SOLANO COUNTY WATER AGENCY

BOARD OF DIRECTORS MEETING

DATE: **Thursday, April 11, 2019**

TIME: **6:30 P.M.**

PLACE: **Berryessa Room**
Solano County Water Agency Office
810 Vaca Valley Parkway, Suite 203
Vacaville

1. **CALL TO ORDER**

2. **PLEDGE OF ALLEGIANCE**

3. **APPROVAL OF AGENDA**

4. **PUBLIC COMMENT**

   Limited to 5 minutes for any one item not scheduled on the Agenda.

5. **CONSENT ITEMS** *(estimated time: 5 minutes)*

   (A) Minutes: Approval of the Minutes of the Board of Directors meeting of February 14, 2019.

   (B) Expenditure Approvals: Approval of the February and March 2019 checking account register.

   (C) Quarterly Financial Reports: Approve the Income Statement and Balance Sheet of March 2019.

   (D) Contract Amendment with cbec eco Engineering: Authorize General Manager to execute $17,869 contract amendment with cbec eco engineering for additional North Bay Aqueduct Alternate Intake Project planning and technical support.

   (E) Contract with Resource Management Associates: Authorize General Manager to execute $134,656 contract with Resource Management Associates for additional North Bay Aqueduct Alternate Intake Project planning and technical support.

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SOLANO WATER
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(F) Adoption of Westside Sacramento Integrated Regional Water Management Plan (IRWMP) update: Approve, through adoption of Resolution 2019-03, January 2019 Westside Sacramento IRWMP Update.

(G) Correction to Adopted January 10, 2019 Board meeting minutes: Adopt revised minutes of January 10, 2019 Board meeting to correct list of 2019 Water Policy Committee members.

(H) Flood Control Advisory Committee Member Appointments: Appoint Paul Lum, Charles Karnopp and Ben Lyons to the Flood Control Advisory Committee.

(I) Lower Putah Creek Coordinating Committee Appointments: Appoint Solano representatives for 2019 calendar year.

(J) Purchase of Wheeled Excavator for Ulatis Flood Control Project: Authorize General Manager to purchase John Deere 190G Wheeled Excavator, total cost not to exceed $286,000.

(K) Wragg Fire Watershed Remediation Grant: Adopt Resolution 2019-04 authorizing General Manager to enter into agreements for receipt of $451,535 grant from California Office of Emergency Services for Wragg Fire Watershed Remediation Project.

6. **BOARD MEMBER REPORTS** *(estimated time: 5 minutes)*

RECOMMENDATION: For information only.

7. **GENERAL MANAGER'S REPORT** *(estimated time: 5 minutes)*

RECOMMENDATION: For information only.

8. **SOLANO WATER ADVISORY COMMISSION REPORT** *(estimated time: 5 minutes)*

RECOMMENDATION: For information only.

9. **WATER AGENCY STAFFING – SEASONAL MAINTENANCE AIDES**
(estimated time: 15 minutes)

RECOMMENDATION:

1. Approve Seasonal Maintenance Aide I/II job description.

2. Authorize General Manager to hire up to four (4) Seasonal Maintenance Aides (May-October)

10. **LEGISLATIVE UPDATES** *(estimated time: 10 minutes)*

RECOMMENDATION:

1. Hear report from Committee Chair on activities of the SCWA Legislative Committee.

2. Authorize SCWA Legislative Committee Chair or General Manager to sign and submit letter of support for AB 533 (Holden) – Income tax exclusion for water conservation rebates.

3. Authorize SCWA Legislative Committee Chair or General Manager to sign and submit letter of support for AB 557 (Wood/Aguiar-Curry) – Atmospheric Rivers: Research, Mitigation, and Climate Forecasting Program.

11. **WATER POLICY UPDATES** *(estimated time: 5 minutes)*

RECOMMENDATION:

1. Hear report from staff on current and emerging Delta and Water Policy issues and provide direction.

2. Hear status report from Committee Chair on activities of the SCWA Water Policy Committee.

3. Hear report from Supervisor Thomson on activities of the Delta Counties Coalition, Delta Protection Commission.

4. Hear report from Supervisor Thomson on activities of the Delta Conservancy.

12. **CLOSED SESSION** *(estimated time: 20 minutes)*

1. Closed Session for Real Property Negotiations
   Pursuant to Government Code Section 54956.8
   Property: Petersen Estates, Solano County Assessor Parcel Numbers:

Book	*Page*	Number
42	17	5
42	17	13
42	17	14
42	18	21
42	18	22
42	18	27
42	18	28
42	18	29
42	27	9
42	27	10
48	8	1

   Agency negotiator: Roland Sanford
   Negotiating parties: Dan Hearn, Petersen Estates Company Board of Directors
   Under negotiation: Potential acquisition, price, and terms

2. Conference with Legal Counsel – Anticipated Litigation
   Significant exposure to litigation
   Pursuant to Government Code Section 54956.9(b): two cases

13. TIME AND PLACE OF NEXT MEETING

Thursday, May 9, 2019 at 6:30 p.m. at the SCWA offices.

The Full Board of Directors packet with background materials for each agenda item can be viewed on the Agency's website at www.scwa2.com.

Any materials related to items on this agenda distributed to the Board of Directors of Solano County Water Agency less than 72 hours before the public meeting are available for public inspection at the Agency's offices located at the following address: 810 Vaca Valley Parkway, Suite 203, Vacaville, CA 95688. Upon request, these materials may be made available in an alternative format to persons with disabilities.

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CONSENT ITEMS

SOLANO COUNTY WATER AGENCY

BOARD OF DIRECTORS MEETING MINUTES

MEETING DATE: February 14, 2019

The Solano County Water Agency Board of Directors met this evening at the Solano County Water Agency office in Vacaville. Present were:

Mayor Elizabeth Patterson, City of Benicia
Mayor Thom Bogue, City of Dixon
Mayor Harry Price, City of Fairfield
Mayor Ronald Kott, City of Rio Vista
Mayor Lori Wilson, City of Suisun City
Mayor Ron Rowlett, City of Vacaville
Mayor Bob Sampayan, City of Vallejo
Supervisor Erin Hannigan, Solano County District 1
Supervisor Monica Brown, Solano County District 2
Supervisor Jim Spering, Solano County District 3
Supervisor John Vasquez, Solano County District 4
Supervisor Skip Thomson, Solano County District 5
Director John Kluge, Solano Irrigation District
Director Dale Crossley, Reclamation District 2068

CALL TO ORDER

The meeting was called to order by Chair Thomson at 6:30 pm.

APPROVAL OF AGENDA

General Manager Sanford asked that Item 14 (Closed Session) be pulled from the agenda. On a motion by Supervisor Vasquez and second by Supervisor Brown the Board unanimously approved the agenda, with the deletion of Item 14 (Closed Session).

PUBLIC COMMENT

There were no public comments.

Mayor Bogue introduced Vice-Mayor Pederson, who beginning in March will be representing the City of Dixon at future Water Agency Board of Director meetings.

CONSENT ITEMS

On a motion by Mayor Patterson and a second by Mayor Bogue the Board unanimously approved the following consent items:

(A) Minutes
(B) Expenditure Approvals
(C) Sale of Surplus Property
(D) Participation in Federal Surplus Personal Property Program
(E) Authorization to Purchase of YSI Water Quality Monitoring Equipment
(F) Participation in State Water Project Municipal Water Quality Investigations Program
(G) Purchase of Diamond Boom Mower and PBM 1,235 Gallon Spray Trailer
(H) Authorization for Vehicle Purchases for SCWA Use
(I) Excess FY 2018-2019 Other Post-Employment Benefits (OPEB) Funds
(J) Contract Amendment with AD Consultants

Supervisor Hannigan joined the Board meeting immediately following the Board's approval of the Consent Items.

BOARD MEMBER REPORTS

There were no Board member reports.

GENERAL MANAGER'S REPORT

In addition to the written report, General Manager Roland Sanford provided a brief update on the ongoing Phase I Dixon drainage study and noted that the study's draft report is scheduled for completion by mid April.

SOLANO WATER ADVISORY COMMISSION

There was no verbal report, the minutes of the December 5, 2018 Solano Water Advisory Commission report were included in the Board meeting packet.

FISCAL YEAR 2017-2018 AUDIT

General Manager Roland Sanford reported that Mann, Urrutia, Nelson, CPAs & Associates LLP performed the Water Agency's Fiscal Year 2017-2018 audit and in their report, which was included in the Board meeting packet, conclude that the Water Agency's financial statements for Fiscal Year 2017-2018 are free from material misstatement and are represented fairly in accordance with Generally Accepted Accounting Principles (GAAP). On a motion by Mayor Patterson and second by Supervisor Brown the Board unanimously accepted the Fiscal Year 2017-2018 audit report.

STATE WATER PROJECT CONTRACT AMEDNMENT 21 (CONTRACT EXTENSION)

General Manager Roland Sanford explained that the water supply contract between the California Department of Water Resources and Water Agency for the North Bay Aqueduct water supply is scheduled to expire on or near 2035 – the exact expiration date contingent on the date all debt instruments used to finance construction costs are paid in full. He explained that the proposed contract amendment would extend the contract term an additional 50 years, which in addition to maintaining the North Bay Aqueduct water supply, would provide additional flexibility with regard to the financing of the proposed North Bay Aqueduct Alternate Intake Project. On a motion by Mayor Price and second by Mayor Kott the Board unanimously authorized General Manager Roland Sanford to sign State Water Project Contract Amendment 21 (contract extension).

VEHICLE PURCHASES FOR SOLANO PROJECT OPERATIONS

General Manager Roland Sanford explained that the United States Bureau of Reclamation contracts with the Water Agency for operation and maintenance of the Solano Project and that the Water Agency in turn subcontracts with the Solano Irrigation District (SID) for the necessary Solano Project operations and maintenance services. He noted that SID provides trucks - which are currently charged to the Water Agency on an hourly basis at costs ranging between $20/hour and $33/hour – as part of the operations and maintenance activities performed. Mr. Sanford further explained that the trucks provided by SID are used extensively and that in most cases, given SID's hourly charge rates, it would be cheaper for the Water Agency to purchase and own the vehicles than continue to "rent" them from SID.

Mr. Sanford went on to explain that since the Board meeting agenda was posted he has had several conversations with SID staff and in view of these recent conversations, he recommended the Board postpone the vehicle purchase decision for one month to allow SID time to formulate an alternative proposal for providing the aforementioned trucks. On a substitute motion by Supervisor Spering and a second by Mayor Price the Board unanimously approved an extension of one month for SID to provide additional information on Solano Project vehicle costs.

LEGISLATIVE UPDATES

Supervisor Thomson reported that the SCWA Legislative Committee met last week and discussed HR 357, the proposed Sacramento-San Joaquin Delta National Heritage Act, and various proposed legislative approaches for providing affordable drinking water to disadvantaged communities.

WATER POLICY UPDATES

1. Staff had nothing to report on emerging Delta and Water Policy issues.
2. There was no report from the Water Policy Committee, they will meet on February 25th.
3. Supervisor Thomson reported that Governor Newsom has gone on record as supporting the construction of a single, as opposed to the currently proposed twin tunnel version of Cal WaterFix.
4. There was no report on the activities of the Delta Conservancy.

TIME AND PLACE OF NEXT MEETING

Thursday, March 14, 2019 at 6:30 p.m., at the SCWA offices in Vacaville.

ADJOURNMENT

This meeting of the Solano County Water Agency Board of Directors was adjourned at 6:50 p.m.

Roland Sanford
General Manager & Secretary to the
Solano County Water Agency

ACTION OF
SOLANO COUNTY WATER AGENCY

DATE: **April 11, 2019**

SUBJECT: **Expenditures Approval**

RECOMMENDATIONS:

Approve expenditures from the Water Agency checking accounts for February and March 2019.

FINANCIAL IMPACT:

All expenditures are within previously approved budget amounts.

BACKGROUND:

The Water Agency auditor has recommended that the Board of Directors approve all expenditures (in arrears). Attached is a summary of expenditures from the Water Agency's checking accounts for February and March, 2019. Additional backup information is available upon request.

Recommended: _____
Roland Sanford, General Manager

☐ Approved as recommended ☐ Other (see below) ☐ Continued on next page

Modification to Recommendation and/or other actions:

I, Roland Sanford, General Manager and Secretary to the Solano County Water Agency, do hereby certify that the foregoing action was regularly introduced, passed, and adopted by said Board of Directors at a regular meeting thereof held on April 11, 2019 by the following vote:

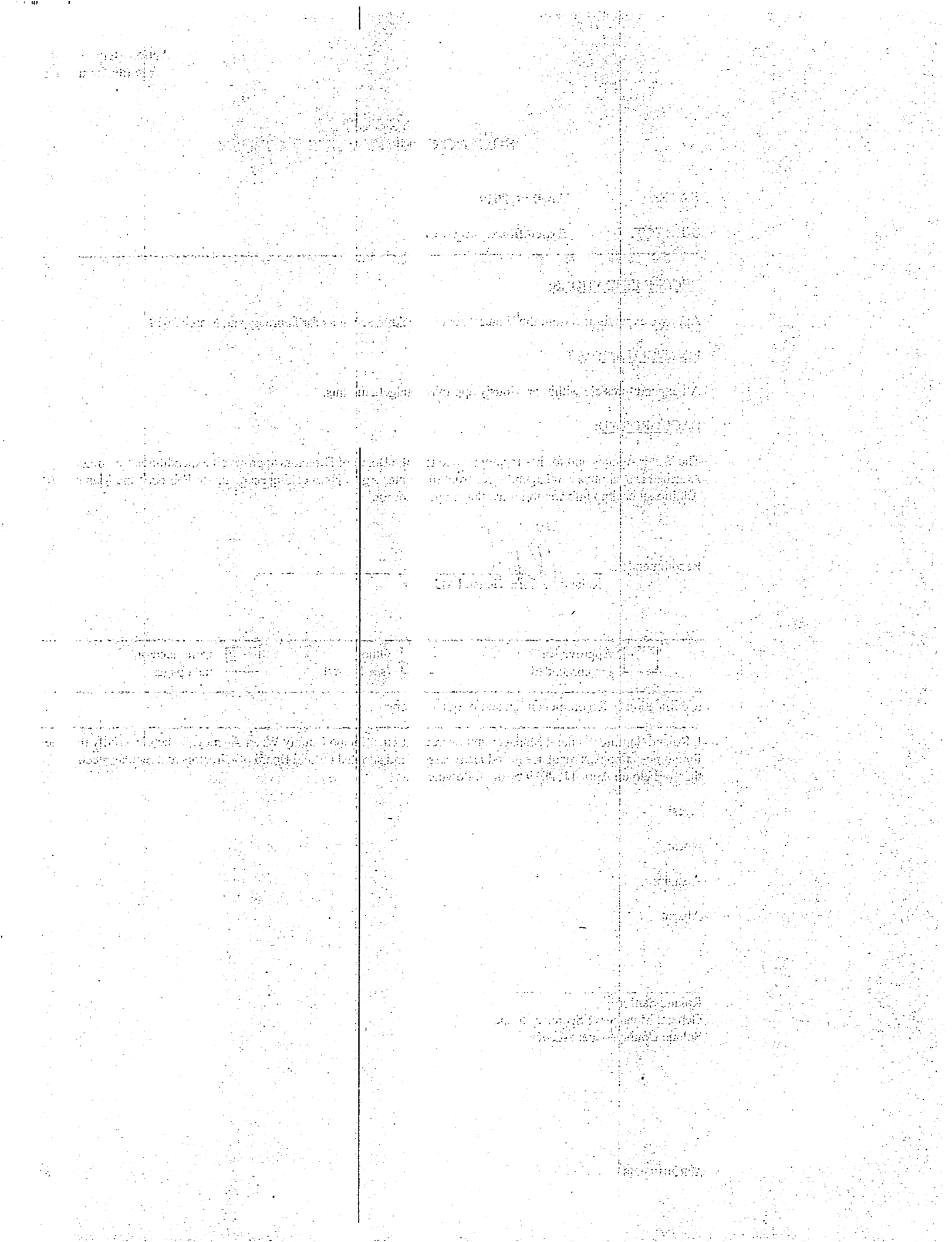
Ayes:

Noes:

Abstain:

Absent:

_____
Roland Sanford
General Manager & Secretary to the
Solano County Water Agency



SOLANO COUNTY WATER AGENCY
Cash Disbursements Journal
For the Period From Feb 1, 2019 to Feb 28, 2019

Filter Criteria includes: Report order is by Check Number. Report is printed in Detail Format.

Date	Check #	Account ID	Line Description	Debit Amount	Credit Amount
2/25/19	10185	2020WC	Invoice: 19-01-3868	7,347.50	
		1010WC	MBK ENGINEERS		7,347.50
2/26/19	30086V	2020SC	Invoice: RONALD VANSANT		50.00
		1020SC	RONALD VANSANT	50.00	
2/28/19	32734V	2020SC	Invoice: KRISSY HITESHEW		1,000.00
		1020SC	KRISSY HITESHEW	1,000.00	
2/5/19	32852	2020SC	Invoice: 2938890	601.39	
		1020SC	AMERICAN TOWER CORPORATION		601.39
2/5/19	32853	2020SC	Invoice: 37322	2,175.29	
		1020SC	BRERETON ARCHITECTS		2,175.29
2/5/19	32854	2020SC	Invoice: KEYCHAINS 2019	396.17	
		1020SC	COLLEGIATE CONCEPTS		396.17
2/6/19	32854V	2020SC	Invoice: KEYCHAINS 2019		396.17
		1020SC	COLLEGIATE CONCEPTS	396.17	
2/5/19	32855	2020SC	Invoice: 19-154-V DEC 2018	41,301.00	
		2020SC	Invoice: 19-024-O FEB 2019	1,058.00	
		2020SC	Invoice: 19-026-T FEB 2019	574,599.00	
		1020SC	DEPARTMENT OF WATER RESOURCES		616,958.00
2/5/19	32856	2020SC	Invoice: 5925786	1,205.12	
		1020SC	TIAA BANK		1,205.12
2/5/19	32857	2020SC	Invoice: CAVAC63491	122.05	
		1020SC	FASTENAL COMPANY		122.05
2/5/19	32858	2020SC	Invoice: 164111	21,905.93	
		1020SC	LSA ASSOCIATES, INC.		21,905.93
2/5/19	32859	2020SC	Invoice: 531529	157.50	
		1020SC	M&M SANITARY LLC		157.50
2/5/19	32860	2020SC	Invoice: 17814	500.00	
		1020SC	MANN, URRUTIA, NELSON, CPAS		500.00
2/5/19	32861	2020SC	Invoice: 37987136	2,703.13	
		1020SC	NUTRIEN AG SOLUTIONS		2,703.13
2/5/19	32862	2020SC	Invoice: 267342	86.77	
		2020SC	Invoice: 267624	112.57	
		2020SC	Invoice: 267718	17.15	
		2020SC	Invoice: 021958	43.24	
		2020SC	Invoice: 268034	31.28	
		2020SC	Invoice: 268511	20.03	
		2020SC	Invoice: 268955	1.25	
		1020SC	PACIFIC ACE HARDWARE		312.29
2/5/19	32863	2020SC	Invoice: 5873	11,000.00	
		1020SC	PAT DAVIS DESIGN GROUP, INC		11,000.00
2/5/19	32864	2020SC	Invoice: 0131190229	19,112.50	
		1020SC	SHANDAM CONSULTING		19,112.50
2/5/19	32865	2020SC	Invoice: 0118	47,603.95	
		1020SC	SOLANO RESOURCE CONSERVATION DISTRICT		47,603.95
2/5/19	32866	2020SC	Invoice: 58394	300.98	
		2020SC	Invoice: 58393	101.75	
		2020SC	Invoice: 58446	229.61	
		2020SC	Invoice: C58445		53.93
		2020SC	Invoice: 58447	10.51	
		1020SC	SUISUN VALLEY FRUIT GROWERS AS		588.92
2/5/19	32867	2020SC	Invoice: 70B70-05	159,227.30	

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		1020SC	THE REGENTS OF THE UNIVERSITY OF CA		159,227.30
2/5/19	32868	2020U	Invoice: ELIZABETH O'BRIEN	1,000.00	
		1020SC	ELIZABETH O'BRIEN		1,000.00
2/5/19	32869	2020SC	Invoice: HCP CONF 2019	1,496.25	
		1020SC	ULATIS COMMUNITY CENTER		1,496.25
2/5/19	32870	2020SC	Invoice: 9823077749	2,688.22	
		1020SC	VERIZON WIRELESS		2,688.22
2/5/19	32871	2020SC	Invoice: DS01-4	5,730.00	
		1020SC	YOLO COUNTY RCD		5,730.00
2/12/19	32872	2020SC	Invoice: 0597152	1,707.48	
		1020SC	ACWA JOINT POWERS INSURANCE AUTHORITY		1,707.48
2/12/19	32873	2020SC	Invoice: 314098-5	3,500.00	
		1020SC	ALPHA MEDIA FAR EAST BAY		3,500.00
2/12/19	32874	2020SC	Invoice: BA6050	1,250.00	
		2020SC	Invoice: BA6049	1,483.35	
		2020SC	Invoice: BA6051	1,733.35	
		1020SC	BLANKINSHIP & ASSOCIATES, INC.		4,466.70
2/12/19	32875	2020SC	Invoice: 332566CH002	7,899.90	
		1020SC	CH2M HILL		7,899.90
2/12/19	32876	2020SC	Invoice: 114293	514.25	
		1020SC	GHD, INC.		514.25
2/12/19	32877	2020SC	Invoice: 91472	1,368.84	
		2020SC	Invoice: 91471	1,487.67	
		2020SC	Invoice: 91473	2,361.30	
		1020SC	HERUM \ CRABTREE \ SUNTAG		5,217.81
2/12/19	32878	2020SC	Invoice: ER7752642010	1,358.79	
		1020SC	HOLT OF CALIFORNIA		1,358.79
2/12/19	32879	2020SC	Invoice: 5021141	164.79	
		2020SC	Invoice: 4011316	122.46	
		2020SC	Invoice: 4013780	18.84	
		2020SC	Invoice: 2591865	5.25	
		2020SC	Invoice: 9025684	56.51	
		2020SC	Invoice: 9025685	334.79	
		2020SC	Invoice: 9592038	44.77	
		2020SC	Invoice: 8025830	474.78	
		2020SC	Invoice: 6014838	485.48	
		2020SC	Invoice: 5031355	43.21	
		2020SC	Invoice: 0563935	227.92	
		2020SC	Invoice: 0580775	32.79	
		2020SC	Invoice: 9012615	107.56	
		1020SC	HOME DEPOT CREDIT SERVICE		2,119.15
2/12/19	32880	2020N	Invoice: 0119-3	750.00	
		1020SC	JEFFREY J JANIK		750.00
2/12/19	32881	2020SC	Invoice: FEB 2019 EXEC MTG	100.00	
		1020SC	JOHN D. KLUGE		100.00
2/12/19	32882	2020SC	Invoice: 5894	4,370.00	
		1020SC	PAT DAVIS DESIGN GROUP, INC		4,370.00
2/12/19	32883	2020SC	Invoice: 43924166	253.75	
		1020SC	RECOLOGY VACAVILLE SOLANO		253.75
2/12/19	32884	2020SC	Invoice: 01054683	327.60	

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		1020SC	RECOLOGY HAY ROAD		327.60
2/12/19	32885	2020SC	Invoice: 9276	7,953.90	
		1020SC	REGIONAL GOVERNMENT SERVICES		7,953.90
2/12/19	32886	2020SC	Invoice: WCP-39	1,787.50	
		1020SC	RICHARD HEATH & ASSOCIATES, INC.		1,787.50
2/12/19	32887	2020SC	Invoice: 1341	2,250.00	
		1020SC	ROCK STEADY JUGGLING		2,250.00
2/12/19	32888	2020SC	Invoice: 002221	202.71	
		1020SC	SAM'S CLUB		202.71
2/12/19	32889	2020U	Invoice: JAN 2019	138.50	
		1020SC	SOLANO COUNTY FLEET MANAGEMENT		138.50
2/12/19	32890	2020SC	Invoice: 0007414	169.78	
		2020SC	Invoice: 0007413	8,701.03	
		2020SC	Invoice: 0007415	12,984.17	
		1020SC	SOLANO IRRIGATION DISTRICT		21,854.98
2/12/19	32891	2020SC	Invoice: 35092	704.00	
		2020SC	Invoice: 35096	352.00	
		2020SC	Invoice: 35087	352.00	
		2020SC	Invoice: 35086	704.00	
		2020SC	Invoice: 35085	694.00	
		2020SC	Invoice: 35088	352.00	
		2020SC	Invoice: 35091	594.00	
		2020SC	Invoice: 35097	704.00	
		2020SC	Invoice: 35082	1,046.00	
		2020SC	Invoice: 35076	684.00	
		2020SC	Invoice: 35078	352.00	
		2020SC	Invoice: 35080	704.00	
		2020SC	Invoice: 35084	352.00	
		2020SC	Invoice: 35099	342.00	
		2020SC	Invoice: 35098	684.00	
		2020SC	Invoice: 35095	701.00	
		2020SC	Invoice: 35094	352.00	
		2020SC	Invoice: 35093	352.00	
		2020SC	Invoice: 35090	349.00	
		2020SC	Invoice: 35089	704.00	
		2020SC	Invoice: 35074	342.00	
		2020SC	Invoice: 35075	704.00	
		2020SC	Invoice: 35079	704.00	
		2020SC	Invoice: 35083	342.00	
		2020SC	Invoice: 35081	704.00	
		2020SC	Invoice: 35077	342.00	
		2020SC	Invoice: 35073	342.00	
		2020SC	Invoice: 35100	352.00	
		1020SC	SOUTHWEST ENVIRONMENTAL		14,910.00
2/12/19	32892	2020SC	Invoice: FEB 2019 EXEC MTG	100.00	
		1020SC	JAMES SPERING		100.00
2/12/19	32893	2020SC	Invoice: 01	5,375.00	
		1020SC	MICHAEL MELANSON		5,375.00
2/12/19	32894	2020SC	Invoice: 201902-13433	2,071.25	
		1020SC	TERRA REALTY ADVISORS, INC.		2,071.25
2/12/19	32895	2020SC	Invoice: BAWMRP #23	12,753.00	
		1020SC	THINKING GREEN CONSULTANTS		12,753.00
2/12/19	32896	2020SC	Invoice: OPAL BOWEN	719.00	
		1020SC	OPAL BOWEN		719.00
2/12/19	32897	2020SC	Invoice: 172904	1,971.02	
		1020SC	WHOLESALE SOLAR INC.		1,971.02

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2/12/19	32898	2020SC	Invoice: 4734	25,473.42	
		1020SC	EYASCO, INC.		25,473.42
2/20/19	32899	2020SC	Invoice: 2642	3,532.50	
		1020SC	AG INNOVATIONS		3,532.50
2/20/19	32900	2020SC	Invoice: 12707877 BARICH	781.36	
		1020SC	CALPERS LONG-TERM CARE PROGRAM		781.36
2/20/19	32901	2020SC	Invoice: FEB 2019 BOD MTG	100.00	
		1020SC	DALE CROSSLEY		100.00
2/20/19	32902	2020SC	Invoice: SI421560	2,169.48	
		1020SC	DLT SOLUTIONS, LLC		2,169.48
2/20/19	32903	2020SC	Invoice: 25491	3,334.94	
		1020SC	GARCIA AND ASSOCIATES		3,334.94
2/20/19	32904	2020SC	Invoice: CL14402	382.07	
		1020SC	INTERSTATE OIL COMPANY		382.07
2/20/19	32905	2020SC	Invoice: 2190281	268.10	
		1020SC	JOEL RICHARD EICHMAN, CPA		268.10
2/20/19	32906	2020SC	Invoice: FEB 2019 BOD MTG	100.00	
		1020SC	JOHN D. KLUGE		100.00
2/20/19	32907	2020SC	Invoice: 34628	1,845.00	
		1020SC	LUHDORFF & SCALMANINI		1,845.00
2/20/19	32908	2020SC	Invoice: 68832	3,040.00	
		2020SC	Invoice: 68798	3,606.68	
		1020SC	NORMANDEAU ASSOCIATES, INC.		6,646.68
2/20/19	32909	2020SC	Invoice: 183 LEISURE WAY	1,712.00	
		1020SC	NORTHAMPTON HOA		1,712.00
2/20/19	32910	2020SC	Invoice: 7502	9,893.44	
		2020SC	Invoice: 7586	3,460.00	
		2020SC	Invoice: 7502A	3,541.56	
		1020SC	OLD DURHAM WOOD		16,895.00
2/20/19	32911	2020SC	Invoice: FEB 2019 BOD MTG	105.80	
		1020SC	SCOTT PEDERSON		105.80
2/20/19	32912	2020SC	Invoice: 820398	21.64	
		2020SC	Invoice: 820933	237.46	
		2020SC	Invoice: 820938	86.40	
		2020SC	Invoice: 821019	39.14	
		2020SC	Invoice: 821411	534.80	
		2020SC	Invoice: 821597		77.22
		2020SC	Invoice: 821599	457.58	
		2020SC	Invoice: 822776	18.11	
		2020SC	Invoice: 821809	15.00	
		1020SC	PISANIS AUTO PARTS		1,332.91
2/20/19	32913	2020SC	Invoice: FEB 2019 BOD MTG	129.00	
		1020SC	BOB SAMPAYAN		129.00
2/20/19	32914	2020SC	Invoice: 200401	828.23	
		1020SC	SHELDON		828.23
2/20/19	32915	2020SC	Invoice: 0007424	181.55	
		2020SC	Invoice: 0007423	8,570.01	
		1020SC	SOLANO IRRIGATION DISTRICT		8,751.56
2/20/19	32916	2020SC	Invoice: FEB 2019 BOD MTG	100.00	
		1020SC	JAMES SPERING		100.00
2/20/19	32917	2020SC	Invoice: 006432990046 MAR2019	1,845.73	

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Date	Check #	Account ID	Line Description	Debit Amount	Credit Amount
		1020SC	STANDARD INSURANCE COMPANY		1,845.73
2/20/19	32918	2020SC	Invoice: 2019-1-SCWA	11,691.26	
		1020SC	SUSTAINABLE SOLANO		11,691.26
2/20/19	32919	2020SC	Invoice: BYRAN STEINBERG	100.00	
		1020SC	BRYAN STEINBERG		100.00
2/20/19	32920	2020SC	Invoice: FEB 2019 BOD MTG	100.00	
		1020SC	JOHN VASQUEZ		100.00
2/20/19	32921	2020SC	Invoice: 4853	3,992.80	
		1020SC	WESTERN HYDROLOGIC SYSTEMS		3,992.80
2/20/19	32922	2020SC	Invoice: 1132	3,500.00	
		1020SC	WILSON PUBLIC AFFAIRS		3,500.00
2/20/19	32923	2020SC	Invoice: 21	17,333.52	
		1020SC	YOLO COUNTY RCD		17,333.52
2/20/19	32924	2020SC	Invoice: 769878	1,905.33	
		1020SC	YELLOW SPRINGS INSTRUMENT CO.		1,905.33
2/21/19	32925	2020SC	Invoice: FEB 2019 BOD MTG	100.00	
		1020SC	DILENNA HARRIS		100.00
2/25/19	32926	2020SC	Invoice: 109	22,400.00	
		1020SC	AVRY DOTAN DBA AD CONSULTANTS		22,400.00
2/25/19	32927	2020N	Invoice: CNDDB RENEWAL 2019	400.00	
		1020SC	CA DEPT OF FISH & WILDLIFE		400.00
2/25/19	32928	2020SC	Invoice: 000012621648	164.68	
		2020SC	Invoice: 000012621603	256.02	
		1020SC	CALNET3		420.70
2/25/19	32929	2020SC	Invoice: OPEB 2019	130,296.00	
		1020SC	CALPERS		130,296.00
2/25/19	32930	2020SC	Invoice: 5013088119	218.45	
		1020SC	CINTAS CORPORATION		218.45
2/25/19	32931	2020SC	Invoice: 156876	1,021.23	
		1020SC	DEPT OF FORESTRY & FIRE PROTECTION		1,021.23
2/25/19	32932	2020SC	Invoice: 19-180-V JAN 2019	1,233.00	
		2020SC	Invoice: 19-024-O MAR 2019	1,058.00	
		2020SC	Invoice: 19-026-T MAR 2019	574,599.00	
		1020SC	DEPARTMENT OF WATER RESOURCES		576,890.00
2/25/19	32933	2020N	Invoice: 6-461-66746	708.63	
		1020SC	FEDEX EXPRESS		708.63
2/25/19	32934	2020SC	Invoice: 139825	1,243.29	
		1020SC	FM GRAPHICS		1,243.29
2/25/19	32935	2020SC	Invoice: 114916	3,080.50	
		1020SC	GHD, INC.		3,080.50
2/25/19	32936	2020SC	Invoice: 109578	200.00	
		2020SC	Invoice: 109577	200.00	
		2020SC	Invoice: 109580	200.00	
		1020SC	GRANICUS		600.00
2/25/19	32937	2020SC	Invoice: NBWA2018-19 INTRO	7,000.00	
		1020SC	C/O MARIN MUNICIPAL WATER DISTRICT		7,000.00

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2/25/19	32938	2020SC	Invoice: 1/10/19-2/10/19	1,421.81	
		1020SC	PACIFIC GAS & ELECTRIC CO,		1,421.81
2/25/19	32939	2020SC	Invoice: 1011174228	183.34	
		1020SC	PITNEY BOWES		183.34
2/25/19	32940	2020U	Invoice: 08031	4,209.85	
		2020U	Invoice: 08030	4,496.04	
		2020U	Invoice: 08029	1,727.93	
		2020U	Invoice: 08032	379.16	
		1020SC	SOLANO COUNTY PUBLIC WORKS DIVISION		10,812.98
2/25/19	32941	2020SC	Invoice: 1322	8,874.43	
		1020SC	SOLANO RESOURCE CONSERVATION DISTRICT		8,874.43
2/25/19	32942	2020SC	Invoice: CALL#149	270.00	
		1020SC	CHARLES LOMELI, TAX COLLECTOR		270.00
2/25/19	32943	2020SC	Invoice: 17422001100273021	206.42	
		2020SC	Invoice: 2236367771	137.19	
		2020SC	Invoice: 2235551161	27.58	
		2020SC	Invoice: 2233854181	96.42	
		2020SC	Invoice: 2237768191	31.55	
		2020SC	Invoice: 2238396361	188.06	
		2020SC	Invoice: 2239418781	90.96	
		2020SC	Invoice: 2241949271	28.10	
		2020SC	Invoice: 2242140501	196.88	
		1020SC	STAPLES		1,003.16
2/25/19	32944	2020SC	Invoice: 21654	863.79	
		1020SC	SUMMERS ENGINEERING, INC.		863.79
2/25/19	32945	2020N	Invoice: KEN BLACKSHEAR	1,000.00	
		1020SC	KEN BLACKSHEAR		1,000.00
2/25/19	32946	2020SC	Invoice: 2017-237	2,500.00	
		1020SC	WATERSMART INNOVATIONS		2,500.00
2/25/19	32947	2020SC	Invoice: CL15689	519.60	
		1020SC	INTERSTATE OIL COMPANY		519.60
2/26/19	32948	2020SC	Invoice: RONALD VANSANT	50.00	
		1020SC	RONALD VANSANT		50.00
2/26/19	32949	2020SC	Invoice: PLASTIC PALLETS	692.00	
		1020SC	WESTOVER RECYCLING		692.00
2/25/19	ASHLEY JAN 2019	2020SC	Invoice: ASHLEY JAN 2019	857.65	
		1020SC	UMPQUA BANK		857.65
2/25/19	BARICH JAN 2019	2020SC	Invoice: BARICH JAN 2019	321.44	
		1020SC	UMPQUA BANK		321.44
2/25/19	COLIAS JAN 2019	2020SC	Invoice: COLIAS JAN 2019	954.38	
		1020SC	UMPQUA BANK		954.38
2/25/19	CRUZ JAN 2019	2020SC	Invoice: CRUZ JAN 2019	124.30	
		1020SC	UMPQUA BANK		124.30
2/25/19	CUETARA JAN 2019	2020SC	Invoice: CUETARA JAN 2019	1,241.09	
		1020SC	UMPQUA BANK		1,241.09
2/1/19	EFT	2020SC	Invoice: HEALTH FEB 2019	23,031.98	
		1020SC	CALPERS		23,031.98
2/1/19	EFT	2020SC	Invoice: SIP PPE 01.26.19	5,509.49	
		1020SC	CALPERS		5,509.49
2/1/19	EFT	2020SC	Invoice: PPE 01.26.19	9,080.50	
		1020SC	CALPERS		9,080.50

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Date	Check #	Account ID	Line Description	Debit Amount	Credit Amount
2/1/19	EFT	2020SC	Invoice: PEPRA PPE 01.26.19	2,793.76	
		1020SC	CALPERS		2,793.76
2/12/19	EFT	2020SC	Invoice: 55356784	261.66	
		1020SC	WEX BANK		261.66
2/15/19	EFT	6111AC	FSA PARTICIPANT FEE FEB 2019	118.00	
		6111AC	STRATUSTIMEADMINISTRATION FEB 2019	297.00	
		1020SC	PAYCHEX, INC.		415.00
2/9/19	EFT	2024AC	EMPLOYEE LIABILITIES PPE 02.09.19	15,378.28	
		6012AC	EMPLOYER LIABILITIES PPE 02.09.19	1,829.29	
		1020SC	PAYROLL TAXES		17,207.57
2/15/19	EFT	2020SC	Invoice: 2019021312	203.50	
		1020SC	PAYCHEX, INC.		203.50
2/14/19	EFT	2020SC	Invoice: SIP PPE 02.09.19	5,509.49	
		1020SC	CALPERS		5,509.49
2/14/19	EFT	2020SC	Invoice: PPE 02.09.19	9,080.50	
		1020SC	CALPERS		9,080.50
2/14/19	EFT	2020SC	Invoice: PEPRA PPE 02.09.19	2,793.37	
		1020SC	CALPERS		2,793.37
2/23/19	EFT	2024AC	EMPLOYEE LIABILITIES PPE 02.23.19	15,728.19	
		6012AC	EMPLOYER LIABILITIES PPE 02.23.19	1,884.07	
		1020SC	PAYROLL TAXES		17,612.26
2/28/19	EFT	2020SC	Invoice: SIP PPE 02.23.19	5,533.36	
		1020SC	CALPERS		5,533.36
2/28/19	EFT	2020SC	Invoice: PPE 02.23.19	9,080.50	
		1020SC	CALPERS		9,080.50
2/28/19	EFT	2020SC	Invoice: PEPRA PPE 02.23.19	2,927.94	
		1020SC	CALPERS		2,927.94
2/4/19	EFT 2.04.19	2020SC	Invoice: FEB 2019	8,600.00	
		1020SC	CLEAN TECH ADVOCATES		8,600.00
2/25/19	FEHRENKAMP JAN 2019	2020SC	Invoice: FEHRENKAMP JAN 2019	445.00	
		1020SC	UMPQUA BANK		445.00
2/25/19	FLORENDO JAN 2019	2020SC	Invoice: FLORENDO JAN 2019	225.00	
		1020SC	UMPQUA BANK		225.00
2/25/19	FOWLER JAN 2019	2020SC	Invoice: FOWLER JAN 2019	175.00	
		1020SC	UMPQUA BANK		175.00
2/25/19	HYER JAN 2019	2020SC	Invoice: HYER JAN 2019	1,500.63	
		1020SC	UMPQUA BANK		1,500.63
2/25/19	JONES JAN 2019	2020SC	Invoice: JONES JAN 2019	1,534.57	
		1020SC	UMPQUA BANK		1,534.57
2/25/19	LEE JAN 2019	2020SC	Invoice: LEE JAN 2019	631.95	
		1020SC	UMPQUA BANK		631.95
2/25/19	MAROVICH JAN 2019	2020SC	Invoice: MAROVICH JAN 2019	545.42	
		1020SC	UMPQUA BANK		545.42
2/25/19	NGUYEN JAN 2019	2020SC	Invoice: NGUYEN JAN 2019	2,045.56	
		1020SC	UMPQUA BANK		2,045.56
2/25/19	PASCUAL JAN 2019	2020SC	Invoice: PASCUAL JAN 2019	791.88	
		1020SC	UMPQUA BANK		791.88

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2/25/19	RABIDOUX JAN 2019	2020SC	Invoice: RABIDOUX JAN 2019	19.00	
		1020SC	UMPQUA BANK		19.00
2/25/19	SANFORD JAN 2019	2020SC	Invoice: SANFORD JAN 2019	142.50	
		1020SC	UMPQUA BANK		142.50
2/25/19	SNYDER JAN 2019	2020SC	Invoice: SNYDER JAN 2019	759.71	
		1020SC	UMPQUA BANK		759.71
2/25/19	WILLINGMYRE JAN 2019	2020SC	Invoice: WILLINGMYRE JAN 2019	399.00	
		1020SC	UMPQUA BANK		399.00
2/20/19	eft	2020SC	Invoice: 37808973	384.92	
		1020SC	WEX BANK		384.92
	Total			2,029,347.60	2,029,347.60

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Date	Check #	Account ID	Line Description	Debit Amount	Credit Amount
3/25/19	10186	2020WC	Invoice: 19-02-3868	4,431.95	
		1020SC	MBK ENGINEERS		4,431.95
3/7/19	32950	2020SC	Invoice: 2972039	601.39	
		1020SC	AMERICAN TOWER CORPORATION		601.39
3/7/19	32951	2020SC	Invoice: 20488	1,885.00	
		1020SC	BOWERS ELECTRIC INC.		1,885.00
3/7/19	32952	2020SC	Invoice: A904733	3,845.00	
		1020SC	BSK ASSOCIATES		3,845.00
3/7/19	32953	2020N	Invoice: MAR 2019	8,600.00	
		1020SC	CLEAN TECH ADVOCATES		8,600.00
3/7/19	32954	2020SC	Invoice: 1283478	56.60	
		1020SC	COUNTY OF YOLO		56.60
3/7/19	32955	2020SC	Invoice: FEB 2019 LEG MTG	100.00	
		1020SC	DALE CROSSLEY		100.00
3/7/19	32956	2020SC	Invoice: 157324	453.88	
		1020SC	DEPT OF FORESTRY & FIRE PROTECTION		453.88
3/7/19	32957	2020SC	Invoice: 6006197	1,205.12	
		1020SC	TIAA BANK		1,205.12
3/7/19	32958	2020SC	Invoice: 4750	20,146.32	
		1020SC	EYASCO, INC.		20,146.32
3/7/19	32959	2020SC	Invoice: 182283	1,295.84	
		1020SC	FRONTIER ENERGY		1,295.84
3/7/19	32960	2020SC	Invoice: 5491	3,000.00	
		1020SC	GARDENSOFT		3,000.00
3/7/19	32961	2020SC	Invoice: 114914	1,507.75	
		1020SC	GHD, INC.		1,507.75
3/7/19	32962	2020SC	Invoice: 438710	2,400.00	
		1020SC	ANDY W.GIANNINI		2,400.00
3/7/19	32963	2020SC	Invoice: 110196	200.00	
		1020SC	GRANICUS		200.00
3/7/19	32964	2020SC	Invoice: JAN 2019	2,931.98	
		1020SC	THOMAS MICHAEL HARDESTY		2,931.98
3/7/19	32965	2020N	Invoice: 0219-4	600.00	
		1020SC	JEFFREY J JANIK		600.00
3/7/19	32966	2020SC	Invoice: 67800160070	106.47	
		1020SC	LES SCHWAB TIRE CENTER		106.47
3/7/19	32967	2020N	Invoice: 572465	91.34	
		1020SC	MEEKS		91.34
3/7/19	32968	2020SC	Invoice: IRWM WESTSIDE HEW #9	64.80	
		1020SC	NAPA COUNTY FC&WCD		64.80
3/7/19	32969	2020SC	Invoice: 269281	62.16	
		2020SC	Invoice: 024953	34.30	
		2020SC	Invoice: 270798	3.40	
		2020SC	Invoice: 026993	58.34	
		1020SC	PACIFIC ACE HARDWARE		158.20
3/7/19	32970	2020SC	Invoice: 823555	56.82	
		2020SC	Invoice: 823943	60.22	
		2020SC	Invoice: 824446	29.25	
		2020SC	Invoice: 825334	18.40	
		2020SC	Invoice: 825823	32.46	
		2020SC	Invoice: 825820	192.50	
		1020SC	PISANIS AUTO PARTS		389.65

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3/7/19	32971	2020SC	Invoice: 2425384	70.33	
		1020SC	RAY MORGAN COMPANY		70.33
3/7/19	32972	2020SC	Invoice: WCP-42	2,403.50	
		1020SC	RICHARD HEATH & ASSOCIATES, INC.		2,403.50
3/7/19	32973	2020SC	Invoice: 1347	4,250.00	
		1020SC	ROCK STEADY JUGGLING		4,250.00
3/7/19	32974	2020SC	Invoice: 0228190229	8,643.75	
		1020SC	SHANDAM CONSULTING		8,643.75
3/7/19	32975	2020SC	Invoice: 1842	49.72	
		1020SC	SUISUN VALLEY FRUIT GROWERS AS		49.72
3/7/19	32976	2020SC	Invoice: 8575	23,141.87	
		1020SC	TERRAPHASE ENGINEERING		23,141.87
3/7/19	32977	2020SC	Invoice: 20902-49	95,678.95	
		1020SC	THE REGENTS OF THE UNIVERSITY OF CA		95,678.95
3/7/19	32978	2020SC	Invoice: 300341336	128.58	
		1020SC	TRACTOR SUPPLY CREDIT PLAN		128.58
3/7/19	32979	2020SC	Invoice: KRISSY HITESHEW	1,000.00	
		1020SC	KRISSY HITESHEW		1,000.00
3/7/19	32980	2020SC	Invoice: CARLOS ZARCO	1,000.00	
		1020SC	CARLOS ZARCO		1,000.00
3/7/19	32981	2020SC	Invoice: FEB 2019 WTR POL	100.00	
		1020SC	JOHN VASQUEZ		100.00
3/7/19	32982	2020SC	Invoice: 577	225.00	
		2020SC	Invoice: 592	225.00	
		1020SC	WINTERS TOW SERVICE		450.00
3/7/19	32983	2020SC	Invoice: 124370	15,881.50	
		1020SC	WOOD RODGERS, INC.		15,881.50
3/14/19	32984	2020SC	Invoice: 0601718	1,707.48	
		1020SC	ACWA JOINT POWERS INSURANCE AUTHORITY		1,707.48
3/14/19	32985	2020SC	Invoice: 314098-6	3,000.00	
		1020SC	ALPHA MEDIA FAR EAST BAY		3,000.00
3/14/19	32986	2020SC	Invoice: FEB 2019 FCAC	33.12	
		1020SC	RONALD CAMPBELL		33.12
3/14/19	32987	2020N	Invoice: 18-1010-9	180.00	
		1020SC	CBEC		180.00
3/21/19	32987V	2020N	Invoice: 18-1010-9		180.00
		1020SC	CBEC	180.00	
3/14/19	32988	2020SC	Invoice: 58257070	450.11	
		1020SC	WEX BANK		450.11
3/18/19	32988V	2020SC	Invoice: 58257070		450.11
		1020SC	WEX BANK	450.11	
3/14/19	32989	2020SC	Invoice: REIMBURSEMENT	1,127.07	
		1020SC	MARY HEARN		1,127.07
3/15/19	32989V	2020SC	Invoice: REIMBURSEMENT		1,127.07
		1020SC	MARY HEARN	1,127.07	
3/14/19	32990	2020SC	Invoice: ER7752594010	2,993.54	
		1020SC	HOLT OF CALIFORNIA		2,993.54
3/14/19	32991	2020SC	Invoice: CL16987	386.73	
		1020SC	INTERSTATE OIL COMPANY		386.73

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3/14/19	32992	2020SC	Invoice: 0918	14,625.18	
		1020SC	JM CONSULTANTS		14,625.18
3/14/19	32993	2020SC	Invoice: METERDOG	6,471.36	
		1020SC	KONA LABS		6,471.36
3/14/19	32994	2020SC	Invoice: 164560	30,504.51	
		1020SC	LSA ASSOCIATES, INC.		30,504.51
3/14/19	32995	2020SC	Invoice: 34701	4,408.50	
		1020SC	LUHDORFF & SCALMANINI		4,408.50
3/14/19	32996	2020SC	Invoice: 532748	35.00	
		1020SC	M&M SANITARY LLC		35.00
3/14/19	32997	2020SC	Invoice: 68963	32.00	
		2020SC	Invoice: 68938	96.00	
		1020SC	NORMANDEAU ASSOCIATES, INC.		128.00
3/14/19	32998	2020SC	Invoice: OCT - DEC 2018	65,968.80	
		2020SC	Invoice: APR - DEC 2018	5,587.18	
		1020SC	PUTAH CREEK COUNCIL		71,555.98
3/14/19	32998V	2020SC	Invoice: OCT - DEC 2018		65,968.80
		2020SC	Invoice: APR - DEC 2018		5,587.18
		1020SC	PUTAH CREEK COUNCIL	71,555.98	
3/14/19	32999	2020SC	Invoice: 43965490	253.75	
		1020SC	RECOLOGY VACAVILLE SOLANO		253.75
3/14/19	33000	2020SC	Invoice: FEB 2019 FCAC	39.33	
		1020SC	TERRY RIDDLE		39.33
3/14/19	33001	2020U	Invoice: MAR 2019	34.53	
		1020SC	SOLANO COUNTY FLEET MANAGEMENT		34.53
3/14/19	33002	2020SC	Invoice: 0007419	64,657.36	
		2020SC	Invoice: 0007420	121,992.30	
		2020SC	Invoice: 0007524	134,968.88	
		2020SC	Invoice: 0007523	52,380.07	
		2020SC	Invoice: 0007529	168.09	
		2020SC	Invoice: 0007528	13,029.62	
		1020SC	SOLANO IRRIGATION DISTRICT		387,196.32
3/14/19	33003	2020SC	Invoice: 201903-13461	772.50	
		1020SC	TERRA REALTY ADVISORS, INC.		772.50
3/14/19	33004	2020SC	Invoice: JAN-FEB 2019	11,404.55	
		1020SC	CRAIG D. THOMSEN		11,404.55
3/14/19	33005	2020SC	Invoice: 2037356	8,115.36	
		1020SC	WEST YOST & ASSOCIATES		8,115.36
3/14/19	33006	2020SC	Invoice: LPCCC-FY2018-19_4	5,104.00	
		2020SC	Invoice: SCWA_FY2018-19_4	11,744.80	
		1020SC	KEN W. DAVIS, DBA		16,848.80
3/14/19	33007	2020SC	Invoice: JASON KARCHER	50.00	
		1020SC	JASON KARCHER		50.00
3/14/19	33008	2020SC	Invoice: OCT - DEC 2018	65,968.80	
		1020SC	PUTAH CREEK COUNCIL		65,968.80
3/15/19	33008V	2020SC	Invoice: OCT - DEC 2018		65,968.80
		1020SC	PUTAH CREEK COUNCIL	65,968.80	
3/19/19	33009	2020SC	Invoice: 19002	690.49	
		1020SC	AGRICHEM SERVICES, INC.		690.49
3/19/19	33010	2020SC	Invoice: 000012763588	256.02	
		2020SC	Invoice: 000012763633	164.68	
		1020SC	CALNET3		420.70

SOLANO COUNTY WATER AGENCY
Cash Disbursements Journal
For the Period From Mar 1, 2019 to Mar 31, 2019

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Date	Check #	Account ID	Line Description	Debit Amount	Credit Amount
3/19/19	33011	2020SC	Invoice: 1290496	37.80	
		1020SC	COUNTY OF YOLO		37.80
3/19/19	33012	2020SC	Invoice: 4823570-0001	5,923.77	
		1020SC	CRESCO EQUIPMENT RENTAL		5,923.77
3/19/19	33013	2020SC	Invoice: CAVAC64009	22.05	
		2020SC	Invoice: CAVAC64149	13.69	
		1020SC	FASTENAL COMPANY		35.74
3/19/19	33014	2020SC	Invoice: CINV-029425	331.40	
		1020SC	GFS CHEMICALS, INC.		331.40
3/19/19	33015	2020SC	Invoice: 91859	6,813.09	
		2020SC	Invoice: 91856	1,213.80	
		2020SC	Invoice: 91858	642.60	
		1020SC	HERUM \ CRABTREE \ SUNTAG		8,669.49
3/19/19	33016	2020SC	Invoice: 5023289	367.21	
		2020SC	Invoice: 4133241	224.05	
		2020SC	Invoice: 4592857	186.19	
		2020SC	Invoice: 3013198	118.18	
		2020SC	Invoice: 7043510	609.70	
		2020SC	Invoice: 6070519		70.16
		2020SC	Invoice: 6013880	30.95	
		2020SC	Invoice: 6024200	48.55	
		2020SC	Invoice: 6560383	140.34	
		2020SC	Invoice: 5560464	178.52	
		2020SC	Invoice: 4564916	498.89	
		2020SC	Invoice: 0012521	180.66	
		2020SC	Invoice: 3015067	40.02	
		2020SC	Invoice: 2013607	205.52	
		2020SC	Invoice: 0025929	374.39	
		2020SC	Invoice: 0025930	17.07	
		2020SC	Invoice: 7026236	230.26	
		1020SC	HOME DEPOT CREDIT SERVICE		3,380.34
3/19/19	33017	2020SC	Invoice: OCT - DEC 2018	65,805.33	
		1020SC	PUTAH CREEK COUNCIL		65,805.33
3/19/19	33018	2020SC	Invoice: 35145	704.00	
		2020SC	Invoice: 35139	704.00	
		2020SC	Invoice: 35142	684.00	
		2020SC	Invoice: 35143	352.00	
		2020SC	Invoice: 35141	352.00	
		2020SC	Invoice: 35140	342.00	
		2020SC	Invoice: 35144	704.00	
		2020SC	Invoice: 35138	342.00	
		2020SC	Invoice: 35130	352.00	
		2020SC	Invoice: 35122	694.00	
		2020SC	Invoice: 35119	704.00	
		2020SC	Invoice: 35127	342.00	
		2020SC	Invoice: 35129	352.00	
		2020SC	Invoice: 35125	704.00	
		2020SC	Invoice: 35123	342.00	
		2020SC	Invoice: 35121	684.00	
		2020SC	Invoice: 35117	704.00	
		2020SC	Invoice: 35118	704.00	
		2020SC	Invoice: 35120	352.00	
		2020SC	Invoice: 35124	684.00	
		2020SC	Invoice: 35126	352.00	
		2020SC	Invoice: 35128	684.00	
		2020SC	Invoice: 35132	704.00	
		2020SC	Invoice: 35134	704.00	
		2020SC	Invoice: 35136	352.00	
		2020SC	Invoice: 35131	352.00	
		2020SC	Invoice: 35135	352.00	
		2020SC	Invoice: 35137	352.00	
		2020SC	Invoice: 35133	704.00	
		2020SC	Invoice: 35146	86,581.50	
		1020SC	SOUTHWEST ENVIRONMENTAL		101,939.50
3/19/19	33019	2020SC	Invoice: 58710	4.01	
		2020SC	Invoice: 58719	93.73	
		2020SC	Invoice: C58723		103.80

SOLANO COUNTY WATER AGENCY
Cash Disbursements Journal
For the Period From Mar 1, 2019 to Mar 31, 2019

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		1020SC	SUISUN VALLEY FRUIT GROWERS AS	6.06	
3/20/19	33019V	2020SC	Invoice: 58710		4.01
		2020SC	Invoice: 58719		93.73
		2020SC	Invoice: C58723	103.80	
		1020SC	SUISUN VALLEY FRUIT GROWERS AS		6.06
3/19/19	33020	2020SC	Invoice: 2019-2-SCWA	10,576.71	
		1020SC	SUSTAINABLE SOLANO		10,576.71
3/19/19	33021	2020SC	Invoice: MARTHA BOWMAN	550.00	
		1020SC	MARTHA BOWMAN		550.00
3/19/19	33022	2020SC	Invoice: 9825028601	2,824.87	
		1020SC	VERIZON WIRELESS		2,824.87
3/19/19	33023	2020SC	Invoice: 1138	3,500.00	
		1020SC	WILSON PUBLIC AFFAIRS		3,500.00
3/19/19	33024	2020SC	Invoice: 773558	22,927.19	
		1020SC	YELLOW SPRINGS INSTRUMENT CO.		22,927.19
3/25/19	33025	2020SC	Invoice: A907113	840.00	
		1020SC	BSK ASSOCIATES		840.00
3/25/19	33026	2020SC	Invoice: ADMIN COSTS 2019	66,000.00	
		1020SC	BUREAU OF RECLAMATION		66,000.00
3/25/19	33027	2020SC	Invoice: PUB638	2,010.69	
		2020SC	Invoice: PUB639	932.78	
		1020SC	CALIFORNIA WATER EFFICIENCY PARTNERSHIP		2,943.47
3/25/19	33028	2020SC	Invoice: 1293661	14.00	
		1020SC	COUNTY OF YOLO		14.00
3/25/19	33029	2020SC	Invoice: 4830175-0001	834.60	
		1020SC	CRESCO EQUIPMENT RENTAL		834.60
3/25/19	33030	2020SC	Invoice: 19-024-O APR 2019	1,057.00	
		2020SC	Invoice: 19-2016-V FEB 2019		7,588.00
		2020SC	Invoice: 19-026-T APR 2019	574,599.00	
		1020SC	DEPARTMENT OF WATER RESOURCES		568,068.00
3/25/19	33031	2020SC	Invoice: 0000001183442	1,440.60	
		2020SC	Invoice: 0000001183442-A	1,120.73	
		1020SC	DEPARTMENT OF GENERAL SERVICES		2,561.33
3/25/19	33032	2020SC	Invoice: CAVAC64168	182.34	
		1020SC	FASTENAL COMPANY		182.34
3/25/19	33033	2020N	Invoice: 6-490-66653	241.01	
		1020SC	FEDEX EXPRESS		241.01
3/25/19	33034	2020SC	Invoice: 22645-03	7,522.50	
		1020SC	THE FRESHWATER TRUST		7,522.50
3/25/19	33035	2020SC	Invoice: 25661	2,133.13	
		1020SC	GARCIA AND ASSOCIATES		2,133.13
3/25/19	33036	2020SC	Invoice: SALES ORDER 1434	1,127.07	
		1020SC	HIGBY'S COUNTRY FEED INC		1,127.07
3/25/19	33037	2020SC	Invoice: PS010887036	979.98	
		2020SC	Invoice: ER7752594020	995.10	
		1020SC	HOLT OF CALIFORNIA		1,975.08
3/25/19	33038	2020SC	Invoice: 3689	540.00	
		1020SC	KC ENGINEERING COMPANY		540.00
3/25/19	33039	2020SC	Invoice: 67900178809	734.41	

SOLANO COUNTY WATER AGENCY
Cash Disbursements Journal
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		1020SC	LES SCHWAB TIRE CENTER		734.41
3/25/19	33040	2020SC	Invoice: 68774	4,640.00	
		1020SC	NORMANDEAU ASSOCIATES, INC.		4,640.00
3/25/19	33041	2020SC	Invoice: 2/11/19-3/12/19	1,238.50	
		1020SC	PACIFIC GAS & ELECTRIC CO,		1,238.50
3/25/19	33042	2020SC	Invoice: 800321	84.32	
		1020SC	PBM SUPPLY AND MFG. INC		84.32
3/25/19	33043	2020SC	Invoice: 00649290046 APR2019	1,873.23	
		1020SC	STANDARD INSURANCE COMPANY		1,873.23
3/25/19	33044	2020SC	Invoice: 21765	6,457.62	
		1020SC	SUMMERS ENGINEERING, INC.		6,457.62
3/25/19	33045	2020SC	Invoice: BAWMRP #24	1,404.00	
		2020SC	Invoice: 16	685.50	
		1020SC	THINKING GREEN CONSULTANTS		2,089.50
3/25/19	33046	2020SC	Invoice: 11438	595.00	
		1020SC	WINTERS BROADBAND		595.00
3/25/19	33047	2020SC	Invoice: CHRISTOPHER HUTSON	50.00	
		1020SC	CHRISTOPHER HUTSON		50.00
3/28/19	33048	2020SC	Invoice: 215594	34.00	
		2020SC	Invoice: 215661	36.00	
		1020SC	A & L WESTERN AGRICULTURAL LABS		70.00
3/28/19	33049	2020SC	Invoice: 14587	724.94	
		1020SC	ASHBY COMMUNICATIONS, INC.		724.94
3/28/19	33050	2020SC	Invoice: 5013224566	183.73	
		1020SC	CINTAS CORPORATION		183.73
3/28/19	33050V	2020SC	Invoice: 5013224566		183.73
		1020SC	CINTAS CORPORATION	183.73	
3/28/19	33051	2020SC	Invoice: 116543	7,210.25	
		2020SC	Invoice: 116557	3,183.50	
		1020SC	GHD, INC.		10,393.75
3/28/19	33052	2020SC	Invoice: 111401	200.00	
		1020SC	GRANICUS		200.00
3/28/19	33052V	2020SC	Invoice: 111401		200.00
		1020SC	GRANICUS	200.00	
3/28/19	33053	2020SC	Invoice: 1Z185156	628.76	
		2020SC	Invoice: 1Z185361	155.07	
		1020SC	HORIZON DISTRIBUTORS, INC.		783.83
3/28/19	33054	2020SC	Invoice: CL18250	879.31	
		1020SC	INTERSTATE OIL COMPANY		879.31
3/28/19	33055	2020SC	Invoice: 2017 CP2100 1099 AUD	2,463.38	
		1020SC	INTERNAL REVENUE SERVICE		2,463.38
3/28/19	33056	2020SC	Invoice: 202487	1,066.00	
		1020SC	MARTIN'S METAL FABRICATION &		1,066.00
3/28/19	33057	2020N	Invoice: 574196	368.76	
		1020SC	MEEKS		368.76
3/28/19	33058	2020SC	Invoice: 3103011014	535.67	
		1020SC	PITNEY BOWES		535.67
3/28/19	33059	2020SC	Invoice: Z HYER TRAINING	80.00	
		1020SC	SOLANO COUNTY		80.00

SOLANO COUNTY WATER AGENCY
Cash Disbursements Journal
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Date	Check #	Account ID	Line Description	Debit Amount	Credit Amount
3/28/19	33060	2020SC	Invoice: 2248091021	112.65	
		2020SC	Invoice: 2252038851	104.99	
		2020SC	Invoice: 2256721801	49.50	
		2020SC	Invoice: 2260573031	222.51	
		1020SC	STAPLES		489.65
3/28/19	33061	2020SC	Invoice: 1	3,472.31	
		1020SC	TRPA FISH BIOLOGISTS		3,472.31
3/28/19	33062	2020SC	Invoice: 125004	5,996.00	
		1020SC	WOOD RODGERS, INC.		5,996.00
3/28/19	33063	2020SC	Invoice: 775702	399.48	
		2020SC	Invoice: 775861	949.84	
		1020SC	YELLOW SPRINGS INSTRUMENT CO.		1,349.32
3/28/19	33064	2020SC	Invoice: 9002	5,700.00	
		1020SC	ZUN ZUN		5,700.00
3/28/19	33065	2020SC	Invoice: 5013224566	183.73	
		2020SC	Invoice: 5013340918	126.24	
		1020SC	CINTAS CORPORATION		309.97
3/28/19	33066	2020SC	Invoice: 111401	200.00	
		1020SC	GRANICUS		200.00
3/28/19	33067	2020SC	Invoice: MAR 2019	7,143.75	
		1020SC	JOHN B WHITCOMB		7,143.75
3/21/19	5000021	2023AC	FSA REIMBURSEMENT 12.19.18	201.14	
		1020SC	RABIDOUX, ALEXANDER		201.14
3/25/19	ASHLEY FEB 2019	2020SC	Invoice: ASHLEY FEB 2019	381.88	
		1020SC	UMPQUA BANK		381.88
3/25/19	BARICH FEB 2019	2020SC	Invoice: BARICH FEB 2019	29.76	
		1020SC	UMPQUA BANK		29.76
3/25/19	COLIAS FEB 2019	2020SC	Invoice: COLIAS FEB 2019	81.06	
		1020SC	UMPQUA BANK		81.06
3/25/19	CUETARA FEB 2019	2020SC	Invoice: CUETARA FEB 2019	345.21	
		1020SC	UMPQUA BANK		345.21
3/1/19	EFT	2020SC	Invoice: 2019022601	226.30	
		1020SC	PAYCHEX, INC.		226.30
3/1/19	EFT	2020SC	Invoice: HEALTH MAR 2019	23,031.98	
		1020SC	CALPERS		23,031.98
3/13/19	EFT	2020SC	Invoice: 2019031301	209.20	
		1020SC	PAYCHEX, INC.		209.20
3/15/19	EFT	2024AC	EMPLOYEE LIABILITIES PPE 03.09.19	16,357.45	
		6012AC	EMPLOYER LIABILITIES PPE 03.09.19	1,926.52	
		1020SC	PAYROLL TAXES		18,283.97
3/14/19	EFT	2020SC	Invoice: PPE 03.09.19	9,105.96	
		1020SC	CALPERS		9,105.96
3/14/19	EFT	2020SC	Invoice: PEPRA PPE 03.09.19	2,852.12	
		1020SC	CALPERS		2,852.12
3/14/19	EFT	2020SC	Invoice: SIP PPE 03.09.19	4,578.89	
		1020SC	CALPERS		4,578.89
3/14/19	EFT	2020SC	Invoice: 2019 RETRO SW	25.46	
		1020SC	CALPERS		25.46
3/15/19	EFT	6111AC	FSA PARTICIPANT FEE - MAR 2019	118.00	

SOLANO COUNTY WATER AGENCY
Cash Disbursements Journal
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Date	Check #	Account ID	Line Description	Debit Amount	Credit Amount
		6111AC	STRATUSTIME ADMINISTRATION - MAR 2019	297.00	
		1020SC	PAYCHEX, INC.		415.00
3/19/19	EFT	2020SC	Invoice: 58257070	450.11	
		1020SC	WEX BANK		450.11
3/19/19	EFT	2020SC	Invoice: 000677	205.64	
		2020SC	Invoice: 85560531S01METPTX	165.00	
		1020SC	SAM'S CLUB		370.64
3/28/19	EFT	2020SC	Invoice: PPE 03.23.19	9,105.96	
		1020SC	CALPERS		9,105.96
3/28/19	EFT	2020SC	Invoice: PEPRA PPE 03.23.19	2,902.97	
		1020SC	CALPERS		2,902.97
3/28/19	EFT	2020SC	Invoice: SIP PPE 03.23.19	4,578.89	
		1020SC	CALPERS		4,578.89
3/29/19	EFT	2020SC	Invoice: 2019032601	206.35	
		1020SC	PAYCHEX, INC.		206.35
3/23/19	EFT	2024AC	EMPLOYEE LIABILITIES PPE 03.23.19	16,199.72	
		6012AC	EMPLOYERLIABILITIES PPE 03.23.19	1,837.96	
		1020SC	PAYROLL TAXES		18,037.68
3/25/19	FEHRENKAMP FEB 2019	2020SC	Invoice: FEHRENKAMP FEB 2019	657.60	
		1020SC	UMPQUA BANK		657.60
3/25/19	FLORENDO FEB 2019	2020SC	Invoice: FLORENDO FEB 2019	478.86	
		1020SC	UMPQUA BANK		478.86
3/25/19	FOWLER FEB 2019	1020SC	UMPQUA BANK		
3/25/19	FOWLER FEB 2019	2020SC	Invoice: FOWLER FEB 2019	375.00	
		1020SC	UMPQUA BANK		375.00
3/25/19	HYER FEB 2019	2020SC	Invoice: HYER FEB 2019	768.06	
		1020SC	UMPQUA BANK		768.06
3/25/19	JONES FEB 2019	2020SC	Invoice: JONES FEB 2019	21.40	
		1020SC	UMPQUA BANK		21.40
3/25/19	LEE FEB 2019	2020SC	Invoice: LEE FEB 2019	1,745.77	
		1020SC	UMPQUA BANK		1,745.77
3/25/19	MAROVICH FEB 2019	2020SC	Invoice: MAROVICH FEB 2019	663.87	
		1020SC	UMPQUA BANK		663.87
3/25/19	NGUYEN FEB 2019	2020SC	Invoice: NGUYEN FEB 2019	110.53	
		1020SC	UMPQUA BANK		110.53
3/25/19	PASCUAL FEB 2019	1020SC	UMPQUA BANK		
3/25/19	PASCUAL FEB 2019	2020SC	Invoice: PASCUAL FEB 2019	718.27	
		1020SC	UMPQUA BANK		718.27
3/25/19	PATE FEB 2019	2020SC	Invoice: PATE FEB 2019	977.33	
		1020SC	UMPQUA BANK		977.33
3/25/19	SANFORD FEB 2019	2020SC	Invoice: SANFORD FEB 2019	38.00	
		1020SC	UMPQUA BANK		38.00
3/25/19	SNYDER FEB 2019	2020SC	Invoice: SNYDER FEB 2019	1,110.66	
		1020SC	UMPQUA BANK		1,110.66
3/25/19	WILLINGMYRE FEB 2018	2020SC	Invoice: WILLINGMYRE FEB 2019	481.17	
		1020SC	UMPQUA BANK		481.17
3/27/19	WIRE 3.27.19	2020SC	Invoice: PENSION UAL 2019	619,704.00	
		1020SC	CALPERS		619,704.00
	Total			2,648,731.32	2,648,731.32

SOLANO COUNTY WATER AGENCY

Cash Disbursements Journal

For the Period From Mar 1, 2019 to Mar 31, 2019

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Date	Check #	Account ID	Line Description	Debit Amount	Credit Amount

ACTION OF
SOLANO COUNTY WATER AGENCY

DATE: **April 11, 2019**

SUBJECT: **Financial Report Approval**

RECOMMENDATION:

Approve the quarterly Income Statement and Balance Sheet for the period ending March 2019.

FINANCIAL IMPACT:

All revenues and expenditures are reported within previously approved budget amounts.

BACKGROUND:

The Water Agency auditor has recommended that the Board of Directors receive quarterly financial reports. Attached are the Income Statement and the Balance Sheet of the Water Agency for the period ending March 31, 2019. Additional backup information is available upon request.

Recommended: _____
Roland Sanford, General Manager

☐ Approved as recommended	☐ Other (see below)	☐ Continued on next page

Modification to Recommendation and/or other actions:

I, Roland Sanford, General Manager and Secretary to the Solano County Water Agency, do hereby certify that the foregoing action was regularly introduced, passed, and adopted by said Board of Directors at a regular meeting thereof held on April 11, 2019 by the following vote:

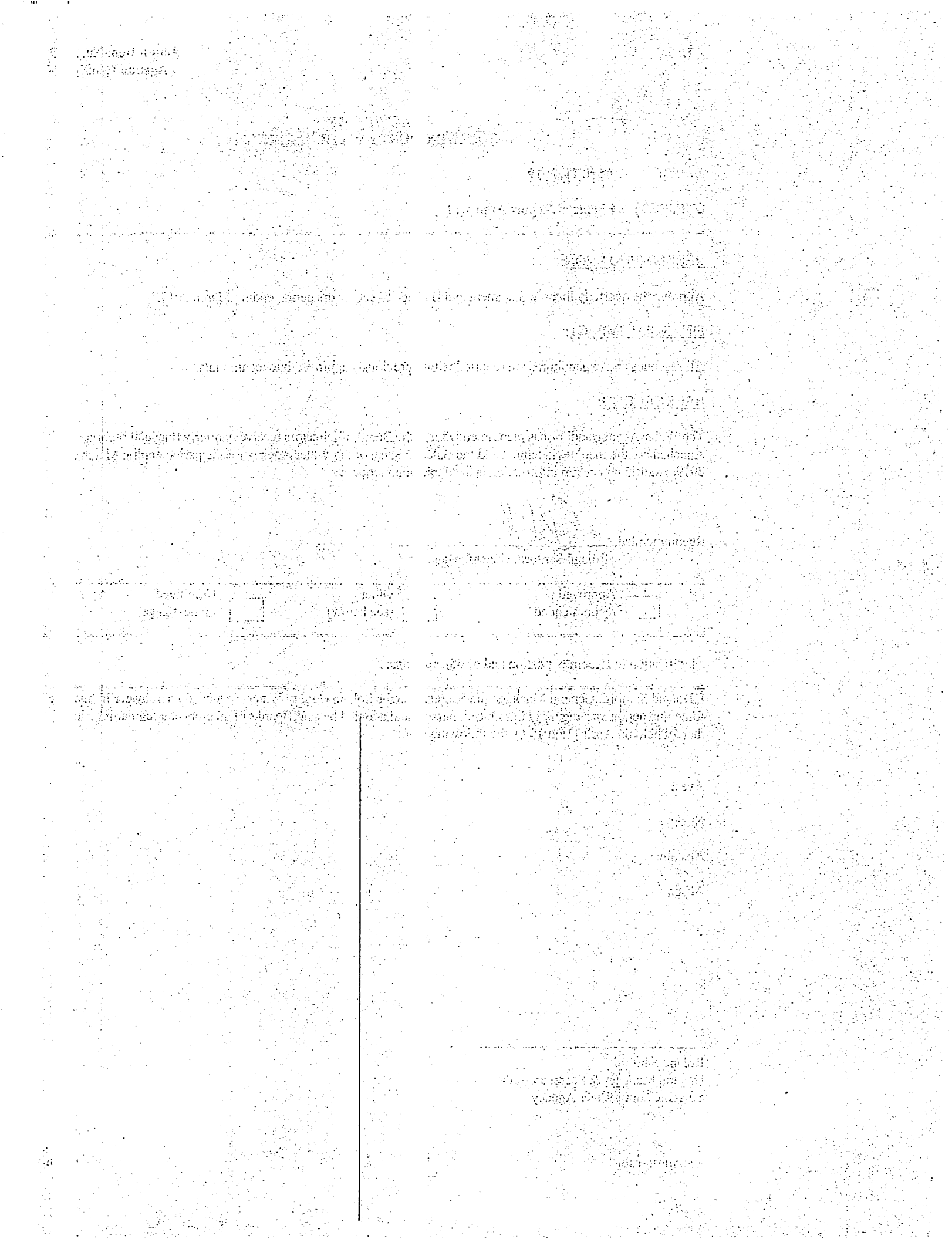
Ayes:

Noes:

Abstain:

Absent:

Roland Sanford
General Manager & Secretary to the
Solano County Water Agency



SOLANO COUNTY WATER AGENCY
Year to Date Income Statement
Compared with Budget and Last Year
For the Nine Months Ending March 31, 2019

		Current Year Actual	Current Year Budget	Variance Amount	Variance Percent	Last Year Actual	Change from Last Year	Percent Change
Revenues								
4001G	SECURED	$ 37,746.22	$ 78,620.00	(40,873.78)	(51.99)	$ 36,762.61	983.61	2.68
4001N	SECURED	6,773,636.69	14,321,180.00	(7,547,543.31)	(52.70)	6,879,610.04	(105,973.35)	(1.54)
4001SC	SECURED	3,765,087.98	7,638,440.00	(3,873,352.02)	(50.71)	3,659,036.00	106,051.98	2.90
4001U	SECURED	505,646.17	979,840.00	(474,193.83)	(48.40)	469,326.05	36,320.12	7.74
4002G	UNSECURED	7,304.01	4,800.00	2,504.01	52.17	4,921.94	2,382.07	48.40
4002N	UNSECURED	324,243.54	344,790.00	(20,546.46)	(5.96)	331,655.86	(7,412.32)	(2.23)
4002SC	UNSECURED	349,632.33	368,150.00	(18,517.67)	(5.03)	373,887.62	(24,255.29)	(6.49)
4002U	UNSECURED	48,343.13	51,000.00	(2,656.87)	(5.21)	49,660.69	(1,317.56)	(2.65)
4004G	CURRENT SUPPLEMENTAL	775.71	1,000.00	(224.29)	(22.43)	(6,628.21)	7,403.92	(111.70)
4004N	CURRENT SUPPLEMENTAL	192,453.48	254,300.00	(61,846.52)	(24.32)	155,570.93	36,882.55	23.71
4004SC	CURRENT SUPPLEMENTAL	130,393.61	230,010.00	(99,616.39)	(43.31)	108,681.64	21,711.97	19.98
4004U	CURRENT SUPPLEMENTAL	19,821.47	26,330.00	(6,508.53)	(24.72)	18,906.21	915.26	4.84
4100N	WATER SALES	3,325,591.00	1,560,101.00	1,765,490.00	113.17	1,487,100.00	1,838,491.00	123.63
4100SC	WATER SALES	93,644.00	65,000.00	28,644.00	44.07	83,748.00	9,896.00	11.82
4102N	COST OF POWER TO PUMP NBA	0.00	50,000.00	(50,000.00)	(100.00)	0.00	0.00	0.00
4103N	CONVEYANCE SETTLEMENT	0.00	100,000.00	(100,000.00)	(100.00)	0.00	0.00	0.00
4110N	NAPA MAKE WHOLE	156,000.00	312,000.00	(156,000.00)	(50.00)	156,000.00	0.00	0.00
4120N	SWP ADJUSTMENTS	322,943.71	525,000.00	(202,056.29)	(38.49)	263,980.79	58,962.92	22.34
4122N	PROP 84 INTAKE GRANT	0.00	345,000.00	(345,000.00)	(100.00)	0.00	0.00	0.00
4150SC	EQUIPMENT DISTRIBUTION REIMI	15,580.00	100,000.00	(84,420.00)	(84.42)	51,715.00	(36,135.00)	(69.87)
4150U	EQUIPMENT DISTRIBUTION REIM	15,100.00	0.00	15,100.00	0.00	16,340.00	(1,240.00)	(7.59)
4402WC	INTEREST - MONEY MGMT	6.23	5.00	1.23	24.60	0.93	5.30	569.89
4403SC	INTEREST - CHECKING	120.53	200.00	(79.47)	(39.74)	213.74	(93.21)	(43.61)
4404G	INTEREST - LAIF - GREEN VALLEY	696.44	400.00	296.44	74.11	245.54	450.90	183.64
4404N	INTEREST - LAIF - SWP	44,114.60	21,000.00	23,114.60	110.07	20,601.53	23,513.07	114.13
4404SC	INTEREST - LAIF - SP	61,886.01	50,000.00	11,886.01	23.77	31,698.40	30,187.61	95.23
4404U	INTEREST - LAIF - ULATIS	19,360.41	12,000.00	7,360.41	61.34	9,078.77	10,281.64	113.25
4405G	INTEREST - CAMP - GREEN VALLE	1,952.40	1,000.00	952.40	95.24	704.02	1,248.38	177.32
4405N	INTEREST - CAMP - SWP	117,456.93	54,000.00	63,456.93	117.51	59,068.45	58,388.48	98.85
4405SC	INTEREST - CAMP - SP	170,911.00	90,000.00	80,911.00	89.90	90,885.33	80,025.67	88.05
4405U	INTEREST - CAMP - ULATIS	53,888.05	31,000.00	22,888.05	73.83	26,030.54	27,857.51	107.02
4406SC	INTEREST - OTHER	7,755.30	7,755.00	0.30	0.00	11,410.72	(3,655.42)	(32.03)
4407G	INTEREST INVESTMENT	310.00	325.00	(15.00)	(4.62)	209.69	100.31	47.84

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4407N	INTEREST - INVESTMENTS	18,249.21	25,000.00	(6,750.79)	(27.00)	17,593.58	655.63	3.73
4407SC	INTEREST - INVESTMENTS	26,970.88	26,000.00	970.88	3.73	27,070.25	(99.37)	(0.37)
4407U	INTEREST - INVESTMENTS	8,531.40	9,000.00	(468.60)	(5.21)	7,753.20	778.20	10.04
4507G	HOMEOWNER RELIEF	193.05	1,240.00	(1,046.95)	(84.43)	187.05	6.00	3.21
4507N	HOMEOWNER RELIEF	11,985.45	80,950.00	(68,964.55)	(85.19)	12,091.20	(105.75)	(0.87)
4507SC	HOMEOWNER RELIEF	10,796.55	70,780.00	(59,983.45)	(84.75)	10,895.85	(99.30)	(0.91)
4507U	HOMEOWNER RELIEF	0.00	10,360.00	(10,360.00)	(100.00)	1,604.10	(1,604.10)	(100.00)
4600SC	REDEVELOPMENT - DIX/RV	33,480.00	46,270.00	(12,790.00)	(27.64)	28,613.57	4,866.43	17.01
4601SC	REDEVELOP - VACAVILLE	326,394.59	632,060.00	(305,665.41)	(48.36)	286,944.61	39,449.98	13.75
4601U	REDEVELOP - VACAVILLE	186,980.28	395,130.00	(208,149.72)	(52.68)	164,441.60	22,538.68	13.71
4602G	REDEVELOP - FAIRFIELD	35,362.44	60,360.00	(24,997.56)	(41.41)	32,057.26	3,305.18	10.31
4602SC	REDEVELOP - FAIRFIELD	434,799.89	598,350.00	(163,550.11)	(27.33)	398,883.24	35,916.65	9.00
4603SC	REDEVELOP - SUISUN CITY	150,024.83	212,080.00	(62,055.17)	(29.26)	132,480.44	17,544.39	13.24
4605SC	REDEVELOP - N. TEXAS	28,148.92	35,000.00	(6,851.08)	(19.57)	22,689.90	5,459.02	24.06
4702SC	BOATING AND WATERWAYS	0.00	155,000.00	(155,000.00)	(100.00)	89,368.00	(89,368.00)	(100.00)
4704SC	USFWS (FISH & WILDLIFE)	0.00	50,000.00	(50,000.00)	(100.00)	0.00	0.00	0.00
4900AC	MISCELLANEOUS INCOME	161.67	0.00	161.67	0.00	9,832.32	(9,670.65)	(98.36)
4900N	MISC INCOME	17,240.72	17,240.00	0.72	0.00	17,240.73	(0.01)	(0.00)
4900SC	MISCELLANEOUS INCOME	18,559.90	17,240.00	1,319.90	7.66	17,240.73	1,319.17	7.65
4922SC	GREENHOUSE REVENUES	9,686.06	25,000.00	(15,313.94)	(61.26)	0.00	9,686.06	0.00
4930U	O&M - OTHER AGENCIES	7,443.16	5,000.00	2,443.16	48.86	6,740.87	702.29	10.42
4940AC	OVERHEAD DISTRIBUTION REIMB	2,486,182.46	4,533,112.00	(2,046,929.54)	(45.16)	2,206,129.24	280,053.22	12.69
4960WC	WATERMASTER INCOME	3,565.86	4,600.00	(1,034.14)	(22.48)	1,294.31	2,271.55	175.50
4970AC	WATER CONSERVATION REIMBUI	0.00	170,000.00	(170,000.00)	(100.00)	0.00	0.00	0.00
4972AC	BAY AREA IRWMP GRANT	(7,393.80)	75,000.00	(82,393.80)	(109.86)	0.00	(7,393.80)	0.00
4973AC	OTHER GRANTS	74,089.86	460,000.00	(385,910.14)	(83.89)	49,664.92	24,424.94	49.18
4978SC	LPCCC SERVICES	30,516.77	790,000.00	(759,483.23)	(96.14)	1,291.83	29,224.94	2,262.29
4981SC	LPCCC EQUIPMENT RENTAL FEE	0.00	30,000.00	(30,000.00)	(100.00)	0.00	0.00	0.00
4987SC	LPCCC - RIVER PARKWAY V	0.00	300,000.00	(300,000.00)	(100.00)	0.00	0.00	0.00
4993SC	LPCCC-PROP 1	0.00	300,000.00	(300,000.00)	(100.00)	0.00	0.00	0.00
4994SC	LPCCC-COASTAL CONSERVANCY	0.00	25,000.00	(25,000.00)	(100.00)	0.00	0.00	0.00
4995SC	LPCCC-IRWM	0.00	150,000.00	(150,000.00)	(100.00)	0.00	0.00	0.00
	Total Revenues	20,474,371.10	36,933,018.00	(16,458,646.90)	(44.56)	17,932,531.63	2,541,839.47	14.17

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Cost of Sales								
	Total Cost of Sales	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Gross Profit	20,474,371.10	36,933,018.00	(16,458,646.90)	(44.56)	17,932,531.63	2,541,839.47	14.17
Expenses								
5500AC	CAPITAL EXPENDITURES	51,336.67	415,000.00	(363,663.33)	(87.63)	98,366.29	(47,029.62)	(47.81)
5500N	CAPITAL EXPENDITURES	0.00	20,000.00	(20,000.00)	(100.00)	27,126.00	(27,126.00)	(100.00)
5500SC	CAPITAL EXPENDITURES	117,220.94	375,000.00	(257,779.06)	(68.74)	141,829.20	(24,608.26)	(17.35)
5500U	CAPITAL EXPENDITURES	0.00	430,000.00	(430,000.00)	(100.00)	0.00	0.00	0.00
6010AC	GROSS SALARIES	1,670,348.10	2,792,000.00	(1,121,651.90)	(40.17)	1,485,329.08	185,019.02	12.46
6011AC	PERS RETIREMENT	196,074.72	351,700.00	(155,625.28)	(44.25)	228,223.01	(32,148.29)	(14.09)
6012AC	PAYROLL TAXES	75,216.93	136,300.00	(61,083.07)	(44.82)	71,704.09	3,512.84	4.90
6013AC	EMPLOYEE BENEFITS	205,695.81	407,500.00	(201,804.19)	(49.52)	154,677.80	51,018.01	32.98
6016AC	OPEB/PENSION UNFUNDED EXPEN	827,500.00	750,000.00	77,500.00	10.33	750,000.00	77,500.00	10.33
6030AC	TELEPHONE	14,017.75	51,700.00	(37,682.25)	(72.89)	13,908.50	109.25	0.79
6040AC	OFFICE EXPENSE	13,583.71	29,900.00	(16,316.29)	(54.57)	15,364.81	(1,781.10)	(11.59)
6041AC	OFFICE EQUIPMENT	17,647.67	32,750.00	(15,102.33)	(46.11)	19,472.16	(1,824.49)	(9.37)
6042AC	SAFETY TRAINING & EQUIPMENT	6,153.53	8,100.00	(1,946.47)	(24.03)	3,664.97	2,488.56	67.90
6043AC	OFFICE HELP - TEMPORARY	0.00	10,000.00	(10,000.00)	(100.00)	0.00	0.00	0.00
6044AC	HR -EMPLOYEE SUPPORT	65,572.50	81,000.00	(15,427.50)	(19.05)	0.00	65,572.50	0.00
6050AC	POSTAGE	5,090.22	5,700.00	(609.78)	(10.70)	2,169.84	2,920.38	134.59
6060AC	SID OFFICE EXPENSE	37,690.19	54,800.00	(17,109.81)	(31.22)	36,308.57	1,381.62	3.81
6090AC	MEMBERSHIPS	41,069.92	94,165.00	(53,095.08)	(56.39)	36,723.26	4,346.66	11.84
6090N	SWC DUES	63,790.00	118,700.00	(54,910.00)	(46.26)	70,396.00	(6,606.00)	(9.38)
6100G	PPTY TAX ADMIN FEE	0.00	1,200.00	(1,200.00)	(100.00)	0.00	0.00	0.00
6100SC	PPTY TAX ADMIN FEE	0.00	100,000.00	(100,000.00)	(100.00)	0.00	0.00	0.00
6100U	PPTY TAX ADMIN FEE	0.00	15,000.00	(15,000.00)	(100.00)	0.00	0.00	0.00
6105N	PETERSEN RANCH EXPENSES	1,575.00	55,000.00	(53,425.00)	(97.14)	16,619.59	(15,044.59)	(90.52)
6105SC	PETERSEN RANCH EXPENSES	44,927.79	65,000.00	(20,072.21)	(30.88)	16,618.56	28,309.23	170.35
6111AC	PS - PAYROLL SERVICES	8,855.15	9,800.00	(944.85)	(9.64)	6,064.13	2,791.02	46.03

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6112AC	PS - COMPUTER SERVICES	381,483.30	542,400.00	(160,916.70)	(29.67)	290,848.23	90,635.07	31.16
6115AC	TALENT DECISION MONITORING	8,810.33	11,400.00	(2,589.67)	(22.72)	12,012.00	(3,201.67)	(26.65)
6128AC	GOVERNMENTAL ADVOCACY	110,451.20	168,000.00	(57,548.80)	(34.26)	78,188.10	32,263.10	41.26
6128N	GOVERNMENTAL ADVOCACY	22,657.05	40,000.00	(17,342.95)	(43.36)	21,009.77	1,647.28	7.84
6130SC	LPCCC - VEGETATION	25,724.29	14,176.00	11,548.29	81.46	4,906.69	20,817.60	424.27
6140AC	CONSULTANTS	182,894.59	280,000.00	(97,105.41)	(34.68)	191,488.78	(8,594.19)	(4.49)
6140G	CONSULTANTS	0.00	2,000.00	(2,000.00)	(100.00)	0.00	0.00	0.00
6140N	CONSULTANTS	17,687.65	211,000.00	(193,312.35)	(91.62)	14,824.52	2,863.13	19.31
6140SC	CONSULTANTS	62,455.15	634,200.00	(571,744.85)	(90.15)	280,349.52	(217,894.37)	(77.72)
6140U	CONSULTANTS	19,188.03	75,000.00	(55,811.97)	(74.42)	0.00	19,188.03	0.00
6144AC	HYDROLOGY STATIONS	8,464.85	32,000.00	(23,535.15)	(73.55)	22,464.63	(13,999.78)	(62.32)
6144N	HYDROLOGY STATIONS	17,771.42	24,500.00	(6,728.58)	(27.46)	17,900.69	(129.27)	(0.72)
6144SC	HYDROLOGY STATIONS	24,714.70	85,000.00	(60,285.30)	(70.92)	20,974.91	3,739.79	17.83
6144U	HYDROLOGY STATIONS	2,389.97	15,000.00	(12,610.03)	(84.07)	272.32	2,117.65	777.63
6148SC	LPCCC - WILDLIFE	133,745.04	77,968.00	55,777.04	71.54	77,036.00	56,709.04	73.61
6149SC	LPCCC - FISHERIES	88,877.06	77,968.00	10,909.06	13.99	52,597.27	36,279.79	68.98
6161N	WATERSHED PROGRAM	29,117.95	198,100.00	(168,982.05)	(85.30)	31,849.01	(2,731.06)	(8.58)
6161SC	SOLANO PROJECT WQ MONITORI	4,776.35	30,000.00	(25,223.65)	(84.08)	21,591.46	(16,815.11)	(77.88)
6164SC	SOLANO PROJECT INVASIVES	41,158.48	210,000.00	(168,841.52)	(80.40)	79,914.25	(38,755.77)	(48.50)
6165N	Yolo Bypass/Cache Slough Progr	262,759.69	800,000.00	(537,240.31)	(67.16)	41,308.65	221,451.04	536.09
6166SC	UPPER PUTAH CREEK MGMT	31,995.23	255,000.00	(223,004.77)	(87.45)	68,796.48	(36,801.25)	(53.49)
6170N	NBA RELIABILITY PROGRAM	320.00	388,000.00	(387,680.00)	(99.92)	2,475.00	(2,155.00)	(87.07)
6170SC	INTER-DAM REACH MANAGEMEN	0.00	225,000.00	(225,000.00)	(100.00)	0.00	0.00	0.00
6170WC	MBK	47,162.70	35,000.00	12,162.70	34.75	15,869.00	31,293.70	197.20
6179SC	LPCCC SERVICES	102,471.90	790,000.00	(687,528.10)	(87.03)	21,453.67	81,018.23	377.64
6181SC	LPCCC EQUIPMENT	48,006.74	50,000.00	(1,993.26)	(3.99)	59,874.10	(11,867.36)	(19.82)
6183SC	LPCCC NURSERY	77,432.29	45,000.00	32,432.29	72.07	31,861.10	45,571.19	143.03
6193SC	LPCCC-PROP 1	70,534.17	300,000.00	(229,465.83)	(76.49)	220,843.04	(150,308.87)	(68.06)
6195SC	LPCCC-CA RIVER PRKWY V	340,647.16	300,000.00	40,647.16	13.55	187,373.34	153,273.82	81.80
6196SC	LPCCC-COASTAL CONSERVANCY	17,672.43	25,000.00	(7,327.57)	(29.31)	6,436.41	11,236.02	174.57
6197SC	LPCCC-IRWM	54,717.95	150,000.00	(95,282.05)	(63.52)	143,683.89	(88,965.94)	(61.92)
6199SC	LPCCC MISC. SUPPLIES	30,675.95	27,000.00	3,675.95	13.61	18,509.75	12,166.20	65.73
6210AC	BOARD EXPENSES	23,746.53	33,000.00	(9,253.47)	(28.04)	21,426.72	2,319.81	10.83
6230SC	FIELD SUPPLIES	44,297.58	50,000.00	(5,702.42)	(11.40)	33,946.60	10,350.98	30.49

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6230WC	MISC WATERMASTER EXP	140.00	240.00	(100.00)	(41.67)	180.00	(40.00)	(22.22)
6250SC	HCP PLANNING	220,319.01	3,520,000.00	(3,299,680.99)	(93.74)	354,593.68	(134,274.67)	(37.87)
6300AC	CAR MAINTENANCE	8,166.68	26,600.00	(18,433.32)	(69.30)	12,898.60	(4,731.92)	(36.69)
6310AC	FUEL	16,411.37	30,500.00	(14,088.63)	(46.19)	17,625.13	(1,213.76)	(6.89)
6320U	GARAGE SERVICES	2,433.03	10,000.00	(7,566.97)	(75.67)	2,916.96	(483.93)	(16.59)
6330AC	TRAVEL	11,729.77	7,000.00	4,729.77	67.57	6,906.95	4,822.82	69.83
6340AC	EMPLOYEE REIMBURSEMENTS	3,163.96	12,000.00	(8,836.04)	(73.63)	4,546.32	(1,382.36)	(30.41)
6350AC	INSURANCE	48,325.61	59,925.00	(11,599.39)	(19.36)	44,827.31	3,498.30	7.80
6360AC	EDUCATION & TRAINING	20,014.40	65,000.00	(44,985.60)	(69.21)	19,234.64	779.76	4.05
6410AC	COMP SOFTWARE/EQUIP	30,520.37	110,935.00	(80,414.63)	(72.49)	34,426.97	(3,906.60)	(11.35)
6550AC	SCWA Water Mgt Planning	0.00	350,000.00	(350,000.00)	(100.00)	0.00	0.00	0.00
6551AC	WATER CONSERVATION	803,349.47	973,750.00	(170,400.53)	(17.50)	605,113.52	198,235.95	32.76
6551N	WATER CONSERVATION	0.00	633,750.00	(633,750.00)	(100.00)	0.00	0.00	0.00
6554AC	MISC. WATER CONSERVATION GR	58,325.36	0.00	58,325.36	0.00	71,156.19	(12,830.83)	(18.03)
6600AC	MELLON LEVEE	7,202.82	15,000.00	(7,797.18)	(51.98)	1,137.65	6,065.17	533.13
6600SC	PSC MAINTENANCE	470,501.38	1,005,000.00	(534,498.62)	(53.18)	476,716.45	(6,215.07)	(1.30)
6610AC	FLOOD CONTROL	84,808.45	1,162,500.00	(1,077,691.55)	(92.70)	65,273.48	19,534.97	29.93
6611AC	GROUND WATER MANAGEMENT	99,655.79	484,500.00	(384,844.21)	(79.43)	62,943.49	36,712.30	58.33
6612AC	PUBLIC EDUCATION	60,995.99	115,000.00	(54,004.01)	(46.96)	6,055.09	54,940.90	907.35
6614AC	SOLANO SUB-BASIN GSA	369,067.50	370,000.00	(932.50)	(0.25)	2,891.19	366,176.31	12,665.25
6620G	LABOR	46,682.78	45,000.00	1,682.78	3.74	2,173.41	44,509.37	2,047.90
6620SC	LOWER PUTAH CREEK(NON-ACCC	537,973.38	1,361,218.00	(823,244.62)	(60.48)	2,091.47	535,881.91	25,622.26
6620U	LABOR	129,384.94	350,000.00	(220,615.06)	(63.03)	159,389.91	(30,004.97)	(18.82)
6630SC	SP ADMINISTRATION	817,694.61	1,102,000.00	(284,305.39)	(25.80)	731,187.18	86,507.43	11.83
6640SC	PSC OPERATIONS	172,097.75	342,000.00	(169,902.25)	(49.68)	163,704.97	8,392.78	5.13
6645SC	DAM MAINTENANCE	6,127.32	64,000.00	(57,872.68)	(90.43)	2,953.74	3,173.58	107.44
6646SC	DAM OPERATIONS	178,311.95	280,000.00	(101,688.05)	(36.32)	157,794.16	20,517.79	13.00
6650G	WEED CONTROL	5,956.61	6,000.00	(43.39)	(0.72)	2,304.00	3,652.61	158.53
6650U	SP PEST MANAGEMENT	56,745.10	150,000.00	(93,254.90)	(62.17)	75,540.85	(18,795.75)	(24.88)
6660G	EQUIP - TRANS DEPT	7,567.53	8,000.00	(432.47)	(5.41)	177.10	7,390.43	4,173.03
6660U	EQUIP - TRANS DEPT	19,093.60	80,000.00	(60,906.40)	(76.13)	38,371.40	(19,277.80)	(50.24)
6670G	SUPPLIES	1,168.53	2,000.00	(831.47)	(41.57)	0.00	1,168.53	0.00
6670U	SUPPLIES	12,054.60	78,500.00	(66,445.40)	(84.64)	28,846.82	(16,792.22)	(58.21)
6675G	CONTRACT WORK	19,350.00	15,000.00	4,350.00	29.00	17,000.00	2,350.00	13.82

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Compared with Budget and Last Year
For the Nine Months Ending March 31, 2019

		Current Year Actual	Current Year Budget	Variance Amount	Variance Percent	Last Year Actual	Change from Last Year	Percent Change
6675U	CONTRACT WORK	0.00	40,000.00	(40,000.00)	(100.00)	4,775.00	(4,775.00)	(100.00)
6680G	TRANS DEPT OVERHEAD	20,073.51	10,000.00	10,073.51	100.74	628.34	19,445.17	3,094.69
6680U	TRANS DEPT OVERHEAD	70,361.59	120,000.00	(49,638.41)	(41.37)	46,079.99	24,281.60	52.69
6690G	REHAB & BETTERMENT	212.51	40,000.00	(39,787.49)	(99.47)	0.00	212.51	0.00
6690N	NBA REHAB & BETTERMENT	0.00	46,500.00	(46,500.00)	(100.00)	34,000.00	(34,000.00)	(100.00)
6690SC	REHAB & BETTERMENT	95,936.27	675,000.00	(579,063.73)	(85.79)	212,336.22	(116,399.95)	(54.82)
6690U	REHAB & BETTERMENT	0.00	20,000.00	(20,000.00)	(100.00)	0.00	0.00	0.00
6700N	WATER PURCHASES	11,409,417.00	11,783,630.00	(374,213.00)	(3.18)	9,768,827.00	1,640,590.00	16.79
6700SC	USBR ADMINISTRATION	66,000.00	75,000.00	(9,000.00)	(12.00)	69,800.00	(3,800.00)	(5.44)
6701SC	WATER RIGHTS FEE	76,391.65	85,000.00	(8,608.35)	(10.13)	71,676.05	4,715.60	6.58
6710N	NAPA MAKE WHOLE	156,000.00	312,000.00	(156,000.00)	(50.00)	312,000.00	(156,000.00)	(50.00)
6950AC	LABOR COSTS	254,453.64	330,107.00	(75,653.36)	(22.92)	259,796.53	(5,342.89)	(2.06)
6950G	LABOR COSTS	2,878.99	11,030.00	(8,151.01)	(73.90)	5,052.47	(2,173.48)	(43.02)
6950N	LABOR COSTS	192,483.97	473,449.00	(280,965.03)	(59.34)	166,680.87	25,803.10	15.48
6950SC	LABOR COSTS	547,475.30	1,241,531.00	(694,055.70)	(55.90)	557,869.73	(10,394.43)	(1.86)
6950U	LABOR COSTS	23,658.41	92,065.00	(68,406.59)	(74.30)	44,209.93	(20,551.52)	(46.49)
6951AC	INTRA-FUND TRANSFER	(644,982.04)	(792,256.00)	147,273.96	(18.59)	(612,033.96)	(32,948.08)	5.38
6952AC	OVERHEAD EXPENSES	390,528.41	462,149.00	(71,620.59)	(15.50)	352,237.44	38,290.97	10.87
6952G	OVERHEAD EXPENSES	6,269.41	15,442.00	(9,172.59)	(59.40)	6,638.98	(369.57)	(5.57)
6952N	OVERHEAD EXPENSES	318,027.70	662,827.00	(344,799.30)	(52.02)	221,258.80	96,768.90	43.74
6952SC	OVERHEAD EXPENSES	1,177,711.72	1,907,876.00	(730,164.28)	(38.27)	972,749.51	204,962.21	21.07
6952U	OVERHEAD EXPENSES	41,501.40	128,891.00	(87,389.60)	(67.80)	62,545.81	(21,044.41)	(33.65)
6990AC	CONTINGENCY	0.00	100,000.00	(100,000.00)	(100.00)	0.00	0.00	0.00
6990G	CONTINGENCY	0.00	5,000.00	(5,000.00)	(100.00)	0.00	0.00	0.00
6990N	CONTINGENCY	0.00	25,000.00	(25,000.00)	(100.00)	0.00	0.00	0.00
6990SC	CONTINGENCY	0.00	100,000.00	(100,000.00)	(100.00)	0.00	0.00	0.00
6990U	CONTINGENCY	0.00	50,000.00	(50,000.00)	(100.00)	0.00	0.00	0.00
	Total Expenses	24,327,913.43	43,467,686.00	(19,139,772.57)	(44.03)	21,014,759.10	3,313,154.33	15.77
	Net Income	($ 3,853,542.33)	($ 6,534,668.00)	2,681,125.67	(41.03)	($ 3,082,227.47)	(771,314.86)	25.02

SOLANO COUNTY WATER AGENCY
Balance Sheet
March 31, 2019

			ADMIN/SP/W	SWP(N)	U	GV
ASSETS						
Current Assets						
1000SC	PERSHING	$ 17,207.42	$ 17,207.42			
1010WC	MONEY MGMT - WATERMASTER	26,712.56	26,712.56			
1020G	CHECKING	622,806.59	(8,497,843.81)	8,002,342.51	1,031,778.77	86,529.12
1030N	LAIF -	7,855,532.28	4,145,860.92	2,553,860.57	1,125,406.78	30,404.01
1040N	CAMP - SWP	25,113,951.37	13,289,772.05	8,140,156.48	3,587,113.32	96,909.52
1050N	CERTIFICATES OF DEPOSIT - SWP	5,152,070.89	2,667,241.68	1,710,639.13	753,825.02	20,365.06
1060SC	PETTY CASH	92.89	92.89			
1210N	ACCOUNTS RECEIVABLE-SWP	2,361,974.57	1,422,879.07	939,095.50		
1211SC	INTEREST RECEIVABLE-SP	0.00	0.00			
1225AC	RETENTION RECEIVABLE	97,090.69	97,090.69			
1400AC	PREPAID	56,191.33	56,191.33			
1415AC	INVENTORY-WATER CONSERVATION S	43,711.82	43,711.82			
	Total Current Assets	$ 41,347,342.41	$ 13,268,916.62	$ 21,346,094.19	$ 6,498,123.89	$ 234,207.71
Other Assets						
1300SC	NOTE RECEIVABLE	0.00				
	Total Other Assets	0.00	0.00	0.00	0.00	0.00
	Total Assets	$ 41,347,342.41	$ 13,268,916.62	$ 21,346,094.19	$ 6,498,123.89	$ 234,207.71
LIABILITIES AND CAPITAL						
Current Liabilities			ADMIN/SP/W	SWP(N)	U	GV
2010N	UNEARNED INCOME-SWP	430,501.00	1.00	430,500.00		
2020N	ACCOUNTS PAYABLE-SWP	97,929.20	(76,752.28)	174,214.91	(2,121.00)	2,587.57
2023AC	EMPLOYEE BENEFITS PAYABLE	4,708.28	4,708.28			
2025SC	SALES TAX PAYABLE	908.07	908.07			
2027AC	ACCOUNTS PAYABLE-GARNISHMENT	0.00	0.00			
2100SC	BENICIA PREFUNDED LAWN REBATES	24,155.25	24,155.25			
2110SC	WESTSIDE IRWMP PREFUNDED ADMIN	80,792.35	80,792.35			
	Total Current Liabilities	$ 638,994.15	$ 33,812.67	$ 604,714.91	($ 2,121.00)	$ 2,587.57
Long-Term Liabilities						
2310G	SOLANO PROJECT LOAN	0.00				
2330SC	DEFERRED OUTFLOW OF CASH	193,882.67	193,882.67			
	Total Long-Term Liabilities	$ 193,882.67	$ 193,882.67	$ -	$ -	$ -
	Total Liabilities	832,876.82	227,695.34	604,714.91	(2,121.00)	2,587.57
Capital						
3150SC	OTHER FLD CTRL CAPITAL PROJ.	608,178.12	608,178.12			
3155SC	OTHER CAPITAL PROJ/EMERG RESER	1,000,000.00	1,000,000.00			
3200G	GV OPERATING RESERVE	67,100.00				67,100.00
3200N	SWP OPERATING RESERVE	7,318,090.00		7,318,090.00		
3200SC	DESIGNATED REHAB & BETTERMENT	2,000,000.00	2,000,000.00			
3200U	ULATIS OPERATING RESERVE	501,752.50			501,752.50	
3250G	GV CAPITAL RESERVE	164,520.57				164,520.57
3250N	DESIGNATED SWP FACILITIES RESE	9,596,332.83		9,596,332.83		
3250SC	SP FUTURE REPLACEMENT CAPITAL	8,895,024.31	8,895,024.31			
3250U	ULATIS FCP OPERATING RESERVE	5,842,096.41			5,842,096.41	
3350SC	DESIGNATED OPERATING RESERVES	8,374,913.18	8,374,913.18			
	Net Income	(3,853,542.33)	(3,128,334.03)	(1,187,692.10)	488,303.40	(25,819.60)
	Total Capital	40,514,465.59	17,749,781.58	15,726,730.73	6,832,152.31	205,800.97
	Total Liabilities & Capital	$ 41,347,342.41	$ 17,977,476.92	$ 16,331,445.64	$ 6,830,031.31	$ 208,388.54

Action Item No. 2019-xx
Agenda Item No. 5D

ACTION OF
SOLANO COUNTY WATER AGENCY

DATE: **April 11, 2019**

SUBJECT: **Contract Amendment with cbec eco engineering**

RECOMMENDATIONS:

Authorize General Manager to execute $29,564 contract amendment with cbec eco engineering for additional North Bay Aqueduct Alternate Intake Project planning and technical support.

FINANCIAL IMPACT:

Increase in contract amount by $29,564, from $27,936 to $57,500. Sufficient funding is included in the FY 2018-2019 State Water Project budget for this amendment.

BACKGROUND:

The North Bay Aqueduct Alternate Intake Project (NBA AIP) is estimated to cost 600 million dollars and as presently conceived, would be a "single purpose" facility – a facility whose sole purpose is to provide municipal drinking water. The Water Agency is investigating whether additional project purposes, most notably habitat restoration, can be incorporated into the NBA AIP to attract additional State and Federal dollars for project construction. One of the more promising options is to release water diverted by the NBA AIP at various locations along the aqueduct, to enhance the biological productivity of the Yolo Bypass/Cache Slough Complex (YBCS). A key question to resolve is how much and where should water be released along the aqueduct to maximize habitat benefits. The cbec eco engineering firm will be working closely with Resource Management Associates (see agenda item 5E) to model the impacts of various water release scenarios on the hydrodynamics of the YBCS.

RELEVANCE TO 2016-2025 SCWA STRATEGIC PLAN

The cbec eco engineering amendment is consistent with Goal #1 (*Water Supply Management*), Goal #2 (*Water Management Infrastructure*), and Goal #4 (*Water Resource Resiliency)* of the 2016-2025 Strategic Plan.

Recommended: _____
Roland Sanford, General Manager

☐ Approved as recommended	☐ Other (see below)	☐ Continued on next page

Modification to Recommendation and/or other actions:

I, Roland Sanford, General Manager and Secretary to the Solano County Water Agency, do hereby certify that the foregoing action was regularly introduced, passed, and adopted by said Board of Directors at a regular meeting thereof held on April 11, 2019 by the following vote:

Ayes:

Noes:

Abstain:

Absent:

_____
Roland Sanford
General Manager & Secretary to the
Solano County Water Agency

SOLANO COUNTY WATER AGENCY

AMENDMENT TO AGREEMENT FOR PROFESSIONAL SERVICES

AMENDMENT NUMBER: 1

CONTRACTOR: cebec eco engineering

EFFECTIVE DATE: April 11, 2019

PROJECT: YBCS-NBA AIP Planning Technical Support

DESCRIPTION OF AMENDMENT:

1. Increase compensation by $29,564 from $27,936 to $57,500 for additional work
2. Modify Exhibit A to include the additional Scope of Work attached
3. Extend term to June 30, 2020

SIGNATURES:

Solano County Water Agency,
a Public Agency

By:_____
Roland Sanford
General Manager

cbec eco engineering
a California Corporation

By:_____
C.B. Bowles, President
CBEC

FOR SCWA USE ONLY

Contract Period: April 15, 2018 to June 30, 2020
File Number: AG-C-14
Account Manager: Alex
G/L Account # 6165N
Job Cost# 6114
Contract type: Professional Services

cbec

Hydrology Hydraulics Geomorphology Design Field Services

Date:	March 27, 2019
To:	Thomas Pate and Alex Rabidoux, Solano County Water Agency
From:	Chris Bowles and Chris Campbell; cbec eco engineering
Proposal:	18-1010 – NBA Ecological Flows Modeling Add-On
Subject:	Scope and Budget Estimate

INTRODUCTION

cbec eco engineering, inc., (cbec) has been requested by Solano County Water Agency (SCWA) to provide services in support of modeling being undertaken to ascertain if the proposed North Bay Aqueduct relocation has the potential to provide ecological flushing flows to the northern Delta. cbec will collaborate and coordinate with SCWA and Resource Management Associates (RMA) in undertaking this modeling. RMA will primarily be responsible for completion of all modeling tasks with supporting tasks to be provided by cbec, as follows:

Task 1 – Project Management, Coordination and Meetings

This task covers day-to-day project management and general coordination between SCWA and RMA. It includes time for meetings as outlined below and the development and review of strategies for conducting the modeling analysis with SCWA and RMA.

Task 1 Assumptions:

- Up to four (4) 1 hour conference calls.
- One (1) in-person meeting of up to 3 hours including travel time at SCWA's office.

Task 1 Deliverables:

- Monthly invoices and meeting notes.

Task 2- Develop Model Boundary Conditions

Working in collaboration with SCWA, cbec and RMA will update North Delta boundary conditions (i.e., slough inflow, DICU) appropriate for modeling purposes. This will include are review of the current limitations for the current set of boundary conditions and identification of an approach for updating the boundary conditions. Following approval of the approach by SCWA, the boundary conditions will be updated for the periods to be simulated.

This task will also include review of modeling simulations conducted by RMA. The level of effort for this task will be commensurate with the allocated budget. If additional time is required, cbec will inform SCWA of additional requirements.

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www.cbecoeng.com

Task 2 Assumptions:

- cbec will acquire the necessary raw and post-processed data required to develop boundary conditions. These data will be processed in a form appropriate for modeling purposes.
- All boundary conditions to be approved by SCWA.

Task 2 Deliverables:

- Boundary Conditions Update Technical Memorandum (TM)

Task 3 – Coordinate, Facilitate and Document Science Team Meetings

Working in collaboration with SCWA and Science Team members, cbec will coordinate and facilitate up to one (1) Science Team meeting to review the preliminary results of the modeling to be conducted by RMA. cbec will also document the finding of the meeting through notes and a Technical Memorandum.

Task 3 Assumptions:

- cbec will assist SCWA with coordination and facilitation of the Science Team meeting.
- The location of the meeting will be determined by SCWA.

Task 3 Deliverables:

- Draft and final Science Team Meeting TM.

Task 4 – Additional Technical Support

This task covers any additional technical support as requested by SCWA on an as needed basis. Costs will be invoiced on a time and materials basis.

Task 4 Assumptions:

- SCWA will authorize additional tasks via e-mail.

Task 4 Deliverables:

- Specific to additionally authorized tasks.

Estimated Budget

The estimated budget to complete the above scope of work is as shown in the attached document.

Approximate Schedule

The approximate schedule is reliant on the associated schedule provided by RMA and the desires of SCWA. The critical path will be the date determined for the Science Team Meeting.

This scope and budget estimate is confidential information and is intended for the use of Solano County Water Agency only and no other party. It is valid for 1 month from the date indicated in this estimate.

ESTIMATED PROJECT BUDGET SUMMARY

NBA Eco Flows Modeling Add-On
cbec Project #18-1010

Task #	Task Description		Subtotal
1	Project managament, coordination and meetings	$	5,525.00
2	Develop boundary conditions and model review	$	10,490.00
3	Coordinate, facilitate and document science team meetings	$	3,470.00
4	Additional technical support as requested by SCWA	$	10,010.00
	Labor Fee	**$**	**29,495.00**
	Reimbursables	**$**	**58.32**
	Subconsultant(s)	**$**	**-**
	Total Project Budget	**$**	**29,553.32**

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ESTIMATED LABOR FEES

NBA Eco Flows Modeling Add-On
cbec Project #18-1010

pressly provided within the contract, rates are subject to increase annually on January 1 of e

Task #	President	Director	Eco-Engineer I Eco-Hydrologist I	Technician II	Subtotal Labor Hours Per Task		Subtotal Labor Fee Per Task
	$250	$235	$140	$125			
1	8	15			23		$ 5,525.00
2	1	8	24	40	73		$ 10,490.00
3	6	6	4		16		$ 3,470.00
4	6	10	44		60		$ 10,010.00
	21	**39**	**0**	**0**	**172**		**$ 29,495.00**

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cbec

Hydraulics Hydrology Geomorphology Design

ESTIMATED REIMBURSABLE EXPENSES

NBA Eco Flows Modeling Add-On
cbec Project #18-1010

Item Description	Quantity		Unit Cost		Item Cost
Mileage	100	miles	0.54 /mile	$	54.00
Parking		trip	/trip	$	-
Lodging		day(s)	/day	$	-
Per Diem		day(s)	/day	$	-
Airfare		day(s)	/day	$	-
Car Rental		day(s)	100.00 /day	$	-
ATV		day(s)	150.00 /day	$	-
Canoe		day(s)	30.00 /day	$	-
Utility Boat		day(s)	200.00 /day	$	-
Jet Boat		day(s)	350.00 /day	$	-
Soil Sampler		day(s)	20.00 /day	$	-
Soil Samples		unit(s)	150.00 /unit	$	-
Manual Total Station		day(s)	75.00 /day	$	-
Robotic Total Station		day(s)	200.00 /day	$	-
RTK GPS		day(s)	350.00 /day	$	-
Leveloggers		month(s)	/month	$	-
Temp Probes		month(s)	/month	$	-
Software Lease		month(s)	/month	$	-
Copying / Production				$	-
Courier / Delivery				$	-
Archiving / Documentation				$	-
			Subtotal Reimbursables	**$**	**54.00**
			Administrative Charge (8%)	**$**	**4.32**
			Total Reimbursables	**$**	**58.32**

Field Equipment Rates | effective January 1, 2019	daily	weekly	monthly
Current And Discharge Equipment			
Wading Current Meter	$60	$300	
Acoustic Doppler Current Profiler w/ Trimaran	$450	$2,250	
ADCP Tethered Package (ADCP, RTK, Flying Fox, Laptop)	$650	$3,250	
ADCP Boat Package (ACDP, RTK, Laptop, Boat)	$825	$4,125	
Data Loggers			
Water Level	$10	$50	$120
Barometric Pressure	$10	$50	$120
Rainfall	$10	$50	$125
Temperature	$15	$50	$100
Conductivity / Turbidity / Temperature / Depth	$130	$650	
Turbidity / Depth	$100	$500	
Handheld Conductivity / Temperature / Dissolved Oxygen Probe / pH / Barometer	$90	$450	
Survey Equipment			
Field Tablet or Laptop	$25	$125	
Mapping Grade GPS Receiver	$100	$500	
Survey Grade RTK GPS (Receiver + Network Subscription)	$350	$1,750	
Survey Grade RTK GPS (Receiver + Base Setup)	$375	$1,875	
Manual Total Station	$75	$375	
Robotic Total Station	$100	$1,000	
Single Beam Echosounder	$150	$750	
HyDrone RC Boat	$250	$1,250	
Unmanned Aerial Vehicle (UAV) - Quad Copter Drone	$150	$750	
Unmanned Aerial Vehicle (UAV) - Fixed Wing Drone	$300	$1,500	
Single Beam Boat Package (Echo, RTK, Laptop, Boat)	$600	$3,000	
Single Beam RC Package (Echo, RTK, Laptop, Hydrone)	$600	$3,000	
Single Beam Kayak Package (Echo, RTK, Laptop, Kayak)	$450	$2,250	
ATV Survey Package (RTK, ATV)	$425	$2,125	
Sedimentation Equipment			
Bedload Sampler	$175	$875	
Suspended Load Sampler	$75	$375	
Bridge Crane	$60	$300	
Auger (Brass Cores $5/each)	$20	$100	
Transportation			
ATV (Fuel at Cost)	$200	$1,000	
21-ft Jet Boat w/ 310 HP Inboard (Fuel at Cost)	$350	$1,750	
16-ft Jet Boat w/ 40 HP Outboard (Fuel at Cost)	$250	$1,250	
Inflatable Kayak	$50	$250	
Field Truck (IRS mileage rates apply; first 100 miles free for daily / weekly use)	$100	$500	$1,000

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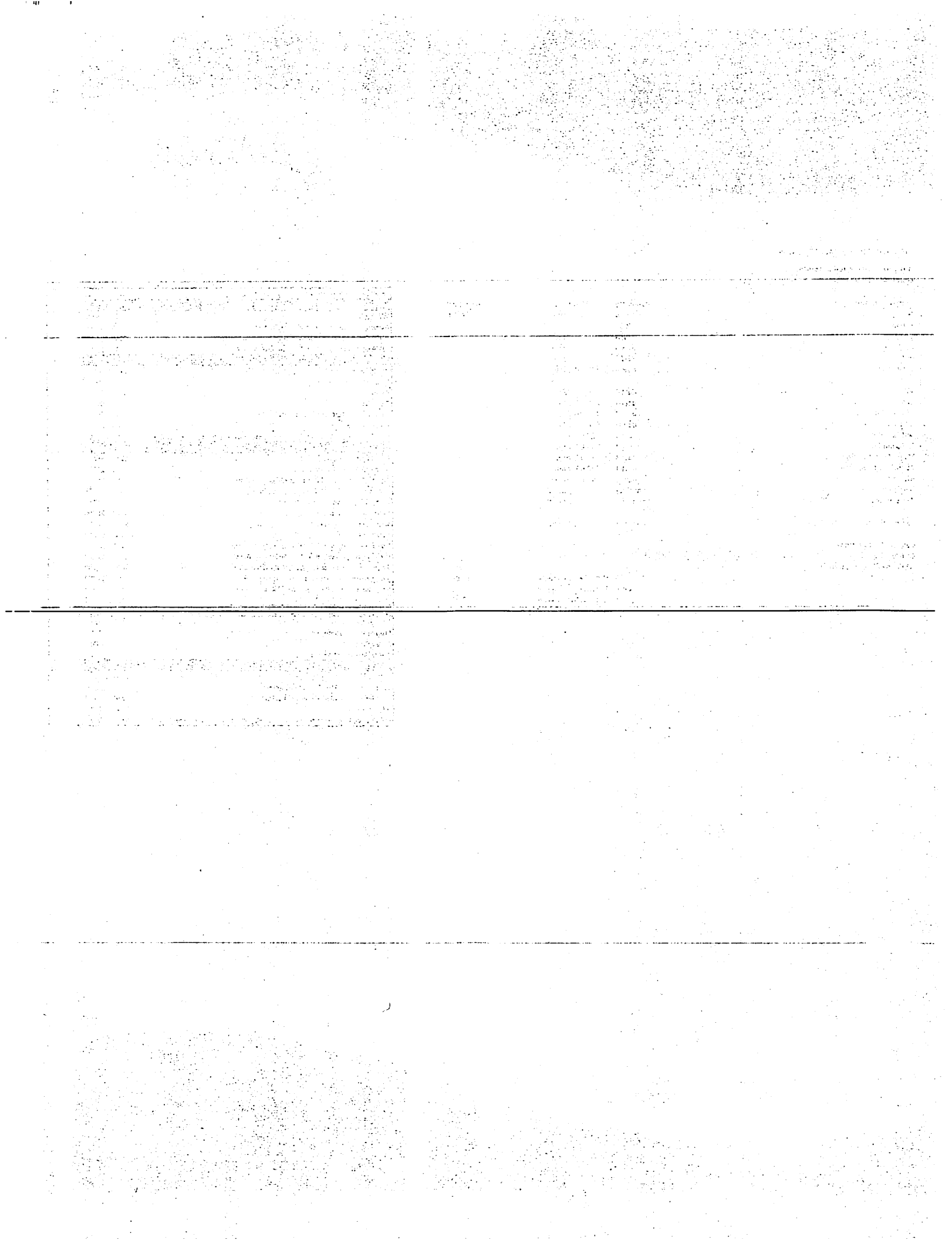


Action Item No. 2019-xx
Agenda Item No. 5E

ACTION OF
SOLANO COUNTY WATER AGENCY

DATE: **April 11, 2019**

SUBJECT: **Contract with Resource Management Associates**

RECOMMENDATIONS:

Authorize General Manager to execute $134,656 contract with Resource Management Associates for North Bay Aqueduct Alternate Intake Project planning and technical support – hydrodynamic modeling.

FINANCIAL IMPACT:

Funding for this project is included in the FY 2018-2019 State Water Project budget.

BACKGROUND:

The North Bay Aqueduct Alternate Intake Project (NBA AIP) is estimated to cost 600 million dollars and as presently conceived, would be a "single purpose" facility – a facility whose sole purpose is to provide municipal drinking water. The Water Agency is investigating whether additional project purposes, most notably habitat restoration, can be incorporated into the NBA AIP to attract additional State and Federal dollars for project construction. One of the more promising options is to release water diverted by the NBA AIP at various locations along the aqueduct, to enhance the biological productivity of the Yolo Bypass/Cache Slough Complex (YBCS). A key question to resolve is how much and where should water be released along the aqueduct to maximize habitat benefits. Resource Management Associates will be working closely with cbec eco engineering (see agenda item 5D) to model the impacts of various water release scenarios on the hydrodynamics of the YBCS.

RELEVANCE TO 2016-2025 SCWA STRATEGIC PLAN

The Resource Management Associates contract is consistent with Goal #1 (*Water Supply Management*), Goal #2 (*Water Management Infrastructure*), and Goal #4 (*Water Resource Resiliency)* of the 2016-2025 Strategic Plan.

Recommended: _____
Roland Sanford, General Manager

☐	Approved as recommended	☐	Other (see below)	☐	Continued on next page

Modification to Recommendation and/or other actions:

I, Roland Sanford, General Manager and Secretary to the Solano County Water Agency, do hereby certify that the foregoing action was regularly introduced, passed, and adopted by said Board of Directors at a regular meeting thereof held on April 11, 2019 by the following vote:

Ayes:

Noes:

Abstain:

Absent:

_____
Roland Sanford
General Manager & Secretary to the
Solano County Water Agency

Name of Project: **Modeling of NBA AIP Ecological Flows**

SOLANO COUNTY WATER AGENCY

AGREEMENT FOR PROFESSIONAL SERVICES

THIS AGREEMENT, **effective April 11, 2019**, is between SOLANO COUNTY WATER AGENCY, a public agency existing under and by virtue of Chapter 573 of the 1989 statutes of the State of California, hereinafter referred to as "Agency," and Resource Management Associates, hereinafter referred to as "Contractor."

The Agency requires services for **Modeling of NBA AIP Ecological Flows**; and the Contractor is willing to perform these services pursuant to the terms and conditions set out in this Agreement.

IT IS MUTUALLY AGREED, as follows:

1. SCOPE OF SERVICES

The Agency hereby engages the Contractor, and the Contractor agrees to perform the services for **Modeling of NBA AIP Ecological Flows**, as described in the attached Exhibit, in accordance with the terms of this Agreement and any applicable laws, codes, ordinances, rules or regulations. In case of conflict between any part of this Agreement, this Agreement shall control over any Exhibit.

2. COMPENSATION

Compensation for services shall be as follows: Hourly rate of personnel plus any allowed reimbursable expenses based on unit costs as indicated on any allowed reimbursable expense in the Exhibit **not to exceed $134,656** for all work contemplated by this Agreement.

3. METHOD OF PAYMENT

Upon submission of an invoice by the Contractor, and upon approval of the Agency's representative, the Agency shall pay the Contractor monthly in arrears for fees and allowed expenses incurred the prior month, however in no event shall the cumulative total paid pursuant to this Agreement exceed the maximum amount provided for in paragraph 2 of this Agreement. Every invoice shall specify hours worked for each task identified in Exhibit A undertaken.

Each invoice shall be accompanied by a spreadsheet showing, by month, costs incurred to date for the project broken down by the Tasks identified in Exhibit A. The spreadsheet shall show, for each task, budget amounts, total expended and remaining amounts. The spreadsheet shall show a subtotal for each fiscal year covered by the contract. Any amendments to the contract shall be listed and incorporated into spreadsheet. An example of a typical spreadsheet shall be provided by the Agency.

4. TIME OF PERFORMANCE

This Agreement shall become effective as of the date it is executed and said services will take place between this date and **June 30, 2020** as directed by the Agency.

5. MODIFICATION AND TERMINATION

This Agreement may be modified or amended only by written instrument signed by the parties hereto, and the Contractor's compensation and time of performance of this Agreement shall be adjusted if they are materially affected by such modification or amendment.

Any change in the scope of the professional services to be done, method of performance, nature of materials or price thereof, or to any other matter materially affecting the performance of nature of the professional services will not be paid for or accepted unless such change, addition or deletion be approved in advance, in writing, by the Agency's General Manager.

This Agreement may be terminated by the Agency at any time, without cause, upon written notification to the Contractor. The Contractor may terminate this Agreement upon 30 days written notice to Agency.

Following termination by the Agency or the Contractor, the Contractor shall be reimbursed for all expenditures made in good faith in accordance with the terms of this Agreement that are unpaid at the time of termination.

6. PERMITS

Permits required by governmental authorities will be obtained at the Contractor's expense, and the Contractor will comply with local, state and federal regulations and statutes including Cal/OSHA requirements.

7. **INDEMNIFY AND HOLD HARMLESS**

When the law establishes a professional standard of care for the Contractor's services, to the fullest extent permitted by law, Contractor will defend, indemnify and hold harmless the Agency, its directors, officers, employees, and authorized volunteers from all claims and demands of all persons that arise out of, pertain to, or relate to the Contractor's negligence, recklessness, or willful misconduct in the performance (or actual or alleged non-performance) of the work under this agreement. The Contractor shall defend itself against any and all liabilities, claims, losses, damages, and costs arising out of or alleged to arise out of Contractor's negligence, recklessness, or willful misconduct in performance or non-performance of the work hereunder, and shall not tender such claims to Agency nor to its directors, officers, employees, or authorized volunteers, for defense or indemnity.

Other than in the performance of professional services, to the fullest extent permitted by law, Contractor will defend, indemnify and hold harmless the Agency, its directors, officers, employees and authorized volunteers from all claims and demands of all persons arising out of the performance of the work or furnishing of materials; including but not

limited to, claims by the Contractor or Contractor's employees for damages to persons or property except for the sole negligence or willful misconduct or active negligence of the Agency, its directors, officers, employees, or authorized volunteers.

8. INSURANCE

By his/her signature hereunder, Contractor certifies that he/she is aware of the provisions of Section 3700 of the California Labor Code which requires every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and that Contractor will comply with such provisions before commencing the performance of the professional services under this agreement. Contractor and subcontractors will keep workers' compensation insurance for their employees in effect during all work covered by this agreement.

Contractor will file with the Agency, before beginning professional services, certificates of insurance satisfactory to the Agency evidencing general liability coverage of not less than $1,000,000 per occurrence ($2,000,000 general and products-completed operations aggregate (if used)) for bodily injury, personal injury and property damage; auto liability of at least $1,000,000 for bodily injury and property damage each accident limit; workers' compensation (statutory limits) and employer's liability ($1,000,000) (if applicable); requiring 30 days (10 days for non-payment of premium) notice of cancellation to the Agency. Any insurance, self-insurance or other coverage maintained by the Agency, its directors, officers, employees, or authorized volunteers shall not contribute to it. The general liability coverage shall give the Agency, its directors, officers, employees, and authorized volunteers insured status using ISO endorsement CG2010, CG2033, or equivalent. Coverage is to be placed with a carrier with an A.M. Best rating of no less than A- :VII, or equivalent, or as otherwise approved by the Agency. In the event that the Contractor employs other contractors (subcontractors) as part of the work covered by this agreement, it shall be the Contractor's responsibility to require and confirm that each subcontractor meets the minimum insurance requirements specified above.

If any of the required coverages expire during the term of this agreement, the Contractor shall deliver the renewal certificate(s) including the general liability additional insured endorsement to the Agency at least ten (10) days prior to the expiration date.

9. COMPLIANCE WITH LAW

The Contractor shall be subject to and comply with all federal, state and local laws and regulations applicable with respect to its performance under this Agreement, including but not limited to, licensing, employment and purchasing practices; and wages, hours and conditions of employment.

10. SUBCONTRACT AND ASSIGNMENT

This Agreement binds the heirs, successors, assigns and representatives of the Contractor. The Contractor shall not enter into subcontracts for any work contemplated under this Agreement and shall not assign this Agreement or monies due or to become due, without the

prior written consent of the General Manager of the Agency or his designee, subject to any required state or federal approval.

11. NOTICE

Any notice provided for herein are necessary to the performance of this Agreement and shall be given in writing by personal delivery or by prepaid first-class mail addressed as follows:

AGENCY	CONTRACTOR
Roland Sanford, General Manager Solano County Water Agency 810 Vaca Valley Pkwy., Suite 203 Vacaville, CA 95688	Richard R. Rachiele, Secretary/Principal Resource Management Associates 1756 Picasso Avenue, Suite G Davis, CA 95618

The parties have executed this Agreement the day and year first above written. If the Contractor is a corporation, documentation must be provided that the person signing below for the Contractor has the authority to do so.

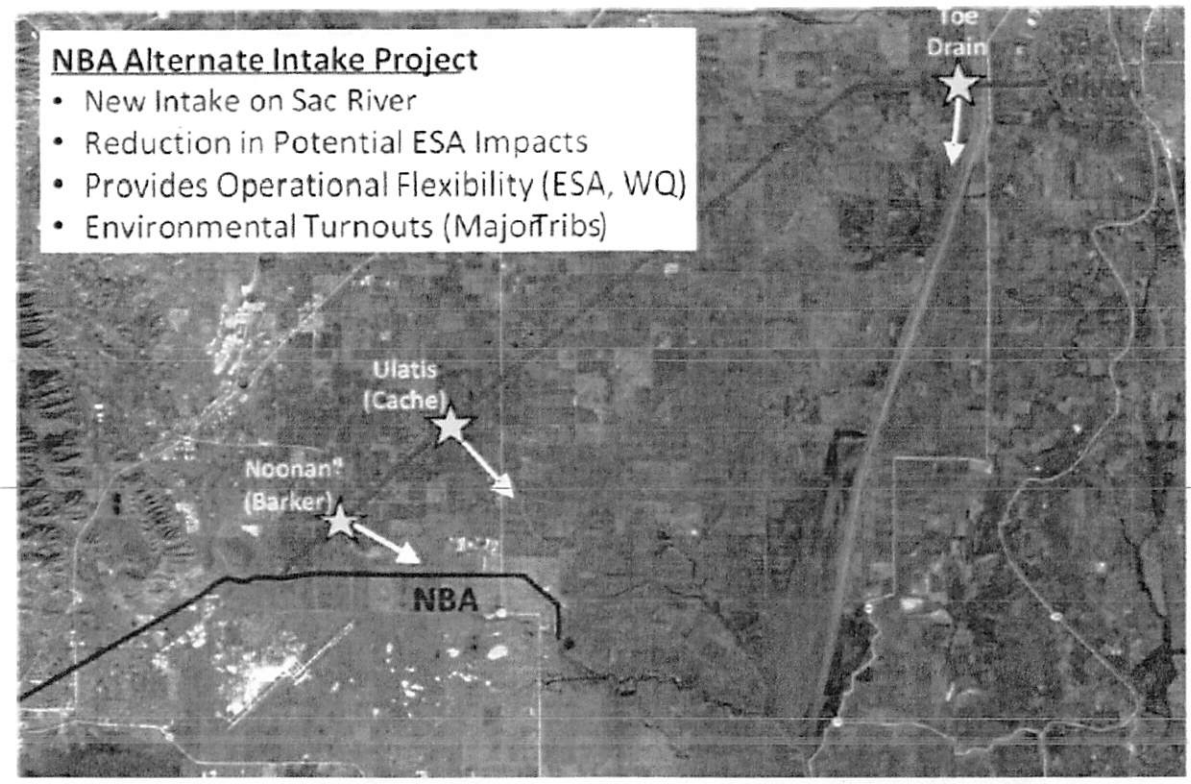
Solano County Water Agency a Public Agency	Resource Management Associates a California Corporation
By:_____ Roland Sanford, General Manager	By:_____ Richard R. Rachiele, Secretary/Principal

EXHIBIT A

SCOPE OF SERVICES

RMA RESOURCE MANAGEMENT ASSOCIATES
WATER RESOURCES ENGINEERING

Feasibility Study Modeling of North Bay Aqueduct Ecological Flows to the Cache Slough Complex



DRAFT SCOPE OF WORK

March 12, 2019

Prepared By:
Resource Management Associates
1756 Picasso Avenue, Suite G
Davis, CA 95618
Contact: Stacie Grinbergs
530-564-7043

BACKGROUND

Under current conditions in the Cache Slough Complex (CSC) there are dead-end sloughs where productivity is providing limited ecological benefits because the food is not being exported. Solano County Water Agency (SCWA) is proposing a feasibility study to inform the degree to which Ecological Flows routed via the North Bay Aqueduct (NBA) Alternative Intake can influence water residence times in the CSC and provide ecological benefits to the system.

APPROACH

The current version of the RMA Bay-Delta model will be updated with recent bathymetry data in the CSC. The hydrodynamic model will be verified in the CSC against USGS flow data collected in 2016.

In a study by Downing et al (2016), water isotope measurements were used to map water residence time in CSC. RMA Bay-Delta model tracer simulations will be performed for the study period (October 2014) to verify the model's ability to accurately predict water age in CSC. These simulations can also be used to help identify locations with optimum conditions for productivity.

The updated RMA Bay-Delta model will be used to simulate hydrodynamics and residence time and productivity export for a range of seasons and hydrologies under the following conditions.

- Baseline: Existing geometry and historical boundary conditions.
- Flow Modifications: Existing geometry with direct or indirect flow modifications to the system.
- Restoration Projects: With proposed restoration projects implemented in the CSC, with and without flow modifications.
- Re-Operation: Existing geometry with reoperation of existing on-the-ground operations.

Hydrodynamic and tracer (residence time) simulations will be run for the period of January 2009 – December 2010. For baseline conditions and sensitivity testing, three seasons will be analyzed:

1. Pre Ag-Season (Feb – Mar): Conditions with no Ag influence and beneficial time period to native fish.
2. Start of Ag-Season (Apr): Conditions with moderate Ag influence but also during a time of beneficial use for native fish.
3. General Ag-Season (May – Sep): Conditions of normal Ag influence.

The 2009 – 2010 simulation period will be analyzed for flow magnitude, directionality, water sources, season/timing and residence time/productivity export. Net flow patterns will be summarized in map format with inset graphs for each of the following locations to distinguish key differences between water year and seasonality:

- Toe Drain @ Lisbon Weir
- Stair Step
- Shag Slough
- Hass Slough
- Upper Cache @ Ulatis
- Cache Sl @ Hastings
- Barker Slough

- Lindsey Slough @ Big Ditch

For the Restoration simulations, model geometries will be developed for two restoration scenarios, representing short-medium term restoration and long-term restoration. Existing RMA model grid from previous restoration studies will be utilized wherever possible.

TASKS

1. Update RMA Bay-Delta model bathymetry in CSC and develop model grids for the baseline, short-medium-term and long-term restoration scenarios.
2. Verify baseline hydrodynamic model for 2016 or similar time period.
3. Verify water quality model (CSC residence time) for October 2014.
4. Provide model output to cbec to help identify areas with ideal residence time for productivity.
5. Update 2009 – 2010 model boundary in CSC to reflect best data and information.
6. Perform one set of hydrodynamic and residence time simulations for the baseline condition with historical flows for the January 2009 – December 2010 period.
7. Perform two sets of hydrodynamic and residence time simulations with historical flows for the January 2009 – December 2010 period with
    a. the short-medium-term restoration scenario and
    b. the long-term restoration scenario.
8. Perform six hydrodynamic and residence time simulations for the existing condition with flow modifications for the January 2009 – December 2010 period with high and low range inflows at three separate locations.
    a. 100 cfs at the Toe Drain
    b. 100 cfs at Ulatis (Cache)
    c. 100 cfs at Noonan (Barker)
    d. 1000 cfs100 cfs at the Toe Drain
    e. 1000 cfs at Ulatis (Cache)
    f. 1000 cfs at Noonan (Barker)
9. Perform twelve hydrodynamic and residence time simulations for the short-medium-term and long-term restoration scenarios with flow modifications for the January 2009 – December 2010. Two simulations will be performed with high and low range inflows at three separate locations.
    a. Short-medium-term restoration with 100 cfs at the Toe Drain
    b. Short-medium-term restoration with 100 cfs at Ulatis (Cache)
    c. Short-medium-term restoration with 100 cfs at Noonan (Barker)
    d. Short-medium-term restoration with 1000 cfs100 cfs at the Toe Drain
    e. Short-medium-term restoration with 1000 cfs at Ulatis (Cache)
    f. Short-medium-term restoration with 1000 cfs at Noonan (Barker)
    g. Long-term restoration with 100 cfs at the Toe Drain
    h. Long -term restoration with 100 cfs at Ulatis (Cache)
    i. Long-term restoration with 100 cfs at Noonan (Barker)
    j. Long-term restoration with 1000 cfs100 cfs at the Toe Drain
    k. Long-term restoration with 1000 cfs at Ulatis (Cache)
    l. Long-term restoration with 1000 cfs at Noonan (Barker)
10. Perform six hydrodynamic and residence time simulations for the existing condition with small flows added at up to three locations for one to two-week periods during the three ag seasons: pre-ag, start of ag and general ag. flows for the January 2009 – December 2010.
    a. 5 cfs to Barker Slough at BSPP
    b. 5 cfs to Hass Slough at RD 2068 intake

   c. 5 cfs at Ulatis
   d. 20 cfs to Barker Slough at BSPP
   e. 20 cfs to Hass Slough at RD 2068 intake
   f. 20 cfs at Ulatis
11. (optional) Develop model grid for large scale tidal wetland restoration on both the SCWA and DFW parcels, connecting in to Calhoun Cut, Barker Slough and Upper Lindsey Slough.
12. (optional) Perform two sets of hydrodynamic and residence time simulations with large scale tidal restoration and historical flows for the January 2009 – December 2010 period with
    a. historical boundary conditions
    b. optimized NBA flow conditions, based on results of previous modeling tasks.
13. Post-process all model results to produce plots and figures illustrating flow magnitude, directionality, water sources, season/timing and net flow patterns. Analysis will focus on three seasons: pre-ag, start of ag and general ag.
14. Produce a brief technical memorandum summarizing all modeling and results.

CONSIDERATIONS

Incomplete flow data in CSC make development of boundary conditions difficult. We will consider modifications to DICU, use of DCD instead of DICU and both cbec and RMA estimated boundary conditions.

Current operations include Colusa Drain flows during late August and September. These flows should be added to the historical boundary flows for 2009 – 2010.

DELIVERABLES

Brief technical memorandum summarizing the modeling and results, including maps and plots described above.

BUDGET ESTIMATE

Task 1: $10,128

Task 2: $13,344

Tasks 3-4: $13,344

Tasks 5-6: $14,256

Tasks 7-9: $19,476

Task 10) $9,144

Task 13) $20,388

Task 14) $16,984

Total for Tasks 1-10, 13 and 14: $107,920

Optional Tasks 11 and 12) $17,592

SCHEDULE

Work will be completed within approximately four months of the notice to proceed.

REFERENCE

Downing BD, Bergamaschi BA, Kendal C, Kraus TEC, Dennis KJ, Carter JA, Von Dessonneck TS. 2016. Using Continuous Underway Isotope Measurements to Map Water Residence Time in Hydrodynamically Complex Tidal Environments. Environ. Sci. Technol.

RATE SHEET

2019 Fee Schedule
For Professional Services

Resource Management Associates

	Description	Hourly Rate
Labor		
	Principal	$258.00
	Program Manager	$219.00
	Technical Manager	$219.00
	Senior Water Resources Engineer	$195.00
	Water Resources Engineer	$154.00
	Junior Water Resources Engineer	$114.00
	Senior Water Resources Specialist	$195.00
	Water Resources Specialist	$154.00
	Junior Water Resources Specialist	$114.00
	Senior Software Programmer	$195.00
	Software Programmer	$154.00
	Junior Software Programmer	$114.00
	Software QA/Control Engineer	$154.00
	Software Technician	$88.00
	Junior Technical Writer	$88.00
	Office Manager	$97.00
	Clerical	$77.00
Other Direct Costs		
	Mileage	$54.5/mi
	Per Diem	Std. Gov't
	Materials fees & other ODC's	Cost+5%
	Special Services or equipment	Ind. Quote

EXHIBIT B

RATE OF COMPENSATION

2019 Fee Schedule
For Professional Services

Resource Management Associates

	Description	Hourly Rate
Labor		
	Principal	$258.00
	Program Manager	$219.00
	Technical Manager	$219.00
	Senior Water Resources Engineer	$195.00
	Water Resources Engineer	$154.00
	Junior Water Resources Engineer	$114.00
	Senior Water Resources Specialist	$195.00
	Water Resources Specialist	$154.00
	Junior Water Resources Specialist	$114.00
	Senior Software Programmer	$195.00
	Software Programmer	$154.00
	Junior Software Programmer	$114.00
	Software QA/Control Engineer	$154.00
	Software Technician	$88.00
	Junior Technical Writer	$88.00
	Office Manager	$97.00
	Clerical	$77.00
Other Direct Costs		
	Mileage	$54.5/mi
	Per Diem	Std. Gov't
	Materials fees & other ODC's	Cost+5%
	Special Services or equipment	Ind. Quote

1756 Picasso Avenue, Suite G Davis, CA 95618 Tel (530) 564-7043 Fax (530) 231-5323

ACTION OF
SOLANO COUNTY WATER AGENCY

DATE: **April 11, 2019**

SUBJECT: **Adoption of January 2019 Westside Sacramento Integrated Regional Water Management Plan Update**

RECOMMENDATION:

Approve, through adoption of Resolution 2019-03, January 2019 Westside Sacramento Integrated Regional Water Management Plan Update.

FINANCIAL IMPACT: None

BACKGROUND:

The Westside Sacramento Integrated Regional Water Management Plan (Westside Sac IRWMP), which was approved by the California Department of Water Resources in 2013, encompasses all of Yolo County and portions of Solano, Napa, Colusa and Lake Counties, and to date has secured over 10 million dollars of IRWMP grant funds for the region as a whole, with approximately 2 million dollars for projects specifically within Solano County. In order to remain eligible for future IRWMP grant funds the Westside Sac IRWMP was recently updated to incorporate and address new State mandates, most notably Assembly Bill 1249 (new water quality standards), Senate Bill 985 (Stormwater Resources Plans), and guidance pertaining to the participation of Native American tribes (see attached Executive Summary). Each of the current Westside Sac IRWMP participants, including the Solano County Water Agency, must formally approve the updated Westside Sac IRWMP in order to remain a participant and be eligible for future grant funding opportunities. Additional information regarding the Westside Sac IRWMP can be found at www.westsideirwm.com .

Recommended: _____
Roland Sanford, General Manager

☐	Approved as recommended	☐	Other (see below)	☒	Continued on next page

Modification to Recommendation and/or other actions:

I, Roland Sanford, General Manager and Secretary to the Solano County Water Agency, do hereby certify that the foregoing action was regularly introduced, passed, and adopted by said Board of Directors at a regular meeting thereof held on April 11, 2019 by the following vote:

Ayes:

Noes:

Abstain:

Absent:

Roland Sanford
General Manager & Secretary to the
Solano County Water Agency

RELEVANCE TO 2016-2025 SCWA STRATEGIC PLAN:

The adoption of Resolution 2019-03 approving the Westside IRWMP update is consistent with Goal # 2 of the 2016-2025 Strategic Plan (*Water Management infrastructure: C-Inventory facilities and their operational needs, D-Identify and evaluate needs for infrastructure improvement);* Goal #3 *(Water Resource Resiliency: A-Promote regional water supply and flood management interests in Yolo/Bypass/Cache Slough Complex)*; Goal # 4 *(B-Evaluate, and where appropriate, coordinate public awareness of water-related programs throughout the County)*; Goal # 6 *(Natural Resources Stewardship: C-Protect SCWA water supply sources, E-Monitor and assess outside planning efforts for influences on SCWA's habitat stewardship activities)*; and Goal # 7 *(Flood Management: Implement SCWA's role in flood management: A-Identify local and regional flood management facilities relevant to SCWA and Solano County interests).*

RESOLUTION NUMBER 2019-03

RESOLUTION OF THE SOLANO COUNTY WATER AGENCY ADOPTING JANUARY 2019 WESTSIDE SACRAMENTO INTEGRATED REGIONAL WATER MANAGEMENT PLAN UPDATE

WHEREAS, The Westside Sacramento Integrated Regional Water Management Plan (Westside Sac IRWMP), which encompasses all of Yolo County and portions of Solano County, Napa County, Colusa County and Lake County was prepared in 2013 pursuant to prevailing guidelines provided by the California Department of Water Resources; and

WHEREAS, The Regional Water Management Group, which consists of representatives from the Lake County Watershed Protection District, Napa County Flood Control and Water Conservation District, Solano County Water Agency, Water Resources Association of Yolo County, and Colusa County Resource Conservation District oversees implementation of the Westside Sac IRWMP; and

WHEREAS, the Westside Sac IRWMP was updated in January 2019 to incorporate and address new State mandates; and

WHEREAS, each of the current Westside Sac IRWMP participants, including the Solano County Water Agency, must formally approve the updated Westside Sac IRWMP in order to remain a participant and be eligible for future grant funding opportunities.

NOW THEREFORE BE IT RESOLVED that the SOLANO COUNTY WATER AGENCY adopts the January 2019 Westside Sacramento Integrated Regional Water Management Plan update.

I, ROLAND SANFORD, General Manager and Secretary to the Board of Directors of the Solano County Water Agency, do herby certify that the foregoing resolution was regularly introduced, passed, and adopted by said Board of Directors, at a regular meeting thereof held on the 11th day of April, 2019, by the following vote:

Ayes:

Noes:

Abstain:

Absent:

Roland Sanford,
General Manager and Secretary to the
Solano County Water Agency

WESTSIDE
SAC IRWM

Westside Sacramento
Integrated Regional Water Management Plan Update

Kennedy/Jenks Consultants

January 2019

Executive Summary

This *Integrated Regional Water Management Plan* (IRWM Plan) defines a clear vision for the management of water resources in the Westside Sacramento Region (Region) and highlights important actions needed to help accomplish that vision through the year 2040. This IRWM Plan Update complies with the *2016 Integrated Regional Water Management Grant Program Guidelines* applicable to Proposition 1 IRWM grant funding published by the California Department of Water Resources (DWR) in July 2016.

This IRWM Plan defines a clear vision for the management of water resources in the Region and highlights important actions needed to help accomplish that vision through the year 2040. The 2018 IRWM Plan complies with the Integrated Regional Water Management Guidelines for Proposition 1 published by DWR in November 2016.

ES.1 Introduction (Section 1)

The information contained within this IRWM Plan provides an opportunity for more than 70 water supply, land use management, flood management, and ecosystem-focused organizations operating within the Region to accomplish more than they could accomplish individually. The array of goals, objectives, selected resource management strategies, and high-priority projects represent a collective view of how to improve integrated water management throughout the Region. The Plan establishes a clear path forward both to increase the collective understanding of integrated water management throughout the Region and to respond collaboratively to the challenges of managing water and associated natural resources. If this integrated planning effort has been successful, this IRWM Plan will be a dynamic and useful planning tool for the Region. While it does not provide discretionary approval for any given project, it does provide a framework to improve understanding and take high-priority actions to address the major water-related challenges and opportunities facing the Region through 2040.

To represent the Region, four agencies and an association of agencies formed the Regional Water Management Group (RWMG) through a *Memorandum of Understanding* (MOU). The RWMG includes Lake County Watershed Protection District (WPD), Napa County Flood Control and Water Conservation District (FC&WCD), Colusa County Resource Conservation District (RCD), Solano County Water Agency (SCWA), and Water Resource Association (WRA) of Yolo County. The Westside RWMG satisfies the requirements of such an entity per the California Water Code (CWC) Section 10539. The participating agencies and association joined together to develop this IRWM Plan that:

- Foster[s] coordination, collaboration, and communication among entities responsible for water-related issues and interested stakeholders to achieve greater efficiencies, provide for integration of projects, enhance public services, and build public support for vital projects; and
- Facilitates regional cooperation in providing water-supply reliability, water recycling, water conservation, water-quality improvement, stormwater capture and management, flood management, wetlands enhancement and creation, and environmental and habitat protection and improvements, and other elements.

The RWMG appointed a Regional Coordinating Committee (CC) to guide development of and support implementation of the Plan. The CC consists of one staff representative and an alternate appointed from each of the agencies and association that make up the RWMG.

The collective vision presented in this Plan aims to address the major challenges and opportunities related to managing water and associated natural resources within the Region. The numerous and complex challenges and opportunities addressed in this Plan are captured in the following primary focal points:

- Continue to provide safe and reliable water supplies for a variety of uses.
- Improve habitat and ecosystem health (including the monumental challenge of addressing effects caused by numerous invasive species).
- Manage a wide array of risks including public health, fire, flood, and potential disruptions to institutional services.
- Sustain and modernize water supply, water quality, and flood management infrastructure.

- Address many significant and long-standing water quality concerns.
- Foster the reasonable use of water and associated natural resources within the Region through the adoption of evolving technologies and best management practices.
- Further the collective understanding of watershed functions and groundwater basins.
- Improve education and awareness among citizens about the importance of sustainable water and natural resources management, and the crucial roles citizens play.
- Improve opportunities for water-based recreation.

ES.2 The Westside Region (Section 2)

The Westside Region is vast and encompasses approximately 3,000 square miles, from the Coastal mountain range in the west to the Sacramento River and Sacramento-San Joaquin River Delta on the south and east. The Region includes all of Yolo County and portions of Lake, Napa, Solano, and Colusa Counties that are within the Cache Creek and Putah Creek watersheds. Major communities within the Region include the cities of Clearlake, Davis, UC Davis, Dixon, Lakeport, Rio Vista, Vacaville, West Sacramento, and Woodland. The Westside Region includes the two principal watersheds of Putah and Cache Creeks and other areas of land in the northern portion of Yolo and Solano Counties, as shown on Figure ES-1 on the following page. Figure ES-1 also shows the 3 Planning Areas delineated for the purposes of technical analysis which include the Upper Cache Creek, Upper Putah Creek and Valley Floor Planning Areas. This Region includes areas that share many common water supply sources and groundwater basin interconnections including the following features:

- Surface water bodies: Clear Lake, Lake Berryessa, and Indian Valley Reservoir; and
- Major water-related infrastructure: Monticello Dam, Indian Valley Dam, Cache Creek Dam, and Capay Diversion Dam.

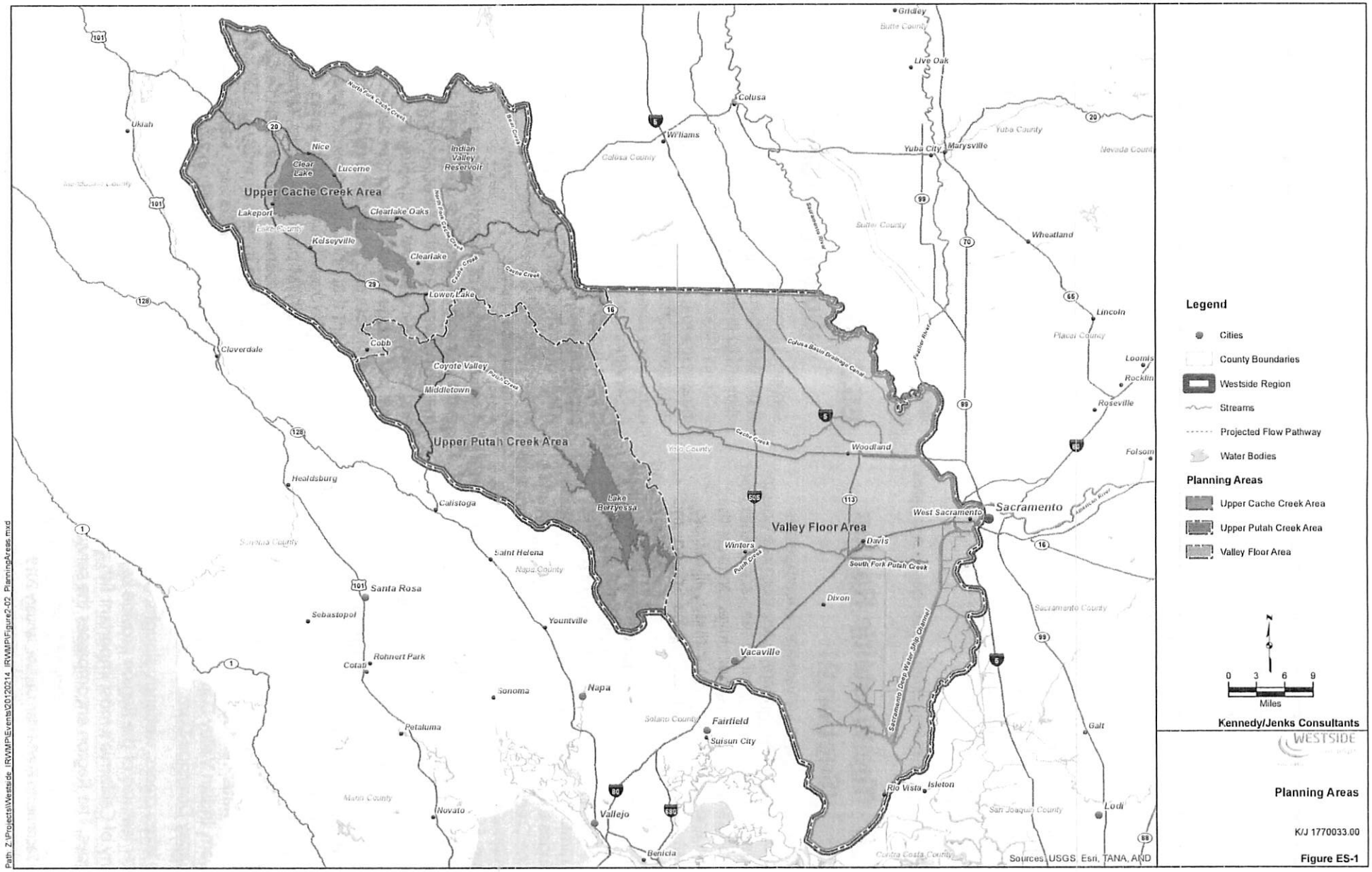
The lakes, creeks, wetlands, sloughs, Delta, and other water features of the Region provide key habitat for many of California's most important fish and wildlife species. The Region encompasses the service areas (or partial service areas) of multiple local agencies, including more than 90 entities with water and related resource management responsibilities.

Approximately 390,000 people live within the Region today, with the majority of the Upper Cache and portions of the Valley Floor Planning Area meeting the definition of a disadvantaged community (DAC). Much of the valley area lands support significant agricultural activities. Even so, the vast majority of the land within the Region remains undeveloped. The communities throughout the Region value preservation of these open spaces and agricultural lands. In addition, many residents both inside and outside the Region demonstrate interest in restoring elements of the Region's historical environmental function.

ES.3 Existing and Future Conditions (Section 3)

Section 3 provides an overview of the existing and expected future conditions for the Region that are relevant to creating an IRWM Plan. The description includes information about key water management infrastructure (both constructed and naturally occurring), summarizes and presents important data, introduces some of the major challenges, and offers observations about the current water management system based on available data. The information is organized and presented as it relates to the topics of water quantity, water quality, flood protection, environmental resources, and the potential affects from climate change.

A region the size of Westside Sacramento is extremely complex and the operational aspects of managing water and the associated infrastructure and other resources within the Region require extensive knowledge of many important details. The amount of data and information related to water management that one could consider across the Region can be overwhelming. In keeping with the goals for the IRWM planning process, strategic information is presented in this section in a synthesized way designed to help promote understanding and support decision makers and stakeholders to work together more effectively in ways that benefit the Region as a whole.


Upper Cache Creek Area
Upper Putah Creek Area
Valley Floor Area
Lake Berryessa
Indian Valley Reservoir
Clear Lake
Lakeport
Kelseyville
Clearlake
Clearlake Oaks
Lower Lake
Cobb
Coyote Valley
Middletown
Nice
Lucerne
Ukiah
Cloverdale
Healdsburg
Calistoga
Saint Helena
Santa Rosa
Sebastopol
Yountville
Rohnert Park
Cotati
Petaluma
Sonoma
Napa
Novato
Vallejo
Benicia
Fairfield
Suisun City
Vacaville
Dixon
Winters
Davis
Woodland
West Sacramento
Sacramento
Rio Vista
Isleton
Galt
Lodi
Lincoln
Roseville
Rocklin
Loomis
Folsom
Wheatland
Yuba City
Marysville
Colusa
Williams
Live Oak
Gridley
Colusa Basin Drainage Canal
Cache Creek
Putah Creek
South Fork Putah Creek
Sacramento Deep Water Ship Channel
Sacramento River
Feather River
American River
Lake County
Napa County
Solano County
Yolo County
Sutter County
Yuba County
Nevada County
Placer County
Sacramento County
San Joaquin County
Contra Costa County
Marin County
Sonoma County
Colusa County
Butte County
Sources: USGS, Esri, TANA, AND
Legend
Cities
County Boundaries
Westside Region
Streams
Projected Flow Pathway
Water Bodies
Planning Areas
Upper Cache Creek Area
Upper Putah Creek Area
Valley Floor Area
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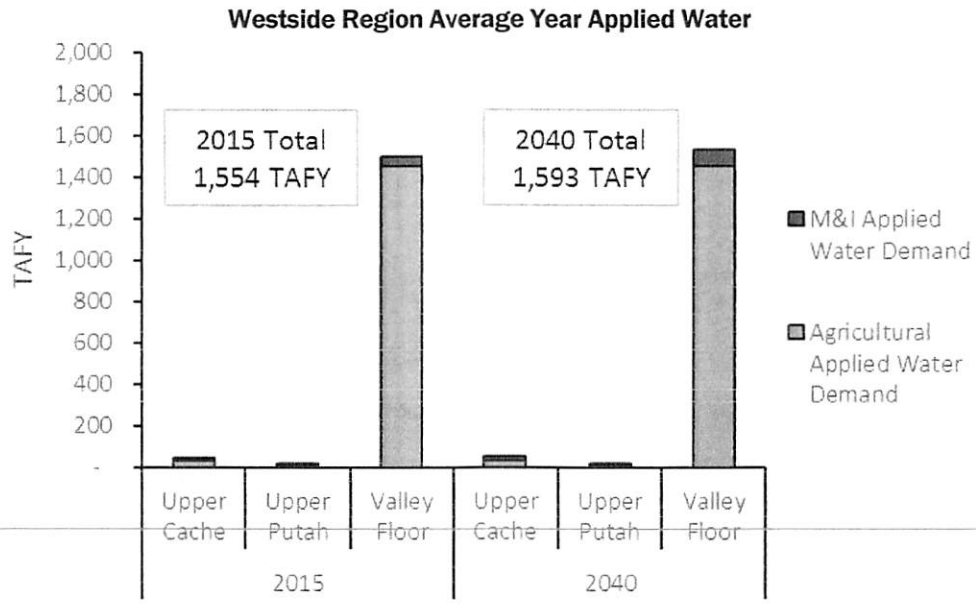
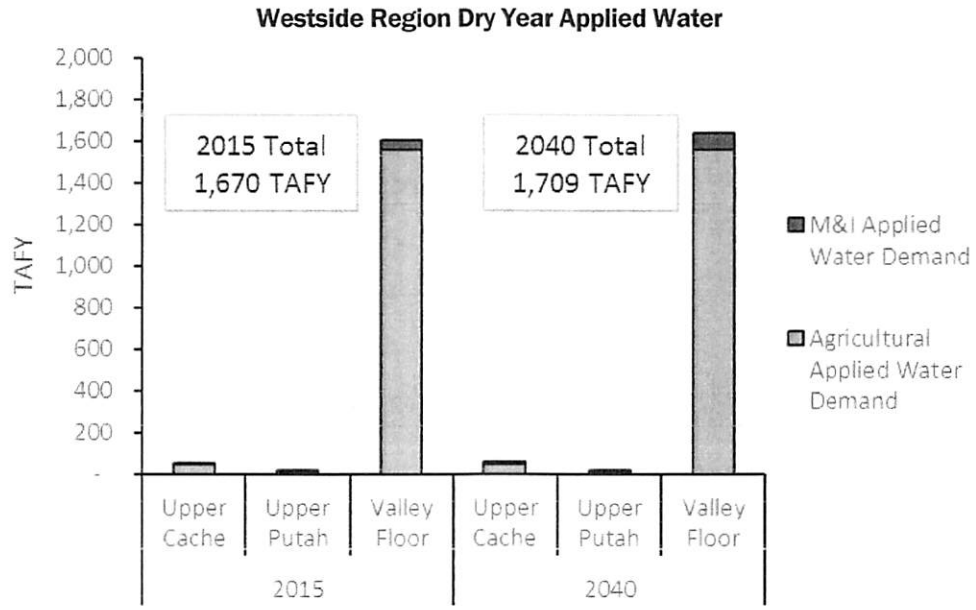
Some key points specific to the Westside Region presented in Section 3 include:

- As shown on Figure ES-2, the region uses about 1.6 million acre-feet per year (AFY) of water in an average year and about 1.7 million AFY in a dry year. Agriculture is estimated to use about 94 percent of the water in the Region on an average annual basis with 96 percent of all water used in the Region occurring in the Valley Floor Planning Area.

Figure ES-2: Current and Future Water Demands





- Surface water accounts for approximately 66 percent of the water used in an average year in the Region. Much of the Region also has access to groundwater allowing conjunctive management of surface water and groundwater sources for increased reliability and resilience to drought and climate change. However, those areas reliant on a single source of supply are at risk for shortages.
- Key water quality concerns center around mercury and nutrients in Clear Lake; total maximum daily loads (TMDLs) have been developed for these constituents for several water bodies including Clear Lake, Cache Creek, and the Sacramento-San Joaquin Delta. Groundwater quality concerns include arsenic, boron, chromium, iron, manganese, and selenium.
- Several locations within the Region are susceptible to flood, namely the area of Clear Lake and the areas adjacent to the Sacramento River in the Valley Floor Planning Area.
- The proximity of the Westside Region to the Sacramento-San Joaquin River Delta (Delta) necessitates consideration of the myriad environmental, water quality, and flow concerns associated with Delta restoration. In addition, restoration of the Clear Lake hitch (a native fish unique to Clear Lake that is culturally important to Native American Tribes around the Lake) and management of invasive species are other significant concerns.

ES.4 Water and Land Use Planning (Section 4)

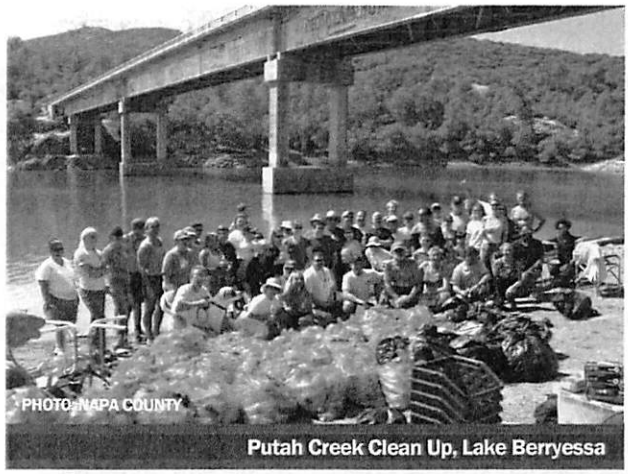
Water management and land use are inherently linked in that the activities and processes that occur on the land directly affect the use and movement of water within a watershed. These linkages between land use and the hydrologic cycle, and similarly between water management and the ability to support particular land uses, are important to consider when making decisions about either land or water. DWR recognizes these linkages and requires that IRWM Plans describe the relationships and interactions between regional planning efforts fostered by the Regional Water Management Group and local water planning and local land use planning. Section 4 describes how land use planning and decision making are coordinated with water management planning and implementation within the Region and highlights opportunities for improved coordination particularly in the areas of improved collaboration with federal and state land management agencies and flood management.

ES.5 Challenges and Opportunities (Section 5)

A region the size of Westside Sacramento is extremely complex and challenging. Managing the operational aspects of water and the associated infrastructure and other resources within the Region requires extensive knowledge of many important details, and presents several water-related challenges and opportunities. These challenges and opportunities were identified through multiple conversations with resource managers and other stakeholders and were informed by the information presented in Sections 2 - 4 of this Plan. The term "challenges and opportunities" is used to mean the water-related items of interest or concern within the Region. The challenges and opportunities identified include:

Improve Education and Awareness

Raising citizens' awareness of their role in sustaining the Region's water and natural resources will be vital. Many individuals and organizations throughout the Region who are interested in water resources management are already engaged in efforts that support the work of water management entities; however, this is not enough to satisfy the objectives in this IRWM Plan. Fulfilling the vision for integrated water management presented in this Plan will require more education for and broader participation of residents within the Region.



Putah Creek Clean Up, Lake Berryessa

Improve Habitat and Ecosystem Health

The Region contains habitats for a broad range of terrestrial and aquatic, state and federally recognized special-status species. In particular, aquatic species specific to the Sacramento-San Joaquin River Delta and vernal pools, such as Delta smelt, vernal pool fairy shrimp, and steelhead, have led to ongoing preparation of habitat conservation plans by several counties in the Region as well as the California Natural Resource Agency's California Water Fix, initially proposed as the Bay Delta Conservation Plan.

In addition, a number of aquatic/riparian invasive plants and animal species either already occur or pose a significant threat to the Region. Invasive animal species occurring in the Region include New Zealand mud snails (currently confined to Putah Creek). Dreissenid mussels, such as quagga and zebra mussels, have not yet been found in the Region. However, because of their presence in nearby watersheds, the threat of infestation is real and the potential consequences daunting. Regional resource management agencies have already initiated activities to prevent the introduction of these mussels to the Region, but more must be done. Several invasive plant species, including Arundo donax (giant reed), water hyacinth, Eurasian milfoil, and ravenna grass, already cause significant negative impacts in the Region.

Provide Safe and Reliable Water Supplies

Water is used within the Region predominantly for agricultural irrigation. Municipal and industrial (M&I) use is small relative to agricultural use but vital, because it supports a number of local communities. Although some population growth is expected throughout the Region between now and 2040, agriculture is expected to remain the dominant water use into the foreseeable future.

Existing water supplies within the Region are generally sufficient to fulfill the current M&I and agricultural demands during an average water year. However, in dry years, decreased surface water availability could create negative effects for agricultural and municipal users alike. In years with decreased surface water supply, many agricultural users convert to more expensive groundwater or fallow their land for that year. Some municipal suppliers could experience occasional short-term shortages and might be required to use alternative supplies under the driest of expected conditions. This IRWM Plan includes objectives and numerous strategies to maintain or increase the reliability of water supplies for agricultural and municipal users within the Region.

Many water users rely on conjunctive water management (meaning the strategic and coordinated use of a variety of surface and groundwater sources), which will be essential to the sustainability of a reliable water supply in the future. The water-supply portfolio for the Region is diverse and includes the following primary sources: Lake Berryessa supplied by Upper Putah Creek; Clear Lake and Indian Valley Reservoir in Upper Cache Creek; State Water Project (SWP); Central Valley Project (CVP); Sacramento River; and multiple groundwater aquifers.

Groundwater supplies have been relatively stable, especially in the eastern portion of the Region, since historical groundwater overdraft was corrected with the construction of Monticello Dam on Upper Putah Creek and Indian Valley Dam on the North Fork of Cache Creek. These dams created Lake Berryessa and Indian Valley Reservoir, respectively, which substantially increased conjunctive use of surface water and groundwater throughout Yolo and Solano Counties. Some areas that still rely solely on groundwater occasionally experience the effects of periodic overdraft and subsidence, both of which may occur after multiple years of drought conditions. An improved understanding of the interconnections between the watersheds and groundwater basins of the Region may lead to additional conjunctive water management opportunities on a regional level.

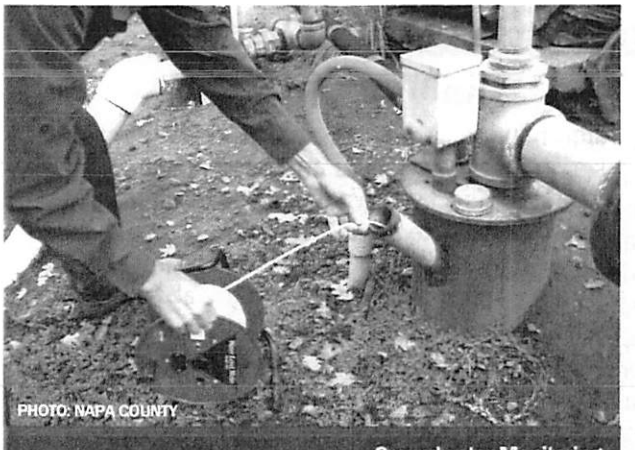


PHOTO: NAPA COUNTY

Groundwater Monitoring

Sustain and Modernize Infrastructure

The water management system within the Region includes a wide array of infrastructure, such as dams, canals, distribution systems, treatment systems, groundwater wells and pumps, and levees. As the infrastructure ages, the risks of disruption or damage

increase. Maintaining, modernizing, and improving this extensive infrastructure to continue to provide the expected level of service will require significant investment and effort over the next 20 years.

Foster Reasonable Use

The growing number of water-related conflicts within California, in particular related to the Sacramento-San Joaquin Delta, increase expectations to foster the reasonable use of water and promote environmental and natural resource stewardship within all regions of California. This IRWM Plan addresses opportunities to increase the wise use of water within the Region and explores ways to reduce negative impacts related to human water use and waterway management.

Manage Risks

Citizens within the Region face a number of other water-related risks that must be managed, including public health hazards associated with water quality and water-borne pathogens; flood hazards; fires; and other potential disruptions to water supply availability. Flood hazards pose a significant challenge for certain areas within the Region, specifically the tributaries to and lakefront areas of Clear Lake, as well as the floodplains of the Sacramento River.

Further Collective Understanding of Watersheds and Aquifers

As human activities related to water resources in the Region and demands on these resources continue to increase, a more robust understanding of the functions of the watersheds and groundwater basins becomes more crucial. This IRWM Plan summarizes much of what is known about the natural and constructed water management systems within the Region and identifies areas where additional investments to improve understanding are important.

Address Water Quality Concerns

The protection and improvement of water quality is essential to both human health and aquatic ecosystem function. Surface water quality within the Region can affect the cost of providing safe drinking water, and it directly impacts ecosystem function. Issues such as mercury contamination, cyanobacteria management, long-term groundwater quality degradation, and other surface water quality concerns are addressed in this IRWM Plan. Groundwater quality varies throughout the Region and among different aquifer formations. Groundwater quality can affect managers' ability to meet wastewater discharge requirements in the future. Some agencies that currently rely on groundwater for drinking water supplies are working to develop surface water supplies to help address these concerns.

Often of greater concern are harmful algal blooms (HABs) which occur when algae and cyanobacteria produce harmful biotoxins that can pose health risks to humans and animals consuming or recreating in affected waters. The toxins can also accumulate in fish and shellfish thereby making them unsuitable for consumption.

Improve Opportunities for Recreation

Finally, the lakes and streams in the Region support an array of water-based recreation including fishing, swimming, water skiing, sailing, boating, jet skiing, and white-water sports. These recreational opportunities are enjoyed by both residents of and visitors to the Region. Protecting the Region's waterways to maintain and improve recreational opportunities is important to the quality of life for residents and the economic vitality of the Region.

ES.6 Goals and Objectives (Section 6)

The goals and objectives presented in this section represent the foundational intent of this IRWM Plan. Formulating meaningful and relevant goals and objectives for the Westside Sacramento Region required more collaboration and collective interaction than any other topic of this Plan. Section 6 presents the goals and objectives and describes how they were developed. Within this Plan, the term "goal" is used to mean a desired outcome or result for which effort will be made to accomplish it. In contrast, the term "objective" is used to mean a specific and tangible outcome that is intended to be achieved by or during a designated time.

The plan goals are listed alphabetically below:

1. Acknowledge and respect the cultural values and resources of the Region.
2. Improve education and awareness throughout the Region about water, watershed functions, and ecosystems and the need for sustainable resource management to protect community health and well-being.

3. Improve the collective understanding of watershed characteristics and functions (natural and human-induced) within the Region as needed to respond effectively to evolving water resources management challenges and opportunities (e.g., climate change).
4. Improve the form and function of degraded natural channels.
5. Improve water-related public health across the Region and emphasize improvements for populations most in need.
6. Preserve and enhance water-related recreational opportunities.
7. Preserve, improve, and manage water quality to meet designated beneficial uses for all water bodies within the Region.
8. Promote reasonable use of water and watershed resources.
9. Protect and enhance habitat and biological diversity of native and migratory species.
10. Provide reliable water supplies of suitable quality for multiple beneficial uses (e.g., urban, agriculture, environmental, and recreation) within the region.
11. Reduce the risks of disruptive natural and human-caused disturbances affecting the region's water resources, including flooding, fire, and significant institutional interruptions that reduce resources management services.
12. Support improved regional water management through governance throughout the Region that uses science and collaboration to make fair and equitable decisions and investments.
13. Support sustainable economic activities consistent with local and state government planning efforts within the region.

The following table ES-1 presents the Plan Objectives. Each objective was prioritized by assigning it an "importance" and "urgency" priority and linked to one or more of the goals as shown. Section 6 provides a description of the quantitative and/or qualitative measurements that will be used to track completion of the objectives.

Table ES-1: Summary of Objectives

	Summary of Objective	Importance*	Urgency**	Plan Goals
Education and Awareness Focus				
1	Provide and promote use of educational curricula for K-12 students designed to increase awareness of watershed and resource stewardship and how individual stewardship relates to community health and well-being, for K-12 students from July 2013 through the planning period.	Medium	Low	2, 3, 8, 12
2	Provide educational information for the adult population designed to increase awareness of watershed and resource stewardship and how individual stewardship relates to community health and well-being within the Region, from July 2013 through the planning period.	Medium	Low	2, 3, 8, 12
Habitat Focus				
3	Restore native vegetation and form and function along riparian corridors, canals, and other aquatic sites throughout the Region through 2040 to provide stream shading, habitat enhancement, and increased biological diversity.	Medium	Medium	1, 4, 6, 9

	Summary of Objective	Importance*	Urgency**	Plan Goals
4	Quantify the extent of suitable life-cycle habitat currently accessible to Threatened/Endangered/Imperiled (T/E/I) native fish within the Region by December 31, 2014.	High	Medium	3, 6, 9, 12
5	Prioritize, plan, and schedule improvements in suitable life-cycle habitat accessible to T/E/I native fish within the Region by December 31, 2015.	High	Medium	3, 6, 9, 12
6	Increase availability of suitable life-cycle habitat for T/E/I native fish identified by Objective 5.	High	Medium	4, 6, 9
7	Prevent colonization of any regional water body by quagga mussels or zebra mussels and eliminate or prevent the spread of New Zealand mud snails from Putah Creek during the planning period.	High	High	6, 9, 10, 13
8	Establish an invasive plant management plan (including specific and measurable targeted outcomes for species of concern and a schedule to accomplish target outcomes) for the entire Region by December 31, 2015.	High	High	3, 4, 6, 9, 11, 12
9	Implement programs and projects to meet the outcomes defined in the invasive plant management plan developed through Objective 8 (according to the schedule provided in that plan).	Medium	Medium	4, 6, 9, 11
Infrastructure Focus				
10	Create an asset management plan for key water management infrastructure within the Region consistent with the guidance provided in the International Infrastructure Management Manual, by December 31, 2015.	Medium	Low	2, 3, 7, 10, 11, 12, 13
Reasonable Use Focus				
11	Meet 20% by 2020 statewide water conservation targets by December 31, 2020.	Medium	Medium	8, 10, 13
12	Increase adoption of locally cost-effective agricultural BMPs throughout the planning period.	Medium	Medium	4, 7, 8, 10, 13
Recreation Focus				
13	Maintain and increase water-related recreational opportunities within the Region throughout the planning period.	Medium	Low	6, 13
Risk Management Focus				
14	Provide adequate flood protection for all urban and rural areas within the region by December 31, 2050.	High	Medium	4, 5, 11, 13
15	Manage watershed activities and conditions to reduce the risk of large erosion events that could increase undesirable sediment loading to water bodies throughout the planning period.	Medium	Medium	4, 6, 7, 8, 11
Understand Watershed Function Focus				

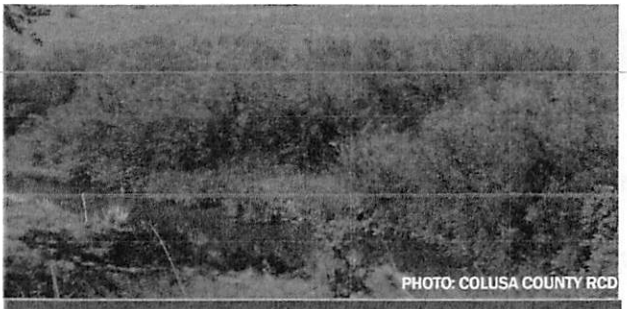
	Summary of Objective	Importance*	Urgency**	Plan Goals
16	Monitor planning of state and federal water-related projects and programs in the Delta and estimate potential local impacts throughout the planning period.	Medium	High	3, 12
17	Monitor conditions and improve understanding to support sustainable use of groundwater basins within the Region as an important part of water supply throughout the planning period.	High	Low	3, 7, 10, 12, 13
18	Maintain and enhance monitoring network and information sharing to support management of watersheds and natural resources within the Region throughout the planning period.	High	Medium	2, 3, 7, 10, 11, 12, 13
Water Quality Focus				
19	Address pollutant sources to meet runoff standards and satisfy targets as described in specific TMDLs within the Region throughout the planning period.	High	Medium	5, 6, 7, 9
20	Minimize accidental spillage/discharges of wastewater to receiving waters throughout the planning period.	Medium	Medium	5, 6, 7, 9, 13
21	Reduce public health risks by reducing contaminants of concern in drinking water sources throughout the planning period.	Medium	Medium	3, 7, 10, 13
22	Meet all drinking water and wastewater discharge standards within the region throughout the planning period.	High	High	5, 6, 7, 9, 13
Water Supply Focus				
23	Provide 100% reliability of M&I water supplies of appropriate quality to meet forecasted demands within the Region throughout the planning period.	High	Medium	1, 7, 10, 13
24	Provide agricultural water supplies of appropriate quality to support a robust agricultural industry within the Region throughout the planning period.	High	Medium	1, 10, 13

* The "importance" assigned to each objective reflects the significance or consequence to the Region of satisfying this objective compared with other objectives.

** The "urgency" assigned to each objective reflects the degree to which this objective warrants speedy attention or action compared with other objectives.

Section 6 also discusses Climate Change Vulnerabilities which were prioritized relative to their relative linkage to Plan objectives. Some high priority Climate Change Vulnerabilities discussed in Section 6 include:

- 1.4: Groundwater supplies in parts of the Region lack resiliency after drought events.
- 2.6: The Region has invasive species management issues at facilities, conveyance structures or in habitat areas.
- 3.2, 3.3, 3.4: Water quality impacts such as algal blooms related to eutrophication, inability to meet



Invasive Tamarisk in Bear Creek

beneficial uses, and vulnerability to water quality shifts during rain events occur in the Region.

- 4.5: A portion of the Region floods at extreme high tides or storm surges.
- 5.1, 5.2, 5.3, 5.4: The Region has critical, aging, infrastructure within the 200-year flood plain, some of which lies within the Sacramento-San Joaquin Drainage District and flood control facilities have been insufficient in the past.
- 6.1, 6.2, 6.3, 6.4, 6.6, 6.8: The Region includes: inland aquatic habitats vulnerable to erosion and sedimentation, estuarine habitats, including the Delta, which rely on freshwater flow, climate sensitive fauna or flora, and endangered and threatened species, and quantified environmental flows or stressors to aquatic life.

ES.7 Resource Management Strategies (Section 7)

The Goals and Objectives for the Westside IRWM Plan presented in Section 6 describe the foundational intent of the Plan. The Plan goals represent broad focus areas for water management actions in the Region, and Plan objectives describe specific outcomes that, when achieved, will improve water-related conditions in the Region. Accomplishing these goals and objectives will require that resource managers and other stakeholders implement a variety of water management actions. Those actions could include projects, programs, or policies designed to help agencies and local governments manage water and related resources. DWR refers to these types of projects, programs, or policies as resource management strategies (RMS). A broad list of resource management strategies were identified in the California Water Plan Update 2013 and must be considered for applicability in an IRWM Plan.

The California Water Plan Update 2013 groups RMS into seven management outcomes. Table ES-2 provides a summary of the management outcomes and RMS that are described in Section 7 of the Plan. RMS that were determined to be applicable to the Westside Region are followed by a ✓, those that were determined as not applicable to the Region are followed by an ×.

Table ES-2: Summary of Management Outcomes and RMS

CWP Management Outcome	Resource Management Strategies
Reduce Water Demand	Agricultural Water Use Efficiency ✓ Urban Water Use Efficiency ✓
Improve Operational Efficiency and Transfers	Conveyance – Delta ✓ Conveyance – Regional/local ✓ System Reoperation ✓ Water Transfers ✓
Increase Water Supply	Conjunctive Management & Groundwater Storage ✓ Desalination – Brackish & Seawater × Precipitation Enhancement × Recycled Municipal Water ✓ Surface Storage – CALFED/State × Surface Storage – Regional/local ✓
Improve Water Quality	Drinking Water Treatment and Distribution ✓ Groundwater Remediation/Aquifer Remediation ✓ Matching Quality to Use ✓ Pollution Prevention ✓ Salt and Salinity Management ✓ Urban Runoff Management ✓

CWP Management Outcome	Resource Management Strategies
Practice Resources Stewardship	Agricultural Lands Stewardship ✓ Ecosystem Restoration ✓ Forest Management ✓ Land Use Planning and Management ✓ Recharge Area Protection ✓ Sediment Management ✓ Watershed Management ✓
Improve Flood Management	Flood Risk Management ✓
People and Water	Economic Incentives ✓ Outreach and Engagement ✓ Water and Culture ✓ Water Dependent Recreation ✓

✓ RMS potentially applicable to the Region.
× RMS not applicable to the Region.

ES.8 Project Review and Prioritization (Section 8)

Project ideas were submitted by proponents throughout the Region for consideration to include in the Plan. The process to decide which projects to include in the Plan and how to prioritize them relied on: information submitted by the proponents that addressed a standard list of project criteria; expert judgment about the relevancy of the submitted projects; and Stakeholder discussions. The projects, programs and management actions submitted by the stakeholders were compiled, reviewed, and scored based on the information provided by the project proponents. Two "call for projects" cycles were issued to stakeholders during the preparation of the 2013 Plan. The first collected a broad list of regional projects, which was then summarized and shared with the public. The second "call for projects" provided an opportunity for stakeholders to discuss commonalities between projects, identify opportunities to integrate, and refine proposed projects or submit new projects. Since 2015, the RWMG has been receiving projects on a continuous basis.

The projects that were submitted by stakeholders demonstrate the breadth of activities needed for the Region to meet its water management objectives. In total, 201 projects were submitted by 57 different organizations and address, to some extent, all 24 of the IRWM Plan objectives. Projects submitted range from large-scale drinking water supply projects to habitat restoration programs, flood management projects, and invasive species management initiatives. The range of projects and programs present multiple opportunities for continued resource and project integration beyond the list of projects included in this Plan. In addition, 28 projects were completed, cancelled, or removed from the Project List. The projects and programs on the updated Project List are summarized in Table ES-3 below by objective focus area and the table also helps to portray the broad variety of types of projects, programs, and actions that were submitted.

All projects included in the IRWM Plan are important to meet the objectives of the Region. The Coordinating Committee will encourage and support actions that advance all of the projects, regardless of their priority. However, the Coordinating Committee expects to focus their attention to supporting the implementation of projects with High Importance and High Urgency first. High Importance and High Urgency projects identified during the 2018 project prioritization process are listed in Table ES-4 on the following page. This project list will be updated and appended over time as projects are completed and new projects are identified.

ES.9 Impacts and Benefits (Section 9)

This section provides an overview of the potential impacts and benefits associated with implementation of the Westside Region IRWM Plan. Because of the nature of the IRWM planning process, the impacts and benefits discussed in this Section are preliminary and not intended to be a complete list; more extensive and project-specific evaluations of impacts and benefits usually occur through project implementation. Impacts are most likely to occur over short-term

periods and are associated with project implementation, with some potential long-term impacts associated with project operation. Impacts will be evaluated on a case-by-case basis during the environmental compliance process.

Table ES-3: Summary of Project Submittals by Objective Focus Area and Project Type

	Project Types			
Objective Focus Areas	**Feasibility Study**	**Implementable Program**	**Implementable Project**	**Maintenance/ Monitoring/ Planning**
Education and Awareness		1	2	4
Habitat and Invasives	17	4	26	6
Infrastructure		2	3	2
Reasonable Use		1	7	2
Recreation	1		3	1
Risk Management	4	1	23	12
Understand Watershed Function		1	6	3
Water Quality	2		20	7
Water Supply	1	1	16	1
TOTAL	**25**	**11**	**106**	**40**

Table ES-4: High Importance/High Urgency Projects

	Planning Area				
Importance, Urgency	**Upper Cache Creek**	**Upper Putah Creek**	**Valley Floor**	**Region Wide**	**TOTAL**
High Importance, High Urgency	2	3	3	2	10
High Importance, Medium Urgency	18	4	60		82
High Importance, Low Urgency			3		3
Medium Importance, High Urgency			1		1
Medium Importance, Medium Urgency	10	6	51		67
Medium Importance, Low Urgency	2		16	1	19
TOTAL	**32**	**13**	**134**	**3**	**182**

The Westside IRWM Plan documents a shared vision for integrated water management and outlines a cooperative approach to achieve that vision. It provides regional water resources benefits largely by fostering improved coordination, collaboration, and communication among entities in the Region. Such collaboration is supported both by the Plan development process and the resulting, newly formed Plan implementation framework.

This collaborative approach to regional planning helps ensure that multiple aspects of watershed planning are considered together rather than allowing one particular geographic area or project type to dominate. It helps share benefits and impacts instead of allowing one group or geographic area to reap benefits while another withstands impacts. Also, regional planning helps ensure that projects designed to achieve one particular objective (e.g., water supply) will be supportive of (or at least compatible with) other objectives (e.g., flood management, water quality, or habitat preservation).

ES.10 Coordination (Section 10)

One of the key aspects of improving water resources management includes providing multiple opportunities for water managers, community stakeholders, and other organizations with interests in, to be informed and participate in the IRWM program. The RWMG is responsible for coordinating implementation activities with agencies, local participants and stakeholders within the Region, as well as state and federal agencies and IRWM Regions that are adjacent to the Westside Region. A structured approach to coordination is provided in the Plan to help reduce the likelihood of conflicts within the Region and improve utilization of resources. Activities will be facilitated by the Regional Water Management Group and Coordinating Committee, as defined under their specific responsibilities.

ES.11 Plan Implementation Framework (Section 11)

One of the key considerations for developing and implementing an IRWM Plan is the governance structure chosen to perform the tasks necessary to develop and implement the Plan. Section 11 describes the governance structure used for developing the Westside Plan and describes a governance structure that will support implementation and updating of the Plan over the next 20 years. These governance structures are consistent with the Integrated Regional Water Management Guidelines for Proposition 1 published by the California Department of Water Resources in November 2016.

Once the Westside IRWM Plan has been adopted, the focus of the RWMG will change significantly. Some of the activities conducted during Plan development will continue, but the emphasis will shift away from planning toward implementation and tracking of progress.

The current structure of the RWMG, which was established through an MOU with a staff led Coordinating Committee, has functioned well for managing funding and providing guidance and oversight during the Plan development process. Therefore, the Coordinating Committee recommended and the Stakeholder Group agreed that the Region should continue with a similar RWMG model through the initial phases of Plan implementation. A draft MOU amendment has been prepared (see Appendix A.1) to establish a Regional Water Management Group responsible to support the implementation of the adopted Westside IRWM Plan.

Decisions authorized by the RWMG will continue to be made using broad agreement as during the development of the Plan. All interested participants will be invited to participate as equals during Stakeholder Input Meetings to discuss implementation activities to meet the Plan objectives. The Coordinating Committee will set agendas, interact with stakeholders, and foster collaborative decisions as described in Section 10. The Westside IRWM CC meetings will follow the Brown Act provisions. If for some reason broad agreement cannot be reached between the Coordinating Committee and the Stakeholder Group related to specific items within a reasonable amount of time and effort, the Coordinating Committee will discuss the item(s) where broad agreement cannot be reached and then decide by majority vote how to proceed.

Implementation of the Westside IRWM Plan will rely on actions taken by existing agencies and organizations within the Region. The RWMG, as represented by the Coordinating Committee, will provide leadership for fostering cooperation, continuing coordination, tracking of Plan performance, and updating of the Westside IRWM Plan. The Coordinating

Committee may form stakeholder subcommittees to help focus collaboration and progress on specific topics or objectives. Changes to the project list or Plan objectives will be decided as described above and published as Plan Amendments. The Coordinating Committee will request that members of the Regional Water Management Group and project proponents adopt the Plan Amendments as an addendum to the previously adopted Westside IRWM Plan.

One of the most important aspects of IRWM Plan implementation for the Westside Region is having processes in place to ensure the public and interested stakeholders continue to be involved. This will be accomplished through multiple avenues of communication and engagement between the CC and stakeholders in order to obtain input and make sound decisions regarding regional activities.

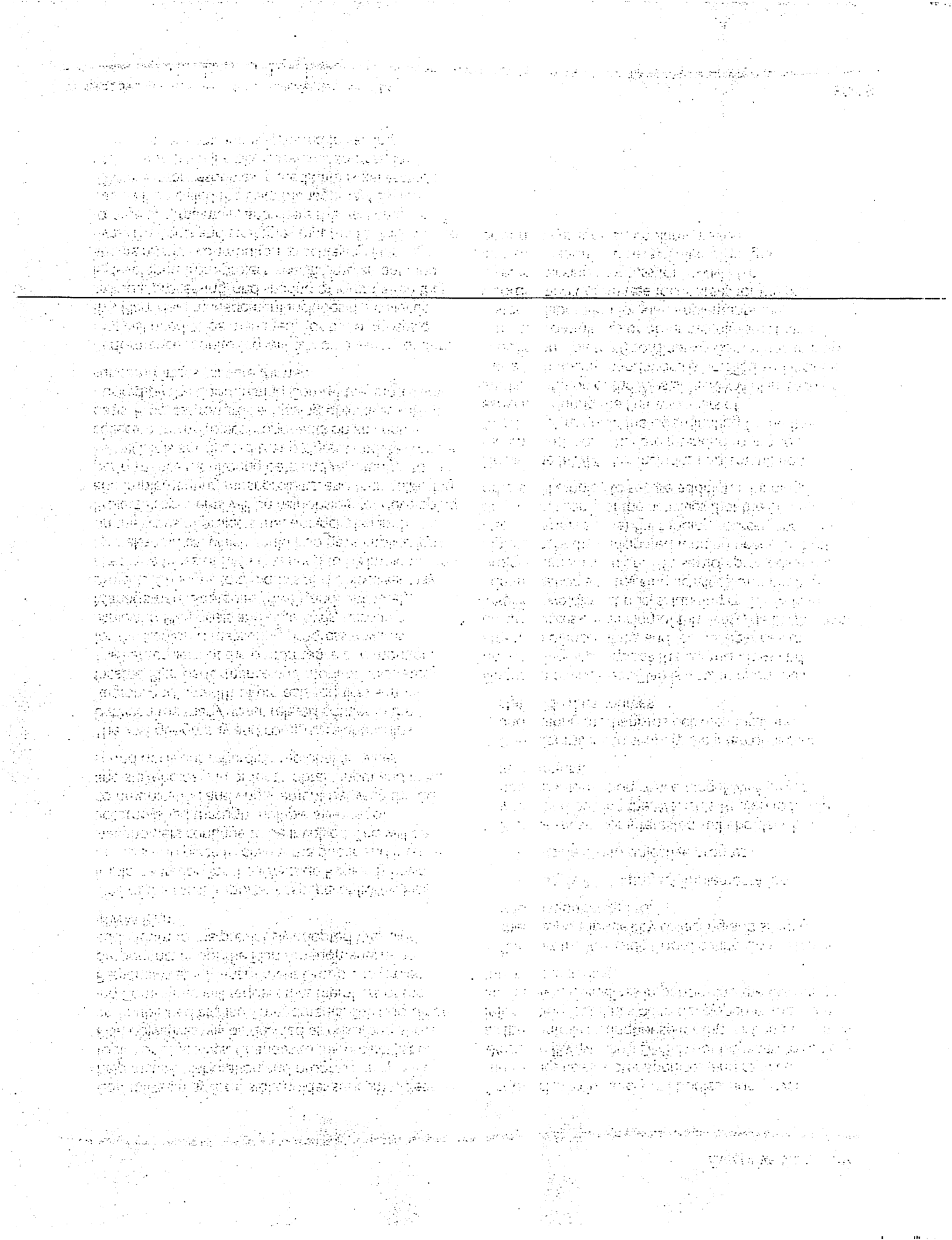
The vast geography and complex relationships between the many water-related entities in the Region, and breadth of projects requires a multi-faceted Plan performance and monitoring strategy. The centerpiece of the performance and monitoring for the Region is measuring progress towards achieving Plan goals and objectives, Resource Management Strategies (RMS), and, ultimately, projects. Changes to the goals and objectives may affect the types of RMS that need to be implemented by stakeholders, which could also have implications on the types of projects that are included in the Plan. Project Proponents will be responsible for developing and implementing most projects, and then collecting performance monitoring data and reporting it to the RWMG. It is anticipated that progress updates will be collected from Project Proponents on an annual basis. Progress towards achieving objectives will be tracked by the Coordinating Committee and/or any subcommittees that are formed.

Performance monitoring will rely on a variety of data that will need to be managed. For the purposes of this Plan, data management includes the collection, storage, processing, and sharing of information that is developed from project-specific implementation and its relative contribution to achieving Plan objectives. The tools and strategies that the RWMG will use to organize, maintain, and share this vast amount of data will be called the Data Management System (DMS). Water-resources related data is generated in this Region from literally dozens of sources, in countless formats, and is reported in varying frequencies to jurisdictional bodies, non-governmental agencies, water agencies, and regulators. The Westside IRWM Plan's DMS is not intended to serve as the central clearinghouse for this vast amount of information, but it has been developed to meet the 2016 IRWM Guidelines in performing the following functions including:

- Support the Westside Coordinating Committee in their responsibilities by collecting and sharing information related to:
  - Westside IRWM project implementation
  - Westside IRWM objective progress
- Provide means for interested stakeholders, both inside and outside the Westside Region to locate needed information concerning IRWM project implementation
- Consider means to simplify the interconnection and sharing mechanisms between local and statewide data sources.

Financing of an IRWM Plan is also an enormous undertaking and requires the contributions and attention of local, state, and federal agencies to ensure success. Financing of this Westside IRWM Plan involves two distinct tracks: funding of IRWM Plan administration and tracking activities, and funding project implementation. This section provides some highlights of the anticipated funding needs for both tracks, identifies potential funding sources, and documents some of the activities that the CC and others will employ to secure additional funding.

Finally, the IRWM Plan includes implementation recommendations that are intended to provide a "road map" to guide the Coordinating Committee, especially during the first two years of implementation of the Westside IRWM Plan. Each of these Plan Recommendations is detailed and includes suggestions for: the Coordinating Committee to help form subcommittees or other mechanisms that will foster collaboration for Plan implementation, Coordinating Committee focus areas for the next 1 – 2 years, tracking progress for IRWM Plan implementation, and researching other grant opportunities for Plan implementation.



ACTION OF
SOLANO COUNTY WATER AGENCY

DATE: **April 11, 2019**

SUBJECT: **Correction to Adopted January 10, 2019 Board meeting minutes**

RECOMMENDATION:

Adopt revised minutes of January 10, 2019 Board meeting to correct list of 2019 Water Policy Committee members (delete Supervisor Thomson from the list of 2019 Water Policy Committee members).

FINANCIAL IMPACT: None

BACKGROUND:

The January 10, 2019 Board meeting minutes, which were unanimously approved by the Board at the February 14, 2019 Board meeting , incorrectly state that Supervisor Thomson was appointed to the 2019 Water Policy Committee. Staff recommend the January 10, 2019 Board meeting minutes be revised – delete Supervisor Thomson from the list of 2019 Water Policy Committee members – and the revised January 10, 2019 be adopted.

Recommended: _____
Roland Sanford, General Manager

☐ Approved as recommended	☐ Other (see below)	☐ Continued on next page

Modification to Recommendation and/or other actions:

I, Roland Sanford, General Manager and Secretary to the Solano County Water Agency, do hereby certify that the foregoing action was regularly introduced, passed, and adopted by said Board of Directors at a regular meeting thereof held on April 11, 2019 by the following vote:

Ayes:

Noes:

Abstain:

Absent:

Roland Sanford
General Manager & Secretary to the
Solano County Water Agency

SOLANO COUNTY WATER AGENCY

BOARD OF DIRECTORS MEETING MINUTES

MEETING DATE: January 10, 2019

The Solano County Water Agency Board of Directors met this evening at the Solano County Water Agency office in Vacaville. Present were:

Mayor Elizabeth Patterson, City of Benicia
Mayor Thom Bogue, City of Dixon
Mayor Harry Price, City of Fairfield
Mayor Ronald Kott, City of Rio Vista
Mayor Lori Wilson, City of Suisun City
Mayor Ron Rowlett, City of Vacaville
Mayor Bob Sampayan, City of Vallejo
Supervisor Monica Brown, Solano County District 2
Supervisor Jim Spering, Solano County District 3
Supervisor John Vasquez, Solano County District 4
Supervisor Skip Thomson, Solano County District 5
Director John Kluge, Solano Irrigation District
Director Dale Crossley, Reclamation District 2068

CALL TO ORDER

The meeting was called to order at 6:35 p.m. by Chair Kluge.

APPROVAL OF AGENDA

On a motion by Mayor Rowlett and second by Mayor Price the Board unanimously approved the agenda.

PUBLIC COMMENT

Mr. Jeff Tenpas and Mr. Alan Pryor commented on the status of the Winters Putah Creek Nature Park restoration projects.

ELECTION OF OFFICERS AND APPOINTMENT OF EXECUTIVE COMMITTEE FOR 2019

On a motion by Supervisor Spering and a second by Mayor Price the Board unanimously approved the appointment of Supervisor Thomson as Chairman and Mayor Kott as the Vice Chairman of the SCWA Board for 2019. Supervisor Thomson promptly assumed the Board chair and appointed the following Board members to the Executive Committee:

Chairman Supervisor Thomson
Vice Chairman Mayor Kott
Mayor Patterson
Supervisor Spering
Director Kluge

CONSENT ITEMS

On a motion by Supervisor Vasquez and a second by Supervisor Brown the Board unanimously approved the following consent items:

(A) Minutes
(B) Expenditure Approvals
(C) Quarterly Financial Reports
(D) Contract Amendment with Solano Land Trust for Mitigation Land Development

Mayor Wilson abstained from item 6(A) Minutes from the December 13, 2018 Board meeting.

BOARD MEMBER REPORTS

Mayor Patterson reported that the California Water Plan update was released last week by the Department of Water Resources and is now available for public comment.

GENERAL MANAGER'S REPORT

There were no additions to the General Manager's written report.

SOLANO WATER ADVISORY COMMISSION

There was no report from the Solano Water Advisory Commission.

NORTH BAY WATERSHED ASSOCIATION MEMBERSHIP

General Manager Roland Sanford stated that joining the North Bay Watershed Association is consistent with the Water Agency's broader goal of cultivating and strengthen alliances on the west side of the County. He noted that the Board's Executive Committee expressed concerns regarding the cost of membership and acknowledged that the benefits of membership would be difficult to quantify because the primary benefit of membership is likely to be "relationship building" rather than a cost savings on purchases of materials or other tangible assets. Mr. Sanford explained that the cost of annual membership is likely to be on the order of $25,000 per year, rather than the $30,000 figure previously reported. He also explained that for the balance of the current fiscal year, the cost of membership would be $7,000. Mr. Sanford recommended the Water Agency join the North Bay Watershed Association and treat the remainder of this fiscal year as a "trial period", after which the Board could decide whether to continue membership in fiscal year 2019-2020.

On a motion by Supervisor Brown and second by Mayor Patterson the Board authorized the Board Chair to execute the Memorandum of Understanding, thereby making the Water Agency a member of the North Bay Watershed Association.

On a motion by Supervisor Brown and a second by Mayor Bogue, the Board unanimously appointed Mayor Patterson as the Agency's primary representative to the North Bay Watershed Association and Supervisor Hannigan to serve as Agency's alternate representative to North Bay Watershed Association.

APPOINTMENT OF LEGISLATIVE AND WATER POLICY COMMITTEES FOR 2019

Chair Thomson appointed the following members to the Legislative Committee:

Chairman Supervisor Thomson
Vice Chairman Mayor Kott
Mayor Patterson
Director Crossley
Director Kluge
Solano Water Advisory Commission representative (to be determined by the Solano Water Advisory Commission)
Patrick Leathers, Water Agency Legislative Advocate

Chair Thomson appointed the following members to the Water Policy Committee:

~~Chairman Supervisor Thomson~~
Mayor Patterson
Mayor Wilson
Supervisor Hannigan
Supervisor Vasquez
Director Crossley
Director Kluge
Solano Water Advisory Commission representative (to be determined by the Solano Water Advisory Commission)

LEGISLATIVE UPDATES

Supervisor Thomson, Mayor Patterson and General Manager Roland Sanford reported that members of the Legislative Committee met with Senator Bill Dodd and his Chief of Staff to discuss levee maintenance in the Delta, continued support of the Integrated Regional Water Management program, and the status of lower Putah Creek restoration projects. The Senator commented that he is a big fan of the restoration work the

Water Agency has completed on Putah Creek and that he gets more "hits" on the Putah Creek videos he has posted than anything else on his Facebook page. Supervisor Thomson, Mayor Patterson and General Manager Roland Sanford also reported that members of the Legislative Committee had met with Assemblymember Cecilia Aguiar-Curry, where they also discussed levee maintenance in the Delta, continued support of the Integrated Regional Water Management program, and the status of the Water Agency's on going Lower Putah Creek restoration projects.

WATER POLICY UPDATES

1. Staff noted that to date there has been much speculation but no announcement by the Governor regarding the Directors of the California Department of Fish and Wildlife, The Department of Water Resources, and the Chair of the State Water Resources Control Board.
2. There was no report from the Water Policy Committee.
3. Supervisor Thomson reported that the Delta Counties Coalition will be reaching out to the Governor to discuss Cal WaterFix and other issues pertinent to the Delta.
4. There was no report on the activities of the Delta Conservancy.

CLOSED SESSION

The Board moved into Closed Session at 7:13 pm to conference with legal counsel regarding anticipated litigation, pursuant to Government Code Section 54956.9(b) and to discuss real property negotiations, pursuant to Government Code Section 54956.8. The Board returned to open session at 8:13 pm. There were no reportable actions taken by the Board in Closed Session.

TIME AND PLACE OF NEXT MEETING

Thursday, February 14, 2019 at 6:30 p.m., at the SCWA offices in Vacaville.

ADJOURNMENT

This meeting of the Solano County Water Agency Board of Directors was adjourned at 8:14 p.m.

Roland Sanford
General Manager & Secretary to the
Solano County Water Agency

ACTION OF
SOLANO COUNTY WATER AGENCY

DATE: **April 11, 2019**

SUBJECT: **Flood Control Advisory Committee Member Appointments**

RECOMMENDATION:

1. Appoint Ben Lyons to the Flood Control Advisory Committee – two year term ending December 31, 2021.
2. Appoint Charles Karnopp to the Flood Control Advisory Committee – two year term ending December 31, 2021.
3. Appoint Paul Lum to the Flood Control Advisory Committee – two year term ending December 31, 2021.

FINANCIAL IMPACT:

None.

BACKGROUND:

The Flood Control Advisory Committee (Committee) was established by the Board in 1998 to assist and advise staff and the Board on a variety of flood management issues. The Committee consists of eleven members; two representatives appointed by the Solano County Water Agency Advisory Commission, one representative from each of the three Resource Conservation Districts, and six public members appointed by the Board. There are currently three public member vacancies on the Committee.

Two individuals who have previously served on the Committee, Mr. Paul Lum and Mr. Charles Karnopp, have requested reappointment to the public member positions they previously held. A third individual, Mr. Ben Lyons, has also expressed interest in serving on the Committee as a public member. All three individuals live in the unincorporated area of northern Solano County. There are no other candidates for the three available public member positions on the Committee.

RELEVANCE TO 2016-2025 SCWA STRATEGIC PLAN

The Flood Control Advisory Committee appointments are consistent with Goal #3 of the 2016-2025 Strategic Plan (*Implement SCWA's role in flood management*), Objective C (*Assist local interests in developing flood management plans and improvements outside of SCWA direct responsibility*).

Recommended: _____
Roland Sanford, General Manager

☐ Approved as recommended	☐ Other (see below)	☐ Continued on next page

Modification to Recommendation and/or other actions:

I, Roland Sanford, General Manager and Secretary to the Solano County Water Agency, do hereby certify that the foregoing action was regularly introduced, passed, and adopted by said Board of Directors at a regular meeting thereof held on April 11, 2019 by the following vote:

Ayes:

Noes:

Abstain:

Absent:

Roland Sanford
General Manager & Secretary to the
Solano County Water Agency

ACTION OF
SOLANO COUNTY WATER AGENCY

DATE: **April 11, 2018**

SUBJECT: **Appointment of Solano's Lower Putah Creek Coordinating Committee Representatives for 2019 calendar year**

RECOMMENDATIONS:

1. Appoint the following Solano representatives to the Lower Putah Creek Coordinating Committee for calendar year 2019.

SCWA	Roland Sanford Supervisor John Vasquez (Alternate) Thomas Pate (Alternate)
SID	J.D. Kluge Cary Keaton (Alternate)
MPWD	Gene Robben Don Holdener (Alternate)
Cities	Felix Riesenberg – Fairfield Curtis Paxton –Vacaville (Alternate) Justen Coler – Vacaville (Alternate)
Landowner	Dennis Kilkenny Herb Wimmer (Alternate) Sean McNamara (Alternate)

2. Appoint landowner representatives of the LPCCC as an agent of SCWA for coverage under SCWA's liability insurance program.

FINANCIAL IMPACT:

None.

Recommended: _____
Roland Sanford, General Manager

[ ]	Approved as recommended	[ ]	Other (see below)	[X]	Continued on next page

Modification to Recommendation and/or other actions:

I, Roland Sanford, General Manager and Secretary to the Solano County Water Agency, do hereby certify that the foregoing action was regularly introduced, passed, and adopted by said Board of Directors at a regular meeting thereof held on April 11, 2019 by the following vote:

Ayes:

Noes:

Abstain:

Absent:

Roland Sanford
General Manager & Secretary to the
Solano County Water Agency

BACKGROUND:

The Lower Putah Creek Coordinating Committee (LPCCC) was created in accordance with the "Settlement Agreement and Stipulation Among Solano County Water Agency, Solano Irrigation District, Maine Prairie Water District, Cities of Vacaville, Fairfield, Vallejo and Suisun City; and Putah Creek Council, City of Davis, and the Regents of the University of California" dated May 23, 2000 and more commonly known as the "Putah Creek Accord". The scope of the LPCCC's authorities and responsibilities include monitoring the condition of Lower Putah Creek and when deemed appropriate, implementation of habitat restoration and enhancement measures within Lower Putah Creek. A complete description of the LPCCC is presented in Exhibit "B" of the Amended Judgement for the Putah Creek Water Cases – Sacramento Superior Court No. 515766 (copy attached).
Each year the Solano and Yolo parties to the Putah Creek Accord appoint their respective representatives and alternates to the LPCCC. In the case of Solano, the Water Agency Advisory Commission recommends appointees to the Water Agency Board of Directors, who either approve (or not) the recommended appointments on behalf of all the Solano parties to the Settlement Agreement.

File: L-4G

ACTION OF
SOLANO COUNTY WATER AGENCY

DATE: **April 11, 2019**

SUBJECT: **Purchase of John Deere 190G Wheeled Excavator for Ulatis Flood Control Project**

RECOMMENDATION:

Authorize General Manager to purchase new John Deere 190G Wheeled Excavator for the Ulatis Flood Control Project.

FINANCIAL IMPACT:

Total estimated cost of John Deere 190GWheeled Excavator: $286,000. Sufficient funding for this item is included in the FY 2018-2019 Ulatis Capital Expenditures budget.

BACKGROUND:

The Water Agency is responsible for maintaining the Ulatis Flood Control Project (UFCP) – approximately 50 miles of engineered channel in northeastern Solano County. Much of the UFCP, which ultimately drains to Cache Slough, is located in the unincorporated areas south of Interstate 80. In addition to conveying flood waters, the UFCP is used by the Solano Irrigation District and Maine Prairie Water District to capture and reuse irrigation return flows during the irrigation season.

The proposed John Deere 190G Wheeled Excavator will be used primarily for repairing eroded banks and washouts along the UFCP channels, in-channel debris removal, placement of rock rip-rap, and culvert repair and installation. Wheeled excavators are versatile machines with greater mobility than excavators with steel tracks. Excavators with steel tracks generally move very slowly and typically must be transported from job site to job site by truck and trailer. The proposed John Deere 190G Wheeled Excavator can travel up to 22 miles per hour and perhaps more importantly in the case of the UFCP, be driven on or across paved roads without damaging pavement.

Recommended: _____
Roland Sanford, General Manager

☐	Approved as recommended	☐	Other (see below)	☒	Continued on next page

Modification to Recommendation and/or other actions:

I, Roland Sanford, General Manager and Secretary to the Solano County Water Agency, do hereby certify that the foregoing action was regularly introduced, passed, and adopted by said Board of Directors at a regular meeting thereof held on April 11, 2019 by the following vote:

Ayes:

Noes:

Abstain:

Absent:

Roland Sanford
General Manager & Secretary to the
Solano County Water Agency

Staff investigated the possibility of purchasing a Caterpillar M320F Wheeled Excavator in lieu of the John Deere 190G Wheeled Excavator. The two machines are comparable. However, the list price of John Deere 190G Wheeled Excavator is cheaper (see Table 1). The total estimated cost of the John Deere 190G Wheeled Excavator, which includes sales tax, is presented in Table 2. In accordance with the Water Agency's procurement policy, the John Deere 190G Wheeled Excavator will be purchased from a local vendor if the local vendor's purchase price is within 5% of the lowest "out-of-county" sales quote.

Table 1 – Price Quotes for Wheeled Excavator

#	Manufacturer	Model	Price*
1	John Deere	190G	$251,850
2	Caterpillar	M320F	$261,000

** Price includes requested add-on accessories (48" Bucket, Comp Wheel, Bio Oil), sales tax not included.*

Table 2 – Final Estimated Cost of John Deere 190G Wheeled Excavator

Description	Price
John Deere, 190G	$226,500
Add-ons (48" Bucket, Comp Wheel, Bio Oil)	$ 25,350
Sales Tax (8.125%)	$ 20,500
Contingency (5%)	$ 13,650
Total Cost =	**$286,000**

RELEVANCE TO 2016-2025 SCWA STRATEGIC PLAN:

The purchase and use of this equipment is consistent with Goal #2 of the 2016-2025 Strategic Plan (*Water Management infrastructure: Optimize the use of SCWA managed infrastructure).*

2-8-19

PAPÉ MACHINERY

Solano County Water Agency
810 Vaca Valley Parkway Suite 203
Vacaville, CA 95668
Attn: Mark Snyder

Dear Mark

Thank you for the opportunity to quote you a New John Deere 190G Wheeled Excavator on the Sourcewell Contract. The following Pricing includes the 46% Sourcewell Discount.

One New John Deere 190G with Final Tier 4 Engine
Two Piece Boom
Front Blade and Rear Outrigger
Pattern Changer
Hydraulic Pin Grabber Coupler
PSM Progressive Link Thumb
PSM 36" Heavy Duty Bucket

Sourcewell Sales Price FOB Vacaville, CA $226,500 + Sales Tax

Optional Equipment:

48" PSM Smooth Lip Bucket with Bolt on Cutting Edge	$7,400
24" Compaction Wheel with Pins	$9,700
Extended Warranty 36 month/2000 Hr PTH	$1,500

Replace JD/Hitach 46 Hydraulic Oil and Hydraulic Filter with Shell HF-E-46 Biodegradable oil and flush system per Manufacturers specs. $6,750

Sincerely –Bob Crottogini

Action Item No. 2019-XX
Agenda Item No. 5K

ACTION OF
SOLANO COUNTY WATER AGENCY

DATE: **April 11, 2019**

SUBJECT: **WRAGG FIRE WATERSHED REMEDIATION PROJECT GRANT**

RECOMMENDATION:

Adopt Resolution 2019-04 authorizing General Manager to enter into agreements for receipt of $451,535 grant from California Office of Emergency Services for Wragg Fire Watershed Remediation Project.

FINANCIAL IMPACT:

Grant award of $ 451,535

BACKGROUND:

Between July 22 and August 5, 2015 the Wragg Fire burned over 8,000 acres, including all of Cold Canyon and the western slopes of the Pleasants Creek watershed - major tributaries to the Solano Project. The Solano Project and most notably Lake Solano have historically been impacted by excessive sediment from Cold Canyon and the Pleasants Creek watershed. In October 2016 the Water Agency commissioned a post-fire erosion assessment that identified numerous erosion 'hot spots" in the burn area.

In 2015, Governor Brown declared a state of emergency in response to the Wragg Fire, which lead to a FEMA disaster declaration 5091 that allocated grants from the FEMA Fire Management Assistance Grant Program (FMAG). The sum of $451,535 was allocated for remediation of damage caused by the Wragg Fire. The Wragg Fire grant requires a local match, which will be met via funds already expended by the Water Agency to complete the Wragg Fire post-fire assessment and project planning funds expended by American Conservation Experience, a contractor who will implement erosion control measures in the burn area.

Resolution 2019-04 authorizes the General Manager to enter into agreements for the purpose of receiving the grant funds and implementing the project.

Recommended: _____
Roland A. Sanford, General Manager

☐ Approved as recommended	☐ Other (see below)	☐ Continued on Next page

Modification to Recommendation and/or other actions:

I, Roland A. Sanford, General Manager and Secretary to the Solano County Water Agency, do hereby certify that the foregoing action was regularly introduced, passed, and adopted by said Board of Directors at a regular meeting thereof held on April 11, 2019 by the following vote:

Ayes:

Noes:

Abstain:

Absent:

Roland A. Sanford
General Manager & Secretary to the
Solano County Water Agency

STATE OF CALIFORNIA
CALIFORNIA GOVERNOR'S OFFICE OF EMERGENCY SERVICES
CAL OES 130

Cal OES ID No: FM5091-PJ00001

DESIGNATION OF SUBRECIPIENT'S AGENT RESOLUTION
Hazard Mitigation Grant Program and Pre-Disaster Mitigation Program

BE IT RESOLVED BY THE Board of Directors (Governing Body) OF THE Solano County Water Agency (Name of Applicant)

THAT Roland Sanford (Title of Authorized Agent), OR

_____ (Title of Authorized Agent), OR

_____ (Title of Authorized Agent)

is hereby authorized to execute for and on behalf of the Solano County Water Agency (Name of Subrecipient), a public entity established under the laws of the State of California, this application and to file it with the California Governor's Office of Emergency Service. for the purpose of obtaining certain federal financial assistance under Public Law 93-288 as amended by the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988, and/or state financial assistance under the California Disaster Assistance Act.

THAT the Solano County Water Agency (Name of Subrecipient), a public entity established under the laws of the State of California, hereby authorizes its agent(s) to provide to the California Governor's Office of Emergency Service for all matters pertaining to such state disaster assistance the assurances and agreements required.

Please check the appropriate box below:

☐ This is a universal resolution and is effective for all open and futures Disasters/Grants up to three (3) years following the date of approval below.

☑ This is a Disaster/Grant specific resolution and is effective for only Disaster/Grant name/number(s) FM5091-PJ00001

Passed and approved this 11th day of April, 2019

Roland Sanford, General Manager
(Name and Title of Governing Body Representative)

_____
(Name and Title of Governing Body Representative)

_____
(Name and Title of Governing Body Representative)

CERTIFICATION

I, Roland Sanford (Name), duly appointed and General Manager (Title) of Solano County Water Agency (Name of Applicant), do hereby certify that the above is a true and correct copy of a Resolution passed and approved by the Board of Directors (Governing Body) of the Solano County Water Agency (Name of Applicant)

on the 11th day of April, 2019.

_____ (Signature)

General Manager (Title)

Cal OES Form 130
Instructions

A new Designation of Applicant's Agent Resolution is required if the previously submitted document is older than three (3) years from the last date of Board/Council approval.

When completing the Cal OES Form 130, Subrecipients should fill in the blanks on page 1. The blanks are to be filled in as follows:

Resolution Section:

Governing Body: This is the individual or group responsible for appointing and approving the Authorized Agents. Examples include: Board of Directors, City Council, Board of Supervisors, etc.

Name of Subrecipient: This is the official name of the non-profit, agency, city, county or special district that has applied for the grant. Examples include: City of Sacramento; Sacramento County; or Los Angeles Unified School District.

Authorized Agent: These are the individuals that are authorized by the Governing Body to engage with the Federal Emergency Management Agency and the California Governor's Office of Emergency Service regarding grants applied for by the subrecipient. There are two ways of completing this section:

1. Titles Only: If the Governing Body so chooses, the titles of the Authorized Agents should be entered here, not their names. This allows the document to remain valid if an Authorized Agent leaves the position and is replaced by another individual. If "Titles Only" is the chosen method, this document must be accompanied by a cover letter naming the Authorized Agents by name and title. This cover letter can be completed by any authorized person within the agency (e.g.; City Clerk, the Authorized Agent, Secretary to the Director) and does not require the Governing Body's signature.

2. Names and Titles: If the Governing Body so chooses, the names and titles of the Authorized Agents should be listed. A new Cal OES Form 130 will be required if any of the Authorized Agents are replaced, leave the position listed on the document or their title changes.

Governing Body Representative: These are the names and titles of the approving board members. Examples include: Chairman of the Board, Superintendent, etc. The names and titles cannot be one of the designated Authorized Agents.

Certification Section:

Name and Title: This is the individual that was in attendance and recorded the Resolution creation and approval. Examples include: City Clerk, Secretary to the Board of Directors, County Clerk, etc. This person cannot be one of the designated Authorized Agents to eliminate "Self Certification."

SOLANO COUNTY WATER AGENCY

MEMORANDUM

TO: **Board of Directors**

FROM: **Roland Sanford, General Manager**

DATE: **April 4, 2019**

SUBJECT **April 2019 General Manager's Report**

Water Supply Outlook

It's been a wet year and as a result the 2019 water supply situation is about as good as one could hope. Lake Berryessa is currently spilling and likely to continue to do so through much of April unless we suddenly go into a pronounced dry spell. Late last month the Department of Water Resources increased the 2019 North Bay Aqueduct water supply allocation to 85% of the full Table "A" contractual amount – good news that was overshadowed by the "duck" (it was actually a cormorant) that went down the Lake Berryessa glory hole spillway and apparently survived. News of the cormorant's adventure reached at least one news outlet in the United Kingdom – the increase in the 2019 North Bay Aqueduct water supply allocation evidently did not.

Phase I Dixon Watershed Study

Completion of the draft Phase I Dixon Watershed Study report is on schedule, a meeting of Water Agency, City of Dixon, Dixon Resource Conservation District and RD 2068 staff to review the draft report has been scheduled for April 25, 2019.

Vehicle Purchases for Solano Project Operations

At the February 14 Board meeting, the Board discussed the proposed purchase of vehicles for Solano Project operations, in lieu of the ongoing practice of "renting" from the Solano Irrigation District (SID). Staff recommended and the Board agreed to delay any decision on the proposed purchase in order to provide SID additional time to propose an alternative fee structure for vehicles used as a part of Solano Project operations. SID has provided a proposal. However, due to other work commitments, and other than a cursory review, Water Agency staff has not yet evaluated the SID proposal. The item will be agendized for the May Board meeting.

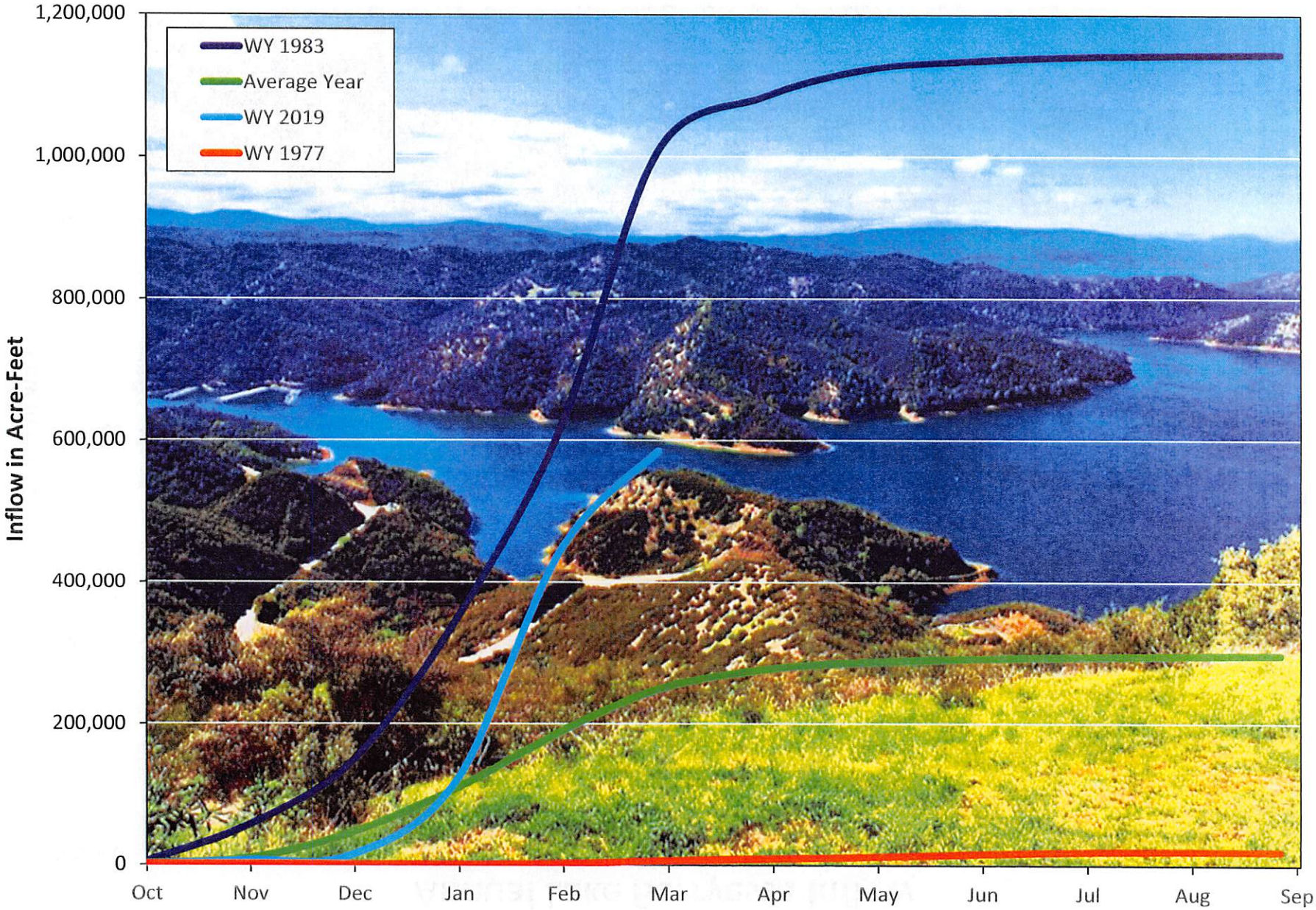
Upper Putah Creek Watermaster

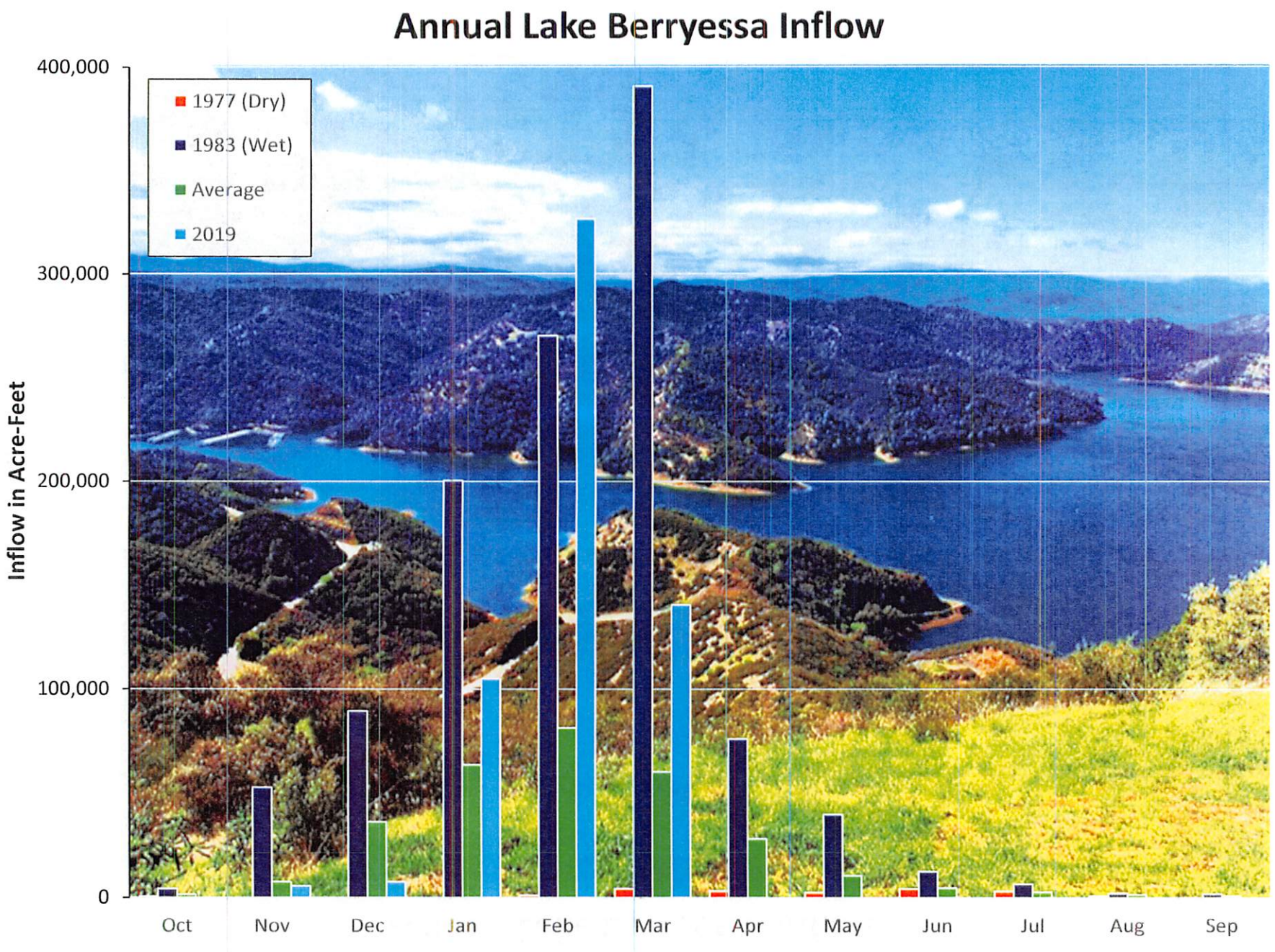
Staff met with the Upper Putah Creek Watermaster (Watermaster) to review the 2017-2018 Annual Report of the Upper Putah Creek Watershed Watermaster, and to discuss a proposed 3-year WatermasterWork Plan. The Watermaster oversees compliance with the Condition 12 Settlement

810 Vaca Valley Parkway, Suite 203
Vacaville, California 95688
Phone (707) 451-6090 • FAX (707) 451-6099
www.scwa2.com

Agreement, which addresses post-1945 water rights in the Upper Putah Creek Watershed, including the water rights associated with Lake Berryessa. Under the terms of the Condition 12 Settlement Agreement the Water Agency funds the majority of the Watermaster activities. Water Agency staff is requesting the Watermaster increase its presence in the Upper Putah Creek Watershed to ensure compliance with the Condition 12 Settlement Agreement.

Annual Lake Berryessa Inflow




Annual Lake Berryessa Inflow
Inflow in Acre-Feet
400,000
300,000
200,000
100,000
0
1977 (Dry)
1983 (Wet)
Average
2019
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep

Time Period Covered: FEBRUARY AND MARCH 2019

REPORT OF CONSTRUCTION CHANGE ORDERS AND CONTRACTS APPROVED BY GENERAL MANAGER UNDER DELEGATED AUTHORITY

Construction Contract Change Orders (15% of original project costs or $50,000, whichever is less) - none

Construction Contracts ($30,000 and less) - none

Professional Service Agreements ($30,000 and less) –

Bowers Electric – Solano Project Electrician Support - $30,000
Garden Soft – Water Wise Website - $4,500
Kjeldsen, Sinnock & Neudeck – Federal Permit Scoping - $6,000

Non-Professional Service Agreements ($30,000 and less) –

Construction contracts resulting from informal bids authorized by SCWA Ordinance- none

Note: Cumulative change orders or amendments resulting in exceeding the dollar limit need Board approval.

NEWS ARTICLES

DAILY REPUBLIC

Solano water agency 'mussels' up against Berryessa infestation

By Todd R. Hansen

FAIRFIELD — Lake Berryessa does not have a mussel infestation problem right now – and the Solano County Water Agency is working to keep the status quo.

The U.S. Bureau of Reclamation has made those preventive efforts a little easier with a $412,000 grant – which will be matched with Solano County Water Agency funds – to extend and expand the Lake Berryessa Mussel Prevention Program.

The targets of those efforts are the zebra and quagga mussels, which can take hold and quickly expand.

"We don't have a mussel infestation, and we want to keep it that way. However, the lake is vulnerable to infestation because there are a lot of boaters on the lake, and the water chemistry would be conducive for the mussels to reproduce," Roland Sanford, the general manager of the water agency, said in a phone interview Friday.

An infestation at Lake Berryessa could also result in an infestation in Lower Putah Creek, the Yolo Bypass and even in an extreme scenario, Barker Slough where the North Bay Aqueduct intake is located.

The mussels have caused millions of dollars in damage to agriculture and other water infrastructure.

Solano County Water Agency has a number of inspection stations at Lake Berryessa resorts.

Sanford said it helps that the majority of the boating traffic at the lake is from locals so the risk is lessened, but mussels have been discovered.

Part of the water agency program helps those boaters decontaminate their vessels. The program also tags those clean vessels, and as long as they do not go to water areas known to be infested, they can sail through Berryessa inspections a little easier at their next visit.

The U.S. Bureau of Reclamation owns the Solano Project, comprised of Lake Berryessa, the Monticello Dam and the water conveyance infrastructure. The Solano County Water Agency contracts with the federal agency to operate and maintain the Solano Project, and Solano County agency holds the water rights to waters in Lake Berryessa.

Share Your Reader Feedback

A-A Printer

Todd R. Hansen

Todd R. Hansen is Reporter-Editor for the Daily Republic. He covers Solano County, Transportation, the Environment and General Assignment. Reach him at 427-6932 or thansen@dailyrepublic.net.

Story Archive

https://napavalleyregister.com/news/local/solano-agency-receives-lake-berryessa-mussel-prevention-grant/article_891fc37d-8a8d-533c-a3fa-cced9b18febd.html

Solano agency receives Lake Berryessa mussel prevention grant

Register staff Mar 17, 2019

Quagga mussels attached to a boat.

Submitted

The Solano County Water Agency recently received a grant for $412,000 from the U.S. Bureau of Reclamation to extend and expand the work of the Lake Berryessa Mussel Prevention Program.

SCWA will be matching these funds for the continued operation of its program that safeguards Lake Berryessa from an infestation of Zebra and Quagga mussels.

SCWA began this prevention program six years ago. It currently includes onsite staff and services, such as a boat decontamination station and a watercraft seal system. This recent grant will be put toward an enhanced decontamination station and additional intern positions for all launch ramps.

Highly invasive Zebra and Quagga mussels are usually spread on boats going from one body of water to another and infestations can be very expensive for water infrastructure systems. In addition, the species have a catastrophic impact on ecosystems, fisheries and native species.

See More

"Zebra and Quagga mussel infestations require costly maintenance and mitigation measures. Because of their disruption to ecosystems and infrastructure, many infested lakes are forced to close to recreation. The Great Lakes are a sobering example of their destructive quality, as mussel infestations have caused the death of local wildlife, including native fish and migratory birds."

"A mussel infestation could be devastating not only for Berryessa but also for our important connecting water systems such as Putah Creek and the Delta," said Sabrina Colias, associate water resources specialist for SCWA. "If Berryessa is infested, our entire region is also at risk. The end result of this infestation could be devastating for the ecology and health of our water supply."

The U.S. Bureau of Reclamation owns the Solano Project, comprised of Lake Berryessa, the Monticello Dam and the water conveyance infrastructure. The Solano County Water Agency contracts with USBR to operate and maintain the Solano Project and hold water rights to waters in Lake Berryessa.

Kevin Courtney
City Editor

Kevin has been city editor since September 2010. He joined the Register in 1973 as a reporter. He covered Napa City Hall and assorted other beats over the years. Kevin has been writing his Napa Journal column on Sundays since 1989.

Volunteers are shown working at the Putah Creek Nursery in Davis. The next volunteer opportunity of Saturday, March 16, 2019. (Courtesy photo)

Putah Creek Council seeks volunteers to care for native plants

By Daily Republic Staff

WINTERS — The Putah Creek Council seeks volunteers to help grow and care for native plants at the Putah Creek Native Plant Nursery, the council reports.

Located in south Davis, the Putah Creek Nursery grows more than 60 species of native plants for habitat restoration. Seeds and cuttings are collected from the throughout the Putah-Cache watershed and propagated and cared for by community volunteers.

The cooperative native plant nursery, sponsored by the California Department of Forestry and Fire Protection and the Solano County Water Agency, "is a terrific example of cooperation among state, local and nonprofit entities to promote propagation of native plants from locally collected seeds and cuttings for public benefit habitat enhancement projects," said Rich Marovich, Putah Creek streamkeeper and founder of the Putah Creek Nursery, in a prepared release.

The council hosts community volunteer events at the nursery on alternating Saturday mornings year round. Upcoming Saturday events are scheduled Saturday and again March 30, April 13 and April 27.

Tasks vary for each event, but generally include seeding, transplanting seedlings into larger containers, weeding, organizing and cleanup. All ages are welcome, including supervised children younger than 12.

The Putah Creek Council will provide all the gloves, tools and supplies. The Putah Creek Nursery is a joint effort between the Putah Creek Council, the Lower Putah Creek Coordinating Committee and Cal Fire's Lewis A. Moran

Reforestation Center with funding provided by the Solano County Water Agency and the Yocha Dehe Community Fund.

For full event details and to register, visit www.putahcreekcouncil.org or call 530-795-3006.

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ESTUARY

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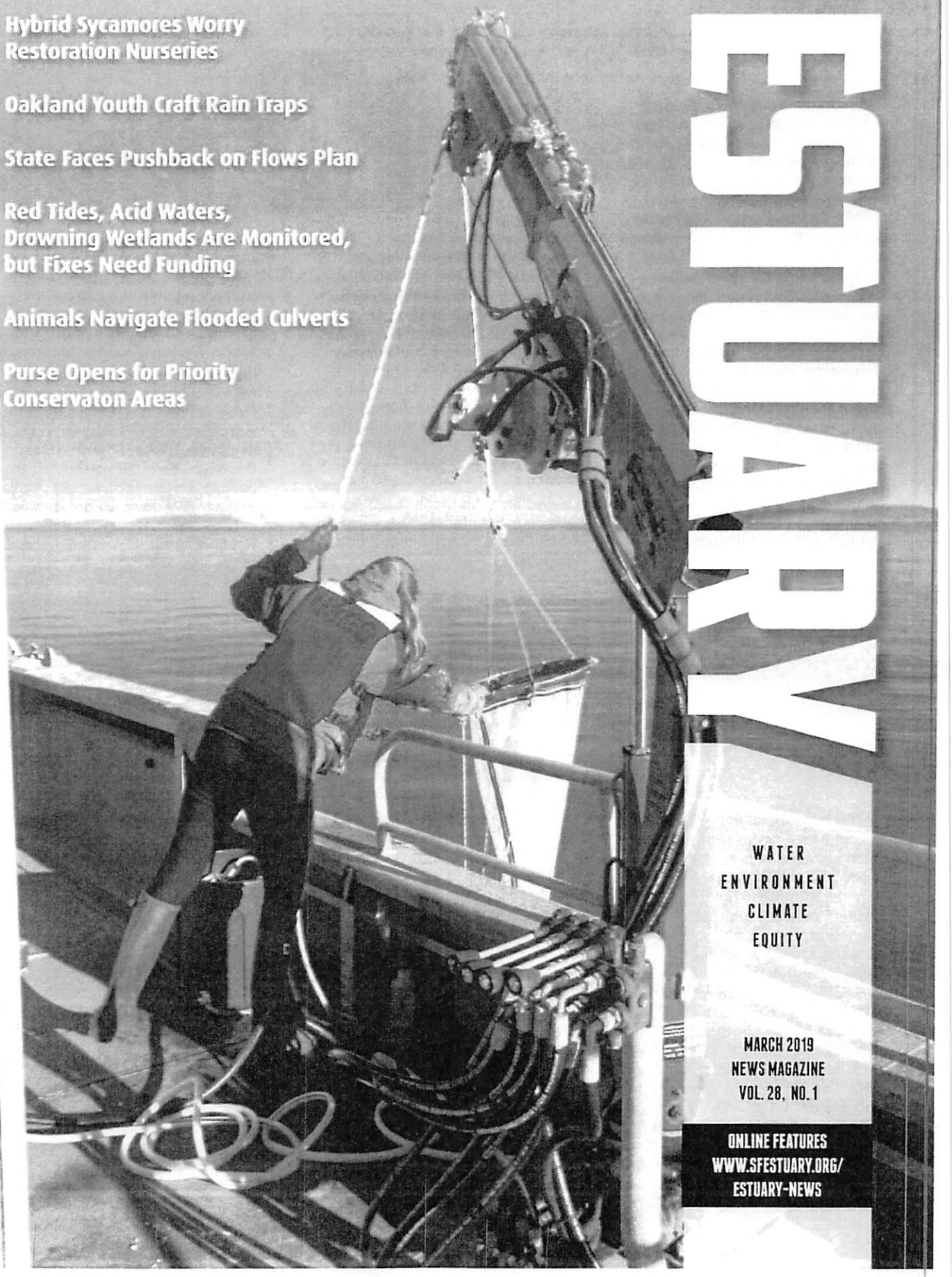
Red Tides, Acid Waters, Drowning Wetlands Are Monitored, but Fixes Need Funding

Animals Navigate Flooded Culverts

Purse Opens for Priority Conservaton Areas



WATER
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EDITOR'S DESK

Worthy Work

I celebrated a warm spring day this March by joining my third Bay sampling cruise with USGS. My tired eyes welcomed the soft blue light off the water over the harsh blue light of my Apple screen. I had been out in 2009 with this program's previous vessel and crew, gaining first hand experiences for the book I wrote with Kathleen Wong on the *Natural History of San Francisco Bay*. Then again a few years later on assignment for *Bay Nature*. As the only writer on the planet interested in mud math and sediment dynamics, that trip (on a special vessel out of Santa Cruz) took me back and forth across the same patch of South Bay doing sonar of the bottom for hours. But on this most recent trip, with a new crop of scientists, all female, all gungho, all brilliant and young — not a grey hair among them — I felt both old and sad and hopeful and inspired.

As I age, I am increasingly reminded of what is worthy of my time. In all the years of covering our Estuary, the work has always been worthy. Everyone I talk to for a story seems to be laboring mightly to fix this wetland or that river, to innovate the design of our shorelines, to reinvent our failing ecosystems into something that might survive and sustain our lives. I want to remind the larger readership of this noble work. Any new green deal must have saving the planet with science and hands-on field work in the mix. Touching the water, thinking about what real earth and leaves and fish mean to us, working to honor the planet, that is "pro-life" to me more than any more murky meaning.

Which is all a long way of saying this issue is about all the things we do because we care. We monitor, we take the pulse, we restore, we teach youth about native plants and women to lead us in math and science. We chase salmon upstream until they die spawning, and then measure how big they are. We grow trees to replant riverbanks, then worry when they don't turn out as planned. We follow the tides, the river flows, the pollutants, the bobcats on their travels around our estuary. We do really great things in the service of our small planet. Read all about it. I'm really proud.

ARIEL RUBISSOW OKAMOTO, EDITOR

HEALTHWATCH

Finding a Bead on Table Salt

When microplastics — fragments of containers, fibers from textiles, microbeads from personal care products — hit the water, they don't all migrate to the Great Pacific Garbage Patch. Some, as documented in a San Francisco Estuary Institute study led by Rebecca Sutton ("Unhealthy Fiber in Bay Diet," *Estuary News*, December 2015), spend time in San Francisco Bay, with higher concentrations than Chesapeake Bay or the Great Lakes. A recent report by Ji-Su Kim and other South Korean researchers, published last fall in *Environmental Science & Technology*, has also found these pervasive and persistent contaminants in samples of table salt produced on six continents. Although the highest levels were detected in salt from South and East Asia (peaking at 13,629 particles per kilogram in an Indonesian sample), almost all of the 39 samples, including one from Puget Sound, had measurable levels of microplastics, representing 14 different synthetic polymers. Salt produced by Cargill in the South Bay was not analyzed. "Food safety is a top priority for Cargill" says corporate spokesperson Justin Barber. "While research is still determining the impact of microplastics on all sea salt supplies, regulatory agencies have ensured our high-quality, naturally produced product is safe for consumption."

Sutton, who is still researching microplastics in the Bay, says there's "a lot of uncertainty about potential impacts to people and wildlife. It's a diverse and variable contaminant, challenging to analyze and interpret." What we know is sufficient cause for concern: apart from their physical impacts, plastics can absorb other pollutants and some plastic ingredients are known endocrine disruptors. "In Bay water samples, it's hard to know what the original source might be," she adds. "It could be litter from creeks and streams or objects lost from boats, getting broken down into smaller and smaller particles," in addition to the microbeads in face washes and toothpaste that start small. "Existing wastewater treatment technologies don't degrade the plastic. It ends up in biosolids, and that's not necessarily a solution." In terms of source reduction, Sutton explains that a California ban on microbeads in personal care products was superseded by less restrictive federal regulations which only address rinse-off products. Meanwhile, the European Union is considering treating microplastics as a nonthreshold contaminant, for which any release to the environment would pose a risk.

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RESTORATION

SOS for a Tricky Native

LISA OWENS VIANI, REPORTER

This spring, as willows, alders, big-leaf maples, and other riparian species begin to leaf out on rivers and streams throughout the Estuary watershed, one native tree—the western sycamore—may be less conspicuous. The flashy flow regimes that encourage the tree to reproduce happen less frequently due to dams, levees, and other flood-control infrastructure on the state's rivers and streams. In addition, the recent discovery that many of the trees grown for restoration projects are in fact hybrids has led to concerns about planting more sycamores.

In 2016, restoration managers with The Nature Conservancy discovered that the western sycamores they had planted along the Sacramento River had hybridized with the non-native London plane tree. London plane trees are popular street trees in cities and suburbs: they are tall and stately, provide excellent shade, and are resistant to pollution and disease. So if hybrids are planted in restoration projects, what harm has been done? The problem has to do with habitat values, says Ryan Luster, a project director with The Nature Conservancy.

"If you look at a native sycamore, they're kind of a messy, sprawly tree," he says. "They lean over, the branches drop down and break off and create cavities that wildlife love to use." Owls, wood ducks, and ringtails find refuge in the cavities, while songbirds like goldfinches use the silken fibers from the sycamore's seed pods to line their nests. Monarch butterflies overwinter on sycamores. The tree is found along coastal streams from the Estuary south and in isolated areas throughout the Sacramento and Central valleys.

Concerns about the sycamore's status first arose in the 1990s when the California Department of Fish and Wildlife (CDFW) mapped existing stands of native sycamores throughout the state and found only 17 stands greater than 10 acres in size. These large stands offer an exceedingly rare habitat type referred to as sycamore alluvial woodland (SAW). The scour pools and complex channel habitat associated with SAW are preferred by the western pond turtle, and steelhead trout may grow larger in streams dominated by sycamores where frequent intense flows accumulate gravel and sand, according to a 2017 report by the San Francisco Estuary Institute and H.T. Harvey & Associates.

Efforts are underway to propagate individual trees in restoration projects and to conserve remaining stands of SAW. The Nature Conservancy funded Chico State professors and students to find and map native sycamores along the Sacramento River using genetic analysis. Cuttings from the native trees were then propagated in a lab and used recently in the Hamilton City setback levee and floodplain restoration project west of Chico.

In the South Bay, H.T. Harvey & Associates recently completed a genetics and propagation study for Valley Water (the rebranded Santa Clara Valley Water District), which was required as partial mitigation for the loss of some large old sycamores that will be removed during a flood protection project on upper Llagas Creek. The final study has been reviewed by the water district and will be submitted to CDFW soon.

continued on back page

Benwick's wren in sycamore cavity. Photo: Joe Galkowski

SPECIES

Putah Creek Pipeline for Salmon

Armed with a wicked-looking knife, Emily Jacinto grips a Chinook salmon carcass and slices into its head with swift, sure strokes. She looks like she's done this a million times. This is her third year on a UC Davis crew monitoring the resurgence of salmon in Putah Creek, which flows from the Northern Coast Ranges to the Sacramento River.

Chinook spawned here historically, but in 1957 Putah Creek was dammed near Winters to divert water for Solano County. After that, hardly any salmon made their way up the creek. Then a lawsuit in the 1990s — and resulting restoration project — finally gave the fish what they needed to return after all these years.

It's a cold, sunny morning in mid-December, and Jacinto counts a dozen salmon swimming in place against the rush of water below the diversion dam. Long, narrow, and nearly invisible in the dark water, they all point upstream. It's as if they want to keep going past the dam that blocks their way. The sky is blue, willows and cottonwoods are bright yellow, and salmon carcasses shimmer indigo and gold.

The UC Davis crew surveys Putah Creek as long as salmon are swimming up it to spawn, typically late October to late January. It takes two days to cover the 17 miles below the dam by canoe, and the crew goes out every week, rain or shine, to count salmon both dead and alive and collect samples from the dead ones. Carcasses are abundant because salmon come to a natural end soon after returning to fresh water to reproduce.

Jacinto plucks a shiny white ear bone — or otolith — from the head of the Chinook carcass she cut open. Small and flat, this bone holds the secrets of the salmon's history. "Otoliths have layers like tree rings," she explains. "Each layer has a strontium isotope fingerprint that is unique to a waterway." Analysis of the otolith fingerprints yields a timeline of the various waters where a salmon lived from beginning to end.

What the researchers want to know most of all is where the salmon began life. The big question is whether any of the salmon spawning in Putah Creek today were also born there. "The dream is to reestablish a natural run of salmon in Putah Creek," says UC Davis professor emeritus Peter Moyle, a California fish expert.

Fifty years ago, he would have dismissed this as pure fantasy. Soon after arriving in Davis in 1972, he and his wife walked to Putah Creek after dinner. "A wide area of the creek was full of heavy machinery," Moyle recalls, explaining that the university mined gravel from the creek to build campus roads. "There was just a trickle of water on one side — I was appalled."

Moyle didn't even bother going back to the creek for a few years. Then some of his students asked for field projects, and he gave them the task of surveying Putah Creek for fish. Non-native fish dominated but his students did find some that were native — including, to Moyle's surprise, a few baby salmon. "This gave us the thought that maybe Putah Creek could be a salmon stream, as unlikely as it seemed," he says.

He and others urged the university to stop mining the creek, and by the late 1970s the machinery was gone and the administration had designated a riparian reserve along the creek on campus. In addition, the Putah Creek Council, a nonprofit based in Winters, began working with landowners along the rest of the creek. "Bushes started growing, and birds, beavers and otters came back," Moyle says. "The creek started looking good again."

Drought hit in the late 1980s and long stretches of Putah Creek dried up. When the Putah Creek Council asked the Solano County Water Agency (SCWA) to give the creek more water, the request was refused. In 1991, the Council, University of California, and City of Davis filed a lawsuit to force the agency to provide environmental flows. "We had a decade of student data showing that more water meant more native fish," Moyle says.

The case hinged on a law that had been on the books for 100 years but had not been enforced. "Fish and Game code section 5937 said all fish must be in good condition below a dam," Moyle says, adding that he got to define what 'good condition' meant, and that his definition ultimately became the basis for future lawsuits to restore environmental flows, including in the San Joaquin River. "Because of the Putah Creek lawsuit, other dams in the state now meet this requirement," he continues.

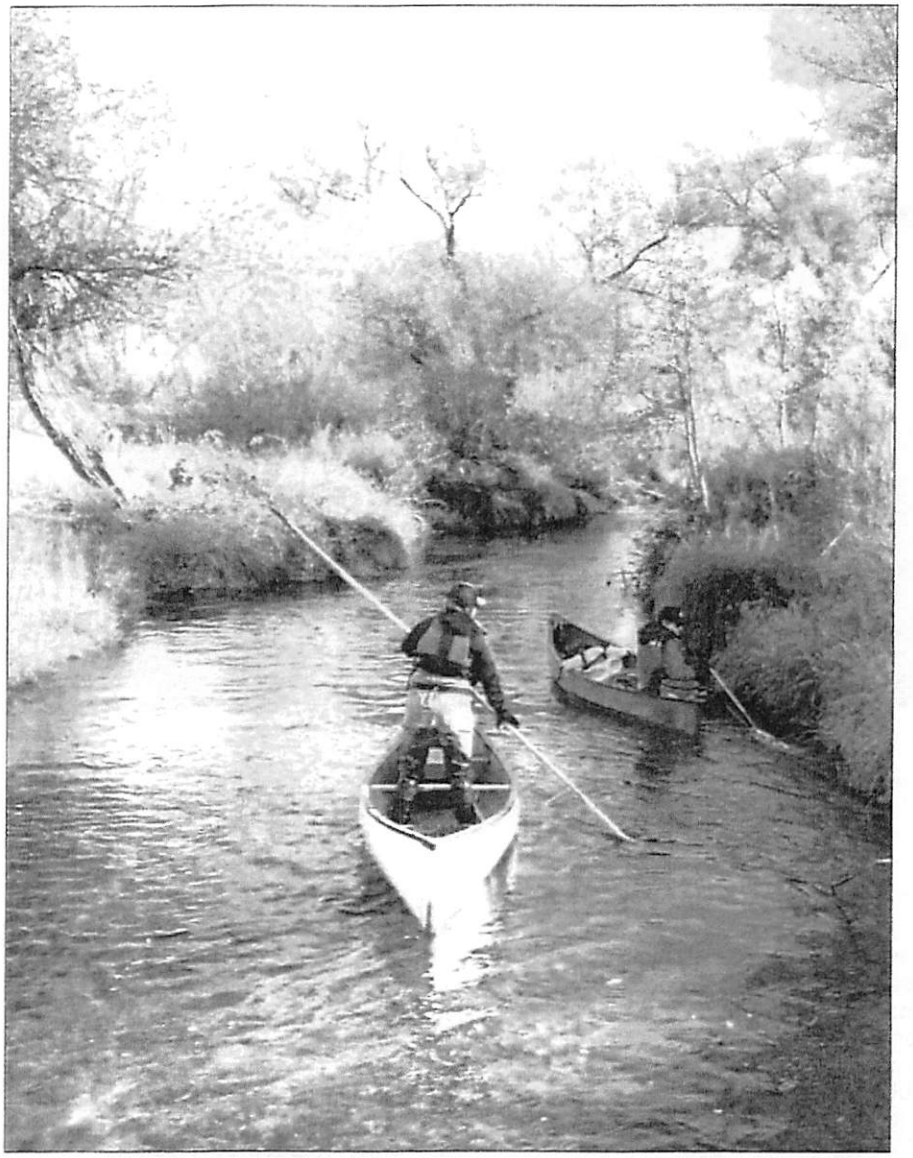
After a decade of fighting in court, the SCWA settled the lawsuit in 2000. In a complete turnaround, agency officials embraced their new role as environmental stewards of Putah Creek. "They've become the good guys now," Moyle says.

As part of the settlement agreement, the water agency created the new position of Streamkeeper to lead the creek's restoration, and the job went to Rich Marovich, who had once been a farmer. "That turned out to be a brilliant move," Moyle says. Most of the landowners along Putah Creek are farmers, and at first many were leery of the restoration. "Rich understood and worked really well with them," Moyle says.

Marovich's ambitious restoration includes replanting riparian forests as well as bringing back some of the creek's natural twists and turns. But he credits the salmon's comeback primarily to two other factors. First, at the onset of spawning season, the SCWA releases a week-long pulse of water from the diversion dam. This alerts salmon that they can swim up Putah Creek.

"There's been an incredible increase in salmon," Marovich says, adding that adult counts for recent years have hovered between 500 and 1,000. "That's in the range where they could be self-sustaining." While the numbers for this year are still being crunched, initial estimates put the adult population at 400 to 500.

The other key factor is that Putah Creek now offers good spots for spawning. Salmon build their nests in loose gravel, but the bottom of the creek had essentially been one big solid [rock?] ever since the diversion dam went in. "Without scouring flows, fine sediment settled and cemented the gravel together like asphalt," Marovich says. "It formed a crust about eight inches thick."



In 2013, the state gave Marovich permission to try something that had not yet been tested — and that they didn't think was feasible: breaking up the creek bottom to free the gravel just below the dam. "It was wildly successful," he says. "That reach was the only place salmon spawned that year."

Last spring, more than 30,000 young salmon swam down Putah Creek towards the Sacramento River, and Marovich says the capacity is even higher. The creek has five deep pools — former gravel mining pits — that are each about a mile long. "Salmon need shallow water with riffles," Marovich says. "This is not spawning habitat." But it could be. He's already restored one such pool in Winters and hopes to transform the rest as well.

Putah Creek's spectacular success gives hope for restoring salmon in other degraded waterways. "Putah Creek was a heavily modified ditch," Moyle says. "This shows we can bring salmon back to places that haven't had regular runs for a long time." And, he adds on a personal note, "Putah Creek is now one of the great benefits of living in Davis."

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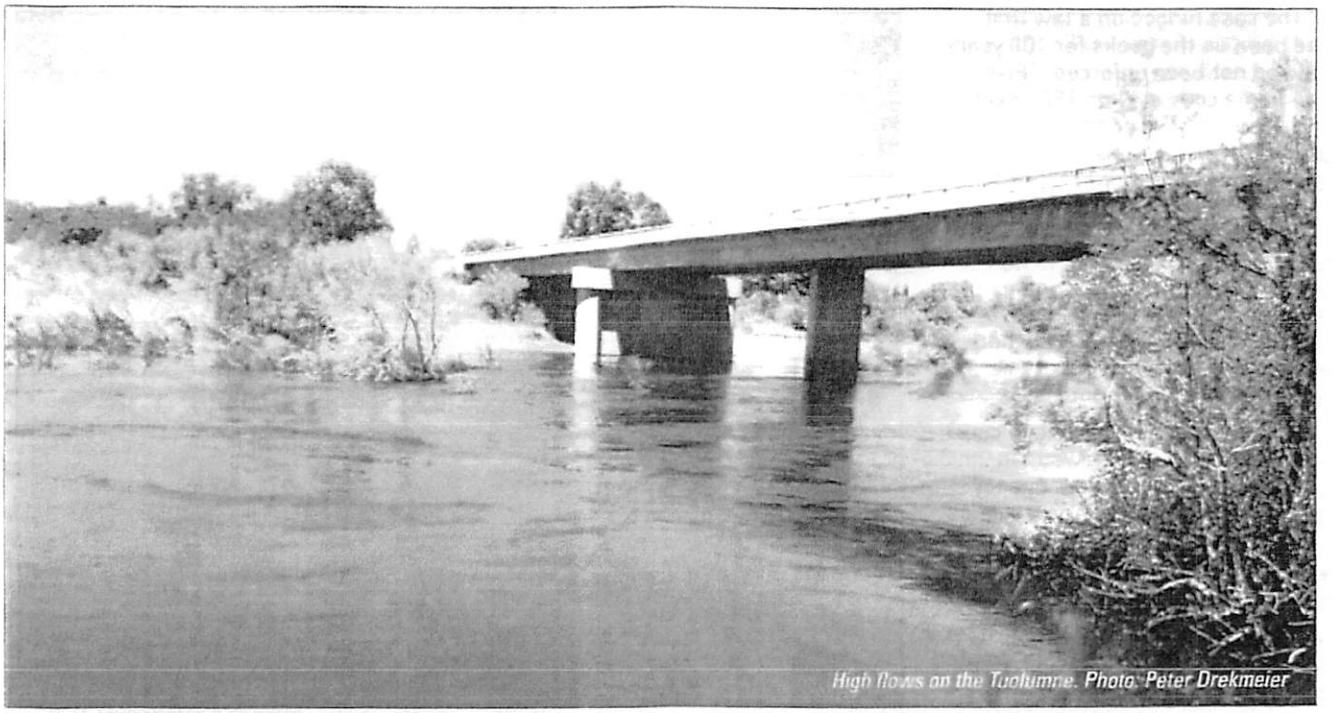
Photos: Robin Meadows



High flows on the Tuolumne. Photo: Peter Drekmeier

POLICY

Choppy Waters for Flow Rules

CARIAD HAYES THRONSON, REPORTER

While this wet winter's storms have been filling California's reservoirs, building an impressive snowpack and turning creeks into torrents, several streams of activity around the future of Delta flows were bubbling along and spilling into the fraught relationship between the state and the Trump administration.

The winter kicked off with the State Water Resources Control Board's December vote to adopt increased flow objectives for the southern Delta, lower San Joaquin River and its tributaries as part of the Board's long-awaited update to the Bay-Delta Water Quality Control Plan. The plan calls for instream flows of 30 to 50 percent of unimpaired flows on the Stanislaus, Tuolumne and Merced rivers to restore endangered fish populations. "The Board did what it hasn't done in decades," says San Francisco Baykeeper's Jon Rosenfield. "It adopted new standards that it developed on its own, rather than something that came out of a negotiation." The vote follows the Board's summer 2018 release of a framework for a similar plan for the Sacramento River and flows into and through the Delta.

The December vote provoked an immediate volley of lawsuits, both from water users, and from environmental organizations. The water users—including a number of irrigation districts, the San Francisco Public Utilities Commission and Valley Water (the rebranded Santa Clara Valley Water District)—oppose the plan. They claim, among other things, that the Board violated the California Environmental Quality Act by incorrectly analyzing the plan's impacts and that the required flows would be an unconstitutional waste and unreasonable use of water. On the other hand, environmental groups argue that the plan doesn't go far enough to restore endangered fish populations as legally required. "We are glad they did their job" by establishing the standards, says Rosenfield, "but their plan won't achieve what's required." More suits are likely as the Plan goes through various administrative processes, including water rights proceedings to determine who will need to give up how much water to meet the Plan's requirements.

In hopes of reaching a resolution before the lawsuits work their way through the courts—which would almost certainly take years—the Board left the door open for "voluntary settlement agreements" that might permit lower instream flows in exchange for "non-flow" measures to improve conditions for fish and wildlife. "We believe the State Water Board's flow-only approach is not the best solution for the environment," says Valley Water in a statement. "A more holistic approach is needed; one that incorporates non-flow measures like providing greater access to floodplains, removing barriers to migration, improving spawning and rearing habitat, and controlling predation."

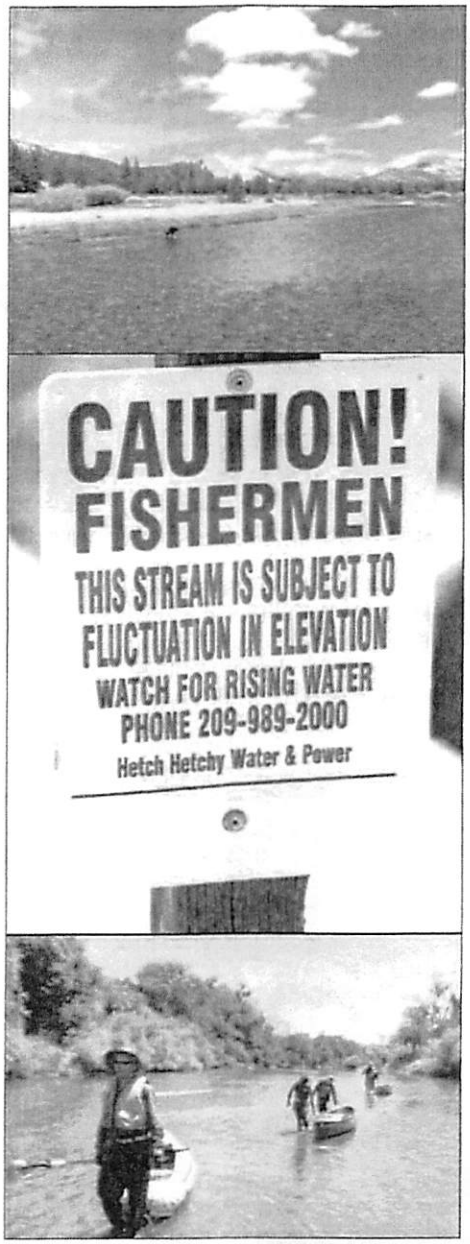
Negotiations over agreements have been ongoing for more than five years, and are widely seen as setting the stage for a "grand bargain" on Delta flows. Indeed, on the same day that the Board voted to adopt the lower San Joaquin flow requirements, the directors of California's Departments of Water Resources and Fish and Wildlife presented the board with the outline of an agreement covering the

Tuolumne, American, Sacramento, Feather and Yuba rivers and the Delta. At the Board's direction, this month DWR and DFW submitted a more detailed description of the proposed settlement. The Board will now evaluate the proposed agreement to determine if it might serve as an alternative to its own flow plans.

Although new Governor Gavin Newsom's administration brought the environmental community back into talks in January, "we are still evaluating what has really been put on the table," says Defenders of Wildlife's Kim Delfino. Up to this point, negotiations over the settlement had been conducted "without meaningful participation from conservation groups," says the Natural Resources Defense Council's Doug Obegi. Delfino confirms: "What was submitted to the Board is not the product of extensive NGO engagement, it's the beginning of the NGO reengagement."

Advocates for the environment say the proposal leaves some critical questions unanswered. "The plan is still not adequately described, and what is described reinforces that the voluntary agreements are not adequate to meet the objectives of the Water Quality Control Plan," says Rosenfield. The proposal leaves unresolved the question of how flows are measured. It refers to "new water" for the environment, but "there is still a lack of clarity about what the baseline is," says Delfino. "From our perspective, 'existing conditions' mean the combined flows under Decision 1641, current endangered species requirements, and other flows that occur incidentally that provide ecological benefits. I don't know that we have a meeting of the minds on that among all the parties."

Overshadowing discussions, and potentially influencing the definition of the baseline, are the vigorous efforts by the US Interior Department — under acting Secretary of the Interior and former Westlands Water District lobbyist David Bernhardt — to rollback protections for endangered Delta fish. During the Obama administration, when it had become clear that the existing biological opinions for Delta smelt and Chinook salmon were insufficiently protective and that fish populations were continuing to nosedive, the DWR and the Bureau of Reclamation reinitiated consultation on a new, more protective biological opinion governing the joint operations of the State Water Project and the Central Valley Project. (These two projects do the majority of the exporting. But they do not export the majority of the total available water and they do not represent the majority of all diversions (in basin + out of basin). In February, however, under the Trump administration, Reclamation issued a Biological Assessment (the basis for new biological opinions) that calls for temperature and entrainment management, as well as habitat and salinity measures, rather than flows. "By expanding our toolkit with the best science and using what we know today, new biological opinions will allow us to maximize water and power benefits while supporting endangered fish populations," Mid-Pacific Regional Director Ernest Conant said in a statement.



Top: Sierra snowmelt above the dam on the Tuolumne River. Photo (and sign): Carson Jeffres Bottom: Low flows hamper kayakers below Tuolumne dams. Photo Peter Drekmeier

All the more reason to make sure that the baseline for flows in any agreement reflects existing conditions, says Rachel Zwillinger of Defenders of Wildlife. "If the baseline is set properly, the agreements can make sure that the Estuary receives enough water no matter what the Trump administration does with ESA protections."

California has some options for protecting its endangered fish, even if federal protections are rolled back. "Currently, the SWP and CVP achieve California Endangered Species Act compliance for Delta smelt and two salmon species under a consistency determination"— a determination by the state that the biological opinions meet CESA requirements, says DFW's Carl Wilcox. "Going forward, we would expect that the state will issue its own permits for the SWP." Whether the federal CVP would also have to obtain a permit is likely to be a contentious question. The CVP is required to comply with state law under the 1992 Central Valley Improvement Act, says Obegi, "but they have never in the past obtained a permit under CESA. We've never really had a large difference between the federal standards and state standards, where state standards were stronger than fed standards, which is why it's never come to a head before now."

"Governor Newsom has staked out turf against the Trump Administration, and water management and endangered species are going to be the first real test of that," says Rosenfield. "These rivers and the Delta are all contained within California, there is no federal aspect to them. Will the Newsom administration stand up and defend California's natural resources from Trump?"

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CLIMATE

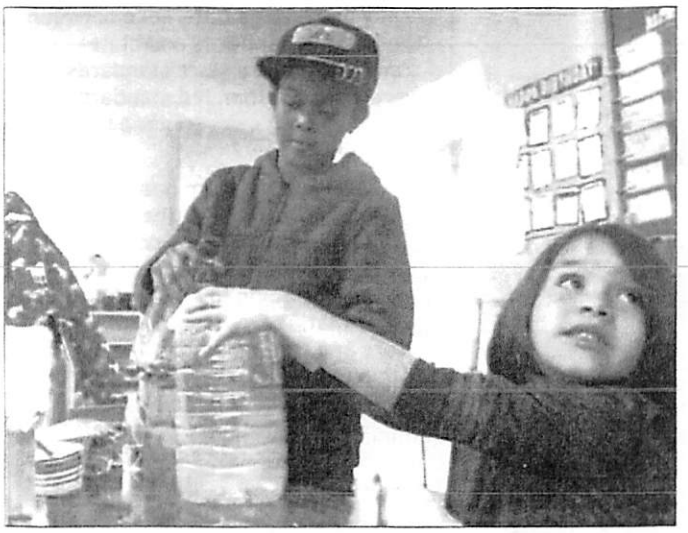
Youth Learn to Shift as the World Shifts

BY MAYA L. BROWN, REPORTER

In a bright classroom in the hills of East Oakland, youth huddle in small groups building miniature rain-catchment models. Birdhouses serve as the base for a catchment system composed of a foil gutter, a straw pipe, and a Dixie cup rain barrel. Spritzes of water from a spray bottle generate rain-like condensation, which trickles through the system into the barrel.

The eight middle schoolers gathered on this chilly Saturday morning are participating in a youth social-media ambassador training organized by a climate-readiness program called Mycelium Youth Network. In a few weeks' time, they will build a life-size rain catchment system here at Pear Tree Elementary School.

Lil Milagro Henriquez founded Mycelium Youth Network in late 2017, while fires engulfed California. Mycelium was born "out of deep anxiety" from confronting the gravity of climate change, she says. Henriquez, who had just given birth, recalls wondering, "How are we going to survive this? What kind of world am I leaving for my children?"



Building a rain catchment model. Photo: Annakai Hayakawa Geshlider

At the training day, black and brown faces fill the room, and the educators are predominantly Native. Henriquez believes that "from these communities will emerge the practices that will save us and allow us to thrive," she says. "I want the practices in the classroom to be focused on this reality."

Students identify native plants with garden educator Ben Schleffar. Photo: Annakai Hayakawa Geshlider

At the center of the six-week Mycelium curriculum is a segment called Water is Life, in which students learn practical skills. Ben Schleffar, a garden educator trained in traditional Native American techniques, teaches students how to follow plants to sources of fresh water and to identify native plants with medicinal properties. Dani Ahuicapahtzin Cornejo leads lessons on purifying water in a disaster and building a rainwater catchment system. He teaches that humans are inside of nature rather than apart from it. "We are water beings, we are part of a water cycle," he says.

Henriquez created Mycelium after a search for disaster-preparedness courses yielded few climate-readiness programs and scant resources for people in her community. She found even fewer initiatives specifically concerned with youth like the students she worked with at her school. Henriquez is the Director of Community Organizing at Roses in Concrete Community School in East Oakland. For 17 years, she has been an organizer for various causes including rights for domestic workers and janitors. She brought that organizer mentality to creating Mycelium: "Let me change what's happening and figure out how to make it better."

There's no doubt the prospect of climate change inspires both hope and fear. This January, Mycelium Youth Network was included in a report titled "Preparing People on the West Coast for Climate Change," authored by the International Transformational Resilience Coalition (ITRC). According to the ITRC, human psychosocial resilience is vital to climate adaptation, but it receives less support and funding than initatives geared toward infrastructural or economic resilience. Human resilience programs like Mycelium are an investment — they prepare people to deal with the trauma and stress of disasters. They also address everyday trauma that easily gets normalized.

Although the rest of the school was empty during the rain catchment exercise, our classroom felt like a small community center. Relatives and guest educators sat amongst the youth to listen to presentations, or stopped by to contribute to the potluck lunch. Ayako Nagano, an attorney and community organizer, kicked off the day with a social-media ambassador workshop that covered everything from blogging to photography. The middle schoolers moved about the classroom, snapping shots of each other. Mosiah modeled for his partner by busting out gravity-defying dance moves. Regardless of the medium, "It's your perspective we want to know," Nagano told the youth.

This perspective is aware that people of color and low-income communities live at the frontlines of climate change. Henriquez describes how in their Oakland 94601 zip code, there is already lead in the water, particulate matter in the air, and little access to healthy organic food. Disasters and added stresses from climate change will exacerbate existing challenges. Her students are already "disproportionately targeted, and they know it," she says. At the same time, she pushes back against media portrayals she thinks only highlight what is missing or problematic in her community. "We don't focus on the resilience that's already there," she says.

Resilience usually calls upon diverse skills. Mycelium brings together youth participatory action research, disaster preparedness, urban and wilderness survival, ecological sustainability, and visionary imaginings. Activities include a "walk your block" exercise to identify medicinal and sacred plants as well as lessons on how to mobilize an emergency bag and family plan for when disaster strikes. As Henriquez remarks affectionately, it's a dynamic "hodgepodge." She wants to ensure the curriculum is responsive to the community's needs. "We just had a wildfire, so how do we make an air purification system? I want it to shift as the world shifts," she says.

During trauma and crisis people become individualistic, which works against them. "Our fight or flight reaction gets activated and we lose our executive functions, our decision-making skills," says Nagano. Mycelium combats this panic by teaching students key skills in advance — like how to procure potable water — and through lessons on working collectively.

Those skills have come to Henriquez organically. When she began building Mycelium from scratch, she looked outward into her community. "When I don't know, I go to people who do know," she explains simply. She connected with Mycelium's educators and board members at climate adaptation forums, at Native American resource centers, through relatives, and in her school garden. The resulting Mycelium program "integrates eco-social justice, indigenous pedagogy, and water engineering," says Pablo K. Cornejo, a civil engineering professor at California State University at Chico who consulted on the curriculum.

Henriquez speaks to the social-media ambassador training. Photo: Annakai Hayakawa Geshlider

While Mycelium takes disaster-readiness seriously, exploring what lays beyond survival is also important. "How do we go from a place of survival to thriving in a climate challenged world?" says Henriquez. Mycelium encourages the youth to imagine radically. "We always want to keep the imagination piece in there: How are we thinking about the world together in a new way?"

Mycelium prompts its students to write speculative fiction and envision a world they want to see. Sana, a Mycelium student, is writing a story that explores "overcoming dystopian conditions, sustainability, and understanding how people created the dystopia." Sana wills her characters to overcome stacked odds; she "likes dystopias but hates when everybody dies at the end." As the author, she wields the power to write her characters — and her community — out of harm's way.

"What's beautiful about youth is that they think outside of the box — they are visionary," says Henriquez.

The January ITRC report described how resilient people are better able to make sustainable lifestyle changes that will lessen their carbon footprint. The ITRC characterizes this brand of resilience as "transformational" because it turns a challenge into an opportunity, and makes people feel empowered rather than helpless.

"If we don't change our minds, the physicality of our world won't change," says Nagano. Henriquez believes surviving climate change will take the whole village — "from the ingenuity and creativity of youth, to the knowledge and experience of adults and elders, to the wisdom and traditions of our ancestors."

At the Mycelium workshop day, Henriquez sat amongst the youth. She listened to the educators and piped in occasionally, but mostly watched the workshop unfold. She had no need to assume center stage because she had already done her part: organizing the network to support the next generation of collective leadership.

"The youth should be the leaders!" Henriquez exclaims. "They open us all up to the possibility of the impossible. Within Indigenous circles, we often say, we are our ancestors' wildest dreams. No one embodies that more than youth."

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SPECIES

Wildlife Gamble on High Water or High Road

BY LEIGH PAPP, REPORTER

While most of us were cooped up inside waiting out February's storms, Tanya Diamond and Ahiga Snyder, both researchers with Pathways for Wildlife, were anchoring the seven video cameras positioned along a creek in the Pacheco Pass wildlife corridor. Located between South Bay mountain ranges, this protected space allows critters to move throughout the area. As water levels rose, animals large and small were caught on camera while crossing the creek; when water depths reached 6-10 feet and the currents grew too strong, many animals didn't turn around but instead sought alternate routes.

The Pacheco Pass Highway/SR-152 bridge over the creek and the concrete channel below, known as a culvert, were built by Caltrans to allow for water flow and offer safe passage to animals and cars alike. "We were very impressed with how determined the animals were to use these structures [culverts] during the rains," says Diamond, a wildlife ecologist. "We caught a bobcat on camera, walking through the creek before it was totally flooded. With her ears back and elbow-deep in water, you can tell she's miserable."

As the storms filled creeks with water, the culvert of Pacheco Creek did eventually flood to the point of impassibility. After 25 days, Diamond and her team were able to resume data collection in the field. Clues about wildlife behavior during flooding and potential changes to culvert designs have begun to emerge. "On those days when they couldn't go through the culverts, they had to take a gamble and go across the road," says Diamond. Instead of backtracking, they began using the bridge above.

While this trend has been documented in other locations during heavy rainfall, Diamond and her team were surprised by the varying animal carcasses found on the bridge. "We're finding more rare and sensitive species at this particular highway," she says. From an American badger to a gray fox, the range of species confirms the significance of culverts as safe passage for all animals.

Under normal weather conditions, wildlife tend to stick close to the creek water itself. However once flooded to the point of impassibility, it appears as though some of the more agile critters, like bobcats and raccoons, resort to the higher ground on either side of the creek. "They don't need much, maybe only a foot or two," says Diamond. The increased roadkill count, on the other hand, suggests bigger species and hoofed animals were less able to maneuver along the edges.

This evidence, that some animals use the higher grounded culvert space, makes Diamond curious if something other than the current lining of rock and rubble, or rip rap, might offer a better solution for the animals in their time of need. "We could move some of the rocks and use netting," she says. The netting would allow plants to grow through, offering both natural erosion control and leafy roughage that might help the animals gain footing. By giving them a slender space to walk, she believes they will have less reason to resort to a more dangerous highway crossing.

Lindsay Vivian, a senior wildlife biologist on the Caltrans team, has worked closely with Pathways for Wildlife for several years on various wildlife connectivity projects. While there is documented wildlife use of the existing culverts and undercrossings, Diamond's recent findings suggest another solution is needed. "The ongoing collection of animal movement data along SR-152 year-round and across multiple seasons is helpful in identifying potential barriers to wildlife movement," says Vivian. "The data can also be used for future transportation improvements along SR-152," she adds.

Diamond and Snyder are still in the process of collecting information about the 2019 storm season and its effects, and plan to release a report early next year. Pathways, the Santa Clara Valley Habitat Agency, and Caltrans hope to to enhance the connectivity of these culverts and bridge even further. By adapting the bridge habitats of the Pacheco Pass, their hope is to better serve passing animals in all types of weather, rain of shine.

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Cat, coon, and fox captured moving through this flooded Pacheco Creek concrete culvert during February storms. Photos: Pathways for Wildlife

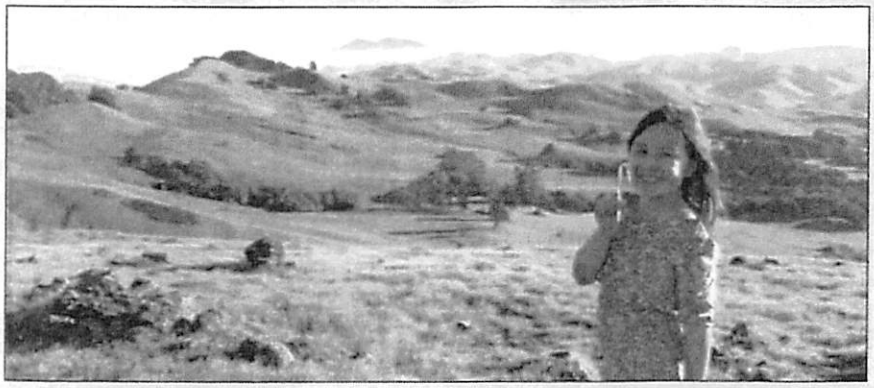
Marsh restoration, Bay and Ridge Trail extensions, and urban park upgrades are among the types of projects eligible to receive funding through the 2019 Bay Area Priority Conservation Area (PCA) One Bay Area Grant Program. By March, aided by new mapping tools that can pinpoint regional landscape characteristics and needs, more than 36 cities, counties, agencies and non-profits had submitted letters of interest to the program, outlining a variety of projects that benefit one or more of the Bay Area's 165 PCAs (see map p. 10). Altogether, the grant requests totaled more than $19 million.

Some of these projects may help vulnerable shoreline areas defend against sea-level rise; others may make urban hardscapes more porous under atmospheric river downpours; still others may connect vital migratory corridors for urban wildlife through the skyscrapers, industry, and neighborhoods of the metropolitan Bay Area.

"With this new stream of funding, you could say we have a goal of both growing and conserving the region at the same time," says Matt Gerhart of the State Coastal Conservancy (SCC), which is managing the grants.

Important elements of the Plan Bay Area 2040, the current integrated long-range transportation and land-use plan for the region, PCAs are intended to complement areas designated for high-density growth, or Priority Development Areas. "Compared to other Bay Area natural lands, parks and preserves, the PCA network contributes a disproportionately high number of some ecosystem services," says Heather Dennis of the SF Bay Conservation and Development Commission's Adapting to Rising Tides (ART) project.

PCAs, which are nominated by local governments, agencies or non-profits, fall into four categories: natural landscapes, agricultural land, regional recreation and urban greening. Some PCAs fit more than one category, such as agricultural land that also provides recreational opportunities.



Along with Caltrans mitigation funds, a PCA grant helped the Napa Open Space District acquire 709 acres of the former Kirkland Ranch for the Suscol Headwaters preserve north of American Canyon. The parcel had been zoned for vineyards, although none had been planted. The preserve is an outpost of coastal prairie, with patches of native bunchgrass where the cattle couldn't reach them. District General Manger John Woodbury says its 1,505-foot high point offers "one of the most spectacular views of the North Bay." Spring-fed Suscol Creek is a productive steelhead spawning stream, lined with live oaks and bay laurels. Raptors hunt the grasslands, and Woodbury has seen a mountain lion there. A purpose-built pond will provide habitat for endangered California red-legged frogs. There's also a Native American seasonal village site with rocks where acorns were processed. Trails based on existing ranch roads will link the Suscol Preserve to Skyline Wilderness Park to the north, bridging a five-mile gap in the Bay Area Ridge Trail. Woodbury says the northern part of the preserve will be opened to the public later this year, after biological surveys have been completed; the southern portion may be accessible by next year. Headwaters are pictured here in 2017 two months after the fires burned through these hills, with Mt. Diablo in the distance and a young Napa resident in the foreground. Photo courtesy John Woodbury.

The first list of PCAs was assembled in 2008, when ABAG asked local interests and agencies around the Bay to suggest unprotected places where pastures, forests, vacant lots, creeks, and shorelines should be identified as a conservation priority. "Cities pushed back on that approach, because anyone was allowed to submit an idea, and they felt there was not enough consideration of existing municipal plans and priorities," says Laura Thompson, Assistant Planning Director for the Association of Bay Area Governments (ABAG/MTC).

In the second round, cities were placed in the drivers seat—as primary nominators of PCAs—and they were also required to notify property owners of designations. A new category for PCAs of "urban greening" was also added. "The urban greening category is important, because it creates opportunities for multi-benefit stormwater management practices, like rain gardens, and active transportation improvements, such as bike and pedestrian trails along greenway corridors," says the San Francisco Estuary Partnership's John Bradt. "These projects promote public awareness of resource protection, and public access to nature within the built environment."

In terms of the money to support these PCAs, the first round of PCA grants funded 23 projects around the Bay in 2013, ranging from recreational improvements to Mill Valley's Bayfront Park to the purchase of 174 acres adjacent to San Mateo County's Memorial Park for open space and recreation. Funds awarded totaled $12 million. In the second round, now underway, the Metropolitan Transportation Commission (MTC) and the Coastal Conservancy have set aside $10 million for projects in the Peninsula, Southern and East Bay counties (the North Bay program is managed separately by local transportation agencies; in the second round of those grants, 11 projects were awarded a total of $8.2 million).

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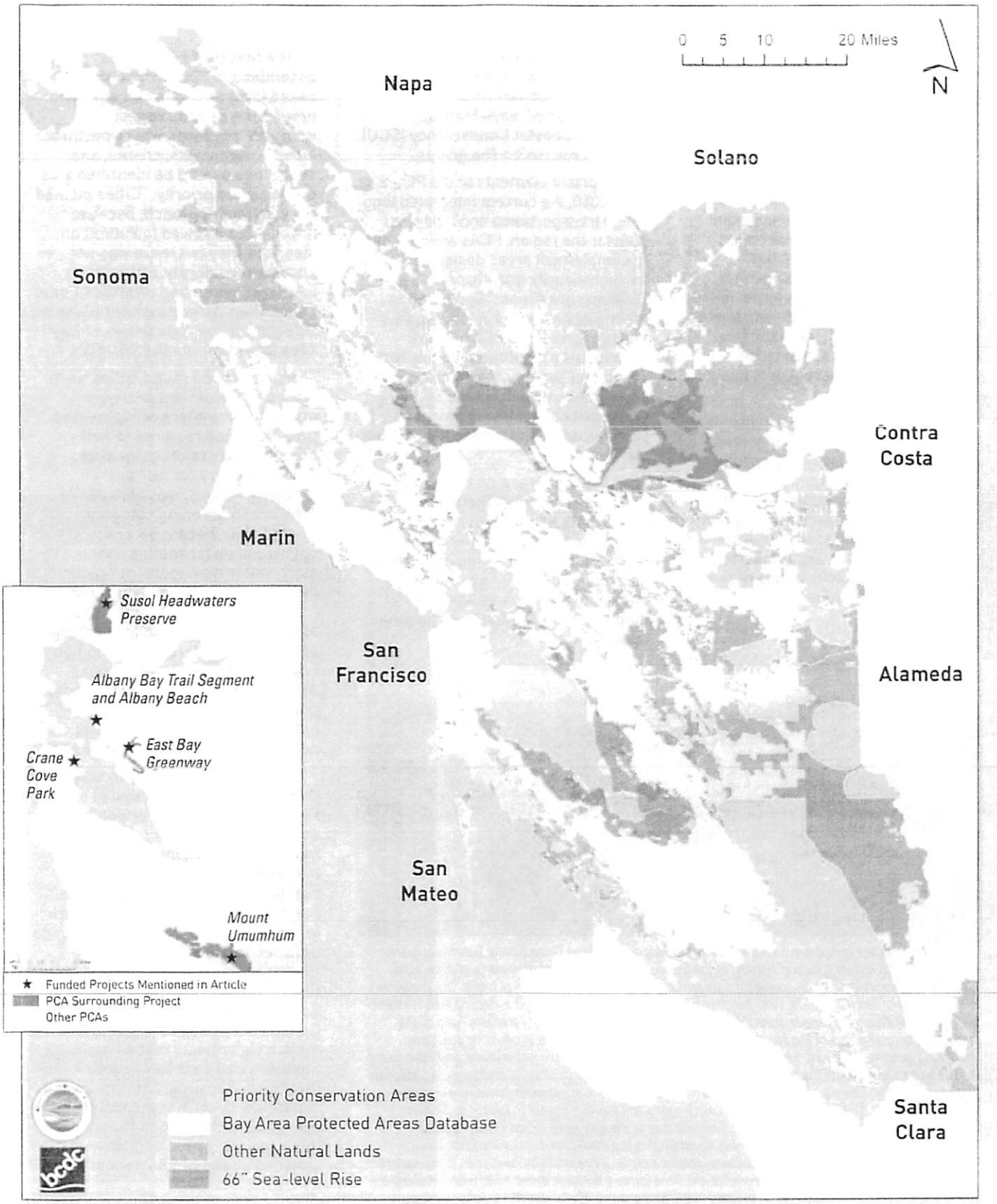
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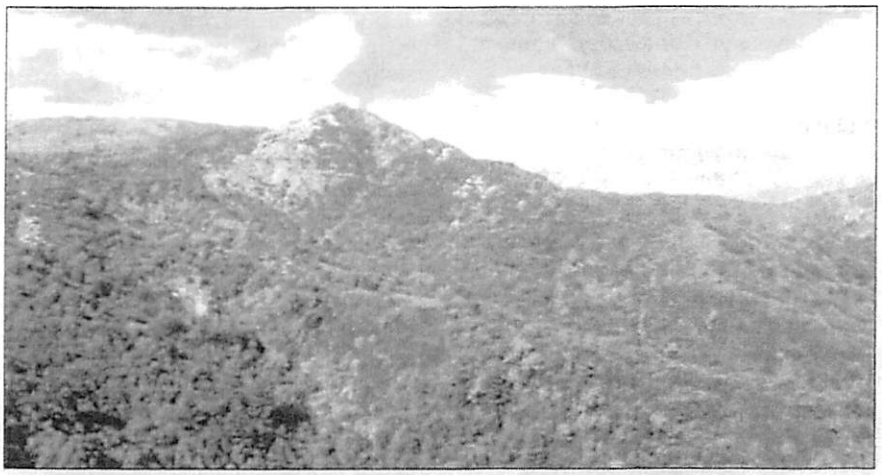
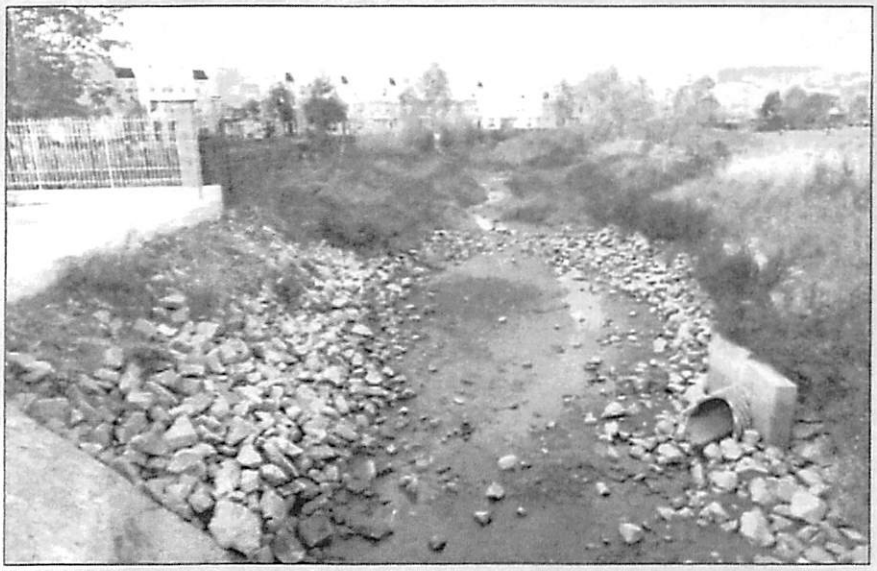


At the southern end of the Bay Area, the Midpeninsula Regional Open Space District recently approved a cultural conservation easement in Santa Clara County's Sierra Azul PCA that gives the Amah Mutsun Tribal Band access to the 3,486-foot-high summit of Mount Umunhum for ceremonial use and growing traditionally significant plants. The summit, a sacred site for the Amah Mutsun, housed a Cold War-era radar installation whose surviving tower has historic landmark status, and was off limits to the public for decades after the base was closed. Since 2017, visitors have been able to hike through the chaparral to enjoy a Pacific-to-Sierra view from the top. The Open Space District is revegetating the mountain's slopes with serpentine-tolerant plants propagated by a local native-plant nursery. Photo courtesy MROSD

On the Berkeley-Albany boundaryline, the East Bay Regional Park District is filling in the missing mile of the San Francisco Bay Trail between Gilman and Buchanan streets. This PCA project follows up on the district's Albany Beach restoration, which created freshwater wetland and dune areas with native plants and was designed to withstand sea-level-rise projections for 2050. Earthmoving equipment is already at work on the bayward side of the Golden Gate Fields racetrack, cutting a bench across the rocky slope of Fleming Point. Once it's opened this fall or winter, trail users will be able to watch pelicans and windsurfers in the Bay and observe oystercatchers, black turnstones, and whimbrels on the shoreline rocks. Photo: Turnstones by Rick Lewis.

San Francisco's bayshore is getting some badly needed public space as part of a PCA project at the site of the Union Iron Works shipyard at Pier 70. Here the Port of San Francisco is transforming ten acres into Crane Cove Park. The shipyard was active from 1886 to 2017 with a peak in World War II, making it the longest-operating repair yard in the US, and now a National Park Service Historic District. The eponymous cranes are not waterbirds but a hulking pair of industrial cranes built in the 1940s, officially Cranes 14 and 30; locals to this Dogpatch neighborhood have dubbed them "Nick and Nora," after the protagonists of the popular "Thin Man" movies, some of which had San Francisco settings and Bay Area filming locations. "The park design accommodates projected sea-level rise based upon the best available data during design development," says Port project manager David Beaupre; much of the site has been elevated from three to nine feet. Crane Cove Park will complete a Bay Trail link to a new Water Trail site, and include pedestrian and bicycle access along an extension of 19th Street. Current plans are to open next year. Photo: Port of SF



Inspired by the popular Ohlone Greenway in Berkeley, Albany, and El Cerrito, the East Bay Greenway project would provide pedestrian and bicycle access from the Lake Merritt to South Hayward BART stations. The sixteen miles of this PCA project would run alongside the Union Pacific rail line through Oakland, San Leandro, and Hayward and the unincorporated communities of Cherryland (which in fact once had cherry orchards) and Ashland, crossing three creeks (Lions, San Lorenzo, San Leandro) and the Estudillo Canal. In the photo above, Lions Creek evokes the nexus between stormwater infrastructure, housing, and urban greening projects in Oakland. The larger Greenway will connect with the Bay Trail. Construction is expected to begin by 2021. It's an ambitious plan, requiring multijurisdictional teamwork, but one that would turn urban wasteland into a vital corridor. Photo: Isaac Pearlman

Note: Caption information reported by Joe Eaton.

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Projects eligible for funding during the current grant round must consist of at least one of five activities, within or adjacent to, a PCA: protection or enhancement of nature resources, open space or agricultural lands; pedestrian and bicycle facilities, urban greening; planning activities; and visual enhancements (see pp.12-13 for examples). After reviewing the letters of interest, regional agencies will invite selected projects to submit a full proposal by July.

As part of the application process, PCA grant applicants must submit a project report through Bay Area Greenprint. This mapping and data tool was developed by the Greenbelt Alliance, the Nature Conservancy, the Bay Area Open Space Council, the American Farmland Trust and the Green Info Network. A Greenprint report identifies, maps and measures ecosystem values, and allows users to visually display and share a range of data about their project location—everything from its status as habitat for protected species to agricultural and recreational uses to carbon sequestering potential.

"The Greenprint allows you to see where within a PCA are the conservation priorities," says Adam Garcia of Greenbelt Alliance, who gave a quick onscreen lesson in how to navigate the tool's colorful and attractive menus at several recent workshops for grant applicants. "It can offer a snapshot of what's in your project area right now and a way to assess multiple benefits, but it's not a scenario planning tool."

"The Greenprint helps us identify the highest priorities for conservation, based on values that we have all agreed on," says Tom Robinson of the Bay Area Open Space Council. "No matter who is evaluating the projects, [we now have] a standard way to view them."

Given the investment in PCA projects, figuring out how to protect them from the effects of climate change, and leverage them to protect other assets, is a priority. With funding from MTC, BCDC's ART Bay Area program conducted vulnerability assessments of 19 PCAs around the Bay in 2018. Among the findings was that more than 50 percent of the recreation that the PCA network provides, and all of the PCAs that are critical for coastal protection, are vulnerable to sea-level rise and flooding. Findings also compared ecosystem services provided by PCAs across the region using ecosystem valuation models developed by the Natural Capital Project, a collaboration between Stanford University, University of Minnesota, the World Wildlife Fund, and the Nature Conservancy (see map).

"We are hoping that this analysis will help guide where future PCAs make sense, and also how projects within existing PCAs might speak to the vulnerabilities that we've identified," says BCDC's Dennis. For example, the PCA around Oakland's Damon Slough has wetlands that may provide flood protection to the Coliseum area PDA, as well as nearby transportation infrastructure. Next, ART will examine issues such as what adaptation strategies might make PCAs more resilient, and whether rising sea-levels warrant changes in how PCAs are designated and funded.

"The ART analysis isn't intended to dictate how the PCA program operates, or whether there should be a change in our regional approach to natural lands," says the ART program's new director Dana Brechwald. "That's a bigger conversation. This analysis could help us think about a regional approach in new ways."

The PCA program has evolved to more effectively balance Bay Area-wide priorities, says The Nature Conservancy's Liz O'Donoghue. "There will always be tension between locally identified, locally driven priorities, which is really how on-the-ground conservation is most successful, and the need for local conservation priorities and projects to support and be driven by regional priorities, so you can get to landscape-scale conservation."

"We're not there yet, in terms of adding another layer of regional analysis to the locally-driven PCA designation process, but we will be taking a new look at the PCA-PDA balance next year through MTC's Horizons and scenario development program. Staff are still discussing all this internally, but given all the pressures in the region for growth, climate adaptation, and ecosystem services, being more strategic could pay off," says ABAG/MTC's Thompson.

Whether and where additional PCAs will be designated are questions to be answered in Plan Bay Area 2050, which is slated to be released in 2021. "In the months ahead we will be working to update our growth framework, which might include an opportunity for new PCAs to be submitted and considered," says MTC's Dave Vautin. "We've been working closely with the ART Bay Area team over the last year as we start preparing for PBA2050," he says.

The Nature Conservancy's O'Donoghue is bullish on the future of the PCA program. "It supports the Bay Area's vision for growth and reflects the importance of conservation in the area, as well as MTC's and SCC's innovation in figuring out how the local and regional connect and support each other. I think its just getting better and better."

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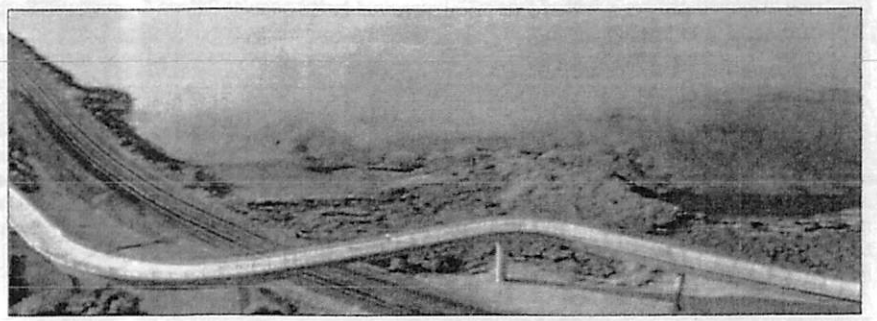

Pinole trail connection, a PCA project. Photo: EBRPD

SCIENCE

Feds Coastal Research Crew Bucks Headwinds

ARIEL RUBISSOW OKAMOTO, REPORTER

Jim Cloern looked out of the airplane window and saw red streaks in the water; crimson patches darkening the grey-green shallows that are San Francisco's South Bay. A superscientist for USGS, he knew something big was happening.

As soon as the plane landed he called his crew. "You will not believe the explosion we're seeing on the surface," he heard back from his crew leader, Tara Schraga. A quality-control freak who sticks to the gold letter that is attached to everything labeled "USGS science," Schraga had spent the morning on their research vessel lowering sensors down into the shallows and then pulling them out again to log the levels of salt, nutrients, sediment, and phytoplankton between the surface and the bottom oozes. It turns out that the tiny drifting plankton visible from Cloern's window on that day in 2004 were blooming on the Bay's surface in record amounts. The color indicated a red tide, a harmful algal bloom, like those that closed Florida's white beaches and made Miamians cough during the 2018 elections.

I asked Cloern, a humble guy with a big brain who just retired after 43 years as a scientist specializing in the San Francisco Bay, if he ever gets tired of plankton? "That would be like asking John Muir if he ever got tired of trees," he says.

Spring 2019 finds USGS — the non-partisan, top-of-the-line federal science service paid for by our tax dollars — in the midst of a restructuring that includes not hiring someone new to fill Cloern's supersize shoes. Word is the agency is thinking of shifting its water division into National Weather Service-style monitoring mode, and cutting coastal research programs like Cloern's that make up less than five percent of the national budget.

The thing is, it's a really bad time for the San Francisco Bay research community to be in limbo, not knowing if it will be able to replace this brainpower or sustain USGS's 50-year-old, boat-based water-quality sampling program. As conditions change, more red tides may be on the way: bad news for shoreline communities, Bay health, the local economy, and wastewater treatment plants that might be forced to make significant and costly upgrades to prevent them.

USGS research vessel R/V Peterson. Photo: Joel Fritsch

"Regulators have some big decisions pending, such as are we going to mandate that 37 sewage plants invest in expensive upgrades to treat and remove nutrients before they enter the Bay?" says Cloern. "Without ongoing science, those decisions could be costly, ineffective, inefficient, or just plain wrong."

According to Cloern's longtime USGS colleague Jan Thompson, an expert in the clams down in the mud that eat plankton, the system most likely "to catch us with our mouth open" by changing dramatically lies south of the San Mateo Bridge. "We still don't know exactly why the South Bay isn't pea soup eutrophic today. If it's something good we should market it and sell it, but it could be something bad like a contaminant holding blooms in check," says Thompson, who is now in phased retirement. Putting all the pieces together — conditions plus climate plus clams plus contaminants, among other estuarine complexities — is the kind of thing this program has always done best.

"Having the research capacity to receive early indications of change before it happens is priceless," says Tom Mumley, the assistant executive officer of the San Francisco Bay Regional Water Quality Control Board, who has relied on USGS science to make sound regulatory decisions for decades. "Absent that think tank, I'm concerned."

Decisions at the national levels of the USGS water division suggest the program and its lead scientist position could sunset as early as August 2019 or not at all; the uncertainty is crippling. USGS's local and state partners in science are now scrambling to see if they can pick up the slack. The slack isn't a surprise, since funding for federal science has flatlined for decades. USGS's national budget for research has declined in real dollars from around $700 million in 1996 to $650 million in 2017. Cloern's coastal research and Bay monitoring program is down to a mere $760,000 per year in cost today. It's all scraps compared to a $5 billion border fence or a $13 billion space force. Yet this

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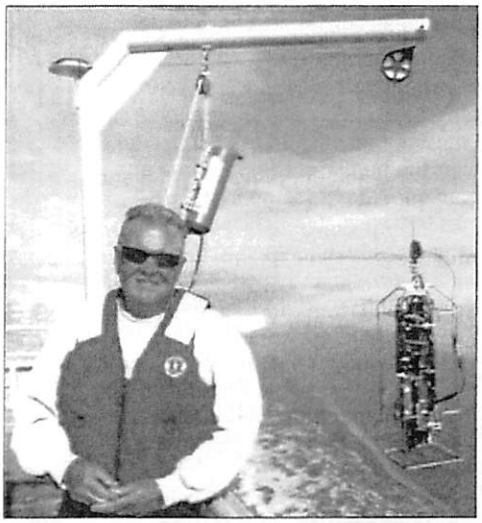
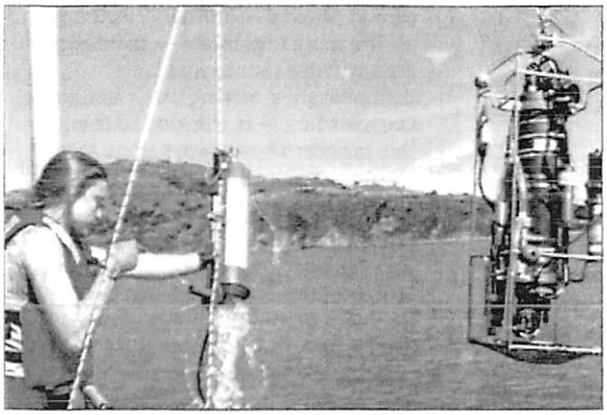


Superscientist Jim Cloern, who retired this February after 43 years of studying San Francisco Bay.



SFEI's Erika King prepares the Niskin bottle to collect a water sample from near Angel Island. Sensor-loaded CTD at right. Photo: Nebiat Assefa Melles

USGS science serves Americans every day — tracking storms, measuring snowpack, steering airplanes, saving salmon, monitoring water quality, modeling the cascade of effects that occur with climate change, namely interpreting our changing world — as the USGS slogan goes.

"If resource agencies cannot rely on long-term funding, they cannot implement long-term monitoring programs, which means we cannot track long-term trends. And if we cannot track trends we won't know if our ecosystems are changing — and that seems to be the intent of the federal bureaucracy these days," says Ian Wren, a staff scientist with the nonprofit San Francisco Baykeeper. "The administration has pushed for cuts to USGS, NOAA and EPA in an attempt to shield themselves from unfavorable science outcomes. In the Bay Area, we've always welcomed scientific insight into our planning and business conversations, and been willing to pay for it."

It's important to remember how much this legacy of water-quality monitoring has paid off economically and for the health of the Bay Area and the nation. What ends up in the Bay comes from a vast watershed and an equally vast Pacific Ocean, not just one small region. "USGS is gathering data coming from more than 40 percent of the land mass of California through a major river system and estuary, with essentially a statewide effect, not to mention a nationwide effect on the agricultural economy. That's why the Bay Area shouldn't be paying for it all," says Dave Williams, executive director of the Bay Area Clean Water Agencies, an association of publicly-owned wastewater treatment plants that serve more than seven million residents of the Bay Area.

But the Bay Area has already started paying. When earlier shortfalls threatened the USGS program, the Regional Monitoring Program and those managing the water board's Nutrient Management Strategy stepped up. Together, they managed to bankroll the conversion of a gunmetal-grey former cop boat into a floating science lab called the R/V Peterson when the aging converted pleasure yacht Polaris, which had hosted Bay sampling cruises for decades, had to be replaced. They also funded essential crew positions.

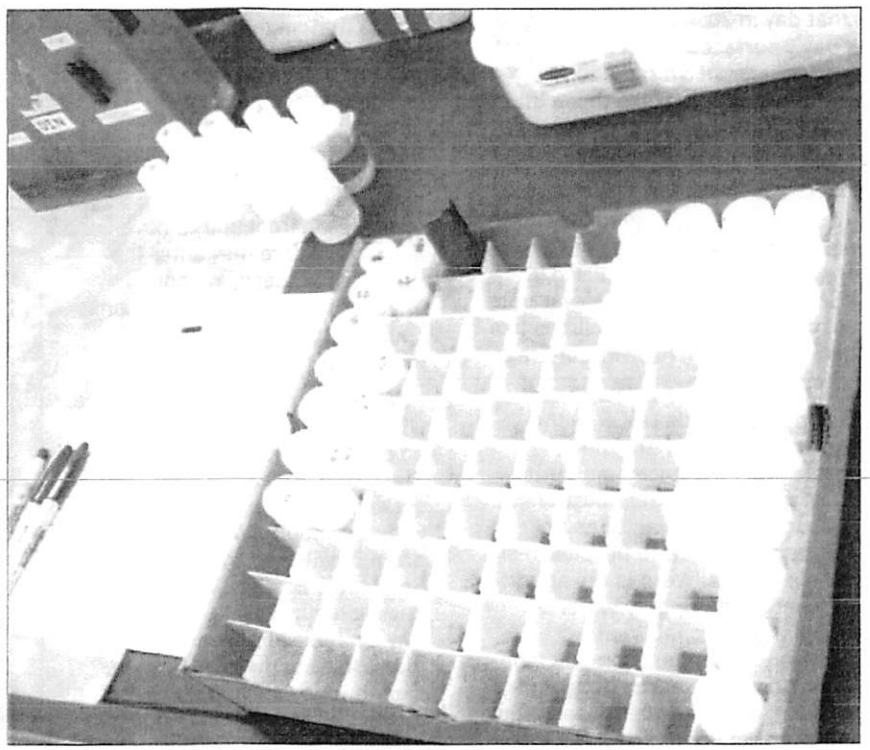
"We had to," says San Francisco Estuary Institute senior scientist David Senn. "The community has relied on this information for a long time."

Three-Legged Chair

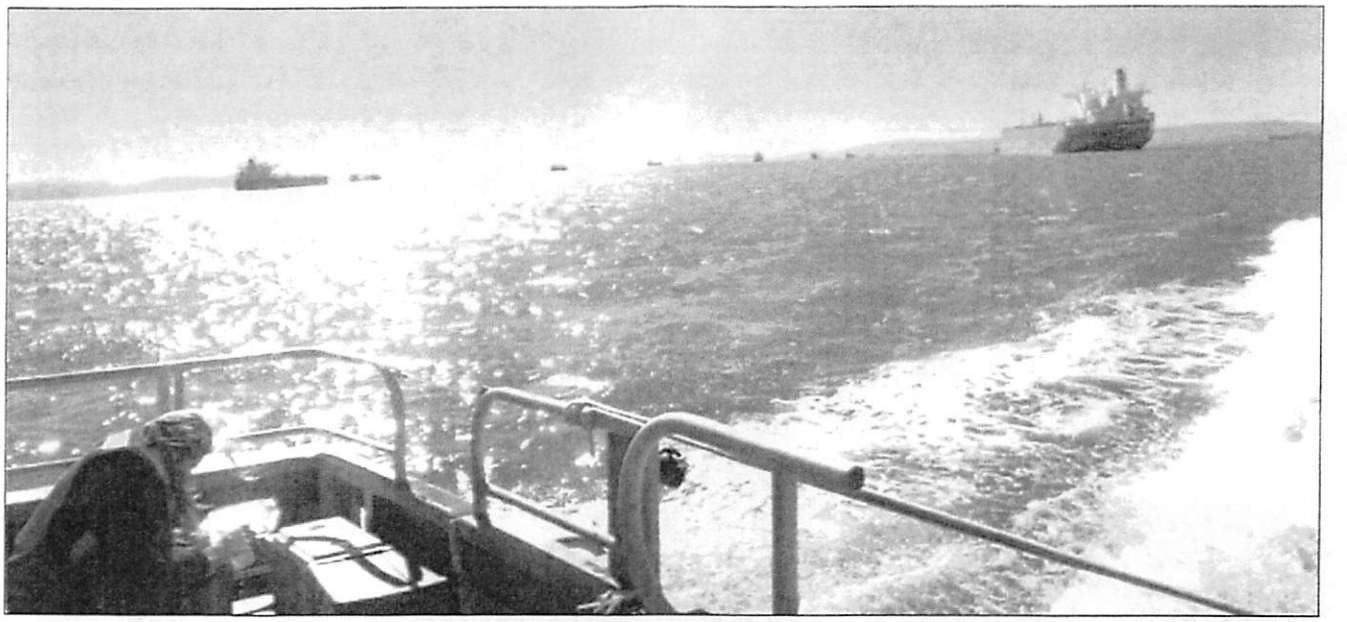
Despite the steady chipping away at this San Francisco Bay USGS coastal research and monitoring program over the years, the program remains a solid fourth leg of dozens of chairs at the head table. The fifty years of Bay monitoring data and observations, interpreted by Cloern and his team for decision-makers and regulators, have become an integral part of the regional science enterprise. Removing that fourth leg from each of those chairs for a mere million bucks could topple dozens of ongoing programs that underpin management of California's water supply, economy, endangered species, fires, floods, wastewater treatment services, and more.

Take for example the Interagency Ecological Program (IEP) for the Delta, which relies on USGS to cover the lower watershed. "Our authorities here in the Delta may be circumscribed, but as scientists we know we can't really limit ourselves to one area of a very large watershed," says Steve Culberson, lead scientist for the IEP. "It's all connected."

Culberson says the IEP might never have noticed the pattern of decline among multiple pelagic fish species in the Delta all at once (aka the "POD") without a mindset that looked at large



Water and nutrient samples from the March 2019 cruise. Photo: Ariel Okamoto



ecological patterns and processes. "Jim's program helped teach us how to tease out those patterns with analytical methods, methods that were then borrowed and applied by people up here," says Culberson.

"This is easily the most rigorous long-term science program dealing with estuarine environments on the planet," says Jeffrey Koseff, an engineer at Stanford University.

"Most scientists are trained to look at their own backyard estuary, but it is essential to understand and appreciate differences among systems across the world to produce better science," adds Jacob Carstensten of Denmark, one of an international group of scientists who have benefitted from Cloern's global scholarship comparing Bay results with other estuaries. "The San Francisco Bay monitoring program is unique for the US West Coast — no other program has delivered so much science [or so] broadened our views on coastal ecology."

"Good science always saves us money," says BACWA's Dave Williams. "The bad news is that we are now facing all these new challenges, and if we don't have the same data to continue to understand our receiving waters we're going to be shooting in the dark or making overly conservative decisions."

HABs and HABNots?

The new worry is that more harmful algal blooms (HABs), like the one Cloern saw from the plane in 2004, are coming. The Bay stank in the 1960s, and it could stink again if we're not careful. Rotten-egg fumes wafting into the Google courtyard at lunch hour might not mix well with the organic greens, cilantro chicken, and artisan root beer.

USGS scientist Amelie Jensen filters plankton in floating lab aboard the Peterson, *a lab built with regional funding. Photo: Nebiat Assefa Melles*

Toxic algae blooms affect many waters of world and have been especially problematic in places like the East Coast's Chesapeake Bay and, more recently, Florida's Atlantic beachline. Here, last fall's toxic bloom killed manatees, dolphins, sea turtles, and at least one whale shark.

Former Florida Republican Governor Rick Scott received blame for previously cutting the state's water management budget and, by some allegations, contributing to the conditions that caused the algal explosion. His actions as governor included relaxing requirements on septic system inspections, which may have allowed a surge of sewage-tainted runoff to enter waterways, feeding the toxin-producing algae. The state's new governor, Republican Ron DeSantis, has vowed to turn the tide. Two days after being sworn in in January, he signed an order that will seek $2.5 billion over four years for better management and protection of water resources. The order will empower local agencies to curb nutrient loading of waterways and hopefully prevent more ecological crises like what occurred under Scott's watch.

The main driver of harmful blooms is nutrients. These nitrogen-containing compounds run off our hillsides, streets, and farms into Bay and Delta waters, but in San Francisco Bay the

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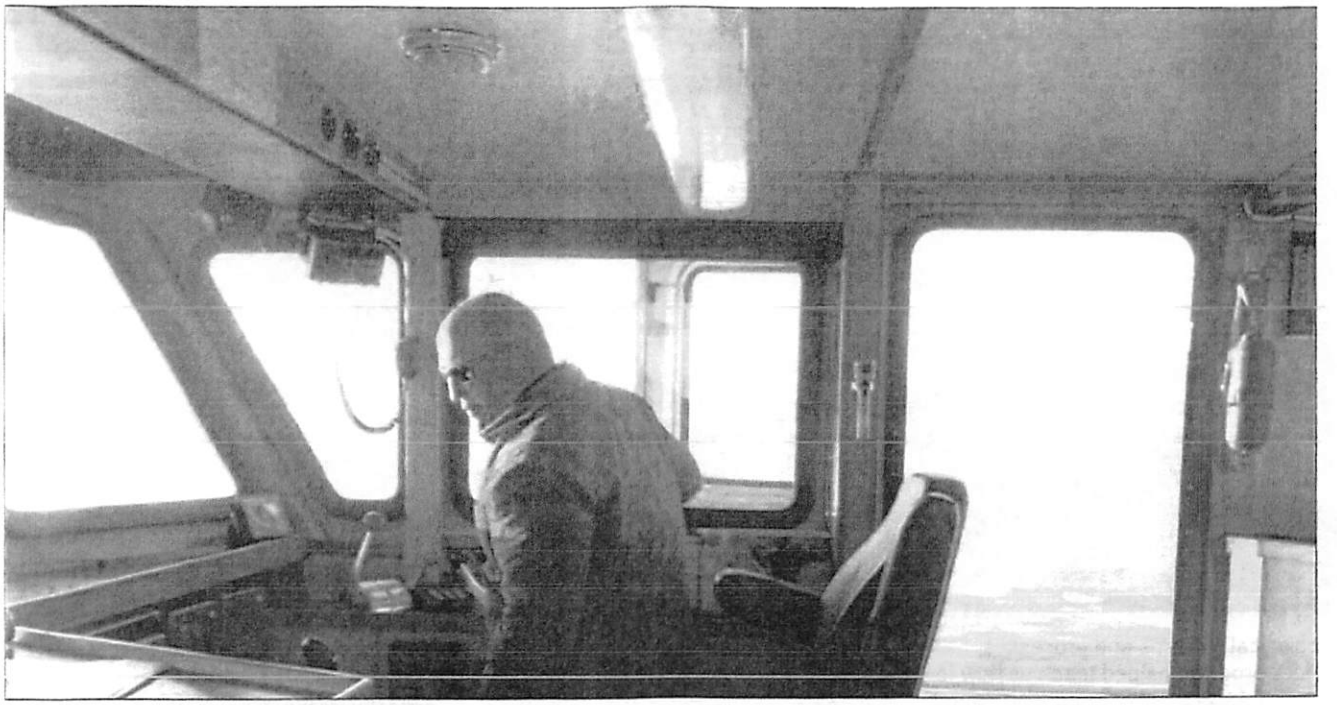


R/V Peterson *Captain Joel Fritsch. Photo: Ariel Okamoto*

majority comes from wastewater discharges. There's a lot in most estuaries, and Cloern says the Bay is in the top 10 percent worldwide for nutrient levels.

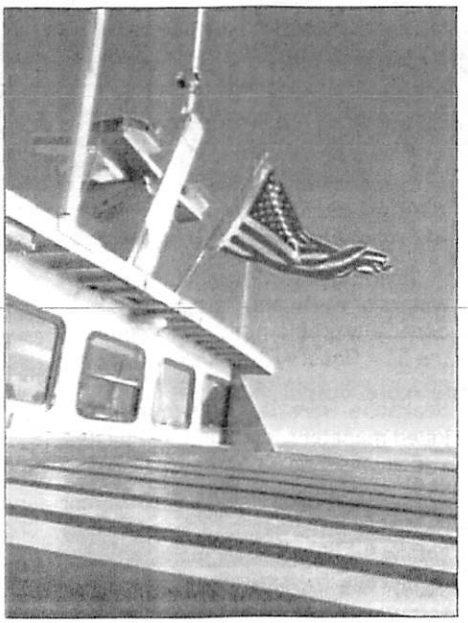
San Francisco Bay has not experienced the magnitude of algae bloom seen recently in Florida, however. "We're just now learning both how nutrient-rich this estuary is and how fortunate we are to have some natural resilience to this condition," says the Water Quality Control Board's Tom Mumley. "USGS gave us early warning that this was waning."

Cloern, Thompson, and their USGS and regional colleagues have all attempted to understand the Bay's resistance to harmful, eutrophic blooms, and tried to figure out if and when that resistance might time out. It all has to do with subtle shifts in temperature, waning turbidity (as mining debris washes out of the system), estuarine mixing, and climate.

"As turbidity clears, sunlight may penetrate further and increase productivity in ways we haven't been used to," says IEP's Steve Culberson. "While we may initially see some boost in productivity to support native species, these new conditions, and the warmer water temperatures we're seeing in the Delta, may trigger more HABs, which will create problems meeting requirements of biological opinions."

Monitoring has already detected harmful microcystin toxins from Delta HABs in the Bay, while downstream similar toxins from Pacific Ocean HABs have been found via sampling and analysis under the direction of UC Santa Cruz's Raphe Kudela.

These kinds of early warnings from USGS and its collaborators led the water quality control board to launch strategic planning around nutrient management for the San Francisco Estuary in 2012. "After five years of capacity building, we're now diving deeply into answering targeted management and science questions," says the San Francisco Estuary Institute's David Senn, lead scientist for the strategy.



Regulators need to decide, and dischargers need to know, if they will be required to invest in expensive new treatment systems to remove nutrients. Such an upgrade of the region's POTWs (publicly owned treatment works) was estimated to cost $5-$10 billion in a recent engineering analysis conducted by HDR consultants.

"Instead of slamming the POTWs with costly responses to problems once they happen, we've had the benefit of five years of dialogue and additional studies," says Mumley. "We're all working together to create scientific basis for action."

USGS' boat-based Bay monitoring program has been at the heart of this action, with on-board labs purpose-built to track nutrients and harmful algal species as conditions change. In this region known for high-tech innovation, however, one can't help wonder why we can't just do all this Bay monitoring remotely, with satellites and moored sensors? Wouldn't it be cheaper and more efficient?

"The truth is the technology is just not there yet," says USGS' Tara

Schraga, whose crew regularly test-runs the latest sensors on the Petersen against the quality of the data coming out of the Bay. "It's tough to use satellites to see San Francisco Bay year-round because of the fog and the turbidity — you can't see the telltale pigments in the plankton that help us identify the size and species," she says.

One boat and a crew covering a big estuary once a month can also cost a lot less than installing stationary sensors where there are no pilings, adding them to buoys, or fixing them onto bridge stanchions. Once installed, these stationary sensors invite all manner of Bay life to colonize them. "Left unattended, things grow on the instrument housings and sensors themselves, and fine particles clog various parts needed to take measurements," says Senn. A number of stationary sensors are already deployed around the Bay (see online story).

The best future program, all seem to agree, is some combination of stationary sensors, a boat and crew, and a lead scientist or two with the chops to turn concentration levels into management information.

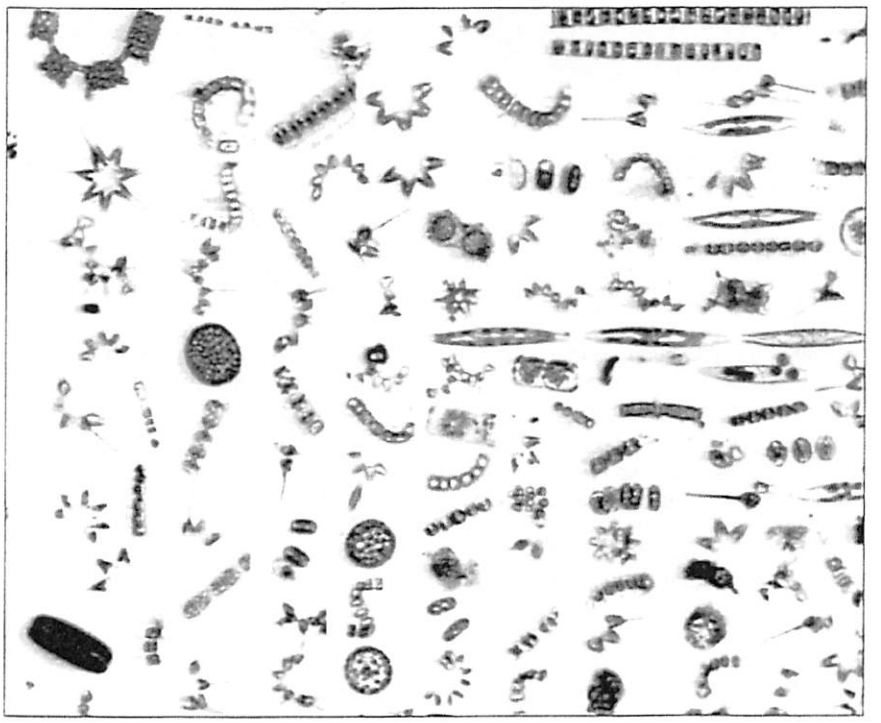
"Without someone interpreting the data it's not useful," says Schraga, a part-timer and Cloern's only remaining official staff.

Shooting in the Dark

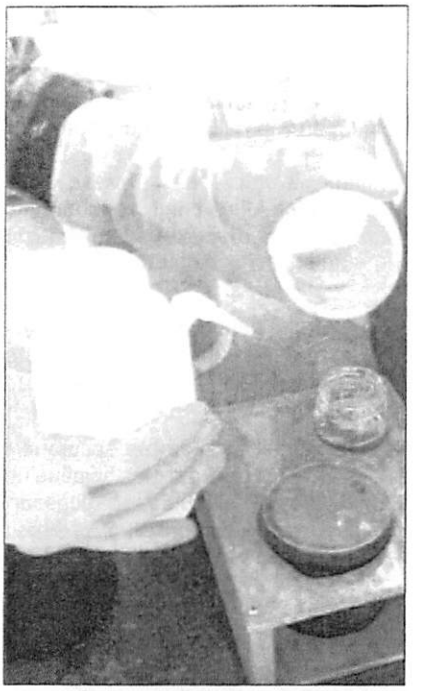
So just imagine taking a jog with your dog on that new stretch of Bay Trail you like — the one with the pretty purple flowers dancing in the breeze and the steps leading down to the beach. It's high tide. Your dog chases a ball in and out of the water, upchucks in the back seat of your car on the way home, and dies that night for no apparent reason. Sound alarmist?

Bay Area residents have come to expect a beautiful bayshore and safe, non-sticky, non-stinky water for their pets and children to play in. That cleanliness is a point of pride, another couple of zeroes on your property value. The science and long-term monitoring that contributed to it is an international, not local resource.

Indeed Bay conditions from year-to-year, as posted and made available to all via the USGS Bay monitoring web site, serve a much broader audience than just local residents. In 2019, the web site with its downloadable data was getting more than 2,000 visits a day, with users from 90 different countries, ranging from Andorra to Zimbabwe at last look. Could this invaluable online resource get lost in future shutdowns or be parked on some obscure federal server due to budget cuts?



Plankton images captured by UC Santa Cruz's Imaging FlowCytobot during USGS sampling cruises. Photo: Raphe Kudela



Looking ahead, there's little doubt the USGS coastal research program could help us confront new challenges to our quality of life, including major changes to the Bay's tidal prism from sea-level rise — which is slated for 3 to 5 feet over current levels by 2100.

"Change in overall depth is going to be a big one, given that it is a major parameter in phytoplankton growth," says Thompson. The advancing ocean will also submerge Bay mudflats and lessen turbidity, another limit on bloom rates. More and bigger sea walls, built to protect major shoreline infrastructure, will exacerbate circulation problems, she says. "The Bay will be more like a big bath tub, not a good result if you're worried about HABs."

Worry about losing the Bay's USGS coastal research and monitoring program, meanwhile, seems ubiquitous. As Tom Mumley says: "Having this research program has helped us adapt, helped us create a healthy bay and healthy economy. What could be a better use of public resources?"

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DEEPER DIVE

(with on-the-boat video)

LINK www.sfestuary.org/estuary-news-usgs-bay-research-cruise-uncertain

WETLANDS

Attention to Outcomes

From the crest of Bullet Hill in China Camp State Park, an historic remnant of marsh is stunningly on view. An ancient, sinuous water channel winds through the pickleweed, straightening as it nears the open water. A flock of egrets rises, then settles again nearby to hunt and feed. This is one of the most-studied wetlands in the San Francisco Bay Area; as part of the San Francisco Bay National Estuarine Research Reserve (NERR), the site has more than a decade's worth of annual vegetation sampling and water-quality data available.

Alex Wick, former SF Bay NERR technician working with USGS staff to install a Surface Elevation Table, a portable mechanical leveling device for measuring the relative elevation change of wetland sediments. Photo: Mike Vasey

Not all wetlands are so comprehensively studied, but the new Wetland Regional Monitoring Program (WRMP), funded through an EPA Region 9 Wetlands Program Development Grant and managed by the San Francisco Estuary Partnership, aims to change that. The goal of the program, which is currently in the development phase, is to revolutionize the way that data is collected and shared about one of the Bay Area's most fragile ecosystem types.

"Every project can learn from other projects — so work won't be done in a silo," says Aimee Good, Wetland Science Coordinator of NERR. "We need to regionalize the way we gather data."

Right now the Bay Area is home to an astounding 30,000 acres of wetland restoration projects, of all sizes, ages, and methods, says Mike Vasey, director of the reserve. A ream of monitoring data is gathered for each project site, but there has until now been no coordinated system for organizing how it is collected or accessed.

"For years, we have been basing our monitoring on what is needed for permitting—the reports go in to the [regulatory] agencies, but they rarely come out," Vasey noted. As a result, this cumulative wealth of information remains essentially untouched.

"Monitoring data sits on shelves when there is an incredible opportunity to use it to inform critical management questions for the region," say Heidi Nutters of the Estuary Partnership, manager of the new program.

Another impetus for the program is the large number of new wetland projects now coming online due to Measure AA regional parcel-tax funding under the San Francisco Bay Restoration Authority. "We need to increase monitoring efficiency and consistency and reduce costs for wetland managers," says Nutters.

For example, one of the research projects conducted at China Camp requires extremely accurate measurements of sedimentation accrual—the vital process that allows wetlands to keep up with sea-level rise rather than "drowning," or converting to open water. These measurements are based off a precisely calibrated fixed point called a benchmark—one that requires periodic and expensive recalibration.

"We want precision," Vasey says. "We want to get down to millimeters, not centimeters. We hope that under [the new program], this would be one of several sentinel sites funded around the Bay—and that we wouldn't have to shoulder the whole cost of maintaining the network on our own."

Such a network would also help detect regional patterns in wetland conditions in light of climate change and sea-level rise. Ideally, by monitoring on a regional rather than a project- or site-based scale, scientists will better understand how our wetlands function, perform, and adapt within the estuary as a whole.

"We are trying to understand patterns in advance," Nutters says. "Where do tidal wetlands have space to migrate upward as sea-level rises? Where are vegetation communities downshifting, drowning, or progressing? What are the indicators that drowning is about to happen?"

The program follows in the footsteps of an already successful collaboration of dischargers, regulators, and scientists that monitors Bay water quality (RMP). Efforts to establish a regional wetland monitoring program go back at least to the early 1990s. "The logic has never been disputed but it never reached critical mass," Vasey says.

The new program has moved forward not only because of growing public investment in marsh restoration but also because of the vulnerability of these habitats and buffers to sea-level rise. There's a need to establish a "control" system to evaluate long-term drivers of marsh loss such as reduced sediment supply or land subsidence in the tectonically active Bay region.

"We are developing collaborative leading management questions that we can then answer with monitoring data — and that has never happened before for our wetlands," says Nutters. Questions are being hashed out in an ongoing series of stakeholder workshops, attended by up to 80 people.

A plan for a small-scale pilot program will be in place by the end of the year, says Nutters. If that goes well, it will be expanded in future years.

"We're not being naive, that it's just going to move forward like someone sprinkled fairy dust on it," Vasey says. "If—no, when—we pull this off it's going to be one of the first wetlands monitoring programs that is coordinated on a regional scale."

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MARITIME

Widening Gyre of Ocean Issues

Last year, local marine researchers working with SF State's Estuary and Ocean Science Center installed an array of instruments at a research site near Tiburon, in Marin County, to track underwater parameters including temperature, pH, dissolved oxygen levels, and carbon dioxide concentrations. John Largier, a UC Davis professor of oceanography who is helping operate the system, says he expects clear trends and patterns indicative of warming and acidifying waters to become apparent in the data within about a decade.

"We've gotten to the stage where if it hasn't already happened it's going to happen," he says.

The world's oceans are already warming and expanding, in spite of efforts globally to combat climate change and reduce greenhouse gas emissions.

While Largier and his colleagues wait for the effects of changing ocean chemistry to take shape in San Francisco Bay, a national panel of experts on marine science and ocean policy, it turns out, has recommended that researchers in coastal regions everywhere do precisely the same thing. In a recently published report, they called for "continuous monitoring" to better "understand the problems associated with rising ocean temperature and acidification."

The effects of greenhouse gas emissions were just one area of concern addressed in the document, which came as a summary of a December 6 meeting in Washington D.C., where the Renewable Natural Resources Foundation convened for its 17th Congress on Ocean Policy. The assembly focused on a broad spectrum of global marine issues, including land-based ocean pollution, offshore oil drilling, potential environmental impacts of wind-energy production, and strategies for managing the use of the ocean's surface for maritime activities and industries—a field called marine spatial planning.

Photo courtesy Estuary and Ocean Science Center.

Most pertinent to the San Francisco Bay Area research and conservation community was the focus on acidification and warming. The forecast for how these phenomena will affect the planet was grim. Even radical reductions in greenhouse gas emissions today will not halt trends of increasing temperatures and seawater acidity, according to the report. Its authors warned that the ocean will release the heat it has absorbed through the 20th and 21st centuries for many years. This will impact coastal communities, marine life, and waterfront industries — and just what coastal nations must do to adapt remains unclear.

While the report encouraged global communities to reduce their greenhouse gas emissions, calling such action "imperative ... for the health of marine ecosystems," its authors also noted that the celebrated Paris Agreement, which aims to stop warming at 1.5 degrees Celsius above the pre-industrial average, is unlikely to hit its target. "A temperature rise above 2°C is more likely, which would have drastic impacts on wildlife and ecosystems worldwide," the report states.

Acidification, like warming, is a direct result of carbon dioxide emissions. When atmospheric CO_2 enters the ocean, it can dissolve into carbonic acid, which interrupts the process by which invertebrates form their own shells. This makes acidification potentially devastating for marine ecosystems, in which tiny invertebrates form the base of the food web. Largier noted that acidified water, which tends to be relatively low in dissolved oxygen, enters San Francisco Bay both from land-based sources as well as the ocean. The ocean water, because it contains dissolved salt and is denser than freshwater, often flows directly over the seafloor, where it affects creatures like crabs, clams, oysters, and mussels.

With nations making painfully slow progress in reducing their emissions of greenhouse gases, Largier believes local efforts to boost the resiliency of the San Francisco Bay ecosystem could be especially powerful. "If we can pull back on our localized impacts, we can make more room for the impacts of climate change," he says.

Currently, wastewater and agricultural discharges to the Estuary include nutrients that can cause algal blooms and deplete the water

continued on next page

of oxygen, creating lethal hypoxic conditions—another issue discussed at the December congress. Such pollution also adds to aquatic CO_2 levels, further driving the formation of carbonic acid.

Largier advised curbing these inland water-pollution streams (see p. 13) while also protecting marine plant communities, which, by sponging up carbon and sequestering it in their own tissue while releasing oxygen into the air and water, directly mitigate acidification and hypoxia.

A group of scientists published a report last year discussing the potential of surfgrass and eelgrass, as well as large kelp species, to absorb carbon from California's coastal waters. Karina Nielsen, lead author and a marine ecologist with San Francisco State University, wants to see "no net loss and preservation of the vegetated ecosystems that are storing carbon now."

California officials recognized the same benefits of marine vegetation in their California Ocean Acidification Action Plan, released last October. The 62-page document, put together by the California Ocean Protection Council and the California Ocean Science Trust, advises protecting seagrass meadows, kelp forests, and coastal marshes, as well as employing seaweed aquaculture to help soak up CO_2 and boost pH levels.

While locally oriented actions to slow acidification may be more achievable, global ones may carry more weight, and both approaches, experts say, are critical.

"Globally reducing greenhouse gas emissions and taking localized action, such as restoring marine vegetation, are not mutually exclusive; they must both be prioritized and performed simultaneously," writes Deborah Halberstadt, executive director of the Ocean Protection Council, in an email.

Halberstadt says she doesn't think it's essential that the United States ratify the 1982 United Nations Convention on the Law of the Sea, or UNCLOS, an overarching treaty from 1982 governing ocean resource management and industry signed by 168 other nations. Joining the treaty, however, would allow the United States to more effectively participate in negotiations and rulemaking around emerging issues affecting the ocean such as seabed mining and Arctic navigation and exploitation, according to the congress report.

California isn't waiting for US ratification to get started, however. "Subnational governments are playing an increasingly powerful role in climate action and diplomacy," Halberstadt says. She commended the state-sponsored 2018 Global Climate Action Summit, which she says "set a global precedent by issuing an ocean-climate action agenda and calling all members of society to pursue ocean-based solutions as vital steps toward realizing the Paris Agreement."

Other threats to marine systems, and how to mitigate and avoid them, were also explored in the Congress on Ocean Policy report. Wind-energy production will likely be a key source of renewable electricity in the future, but the report's authors advised careful placement of turbines to minimize negative effects on migrating birds—especially collisions—and also to curb noise disturbance of marine mammals, which could be caused by driving structural pilings into the seafloor. They also suggested extreme caution in advancing the development of offshore oil drilling, which the Trump Administration has been promoting. The authors cited and closely analyzed the 2010 Deepwater Horizon explosion, which killed 17 people and spilled 4.9 billion barrels of oil into the Gulf of Mexico, as a worst-case scenario highlighting what can go wrong in such projects.

The congress also warned of the risks to biodiversity associated with seabed mining, in which heavy machinery is used to extract minerals from deep under the seafloor. Notably, the report's authors pointed out that mitigation efforts to offset damages — a tactic often used for land-based industries — are not possible for seabed mining, since the affected habitat is unique and not replicable anywhere onshore or in shallow water.

While the December Congress on Ocean Policy report did not present groundbreaking scientific information, it was hardly an exercise in rhetoric, either. Nielsen says "these documents are important in driving change" — especially pertaining to global warming and acidification — and can help influence policymaking decisions. "Reiterating positions that have been recommended by scientists and that are being refined over time as we learn more is important," she says. "It keeps our officials, politicians, and folks who read policy reports on top of the issues, because they haven't gone away."

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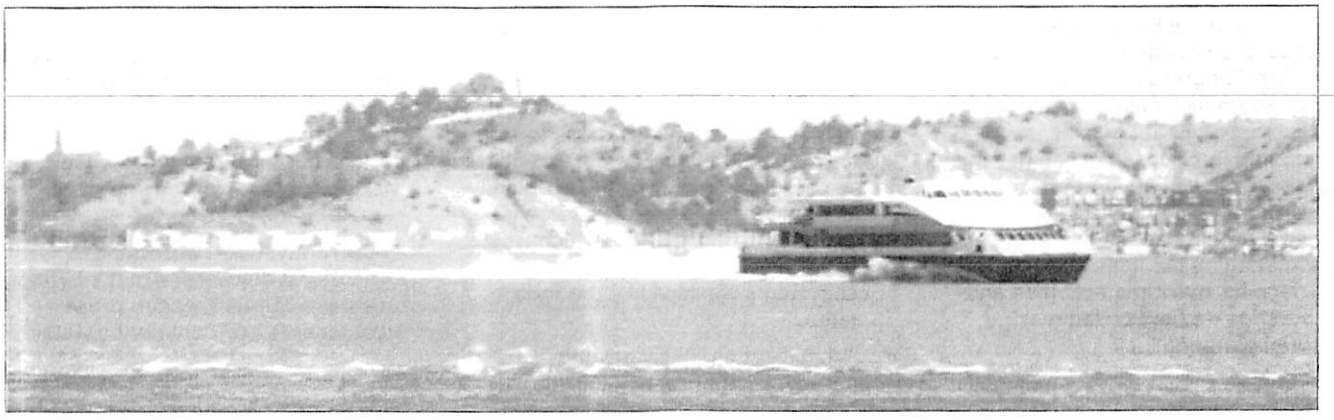
RNRF REPORT:
https://rnrf.org/2018cong/RRJV33N1.pdf



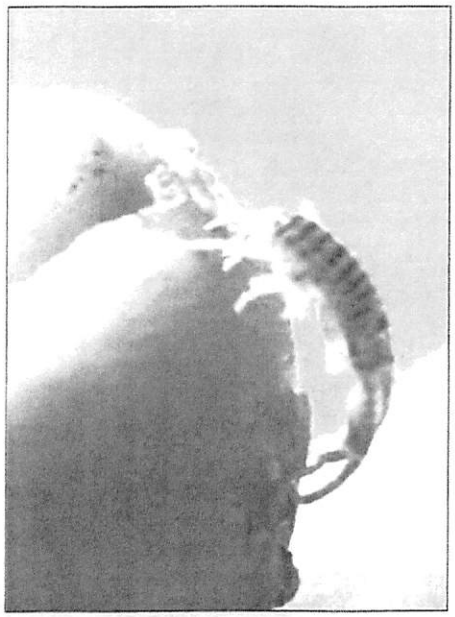
QUESTION OF THE MONTH

Q: WHAT IS THE WEIRDEST CRITTER IN THE ESTUARY AND WHY?

A:

Corophium are easily seen by the naked eye, but a magnifying glass helps. This is a tiny bug: 5 to 10 mm long (not counting its huge antennae). They usually hunker down in tubes under the mud, but larger males may sometimes be seen crawling around as the tide recedes. I call them "bugs," but some people call them "mud shrimp." Corophium have shrimp-like legs along the abdomen and a strong shrimp-like tail for backward propulsion. But giant flexing legs, or arms, in front are the first thing you notice. Those giant arms are actually "antennae" with smell and taste sensors.

Corophium are "amphipods," a type of crustacean. The word "amphipod" means "different foot" in Greek. Like most amphipods, corophium have 13 body segments. Each segment grows its own pair of specialized legs; some legs, called "maxillae" are for feeding, "periopods" are for walking, and "pleopods" and "uropods" are for swimming. That's 26 legs total, not counting the two pair of antennae!



The weirdest thing is that these tiny bugs are ecosystem engineers. They pepper mudflats by the millions. Researchers regularly document 10,000 or more corophium per square meter on summer-time mudflats. Each animal builds a U-shaped tube several inches deep. Like earthworms on land, corophium tube-digging activity stirs up and cycles mud, which also cycles buried nutrients and sediments back into the water column. They excrete a sticky substance, like spiders-silk, to hold their mud tubes together. This also helps hold the entire mudflat in place. At the same time, corophium tend to "weed-out" marsh plant seedlings. Over time, mudflats are built and maintained by corophium! In turn, corophium provide a reliable diet to millions of shorebirds and estuarine fishes around the world.

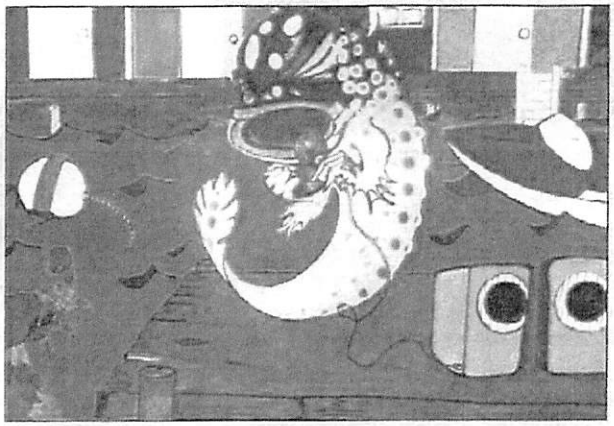
Bio: Jim Ervin retired in 2018 from the City of San Jose, where he worked as compliance manager for the Bay Area's largest wastewater treatment facility.

A:

Plainfin midshipmen are a pretty weird fish. They're named after the most junior officers in the British Royal Navy, who worked and berthed amidship between the mizzen and main masts. The outstanding feature of these officer's uniforms were the brightly polished buttons, but the corresponding dots on our estuary fish don't need elbow grease to shine. They're 'photophores' that glow in the dark. Even more mysterious is the noticeable noise made by the mating midshipmen (also known as 'humming toadfish'). When Sausalito houseboat residents first noticed this loud, constant, humming from dusk until dawn, theories abounded: Secret military sonic weapons? Involuntary experiments in sleep deprivation? Illegal sewage pumps to escape the evil Clean Water Act? CIA spying techniques? But, it was our horny hero the plainfin midshipman calling to his love.

Bio: Bruce Herbold is a consulting biologist who retired from US EPA in 2013.

Cartoon: Brennan Greedy



APRIL QUESTION:

What is the elephant in the room in your Estuary work?

www.sfestuary.org/estuary-news-question-of-the-month

Preview Answer From Deb Kramer of Keep Coyote Creek Beautiful:

All over the country (and world) those of us who work along urban waterways struggle to no end, really fruitlessly, against a tide of homelessness. The Santa Ana River is just one example of how big the problem is (6000 people, many aggressive, lived along it at one time; now that they are displaced, wealthy communities are suing the county). I work in the South SF Bay along Coyote Creek, and it and the neighboring streams are overwhelmed with impacts of homelessness along our banks. We even had an outbreak of shigella last year. Homelessness has special impacts upon our regional waterways. Without sufficient state game wardens, our waterways will continue to erode.

San Francisco Estuary Partnership
375 Beale Street, Suite 700
San Francisco, California 94105

San Francisco Bay and the Sacramento-San Joaquin River Delta comprise one of 28 "estuaries of national significance" recognized in the federal Clean Water Act. The San Francisco Estuary Partnership, a National Estuary Program, is partially funded by annual appropriations from Congress. The Partnership's mandate is to protect, restore, and enhance water quality and habitat in the Estuary. To accomplish this, the Partnership brings together resource agencies, non-profits, citizens, and scientists committed to the long-term health and preservation of this invaluable public resource. Our staff manages or oversees more than 50 projects ranging from supporting research into key water quality concerns to managing initiatives that prevent pollution, restore wetlands, or protect against the changes anticipated from climate change in our region.
We have published *Estuary News* since 1993.

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MANAGING EDITOR	Ariel Rubissow Okamoto
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ASSISTANT EDITOR	Michael Hunter Adamson
DESIGN	Darren Campeau

COVER IMAGE: SFEI's Ariella Chelsky samples zooplankton this March in support of the region's nutrient management strategy. This sampling effort and USGS's specially retrofitted *Peterson* face an uncertain future with potential federal funding cuts. Photo: Ariel Okamoto

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SOS,

In the genetic study, Harvey & Associates identified 303 genetically pure native trees, including along Pacheco Creek (see also p. 8), one of the original 17 SAW stands mapped in the 1990s. Other significant stands were found on Coyote Creek, in Henry Coe State Park, and in the west side of Santa Clara Valley, says Matt Quinn, senior associate restoration ecologist with H.T. Harvey.

Quinn says there are several challenges with restoring these trees. "Sycamores are really associated with flashy floods in winter that reset the floodplain landforms and produce conditions adequate for regeneration. With dams and reservoirs those natural processes are limited. So it's a concern, and we're trying to figure out ways to manage that."

Another big challenge is growing the tree. Growing from seed is a concern due to the fact that the seed may have already have been hybridized. And growing from cuttings taken from non-hybridized trees is not as easy as using willow or dogwood cuttings, explains Quinn. After much trial and error including studying the effects of collecting plant material in different seasons and from different locations

Sycamore tree. Photo: Greg Golet, TNC

on the trees, as well as using different techniques to control pathogens and different types of planting media, two nurseries finally managed to grow 296 trees that will be planted by the water district on upper Llagas Creek.

Cuttings collected during the winter from the basal part of the tree and rooted in perlite survived the best, says Quinn. Based on observations made during their study, the researchers think large branches could potentially re-root and sprout if placed and partially buried in the soil close to the channel, almost like willow wattles. Quinn says direct planting of sycamore branches in the field would be a little trickier than with willows, however. "They are more finicky," he says. "The conditions need to be just right."

Once the trees are established in riparian restoration projects, hybridization will continue to be a challenge. But by planting natives, Quinn says, "we're building more resilience into the system."

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MORE ON HAMILTON CITY J LEVEE?
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ADVISORY COMMISSION UPDATES

Solano Water Advisory Commission
Meeting Minutes
February 27, 2019

Present: Roland Sanford, Chris Lee and Alex Rabidoux, SCWA; Felix Riesenberg, Fairfield; Curtis Paxton and Justen Cole, Vacaville; Royce Cunningham and Leo Larkin, Benicia; Melissa Cansdale, Vallejo; Cary Keaten, SID; Taylon Sorter, FSSD; Misty Kaltreider, Solano County; John Currey, Dixon RCD.

The meeting was called to order at 12:32 PM.

1. Approval of Minutes
   The minutes of the January 23, 2019 meeting were approved.

2. SCWA General Manager's Report
   For the Ulatis Channels, baseline wildlife monitoring has been done, with no species of interest to report. On SCWA Board items, there is nothing significant and the March meeting may be cancelled. For the NBA, the North of Delta allocation was increased to 40% and will likely go up further based upon the most recent storm events. San Luis Reservoir is spilling, so carryover will likely be lost by mid-March. On NBA Water Exchanges, there is not a lot of interest at this time. This will allow the Water Policy Group to come up with a policy before any exchanges are done. For Cal WaterFix, many of the SWCs are still responding to a one-tunnel approach as supported by Governor Newsom. The change in project is likely to set the project timeline back by two years. For the NBA AI, this project will continue to stay in the background as DWR focuses on Oroville and Cal WaterFix. The SWP Contract Amendments that would allow for improved water transfer flexibility, are on hold because of the changes with Cal WaterFix. The SWP Contract Extensions are still moving forward as a separate process. On NBA water quality, the Agency will be sending out a draft RFP that is focused on the treatment cost to support improved NBA reliability. For the Bay Delta Plan, the SWCs are actively involved in the voluntary settlement agreements. For Putah Creek, the Water Agency is working with the respective agencies to be part of the voluntary settlement agreements. Lastly, for Flood Management the Flood Control Advisory Committee is meeting this Thursday, February 28th.

3. Groundwater Planning
   On SGMA activities, there will be several public meetings in April in Dixon, Rio Vista, and Vacaville to meet stakeholders and provide an overview of groundwater activities. For Basin Boundary modifications, the Yolo and Sacramento boundary modifications have been approved, the North Delta modification was denied. DWR has not completed the Basin reprioritizations, but anticipates this being completed by May. The Solano Subbasin groups have also been meeting to discuss policy. Everyone is waiting on DWR and USGS to complete their groundwater models, but they keep pushing the dates out for model release.

4. Solano County Report
   Misty Kaltreider provided a brief update to the Commission. The County Board of Supervisors are very interested in establishing a Cache Slough General Plan policy. The Supervisors are concerned about the large scale restoration efforts that are taking place. The goal would be to mitigate impacts to agriculture and infrastructure. Additionally, the

Supervisors are concerned with the piecemeal approach that has been taken with all of the restoration activities. The Supervisors would like to take a similar approach to what was done in the Suisun Marsh.

5. PSC/NBA Maintenance
   The annual NBA outage will be occurring in March.

6. Solano Water Authority Report
   None

7. Water Conservation
   None

8. Legislative/Initiative/Court Decision Issues Not Discussed Above
   The water tax is still in the mix of legislation for helping disadvantaged communities with their water infrastructure. SB 669 is an alternative that sets aside a trust of money from the general fund for these same communities. The cities are very concerned with becoming tax collection entities for the state. Solano County is supporting HR 357 a bill designed to preserve structures and agriculture in the Delta, and develop a preservation plan.

9. New Business
   None

10. Public Comments
    None

The next meeting will be March 27, 2019 at 12:30 PM.

The meeting adjourned at 2:00 PM.

ACTION OF
SOLANO COUNTY WATER AGENCY

DATE: April 11, 2019

SUBJECT: Water Agency Staffing – Seasonal Maintenance Aides

RECOMMENDATIONS:

1. Approve Seasonal Maintenance Aide I/II job description

2. Authorize General Manager to hire up to four (4) Seasonal Maintenance Aides (May – October)

FINANCIAL IMPACT:

Seasonal Aide positions are limited to no more than 1,000 hours per year. The maximum annual cost per seasonal aide ranges from $20,035 for a Seasonal Maintenance Aide I and $22,238 for a Seasonal Maintenance Aid II. Sufficient funding for these positions is included in the FY 2018-2019 budget.

BACKGROUND:

The Water Agency is responsible for maintaining approximately 50 miles of flood control channels, as well as the maintenance of the Putah South Canal and related Solano Project facilities. The maintenance of these facilities is subcontracted to Solano County and the Solano Irrigation District, respectively, and can be characterized as a combination of "skilled maintenance" - bank stabilization, road repair and culvert maintenance , and "rudimentary maintenance " – nuisance vegetation, litter and graffiti removal, and simple fence repairs.

In past years some of the rudimentary maintenance work has periodically been performed by Water Agency interns, who are paid 16 to 17 dollars per hour – with mixed results. Most Water Agency interns work part-time and for generally less than four months. Furthermore, the interns are typically college students who are looking for work experience related to their course work. Not surprisingly, it is difficult to retain interns, on a consistent basis, for rudimentary maintenance activities.

Staff is recommending the creation of the Seasonal Maintenance Aide position, which would have a higher hourly pay rate - 18 to 20 dollars per hour, as opposed to 16 to 17 dollars per hour for an intern - and would hopefully attract a wider candidate pool.

Recommended: _____
Roland Sanford, General Manager

☐	Approved as recommended	☐	Other (see below)	☒	Continued on next page

Modification to Recommendation and/or other actions:

I, Roland Sanford, General Manager and Secretary to the Solano County Water Agency, do hereby certify that the foregoing action was regularly introduced, passed, and adopted by said Board of Directors at a regular meeting thereof held on April 11, 2019 by the following vote:

Ayes:

Noes:

Abstain:

Absent:

_____
Roland Sanford
General Manager &
Secretary to the Solano County Water Agency

RELAVANCE TO 2016-2025 SCWA STRATEGIC PLAN

The proposal to hire seasonal Maintenance Aides is consistent with Goal #10 of the 2016-2025 Strategic Plan, providing the necessary resources to continue to achieve SCWA's mission and values efficiently and effectively.

SOLANO COUNTY WATER AGENCY

SEASONAL MAINTENANCE AIDE I / II
FLSA: Non-exempt

Term: May – October
Wages: $18 - $20 per hour

DEFINITION

Under general supervision, independently performs maintenance work on water conveyance facilities.

SUPERVISION RECEIVED AND EXERCISED

Direct supervision is provided by the Supervising Water Resources Engineer or designee General supervision is provided by higher level positions. No supervision is exercised over others.

CLASS CHARACTERISTICS

This is a temporary full-time position (32 – 40 hours per week).

EXAMPLES OF ESSENTIAL JOB FUNCTIONS (Illustrative Only)

Management reserves the right to add, modify, change or rescind the work assignments of different positions and to make reasonable accommodations so that qualified employees can perform the essential functions of the job.

- Logistical planning and preparation to implement field work.
- Performs or arranges for maintenance and repair of equipment.
- Conducts field inspections, investigations, and monitoring and data gathering for the Agency's water conveyance facilities.
- Repair, replace, remove, maintain, and install fencing, gates, riprap, flap gates, signs and markers.
- Performs mechanical and chemical abatement of nuisance vegetation.
- Performs, litter, trash and debris removal/disposal.
- Assists staff personnel with projects.

QUALIFICATIONS

Knowledge of:

- Basic use of power tools, hand tools and electrical equipment.
- Effective communication techniques and public relations.
- Safety principles and practices.
- Computer applications related to the work, particularly database applications.
- English usage, grammar, spelling, vocabulary, and punctuation.
- Techniques for dealing effectively with the public, vendors, contractors, and Agency staff, in person and over the telephone.

- Techniques for providing a high level of customer service to public and Agency staff, in person and over the telephone.

Ability to:

- Perform simple repair of equipment.
- Exercise safe work practices at all times and under various conditions.
- Perform manual labor in inclement weather.
- Prepare and maintain detailed and accurate records, reports, and written correspondence.
- Organize and prioritize a variety of projects and multiple tasks in an effective and timely manner; organize own work, set priorities, and meet critical time deadlines.
- Operate modern office equipment, including computer equipment and specialized software applications programs.
- Use English effectively to communicate in person, over the telephone, and in writing.
- Use tact, initiative, prudence, and independent judgment within general policy, procedural, and legal guidelines.
- Establish and maintain effective working relationships with those contacted in the course of the work.

Education and Experience: *Any combination of training and experience, which would provide the required knowledge, skills and abilities, is qualifying. A typical way to obtain the required qualifications would be:*

Must have experience working in outdoor settings with hand and power tools. Experience applying herbicides is desired. No specific educational requirements.

License and Certifications:

Possession of an appropriate California driver's license and a satisfactory driving record.

PHYSICAL DEMANDS

Must possess mobility to work in the field and in a standard office setting and use standard office equipment, including a computer; strength, stamina, and mobility to perform heavy physical work, operate varied hand and power tools; vision to read printed materials and a computer screen; and hearing and speech to communicate in person and over the telephone or radio. The job involves fieldwork requiring frequent walking in operational areas to perform work and to identify problems or hazards. Finger dexterity is needed to access, enter and retrieve data using a computer keyboard or calculator and to operate above-mentioned tools and equipment. Positions in this classification bend, stoop, kneel, reach and climb to perform work and inspect work sites. Employees must possess the ability to lift, carry, push, and pull heavy materials and objects necessary to perform job functions.

ENVIRONMENTAL ELEMENTS

Employees partially work in an office environment with moderate noise levels, controlled temperature conditions and no direct exposure to potentially hazardous physical substances. Employees mostly work in the field and are exposed to loud noise levels, cold and hot temperatures, inclement weather conditions, road hazards, steep and uneven terrain, vibration, confining workspace, chemicals, mechanical and/or electrical hazards, and hazardous physical

substances and fumes. Occurrence of poison oak, ticks, bees/wasps, snakes, and other possible hazards is prevalent in routine work environment. Employees may interact with upset staff and/or public and private representatives, and contractors in interpreting and enforcing departmental policies and procedures.

LEGISLATIVE UPDATES

AMENDED IN ASSEMBLY MARCH 19, 2019

CALIFORNIA LEGISLATURE—2019–20 REGULAR SESSION

ASSEMBLY BILL No. 533

Introduced by Assembly Member Holden
(Principal coauthor: Senator Wiener)
(Coauthor: Assembly Member Friedman)

February 13, 2019

An act to add *and repeal* Sections 17139.9 and 24308.9 of the Revenue and Taxation Code, relating to taxation, to take effect immediately, tax levy.

LEGISLATIVE COUNSEL'S DIGEST

AB 533, as amended, Holden. Income taxes: exclusion: water conservation or efficiency programs: water runoff management improvement ~~program.~~ *programs.*

The Personal Income Tax Law and the Corporation Tax Law, in conformity with federal income tax law, generally defines "gross income" as income from whatever source derived, except as specifically excluded, and provides various exclusions from gross income. *Existing law limits the collection and use of taxpayer information and provides that any unauthorized use of this information is punishable as a misdemeanor.*

This ~~bill~~ *bill, for taxable years beginning on or after January 1, 2019, and before January 1, 2024,* would provide an exclusion from gross income for any amount received as a rebate, voucher, or other financial incentive issued by a ~~local water agency or supplier~~ *water service provider* for any water conservation or efficiency program or water runoff management improvement program, as provided. *The bill would require the Department of Finance to include an analysis of these*

exclusions in its annual tax expenditure report provided to the Legislature and further provides that taxpayer information collected pursuant to this requirement is subject to the limitation on the collection and use of that information.

By expanding the scope of a crime, this bill would impose a state-mandated local program.

The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that no reimbursement is required by this act for a specified reason.

This bill would take effect immediately as a tax levy.

Vote: majority. Appropriation: no. Fiscal committee: yes. State-mandated local program: ~~no~~ *yes*.

The people of the State of California do enact as follows:

SECTION 1. Section 17139.9 is added to the Revenue and Taxation Code, to read:

17139.9. (a) ~~Gross~~ *For taxable years beginning on or after January 1, 2019, and before January 1, 2024, gross* income does not include any amount received as a rebate, voucher, or other financial incentive issued by a ~~local water agency or supplier~~ *water service provider* for any water conservation or efficiency program the primary purpose of which is to reduce consumption of water or to improve the management of water demand.

(b) ~~Gross~~ *For taxable years beginning on or after January 1, 2019, and before January 1, 2024, gross* income does not include any amount received as a rebate, voucher, or other financial incentive issued by a ~~local water agency or supplier~~ *water service provider* for any water runoff management improvement program the primary purpose of which is to reduce the amount or manage the quality of storm water runoff.

(c) For purposes of this section, "water service provider" means any entity providing water service, including, but not limited to, a local or regional retail or wholesaler water agency.

(d) This section shall remain in effect only until December 1, 2024, and as of that date is repealed.

SEC. 2. Section 24308.9 is added to the Revenue and Taxation Code, to read:

24308.9. (a) ~~Gross~~ *For taxable years beginning on or after January 1, 2019, and before January 1, 2024, gross* income does not include any amount received as a rebate, voucher, or other financial incentive issued by a ~~local water agency or supplier~~ *water service provider* for any water conservation or efficiency program the primary purpose of which is to reduce consumption of water or to improve the management of water demand.

(b) ~~Gross~~ *For taxable years beginning on or after January 1, 2019, and before January 1, 2024, gross* income does not include any amount received as a rebate, voucher, or other financial incentive issued by a ~~local water agency or supplier~~ *water service provider* for any water runoff management improvement program the primary purpose of which is to reduce the amount or manage the quality of storm water runoff.

(c) For purposes of this section, "water service provider" means any entity providing water service, including, but not limited to, a local or regional retail or wholesaler water agency.

(d) This section shall remain in effect only until December 1, 2024, and as of that date is repealed.

SEC. 3. (a) The Legislature finds and declares all of the following:

(1) Utility-sponsored financial incentives, including consumer rebates, are among the most important and cost-effective tools available to local water providers to achieve water use efficiency objectives, particularly for turf replacement, irrigation controllers, leak detection devices, and other high-cost water saving options. Local public utilities are using incentive programs to encourage local property owners to manage storm water onsite, thus reducing urban flooding, improving water quality, and increasing water supplies.

(2) Rebates, vouchers, or other financial incentives issued by local water agencies or suppliers have been an effective tool in advancing efficiency and water management objectives statewide, and individual consumers and businesses should not be taxed for providing this statewide benefit.

(3) Financial incentives issued by a local water agency or supplier as part of a water conservation or efficiency program, the primary purpose of which is to reduce consumption of water

or to improve the management of water demand, provide a significant public benefit. Financial incentives issued by a local water agency or supplier as part of a water runoff management improvement program, the primary purpose of which is to reduce the amount or manage the quality of storm water runoff, provide a significant public benefit.

(4) The income tax exclusions allowed by Sections 17139.9 and 24308.9 of the Revenue and Taxation, as added by this act, have the objective of eliminating disincentives to participation in water conservation or efficiency and storm water runoff management improvement programs aimed at increasing water conservation or efficiency or improving storm water quality in California.

(b) (1) To enable the Legislature to determine whether the tax expenditures allowed by this act are meeting, failing to meet, or exceeding the objective of the act, the Department of Finance shall include an analysis of these tax expenditures in the annual report required pursuant to Section 13305 of the Government Code.

(2) Taxpayer information collected pursuant to this subdivision is subject to Section 19542 of the Revenue and Taxation Code.

SEC. 4. No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution because the only costs that may be incurred by a local agency or school district will be incurred because this act creates a new crime or infraction, eliminates a crime or infraction, or changes the penalty for a crime or infraction, within the meaning of Section 17556 of the Government Code, or changes the definition of a crime within the meaning of Section 6 of Article XIII B of the California Constitution.

~~SEC. 3.~~

SEC. 5. This act provides for a tax levy within the meaning of Article IV of the California Constitution and shall go into immediate effect.

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ASSEMBLY BILL No. 557

Introduced by Assembly Member Wood
(Principal coauthor: Assembly Member Aguiar-Curry)

February 13, 2019

An act to amend Section 347 of the Water Code, relating to climate change, and making an appropriation therefor.

LEGISLATIVE COUNSEL'S DIGEST

AB 557, as introduced, Wood. Atmospheric Rivers: Research, Mitigation, and Climate Forecasting Program.

Existing law establishes the Atmospheric Rivers: Research, Mitigation, and Climate Forecasting Program in the Department of Water Resources. Existing law requires the department, upon an appropriation for purposes of the program, to research climate forecasting and the causes and impacts that climate change has on atmospheric rivers, to operate reservoirs in a manner that improves flood protection, and to reoperate flood control and water storage facilities to capture water generated by atmospheric rivers.

This bill would appropriate $9,250,000 from the General Fund to the department in the 2019–20 fiscal year to operate the program.

Vote: ⅔. Appropriation: yes. Fiscal committee: yes. State-mandated local program: no.

The people of the State of California do enact as follows:

SECTION 1. Section 347 of the Water Code is amended to read:

347. (a) The Atmospheric Rivers: Research, Mitigation, and Climate Forecasting Program is hereby established in the Department of Water Resources.

(b) Upon appropriation ~~of special fund moneys, including, but not limited to, private funds,~~ *by the Legislature* for these purposes, the department shall conduct research relating to ~~climate forecasting~~ *improving the accuracy of forecasting atmospheric river events* and the causes and impacts that climate change has on atmospheric rivers, and shall take all actions within its existing authority to operate reservoirs in a manner that improves flood protection in the state and to reoperate flood control and water storage facilities to capture water generated by atmospheric rivers, thereby increasing water supply, hydropower availability, and the reliability of water resources in the state.

(c) The sum of nine million two hundred fifty thousand dollars ($9,250,000) is hereby appropriated from the General Fund to the department in the 2019–20 fiscal year to operate the program established by this section.

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