	FS	4.7	16.5	63	32	0	50	PIT	Camino Ciello
Means		203	85	1.0		3.4	14.7	101	32	58	55		

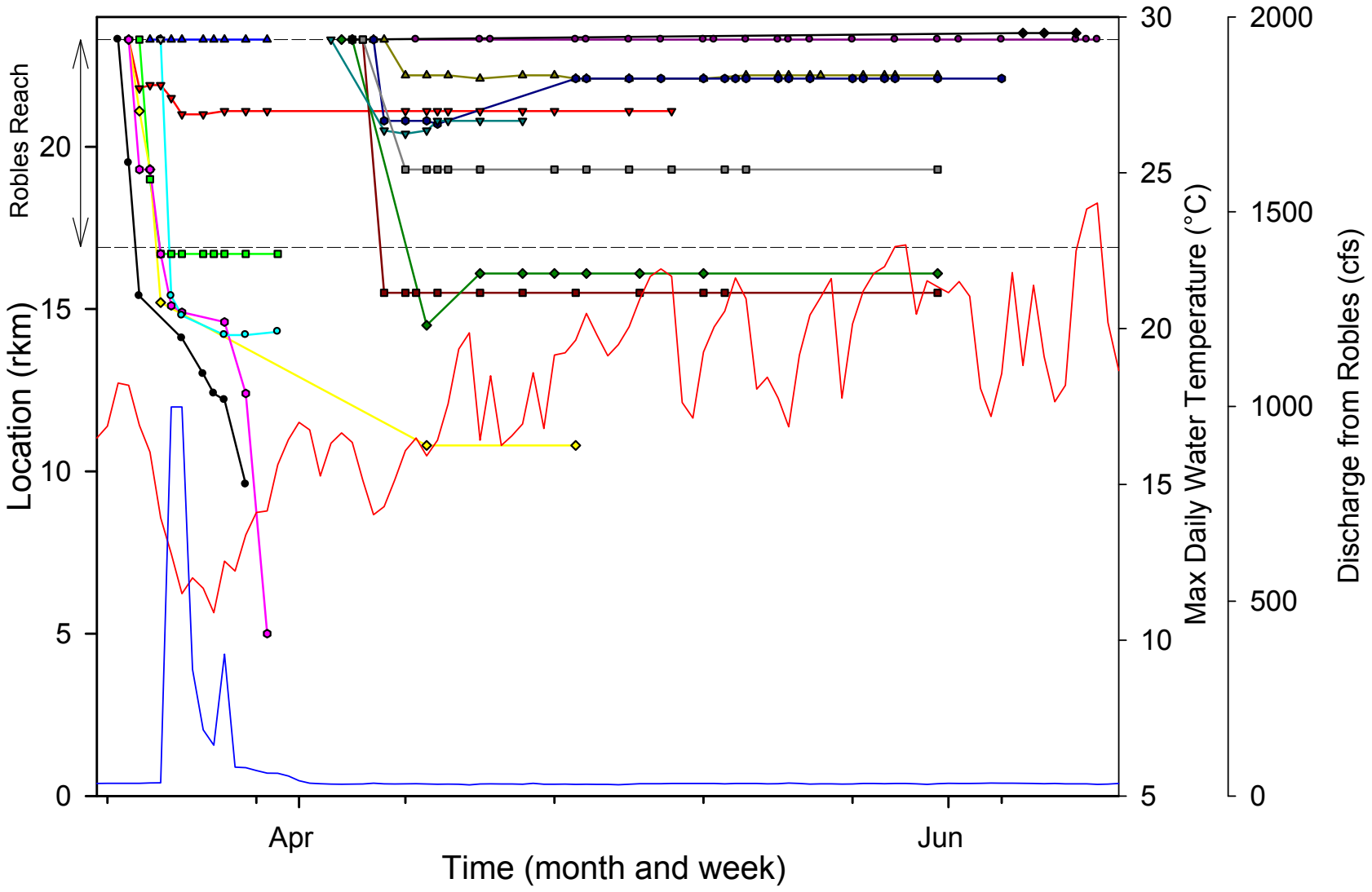
[a] K_{FL} = [weight (g) x fork length (mm)^3] x 100,000

[b] Smolt stage includes: parr, T1, T2, T3, and full smolt (FS).

[c] Scale error so weight was determined from a weight to length regression.



Appendix 33. Mean daily water temperature, mean daily discharge, and time of capture for smolts in the weir trap downstream of the Robles Fish Facility in 2011.



Appendix 34. Location and date of radio-tagged *O. mykiss* smolts released downstream of the Robles Fish Facility in March and April of 2011. Red line is maximum daily water temperature downstream of the Robles Fish Facility and the blue line is discharge from Robles. The Robles Reach is indicated by the two horizontal dashed lines.

Appendix 35. Annual flow summary at the Robles Fish Facility for water year 2010-2011.

Annual Flow Summary - Robles Fish Passage Facility
Water Year 2010 - 2011

	* (1) Source Stream Daily Flows Matilija Ck D/S Dam (cfsd)	* (2) Source Stream Daily Flows North Fork Matilija Ck.* (cfsd)	(1)+(2) Sum of Creek Flows (cfsd)		** (3) Robles Facility Daily Flows Fishway Ladder (cfsd)	(4) Robles Facility Daily Flows VRNMO Weir (cfsd)	(5) Diversion Canal (cfsd)	*** (4)+(5) Total Inflow (cfsd)
Jul-10	0	0	0		46	46	0	46
Aug-10	0	0	0		3	3	0	3
Sep-10	0	0	0		0	0	0	0
Oct-10	0	0	0		0	0	0	0
Nov-10	0	0	0		0	0	0	0
Dec-10	0	0	0		296	1014	2252	3265
Jan-11	0	0	0		605	605	878	1484
Feb-11	0	0	0		832	832	360	1193
Mar-11	0	0	0		1354	4121	4116.48	8237
Apr-11	0	0	0		931	931	2802	3733
May-11	0	0	0		976.33	976.32	781	1757
Jun-11	0	0	0		893.47	893.47	75	969
Total	0	0	0		5936	9421	11265	20687

* Preliminary flow information provided by the Ventura County Watershed Protection District. North Fork Data is estimated. To be confirmed by VCWPD. Refer to the Operations section of the Report to determine operational reasons for flow variances.
** Flow in the Fish Passage was too low to be measured by the Accusonics Flowmeter. Flow needs to be greater than 15 CFS for reasonable flow measurements.
*** This does not account for any flow being expelled from the spillway gates

Ventura River Flow Assessment
Water Year 2010 - 2011

Jul-10	(1) Source Stream Daily Flows: Matilija Ck D/S Dam (cfsd)	(2) Source Stream Daily Flows: North Fork Matilija Ck. (cfsd)	(1)+(2) Source Stream Daily Flows: Sum of Creek Flows (cfsd)	Forebay Avg. Depth (ft)	(3) Robles Facility Daily Flows: Fishway Ladder (cfsd)	(4) Robles Facility Daily Flows: VRNMO Weir (cfsd)	(5) Robles Facility Daily Flows: Diversion Canal (cfsd)	(4)+(5) Robles Facility Daily Flows: Total Inflow (cfsd)	(5) X 1.98 Robles Diversion (AF)	Field Measurement: Matilija Creek (cfsd)	Field Measurement: VRNMO (cfsd)
1			0	1.4	3	3	0	3	0		
2			0	1.3	2	2	0	2	0		
3			0	1.4	3	3	0	3	0		
4			0	1.4	3	3	0	3	0		
5			0	1.4	3	3	0	3	0		
6			0	1.5	3	3	0	3	0		
7			0	1.5	3	3	0	3	0		
8			0	1.4	3	3	0	3	0		
9			0	1.4	3	3	0	3	0		
10			0	1.4	3	3	0	3	0		
11			0	1.4	3	3	0	3	0		
12			0	1.4	3	3	0	3	0		
13			0	1.3	2	2	0	2	0		
14			0	1.3	2	2	0	2	0		
15			0	1.2	1	1	0	1	0		
16			0	1.1	1	1	0	1	0		
17			0	1.1	1	1	0	1	0		
18			0	1.1	1	1	0	1	0		
19			0	1.1	1	1	0	1	0		
20			0	1.1	1	1	0	1	0		
21			0	1.1	1	1	0	1	0		
22			0	1.1	1	1	0	1	0		
23			0	1.1	1	1	0	1	0		
24			0	1.0	0	0	0	0	0		
25			0	1.1	0	0	0	0	0		
26			0	1.0	0	0	0	0	0		
27			0	0.9	0	0	0	0	0		
28			0	0.9	0	0	0	0	0		
29			0	0.9	0	0	0	0	0		
30			0	1.0	1	1	0	1	0		
31			0	1.0	1	1	0	1	0		
Totals	0	0	0		46	46	0	46	0		

Ventura River Flow Assessment
Water Year 2010 - 2011

Aug-10	(1) Source Stream Daily Flows: Matilija Ck D/S Dam (cfsd)	(2) Source Stream Daily Flows: North Fork Matilija Ck. (cfsd)	(1)+(2) Source Stream Daily Flows: Sum of Creek Flows (cfsd)	Forebay Avg. Depth (ft)	(3) Robles Facility Daily Flows: Fishway Ladder (cfsd)	(4) Robles Facility Daily Flows: VRNMO Weir (cfsd)	(5) Robles Facility Daily Flows: Diversion Canal (cfsd)	(4)+(5) Robles Facility Daily Flows: Total Inflow (cfsd)	(5) X 1.98 Robles Diversion (AF)	Field Measurement: Matilija Creek (cfsd)	Field Measurement: VRNMO (cfsd)
1			0	1.1	1	1	0	1	0		
2			0	1.0	0	0	0	0	0		
3			0	0.8	0	0	0	0	0		
4			0	0.6	0	0	0	0	0		
5			0	0.8	0	0	0	0	0		
6			0	0.8	0	0	0	0	0		
7			0	0.7	0	0	0	0	0		
8			0	0.8	0	0	0	0	0		
9			0	0.7	0	0	0	0	0		
10			0	0.6	0	0	0	0	0		
11			0	0.6	0	0	0	0	0		
12			0	0.6	0	0	0	0	0		
13			0	0.6	0	0	0	0	0		
14			0	0.6	0	0	0	0	0		
15			0	0.7	0	0	0	0	0		
16			0	0.6	0	0	0	0	0		
17			0	0.5	0	0	0	0	0		
18			0	0.5	0	0	0	0	0		
19			0	0.6	0	0	0	0	0		
20			0	0.6	0	0	0	0	0		
21			0	0.5	0	0	0	0	0		
22			0	0.6	0	0	0	0	0		
23			0	0.5	0	0	0	0	0		
24			0	0.4	0	0	0	0	0		
25			0	0.3	0	0	0	0	0		
26			0	0.2	0	0	0	0	0		
27			0	0.2	0	0	0	0	0		
28			0	0.0	0	0	0	0	0		
29			0	0.0	0	0	0	0	0		
30			0	0.0	0	0	0	0	0		
31			0	0.0	0	0	0	0	0		
Totals	0	0	0		3	3	0	3	0		

Ventura River Flow Assessment
Water Year 2010 - 2011

Sep-10	(1) Source Stream Daily Flows: Matilija Ck D/S Dam (cfsd)	(2) Source Stream Daily Flows: North Fork Matilija Ck. (cfsd)	(1)+(2) Source Stream Daily Flows: Sum of Creek Flows (cfsd)	Forebay Avg. Depth (ft)	(3) Robles Facility Daily Flows: Fishway Ladder (cfsd)	(4) Robles Facility Daily Flows: VRNMO Weir (cfsd)	(5) Robles Facility Daily Flows: Diversion Canal (cfsd)	(4)+(5) Robles Facility Daily Flows: Total Inflow (cfsd)	(5) X 1.98 Robles Diversion (AF)	Field Measurement: Matilija Creek (cfsd)	Field Measurement: VRNMO (cfsd)
1			0	0.0	0	0	0	0	0		
2			0	0.0	0	0	0	0	0		
3			0	0.0	0	0	0	0	0		
4			0	0.0	0	0	0	0	0		
5			0	0.0	0	0	0	0	0		
6			0	0.0	0	0	0	0	0		
7			0	0.0	0	0	0	0	0		
8			0	0.0	0	0	0	0	0		
9			0	0.0	0	0	0	0	0		
10			0	0.0	0	0	0	0	0		
11			0	0.0	0	0	0	0	0		
12			0	0.0	0	0	0	0	0		
13			0	0.0	0	0	0	0	0		
14			0	0.0	0	0	0	0	0		
15			0	0.0	0	0	0	0	0		
16			0	0.0	0	0	0	0	0		
17			0	0.0	0	0	0	0	0		
18			0	0.0	0	0	0	0	0		
19			0	0.0	0	0	0	0	0		
20			0	0.0	0	0	0	0	0		
21			0	0.0	0	0	0	0	0		
22			0	0.0	0	0	0	0	0		
23			0	0.0	0	0	0	0	0		
24			0	0.0	0	0	0	0	0		
25			0	0.0	0	0	0	0	0		
26			0	0.0	0	0	0	0	0		
27			0	0.0	0	0	0	0	0		
28			0	0.0	0	0	0	0	0		
29			0	0.0	0	0	0	0	0		
30			0	0.0	0	0	0	0	0		
Totals	0	0	0		0	0	0	0	0		

* Headworks computer down. Bubbler data indicated no flow from late Aug to early Oct

Ventura River Flow Assessment
Water Year 2010 - 2011

Oct-10	(1) Source Stream Daily Flows: Matilija Ck D/S Dam (cfsd)	(2) Source Stream Daily Flows: North Fork Matilija Ck. (cfsd)	(1)+(2) Source Stream Daily Flows: Sum of Creek Flows (cfsd)		Forebay Avg. Depth (ft)	(3) Robles Facility Daily Flows: Fishway Ladder (cfsd)	(4) Robles Facility Daily Flows: VRNMO Weir (cfsd)	(5) Robles Facility Daily Flows: Diversion Canal (cfsd)	(4)+(5) Robles Facility Daily Flows: Total Inflow (cfsd)		(5) X 1.98 Robles Diversion (AF)		Field Measurement: Matilija Creek (cfsd)	Field Measurement: VRNMO (cfsd)
1			0		0.0	0	0	0	0		0			
2			0		0.0	0	0	0	0		0			
3			0		0.0	0	0	0	0		0			
4			0		0.0	0	0	0	0		0			
5			0		0.0	0	0	0	0		0			
6			0		0.1	0	0	0	0		0			
7			0		0.2	0	0	0	0		0			
8			0		0.2	0	0	0	0		0			
9			0		0.2	0	0	0	0		0			
10			0		0.1	0	0	0	0		0			
11			0		0.1	0	0	0	0		0			
12			0		0.1	0	0	0	0		0			
13			0		0.1	0	0	0	0		0			
14			0		0.1	0	0	0	0		0			
15			0		0.1	0	0	0	0		0			
16			0		0.1	0	0	0	0		0			
17			0		0.1	0	0	0	0		0			
18			0		0.1	0	0	0	0		0			
19			0		0.1	0	0	0	0		0			
20			0		0.2	0	0	0	0		0			
21			0		0.2	0	0	0	0		0			
22			0		0.2	0	0	0	0		0			
23			0		0.2	0	0	0	0		0			
24			0		0.1	0	0	0	0		0			
25			0		0.1	0	0	0	0		0			
26			0		0.1	0	0	0	0		0			
27			0		0.1	0	0	0	0		0			
28			0		0.1	0	0	0	0		0			
29			0		0.1	0	0	0	0		0			
30			0		0.1	0	0	0	0		0			
31			0		0.1	0	0	0	0		0			
Totals	0	0	0			0	0	0	0		0			

Ventura River Flow Assessment
Water Year 2010 - 2011

Nov-10	(1) Source Stream Daily Flows: Matilija Ck D/S Dam (cfsd)	(2) Source Stream Daily Flows: North Fork Matilija Ck. (cfsd)	(1)+(2) Source Stream Daily Flows: Sum of Creek Flows (cfsd)	Forebay Avg. Depth (ft)	(3) Robles Facility Daily Flows: Fishway Ladder (cfsd)	(4) Robles Facility Daily Flows: VRNMO Weir (cfsd)	(5) Robles Facility Daily Flows: Diversion Canal (cfsd)	(4)+(5) Robles Facility Daily Flows: Total Inflow (cfsd)	(5) X 1.98 Robles Diversion (AF)	Field Measurement: Matilija Creek (cfsd)	Field Measurement: VRNMO (cfsd)
1			0	0.1	0	0	0	0	0		
2			0	0.1	0	0	0	0	0		
3			0	0.1	0	0	0	0	0		
4			0	0.0	0	0	0	0	0		
5			0	0.0	0	0	0	0	0		
6			0	0.0	0	0	0	0	0		
7			0	0.0	0	0	0	0	0		
8			0	0.1	0	0	0	0	0		
9			0	0.0	0	0	0	0	0		
10			0	0.0	0	0	0	0	0		
11			0	0.0	0	0	0	0	0		
12			0	0.0	0	0	0	0	0		
13			0	0.0	0	0	0	0	0		
14			0	0.0	0	0	0	0	0		
15			0	0.0	0	0	0	0	0		
16			0	0.0	0	0	0	0	0		
17			0	0.0	0	0	0	0	0		
18			0	0.0	0	0	0	0	0		
19			0	0.3	0	0	0	0	0		
20			0	1.2	0	0	0	0	0		
21			0	1.2	0	0	0	0	0		
22			0	1.0	0	0	0	0	0		
23			0	0.9	0	0	0	0	0		
24			0	0.9	0	0	0	0	0		
25			0	0.9	0	0	0	0	0		
26			0	0.9	0	0	0	0	0		
27			0	0.9	0	0	0	0	0		
28			0	0.9	0	0	0	0	0		
29			0	0.8	0	0	0	0	0		
30			0	0.8	0	0	0	0	0		
Totals	0	0	0		0	0	0	0	0		

Ventura River Flow Assessment
Water Year 2010 - 2011

Dec-10	(1) Source Stream Daily Flows: Matilija Ck D/S Dam (cfsd)	(2) Source Stream Daily Flows: North Fork Matilija Ck. (cfsd)	(1)+(2) Source Stream Daily Flows: Sum of Creek Flows (cfsd)	Forebay Avg. Depth (ft)	(3) Robles Facility Daily Flows: Fishway Ladder (cfsd)	(4) Robles Facility Daily Flows: VRNMO Weir (cfsd)	(5) Robles Facility Daily Flows: Diversion Canal (cfsd)	(4)+(5) Robles Facility Daily Flows: Total Inflow (cfsd)	(5) X 1.98 Robles Diversion (AF)	Field Measurement: Matilija Creek (cfsd)	Field Measurement: VRNMO (cfsd)
1			0	0.9	0	0	0	0	0		
2			0	0.9	0	0	0	0	0		
3			0	0.9	0	0	0	0	0		
4			0	0.9	0	0	0	0	0		
5			0	0.9	0	0	0	0	0		
6			0	1.0	0	0	0	0	0		
7			0	0.9	0	0	0	0	0		
8			0	0.9	0	0	0	0	0		
9			0	0.9	0	0	0	0	0		
10			0	0.9	0	0	0	0	0		
11			0	0.9	0	0	0	0	0		
12			0	0.9	0	0	0	0	0		
13			0	0.9	0	0	0	0	0		
14			0	0.9	0	0	0	0	0		
15			0	0.9	0	0	0	0	0		
16			0	0.9	0	0	0	0	0		
17			0	1.5	0	0	0	0	0		
18			0	2.5	13	13	7	20	14		
19			0	6.4	35	35	311	346	616		
20			0	7.1	20	20	313	333	620		
21			0	5.1	19	19	172	191	341		
22			0	7.0	20	655	326	982	646		
23			0	7.4	21	104	335	439	664		
24			0	5.7	22	22	189	212	375		
25			0	5.1	22	22	132	154	261		
26			0	5.0	21	21	117	138	231		
27			0	4.7	20	20	87	107	171		
28			0	4.5	20	20	73	93	144		
29			0	4.7	21	21	73	94	144		
30			0	4.7	20	20	62	82	122		
31			0	4.6	20	20	55	75	109		
Totals	0	0	0		296	1014	2252	3265	4459		

Flows picked up early evening

Ventura River Flow Assessment
Water Year 2010 - 2011

Jan-11	(1) Source Stream Daily Flows: Matilija Ck D/S Dam (cfsd)	(2) Source Stream Daily Flows: North Fork Matilija Ck. (cfsd)	(1)+(2) Source Stream Daily Flows: Sum of Creek Flows (cfsd)		Forebay Avg. Depth (ft)	(3) Robles Facility Daily Flows: Fishway Ladder (cfsd)	(4) Robles Facility Daily Flows: VRNMO Weir (cfsd)	(5) Robles Facility Daily Flows: Diversion Canal (cfsd)	(4)+(5) Robles Facility Daily Flows: Total Inflow (cfsd)		(5) X 1.98 Robles Diversion (AF)		Field Measurement: Matilija Creek (cfsd)	Field Measurement: VRNMO (cfsd)
1			0		4.6	20	20	49	69		96			
2			0		4.8	21	21	48	69		95			
3			0		5.0	21	21	74	95		147			
4			0		4.9	20	20	63	83		125			
5			0		4.8	20	20	56	76		111			
6			0		4.7	20	20	52	72		102			
7			0		4.7	20	20	47	67		93			
8			0		4.6	20	20	45	66		90			
9			0		4.6	20	20	42	62		84			
10			0		4.6	20	20	39	59		77			
11			0		4.5	20	20	36	56		71			
12			0		4.4	20	20	30	50		60			
13			0		4.3	19	19	26	45		51			
14			0		4.4	19	19	25	45		50			
15			0		4.3	19	19	23	42		46			
16			0		4.4	19	19	22	41		44			
17			0		4.4	19	19	20	39		41			
18			0		4.5	20	20	18	38		36			
19			0		4.5	20	20	17	37		34			
20			0		4.4	20	20	16	35		32			
21			0		4.4	20	20	15	35		30			
22			0		4.4	19	19	15	34		29			
23			0		4.3	18	18	14	33		28			
24			0		4.2	19	19	13	32		25			
25			0		4.1	19	19	12	31		24			
26			0		4.0	19	19	11	30		22			
27			0		4.0	19	19	10	29		21			
28			0		3.9	19	19	10	29		19			
29			0		3.9	19	19	9	28		18			
30			0		4.0	18	18	10	28		21			
31			0		4.2	19	19	9	28		17			
Totals	0	0	0			605	605	878	1484		1739			

Ventura River Flow Assessment
Water Year 2010 - 2011

Feb-11	(1) Source Stream Daily Flows: Matilija Ck D/S Dam (cfsd)	(2) Source Stream Daily Flows: North Fork Matilija Ck. (cfsd)	(1)+(2) Source Stream Daily Flows: Sum of Creek Flows (cfsd)	Forebay Avg. Depth (ft)	(3) Robles Facility Daily Flows: Fishway Ladder (cfsd)	(4) Robles Facility Daily Flows: VRNMO Weir (cfsd)	(5) Robles Facility Daily Flows: Diversion Canal (cfsd)	(4)+(5) Robles Facility Daily Flows: Total Inflow (cfsd)	(5) X 1.98 Robles Diversion (AF)	Field Measurement: Matilija Creek (cfsd)	Field Measurement: VRNMO (cfsd)
1			0	4.3	20	20	8	27	15		
2			0	4.2	20	20	6	26	13		
3			0	4.2	20	20	6	26	12		
4			0	4.2	20	20	6	26	11		
5			0	4.1	20	20	6	26	11		
6			0	4.1	20	20	5	25	10		
7			0	4.0	20	20	4	24	9		
8			0	4.0	20	20	5	24	9		
9			0	4.0	19	19	4	23	8		
10			0	4.0	19	19	4	23	8		
11			0	4.0	19	19	4	23	8		
12			0	3.9	19	19	3	22	6		
13			0	3.9	19	19	3	22	6		
14			0	3.9	19	19	3	22	6		
15			0	4.0	19	19	3	22	6		
16			0	4.2	21	21	16	38	32		
17			0	4.4	20	20	28	48	55		
18			0	4.5	21	21	30	51	60		
19			0	6.1	34	34	23	57	45		
20			0	8.0	49	49	22	71	44		
21			0	8.0	49	49	11	60	22		
22			0	7.9	48	48	3	51	6		
23			0	8.1	50	50	0	50	0		
24			0	7.6	47	47	0	47	0		
25			0	7.7	47	47	12	59	23		
26			0	7.9	50	50	84	133	166		
27			0	8.0	50	50	38	88	74		
28			0	8.0	50	50	25	75	49		
Totals	0	0	0		832	832	360	1193	714		

Ventura River Flow Assessment
Water Year 2010 - 2011

Mar-11	(1) Source Stream Daily Flows: Matilija Ck D/S Dam (cfsd)	(2) Source Stream Daily Flows: North Fork Matilija Ck. (cfsd)	(1)+(2) Source Stream Daily Flows: Sum of Creek Flows (cfsd)	Forebay Avg. Depth (ft)	(3) Robles Facility Daily Flows: Fishway Ladder (cfsd)	(4) Robles Facility Daily Flows: VRNMO Weir (cfsd)	(5) Robles Facility Daily Flows: Diversion Canal (cfsd)	(4)+(5) Robles Facility Daily Flows: Total Inflow (cfsd)	(5) X 1.98 Robles Diversion (AF)	Field Measurement: Matilija Creek (cfsd)	Field Measurement: VRNMO (cfsd)
1			0	8.0	50	50	19	69	39		
2			0	8.0	50	50	18	68	36		
3			0	8.0	50	50	22	72	43		
4			0	8.0	50	50	18	68	35		
5			0	8.0	49	49	13	62	26		
6			0	8.1	50	50	9	59	18		
7			0	8.1	50	50	8	58	16		
8			0	7.5	45	45	12	57	23		
9			0	6.0	36	36	17	54	34		
10			0	5.0	31	31	18	49	35		
11			0	5.0	32	32	16	48	32		
12			0	5.0	32	32	15	47	29		
13			0	5.0	32	32	13	45	26		
14			0	5.0	32	32	11	44	22		
15			0	5.0	33	33	10	42	19		
16			0	5.0	33	33	9	41	18		
17			0	5.0	32	32	7	40	14		
18			0	5.1	33	33	7	40	13		
19			0	5.2	34	34	10	44	20		
20			0	5.2	50	999	108	1107	214		
21			0	8.6	50	999	382	1381	757		
22			0	8.3	50	325	399	724	789		
23			0	7.5	50	170	314	484	622		
24			0	7.6	50	130	286	416	566		
25			0	7.2	50	364	419	783	829		
26			0	7.7	50	74	444	518	879		
27			0	7.3	50	72	363	436	720		
28			0	6.9	50	65	345	410	683		
29			0	6.5	50	59	298	357	591		
30			0	6.1	50	58	262	320	518		
31			0	6.6	50	51	244	295	483		
Totals	0	0	0		1354	4121	4116	8237	8151		

Flow Exceeds 999 cfs

Ventura River Flow Assessment
Water Year 2010 - 2011

Apr-11	(1) Source Stream Daily Flows: Matilija Ck D/S Dam (cfsd)	(2) Source Stream Daily Flows: North Fork Matilija Ck. (cfsd)	(1)+(2) Source Stream Daily Flows: Sum of Creek Flows (cfsd)	Forebay Avg. Depth (ft)	(3) Robles Facility Daily Flows: Fishway Ladder (cfsd)	(4) Robles Facility Daily Flows: VRNMO Weir (cfsd)	(5) Robles Facility Daily Flows: Diversion Canal (cfsd)	(4)+(5) Robles Facility Daily Flows: Total Inflow (cfsd)	(5) X 1.98 Robles Diversion (AF)	Field Measurement: Matilija Creek (cfsd)	Field Measurement: VRNMO (cfsd)
1			0	6.5	39	39	224	263	444		
2			0	5.5	33	33	208	241	412		
3			0	5.3	32	32	184	216	364		
4			0	5.1	31	31	162	193	321		
5			0	5.0	30	30	147	177	291		
6			0	5.0	31	31	136	166	269		
7			0	5.0	31	31	127	157	251		
8			0	5.0	33	33	118	151	234		
9			0	5.0	31	31	110	142	218		
10			0	5.0	31	31	102	133	201		
11			0	5.0	31	31	95	126	187		
12			0	4.9	32	32	89	120	176		
13			0	4.6	31	31	85	116	169		
14			0	4.5	30	30	80	111	159		
15			0	4.7	31	31	76	107	151		
16			0	4.9	30	30	72	102	142		
17			0	4.9	28	28	71	99	140		
18			0	4.8	31	31	70	101	139		
19			0	4.6	31	31	66	98	131		
20			0	4.6	31	31	67	98	132		
21			0	4.6	31	31	62	93	124		
22			0	4.5	30	30	61	91	120		
23			0	4.5	32	32	58	90	115		
24			0	4.6	30	30	57	88	114		
25			0	4.5	30	30	53	83	106		
26			0	4.6	31	31	48	79	96		
27			0	4.6	30	30	47	77	92		
28			0	4.6	30	30	44	74	86		
29			0	4.6	30	30	41	71	81		
30			0	4.6	30	30	41	71	81		
Totals	0	0	0		931	931	2802	3733	5548		

Ventura River Flow Assessment
Water Year 2010 - 2011

May-11	(1) Source Stream Daily Flows: Matilija Ck D/S Dam (cfsd)	(2) Source Stream Daily Flows: North Fork Matilija Ck. (cfsd)	(1)+(2) Source Stream Daily Flows: Sum of Creek Flows (cfsd)	Forebay Avg. Depth (ft)	(3) Robles Facility Daily Flows: Fishway Ladder (cfsd)	(4) Robles Facility Daily Flows: VRNMO Weir (cfsd)	(5) Robles Facility Daily Flows: Diversion Canal (cfsd)	(4)+(5) Robles Facility Daily Flows: Total Inflow (cfsd)	(5) X 1.98 Robles Diversion (AF)	Field Measurement: Matilija Creek (cfsd)	Field Measurement: VRNMO (cfsd)
1			0	4.6	29	29	42	71	83		
2			0	4.5	30	30	37	67	73		
3			0	4.6	32	32	32	64	64		
4			0	4.6	32	32	30	62	60		
5			0	4.6	32	32	30	61	59		
6			0	4.5	32	32	29	61	58		
7			0	4.5	32	32	32	64	63		
8			0	4.6	32	32	35	67	70		
9			0	4.6	32	32	33	65	66		
10			0	4.6	32	32	31	63	62		
11			0	4.5	31	31	30	61	59		
12			0	4.5	32	32	27	59	53		
13			0	4.4	32	32	24	56	48		
14			0	4.5	32	32	27	59	53		
15			0	4.2	31	31	29	61	58		
16			0	4.5	32	32	27	59	54		
17			0	4.5	33	33	35	68	69		
18			0	4.5	32	32	40	72	79		
19			0	4.3	30	30	30	60	60		
20			0	4.3	31	31	24	55	47		
21			0	4.3	31	31	23	54	45		
22			0	4.3	30	30	23	54	46		
23			0	4.2	31	31	20	51	40		
24			0	4.3	32	32	18	50	35		
25			0	4.3	32	32	16	48	31		
26			0	4.3	32	32	14	45	27		
27			0	4.3	32	32	9	41	17		
28			0	4.3	32	32	6	39	13		
29			0	4.3	31	31	8	40	17		
30			0	4.4	30	30	11	41	22		
31			0	4.3	31	31	8	40	17		
Totals	0	0	0		976	976	781	1757	1546		

Ventura River Flow Assessment
Water Year 2010 - 2011

Jun-11	(1) Source Stream Daily Flows: Matilija Ck D/S Dam (cfsd)	(2) Source Stream Daily Flows: North Fork Matilija Ck. (cfsd)	(1)+(2) Source Stream Daily Flows: Sum of Creek Flows (cfsd)	Forebay Avg. Depth (ft)	(3) Robles Facility Daily Flows: Fishway Ladder (cfsd)	(4) Robles Facility Daily Flows: VRNMO Weir (cfsd)	(5) Robles Facility Daily Flows: Diversion Canal (cfsd)	(4)+(5) Robles Facility Daily Flows: Total Inflow (cfsd)	(5) X 1.98 Robles Diversion (AF)	Field Measurement: Matilija Creek (cfsd)	Field Measurement: VRNMO (cfsd)
1			0	4.3	32	32	6	38	12		
2			0	4.3	32	32	5	37	11		
3			0	4.3	32	32	3	35	6		
4			0	4.3	33	33	0	33	0		
5			0	4.5	33	33	5	38	10		
6			0	4.4	33	33	18	51	36		
7			0	4.3	33	33	9	41	17		
8			0	4.3	32	32	7	39	13		
9			0	4.2	32	32	5	37	10		
10			0	4.1	32	32	1	33	2		
11			0	4.2	32	32	4	36	7		
12			0	4.3	31	31	7	38	13		
13			0	4.2	31	31	5	36	9		
14			0	4.0	31	31	1	32	2		
15			0	3.8	30	30	0	30	0		
16			0	4.0	30	30	0	30	0		
17			0	4.2	32	32	0	32	0		
18			0	4.1	32	32	0	32	0		
19			0	4.1	31	31	0	31	0		
20			0	4.0	30	30	0	30	0		
21			0	3.5	27	27	0	27	0		
22			0	3.5	27	27	0	27	0		
23			0	3.6	27	27	0	27	0		
24			0	3.3	26	26	0	26	0		
25			0	3.2	26	26	0	26	0		
26			0	3.1	25	25	0	25	0		
27			0	3.0	25	25	0	25	0		
28			0	2.9	24	24	0	24	0		
29			0	3.1	25	25	0	25	0		
30			0	3.1	26	26	0	26	0		
Totals	0	0	0		893	893	75	969	149		

Appendix 36. Correspondences among Biological Committee participants regarding the 2011 progress report and 2012 study plan.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213

DEC 19 2011

Ned Gruenhagen
Bureau of Reclamation
1243 N Street
Fresno, CA 93721-1813

Dear Mr. Gruenhagen:

NOAA's National Marine Fisheries Service (NMFS) is contacting the Bureau of Reclamation (Reclamation) to provide recommendations for the 2012 Robles Facility monitoring and evaluation activities defined in the Robles Biological Opinion. On November 22, 2011, NMFS received Casitas Municipal Water District's (Casitas) *2012 Monitoring and Evaluation Study Plan for the Robles Fish Passage Facility and Related Studies* (Study Plan). Having reviewed the Study Plan, NMFS understands the monitoring and evaluation activities Casitas proposes for 2012 in the Ventura River. The Biological Committee met on December 1, 2011, to discuss the 2011 Annual Report and the 2012 Study Plan. Due to the compressed timeframe to review and provide input on the 2012 Study Plan before monitoring activities begin (i.e., less than 30-days), this letter focuses on providing NMFS' comments on the monitoring and evaluation of the operation of the Robles Fish Passage Facility (Facility) that are specifically targeted at improving endangered steelhead (*Oncorhynchus mykiss*) passage conditions in the Ventura River. NMFS' comments on the 2011 Progress Report will be provided under a separate cover.

To ensure the Facility monitoring and data reporting are conducted in accordance with the Biological Opinion, NMFS requests Reclamation review the recommendations provided in this letter and advise Casitas to modify the 2012 Study Plan such that the monitoring activities are mutually agreeable to all Biological Committee members. NMFS recommendations for the 2012 monitoring address the upstream steelhead migration impediment evaluation, fish attraction evaluation, downstream fish migration through the Robles reach, and the Facility performance testing. NMFS requests that Reclamation distribute the Final Draft of the 2012 Study Plan, incorporating NMFS' recommendations, before the 2012 monitoring activities commence.

Upstream steelhead impediment evaluation

Section 2.0 of the draft Study Plan does not provide a sufficient amount of information about the impediment sites proposed for monitoring in 2012. Table 2 provides the summary data of the impediment sites that were originally selected during the 2009 Biological Committee selection process. The text on page 7 indicates that the sites presented in Table 2 are the sites that will

be surveyed in 2012. This is not consistent with the results presented in the 2011 Progress Report, which indicate that monitoring at some sites (e.g., Site 2) has been discontinued and new replacement sites (e.g., Site 3-2) have been selected by Casitas during the 2011 monitoring season. Additionally, the group discussion at the December 1, 2011, Biological Committee meeting included plans of continuing to monitor at the new Site 3-2, assessment and likely replacement of Site 2, adding a new site just upstream from Highway 150, and assessment of Site 8 to determine whether this site has the site characteristics of a critical riffle or not (see Figures 1 and 2). NMFS recommends for the second year in a row that Reclamation advise Casitas to conduct impediment evaluation monitoring at the riffle complex approximately 200-meters upstream of Highway 150. All available Biological Committee members should accompany Casitas in the field for identification of this site, and delineation of the transect. A Biological Committee site visit is scheduled for January 11, 2012, to review the proposed monitoring sites (including the site upstream of Highway 150). NMFS understands that if the Biological Committee agrees that the site appears to be an impediment, monitoring will occur at this site during the 2012 flow augmentation season.

The methods outlined for the steelhead impediment monitoring involves surveying all selected sites over a range of discharges from approximately 20 – 100 cfs. Based on discussions at the 2011 Biological Committee meeting, NMFS understands that Casitas is limited to two survey crews to conduct the transect measurements and each crew is capable of surveying 4 – 5 sites each day. Casitas declined CDFG grant funding assistance for hiring extra technicians to conduct 2012 impediment survey transects. Results from the last two years of data collection at the seven monitoring sites indicate only 5 of 102 survey transects were completed at the upper proposed discharge (i.e., 80 – 100 cfs), though streamflows greater than 80-cfs were available for sampling. NMFS recommended that an effort be made in 2012 to collect multiple survey transects at each site when flows are greater than 80-cfs. Casitas agreed to conduct transect measurements at the upper flow range, and will attempt to survey transects at discharges greater than 100-cfs if sufficient supplemental flows exist. Casitas indicated that they use a systematic sampling matrix to ensure sites that are missing a transect measurement at a specific Robles release are sampled first when those stormflow-supplementation releases occur. This sampling method should promote surveying each site at the widest range of flows possible, and provide the rationale to conduct extra survey transects at new replacement sites to develop a better depth-discharge relationship.

Fish Attraction Evaluation

The primary purpose of the Robles fish-attraction surveys is to evaluate if migrating adult steelhead are holding in the area immediately downstream of the fish-ladder entrance during stormflow supplementation operations. The stormflow-supplementation period is defined as the period of time that downstream flow-augmentation releases are provided to enhance steelhead migration through the fish ladder. The goal of the stormflow-supplementation operations is to provide adult steelhead with at least 10 passage days, defined as days where flow released downstream of Robles is $\geq$ 50-cfs, following the peak of a storm event. Stormflow-supplementation releases that exceed the fish-ladder capacity (50-cfs) are first routed through the auxiliary water supply pipeline up to a total release of 121-cfs. The combination of the fish ladder and the auxiliary pipeline will provide the necessary downstream bypass design flow of 171-cfs as specified in the biological opinion to meet the stormflow-supplementation operations criteria when Robles inflow exceeds 671-cfs. Therefore, NMFS recommends that the fish-

attraction surveys be conducted during the 10-12 day managed release on the receding limb of naturally generated storm hydrographs.

Modifications are needed to improve the current fish-attraction evaluation surveys. NMFS agrees with Casitas that the interpretation of weekly observational counts are extremely limited for interpreting the effects of the attraction flows on the behavior of steelhead holding downstream of the fish-ladder entrance. The most restrictive element of the current survey protocol is water visibility at the time of day that the survey occurs. Another concern with the bank or snorkel survey method is the disturbance caused by the presence of the surveyor. For this reason, NMFS recommended the installation of an underwater video camera mounted above the fish-ladder entrance to monitor fish entering and exiting the fish-ladder for the duration of the stormflow supplementation period. A camera is unable to ameliorate the effects of high water turbidity, but installing the camera at the start of the stormflow supplementation period (i.e., 24-hrs post storm peak) and leaving it installed for the entire 10-day supplementation period will allow for continuous monitoring once the river conditions permit. NMFS recommends that the camera be installed prior to obtaining the 1-meter secchi-disk measurement to prevent loss of data if conditions improve prior to the next secchi measurement. This protocol frees staff to conduct other concurrent flow-dependent aspects of the monitoring program.

NMFS recommends that the fish-attraction evaluation results be presented in the Annual Report in a manner that allows for comparison to detailed Robles fish-ladder discharge. The underwater video results should be presented in tabular format similar to the Vaki Riverwatcher detections, and graphed on a fish-ladder hydrograph corresponding to flow augmentation for each storm event evaluated. The following data should be recorded for each steelhead observed entering/exiting the fish ladder entrance: orifice number, date, time, length estimate, direction, instantaneous turbidity, instantaneous fish-ladder discharge, auxiliary pipeline discharge and spillway gate operation (i.e., estimated discharge through gates). Because streamflow augmentation is ramped down each day (reportedly around midday), recording the discharge at the time of observation, rather than the mean daily discharge, is important. Report fish-ladder turbidity measured closest to the time of steelhead observation to better understand the operational limits of the underwater video to assess fish attraction. To account for the potential that no steelhead will be detected entering the fish ladder using the underwater video monitoring due to technical limitations (e.g., high turbulence, poor camera angle, high turbidity during supplementation period, etc.), all Vaki Riverwatcher detections including fish probable, fish unknown and *O. mykiss* should be included in the fish attraction evaluation results (table and graphs) for all 10-day storm-supplementation periods and overlapping storm events. The results of the underwater video and Vaki Riverwatcher detections should be clearly distinguishable in the tables and graphs.

The secondary purpose of the fish-attraction surveys is to evaluate if downstream migrants (i.e., smolts) are congregating in the entrance pool towards the end of the out-migration season when mainstem riverflows are declining. Because Ventura River turbidity is normally not a problem in late spring and summer when juvenile fish-attraction surveys are conducted, snorkel and bank surveys of the entrance pool are a sufficient method to evaluate if a fish-stranding problem exists at the Facility. NMFS does not see value in continuing the snorkel surveys upstream of the Facility because the purpose of the fish-attraction surveys is to evaluate if migrants are holding downstream of the Facility. The reporting of the upstream fish observations and discussion of

this monitoring activity should be relocated to Section 6.0 of the Study Plan titled "Additional Monitoring Studies – *O. mykiss* Presence/Absence Surveys."

Downstream fish passage evaluation

NMFS is concerned about the high level of physical injuries to steelhead observed during the 2011 Robles Facility smolt-trapping season. The reported body damage included skin damage in the head region (88%), skin contusions (16%) and fin damage (8%). With regard to the 2011 results presented in Appendix 32, whether all 25 smolts removed from the trap had sustained injuries, or if individual fish sustained multiple types of body damage, is not clear. The cause of fish injury observed in the trap, whether sustained during passage through the Robles Facility or the result of trapping, are not known to NMFS because the current smot-trapping design does not allow for resolution of this important distinction. Regardless of the cause of injury, the high level of fish injury reported after completion of the 2011 trapping season is unacceptable. Observation of steelhead injury or mortality should be reported to NMFS at the time injury or mortality is discovered. The observation of fish injury is not a new occurrence at the Robles Facility smolt trap. In 2010, 80-percent of the smolts captured had skin damage to the head region. As a result, Casitas proposed to 1) conduct a pilot test with hatchery fish in 2011 to assess what level of fish injury may be the result of their trap design, and 2) conduct literature research on the topic. Neither product has been provided for NMFS review. In 2009, the only steelhead captured in the smolt trap sustained 64% descaling due to becoming impinged in the plastic mesh covering the trap-holding box. In-season changes were made during 2009 to the trap design that were thought to eliminate future fish injury. However, uncertainty exists as to whether the injuries observed in 2011 are the result of trapping or from passage through the Facility. The available data suggest that because the trap is located downstream of the facility, the cause of fish injury will not be resolved during the 2012 trapping season. Because greater than 80-percent of smolts captured in the last two years sustained physical injuries, NMFS recommends Reclamation evaluate the need for installing an upstream and downstream trap as outlined in the 2012 Study Plan to gain a better understanding of whether passage through the Facility is causing the high level of observed fish injury.

The results of the 2011 smolt-tagging was discussed at the December 1, 2011 Biological Committee meeting. Because none of the eight PIT-tagged fish that were released upstream of the Facility were detected by the fish ladder tag reader or manually interrogated at the smolt trap, the Biological Committee agreed that a tagging protocol should be developed for tagging fish with either PIT-tags or radio tags. NMFS cautioned that the 2011 practice of tagging the earliest arriving smolts with radio tags and tagging the latest arriving smolts with PIT-tags should be discontinued. Criteria for selecting fish for tagging and the specific tag type should be independent of fish size and condition. An effort should be made to distribute fish upstream of the Facility with PIT-tags and downstream with radio tags on the same days when sufficient numbers of smolts are captured. Since the 2011 Biological Committee meeting, Casitas has agreed to PIT-tag every fourth steelhead smolt captured in the trap downstream of the Facility and release the PIT-tagged fish upstream at Camino Cielo Road. With regard to the 63-percent radio tag loss reported during 2011, NMFS would like to know Casitas' proposal to prevent future high levels of tag loss and potential tag loss due to fish mortality.

Facility operations and performance testing

The 2011 Progress Report includes Section 4.5 titled "Recommendations Regarding the Prioritization of Future Activities." Because all of the items listed in Section 4.5 affect the operation and biological monitoring of steelhead passage of the Robles Facility, NMFS recommends these action items be included in the 2012 Study Plan. In addition to the list in Section 4.5, the following evaluations are expected to be conducted per the guidelines in the Robles Performance Evaluation Program as soon as the necessary stormflows exist:

1. Fish Ladder Testing;
2. Auxiliary Water Supply System Testing;
3. Entrance Pool Testing; and,
4. Temporary Rock Weirs Testing.

Review of the Ventura River flow assessment in the 2010 and 2011 Progress Reports indicate that no field measurements have been reported at the Robles low-flow crossing measurement weir (VRNMO) for the last two water years. This concerns NMFS because Casitas reports that this device is the most reliable flow measurement at the Facility for the fish passage and downstream stormflow-supplementation. Because the flow meters in both the fish-ladder and the auxiliary water pipeline are reported to be not functioning properly (turbulence and sloshing problems), NMFS recommends that routine field measurements be conducted at the VRNMO weir to calibrate the measurement device to correct inaccuracies caused by clogging of bubbler lines, electronic creep, sensor fouling, changes to the measured cross section and equipment problems. At a minimum, field measurements should be collected prior to the first qualifying storm event of the stormflow-supplementation season (i.e., December), once during each stormflow-supplementation period, and after any larger storm events (≥ 671-cfs). Comparison of February 2009 measurements reported at the VRNMO weir indicate that the weir measurement device (27-cfs) can differ from field measurement (19.8) by as much as 27-percent. NMFS recommends that VRNMO field measurements at flows greater than the fish ladder capacity (50-cfs) be conducted in 2012 to develop a better rating curve at supplementation flows in order to adequately evaluate the performance of the proposed modification to the auxiliary diffuser panel.

In conclusion, NMFS recommends that Reclamation advise Casitas to distribute the draft 2013 Study Plan well in advance of the 2012 Biological Committee meeting to facilitate timely discussion prior to distribution of the final Study Plan. The Monitoring and Evaluation component of the Incidental Take Statement (ITS) is mandatory for continued application of the section 7 (o)(2) exemption. If Reclamation fails to assume and implement the terms and conditions or fails to require Casitas to adhere to the terms and conditions of the ITS, the Robles Facility protective coverage of section 7 may lapse. Please contact Rick Bush at (562) 980-3562 to discuss the Study Plan recommendations contained in this letter.

Sincerely,

for Penny Ruvelas
Southern California Area Office Supervisor
for Protected Resources

cc: Scott Lewis, Casitas Municipal Water District
Mary Larson, California Department of Fish and Game
Roger Root, U.S. Fish and Wildlife Service
Administrative file#: 151422SWR2002PR6168

Figure 1. Approximate location of Casitas' Site 8 transect near OVLC pools in boulder run habitat. Person on West bank positioned at GPS coordinate from Casitas' Table 2 (34°12'15", 119°17'36").

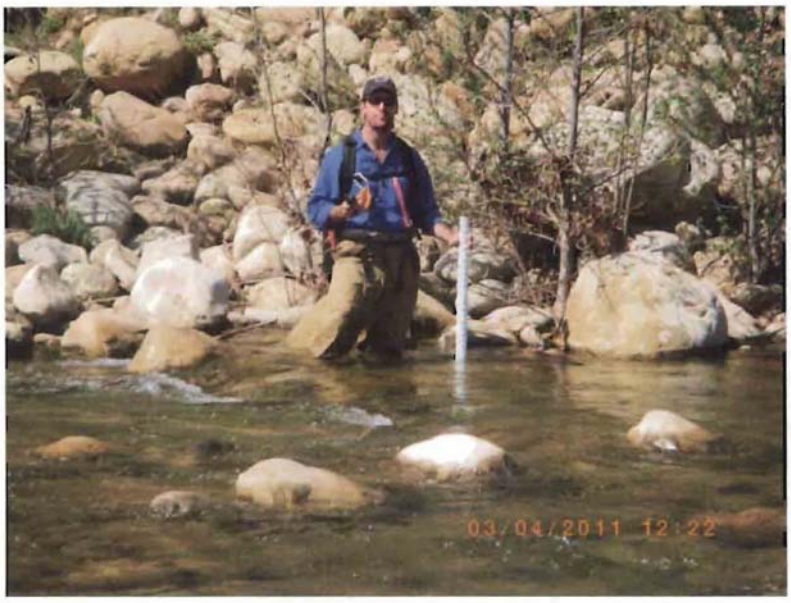


Figure 2. Depth measured 2.0-ft deep at this location (1.2-km downstream Robles) and Robles discharge was 50-cfs. All transect stream depths perpendicular to streamflow measured greater than 0.6-ft deep.

Casitas Municipal Water District
1055 Ventura Ave.
Oak View, CA 93022
805-649-2251

08 March 2012

Ned Gruenhagen
Bureau of Reclamation
South-Central California Area Office
1243 N Street
Fresno, CA 93721-1813

Dear Ned,

This letter is a response to the NMFS recommendation letter dated December 19th of 2011, which was pertaining to the Robles Fish Facility and the 2012 study plan. There were numerous issues related to the Robles Fish Passage Facility monitoring and evaluation studies that NMFS commented on in their letter that need to be addressed. Casitas' response regarding these issues has been included in this letter. The headings from the NMFS letter were followed below.

Upstream Steelhead Impediment Evaluation

The impediment site table provided in the draft 2012 study plan was not updated to include the changes made mid-season due to the March 2011 high-flow event because additional modification were anticipated after BC review process. Consequently, Casitas planned to update the table for the final study plan once the review process was completed.

Casitas decline the CDFG funding assistance at the 2011 BC meeting. However, NMFS failed to mention that at the meeting Casitas stated its plans of hiring two short-term fisheries technicians to assist with data collection efforts during the busiest time of the season. Casitas will try to collect transect data at higher flows as stated in the study plans. However, NMFS must realize and acknowledge there will always be logistical constraints with any field study.

Fish Attraction Evaluation

Casitas is willing to make the recommended changes to the Fish Attraction Evaluation, and has done so in the 2012 study plan. However, it should be noted that the current evaluation method of post-storm surveys was originally recommended by NMFS.

Casitas will conduct video monitoring at the entrance gate during 2012, but the operational and analysis limits are unknown at this point.

Contrary to NMFS, Casitas sees the value in continuing the fish attraction surveys upstream of the Robles Fish Facility. Not only do these surveys provide information about general *O. mykiss* behavior near the facility, but also they are valuable in evaluating other aspects of the monitoring and evaluations at the facility (e.g., Downstream Fish Passage Evaluation). Casitas believes these surveys can help determine whether successful passage at the Robles Fish Facility by comparing downstream to upstream counts. Therefore, Casitas believes these data should continue to be collected, analyzed, and displayed in the same manner.

Downstream Fish Passage Evaluation

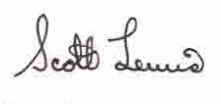
The skin damage on the heads of many of the smolts was believed to have occurred from trapping. This was first noticed with some of the smolts captured prior to 2011, but to a greater degree. Even though the percentage of smolts with this injury was high, the actual size of the injury was small. The injury was approximately 2 mm x 10 mm and corresponded to the shape and dimensions of the plastic mesh. The injuries were not skin abrasions, but contusions and the epidermis was not broken. After changing the mesh material to a smaller size, this injury was reduced. The location of the skin damage on the top of the snout and head region suggests that it was caused from "nosing" into the mesh to avoid capture; this behavior was also observed during removal from the trap. Additional improvements will be made for the 2012 trapping season by adding smoother material to the inside of the trap to determine if the injuries can be reduced or eliminated. Unfortunately, the fish trap handling experiment was not conducted during 2011 as anticipated. The experiment will be conducted this year and will be reported in the 2012 progress report. Additionally, the results of a literature review on smolt injuries will be included at that time.

Facility Operations and Performance Testing

Casitas will make all attempts to collect data as outlined in the performance evaluation study plan if flows occur during 2012. Casitas has, and will continue, to make improvements to the accuracy of measurement weir and all other Robles Fish Facility flow monitoring devices.

Casitas is committed to conducting the monitoring and evaluation of the Robles Facility as specified in the Biological Opinion and participating in the Cooperative Decision Making Process to further improve aspects of studies as needed. If BOR, NMFS, or CDFG would like to discuss any of these issues further, please contact me at your convenience.

Respectfully,



Scott Lewis

Fisheries Program Manager
Casitas Municipal Water District
1055 Ventura Ave.
Oak View, CA 93022

Office: 541-546-0903
Cell: 805-798-7459
Email: slewis@casitaswater.com

CC: Rick Bush, National Marine Fisheries Service
Mary Larson, California Department of Fisheries and Wildlife

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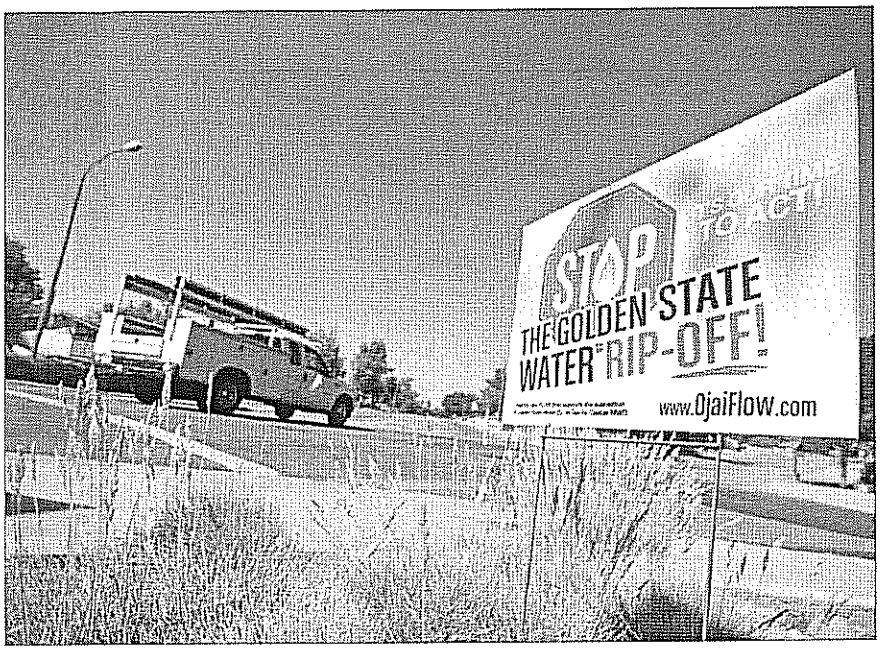

Photo by Logan Hall

One year after Ojai F.L.O.W. gathered 1,900 signatures in favor of a Casitas Municipal Water District takeover of Golden State, representatives are still waiting to hear whether their efforts paid off.

Community waits for Golden State takeover decision

Logan Hall
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Casitas Municipal Water District officials are keeping a tight lid on their process regarding a possible takeover of Golden State Water Company. A year has passed since Ojai Friends of Locally Owned Water handed a petition to the CMWD with 1,900 citizen signatures, showing support for their efforts to oust Golden State from operating in Ojai. Frustrated with GSWC's rising water rates and with what many are calling a failing infrastructure, F.L.O.W. representatives have proposed that Casitas take over Golden State's business in Ojai through a process called eminent domain.

Now, a year after presenting the 1,900 signatures to Casitas, F.L.O.W. supporters believe that CMWD's board of directors is closing in on a decision.

"I really think we're close to getting a decision from them," said F.L.O.W representative Ryan Blatz. "We're confident that they will come to a positive decision in the near future." Casitas officials, however, declined to comment on the progress of their decision-making process. "The only public statement that can be made at this time is that this is a continued closed session item by the board," Casitas spokesman Ron Merckling said in an e-mail responding to questions about the process. "The board has been actively deliberating on this item. Once a decision is made the public will be notified."

Blatz believes that the

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GSWC:

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outcome of Casitas' decision will likely have effects on communities that reach beyond the city limits of Ojai. "Right now," he said, "a lot of eyes are on Ojai to see how we get this done and if we succeed. This thing is bigger than just Ojai. We need to set an example to the rest of California on how to get rid of these guys."

F.L.O.W.'s effort has definitely gained interest in other cities across the state. Last month, CBS San Francisco aired a news report on the Bay Area community, Bay Point, which is also fighting Golden State. The broadcast featured video of Ojai and included interviews with Blatz and Ojai Mayor Betsy Clapp.

Golden State officials say that rising water rates are due to the cost of capital improvement projects being carried out in Ojai. A statement by Golden State senior vice president for regulated utilities, Denise Kruger, was released through e-mail. "Golden State Water Company is focused on providing quality service to Ojai residents. Proactive investments and ongoing maintenance are important for the community because they replace aging infrastructure and allow us to maintain reliable service, maintain water pressure and minimize water loss. We have more than $1.6 million budgeted for capital improvements this year and have invested more than $6.1 million in the Ojai service area over the last five years. We value our Ojai customers and support this community," Kruger stated.

Blatz says that although F.L.O.W. is optimistic that Casitas will decide in their favor, the group of concerned citizens is not putting all of their eggs in one basket. "We have contemplated what steps would be necessary if Casitas says no," he said. "There are definitely other options available. We know they are working on it and doing their due diligence, but Ojai F.L.O.W. won't wait forever."

Comment on this report at
ojaivalleynews.com

LETTERS

Paul Jenkin, *Ventura*

Quarry

Re: Grace V. Mosler's May 15 letter, "Fish ladders":

Mosler claims her husband's quarry on scenic Highway 33 does no damage to our Ventura River. Meanwhile, the popular swimming holes downstream are filled with mud, and the Casitas Municipal Water District filed a letter with the county stating discharges from the quarry were affecting the drinking water supply!

The facts are that the Mosler quarry amassed such a long list of violations to its operating permit that the state Office of Mine Reclamation had to shut it down. After "working with" the county, the permit was renewed for expanded operations, despite the ongoing and unmitigated effects to North Fork Matilija Creek.

Because of dams, water pumping and diversions, this creek is the only pathway for the endangered steelhead to return during the rainy season to year-round spawning and rearing habitat in the Los Padres National Forest.

Repeated mining-induced landslides have blocked upstream migration, and heavy mudflows off the mine have smothered the creek downstream, where biologists have documented spawning steelhead. If you don't believe it, watch Santa Barbara Channelkeeper's YouTube video, "Watchdog Diaries — Episode 4, The Ojai Quarry." Or visit http://www.VenturaRiver.org and read the history of the Ojai Rock Quarry.

CASITAS MUNICIPAL WATER DISTRICT
TREASURER'S MONTHLY REPORT OF INVESTMENTS
06/06/12

Type of Invest	Institution	CUSIP	Date of Maturity	Amount of Deposit	Current Mkt Value	Rate of Interest	Date of Deposit	% of Portfolio	Days to Maturity
*TB	Federal Home Loan Bank	3133XSP930	12/13/13	$743,750	$730,142	3.125%	07/01/10	5.74%	547
*TB	Federal Home Loan Bank	3133XWNB10	06/12/15	$729,603	$748,979	2.875%	07/01/10	5.89%	1086
*TB	Federal Home Loan Bank	3134A4VG60	11/17/15	$801,864	$798,476	4.750%	07/19/10	6.28%	1241
*TB	Federal Home Loan MTG Corp	3134G3GT10	10/18/17	$220,000	$219,892	1.250%	01/03/12	1.73%	1932
*TB	Federal Home Loan MTG Corp	3135G0ES80	11/15/16	$696,737	$697,015	1.375%	03/12/12	5.48%	1599
*TB	Federal National MTG Association	3136FR3N10	09/20/16	$702,422	$701,939	2.125%	09/20/11	5.52%	1544
*TB	Federal Home Loan MTG Corp	3137EABA60	11/17/17	$1,211,010	$1,212,400	5.125%	01/03/12	9.53%	1961
*TB	Federal Home Loan MTG Corp	3137EABS70	09/27/13	$766,605	$735,392	4.125%	07/01/10	5.78%	471
*TB	Federal Home Loan MTG Corp	3137EACD90	07/28/14	$739,907	$738,444	3.000%	07/01/10	5.81%	772
*TB	Federal Home Loan MTG Corp	3137EACE70	09/21/12	$723,646	$704,032	2.125%	06/30/10	5.53%	105
*TB	Federal Natl MTG Assn	31398AYY20	09/16/14	$739,123	$742,091	3.000%	07/01/10	5.83%	820
*TB	US Treasury Inflation Index NTS	912828JE10	07/15/18	$1,055,030	$1,225,405	1.375%	07/06/10	9.63%	2199
*TB	US Treasury Notes	912828JW10	12/31/13	$709,352	$713,671	1.500%	04/01/10	5.61%	565
*TB	US Treasury Notes	912828LZ10	11/30/14	$718,129	$731,283	2.125%	07/01/10	5.75%	894
*TB	US Treasury Notes	912828MB30	12/15/12	$709,707	$703,556	1.125%	06/30/10	5.53%	189
*TB	US Treasury Inflation Index NTS	912828MF40	01/15/20	$1,041,021	$1,248,016	1.375%	07/01/10	9.81%	2739
	Accrued Interest			$59,036	$69,089				
	Total in Gov't Sec. (11-00-1055-00&1065)			**$12,366,942**	**$12,719,822**			**85.50%**	
*CD	CD -			$0	$0	0.000%		0.00%	
	Total Certificates of Deposit: (11.13506)			**$0**	**$0**			**0.00%**	
**	**LAIF as of: (11-00-1050-00)**		N/A	**$443**	**$443**	0.38%	Estimated	**0.00%**	
***	**COVI as of: (11-00-1060-00)**		N/A	**$2,157,467**	**$2,157,467**	0.81%	Estimated	**14.50%**	
	TOTAL FUNDS INVESTED			**$14,524,851**	**$14,877,732**			**100.00%**	
	Total Funds Invested last report			$14,524,851	$14,863,061				
	Total Funds Invested 1 Yr. Ago			$14,530,844	$14,662,893				
****	**CASH IN BANK (11-00-1000-00) EST.**			**$3,593,337**	**$3,593,337**				
	CASH IN Western Asset Money Market			**$8**	**$8**	0.010%			
	CASH IN PIMMA Money Market			**$502,803**	**$502,803**				
	TOTAL CASH & INVESTMENTS			**$18,620,999**	**$18,973,880**				
	TOTAL CASH & INVESTMENTS 1 YR AGO			$17,028,595	$17,160,643				

*CD CD - Certificate of Deposit
*TB TB - Federal Treasury Bonds or Bills
** Local Agency Investment Fund
*** County of Ventura Investment Fund
Estimated interest rate, actual not due at present time.
**** Cash in bank

No investments were made pursuant to subdivision (i) of Section 53601, Section 53601.1 and subdivision (i) Section 53635 of the Government Code.
All investments were made in accordance with the Treasurer's annual statement of investment policy.