

CHINO BASIN WATERMASTER



NOTICE OF MEETING

Thursday, June 16, 2022

9:00 a.m. – Advisory Committee Meeting

CHINO BASIN WATERMASTER

Thursday, June 16, 2022

9:00 a.m. – Advisory Committee Meeting

AGENDA

**CHINO BASIN WATERMASTER
ADVISORY COMMITTEE MEETING**

9:00 a.m. – June 16, 2022
Mr. Chris Berch, Chair
Mr. Brian Geye, Vice-Chair
**At The Offices Of
Chino Basin Watermaster**
9641 San Bernardino Road
Rancho Cucamonga, CA 91730

(Meeting can also be taken remotely via Zoom at this [link](#))

AGENDA

CALL TO ORDER

ROLL CALL

AGENDA – ADDITIONS/REORDER

I. CONSENT CALENDAR

Note: All matters listed under the Consent Calendar are considered to be routine and non-controversial and will be acted upon by one motion in the form listed below. There will be no separate discussion on these items prior to voting unless any members, staff, or the public requests specific items be discussed and/or removed from the Consent Calendar for separate action.

A. MINUTES

Approve as presented:

1. Minutes of the Advisory Committee Meeting held May 19, 2022 (Page 1)

B. FINANCIAL REPORTS

Receive and file as presented:

1. Cash Disbursements for the month of April 2022 (Page 7)
2. Watermaster VISA Check Detail for the month of April 2022 (Page 17)
3. Combining Schedule for the Period July 1, 2021 through April 30, 2022 (Page 20)
4. Treasurer's Report of Financial Affairs for the Period April 1, 2022 through April 30, 2022 (Page 23)
5. Budget vs. Actual Report for the Period July 1, 2021 through April 30, 2022 (Page 27)
6. Cash Disbursements for May 2022 (Information Only) (Page 53)

C. APPLICATION: LOCAL STORAGE AGREEMENTS (ONAP) (Page 64)

Recommend to the Watermaster Board to approve the proposed agreements.

D. APPLICATION: WATER TRANSACTION (Page 73)

Provide advice and assistance to the Watermaster Board on the proposed transaction.

The Purchase of 500 acre-feet of water from City of Chino by Monte Vista Water District. The purchase is made from City of Chino's Excess Carryover account.

II. BUSINESS ITEMS (Page 81)

A. 2021 ANNUAL REPORT OF THE PRADO BASIN HABITAT SUSTAINABILITY COMMITTEE

Recommend to the Watermaster Board to receive and file

III. REPORTS/UPDATES

A. LEGAL COUNSEL

1. San Bernardino Superior Court Emergency Order
2. August 31, 2022 Hearing
3. Governor's Executive Order N-7-22
4. Kaiser Permanente Lawsuit

B. ENGINEER

1. Safe Yield Reset Methodology Update

C. CHIEF FINANCIAL OFFICER

1. FY 2021/22 Ongoing Auditing Activity by Fedak & Brown, LLP

D. GENERAL MANAGER

1. Regional Supply/Drought Update
2. May 26, 2022 Special Board Meeting
3. July Meeting Schedule
4. Other

E. INLAND EMPIRE UTILITIES AGENCY (Page 222)

1. MWD Update (Written)
2. State and Federal Legislative Reports (Written)
3. Community Outreach/Public Relations Report (Written)
4. Groundwater Recharge Update (Oral Report)

IV. COMMITTEE MEMBER COMMENTS

V. OTHER BUSINESS

VI. CONFIDENTIAL SESSION - POSSIBLE ACTION

A Confidential Session may be held during the Advisory Committee meeting for the purpose of discussion and possible action.

VII. FUTURE MEETINGS AT WATERMASTER*

06/16/22	Thu	9:00 a.m.	Advisory Committee Meeting
06/23/22	Thu	11:00 a.m.	Watermaster Board
07/20/22	Wed	9:00 a.m.	Safe Yield Methodology Update – Peer Review Workshop No. 2
08/11/22	Thu	9:00 a.m.	Appropriative Pool Committee
08/11/22	Thu	11:00 a.m.	Non-Agricultural Pool Committee
08/11/22	Thu	1:30 p.m.	Agricultural Pool Committee
08/18/22	Thu	9:00 a.m.	Advisory Committee
08/25/22	Thu	11:00 a.m.	Watermaster Board

*NOTE: Watermaster will be dark in July 2022. Staff stands ready to assist with any special meetings as requested. All regularly scheduled meetings will resume in August 2022.

ADJOURNMENT

CHINO BASIN WATERMASTER

I. CONSENT CALENDAR

A. MINUTES

1. Minutes of the Advisory Committee Meeting held May 19, 2022

DRAFT MINUTES
CHINO BASIN WATERMASTER
ADVISORY COMMITTEE MEETING

May 19, 2022

The Advisory Committee meeting was held at the Watermaster offices located at 9641 San Bernardino Road, Rancho Cucamonga, CA., and via Zoom (conference call and web meeting) on May 19, 2022.

ADVISORY COMMITTEE MEMBERS PRESENT

APPROPRIATIVE POOL COMMITTEE MEMBERS PRESENT AT WATERMASTER

Chris Berch, Chair	Jurupa Community Services District
Dave Crosley	City of Chino
Courtney Jones	City of Ontario
Chris Diggs	City of Pomona
Amanda Coker for Eduardo Espinoza	Cucamonga Valley Water District
Justin Scott-Coe	Monte Vista Irrigation Company
Justin Scott-Coe	Monte Vista Water District

APPROPRIATIVE POOL COMMITTEE MEMBERS PRESENT ON ZOOM

Ron Craig	City of Chino Hills
Nicole deMoet for Braden Yu	City of Upland
Eduardo Espinoza	Cucamonga Valley Water District
Cris Fealy	Fontana Water Company
Josh Swift	Fontana Union Water Company
Brian Lee	San Antonio Water Company

NON-AGRICULTURAL POOL COMMITTEE MEMBERS PRESENT AT WATERMASTER

Brian Geye, Vice-Chair	California Speedway Corporation
------------------------	---------------------------------

NON-AGRICULTURAL POOL COMMITTEE MEMBERS PRESENT ON ZOOM

Bob Bowcock	CalMat Co.
-------------	------------

AGRICULTURAL POOL COMMITTEE MEMBERS PRESENT ON ZOOM

Jeff Pierson, Second Vice-Chair	Crops
Larry Cain	State of California – DOJ
Pete Hall	State of California – DOJ
Marilyn Levin for Jimmy Medrano	State of California – DOJ

WATERMASTER BOARD MEMBERS PRESENT ON ZOOM

Jim Curatalo	Appropriative Pool – Minor Representative
Bob Kuhn	Three Valleys Municipal Water District

WATERMASTER STAFF PRESENT

Peter Kavounas	General Manager
Joseph Joswiak	Chief Financial Officer
Edgar Tellez Foster	Water Resources Mgmt. and Planning Dir.
Anna Nelson	Director of Administration
Justin Nakano	Water Resources Technical Manager
Frank Yoo	Data Services and Judgment Reporting Mgr.
Janine Wilson	Senior Accountant
Ruby Favela	Administrative Assistant

WATERMASTER CONSULTANTS PRESENT AT WATERMASTER

Andy Malone	West Yost
Garrett Rapp	West Yost

WATERMASTER CONSULTANTS PRESENT ON ZOOM

Brad Herrema

Brownstein Hyatt Farber Schreck, LLP

OTHERS PRESENT AT WATERMASTER

Jiwon Seung

Cucamonga Valley Water District

Bryan Smith

Jurupa Community Services District

OTHERS PRESENT ON ZOOM

Natalie Avila

City of Chino

Eunice Ulloa

City of Chino

Rob Hills

Cucamonga Valley Water District

John Bosler

Cucamonga Valley Water District

Tarren Alicia Torres

Egoscue Law Group, Inc.

Ben Lewis

Golden State Water Company

Andrea Carruthers

Inland Empire Utilities Agency

Joshua Aguilar

Inland Empire Utilities Agency

Shivaji Deshmukh

Inland Empire Utilities Agency

Christiana Daisy

Inland Empire Utilities Agency

Manny Martinez

Monte Vista Water District

Stephanie Reimer

Monte Vista Water District

John Lopez

Santa Ana River Water Company

Todd Minten

Santa Ana River Water Company

Mallory Gandara

Western Municipal Water District

Richard Rees

Wood plc

CALL TO ORDER

Chair Berch called the Advisory Committee meeting to order at 9:00 a.m.

ROLL CALL

Ms. Wilson conducted the roll call and announced that quorum was present.

AGENDA – ADDITIONS/REORDER

None

I. CONSENT CALENDAR

Note: All matters listed under the Consent Calendar are considered to be routine and non-controversial and will be acted upon by one motion in the form listed below. There will be no separate discussion on these items prior to voting unless any members, staff, or the public requests specific items be discussed and/or removed from the Consent Calendar for separate action.

A. MINUTES

Approve as presented:

1. Minutes of the Advisory Committee Meeting held on April 21, 2022

B. FINANCIAL REPORTS

Receive and file as presented:

1. Cash Disbursements for the month of March 2022
2. Watermaster VISA Check Detail for the month of March 2022
3. Combining Schedule for the Period July 1, 2021 through March 31, 2022
4. Treasurer's Report of Financial Affairs for the Period March 1, 2022 through March 31, 2022

5. Budget vs. Actual Report for the Period July 1, 2021 through March 31, 2022
6. Cash Disbursements for April 2022 (Information Only)

C. APPLICATION: WATER TRANSACTION

Provide advice and assistance to the Watermaster Board on the proposed transaction: The Purchase of 7,500 acre-feet of water from Cucamonga Valley Water District by Fontana Water Company. This purchase is made from Cucamonga Valley Water District's Annual Production Rights. Date of Application: April 4, 2022.

(0:03:23)

Motion by Mr. Chris Diggs seconded by Mr. Brian Geye, and passed unanimously.

Moved to approve the Consent Calendar as presented.

II. BUSINESS ITEMS

A. WATERMASTER FISCAL YEAR 2022/23 PROPOSED BUDGET

Approve the Watermaster Fiscal Year 2022/23 Proposed Budget as presented.

(0:03:41) Mr. Joswiak gave a report and presentation. A discussion ensued.

(0:09:09)

Motion by Mr. Ron Craig seconded by Mr. Jeff Pierson, and passed by majority 72.141 volume votes as attached to these minutes.

Moved to approve the Business Item II.A. as presented.

III. REPORTS/UPDATES

A. LEGAL COUNSEL

1. San Bernardino Superior Court Emergency Order
2. April 22, 2022 Hearing
3. Governor's Executive Order N-7-22
4. Kaiser Permanente Lawsuit

(0:13:15) Mr. Herrema gave a report.

B. ENGINEER

1. Safe Yield Data Collection and Evaluation Report
2. Safe Yield Reset Methodology Update
3. Prado Basin Habitat Sustainability Committee Annual Report

(0:15:50) Mr. Malone prefaced Item 1 and invited Mr. Rapp to give a presentation. A discussion ensued.

C. CHIEF FINANCIAL OFFICER

None

D. GENERAL MANAGER

1. Regional Supply/Drought Update
2. April 26, 2022 Special Board Meeting
3. Data Portal Status
4. May 26, 2022 Special Board Meeting
5. Upcoming Training Opportunity: Roberts Rules of Order
6. Other

(0:37:16) Mr. Kavounas prefaced Item 1 and invited Mr. Deshmukh of IEUA to give a report on the Regional Water Supply/Drought Update. Mr. Kavounas then gave the remainder of the GM Report. A discussion ensued.

E. INLAND EMPIRE UTILITIES AGENCY

1. MWD Update (Written)
2. State and Federal Legislative Reports (Written)
3. Community Outreach/Public Relations Report (Written)

F. METROPOLITAN MEMBER AGENCY REPORTS

None

IV. COMMITTEE MEMBER COMMENTS

None

V. OTHER BUSINESS

None

VI. CONFIDENTIAL SESSION - POSSIBLE ACTION

A Confidential Session may be held during the Advisory Committee meeting for the purpose of discussion and possible action.

None

ADJOURNMENT

Chair Berch adjourned the Advisory Committee meeting at 9:44 a.m.

Secretary: _____

Approved: _____

Attachments:

1. 20220519 Volume Vote Outcome for Business Item II.A. (Watermaster Fiscal Year 2022/23 Proposed Budget)

**QUORUM
MET?
YES**



2022 ADVISORY COMMITTEE VOLUME VOTE
Assessment Year 2021-2022 (Production Year 2020-2021)

Enter Y or N in Each Cell

Party	Present (Y/N)	Vote (Y/N)	Assigned	Reallocated	Available	Quorum	Total Yes
Minor 1	Y	Y	3.399	0.000	3.399	3.399	3.399
Minor 2	Y	Y	3.399	0.000	3.399	3.399	3.399
Chino Hills, City Of	Y	Y	2.700	0.000	2.700	2.700	2.700
Chino, City Of	Y	N	4.170	0.000	4.170	4.170	0.000
Cucamonga Valley Water District	Y	Y	5.400	0.000	5.400	5.400	5.400
Fontana Union Water Company	Y	Y	4.371	0.000	4.371	4.371	4.371
Fontana Water Company	Y	Y	5.652	0.000	5.652	5.652	5.652
Jurupa Community Services District	Y	Y	6.828	0.000	6.828	6.828	6.828
Monte Vista Water District	Y	N	7.141	0.000	7.141	7.141	0.000
Ontario, City Of	Y	N	16.548	0.000	16.548	16.548	0.000
Pomona, City Of	Y	Y	12.365	0.000	12.365	12.365	12.365
Upland, City Of	Y	Y	3.027	0.000	3.027	3.027	3.027
AGRICULTURAL POOL	Y	Y	20.000	0.000	20.000	20.000	20.000
NON-AGRICULTURAL POOL	Y	Y	5.000	0.000	5.000	5.000	5.000
			100.000	0.000	100.000	100.000	72.141

CALCULATE
QUORUM

CALCULATE
VOTES

RESET ALL

RESET VOTES

"YES" VOTES
72.141%

"NO" VOTES
27.859%

PASSED

CHINO BASIN WATERMASTER

I. CONSENT CALENDAR

B. FINANCIAL REPORTS

1. Cash Disbursements for the month of April 2022
2. Watermaster VISA Check Detail for the month of April 2022
3. Combining Schedule for the Period July 1, 2021 through April 30, 2022
4. Treasurer's Report of Financial Affairs for the Period April 1, 2022 through April 30, 2022
5. Budget vs. Actual Report for the Period July 1, 2021 through April 30, 2022
6. Cash Disbursements for May 2022 (Information Only)



CHINO BASIN WATERMASTER

9641 San Bernardino Road, Rancho Cucamonga, CA 91730
Tel: 909.484.3888 Fax: 909.484.3890 www.cbwm.org

PETER KAVOUNAS, P.E.
General Manager

STAFF REPORT

DATE: June 16, 2022
TO: Advisory Committee Members
SUBJECT: Cash Disbursement Report - Financial Report B1 (April 30, 2022)
(Consent Calendar Item I.B.1.)

SUMMARY

Issue: Record of Cash Disbursements for the month of April 2022. [Normal Course of Business]

Recommendation: Receive and file Cash Disbursements for April 2022 as presented.

Financial Impact: Funds disbursed were included in the FY 2021/22 "Amended" Watermaster Budget.

Future Consideration

Advisory Committee – June 16, 2022: Receive and File

Watermaster Board – June 23, 2022: Receive and File (Normal Course of Business)

ACTIONS:

Appropriative Pool – June 9, 2022: Received and filed

Non-Agricultural Pool – June 9, 2022: Moved unanimously to receive and file, without approval

Agricultural Pool – June 9, 2022: Received and filed

Advisory Committee – June 16, 2022:

Watermaster Board – June 23, 2022:

*Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court,
and to develop and implement an Optimum Basin Management Program*

BACKGROUND

A monthly cash disbursement report is provided to keep all members apprised of Watermaster expenditures.

DISCUSSION

Total cash disbursements during the month of April 2022 were \$676,108.87.

The most significant expenditures during the month were West Yost and Associates in the amount of \$264,324.32 (check number 23476 dated April 27, 2022); Inland Empire Utilities Agency in the amount of \$89,444.66 (check number 23462 dated April 13, 2022); Brownstein Hyatt Farber Schreck in the amount of \$86,363.05 (check number 23475 dated April 27, 2022); and Egoscue Law Group, Inc. in the amount of \$53,630.64 (check number 23447 dated April 13, 2022). There were no other checks greater than \$50,000 issued during the month of April 2022.

ATTACHMENTS

1. Financial Report – B1

CHINO BASIN WATERMASTER
Cash Disbursements For The Month of
April 2022

Type	Date	Num	Name	Memo	Account	Paid Amount
Bill Pmt -Check	04/05/2022	ACH 040522	CALPERS	1394905143	1012 - Bank of America Gen'l Ckg	
Bill	04/01/2022	1394905143		Medical Insurance Premiums - April 2022	60182.1 - Medical Insurance	13,257.00
TOTAL						13,257.00
General Journal	04/05/2022	04/05/2022	HEALTH EQUITY	Health Equity Invoice 3617361	1012 - Bank of America Gen'l Ckg	
			HEALTH EQUITY	Health Equity Invoice 3617361	1012 - Bank of America Gen'l Ckg	15.00
TOTAL						15.00
General Journal	04/07/2022	04/07/2022	Payroll and Taxes for 03/20/22-04/02/22	Payroll and Taxes for 03/20/22-04/02/22	1012 - Bank of America Gen'l Ckg	
			ADP, LLC	Direct Deposits for 03/20/22-04/02/22	1012 - Bank of America Gen'l Ckg	33,069.78
			ADP, LLC	Payroll Taxes for 03/20/22-04/02/22	1012 - Bank of America Gen'l Ckg	12,845.76
			MISSIONSQUARE RETIREMENT	457(b) EE Deductions for 03/20/22-04/02/22	1012 - Bank of America Gen'l Ckg	5,918.06
			MISSIONSQUARE RETIREMENT	401(a) EE Deductions for 03/20/22-04/02/22	1012 - Bank of America Gen'l Ckg	1,806.99
TOTAL						53,640.59
Bill Pmt -Check	04/08/2022	ACH 040822	PUBLIC EMPLOYEES' RETIREMENT SYSTEM	Payor #3493	1012 - Bank of America Gen'l Ckg	
General Journal	04/02/2022	4/08/2022	PUBLIC EMPLOYEES' RETIREMENT SYSTEM	CalPERS Retirement for 03/20/22-04/02/22	2000 - Accounts Payable	9,792.48
TOTAL						9,792.48
General Journal	04/12/2022	04/12/2022	HEALTH EQUITY	Health Equity Invoice 3641495	1012 - Bank of America Gen'l Ckg	
			HEALTH EQUITY	Health Equity Invoice 3641495	1012 - Bank of America Gen'l Ckg	540.28
TOTAL						540.28
Bill Pmt -Check	04/13/2022	23438	ACCENT COMPUTER SOLUTIONS, INC.	019687	1012 - Bank of America Gen'l Ckg	
Bill	04/07/2022	Quote 019687		WatchGuard 1 yr. renewal	6054 - Computer Software	1,275.26
TOTAL						1,275.26
Bill Pmt -Check	04/13/2022	23439	ACWA JOINT POWERS INSURANCE AUTHORITY	0684595	1012 - Bank of America Gen'l Ckg	
Bill	04/01/2022	0684595		Prepayment - May 2022	1409 - Prepaid Life, BAD&D & LTD	304.77
				April 2022	60191 - Life & Disab.Ins Benefits	305.07
TOTAL						609.84
Bill Pmt -Check	04/13/2022	23440	APPLIED COMPUTER TECHNOLOGIES	35422	1012 - Bank of America Gen'l Ckg	
Bill	03/31/2022	35422		March 2022	6052.2 - Applied Computer Technol	3,850.00
TOTAL						3,850.00
Bill Pmt -Check	04/13/2022	23441	BOWCOCK, ROBERT	Board Member Compensation	1012 - Bank of America Gen'l Ckg	
Bill	03/17/2022	3/17 Advisory Comm		3/17/22 Advisory Committee Meeting	6311 - Board Member Compensation	125.00
Bill	03/24/2022	3/24 Board Mtg		3/24/22 Board Meeting	6311 - Board Member Compensation	125.00

CHINO BASIN WATERMASTER
Cash Disbursements For The Month of
April 2022

Type	Date	Num	Name	Memo	Account	Paid Amount
TOTAL						250.00
Bill Pmt -Check	04/13/2022	23442	BURRTEC WASTE INDUSTRIES, INC.	N2112623905	1012 - Bank of America Gen'l Ckg	
Bill	04/01/2022	N2112623905		Disposal Service - April 2022	6024 - Building Repair & Maintenance	142.50
TOTAL						142.50
Bill Pmt -Check	04/13/2022	23443	CHEF DAVE'S CATERING & EVENT SERVICES 1268B		1012 - Bank of America Gen'l Ckg	
Bill	03/24/2022	1268B		Lunch for 3/24/22 Watermaster Board mtg.	6312 - Meeting Expenses	479.47
TOTAL						479.47
Bill Pmt -Check	04/13/2022	23444	CORELOGIC INFORMATION SOLUTIONS	82127816	1012 - Bank of America Gen'l Ckg	
Bill	03/31/2022	82127816		March 2022	7103.7 - Grdwtr Qual-Computer Svc	62.50
				82127816	7101.4 - Prod Monitor-Computer	62.50
TOTAL						125.00
Bill Pmt -Check	04/13/2022	23445	CURATALO, JAMES	Board Member Compensation	1012 - Bank of America Gen'l Ckg	
Bill	03/03/2022	3/03 Personnel Comm		3/03/22 Personnel Committee Meeting	6311 - Board Member Compensation	125.00
Bill	03/08/2022	3/08 Bd Officers Mtg		3/08/22 Board Officers Check-in Meeting	6311 - Board Member Compensation	125.00
Bill	03/10/2022	3/10 Appro Pool Mtg		3/10/22 Appropriative Pool Meeting	6311 - Board Member Compensation	125.00
Bill	03/17/2022	3/17 Bd Officers		3/17/22 Board Officers/Pool Leadership Mtg.	6311 - Board Member Compensation	125.00
Bill	03/22/2022	3/22 Board Agenda		3/22/22 Board Agenda Preview	6311 - Board Member Compensation	125.00
Bill	03/24/2022	3/24 Board Mtg		3/24/22 Board Meeting	6311 - Board Member Compensation	125.00
TOTAL						750.00
Bill Pmt -Check	04/13/2022	23446	DE BOOM, NATHAN	Ag Pool Member Compensation	1012 - Bank of America Gen'l Ckg	
Bill	03/10/2022	3/10 Ag Pool Mtg		3/10/22 Ag Pool Mtg	8470 - Ag Meeting Attend -Special	125.00
Bill	03/18/2022	3/18 Special Ag Mtg		3/18/22 Special Ag Pool Mtg	8470 - Ag Meeting Attend -Special	125.00
TOTAL						250.00
Bill Pmt -Check	04/13/2022	23447	EGOSCUE LAW GROUP, INC.	Ag Pool Legal Services	1012 - Bank of America Gen'l Ckg	
Bill	03/31/2022			February 2022 - General Counsel	8467 - Ag Legal & Technical Services	28,930.64
Bill	03/31/2022			March 2022 - General Counsel	8467 - Ag Legal & Technical Services	24,700.00
TOTAL						53,630.64
Bill Pmt -Check	04/13/2022	23448	ELIE, STEVEN	Board Member Compensation	1012 - Bank of America Gen'l Ckg	
Bill	03/24/2022	3/24 Board Mtg		3/24/22 Board Meeting	6311 - Board Member Compensation	125.00
TOTAL						125.00
Bill Pmt -Check	04/13/2022	23449	EMPOWER LAB	2229	1012 - Bank of America Gen'l Ckg	
Bill	03/31/2022	2229		Empower Lab - March 2022	6193 - Employee Training	1,125.00

CHINO BASIN WATERMASTER
Cash Disbursements For The Month of
April 2022

Type	Date	Num	Name	Memo	Account	Paid Amount
TOTAL						1,125.00
Bill Pmt -Check	04/13/2022	23450	FEDAK & BROWN LLP	Continuing Audit Services	1012 - Bank of America Gen'l Ckg	
Bill	03/31/2022			March 2022	6062 - Audit Services	663.00
TOTAL						663.00
Bill Pmt -Check	04/13/2022	23451	FILIPPI, GINO	Ag Pool Member Compensation	1012 - Bank of America Gen'l Ckg	
Bill	03/10/2022	3/10 Ag Pool Mtg		3/10/22 Ag Pool Meeting	8470 - Ag Meeting Attend -Special	125.00
Bill	03/17/2022	3/17 Advisory Comm		3/17/22 Advisory Committee Meeting	8470 - Ag Meeting Attend -Special	125.00
Bill	03/18/2022	3/18 Special Ag Pool		3/18/22 Special Ag Pool Meeting	8470 - Ag Meeting Attend -Special	125.00
Bill	03/24/2022	3/24 Board Mtg		3/24/22 Board Meeting	8470 - Ag Meeting Attend -Special	125.00
TOTAL						500.00
Bill Pmt -Check	04/13/2022	23452	FOLSOM, BETTY	Board Member Compensation	1012 - Bank of America Gen'l Ckg	
Bill	03/23/2022	3/23 Call /Bd Chair		3/23/22 coordination call w/Board Chair	6311 - Board Member Compensation	125.00
Bill	03/24/2022	3/24 Board Mtg		3/24/22 Board Meeting	6311 - Board Member Compensation	125.00
TOTAL						250.00
Bill Pmt -Check	04/13/2022	23453	GEYE, BRIAN	Non-Ag Pool Member Compensation	1012 - Bank of America Gen'l Ckg	
Bill	03/03/2022	3/03 Personnel Comm		3/03/22 Personnel Committee Meeting	8511 - Non-Ag Pool Member Compensation	125.00
Bill	03/10/2022	3/10 Non Ag Pool Mtg		3/10/22 Non Ag Pool Meeting	8511 - Non-Ag Pool Member Compensation	125.00
Bill	03/17/2022	3/17 Advisory Comm		3/17/22 Advisory Committee Meeting	8511 - Non-Ag Pool Member Compensation	125.00
Bill	03/17/2022	3/17 Officers/Chairs		3/17/22 Board Officers/Pool Chairs Meeting	8511 - Non-Ag Pool Member Compensation	125.00
TOTAL						500.00
Bill Pmt -Check	04/13/2022	23454	INLAND EMPIRE UTILITIES AGENCY	VOID: 90031358	1012 - Bank of America Gen'l Ckg	0.00
TOTAL						0.00
Bill Pmt -Check	04/13/2022	23455	KUHN, BOB	Board Member Compensation	1012 - Bank of America Gen'l Ckg	
Bill	03/01/2022	3/01 Admin Mtg		3/01/22 Administrative Meeting	6311 - Board Member Compensation	125.00
Bill	03/03/2022	3/03 Personnel Comm		3/03/22 Personnel Committee Meeting	6311 - Board Member Compensation	125.00
Bill	03/04/2022	3/04 Admin Mtg		3/04/22 Administrative Meeting	6311 - Board Member Compensation	125.00
Bill	03/08/2022	3/08 Admin Mtg		3/08/22 Administrative Meeting	6311 - Board Member Compensation	125.00
Bill	03/15/2022	3/15 Admin Mtg		3/15/22 Administrative Meeting	6311 - Board Member Compensation	125.00
Bill	03/17/2022	3/17 Advisory Comm		3/17/22 Advisory Committee Meeting	6311 - Board Member Compensation	125.00
Bill	03/24/2022	3/24 Board Mtg		3/24/22 Board Meeting	6311 - Board Member Compensation	125.00
TOTAL						875.00
Bill Pmt -Check	04/13/2022	23456	MORROW, KIMBERLY	Court Reporter	1012 - Bank of America Gen'l Ckg	
Bill	04/08/2022	4/08/22 Transcript		Transcript for 4/08/2022 Court Hearing	6046 - Legal Publications/Services	330.00

CHINO BASIN WATERMASTER
Cash Disbursements For The Month of
April 2022

Type	Date	Num	Name	Memo	Account	Paid Amount
TOTAL						330.00
Bill Pmt -Check	04/13/2022	23457	PREMIERE GLOBAL SERVICES	30859191	1012 · Bank of America Gen'l Ckg	
Bill	03/31/2022	30859191		Fee - General	6022 · Telephone	39.00
				Fee - Confidential	6022 · Telephone	39.00
				Service fee	6022 · Telephone	8.50
				Call shortfall	6022 · Telephone	78.00
TOTAL						164.50
Bill Pmt -Check	04/13/2022	23458	PRINTING RESOURCES	67521	1012 · Bank of America Gen'l Ckg	
Bill	03/28/2022	67521		Nameplates-new Board members/alternates	6031.7 · Other Office Supplies	156.00
TOTAL						156.00
Bill Pmt -Check	04/13/2022	23459	RR FRANCHISING, INC.	Janitorial Services	1012 · Bank of America Gen'l Ckg	
Bill	03/31/2022	110276		Electrostatic spraying on 3/05/22 & 3/19/22	6024 · Building Repair & Maintenance	445.00
Bill	04/01/2022	109665		Monthly service for office/annex - April 2022	6024 · Building Repair & Maintenance	915.00
TOTAL						1,360.00
Bill Pmt -Check	04/13/2022	23460	STATE COMPENSATION INSURANCE FUND	1000293049	1012 · Bank of America Gen'l Ckg	
Bill	04/01/2022	1000293049		Policy # 1970970 - Premium charge 3/26/22-4/26/22	60183 · Worker's Comp Insurance	702.33
TOTAL						702.33
Bill Pmt -Check	04/13/2022	23461	WESTERN MUNICIPAL WATER DISTRICT	Board Member Compensation	1012 · Bank of America Gen'l Ckg	
Bill	03/10/2022	3/10 Appro Pool Mtg		3/10/22 Appropriative Pool Mtg - Gardner	6311 · Board Member Compensation	125.00
Bill	03/17/2022	3/17 Advisory Comm		3/17/22 Advisory Committee Mtg - Gardner	6311 · Board Member Compensation	125.00
Bill	03/24/2022	3/24 Board Mtg		3/24/22 Board Mtg - Gardner	6311 · Board Member Compensation	125.00
TOTAL						375.00
Bill Pmt -Check	04/13/2022	23462	INLAND EMPIRE UTILITIES AGENCY	90031358	1012 · Bank of America Gen'l Ckg	
Bill	04/01/2022	90031358		GW Recharge O&M Cost Reimbursement - FY 21/ 7206	Comp Recharge-O&M	89,444.66
TOTAL						89,444.66
Check	04/15/2022	04/15/2022	Service Charge	Service Charge	1012 · Bank of America Gen'l Ckg	
				Service Charge	6039.1 · Banking Service Charges	1,228.50
TOTAL						1,228.50
General Journal	04/15/2022	04/15/2022	ADP, LLC	ADP Tax Service for 03/19/22-603497490	1012 · Bank of America Gen'l Ckg	
			ADP, LLC	ADP Tax Service for 03/19/22-603497490	1012 · Bank of America Gen'l Ckg	155.50
			ADP, LLC	ADP Tax Service for 04/02/22-603497490	1012 · Bank of America Gen'l Ckg	155.50
TOTAL						311.00

CHINO BASIN WATERMASTER
Cash Disbursements For The Month of
April 2022

Type	Date	Num	Name	Memo	Account	Paid Amount
General Journal	04/19/2022	04/19/2022	HEALTH EQUITY	Health Equity Invoice 3668298	1012 - Bank of America Gen'l Ckg	
			HEALTH EQUITY	Health Equity Invoice 3668298	1012 - Bank of America Gen'l Ckg	225.27
TOTAL						225.27
Bill Pmt -Check	04/20/2022	ACH 042022	PUBLIC EMPLOYEES' RETIREMENT SYSTEM	Payor #3493	1012 - Bank of America Gen'l Ckg	
General Journal	04/16/2022	04/20/2022	PUBLIC EMPLOYEES' RETIREMENT SYSTEM	CalPERS Retirement for 04/03/22-04/16/22	2000 - Accounts Payable	9,792.48
TOTAL						9,792.48
Bill Pmt -Check	04/20/2022	23463	CHAMPION NEWSPAPERS	8043	1012 - Bank of America Gen'l Ckg	
Bill	04/20/2022	8043		1 year subscription, 5/16/22 - 05/15/23	6112 - Subscriptions/Publications	270.00
TOTAL						270.00
Bill Pmt -Check	04/20/2022	23464	CUCAMONGA VALLEY WATER DISTRICT	Monthly Rent Payment	1012 - Bank of America Gen'l Ckg	
Bill	04/18/2022			Lease payment due May 1, 2022	1422 - Prepaid Rent	7,588.83
TOTAL						7,588.83
Bill Pmt -Check	04/20/2022	23465	FIRST LEGAL NETWORK LLC	40060072	1012 - Bank of America Gen'l Ckg	
Bill	03/31/2022	40060072		Court filings for March 2022	6061.5 - Court Filing Services	1,261.49
TOTAL						1,261.49
Bill Pmt -Check	04/20/2022	23466	FRONTIER COMMUNICATIONS	909-484-3890-050914-5	1012 - Bank of America Gen'l Ckg	
Bill	04/20/2022	90948438900509145		Office fax	6022 - Telephone	167.34
TOTAL						167.34
Bill Pmt -Check	04/20/2022	23467	GREAT AMERICA LEASING CORP.	31454598	1012 - Bank of America Gen'l Ckg	
Bill	04/18/2022	31454598		Invoice for April 2022	6043.1 - Ricoh Lease Fee	1,528.34
				Supply freight fee	6043.2 - Ricoh Usage & Maintenance Fee	8.57
TOTAL						1,536.91
Bill Pmt -Check	04/20/2022	23468	HUITSING, JOHN	Ag Pool Member Compensation	1012 - Bank of America Gen'l Ckg	
Bill	03/01/2022	2/10 Ag Pool Mtg		2/10/22 Ag Pool Meeting	8470 - Ag Meeting Attend -Special	125.00
Bill	03/10/2022	3/10 Ag Pool Mtg		3/10/22 Ag Pool Meeting	8470 - Ag Meeting Attend -Special	125.00
Bill	03/18/2022	3/18 Special Ag Pool		3/18/22 Special Ag Pool Meeting	8470 - Ag Meeting Attend -Special	125.00
TOTAL						375.00
Bill Pmt -Check	04/20/2022	23469	LEGAL SHIELD	111802	1012 - Bank of America Gen'l Ckg	
Bill	04/13/2022	111802		Employee deductions - April 2022	60194 - Other Employee Insurance	135.50
TOTAL						135.50

CHINO BASIN WATERMASTER
Cash Disbursements For The Month of
April 2022

Type	Date	Num	Name	Memo	Account	Paid Amount
Bill Pmt -Check	04/20/2022	23470	SPRINGER NATURE	1452043780	1012 - Bank of America Gen'l Ckg	
Bill	04/18/2022	1452043780		Printing of Blomquist books	6061.6 - Blomquist Report - Update	2,081.16
TOTAL						2,081.16
Bill Pmt -Check	04/20/2022	23471	STANDARD INSURANCE CO.	Policy # 00-649299-0009	1012 - Bank of America Gen'l Ckg	
Bill	04/20/2022	006492990009		Policy # 00-649299-0009	60191 - Life & Disab.Ins Benefits	1,007.41
TOTAL						1,007.41
Bill Pmt -Check	04/20/2022	23472	UNITED HEALTHCARE	052581718297	1012 - Bank of America Gen'l Ckg	
Bill	04/18/2022	052581718297		Dental Insurance Premium - May 2022	60182.2 - Dental & Vision Ins	743.58
TOTAL						743.58
Bill Pmt -Check	04/20/2022	23473	VERIZON WIRELESS	9903377850	1012 - Bank of America Gen'l Ckg	
Bill	03/31/2022	9903377850		Acct #470810953-00002	6022 - Telephone	387.34
TOTAL						387.34
Bill Pmt -Check	04/20/2022	23474	WAXIE SANITARY SUPPLY	80818140	1012 - Bank of America Gen'l Ckg	
Bill	04/12/2022	80818140		Paper towel refills for dispensers	6031.7 - Other Office Supplies	226.99
TOTAL						226.99
General Journal	04/21/2022	04/21/2022	Payroll and Taxes for 04/03/22-04/16/22	Payroll and Taxes for 04/03/22-04/16/22	1012 - Bank of America Gen'l Ckg	
			ADP, LLC	Direct deposits for 04/03/22-04/16/22	1012 - Bank of America Gen'l Ckg	33,204.42
			ADP, LLC	Payroll Taxes for 04/03/22-04/16/22	1012 - Bank of America Gen'l Ckg	12,903.76
			MISSIONSQUARE RETIREMENT	457(b) EE Deductions for 04/03/22-04/16/22	1012 - Bank of America Gen'l Ckg	5,918.06
			MISSIONSQUARE RETIREMENT	401(a) EE Deductions for 04/03/22-04/16/22	1012 - Bank of America Gen'l Ckg	1,806.99
TOTAL						53,833.23
Bill Pmt -Check	04/22/2022	ACH 042222	PUBLIC EMPLOYEES' RETIREMENT SYSTEM	Payor #3493	1012 - Bank of America Gen'l Ckg	
Bill	04/01/2022	16758139		Annual Unfunded Accrued Liability-Plan 3299	60180 - Employers PERS Expense	8,989.42
TOTAL						8,989.42
General Journal	04/22/2022	04/22/2022	HEALTH EQUITY	Health Equity Invoice 3572580	1012 - Bank of America Gen'l Ckg	
			HEALTH EQUITY	Health Equity Invoice 3572580	1012 - Bank of America Gen'l Ckg	81.50
TOTAL						81.50
Bill Pmt -Check	04/27/2022	23475	BROWNSTEIN HYATT FARBER SCHRECK		1012 - Bank of America Gen'l Ckg	
Bill	03/31/2022	886912		886912	6078 - BHFS Legal - Miscellaneous	51,014.25
				03/18/22 Mileage/Parking Expense - Herrema	6078 - BHFS Legal - Miscellaneous	71.75
Bill	03/31/2022	886913		886913	6073 - BHFS Legal - Personnel Matters	1,291.95
Bill	03/31/2022	886914		886914	6907.34 - Santa Ana River Water Rights	612.00

CHINO BASIN WATERMASTER
Cash Disbursements For The Month of
April 2022

Type	Date	Num	Name	Memo	Account	Paid Amount
Bill	03/31/2022	886915		886915	6275 · BHFS Legal - Advisory Committee	445.50
Bill	03/31/2022	886916		886916	6375 · BHFS Legal - Board Meeting	4,338.90
				Mileage/Parking Expense-Herrema	6375 · BHFS Legal - Board Meeting	71.75
Bill	03/31/2022	886917		886917	8375 · BHFS Legal - Appropriative Pool	594.00
Bill	03/31/2022	886918		886918	8475 · BHFS Legal - Agricultural Pool	594.00
Bill	03/31/2022	886919		886919	8575 · BHFS Legal - Non-Ag Pool	594.00
Bill	03/31/2022	886920		886920	6071 · BHFS Legal - Court Coordination	23,665.50
Bill	03/31/2022	886921		886921	6072 · BHFS Legal - Rules & Regs	189.00
Bill	03/31/2022	886922		886922	6077 · BHFS Legal - Party Status Maint	297.00
Bill	03/31/2022	886923		886923	6907.41 · Prado Basin Habitat Sustain	466.65
Bill	03/31/2022	886924		886924	6907.47 · 2020 Safe Yield Reset	2,116.80
TOTAL						86,363.05
Bill Pmt -Check	04/27/2022	23476	WEST YOST		1012 · Bank of America Gen'l Ckg	
Bill	03/31/2022	2048760		2048760	6906.31 · OBMP-Pool, Adv. Board Mtgs	3,786.00
Bill	03/31/2022	2048761		2048761	6906.32 · OBMP-Other General Meetings	2,688.25
Bill	03/31/2022	2048762		2048762	6906.71 · OBMP-Data Req.-CBWM Staff	2,477.25
Bill	03/31/2022	2048763		2048763	6906.72 · OBMP-Data Req.-Non CBWM Staff	1,216.75
Bill	03/31/2022	2048764		2048764	6906.23 · SGMA Reporting Requirements	992.25
Bill	03/31/2022	2048765		2048765	6906 · OBMP Engineering Services	3,678.00
Bill	03/31/2022	2048766		2048766	6906.24 · Compliance-SWRCB	4,230.00
Bill	03/31/2022	2048767		2048767	6906.15 · Integrated Model Mtgs-IEUA Cost	1,585.50
Bill	03/31/2022	2048768		2048768	7103.3 · Grdwtr Qual-Engineering	4,330.00
Bill	03/31/2022	2048769		2048769	7104.3 · Grdwtr Level-Engineering	23,766.24
Bill	03/31/2022	2048770		2048770	7107.2 · Grd Level-Engineering	5,598.09
Bill	03/31/2022	2048771		2048771	7107.2 · Grd Level-Engineering	5,642.50
Bill	03/31/2022	2048772		2048772	7107.2 · Grd Level-Engineering	807.00
				Guida Surveying	7107.6 · Grd Level-Contract Svcs	20,660.24
Bill	03/31/2022	2048773		2048773	7108.31 · Hydraulic Control - PBHSP	18,854.00
Bill	03/31/2022	2048774		2048774	7110.3 · Ag Prod. & Estimation-Eng. Serv	1,561.75
Bill	03/31/2022	2048775		2048775	7202.2 · Engineering Svc	493.75
Bill	03/31/2022	2048776		2048776	7303 · PE3&5-Engineering	1,110.00
Bill	03/31/2022	2048777		2048777	7402 · PE4-Engineering	6,011.50
Bill	03/31/2022	2048778		2048778	7402.10 · PE4 - Northwest MZ1 Area Proj.	1,992.00
Bill	03/31/2022	2048779		2048779	7402 · PE4-Engineering	3,808.75
Bill	03/31/2022	2048780		2048780	7502 · PE6&7-Engineering	36,691.25
Bill	03/31/2022	2048781		2048781	7510 · PE6&7-IEUA Salinity Mgmt. Plan	4,836.00
Bill	03/31/2022	2048782		2048782	7614 · PE8&9-Develop S&R Master Plan	76,959.25
Bill	03/31/2022	2048783		2048783	6906.14 · Modeling for WSIP-100% IEUA	12,187.00
Bill	03/31/2022	2048784		2048784	7508 · HC Mitigation Plan-50% IEUA	18,361.00

CHINO BASIN WATERMASTER
Cash Disbursements For The Month of
April 2022

Type	Date	Num	Name	Memo	Account	Paid Amount
TOTAL						264,324.32
					Total Disbursements:	<u>676,108.87</u>



CHINO BASIN WATERMASTER

9641 San Bernardino Road, Rancho Cucamonga, CA 91730
Tel: 909.484.3888 Fax: 909.484.3890 www.cbwm.org

PETER KAVOUNAS, P.E.
General Manager

STAFF REPORT

DATE: June 16, 2022
TO: Advisory Committee Members
SUBJECT: VISA Check Detail Report - Financial Report B2 (April 30, 2022)
(Consent Calendar Item I.B.2.)

SUMMARY

Issue: Record of VISA credit card payment disbursed for the month of April 2022. [Normal Course of Business]

Recommendation: Receive and file VISA Check Detail Report for April 2022 as presented.

Financial Impact: Funds disbursed were included in the FY 2021/22 "Amended" Watermaster Budget.

Future Consideration

Advisory Committee – June 16, 2022: Receive and File

Watermaster Board – June 23, 2022: Receive and File (Normal Course of Business)

ACTIONS:

Appropriative Pool – June 9, 2022: Received and filed

Non-Agricultural Pool – June 9, 2022: Moved unanimously to receive and file, without approval

Agricultural Pool – June 9, 2022: Received and filed

Advisory Committee – June 16, 2022:

Watermaster Board – June 23, 2022:

Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court, and to develop and implement an Optimum Basin Management Program

BACKGROUND

A monthly VISA Check Detail report is provided to keep all members apprised of Watermaster expenditures charged against the General Manager and Chief Financial Officer's Bank of America VISA card.

DISCUSSION

The total cash disbursements during the month of April 2022 was \$0.00 since the actual payment was issued during the month of May 2022. The payment was processed in the amount of \$5,378.61 (by ACH payment dated May 4, 2022). The monthly charges for April 2022 of \$5,378.61 were for routine and customary expenditures and properly documented with receipts.

ATTACHMENTS

1. Financial Report – B2

CHINO BASIN WATERMASTER
VISA Check Detail Report
April 2022

Type	Num	Date	Name	Memo	Account	Paid Amount
Bill Pmt -Check	05/04/2022	ACH 050422	BANK OF AMERICA	XXXX-XXXX-XXXX-4026	1012 · Bank of America Gen'l Ckg	
Bill	05/04/2022	XXXX-XXXX-XXXX-4026		Down payment on Switch upgrade	6055 · Computer Hardware	972.84
				Reg. 4/13/22 ISMAR11 Seminar - JN/AN/ETF/PK	6193.2 · Conference - Registration Fee	1,320.00
				Miscellaneous office supplies	6031.7 · Other Office Supplies	21.68
				Miscellaneous office supplies	6031.7 · Other Office Supplies	93.98
				3/18/22 Board Workshop prep meeting	6312 · Meeting Expenses	188.87
				Miscellaneous office supplies	6031.7 · Other Office Supplies	40.83
				Miscellaneous office supplies	6031.7 · Other Office Supplies	1,121.08
				New employee search	6016 · New Employee Search Costs	144.00
				New employee search	6016 · New Employee Search Costs	49.95
				New employee search	6016 · New Employee Search Costs	99.90
				Miscellaneous office supplies	6031.7 · Other Office Supplies	46.04
				Miscellaneous office supplies	6031.7 · Other Office Supplies	15.06
				Software purchase - Kahoot	6054 · Computer Software	61.80
				Miscellaneous office supplies	6031.7 · Other Office Supplies	169.48
				Miscellaneous office supplies	6031.7 · Other Office Supplies	53.24
				Transcript for 2/04/22 court hearing	6046 · Legal Publications/Services	121.00
				New employee search	6016 · New Employee Search Costs	144.00
				Tablet purchase	6055 · Computer Hardware	521.19
				Uber - P. Kavounas will reimburse	6174 · Public Transportation	18.16
				Uber - P. Kavounas will reimburse	6174 · Public Transportation	18.03
				P. Kavounas mtg w/IEUA	8312 · Meeting Expenses	106.35
				P. Kavounas mtg w/CVWD, City of Pomona	8312 · Meeting Expenses	51.13
					Total Disbursements:	<u>5,378.61</u>

TOTAL



CHINO BASIN WATERMASTER

9641 San Bernardino Road, Rancho Cucamonga, CA 91730
Tel: 909.484.3888 Fax: 909.484.3890 www.cbwm.org

PETER KAVOUNAS, P.E.
General Manager

STAFF REPORT

DATE: June 16, 2022
TO: Advisory Committee Members
SUBJECT: Combining Schedule of Revenue, Expenses and Changes in Net Assets for the Period July 1, 2021 through April 30, 2022 - Financial Report B3 (April 30, 2022) (Consent Calendar Item I.B.3.)

SUMMARY

Issue: Record of Revenue, Expenses and Changes in Net Assets for the Period July 1, 2021 through April 30, 2022. [Normal Course of Business]

Recommendation: Receive and file Combining Schedule of Revenue, Expenses and Changes in Net Assets for the Period July 1, 2021 through April 30, 2022 as presented.

Financial Impact: Funds disbursed were included in the FY 2021/22 "Amended" Watermaster Budget.

Future Consideration

Advisory Committee – June 16, 2022: Receive and File

Watermaster Board – June 23, 2022: Receive and File (Normal Course of Business)

ACTIONS:

Appropriative Pool – June 9, 2022: Received and filed

Non-Agricultural Pool – June 9, 2022: Moved unanimously to receive and file, without approval

Agricultural Pool – June 9, 2022: Received and filed

Advisory Committee – June 16, 2022:

Watermaster Board – June 23, 2022:

Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court, and to develop and implement an Optimum Basin Management Program

BACKGROUND

A Combining Schedule of Revenue, Expenses and Changes in Net Assets for the period July 1, 2021 through April 30, 2022 is provided to keep all members apprised of the FY 2021/22 cumulative Watermaster revenues, expenditures and changes in net assets for the period listed.

DISCUSSION

The Combining Schedule of Revenue, Expenses and Changes in Net Assets has been created from various financial reports and statements created from Intuit QuickBooks Enterprise Solutions 22.0, the Watermaster accounting system. The Combining Schedule provided balances to the supporting documentation in the Watermaster accounting system as presented.

ATTACHMENTS:

1. Financial Report – B3

CHINO BASIN WATERMASTER
COMBINING SCHEDULE OF REVENUE, EXPENSES AND CHANGES IN NET ASSETS
FOR THE PERIOD JULY 1, 2021 THROUGH APRIL 30, 2022

Financial Report - B3

WATERMASTER ADMINISTRATION	OPTIMUM BASIN MANAGEMENT	POOL ADMINISTRATION & SPECIAL PROJECTS			AP ESCROW ACCOUNT	GROUNDWATER REPLENISHMENT	LAIF VALUE ADJ.	GASB 75 BEG. NET POSITION	GRAND TOTALS	AMENDED BUDGET 2021-2022
		APPROPRIATIVE POOL	AG POOL	NON-AG POOL						
Administrative Revenues:										
Administrative Assessments			7,874,866	835,000	330,844				9,040,710	7,496,877
Interest Revenue			17,755	954	319				19,028	106,125
Mutual Agency Project Revenue	177,430								177,430	177,430
Miscellaneous Income	525								525	0
Total Revenues	177,955	-	7,892,622	835,954	331,163	-	-	-	9,237,693	7,780,432
Administrative & Project Expenditures:										
Watermaster Administration	1,954,112								1,954,112	1,846,194
Watermaster Board-Advisory Committee	170,221								170,221	245,485
Ag Pool Legal Services - Ag Fund ¹				259,284					259,284	-
Pool Administration			184,086	65,354	56,014				305,453	411,698
Optimum Basin Mgmt Administration	558,838								558,838	1,480,696
OBMP Project Costs	3,736,373								3,736,373	4,604,371
Debt Service	529,029								529,029	529,029
Basin Recharge Improvements	-								-	1,693,292
Total Administrative/OBMP Expenses	2,124,333	4,824,240	184,086	65,354	56,014	-	-	-	7,513,310	10,810,765
Net Administrative/OBMP Expenses	(1,946,378)	(4,824,240)								
Allocate Net Admin Expenses To Pools	1,946,378		1,446,375	423,228	76,774				-	
Allocate Net OBMP Expenses To Pools		4,295,211	3,191,819	933,969	169,424				-	
Allocate Debt Service to App Pool		529,029	529,029						-	
Allocate Basin Recharge to App Pool		-	-						-	
Agricultural Expense Transfer*			1,422,551	(1,422,551)					-	
Total Expenses	6,773,859	259,284	6,773,859	259,284	302,212	-	-	-	7,513,310	10,810,765
Net Administrative Income			1,118,763	576,670	28,951	-	-	-	1,724,383	(3,030,333)
Other Income/(Expense)										
Replenishment Water Assessments						1,693,689.37			1,693,689	0
Desalter Replenishment Obligation									-	0
Exhibit "G" Non-Ag Pool Water			-						-	0
RTS Charges from IEUA						(35,030.19)			(35,030)	0
Interest Revenue						1,653.55			1,654	0
MWD Water Purchases									-	0
Non-Ag Stored Water Purchases									-	0
Exhibit "G" Non-Ag Pool Water									-	0
Groundwater Replenishment									-	0
LAIF - Fair Market Value Adjustment									-	0
Gain on Sale of Assets									-	0
AP Escrow Account - Refunds to AP						(161,070)			(161,070)	0
AP Escrow Account - Interest Earned						146			146	0
Refund-Basin O&M Expenses			(139,913)		(5,471)				(145,384)	0
Refund-Recharge Debt Service			(156,259)						(156,259)	0
Funding To/(From) Reserves									-	(86,504)
Net Other Income/(Expense)			(296,172)	-	(5,471)	(160,924)	1,660,312.73	-	1,197,745	(86,504)
Net Transfers To/(From) Reserves	2,922,128	0	822,590	576,670	23,480	(160,924)	1,660,312.73	-	2,922,128	(2,943,829)
Net Assets, July 1, 2021			8,924,389	127,547	128,927	161,296	(19,271.79)	829	(443,445)	8,880,272
Net Assets, End of Period			9,746,979	704,216	152,407	372	1,641,040.94	829	(443,445)	11,802,400
Ag Pool Assessments Outstanding ²				(586,852)						
Ag Pool Fund Balance				117,364						
20/21 Assessable Production			73,423.920	21,484.815	3,897.385				98,806.120	
20/21 Production Percentages			74.311%	21.744%	3.944%				100.000%	

*Fund balance transfer as agreed to in the Peace Agreement.

Note ¹ - Agricultural Pool Legal Services for July 2021 through April 2022

N:\Administration\Meetings - Agendas & Minutes\2022\Staff Reports\06 - June\Advisory\20220609 - B3 Combining Schedule_April 2022 -- ATT>Note ² - Outstanding balance of Agricultural Pool Special Assessments for \$200,000 is \$121,504.22 and \$635,000 invoicing is \$465,347.97



CHINO BASIN WATERMASTER

9641 San Bernardino Road, Rancho Cucamonga, CA 91730
Tel: 909.484.3888 Fax: 909.484.3890 www.cbwm.org

PETER KAVOUNAS, P.E.
General Manager

STAFF REPORT

DATE: June 16, 2022

TO: Advisory Committee Members

SUBJECT: Treasurer's Report of Financial Affairs for the Period April 1, 2022 through April 30, 2022 - Financial Report B4 (April 30, 2022) (Consent Calendar Item I.B.4.)

SUMMARY

Issue: Record of increases or decreases in the cash position, assets and liabilities of Watermaster for the Period of April 1, 2022 through April 30, 2022. [Normal Course of Business]

Recommendation: Receive and file Treasurer's Report of Financial Affairs for the Period April 1, 2022 through April 30, 2022 as presented.

Financial Impact: Funds disbursed were included in the FY 2021/22 "Amended" Watermaster Budget.

Future Consideration

Advisory Committee – June 16, 2022: Receive and File

Watermaster Board – June 23, 2022: Receive and File (Normal Course of Business)

ACTIONS:

Appropriative Pool – June 9, 2022: Received and filed

Non-Agricultural Pool – June 9, 2022: Moved unanimously to receive and file, without approval

Agricultural Pool – June 9, 2022: Received and filed

Advisory Committee – June 16, 2022:

Watermaster Board – June 23, 2022:

Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court, and to develop and implement an Optimum Basin Management Program

BACKGROUND

A Treasurer's Report of Financial Affairs for the Period April 1, 2022 through April 30, 2022 is provided to keep all members apprised of the total cash in banks (Bank of America, LAIF, and CalTRUST); and cash on hand at the Watermaster office (petty cash) at the end of the period stated. The Treasurer's Report details the change (increase or decrease) in the overall cash position of Watermaster, as well as the changes (increase or decrease) to the assets and liabilities section of the balance sheet. The report also provides a detailed listing of all deposits and/or withdrawals in the California State Treasurer's Local Agency Investment Fund (LAIF) and/or CalTRUST, the most current effective yield as of the last quarter, and the ending balance in LAIF as of the reporting date.

DISCUSSION

The Treasurer's Report of Financial Affairs has been created from various financial reports and statements created from Intuit QuickBooks Enterprise Solutions 22.0, the Watermaster accounting system. The Treasurer's Report provided, balances to the supporting documentation in the Watermaster accounting system, as well as the supporting bank statements.

ATTACHMENTS

1. Financial Report – B4

**CHINO BASIN WATERMASTER
TREASURER'S REPORT OF FINANCIAL AFFAIRS FOR THE PERIOD
APRIL 1, 2022 THROUGH APRIL 30, 2022**

Financial Report - B4

DEPOSITORIES:

Cash on Hand - Petty Cash		\$	500
Bank of America			
Governmental Checking-Demand Deposits	\$	571,358	
Zero Balance Account - Payroll	-		571,358
Restricted Funds - AP Escrow			5,390
Trust Account - County of San Bernardino			-
Local Agency Investment Fund - Sacramento			11,866,580
TOTAL CASH IN BANKS AND ON HAND	4/30/2022		\$ 12,443,827
TOTAL CASH IN BANKS AND ON HAND	3/31/2022		12,982,660

PERIOD INCREASE (DECREASE) \$ (538,833)

CHANGE IN CASH POSITION DUE TO:

Decrease/(Increase) in Assets: Accounts Receivable		\$	63,711
Assessments Receivable			(454,674)
Prepaid Expenses, Deposits & Other Current Assets			1
(Decrease)/Increase in Liabilities: Accounts Payable			115,334
Accrued Payroll, Payroll Taxes & Other Current Liabilities			(49,407)
Long Term Liabilities			3,794
Transfer to/(from) Reserves			(217,592)

PERIOD INCREASE (DECREASE) \$ (538,833)

SUMMARY OF FINANCIAL TRANSACTIONS:

	Petty Cash	Govt'l Checking Demand	Zero Balance Account Payroll	Restricted Funds AP Escrow	Local Agency Investment Funds	Totals
Balances as of 3/31/2022	\$ 500	\$ 370,809	\$ -	\$ 5,389	\$ 12,605,962	\$ 12,982,660
Deposits	-	876,658	-	1	10,617	887,276
Transfers	-	(151,707)	(92,335)	-	(750,000)	(994,041)
Withdrawals/Checks	-	(524,402)	92,335	-	-	(432,067)
Balances as of 4/30/2022	\$ 500	\$ 571,358	\$ -	\$ 5,390	\$ 11,866,580	\$ 12,443,827
PERIOD INCREASE OR (DECREASE)	\$ -	\$ 200,549	\$ -	\$ 1	\$ (739,383)	\$ (538,833)

**CHINO BASIN WATERMASTER
TREASURER'S REPORT OF FINANCIAL AFFAIRS FOR THE PERIOD
APRIL 1, 2022 THROUGH APRIL 30, 2022**

Financial Report - B4

INVESTMENT TRANSACTIONS

Effective Date	Transaction	Depository	Activity	Redeemed	Days to Maturity	Interest Rate(*)	Maturity Yield
4/15/2022	Interest Earned		10,617				
4/22/2022	Withdrawal		(750,000)				
TOTAL INVESTMENT TRANSACTIONS			\$ (739,383)	\$0			

* The earnings rate for L.A.I.F. is a daily variable rate; 0.32% was the effective yield rate at the Quarter ended March 31, 2022.

**INVESTMENT STATUS
April 30, 2022**

<u>Financial Institution</u>	<u>Principal Amount</u>	<u>Number of Days</u>	<u>Interest Rate</u>	<u>Maturity Date</u>
Local Agency Investment Fund	\$ 11,866,580			
TOTAL INVESTMENTS	\$ 11,866,580			

Funds on hand are sufficient to meet all foreseen and planned Administrative and project expenditures during the next six months.

All investment transactions have been executed in accordance with the criteria stated in Chino Basin Watermaster's Investment Policy.

Respectfully submitted,



Joseph S. Joswiak
Chief Financial Officer



CHINO BASIN WATERMASTER

9641 San Bernardino Road, Rancho Cucamonga, CA 91730
Tel: 909.484.3888 Fax: 909.484.3890 www.cbwm.org

PETER KAVOUNAS, P.E.
General Manager

STAFF REPORT

DATE: June 16, 2022

TO: Advisory Committee Members

SUBJECT: Budget vs. Actual Report for the Period July 1, 2021 through April 30, 2022 -
Financial Report B5 (April 30, 2022) (Consent Calendar Item I.B.5.)

SUMMARY

Issue: Record of revenues and expenses of Watermaster for the Period of July 1, 2021 through April 30, 2022. [Normal Course of Business]

Recommendation: Receive and file Budget vs. Actual Report for the Period July 1, 2021 through April 30, 2022 as presented.

Financial Impact: Funds disbursed were included in the FY 2021/22 "Amended" Watermaster Budget.

Future Consideration

Advisory Committee – June 16, 2022: Receive and File

Watermaster Board – June 23, 2022: Receive and File (Normal Course of Business)

ACTIONS:

Appropriative Pool – June 9, 2022: Received and filed

Non-Agricultural Pool – June 9, 2022: Moved unanimously to receive and file, without approval

Agricultural Pool – June 9, 2022: Received and filed

Advisory Committee – June 16, 2022:

Watermaster Board – June 23, 2022:

*Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court,
and to develop and implement an Optimum Basin Management Program*

BACKGROUND

A Budget vs. Actual Report for the period July 1, 2021 through April 30, 2022 is provided to keep all members apprised of the total revenues and expenses for the current fiscal year. The expense section is categorized into four distinct sections. Those sections are: General and Administrative Expenses; Optimum Basin Management Program Expenses; Project Expenses; and Other Income/Expenses. The Budget vs. Actual report has been created from Intuit QuickBooks Enterprise Solutions 22.0, the Watermaster accounting system. The Budget vs. Actual report provided, balances to the supporting documentation in the Watermaster accounting system, as well as the supporting bank statements.

DISCUSSION

CURRENT MONTH – APRIL 2022

Year-To-Date (YTD) for the ten months ending April 30, 2022, all but two categories were at or below the projected budget.

The categories over budget were: (1) the Administration Salary/Benefits expenses (6010's) which were over budget by \$154,922 or 14.9% as a result of increased staff time and activities in the administrative functions; and (2) Watermaster Legal Services (6070s) were over budget by \$249,770 or 91.1% as a result of increased activities in the areas of Court Coordination; Rules and Regulations; the unbudgeted expenses for the Ely 3 Basin Investigation; and miscellaneous legal expenses during the last ten months. Please note that the overage for BHFS is only in the administrative section, not the entire consolidated BHFS budget.

For the majority of the expense categories within the Watermaster budget for FY 2021/22, the individual line-item budgets are divided into 12-monthly amounts and allocated accordingly. As the fiscal year progresses, the category listed above could level out over time and be within the budget levels.

There are no Budget Transfers or Budget Amendments being proposed for FY 2021/22 at the current time.

Overall, the Watermaster (YTD) Actual Expenses were \$3,003,884 or 28.6% below the (YTD) Budgeted Expenses of \$10,517,195.

PREVIOUSLY REPORTED ACTIONS (Descending Order)

November 2021:

Budget Amendment A-21-11-01 in the amount of \$86,504 was approved by the Advisory Committee and the Board on November 18, 2021. The account increased with the Budget Amendment was the Support Implementation of the Safe Yield Court Order (account 7614) which was increased from \$285,188 to \$371,692 to perform the Safe Yield Reset Methodology Update. The Budget Amendment A-21-11-01 increased the total Watermaster "Amended" budget from \$7,780,432 to \$7,866,936. The amount of \$86,504 was not included within the FY 2021/22 Assessment invoicing. The funding for the amount of \$86,504 will be an allocation from the OBMP Reserve Fund which currently is \$757,602. After the allocation of \$86,504 the OBMP Reserve Fund will be \$671,098.

October 2021:

Budget Amendment A-21-10-01 in the amount of \$72,000 was approved by the Advisory Committee on October 21, 2021 and approved by the Board on October 28, 2021. The account increased with the Budget Amendment was the Hydraulic Control-Mitigation Plan-50% IEUA (TO No. 6) (account 7508) which was increased by \$72,000 to include the Proposal to Prepare an Updated Plan for Mitigation of Temporary Loss of Hydraulic Control of the Chino Basin (Task Order No. 6). The Budget Amendment A-21-10-01 increased the total Watermaster "Amended" budget from \$7,708,432 to \$7,780,432.

July 2021:

Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court, and to develop and implement an Optimum Basin Management Program

The "Original" Approved budget for FY 2021/22 of \$7,276,213 was adopted by the Watermaster Board on May 27, 2021. Budget Amendment A-21-07-01 in the amount of \$147,031 and Budget Amendment A-21-07-02 in the amount of \$276,761 was adopted by the Watermaster Board on July 22, 2021. Budget Amendment A-21-08-01 in the amount of \$8,427 was approved by the Advisory Committee on August 19, 2021. The accounts increased with the Budget Amendments were the OBMP-Northwest MZ-1 Area Project (7402.1) increased by \$147,031; and the Safe Yield Reset Methodology Evaluation (7614) increased by \$285,188.

During the month of July 2021, the "Carry Over" funding was calculated. The Total "Carry Over" funding amount of \$2,943,828.87 has been posted to the general ledger accounts. The total amount of \$2,943,828.87 consisted of \$1,693,292.20 from Capital Improvement Projects, \$573,765.00 from Engineering Services, \$374,114.56 from OBMP Activities, \$207,566.95 from Pool Funding Accounts, and \$95,090.16 from Administration Services. More detailed information is provided regarding this issue under the "Carry Over" Funding section.

The "Amended" Budget for FY 2021/22 is \$10,652,260.87 which includes \$2,943,828.87 for the prior years "Carry Over" funding.

SALARIES EXPENSE

CURRENT MONTH – APRIL 2022

As of April 30, 2022, the total (YTD) Watermaster salary expenses were \$35,919 or 1.9% above the (YTD) budgeted amount of \$1,881,833. The overall staffing budget was developed with a staffing level of ten Full-Time Equivalents (FTE's), which is the current staffing level. The recruitment process to hire an Executive Assistant II/Board Clerk was completed on May 31, 2022 with a new employee starting on that day.

Watermaster does not plan to present any Budget Transfers or Budget Amendments at this time.

Watermaster utilizes an in-house database time and attendance system to track and record staff's actual hours worked and records those hours to a specific project or activity. This time and attendance database of captured staff hours and activities is the basis for the bi-weekly payrolls which are processed using an external payroll processing service. Watermaster staff can record time to a large number of activities but the five most used categories are as follows (1) General Administrative activities; (2) Paid Leaves of vacation, sick or holiday; (3) Pools, Advisory or Board Meeting attendance; (4) OBMP activities; and (5) OBMP Implementation Program Elements 1 through 9 activities.

When the FY 2021/22 budget was developed, basic assumptions were used in allocating how staff's time would be spent and on which of the projects or activities. The staffing dollars were then allocated into those specific areas and budgeted on a 1/12 monthly budget. When actual staffing activities vary from the budgeted assumptions, a positive or negative variance can be created.

Currently the following actual allocations are tracking above the projected allocations due to Watermaster staff spending more time in these activities as follows: WM Staff Salaries for Administration (account 6011) above budget by \$152,210 or 16.2%; Watermaster Staff Overtime (account 6011.1) above budget by \$10,505 or 105.1%; Watermaster Board-WM Staff Salaries (account 6301) above budget by \$6,277 or 15.4%; Appropriative Pool-WM Staff Salaries (account 8301) above budget by \$2,680 or 7.1%; Groundwater Level-WM Staff Salaries (account 7104.1) above budget by \$18,428 or 31.0%; Comprehensive Recharge-WM Staff Salaries (account 7201) above budget by \$9,352 or 20.0%; PE 6&7 (account 7501) above budget by \$7,550 or 137.6%; and PE8&9-WM Staff Salaries (account 7601) above budget by \$7,045 or 34.2%.

The table summarizes the Year-To-Date (YTD) Actual Watermaster salary costs compared to the Year-To-Date (YTD) Budget as of April 30, 2022. Please be advised that the "\$ Over Budget" and the "% of Budget"

Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court, and to develop and implement an Optimum Basin Management Program

columns are a comparison of the (YTD) Actual to the (YTD) Budget, not the 12-month Annual Budget. The 12-month Annual Budget column is presented only to provide the data in a full and complete format. The following details are provided:

	Jul '21 - Apr '22 Actual	Jul '21 - Apr '22 Budget	\$ Over Budget	% of Budget	FY 2021/22 Annual Budget
WM Salary Expense					
6011 - WM Staff Salaries	1,094,028.24	941,818.00	152,210.24	116.16%	1,128,445.00
6011.1 - WM Staff Salaries - Overtime	20,505.01	10,000.00	10,505.01	205.05%	12,000.00
6011.4 - 457(f) NQDC Plan	30,054.48	29,426.00	628.48	102.14%	35,312.00
6017 - Temporary Services	31,203.28	42,000.00	-10,796.72	74.29%	42,000.00
6201 - Advisory Committee - WM Staff Salaries	22,977.53	25,569.00	-2,591.47	89.87%	30,636.00
6301 - Watermaster Board - WM Staff Salaries	46,968.37	40,691.00	6,277.37	115.43%	48,754.00
8301 - Appropriative Pool - WM Staff Salaries	40,374.50	37,695.00	2,679.50	107.11%	45,164.00
8401 - Agricultural Pool - WM Staff Salaries	19,241.20	32,100.00	-12,858.80	59.94%	38,461.00
8501 - Non-Agricultural Pool - WM Staff Salaries	14,371.80	22,197.00	-7,825.20	64.75%	26,596.00
6901 - OBMP - WM Staff Salaries	122,973.90	166,632.00	-43,658.10	73.8%	222,176.00
7101.1 - Production Monitor - WM Staff Salaries	59,570.07	85,097.00	-25,526.93	70.0%	101,960.00
7102.1 - In-line Meter - WM Staff Salaries	0.00	10,155.00	-10,155.00	0.0%	12,167.00
7103.1 - Grdwater Quality - WM Staff Salaries	33,081.48	56,942.00	-23,860.52	58.1%	68,225.00
7104.1 - Grdwater Level - WM Staff Salaries	77,860.89	59,433.00	18,427.89	131.01%	71,210.00
7107.1 - GrdLevel Monitoring - WM Staff Salaries	998.71	6,119.00	-5,120.29	16.32%	7,332.00
7108.1 - Hydraulic Control - WM Staff Salaries	1,527.98	3,899.00	-2,371.02	39.19%	4,671.00
7108.11 - Prado Basin - WM Staff Salaries	422.27	5,804.00	-5,381.73	7.28%	6,954.00
7201 - Comp Recharge - WM Staff Salaries	56,125.40	46,773.00	9,352.40	120.0%	56,041.00
7301 - PE3&5 - WM Staff Salaries	2,569.82	15,448.00	-12,878.18	16.64%	18,509.00
7401 - PE4 - WM Staff Salaries	1,819.30	9,436.00	-7,616.70	19.28%	11,306.00
7501 - PE6&7 - WM Staff Salaries	13,037.20	5,487.00	7,550.20	237.6%	6,575.00
7501.1 - PE 6&7 - WM Staff Salaries (Plume)	0.00	5,419.00	-5,419.00	0.0%	6,493.00
7601 - PE8&9 - WM Staff Salaries	27,665.46	20,620.00	7,045.46	134.17%	24,705.00
Subtotal WM Staff Costs	1,717,376.89	1,678,760.00	38,616.89	102.3%	2,025,692.00
60185 - Vacation	90,116.53	78,271.00	11,845.53	115.13%	93,925.00
60186 - Sick Leave	49,562.44	52,000.00	-2,437.56	95.31%	62,400.00
60187 - Holidays	60,696.41	72,802.00	-12,105.59	83.37%	78,002.00
Subtotal WM Paid Leaves	200,375.38	203,073.00	-2,697.62	98.67%	234,327.00
Total WM Salary Costs	1,917,752.27	1,881,833.00	35,919.27	101.91%	2,260,019.00

PREVIOUSLY REPORTED ACTIONS (Descending Order)

March 2022:

With the overall salaries budget currently under budget as of March 2022 it is not expected that a Budget Amendment is currently required. As we get closer to the June 30th fiscal year-end, a Budget Amendment or Budget Transfer could be required. If a Budget Amendment is required, the funding would come from the Watermaster Administration Reserve which has a current available balance of \$117,514.88. A Budget Transfer could be used as of June 30, 2022 from other Administration accounts which are under budget.

January 2022:

On December 6, 2021 the newly created position of Executive Assistant/Board Clerk was filled, becoming the eleventh employee of Watermaster. Unfortunately, on February 2, 2022 that same employee left the employment of Watermaster. Watermaster is currently in the process of recruiting for a new Executive Assistant/Board Clerk. As noted above, the overall salaries budget is currently under budget as of January 2022 and it is not expected that a Budget Amendment is currently required to fund the new position. However, once the position is filled and we get closer to the June 30th fiscal year-end, a Budget Amendment may be required to fund the new position. If a Budget Amendment is required, the funding would come from the Watermaster Administration Reserve which has a current available balance of \$117,514.88.

October 2021:

On October 8, 2021, Vanessa Aldaz (Administrative Assistant) who has been with Watermaster since February 10, 2020, submitted her official notice of resignation effective Friday, October 22, 2021. On

Monday, October 25, 2021, Ruby Favela started her employment with Watermaster as the new Administrative Assistant.

July 2021:

For FY 2021/22 the amount of \$21,000 was "Carried-Over" from the previous fiscal year's budget under the category of Temporary Services (6017). This expense is currently being used to fund one temporary employee who is scanning documents into the SharePoint system for the ongoing records management project.

LEGAL SERVICES

BROWNSTEIN HYATT FARBER SCHRECK EXPENSES

CURRENT MONTH – APRIL 2022

As of April 30, 2022, the total (YTD) Watermaster Legal Services expenses (consolidating the three categories of Watermaster Administrative Legal Services, Pool/Advisory/Board Meeting legal expenses, and OBMP legal expenses) were \$167,840 or 20.7% below the (YTD) budgeted amount of \$811,560.

The Watermaster Legal Services budget was developed jointly by the Watermaster staff and Brownstein Hyatt Farber Schreck staff with specific assumptions regarding the tasks and legal activities that would occur during FY 2021/22. The total legal services budget was developed by multiplying the number of hours that would be required to complete the specific tasks by the hourly rate. The "Approved" budget was adopted for the original amount of \$972,845.

WATERMASTER ADMINISTRATIVE LEGAL SERVICES:

Overall, the Watermaster Administrative Legal Services expense (6070s) as of April 30, 2022 was \$249,770 or 91.1% above the budgeted amount of \$274,127. The specific items within the Administrative Legal Services expenses (6070s) which were over budget were Court Coordination expenses (6071) which were over budget by \$76,734 or 224.3%; Rules & Regulations expenses (6072) over budget by \$18,193 or 183.1%; Miscellaneous (6078) which were over budget by \$184,907 or 104.7%; and the Ely 3 Basin Investigation (6078.25) which were over budget by \$12,930 or 100%. Please see Note 1 on the following page for a more detailed explanation of the miscellaneous types of expenses (6078).

The specific items within the Administrative Legal Services expenses (6070s) which were under budget were the expenses for Personnel Matters (6073) which were under budget by \$3,615 or 36.5%; Interagency Issues (6074) under budget by \$32,811 or 99.4%; and Party Status Maintenance expenses (6077) under budget by \$6,567 or 63.0%.

WATERMASTER POOLS, ADVISORY AND BOARD LEGAL SERVICES:

The Pools, Advisory Committee and the Board meeting legal expenses from BHFS are captured by month within the accounts (6275, 6375, 6375.1, 8375, 8475 and 8575). The legal service costs associated with the Board Workshop(s) are also included as part of this group. Overall, this category of legal expenses as of April 30, 2022 was \$81,498 or 48.0% below the budgeted amount of \$169,955. Normal Brownstein Hyatt Farber Schreck meeting attendance during any given month includes attendance at all three pool meetings, one Advisory Committee meeting and one Board meeting.

The legal services budget was developed with the assumption of having eleven months of meetings, intentionally excluding the month of December 2021.

OBMP LEGAL SERVICES:

The OBMP legal expenses (accounts 6907.31 through 6907.90) were below the budget for the month. As of April 30, 2022, the category of OBMP legal expenses were \$336,112 or 91.5% below the budgeted amount of \$367,478. Within this category, there were no expenses over budget.

The table listed below summarizes the Brownstein Hyatt Farber Schreck (BHFS) expenses as of April 30, 2022 compared to the Year-To-Date (YTD) budget. Please be advised that the "\$ Over Budget" and the "% of Budget" columns are a comparison of the (YTD) Actual to the (YTD) Budget, not the 12-month Annual Budget. The 12-month Annual Budget column is presented only to provide the data in a full and complete format. The following details are provided:

	Jul '21 - Apr '22 Actual	Jul '21 - Apr '22 Budget	\$ Over Budget	% of Budget	FY 2021/22 Annual Budget
6070 - Watermaster Legal Services					
6071 - BHFS Legal - Court Coordination	110,941.87	34,208.00	76,733.87	324.32%	41,050.00
6072 - BHFS Legal - Rules & Regulations	28,129.65	9,937.00	18,192.65	283.08%	11,925.00
6073 - BHFS Legal - Personnel Matters	6,284.70	9,900.00	-3,615.30	63.48%	9,900.00
6074 - BHFS Legal - Interagency Issues	189.00	33,000.00	-32,811.00	0.57%	39,600.00
6076 - BHFS Legal - Storage Issues	0.00	0.00	0.00	0.00%	0.00
6077 - BHFS Legal - Party Status Maintenance	3,849.50	10,416.00	-6,566.50	36.96%	12,500.00
6078 - BHFS Legal - Miscellaneous (Note 1)	361,572.54	176,666.00	184,906.54	204.66%	212,000.00
6078.25 - BHFS - Ely 3 Basin Investigation	12,929.74	0.00	12,929.74	100.00%	0.00
Total 6070 - Watermaster Legal Services	523,897.00	274,127.00	249,770.00	191.12%	326,975.00
6275 - BHFS Legal - Advisory Committee	7,273.50	19,800.00	-12,526.50	36.74%	24,200.00
6375 - BHFS Legal - Board Meeting	54,950.50	63,180.00	-8,229.50	86.98%	77,220.00
6375.1 - BHFS Legal - Board Workshop(s)	0.00	12,725.00	-12,725.00	0.00%	12,725.00
8375 - BHFS Legal - Appropriate Pool	8,921.50	24,750.00	-15,828.50	36.05%	30,250.00
8475 - BHFS Legal - Agricultural Pool	8,656.00	24,750.00	-16,094.00	34.97%	30,250.00
8575 - BHFS Legal - Non-Ag Pool	8,656.00	24,750.00	-16,094.00	34.97%	30,250.00
Total BHFS Legal Services	88,457.50	169,955.00	-81,497.50	52.05%	204,895.00
6907.3 - WM Legal Counsel					
6907.31 - Archibald South Plume	0.00	9,146.00	-9,146.00	0.00%	10,975.00
6907.32 - Chino Airport Plume	0.00	9,146.00	-9,146.00	0.00%	10,975.00
6907.33 - Desalter/Hydraulic Control	1,278.00	28,084.00	-26,806.00	4.55%	33,700.00
6907.34 - Santa Ana River Water Rights	1,719.00	15,625.00	-13,906.00	11.00%	18,750.00
6907.36 - Santa Ana River Habitat	2,227.50	22,792.00	-20,564.50	9.77%	27,350.00
6907.38 - Reg. Water Quality Cntrl Board	396.00	40,708.00	-40,312.00	0.97%	48,850.00
6907.39 - Recharge Master Plan	1,563.50	10,416.00	-8,852.50	15.01%	12,500.00
6907.40 - Storage Agreements	0.00	42,958.00	-42,958.00	0.00%	51,550.00
6907.41 - Prado Basin Habitat Sustainability	1,344.15	10,416.00	-9,071.85	12.91%	12,500.00
6907.42 - Safe Yield Recalculation	0.00	0.00	0.00	0.00%	0.00
6907.44 - SGMA Compliance	346.50	7,500.00	-7,153.50	4.62% #	9,000.00
6907.45 - OBMP Update	0.00	68,250.00	-68,250.00	0.00% #	81,900.00
6907.46 - Upper SAR Integrated Model	0.00	0.00	0.00	0.00% #	0.00
6907.47 - 2020 Safe Yield Reset	22,491.20	33,500.00	-11,008.80	67.14% #	40,200.00
6907.48 - Ely Basin Investigation	0.00	40,708.00	-40,708.00	0.00% #	48,850.00
6907.90 - WM Legal Counsel - Unanticipated	0.00	28,229.00	-28,229.00	0.00%	33,875.00
Total 6907 - WM Legal Counsel	31,365.85	367,478.00	-336,112.15	8.54%	440,975.00
Total Brownstein, Hyatt, Farber, Schreck Costs	643,720.35	811,560.00	-167,839.65	79.32%	972,845.00

Note 1: The types of legal activities that have been charged against the "Miscellaneous" legal category account 6078 are as follows: (1) Correspondence and discussions with Watermaster staff regarding current issues/topics; (2) Correspondence with Watermaster staff regarding special projects (assessment package, replenishment obligations, annual report, audit report, business plan, etc.); (3) Brownstein's status review of ongoing Watermaster projects and issues; (4) Brownstein's update of the outstanding issues list; (5) Coordination of ongoing Watermaster projects; (6) Review of draft documents and contracts; (7) Review transfer documents; (8) Ground-Level Monitoring Committee reports/meetings; (9) CEQA review and compliance; (10) Desalter Replenishment obligations, assessment methodologies, and ongoing issues; (11) Master Cost Sharing Agreement with IEUA; (12) Estimation and adoption of an evaporative loss policy for Recharge; (13) Right of Entry Agreements for various locations; (14) Payment of Ag Legal Fees; (15) Ag Invoices; and (16) Miscellaneous legal research on current and pending issues.

PREVIOUSLY REPORTED ACTIONS (Descending Order)

August 2021:

There were no meetings held during the month of August 2021. The legal services budget was developed with the assumption of having eleven months of meetings, intentionally excluding the month of December 2021.

Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court, and to develop and implement an Optimum Basin Management Program

OBMP ENGINEERING SERVICES AND LEGAL COSTS

CURRENT MONTH – APRIL 2022

Reviewing in total the OBMP Engineering Services and Legal Costs (consolidating the five categories of OBMP Watermaster Staff and SAWPA, OBMP Engineering Services, OBMP Legal Costs, OBMP Update Costs, and OBMP Other Expenses) for the ten months ending April 30, 2022, the actual expenses of \$506,770 were below the budgeted amount of \$1,104,109 by \$597,339 or 54.1%. For a detailed discussion, the following is provided.

For April 30, 2022, the accounts 6901-6903 (Optimum Basin Mgmt. Program) section was below the Year-To-Date (YTD) budget by \$45,582 or 22.7%. Watermaster utilizes an in-house database time and attendance system to record and document staff's actual hours worked and also allocates those hours to a specific project or activity. Watermaster staff time could be charged to Administrative, OBMP, or Implementation Project categories. Recently, Watermaster staff spent less time on specific OBMP related areas as budgeted. As a result, Watermaster staff allocated less actual time to the OBMP project as budgeted, which resulted in an under-budget variance of \$50,708 or 27.3%. The remaining expense was the Santa Ana Watershed Project Authority (SAWPA) FY 2020/21 Basin Monitoring Program Task Force Contribution which was budgeted at \$15,032 and actual expenses were \$20,158 or \$5,126 or 34.1% above budget as of April 30, 2022.

For April 30, 2022, the accounts 6906 (Optimum Basin Mgmt. Program Engineering Services) section was below the Year-To-Date (YTD) budget by \$194,413 or 38.0%. The majority of expenses within this OBMP category were under budget (YTD), however, the accounts over budget were the OBMP-Watermaster Model Update (6906.1) which were over budget by \$3,331 or 23.6%; Water Rights Compliance Reporting expenses (6906.22) which were over budget by \$2,987 or 19.9%; SGMA Reporting Requirements (6906.23) which were over budget by \$695 or 5.3%; and the OBMP-Engineering Services-Other expenses (6906) which were over budget by \$8,955 or 25.6%. Within the 6906 categories, two accounts had funding "Carried-Over" from the previous fiscal year. The OBMP-Watermaster Model Update expenses (6906.1) had \$9,000 brought forward from the previous year and the Integrated Model Meetings-IEUA Costs expenses (6906.15) had \$14,594 brought forward from the previous year. These two amounts are included in the FY 2021/22 budget.

Within the category 6907 (Optimum Basin Mgmt. Program Legal Fees) are the remaining Brownstein Hyatt Farber Schreck (BHFS) Watermaster's legal expenses. Within the legal expense category, there were no line item activities above the budget. The individual legal projects/activities that were below budget for the Year-To-Date (YTD) period were the Archibald South Plume of \$9,146; the Chino Airport Plume of \$9,146; the Desalter/Hydraulic Control of \$26,806; Santa Ana River Water Rights of \$13,906; the Santa Ana River Habitat of \$20,564; the Regional Water Quality Control Board of \$40,312; the Recharge Master Plan expenses of \$8,853; Storage Agreements of \$42,958; the Prado Basin Habitat Sustainability of \$9,072; SGMA Compliance of \$7,153; the OBMP Update of \$68,250; the 2020 Safe Yield Reset of \$11,009; the Ely Basin Investigation expenses of \$40,708; and the WM Unanticipated legal expenses of \$28,229. For the ten months ended April 30, 2022, the overall cumulative (YTD) budget was \$367,478 and the actual (BHFS) legal expenses totaled \$31,366 which resulted in an under-budget variance of \$336,112 or 91.5%.

The OBMP Update Costs (6908.1) were below the budget for the month. These expenses relate to the OBMP Update costs for the contract between Tom Dodson and Associates and CBWM to procure environmental review services for the 2020 OBMP Update. The contract had a remaining amount available of \$17,065 as of the year-ended June 30, 2021 and that amount was "Carried-Over" into the FY 2021/22 budget. The budget has a remaining balance as of April 30, 2022 of \$17,065.

The OBMP Other Expenses (6909's) were below the budget for the month. These expenses are typically conference calls, meeting expenses, supplies, annual inspection fees, and other miscellaneous type expenses. As of April 30, 2022, this category of expenses was \$4,167 or 54.2% below the budgeted amount of \$7,686.

Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court, and to develop and implement an Optimum Basin Management Program

Overall, the Optimum Basin Management Program (OBMP) category was \$506,770 actual (YTD) compared to a budget (YTD) of \$1,104,109 for an under budget of \$597,339 or 54.1% as of April 30, 2022.

The table listed below summarizes the Optimum Basin Management Program (OBMP) expenses as of April 30, 2022 compared to the Year-To-Date (YTD) budget. Please be advised that the "\$ Over Budget" and the "% of Budget" columns are a comparison of the (YTD) Actual to the (YTD) Budget, not the 12-month Annual Budget. The 12-month Annual Budget column is presented only to provide the data in a full and complete format. The following details are provided:

	Jul '21 - Apr '22 Actual	Jul '21 - Apr '22 Budget	\$ Over Budget	% of Budget	FY 2021/22 Annual Budget
6900 - Optimum Basin Mgmt Plan					
6901 - WM Staff Salaries	134,723.90	185,432.00	-50,708.10	72.65%	222,176.00
6903 - OBMP SAWPA Group	20,158.00	15,032.00	5,126.00	134.1%	15,032.00
Total 6901-6903 - OBMP WM Staff/SAWPA	154,881.90	200,464.00	-45,582.10	77.26%	237,208.00
6906 - OBMP Engineering Services					
6906.1 - OBMP - Watermaster Model Update	17,425.00	14,094.00	3,331.00	123.63%	15,112.00
6906.15 - Integrated Model Mtgs. - IEUA Costs	12,702.00	40,660.00	-27,958.00	31.24%	45,874.00
6906.21 - State of the Basin Report	0.00	0.00	0.00	0.0%	0.00
6906.22 - Water Rights Compliance Reporting	17,973.25	14,986.00	2,987.25	119.93%	17,984.00
6906.23 - SGMA Reporting Requirements	13,692.50	12,998.00	694.50	105.34%	15,598.00
6906.24 - Compliance - SB88 and SWRCB	7,225.75	10,170.00	-2,944.25	71.05%	12,204.00
6906.26 - 2020 OBMP Update	0.00	0.00	0.00	0.0%	0.00
6906.31 - OBMP - Pool, Advisory, Board Mtgs.	39,808.50	90,000.00	-50,191.50	44.23%	108,000.00
6906.32 - OBMP - Other General Meetings	62,481.33	64,278.00	-1,796.67	97.21%	77,134.00
6906.71 - OBMP - Data Requests - CBWM Staff	68,736.26	110,890.00	-42,153.74	61.99%	133,068.00
6906.72 - OBMP - Data Requests - Non CBWM	23,923.75	41,740.00	-17,816.25	57.32%	50,088.00
6906.73 - OBMP - Safe Yield Recalculation	0.00	0.00	0.00	0.0%	0.00
6906.74 - OBMP - Mat'l Phy. Injury Requests	156.00	64,498.00	-64,342.00	0.24%	77,398.00
6906.81 - Prepare Annual Reports	9,009.75	12,188.00	-3,178.25	73.92%	14,626.00
6906 - OBMP Engineering Services - Other	43,869.00	34,914.00	8,955.00	125.65%	41,896.00
Total 6906 - OBMP Engineering Services	317,003.09	511,416.00	-194,412.91	61.99%	608,982.00
6907 - OBMP Legal Fees					
6907.3 - WM Legal Counsel					
6907.31 - Archibald South Plume	0.00	9,146.00	-9,146.00	0.0%	10,975.00
6907.32 - Chino Airport Plume	0.00	9,146.00	-9,146.00	0.0%	10,975.00
6907.33 - Desalter/Hydraulic Control	1,278.00	28,084.00	-26,806.00	4.55%	33,700.00
6907.34 - Santa Ana River Water Rights	1,719.00	15,625.00	-13,906.00	11.0%	18,750.00
6907.36 - Santa Ana River Habitat	2,227.50	22,792.00	-20,564.50	9.77%	27,350.00
6907.38 - Reg. Water Quality Cntrl Board	396.00	40,708.00	-40,312.00	0.97%	48,850.00
6907.39 - Recharge Master Plan	1,563.50	10,416.00	-8,852.50	15.01%	12,500.00
6907.40 - Storage Agreements	0.00	42,958.00	-42,958.00	0.0%	51,550.00
6907.41 - Prado Basin Habitat Sustainability	1,344.15	10,416.00	-9,071.85	12.91%	12,500.00
6907.44 - SGMA Compliance	346.50	7,500.00	-7,153.50	4.62%	9,000.00
6907.45 - OBMP Update	0.00	68,250.00	-68,250.00	0.0%	81,900.00
6907.46 - Upper SAR Integrated Model	0.00	0.00	0.00	0.0%	0.00
6907.47 - 2020 Safe Yield Reset	22,491.20	33,500.00	-11,008.80	67.14%	40,200.00
6907.48 - Ely Basin Investigation	0.00	40,708.00	-40,708.00	0.0%	48,850.00
6907.90 - WM Legal Counsel - Unanticipated	0.00	28,229.00	-28,229.00	0.0%	33,875.00
Total 6907 - WM Legal Counsel	31,365.85	367,478.00	-336,112.15	8.54%	440,975.00
Total 6907 - OBMP Legal Fees	31,365.85	367,478.00	-336,112.15	8.54%	440,975.00
6908 - OBMP Updates					
6908.1 - 2020 OBMP Update-Dodson & Assoc.	0.00	17,064.56	-17,064.56	0.0%	17,064.56
Total 6908 - OBMP Updates	0.00	17,064.56	-17,064.56	0.0%	17,064.56
6909 - OBMP Other Expenses					
6909.1 - OBMP Meetings	795.08	1,250.00	-454.92	63.61%	1,500.00
6909.3 - Other OBMP Expenses	2,724.00	2,270.00	454.00	120.0%	2,724.00
6909.6 - OBMP Expenses - Miscellaneous	0.00	4,166.00	-4,166.00	0.0%	5,000.00
6909 - OBMP Other Expenses - Other	0.00	0.00	0.00	0.0%	0.00
Total 6909 - OBMP Other Expenses	3,519.08	7,686.00	-4,166.92	45.79%	9,224.00
Total 6900 - Optimum Basin Mgmt Plan	506,769.92	1,104,108.56	-597,338.64	45.9%	1,313,453.56

PREVIOUSLY REPORTED ACTIONS (Descending Order)

None

Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court, and to develop and implement an Optimum Basin Management Program

ENGINEERING SERVICES - OBMP IMPLEMENTATION PROJECTS COSTS
WEST YOST ASSOCIATES (formerly Wildermuth Environmental, Inc.)

CURRENT MONTH – APRIL 2022

As of April 30, 2022, the total (YTD) Engineering Services expenses were \$989,399 or 37.7% below the (YTD) budget amount of \$2,624,192. The OBMP Implementation Projects (consolidated accounts 7100s – 7700s) were all under budget of as of April 30, 2022 except for the Ground Water Quality-Engineering expenses (7103.3) which were over budget by \$1,663 or 0.9%; Ground Water Level-Engineering expenses (7104.3) which were over budget by \$7 or 0.004%; Ground Level-Engineering expenses (7107.2) which were over budget by \$3,846 or 7.0%; the Hydraulic Control-Lab Services expenses (7108.4) which were over budget by \$440 or 100%; and the PE6&7-Engineering expenses (7502) which were over budget by \$15,415 or 16.5%.

West Yost Associates provides Watermaster a Progress and Estimated Cost at Completion (ECAC) report each quarter. The purpose of this (ECAC) report is to update Watermaster on whether or not the Engineering Services budget will be above or below budget at the end of the fiscal year. If the Engineering Services budget is expected to be above budget at fiscal year-end, a Budget Amendment or Budget Transfer Form would need to be approved to ensure funding.

As of March 31, 2022 the third quarter ECAC report for the current fiscal year shows a projected under budget at fiscal year-end June 30, 2022 of approximately \$213,810.

Watermaster does not plan to present any Budget Transfers or Budget Amendments at this time.

The table listed below summarized the Year-To-Date (YTD) Actual West Yost Associates and other Engineering costs compared to the Year-To-Date (YTD) Budget as of April 30, 2022. Please be advised that the "\$ Over Budget" and the "% of Budget" columns are a comparison of the (YTD) Actual to the (YTD) Budget, not the 12-month Annual Budget. The 12-month Annual Budget column is presented only to provide the data in a full and complete format. The following details are provided:

	Jul '21 - Apr '22 Actual	Jul '21 - Apr '22 Budget	\$ Over Budget	% of Budget	FY 2021/22 Annual Budget
6906 - OBMP Engineering Services - Other	43,869.00	34,914.00	8,955.00	125.65%	41,896.00
6906.1 - OBMP - Watermaster Model Update	17,425.00	14,094.00	3,331.00	123.63%	15,112.00
6906.15 - Integrated Model Mtgs-IEUA Cost	12,702.00	40,660.00	-27,958.00	31.24%	45,874.00
6906.21 - State of the Basin Report	0.00	0.00	0.00	0.0%	0.00
6906.22 - Water Rights Compliance Reporting	17,973.25	14,986.00	2,987.25	119.93%	17,984.00
6906.23 - SGMA Reporting Requirements	13,692.50	12,998.00	694.50	105.34%	15,598.00
6906.24 - Compliance - SB88 and SWRCB	7,225.75	10,170.00	-2,944.25	71.05%	12,204.00
6906.26 - 2020 OBMP Update	0.00	0.00	0.00	0.0%	0.00
6906.31 - OBMP - Pool, Advisory, Board Mtgs.	39,808.50	90,000.00	-50,191.50	44.23%	108,000.00
6906.32 - OBMP - Other General Meetings	62,481.33	64,278.00	-1,796.67	97.21%	77,135.00
6906.71 - OBMP - Data Requests - CBWM Staff	68,736.26	110,890.00	-42,153.74	61.99%	133,068.00
6906.72 - OBMP - Data Requests - Non CBWM	23,923.75	41,740.00	-17,816.25	57.32%	50,088.00
6906.73 - OBMP - Safe Yield Recalculation	0.00	0.00	0.00	0.0%	0.00
6906.74 - OBMP - Mat'l Physical Injury Requests	156.00	64,498.00	-64,342.00	0.24%	77,398.00
6906.81 - Prepare Annual Reports	9,009.75	12,188.00	-3,178.25	73.92%	14,626.00
7103.3 - Grdwtr Qual-Engineering	179,404.43	177,741.00	1,663.43	100.94%	206,089.00
7103.5 - Grdwtr Qual-Lab Svcs	40,750.00	58,717.00	-17,967.00	69.4%	63,261.00
7104.3 - Grdwtr Level-Engineering	169,001.90	168,995.00	6.90	100.0%	202,793.00
7104.8 - Grdwtr Level-Contracted Services	0.00	8,334.00	-8,334.00	0.0%	10,000.00
7104.9 - Grdwtr Level-Capital Equipment	4,715.22	6,666.00	-1,950.78	70.74%	8,000.00
7107.2 - Grd Level-Engineering	58,463.60	54,618.00	3,845.60	107.04%	65,542.00
7107.3 - Grd Level-SAR Imagery	79,817.50	155,834.00	-76,016.50	51.22%	170,000.00
7107.6 - Grd Level-Contract Svcs	20,660.24	71,878.00	-51,217.76	28.74%	86,254.00
7107.8 - Grd Level-Capital Equipment	0.00	14,034.00	-14,034.00	0.0%	16,086.00
7108.3 - Hydraulic Control-Engineering	0.00	0.00	0.00	0.0%	0.00
7108.31 - Hydraulic Control-PBHSP	36,403.85	56,045.00	-19,641.15	64.96%	67,254.00
7108.4 - Hydraulic Control-Lab Svcs	440.00	0.00	440.00	100.0%	0.00
7108.41 - Hydraulic Control-PBHSP	0.00	0.00	0.00	0.0%	0.00
7108.6 - Hydraulic Control-Outside Professionals	4,500.00	4,500.00	0.00	100.0%	4,500.00
7109.3 - Recharge & Well - Engineering	15,635.75	27,674.00	-12,038.25	0.0%	33,208.00
7110.3 - Ag Production & Estimation - Eng. Serv.	22,215.25	54,538.00	-32,322.75	0.0%	56,910.00
7111.3 - Data Collection & Mgmt. - Eng. Services	2,531.25	16,798.00	-14,266.75	0.0%	20,158.00
7202.2 - Comp Recharge-Engineering Services	35,332.60	165,636.00	-130,303.40	21.33%	174,764.00
7206.1 - SB88 Specs-Compliance-50% IEUA	681.62	100,386.00	-99,704.38	0.68%	54,694.00
7210 - OBMP - 2023 RMPU	3,063.75	37,732.00	-34,668.25	8.12%	37,732.00
7303 - PE3&5-Engineering - Other	1,822.00	18,570.00	-16,748.00	9.81%	22,284.00
7402 - PE4-Engineering	71,335.00	116,505.00	-45,170.00	61.23%	139,806.00
7402.10 - PE4-MZ1 Pomona Project	90,617.50	199,368.00	-108,750.50	45.45%	236,127.00
7502 - PE6&7-Engineering	108,678.75	93,264.00	15,414.75	116.53%	111,916.00
7508 - HC Mitigation Plan-50% IEUA (TO #6)	50,100.49	56,000.00	-5,899.51	89.47%	72,000.00
7510 - PE6&7-IEUA Salinity Mgmt. Plan	36,624.19	73,975.00	-37,350.81	49.51%	73,975.00
7511 - PE6&7-SAWBMP Task Force-50% IEUA	0.00	22,005.00	-22,005.00	0.0%	26,405.00
7602 - PE8&9-Engineering	0.00	0.00	0.00	0.0%	0.00
7610 - PE8&9-Support 2020 Mgmt. Plan	0.00	43,220.00	-43,220.00	0.0%	43,220.00
7614 - OBMP-Support Imp. Safe Yield Court Order	284,994.96	309,743.00	-24,748.04	92.01%	371,692.00
Total Engineering Services Costs	1,634,792.94	2,624,192.00	-989,399.06	62.3%	2,983,653.00 *

* West Yost and Subcontractor Engineering Budget of \$2,409,888 plus Carryover Funds from FY 2020/21 of \$573,765.00
Carryover Funds from FY 2020/21 of \$573,765.00 = \$9,000 (6906.1); \$14,594 (6906.15); \$85,000 (7107.3); \$3,772 (7107.8); \$42,682 (7110.3);
\$120,000 (7202.2); \$54,694 (7206.1); \$37,732 (7210); \$89,096 (7402.10); \$73,975 (7510); and \$43,220 (7610)

PREVIOUSLY REPORTED ACTIONS (Descending Order)

March 2022:

The third quarter ECAC report for the current fiscal year shows a projected under budget at fiscal year-end June 30, 2022 of approximately \$213,810.

The Fiscal Year 2021/22 Progress and Estimated Cost at Completion for the Period July 1, 2021 through March 31, 2022 report from West Yost Associates is provided. Please access this link:

<https://cbwm.syncedtool.com/shares/file/s41niEO5KPE/?modal=1>

Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court, and to develop and implement an Optimum Basin Management Program

Watermaster does not plan to present any Budget Transfers or Budget Amendments at this time.

December 2021:

The second ECAC report for the current fiscal year shows a projected under budget at fiscal year-end June 30, 2022 of approximately \$256,400.

The Fiscal Year 2021/22 Progress and Estimated Cost at Completion for the Period July 1, 2021 through December 31, 2021 report from West Yost Associates is provided. Please access this link:

<https://cbwm.syncedtool.com/shares/file/o5jAbaPxdCk/?modal=1>

Watermaster does not plan to present any Budget Transfers or Budget Amendments at this time.

The third quarter (ECAC) report is scheduled for issuance and distribution in early May 2022 for the period July 1, 2021 through March 31, 2022.

November 2021:

Budget Amendment A-21-11-01 in the amount of \$86,504 was approved by the Advisory Committee and the Board on November 18, 2021. The Engineering Services account increased with the Budget Amendment was the Support Implementation of the Safe Yield Court Order (account 7614) which was increased from \$285,188 to \$371,692 to perform the Safe Yield Reset Methodology Update. The Budget Amendment A-21-11-01 increased the total West Yost "Amended" budget from \$2,323,384 to \$2,409,888 and in addition the Carry-Over funding of \$573,765 which brings the West Yost "Amended" budget to \$2,983,653. The amount of \$86,504 was not included within the FY 2021/22 Assessment invoicing. The funding for the amount of \$86,504 will be an allocation from the OBMP Reserve Fund which currently is \$757,602. After the allocation of \$86,504 the OBMP Reserve Fund will be \$671,098.

October 2021:

Budget Amendment A-21-10-01 in the amount of \$72,000 was approved by the Advisory Committee on October 21, 2021 and approved by the Board on October 28, 2021. The account increased with the Budget Amendment was the Hydraulic Control-Mitigation Plan-50% IEUA (TO No. 6) (account 7508) which was increased by \$72,000 to include the Proposal to Prepare an Updated Plan for Mitigation of Temporary Loss of Hydraulic Control of the Chino Basin (Task Order No. 6). The Budget Amendment A-21-10-01 increased the total West Yost "Amended" budget from \$2,251,384 to \$2,323,384 and in addition the Carry-Over funding of \$573,765 which brings the West Yost "Amended" budget to \$2,897,149.

September 2021:

The first ECAC report for the current fiscal year has been provided for the period ending September 30, 2021 and shows a projected under budget at fiscal year-end June 30, 2022 of \$80,942.

The Fiscal Year 2020/21 Progress and Estimated Cost at Completion for the Period July 1, 2021 through September 30, 2021 report from West Yost Associates is provided. Please access this link:

<https://cbwm.syncedtool.com/shares/file/us8be8WNibj/?modal=1>

Watermaster does not plan to present any Budget Transfers or Budget Amendments at this time.

July 2021:

The "Original" Approved budget for FY 2021/22 for Engineering Services was \$1,819,165. Budget Amendment A-21-07-01 in the amount of \$147,031 and Budget Amendment A-21-07-02 in the amount of \$276,761 were adopted by the Watermaster Board on July 22, 2021. Budget Amendment A-21-08-01 in the amount of \$8,427 was approved by the Advisory Committee on August 19, 2021. The accounts increased with the Budget Amendments were the OBMP-Northwest MZ-1 Area Project (7402.1) increased by \$147,031 and the Safe Yield Reset Methodology Evaluation (7614) increased by \$285,188. The "Amended" Engineering Services Budget after inclusion of the Budget Amendments was \$2,251,384. The

Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court, and to develop and implement an Optimum Basin Management Program

Engineering Services budget was Amended with the addition of "Carry-Over" funding totaling \$573,765 which brought the Amended Budget amount to \$2,825,149.

The explanations regarding the Carry-Over amount of \$573,765 from FY 2020/21 to the FY 2021/22 budget is provided as follows:

1. Watermaster Model Update and Required Demonstrations (Account 6906.1): \$9,000. The requested Carry-Over is necessary to finalize the report on Model Update and Required Demonstrations, which was scheduled for completion in FY 2020/21.
2. IEUA - Integrated Model Meetings and Technical Review (Account 6906.15): \$29,188 (Watermaster's portion is \$14,594). The requested Carry-Over is necessary because this effort was planned for completion in FY 2020/21 but is now scheduled to be completed by December 2021.
3. Ground Level – SAR Imagery (Account 7107.3): \$85,000. The requested Carry-Over is necessary for the purchase and processing of satellite data by a subconsultant to estimate vertical ground motion. The work was completed in FY 2020/21, but the invoice has not yet been received from the subcontractor.
4. Ground Level – Capital Equipment (Account 7107.8): \$3,772. The requested Carry-Over is necessary for the of purchase materials and equipment for the Pomona Extensometer Facility. The work was started in FY 2020/21 but wasn't completed until August 2021.
5. Agriculture Production and Estimation (Account 7110.3): \$42,682. The requested Carry-Over is necessary to complete the Agriculture Production and Estimation work that was originally scheduled to be performed in FY 2019/20 and FY 2020/21 but was delayed to FY 2021/22.
6. PE2: Engineering Services for Other Recharge Improvement Projects (Account 7202.2): \$120,000. The requested Carry-Over is necessary to finalize this work in FY 2021/22. The work includes conducting a life-cycle analysis at the San Sevaine 1 and Etiwanda Debris conservation berms, and finalizing a technical memorandum describing the analysis and conclusions. The scope and schedule for this work was fine-tuned with input from IEUA and Watermaster Staff in FY 2020/21. The work is to be completed in FY 2021/22.
7. 2023 RMPU Recharge Master Plan Scoping (Account 7210): \$37,732. The requested Carry-Over is necessary to complete the scope, budget and report outline the 2023 RMPU. In June, the Parties determined that they were not interested in pursuing capital improvement projects was part of the 2023 RMPU. A scope, budget and report outline the 2023 RMPU still needs to be developed based on the input from the Parties.
8. Management Zone Strategies – Northwest MZ-1 (Account 7402.10): \$89,096. The requested Carry-Over is necessary because this is a multi-year project to develop a subsidence management plan for the Northwest MZ-1, and not all tasks planned/budgeted in FY 2020/21 were completed in FY 2020/21.
9. IEUA – Update Recycled Water Permit – Salinity (Account 7510): \$189,341 (Watermaster's portion is \$73,975). The requested Carry-Over is necessary to complete the technical and regulatory compliance supportwork to update the Chino Basin Maximum Benefit Salt and Nutrient Management Plan. This multiyear project began FY 2017/18 and is scheduled to be completed by June 2022.
10. PE 8/9: Support Implementation of the 2020 Storage Management Plan (Account 7610): \$43,220. The requested Carry-Over is for as-requested technical support to Watermaster staff, updating the information required for a complete Storage and Recovery Program application, updating the Storage and Recovery Program application forms, and updating the process to evaluate an application. No implementation activities occurred in FY 2020/21. The entire budget is requested to be brought

Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court, and to develop and implement an Optimum Basin Management Program

forward into FY 2021/22.

11. SB88 Specification to Ensure Compliance with Regulations (Account 7206.1) - GRCC and 50% IEUA Cost Share: \$54,694. The requested Carry-Over is necessary to (1) complete the technical memorandum evaluating the existing methodology to estimate stormwater diversions in the Chino Basin, and (2) provide as needed support to IEUA and Watermaster in implementing the recommendations describes in the technical memorandum. The administrative draft technical memorandum was completed in June 2021 and comments were received on August 11, 2021.

PRADO BASIN HABITAT SUSTAINABILITY PROGRAM

Ongoing Costs

Program costs that are ongoing (Ongoing Costs) will be cost-shared between Watermaster and IEUA, split on a 50/50 basis, subject to the following limitation: in each fiscal year, neither Watermaster nor IEUA shall be obligated to reimburse the other for Ongoing Costs that exceed the amount that the reimbursing party has budgeted for Ongoing Costs in that fiscal year, except as agreed upon by both parties in writing or as amended during the fiscal year. The first year expenses (FY 2016/17) to be cost shared were approximately \$300,000, with projected future years (FY 2017/18 and forward) estimated at approximately \$150,000. For the purposes of the agreement, Ongoing Costs are defined as the costs associated with the following Program activities:

1. A Riparian Habitat Monitoring Program, including, but not limited to, the following sub-tasks:
 - a. Design and implement a site-specific vegetation monitoring program with the United States Bureau of Reclamation (USBR) and Orange County Water District, pursuant to which USBR will perform site-specific vegetation surveys.
 - b. Manage and perform custom flight to collect a high resolution air photo of the Prado Basin Region.
 - c. Collect, check, and upload historical air photos and vegetation survey data in the Prado Basin region.
 - d. Collect, check, and upload historical Landsat data in the Prado Basin region.
2. A Climate Monitoring Program, including, but not limited to, the following sub-task:
 - a. Collect, check, and upload climatic data on an annual basis
3. Preparation of the AMP Annual Report (Annual Report), including, but not limited to, the following sub-tasks:
 - a. Water level monitoring, vegetation survey, photo monitoring, landsat data, climate data and analysis of the components.
 - b. Analyze data and prepare an administrative draft of the Annual Report for Watermaster/IEUA.
 - c. Incorporate the Watermaster and IEUA comments and prepare a draft Annual Report for review by the PBHSC.
 - d. Meet with PBHSC to review draft Annual Report.
 - e. Incorporate PBHSC comments and finalize the Annual Report.
4. Annual license fees for monitoring wells.
5. Project management and administration activities associated with the Program undertaken by a Party's consultant, including, but not limited to, the following sub-tasks:
 - a. Ad-Hoc Meetings
 - b. Preparation of scope and budget for the Program
 - c. Project administration and financial reporting
6. Other costs required to fulfill the requirements of Peace II Subsequent EIR mitigation measure 4.4-3.

Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court, and to develop and implement an Optimum Basin Management Program

Watermaster shall be responsible for the costs associated with the Groundwater Level Monitoring Program, Groundwater Quality Monitoring Program, and Surface Water Monitoring Program.

Watermaster and IEUA shall each have responsibility for its own administrative costs, excluding the tasks and expenses included under Set-Up Costs and Ongoing Costs. Watermaster and IEUA will meet to review the cost-sharing structure under this agreement and negotiate necessary adjustments in good faith on at least an annual basis.

The Peace II SEIR does not explicitly state a duration for the monitoring and mitigation program. It is logical to assume that the program will last until the drawdown impacts, if any, on the riparian habitat from Peace II activities are fully manifested and not predicated to worsen, and that mitigation measures, if any are required, are fully implemented. This is not a perpetual agreement. Upon termination of the monitoring and any necessary mitigation obligations, the parties may elect to terminate the cost share agreement.

	West Yost Associates	50% Billing "TO" IEUA	50% Billing "FROM" IEUA	Costs For Watermaster
Jul. 2021 - Apr. 2022	\$ 72,807.75	\$ (36,403.88)	\$ -	\$ 36,403.88
Totals	\$ 72,807.75	\$ (36,403.88)	\$ -	\$ 36,403.88
	7108.31	7108.31	7108.31	
Maximum Costs	\$ 143,508.00	\$ 71,754.00	\$ 71,754.00	\$ 71,754.00

PREVIOUSLY REPORTED ACTIONS (Descending Order)
 None

OTHER INCOME AND EXPENSE

The Appropriative Pool instructed Watermaster to issue invoices in the amount of \$150,000 for Legal Services to the members of the Appropriative Pool, with the payment terms to be set at 30 days . These invoices were issued on April 1, 2022 under the category of Appropriative Pool - Special Assessments (4111.3). According to the payment terms of 30 days, payments are due on or before May 1, 2022.

In connection with the Settlement Agreement between the Appropriative Pool and the Agricultural Pool, the Appropriative Pool leadership instructed Watermaster to issue invoices in the amount of \$402,864.41 to specific members of the Appropriative Pool, with the payment terms to be set at 30 days. These invoices were issued on April 15, 2022 under the category of Prior Year - Ag Pool Admin and Legal (4114.5). According to the payment terms of 30 days, payments are due on or before May 15, 2022.

There were no other significant items to report within the category of Other Income and Expenses for the month ending April 30, 2022.

PREVIOUSLY REPORTED ACTIONS (Descending Order)

September 2021:

On September 20, 2021, the Agricultural Pool unanimously passed an action to request that Watermaster staff immediately issue the Agricultural Pool Wellhead Production Assessment of Agricultural Pool wells. The Agricultural Pool further requested that the total amount to be assessed is equal to \$200,000 as apportioned among all wells based upon amount of water produced. Watermaster staff started to issue the invoices on September 20, 2021 and completed on September 21, 2021.

July 2021:

Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court, and to develop and implement an Optimum Basin Management Program

Per section VI.D.3 of the Groundwater Storage Program Funding Agreement No. 49960 in the Chino Basin with The Metropolitan Water District of Southern California, the FY 2021/22 annual administrative fee invoice was issued on July 6, 2021 in the amount of \$177,430.03 under invoice number 2021-07-CUP. Payment in the amount of \$177,430.03 was received and deposited on August 10, 2021. The FY 2021/22 annual debt service expense (account 7690.1) of \$529,029 was paid directly to IEUA on July 8, 2021.

POOL LEGAL SERVICES FUND ACCOUNTING

Each Pool has a Fund Account created to pay their own legal service invoices. The legal services invoices are funded and paid using the Fund accounts (8467 for the OAP, 8567 for the ONAP, and 8367 for the AP). These Fund Accounts are replenished at the direction of each Pool, and the legal service invoices are approved by the Pool leadership and when paid by Watermaster, are deducted from the existing Fund Account balances. If the Fund Account for any Pool reaches zero, no further payments can be paid from the Fund and a replenishment action must be initiated by the Pool. Along with the legal services Fund account for the OAP (8467), the OAP also has two other Fund accounts for Ag Pool Meeting Attendance expenses (8470), and Special Projects expenses (8471).

The FY 2021/22 Assessment invoices were approved by the Advisory Committee and the Board on November 18, 2021 and those invoices were issued the same day. In addition to the Assessment invoices, the Pool Administration, Legal Services, and Special Projects fundings were also included for all three Pools. The funding requests were approved by each Pool and directed Watermaster to issue the invoices.

For the Agricultural Pool, the invoiced amount was \$635,000 and payments to date total \$169,652.03 which leaves an outstanding balance due of \$465,347.97.

For the Non-Agricultural Pool, the invoiced amount was \$50,000 and payments to date total \$50,000 leaving no outstanding balance due.

For the Appropriative Pool, the invoiced amount was \$100,000 and payments to date total \$71,808.46 which leaves an outstanding balance due of \$28,191.54.

On April 1, 2022 the Appropriative Pool leadership instructed Watermaster to issue invoices in the amount of \$150,000 for AP Legal Services to the members of the Appropriative Pool. These invoices were issued on April 1, 2022 with a due date of May 1, 2022. As of April 30, 2022 the amount of \$75,586.53 has been received with the amount of \$74,413.47 outstanding.

On May 24, 2022, the Appropriative Pool leadership instructed Watermaster to transfer the amount of \$191,574.29 to the Agricultural Pool Special Fund. This transfer will be reported as part of the accounting reports next month, May 2022.

The following charts detail the Fund Accounts activity as of April 30, 2022:

**Fund Balance for Agricultural Pool
Account 8467 - Legal Services**

Beginning Balance July 1, 2020:	\$	-
Additions:		
Ag Pool Legal invoices issued Nov. 19, 2020 for \$500,000 with outstanding balance of \$384,736.12	\$	115,263.88
Admin Reserve used to cover shortfall *	\$	102,557.12
Ag Pool Legal invoices issued Nov. 18, 2021 for \$500,000 with outstanding balance of \$410,135.61	\$	89,864.39
Subtotal Additions:	\$	307,685.39
From Agricultural Pool Reserve Funds	\$	389,784.75
Total Additions:	\$	697,470.14
Reductions:		
Invoices paid July 2020 - November 2020	\$	(217,821.00)
Invoices paid December 2020 - June 2021	\$	(220,365.00)
Invoices paid July 2021 - April 2022	\$	(259,284.14)
Subtotal Reductions:	\$	(697,470.14)
Ending Fund Balance as of April 30, 2022	\$	-

* The Admin Reserve amount of \$102,557.12 will need to be refunded back to Watermaster.

**Agricultural Pool Reserve Funds
As shown on the B-3 Financial Report**

Agricultural Pool Reserve Funds Balance as of June 30, 2020:	\$	515,498.06
Additions:		
AP payments w/o Escrow instructions (\$165,694.75 - \$161,070.09)	\$	4,624.66
Y-T-D Interest earned on Ag Pool Funds FY 2020/21, FY 2021/22	\$	2,887.51
Payments rec'd on Wellhead Production invoices issued Sep. 2021	\$	78,495.78
Payments rec'd on FY 2021/22 Ag Pool invoices issued Nov. 18, 2021 *	\$	169,652.03
Subtotal Additions:	\$	255,659.98
Reductions:		
Actual vs. Budget Shortfall from FY 2019/20	\$	(165,694.75)
Mediation invoice paid	\$	(8,450.00)
Subtotal Reductions:	\$	(174,144.75)
Invoices paid December 2020 - June 2021	\$	(220,365.00)
Invoices paid July 2021 - April 2022	\$	(259,284.14)
Total Reductions	\$	(653,793.89)
Agricultural Pool Reserve Funds Balance as of April 30, 2022:	\$	117,364.15

Note: Balance of \$117,364.15 as shown on the B-3 Financial Report

* FY 2021/22 Invoices for \$635,000 issued Nov. 18, 2021 with outstanding balance due of \$465,347.97 for Ag Pool Administration, Legal Services, and Special Projects.

**Fund Balance For Agricultural Pool
Account 8470 - Meeting Compensation**

Beginning Balance July 1, 2021:	\$	19,525.00
Additions:		
Ag Pool invoices issued Nov. 18, 2021 for \$50,000 with outstanding balance due of \$20,449.02	\$	29,550.98
Budget Transfers	\$	-
Subtotal Additions:	\$	29,550.98
Reductions:		
Compensation paid July 2021 - April 2022	\$	(26,750.00)
Subtotal Reductions:	\$	(26,750.00)
Ending Fund Balance as of April 30, 2022	\$	22,325.98

**Fund Balance For Agricultural Pool
Account 8471 - Special Projects**

Beginning Balance July 1, 2021:	\$	31,516.00
Additions:		
Ag Pool invoices issued Nov. 18, 2021 for \$85,000 with outstanding balance due of \$34,763.33	\$	50,236.67
Subtotal Additions:	\$	50,236.67
Reductions:		
Invoices paid July 2021 - April 2022	\$	(10,643.00)
Budget Transfers	\$	-
Subtotal Reductions:	\$	(10,643.00)
Ending Fund Balance as of April 30, 2022	\$	71,109.67

Fund Balance For Non-Agricultural Pool	
Account 8567 - Legal Services	
Beginning Balance July 1, 2021:	\$ 32,320.70
Additions:	
Pool Invoices issued Nov. 18, 2021 for \$50,000	\$ 50,000.00
Subtotal Additions:	<u>\$ 50,000.00</u>
Reductions:	
Invoices paid July 2021 - April 2022	\$ (28,610.80)
Subtotal Reductions:	<u>\$ (28,610.80)</u>
Ending Fund Balance as of April 30, 2022	<u>\$ 53,709.90</u>

Fund Balance For Appropriative Pool	
Account 8367 - Legal Services	
Beginning Balance July 1, 2021:	\$ 62,391.25
Additions:	
Pool invoices issued Nov. 18, 2021 for \$100,000 with outstanding balance due of \$28,191.54	\$ 71,808.46
Pool invoices issued Apr. 1, 2022 for \$150,000 with outstanding balance due of \$74,413.47	\$ 75,586.53
Subtotal Additions:	<u>\$ 147,394.99</u>
Reductions:	
Invoices paid July 2021 - January 2022	\$ (134,100.50)
Accrued (not paid)	\$ -
Subtotal Reductions:	<u>\$ (134,100.50)</u>
Ending Fund Balance as of April 30, 2022	<u>\$ 75,685.74</u>

PREVIOUSLY REPORTED ACTIONS (Descending Order)

February 2022:

Normally, the Watermaster Admin Reserve would not be used to fund any of the Pool's legal services invoices. However, for the Agricultural Pool, the amount of \$102,557.12 was used from the Watermaster Admin Reserve to fund the shortfall created when the November 19, 2020 Assessment invoices (Pool related) totaling \$500,000 were not paid in full. In fact, \$115,263.88 was paid, leaving a balance due of \$384,736.12 (\$115,263.88 + \$384,736.12 = \$500,000) which still remains unpaid. Through November 2020, invoices totaling \$217,821.00 had been paid for the Agricultural Pool.

Please note the Assessment invoices issued on November 19, 2020 were due on December 21, 2020. The available cash of \$115,263.88 and payments issued of \$217,821.00 left a Fund balance shortfall of \$102,557.12 which was temporarily funded through Admin Reserves (\$217,821.00 - \$115,263.88 = \$102,557.12). The Admin Reserve amount of \$102,557.12 will need to be refunded back to Watermaster.

“CARRY OVER” FUNDING
 BACKGROUND OF “CARRY OVER” FUNDING

CURRENT MONTH – APRIL 2022

Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court, and to develop and implement an Optimum Basin Management Program

As of April 30, 2022, the total (YTD) amount remaining of the "Carried Over" funding is \$1,208,421.19 (\$2,943,828.87 - \$1,735,407.68 = \$1,208,421.19).

The following details are provided:

"Carried Over" Expenses At June 30, 2021

Human Resources Services	\$ 6,000.00	A	6013	FY 2020/21	ADMIN
Temporary Services	\$ 21,000.00	B	6017	FY 2020/21	ADMIN
Other Office Equipment - Boardroom Upgrades	\$ 26,794.71	C	6038	FY 2019/20	ADMIN
Other Office Equipment - Boardroom Upgrades	\$ 41,295.45	C	6038	FY 2020/21	ADMIN
2020 OBMP Update - Tom Dodson & Associates	\$ 17,064.56	D	6908.1	FY 2020/21	OBMP
Meter Installation - New Meter Installation	\$ 175,400.00	E	7102.65	FY 2018/19	OBMP
Meter Installation - Calibration and Testing	\$ 181,650.00	F	7102.8	FY 2018/19	OBMP
OBMP - Watermaster Model Update	\$ 9,000.00	G	6906.1	FY 2020/21	ENG
Integrated Model - Meetings - 50% IEUA Costs	\$ 14,594.00	H	6906.15	FY 2020/21	ENG
Ground Level Monitoring - SAR Imagery	\$ 85,000.00	I	7107.3	FY 2020/21	ENG
Ground Level Monitoring - Capital Equipment	\$ 3,772.00	J	7107.8	FY 2020/21	ENG
Agriculture Production and Estimation	\$ 42,682.00	K	7110.3	FY 2020/21	ENG
PE2 - Comprehensive Recharge - Eng. Services	\$ 120,000.00	L	7202.2	FY 2020/21	ENG
SB88-Specs-Ensure Compliance-50% IEUA	\$ 54,694.00	M	7206.1	FY 2020/21	ENG
OBMP - 2023 RMPU	\$ 37,732.00	N	7210	FY 2020/21	ENG
PE4 - Northwest MZ-1 Area Project	\$ 89,096.00	O	7402.1	FY 2020/21	ENG
IEUA - Update Recycle Water Permit - Salinity	\$ 73,975.00	P	7510	FY 2020/21	ENG
PE8&9 - Support Imp. 2020 Storage Mgmt. Plan	\$ 43,220.00	Q	7610	FY 2020/21	ENG
Upper Santa Ana River HCP (TO #7)	\$ 15,062.88	R	7690.7	FY 2014/15	PROJ
Upper Santa Ana River HCP (TO #7)	\$ 5,000.00	R	7690.7	FY 2015/16	PROJ
Lower Day Basin RMPU (TO #2)	\$ 238,646.90	S	7690.8	FY 2016/17	PROJ
Funds on Hold for Projects/Refund	\$ 1,434,582.42	T	7690.9	FY 2017/18	PROJ
Appropriative Pool - Legal Services	\$ 62,391.25	U	8367	FY 2020/21	AP
Agricultural Pool - Legal & Technical Services	\$ 61,814.00	V	8467	FY 2020/21	OAP
Agricultural Pool - Mtg. Attendance Compensation	\$ 19,525.00	W	8470	FY 2020/21	OAP
Agricultural Pool - Special Project Funding	\$ 31,516.00	X	8471	FY 2020/21	OAP
Non-Agricultural Pool - Legal Services	\$ 32,320.70	Y	8567	FY 2020/21	ONAP
Total Balance, July 1, 2021	\$ 2,943,828.87				

"Carried Over" Balance, July 1, 2021	\$	2,943,828.87				
Less: (Invoices Received To Date FY 2021/22)						
Human Resources Services	\$	-	A	6013	FY 2020/21	ADMIN
Temporary Services	\$	(21,000.00)	B	6017	FY 2020/21	ADMIN
Other Office Equipment - Boardroom Upgrades	\$	(8,308.30)	C	6038	FY 2019/20	ADMIN
Other Office Equipment - Boardroom Upgrades	\$	-	C	6038	FY 2020/21	ADMIN
2020 OBMP Update - Tom Dodson & Associates	\$	-	D	6908.1	FY 2020/21	OBMP
Meter Installation - New Meter Installation	\$	-	E	7102.65	FY 2018/19	OBMP
Meter Installation - Calibration and Testing	\$	-	F	7102.8	FY 2018/19	OBMP
OBMP - Watermaster Model Update	\$	(9,000.00)	G	6906.1	FY 2020/21	ENG
Integrated Model - Meetings - 50% IEUA Costs	\$	(12,702.00)	H	6906.15	FY 2020/21	ENG
Ground Level Monitoring - SAR Imagery	\$	(79,817.50)	I	7107.3	FY 2020/21	ENG
Ground Level Monitoring - Capital Equipment	\$	-	J	7107.8	FY 2020/21	ENG
Agriculture Production and Estimation	\$	(22,215.25)	K	7110.3	FY 2020/21	ENG
PE2 - Comprehensive Recharge - Eng. Services	\$	(35,332.60)	L	7202.2	FY 2020/21	ENG
SB88-Specs-Ensure Compliance-50% IEUA	\$	(681.62)	M	7206.1	FY 2020/21	ENG
OBMP - 2023 RMPU	\$	(3,063.75)	N	7210	FY 2020/21	ENG
PE4 - Northwest MZ-1 Area Project	\$	(89,096.00)	O	7402.1	FY 2020/21	ENG
IEUA - Update Recycle Water Permit - Salinity	\$	(36,624.19)	P	7510	FY 2020/21	ENG
PE8&9 - Support Imp. 2020 Storage Mgmt. Plan	\$	-	Q	7610	FY 2020/21	ENG
Upper Santa Ana River HCP (TO #7)	\$	-	R	7690.7	FY 2014/15	PROJ
Upper Santa Ana River HCP (TO #7)	\$	-	R	7690.7	FY 2015/16	PROJ
Lower Day Basin RMPU (TO #2)	\$	-	S	7690.8	FY 2016/17	PROJ
Funds on Hold for Projects/Refund	\$	(1,234,582.42)	T	7690.9	FY 2017/18	PROJ
Appropriative Pool - Legal Services	\$	(62,391.25)	U	8367	FY 2020/21	AP
Agricultural Pool - Legal & Technical Services	\$	(61,814.00)	V	8467	FY 2020/21	OAP
Agricultural Pool - Mtg. Attendance Compensation	\$	(19,525.00)	W	8470	FY 2020/21	OAP
Agricultural Pool - Special Project Funding	\$	(10,643.00)	X	8471	FY 2020/21	OAP
Non-Agricultural Pool - Legal Services	\$	(28,610.80)	Y	8567	FY 2020/21	ONAP
Updated Balance as of April 30, 2022	\$	1,208,421.19				

Updated Balance as of April 30, 2022

Human Resources Services	\$ 6,000.00	A	6013	FY 2020/21	ADMIN
Temporary Services	\$ -	B	6017	FY 2020/21	ADMIN
Other Office Equipment - Boardroom Upgrades	\$ 18,486.41	C	6038	FY 2019/20	ADMIN
Other Office Equipment - Boardroom Upgrades	\$ 41,295.45	C	6038	FY 2020/21	ADMIN
2020 OBMP Update - Tom Dodson & Associates	\$ 17,064.56	D	6908.1	FY 2020/21	OBMP
Meter Installation - New Meter Installation	\$ 175,400.00	E	7102.65	FY 2018/19	OBMP
Meter Installation - Calibration and Testing	\$ 181,650.00	F	7102.8	FY 2018/19	OBMP
OBMP - Watermaster Model Update	\$ -	G	6906.1	FY 2020/21	ENG
Integrated Model - Meetings - 50% IEUA Costs	\$ 1,892.00	H	6906.15	FY 2020/21	ENG
Ground Level Monitoring - SAR Imagery	\$ 5,182.50	I	7107.3	FY 2020/21	ENG
Ground Level Monitoring - Capital Equipment	\$ 3,772.00	J	7107.8	FY 2020/21	ENG
Agriculture Production and Estimation	\$ 20,466.75	K	7110.3	FY 2020/21	ENG
PE2 - Comprehensive Recharge - Eng. Services	\$ 84,667.40	L	7202.2	FY 2020/21	ENG
SB88-Specs-Ensure Compliance-50% IEUA	\$ 54,012.38	M	7206.1	FY 2020/21	ENG
OBMP - 2023 RMPU	\$ 34,668.25	N	7210	FY 2020/21	ENG
PE4 - Northwest MZ-1 Area Project	\$ -	O	7402.1	FY 2020/21	ENG
IEUA - Update Recycle Water Permit - Salinity	\$ 37,350.81	P	7510	FY 2020/21	ENG
PE8&9 - Support Imp. 2020 Storage Mgmt. Plan	\$ 43,220.00	Q	7610	FY 2020/21	ENG
Upper Santa Ana River HCP (TO #7)	\$ 15,062.88	R	7690.7	FY 2014/15	PROJ
Upper Santa Ana River HCP (TO #7)	\$ 5,000.00	R	7690.7	FY 2015/16	PROJ
Lower Day Basin RMPU (TO #2)	\$ 238,646.90	S	7690.8	FY 2016/17	PROJ
Funds on Hold for Projects/Refund	\$ 200,000.00	T	7690.9	FY 2017/18	PROJ
Appropriative Pool - Legal Services	\$ -	U	8367	FY 2020/21	AP
Agricultural Pool - Legal & Technical Services	\$ -	V	8467	FY 2020/21	OAP
Agricultural Pool - Mtg. Attendance Compensation	\$ -	W	8470	FY 2020/21	OAP
Agricultural Pool - Special Project Funding	\$ 20,873.00	X	8471	FY 2020/21	OAP
Non-Agricultural Pool - Legal Services	\$ 3,709.90	Y	8567	FY 2020/21	ONAP
Updated Balance as of April 30, 2022	\$ 1,208,421.19				

ADMINISTRATION SERVICES:

Unspent funds related to ongoing projects and associated activities from the Administration Services budget from FY 2020/21 totaling \$95,090.16 were "Carried Over" into the current FY 2021/22 budget. These funds were from the Human Resources Services [A] in the amount of \$6,000 in account (6013); Temporary Services [B] in the amount of \$21,000 in account (6017); and Other Office Equipment-Boardroom Upgrades [C] in the amount of \$68,090.16 in account (6038). The total funds available are \$95,090.16.

OBMP ACTIVITIES:

The OBMP Update costs relate to the contract between Tom Dodson and Associates and CBWM to procure environmental review services for the 2020 OBMP Update. The original budget was \$225,500 and was approved during FY 2019/20. At the end of June 30, 2021 a remaining balance in the fund of \$17,064.56 was "Carried Over" into the current FY 2021/22 budget. The 2020 OBMP Update - Tom Dodson & Associates [D] in the amount of \$17,064.56 in account (6908.1).

Unspent funds related to ongoing projects and associated activities from the Agricultural area metering installation efforts budget from FY 2018/19 in several accounts totaling \$357,050 were "Carried Over" into the current FY 2021/22 budget. These funds were from the Meter Installation - New Meter Installation [E]

Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court, and to develop and implement an Optimum Basin Management Program

in the amount of \$175,400 in account (7102.65); and Meter Installation - Calibration and Testing [F] in the amount of \$181,650 in account (7102.8). The total funds available are \$374,114.56.

ENGINEERING SERVICES:

Unspent funds related to ongoing projects and associated activities from the Engineering Services budget from FY 2020/21 in several accounts totaling \$573,765 were "Carried Over" into the current FY 2021/22 budget. These funds were from the OBMP - Watermaster Model Update [G] in the amount of \$9,000 in account (6906.1); Integrated Model-Meetings-50% IEUA Costs [H] in the amount of \$14,594 in account (6906.15); Ground Level Monitoring-SAR Imagery [I] in the amount of \$85,000 in account (7107.3); Ground Level Monitoring-Capital Equipment [J] in the amount of \$3,772 in account (7107.8); Agriculture Production and Estimation [K] in the amount of \$42,682 in account (7110.3); PE2 - Comprehensive Recharge-Engineering Services [L] in the amount of \$120,000 in account (7202.2); SB88 Specs-Ensure Compliance-50% IEUA [M] in the amount of \$54,694 in account (7206.1); OBMP-2023 RMPU [N] in the amount of \$37,732 in account (7210); PE4 - Northwest MZ-1 Area Project [O] in the amount of \$89,096 in account (7402.1); PE6&7 - IEUA Salinity Management Plan [P] in the amount of \$73,975 in account (7510); and PE8&9 - Support Implementation 2020 Storage Management Plan [Q] in the amount of \$43,220 in account (7610). The total funds available are \$573,765.

ONGOING RECHARGE IMPROVEMENT PROJECTS:

The Upper Santa Ana River HCP-Task Order #7 [R] has a remaining funded balance of \$20,062.88 in account (7690.7); and the Lower Day Basin RMPU-Task Order #2 [S] has a remaining funded budget balance of \$238,646.90 in account (7690.8). The total funds available are \$258,709.78.

FUNDS ON HOLD FOR PROJECTS/REFUND:

The "Funds on Hold for Projects/Refund" [T] has a remaining budget from FY 2017/18 of \$1,434,582.42 in account (7690.9). By unanimous action of the Watermaster Board on June 24, 2021 the amount of \$1,234,582.42 is to be refunded to the Appropriative Pool with the upcoming November 2021 Assessment Package. The amount of \$200,000 will be kept on hold until the warranty period for the San Sevaine Project has expired, and no warranty issues are noted.

POOL RELATED FUNDING:

The remaining funding items are strictly Pool related and are added to the FY 2021/22 budget to ensure proper funding is recorded and tracked. The Appropriative Pool Legal Services [U] in the amount of \$62,391.25 in account (8367); the Agricultural Pool Legal and Technical Services [V] in the amount of \$61,814 in account (8467); the Agricultural Pool Meeting Attendance Compensation [W] in the amount of \$19,525 in account (8470); the Agricultural Pool Special Project Funding [X] in the amount of \$31,516 in account (8471); and the Non-Agricultural Pool Legal Services [Y] in the amount of \$32,320.70 in account (8567). The total funds available are \$207,566.95.

As invoices are received from the vendors and booked against these items listed above, the "Carried Over" balance will be reduced throughout the current fiscal year. At June 30, 2022, any remaining balances of the FY 2020/21 and prior years funding (if any), along with any new FY 2021/22 expenses, will then be "Carried Over" into the FY 2022/23 budget.

PREVIOUSLY REPORTED ACTIONS (Descending Order)

None

AUDIT FIELD WORK

CURRENT MONTH – APRIL 2022

The auditors from the audit firm of Fedak & Brown LLP will start the interim field work for FY 2021/22 on June 13, 2022 through June 17, 2022. The plan is for the auditors not to be onsite at the Watermaster office for the interim field audit. Instead, all of the audit schedules, accounts payable selections, accounts

Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court, and to develop and implement an Optimum Basin Management Program

receivable selections, bank reconciliations, payroll and timesheet selections, and any other reports and information will be provided to the auditors electronically via Dropbox software. This has been the same processed used for the past several years and has worked well for both Watermaster and the auditors. This will be the start of the interim field work for the period of July 1, 2021 through April 30, 2022.

PREVIOUSLY REPORTED ACTIONS (Descending Order)

October 2021:

The Annual Financial and Audit Reports were presented to the Watermaster Board by Fedak & Brown LLP at the October 28, 2021 Board meeting. The Annual Financial and Audit Reports for FY 2020/21 were posted to the Watermaster website on December 8, 2021 after the audit firm signed the documents.

July 2021:

The auditors from the audit firm of Fedak & Brown LLP started the interim field work on June 8, 2021 through June 9, 2021. The plan was for the auditors not to be onsite at the Watermaster office for the interim field audit. Instead, all of the audit schedules, accounts payable selections, accounts receivable selections, bank reconciliations, payroll and timesheet selections, and any other reports and information were provided to the auditors electronically via Dropbox software. This was the start of the interim field work for the period of July 1, 2020 through March 31, 2021.

The final field work for the period of April 1, 2021 through June 30, 2021 was started on September 1, 2021 and continued through September 3, 2021.

FY 2021/22 EXHIBIT "G" NON-AGRICULTURAL POOL SALE OF WATER

CURRENT MONTH – APRIL 2022

No Exhibit "G" activity to report for the month.

PREVIOUSLY REPORTED ACTIONS (Descending Order)

December 2021:

Pursuant to the Restated Judgment, Exhibit "G", Paragraph 9, Physical Solution Transfers, by December 31st of each year, the members of the Overlying (Non-Agricultural) Pool (ONAP) shall notify Watermaster of the amount of water each member shall make available in their individual discretion for purchase by the Appropriators.

On December 30, 2021, Hamner Park Associates, a California Limited Partnership, notified Watermaster of the availability of 800 acre-feet of water for purchase. The ONAP amended its Pooling Plan which was subsequently court-approved on March 15, 2019, allowing them to set the transfer rate. At their regular meeting on November 10, 2021, the ONAP set a price of \$715.00acre-foot for the current fiscal year's transfers.

The Potential Allocation Table (listed below) allocates the amount of water available to each Appropriator, should each Appropriator wish to purchase its share of the water. Appropriators have until March 1, 2022 to notify Watermaster if they are each interested in purchasing their allocation of the water by executing the Intent to Purchase form.

Party	Assigned Share of Operating Safe Yield	2020-21 Actual Production	2020-21 Production & Exchanges	"Averaged" Production & Exchanges	800.0 Based on Operating Safe Yield	800.0 Based on Averaged Prod & Exch	800.0 50% OSY & 50% Averaged Prod & Exch	Cost for Each Party's Allocation @ \$715.00 /AF
BlueTriton Brands, Inc.	0.0	271.3	271.3	271.3	0.0	2.6	1.3	\$ 913.56
CallMat Co. (Appropriative)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$ -
Chino Hills, City Of	1,572.5	2,459.6	2,459.6	2,459.6	30.8	23.2	27.0	\$ 19,297.20
Chino, City Of	3,004.2	2,762.4	2,762.4	2,762.4	58.9	26.0	42.4	\$ 30,343.94
Cucamonga Valley Water District	2,695.5	26,225.7	5,725.7	15,975.7	52.8	150.5	101.7	\$ 72,680.55
Desalter Authority	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$ -
Fontana Union Water Company	4,760.0	0.0	0.0	0.0	93.3	0.0	46.6	\$ 33,339.02
Fontana Water Company	0.8	13,565.3	11,065.3	12,315.3	0.0	116.0	58.0	\$ 41,480.26
Fontana, City Of	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$ -
Golden State Water Company	306.3	1,074.4	1,074.4	1,074.4	6.0	10.1	8.1	\$ 5,763.24
Jurupa Community Services District	1,535.0	10,609.9	10,609.9	10,609.9	30.1	99.9	65.0	\$ 46,481.93
Marygold Mutual Water Company	488.0	840.9	840.9	840.9	9.6	7.9	8.7	\$ 6,249.56
Monte Vista Irrigation Company	503.9	0.0	0.0	0.0	9.9	0.0	4.9	\$ 3,529.24
Monte Vista Water District	3,592.2	7,523.3	7,523.3	7,523.3	70.4	70.9	70.6	\$ 50,495.76
NCL Co, LLC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$ -
Niagara Bottling, LLC	0.0	1,751.7	1,751.7	1,751.7	0.0	16.5	8.3	\$ 5,899.12
Nicholson Family Trust	2.9	0.0	0.0	0.0	0.1	0.0	0.0	\$ 20.02
Norco, City Of	150.3	0.0	0.0	0.0	2.9	0.0	1.5	\$ 1,052.48
Ontario, City Of	8,469.8	17,171.1	17,171.1	17,171.1	165.9	161.8	163.8	\$ 117,149.68
Pomona, City Of	8,352.2	9,192.2	9,192.2	9,192.2	163.6	86.6	125.1	\$ 89,455.03
San Antonio Water Company	1,122.1	676.5	676.5	676.5	22.0	6.4	14.2	\$ 10,137.64
San Bernardino, County of (Shooting Park)	0.0	17.2	17.2	17.2	0.0	0.2	0.1	\$ 57.83
Santa Ana River Water Company	969.0	175.5	175.5	175.5	19.0	1.7	10.3	\$ 7,377.81
Upland, City Of	2,124.2	2,107.0	2,107.0	2,107.0	41.6	19.8	30.7	\$ 21,973.55
West End Consolidated Water Co	705.6	0.0	0.0	0.0	13.8	0.0	6.9	\$ 4,942.08
West Valley Water District	479.8	0.0	0.0	0.0	9.4	0.0	4.7	\$ 3,360.50
Total	40,834.0	96,423.9	73,423.9	84,923.9	800.0	800.0	800.0	\$ 572,000.00

NOTE: This is the same methodology used for the Years 1 through 5 purchase of the Non-Agricultural Pool Peace II Agreement storage water. This year, as was done in the approved 2021/22 Assessment Package, volumes of water are shown to one decimal place, however, the actual volumes and calculations continue to utilize three decimal places.

November 2021:
 No Exhibit "G" activity for the month to report.

ASSESSMENTS AND OTHER INVOICING

CURRENT MONTH – APRIL 2022

FY 2021/22 Assessment Package

There was no Assessment activity to report for the month.

PREVIOUSLY REPORTED ACTIONS (Descending Order)

December 2021:

The FY 2021/22 Assessment Package was approved by the Advisory Committee and Watermaster Board on Thursday, November 18, 2021. The Assessment invoices were issued by Watermaster on Thursday, November 18, 2021 with payment due 30-days after invoice date. Payments were due to Watermaster on Monday, December 20, 2021. As past practice, payments could be made to Watermaster by either a wire transfer or check. Per the judgment, late fees could be assessed for any Judgment related payment not received as of 4:00pm on Monday, December 20, 2021.

As of December 21, 2021 there were four Judgment related payments outstanding. Watermaster contacted these four organizations and we were informed that the "check was in the mail". As of today, all four of the outstanding checks have been received and they were all postmarked on or before the due date of December 20, 2021.

November 2021:

Watermaster held one Assessment Package Workshop on November 2, 2021. The purpose of the workshop was to provide the parties with information pertaining to the Assessment Package and opportunities to raise questions, concerns, and feedback.

Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court, and to develop and implement an Optimum Basin Management Program

The FY 2021/22 Assessment Package was approved by the Advisory Committee and Watermaster Board on Thursday, November 18, 2021. The Assessment invoices were issued by Watermaster on Thursday, November 18, 2021 with payment due 30-days after invoice date. Payments will be due to Watermaster on Monday, December 20, 2021. As past practice, payment can be made to Watermaster by either a wire transfer or check. Per the judgment, late fees could be assessed for any Judgment related payment not received as of 4:00pm on Monday, December 20, 2021.

Per the Judgment Section VI, 55 (b) Payment. Each assessment shall be payable on or before thirty (30) days after notice, and shall be the obligation of the party or successor owning the water production facility at the time written notice of assessment is given, unless prior arrangement for payment by others has been made in writing and filed with Watermaster.

Per the Judgment Section VI, 55 (c) Delinquency. Any delinquent assessment shall bear interest at 10% per annum (or such greater rate as shall equal the average current cost of borrowed funds to the Watermaster) from the due date thereof. Such delinquent assessment and interest may be collected in a show-cause proceeding herein instituted by the Watermaster, in which case the Court may allow Watermaster its reasonable costs of collection, including attorney's fees.

October 2021:

Watermaster held two Assessment Package Workshops: one on October 19, 2021 and the other on November 2, 2021. The purpose of the workshops was to provide the parties with information pertaining to the Assessment Package and opportunities to raise questions, concerns, and feedback.

During the month of November 2021, the FY 2021/22 Assessment Package is being presented to the Pool Committees for advice and assistance. It will then be presented to the Advisory Committee for advice and assistance, and Watermaster Board on November 18, 2021 for approval. If approved by the Board, invoices will be emailed to the Parties immediately following the Board's approval.

ATTACHMENTS

1. Financial Report – B5

	1/12th (8.33%) of the Total Budget				10/12th (83.33%) of the Total Budget				100% of the Total Budget			
	For The Month of April 2022				Year-To-Date as of April 30, 2022				Fiscal Year End as of June 30, 2022			
	Actual	Budget	\$ Over(Under)	% of Budget	Actual	Budget	\$ Over(Under)	% of Budget	Projected	Budget	\$ Over(Under)	% of Budget
Income												
4010 - Local Agency Subsidies	0.00	0.00	0.00	0.0%	177,430.03	177,430.00	0.03	100.0%	177,430.03	177,430.00	0.03	100.0%
4110 - Admin Asmnts-Approp Pool	552,864.41	0.00	552,864.41	100.0%	8,617,410.69	7,957,032.00	660,378.69	108.3%	8,617,410.69	7,957,032.00	660,378.69	108.3%
4120 - Admin Asmnts-Non-Agri Pool	0.00	0.00	0.00	0.0%	223,299.19	330,845.00	-107,545.81	67.49%	223,299.19	330,845.00	-107,545.81	67.49%
4130 - Admin Asmnts-Agricultural Pool	0.00	0.00	0.00	0.0%	200,000.00	0.00	200,000.00	100.0%	200,000.00	0.00	200,000.00	100.0%
4700 - Non Operating Revenues	2.10	0.00	2.10	100.0%	19,053.46	79,594.00	-60,540.54	23.94%	34,052.81	106,125.00	-72,072.19	32.09%
4900 - Miscellaneous Income	0.00	0.00	0.00	0.0%	500.00	0.00	500.00	100.0%	500.00	0.00	500.00	100.0%
Total Income	552,866.51	0.00	552,866.51	100.0%	9,237,693.37	8,544,901.00	692,792.37	108.11%	9,252,692.72	8,571,432.00	681,260.72	107.95%
Gross Profit	552,866.51	0.00	552,866.51	100.0%	9,237,693.37	8,544,901.00	692,792.37	108.11%	9,252,692.72	8,571,432.00	681,260.72	107.95%
Expense												
6010 - Admin. Salary/Benefit Costs	112,059.08	99,624.00	12,435.08	112.48%	1,194,962.61	1,040,041.00	154,921.61	114.9%	1,443,871.37	1,235,557.00	208,314.37	116.86%
6020 - Office Building Expense	10,449.26	11,233.00	-783.74	93.02%	118,789.08	202,713.00	-83,923.92	58.6%	144,453.09	223,929.00	-79,475.91	64.51%
6030 - Office Supplies & Equip.	3,678.52	2,675.00	1,003.52	137.52%	38,761.42	94,465.16	-55,703.74	41.03%	46,777.20	99,690.16	-52,912.96	46.92%
6040 - Postage & Printing Costs	3,533.91	3,003.00	530.91	117.68%	24,692.12	31,961.00	-7,268.88	77.26%	28,210.95	37,460.00	-9,249.05	75.31%
6050 - Information Services	14,922.53	15,770.00	-847.47	94.63%	125,181.25	150,319.00	-25,137.75	83.28%	147,011.63	173,398.00	-26,386.37	84.78%
6060 - Contract Services	3,938.12	600.00	3,338.12	656.35%	44,304.53	55,345.00	-11,040.47	80.05%	49,612.60	56,545.00	-6,932.40	87.74%
6070 - Watermaster Legal Services	82,937.55	26,422.00	56,515.55	313.9%	523,897.00	274,127.00	249,770.00	191.12%	587,945.93	326,975.00	260,970.93	179.81%
6080 - Insurance	-38.82	0.00	-38.82	100.0%	40,736.45	44,470.00	-3,733.55	91.6%	45,081.57	46,797.00	-1,715.43	96.33%
6110 - Dues and Subscriptions	270.00	0.00	270.00	100.0%	34,466.33	38,315.00	-3,848.67	89.96%	38,196.33	38,815.00	-618.67	98.41%
6140 - WM Admin Expenses	290.05	337.00	-46.95	86.07%	2,978.19	4,075.00	-1,096.81	73.08%	3,584.19	4,750.00	-1,165.81	75.46%
6150 - Field Supplies	0.00	113.00	-113.00	0.0%	914.72	2,750.00	-1,835.28	33.26%	1,219.63	2,750.00	-1,530.37	44.35%
6170 - Travel & Transportation	2,488.97	1,945.00	543.97	127.97%	18,390.95	19,955.00	-1,564.05	92.16%	21,202.64	24,170.00	-2,967.36	87.72%
6190 - Training, Conferences, Seminars	1,406.95	3,400.00	-1,993.05	41.38%	18,266.04	34,000.00	-15,733.96	53.72%	37,532.64	40,800.00	-3,267.36	91.99%
6200 - Advisory Committee Expenses	2,840.49	4,833.00	-1,992.51	58.77%	30,251.03	45,786.00	-15,534.97	66.07%	39,547.39	55,336.00	-15,788.61	71.47%
6300 - Watermaster Board Expenses	30,443.20	14,265.00	16,178.20	213.41%	139,970.01	161,806.00	-21,835.99	86.51%	161,035.75	190,149.00	-29,113.25	84.69%
8300 - Appr PI-WM & Pool Admin	6,734.97	15,536.00	-8,801.03	43.35%	184,085.64	221,638.25	-37,552.61	83.06%	236,467.56	239,365.25	-2,897.69	98.79%
8400 - Agri Pool-WM & Pool Admin	3,912.65	6,030.00	-2,117.35	64.89%	27,961.16	57,100.00	-29,138.84	48.97%	32,064.68	69,011.00	-36,946.32	46.46%
8467 - Ag Legal & Technical Services	43,520.50	41,666.00	1,854.50	104.45%	259,284.14	478,480.00	-219,195.86	54.19%	342,684.85	561,814.00	-219,129.15	61.0%
8470 - Ag Meeting Attend -Special	3,375.00	4,167.00	-792.00	80.99%	26,750.00	61,191.00	-34,441.00	43.72%	41,166.67	69,525.00	-28,358.33	59.21%
8471 - Ag Pool Expense	0.00	0.00	0.00	0.0%	10,643.00	116,516.00	-105,873.00	9.13%	10,643.00	116,516.00	-105,873.00	9.13%
8485 - Ag Pool - Misc. Exp. - Ag Fund	0.00	100.00	-100.00	0.0%	0.00	400.00	-400.00	0.0%	0.00	400.00	-400.00	0.0%
8500 - Non-Ag PI-WM & Pool Admin	12,835.87	9,742.00	3,093.87	131.76%	56,013.60	126,684.70	-70,671.10	44.22%	62,570.31	146,066.70	-83,496.39	42.84%
9400 - Depreciation Expense	0.00	0.00	0.00	0.0%	0.00	0.00	0.00	0.0%	0.00	0.00	0.00	0.0%
9500 - Allocated G&A Expenditures	-24,909.82	-38,787.00	13,877.18	64.22%	-232,228.74	-387,868.00	155,639.26	59.87%	-314,462.04	-465,442.00	150,979.96	67.56%
6900 - Optimum Basin Mgmt Plan	21,707.00	105,096.00	-83,389.00	20.65%	506,769.92	1,104,108.56	-597,338.64	45.9%	896,750.56	1,313,453.56	-416,703.00	68.27%
9501 - G&A Expenses Allocated-OBMP	2,360.60	13,937.00	-11,576.40	16.94%	52,067.65	139,368.00	-87,300.35	37.36%	88,007.24	167,242.00	-79,234.76	52.62%
7101 - Production Monitoring	12,251.52	8,692.00	3,559.52	140.95%	60,195.07	85,747.00	-25,551.93	70.2%	78,924.73	102,740.00	-23,815.27	76.82%
7102 - In-line Meter Installation	0.00	1,396.00	-1,396.00	0.0%	0.00	370,871.00	-370,871.00	0.0%	0.00	373,617.00	-373,617.00	0.0%
7103 - Grdwtr Quality Monitoring	18,497.00	23,423.00	-4,926.00	78.97%	254,942.54	305,450.00	-50,507.46	83.47%	350,862.92	352,035.00	-1,172.08	99.67%
7104 - Gdwtr Level Monitoring	25,698.24	25,403.00	295.24	101.16%	251,767.29	253,219.00	-1,451.71	99.43%	301,425.40	303,753.00	-2,327.60	99.23%
7105 - Sur Wtr Qual Monitoring	0.00	0.00	0.00	0.0%	0.00	0.00	0.00	0.0%	0.00	0.00	0.00	0.0%
7106 - Wtr Level Sensors Installation	0.00	0.00	0.00	0.0%	0.00	0.00	0.00	0.0%	0.00	0.00	0.00	0.0%
7107 - Ground Level Monitoring	4,954.41	21,513.00	-16,558.59	23.03%	159,940.05	303,813.00	-143,872.95	52.64%	281,647.52	346,810.00	-65,162.48	81.21%

	1/12th (8.33%) of the Total Budget				10/12th (83.33%) of the Total Budget				100% of the Total Budget			
	For The Month of April 2022				Year-To-Date as of April 30, 2022				Fiscal Year End as of June 30, 2022			
	Actual	Budget	\$ Over(Under)	% of Budget	Actual	Budget	\$ Over(Under)	% of Budget	Projected	Budget	\$ Over(Under)	% of Budget
7108 - Hydraulic Control Monitoring	10,400.62	6,588.00	3,812.62	157.87%	43,294.10	70,248.00	-26,953.90	61.63%	53,857.97	83,379.00	-29,521.03	64.59%
7109 - Recharge & Well Monitoring Prorg	4,002.00	2,768.00	1,234.00	144.58%	15,635.75	27,674.00	-12,038.25	56.5%	23,051.67	33,208.00	-10,156.33	69.42%
7110 - Ag Production & Estimation	0.00	1,185.00	-1,185.00	0.0%	22,215.25	54,538.00	-32,322.75	40.73%	29,620.33	56,910.00	-27,289.67	52.05%
7111 - Improved Data Collection & Mgmt	0.00	1,680.00	-1,680.00	0.0%	2,531.25	16,798.00	-14,266.75	15.07%	16,781.25	20,158.00	-3,376.75	83.25%
7200 - PE2- Comp Recharge Pgm	274,295.56	280,864.00	-6,568.44	97.66%	1,219,807.25	1,430,330.00	-210,522.75	85.28%	1,285,682.25	1,458,198.00	-172,515.75	88.17%
7300 - PE3&5-Water Supply/Desalte	0.00	4,006.00	-4,006.00	0.0%	4,391.82	39,852.00	-35,460.18	11.02%	36,391.82	47,793.00	-11,401.18	76.15%
7400 - PE4- Mgmt Plan	2,072.62	25,069.00	-22,996.38	8.27%	-56,812.64	339,646.00	-396,458.64	-16.73%	169,154.56	389,739.00	-220,584.44	43.4%
7500 - PE6&7-CoopEfforts/SaltMgmt	19,305.66	20,632.00	-1,326.34	93.57%	208,440.63	256,150.00	-47,709.37	81.37%	252,179.96	297,364.00	-45,184.04	84.81%
7600 - PE8&9-StorageMgmt/Conj Use	37,675.43	33,094.00	4,581.43	113.84%	312,660.42	373,875.00	-61,214.58	83.63%	381,646.65	439,967.00	-58,320.35	86.74%
7690 - Recharge Improvements	0.00	0.00	0.00	0.0%	1,586,232.42	2,222,321.20	-636,088.78	71.38%	2,114,976.56	2,222,321.20	-107,344.64	95.17%
7700 - Inactive Well Protection Prgm	0.00	41.00	-41.00	0.0%	0.00	416.00	-416.00	0.0%	0.00	500.00	-500.00	0.0%
9502 - G&A Expenses Allocated-Projects	22,549.22	24,850.00	-2,300.78	90.74%	180,161.09	248,500.00	-68,338.91	72.5%	226,454.80	298,200.00	-71,745.20	75.94%
Total Expense	770,458.86	822,911.00	-52,452.14	93.63%	7,513,310.39	10,517,194.87	-3,003,884.48	71.44%	9,793,834.13	11,601,764.87	-1,807,930.74	84.42%
Net Ordinary Income	-217,592.35	-822,911.00	605,318.65	26.44%	1,724,382.98	-1,972,293.87	3,696,676.85	-87.43%	-541,141.41	-3,030,332.87	2,489,191.46	17.86%
Other Income												
4210 - Approp Pool-Replenishment	0.00	0.00	0.00	0.0%	1,648,962.59	0.00	1,648,962.59	100.0%	1,648,962.59	0.00	1,648,962.59	100.0%
4220 - Non-Ag Pool-Replenishment	0.00	0.00	0.00	0.0%	44,726.78	0.00	44,726.78	100.0%	44,726.78	0.00	44,726.78	100.0%
4225 - Interest Income	0.00	0.00	0.00	0.0%	1,653.55	0.00	1,653.55	100.0%	4,153.55	0.00	4,153.55	100.0%
4226 - LAIF Fair Market Value	0.00	0.00	0.00	0.0%	0.00	0.00	0.00	0.0%	0.00	0.00	0.00	0.0%
4227 - AP Escrow Interest	0.79	0.00	0.79	100.0%	146.10	0.00	146.10	100.0%	190.93	0.00	190.93	100.0%
4600 - Groundwater Sales	0.00	0.00	0.00	0.0%	0.00	0.00	0.00	0.0%	0.00	0.00	0.00	0.0%
4715 - Gain on Sale of Assets	0.00	0.00	0.00	0.0%	0.00	0.00	0.00	0.0%	0.00	0.00	0.00	0.0%
Total Other Income	0.79	0.00	0.79	100.0%	1,695,489.02	0.00	1,695,489.02	100.0%	1,698,033.85	0.00	1,698,033.85	100.0%
Other Expense												
5010 - Groundwater Replenishment	0.00	0.00	0.00	0.0%	35,030.19	0.00	35,030.19	100.0%	35,030.19	0.00	35,030.19	100.0%
5100 - Other Water Purchases	0.00	0.00	0.00	0.0%	0.00	0.00	0.00	0.0%	0.00	0.00	0.00	0.0%
9000 - Other Expenses	0.00	0.00	0.00	0.0%	161,070.09	0.00	161,070.09	100.0%	161,070.09	0.00	161,070.09	100.0%
9200 - Interest Expense	0.00	0.00	0.00	0.0%	0.00	0.00	0.00	0.0%	0.00	0.00	0.00	0.0%
9251 - Other Post Employment Benefits	0.00	0.00	0.00	0.0%	0.00	0.00	0.00	0.0%	0.00	0.00	0.00	0.0%
9996 - Refund-Excess Reserves-Approp.	0.00	0.00	0.00	0.0%	0.00	0.00	0.00	0.0%	0.00	0.00	0.00	0.0%
9996.5 - Refund-Basin O&M-Approp.	0.00	0.00	0.00	0.0%	139,913.46	0.00	139,913.46	100.0%	139,913.46	0.00	139,913.46	100.0%
9997 - Refund-Excess Reserves-NonAg	0.00	0.00	0.00	0.0%	0.00	0.00	0.00	0.0%	0.00	0.00	0.00	0.0%
9997.5 - Refund-Basin O&M-NonAg	0.00	0.00	0.00	0.0%	5,470.81	0.00	5,470.81	100.0%	5,470.81	0.00	5,470.81	100.0%
9998 - Refund-Recharge Debt-Approp.	0.00	0.00	0.00	0.0%	156,259.00	0.00	156,259.00	100.0%	156,259.00	0.00	156,259.00	100.0%
9999 - To/(From) Reserves	0.00	0.00	0.00	0.0%	0.00	-86,504.00	86,504.00	0.0%	0.00	-86,504.00	86,504.00	0.0%
Total Other Expense	0.00	0.00	0.00	0.0%	497,743.55	-86,504.00	584,247.55	-575.4%	497,743.55	-86,504.00	584,247.55	-575.4%
Net Other Income	0.79	0.00	0.79	100.0%	1,197,745.47	86,504.00	1,111,241.47	1,384.61%	1,200,290.30	86,504.00	1,113,786.30	1,387.56%
Net Income	-217,591.56	-822,911.00	605,319.44	26.44%	2,922,128.45	-1,885,789.87	4,807,918.32	-154.96%	659,148.89	-2,943,828.87	3,602,977.76	-22.39%

Note: Please see the staff report (Financial Report-B5) for additional detailed information on the account categories.

CHINO BASIN WATERMASTER
Cash Disbursements For The Month of
May 2022

Financial Report - B6
For Informational Purposes Only

Type	Date	Num	Name	Memo	Account	Paid Amount
Bill Pmt -Check	05/03/2022	23477	ACCENT COMPUTER SOLUTIONS, INC.	151156	1012 - Bank of America Gen'l Ckg	
Bill	05/01/2022	151156		Monthly services - May 2022	6052.4 - IT Managed Services	5,251.30
				Overwatch - May 2022	6052.5 - IT Data Backup/Storage	699.00
				Omni Cloud - May 2022	6052.5 - IT Data Backup/Storage	170.00
				Office 365 Subscriptions - Business Premier - May	6052.4 - IT Managed Services	251.25
				Image Office Storage (per GB, per month) - May 2022	6052.5 - IT Data Backup/Storage	509.97
TOTAL						6,881.52
Bill Pmt -Check	05/03/2022	23478	ELIE, STEVEN	Board Member Compensation	1012 - Bank of America Gen'l Ckg	
Bill	04/08/2022	4/08 Court Hearing		4/08/22 Court Hearing	6311 - Board Member Compensation	125.00
Bill	04/26/2022	4/26 Board Workshop		4/26/22 Board Workshop	6311 - Board Member Compensation	125.00
Bill	04/28/2022	4/28 Board Mtg		4/28/22 Board Meeting	6311 - Board Member Compensation	125.00
TOTAL						375.00
Bill Pmt -Check	05/03/2022	23479	FAVELA, RUBY	Employee Reimbursement	1012 - Bank of America Gen'l Ckg	
Bill	04/25/2022			Miscellaneous office supplies	6031.7 - Other Office Supplies	120.05
				Admin meeting supplies	6141.3 - Admin Meetings	6.73
Bill	04/29/2022			Mileage reimbursement	6173 - Airfare/Mileage	31.85
				Supplies for 4/26/22 Board Workshop	6312 - Meeting Expenses	376.98
TOTAL						535.61
Bill Pmt -Check	05/03/2022	23480	LOEB & LOEB LLP	2007469	1012 - Bank of America Gen'l Ckg	
Bill	03/31/2022	2007469		Non-Ag Pool Legal Services - March 2022	8567 - Non-Ag Legal Service	1,134.00
TOTAL						1,134.00
Bill Pmt -Check	05/03/2022	23481	NAKANO, JUSTIN	Employee Reimbursement	1012 - Bank of America Gen'l Ckg	
Bill	04/22/2022			Parking for 4/13/22 Symposium-Managed Aquifer	6191 - Conferences - General	17.50
				Mileage expense for 4/13/22 Symposium	6173 - Airfare/Mileage	51.48
TOTAL						68.98
Bill Pmt -Check	05/03/2022	23482	NELSON, ANNA	Employee Reimbursement	1012 - Bank of America Gen'l Ckg	
Bill	04/25/2022			Mtg w/IEUA	8312 - Meeting Expenses	32.02
				Miscellaneous office supplies	6031.7 - Other Office Supplies	57.05
				Supplies for Employee Appreciation Day	6141.3 - Admin Meetings	25.15
TOTAL						114.22
Bill Pmt -Check	05/03/2022	23483	PETTY CASH	2928-2946	1012 - Bank of America Gen'l Ckg	
Bill	04/29/2022	2928-2946		Supplies for staff mtgs - multiple dates	6141.3 - Admin Meetings	167.64
				Misc. office supplies - coffee, bottled water, juices	6031.7 - Other Office Supplies	112.17

CHINO BASIN WATERMASTER
Cash Disbursements For The Month of
May 2022

Financial Report - B6
For Informational Purposes Only

Type	Date	Num	Name	Memo	Account	Paid Amount
				Supplies for the Board Workshop prep meeting	6312 · Meeting Expenses	274.75
				ETF mtg w/Chris Quach	8312 · Meeting Expenses	23.40
				Parking reimbursement-PK-4/13/22 ISMAR Semin:	6191 · Conferences - General	17.50
TOTAL						595.46
Bill Pmt -Check	05/03/2022	23484	EASTVALE DEVELOPMENT COMPANY - PIERS	Board Member & Ag Pool Member Compensatic	1012 · Bank of America Gen'l Ckg	
Bill	03/05/2022	3/05 Call w/Chair		3/05/22 Call w/Ag Pool Chair	8470 · Ag Meeting Attend -Special	125.00
Bill	03/05/2022	3/05 Call w/Legal		3/05/22 Call w/Ag Pool Legal Counsel	8470 · Ag Meeting Attend -Special	125.00
Bill	03/06/2022	3/06 Call w/Legal		3/06/22 Call w/Ag Pool Legal Counsel	8470 · Ag Meeting Attend -Special	125.00
Bill	03/08/2022	3/08 Call w/Chair		3/08/22 Call w/Ag Pool Chair and Legal Counsel	8470 · Ag Meeting Attend -Special	125.00
Bill	03/08/2022	3/08 Board Officers		3/08/22 Board Officers Meeting	6311 · Board Member Compensation	125.00
Bill	03/09/2022	3/09 Prado Basin Mtg		3/09/22 Prado Basin Habitat Sustainability Update	6311 · Board Member Compensation	125.00
Bill	03/10/2022	3/10 Ag Pool Mtg		3/10/22 Ag Pool Meeting	8470 · Ag Meeting Attend -Special	125.00
Bill	03/17/2022	3/17 Advisoy Comm		3/17/22 Advisory Committee Meeting	8470 · Ag Meeting Attend -Special	125.00
Bill	03/17/2022	3/17 Board Officers		3/17/22 Board Officers/Pool Chairs Meeting	6311 · Board Member Compensation	125.00
Bill	03/18/2022	3/18 Sepcial Ag Mtg		3/18/22 Special Ag Pool Meeting	8470 · Ag Meeting Attend -Special	125.00
Bill	03/18/2022	3/18 Call w/Chair		3/18/22 Call w/Ag Pool Chair	8470 · Ag Meeting Attend -Special	125.00
Bill	03/18/2022	3/18 Call w/Legal		3/18/22 Call w/Ag Pool Legal Counsel	8470 · Ag Meeting Attend -Special	125.00
Bill	03/22/2022	3/22 Call w/Legal		3/22/22 Call w/Ag Pool Legal Counsel	8470 · Ag Meeting Attend -Special	125.00
Bill	03/22/2022	3/22 Board Officers		3/22/22 Board Officers Meeting	6311 · Board Member Compensation	125.00
Bill	03/24/2022	3/24 Call w/Chair		3/22/22 Call w/Ag Pool Chair	8470 · Ag Meeting Attend -Special	125.00
Bill	03/24/2022	3/24 Board Mtg		3/24/22 Board Meeting	6311 · Board Member Compensation	125.00
Bill	03/25/2022	3/25 Call w/Legal		3/25/22 Call w/Ag Pool Legal Counsel	8470 · Ag Meeting Attend -Special	125.00
Bill	03/25/2022	3/25 Call w/Bd Chair		3/25/22 Call w/Board Chair	6311 · Board Member Compensation	125.00
Bill	03/28/2022	3/28 Call w/Chair		3/28/22 Call w/Ag Pool Chair and Legal Counsel	8470 · Ag Meeting Attend -Special	125.00
Bill	03/31/2022	3/31 Call w/Chair		3/31/22 Call w/Ag Pool Chair	8470 · Ag Meeting Attend -Special	125.00
TOTAL						2,500.00
Bill Pmt -Check	05/03/2022	23485	POWERS ELECTRIC PRODUCTS CO.	7103.5	1012 · Bank of America Gen'l Ckg	
Bill	03/22/2022	74649		Replacement cables	7104.9 · Grdwtr Level-Capital Equip	1,578.12
TOTAL						1,578.12
Bill Pmt -Check	05/03/2022	23486	PREMIERE GLOBAL SERVICES	30882499	1012 · Bank of America Gen'l Ckg	
Bill	04/29/2022	30882499		Fee - General	6022 · Telephone	39.00
				Fee - Confidential	6022 · Telephone	39.00
				Service fee	6022 · Telephone	8.50
				Call shortfall	6022 · Telephone	78.00
TOTAL						164.50
Bill Pmt -Check	05/03/2022	23487	PURCHASE POWER	8000-9090-0016-8851	1012 · Bank of America Gen'l Ckg	

CHINO BASIN WATERMASTER
Cash Disbursements For The Month of
May 2022

Financial Report - B6
For Informational Purposes Only

Type	Date	Num	Name	Memo	Account	Paid Amount
Bill	04/29/2022	8000909000168851		Postage refill - 3/28/22	6042 · Postage - General	500.00
TOTAL						500.00
Bill Pmt -Check	05/03/2022	23488	READY REFRESH	0023230253	1012 · Bank of America Gen'l Ckg	
Bill	04/22/2022	0023230253		Office Water Bottle - April 2022	6031.7 · Other Office Supplies	78.89
				Dispenser cleaning - every 6 months	6031.7 · Other Office Supplies	189.98
TOTAL						268.87
Bill Pmt -Check	05/03/2022	23489	SPECTRUM BUSINESS	2031978432322	1012 · Bank of America Gen'l Ckg	
Bill	04/27/2022	2031978042322		4/23/22-5/22/22	6053 · Internet Expense	1,105.31
TOTAL						1,105.31
Bill Pmt -Check	05/03/2022	23490	STAPLES BUSINESS ADVANTAGE	8066017376	1012 · Bank of America Gen'l Ckg	
Bill	04/25/2022	8066017376		Name badges, tent cards	6031.7 · Other Office Supplies	103.50
TOTAL						103.50
Bill Pmt -Check	05/03/2022	23491	TELLEZ-FOSTER, EDGAR	Employee Reimbursement	1012 · Bank of America Gen'l Ckg	
Bill	04/29/2022			Ops staff meeting on 4/15/22	6141.3 · Admin Meetings	90.53
				Parking for 4/13/22 ISMAR Symposium	6191 · Conferences - General	17.50
Bill	04/29/2022			4/22/22 court hearing debrief mtg	6909.1 · OBMP Meetings	46.28
				Toll Road fees for 4/13/22 ISMAR Symposium	6191 · Conferences - General	34.45
TOTAL						188.76
Bill Pmt -Check	05/03/2022	23492	UNION 76	Vehicle Fuel	1012 · Bank of America Gen'l Ckg	
Bill	04/29/2022	7076224530355049		April 2022	6175 · Vehicle Fuel	479.45
TOTAL						479.45
Bill Pmt -Check	05/03/2022	23493	VISION SERVICE PLAN	00-101789-0001	1012 · Bank of America Gen'l Ckg	
Bill	04/27/2022	814959381		Vision Insurance Premium - May 2022	60182.2 · Dental & Vision Ins	93.83
TOTAL						93.83
Bill Pmt -Check	05/03/2022	23494	VERIZON WIRELESS	990404827	1012 · Bank of America Gen'l Ckg	
Bill	04/29/2022	9904040827		Acct #470810953-00002	7103.7 · Grdwtr Qual-Computer Svc	58.03
TOTAL						58.03
Bill Pmt -Check	05/04/2022	ACH 050422	CALPERS	1394905143	1012 · Bank of America Gen'l Ckg	
Bill	05/01/2022	1394905143		Medical Insurance Premiums - May 2022	60182.1 · Medical Insurance	12,535.42
TOTAL						12,535.42
Bill Pmt -Check	05/04/2022	23495	ACWA JOINT POWERS INSURANCE AUTHORITY	0686143	1012 · Bank of America Gen'l Ckg	

CHINO BASIN WATERMASTER
Cash Disbursements For The Month of
May 2022

Financial Report - B6
For Informational Purposes Only

Type	Date	Num	Name	Memo	Account	Paid Amount
Bill	05/03/2022	0686143		Prepayment - June 2022 May 2022	1409 · Prepaid Life, BAD&D & LTD 60191 · Life & Disab.Ins Benefits	304.92 304.92
TOTAL						609.84
Bill Pmt -Check	05/04/2022	23496	APPLIED COMPUTER TECHNOLOGIES	35447	1012 · Bank of America Gen'l Ckg	
Bill	04/30/2022	35447		Database Consulting Services - April 2022	6052.2 · Applied Computer Technol	3,850.00
TOTAL						3,850.00
Bill Pmt -Check	05/04/2022	23497	BURRTEC WASTE INDUSTRIES, INC.	N2112730259	1012 · Bank of America Gen'l Ckg	
Bill	05/03/2022	N2112730259		May 2022	6024 · Building Repair & Maintenance	142.50
TOTAL						142.50
Bill Pmt -Check	05/04/2022	23498	MONTUORI, KERRY K.	4/22/22 Hearing Transcript	1012 · Bank of America Gen'l Ckg	
Bill	04/22/2022	4/22 Hearing Transcr		4/22/22 Court Hearing Transcript Shipping fee	6046 · Legal Publications/Services 6046 · Legal Publications/Services	1,037.00 9.00
TOTAL						1,046.00
Bill Pmt -Check	05/04/2022	23499	RR FRANCHISING, INC.	111234	1012 · Bank of America Gen'l Ckg	
Bill	04/30/2022	111234		Electrostatic spraying on 4/02, 4/16, and 4/30.	6024 · Building Repair & Maintenance	667.50
TOTAL						667.50
Bill Pmt -Check	05/04/2022	23500	STATE COMPENSATION INSURANCE FUND	1000293050	1012 · Bank of America Gen'l Ckg	
Bill	05/01/2022	1000293050		Policy # 1970970 - Premium charge 4/26/22-5/26/22	60183 · Worker's Comp Insurance	702.33
TOTAL						702.33
Bill Pmt -Check	05/04/2022	ACH 050422	BANK OF AMERICA	XXXX-XXXX-XXXX-4026	1012 · Bank of America Gen'l Ckg	
Bill	05/04/2022	XXXX-XXXX-XXXX-4026		Down payment on Switch upgrade Reg. 4/13/22 ISMAR11 Seminar - JN/AN/ETF/PK Miscellaneous office supplies Miscellaneous office supplies 3/18/22 Board Workshop prep meeting Miscellaneous office supplies Miscellaneous office supplies New employee search New employee search New employee search Miscellaneous office supplies Miscellaneous office supplies Software purchase - Kahoot Miscellaneous office supplies	6055 · Computer Hardware 6193.2 · Conference - Registration Fee 6031.7 · Other Office Supplies 6031.7 · Other Office Supplies 6312 · Meeting Expenses 6031.7 · Other Office Supplies 6031.7 · Other Office Supplies 6016 · New Employee Search Costs 6016 · New Employee Search Costs 6016 · New Employee Search Costs 6031.7 · Other Office Supplies 6031.7 · Other Office Supplies 6054 · Computer Software 6031.7 · Other Office Supplies	972.84 1,320.00 21.68 93.98 188.87 40.83 1,121.08 144.00 49.95 99.90 46.04 15.06 61.80 169.48

CHINO BASIN WATERMASTER
Cash Disbursements For The Month of
May 2022

Financial Report - B6
For Informational Purposes Only

Type	Date	Num	Name	Memo	Account	Paid Amount
				Miscellaneous office supplies	6031.7 · Other Office Supplies	53.24
				Transcript for 2/04/22 court hearing	6046 · Legal Publications/Services	121.00
				New employee search	6016 · New Employee Search Costs	144.00
				Tablet purchase	6055 · Computer Hardware	521.19
				Uber - P. Kavounas will reimburse	6174 · Public Transportation	18.16
				Uber - P. Kavounas will reimburse	6174 · Public Transportation	18.03
				P. Kavounas mtg w/IEUA	8312 · Meeting Expenses	106.35
				P. Kavounas mtg w/CVWD, City of Pomona	8312 · Meeting Expenses	51.13
TOTAL						5,378.61
General Journal	05/05/2022	05/05/2022	Payroll and Taxes for 04/17/22-04/30/22	Payroll and Taxes for 04/17/22-04/30/22	1012 · Bank of America Gen'l Ckg	
			ADP, LLC	Direct Deposits for 04/17/22-04/30/22	1012 · Bank of America Gen'l Ckg	35,826.38
			ADP, LLC	Payroll Taxes for 04/17/22-04/30/22	1012 · Bank of America Gen'l Ckg	13,928.25
			ADP, LLC	Checks for 04/17/22-04/30/22	1012 · Bank of America Gen'l Ckg	1,796.94
			MISSIONSQUARE RETIREMENT	457(b) EE Deductions for 04/17/22-04/30/22	1012 · Bank of America Gen'l Ckg	5,929.82
			MISSIONSQUARE RETIREMENT	401(a) EE Deductions for 04/17/22-04/30/22	1012 · Bank of America Gen'l Ckg	1,809.06
TOTAL						59,290.45
Bill Pmt -Check	05/05/2022	ACH 050522	PUBLIC EMPLOYEES' RETIREMENT SYSTEM	Payor #3493	1012 · Bank of America Gen'l Ckg	
General Journal	05/05/2022	05/05/2022	PUBLIC EMPLOYEES' RETIREMENT SYSTEM	CalPERS Retirement for 04/17/22-04/30/22	2000 · Accounts Payable	10,042.04
TOTAL						10,042.04
Bill Pmt -Check	05/09/2022	23501	ACCENT COMPUTER SOLUTIONS, INC.	151339	1012 · Bank of America Gen'l Ckg	
Bill	04/30/2022	151339		Balance due for Switch Upgrade	6055 · Computer Hardware	272.83
TOTAL						272.83
Bill Pmt -Check	05/09/2022	23502	BOWCOCK, ROBERT	Board Member Compensation	1012 · Bank of America Gen'l Ckg	
Bill	04/05/2022	4/05 Storage Workshp		4/05/22 Evergreen Storage Workshop	6311 · Board Member Compensation	125.00
Bill	04/14/2022	4/14 Non Ag Mtg		4/14/22 Non Ag Pool Meeting	6311 · Board Member Compensation	125.00
Bill	04/21/2022	4/21 Advisory Comm		4/21/22 Advisory Committee Meeting	6311 · Board Member Compensation	125.00
Bill	04/22/2022	4/22 Court Hearing		4/22/22 Court Hearing	6311 · Board Member Compensation	125.00
Bill	04/26/2022	4/26 Board Workshop		4/26/22 Board Workshop	6311 · Board Member Compensation	125.00
Bill	04/28/2022	4/28 Board Mtg		4/28/22 Board Meeting	6311 · Board Member Compensation	125.00
TOTAL						750.00
Bill Pmt -Check	05/09/2022	23503	CURATALO, JAMES	Board Member Compensation	1012 · Bank of America Gen'l Ckg	
Bill	04/05/2022	4/05 Board Officers		4/05/22 Board Officers Meeting re Court Filings	6311 · Board Member Compensation	125.00
Bill	04/07/2022	4/07 Appro Pool Conf		4/07/22 Appropriative Pool Confidential Session	6311 · Board Member Compensation	125.00
Bill	04/08/2022	4/08 Court Hearing		4/08/22 Court Hearing	6311 · Board Member Compensation	125.00
Bill	04/12/2022	4/12 Board Officers		4/12/22 Board Officers Check-in	6311 · Board Member Compensation	125.00

CHINO BASIN WATERMASTER
Cash Disbursements For The Month of
May 2022

Financial Report - B6
For Informational Purposes Only

Type	Date	Num	Name	Memo	Account	Paid Amount
Bill	04/14/2022	4/14	Appro Pool Mtg	4/14/22 Appropriative Pool Meeting	6311 · Board Member Compensation	125.00
Bill	04/21/2022	4/21	Board Officers	4/21/22 Board Officers/Pool Leadership Meeting	6311 · Board Member Compensation	125.00
Bill	04/22/2022	4/22	Court Hearing	4/22/22 Court Hearing	6311 · Board Member Compensation	125.00
Bill	04/25/2022	4/25	Admin Mtg	4/25/22 Administrative Meeting with P. Kavounas	6311 · Board Member Compensation	125.00
Bill	04/26/2022	4/26	Board Workshop	4/26/22 Board Workshop	6311 · Board Member Compensation	125.00
Bill	04/28/2022	4/28	Legal Counsel	4/28/22 Meeting w/Legal Counsel	6311 · Board Member Compensation	125.00
TOTAL						1,250.00
Bill Pmt -Check	05/09/2022	23504	DE BOOM, NATHAN	Ag Pool Member Compensation	1012 · Bank of America Gen'l Ckg	
Bill	04/14/2022	4/14	Ag Pool Mtg	4/14/22 Ag Pool Mtg	8470 · Ag Meeting Attend -Special	125.00
TOTAL						125.00
Bill Pmt -Check	05/09/2022	23505	DE HAAN, HENRY	Ag Pool Member Compensation	1012 · Bank of America Gen'l Ckg	
Bill	04/01/2022	3/10	Ag Pool Mtg	3/10/22 Ag Pool Meeting	8470 · Ag Meeting Attend -Special	125.00
Bill	04/01/2022	3/18	Special Ag Mtg	3/18/22 Special Ag Pool Meeting	8470 · Ag Meeting Attend -Special	125.00
Bill	04/14/2022	4/14	Ag Pool Mtg	4/14/22 Ag Pool Meeting	8470 · Ag Meeting Attend -Special	125.00
TOTAL						375.00
Bill Pmt -Check	05/09/2022	23506	FILIPPI, GINO	Ag Pool Member Compensation	1012 · Bank of America Gen'l Ckg	
Bill	04/14/2022	4/14	Ag Pool Mtg	4/14/22 Ag Pool Meeting	8470 · Ag Meeting Attend -Special	125.00
Bill	04/21/2022	4/21	Advisory Comm	4/21/22 Advisory Committee Meeting	8470 · Ag Meeting Attend -Special	125.00
Bill	04/28/2022	4/28	Board Mtg	4/28/22 Board Meeting	8470 · Ag Meeting Attend -Special	125.00
TOTAL						375.00
Bill Pmt -Check	05/09/2022	23507	GEYE, BRIAN	Non-Ag Pool Member Compensation	1012 · Bank of America Gen'l Ckg	
Bill	04/05/2022	4/05	Storage Workshp	4/05/22 Evergreen Storage Workshop	8511 · Non-Ag Pool Member Compensation	125.00
Bill	04/08/2022	4/08	Court Hearing	4/08/22 Court Hearing	8511 · Non-Ag Pool Member Compensation	125.00
Bill	04/14/2022	4/14	Non Ag Pool Mtg	4/14/22 Non Ag Pool Meeting	8511 · Non-Ag Pool Member Compensation	125.00
Bill	04/19/2022	4/19	Budget Workshop	4/19/22 Budget Workshop #1	8511 · Non-Ag Pool Member Compensation	125.00
Bill	04/21/2022	4/21	Advisory Comm	4/21/22 Advisory Committee Meeting	8511 · Non-Ag Pool Member Compensation	125.00
Bill	04/21/2022	4/21	Bd Officers	4/21/22 Board Officers/Pool Leadership Meeting	8511 · Non-Ag Pool Member Compensation	125.00
Bill	04/22/2022	4/22	Court Hearing	4/22/21 Court Hearing	8511 · Non-Ag Pool Member Compensation	125.00
Bill	04/26/2022	4/26	Budget Workshop	4/26/22 Budget Workshop #2	8511 · Non-Ag Pool Member Compensation	125.00
Bill	04/26/2022	4/26	Board Workshop	4/26/22 Board Workshop	8511 · Non-Ag Pool Member Compensation	125.00
Bill	04/28/2022	4/28	Board Mtg	4/28/22 Board Meeting	8511 · Non-Ag Pool Member Compensation	125.00
TOTAL						1,250.00
Bill Pmt -Check	05/09/2022	23508	TELLEZ-FOSTER, EDGAR	Employee Reimbursement	1012 · Bank of America Gen'l Ckg	
Bill	05/05/2022			5/03/22 Ops Staff mtg	6141.3 · Admin Meetings	77.45
				Supplies for 5/04/22 staff picnic	6141.3 · Admin Meetings	54.38
						54.38

CHINO BASIN WATERMASTER
Cash Disbursements For The Month of
May 2022

Financial Report - B6
For Informational Purposes Only

Type	Date	Num	Name	Memo	Account	Paid Amount
TOTAL						131.83
Bill Pmt -Check	05/09/2022	23509	WESTERN MUNICIPAL WATER DISTRICT	Board Member Compensation	1012 - Bank of America Gen'l Ckg	
Bill	04/08/2022	4/28 Court Hearing		4/08/22 Court Hearing - Gardner	6311 - Board Member Compensation	125.00
Bill	04/14/2022	4/14 Appro Pool Mtg		4/14/22 Appropriative Pool Meeting - Gardner	6311 - Board Member Compensation	125.00
Bill	04/22/2022	4/22 Court Hearing		4/22/22 Court Hearing - Gardner	6311 - Board Member Compensation	125.00
Bill	04/26/2022	4/26 Board Workshop		4/26/22 Board Workshop - Gardner	6311 - Board Member Compensation	125.00
Bill	04/28/2022	4/28 Board Mtg		4/28/22 Board Meeting - Gardner	6311 - Board Member Compensation	125.00
TOTAL						625.00
General Journal	05/10/2022	05/10/2022	HEALTH EQUITY	Health Equity Invoice 3745133	1012 - Bank of America Gen'l Ckg	
			HEALTH EQUITY	Health Equity Invoice 3745133	1012 - Bank of America Gen'l Ckg	26.91
TOTAL						26.91
Bill Pmt -Check	05/17/2022	23510	CORELOGIC INFORMATION SOLUTIONS	82131978	1012 - Bank of America Gen'l Ckg	
Bill	04/30/2022	82131978		April 2022	7103.7 - Grdwtr Qual-Computer Svc	62.50
				82131978	7101.4 - Prod Monitor-Computer	62.50
TOTAL						125.00
Bill Pmt -Check	05/17/2022	23511	EGOSCUE LAW GROUP, INC.	Ag Pool Legal Services	1012 - Bank of America Gen'l Ckg	
Bill	04/30/2022			April 2022 - General Counsel	8467 - Ag Legal & Technical Services	43,520.50
TOTAL						43,520.50
Bill Pmt -Check	05/17/2022	23512	FIRST LEGAL NETWORK LLC	40061222	1012 - Bank of America Gen'l Ckg	
Bill	04/30/2022	40061222		Court filings for April 2022	6061.5 - Court Filing Services	1,856.96
TOTAL						1,856.96
Bill Pmt -Check	05/17/2022	23513	GRAINGER	9292788701	1012 - Bank of America Gen'l Ckg	
Bill	04/27/2022	9292788701		Miscellaneous water quality monitoring supplies acc 7103.6 - Grdwtr Qual-Supplies		339.00
TOTAL						339.00
Bill Pmt -Check	05/17/2022	23514	IN-SITU, INC.	Miscellaneous Invoices	1012 - Bank of America Gen'l Ckg	
Bill	04/29/2022	00151864		Solution	7104.6 - Grdwtr Level-Supplies	189.28
Bill	05/03/2022	1042771		Solution	7104.6 - Grdwtr Level-Supplies	161.63
TOTAL						350.91
Bill Pmt -Check	05/17/2022	23515	LAW OFFICE OF ALLEN W. HUBSCH	Non-Ag Pool Legal Services	1012 - Bank of America Gen'l Ckg	
Bill	04/30/2022			April 2022	8567 - Non-Ag Legal Service	8,406.00
TOTAL						8,406.00

CHINO BASIN WATERMASTER
Cash Disbursements For The Month of
May 2022

Financial Report - B6
For Informational Purposes Only

Type	Date	Num	Name	Memo	Account	Paid Amount
Bill Pmt -Check	05/17/2022	23516	LEGAL SHIELD	111802	1012 - Bank of America Gen'l Ckg	
Bill	05/13/2022	111802		Employee deductions - May 2022	60194 - Other Employee Insurance	135.50
TOTAL						135.50
Bill Pmt -Check	05/17/2022	23517	EASTVALE DEVELOPMENT COMPANY - PIERS Board Member & Ag Pool Member Compensatic	1012 - Bank of America Gen'l Ckg		
Bill	04/04/2022	4/04 Call w/Chair		4/04/22 Call w/Ag Pool Chair	8470 - Ag Meeting Attend -Special	125.00
Bill	04/05/2022	4/05 Call w/Legal		4/05/22 Call w/Ag Pool Chair and Legal Counsel	8470 - Ag Meeting Attend -Special	125.00
Bill	04/05/2022	4/05 Call w/Chair		4/05/22 Call w/Ag Pool Chair	8470 - Ag Meeting Attend -Special	125.00
Bill	04/05/2022	4/05 Storage Workshp		4/05/22 Storage Workshop	6311 - Board Member Compensation	125.00
Bill	04/06/2022	4/06 Call w/Legal		4/06/22 Call w/Legal Counsel	8470 - Ag Meeting Attend -Special	125.00
Bill	04/07/2022	4/07 Call w/Chair		4/07/22 Call w/Ag Pool Chair and Legal Counsel	8470 - Ag Meeting Attend -Special	125.00
Bill	04/08/2022	4/08 Call w/Chair		4/08/22 Call w/Ag Pool Chair	8470 - Ag Meeting Attend -Special	125.00
Bill	04/08/2022	4/08 Call w/Legal		4/08/22 Call w/Ag Pool Chair and Legal Counsel	8470 - Ag Meeting Attend -Special	125.00
Bill	04/08/2022	4/08 Court Hearing		4/08/22 Court Hearing	6311 - Board Member Compensation	125.00
Bill	04/12/2022	4/12 Board Officers		4/12/22 Board Officers Check-in	6311 - Board Member Compensation	125.00
Bill	04/13/2022	4/13 Call w/Chair		4/13/22 Call w/Chair	8470 - Ag Meeting Attend -Special	125.00
Bill	04/14/2022	4/14 Call w/Chari		4/14/22 Call w/Chair	8470 - Ag Meeting Attend -Special	125.00
Bill	04/14/2022	4/14 Ag Pool Mtg		4/14/22 Ag Pool Meeting	8470 - Ag Meeting Attend -Special	125.00
Bill	04/15/2022	4/15 Call w/Chair		4/15/22 Call w/Chair	8470 - Ag Meeting Attend -Special	125.00
Bill	04/19/2022	4/19 Budget Wkshp 1		4/19/22 Budget Workshop #1	6311 - Board Member Compensation	125.00
Bill	04/20/2022	4/20 Call w/Chair		4/20/22 Call w/Chair	8470 - Ag Meeting Attend -Special	125.00
Bill	04/21/2022	4/21 Advisory Comm		4/21/22 Advisory Committee Meeting	8470 - Ag Meeting Attend -Special	125.00
Bill	04/21/2022	4/21 Call w/Legal		4/21/22 Call w/Ag Pool Chair and Legal Counsel	8470 - Ag Meeting Attend -Special	125.00
Bill	04/21/2022	4/21 Call w/Chair		4/21/22 Call w/Ag Pool Chair and Legal Counsel	8470 - Ag Meeting Attend -Special	125.00
Bill	04/21/2022	4/21 RIPCom		4/21/22 RIPComm Meeting	6311 - Board Member Compensation	125.00
Bill	04/22/2022	4/22 Call w/Legal		4/22/22 Call w/Ag Pool Chair and Legal Counsel	8470 - Ag Meeting Attend -Special	125.00
Bill	04/22/2022	4/22 Call w/Bd Chair		4/22/22 Call w/Board Chair	6311 - Board Member Compensation	125.00
Bill	04/25/2022	4/25 Call w/Bd Chair		4/25/22 Call w/Board Chair	6311 - Board Member Compensation	125.00
Bill	04/26/2022	4/26 Call w/Legal		4/26/22 Call w/Ag Pool Chair and Legal Counsel	8470 - Ag Meeting Attend -Special	125.00
Bill	04/26/2022	4/26 Call w/Chair		4/26/22 Call w/Ag Pool Chair	8470 - Ag Meeting Attend -Special	125.00
Bill	04/26/2022	4/26 Board Officers		4/26/22 Board Officers Meeting	6311 - Board Member Compensation	125.00
Bill	04/28/2022	4/28 Board Mtg		4/28/22 Board Meeting	6311 - Board Member Compensation	125.00
Bill	04/29/2022	4/29 Call w/Legal		4/29/22 Call w/Ag Pool Chair and Legal Counsel	8470 - Ag Meeting Attend -Special	125.00
Bill	04/30/2022	4/30 Call w/Chair		4/30/22 Call w/Ag Pool Chair	8470 - Ag Meeting Attend -Special	125.00
TOTAL						3,625.00
Bill Pmt -Check	05/17/2022	23518	R&D PEST SERVICES	323875	1012 - Bank of America Gen'l Ckg	
Bill	05/12/2022	323875		May 2022 - Treat office and annex for pest control	6024 - Building Repair & Maintenance	100.00
TOTAL						100.00

CHINO BASIN WATERMASTER
Cash Disbursements For The Month of
May 2022

Financial Report - B6
For Informational Purposes Only

Type	Date	Num	Name	Memo	Account	Paid Amount
Bill Pmt -Check	05/17/2022	23519	RR FRANCHISING, INC.	110630	1012 - Bank of America Gen'l Ckg	
Bill	05/01/2022	110630		Monthly service - May 2022	6024 - Building Repair & Maintenance	915.00
TOTAL						915.00
General Journal	05/17/2022	05/17/2022	HEALTH EQUITY	Health Equity Invoice 3768312	1012 - Bank of America Gen'l Ckg	
			HEALTH EQUITY	Health Equity Invoice 3768312	1012 - Bank of America Gen'l Ckg	30.89
TOTAL						30.89
General Journal	05/19/2022	05/19/2022	Payroll and Taxes for 05/01/22-05/14/22	Payroll and Taxes for 05/01/22-05/14/22	1012 - Bank of America Gen'l Ckg	
			ADP, LLC	Direct Deposits for 05/01/22-05/14/22	1012 - Bank of America Gen'l Ckg	33,568.59
			ADP, LLC	Payroll Taxes for 05/01/22-05/14/22	1012 - Bank of America Gen'l Ckg	13,371.03
			ADP, LLC	Payroll Checks for 05/01/22-05/14/22	1012 - Bank of America Gen'l Ckg	2,968.25
			MISSIONSQUARE RETIREMENT	457(b) EE Deductions for 05/01/22-05/14/22	1012 - Bank of America Gen'l Ckg	6,519.24
			MISSIONSQUARE RETIREMENT	401(a) EE Deductions for 05/01/22-05/14/22	1012 - Bank of America Gen'l Ckg	1,811.59
TOTAL						58,238.70
Bill Pmt -Check	05/19/2022	23520	CUCAMONGA VALLEY WATER DISTRICT	Office Lease	1012 - Bank of America Gen'l Ckg	
Bill	05/17/2022			Lease payment due June 1, 2022	1422 - Prepaid Rent	7,588.83
TOTAL						7,588.83
Bill Pmt -Check	05/19/2022	23521	FAVELA, RUBY	Employee Reimbursement	1012 - Bank of America Gen'l Ckg	
Bill	05/17/2022			Supplies for 4/26/22 Board Workshop	6312 - Meeting Expenses	113.52
				Supplies for new employee welcome	6141.3 - Admin Meetings	44.18
				Miscellaneous office supplies	6031.7 - Other Office Supplies	72.66
				Mileage reimbursement	6173 - Airfare/Mileage	32.41
TOTAL						262.77
Bill Pmt -Check	05/19/2022	23522	FRONTIER COMMUNICATIONS	909-484-3890-050914-5	1012 - Bank of America Gen'l Ckg	
Bill	05/17/2022	90948438900509145		Office fax	6022 - Telephone	167.10
TOTAL						167.10
Bill Pmt -Check	05/19/2022	23523	GREAT AMERICA LEASING CORP.	31642695	1012 - Bank of America Gen'l Ckg	
Bill	05/17/2022	31642695		Invoice for May 2022	6043.1 - Ricoh Lease Fee	1,528.34
				Supply freight fee	6043.2 - Ricoh Usage & Maintenance Fee	8.57
				Usage for black images	6043.2 - Ricoh Usage & Maintenance Fee	151.60
				Usage for color images	6043.2 - Ricoh Usage & Maintenance Fee	516.44
TOTAL						2,204.95
Bill Pmt -Check	05/19/2022	23524	PITNEY BOWES GLOBAL FINANCIAL SERVICE	Equipment Lease	1012 - Bank of America Gen'l Ckg	
Bill	05/19/2022	3105480211		Lease Property Tax - Account #0011526621	6044 - Postage Meter Lease	25.53

CHINO BASIN WATERMASTER
Cash Disbursements For The Month of
May 2022

Financial Report - B6
For Informational Purposes Only

Type	Date	Num	Name	Memo	Account	Paid Amount
Bill	05/19/2022	3105420168		Lease - Account #0011526621	6044 · Postage Meter Lease	454.87
TOTAL						<u>480.40</u>
Bill Pmt -Check	05/19/2022	23525	UNITED HEALTHCARE	052585654716	1012 · Bank of America Gen'l Ckg	
Bill	05/17/2022	052585654716		Dental Insurance Premium - June 2022	60182.2 · Dental & Vision Ins	926.61
TOTAL						<u>926.61</u>
Bill Pmt -Check	05/19/2022	23526	VERIZON WIRELESS	9905710265	1012 · Bank of America Gen'l Ckg	
Bill	04/30/2022	9905710265		Acct #470810953-00002	6022 · Telephone	387.34
TOTAL						<u>387.34</u>
Bill Pmt -Check	05/19/2022	23527	WESTERN AUDIO VISUAL	16651	1012 · Bank of America Gen'l Ckg	
Bill	05/18/2022	16651		Extended service agreement 1 year contract	6055 · Computer Hardware	1,932.00
TOTAL						<u>1,932.00</u>
Bill Pmt -Check	05/19/2022	ACH 051922	PUBLIC EMPLOYEES' RETIREMENT SYSTEM	Payor #3493	1012 · Bank of America Gen'l Ckg	
General Journal	05/14/2022	05/19/2022	PUBLIC EMPLOYEES' RETIREMENT SYSTEM	CalPERS Retirement for 05/01/22-05/14/22	2000 · Accounts Payable	10,304.18
TOTAL						<u>10,304.18</u>
General Journal	05/24/2022	05/24/2022	HEALTH EQUITY	Health Equity Invoice 3791570	1012 · Bank of America Gen'l Ckg	
			HEALTH EQUITY	Health Equity Invoice 3791570	1012 · Bank of America Gen'l Ckg	9.73
TOTAL						<u>9.73</u>
Bill Pmt -Check	05/25/2022	ACH 052522	PUBLIC EMPLOYEES' RETIREMENT SYSTEM	Payor #3493	1012 · Bank of America Gen'l Ckg	
Bill	05/01/2022	16786845		Annual Unfunded Accrued Liability-Plan 3299	60180 · Employers PERS Expense	8,989.42
TOTAL						<u>8,989.42</u>
General Journal	05/25/2022	05/25/2022	HEALTH EQUITY	Health Equity Invoice 3694391	1012 · Bank of America Gen'l Ckg	
			HEALTH EQUITY	Health Equity Invoice 3694391	1012 · Bank of America Gen'l Ckg	81.50
TOTAL						<u>81.50</u>
					Total Disbursements:	<u><u>267,169.71</u></u>

CHINO BASIN WATERMASTER

I. CONSENT CALENDAR

C. APPLICATION: LOCAL STORAGE AGREEMENTS (ONAP)



CHINO BASIN WATERMASTER

9641 San Bernardino Road, Rancho Cucamonga, CA 91730
Tel: 909.484.3888 Fax: 909.484.3890 www.cbwm.org

PETER KAVOUNAS, P.E.
General Manager

STAFF REPORT

DATE: June 16, 2022

TO: Advisory Committee Members

SUBJECT: Application: Local Storage Agreements - ONAP (Consent Calendar Item I.C.)

SUMMARY:

Issue: Consideration of Application for Local Storage Agreements – Storage of Excess Carryover Water by Members of the Overlying (Non-Agricultural) Pool in amounts to be determined as of the close of Fiscal Year 2021/22 (June 30, 2022). [Within WM Duties and Powers]

Recommendation: Recommend to the Watermaster Board to approve the proposed agreements.

Financial Impact: None

Future Consideration

Advisory Committee – June 16, 2022: Advice and assistance.

Watermaster Board – June 23, 2022: Approval

ACTIONS:

Appropriative Pool – May 12, 2022: Unanimously recommended Advisory Committee to recommend Board approval.

Non-Agricultural Pool – May 12, 2022: Unanimously recommended its representatives to support at Advisory Committee and Watermaster Board subject to changes they deem appropriate.

Agricultural Pool – May 12, 2022: Unanimously recommended Advisory Committee to recommend Board approval.

Advisory Committee – June 16, 2022:

Watermaster Board – June 23, 2022:

Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court, and to develop and implement an Optimum Basin Management Program

BACKGROUND

The Court approved the Peace Agreement, the Implementation Plan and the goals and objectives identified in the OBMP Phase I Report on July 13, 2000 and ordered Watermaster to proceed in a manner consistent with the Peace Agreement. Under the Peace Agreement, Watermaster approval is required for applications to store, recapture, recharge, or transfer water, as well as for applications for credits or reimbursements and storage and recovery programs.

Where there is no material physical injury, Watermaster must approve the transaction. Where the request for Watermaster approval is submitted by a party to the Judgment, there is a rebuttable presumption that most of the transactions do not result in Material Physical Injury to a party to the Judgment or the Basin (Storage and Recovery Programs do not have this presumption).

Pursuant to the Peace Agreement §5.2; Restated Judgment, Exhibit G, Non-Agricultural Pool Pooling Plan ¶¶7; Restated Judgment Exhibit H, and Appropriative Pool Pooling Plan ¶¶12, parties are required to have approved Local Storage Agreements for the amounts in their stored water accounts.

The following applications for Local Storage Agreements were noticed to stakeholders on May 6, 2022:

- Consideration of Local Storage Agreements – Storage of Excess Carryover Water by the Non-Agricultural Pool in amounts to be determined, and as of the close of Fiscal Year 2021/22 (June 30, 2022).

DISCUSSION

At its April 14, 2022 meeting, the Overlying (Non-Agricultural) Pool directed its Chair and Counsel to submit a “universal” application (Form 1) for Overlying (Non-Agricultural) Pool Excess Carryover “for each member, a quantity equal to the surplus carryover of such member as of midnight on the evening of June 30, 2022” (Attachment 1).

The 500,000 acre-feet Safe Storage Capacity threshold analyzed in the OBMP Implementation Plan PEIR was re-examined and revised to 600,000 acre-feet, through June 30, 2021. On May 27, 2021, the Watermaster Board adopted Resolution 2021-03 (Implementation of the Local Storage Limitation Solution), finding that a proposed order should be filed with and adopted by the Court regarding the management and administration of volumes of stored water exceeding 500,000 acre-feet up to a maximum of 700,000 acre-feet. On June 25, 2021, the Court approved the Implementation of the Local Storage Limitation Solution, increasing the Safe Storage Capacity threshold to 700,000 acre-feet through June 30, 2030, and thereafter, 620,000 acre-feet through June 30, 2035.

Pursuant to the Peace Agreement, standard losses will be applied to all water placed into Local Supplemental Storage Accounts in a manner consistent with all other water held in storage.

The application for Local Storage Agreements was presented to the Pool Committees on May 12, 2022. The Appropriative and Overlying (Agricultural) Pools both unanimously recommended the Advisory Committee to recommend to the Watermaster Board to approve the proposed agreements; the Overlying (Non-Agricultural) Pool unanimously recommended its representatives to support at Advisory Committee and Watermaster Board subject to changes they deem appropriate.

The quantities in Parties’ stored water accounts will be finalized at the time the 2022/23 Assessment Package is adopted (generally in November each year).

ATTACHMENTS

1. Form 1 – Application for Local Storage Agreement including Attachment
2. Notice Forms

**APPLICATION
FOR
LOCAL STORAGE AGREEMENT**

APPLICANT

<u>Non-Agricultural Pool Committee, for its members</u> Name of Party	<u>April 17, 2022</u> Date Requested	_____ Date Approved
<u>Various</u> Street Address	<u>For each member, a quantity equal to the surplus carryover of such member as of midnight on the evening of June 30, 2022. See Attachment.</u>	
<u>Various</u> _____ <u>CA</u> _____ <u>Various</u> _____ City State Zip Code		
Telephone: <u>Various</u> _____	Amount Requested	Amount Approved
Facsimile: <u>Various</u>		

TYPE OF WATER TO BE PLACED IN STORAGE

Excess Carry Over Local Supplemental or Imported Both

PURPOSE OF STORAGE - Check all that may apply

- Stabilize or reduce future water costs/assessments.
- Facilitate utilization of other available sources of supply.
- Facilitate replenishment under certain well sites.
- Preserve pumping right for a changed future potential use.
- Other, explain Any purpose authorized or otherwise permitted under the Judgment and/or other governing documents

METHOD AND LOCATION OF PLACEMENT IN STORAGE - Check and attach all that may apply

<input type="checkbox"/> Recharge (Form 2)	N/A: This application applies only to surplus carryover of members of the Non-Agricultural Pool. Surplus carryover consists of unproduced ground water.
<input type="checkbox"/> Transfer of Right to Water in Storage (Form 3)	
<input type="checkbox"/> Transfer from another party to the Judgment (Form 5)	

METHOD AND LOCATION OF RECAPTURE FROM STORAGE - Check and attach all that may apply

<input type="checkbox"/> Pump from my wells (Form 4)	Other: Any method permitted under the Judgment and/or other governing documents.
<input type="checkbox"/> Transfer to another party to the Judgment (Form 3)	

WATER QUALITY AND WATER LEVELS

What is the existing water quality and what are the existing water levels in the areas that are likely to be affected?

For information about the water quality and water levels of the Basin, please see

http://www.cbwm.org/rep_engineering.htm and http://cbwm.org/rep_eng_maps.htm

MATERIAL PHYSICAL INJURY

Is the Applicant aware of any potential Material Physical Injury to a party to the Judgment or the Basin that may be caused by the action covered by the application? Yes [] No [X]

If yes, what are the proposed mitigation measures, if any, that might reasonably be imposed to ensure that the action does not result in Material Physical Injury to a party to the Judgment or the Basin?

ADDITIONAL INFORMATION ATTACHED Yes [X] No []



Applicant,
Chair, Non-Agricultural Pool Committee, as authorized by affirmative action of the Committee at its regular meeting on April 14, 2022

TO BE COMPLETED BY WATERMASTER:

DATE OF APPROVAL FROM NON-AGRICULTURAL POOL: May 12, 2022

DATE OF APPROVAL FROM AGRICULTURAL POOL: May 12, 2022

DATE OF APPROVAL FROM APPROPRIATIVE POOL: May 12, 2022

HEARING DATE, IF ANY: _____

DATE OF ADVISORY COMMITTEE APPROVAL: _____

DATE OF BOARD APPROVAL: _____ Agreement # _____

ATTACHMENT

This is an application for storage agreements authorized by the Non-Agricultural Pool Committee on behalf of the members of the Non-Agricultural Pool for surplus carryover of such members as of June 30, 2022.

In Section 8 of the Judgment, the Court determined that the members of the Non-Agricultural Pool were owners of an overlying water right. [Judgment, Section 8.] The allocation of Safe Yield to members of the Non-Agricultural Pool is not subject to adjustment for changes in Safe Yield. [Judgment, Section 44.]

If a member of the Non-Agricultural Pool produces less than its assigned share of Operating Safe Yield in any year, such unproduced water is considered “carryover,” and may be produced by such member in a subsequent year. [Judgment, Exhibit G, Section 7.] The first water produced by such member during any such subsequent year is deemed to be produced from any such carryover. [Judgment, Exhibit G, Section 7.] If the quantity of carryover of any member of the Non-Agricultural Pool in a year exceeds its production in such year, then such unproduced water is considered “surplus carryover.” [Judgment, Exhibit G, Section 7.] Section 7 of Exhibit G provides that members of the Non-Agricultural Pool shall execute storage agreements with Watermaster “as a condition of preserving such surplus carryover.”

The applicant understands that, at least in some instances, and for reasons unknown to the applicant, the term “surplus carryover” is referred to as “excess carryover.” For that reason, the applicant has checked the box marked “excess carryover” on this form.

The applicant understands that Watermaster reports the quantity of carryover and excess carryover of each member of the Non-Agricultural Pool in the annual assessment packages. The most recent annual assessment package is available on Watermaster’s website. http://www.cbwm.org/rep_finance.htm. Based on Section 7 of Exhibit G to the Judgment, as described in the preceding paragraph, the quantity added to the surplus carryover of each member of the Non-Agricultural Pool for the year ended June 30, 2022 is equal to or less than the carryover of such member for the year ended June 30, 2021.

Carryover becomes surplus carryover on June 30 of each year. In order to “preserve such surplus carryover,” the Non-Agricultural Pool Committee desires that members of the Non-Agricultural Pool have storage agreements in place on or prior to June 30 of each year, or, where doing so prior to June 30 is not feasible, as soon as practicable thereafter.

CHINO BASIN WATERMASTER

NOTICE

OF

APPLICATION(S)

RECEIVED FOR

LOCAL STORAGE AGREEMENT

Date of Notice:
May 6, 2022

This notice is to advise interested persons that the attached application(s) will come before the Watermaster Board on June 23, 2022.

NOTICE OF APPLICATION(S) RECEIVED

Date of Application: **April 17, 2022**

Date of this notice: **May 6, 2022**

Please take notice that the following Application has been received by Watermaster:

- Notice of Application for Local Storage Agreements – Storage of Excess Carryover Water by members of the Overlying (Non-Agricultural) Pool in amounts to be determined as of the close of Fiscal Year 2021/22 (June 30, 2022).

This **Application** will first be considered by each of the respective pool committees on the following dates:

Appropriative Pool:	May 12, 2022
Non-Agricultural Pool:	May 12, 2022
Agricultural Pool:	May 12, 2022

This **Application** will be scheduled for consideration by the Advisory Committee **no earlier than thirty days from the date of this notice and a minimum of twenty-one calendar days** after the last pool committee reviews it.

After consideration by the Advisory Committee, the **Application** will be considered by the Board.

Unless the **Application** is amended, as **Contests** must be submitted a minimum of fourteen (14) days prior to the Advisory Committee’s consideration of an **Application**, parties to the Judgment may file **Contests** to the **Application** with Watermaster **within seven calendar days** of when the last pool committee considers it. Any **Contest** must be in writing and state the basis of the **Contest**.

Watermaster address:

Chino Basin Watermaster
9641 San Bernardino Road
Rancho Cucamonga, CA 91730

Tel: (909) 484-3888
Fax: (909) 484-3890

CHINO BASIN WATERMASTER

I. CONSENT CALENDAR

D. APPLICATION: WATER TRANSACTION



CHINO BASIN WATERMASTER

9641 San Bernardino Road, Rancho Cucamonga, CA 91730
Tel: 909.484.3888 Fax: 909.484.3890 www.cbwm.org

PETER KAVOUNAS, P.E.
General Manager

STAFF REPORT

DATE: June 16, 2022

TO: Advisory Committee Members

SUBJECT: Application: Water Transaction – City of Chino to Monte Vista Water District
(Consent Calendar I.D.)

SUMMARY:

Issue: The Purchase of 500 acre-feet of water from City of Chino by Monte Vista Water District. The purchase is made from City of Chino's Excess Carryover account. [Within WM Duties and Powers]

Recommendation: Provide advice and assistance to the Watermaster Board on the proposed transaction.

Financial Impact: None

Future Consideration

Advisory Committee – June 16, 2022: Advice and assistance.

Watermaster Board – June 23, 2022: Approval

ACTIONS:

Appropriative Pool – May 12, 2022: Unanimously recommended Advisory Committee to recommend to the Watermaster Board to approve.

Non-Agricultural Pool – May 12, 2022: Unanimously recommended its representatives to support at Advisory Committee and Watermaster Board subject to changes they deem appropriate.

Agricultural Pool – May 12, 2022: Unanimously recommended Advisory Committee to recommend to the Watermaster Board to approve.

Advisory Committee – June 16, 2022:

Watermaster Board – June 23, 2022:

Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court, and to develop and implement an Optimum Basin Management Program

BACKGROUND

The Court approved the Peace Agreement, the OBMP Implementation Plan, and the goals and objectives identified in the OBMP Phase I Report on July 13, 2000 and ordered Watermaster to proceed in a manner consistent with the Peace Agreement. Under the Peace Agreement, Watermaster approval is required for applications to store, recapture, recharge, or transfer water, as well as for applications for credits or reimbursements, and storage and recovery programs.

Where there is no material physical injury, Watermaster must approve the transaction. Where the request for Watermaster approval is submitted by a Party to the Judgment, there is a rebuttable presumption that most of the transactions do not result in material physical injury to a Party to the Judgment or the Basin (Storage and Recovery Programs do not have this presumption).

The date of this application is April 20, 2022. Notice of the transaction was transmitted electronically on May 6, 2022 along with the materials submitted by the requestor.

DISCUSSION

Beyond confirmation of the source of the water to be transferred (Supplemental Water or Excess Carryover), Watermaster will evaluate the eventual disposition of the transferred water (e.g., production, storage, etc.) at the end of the production year and account for the same, consistent with the Watermaster Guidance Documents.

Water transactions occur each year and are included as production by the respective entity (if produced) in any relevant analyses conducted by West Yost pursuant to the Peace Agreement and the Rules & Regulations. There is no indication that additional analysis regarding this transaction is necessary at this time. As part of the OBMP Implementation Plan, measurement of groundwater levels and ground level changes are ongoing and based on current data, we cannot conclude that the proposed water transaction will cause material physical injury to a Party to the Judgment, or to the Basin.

On May 12, 2022, the proposed transaction was presented to the Pool Committees for consideration. The Appropriative and Overlying (Agricultural) Pools both unanimously recommended Advisory Committee to recommend to the Watermaster Board to approve. The Overlying (Non-Agricultural) Pool unanimously recommended its representatives to support at Advisory Committee and Watermaster Board subject to changes they deem appropriate.

ATTACHMENTS

1. Consolidate Forms 3, 4, & 5
2. Notice Forms

**CONSOLIDATED WATER TRANSFER FORMS:
FORM 3: APPLICATION FOR SALE OR TRANSFER OF RIGHT TO PRODUCE WATER FROM STORAGE
FORM 4: APPLICATION OR AMENDMENT TO APPLICATION TO RECAPTURE WATER IN STORAGE
FORM 5: APPLICATION TO TRANSFER ANNUAL PRODUCTION RIGHT OR SAFE YIELD**

FISCAL YEAR 2021 - 2022

DATE REQUESTED: April 20, 2022

AMOUNT REQUESTED: 500 Acre-Feet

TRANSFER FROM (SELLER / TRANSFEROR):	TRANSFER TO (BUYER / TRANSFEREE):
<u>City of Chino</u> Name of Party	<u>Monte Vista Water District</u> Name of Party
<u>13220 Central Avenue</u> Street Address	<u>10575 Central Avenue</u> Street Address
<u>Chino</u> <u>CA</u> <u>91710</u> City State Zip Code	<u>Montclair</u> <u>CA</u> <u>91763</u> City State Zip Code
<u>(909) 334-3404</u> Telephone	<u>(909) 267-2113</u> Telephone
<u>dcrosley@cityofchino.org</u> Facsimile	<u>bschwartz@mvwd.org</u> Facsimile

Have any other transfers been approved by Watermaster between these parties covering the same fiscal year?

Yes No

PURPOSE OF TRANSFER:

- Pump when other sources of supply are curtailed
- Pump to meet current or future demand over and above production right
- Pump as necessary to stabilize future assessment amounts
- Other, explain _____

WATER IS TO BE TRANSFERRED FROM:

- Annual Production Right (Appropriative Pool) or Operating Safe Yield (Non-Agricultural Pool)
- Storage
- Annual Production Right / Operating Safe Yield first, then any additional from Storage
- Other, explain Excess Carryover

WATER IS TO BE TRANSFERRED TO:

- Annual Production Right / Operating Safe Yield (common)
- Storage (rare)
- Other, explain _____

SAID TRANSFER SHALL BE CONDITIONED UPON:

- (1) Transferee shall exercise said right on behalf of Transferor under the terms of the Judgment, the Peace Agreement, the Peace II Agreement, and the Management Zone 1 Subsidence Management Plan for the period described above. The first water produced in any year shall be that produced pursuant to carry-over rights defined in the Judgment. After production of its carry-over rights, if any, the next (or first if no carry-over rights) water produced by Transferee from the Chino Basin shall be that produced hereunder.
- (2) Transferee shall put all waters utilized pursuant to said Transfer to reasonable beneficial use.
- (3) Transferee shall pay all Watermaster assessments on account of the water production hereby Transferred.
- (4) Any Transferee not already a party must Intervene and become a party to the Judgment.

ADDITIONAL INFORMATION ATTACHED

Yes No



Seller / Transferor Representative Signature

Dave Crosley

Seller / Transferor Representative Name (Printed)

Bill Schwartz

Buyer / Transferee Representative Signature

Bill Schwartz

Buyer / Transferee Representative Name (Printed)

Digitally signed by Bill Schwartz
DN: cn=Director of Engineering, o=Harris Water Meter District,
c=CA, email=Bill.Schwartz@hwmtd.org
Reason: I am approving this document
Location: your signing location here
Date: 2022.04.23 07:54:11-0700
Four-PDF Super version 1.0.0.0

TO BE COMPLETED BY WATERMASTER STAFF:

DATE OF WATERMASTER NOTICE: May 6, 2022

DATE OF APPROVAL FROM APPROPRIATIVE POOL: May 12, 2022

DATE OF APPROVAL FROM NON-AGRICULTURAL POOL: May 12, 2022

DATE OF APPROVAL FROM AGRICULTURAL POOL: May 12, 2022

HEARING DATE, IF ANY: _____

DATE OF ADVISORY COMMITTEE APPROVAL: _____

DATE OF BOARD APPROVAL: _____

CHINO BASIN WATERMASTER

NOTICE

OF

APPLICATION(S)

RECEIVED FOR

WATER TRANSACTIONS – ACTIVITIES

Date of Notice:

May 6, 2022

This notice is to advise interested persons that the attached application(s) will come before the Watermaster Board on or after 30 days from the date of this notice.

TRANSFER OF WATER

A party to the Judgment has submitted a proposed transfer of water for Watermaster approval. Unless contrary evidence is presented to Watermaster that overcomes the rebuttable presumption provided in Section 5.3(b)(iii) of the Peace Agreement, Watermaster must find that there is “no material physical injury” and approve the transfer. Watermaster staff is not aware of any evidence to suggest that this transfer would cause material physical injury and hereby provides this notice to advise interested persons that this transfer will come before the Watermaster Board on or after 30 days from the date of this notice. The attached staff report will be included in the meeting package at the time the transfer begins the Watermaster process (comes before Watermaster).

NOTICE OF APPLICATION(S) RECEIVED

Date of Application: **April 20, 2022**

Date of this notice: **May 6, 2022**

Please take notice that the following Application has been received by Watermaster:

- Notice of Sale or Transfer –The purchase of 500 acre-feet of water from City of Chino by Monte Vista Water District. This purchase is made from City of Chino’s Excess Carryover Account.

This *Application* will first be considered by each of the respective pool committees on the following dates:

Appropriative Pool: May 12, 2022

Non-Agricultural Pool: May 12, 2022

Agricultural Pool: May 12, 2022

This *Application* will be scheduled for consideration by the Advisory Committee *no earlier than thirty days from the date of this notice and a minimum of twenty-one calendar days* after the last pool committee reviews it.

After consideration by the Advisory Committee, the *Application* will be considered by the Board.

Unless the *Application* is amended, parties to the Judgment may file *Contests* to the *Application* with Watermaster *within seven calendar days* of when the last pool committee considers it. Any *Contest* must be in writing and state the basis of the *Contest*.

Watermaster address:

Chino Basin Watermaster
9641 San Bernardino Road
Rancho Cucamonga, CA 91730

Tel: (909) 484-3888
Fax: (909) 484-3890

CHINO BASIN WATERMASTER

II. BUSINESS ITEMS

A. 2021 ANNUAL REPORT OF THE PRADO BASIN HABITAT SUSTAINABILITY COMMITTEE



CHINO BASIN WATERMASTER

9641 San Bernardino Road, Rancho Cucamonga, CA 91730
Tel: 909.484.3888 Fax: 909.484.3890 www.cbwm.org

PETER KAVOUNAS, P.E.
General Manager

STAFF REPORT

DATE: June 16, 2022
TO: Advisory Committee Members
SUBJECT: 2021 Annual Report of the Prado Basin Habitat Sustainability Committee
(Business Item II.A.)

SUMMARY:

Issue: Pursuant to the monitoring and mitigation requirements of the Peace II Subsequent Environmental Impact Report, the Prado Basin Habitat Sustainability Committee must prepare an Annual Report. The Committee presents its 6th Annual Report for Water Year 2021. [Within WM Duties and Powers]

Recommendation: Recommend to the Watermaster Board to receive and file.

Financial Impact: No impact

Future Consideration

Advisory Committee: June 16, 2022: Recommend Board to receive and file

Watermaster Board: June 23, 2022: Receive and file

ACTIONS:

Appropriative Pool: June 9, 2022: Unanimously recommended Advisory Committee to recommend the Watermaster Board to receive and file.

Non-Agricultural Pool: June 9, 2022: Unanimously recommended its representatives to support at Advisory Committee and Watermaster Board subject to changes they deem appropriate.

Agricultural Pool: June 9, 2022: Unanimously recommended Advisory Committee to recommend the Watermaster Board to receive and file.

Advisory Committee: June 16, 2022:

Watermaster Board: June 23, 2022:

Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court, and to develop and implement an Optimum Basin Management Program

BACKGROUND

The Prado Flood Control Basin (Prado Basin) is located in the southernmost, downgradient portion of the Chino Groundwater Basin (Chino Basin). Surface-water flow within the middle Santa Ana River (SAR) and its tributaries discharge into and through the Prado Basin behind Prado Dam, the main flood-control facility on the middle SAR. The US Army Corps of Engineers, in coordination with the Orange County Water District (OCWD), regulates releases from Prado Dam for the purposes of flood control and groundwater recharge in Orange County. The major components of discharge within the SAR and its tributaries are: runoff from precipitation, discharge of tertiary-treated effluent from wastewater treatment plants, rising groundwater, discharge of untreated imported water for groundwater recharge, and other dry-weather runoff. The SAR and its tributaries are unlined across the Prado Basin, which allows for groundwater/surface-water interaction. Depth to groundwater is relatively shallow in the Prado Basin area, where groundwater losses can occur via evapotranspiration by riparian vegetation and rising-groundwater outflow to the SAR and its tributaries.

The surface-water impoundments behind Prado Dam and the shallow groundwater have created within Prado Basin the largest riparian forest in Southern California. The riparian forest provides critical habitat for various threatened and endangered species including the Least Bell's vireo, Southwestern willow flycatcher, and the Santa Ana sucker.

To further implement the goals and objectives of the Chino Basin Optimum Basin Management Program (OBMP), the Chino Basin Watermaster (Watermaster) executed the Peace II Agreement in 2007. The primary features of the Peace II Agreement are expansion of pumping at the Chino Basin Desalter wells and Basin Re-operation for the attainment of Hydraulic Control of the Chino Basin. Hydraulic Control is defined as the elimination of groundwater discharge from the Chino-North Management Zone to the Prado Basin, or its reduction to *de minimis* quantities (i.e., less than 1,000 acre-feet per year [afy]). Hydraulic Control ensures that the water management activities in the Chino-North Groundwater Management Zone will not impair the beneficial uses designated for the SAR downstream of Prado Dam. Basin Re-operation means the increase in controlled overdraft of the Chino Basin, as defined in the Judgment, from 200,000 acre-ft (af) over the period of 1978 through 2017 to 600,000 af through 2030. Both Chino Basin Desalter expansion and Basin Re-operation are required to achieve Hydraulic Control. Hydraulic Control was achieved in 2016 and will be maintained through the Chino Basin Desalter well pumping of 40,000 afy, and the completion of Basin Re-operation.

At the time of its consideration, OCWD expressed concern that one of the potential impacts of the Peace II Agreement activities described above would be the lowering of groundwater levels (drawdown) in the Prado Basin area, which might impact the riparian habitat that is dependent upon groundwater. To address the potential drawdown and its impact on the riparian habitat, the monitoring and mitigation requirements in the Peace II Subsequent Environmental Impact Report (SEIR) calls for the development and implementation of an adaptive management program for the Prado Basin habitat:

Biological Resources/Land Use & Planning—Section 4.4-3 of the Peace II SEIR

The Chino Basin Stakeholders are committed to ensuring that the Peace II Agreement actions will not significantly adversely impact the Prado Basin riparian habitat. This includes the riparian portions of Chino and Mill Creek's between the terminus of hard lined channels and Prado Basin proper.

The available modeling data in the SEIR indicates that Peace II Agreement implementation will not cause significant adverse effects on the Prado Basin riparian habitat. However, the following contingency measure will be implemented to ensure that the Prado Basin riparian habitat will not incur unforeseeable significant adverse effects, due to implementation of Peace II. IEUA, Watermaster, OCWD and individual stakeholders, that choose to participate, will jointly fund and develop an adaptive management program that will include, but not be limited to:

- *monitoring riparian habitat quality and extent;*

Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court, and to develop and implement an Optimum Basin Management Program

- *investigating and identifying essential factors to long-term sustainability of Prado Basin riparian habitat;*
- *identification of specific parameters that can be monitored to measure potential effects of Peace II Agreement implementation effects on Prado Basin; and*
- *identification of water management options to minimize the Peace II Agreement effects on Prado Basin.*

This adaptive management program will be prepared as a contingency to define available management actions by Prado Basin stakeholders to address unforeseeable significant adverse impacts, as well as to contribute to the long-term sustainability of the Prado Basin riparian habitat.

The above effort will be implemented under the supervision of a newly formed Prado Basin Habitat Sustainability Committee. This Committee will include representatives from all interested parties and will be convened by the Watermaster and IEUA. Annual reports will be prepared and will include recommendations for ongoing monitoring and any adaptive management actions required to mitigate any measured loss or prospective loss of riparian habitat that may be attributable to the Peace II Agreement. As determined by Watermaster and IEUA, significant adverse impacts to riparian habitat that are attributable to the Peace II Agreement will be mitigated.

Pursuant to these monitoring and mitigation requirements of the Peace II SEIR, the Inland Empire Utilities Agency (IEUA) and the Watermaster convened the Prado Basin Habitat Sustainability Committee (PBHSC) to develop the Prado Basin Habitat Sustainability Program (PBHSP). The PBHSP is an adaptive management program to ensure that the riparian habitat in the Prado Basin will not incur unforeseeable significant adverse effects due to implementation of the Peace II Agreement. Annual reports are prepared to document monitoring and modeling activities, the analysis and interpretation of the monitoring and modeling results, and any recommendations for changes to the PBHSP.

DISCUSSION

The Annual Report for Water Year (WY) 2021 is the sixth annual report prepared by the Watermaster and IEUA for the PBHSC. It documents the collection, analysis, and interpretations of the data and information generated by the PSHSP through September 30, 2021 and is organized into the following sections:

Section 1 – Introduction. This section describes the background and objectives of the PBHSP and the Annual Report.

Section 2 – Monitoring, Data Collection, and Methods. This section describes the collection of recent monitoring data, and the groundwater-modeling activities performed during WY 2021 for the PBHSP.

Section 3 – Results and Interpretations. This section describes the results and interpretations that were derived from the information, data, and groundwater-modeling.

Section 4 – Conclusions and Recommendations. This section summarizes the main conclusions derived from the PBHSP through the prior water year and describes the recommended activities for the subsequent fiscal year as a proposed scope-of-work, schedule, and budget.

Section 5 – References. This section lists the publications cited in the report.

The draft Annual Report for WY 2021 was published and distributed on May 4, 2022. Watermaster and IEUA presented the draft report to members of the PBHSC at a meeting on May 11, 2021. A four-week comment period was provided, and no comments were received.

The Report's Main Findings and Recommendations:

The main interpretations and findings of the PBHSC Annual Report for WY 2021 are:

- The quality (greenness) of the riparian habitat vegetation remained stable or decreased across most of the Prado Basin from 2020 to 2021. Most of the observed decreases were relatively minor and within the range of one-year changes observed historically. These slight decreases occurred during a time of below average precipitation, slightly lower temperatures, and lower stream discharge conditions for WY 2021. The dry conditions and declines in stream discharge may be a contributing cause of the declines observed in 2021. At the small MC-2 area along the center of Mill Creek there was a more notable decrease in green vegetation evident from the comparison of the 2020 and 2021 air photos.
- There were various areas along the SAR, lower Prado Basin, and lower Chino Creek where Arundo removal occurred from 2019-2020, and/or there were wildfires in 2018 and 2020. At these locations, there are notable NDVI decreases in the NDVI change map from 2020-2021.
- Groundwater levels at two of the PBHSP monitoring wells near the fringes of the riparian habitat (PB-2 and PB-3) have declined, to levels below that predicted by the Chino Basin groundwater-flow model. At well PB-2 just to the north of Mill Creek, the model predicts a decline in groundwater levels of about three feet from 2018-2030, and groundwater levels declined at PB-2 by about five feet from 2018-2021. And at PB-3 along the northern reach of the SAR, the model predicts a decline in groundwater levels of about one foot from 2018-2030, and groundwater levels declined at PB-3 by about two feet from 2018-2021.
- These declines in groundwater levels are likely due to increased pumping at the Chino Basin Desalter wells to the north. Groundwater production has increased in the Prado Basin study area by almost 10,000 afy over the last two years from 2019 to 2021, mainly due to increases Chino Basin Desalter pumping. In the northernmost reach of Mill Creek where groundwater levels have declined the most (PB-2), there is no significant impact in the riparian habitat vegetation observed in this area. However, there are some areas along the northernmost reach of Mill Creek where the groundwater levels supporting the riparian vegetation is estimated as 15 to 17 feet below ground surface, and if groundwater levels continue to decline then it could result in adverse impacts to the riparian habitat.
- There is no trend in the degradation of the riparian habitat that is contemporaneous with decreasing groundwater levels during Peace II Agreement.
- The PBHSP monitoring and reporting should continue to monitor the extent and quality of the riparian habitat and factors that can influence it. There are three areas where the monitoring and analysis should be augmented over the next year to track the notable changes observed in WY 2021 that are a concern for the extent and quality of the riparian habitat:
 - Vegetation and surface water discharge in the northernmost reach of Mill Creek.
 - Update the digital ground surface elevation model for the Prado Basin area using the LiDAR data collected in 2020.
 - Riparian vegetation at the MC-2 area in the central portion of Mill Creek.
- No mitigation measures are recommended as necessary at this time.

The item was presented at all three Pool Committee meetings on June 9, 2022 and was unanimously recommended to the Advisory Committee to recommended to the Board to receive and file.

ATTACHMENTS

1. 2021 Annual Report of the Prado Basin Habitat Sustainability Committee (click on this [link](#) to access the report)

Annual Report of the Prado Basin Habitat Sustainability Committee Water Year 2021

PREPARED FOR

Chino Basin Watermaster and
Inland Empire Utilities Agency



PREPARED BY



Annual Report of the Prado Basin Habitat Sustainability Committee Water Year 2021

Prepared for

**Chino Basin Watermaster and
Inland Empire Utilities Agency**

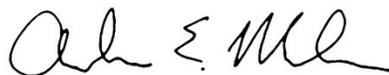
Project No. 941-80-21-55



Project Manager: Veva Weamer

06-02-2022

Date



QA/QC Review: Andy Malone

06-02-2022

Date

Table of Contents

3.2.3 Groundwater Levels Compared to NDVI.....	63
3.2.4 Summary	69
3.3 Analysis of Groundwater/Surface Water Interactions	69
3.4 Climate and Its Relationship to the Riparian Habitat	70
3.4.1 Precipitation.....	71
3.4.2 Temperature	71
3.4.3 Climate Compared to NDVI.....	75
3.5 Stream Discharge and Its Relationship to the Riparian Habitat	80
3.5.1 Stream Discharge	80
3.5.2 Stream Discharge Compared to NDVI.....	82
3.6 Other Factors and Their Relationships to Riparian Habitat.....	88
3.6.1 Wildfire	88
3.6.2 Arundo Removal	89
3.6.3 Polyphagous Shot Hole Borer	89
3.7 Analysis of Prospective Loss of Riparian Habitat.....	98
4.0 Conclusions and recommendations.....	102
4.1 Main Conclusions and Recommendations	102
4.1.1 Conclusions	102
4.1.2 Recommendations	103
4.2 Recommended Mitigation Measures and/or Adjustments to the AMP	104
4.3 Recommended PBHSP for Fiscal Year 2022/23.....	104
5.0 References	110

LIST OF TABLES

Table 2-1. Parameter List for the Groundwater and Surface Water Quality Monitoring Program	16
Table 3-1. Mann-Kendall Test Results of the Average-Growing Season NDVI Trends for Defined Areas in the Prado Basin	30
Table 3-2. Characterization of Variability in the Average-Growing Season NDVI for Defined Areas in the Prado Basin	31
Table 3-3. Summary of USBR Vegetation Surveys in 2007, 2013, 2016, and 2019 in the Prado Basin - Canopy Cover, Tree Condition, and Occurrence of Polyphagous Shot-Hole Borer	52
Table 3-4. Annual Groundwater Pumping in the Groundwater Monitoring Program Study Area	54
Table 4-1. Work Breakdown Structure and Cost Estimate - Prado Basin Habitat Sustainability Program: FY 2022/23	105

Table of Contents

LIST OF FIGURES

Figure 1-1. Prado Basin Area	2
Figure 1-2. Critical Habitat for Endangered or Threatened Species in the Prado Basin Area...	3
Figure 1-3. Projected Change in Groundwater Levels – FY 2005 to 2030 – Peace II Alternative	6
Figure 2-1. Riparian Habitat Monitoring Program.....	10
Figure 2-2. Groundwater Monitoring Program	14
Figure 2-3. Surface Water and Climate Monitoring Programs.....	19
Figure 3-1a. Air Photos and Extent of the Riparian Vegetation – 2020 and 2021	23
Figure 3-1b. Air Photo and Spatial NDVI for the Prado Basin Area – 2021	26
Figure 3-2. Spatial NDVI of the Prado Basin – 2020 and 2021	27
Figure 3-3. Spatial Change in NDVI for the Prado Basin – 2020 and 2021.....	28
Figure 3-4. Areas for Analysis of NDVI Time Series	33
Figure 3-5. Time Series of NDVI for the Entire Riparian Vegetation Extent – 1984 to 2021	34
Figure 3-6. Time Series of NDVI and Air Photos along Chino Creek for 1984 to 2021	35
Figure 3-7. Time Series of NDVI and Air Photos along Mill Creek for 1984 to 2021	36
Figure 3-8a. Time Series of NDVI and Air Photos – CC-1 Area for 1984 to 2021.....	39
Figure 3-8b. Time Series of NDVI and Air Photos – CC-2 Area for 1984 to 2021.....	40
Figure 3-8c. Time Series of NDVI and Air Photos – CC-3 Area for 1984 to 2021.....	41
Figure 3-8d. Time Series of NDVI and Air Photos – CC-4 Area for 1984 to 2021.....	42
Figure 3-8e. Time Series of NDVI and Air Photos – MC-1 Area for 1984 to 2021	43
Figure 3-8f. Time Series of NDVI and Air Photos – MC-2 Area for 1984 to 2021	44
Figure 3-8g. Time Series of NDVI and Air Photos – MC-3 Area for 1984 to 2021	45
Figure 3-8h. Time Series of NDVI and Air Photos – MC-4 Area for 1984 to 2021	46
Figure 3-8i. Time Series of NDVI and Air Photos – SAR1 Area for 1984 to 2021.....	47
Figure 3-8j. Time Series of NDVI and Air Photos – SAR2 Area for 1984 to 2021.....	48
Figure 3-8k. Time Series of NDVI and Air Photos – SAR3 Area for 1984 to 2021	49
Figure 3-8l. Time Series of NDVI and Air Photos – Lower Prado Area for 1984 to 2021.....	50
Figure 3-9. Groundwater Pumping – Water Year 2021.....	57
Figure 3-10a. Map of Groundwater Elevation – September 2016 – Shallow Aquifer System.....	59
Figure 3-10b. Map of Groundwater Elevation – September 2021 – Shallow Aquifer System.....	60
Figure 3-11. Change in Groundwater Elevation – September 2016 to September 2021	61

Table of Contents

Figure 3-12. Depth to Groundwater – <i>September 2021</i>	62
Figure 3-13a. Groundwater Levels and Production versus NDVI – Chino Creek Area for 1984-2021	66
Figure 3-13b. Groundwater Levels and Production versus NDVI – Mill Creek Area for 1984-2021.....	67
Figure 3-13c. Groundwater Levels and Production versus NDVI – Santa Ana River Area for 1984-2021	68
Figure 3-14. Annual Precipitation in the Chino Basin – Water Year 1986-2021	73
Figure 3-15. Maximum and Minimum Temperature in the Prado Basin – 1895-2021	74
Figure 3-16a. Climate versus NDVI – Chino Creek Area for 1984 to 2021	77
Figure 3-16b. Climate versus NDVI – Mill Creek Area for 1984 to 2021	78
Figure 3-16c. Climate versus NDVI – Santa Ana River and Lower Prado Area for 1984 to 2021	79
Figure 3-17. Discharge Tributary to Prado Dam Water Year 1960 – 2021.....	81
Figure 3-18a. Surface Water Discharge versus NDVI – Chino Creek Area for 1984 to 2021	85
Figure 3-18b. Surface Water Discharge versus NDVI – Mill Creek Area for 1984 to 2021	86
Figure 3-18c. Surface Water Discharge versus NDVI – Santa Ana River Area for 1984 to 2021.....	87
Figure 3-19a. Location Map of Other Factors That Can Affect Riparian Habitat - Wildfire	91
Figure 3-19b. Spatial NDVI Change 2020-2021 and 2021 Air Photo with Prado Basin Wildfires in 2015, 2018, and 2020.....	92
Figure 3-20a. Other Factors That Can Affect Riparian Habitat versus NDVI – Chino Creek Area for 1984-2021	93
Figure 3-20b. Other Factors That Can Affect Riparian Habitat versus NDVI – Mill Creek Area for 1984-2021.....	94
Figure 3-20c. Other Factors That Can Affect Riparian Habitat versus NDVI – Santa Ana River and Lower Prado Area for 1984-2021	95
Figure 3-21a. Location Map of Other Factors That Can Affect Riparian Habitat versus NDVI – Arundo and PHSB	96
Figure 3-21b. Spatial NDVI Change 2021-2021 and 2021 Air Photo with Prado Basin Arundo Removal in 2019-2021.....	97
Figure 3-22. Predicted Change in Groundwater Levels – 2018 to 2030 – Scenario 2020 SRY1.....	100
Figure 3-23. Predicted Groundwater Pumping and Groundwater Levels – 2018 to 2030 – Scenario 2020 SRY1	101

Table of Contents

LIST OF APPENDICES

Appendix A. NDVI

Appendix B. Mann-Kendall Analysis of NDVI

LIST OF ACRONYMS AND ABBREVIATIONS

ACOE	Army Corps of Engineers
af	Acre-Feet
afy	Acre-Feet Per Year
AMP	Adaptive Management Plan
Annual Report	Annual Report of The Prado Basin Habitat Sustainability Committee
ACOE	Army Corps of Engineers
CAL FIRE	California Department of Forestry and Fire Protection
CBMWD	Chino Basin Municipal Water District
CBWM	Chino Basin Watermaster
CCWF	Chino Creek Well Field
CDA	Chino Basin Desalter Authority
CDFM	Cumulative Departure from The Mean
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
Chino Basin	Chino Groundwater Basin
DBH	Diameter at Breast Height
EC	Electrical Conductivity
EROS	Earth Resources Observation and Science
ESPA	Center Science Processing Architecture
FD	Fusarium Dieback
ft-amsl	Feet Above Mean Sea Level
ft-bgs	Feet Below Ground Surface
FRAP	Fire And Resource Assessment Program
GIS	Geographic Information System
GMP	Groundwater Monitoring Program
GMZ	Orange County Groundwater Management Zone
HCMP	Hydraulic Control Monitoring Program
IEUA	Inland Empire Utilities Agency
In/yr	Inches Per Year
LEDAPS	Landsat Ecosystem Disturbance Adaptive Processing System
mi ²	Square Miles
MWD	Metropolitan Water District of Southern California
NDVI	Normalized Difference Vegetation Index
NASA	National Aeronautics and Space Administration
NEXRAD	Next Generation Radar
OBMP	Optimum Basin Management Program

Table of Contents

OC-59	The OCWD's Imported Water Turnout Tributary to Prado Basin
OCWD	Orange County Water District
Parties	Parties to The Chino Basin Judgment
PBHSC	Prado Basin Habitat Sustainability Committee
PBHSP	Prado Basin Habitat Sustainability Program
PBMZ	Prado Basin Management Zone
POTWs	Publicly Owned Treatment Works
ppm	Parts Per Million
Prado Basin	Prado Basin Management Zone
PSHB	Polyphagous Shot Hole Borer - <i>Euwallacea Forficates</i>
QA/QC	Quality Assurance and Quality Control
RHMP	Riparian Habitat Monitoring Program
SAWA	Santa Ana Watershed Association
SAR	Santa Ana River
SARWM	Santa Ana River Watermaster
SEIR	Subsequent Environmental Impact Report
SWMP	Surface-Water Monitoring Program
TDS	Total Dissolved Solids
USBR	United States Bureau of Reclamation
USGS	United States Geological Survey
USDA	United State Department of Agriculture
USFWS	United States Fish and Wildlife Service
VOCs	Volatile Organic Compounds
Watermaster	Chino Basin Watermaster
WEI	Wildermuth Environmental Inc.
WRCRWA	Western Riverside County Regional Wastewater Authority
WY	Water Year

Annual Report of the Prado Basin Habitat Sustainability Committee

1.0 BACKGROUND AND OBJECTIVES

This *Annual Report of the Prado Basin Habitat Sustainability Committee for Water Year 2021* (Annual Report) was prepared on behalf of the Prado Basin Habitat Sustainability Committee (PBHSC), convened by the Inland Empire Utilities Agency (IEUA) and the Chino Basin Watermaster (Watermaster) pursuant to the mitigation monitoring and reporting requirements of the Peace II Subsequent Environmental Impact Report (SEIR) (Tom Dodson, 2010).

This introductory section provides background on the general hydrologic setting of the Prado Basin Management Zone (Prado Basin); the Chino Basin Judgment; the Optimum Basin Management Program (OBMP), its Programmatic EIR and the Peace Agreement; the Peace II Agreement and its SEIR; and the formation of the PBHSC and the development of the adaptive management plan (AMP) for the Prado Basin Habitat Sustainability Program (PBHSP).

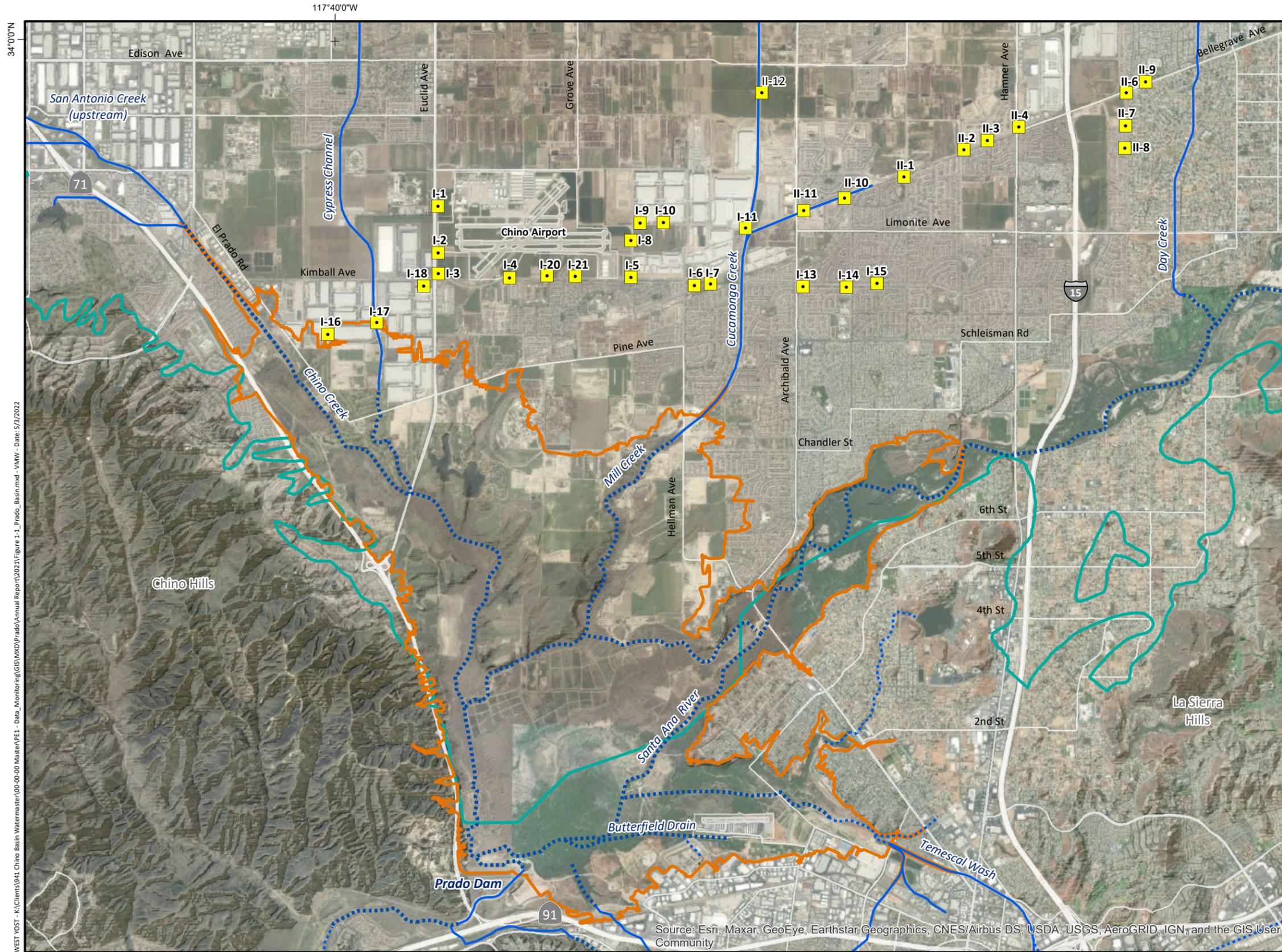
1.1 Prado Basin

The Prado Basin is the flood control area behind Prado Dam, which was constructed in 1941 as the major flood-control facility within the Santa Ana River (SAR) Watershed. The US Army Corps of Engineers (ACOE) regulates releases of water from Prado Dam for both purposes of flood control and groundwater recharge in Orange County Groundwater Management Zone (GMZ). Releases of water temporarily held in storage in the Prado Basin for groundwater recharge in Orange County is coordinated with the Orange County Water District (OCWD). Figure 1-1 shows the location of the Prado Basin in the southern portion of the Chino Groundwater Basin (Chino Basin). The Prado Basin boundary shown on Figure 1-1 is the Prado Basin Management Zone (PBMZ) boundary as defined in the Santa Ana Region Basin Plan (Regional Board, 2016), which approximately follows the 566 feet above mean sea level (ft-amsl) elevation contour behind Prado Dam.

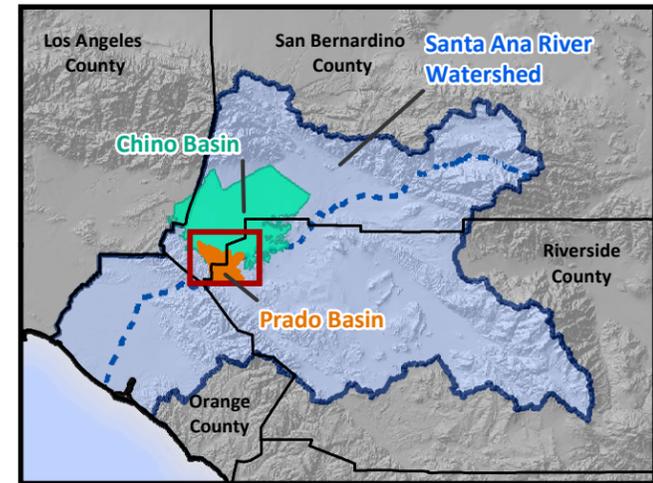
Approximately 4,300 acres of riparian habitat have developed within the Prado Basin, creating the largest riparian habitat in Southern California. Portions of the riparian habitat have been designated as critical habitat to several endangered or threatened species. Figure 1-2 shows the locations of the critical habitat, as defined by the United States Fish and Wildlife Service (USFWS). Most of the riparian habitat in Prado Basin is designated as critical habitat for one or multiple species, including the Santa Ana Sucker, the Southwestern Willow Flycatcher, and Least Bell's Vireo.

The SAR flows through the Prado Basin from east to west. The tributaries of the SAR that flow into the Prado Basin include San Antonio/Chino, Cucamonga/Mill, and Temescal Creeks. The major components of flow within the SAR and its tributaries are: runoff from precipitation, discharge of tertiary-treated effluent from wastewater treatment plants, rising groundwater, discharge of untreated imported water from the OC-59 turnout conveyed through the Prado Basin for groundwater recharge in Orange County GMZ, and dry-weather runoff.¹

¹ Dry-weather runoff consists of excess irrigation runoff, purging of wells, dewatering discharges, etc.

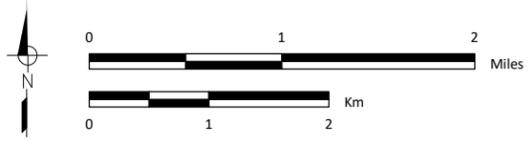


-  Prado Basin - Is the Prado Basin Management Zone (PBMZ) defined in the Santa Ana Region Basin Plan (Regional Board, 2016) which approximately follows the 566 feet above mean sea level elevation contour in the flood control area behind Prado Dam.
-  Hydrologic Boundary of the Chino Groundwater Basin (Chino Basin)
-  Concrete-Lined Channels
-  Unlined Rivers and Streams
-  Chino Basin Desalter Well



WEST_YOST - K:\Clients\941 Chino Basin Watermaster\00-00-00 Master\PE1 - Data_Monitoring\GIS\MXD\Prado\Annual Report\2021\Figure 1-1_Prado_Basin.mxd - VMW - Date: 5/3/2022

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

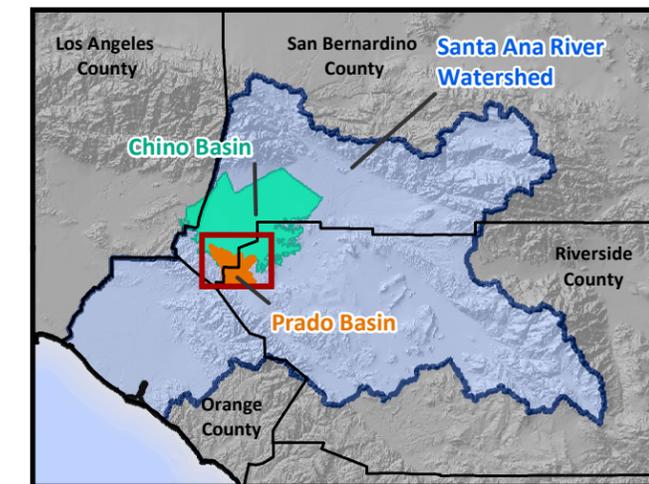
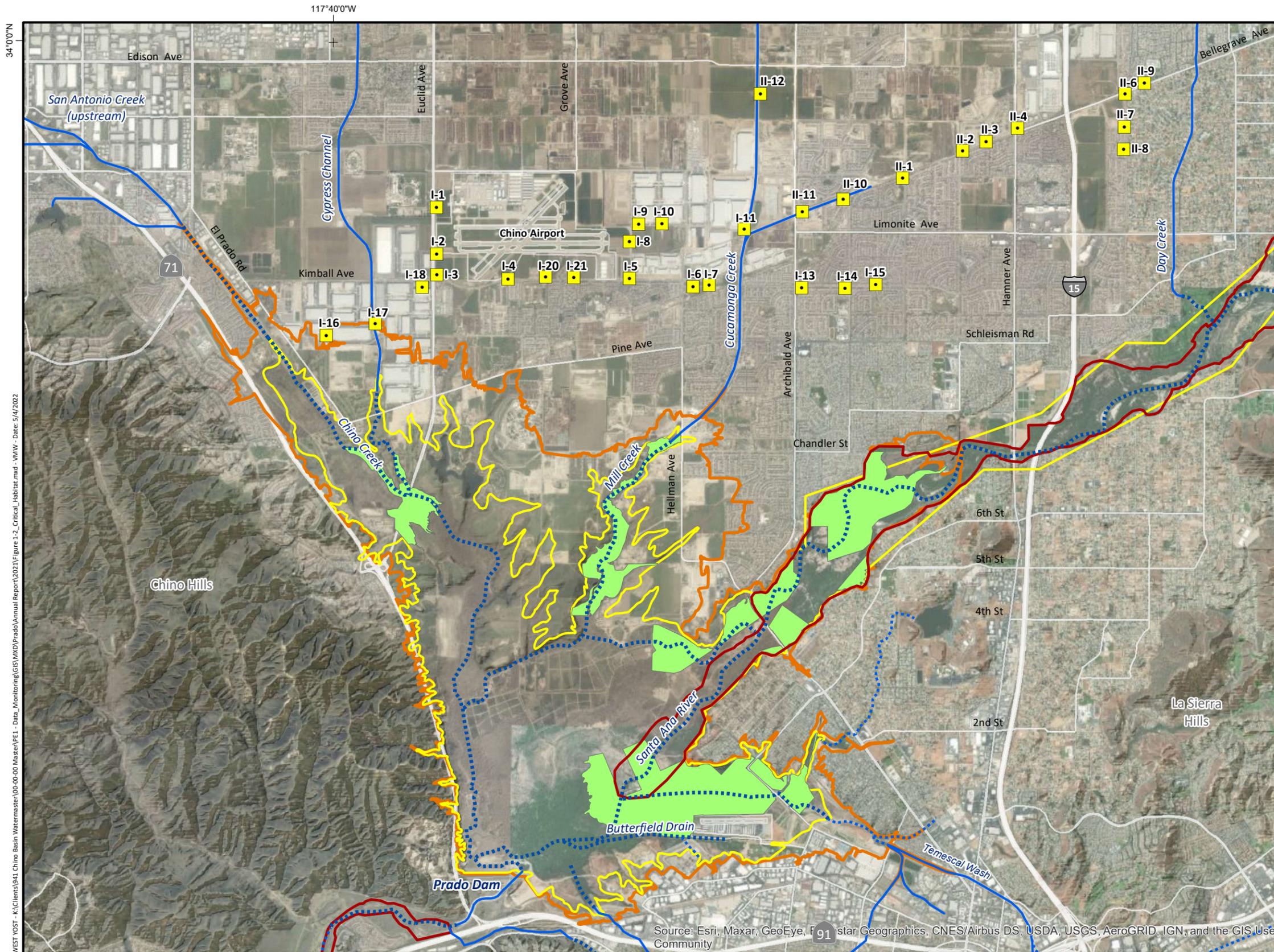


Chino Basin Watermaster and
Inland Empire Utilities Agency
2021 Annual Report of the



Prado Basin Area

Figure 1-1



WEST_YOST - K:\Clients\941 Chino Basin Watermaster\00-00-00 Master\PE1 - Data_Monitoring\GIS\MXD\Prado\Annual Report\2021\Figure 1-2_Critical_Habitat.mxd - VMW - Date: 5/14/2022

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



The Prado Basin is a hydrologically complex region of the lower Chino Basin. Groundwater in the Chino Basin generally flows from the forebay regions in the north towards the Prado Basin in the south. Depth to groundwater is relatively shallow in the Prado Basin area, and the SAR and its tributaries are unlined across the Prado Basin, which allows for groundwater/surface-water interaction. Groundwater outflows in the Prado Basin occur via evapotranspiration by riparian vegetation and rising-groundwater discharge to the SAR and its tributaries.

To the north of the Prado Basin, the Chino Basin Desalter Authority (CDA) owns and operates the Chino Basin Desalter well field. Figure 1-1 shows the locations of Chino Basin Desalter wells. The well field pumps groundwater with high concentrations of total dissolved solids (TDS), nitrate, and volatile organic compounds (VOCs). The CDA treats the groundwater at two regional facilities using reverse osmosis, ion exchange, and blending to produce a potable water supply for the region. VOCs are currently treated through blending, and new treatment processes are being added to increase their removal. CDA operations are fundamental to achieving many of the management goals outlined in the OBMP and both Peace Agreements, which are discussed below.

1.2 Chino Basin Judgment, OBMP, and Peace Agreement

A 1978 Judgment entered in the Superior Court of the State of California for the County of San Bernardino (Chino Basin Municipal Water District vs. City of Chino et al.) established pumping and storage rights in the Chino Basin. The Judgment established Watermaster to oversee the implementation of the Judgment and provided Watermaster with the discretionary authority to develop an OBMP to maximize the beneficial use of the Chino Basin. The OBMP was developed by Watermaster and the parties to the Judgment (Parties) in the late 1990s (WEI, 1999). The OBMP maps a strategy to enhance the yield of the Chino Basin and provide reliable high-quality water supplies for the development expected to occur in the region. The goals of the OBMP are: to enhance basin water supplies, to protect and enhance water quality, to enhance the management of the Basin, and to equitably finance the OBMP.

In 2000, the Parties executed the Peace Agreement (Watermaster, 2000), which documented their intent to implement the OBMP. The Peace Agreement included an OBMP Implementation Plan which outlined the time frame for implementing tasks and projects in accordance with the Peace Agreement and the OBMP. The OBMP Implementation Plan is a comprehensive, long-range water-management plan for the Chino Basin and includes: the use of recycled water for direct reuse and artificial recharge, the capture of increased quantities of high-quality storm-water runoff, the recharge of imported water when TDS concentrations are low, the desalting of poor-quality groundwater in impaired areas of the basin via the Chino Basin Desalters, the support of regulatory efforts to improve water quality in the basin, subsidence management, storage management, and the implementation of management activities to reduce the discharge of high-TDS/high-nitrate groundwater to the SAR, thus ensuring the protection of downstream beneficial uses in the Orange County GMZ.

The Chino Basin Municipal Water District (CBMWD) was the plaintiff in the legal action that resulted in the Judgment. The CBMWD was formed in 1950 to supply supplemental, imported water purchased from the Metropolitan Water District of Southern California (MWD) to the Chino Basin. On July 1, 1998, the CBMWD changed its name to the IEUA and expanded its role to become the regional supplier of recycled water for most of the Chino Basin. For OBMP implementation, the IEUA has served as the lead agency for compliance with the California Environmental Quality Act (CEQA). A Program Environmental Impact Report for the OBMP (SCH#2000041047) was certified by the IEUA in July 2000 (Tom Dodson, 2000).



1.3 The Peace II Agreement and its Subsequent EIR

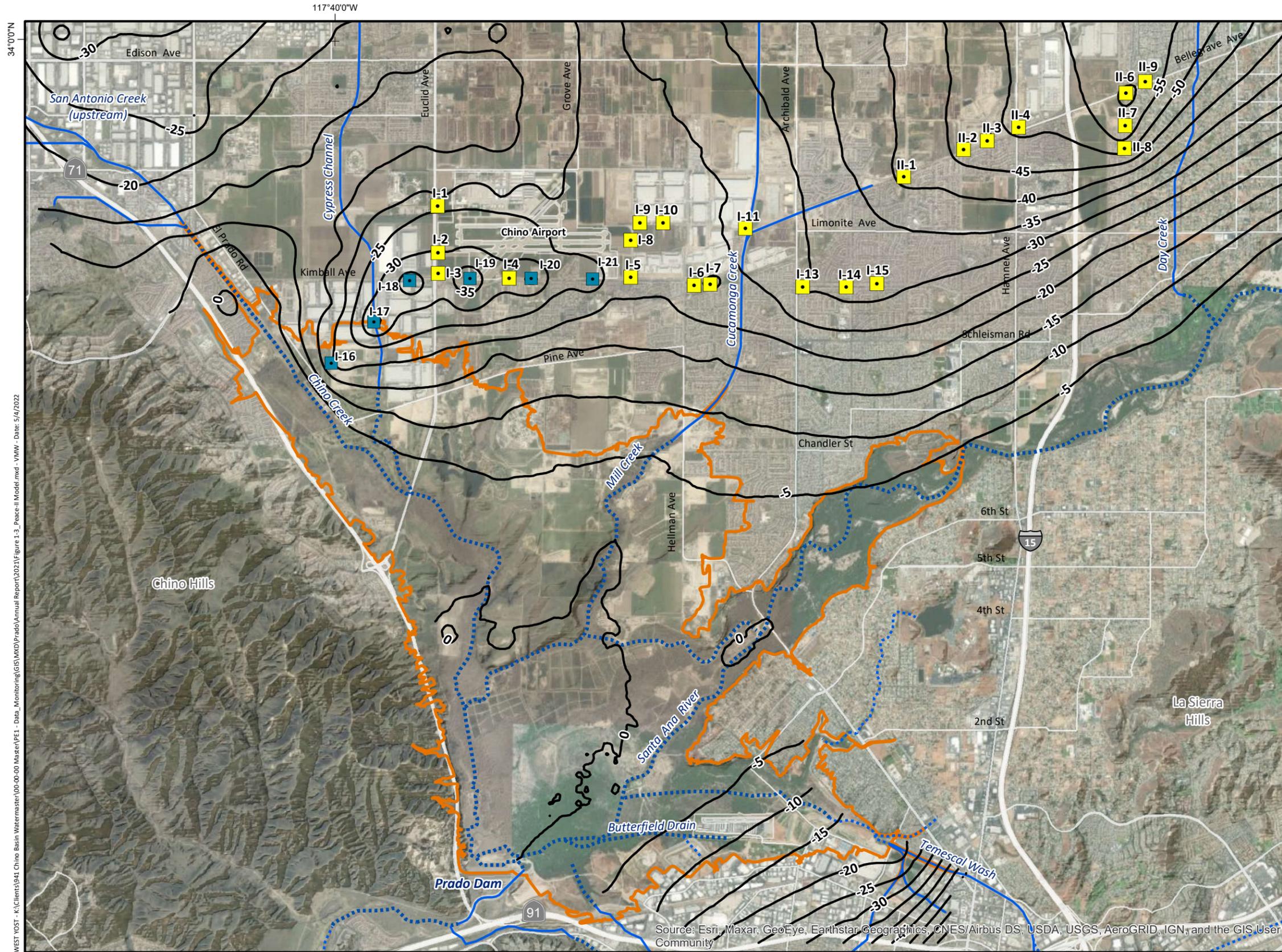
To further implement the goals and objectives of the OBMP, the Parties executed the Peace II Agreement in 2007, which modified the OBMP Implementation Plan (Watermaster, 2007). The two main activities of the Peace II Agreement are: (i) increasing the controlled overdraft of the Chino Basin, as defined in the Judgment,² by 400,000 acre-feet (af) through 2030 (re-operation), and (ii) refining the planned expansion facilities of the Chino Basin Desalters from about 30,000 to 40,000 acre-feet per year (afy) of groundwater production. Re-operation is allocated specifically to offset the production of the Chino Basin Desalters. Both re-operation and desalter expansion contribute to the attainment of “hydraulic control” of groundwater outflow from the Chino Basin to the SAR. The attainment and maintenance of hydraulic control is a requirement of Watermaster and the IEUA, as defined in the Water Quality Control Plan for the Santa Ana River Basin (California Regional Water Quality Control Board, Santa Ana Region, 2008). Hydraulic control ensures that the water management activities in the Chino Basin will not impair the beneficial uses designated for SAR water quality downstream of Prado Dam.

The expansion of the Chino Basin Desalters, described in the Peace II Agreement, was accomplished, in part, by the construction and operation of the Chino Creek Well Field (CCWF) in the southwest portion of Chino Basin (see Figure 1-3). During Peace II Agreement planning, the estimated capacity of the CCWF was about 5,000 to 7,700 afy (WEI, 2007). The CCWF wells were constructed in 2011-2012, and their actual capacity is about 1,500 afy.

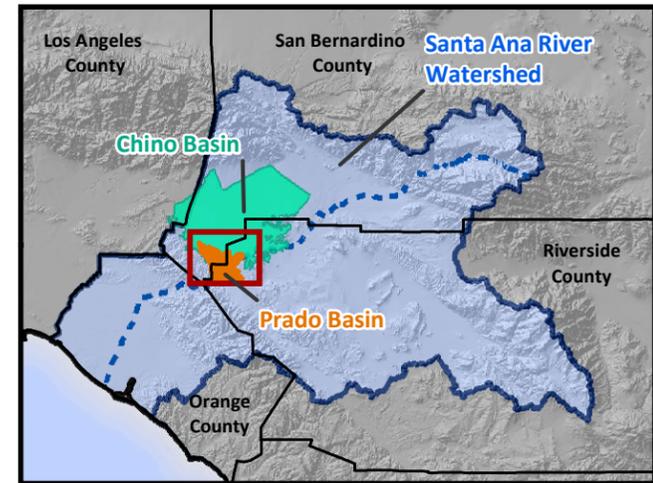
In 2010, the IEUA certified the Peace II SEIR (Tom Dodson, 2010) to evaluate the environmental impacts that could result from implementing the Peace II Agreement. One of the potential impacts evaluated was the possible lowering of groundwater levels (drawdown) in the Prado Basin area, which could impact riparian vegetation that is dependent upon shallow groundwater. Watermaster performed modeling studies to predict the extent and magnitude of the drawdown associated with the implementation of the Peace II Agreement, using the planned capacity of 7,700 afy of the CCWF (WEI, 2007). Figure 1-3 (modified from Figure 4.4-10 from the Peace II SEIR) shows the model-predicted drawdown in the Prado Basin area for the period of 2005 to 2030. The drawdown throughout most of the Prado Basin area was predicted to be less than five feet by 2030.

Although the available modeling work indicated that implementing the Peace II Agreement would not cause significant adverse effects on Prado Basin riparian habitat, a contingency measure to address the potential for drawdown of groundwater levels and its impact on riparian vegetation was included in the Peace II SEIR as Mitigation Measure 4.4-3 (Biological Resources/Land Use & Planning section of the Mitigation Monitoring and Reporting Program).

² The Judgment established 200,000 af of controlled overdraft over the period of 1978 to 2017. Re-operation increases the controlled overdraft to 600,000 af through 2030.

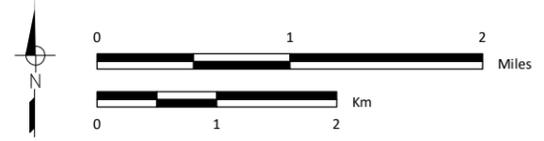


- 10— Projected Change in Groundwater Levels FY 2005 to FY 2030, feet
- Chino Basin Desalter Well - Location of Existing wells in 2007 modeled for the Peace II SEIR
- Chino Basin Desalter Well - Planned Location of the Chino Creek Well Field (CCWF) in 2007 as modeled for the Peace II SEIR with a Planned Capacity of 7,700 afy. Actual Location of the CCWF Constructed in 2011-2012 Shown in Figure 1-1 with an Actual Capacity 1,500 afy
- Prado Basin
- Concrete-Lined Channels
- Unlined Rivers and Streams



WEST YOST - K:\Clients\941 Chino Basin Watermaster\00-00-00 Master\PE1 - Data_Monitoring\GIS\MXD\Prado\Annual Report\2021\Figure 1-3_Peace-II Model.mxd - VNMW - Date: 5/4/2022

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Chino Basin Watermaster and Inland Empire Utilities Agency
2021 Annual Report of the



Projected Change in Groundwater Levels
FY 2005 to 2030 - Peace II Alternative

Figure 1-3

Mitigation Measure 4.4-3 was developed to ensure that the riparian habitat will not incur unforeseeable significant adverse effects from the Peace II implementation and to contribute to the long-term sustainability of the riparian habitat. Mitigation Measure 4.4-3 calls for:

- Watermaster, the IEUA, the OCWD, and other stakeholders that choose to participate to jointly fund the development of an adaptive management program to monitor the extent and quality of the Prado Basin riparian habitat and investigate and identify essential factors to its long-term sustainability.
- Watermaster and the IEUA to convene the PBHSC, comprised of representatives from all interested parties to implement the adaptive management program.
- The PBHSC to prepare annual reports pursuant the adaptive management program. Annual reports are to include recommendations for ongoing monitoring and any adaptive management actions required to mitigate any measured or prospective loss of riparian habitat resulting from Peace II activities.

1.4 Adaptive Management Plan for the PBHSP

Pursuant to Mitigation Measure 4.4-3 in the SEIR, Watermaster and the IEUA convened four meetings of the PBHSC, starting in late-2012, to develop the adaptive management plan for the PBHSP and facilitate its implementation. Watermaster and the IEUA adopted the final *2016 Adaptive Management Plan for the Prado Basin Habitat Sustainability Program (AMP)* in August 2016 (WEI, 2016).

- The AMP was designed to answer the following questions to satisfy the monitoring and mitigation requirements of the Peace II SEIR:
- What are the factors that potentially can affect the extent and quality of the riparian habitat?
- What is a consistent, quantifiable definition of “riparian habitat quality,” including metrics and measurement criteria?
- What has been the historical extent and quality of the riparian habitat in the Prado Basin?
- How has the extent and quality of the riparian habitat changed during implementation of Peace II?
- How have groundwater levels and quality, surface-water discharge, weather, and climate changed over time? What were the causes of the changes? And, did those changes result in an adverse impact to riparian habitat in the Prado Basin?
- Are there other factors besides groundwater levels, surface-water discharge, weather, and climate that affect riparian habitat in the Prado Basin? What are those factors? And, did they (or do they) result in an adverse impact to riparian habitat in the Prado Basin?
- Are the factors that result in an adverse impact to riparian habitat in the Prado Basin related to Peace II implementation?
- Are there areas of prospective loss of riparian habitat that may be attributable to the Peace II Agreement?
- What are the potential mitigation actions that can be implemented if Peace II implementation results in an adverse impact to the riparian habitat?



The AMP outlines a process for monitoring, modeling, and annual reporting to answer and address the questions listed above. Appendix A to the AMP is the initial monitoring program: *2016 Monitoring Program for the Prado Basin Habitat Sustainability Program*. Annual reports are intended to document monitoring and modeling activities, the analysis and interpretation of the monitoring and modeling results, and recommendations for changes to the PBHSP, which may include monitoring, modeling, and/or mitigation, if deemed necessary. Any future mitigation measures that are deemed necessary will be developed jointly by Watermaster and the IEUA.

1.5 Annual Report Organization

This Annual Report for water year (WY) 2021 is the sixth annual report of the PBHSC. It documents the collection, analysis, and interpretations of the data and information generated by the PSHSP through September 30, 2021. The remainder of this report is organized as follows:

Section 2.0 – Monitoring, Data Collection, and Methods. This section describes the collection of historical information and recent monitoring data and describes the groundwater-modeling activities performed during WY 2021 for the PBHSP.

Section 3.0 – Results and Interpretations. This section describes the results and interpretations that were derived from the information, data, and groundwater-modeling.

Section 4.0 – Conclusions and Recommendations. This section summarizes the main conclusions derived from the PBHSP through the prior water year and describes the recommended activities for the subsequent fiscal year as a proposed scope-of-work, schedule, and budget.

Section 5.0 – References. This section lists the publications cited in the report.

2.0 MONITORING, DATA COLLECTION, AND METHODS

The PBHSP was designed, in part, to answer Question 1 from the AMP:

- What are the factors that potentially can affect the extent and quality of the riparian habitat?

The main hydrologic factors that can potentially affect the extent and quality of the riparian habitat in the Prado Basin include, but are not limited to, groundwater levels, surface-water discharge, weather events, and long-term climate. As such, the PBHSP includes integrated monitoring and analysis programs for riparian habitat, groundwater, surface water, climate, and other potential factors (e.g. wildfire, pests, etc.).

Since the implementation of the AMP in WY 2016, data collection efforts included the compilation of historical data through present. The period of data available for each data type varies, but all span both pre- and post-Peace II implementation. Data collection efforts for historical data were described in the first two annual reports for WY 2016 and WY 2017. Data collection efforts for subsequent water years have focused on recent water year monitoring data. All data collected and compiled for this effort were uploaded to Watermaster’s centralized relational database, HydroDaVESM, and used in the analyses.

This section describes the collection of recent monitoring data and the groundwater-modeling activities performed for the PBHSP during WY 2021.

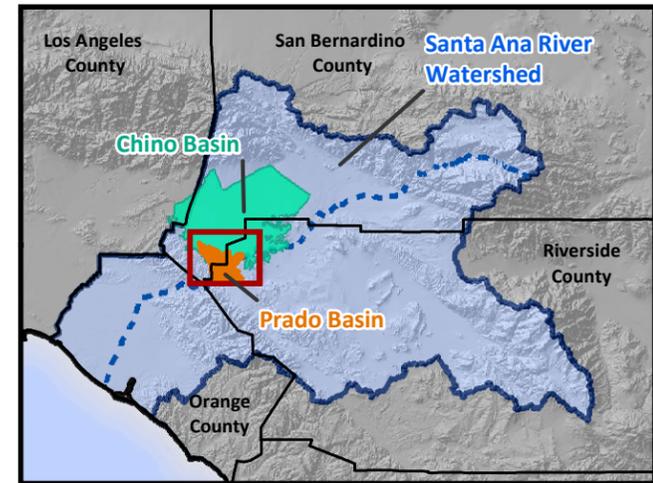
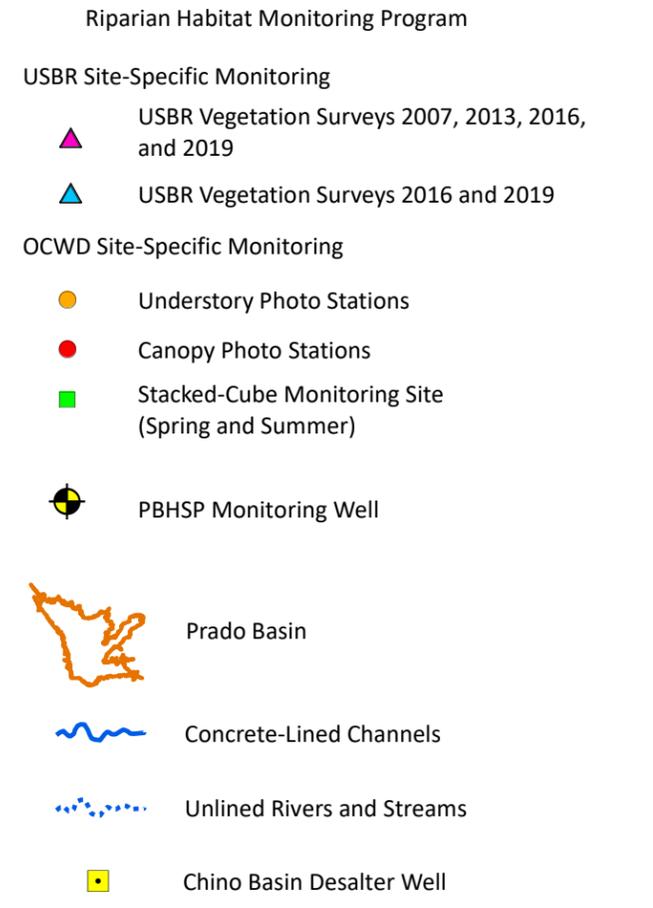
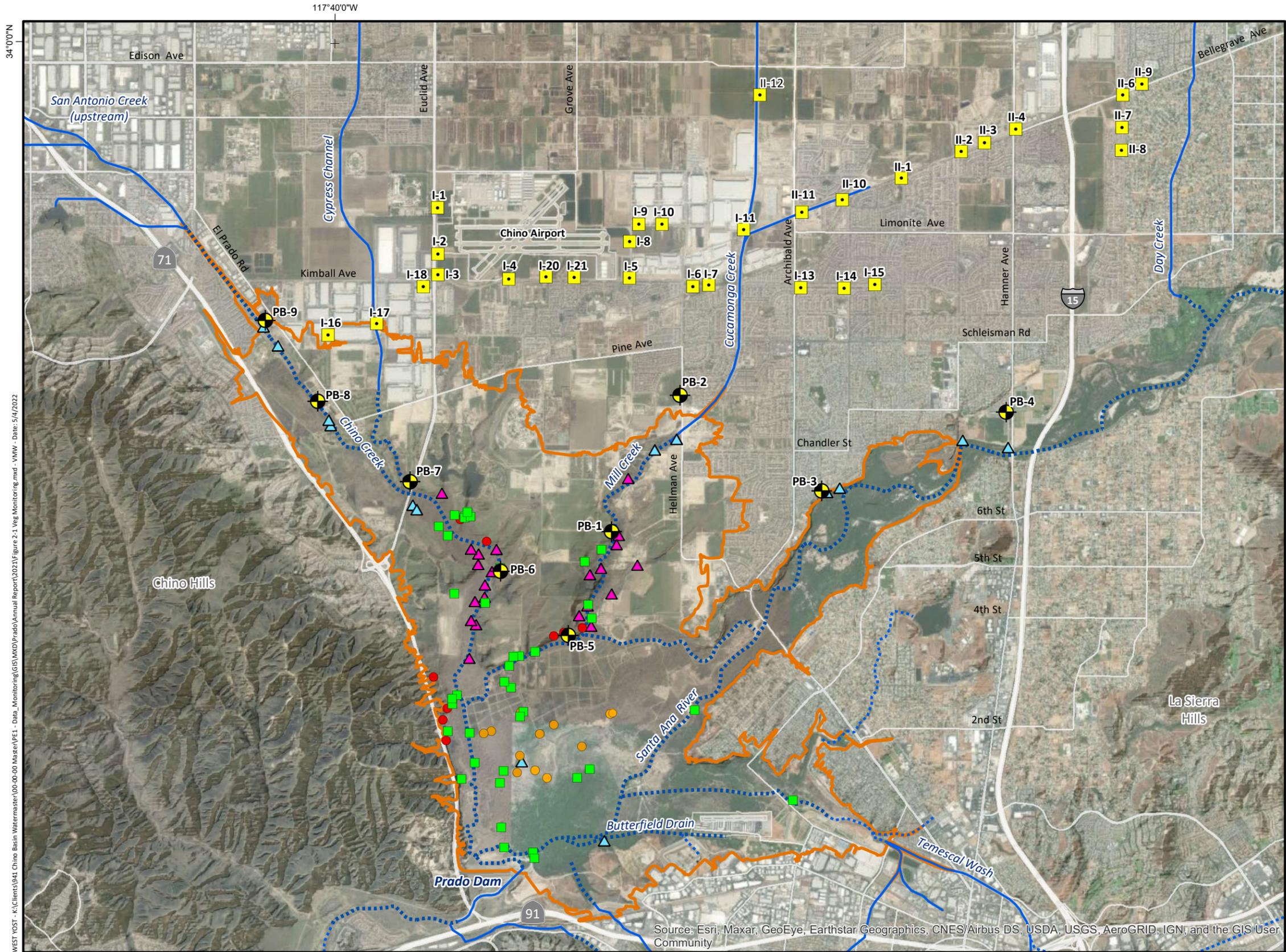
2.1 Riparian Habitat Monitoring

The objective of the Riparian Habitat Monitoring Program (RHMP) is to collect data to help answer questions 2, 3, and 4 from the AMP:

- What is a consistent quantifiable definition of “riparian habitat quality,” including metrics and measurement criteria?
- What has been the historical extent and quality of the riparian habitat in the Prado Basin?
- How has the extent and quality of the riparian habitat changed during the implementation of Peace II?

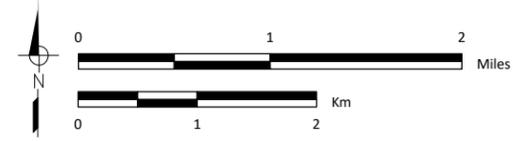
To answer these questions, the RHMP includes time series data and information on the extent and quality of riparian habitat in the Prado Basin over a historical period, including both pre- and post-Peace II implementation.

Figure 2-1 displays the features of the RHMP. Two types of monitoring and assessment are performed: regional and site-specific. Regional monitoring and assessment is appropriate because the main potential stress to the riparian habitat associated with Peace II activities is the regional drawdown of groundwater levels. The intent of site-specific monitoring and assessment is to verify and complement the results of regional monitoring.



WEST_YOST - K:\Clients\941 Chino Basin Watermaster\00-00-00 Master\PE1 - Data_Monitoring\GIS\MXD\Prado\Annual Report\2021\Figure 2-1 Veg Monitoring.mxd - V\K\W - Date: 5/17/2022

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Riparian Habitat Monitoring Program

Figure 2-1

2.1.1 Regional Monitoring of Riparian Habitat

Regional monitoring and assessment of the riparian habitat is performed by mapping the extent and quality of riparian habitat over time using: (i) multi-spectral remote-sensing data and (ii) air photos.

2.1.1.1 Multi-Spectral Remote Sensing Data

The Normalized Difference Vegetation Index (NDVI), derived from remote sensing measurements by Landsat Program satellites, is used to assess the extent and quality of the riparian vegetation in the Prado Basin over a long-term historical period. NDVI is a commonly used numerical indicator of vegetation health that can be calculated from satellite remote-sensing measurements (Ke et al., 2015; Xue, J. and Su, B., 2017). NDVI is calculated from visible and near-infrared radiation reflected by vegetation, is an index of greenness correlated with photosynthesis, and can be used to assess spatial and temporal changes in the distribution and productivity of vegetation (Pettoelli, 2013). Appendix A provides background information on NDVI, explains why NDVI was chosen as an analytical tool for the PBHSP, discusses its advantages and limitations, and describes how NDVI estimates were used for the PBHSP.

For the current reporting period, NDVI estimates were collected from the United States Geological Survey (USGS) using the Earth Resources Observation and Science (EROS) Center Science Processing Architecture (ESPA) On Demand Interface³ (USGS, 2017b) over the period November 2019 through October 2020 to span the entire growing-season period (March-October 2020). To obtain complete spatial coverage of the Prado Basin area, NDVI estimates were requested for all Landsat scenes for Path 040, Rows 036 and 037 from the Landsat 7 and Landsat 8 satellites. The NDVI were processed and uploaded to Watermaster's centralized relational database, HydroDaVESM, which includes tools to manage, review, and extract NDVI estimates. The frequency of NDVI estimates from the Landsat 7 and 8 satellites is about every eight days. However, not all NDVI estimates are useable due to disturbances that can be caused by cloud cover, unfavorable atmospheric conditions, or satellite equipment malfunction. NDVI estimates were reviewed for these disturbances and excluded from analysis if they were determined erroneous due to these disturbances. Appendix A describes the how the NDVI estimates were collected, reviewed, and assembled for the PBHSP.

2.1.1.2 Collection and Analysis of Air Photos

Georeferenced air photos are used to visually characterize the spatial extent and quality of the riparian habitat in the Prado Basin. The air photos also serve as an independent check on interpretations of NDVI, which involves visual comparison of the extent and density of the riparian habitat, as shown in the air photos, to the NDVI maps. For ongoing monitoring, a high-resolution (3-inch pixel) image of the visible spectrum for the entire Prado Basin is acquired during the middle of the growing season, typically in July.

For the current reporting period, the acquisition of the 2021 air photo included a custom flight that was performed by Tetra Tech on June 26, 2021. The cost to acquire the 2021 air photo was shared with the OCWD. This was the fifth annual high-resolution air photo acquired for the PBHSP and cost shared with the OCWD.

2.1.2 Site-Specific Monitoring of Riparian Habitat

The objective of the site-specific monitoring of riparian habitat is to collect data that can be used to ground-truth the interpretations derived from the regional monitoring and assessment of the riparian

³ [ESPA USGS](#)



habitat (Pettoirelli, 2013). Prior to the implementation of the AMP, site-specific monitoring performed in the Prado Basin included vegetation surveys performed by the United States Bureau of Reclamation (USBR) in 2007 and 2013 (USBR, 2008b; 2015). Since the implementation of the AMP, the USBR conducted vegetation surveys for the PBHSP in 2016 and 2019. The USBR vegetation surveys performed for the PBHSP in 2016 and 2019 consist of 37 sites in the Prado Basin: 24 previously established USBR sites during the 2007 and 2013 sampling and 14 new sites established in 2016 that are primarily located near the PBHSP monitoring wells. The OCWD performs site-specific monitoring in the southern portion of Prado Basin to monitor for effects of the operation of Prado Dam on riparian habitat. OCWD site-specific monitoring includes: seasonal monitoring at nine canopy photo stations located along the edge of Prado Basin, seasonal monitoring at 11 understory photo stations within different surface elevations of the inundation zone behind the dam, 40 stacked-cube monitoring sites monitored in the spring and summer throughout different surface elevation ranges of the inundation zone, and 40 stacked-cube monitoring sites in Least Bell's Vireo nesting and territory locations in the riparian habitat. The most recent OCWD results performed during this reporting period are described in the *Prado Basin Water Conservation and Habitat Assessment 2020-2021* report (OCWD, 2022).

Figure 2-1 shows the locations of the USBR vegetation surveys and the OCWD photo and stacked-cube monitoring sites.

2.2 Factors that Potentially Affect the Riparian Habitat

The main factors that can potentially affect riparian habitat in Prado Basin include, but are not limited to: groundwater levels, surface-water discharge, weather/climate, wildfires, and pests. This section describes the methods employed to collect and analyze information on these factors to help answer questions 5, 6, and 7 from the AMP:

- How have groundwater levels and quality, surface-water discharge, weather, and climate changed over time? What were the causes of the changes? And did those changes result in an adverse impact to riparian habitat in the Prado Basin?
- Are there other factors besides groundwater levels, surface-water discharge, weather, and climate that affect riparian habitat in the Prado Basin? What are those factors? And did they (or do they) result in an adverse impact to riparian habitat in the Prado Basin?
- Are the factors that result in an adverse impact to riparian habitat in the Prado Basin related to Peace II implementation?

2.2.1 Groundwater Monitoring Program

A primary result of implementation of the Peace II Agreement is the lowering of groundwater levels (drawdown) in the southern portion of Chino Basin. Hence, drawdown is a factor that is potentially related to Peace II implementation and could adversely impact riparian habitat.

The Groundwater Monitoring Program (GMP) includes the collection of three types of data: groundwater production, groundwater level, and groundwater quality. Watermaster has been implementing a groundwater monitoring program across the entire Chino Basin to support various basin management initiatives and activities, and all data within Watermaster's centralized relational database are available to the GMP.



Watermaster’s groundwater monitoring network was expanded in 2015 specifically for the PBHSP with the construction of 16 new monitoring wells at nine sites located along the fringes of the riparian habitat and between the riparian habitat and the CDA well field. These wells, along with two existing monitoring wells, HCMP-5/1 and RP2-MW3, are specifically monitored for the PBHSP and are called the “PBHSP monitoring wells.”

Figure 2-2 shows the extent of the study area for which the GMP data are compiled and used for the PBHSP. The area covers the Prado Basin and the upgradient areas to the north that encompass the Chino Basin Desalter well field. Figure 2-2 also shows the wells in the study area where groundwater data were available in WY 2021.

2.2.1.1 Groundwater Production

Groundwater production influences groundwater levels and groundwater-flow patterns. Groundwater-production data are analyzed together with groundwater-level data to characterize the influence of groundwater production on groundwater levels. Groundwater-production data are also used as an input to the Chino Basin groundwater-flow model to evaluate past and future conditions in the Chino Basin, which, for the PBHSP, supports the analysis of prospective losses of riparian habitat (see Section 2.3).

Watermaster collects quarterly groundwater-production data for all active production wells within the Chino Basin. The data are checked for quality assurance and quality control (QA/QC) and uploaded to Watermaster’s centralized relational database. The active production wells within the study area include CDA wells and privately owned wells used for agricultural, dairy, or domestic purposes.

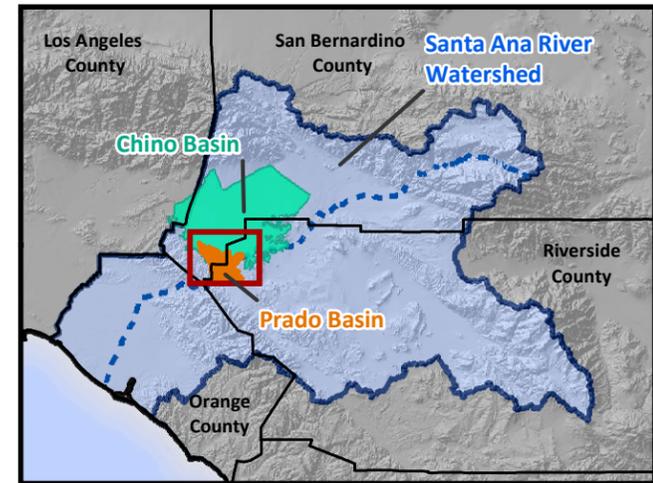
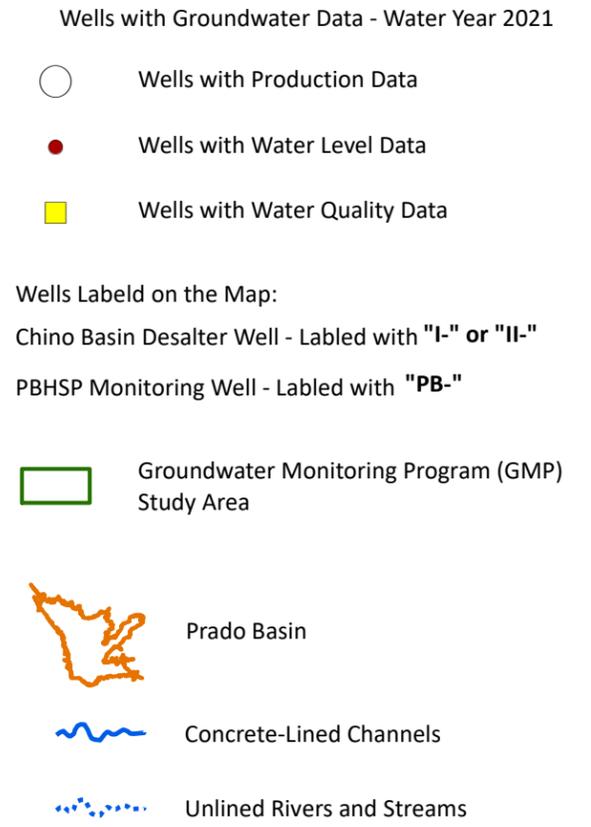
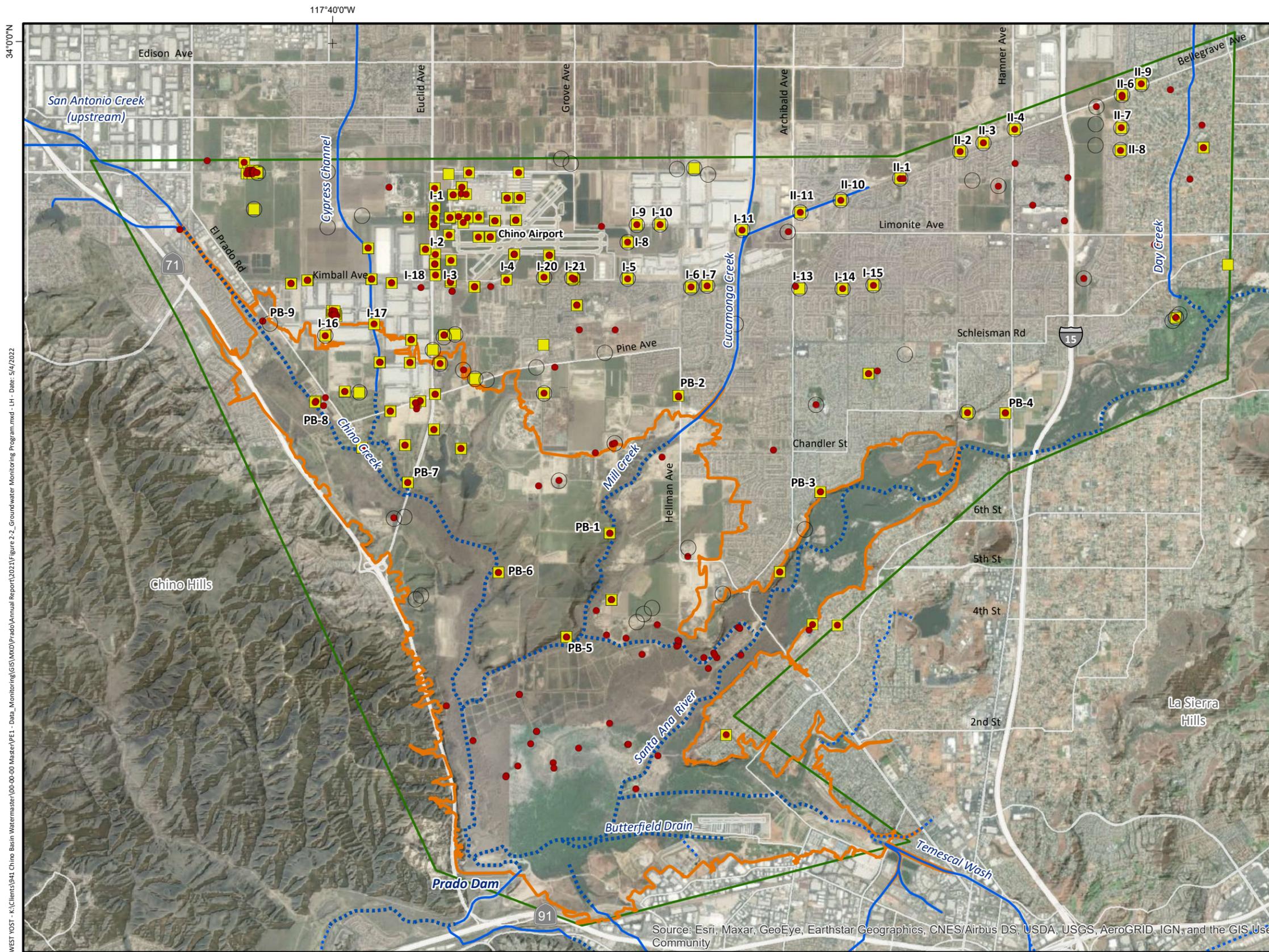
During WY 2021, Watermaster collected groundwater-production data at about 70 wells in the GMP study area.

2.2.1.2 Groundwater Level

Monitoring groundwater levels in the Prado Basin is a key component of the PBHSP, as the potential for declining groundwater levels related to Peace II implementation could be a factor that adversely impacts riparian habitat. Groundwater-level data are analyzed together with production data to characterize how groundwater levels have changed over time in the GMP study area and to explore the relationship(s) to any observed changes that occurred in the extent and quality of the riparian habitat. Groundwater-level and production data are also used as input to the Chino Basin groundwater flow model to evaluate past and future conditions in the Chino Basin, which, for the PBHSP, supports the analysis of prospective losses of riparian habitat (see Section 2.3).

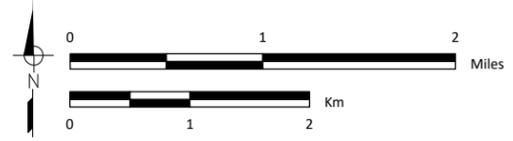
Watermaster collects groundwater-level data at various frequencies at wells in the GMP study area to support various groundwater-management initiatives. The data are checked for QA/QC and uploaded to Watermaster’s centralized relational database.

During WY 2021, Watermaster collected groundwater-level data from 260 wells in the study area (see Figure 2-2). At 170 of these wells, water levels were measured by well owners at varying frequencies and provided to Watermaster. The remaining 90 wells are CDA wells, dedicated monitoring wells, or private wells that are monitored by Watermaster using manual methods once per month or with pressure transducers that record water levels once every 15 minutes. Groundwater-levels at the 18 PBHSP monitoring wells have been measured with pressure transducers since May 2015.



WEST YOST - K:\Clients\944 Chino Basin Watermaster\00-00-00 Master\PE1 - Data_Monitoring\GIS\MXD\Prado\Annual Report\2021\Figure 2-2_Groundwater Monitoring Program.mxd - LH - Date: 5/4/2022

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Groundwater Monitoring Program

Figure 2-2



2.2.1.3 Groundwater Quality

Water-quality data can be used to understand the various potential sources of shallow groundwater in the Prado Basin. Groundwater-quality data are compared to surface-water-quality data to characterize groundwater/surface-water interactions in the Prado Basin and assess the importance of those interactions to the extent and quality of the riparian habitat.

Watermaster collects groundwater-quality data from wells in the GMP study area to support various groundwater-management initiatives. These data are checked for QA/QC and uploaded to Watermaster's centralized relational database.

During WY 2021, groundwater-quality data were collected from 190 wells in the study area (see Figure 2-2). Of these wells, 145 were sampled by the well owners at varying frequencies. The remaining 45 wells are dedicated monitoring wells or private wells sampled by Watermaster either quarterly, annually, or triennially (every three years).

Watermaster has performed groundwater-quality monitoring at the PBHSP monitoring wells since they were constructed in 2015, and the monitoring program has been tailored to discern the groundwater/surface-water interactions important to the sustainability of the riparian habitat. During WY 2021, there was no sampling performed for the PBHSP. Watermaster conducted triennial monitoring at the 18 PBHSP monitoring wells as part of their basin-wide water quality monitoring to support various groundwater-management initiatives.

In July 2018, a pilot monitoring program was initiated at four monitoring wells at two locations along Chino Creek (PB-7 and PB-8) where the data loggers that measure groundwater levels at 15-minute intervals were replaced with data loggers with probes to measure and record electrical conductivity (EC), temperature, and water levels at a 15-minute frequency. Samples of groundwater were collected and analyzed quarterly (fiscal year 2019 and 2020) or semiannually (fiscal year 2021) for EC, temperature, and the parameters listed in Table 2-1. No groundwater quality samples were collected during fiscal year 2022. The same monitoring methods and protocols were performed at nearby surface-water sites in Chino Creek for comparison with the groundwater data. During this reporting period, Watermaster conducted the quarterly download of the data loggers at the four PBHSP monitoring wells and collected the last semi-annual samples of groundwater quality at these wells in March 2021.



Table 2-1. Parameter List for the Groundwater and Surface Water Quality Monitoring Program

Chemical Parameter	Method Detection Limit	Method
Alkalinity in CaCO ₃ units	2 mg/l	SM2320B
Ammonia Nitrogen	0.05 mg/l	EPA 350.1
Bicarbonate as HCO ₃ <i>Calculated</i>	2 mg/l	SM2320B
Calcium Total ICAP	1 mg/l	EPA 200.7
Carbonate as CO ₃ <i>Calculated</i>	2 mg/l	SM2320B
Chloride	1 mg/l	EPA 300.0
Hydroxide as OH <i>Calculated</i>	2 mg/l	SM2320B
Magnesium Total ICAP	0.1 mg/l	EPA 200.7
Nitrate as Nitrogen by IC	0.1 mg/l	EPA 300.0
Nitrate as NO ₃ <i>Calculated</i>	0.44 mg/l	EPA 300.0
Nitrite as Nitrogen by IC	0.05 mg/l	EPA 300.0
Nitrate plus Nitrite as Nitrogen <i>Calculated</i>	0.1 mg/l	EPA 300.0
PH (H3=past HT not compliant)	0.1 units	SM4500-HB
Potassium Total ICAP	1 mg/l	EPA 200.7
Silica	0.5 mg/l	EPA 200.7
Sodium Total ICAP	1 mg/l	EPA 200.7
Specific Conductance, 25 C	2 µmhos/cm	SM2510B
Sulfate	0.5 mg/l	EPA 300.0
Total Dissolved Solids (TDS)	10 mg/l	E160.1/SM2540C
Total Hardness as CaCO ₃ by ICP <i>Calculated</i>	3 mg/l	SM 2340B
Total Organic Carbon	0.3 mg/l	SM5310C/E415.3
Turbidity	0.05 NTU	EPA 180.1
Notes: mg/l – milligrams per liter NTU – nephelometric turbidity units µmhos/cm – micromhos per centimeter		

2.2.2 Surface-Water Monitoring Program

Surface-water discharge in the Prado Basin is another factor that can influence the extent and quality of riparian habitat and can influence groundwater levels. Surface-water discharge data are evaluated for the PBHSP to characterize historical and current trends in the discharge of the SAR and its tributaries in the Prado Basin and to explore the relationship(s) to any observed changes that occurred in the extent and quality of the riparian habitat. Surface-water discharge data are also used as input to the Chino Basin groundwater-flow model to evaluate past and future conditions in the Chino Basin, which for the PBHSP, supports the analysis of prospective losses of riparian habitat (see Section 2.3). Surface-water quality is

compared to groundwater-quality data to characterize groundwater/surface-water interactions in the Prado Basin and the importance of those interactions to the extent and quality of the riparian habitat.

The surface-water monitoring program (SWMP) for the PBHSP involves collecting existing, publicly available, surface-water discharge and quality data from sites within or tributary to the Prado Basin. Figure 2-3 shows the location of the surface-water monitoring sites used in the PBHSP. These sites include discharge locations for publicly owned treatment works (POTWs), USGS stream gaging stations, Watermaster and the IEUA Maximum-Benefit Monitoring Program surface-water-quality monitoring sites, ACOE's storage levels and inflow to Prado Dam, and the OCWD's discharge of untreated imported water from the OC-59 turnout tributary to Prado Basin. All surface-water discharge and quality data were collected for WY 2021, checked for QA/QC, and uploaded to Watermaster's relational database.

As noted in Section 2.2.1.3 above, a pilot monitoring program was initiated in July 2018 at two locations along Chino Creek near monitoring wells PB-7 and PB-8 to help characterize groundwater/surface-water interactions. Data loggers with probes were installed in Chino Creek adjacent to PB-7 and PB-8 to measure and record EC, temperature, and stage at a 15-minute frequency. Surface-water samples were collected and analyzed quarterly (fiscal year 2019 and 2020) or semiannually (fiscal year 2021) for EC, temperature, and the parameters listed in Table 2-1. During this reporting period, Watermaster conducted the quarterly download of the data loggers at the two PBHSP surface water sites in Chino Creek and collected the last semi-annual sample of surface water quality at these sites in March 2021.

2.2.3 Climatic Monitoring Program

Climatic data are used to characterize how the climate has changed over time in the study area and to explore the relationship(s) to any observed changes that occurred in the extent and quality of the riparian habitat. Climatic data are also used for the Chino Basin groundwater-flow model to evaluate past and future conditions in the Chino Basin, which for the PBHSP, supports the analysis of prospective losses of riparian habitat (see Section 2.3).

The climatic monitoring program for the PBHSP involves collecting existing, publicly available spatially gridded climate datasets for precipitation and temperature in the vicinity of the Prado Basin. These climate datasets include Next-Generation Radar (NEXRAD) and the PRISM Climate Group. Figure 2-3 shows the location of the areas where the gridded climate data is extracted from PRISM and NEXRAD to estimate a spatial average precipitation and temperature for the PBHSP analysis. The Chino Basin boundary is used to extract the spatially gridded data for precipitation, and the Prado Basin boundary is used to extract the spatially gridded data for maximum and minimum temperature. Climatic data are collected annually and uploaded to Watermaster's relational database.

2.2.4 Other Factors That Can Affect Riparian Habitat

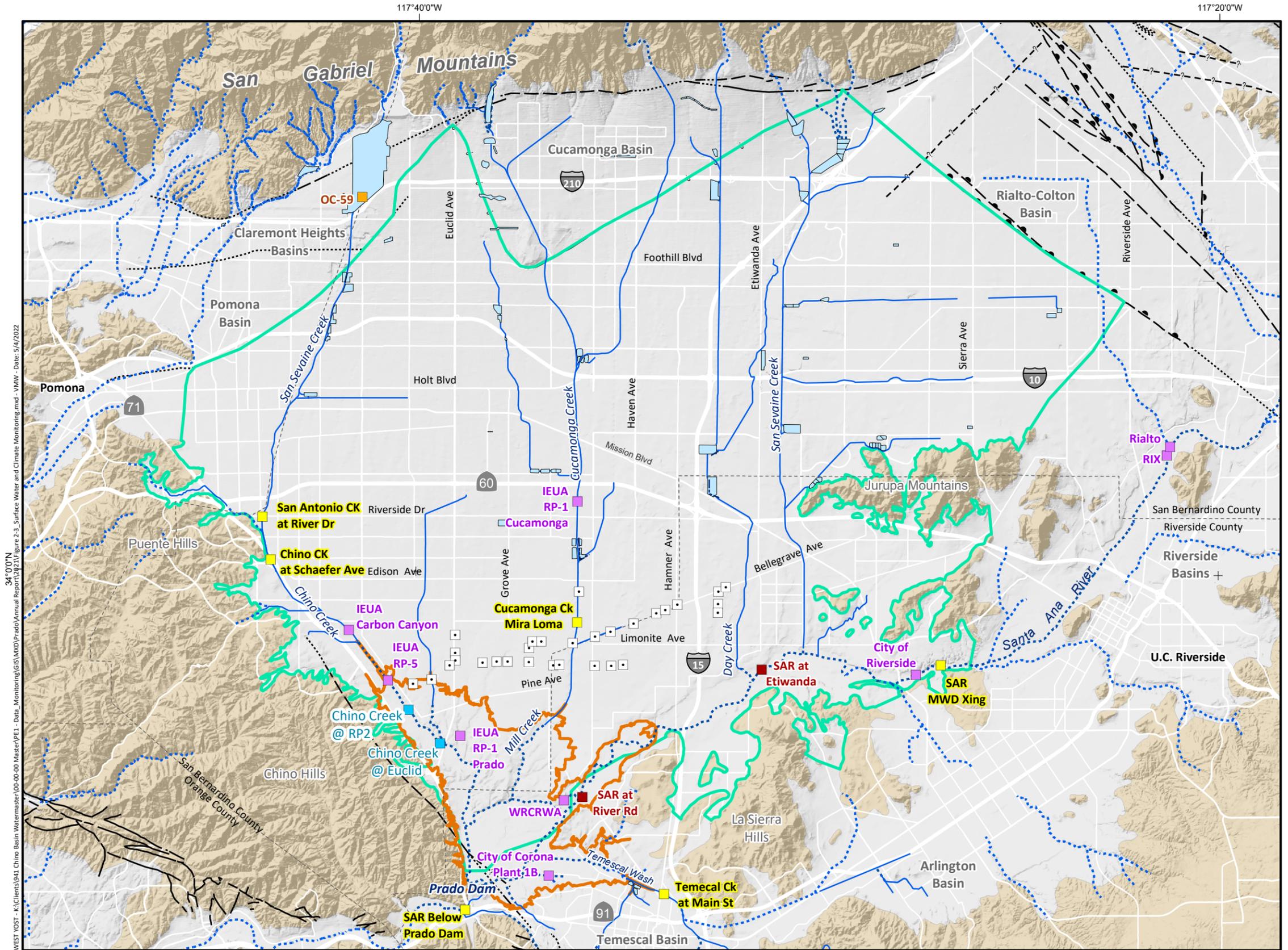
The AMP recognizes that there are potential factors other than groundwater, surface water, and climate that can affect riparian habitat in the Prado Basin. These factors include, but are not limited to: wildfire, disease, pests, and invasive species. To the extent necessary, data and information on these factors are collected and analyzed to explore for relationships to changes in the extent and quality of the riparian habitat.

In WY 2016, during the analysis for the first Annual Report, two specific factors were identified as potential impacts to the Prado Basin riparian habitat: wildfires and an invasive pest known as the Polyphagous Shot-Hole Borer (*Euwallacea fornicates*; PSHB hereafter). In WY 2018, the removal of the non-native invasive

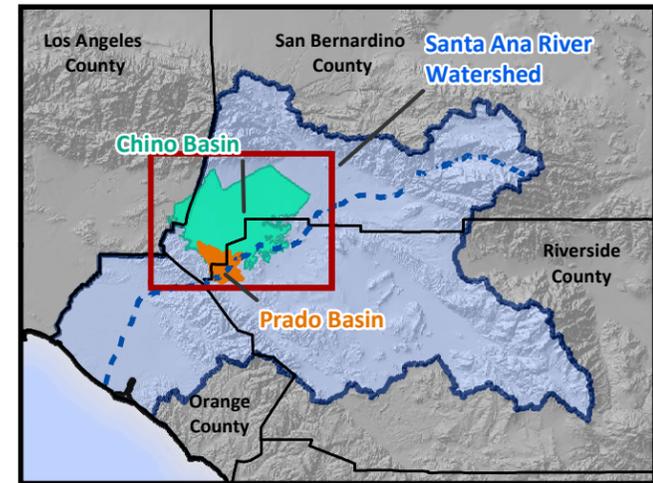
Annual Report of the Prado Basin Habitat Sustainability Committee – WY 2021



weed *Arundo donax* (Arundo) was identified as another factor to impact riparian habitat in the Prado Basin. The following describes the information that was collected for these three factors and how they are used to explore for relationships to changes that have occurred in the extent and quality of riparian habitat.



- Surface-Water Monitoring Program**
- POTW Discharge Outfall
 - USGS Stream Gage Station
 - Maximum-Benefit Monitoring Program Site
 - MWDSC Imported Water Turnout
 - PBHSP Site
- Climate Monitoring Program**
- Chino Basin - Area to Extract Gridded Data from PRISM and NEXRAD Data Sets (Precipitation)
 - Prado Basin - Area to Extract Gridded Data from PRISM and NEXRAD Data Sets (Temperature)
 - Chino Basin Desalter Well
 - Concrete-Lined Channels
 - ⋯ Unlined Rivers and Streams
 - Flood Control & Conservation Basins
- Surface Geology**
- Water-Bearing Sediments*
- Quaternary Alluvium
- Consolidated Bedrock*
- Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks
- Faults**
- Location Certain
 - Location Approximate
 - Location Concealed
 - Location Uncertain
 - Approximate Location of Groundwater Barrier



2.2.4.1 Wildfires

Wildfires occur periodically in the Prado Basin and can reduce the extent and quality of riparian habitat. For the PBHSP, the occurrence and locations of wildfires are used to help understand and explain the trends observed in the extent and quality of the riparian vegetation.

To map the extent of any wildfires that have occurred in the study area, fire-perimeter data were collected from the Fire and Resource Assessment Program (FRAP) of the California Department of Forestry and Fire Protection (CAL FIRE).⁴

For the current reporting period, wildfire data were obtained from the FRAP database for the Prado Basin region for calendar year 2020.⁵

2.2.4.2 Polyphagous Shot-Hole Borer (PSHB)

The PSHB is a beetle that burrows into trees, introducing a fungus (*Fusarium euwallacea*) into the tree bark that spreads the disease Fusarium Dieback (FD).^{6,7} FD destroys the food and water conducting systems of the tree, eventually causing stress and tree mortality. The PSHB was first discovered in Southern California in 2003 and has been recorded to have caused branch die-back and tree mortality for various tree specimens throughout the Southern California region (USDA, 2013). Since 2016, the PSHB is an identified pest within the Prado Basin that has the potential to negatively impact riparian habitat vegetation (USBR, 2016; Palenscar, K., personal communication, 2016; McPherson, D., personal communication, 2016).

Information on PSHB occurrence in the Prado Basin has been obtained during the USBR vegetation surveys of riparian habitat in the Prado Basin for the PBHSP during 2016 and 2019, and also from the University of California, United States Department of Agriculture (USDA) and Natural Resources' online PSHB/FD Distribution Map⁸, and the OCWD's PSHB trap deployment and monitoring. For the PBHSP, the occurrences of the PSHB in the Prado Basin are used to help understand and explain the trends observed in the extent and quality of the riparian vegetation. There was no new information on the PSHB occurrence in the Prado Basin collected for the current reporting period.

2.2.4.3 Arundo Removal

Non-native Arundo is prominent throughout riparian habitat in the Prado Basin. Arundo consumes significantly more water than native plants, can out-compete native vegetation, and is flammable in nature increasing the risk of wildfire. There are several SAR watershed stakeholders that remove Arundo in the riparian habitat to restore native habitat to aid in the recovery of the threatened and endangered species, such as the Least Bell's Vireo and Santa Ana Sucker. For the PBHSP, the occurrence and locations of habitat restoration activities that include the removal of Arundo can help understand and explain trends in the extent and quality of the riparian habitat. The OCWD and Santa Ana Watershed Association (SAWA) in

⁴ Frap.fire.ca.gov

⁵ Data for the previous year is available each year in April.

⁶ UCANR.edu

⁷ Cisr.Ucr.Edu

⁸ Ucanr.edu



coordination with others, are the main entities in the watershed that implement habitat restoration programs that include removing Arundo.

In WY 2021, information on Arundo removal and management activities that have occurred recently in the Prado Basin were obtained to track these programs and explore if there is a connection between these activities and trends observed in the extent and quality of riparian habitat. This effort involved coordinating with the OCWD and SAWA to obtain information on the location and timing of these programs.

2.3 Prospective Loss of Riparian Habitat

Monitoring and mitigation requirement 4.4-3 in the Peace II SEIR calls for annual reporting for the PBHSP, that will include recommendations for ongoing monitoring and any adaptive management actions required to mitigate any measured loss or **prospective loss** of riparian habitat that may be attributable to the Peace II Agreement (emphasis added). The meaning of “prospective loss” in this context is “future potential losses” of riparian habitat. Predictive modeling of groundwater levels can be used to answer question 8 from the AMP:

- Are there areas of prospective loss of riparian habitat that may be attributable to the Peace II Agreement?

Watermaster’s most recent groundwater-modeling results can be used to evaluate forecasted groundwater-level changes within the Prado Basin under current and projected future conditions in the Basin, including, but not limited to, plans for pumping, storm-water recharge, and supplemental water recharge. To perform this evaluation, the predictive model results are mapped and analyzed to identify areas (if any) where groundwater levels are projected to decline to depths that may negatively impact riparian habitat in the Prado Basin.

For this Annual Report, Watermaster’s most recent groundwater model projections were used to characterize future groundwater-level conditions in the PBHSP study area. This model projection was the simulation of planning scenario “2020 SYR1” for the 2020 recalculation of Safe Yield using the updated Chino Basin groundwater-flow model (WEI, 2020)



3.0 RESULTS AND INTERPRETATIONS

3.1 Trends in Riparian Habitat Extent and Quality

This section describes the analysis and interpretation of the monitoring data and groundwater-modeling results for the PBHSP. Analyzed data span various historical periods, based on data availability, and include both pre- and post-Peace II implementation (2007).

More specifically, this section describes the trends in the extent and quality of the riparian habitat, describes the trends in factors that can impact the riparian habitat, and evaluates potential cause-and-effect relationships—particularly any cause-and-effect relationships that may be associated with Peace II implementation. The factors that can potentially impact the extent and quality of the riparian habitat include changes in groundwater levels, surface-water discharge, climate, and other factors, such as pests, wildfires, and habitat management activities. Declining groundwater levels is the primary factor that is potentially related to Peace II implementation and could adversely impact the riparian habitat.

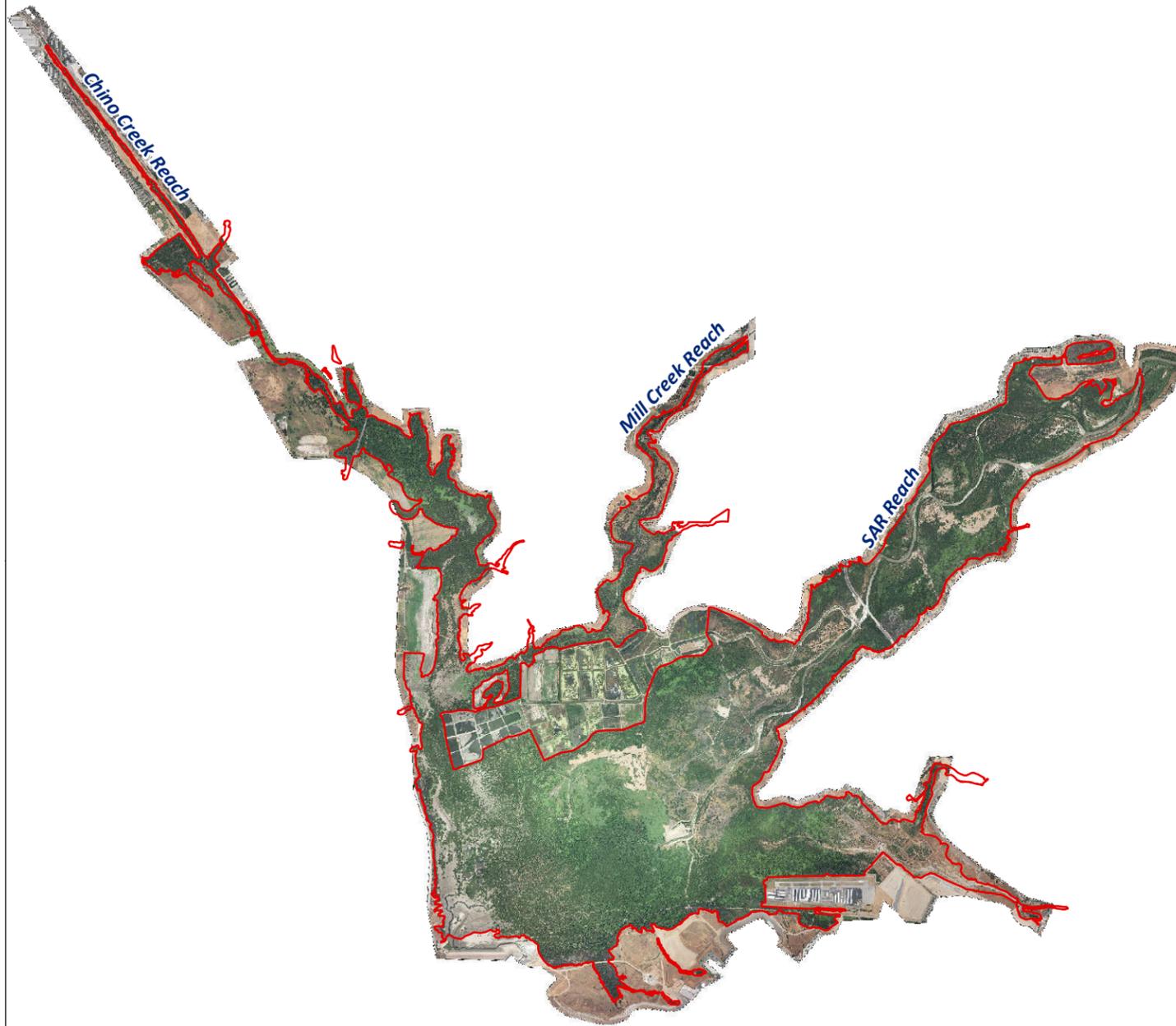
This section also includes a review of Watermaster’s most recent predictive Chino Basin groundwater modeling results to identify areas of potential future declines in groundwater levels that could impact the riparian habitat.

3.1.1 Extent of the Riparian Habitat

Previous annual reports include an analysis of the riparian vegetation using historical air photos to map the density and extent of the vegetation in the Prado Basin (WEI, 2017; 2018; 2019; 2020). In general, these analyses concluded that from 1960 to 1999 the mapped extent of the riparian habitat increased from about 1.8 to 6.7 square miles (mi²) and its vegetated density increased. Since 1999, the extent and vegetated density of the riparian habitat has remained relatively constant.

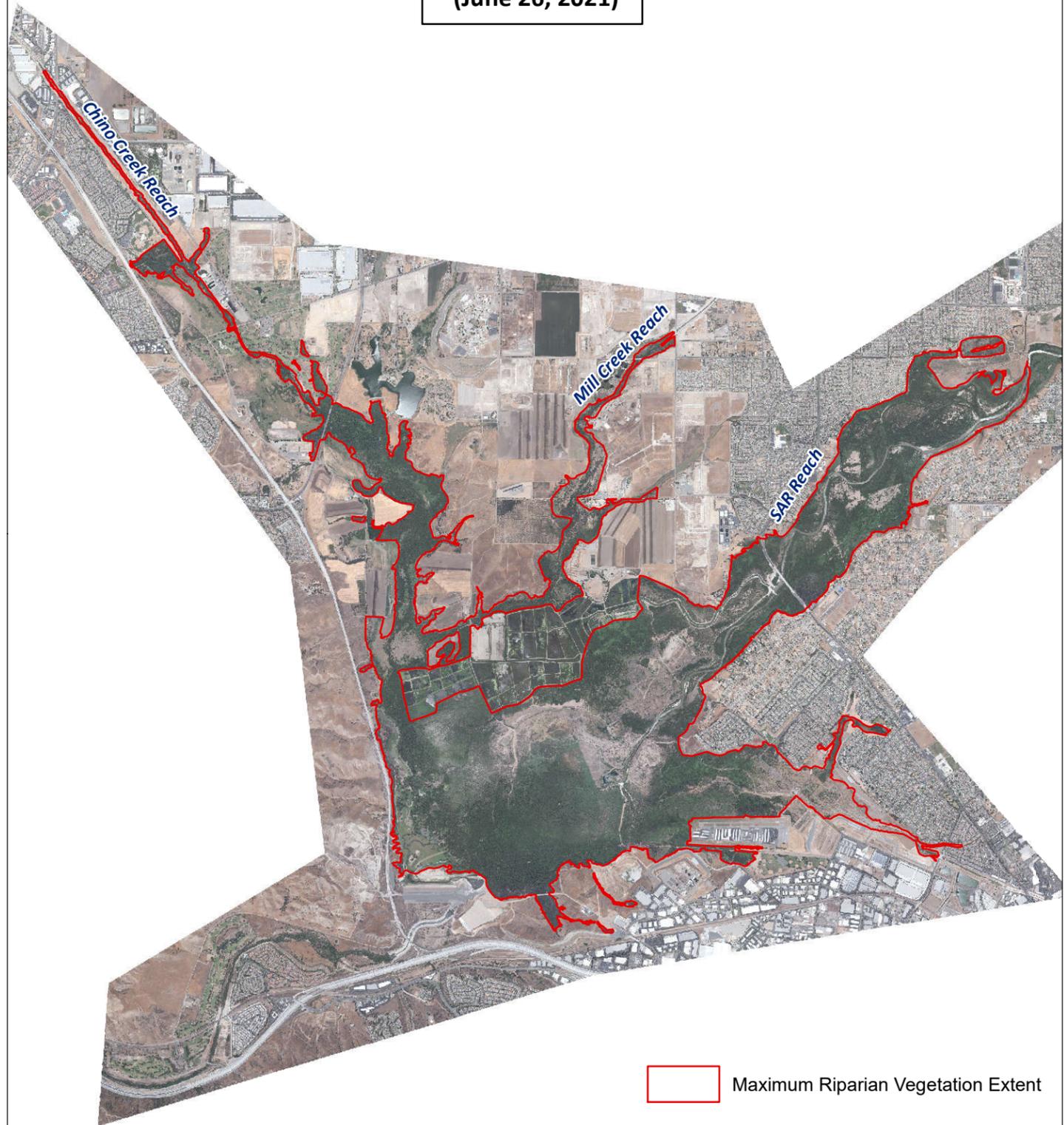
Figure 3-1a compares air photos that were acquired for the PBHSP in July 2020 and June 2021. Both air photos are high resolution (3-inch pixels) which allow for a side-by-side visual comparison of riparian vegetation extent and quality in July 2020 and June 2021. There are no significant differences in these air photos that justify an adjustment to the mapped extent of the riparian habitat.

2020 Air Photo
(July 6-8, 2020)



Maximum Riparian Vegetation Extent

2021 Air Photo
(June 26, 2021)



Maximum Riparian Vegetation Extent

WEST\YOST - K:\Clients\941_Chino Basin Watermaster\00-00-00 Master\PE1 - Data_Monitoring\GIS\MXD\Prado\Annual Report\2021\Figure 3-1a_2020_2021 AirPhoto.mxd - LH - Date: 5/4/2022



Figure 3-1b compares the 2021 air photo and the mapped extent of the riparian habitat to the NDVI estimates for the Prado Basin area on a date that corresponds to the maximum of the spatial average of NDVI during the growing season for 2021.⁹ Generally, the following ranges in NDVI during the growing season correspond to these land cover types:

- < 0: Water
- 0 - 0.2: Non-vegetated surfaces, such as urbanized land cover and barren land
- 0.3 - 1.0: Vegetated land cover: higher NDVI values indicate greater photosynthetic activity

Three main observations and interpretations are derived from this figure:

- Prado Basin riparian vegetation areas have NDVI estimates of about 0.3 to 0.9 during the growing season. Active agricultural lands in the Prado Basin region can also have NDVI values of a similar range during the growing season.
- The NDVI estimates support the delineation of the extent of the riparian habitat as drawn from the air photos.
- The consistency of NDVI values to land cover observed in the air photo indicates that the processing of NDVI estimates for this study were performed accurately, which supports subsequent analyses and interpretations.

3.1.2 Quality of the Riparian Habitat

As discussed, and referenced in Section 2.0, NDVI is an indicator of the photosynthetic activity of vegetation and therefore can be used to interpret the health or “quality” of the riparian vegetation. In this section, NDVI is spatially and temporally analyzed in maps and time-series charts for defined areas throughout Prado Basin to characterize changes in the quality of riparian habitat over the period 1984 to 2021.

3.1.2.1 Spatial Analysis of NDVI

Figure 3-2 compares maps of NDVI across the entire Prado Basin area for 2020 and 2021 on the dates that correspond to the maximum growing-season NDVI as a spatial average across the entire extent of the riparian vegetation. Figure 3-3 is a map of change in NDVI from 2020 to 2021 that was prepared by subtracting the 2020 NDVI map from the 2021 NDVI map on Figure 3-2. These figures identify areas that may have experienced a change in the quality of riparian habitat from 2020 to 2021:

- About half of the riparian vegetation extent area showed no change in NDVI from 2020 to 2021.
- NDVI decreased in small patches along Mill Creek.
- NDVI decreased in large patches along the SAR and below the OCWD wetlands. Inspection of the air photos in Figure 3-1a corroborates these observations, showing a decrease in green land cover in these same areas from 2020 to 2021.

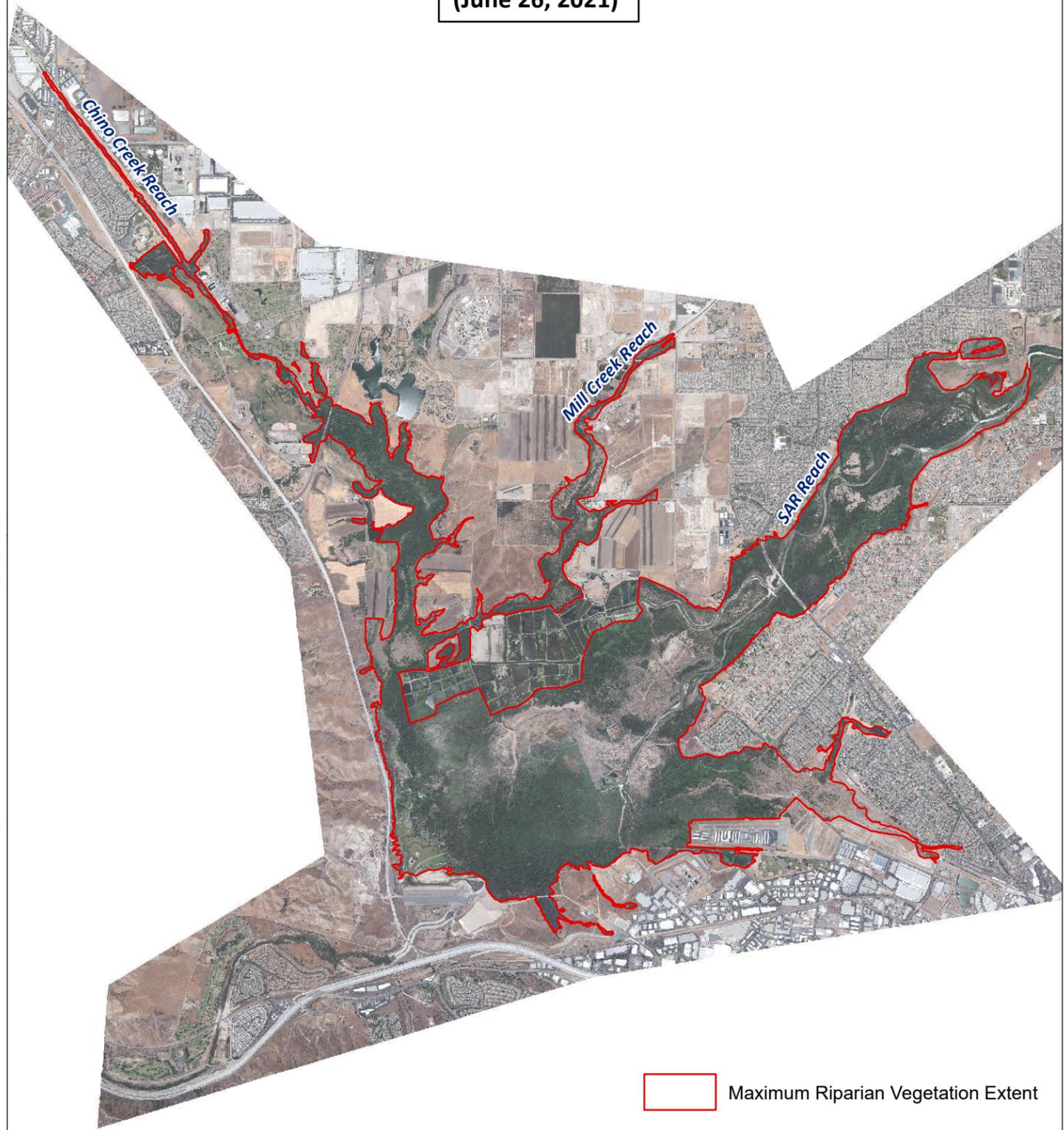
⁹ The growing season for the Prado Basin riparian vegetation is from March through October (Merkel, 2007; USBR, 2008). The maximum NDVI for the 2019 growing season occurred on July 10, 2019.



- NDVI decreased in the southern portion of Chino Creek above and below the OCWD wetlands Inspection of the air photos in Figure 3-1a corroborates these observations, showing a decrease in green land cover in these same areas from 2020 to 2021.
- NDVI increased in the small and large patches along the SAR.

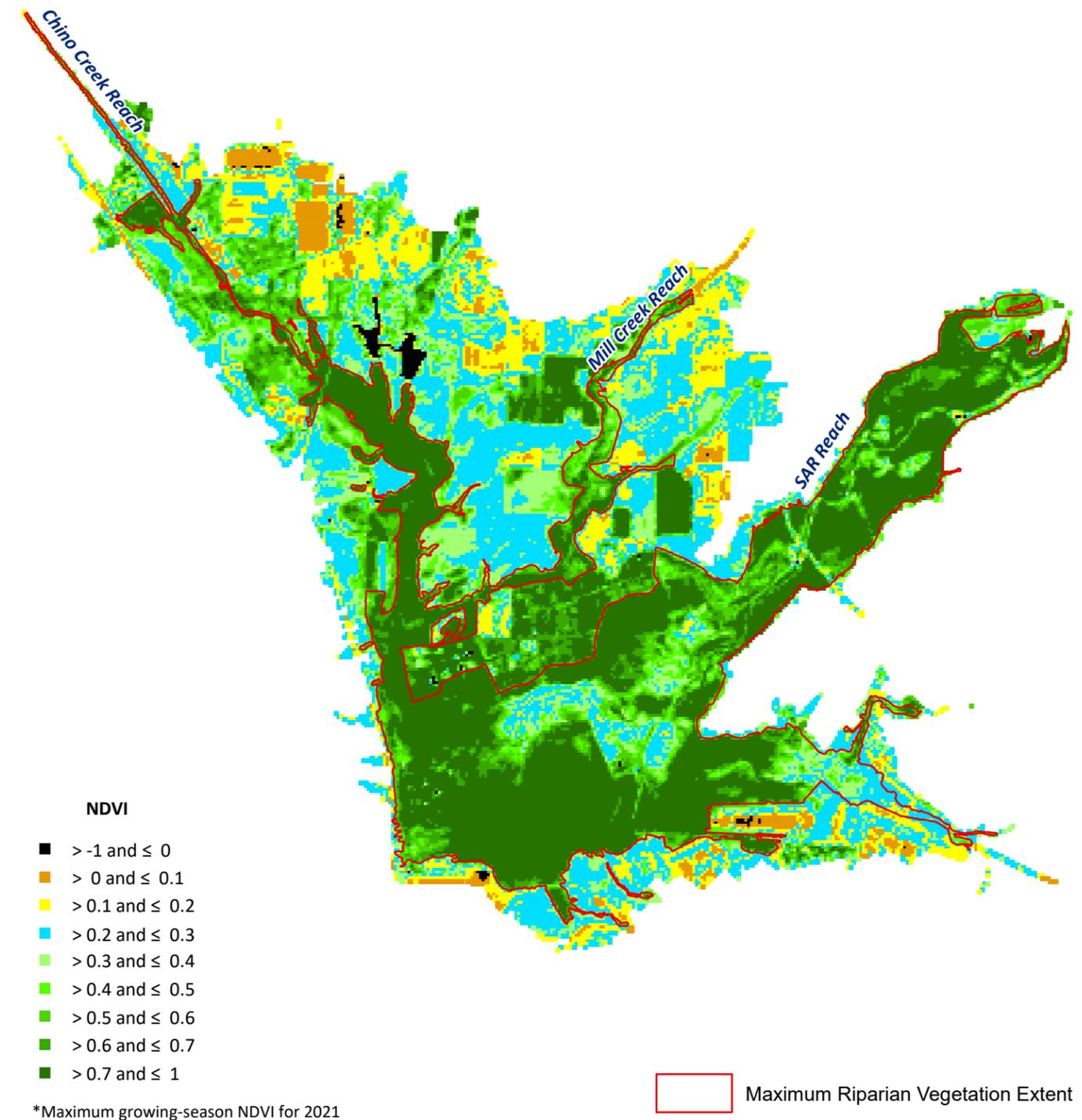
These spatial changes in NDVI will be analyzed along with the factors that can impact riparian habitat in Sections 3.2 through 3.6 of this report.

2021 Air Photo
(June 26, 2021)

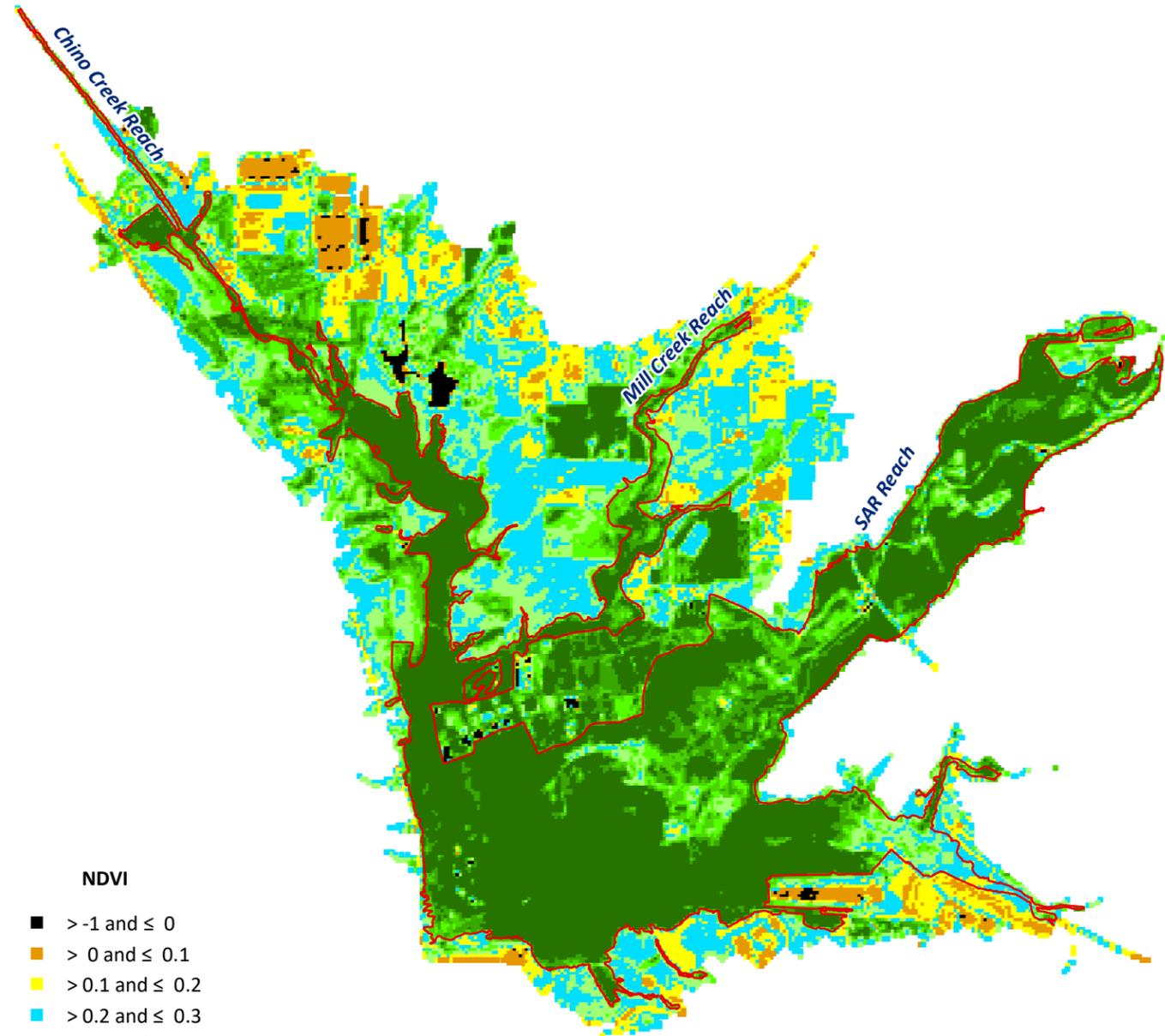


WEST YOST - K:\Clients\941 Chino Basin Watermaster\00-00-00 Master\PE1 - Data_Monitoring\GIS\MXD\Prado\Annual Report\2021\Figure 3-1b_2021_AirPhoto_NDVI.mxd - LH - Date: 5/4/2022

2021 NDVI
(July 31, 2021)*



2020 NDVI
(August 29, 2020)*

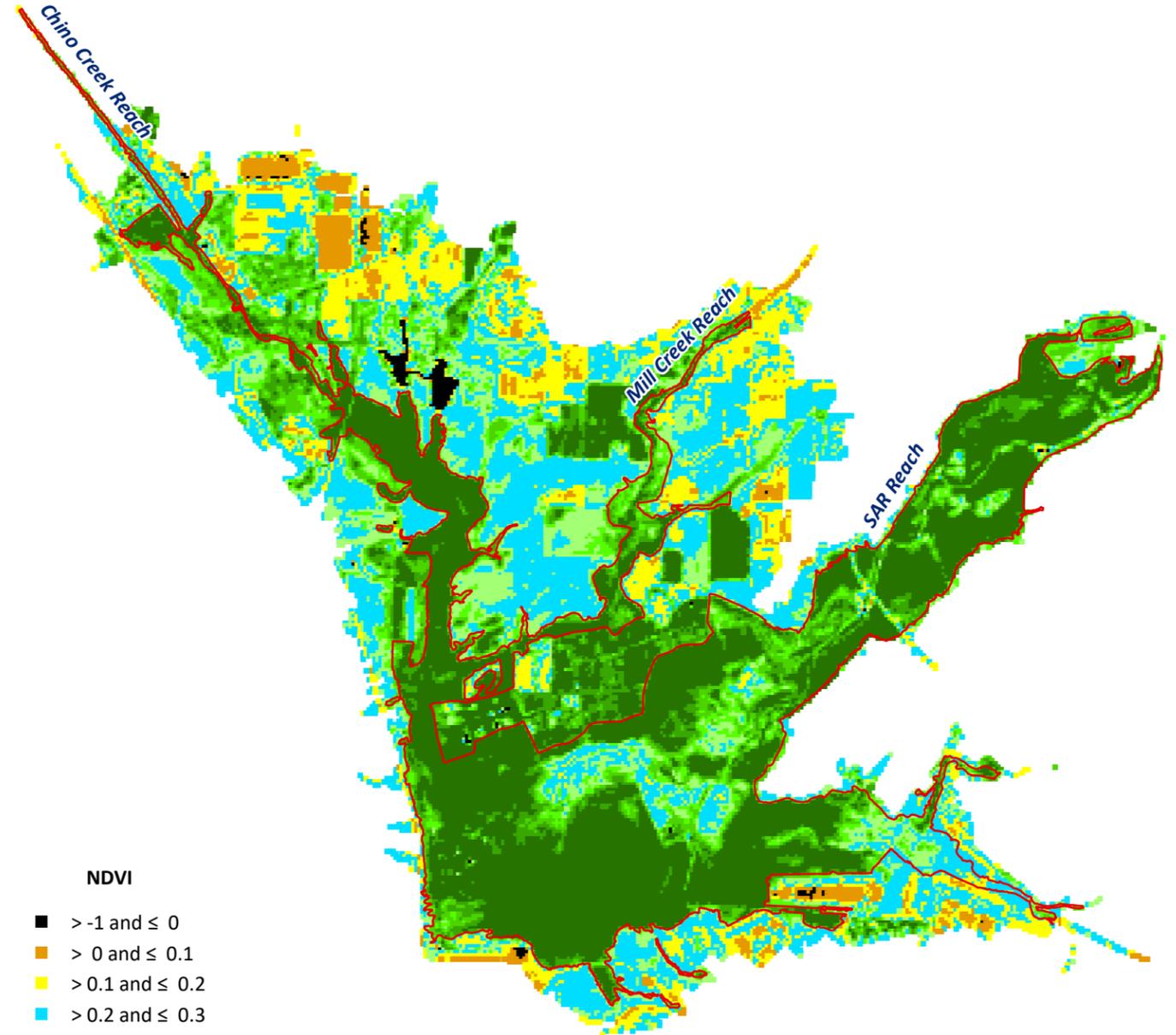


- NDVI**
- > -1 and ≤ 0
 - > 0 and ≤ 0.1
 - > 0.1 and ≤ 0.2
 - > 0.2 and ≤ 0.3
 - > 0.3 and ≤ 0.4
 - > 0.4 and ≤ 0.5
 - > 0.5 and ≤ 0.6
 - > 0.6 and ≤ 0.7
 - > 0.7 and ≤ 1

*Maximum growing-season NDVI for 2020

Maximum Riparian Vegetation Extent

2021 NDVI
(July 31, 2021)*



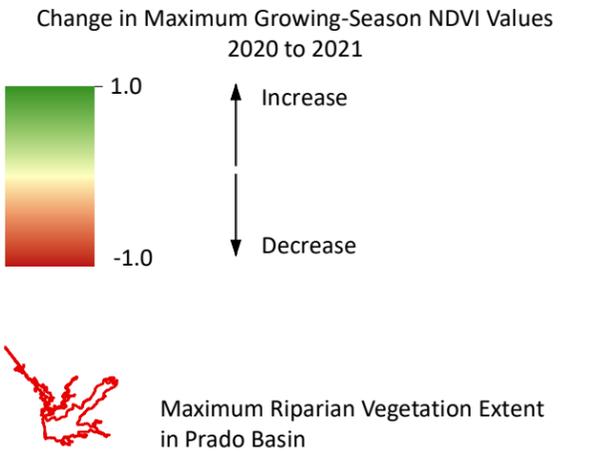
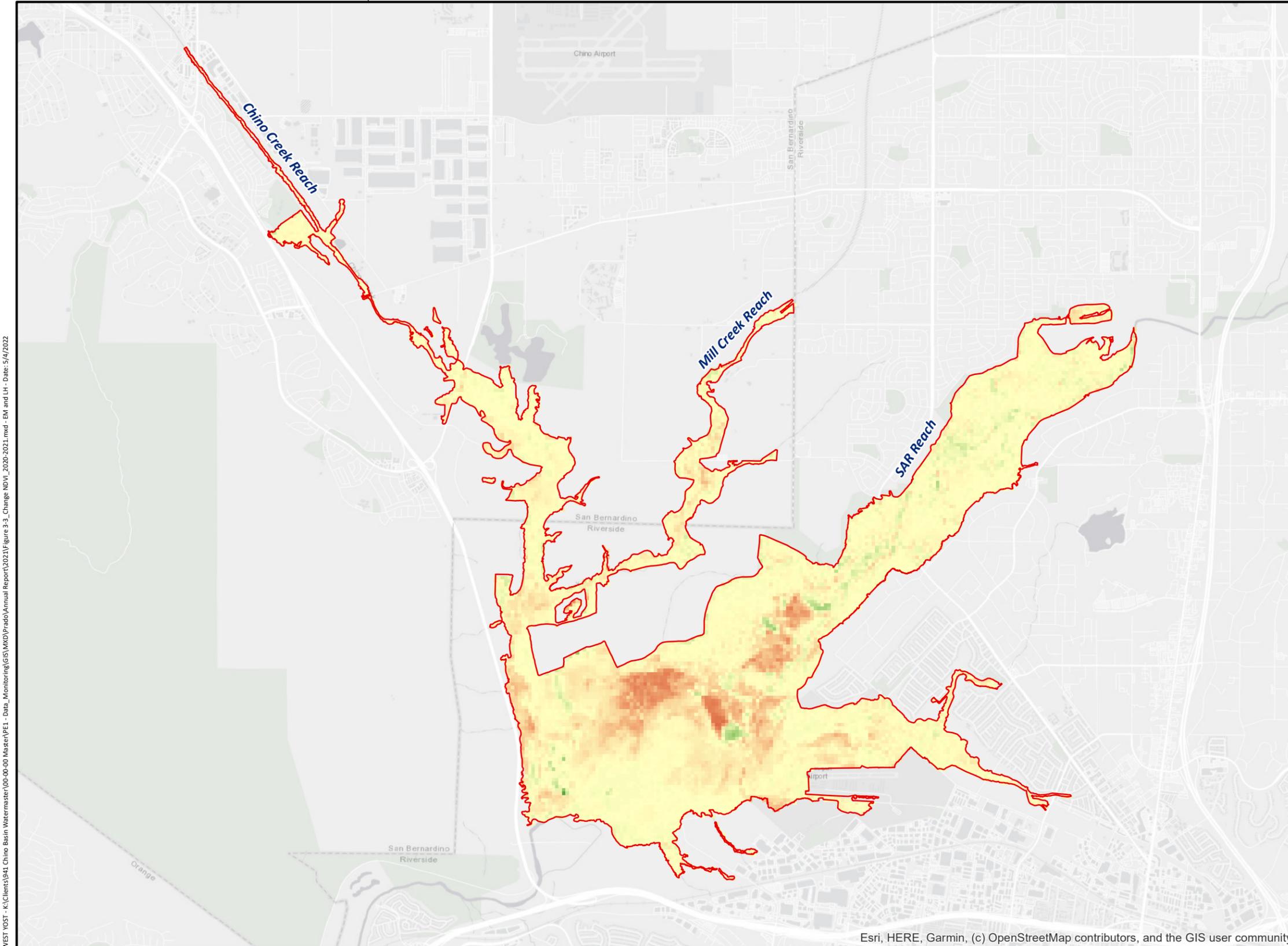
- NDVI**
- > -1 and ≤ 0
 - > 0 and ≤ 0.1
 - > 0.1 and ≤ 0.2
 - > 0.2 and ≤ 0.3
 - > 0.3 and ≤ 0.4
 - > 0.4 and ≤ 0.5
 - > 0.5 and ≤ 0.6
 - > 0.6 and ≤ 0.7
 - > 0.7 and ≤ 1

*Maximum growing-season NDVI for 2021

Maximum Riparian Vegetation Extent

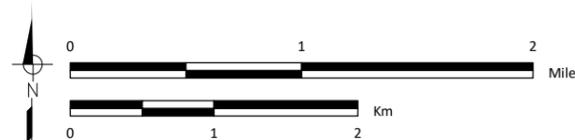
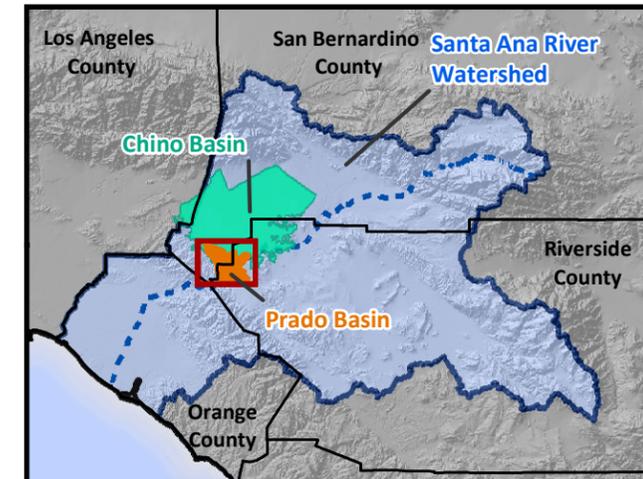
WEST YOST - K:\Clients\941_Chino Basin Watermaster\00-00-00_Master\PE1 - Data_Monitoring\GIS\MXD\Prado\Annual Report\2021\Figure 3-2_2020_2021_NDVI.mxd - LH - Date: 5/4/2022

117°40'0"W



WEST\YOST - K:\Clients\941 Chino Basin Watermaster\00-00-00 Master\PE1 - Data_Monitoring\GIS\MXD\Prado\Annual Report\2021\Figure 3-3_Change NDVI_2020-2021.mxd - EM and LH - Date: 5/4/2022

Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community



Chino Basin Watermaster and
Inland Empire Utilities Agency
2021 Annual Report of the



Spatial Change in NDVI for the Prado Basin
2020 and 2021

Figure 3-3

3.1.2.2 Temporal Analysis of NDVI

NDVI pixels¹⁰ within defined areas throughout the Prado Basin were spatially averaged and temporally analyzed in time-series charts. The defined areas include large and small areas within Prado Basin and are shown in Figure 3-4. The large areas include the entire extent of the riparian habitat (6.8 mi²— 19,520 NDVI pixels), the extent of the riparian habitat along the upper portion of Chino Creek (0.74 mi²— 2,134 NDVI pixels), and the extent of the riparian habitat along Mill Creek (0.26 mi²— 759 NDVI pixels). The small areas are located along the northern reaches of the Prado Basin riparian habitat near the PBHSP monitoring wells and a location of a USBR vegetation survey site (10-meter radius plot). All the small areas are one NDVI pixel (30 x 30-meter pixel – 900 square meters).¹¹

Figures 3-5, 3-6, 3-7, and 3-8a through 3-8l are time-series charts of the NDVI for each of the defined areas that indicate changes in the quality of riparian habitat over time. These figures are used to characterize long- and short-term changes in NDVI in specific areas, which provide context for interpreting the trends and changes in NDVI that have been occurring during Peace II implementation. Each figure shows three datasets that illustrate trends in the NDVI estimates:

- **Spatial Average NDVI (green dots).** Spatial Average NDVI are the spatial average of the NDVI pixels within the defined area. These data characterize the seasonal and long-term trends in NDVI for each defined area. The NDVI exhibit an oscillatory pattern caused by seasonal changes in the riparian habitat. The NDVI time-series are typical for a deciduous forest, where NDVI values are higher in the growing season from March through October and lower in the dormant season from November through February when plants and trees shed their leaves.
- **Average Growing-Season NDVI (black squares and black curve).** The Average Growing-Season NDVI is the annual average of the Spatial Average NDVI for each growing season from March through October. This curve shows the annual changes and long-term trends in the NDVI for the growing season. This metric is used to analyze year-to-year changes and long-term trends in NDVI.
- **Maximum Growing-Season NDVI (red squares and red curve).** The Maximum Growing-Season NDVI is the annual maximum of the Spatial Average NDVI for each growing season from March through October. Maximum Growing-Season NDVI typically occurs during summer months. This curve shows the annual changes and long-term trends in the maximum NDVI.

NDVI maps or air photos are included on the time-series charts for spatial reference and as a visual check on the interpretations derived from the time-series charts. These air photos are for 2018, 2019, 2020, and 2021— showing the last four years using the high-resolution air photos collected for the PBHSP.

¹⁰ Each NDVI pixel is 30 x 30 meters.

¹¹ In previous annual reports these small areas were four NDVI pixels in this same general area. During WY 2020, these areas were modified to one NDVI pixel that aligned with the USBR vegetation survey to that the field vegetation survey data can better correlate with the NDVI time-series data.



- To statistically characterize long-term trends in NDVI, the Mann-Kendall statistical trend test (Mann-Kendall test) was performed on the Average Growing-Season NDVI for all defined areas over the following three periods:
- 1984 to 2021: the entire period of record
- 1984 to 2006: period prior to Peace II Agreement implementation
- 2007 to 2021: period subsequent to Peace II Agreement implementation

The Mann-Kendall test utilizes a ranking formula to statistically analyze if there is an increasing trend, decreasing trend, or no trend in the NDVI time-series. Appendix B describes the Mann-Kendall test methods and results. The final Mann-Kendall test results for the Average Growing-Season NDVI are shown on each time-series chart and are summarized in Table 3-1.

Defined Area	Figure Number	Mann Kendal Test Result ^(a)		
		Period of Record 1984 - 2021	Prior to Peace II 1984 - 2006	Post Peace II 2007 - 2021
Riparian Vegetation Extent	3-5	No Trend	No Trend	No Trend
Chino Creek Area	3-6	Increasing	Increasing	No Trend
Mill Creek Area	3-7	No Trend	Decreasing	No Trend
CC-1	3-8a	Increasing	No Trend	No Trend
CC-2	3-8b	Increasing	Increasing	Increasing
CC-3	3-8c	Increasing	Increasing	Increasing
CC-4	3-8d	Increasing	No Trend	Increasing
MC-1	3-8e	Increasing	No Trend	Increasing
MC-2	3-8f	No Trend	No Trend	Increasing
MC-3	3-8g	No Trend	No Trend	Increasing
MC-4	3-8h	Increasing	No Trend	No Trend
SAR-1	3-8i	No Trend	No Trend	Increasing
SAR-2	3-8j	No Trend	Decreasing	Increasing
SAR-3	3-8k	Increasing	No Trend	Increasing
LP	3-8l	Increasing	No Trend	No Trend

(a) See Appendix B for a description of the Mann-Kendall statistical trend test and results.

To characterize the short-term trends in NDVI, Table 3-2 summarizes the one-year change in the Average Growing-Season NDVI from 2020 to 2021 at the 15 defined areas and compares to the changes and variability in Average Growing-Season NDVI over the historical period of 1984 to 2021 at each area. During WY 2021, there were decreasing trends in the NDVI from 2020 to 2021 at most of the areas: 12 areas decreased; two areas showed no trend; and one area increased. These one-year changes in the Average



Growing-Season NDVI are within the range of long-term annual variability of the NDVI at each area, except for the LP area in the lower portion of Prado Basin.

Table 3-2. Characterization of Variability in the Average-Growing Season NDVI for Defined Areas in the Prado Basin

Defined Area	Figure Number	Historical NDVI Statistics 1984 - 2020		One-Year Change in NDVI ₁ from 2020-2021
		Average Annual Change in NDVI (Absolute Value)	Maximum One-Year Change in NDVI (Absolute Value)	
Riparian Vegetation Extent	3-5	0.03	0.10	-0.04
Chino Creek Area	3-6	0.02	0.09	-0.01
Mill Creek Area	3-7	0.07	0.57	-0.05
CC-1	3-8a	0.03	0.11	0.01
CC-2	3-8b	0.03	0.13	-0.03
CC-3	3-8c	0.03	0.13	-0.04
CC-4	3-8d	0.03	0.12	-0.04
MC-1	3-8e	0.04	0.31	-0.02
MC-2	3-8f	0.05	0.14	-0.09
MC-3	3-8g	0.03	0.12	0.00
MC-4	3-8h	0.03	0.13	0.00
SAR-1	3-8i	0.06	0.44	-0.13
SAR-2	3-8j	0.04	0.21	-0.05
SAR-3	3-8k	0.03	0.10	-0.03
LP	3-8l	0.03	0.10	-0.32

3.1.2.3 Temporal Analysis of NDVI in Prado Basin

Figure 3-5 is a time-series chart from 1984 to 2021 of the spatial average of all 19,520 NDVI pixels that are within the maximum delineated extent of the riparian habitat in the Prado Basin.¹² The intent of the time series is to characterize the trends in NDVI for the Prado Basin as a whole, which is used as a basis of comparison to the trends in the NDVI for each of the smaller defined areas shown in subsequent figures. Figure 3-5 also includes NDVI maps from, 2018, 2019, 2020, and 2021 to visually compare to the NDVI time-series.

Figure 3-5 and Tables 3-1 and 3-2 show that the Average Growing-Season NDVI varies from year-to-year by no more than 0.10 with no apparent long-term trends. The Mann-Kendall test result on the Average

¹² The extent of the riparian habitat in the Prado Basin has been relatively stable since 1999, and has been verified by inspection of the 2017, 2018, 2019, and 2020 high-resolution air photos.



Growing-Season NDVI indicates “no trend” over the 1984 to 2021 period, “no trend” over the 1984 to 2006 period, and “no trend” over the 2007 to 2021 period.

From 2020 to 2021, the Average Growing-Season NDVI decreased by 0.04. This recent one-year decrease in Average Growing-Season NDVI is within the historical range of the annual Average Growing-Season NDVI variability for the extent of the riparian vegetation.

This time-series analysis of NDVI suggests that the riparian habitat in Prado Basin, analyzed as a whole, has not experienced statistically significant declines in NDVI in the recent water year, nor during the post-Peace II Agreement period from 2007 to 2021.

3.1.2.4 Temporal Analysis of NDVI within Large Areas along Chino Creek and Mill Creek

Figure 3-6 and Figure 3-7 are time-series charts from 1984-2021 of the spatial average for NDVI pixels within large areas of riparian habitat located along the reaches of Chino Creek and Mill Creek, respectively. These charts characterize trends and changes in NDVI for these northern reaches of the riparian habitat in the Prado Basin and provide a basis for comparison to the NDVI trends and changes for each of the smaller defined areas. These figures include a series of air photos for spatial reference and as a visual check on the interpretations derived from the NDVI time-series charts. The air photos are for 2018, 2019, 2020, and 2021—showing the last four years using the high-resolution air photos collected for the PBHSP.

Chino Creek

Figure 3-6 is an NDVI time-series chart for 1984-2021 of the spatial average of all 2,134 NDVI pixels along the northern reach of Chino Creek in the Prado Basin. This reach of Chino Creek is susceptible to impacts from declining groundwater levels associated with Peace II implementation.

Figure 3-6 and Tables 3-1 and 3-2 show that over the period of record, the Average Growing-Season NDVI varied from year-to-year by no more than 0.09 with no long-term declining trends. The Mann-Kendall test result on the Average Growing-Season NDVI indicates an “increasing trend” over the 1984 to 2021 period, an “increasing trend” over the 1984 to 2006 period, and “no trend” over the 2007 to 2021 period.

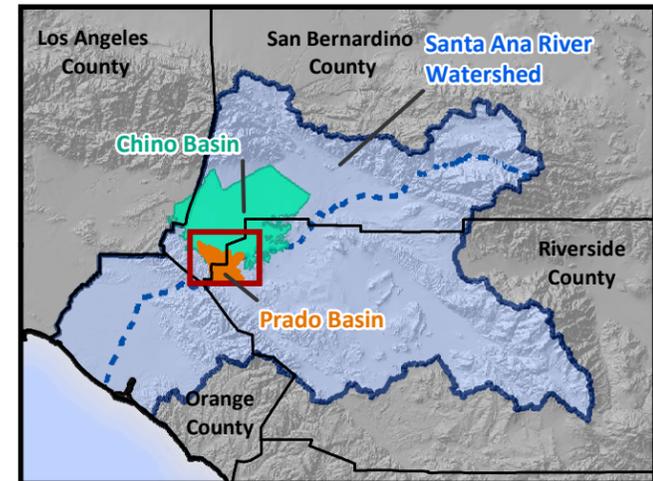
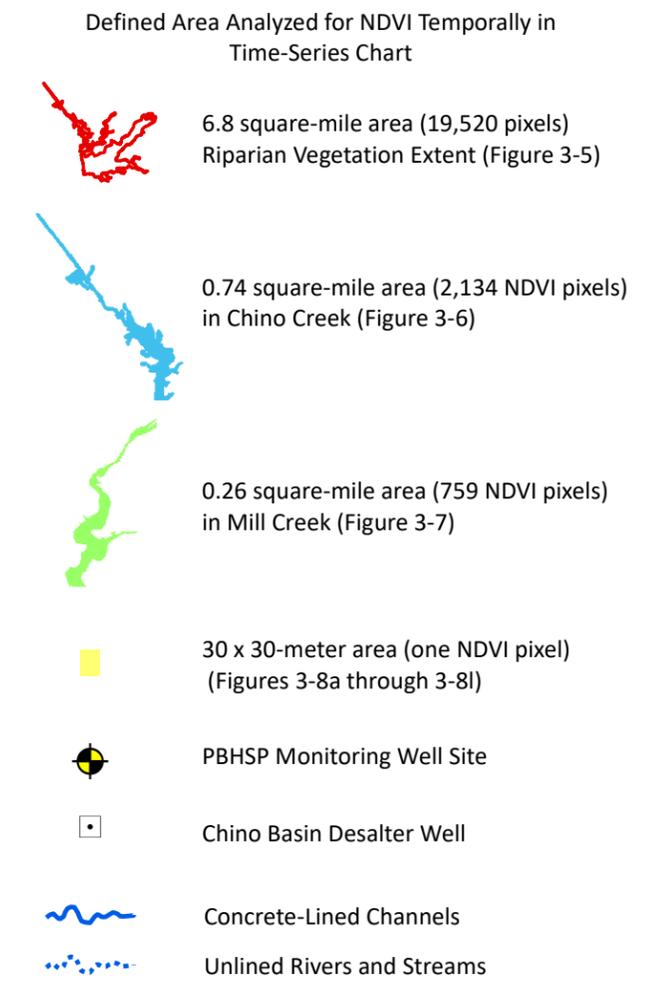
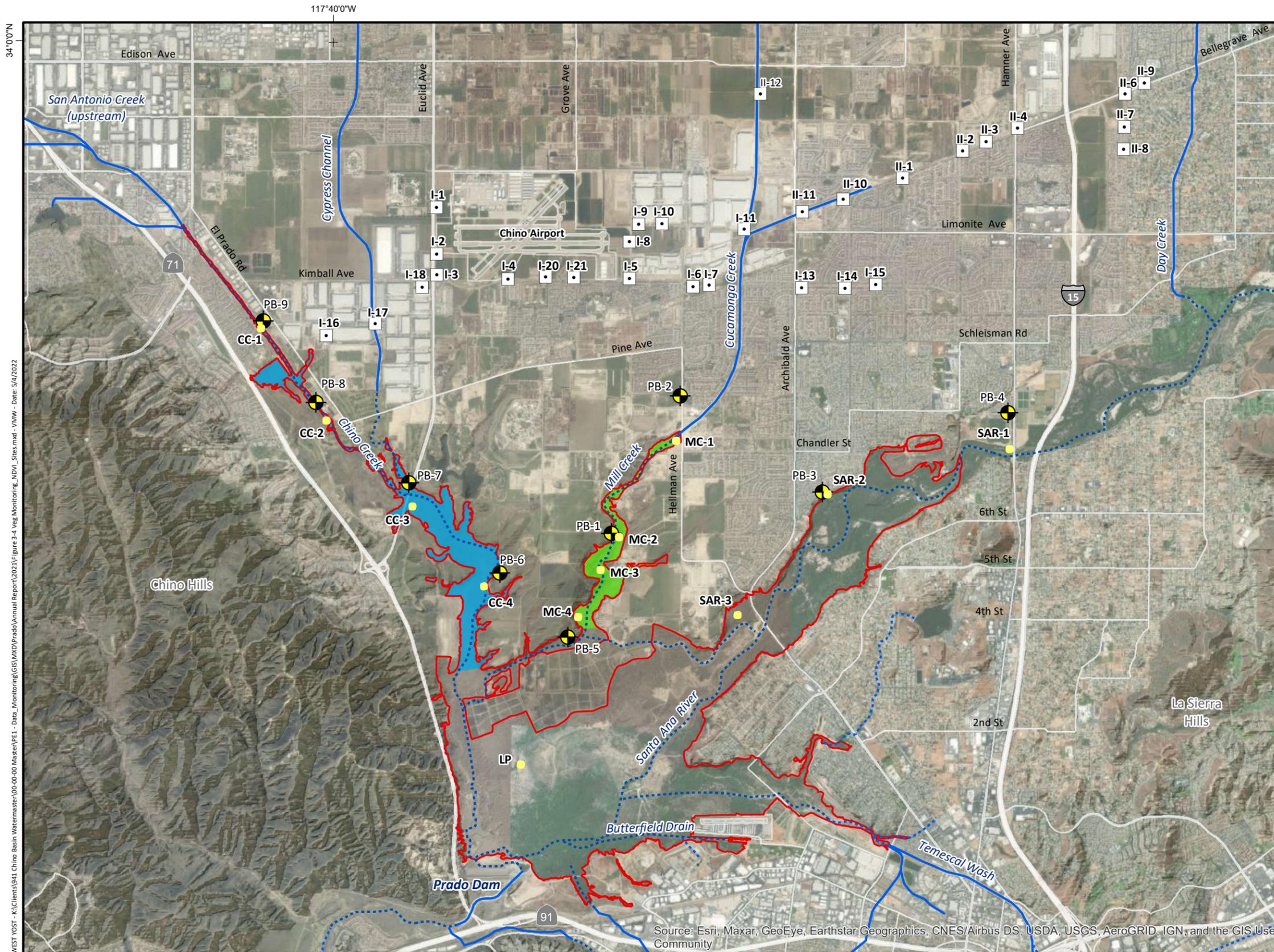
From 2020 to 2021, the Average Growing-Season NDVI decreased by 0.01, which is within the historical range of variability for the annual Average Growing-Season NDVI. Visual inspection of the 2020 and 2021 air photos show a slight decrease in greenness along the southern portion of Chino Creek.

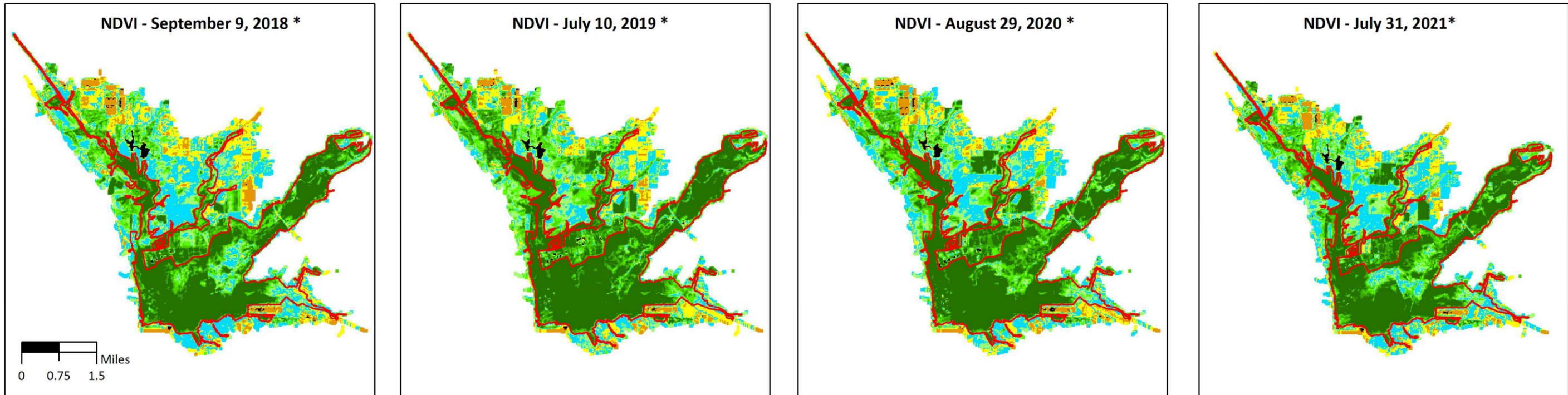
Mill Creek

Figure 3-7 is a NDVI time-series chart for 1984-2021 of the spatial average of all 759 NDVI pixels along the northern reach of Mill Creek in the Prado Basin. This reach of Mill Creek is susceptible to impacts from declining groundwater levels associated with Peace II implementation.

Figure 3-7 and Tables 3-1 and 3-2 show that over the period of record, the Average Growing-Season NDVI varied from year-to-year by no more than 0.57. The Mann-Kendall test result on the Average Growing-Season NDVI indicates “no trend” over the 1984 to 2021 period, “decreasing trend” over the 1984 to 2006 period, and “no trend” over the 2007 to 2021 period.

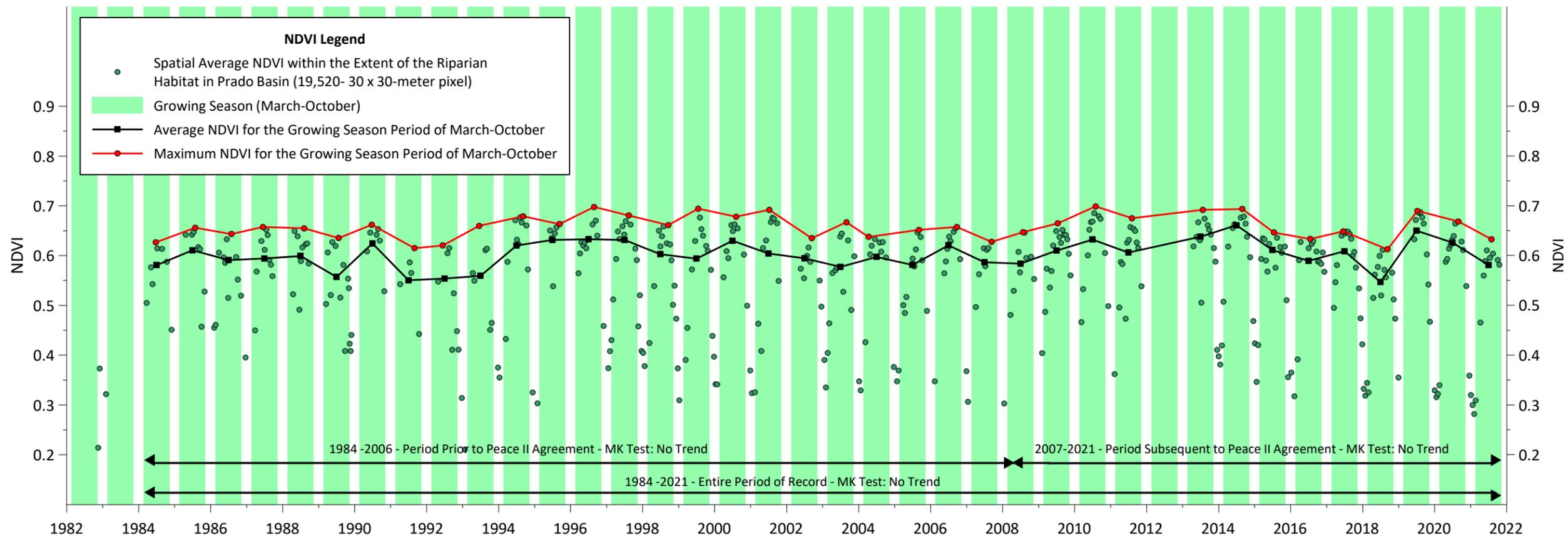
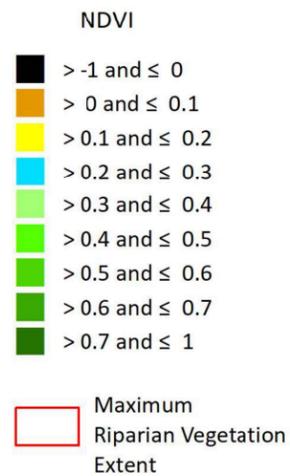
From 2020 to 2021, the Average Growing-Season NDVI decreased by 0.05, which is within the historical range of variability for the annual Average Growing-Season NDVI. Visual inspection of the 2020 and 2021 air photos show a slight decrease in greenness within the central portion of Mill Creek.





* Maximum Growing-Season NDVI

Map Legend:



Prepared by:



WEST YOST - K:\Clients\941 Chino Basin Watermaster\00-00-00 Master\PE1 - Data_Monitoring\GRAPHER\GRF\Prado\AnnualR\Figure 3-5_NDVI_Regional.grf - lhedley - 5/3/2022

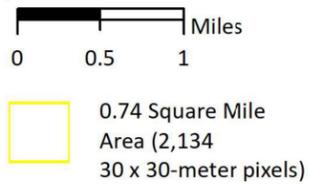
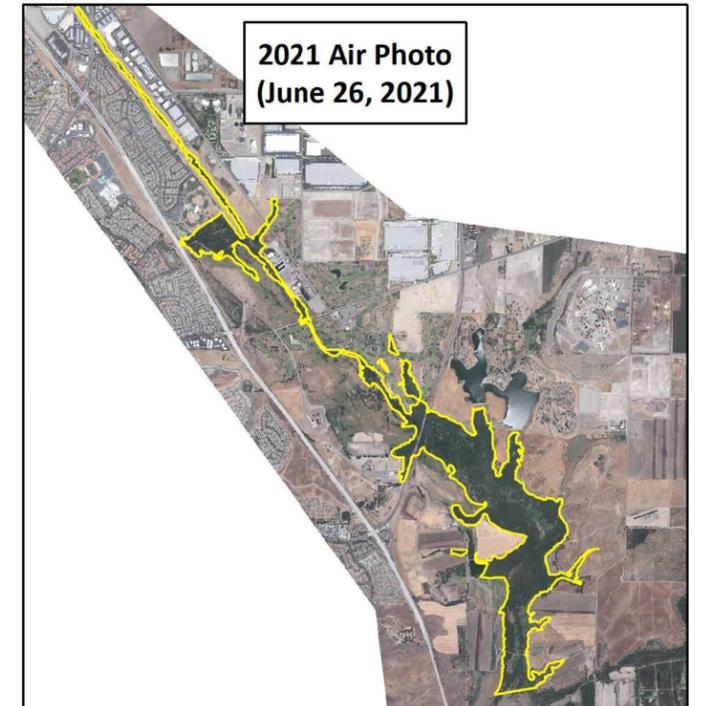
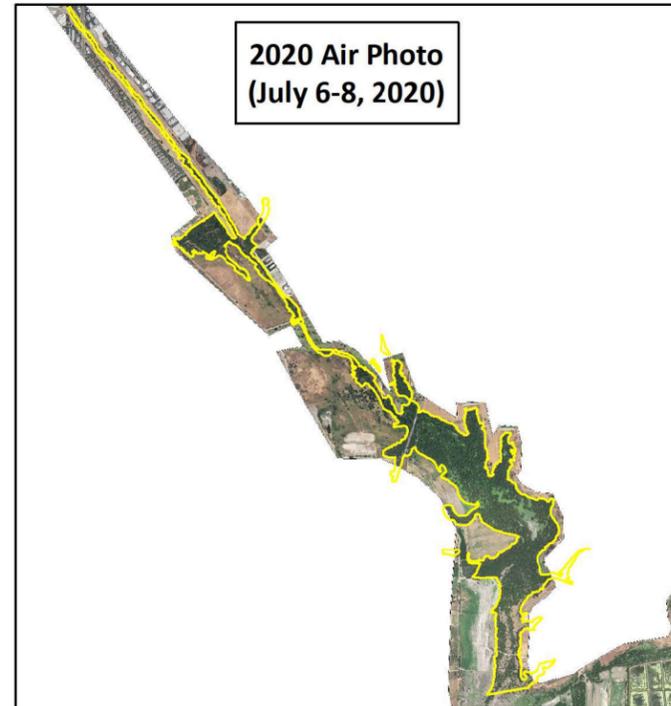
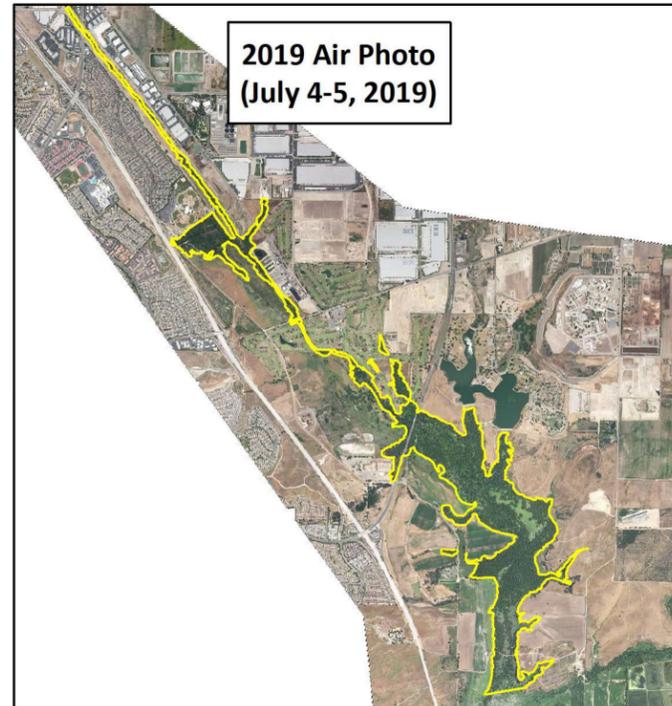
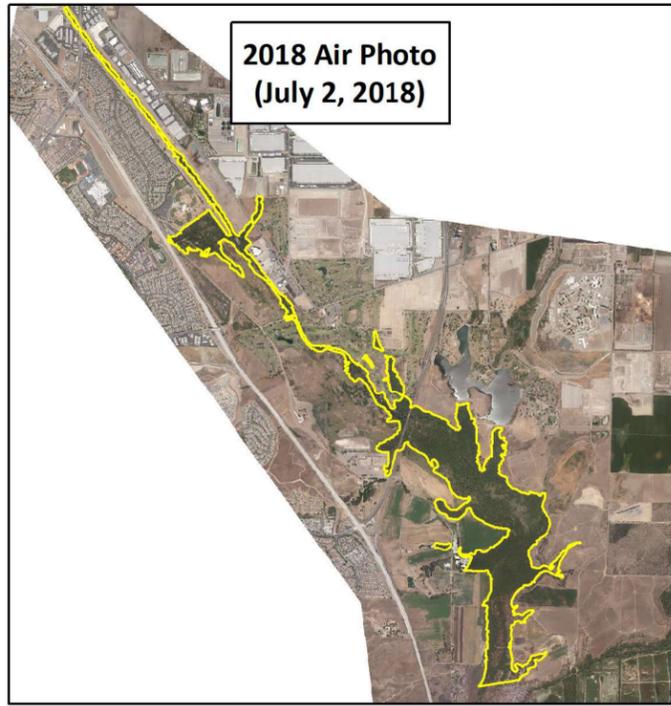
Prado Basin Habitat Sustainability Committee
2021 Annual Report

Prepared for:

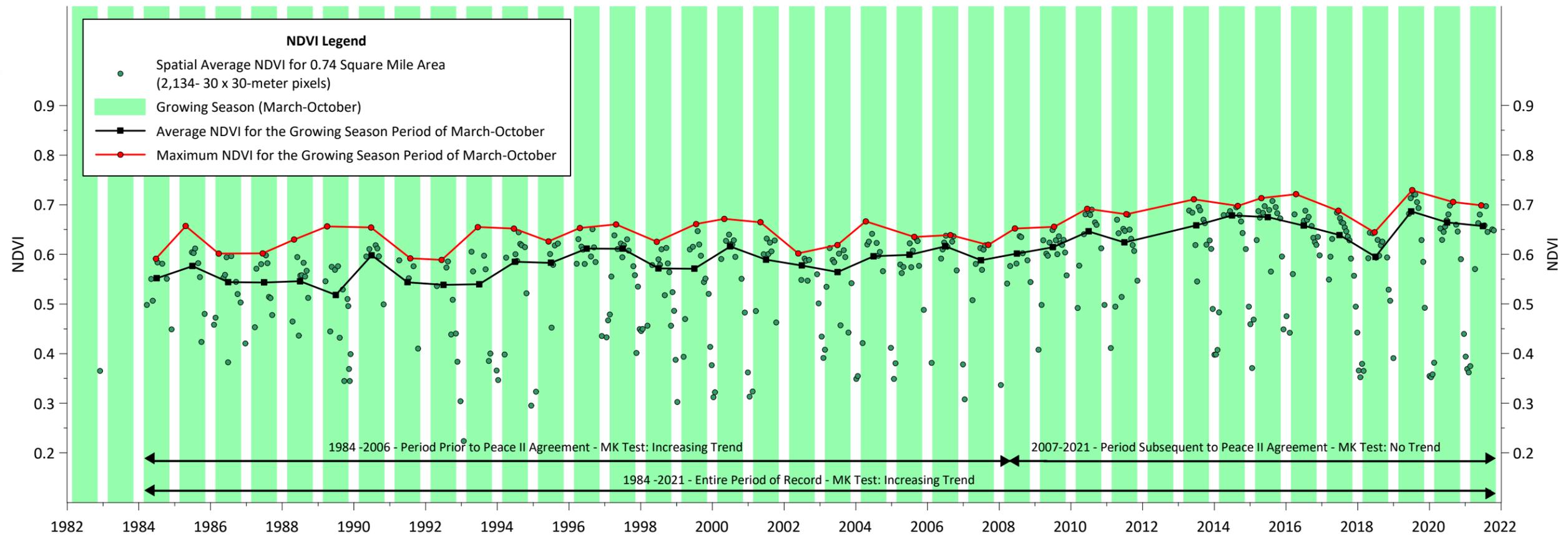
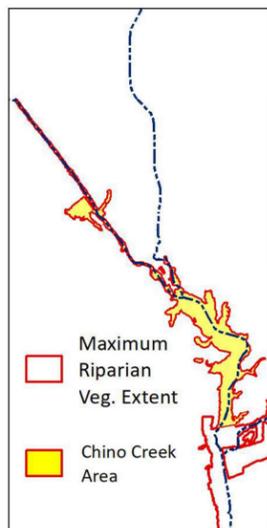


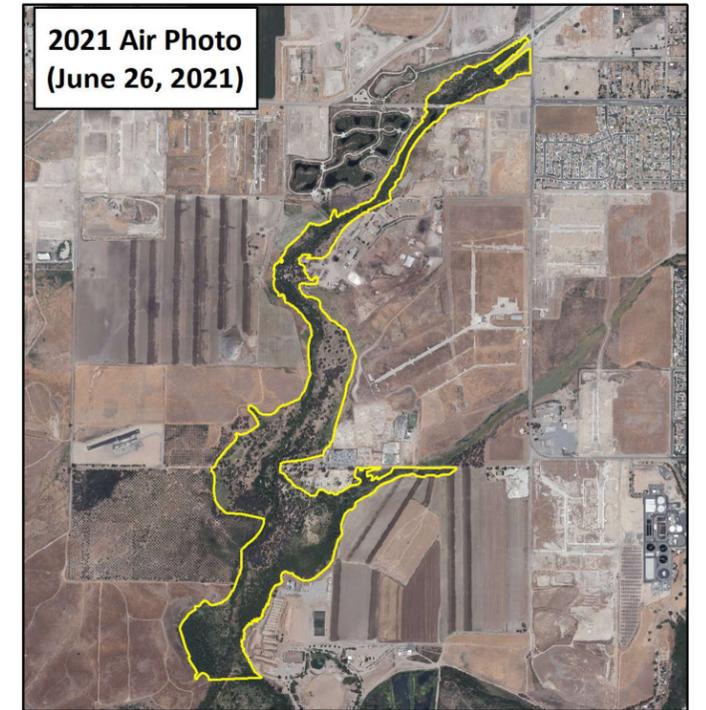
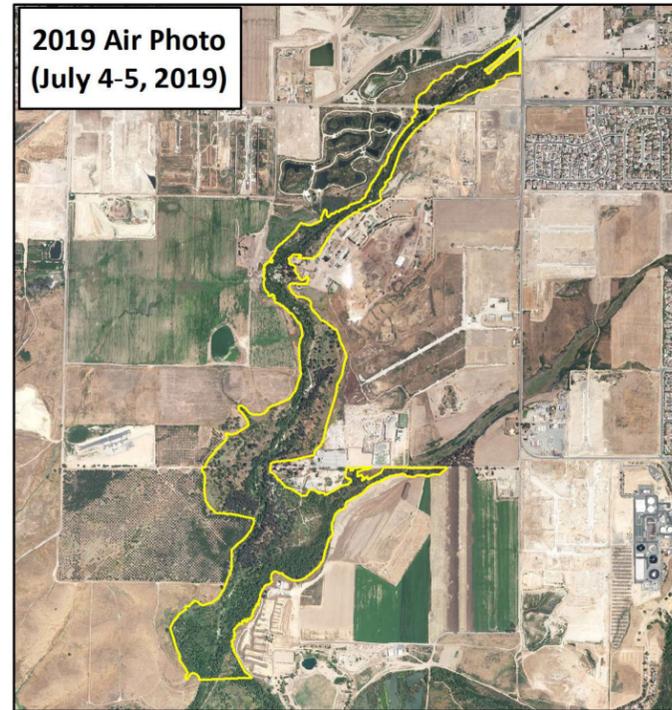
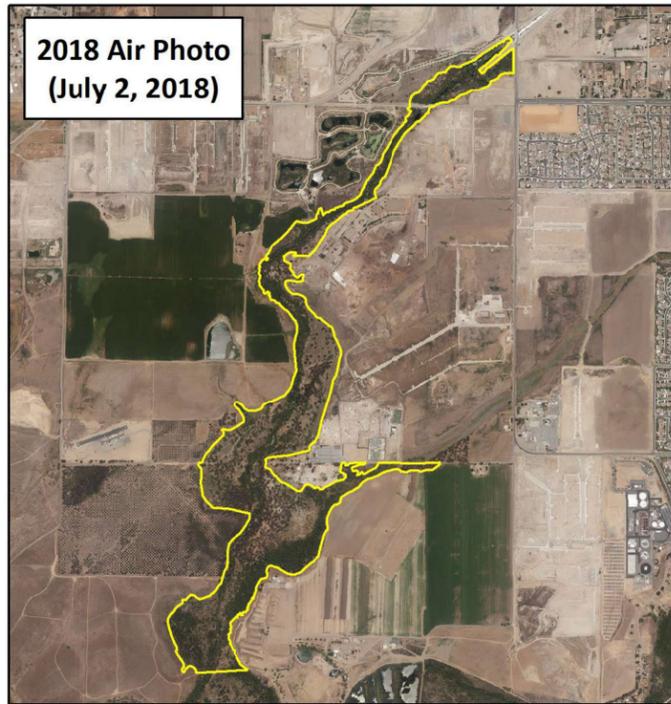
Time Series of NDVI for the
Riparian Vegetation Extent - 1984 to 2021

Figure 3-5



Location of Chino Creek Area

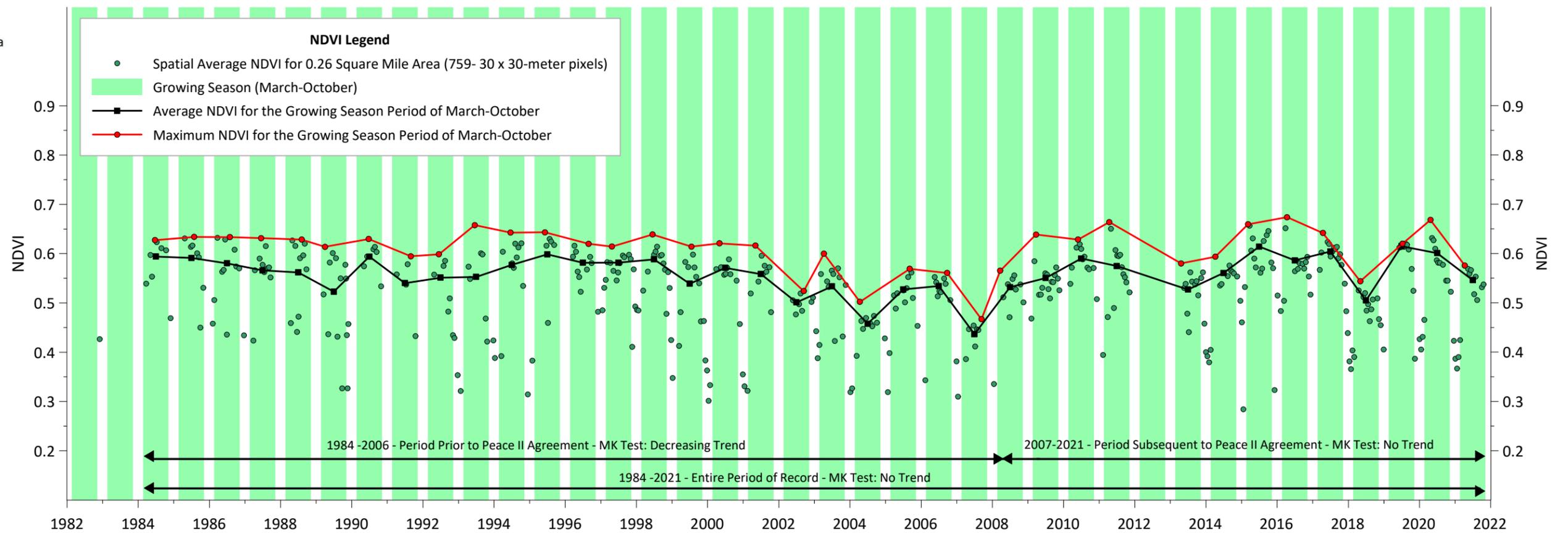
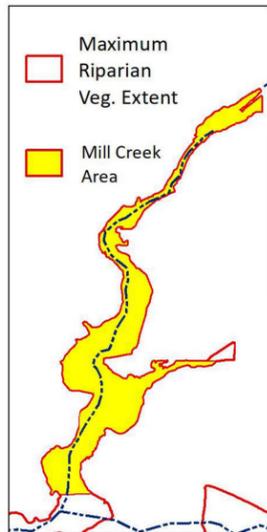




0 0.425 0.85 Miles

0.26 Square Mile Area (759 30 x 30-meter pixels)

Location of Mill Creek Area



Prepared by:



WEST YOST - K:\Clients\941 Chino Basin Watermaster\00-00-00 Master\PE1 - Data_Monitoring\GRAPHER\GRF\Prado\AnnualR\Figure 3-7_NDVI_Mill Creek.grf - lhedley - 5/3/2022

Prepared for:

Prado Basin Habitat Sustainability Committee
2021 Annual Report



Time Series of NDVI and Air Photos
Along Mill Creek Area for 1984 to 2021

Figure 3-7

3.1.2.4.1 Temporal Analysis of NDVI within Small Areas along Chino Creek, Mill Creek, and the Santa Ana River

Figures 3-8a through 3-8l are time-series charts of the NDVI for one NDVI pixel for small defined areas located along Chino Creek, Mill Creek, and the SAR near the PBHSP monitoring wells from 1984 to 2021. The areas are located near a PBHSP monitoring well to facilitate the comparison of changes in groundwater levels versus changes in the riparian habitat. These small areas also align with a location of a 10-meter radius plot where vegetation surveys are conducted by the USBR every three years so that the field measurements from the surveys can be compared to the NDVI.

The purpose of these charts is to characterize long-term trends and short-term changes in NDVI for smaller areas primarily located along the northern stream reaches of the Prado Basin riparian habitat—areas that are most susceptible to potential impacts from declining groundwater levels associated with Peace II implementation, and provide a basis for comparison to the NDVI trends and changes for each of the larger defined areas. Each figure includes a series of air photos for spatial reference and as a visual check on the interpretations derived from the NDVI time-series charts. The air photos are for 2018, 2019, 2020, and 2021—showing the last four years using the high-resolution air photos collected for the PBHSP.

Chino Creek (Figures 3-8a to 3-8d). Four vegetated areas were analyzed along Chino Creek: CC-1, CC-2, CC-3, and CC-4 (see Figure 3-4 for locations). These figures, and Tables 3-1 and 3-2, show that over the period of record the Average Growing-Season NDVI varied from year-to-year by up to 0.13 with no long-term declining trends. For all four areas, the Mann-Kendall test result on the Average Growing-Season NDVI indicates an “increasing trend” over the 1984 to 2021 period, “no trend” or “increasing trend” over the 1984 to 2006 period, and “no trend” or “increasing trend” over the 2007 to 2021 period.

For these four areas along Chino Creek, the Average Growing-Season NDVI from 2020 to 2021 decreased for three of the areas (CC-2, CC-3, CC-4) and increased for one of the areas (CC-1). At all of the areas, these one-year changes in the Average Growing-Season NDVI are relatively minor and within the historical ranges of one-year NDVI variability (see Table 3-2). Visual inspection of the 2020 and 2021 air photos do not show significant changes in the riparian vegetation at these four areas.

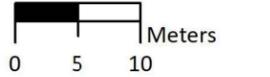
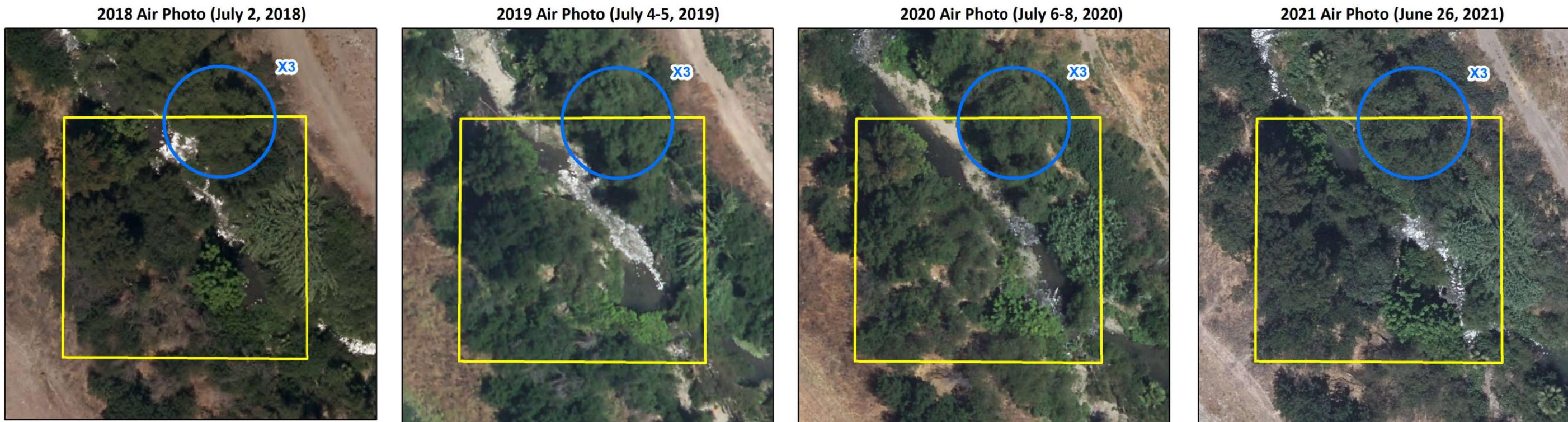
Mill Creek (Figures 3-8e to 3-8h). Four vegetated areas were analyzed along Mill Creek just south of the CDA well field: MC-1, MC-2, MC-3, and MC-4 (see Figure 3-4 for locations). These figures, and Tables 3-1 and 3-2, show that over the period of record the Average Growing-Season NDVI varied year-to-year by up to 0.31 with no long-term declining trends. For all four areas, the Mann-Kendall test result on the Average Growing-Season NDVI indicates an “increasing trend” or “no trend” for the 1984 to 2021 period, “no trend” for the 1984 to 2006 period, and “increasing trend” or “no trend” for the 2007 to 2021 period.

For these four areas along Mill Creek, the Average Growing-Season NDVI from 2020 to 2021: decreased for two of the areas (MC-1, MC-2), and did not change for two of the areas (MC-3, MC-4). At all of the areas these recent changes in the Average Growing-Season NDVI are within their historical ranges of the one-year NDVI variability. Visual inspection of the 2020 and 2021 air photos for the MC-2 area, where NDVI decreased from 2020 to 2021, shows a noticeable decrease in green vegetated areas. In contrast, the 2020 to 2021 air photos show an increase in green vegetated areas at the MC-3 area, where NDVI did not change over this period, and the increase is following a decrease observed in the air photos from 2019 to 2020 (noted in the previous WY 2020 Annual Report, West Yost, 2021).

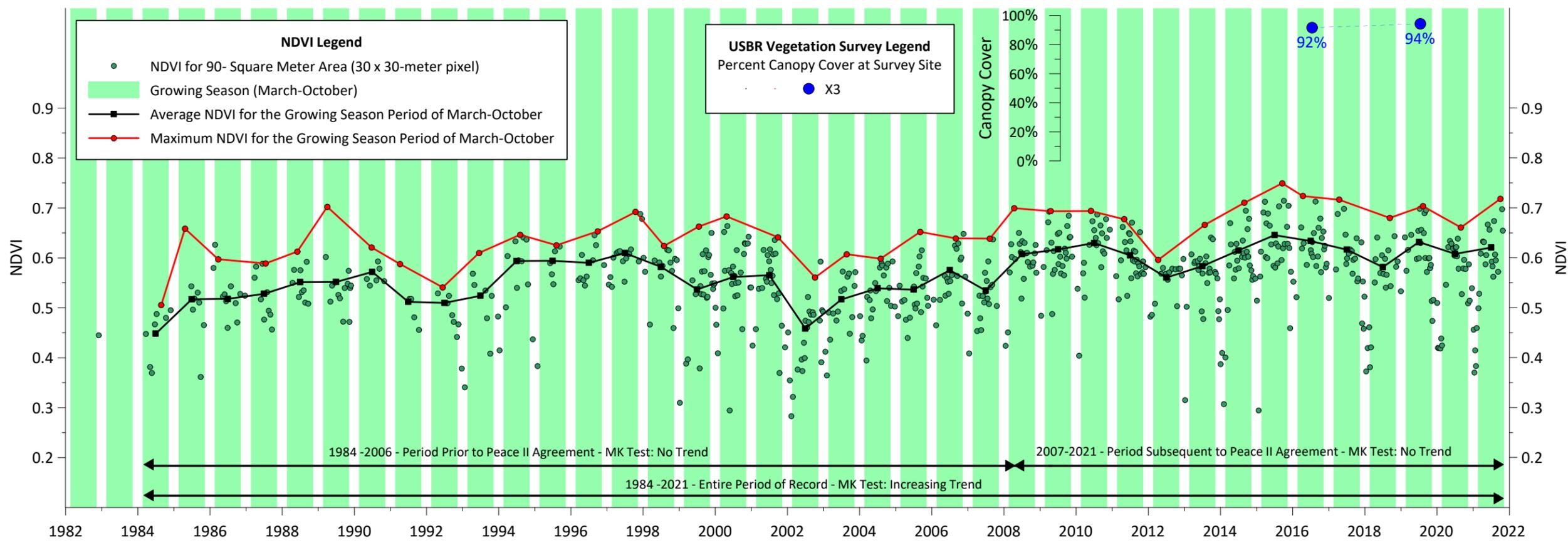
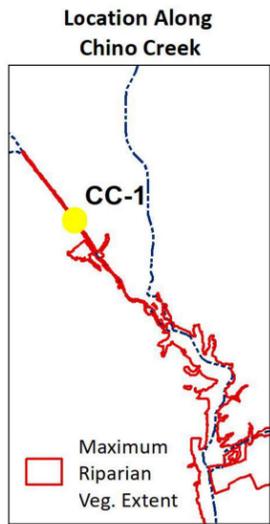


Santa Ana River (Figures 3-8i to 3-8l). Four vegetated areas were analyzed along the floodplain of the SAR: SAR-1, SAR-2, SAR-3, and LP (see Figure 3-4 for locations). These figures, and Tables 3-1 and 3-2, show that over the period of record the Average Growing-Season NDVI varied by up to 0.44 from year-to-year. For all four areas, the Mann-Kendall test result on the Average Growing-Season NDVI indicates an “increasing trend” or “no trend” for the 1984 to 2021 period, “no trend” or “decreasing trend” for the 1984 to 2006 period, and an “increasing trend” or “no trend” for the 2007 to 2021 period.

At all four areas along the SAR, the Average Growing-Season NDVI from 2020 to 2021 decreased. At three of the areas, these one-year increases in the Average Growing-Season NDVI are relatively minor and within the historical ranges of one-year NDVI variability (see Table 3-2). At the LP area the Average Growing-Season NDVI decreased by 0.32 which is the maximum decrease observed historically. Visual inspection of the 2020 and 2021 air photos for both the SAR-1 and LP areas, where NDVI decreased, show a significant change in the riparian vegetation in 2021: the eastern edge of the vegetation at SAR-1 has been removed to create construction easements for expansion of the Hamner bridge over the SAR; and the LP area has significantly less green vegetation and was part of the 2020 wildfire in the lower Prado Basin (see section 3.6.1 of this report).



- CC-1 Area for NDVI Analysis 30x30 meter pixel
- Vegetation Survey Plot Location 10-meter radius

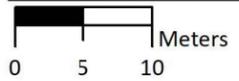
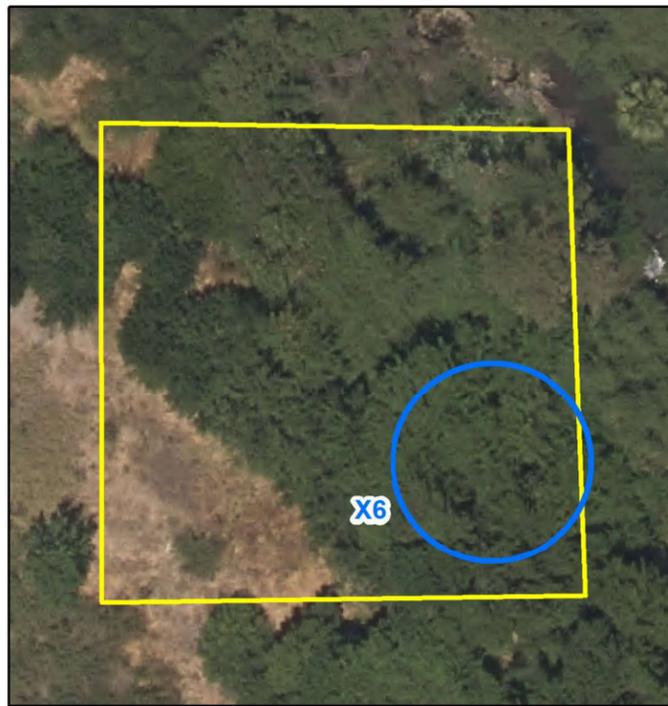


2018 Air Photo (July 2, 2018)

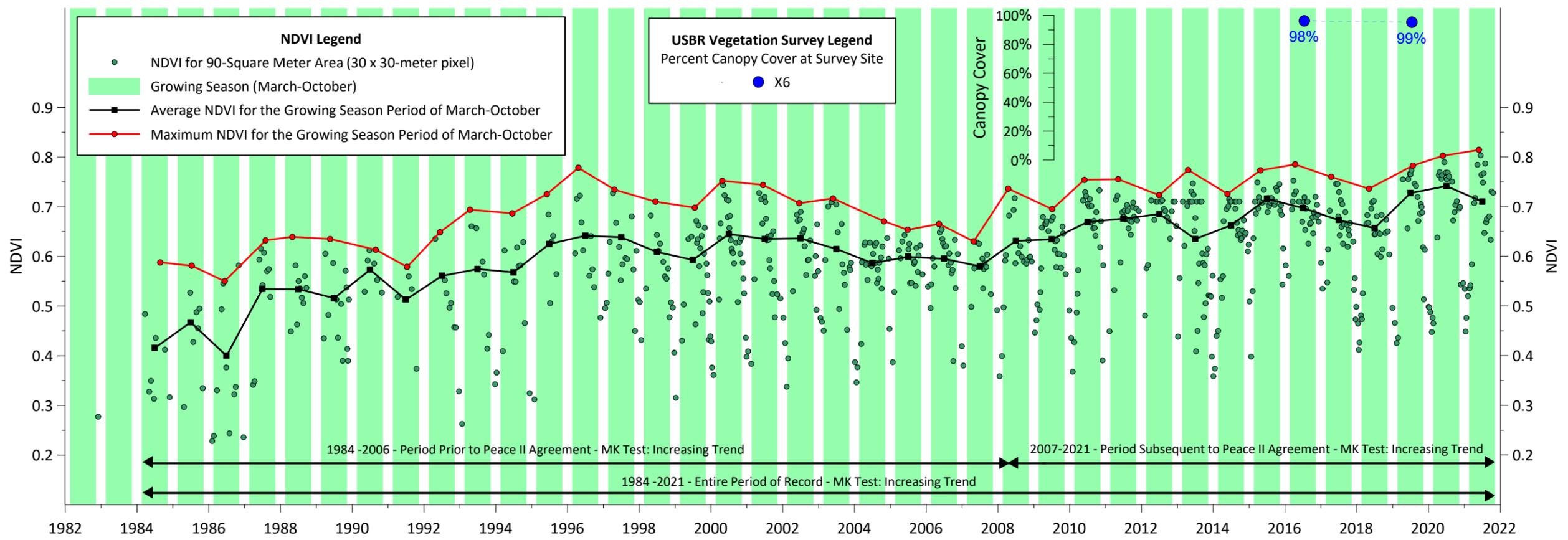
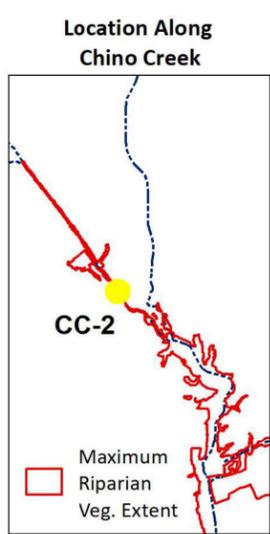
2019 Air Photo (July 4-5, 2019)

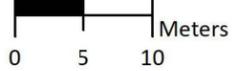
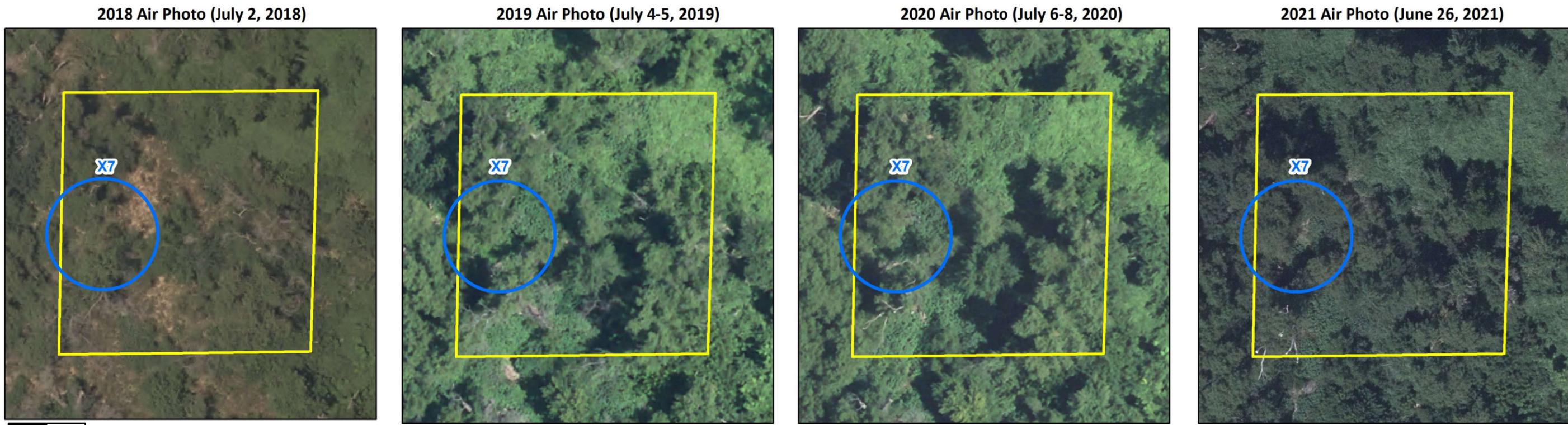
2020 Air Photo (July 6-8, 2020)

2021 Air Photo (June 26, 2021)

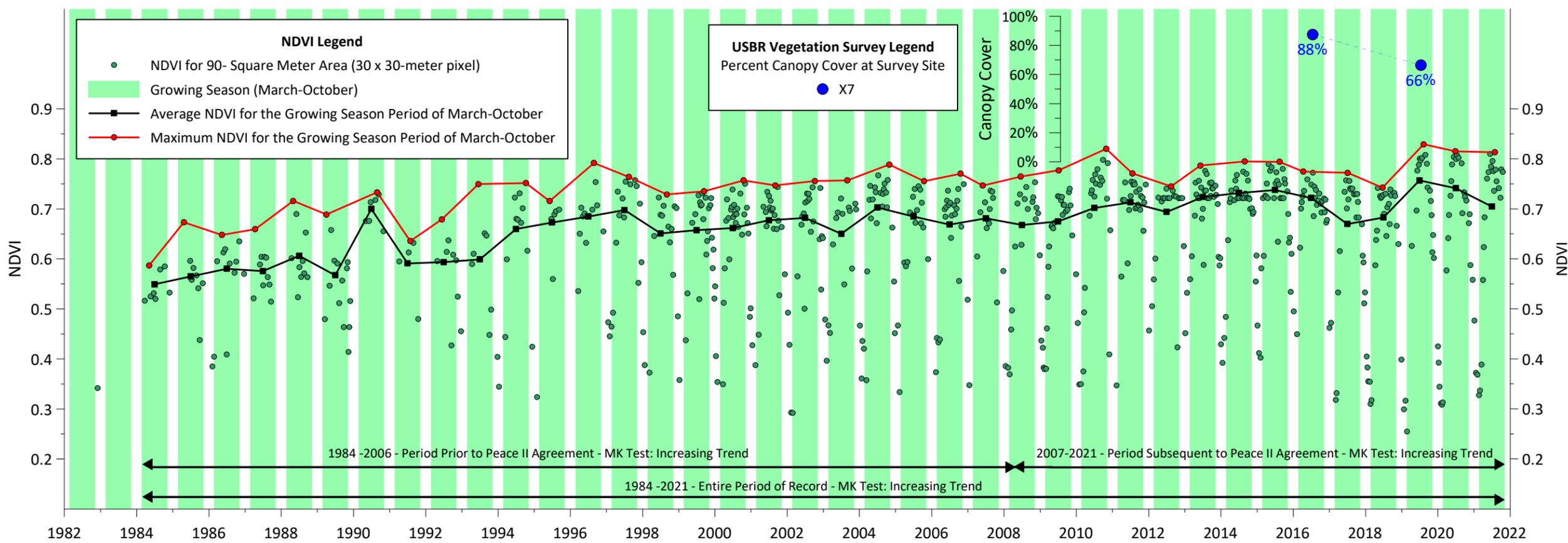
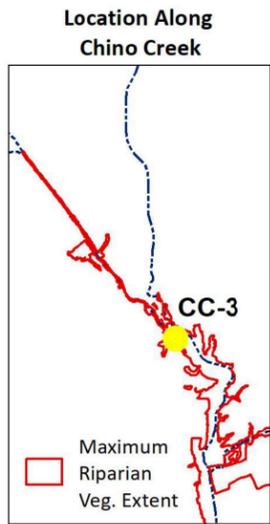


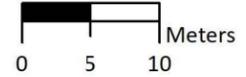
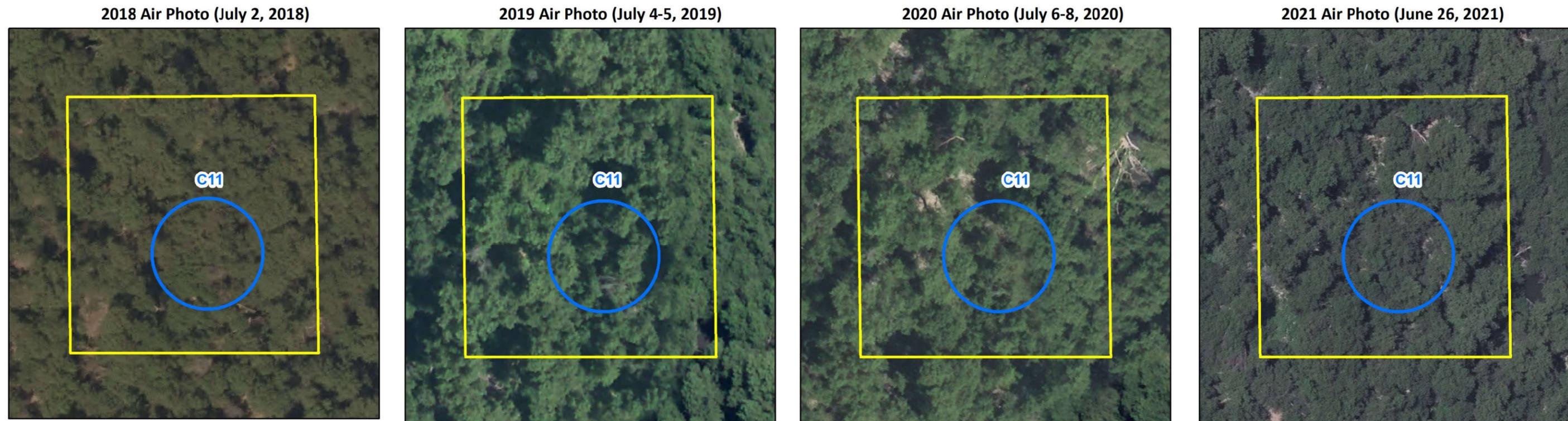
- CC-2 Area for NDVI Analysis 30x30 meter pixel
- Vegetation Survey Plot Location 10-meter radius



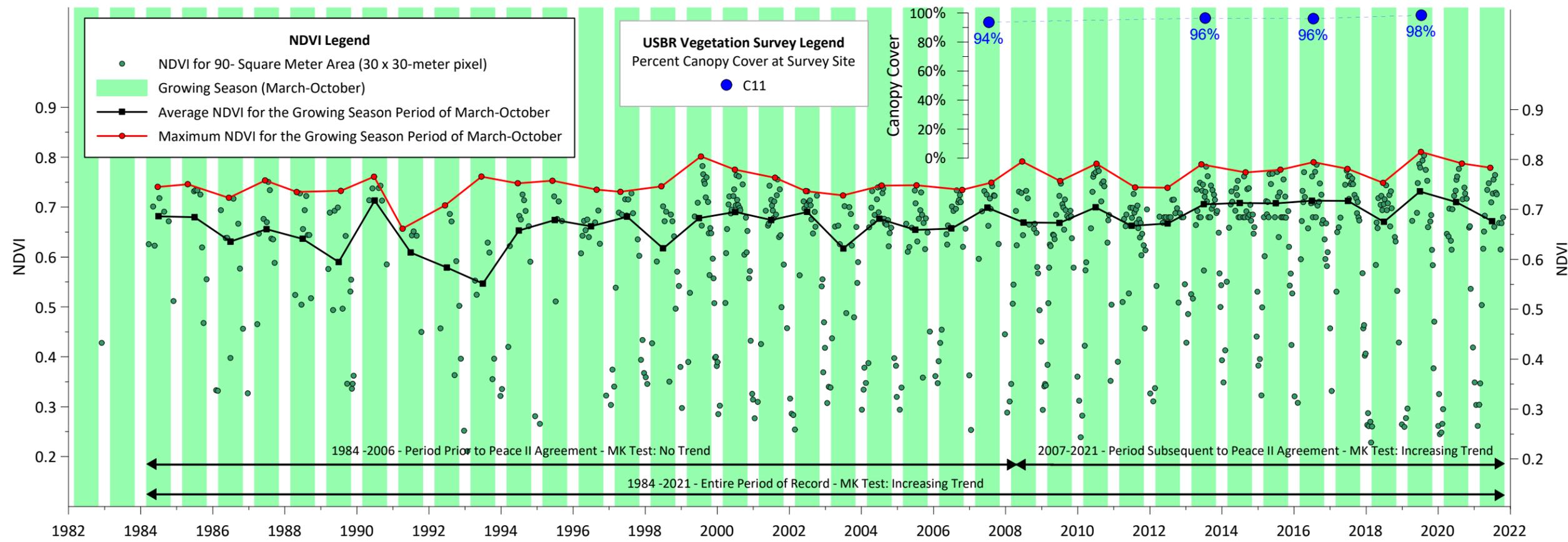
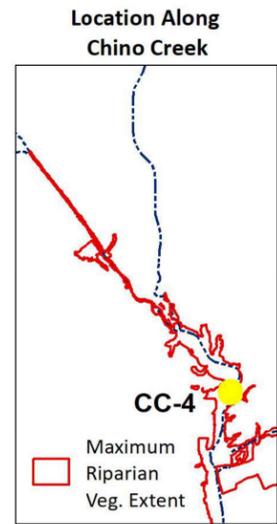


- CC-3 Area for NDVI Analysis 30x30 meter pixel
- Vegetation Survey Plot Location 10-meter radius





- CC-4 Area for NDVI Analysis 30x30 meter pixel
- Vegetation Survey Plot Location 10-meter radius

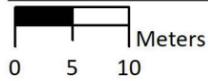
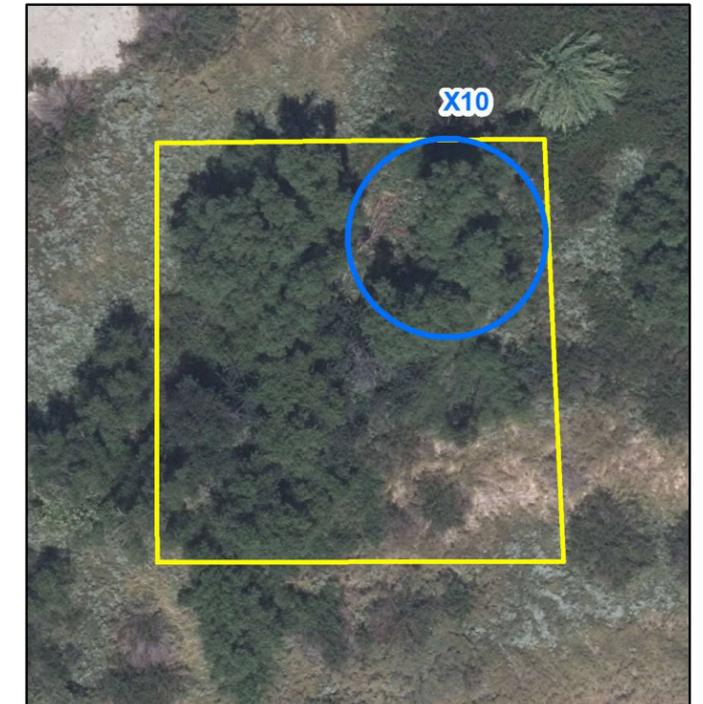


2018 Air Photo (July 2, 2018)

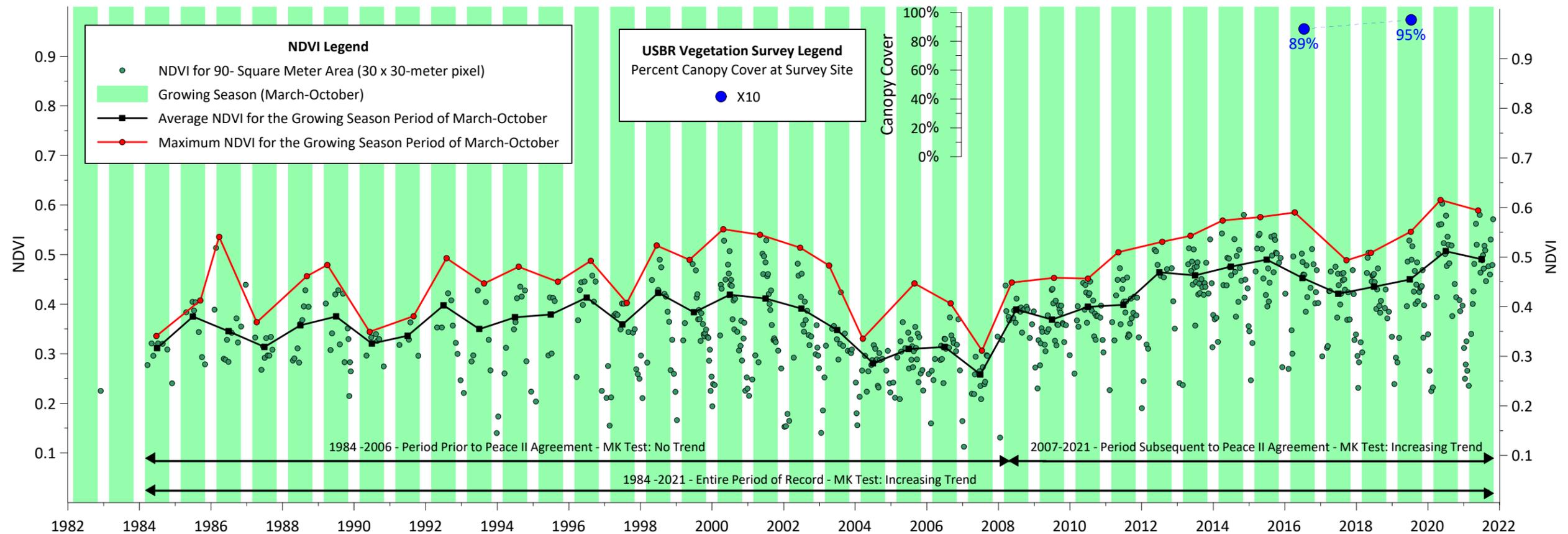
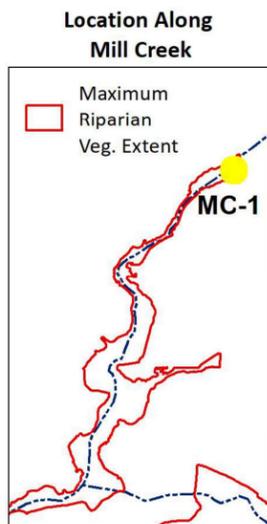
2019 Air Photo (July 4-5, 2019)

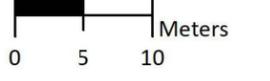
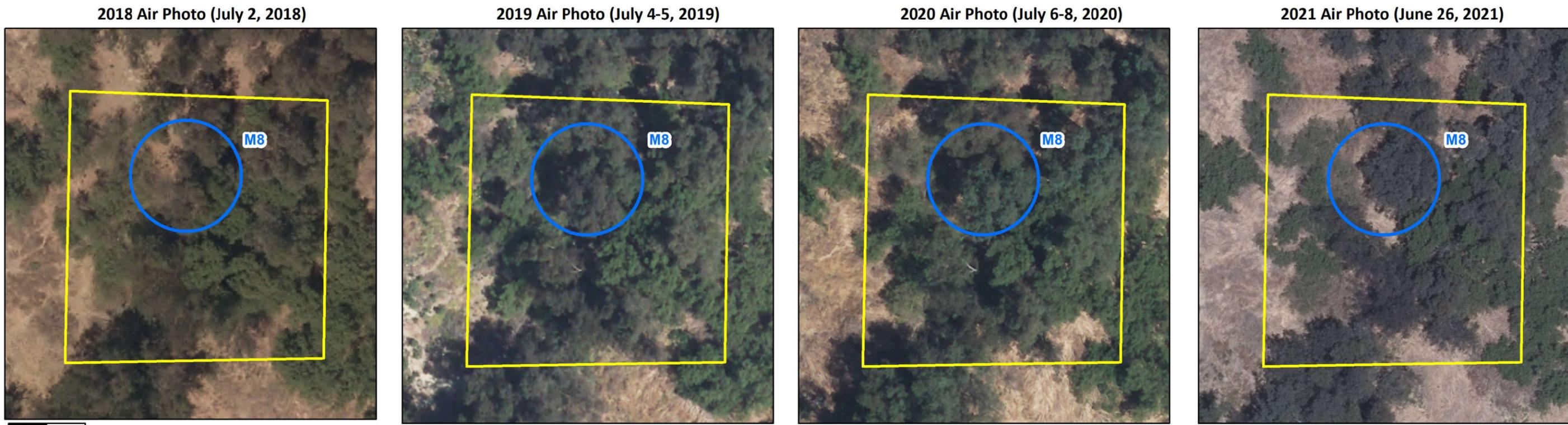
2020 Air Photo (July 6-8, 2020)

2021 Air Photo (June 26, 2021)

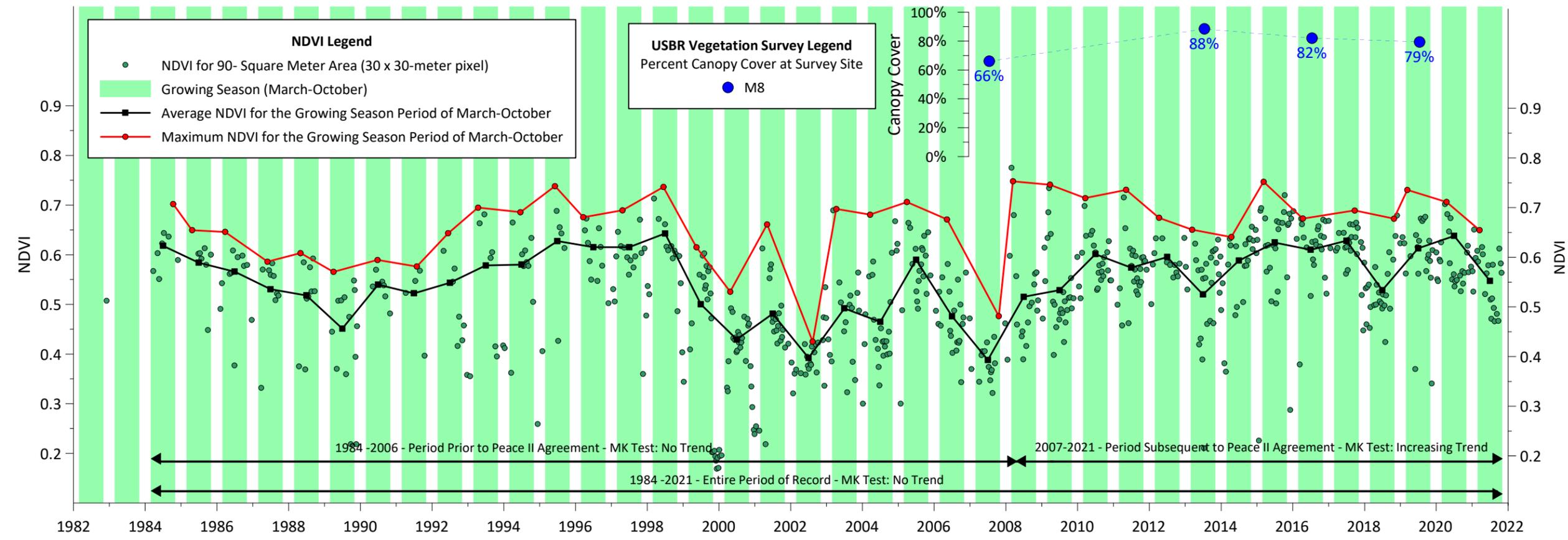
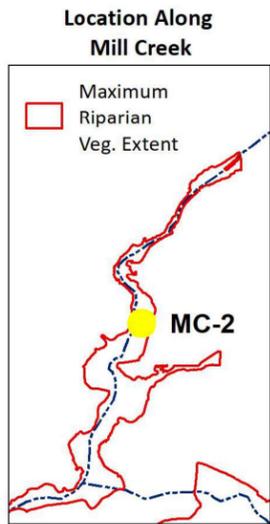


- MC-1 Area for NDVI Analysis 30x30 meter pixel
- Vegetation Survey Plot Location 10-meter radius





- MC-2 Area for NDVI Analysis 30x30 meter pixel
- Vegetation Survey Plot Location 10-meter radius

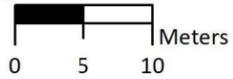
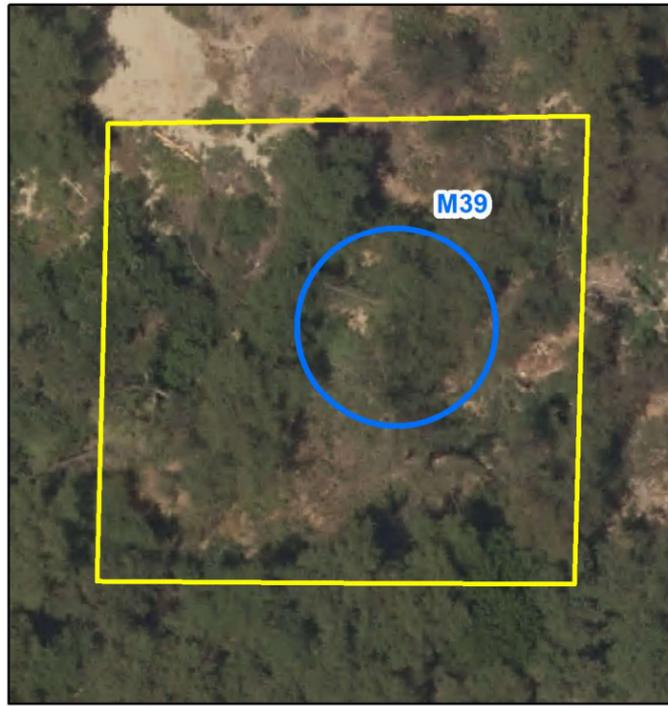


2018 Air Photo (July 2, 2018)

2019 Air Photo (July 4-5, 2019)

2020 Air Photo (July 6-8, 2020)

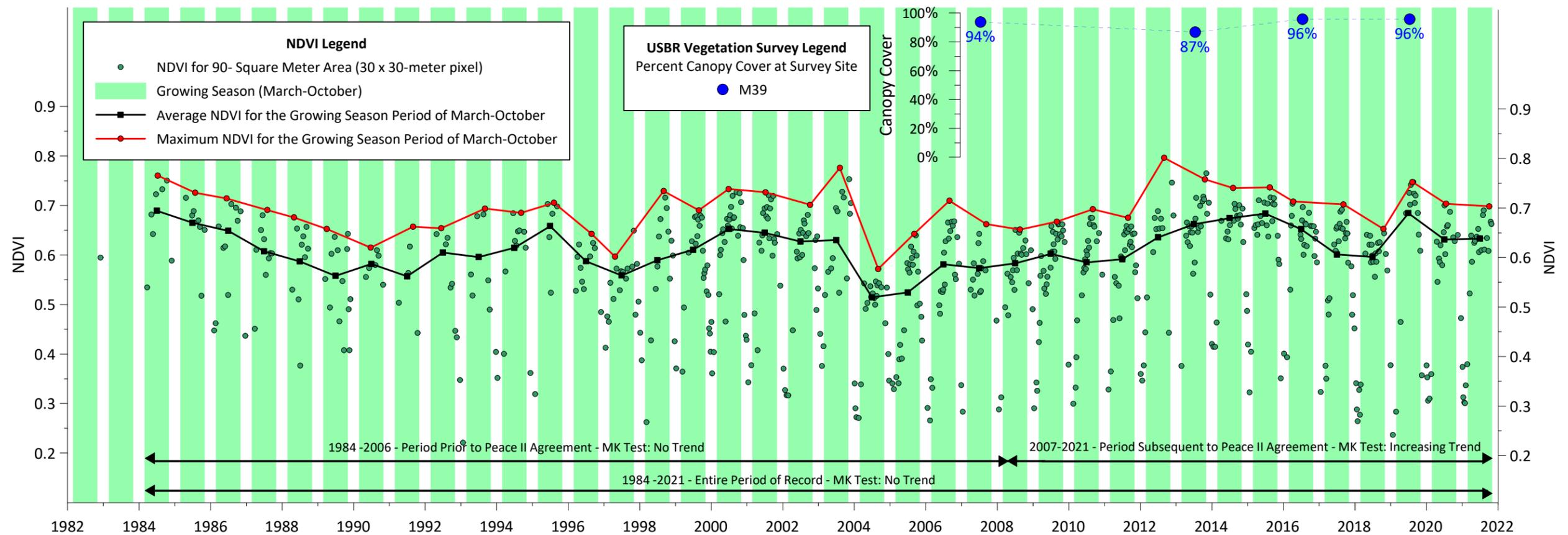
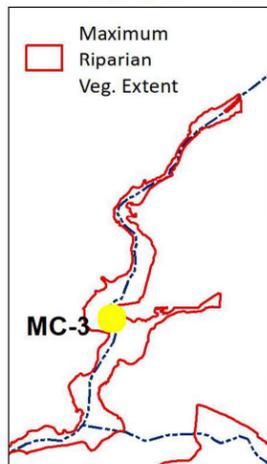
2021 Air Photo (June 26, 2021)



MC-3 Area for NDVI Analysis
30x30 meter pixel

Vegetation Survey Plot Location
10-meter radius

Location Along Mill Creek



Prepared by:



WEST YOST - K:\Clients\941 Chino Basin Watermaster\00-00-00 Master\PE1 - Data_Monitoring\GRAPHER\GRF\Prado\AnnualR\Figure 3-8g_NDVI_MC-3.grf - lhedley - 5/3/2022

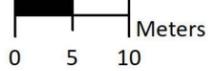
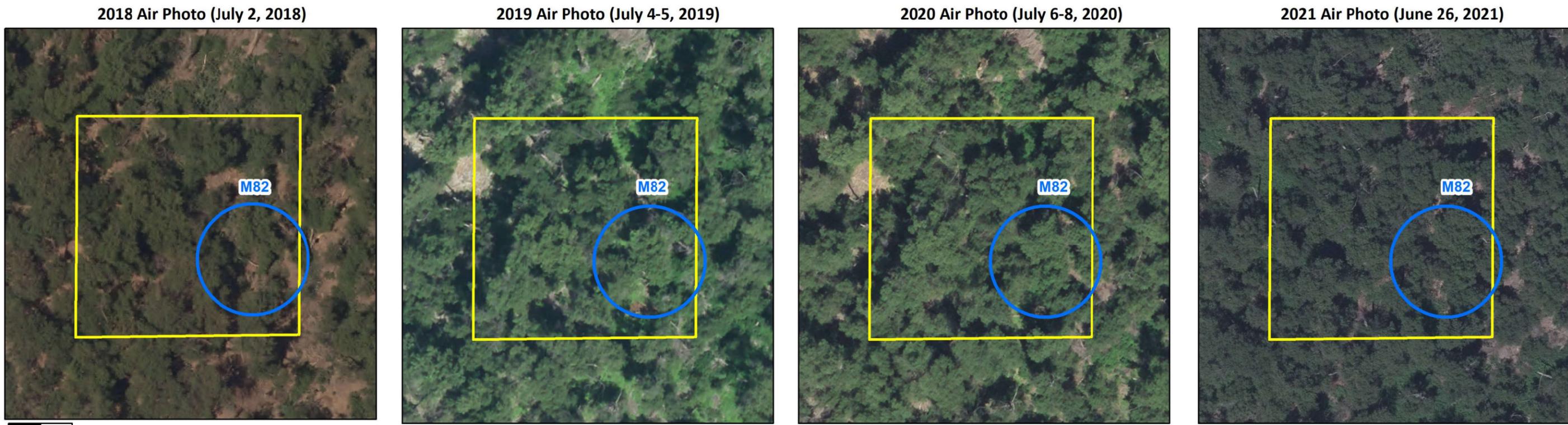
Prado Basin Habitat Sustainability Committee
2021 Annual Report

Prepared for:

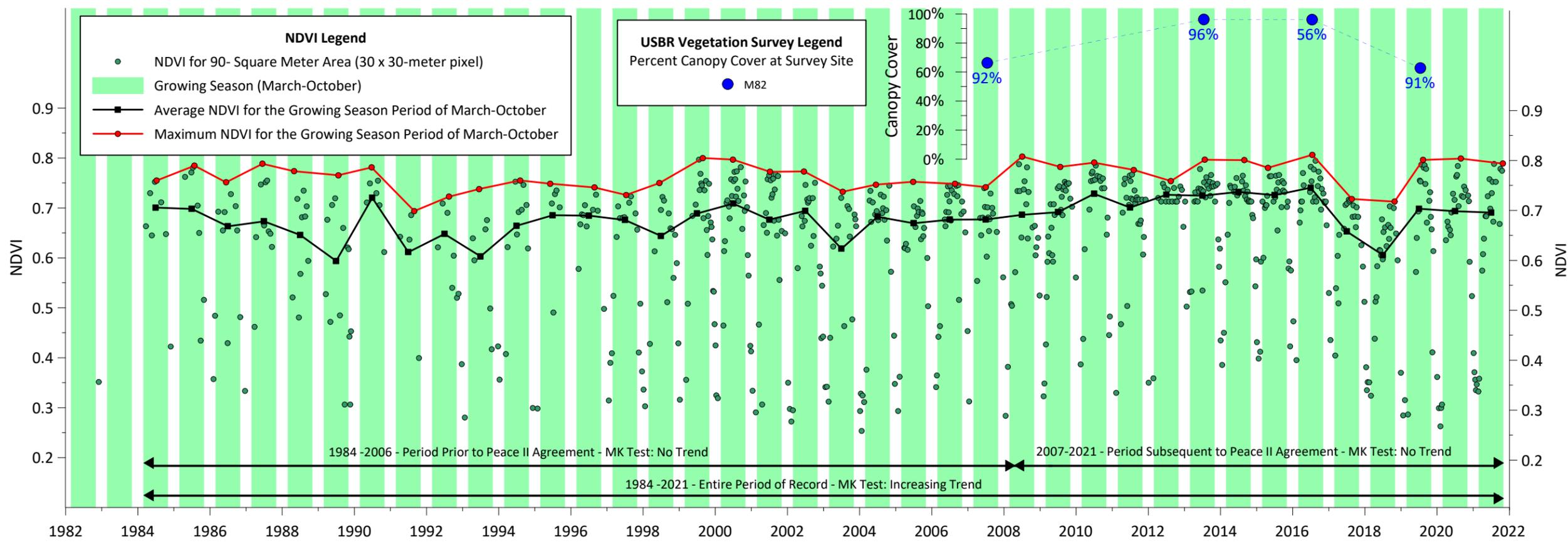
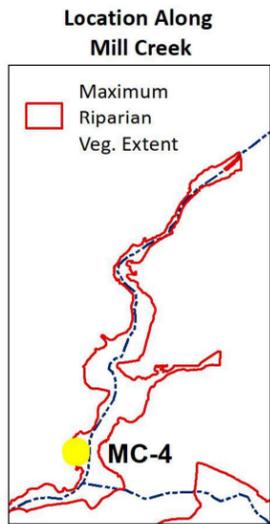


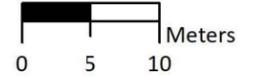
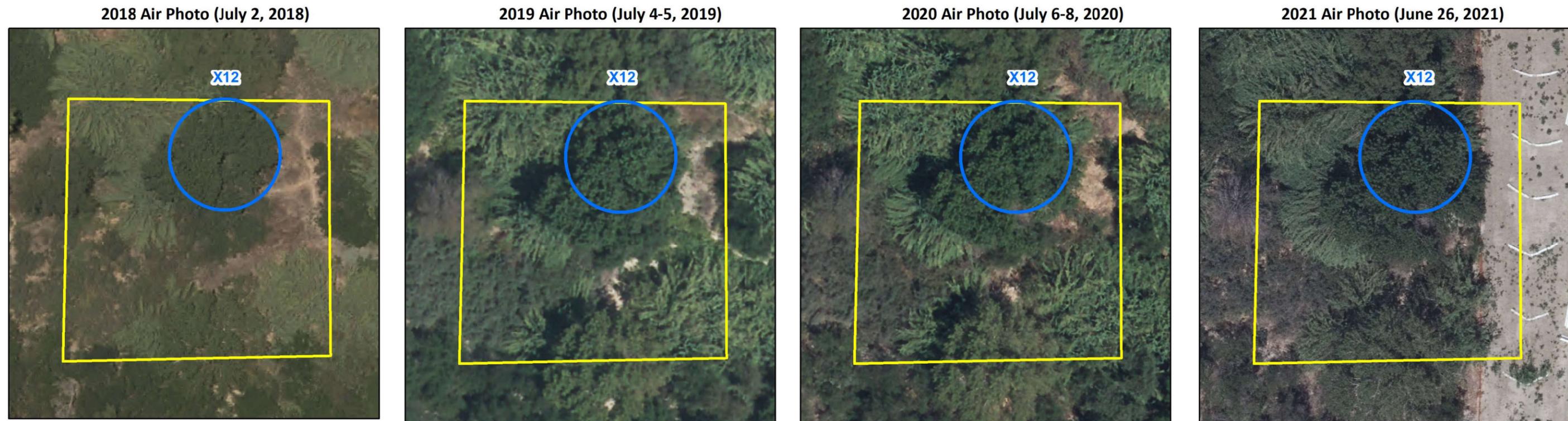
Time Series of NDVI and Air Photos
MC-3 Area for 1984 to 2021

Figure 3-8g

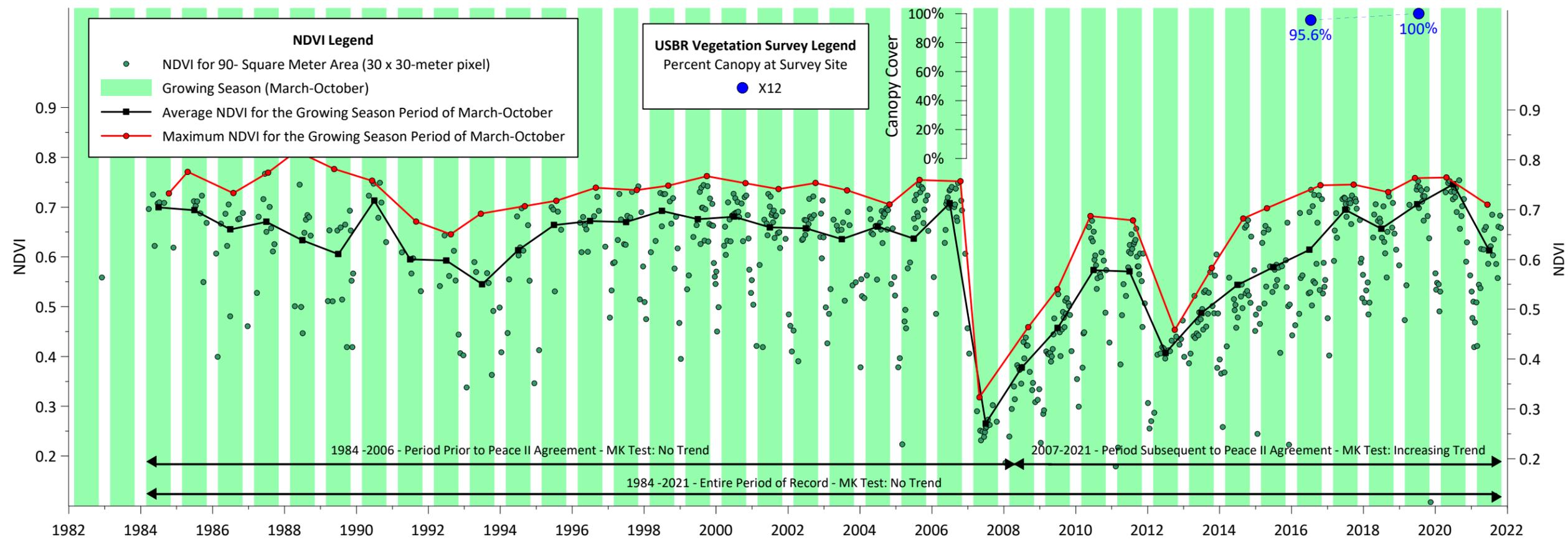
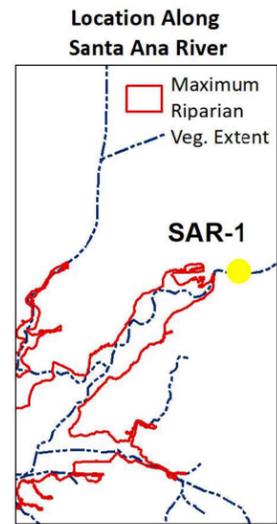


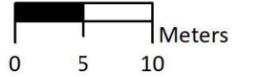
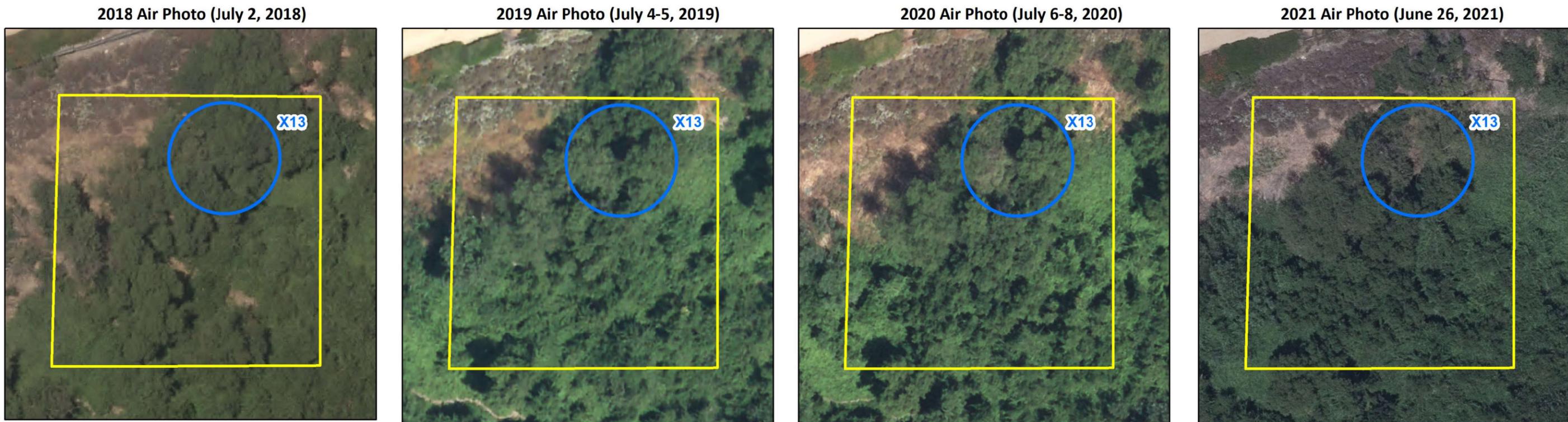
- MC-4 Area for NDVI Analysis 30x30 meter pixel
- Vegetation Survey Plot Location 10-meter radius



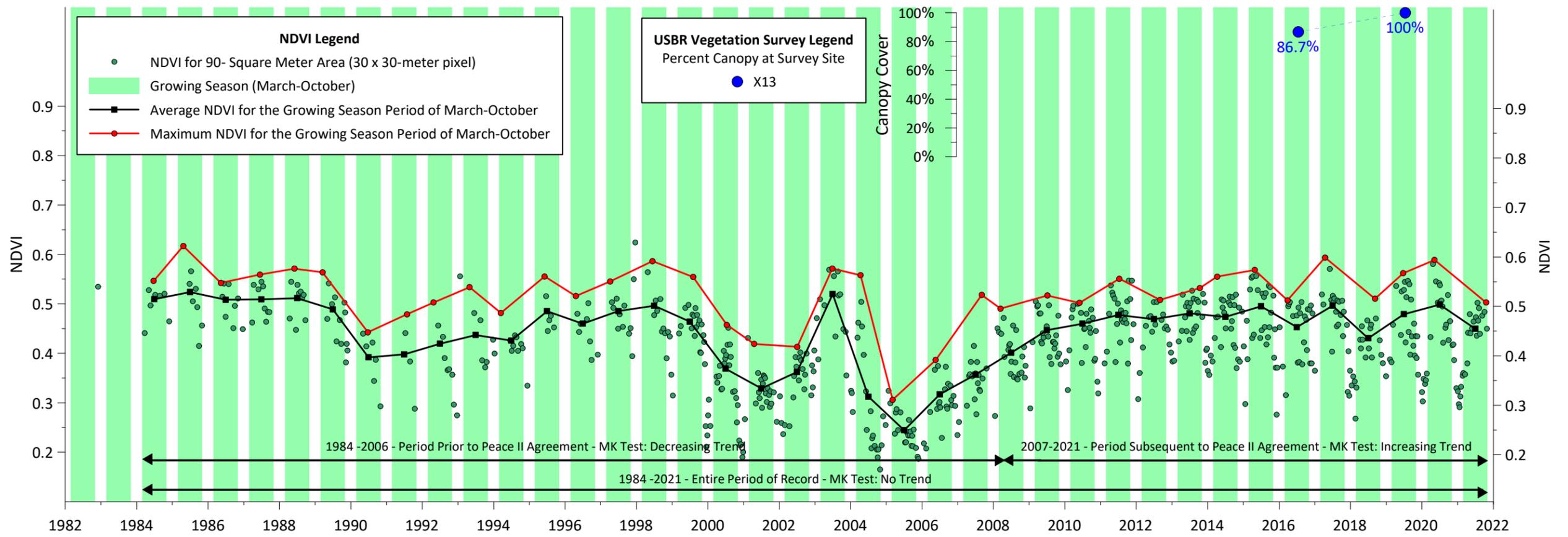
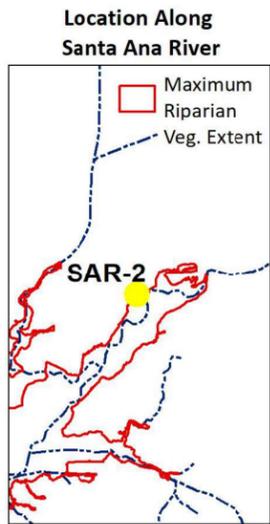


- SAR-1 Area for NDVI Analysis 30x30 meter pixel
- Vegetation Survey Plot Location 10-meter radius





- SAR-2 Area for NDVI Analysis 30x30 meter pixel
- Vegetation Survey Plot Location 10-meter radius

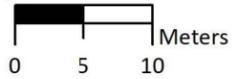


2018 Air Photo (July 2, 2018)

2019 Air Photo (July 4-5, 2019)

2020 Air Photo (July 6-8, 2020)

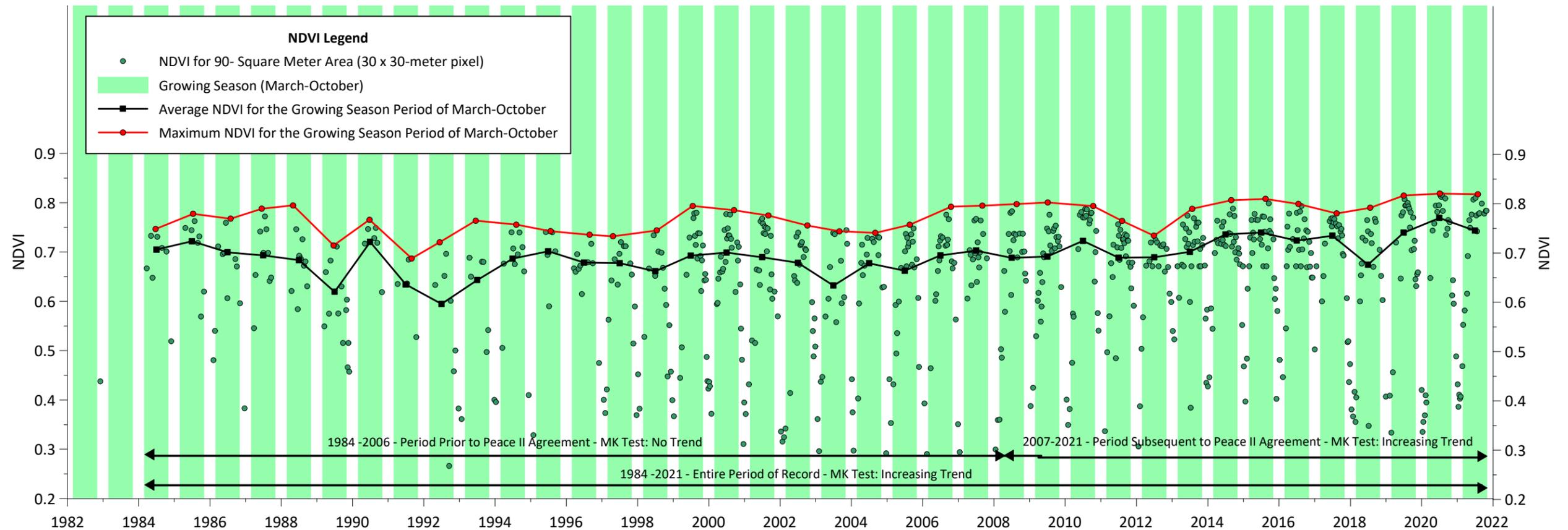
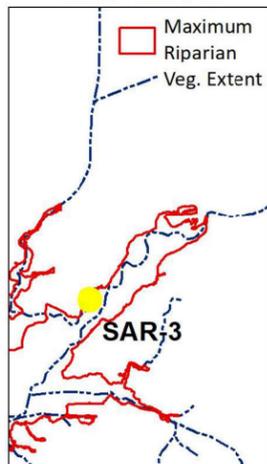
2021 Air Photo (June 26, 2021)



SAR-3 Area for NDVI Analysis 30x30 meter pixel

Vegetation Survey Plot Location 10-meter radius

Location Along Santa Ana River



Prepared by:



WEST YOST - K:\Clients\941 Chino Basin Watermaster\00-00-00 Master\PE1 - Data_Monitoring\GRAPHER\GRF\Prado\AnnualR\Figure 3-8k_NDVI_SAR-3.grf - lhedley - 5/3/2022

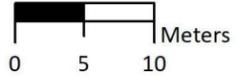
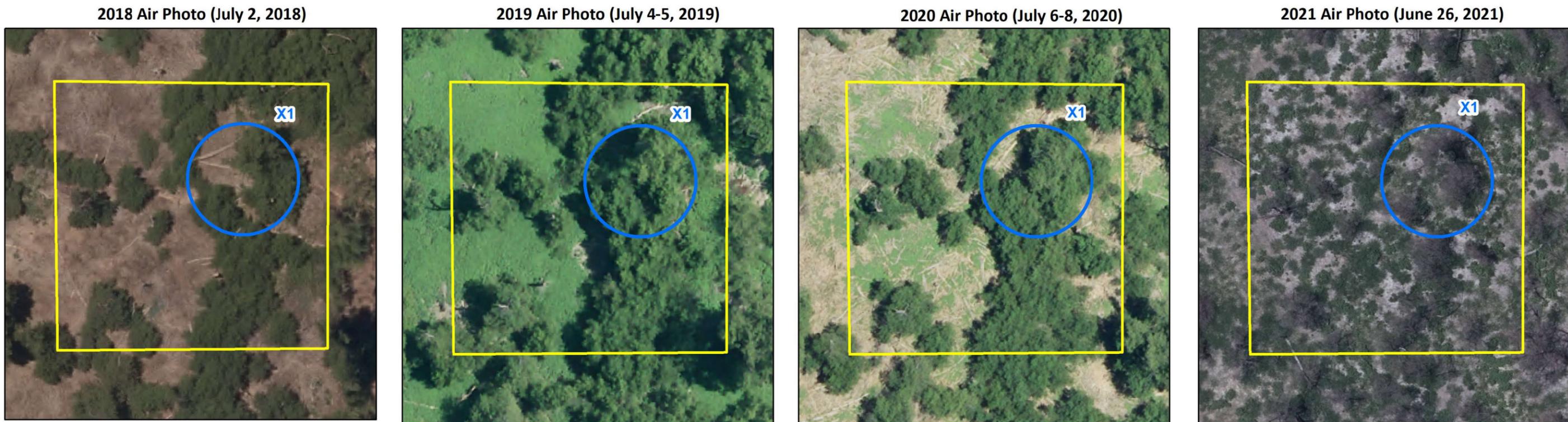
Prado Basin Habitat Sustainability Committee
2021 Annual Report

Prepared for:

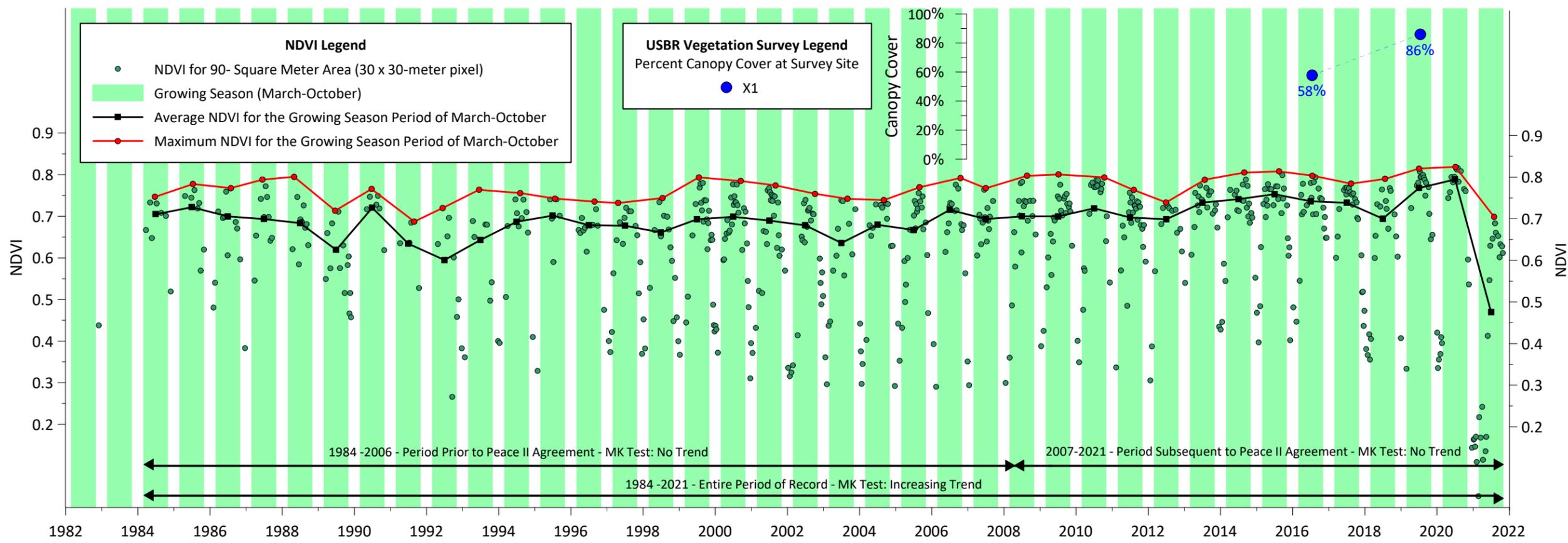
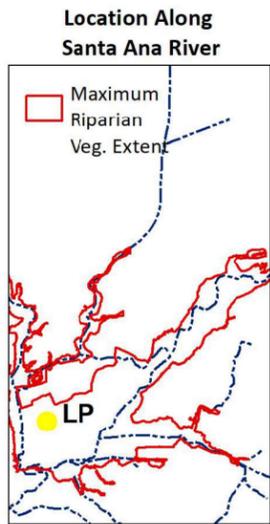


Time Series of NDVI and Air Photos
SAR-3 Area for 1984 to 2021

Figure 3-8k



- LP Area for NDVI Analysis 30x30 meter pixel
- Vegetation Survey Plot Location 10-meter radius





3.1.3 Analysis of Vegetation Surveys

Vegetation surveys are performed for the PBHSP once every three years. The most recent vegetation survey was performed in 2019 by the USBR which was a continuation of the surveys performed in 2007, 2013, and 2016. Preliminary findings and results from the 2019 vegetation survey were published in the final report in June 2020 (USBR, 2020).

Table 3-3 summarizes some of the measured parameters for all areas surveyed in 2007, 2013, 2016, and 2019. The measurements of percent canopy cover from the USBR vegetation surveys are the most appropriate measured data for ground-truthing the NDVI. Percent canopy cover is a measurement of the percentage of the ground surface area that is directly covered by the vertical projections of tree crowns (USDA, 1999). Although there is no direct quantitative relationship between percent canopy cover and NDVI, percent canopy cover is a metric of the areal density of the vegetation that is reflecting visible and near-infrared light and therefore can be used for comparison with the NDVI analysis. The percent canopy cover at the survey location within the small areas of NDVI analysis in Figures 3-8a through 3-8l are charted with the NDVI time-series data. Where percent canopy cover measurements are available for more than one year, they typically show stable or increasing trends, consistent with the increasing trends in NDVI since 2007. Table 3-3 shows that overall the percent canopy cover for all surveyed areas each year has increased: the average percentages of canopy cover at all areas surveyed in 2007, 2013, 2016, and 2019 were 75-, 76-, 86-, and 82-percent, respectively.

Table 3-3. Summary of USBR Vegetation Surveys in 2007, 2013, 2016, and 2019 in the Prado Basin - Canopy Cover, Tree Condition, and Occurrence of Polyphagous Shot-Hole Borer

Site	Canopy Cover (%) ^(a)					Tree Condition (% trees surveyed per plot) ^(b)															Polyphagous Shot-Hole Borer ^(c)					
	2007	2013	2016	2019	Change Through 2019	Not Stressed (Live)					Stressed					Dead					Present in 2016	% of Trees in 2016	Present in 2019	% of Trees in 2019	% Change in 2019	
						2007	2013	2016	2019	Change Through 2019	2007	2013	2016	2019	Change Through 2019	2007	2013	2016	2019	Change Through 2019						
Chino Creek Sites																										
Chino 3	59%	NM	NM	NM	-	NM	NM	NM	NM	--	NM	NM	NM	NM	--	NM	NM	NM	NM	--	NM	NM	NM	NM	--	
Chino 3B	NM	97%	96%	96%	--	NM	100%	0%	33%	-67%	NM	0%	100%	44%	44%	NM	0%	0%	22%	22%	no	0%	no	0%	0%	
Chino 4	80%	94%	98%	84%	4%	NM	100%	98%	7%	84%	-45%	NM	0%	80%	40%	40%	NM	0%	13%	5%	5%	no	0%	no	0%	0%
Chino 9	92%	96%	95%	96%	4%	NM	100%	0%	23%	-77%	NM	0%	100%	59%	59%	NM	0%	0%	18%	18%	no	0%	no	0%	0%	
Chino 11	94%	96%	96%	98%	4%	NM	100%	50%	69%	-31%	NM	0%	42%	0%	0%	NM	0%	8%	31%	31%	no	0%	no	0%	0%	
Chino 16	46%	61%	81%	52%	7%	NM	NM	27%	50%	23%	NM	NM	64%	50%	-14%	NM	NM	9%	0%	--	no	0%	no	0%	0%	
Chino 18	38%	87%	90%	77%	39%	NM	100%	7%	15%	-85%	NM	0%	67%	69%	69%	NM	0%	27%	15%	15%	yes	40%	no	0%	-40%	
Chino 21	98%	94%	88%	17%	-81%	NM	100%	0%	73%	-27%	NM	0%	100%	0%	0%	NM	0%	0%	27%	27%	yes	17%	no	0%	-17%	
Chino 24	93%	93%	98%	94%	1%	NM	100%	6%	32%	-68%	NM	0%	94%	56%	56%	NM	0%	0%	12%	12%	yes	6%	no	0%	-6%	
Chino 30	79%	88%	NM	NM	--	NM	NM	NM	NM	--	NM	NM	NM	NM	--	NM	NM	NM	NM	--	NM	NM	NM	NM	--	
Chino 30B	NM	NM	89%	74%	-15%	NM	NM	0%	20%	20%	NM	NM	89%	50%	-39%	NM	NM	11%	30%	19%	yes	100%	no	0%	-100%	
Chino 31	82%	93%	97%	91%	9%	NM	100%	7%	4%	-96%	NM	0%	93%	72%	72%	NM	0%	0%	24%	24%	yes	7%	no	0%	-7%	
Chino 34	96%	97%	89%	75%	-21%	NM	100%	0%	33%	-67%	NM	0%	67%	33%	33%	NM	0%	33%	33%	33%	no	0%	no	0%	0%	
Chino 78	95%	98%	87%	98%	3%	NM	100%	0%	45%	-55%	NM	0%	80%	55%	55%	NM	0%	20%	0%	0%	yes	80%	no	0%	-80%	
Chino 81	92%	0%	NM	NM	-	NM	NM	NM	NM	--	NM	NM	NM	NM	--	NM	NM	NM	NM	--	NM	NM	NM	NM	--	
Chino 85	89%	0%	NM	NM	--	NM	NM	NM	NM	--	NM	NM	NM	NM	--	NM	NM	NM	NM	--	NM	NM	NM	NM	--	
Chino X3	NM	NM	93%	94%	1%	NM	NM	25%	83%	58%	NM	NM	75%	17%	-58%	NM	NM	0%	0%	0%	no	0%	no	0%	0%	
Chino X4	NM	NM	92%	94%	2%	NM	NM	0%	43%	43%	NM	NM	100%	14%	-86%	NM	NM	0%	43%	43%	yes	100%	yes	71%	-29%	
Chino X5	NM	NM	96%	95%	-1%	NM	NM	75%	89%	14%	NM	NM	25%	11%	-14%	NM	NM	0%	0%	0%	yes	25%	no	0%	-25%	
Chino X6	NM	NM	98%	99%	1%	NM	NM	87%	47%	-40%	NM	NM	13%	47%	34%	NM	NM	0%	7%	7%	yes	13%	no	0%	-13%	
Chino X7	NM	NM	88%	66%	-22%	NM	NM	0%	43%	43%	NM	NM	70%	43%	-27%	NM	NM	30%	14%	-16%	yes	70%	no	0%	-70%	
Chino X8	NM	NM	85%	99%	14%	NM	NM	0%	71%	71%	NM	NM	62%	24%	-38%	NM	NM	38%	6%	-32%	yes	46%	yes	6%	-40%	
Average	81%	78%	92%	83%	-3%	-	100%	16%	46%	-21%	-	0%	73%	38%	10%	-	0%	11%	16%	12%	yes	28%	no	4%	-24%	
Mill Creek Sites																										
Mill 1	40%	0%	NM	NM	--	NM	NM	NM	NM	--	NM	NM	NM	NM	--	NM	NM	NM	NM	--	NM	NM	NM	NM	--	
Mill 3	8%	13%	NM	NM	--	NM	NM	NM	NM	--	NM	NM	NM	NM	--	NM	NM	NM	NM	--	NM	NM	NM	NM	--	
Mill 4	38%	6%	0%	0%	-38%	NM	0%	0%	100%	100%	NM	63%	50%	0%	-63%	NM	37%	50%	0%	-37%	yes	50%	no	0%	-50%	
Mill 8	66%	88%	82%	79%	13%	NM	33%	33%	0%	-33%	NM	67%	0%	50%	-17%	NM	0%	67%	50%	50%	yes	33%	no	0%	-33%	
Mill 11	75%	80%	NM	NM	--	NM	90%	NM	NM	--	NM	0%	NM	NM	--	NM	10%	NM	NM	--	NM	NM	NM	NM	--	
Mill 18	62%	68%	78%	90%	28%	NM	100%	38%	10%	-90%	NM	0%	38%	80%	80%	NM	0%	25%	10%	10%	yes	38%	no	0%	-38%	
Mill 22	89%	93%	96%	93%	4%	NM	86%	0%	43%	-43%	NM	0%	79%	43%	43%	NM	14%	21%	14%	0%	yes	64%	no	0%	-64%	
Mill 30	63%	63%	NM	NM	--	NM	NM	NM	NM	--	NM	NM	NM	NM	--	NM	NM	NM	NM	--	NM	NM	NM	NM	--	
Mill 35	81%	95%	NM	NM	--	NM	100%	NM	NM	--	NM	0%	NM	NM	--	NM	0%	NM	NM	--	NM	NM	NM	NM	--	
Mill 39	94%	87%	96%	96%	2%	NM	92%	0%	13%	-79%	NM	0%	67%	63%	63%	NM	8%	33%	25%	17%	yes	44%	yes	38%	-6%	
Mill 60	76%	90%	83%	51%	6%	NM	86%	0%	0%	-86%	NM	0%	93%	69%	69%	NM	14%	7%	31%	17%	yes	29%	no	0%	-29%	
Mill 62	66%	96%	96%	63%	30%	NM	100%	0%	6%	-94%	NM	0%	94%	25%	25%	NM	0%	6%	69%	69%	yes	94%	yes	25%	-69%	
Mill 63	70%	97%	78%	43%	8%	NM	100%	0%	15%	-85%	NM	0%	68%	23%	23%	NM	0%	32%	62%	62%	yes	41%	yes	23%	-18%	
Mill 67	75%	95%	NM	NM	--	NM	100%	NM	NM	--	NM	0%	NM	NM	--	NM	0%	NM	NM	--	NM	NM	NM	NM	--	
Mill 69	92%	84%	75%	98%	6%	NM	90%	0%	67%	-23%	NM	0%	64%	0%	0%	NM	10%	36%	33%	23%	yes	64%	yes	22%	-42%	
Mill 82	92%	96%	56%	91%	-1%	NM	100%	0%	69%	-31%	NM	0%	75%	15%	15%	NM	0%	25%	15%	15%	yes	25%	yes	8%	-17%	
Mill 101	90%	94%	83%	88%	-2%	NM	96%	0%	26%	-70%	NM	0%	87%	48%	48%	NM	4%	13%	26%	22%	yes	83%	no	0%	-83%	
Mill X9	NM	NM	94%	94%	0%	NM	NM	70%	42%	-28%	NM	NM	30%	58%	28%	NM	NM	0%	0%	0%	yes	10%	no	0%	-10%	
Mill X10	NM	NM	89%	95%	6%	NM	NM	0%	70%	70%	NM	NM	50%	30%	-20%	NM	NM	50%	0%	-50%	yes	50%	no	0%	-50%	
Average	69%	73%	77%	75%	5%	-	84%	11%	35%	-38%	-	9%	61%	39%	23%	-	7%	28%	26%	15%	yes	48%	no	7%	-39%	
Santa Ana River Sites																										
SAR X1	NM	NM	58%	86%	28%	NM	NM	76%	75%	-1%	NM	NM	5%	13%	8%	NM	NM	19%	13%	-6%	yes	3%	no	0%	-3%	
SAR X2	NM	NM	93%	79%	-14%	NM	NM	11%	60%	49%	NM	NM	89%	30%	-59%	NM	NM	0%	10%	10%	yes	17%	no	0%	-17%	
SAR X11	NM	NM	88%	94%	6%	NM	NM	27%	44%	17%	NM	NM	64%	11%	-53%	NM	NM	9%	44%	35%	yes	82%	no	0%	-82%	
SAR X12	NM	NM	96%	100%	4%	NM	NM	9%	44%	35%	NM	NM	91%	44%	-47%	NM	NM	0%	13%	13%	yes	91%	no	0%	-91%	
SAR X13	NM	NM	87%	100%	13%	NM	NM	0%	17%	17%	NM	NM	67%	67%	0%	NM	NM	33%	17%	-16%	yes	67%	no	0%	-67%	
SAR X14	NM	NM	88%	97%	10%	NM	NM	0%	75%	75%	NM	NM	100%	25%	-75%	NM	NM	0%	0%	0%	yes	100%	no	0%	-100%	
Average	-	-	85%	93%	8%	-	-	21%	53%	32%	-	-	69%	32%	-38%	-	-	10%	16%	6%	yes	60%	no	0%	-60%	
Average All Sites	75%	76%	86%	82%	8%	-	91%	15%	43%	-19%	-	5%	68%	37%	7%	-	4%	17%	19%	12%	yes	40%	no	5%	-35%	

Notes:

NM - Not Measured

(a) Canopy cover is a measurement of the percentage of a ground area directly covered by vertical projections of tree crowns. In the field, canopy cover is measured using a spherical densiometer standing five meters from the center of the plot in the four cardinal directions (north, south, east, west). Canopy Cover percent herein is the average of the four measurements.

(b) Tree condition is a qualitative measurement of the health of the tree. Trees were assessed and classified as "live," "stressed," or "dead". The percentage of each classification per plot is shown here.

(c) In 2016 and 2019 trees were assessed for the presence of polyphagous shot-hole borers (PSHB). If a tree showed signs of the beetle it was noted. The percent of trees in each plot that showed signs of beetle infestation was then calculated.

The USBR vegetation surveys in 2016 and 2019 noticed the presence of the invasive pest—the PSHB. Overall, the presence of the PSHB decreased in 2019 at all of the sites where it was noted in 2016, and some of the sites no longer indicated the presence of the PSHB in 2019 where it was noted in 2016. The vegetation surveys provide a measurement of the change in riparian habitat health from 2016 to 2019 for those survey locations impacted by the PSHB. This is discussed in further detail in Section 3.6.2.

3.1.4 Summary

The extent of the riparian habitat in the Prado Basin has been delineated from air photos and maps of NDVI. The extent increased from about 1.85 mi² in 1960 to about 6.7 mi² by 1999 and has remained relatively constant through 2021.

The quality of riparian habitat has been characterized through the analysis of air photos, maps of NDVI, and time-series charts of NDVI for large and small areas located throughout the Prado Basin:

- The NDVI change map shows mostly no change or varying levels of NDVI decreases throughout the riparian vegetation in the Prado Basin. Notable decreases in the NDVI spatially are observed in large patches along the SAR and lower portion of Chino Creek and below the OCWD wetlands.
- The analyses of NDVI time series indicate that from 2020 to 2021 there was a slight decrease in the greenness of the riparian vegetation across the Prado Basin when analyzed as a whole and the along the Chino Creek and Mill Creek reaches analyzed as a whole. Throughout the riparian vegetation extent, there were varying levels of stable and decreasing trends in the greenness of the vegetation from 2020 to 2021 as indicated by the NDVI time series. However, at all areas but one, these one-year changes in the Average Growing-Season NDVI are relatively minor and within the historical ranges of one-year NDVI variability, and most were less than the average annual change in NDVI. For the LP area, the recent one-year decline in the Average Growing Season NDVI exceeds the magnitude of any historical one-year change in this area. Inspection of the air photos corroborates the observation of this decreased greenness in LP area.
- The Mann-Kendall test result on the Average Growing-Season NDVI for the post Peace II Agreement period from 2007 to 2021 indicates an “increasing trend” or “no trend” for the Prado Basin riparian vegetation as whole and all the other areas analyzed through the Prado Basin.
- Visual inspection of the 2020 and 2021 air photos for the MC-2 area, where NDVI decreased from 2020 to 2021, shows a notable decrease in green vegetated areas.

The remainder of Section 3.0 describes the factors that can affect the riparian habitat, how these factors have changed over time, and how the changes in these factors may explain the changes that are being observed in the riparian habitat described above.

3.2 Groundwater and Its Relationship to Riparian Habitat

Peace II Agreement implementation was projected to change groundwater pumping patterns and reduce artificial recharge through 2030, both of which would change groundwater levels in the Chino Basin. These



groundwater level changes caused by Peace II Agreement implementation and other unrelated water management activities¹³ have the potential to impact the extent and quality of Prado Basin riparian habitat.

This section characterizes the history of groundwater pumping and changes in groundwater-levels in the GMP study area and compares this history to the trends in the extent and quality of the riparian habitat described in Section 3.1.

3.2.1 Groundwater Pumping

Table 3-4 lists the groundwater pumping estimates for the GMP study area for WY 1961 to 2021.¹⁴ Figure 3-9 is a map that illustrates the spatial distribution of groundwater pumping from wells within the GMP study area for WY 2021. This figure includes a bar chart of the annual groundwater pumping in the GMP study area (from Table 3-4 below). Figure 3-9 illustrates the following history of groundwater pumping within the GMP study area:

- From 1961 to 1990, groundwater pumping averaged about 45,900 afy. Pumping mainly occurred at private domestic and agricultural wells distributed throughout the area.
- From 1991 to 1999, groundwater pumping steadily declined, primarily due to conversions of agricultural land uses to urban. By WY 1999, groundwater pumping was estimated to be about 23,600 afy—about 49 percent less than average annual pumping from 1961-1990.
- From 2000 to 2021, CDA pumping commenced and increased to replace the declining agricultural groundwater pumping—as envisioned in the OBMP/Peace Agreement and Peace II Agreement. By WY 2021, total groundwater pumping was about 46,650 afy—an increase of about 98 percent from 1999.
- Over the last two years from 2019 to 2021, the CDA pumping increased by about 8,500 afy. In mid-2020 the CDA pumping reached its intended pumping rate of 40,000 afy to maintain hydraulic control of the Chino Basin.

Water Year	Non-CDA Pumping, afy ^(a)	CDA Pumping, afy	Total Pumping, afy ^(a)
1961	48,577	0	48,577
1962	43,811	0	43,811
1963	43,293	0	43,293
1964	45,170	0	45,170
1965	43,294	0	43,294
1966	46,891	0	46,891

¹³ Other water management activities unrelated to Peace II Agreement implementation include changes in wastewater discharge to the SAR due to conservation, recycling, and drought response; increases in storm water diverted and recharged; increases in recycled water recharge; management of groundwater in storage; and the implementation of the Dry-Year Yield Program with MWD.

¹⁴ Production for years prior to WY 2001 were estimated in the calibration of the 2013 Chino Basin groundwater model (WEI, 2015). Production estimates for WY 2001 and thereafter are based on metered production data and water-duty estimates compiled by Watermaster.

Annual Report of the Prado Basin Habitat Sustainability Committee – WY 2021



Table 3-4. Annual Groundwater Pumping in the Groundwater Monitoring Program Study Area

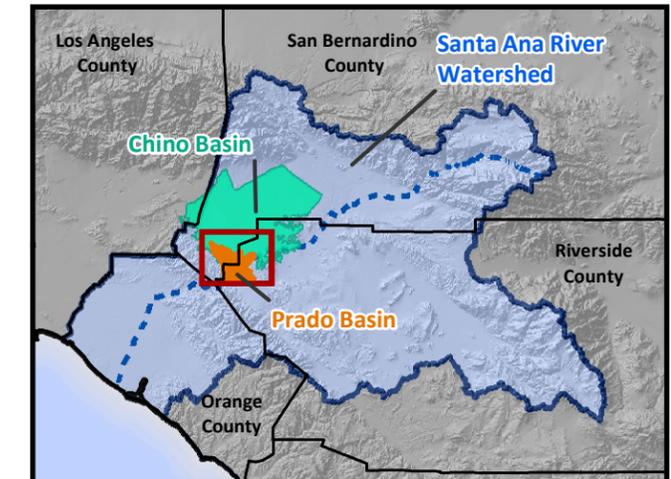
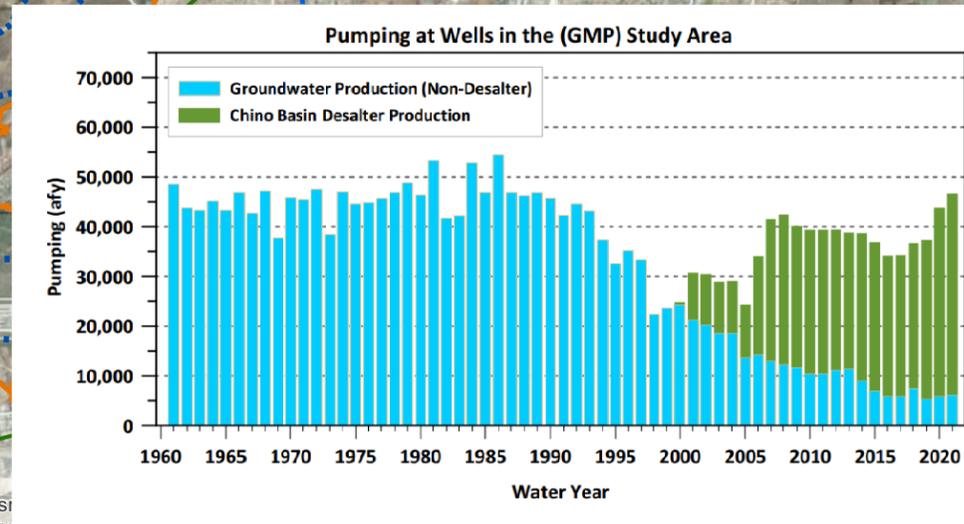
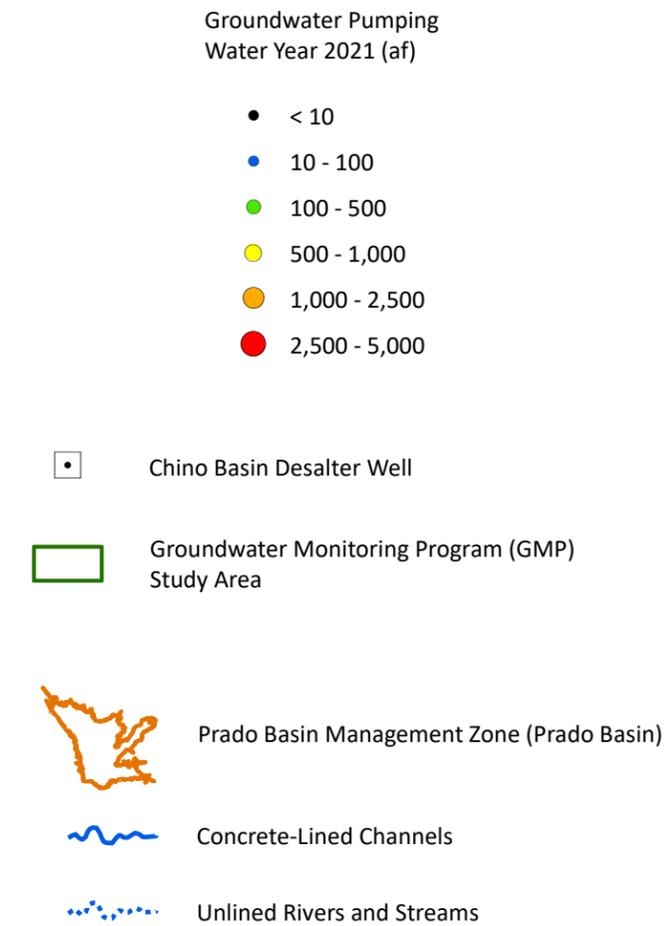
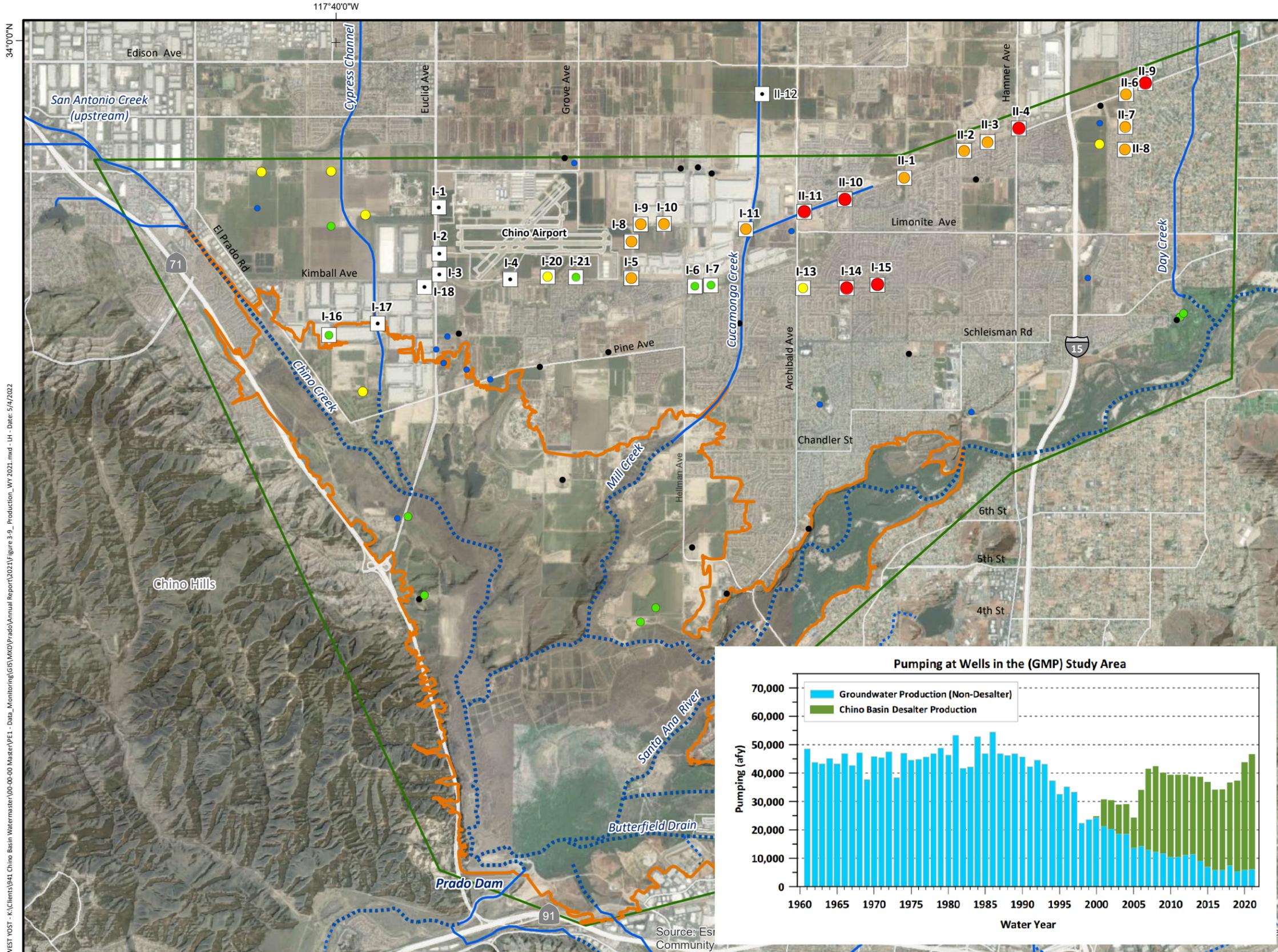
Water Year	Non-CDA Pumping, afy ^(a)	CDA Pumping, afy	Total Pumping, afy ^(a)
1967	42,709	0	42,709
1968	47,180	0	47,180
1969	37,754	0	37,754
1970	45,849	0	45,849
1971	45,492	0	45,492
1972	47,541	0	47,541
1973	38,427	0	38,427
1974	47,014	0	47,014
1975	44,606	0	44,606
1976	44,847	0	44,847
1977	45,710	0	45,710
1978	46,881	0	46,881
1979	48,829	0	48,829
1980	46,402	0	46,402
1981	53,326	0	53,326
1982	41,719	0	41,719
1983	42,200	0	42,200
1984	52,877	0	52,877
1985	46,876	0	46,876
1986	54,501	0	54,501
1987	46,875	0	46,875
1988	46,277	0	46,277
1989	46,835	0	46,835
1990	45,732	0	45,732
1991	42,266	0	42,266
1992	44,617	0	44,617
1993	43,186	0	43,186
1994	37,390	0	37,390
1995	32,604	0	32,604
1996	35,200	0	35,200
1997	33,340	0	33,340
1998	22,366	0	22,366
1999	23,632	0	23,632
2000	24,299	523	24,822
2001	21,249	9,470	30,719
2002	20,271	10,173	30,445
2003	18,600	10,322	28,922
2004	18,606	10,480	29,086



Table 3-4. Annual Groundwater Pumping in the Groundwater Monitoring Program Study Area

Water Year	Non-CDA Pumping, afy ^(a)	CDA Pumping, afy	Total Pumping, afy ^(a)
2005	13,695	10,595	24,290
2006	14,261	19,819	34,079
2007	12,988	28,529	41,517
2008	12,293	30,116	42,409
2009	11,694	28,456	40,150
2010	10,452	28,964	39,416
2011	10,460	28,941	39,401
2012	11,193	28,230	39,423
2013	11,433	27,380	38,813
2014	9,059	29,626	38,685
2015	6,985	29,877	36,862
2016	5,900	28,249	34,148
2017	5,899	28,351	34,250
2018	7,504	29,191	36,695
2019	5,348	32,004	37,352
2020	5,875	37,973	43,848
2021	6,155	40,501	46,656
Average: 1961-1990	45,917	0	45,917
Average: 1991-1999	34,956	0	34,956
Average: 2000-2021	12,289	23,203	39,492

(a) Prior to water year 2001 production is estimated with the calibrated 2013 Chino Basin groundwater model (WEI, 2015).





3.2.2 Groundwater Levels

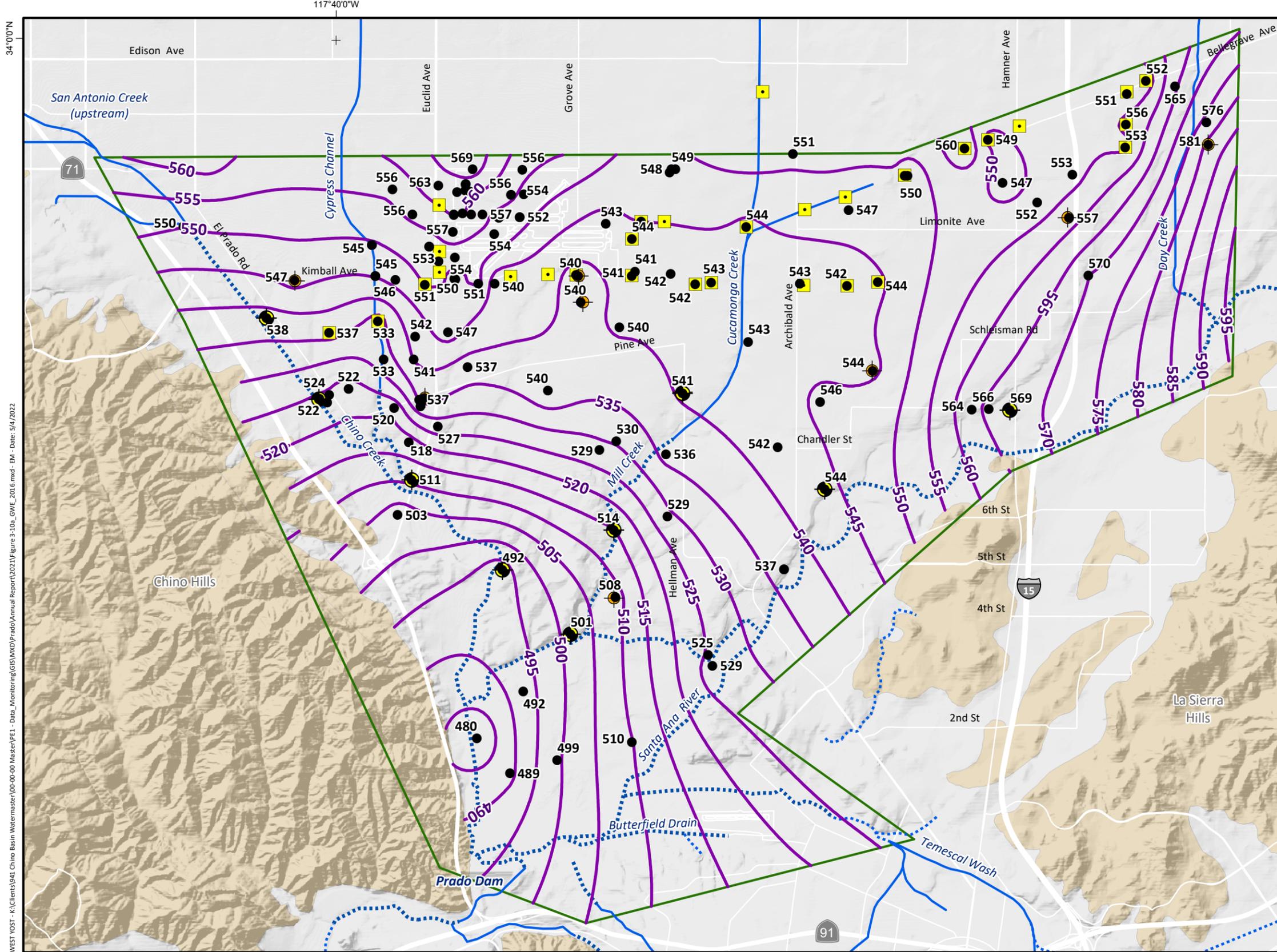
Figures 3-10a and 3-10b are groundwater-elevation contour maps of the GMP study area for the shallow aquifer system in September 2016 (first Annual Report condition) and September 2021 (current condition).¹⁵ The contours were created from rasterized surfaces of groundwater elevations that were created based on measured groundwater elevations at wells. The raster of groundwater elevation for September 2016 was subtracted from the raster of groundwater elevation for September 2021 to create a raster of change in groundwater elevation from 2016 to 2021 (Figure 3-11). Figure 3-11 shows that groundwater levels changed by about +/- 10 feet across the GMP study area from 2016 to 2021. The greatest areas of change in groundwater elevation occurred in the northern portion of the GMP study area near the Chino Basin Desalter well field. Groundwater levels declined by slightly more than 10 feet near the central portion of Chino Basin Desalter well field north of Mill Creek (Wells I-5, I-6, I-8, I-9, I-10, I-11, I-13, I-21) and increased by about 10 feet to the north of the western portion the Chino Basin Desalter well field (Wells I-16, I-17, I-18).

Within the extent of the riparian vegetation, groundwater elevations have remained relatively stable throughout most of the extent from 2016-2021, but there are some notable areas where groundwater levels have declined: the northernmost reach of Mill Creek just south of PB-2 to PB-1 (decline of 1 to 5 feet); and northern reach of the SAR within Prado Basin near PB-3 (decline of about 2 feet). The north portions of Mill Creek and the SAR where we observe these declines in groundwater levels from 2016 to 2021 are a part of the regional pumping depression that is expanding around the increased pumping at the Chino Basin Desalters to the north.

Figure 3-12 is a map of depth-to-groundwater in September 2021. It was created by subtracting a one-meter horizontal resolution digital-elevation model of the ground surface (Associated Engineers, 2007) from the raster of groundwater elevation for September 2021. An outline of the Prado Basin riparian habitat extent is superimposed on the 2021 depth-to-groundwater raster. With few exceptions,¹⁶ the riparian habitat overlies areas where the depth-to-groundwater is less than 15 feet below the ground surface (ft-bgs). The shallow groundwater could exit the Prado Basin via rising groundwater discharge to the SAR and its tributaries and/or evapotranspiration by the riparian vegetation.

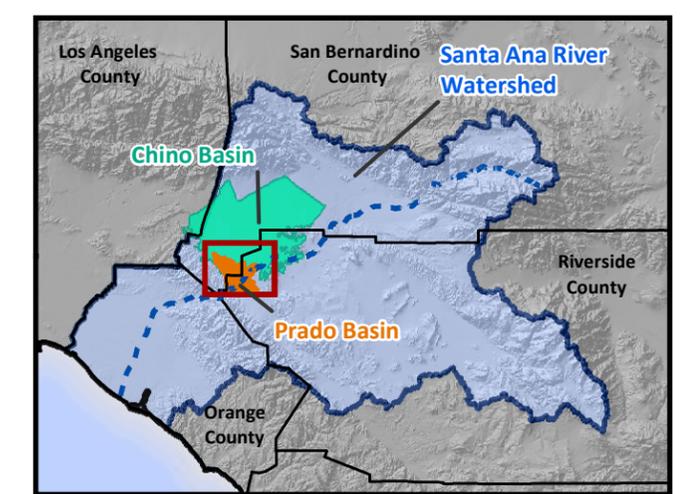
¹⁵ Historical groundwater-elevation data for the Prado Basin are scarce due to a lack of wells and/or monitoring. As such, the discussion and interpretation of measured groundwater elevations focuses on the GMP's period of record.

¹⁶ Exceptions include: the upstream reach of Temescal Wash in the Prado Basin, some limited areas west of the southern reach of Chino Creek, small patch in the upper portion of Chino Creek, small patch in the northernmost reach of Mill Creek, and small patches along the SAR east of well PB-3.

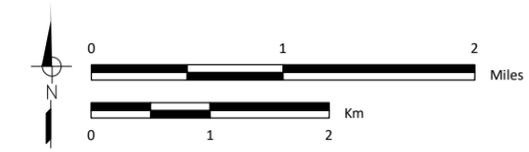


- Equal Elevation Contour of Groundwater Elevation (feet above mean sea level)
- Well with Measured Groundwater Elevation in September 2016 Used to Draw Contours; Labeled by Groundwater Elevation (feet above mean sea level)
- PBHSP Monitoring Well Site
- HCMP Monitoring Well Site
- Chino Basin Desalter Well
- Groundwater Monitoring Program (GMP) Study Area
- Concrete-Lined Channels
- Unlined Rivers and Streams

- Surface Geology
- Consolidated Bedrock
 - Quaternary Alluvium
 - Water-Bearing Sediments
 - Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks

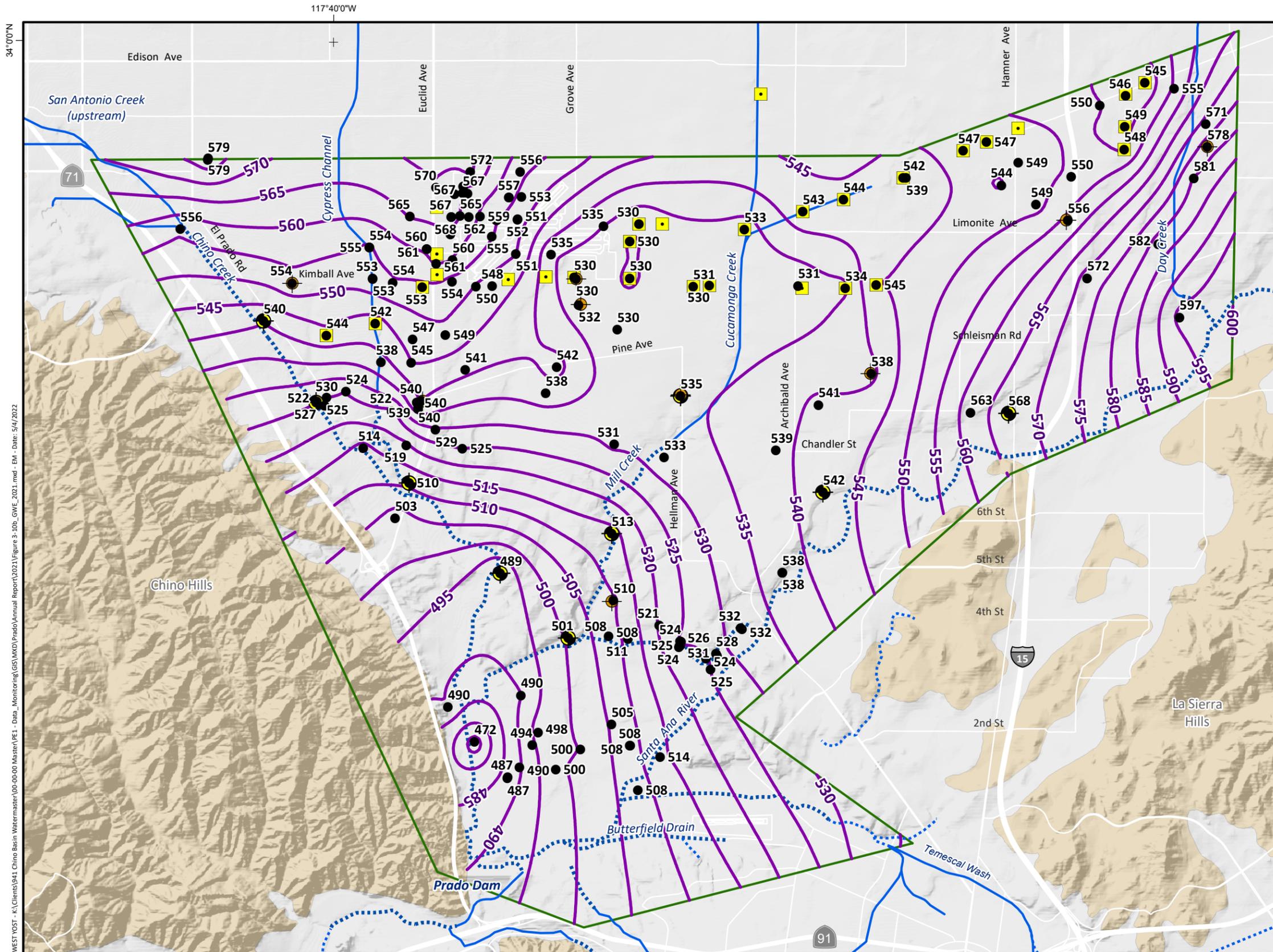


WEST YOST - K:\Clients\941 Chino Basin Watermaster\00-00-00 Master\PE1 - Data_Monitoring\GIS\MD\Prado\Annual Report\2021\Figure 3-10a_GWE_2016.mxd - EM - Date: 5/4/2022

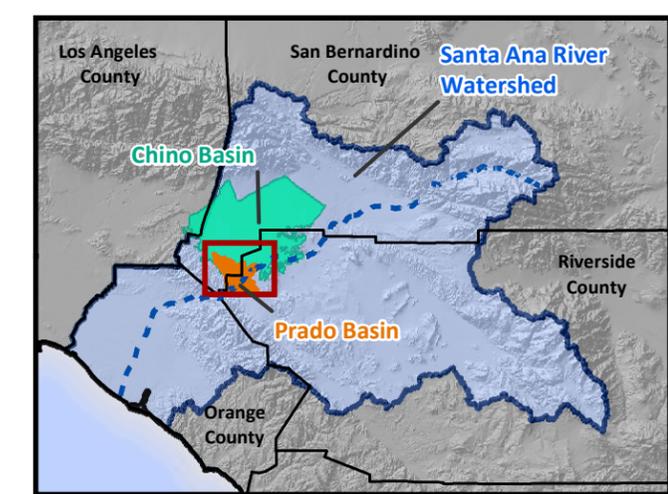


Map of Groundwater Elevation
September 2016 - Shallow Aquifer System

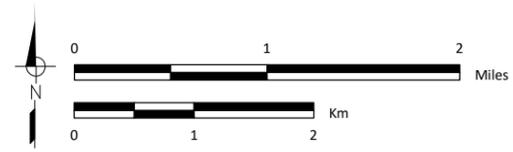
Figure 3-10a

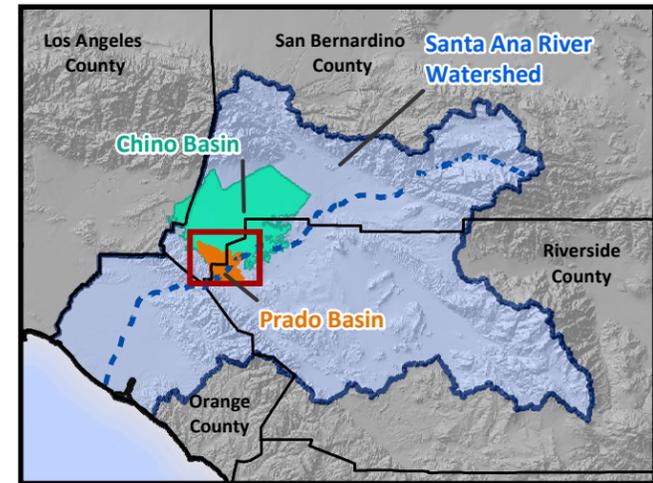
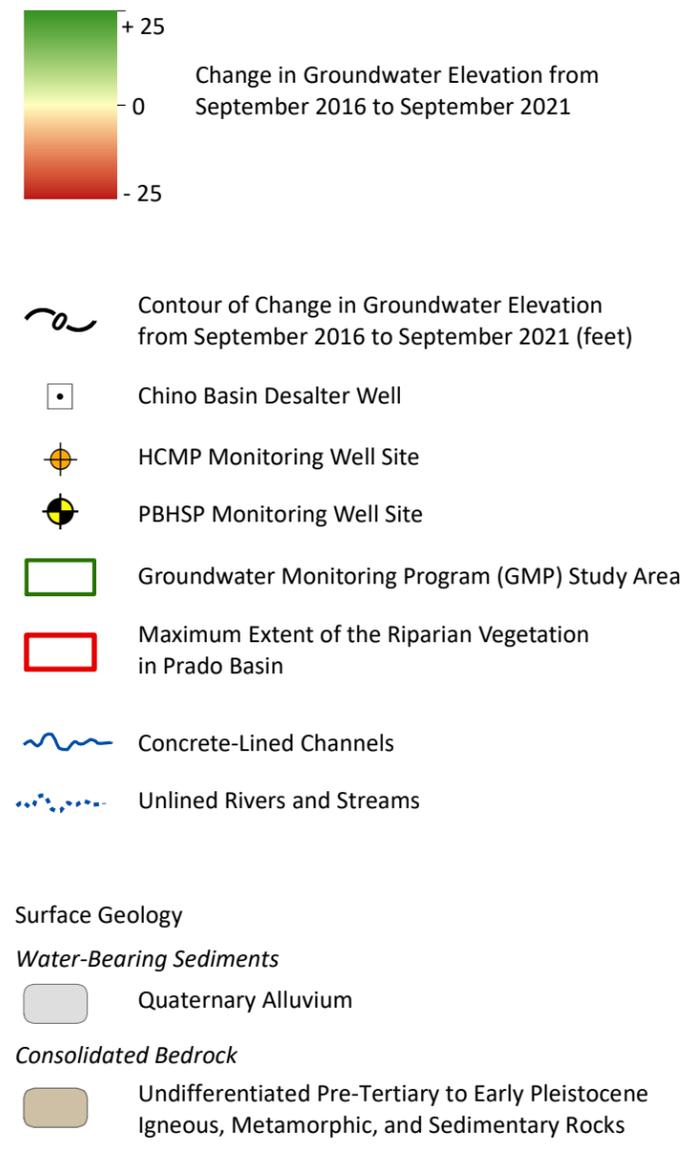
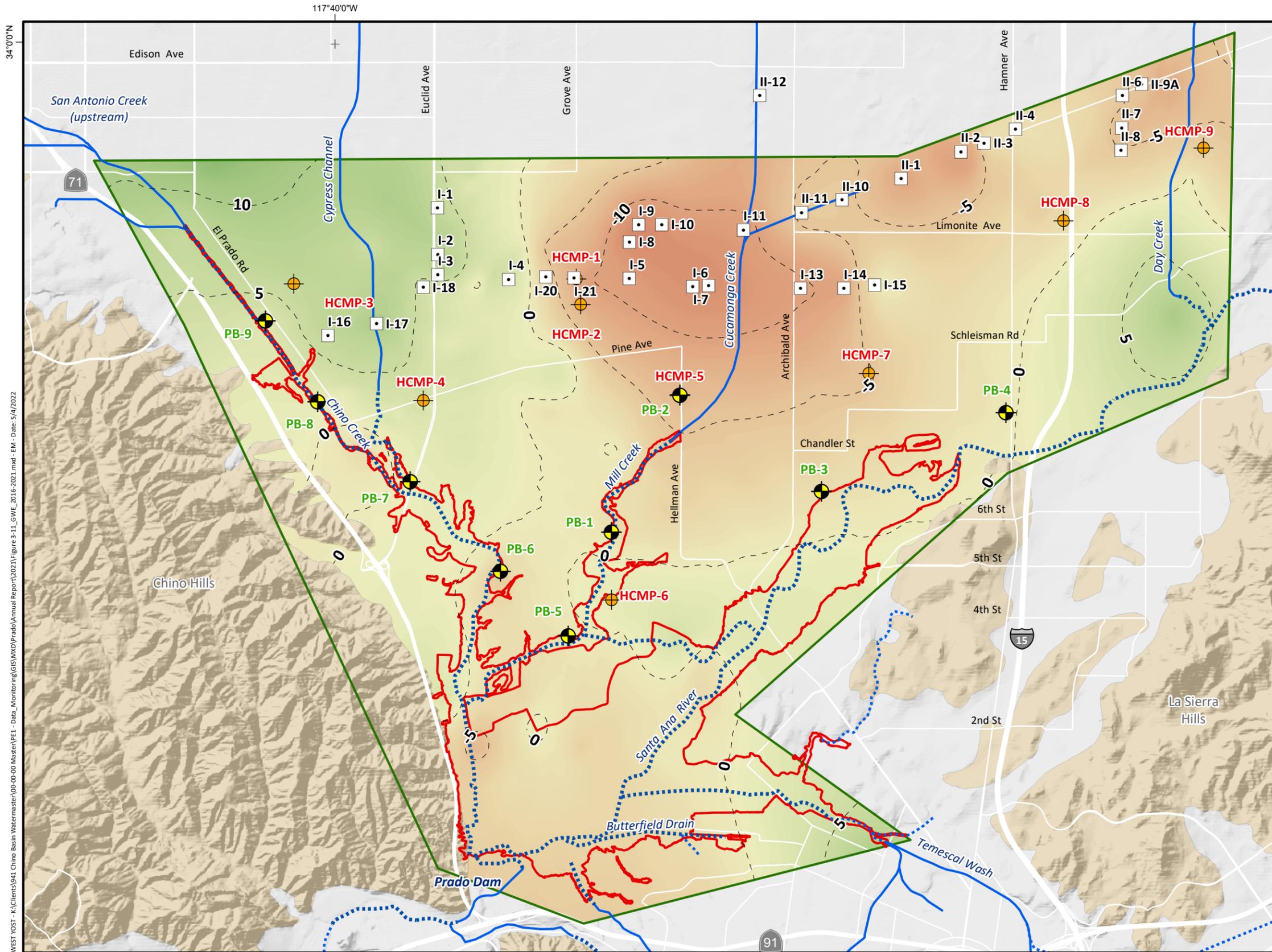


- Equal Elevation Contour of Groundwater Elevation (feet above mean sea level)
- Well with Measured Groundwater Elevation in September 2021 Used to Draw Contours; Labeled by Groundwater Elevation (feet above mean sea level)
- PBHSP Monitoring Well Site
- HCMP Monitoring Well Site
- Chino Basin Desalter Well
- Groundwater Monitoring Program (GMP) Study Area
- Concrete-Lined Channels
- Unlined Rivers and Streams
- Surface Geology**
- Water-Bearing Sediments*
- Quaternary Alluvium
- Consolidated Bedrock*
- Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks



WEST YOST - K:\Clients\941 Chino Basin Watermaster\00-00-00 Master\PE1 - Data_Monitoring\GIS\MXD\Prado Annual Report\2021\Figure 3-10b_GWE_2021.mxd - EM - Date: 9/4/2022

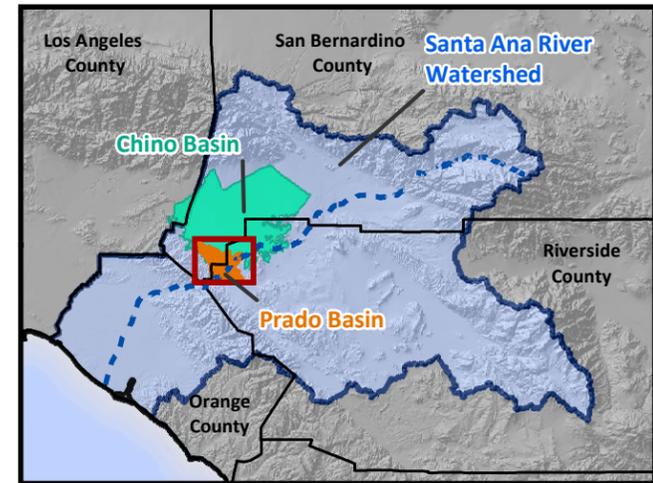
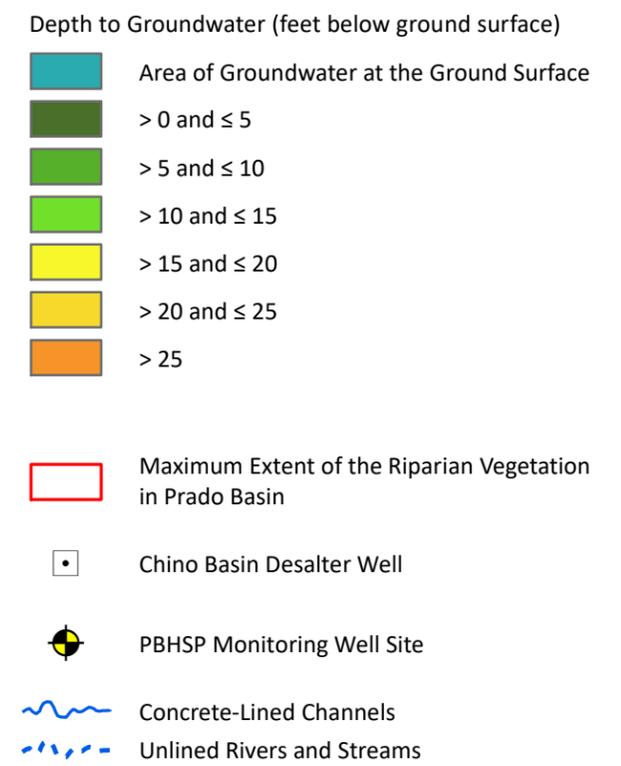
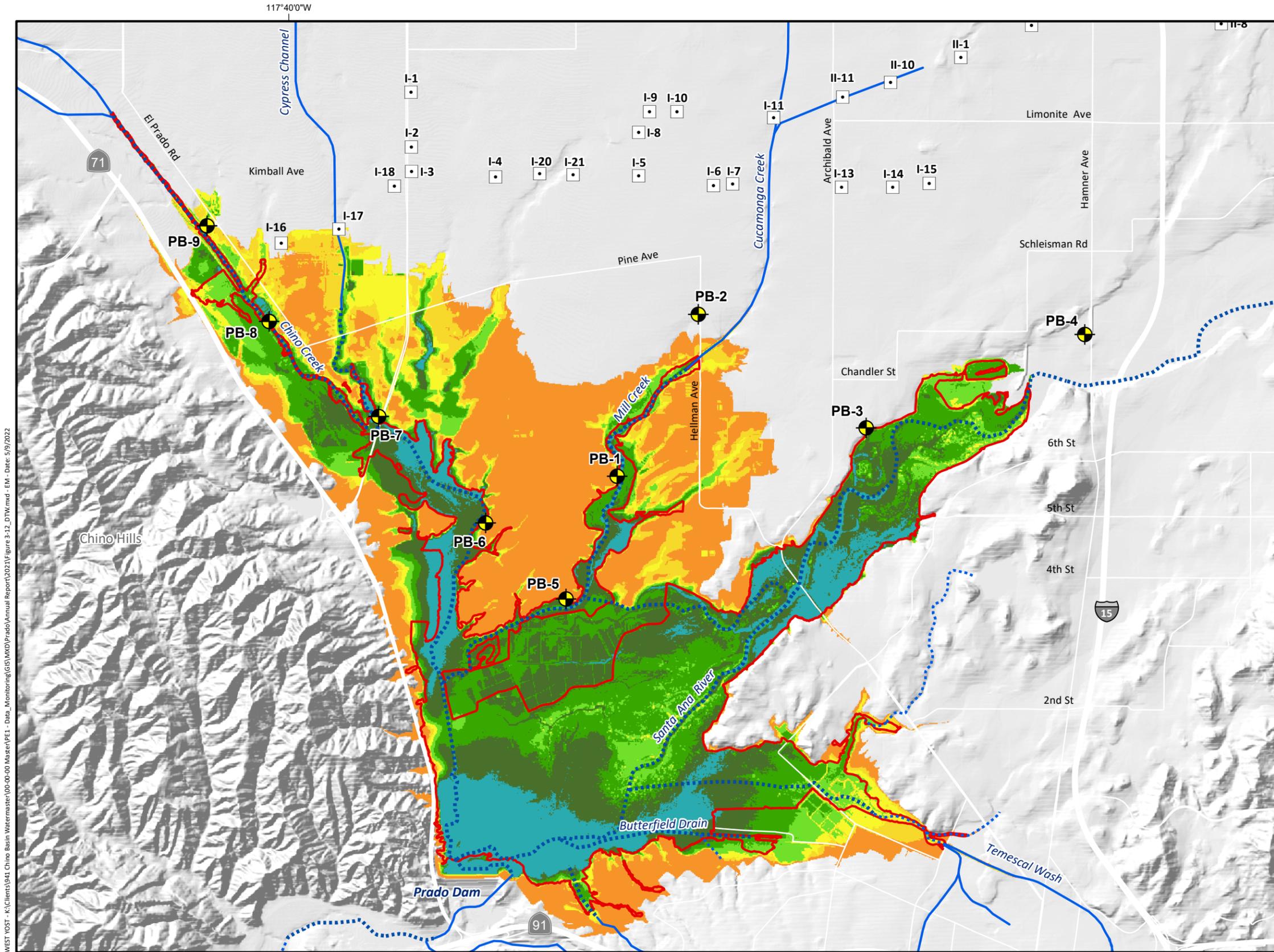




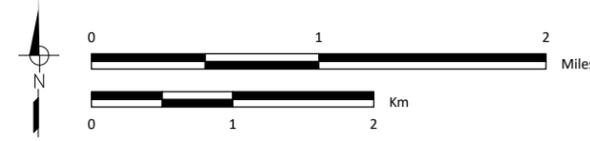
WEST YOST - K:\Clients\941 Chino Basin Watermaster\00-00-00 Master\PE1 - Data_Monitoring\GIS\MXD\Prado\Annual Report\2021\Figure 3-11_GWE_2016-2021.mxd - EM - Date: 5/4/2022

Change in Groundwater Elevation
 September 2016 to September 2021

Figure 3-11



WEST YOST - K:\Clients\941 Chino Basin Watermaster\00-00-00 Master\PE1 - Data_Monitoring\GIS\MXD\Prado\Annual Report\2021\Figure 3-12_DTW.mxd - EM - date: 5/9/2022



Chino Basin Watermaster and
Inland Empire Utilities Agency
2021 Annual Report of the
Prado Basin Habitat Sustainability Committee



Depth to Groundwater
September 2021

Figure 3-12



3.2.3 Groundwater Levels Compared to NDVI

Figures 3-13a through 3-13c are time-series charts that compare long-term trends in groundwater pumping and groundwater elevations to the trends in the quality of the riparian vegetation as indicated by the NDVI for three areas in the Prado Basin: Chino Creek, Mill Creek, and the SAR. The period of analysis for these charts is 1984 to 2021—the period of NDVI availability. The upper chart in these figures compares changes in groundwater levels for each respective area to long-term trends in groundwater pumping within the respective regions of the GMP study area (Chino Creek, Mill Creek, and SAR regions). The annual groundwater pumping for wells within the respective regions is a stacked bar chart for the Chino Basin Desalter wells and non-Chino Basin Desalter wells. Groundwater-elevation estimates for the period of 1984 to 2018 were extracted from Watermaster’s most recent calibration of its groundwater-flow model at the monitoring well locations (WEI, 2020). The more recent groundwater-elevation data shown on these charts were measured at monitoring wells constructed by Watermaster and the IEUA to support the Hydraulic Control Monitoring Program (HCMP) (beginning in 2005) and the PBHSP (beginning in 2015). Where the measured and model-estimated groundwater elevations overlap in time, the model-estimated elevations mimic the seasonal fluctuations and longer-term trends of the measured elevations and are typically no more than 10 feet different. This supports the use of these model-estimated groundwater elevations in this analysis.

The lower chart in Figures 3-13a through 3-13c displays the time series of the Average Growing-Season NDVI for the defined areas (discussed in Section 3.1) along Chino Creek, Mill Creek, and the SAR. For reference, the Mann-Kendall test results for trends in the Average Growing-Season NDVI for 1984-2021, 1984-2006, and 2007-2021 are shown in the legend.

The NDVI observations and interpretations below focus on recent changes in Average Growing-Season NDVI (Section 3.1) and whether observed groundwater level trends may be contributing to recent NDVI changes.

Chino Creek (Figure 3-13a). During the late 1990s, groundwater levels along Chino Creek increased, particularly along the north reach of Chino Creek, where groundwater levels increased by over 30 feet. The increase in groundwater levels was most likely due to reduced pumping in the area. Since 2000, groundwater levels have remained relatively stable, even as Chino Basin Desalter pumping commenced and increased at wells I-1, I-2, I-3, I-4, I-16, I-17, I-18, I-20, and I-21 to the north of Chino Creek (see inset map on Figure 3-13b). Since 2017, total pumping at these Chino Basin Desalter wells in the Chino Creek area has been at historically low volumes, contributing to a decrease in pumping in this area.

From 2015-2021, the measured groundwater levels at the PBHSP monitoring wells along Chino Creek show a stable trend along the northern portion of Chino Creek (PB-9/1, PB-8, and RP2-MW3) and stable trend along the central reach, (PB-7/1), and a slight decreasing trend along the southern reach (PB-6/1). Groundwater levels fluctuate seasonally, in some cases by more than 15 feet, under the seasonal stresses of pumping and recharge. During the winter months of WY 2017 and 2019, groundwater levels at the PBHSP monitoring wells increased to their highest recorded levels, likely in response to the recharge of stormwater discharge in unlined creeks and the associated surface-water reservoir that ponds behind Prado Dam. Over the last year (September 2020 to September 2021) groundwater levels remained stable along the upper northern reach of Chino Creek (PB-9/1), decreased by up to two feet along lower northern reach (PB-8, and RP3-MW3), and decreased by up to one foot along the southern reach of Chino Creek (PB-7/1 and PB-6/1).

The Average Growing-Season NDVI and the air photo analyses along Chino Creek show that changes in the vegetation were relatively minor (discussed in Section 3.1) during 2020-2021. Hence, the main observations and conclusions for the period of 2020 to 2021 in this area are that groundwater levels remained relatively stable or decreased and the riparian vegetation did not change significantly.

Mill Creek. (Figure 3-13b). During the 1990s, groundwater levels along Mill Creek increased, particularly along the north reach of Mill Creek where groundwater levels increased by about 10 feet, most likely due to reduced agricultural pumping in the area. Since 2000, groundwater levels have declined, particularly along the north reach of Mill Creek where groundwater levels have declined by up to 15 feet. The decline in groundwater levels was most likely due to the onset and progressive increase in Chino Basin Desalter pumping at wells I-5, I-6, I-7, I-8, I-9, I-10, I-11, I-20, I-21 to the north of Mill Creek (see inset map on Figure 3-13b). Since 2017, total pumping at these Chino Basin Desalter wells in the Mill Creek area have progressively increased to a historically high volume, contributing to the increase in the total pumping observed in this area.

From 2015-2021, the measured groundwater levels at the PBHSP monitoring wells along Mill Creek show a decreasing trend in the northern portion of Mill Creek (PB-2 and HCMP-5/1), a slight decreasing trend in the central and southern reaches (PB-1/2 and PB-5/1). The decreases in groundwater levels in the northern Mill Creek area are likely due to the increase in pumping observed in this area. Groundwater levels fluctuate seasonally, in some cases by more than 10 feet, under the seasonal stresses of pumping and recharge. During the winter months in WY 2017 and WY 2019, groundwater levels at most of the PBHSP monitoring wells increased to their highest recorded levels, likely in response to the recharge of stormwater discharge in unlined creeks and the associated surface-water reservoir that ponds behind Prado Dam. Over the last year (September 2020 to September 2021) groundwater levels at the monitoring wells along Mill Creek decreased by about three feet just north of the top of Mill Creek (PB-2 and HCMP-5/1), decreased about one foot along the central and southern reaches (HCMP-6/1, PB-1/2, and PB-5/1).

The Average Growing-Season NDVI analyses along Mill Creek show that changes in the vegetation were relatively minor during 2020-2021 (discussed in Section 3.1). The analyses of the air photos at MC-2 indicate that there is a notable decrease in the vegetation from 2020-2021. Hence, the main observations and conclusions for the period of 2020 to 2021 in this area are that groundwater levels decreased along Mill Creek and the riparian vegetation did not change significantly except for a decrease observed in the air photo at MC-2 in the central portion of Mill Creek. The MC-2 area is within the central portion of Mill Creek where groundwater levels slightly declined by about one foot during 2020 to 2021. These changes in groundwater levels near the MC-2 area in the central portion of Mill Creek are within the range of the long-term variability for these areas and not likely the cause of the decrease in the green vegetation observed at MC-2 from 2020 to 2021. Where groundwater levels decreased by 3 feet from 2020 to 2021 at PB-2, the NDVI for the MC-1 area in the northern portion of Mill Creek closest to this well slightly decreased, but this change is less than the average annual change observed historically (see Table 3-2) and there is an increasing trend in the NDVI at the MC-1 area for the post Peace II Agreement period.

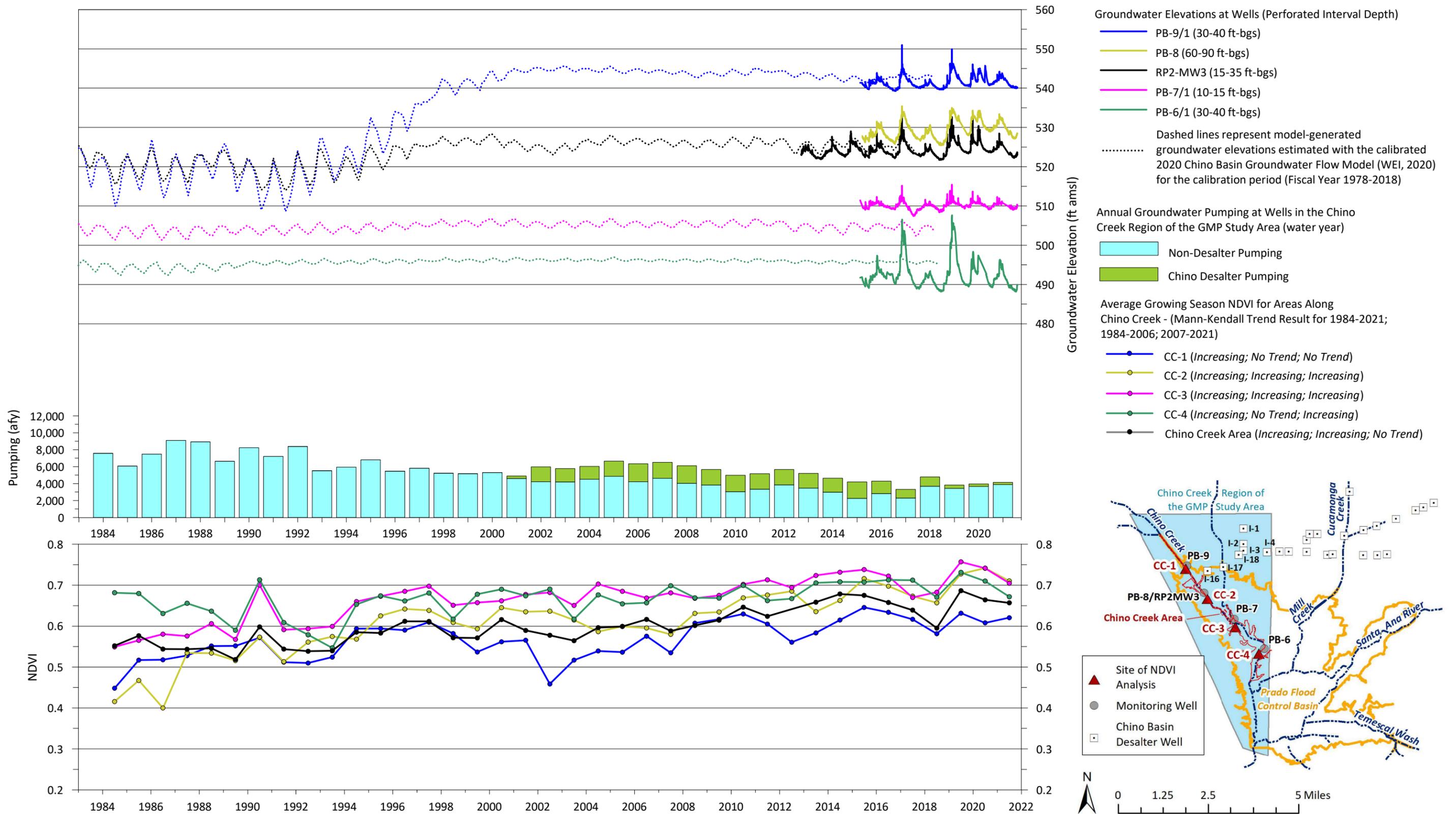
Santa Ana River (Figure 3-13c). During the 1990s, the groundwater levels along SAR increased in response to a decline in pumping from 1990 to 2000. These responses were greatest along the eastern portion of SAR where they increased up to five feet. Since 2000, groundwater levels have declined by a similar magnitude along the eastern portion of the SAR due to the onset and progressive increase in Chino Basin Desalter pumping at wells I-13, I-14, I-15, and II-1 through II-11 to the north of the SAR (see inset map on Figure 3-13c), while groundwater levels slightly increased along the western portion of the SAR near the

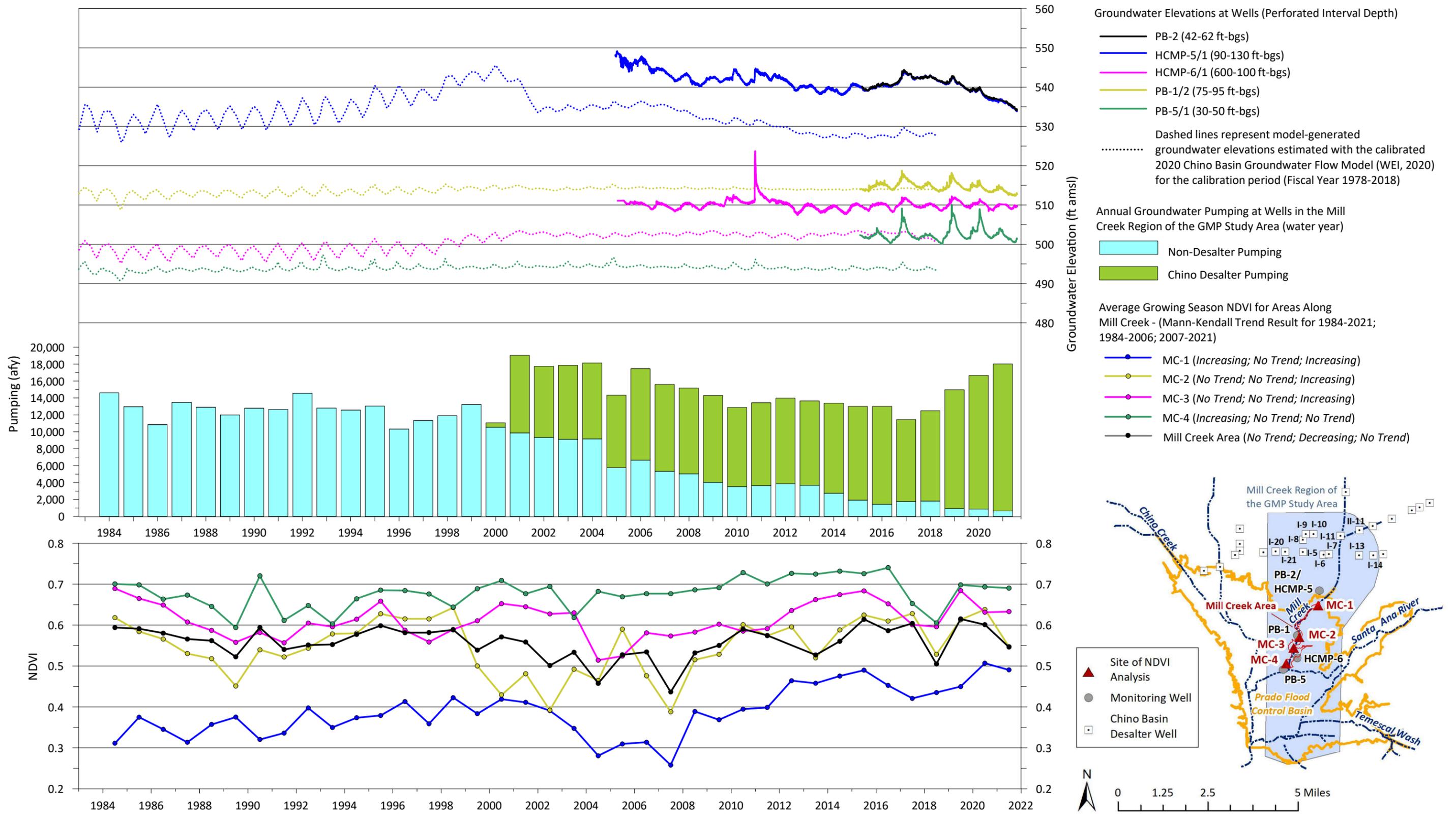


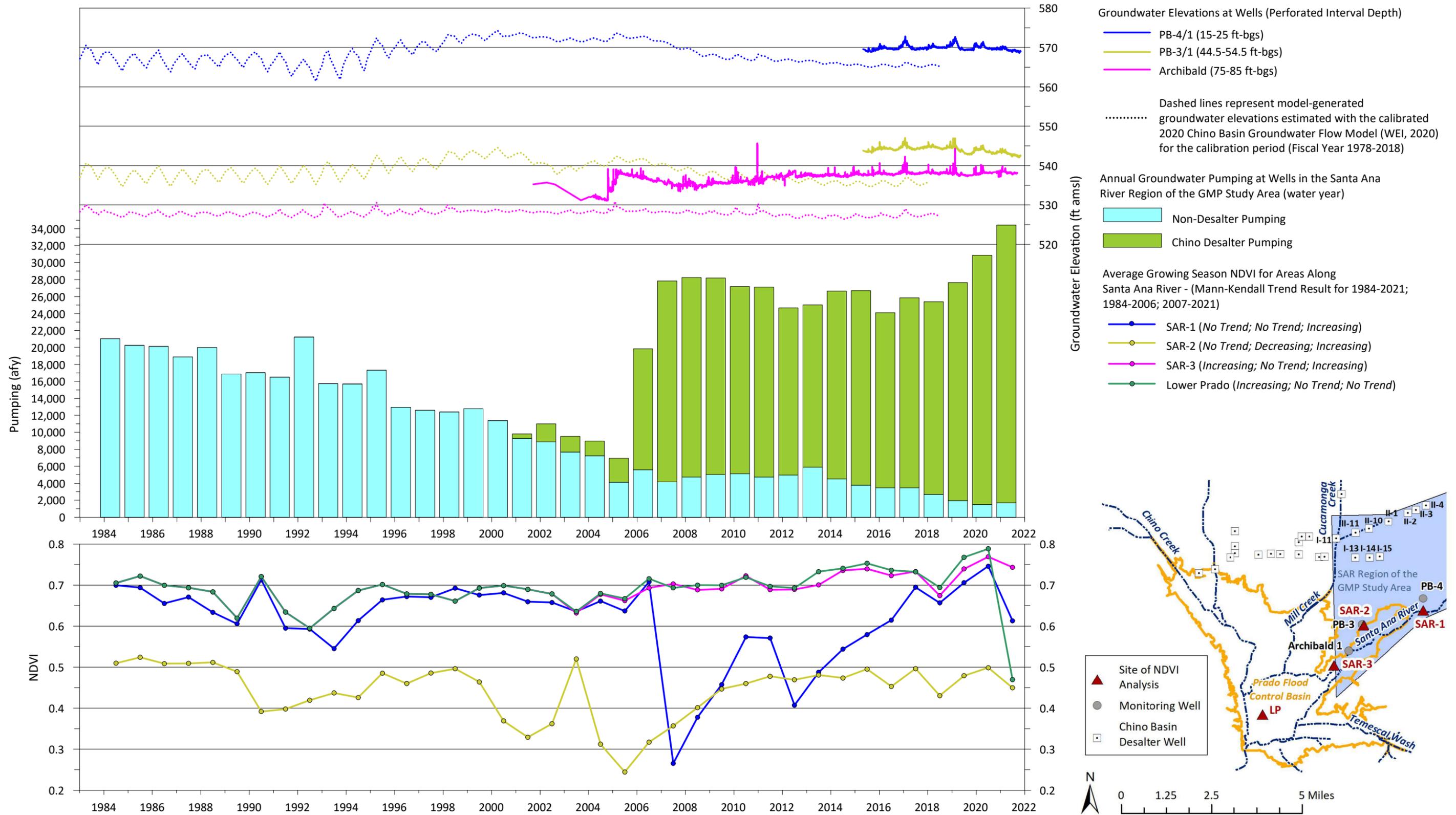
Archibald well. Since 2018, total pumping at these Chino Basin Desalter wells in the SAR area have progressively increased to a historically high volume, contributing to the increase in the total pumping observed in this area.

From 2015-2021, the measured groundwater levels at the PBHSP monitoring wells show a stable trend along the northeastern portion near PB-4, a slightly decreasing trend along the northern portion near PB-3, and a stable trend along the southwestern portion near the Archibald 1 well. The decreases in groundwater levels in the northern portion of the SAR area are likely due to the increase in pumping observed in this area. Groundwater levels fluctuate seasonally, in some cases by up to three feet under the seasonal stresses of pumping and recharge. During this past year, from September 2020 to September 2021, groundwater levels at the monitoring wells along the SAR slightly decreased by about 0.5 to 1 foot along the eastern and central portions (PB-4/1 and PB-3/1) and remained stable along the western portion (Archibald 1).

The Average Growing-Season NDVI and air photo analyses along the SAR show that changes in the vegetation were relatively minor for two of the four areas along the SAR (discussed in Section 3.1) during 2020-2021. The NDVI and air photos for the SAR-1 and LP areas show a notable decrease in the green vegetation from 2020 to 2021. As described in Section 3.1, the decrease in the vegetation at the SAR-1 area is due to clearing of the vegetation for bridge construction. The LP area is in the very southern portion of Prado Basin below the OCWD Wetlands, where groundwater levels remained stable from 2020-2021, therefore changes in groundwater levels are not the cause of the decrease in the green vegetation observed at the LP area. Hence, the main observations and conclusions for the period of 2020 to 2021 along the SAR, are that groundwater levels remained relatively stable and the riparian vegetation did not change significantly, except in the LP and SAR-1 areas, and the changes observed at LP and SAR-1 are not caused by changes in groundwater levels.







3.2.4 Summary

The following observations and interpretations were derived from the analysis of groundwater pumping, groundwater levels, and NDVI:

- From 1961 to 1990, groundwater pumping from private domestic and agricultural wells in the study area averaged about 45,900 afy. From 1991 to 1999, groundwater pumping steadily declined to about 23,600 afy primarily due to conversions from agricultural to urban land uses. In 2000, CDA pumping commenced to replace the declining agricultural production, and by 2018, groundwater pumping in the study area was about 37,000 afy. From WY 2019 to WY 2021, total groundwater pumping in the study area increased almost 10,000 afy to 46,700 afy due to increased CDA pumping.
- Since groundwater-level measurements commenced at the PBHSP monitoring wells in 2015, there have been some increasing and decreasing trends in groundwater levels observed along the reaches of Chino Creek, Mill Creek, and SAR. From September 2016 to September 2021, groundwater levels near the edges of the riparian habitat have changed up to +/- 5 feet. Groundwater levels have declined the most at the PB-2 monitoring well near the upper reach of Mill Creek, which was likely due to increased pumping at the Chino Basin Desalter wells to the north. Areas of minor declines in groundwater levels near the riparian habitat since 2015 include the central reach of Mill Creek, the very southern reach of Chino Creek, and the northeastern reach of the SAR.
- Over the past year from 2020 to 2021 groundwater levels generally remained stable or decreased in the Prado Basin near the riparian vegetation areas along the reaches of the SAR, Mill Creek and Chino Creek. From 2020 to 2021 groundwater levels declined the most at the northern portion of Mill Creek by up to 3 feet. Other areas of groundwater level declines from 2020 to 2021 are: the central and southern reaches of Mill Creek (up to 1 foot), the northern reach of Chino Creek (up to 2 feet), the southern reach of Chino Creek (up to 1 foot), and the eastern and central portions of the SAR (up to 1 foot). In Section 3.1, the analysis of air photos and NDVI for the riparian habitat areas in these areas of groundwater declines, indicate that the riparian vegetation did not change significantly over 2020-2021, except for the MC-2 area.
- The air photo of the MC-2 area shows a notable decrease in the green riparian vegetation from 2020-2021. The slight decline in groundwater levels of about 1 foot along the center portion of Mill Creek near MC-2 is within the historical range of variability in groundwater levels in this region and is therefore not the likely cause of the decreased greenness observed there in 2021. More information is needed to understand the cause of the decrease in greenness at the MC-2 site.

3.3 Analysis of Groundwater/Surface Water Interactions

One of the objectives of the PBHSP is to identify factors that contribute to the long-term sustainability of Prado Basin riparian habitat. The depth to groundwater analysis shown in Figure 3-12 indicates that the riparian vegetation exists in areas of shallow groundwater, where groundwater levels are typically 15 ft-bgs or less, and that the riparian vegetation is likely dependent, at least in part, upon the shallow groundwater.

The Annual Reports for WY 2017 and WY 2018 (Section 3.3) included a comprehensive analysis to understand the sources of the shallow groundwater in the Prado Basin and the groundwater/surface-water

interactions that may be important to the long-term sustainability of the riparian habitat (WEI, 2018; 2019). The analysis included using surface-water discharge and quality, groundwater quality, groundwater levels, and groundwater modeling as multiple lines of evidence to analyze the groundwater/surface water interactions at the nine PBHSP well locations—along the fringes of the riparian habitat and adjacent to Chino Creek, Mill Creek, and the SAR. In general, the analysis concluded that the SAR and northern portion of Mill Creek are losing reaches, characterized by streambed recharge. Most other areas along Chino and Mill Creeks are gaining reaches, characterized by groundwater discharge. That said, at most locations in the Prado Basin, there appear to be multiple and transient sources that feed the shallow groundwater, and the groundwater/surface-water interactions are complex. Additional monitoring is needed to better characterize the sources of shallow groundwater and groundwater/surface-water interactions. This additional monitoring began in 2018 as a pilot program, which included:

- High-frequency water-quality monitoring at two PBHSP monitoring well sites along Chino Creek: PB-7 and PB-8 (two wells at each site). Each monitoring well was equipped with data logger to measure and record EC, temperature, and water levels at a 15-minute frequency. The wells were visited quarterly to download data from the data loggers and measure water levels. Groundwater quality samples were collected quarterly (for two years) then semiannually (for one year) for laboratory analyses of TDS and general mineral chemistry to validate and support the high-frequency data.
- High-frequency water-quality monitoring at two surface-water sites along Chino Creek adjacent to the monitoring well sites. Each site was equipped with a data logger to measure and record EC, temperature, and stage at a 15-minute frequency. The surface-water sites were visited quarterly to download data from the data loggers. Groundwater quality samples were collected quarterly then semiannually for laboratory analyses of TDS and general mineral chemistry to validate and support the high-frequency data.

The data loggers were installed at the groundwater and surface-water sites in July 2018. Since installation there has been periodic disruptions of the data collected in the surface water data loggers: in late-2018, the data loggers were lost during large storm events; and the casing that house the data loggers experienced accumulation of mud which periodically compromised the accuracy of the collected data. These monitoring challenges have been resolved. The high-frequency data collected thus far has provided more support for the characterization of groundwater/surface water interactions at these locations and warrants the continuation of the pilot program to collect more data. More intervals of simultaneous high-frequency data of surface water and groundwater needs to be collected in order to draw defensible conclusions.

3.4 Climate and Its Relationship to the Riparian Habitat

Precipitation and temperature are climatic factors that can affect the extent and quality of riparian habitat. Precipitation can provide a source of water for consumptive use by the riparian vegetation via the direct infiltration of precipitation and runoff, which increases soil moisture that can be directly used by the vegetation, or by maintaining groundwater levels underlying the vegetation for its subsequent use. Temperatures affect the rate of plant growth and productivity. Both factors are unrelated to the implementation of the Peace II Agreement. This section characterizes the time series of precipitation and temperature in the Prado Basin area and compares that time series to trends in the quality of the riparian habitat, as indicated by NDVI, to help determine if these factors have influenced the riparian habitat in the Prado Basin.

3.4.1 Precipitation

Figure 3-14 is a time-series chart that shows annual precipitation estimates within the Chino Basin for WY 1896 to 2021. These estimates were computed as a spatial average across the Chino Basin using rasterized data from the PRISM Climatic Group (an 800-meter by 800-meter grid). The long-term average annual precipitation in the Chino Basin is 16.28 inches per year (in/yr). The chart includes a cumulative departure from mean (CDFM) precipitation curve, which characterizes the occurrence and magnitude of wet and dry periods: positive sloping segments (trending upward to the right) indicate wet periods, and negative sloping segments (trending downward to the right) indicate dry periods.

Review of the CDFM precipitation curve indicates that the Chino Basin experienced several prolonged wet and dry periods from WY 1896 to 2021. Typically, dry periods are longer in duration than wet periods. The longest dry period occurred between 1946 through 1977 (32 years). The current dry period is a 23-year period, starting in WY 1999, and includes the Peace/Peace II Agreement period (2001 through 2021). Over the 125-year record, about 40 percent of the years had precipitation greater than the average, and 60 percent had below average precipitation. In the 21-year period since the Peace Agreement was implemented, about 35 percent of the years had precipitation greater than the average, and 65 percent had below average precipitation. Precipitation in WY 2021 was 6.57 inches, which is below the long-term average and a notable decrease from 2020.

3.4.2 Temperature

Maximum and minimum temperatures during the growing season are the temperature metrics used in this analysis because plant growth and development are dependent upon the temperatures surrounding the plant (Hatfield and Prueger, 2015). Maximum temperatures during the growing season directly influence photosynthesis, evapotranspiration, and breaking of the dormancy of vegetation (Pettorelli, 2015). Minimum temperatures affect nighttime plant respiration rates and can potentially have an effect on plant growth that occurs during the day (Hatfield et. al, 2011). Hence, both temperature metrics can influence NDVI. All species of plants have a range of maximum and minimum temperatures necessary for growth (Hatfield and Prueger, 2015). Climate change is more likely to increase minimum temperatures while maximum temperatures are affected more by local conditions (Knowles et al., 2006; Alfaro et al., 2006).

Figure 3-15 is a time-series chart that shows the average maximum and minimum Prado Basin temperatures for the growing-season months of March through October from 1896 to 2021 (growing-season maximum and minimum temperatures). These temperature estimates were computed as a spatial average across the Prado Basin using rasterized data from the PRISM Climatic Group (an 800-meter by 800-meter grid) of monthly maximum and minimum temperature estimates. This chart also shows the five-year moving average of the growing-season maximum and minimum temperatures for the Prado Basin. The five-year moving average is a smoothing technique used to reveal trends over time.

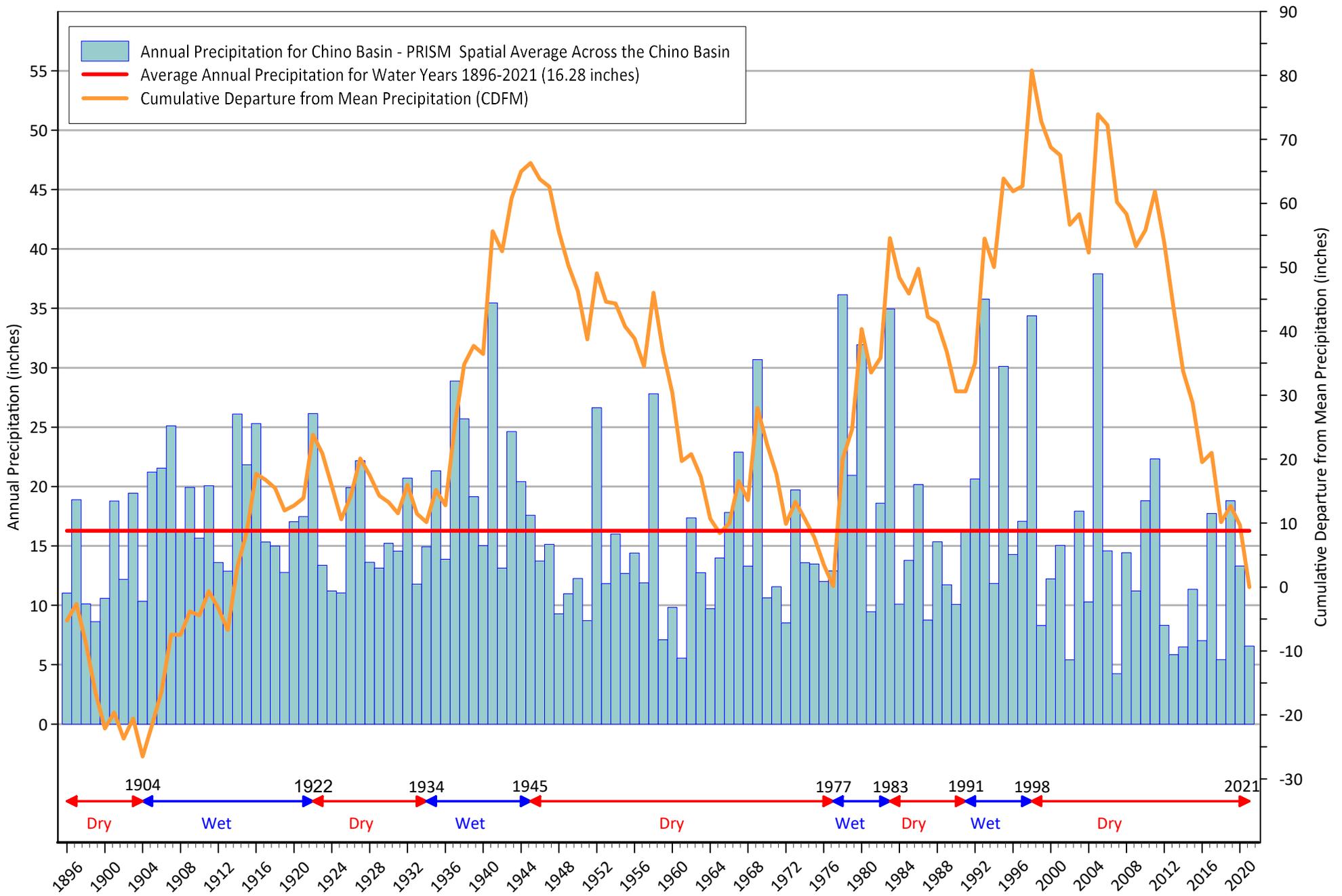
This chart also shows a complete record of atmospheric carbon dioxide (CO₂) concentrations assembled from multiple sources:

- Values prior to 1959 were estimated from an analysis of the Law Dome DE08 and DE08-2 ice cores in Antarctica. (Acquired from the Carbon Dioxide Information Analysis Center, <http://cdiac.ornl.gov/trends/co2/lawdome.html>. Accessed on June 6, 2017).
- Values after 1959 are from measured CO₂ concentration data at the Mauna Loa Observatory in Hawaii. (Acquired from the National Oceanic and Atmospheric Association's Earth Systems Research Laboratory, <https://www.esrl.noaa.gov/gmd/ccgg/trends/full.html>. Accessed on March 22, 2022).



The time history of atmospheric CO₂ concentrations shows a slight increasing trend from about 290 parts per million (ppm) in the late 1890s to about 310 ppm in 1950. After 1950, the CO₂ concentration shows an amplified increasing trend and exceeds 400 ppm by 2015.

From 1896 to 2021, the growing-season maximum temperature fluctuates between 80° F to 86° F and does not appear to have a prominent long-term increasing or decreasing trend. From 1896 to 2021, the growing-season minimum temperature fluctuates between 49° F to 59° F and has an increasing trend starting in 1950 of about five degrees Fahrenheit through 2021. This increasing trend in the growing-season minimum temperature beginning 1950 appears to correlate with the increase in atmospheric CO₂ concentrations. The five-year moving averages of both the growing-season minimum and maximum temperatures display an increasing trend over the recent six-year period of 2013-2018 and in 2018 had the highest calculated values over the entire period of record. In 2021, the growing-season minimum and maximum temperatures and the five-year moving averages all decreased from the previous period with the highest values historically.



Prepared by:



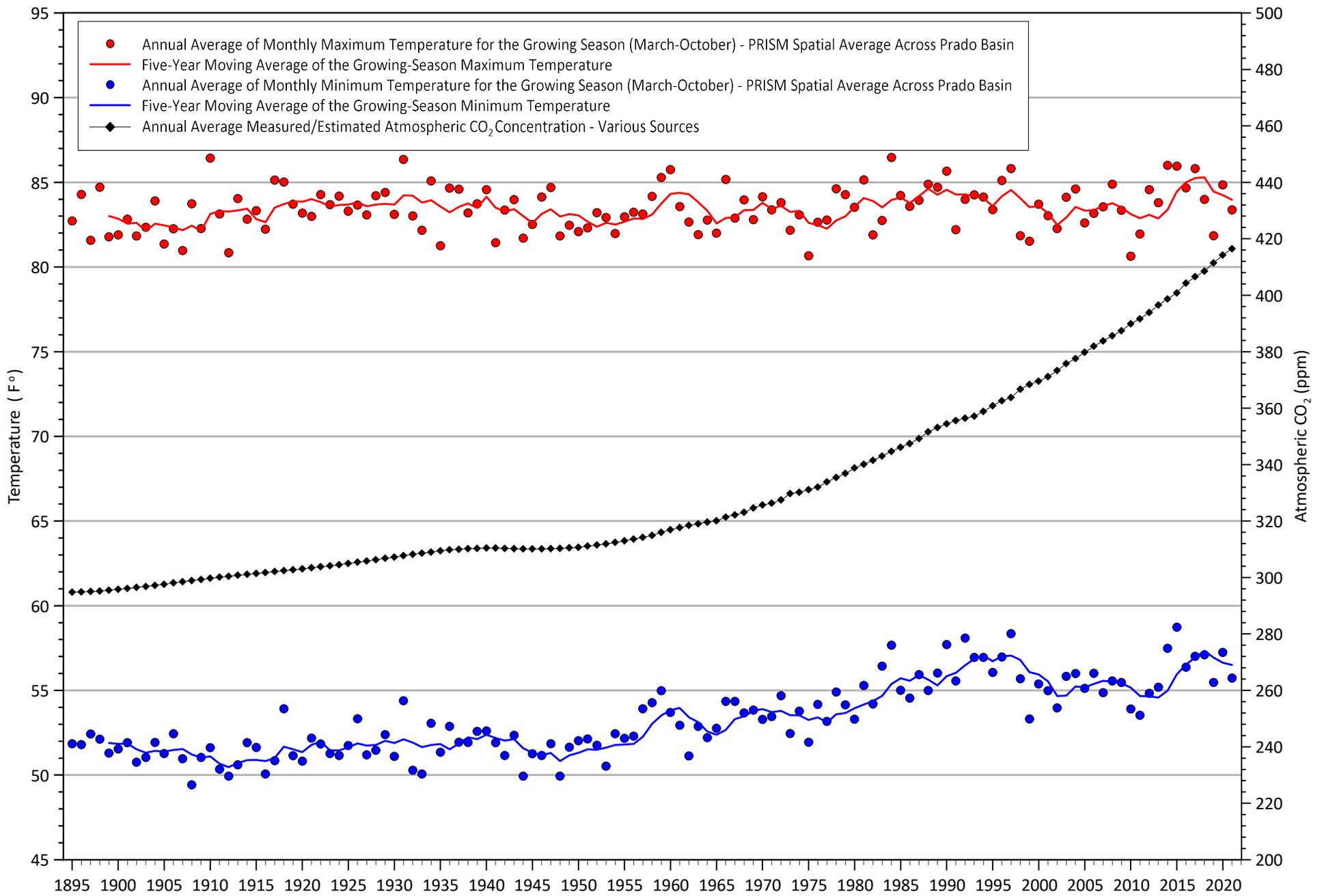
Prado Basin Habitat Sustainability Committee
2021 Annual Report
Page 167

Prepared for:



Annual Precipitation in the Chino Basin
Water Year 1986 - 2021

Figure 3-14



Prepared by:



Prado Basin Habitat Sustainability Committee
2021 Annual Report
Page 168

Prepared for:



**Maximum and Minimum Temperature in
Prado Basin
1895-2021
Figure 3-15**



3.4.3 Climate Compared to NDVI

Figures 3-16a through 3-16c are time-series charts that compare long-term trends in precipitation and temperature to trends in the quality of the riparian vegetation, as indicated by NDVI, for three areas in the Prado Basin: Chino Creek, Mill Creek, and the SAR. The period of analysis is 1984-2021—the period of NDVI availability. The upper chart on the figures displays the time series of annual precipitation in Chino Basin, the CDFM precipitation curve, and the five-year moving average for the growing-season maximum and minimum temperatures in the Prado Basin. The lower chart displays the time series of the Average Growing-Season NDVI for the defined areas discussed in Section 3.1 along Chino Creek, Mill Creek, and the SAR. For reference, the Mann-Kendall test results for trends in the Average Growing-Season NDVI for 1984-2021, 1984-2006, and 2007-2021 are shown in the legend.

The observations and interpretations below are focused on recent changes in Average Growing-Season NDVI during 2021 described in Section 3.1 and whether observed trends in temperature and precipitation may be contributing to recent increases in NDVI.

Chino Creek (Figure 3-16a). From 2020 to 2021, Average Growing-Season NDVI for the four areas along Chino Creek decreased at three areas and increased at one area. The Average Growing-Season NDVI for the whole Chino Creek area decreased from 2020 to 2021. For all these areas, the one-year changes in NDVI were relatively minor and within the historical ranges of one-year NDVI variability (see Table 3-2). These recent changes in NDVI occurred during a year of low precipitation of about 10 inches below the long-term average, and slightly lower minimum and maximum temperatures in the Prado Basin than what has occurred the seven prior years. The drier conditions are likely a contributing cause of the slight decreases in the NDVI along Chino Creek. Previous annual reports have observed similar trends with NDVI decreases throughout the Prado Basin in dry years (WEI, 2019). Hence, the main observations and conclusions for the 2020 to 2021 period are that there were very dry and slightly cooler conditions in 2021 and the riparian vegetation did not change significantly along Chino Creek.

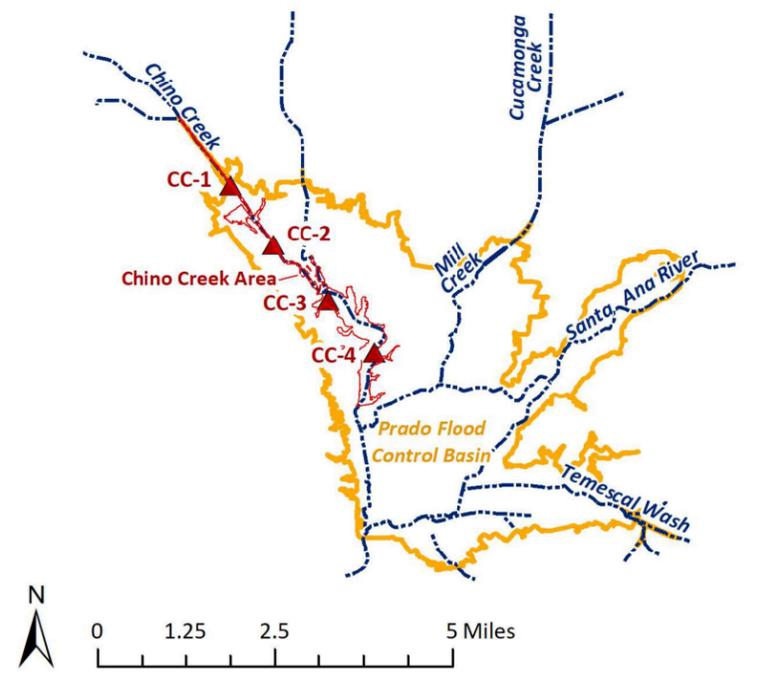
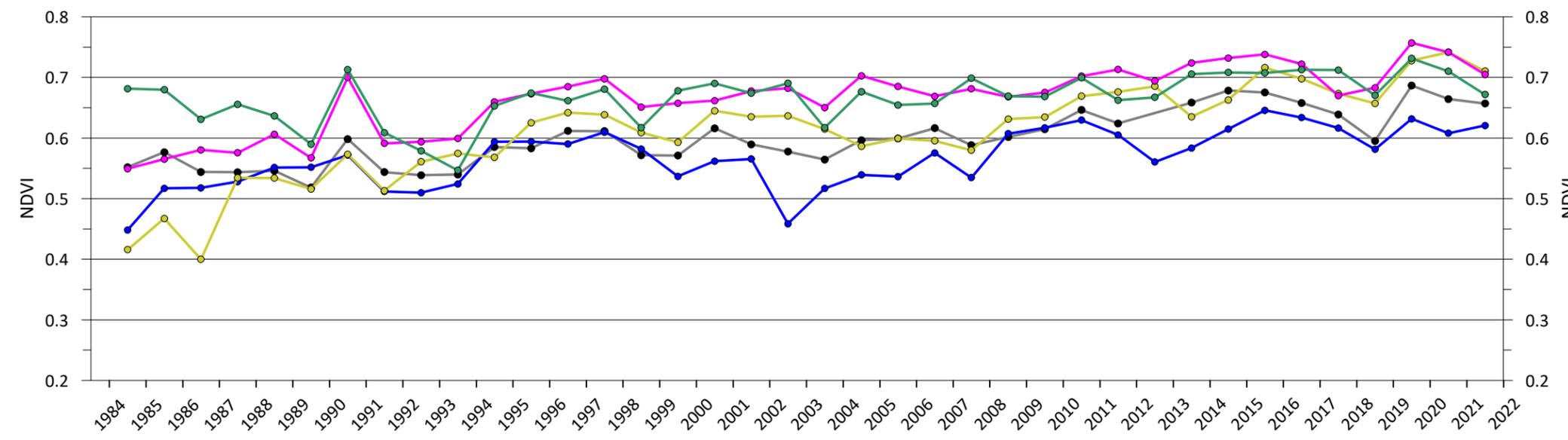
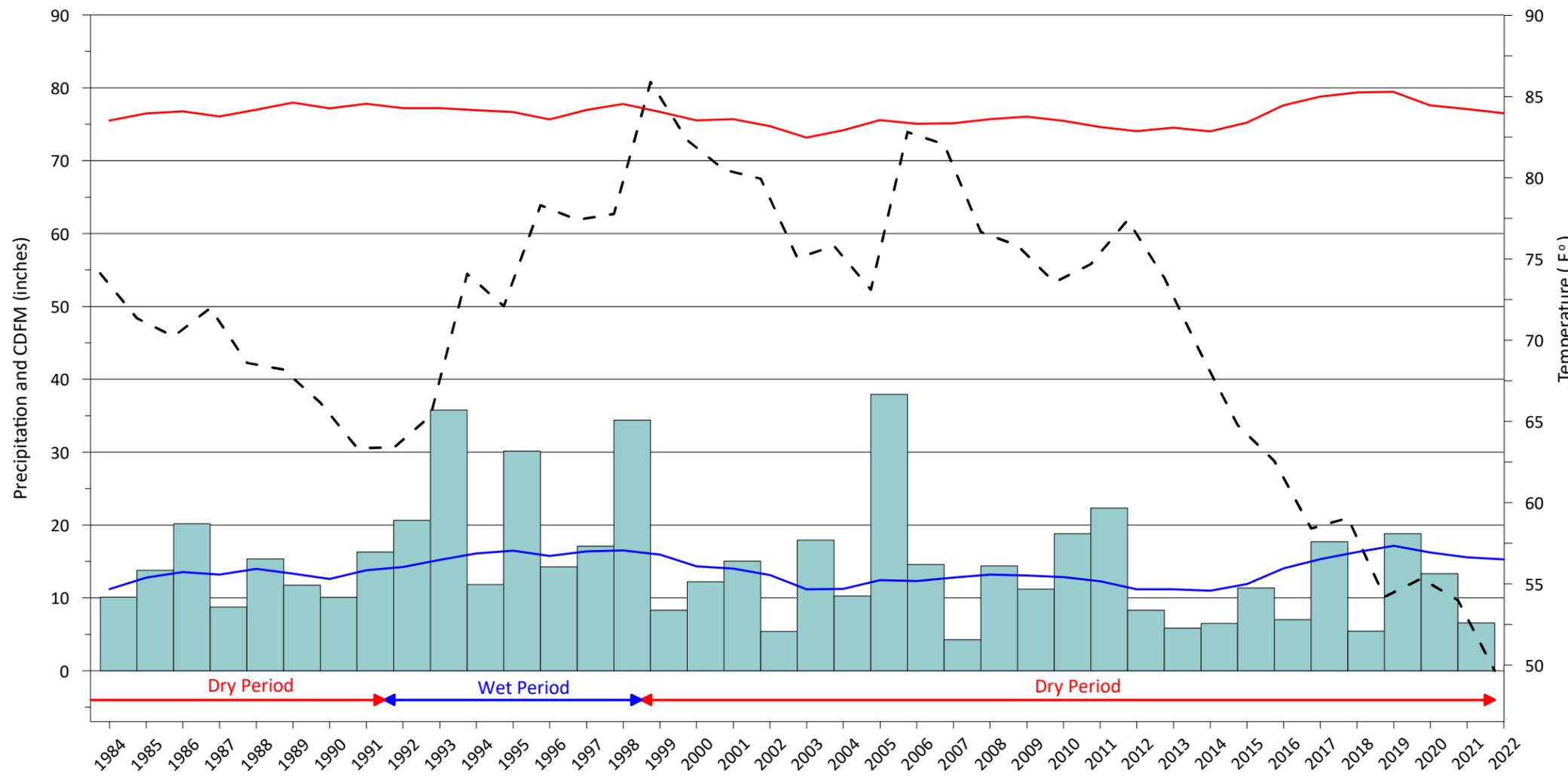
Mill Creek (Figure 3-16b). From 2020 to 2021, the Average Growing-Season NDVI of the four areas along Mill Creek: decreased at two areas and did not change at two areas. The Average Growing-Season NDVI for the whole Mill Creek area decreased from 2020 to 2021. At all the areas, the one-year NDVI changes are within their historical ranges of the one-year NDVI variability (see Table 3-2). However, the air photo for the MC-2 area shows a notable decrease in green vegetation. These recent changes in NDVI and vegetation occurred during a year of below-average precipitation and slightly lower minimum and maximum temperatures. The drier conditions are likely a contributing cause of the slight decreases in the NDVI observed along Mill Creek. Previous annual reports have observed similar trends with NDVI decreases throughout the Prado Basin in dry years (WEI, 2019). Hence, the main observations and conclusions for the 2020 to 2021 period are that there were slightly cooler and drier conditions and the riparian vegetation did not change significantly along Mill Creek, except in the area near MC-2. The decrease in the green vegetation observed at MC-2 is likely not caused by the drier and slightly cooler conditions during 2021 and is likely related to some other factor.

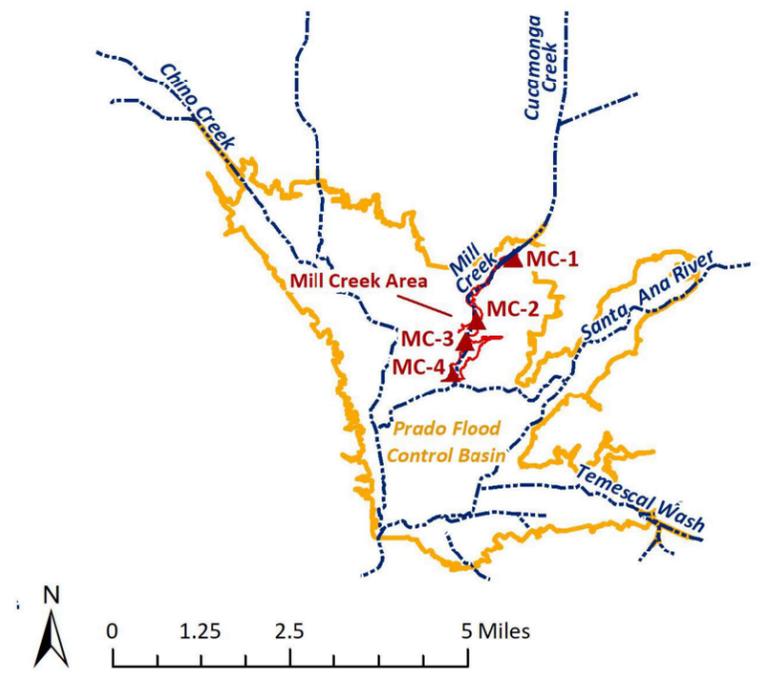
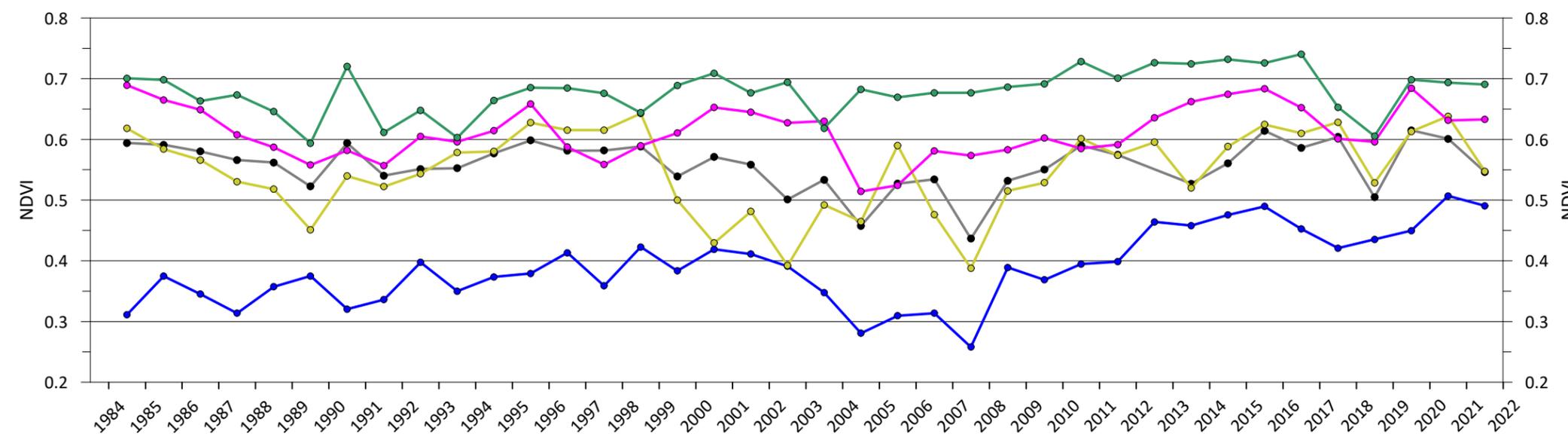
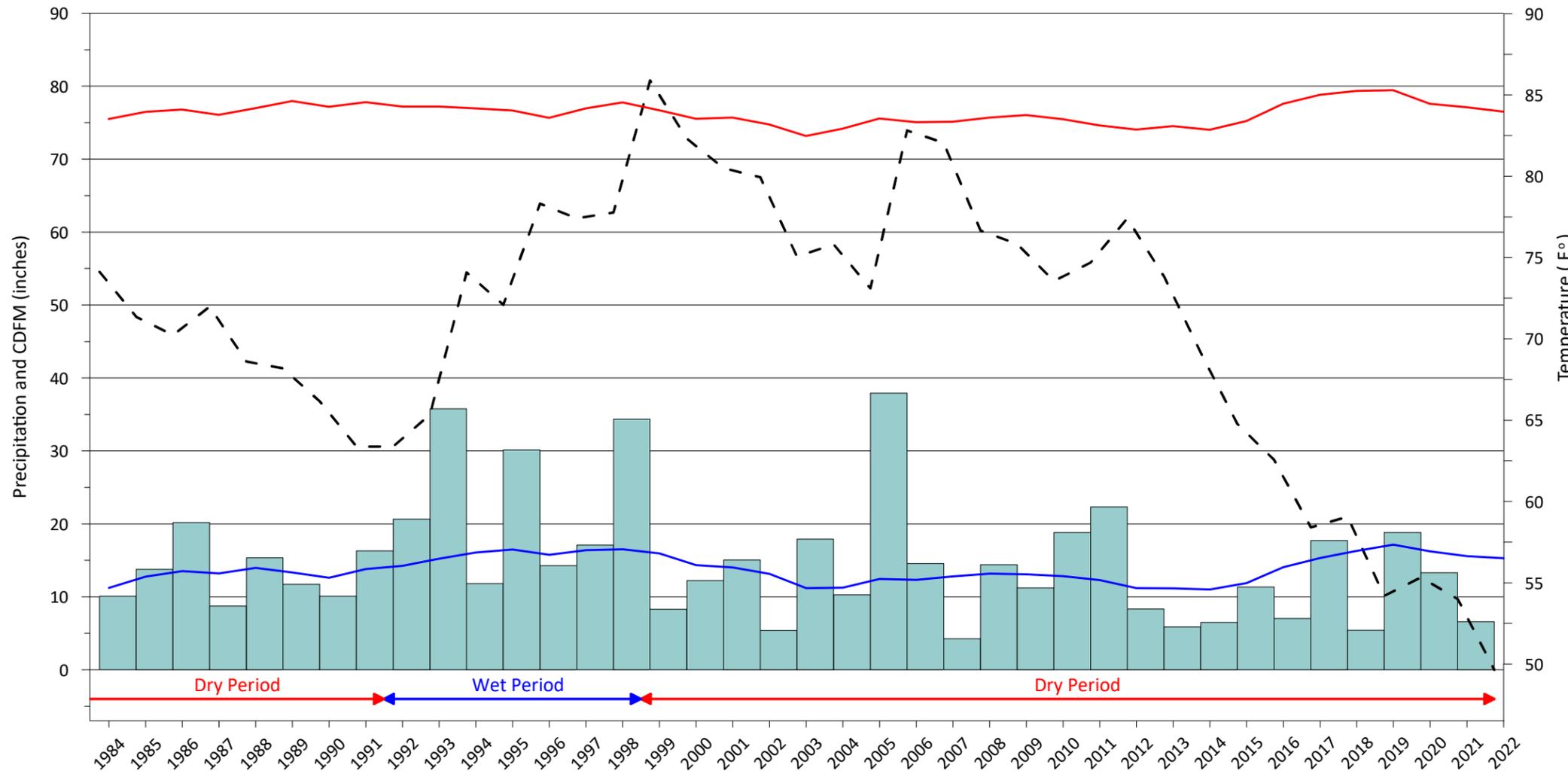
Santa Ana River (Figure 3-16c). From 2020 to 2021, the Average Growing-Season NDVI decreased at all four areas along the SAR. For two of these areas, the one-year NDVI changes were relatively minor and within the historical ranges of one-year NDVI variability (see Table 3-2). These changes occurred during a year of below-average precipitation and slightly lower minimum and maximum temperatures. The drier conditions are likely a contributing cause of the slight decreases in the NDVI observed along the SAR. Previous annual reports have observed similar trends with NDVI decreases throughout the Prado Basin in

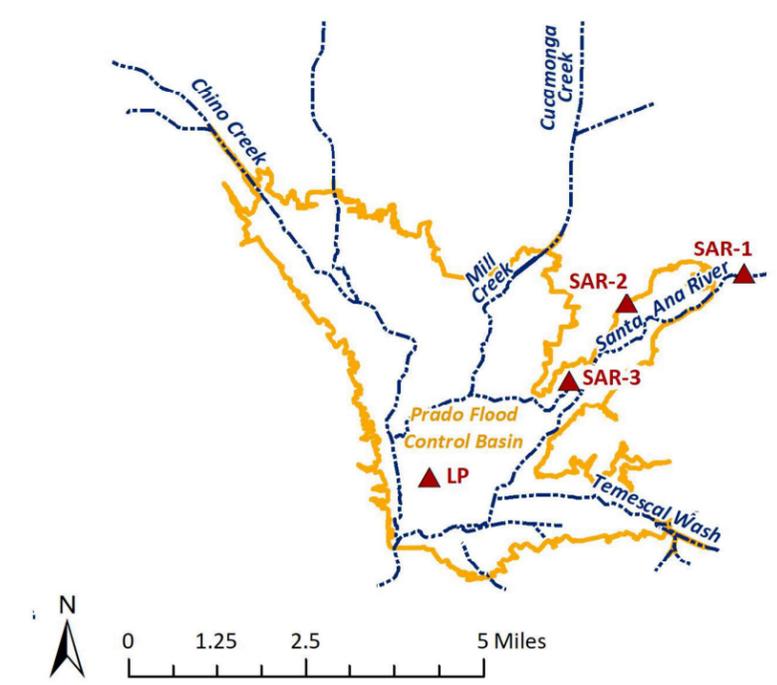
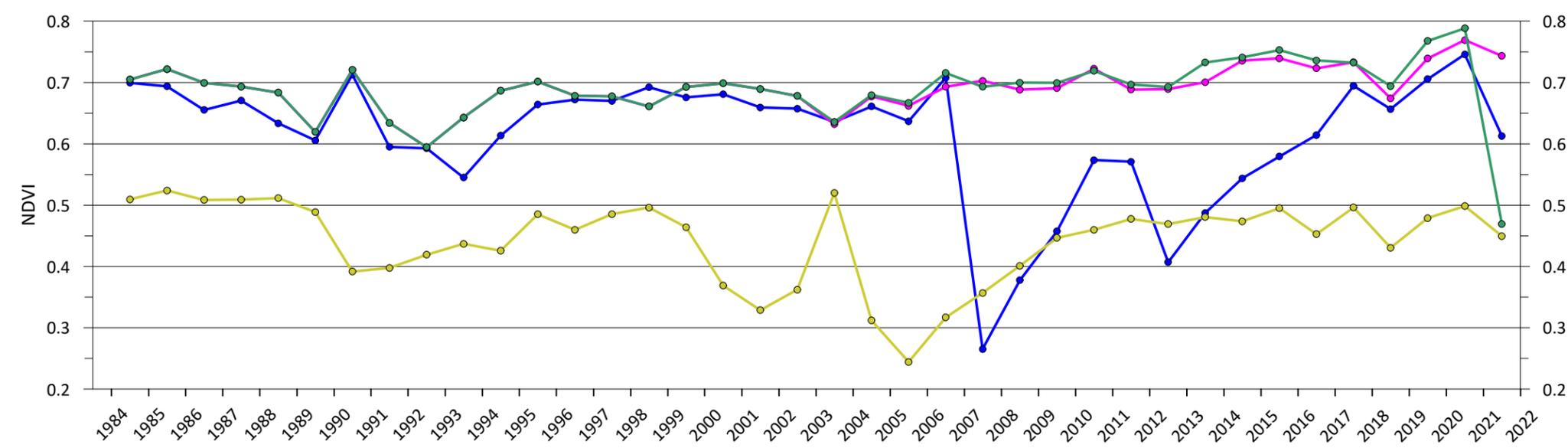
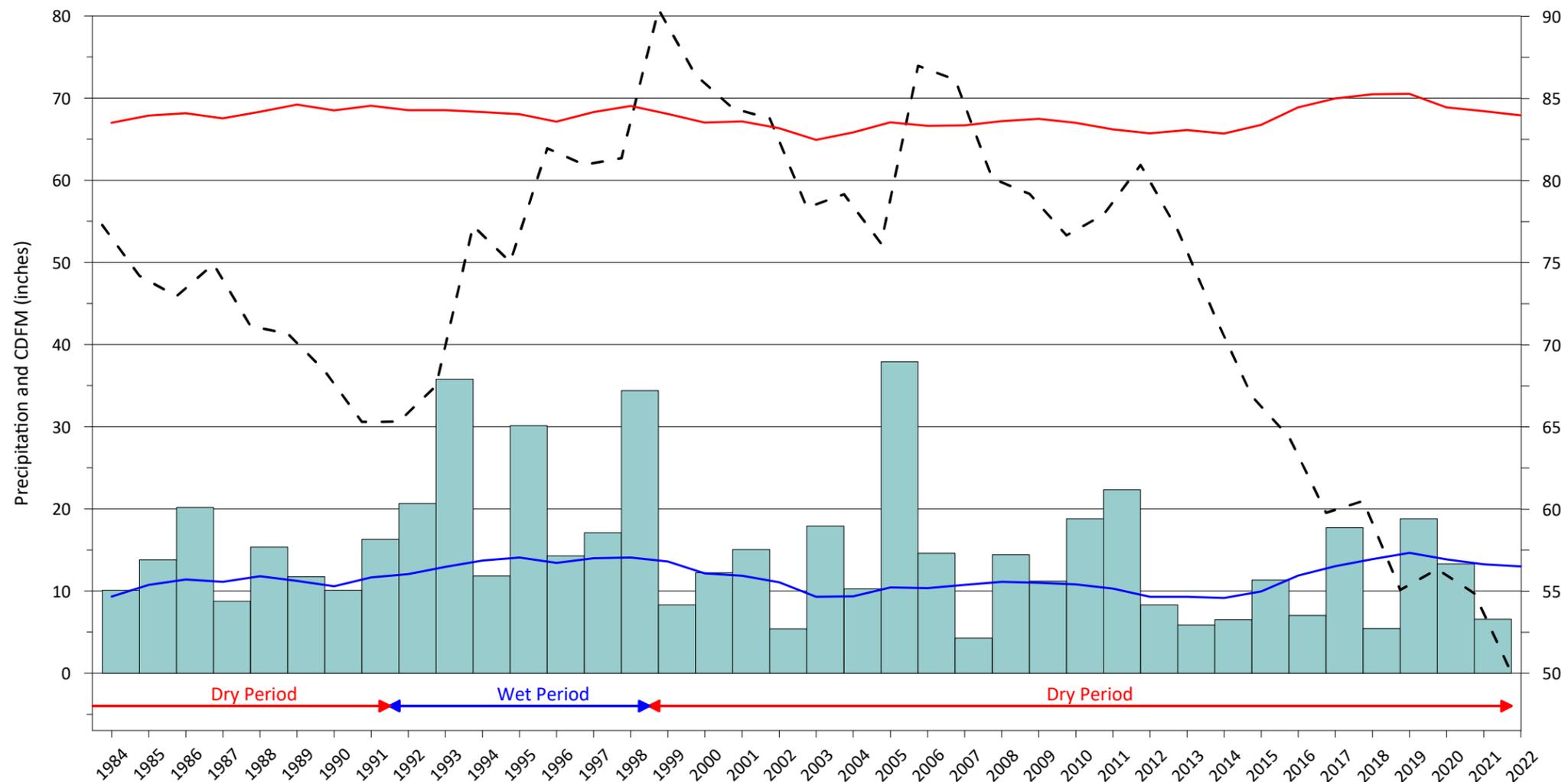
Annual Report of the Prado Basin Habitat Sustainability Committee – WY 2021



dry years (WEI, 2019). Hence, the main observations and conclusions for the 2020 to 2021 period are that there were slightly cooler and drier conditions and the riparian vegetation did not change significantly along the SAR, except in the LP and SAR-1 areas. The decreases in the green vegetation observed at the LP and SAR-1 areas are likely not caused by the drier and slightly cooler conditions during 2021 and are related to some other factor.









3.5 Stream Discharge and Its Relationship to the Riparian Habitat

Stream discharge in the SAR and its tributaries that flow through the Prado Basin is a factor that can affect the extent and quality of Prado Basin riparian habitat. Stream discharge can recharge the groundwater system along losing stream reaches and supply water through the groundwater system to riparian vegetation. Stream discharge is also important to fauna living within the stream system. Flooding events and flood-control/water-conservation operations at Prado Dam can scour and inundate areas of the riparian habitat and potentially cause adverse impacts.

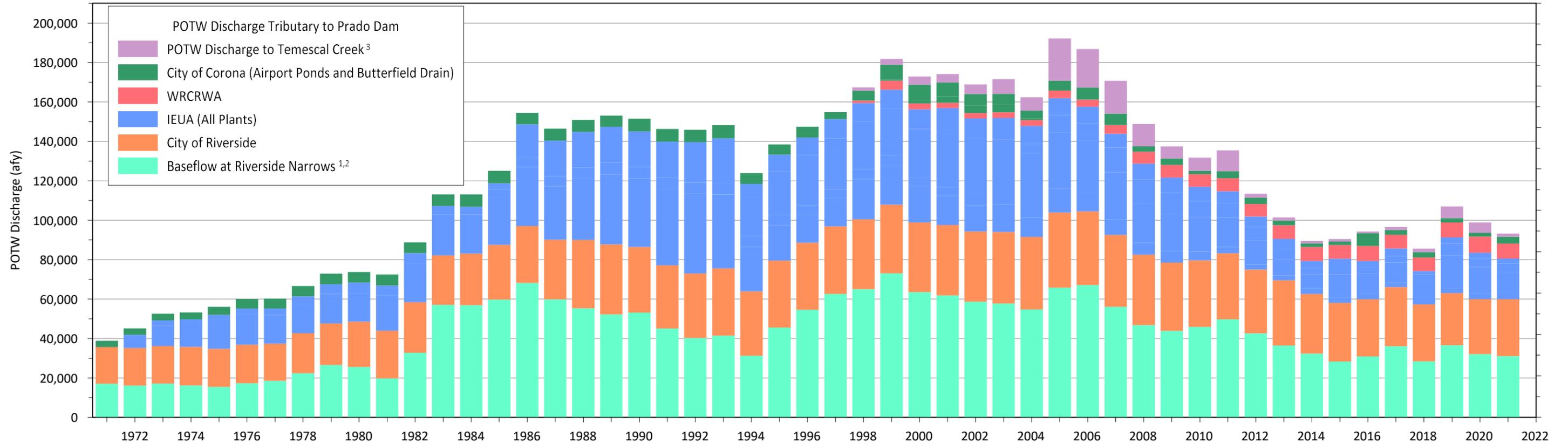
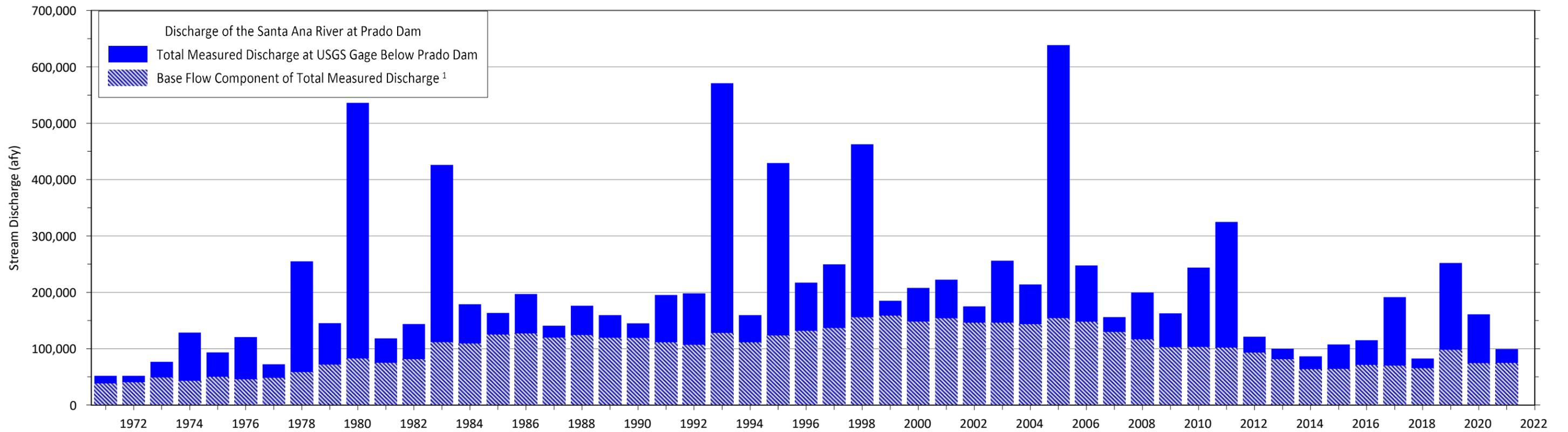
This section characterizes the time series of stream discharge within the Prado Basin and compares that time series to trends in the extent and quality of the riparian habitat, as indicated by NDVI, to help determine whether changes in stream discharge have influenced the riparian habitat in the Prado Basin.

3.5.1 Stream Discharge

There are three primary components of stream discharge in the SAR and its tributaries: storm discharge, non-tributary discharge, and base-flow discharge. Storm discharge is rainfall runoff. Non-tributary discharge typically originates from outside the watershed, such as imported water discharged from the OC-59 turnout on San Antonio Creek. Base-flow discharge, as used herein and by the Santa Ana River Watermaster (SARWM), includes tertiary-treated wastewater discharge from POTWs, rising groundwater, and dry-weather runoff. Figure 3-17 includes time-series charts that summarize important annual discharges within the upper SAR watershed that are tributary to Prado Dam from water years 1971 to 2021 (SARWM, 2022). The upper chart on Figure 3-17 characterizes the annual outflow from the Prado Basin as total measured SAR discharge at USGS gage *SAR at below Prado Dam*. The upper chart also shows the base-flow component of total measured discharge as estimated by the SARWM. This chart shows that base-flow discharge declined from about 154,000 afy in 2005 to an average of about 74,000 afy over the period 2012-2021. The decline in base-flow discharge is primarily related to declines in POTW effluent discharges that are tributary to Prado Basin. In WY 2021, the total discharge at below Prado Dam was below average and base-flow discharge was average, following a wet year in WY 2019 and 2020:

- **Total Discharge at below Prado Dam in WY 2021.** Total discharge in WY 2021 was about 99,200 af, which is about 36,100 afy less than the average total discharge over the previous nine years (2012 to 2020), and a 61,800 afy decrease from total discharge in WY 2020.
- **Base-Flow Discharge at below Prado Dam in WY 2021.** Base-flow discharge was about 74,500 afy, which is about 1,100 afy less than the average base-flow discharge over the previous nine years (2012 to 2020), and about 100 afy less than base-flow discharge in WY 2020.

The lower chart on Figure 3-17 shows the combined POTW discharges that are tributary, at least in part, to Prado Dam. The POTW discharges declined from about 192,000 afy in 2005 to an average of about 97,400 afy for the last nine years (2012-2020). This decrease is mostly attributed to decreases in effluent discharge from the IEUA and the POTWs that discharge to Temescal Creek. The post-2005 decrease in POTW effluent discharge was caused by increased recycled-water reuse, decreased water use due to the economic recession that began in 2008, and the implementation of emergency water-conservation measures during the recent drought since 2012. In WY 2021, POTW discharge was about 93,200 afy, which is about 4,200 afy less than the average POTW discharge over the previous nine years, and about 5,700 afy less than POTW discharge in WY 2020.



¹ Data are interpretations of the Santa Ana River Watermaster as published in their Annual Reports.

² Baseflow at Riverside Narrows includes POTW discharge from RIX and Rialto plants, rising groundwater, and dry weather runoff

³ Includes discharge from EVMWD, EMWD, and LLWD plants

Prepared by:



WEST YOST - K:\Clients\941 Chino Basin Watermaster\00-00-00 Master\PE1 - Data_Monitoring\GRAPHER\GRF\Prado\AnnualR\Figure 3-17_SW Discharge_Prado.grf - Ihdley - 5/3/2022

Prado Basin Habitat Sustainability Committee
2021 Annual Report

Prepared by:



Discharge Tributary to Prado Dam
Water Year 1960-2021



3.5.2 Stream Discharge Compared to NDVI

Figures 3-18a through 3-18c are time-series charts that compare long-term trends in stream discharge to trends in the quality of the riparian vegetation, as indicated by NDVI, for three areas in Prado Basin: Chino Creek, Mill Creek, and the SAR. The period of analysis for these charts is 1984-2021—the period of NDVI availability. The upper chart on the figures displays the annual volumes of measured discharge to each stream during the growing season (March-October), including: measurements at USGS gaging stations located upstream of the Prado Basin and POTW discharges.¹⁷ The lower chart displays the time series of the Average Growing-Season NDVI for defined areas, as discussed in Section 3.1, along Chino Creek, Mill Creek, and the SAR. For reference, the Mann-Kendall test results for trends in the Average Growing-Season NDVI for 1984-2021, 1984-2006, and 2007-2021 are shown in the legend.

The observations and interpretations below are focused on the recent (2021) changes in Average Growing-Season NDVI, as described in Section 3.1, and whether observed trends in surface-water discharge may be contributing to recent changes in NDVI.

Chino Creek (Figure 3-18a). Chino Creek is a concrete-lined, flood-control channel that transitions into an unlined stream channel at the Prado Basin boundary and flows south to merge with Mill Creek and the SAR behind Prado Dam (see Figure 2-3). The upper chart on Figure 3-18a shows discharge in Chino Creek during the growing season, including: measured discharge at USGS gage *Chino Creek at Schaefer* and the POTW discharges downstream of the USGS gage, including discharges from the IEUA Carbon Canyon, RP-2, RP-5, and RP-1 plants. Measured discharge at *Chino Creek at Schaefer* includes storm-water and dry-weather runoff in the concrete-lined channel upstream of the IEUA discharge locations and imported water discharge from the OC-59 turnout. Discharges not characterized in this figure are storm-water runoff, dry-weather runoff, and rising-groundwater discharge downstream of the *Chino Creek at Schaefer* gage. From 1984 to 2021, discharge in Chino Creek during the growing season progressively increased through 1999 and then decreased. The decreasing trend in growing-season discharge since about 1999 was caused by dry climatic conditions, water conservation in response to drought, and decreases in effluent discharge from the IEUA plants. During the recent eight-year period, from 2013 to 2020, growing-season discharge in Chino Creek averaged about 7,900 afy. In 2021, growing-season discharge was about 7,100 afy, which is about 900 af less than the average growing-season discharge over the last nine years, and about 1,900 af less than growing-season discharge in 2020. This decrease in growing-season discharge in Chino Creek during 2021 is mostly attributed to decreases in the storm-water/dry-weather runoff.

From 2020 to 2021, Average Growing-Season NDVI at the four areas along Chino Creek: decreased at three of the areas and increased at one area. The Average Growing-Season NDVI for the whole Chino Creek area decreased from 2020 to 2021. For all these areas, the one-year NDVI changes were relatively minor and within the historical ranges of one-year NDVI variability (see Table 3-2). These recent changes in NDVI occurred during a year of below-average discharge in Chino Creek. Hence, the main observations and conclusions for the 2021 period are that there were below-average discharge conditions in Chino Creek and the riparian vegetation did not change significantly along Chino Creek.

¹⁷ These charts do not describe other hydrologic processes that affect surface-water discharge within the Prado Basin, including evaporation, evapotranspiration, the infiltration of water along unlined stream segments, and rising groundwater discharge.



Mill Creek (Figure 3-18b). Cucamonga Creek is a concrete-lined flood-control channel and transitions into an unlined stream channel at the Prado Basin boundary, and at that point, its name changes to Mill Creek (see Figure 2-3). The upper chart on Figure 3-18b shows discharge in Mill Creek during the growing season, including: POTW effluent discharge from the IEUA RP-1 plant to Cucamonga Creek and measured discharge downstream at USGS gage *Cucamonga Creek near Mira Loma* (less the RP-1 discharge). The measured discharge at *Cucamonga Creek near Mira Loma* (less the RP-1 discharge) is representative of storm-water and dry-weather runoff in Cucamonga Creek upstream of this gaging station during the growing season. Discharges not characterized on this figure are storm-water runoff, dry-weather runoff, and rising-groundwater discharge downstream of the *Cucamonga Creek near Mira Loma* gage. Also not characterized on this figure is the volume of water diverted from Cucamonga Creek to the Mill Creek Wetlands just north of where Mill Creek begins (see inset map for location of Mill Creek Wetlands). During this next year, all the surface water diversion measurements to the Mill Creek Wetlands will be collected and used to better characterize the discharge in Mill Creek during the growing season. It is likely that the growing-season discharge in the northernmost region of Mill Creek will be about 50 percent less since the Mill Creek Wetlands began operating at full capacity.

From 1984 to 2021, growing-season discharge in Mill Creek progressively increased through 2004 and then decreased. The decreasing trend in growing-season discharge since about 2004 was caused by dry climatic conditions, water conservation in response to drought conditions after 2012, and the decrease in effluent discharge from the IEUA RP-1 plant. During the recent nine-year period from 2012 to 2021 growing-season discharge averaged about 8,800 afy. In 2021, the growing-season discharge was about 10,200 afy, which is about 1,600 af greater than the average growing-season discharge over the last eight years, and about 5,000 af less than growing-season discharge in 2020.

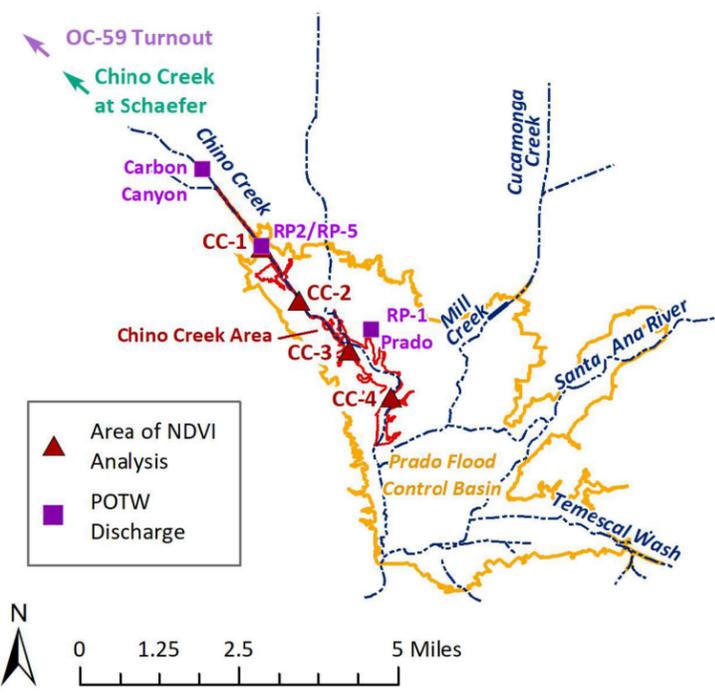
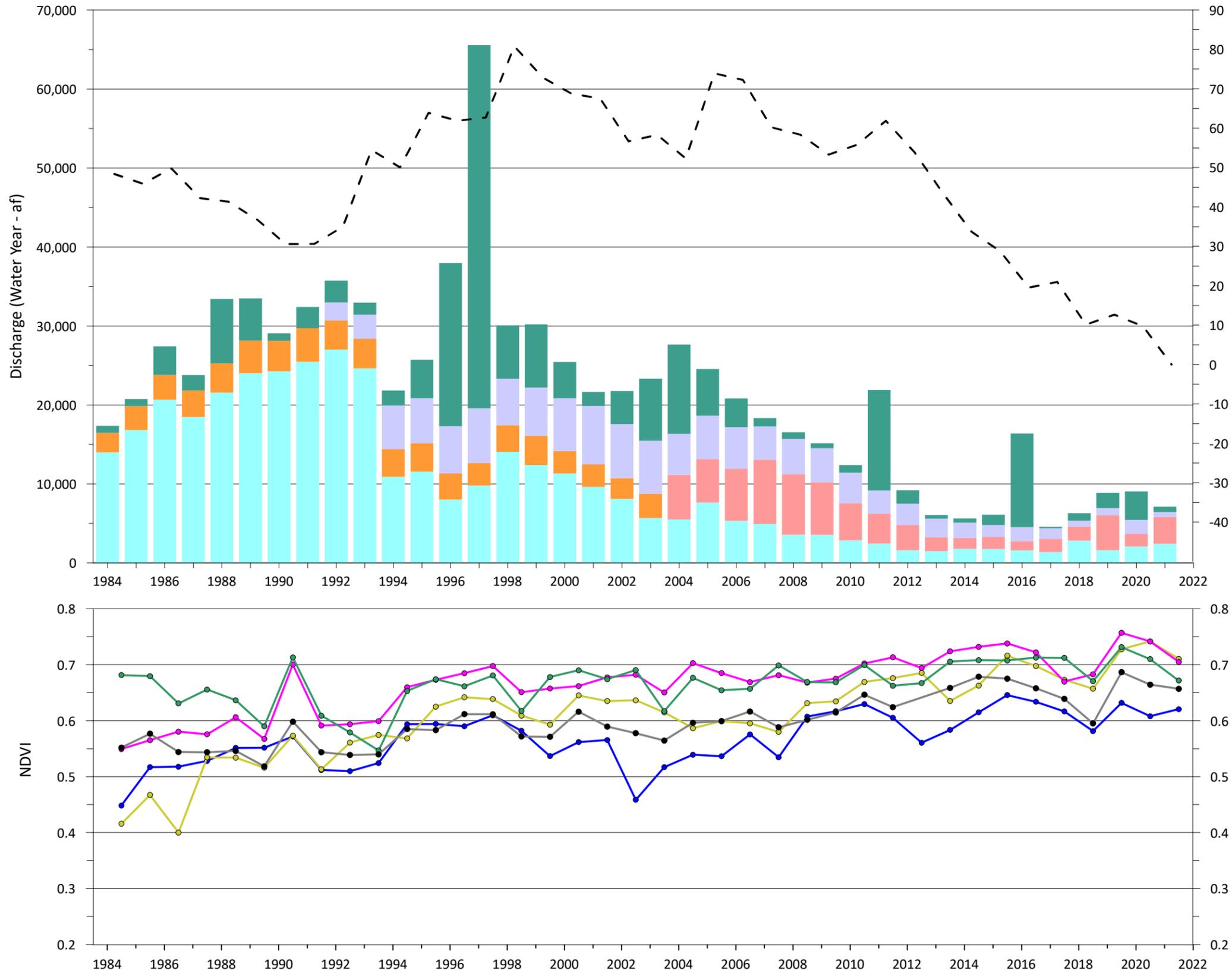
From 2020 to 2021, Average Growing-Season NDVI at the four areas along Mill Creek: decreased at three areas and remained the same at one area. The Average Growing-Season NDVI for the whole Mill Creek area decreased from 2020 to 2021. At all the areas, these recent changes in NDVI are within their historical ranges of the one-year NDVI variability (see Table 3-2). However, the air photos for the MC-2 area shows a notable decrease in green vegetation from 2020 to 2021. These recent changes in NDVI occurred during a year of above slightly above average discharge in Mill Creek, but much lower discharge conditions from the prior year. Hence, the main observations and conclusions for the 2021 period are that there were above average discharge conditions in Mill Creek and the riparian vegetation did not change significantly along Mill Creek, except in the area observed near MC-2. The decrease in NDVI and green vegetation observed at MC-2 is likely not caused by the average discharge conditions in Mill Creek during 2021 but is likely related to some other factor.

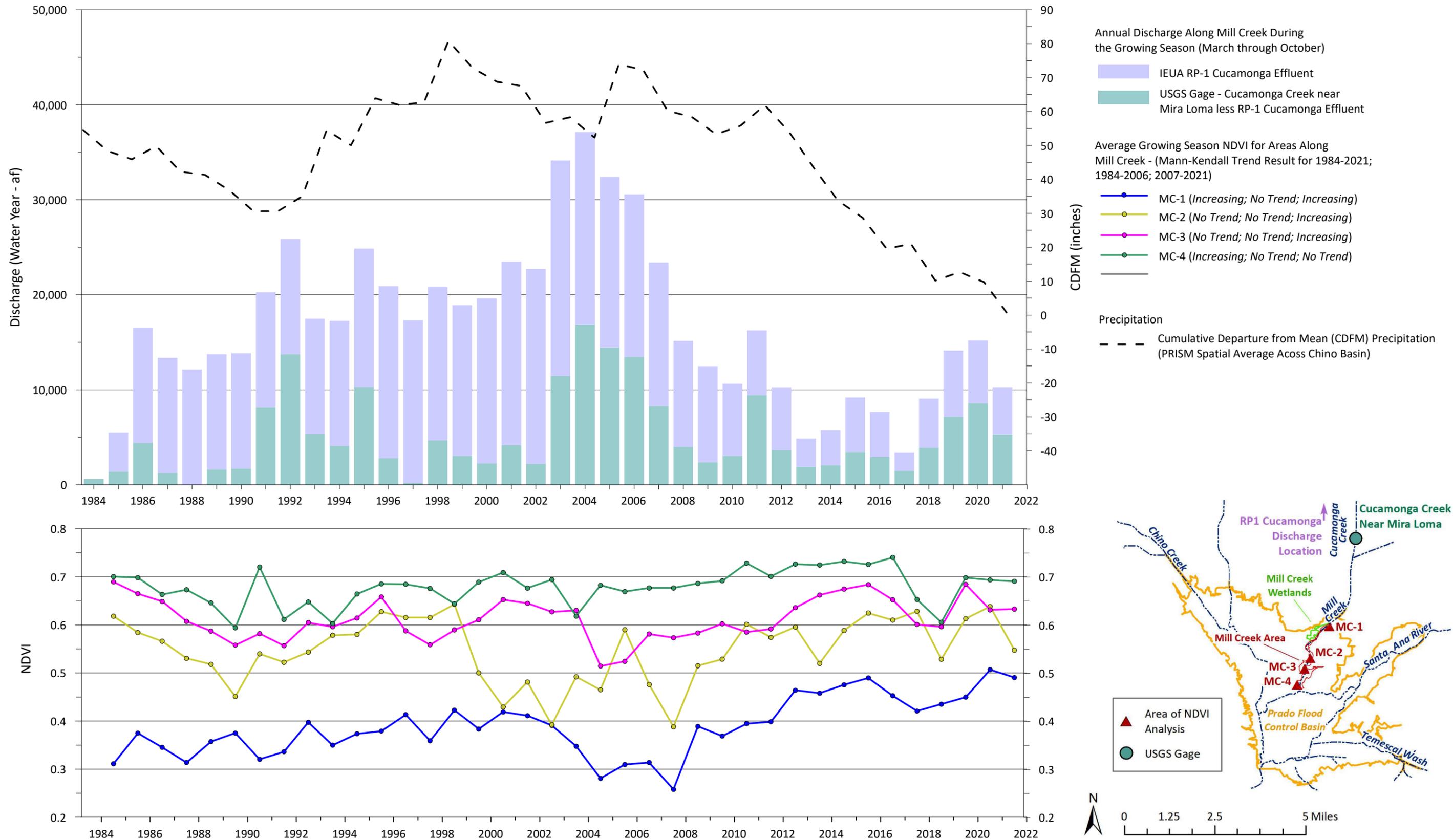
Santa Ana River (Figure 3-18c). The SAR is an unlined stream channel from the Riverside Narrows to Prado Dam—its entire reach across the Chino Basin (see Figure 2-3). The upper chart on Figure 3-18c shows the annual growing-season discharge at the USGS gage *Santa Ana River at MWD Crossing* (Riverside Narrows) and the annual growing-season discharges to the SAR downstream of the Riverside Narrows, including POTW effluent from the City of Riverside’s Regional Water Quality Control Plant and the Western Riverside County Regional Wastewater Authority (WRCRWA) plant that is conveyed in an unlined channel (along with a portion of SAR discharge) to the OCWD Wetlands. The measured discharge at the *Santa Ana River at MWD Crossing* gage represents storm-water runoff and base-flow discharge in the SAR upstream of the gaging station at the Riverside Narrows. The base-flow discharge includes POTW discharge from the RIX and Rialto treatment plants, dry-weather runoff, and rising groundwater. Discharges not characterized on this figure are storm-water runoff, dry-weather runoff, and rising-groundwater discharge downstream of the *Santa Ana River at MWD Crossing* gage.

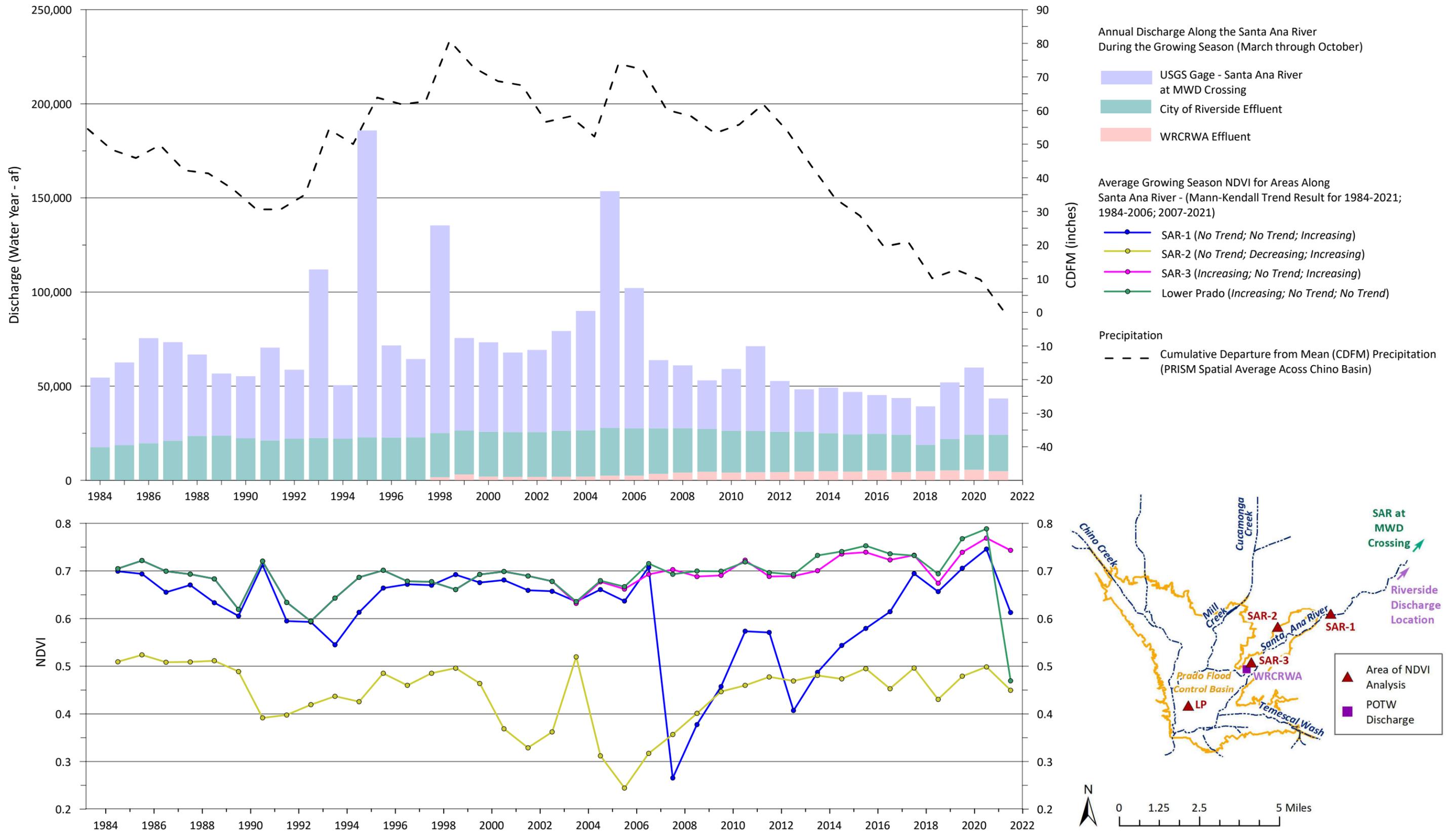


From 1984 to 2011, growing-season discharge in the SAR averaged about 78,100 afy with episodic increases in storm-water discharge during wet years. During the recent nine-year period, from 2012 to 2020, growing-season discharge in the SAR gradually declined and averaged about 48,600 afy. The decreasing trend in growing-season discharge was caused by dry climatic conditions, water conservation in response to drought, and decreasing base flow at the Riverside Narrows. In 2021, the growing-season discharge in the SAR was about 43,400 af, which is about 5,200 af less than the average growing-season discharge during 2012 to 2019, and about 16,500 af less than growing-season discharge in 2020.

From 2020 to 2021, the Average Growing-Season NDVI decreased at all four areas. For two of these areas (SAR-2 and SAR-3), the one-year NDVI changes were relatively minor and within the historical ranges of one-year NDVI variability (see Table 3-2). These changes occurred during a year of below-average discharge in the SAR. The lower discharge conditions are likely a contributing cause of the slight decreases in the NDVI observed along the SAR at SAR-2 and SAR-3. Hence, the main observations and conclusions for the 2020 to 2021 period are that there were lower discharge conditions in the SAR and the riparian vegetation did not change significantly along the SAR, except in the LP and SAR-1 areas. The notable decreases in the green vegetation observed at the LP and SAR-1 areas are likely not caused by the lower discharge conditions during 2021 and are related to some other factor/s.







3.6 Other Factors and Their Relationships to Riparian Habitat

Other factors that can affect the extent and quality of riparian habitat in the Prado Basin analyzed in this Annual Report include wildfire, pests, and Arundo management. These factors are unrelated to Peace II Agreement implementation.

This section characterizes what is known about these factors and compares them to trends in the extent and quality of the riparian habitat to determine their impacts, as characterized by the NDVI.

3.6.1 Wildfire

Available wildfire perimeter data from the FRAP database¹⁸ were compiled within the Prado Basin extent for the period of 1950-2020.¹⁹ The FRAP database shows that wildfires occurred in the Prado Basin in 1985, 1989, 2007, 2015, 2018, and 2020. Figure 3-19a shows the spatial extent of these wildfires, mapped over the 2021 air photo. The most recent wildfire was along the southern portion of the Prado Basin in December 2020. Most of the area impacted by the 2020 wildfire is still identifiable in the air photo by areas of brownish land cover that lack green vegetation. There are still large portions within the 2018 wildfire along the Chino Creek that are areas of brownish land cover with no green vegetation, indicating that this area is still has impacts to the vegetation from the fire. The small LP area, where the recent one-year decline in the Average Growing Season NDVI exceeds the magnitude of any historical one-year change in this area (see Section 3.1), is within the area of the 2020 wildfire. Hence, the most recent wildfire in 2020 is the cause of the decrease in greenness at the LP area in the lower Prado Basin.

Figure 3-19b shows spatial extent of the most recent wildfires in 2015, 2018, and 2020, overlying a side-by-side of the change map of NDVI from 2020 to 2021 and the 2021 air photo for the area along the SAR and lower Prado Basin. The location of these wildfires in 2015, 2018 and 2020 align with the notable areas of NDVI decrease shown on the NDVI change map, the areas of brown land cover in the air photo along the southern Chino Creek and the lower Prado Basin.

Figures 3-20a through 3-20c are time-series charts that explore the relationship between other factors that can impact riparian vegetation and NDVI for three reaches in the Prado Basin: Chino Creek, Mill Creek, and the SAR. The figures show the Average Growing-Season NDVI for 14 defined areas of riparian habitat discussed in Section 3.1 and shown in Figures 3-6, 3-7, and 3-8a through 3-8l. Wildfire occurrences, annotated by date, are shown on the charts if their extent intersects with the extent of the defined area of NDVI analysis. The most recent wildfire in 2020 burned a large portion of the southern region of Prado Basin. The LP area that is within the 2020 wildfire shows a decrease in the Average Growing-Season NDVI of 0.32 following the wildfire. There are other notable declines in the NDVI for some of the defined areas impacted by the 1985, 2007 and 2018 wildfires. And the NDVI time series for the entire vegetation extent in Figure 3-5 shows declines after the recent 2020 fire, and also after the 2018 and 2015 fires which have been described in previous annual reports.

¹⁸ [Link](#) (Website for California Department of Forestry and Fire Protection’s Fire and Resource Assessment Program).

¹⁹ Data is updated in late April for the previous year; 2021 data were not available for this annual report.



3.6.2 Arundo Removal

The OCWD and SAWA²⁰ are the main entities that implement habitat restoration programs, including the removal and management of Arundo in the SAR watershed for the promotion of native habitat for endangered or threatened species. The OCWD and SAWA sometimes work collaboratively with each other on these programs and with other stakeholders in the watershed, such as the USFWS, California Department of Fish and Wildlife (CDFW), ACOE, Regional Board, Counties of Riverside and San Bernardino, and several cities. There are many ongoing programs throughout the Prado Basin for the management and maintenance of riparian habitat that include the management of Arundo. SAWA publishes an annual report on the status of all habitat restoration projects they are involved with in the watershed (SAWA, 2020). Figure 3-21a shows the locations of known areas where habitat restoration activities have occurred recently in the Prado Basin, including the management and removal of Arundo. The current known habitat restoration activities include the area of the 2015 wildfire in the lower Prado Basin area, where the OCWD is controlling the regrowth of Arundo following the 2015 fire, and various patches along the SAR and lower Prado Basin area, where SAWA is leading efforts to remove Arundo between 2019 and 2021. These areas and activities are not inclusive of all activities currently occurring in the Prado Basin but are the known locations identified for the PBHSP where there are current Arundo management activities and notable impacts to vegetation in the PBHSP.

In 2021, there are no identified areas of Arundo removal within the 14 defined areas analyzed in Section 3.1 and shown in Figures 3-6, 3-7, and 3-8a through 3-8l. All of the Arundo removal areas from 2019-2021 are along the SAR and the lower Prado Basin area below the OCWD Wetlands. Figure 3-21b shows spatial extent of the recent Arundo removal and management areas between 2019 to 2021, overlying a side-by-side of the change map of NDVI from 2020 to 2021, and the 2021 air photo for the area along the SAR and lower Prado Basin. The location of these recent Arundo removal and managed areas align with the notable areas of NDVI decrease shown on the NDVI change map and areas of brown land cover in the air photo along the southern Chino Creek and the lower Prado Basin.

3.6.3 Polyphagous Shot Hole Borer

PSHB, from the group known as ambrosia beetles, is a relatively new pest in Southern California. PSHB burrows into trees and introduces fungi that assists in establishing colonies. Infection caused by the fungi can cause a dark stain surrounding the entry holes, discolored bark, leaf discoloration and wilting, and die off of entire branches or trees.

In spring 2016, OCWD biologists observed die off of riparian trees in patches throughout the Prado Basin, especially arroyo and black willows, and confirmed that the cause was from PSHB (ACOE and OCWD, 2017; OCWD 2020). Although PSHB arrived prior to 2016, this was the first notable die off in the Prado Basin. Since 2016, OCWD biologists have noted that the presence of PSHB is widespread throughout the Prado Basin and has reduced tree canopy cover, but tree mortality has remained confined to small local patches (Zemba, R., personal communication, 2018). OCWD biologists observed that the affected trees that had not died were showing signs of severe infestation, exhibiting branch failure, significant staining, and crown sprouting after the upper branches had died back. (ACOE and OCWD, 2017). In infected trees, crown sprouting allows some of the trees to persist, but the PSHB have been observed to attack the recently

²⁰ SAWA is a non-profit agency with a five-member board, consisting of one member from the OCWD and the remaining from four resource conservation districts (RCDs) in the watershed, including the Riverside-Corona RCD, Temecula-Elsinore-Anza RCD, San Jacinto RCD, and Inland Empire RCD.



emerged limbs once they grow to two to three inches in diameter, causing the sprouting to be temporary. The die back and crown sprouting has resulted in a reduction of canopy in many areas (OCWD, 2020). Canopy loss in heavily infested areas may allow faster-growing invasive non-native species to colonize and out-compete native trees and shrubs in the understory (OCWD, 2020).

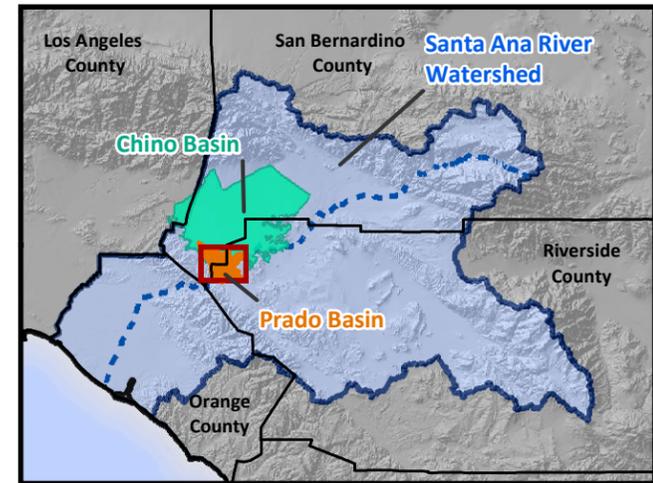
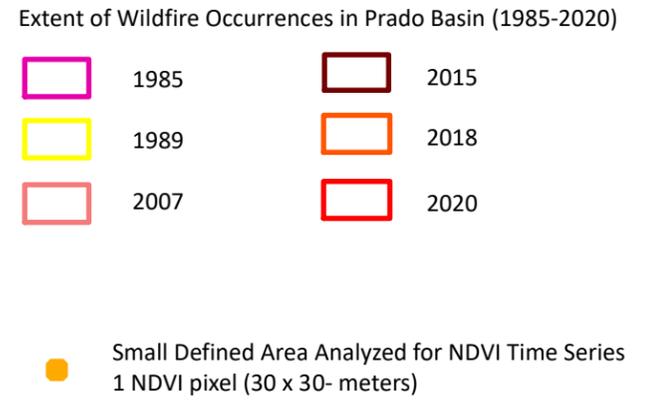
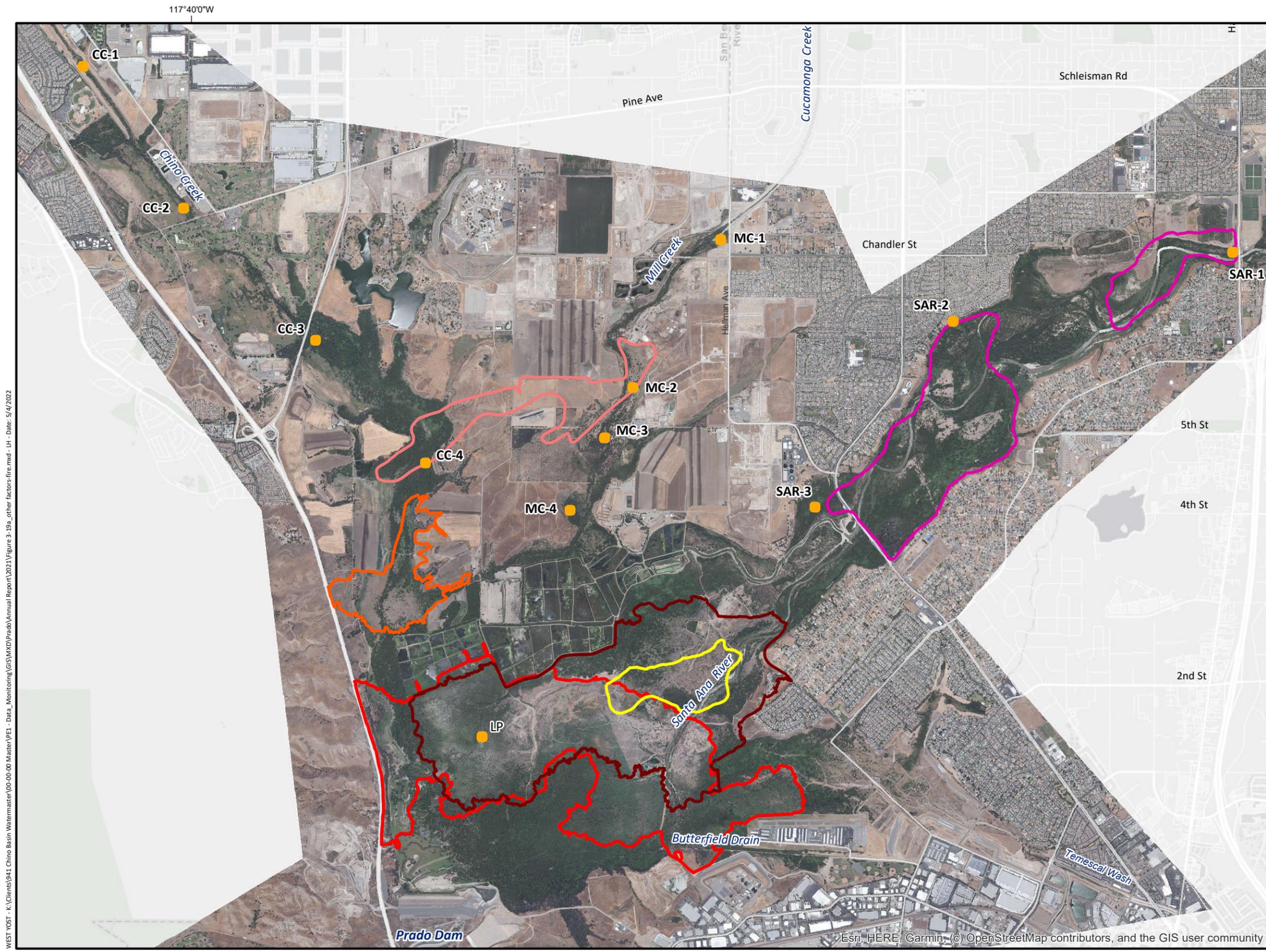
In 2016 and 2017, OCWD biologists in the Prado Basin worked with the University of California, Riverside, the USFWS, and SAWA to actively monitor the occurrence and impact of PSHB within Prado Basin riparian habitat. These agencies conducted studies on how to potentially protect certain areas of the Prado Basin from PSHB using attractants and deterrents; however, there were too many trees to effectively protect the entire forest (Zemba, R., personal communication, 2018). Traps were placed throughout the lower portion of Prado Basin and along the SAR by the OCWD and SAWA. The total number of PBHB beetles trapped at each location between August 2016 and April 2017 ranged from seven to 2,092.

Figure 3-21a shows the locations where the presence of PSHB has been documented within the Prado Basin from 2016 to 2019 by: PSHB traps deployed by the OCWD and SAWA between August 2016 and April 2017; and the USBR vegetation surveys performed in 2016 and 2019.

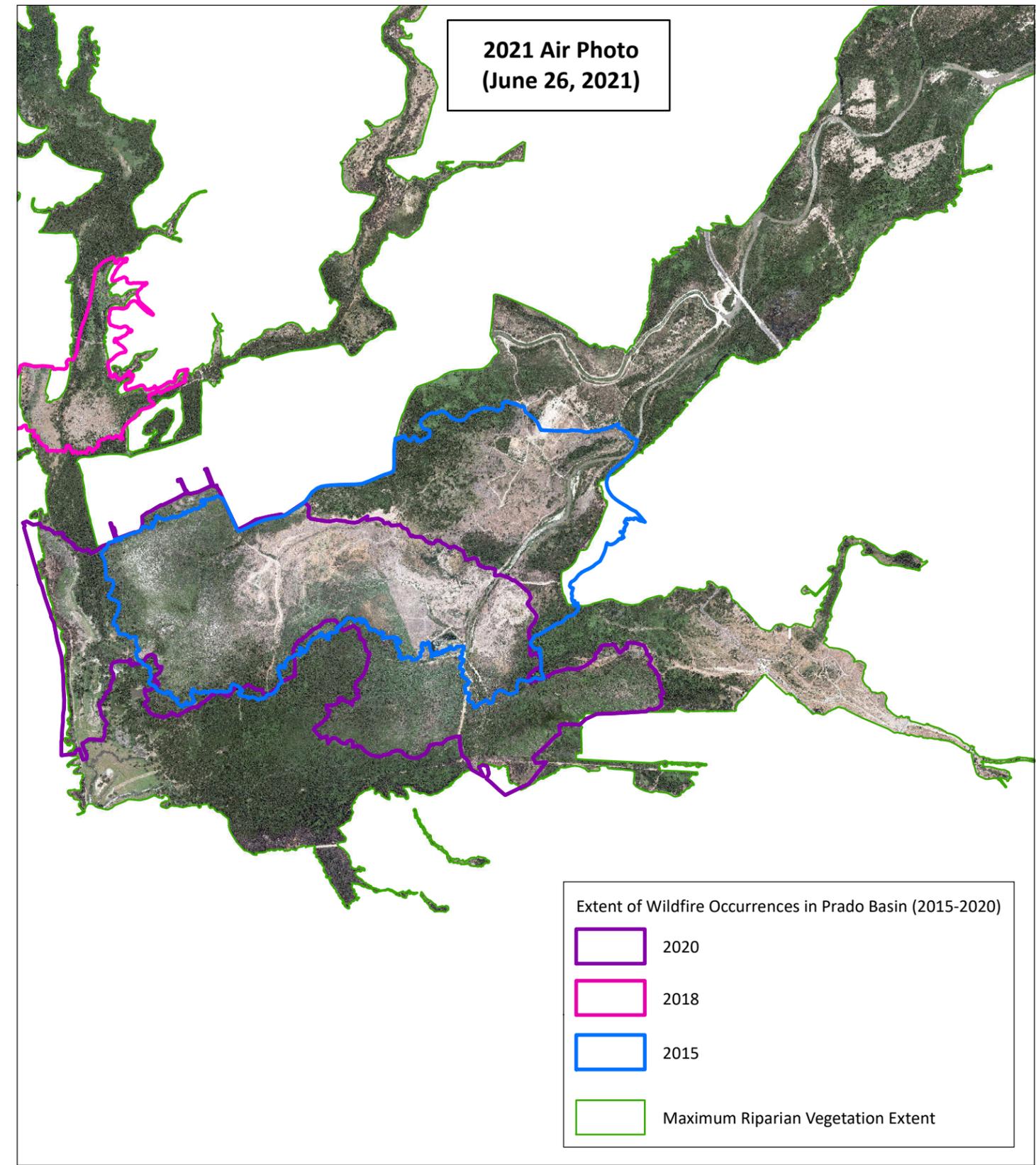
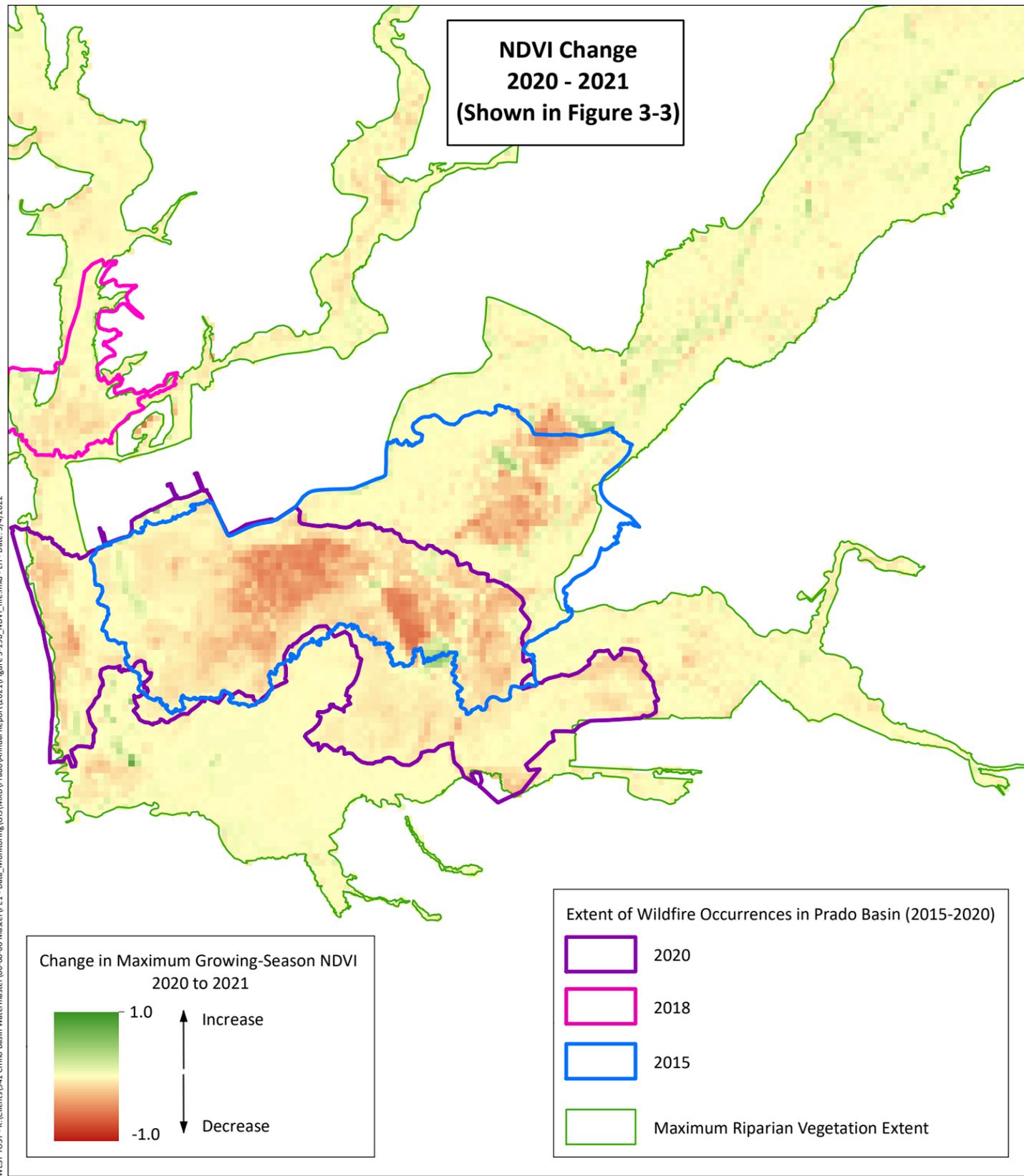
During the 2016 USBR vegetation surveys, the presence of the PSHB was identified at 30 of the 37 survey sites. At these sites, all the trees identified with the presence of PSHB were noted as “stressed,” except one which was noted as “dead.” The 2016 USBR surveys were the first site-specific surveys that documented the presence and abundance of PSHB for the PBHSP.

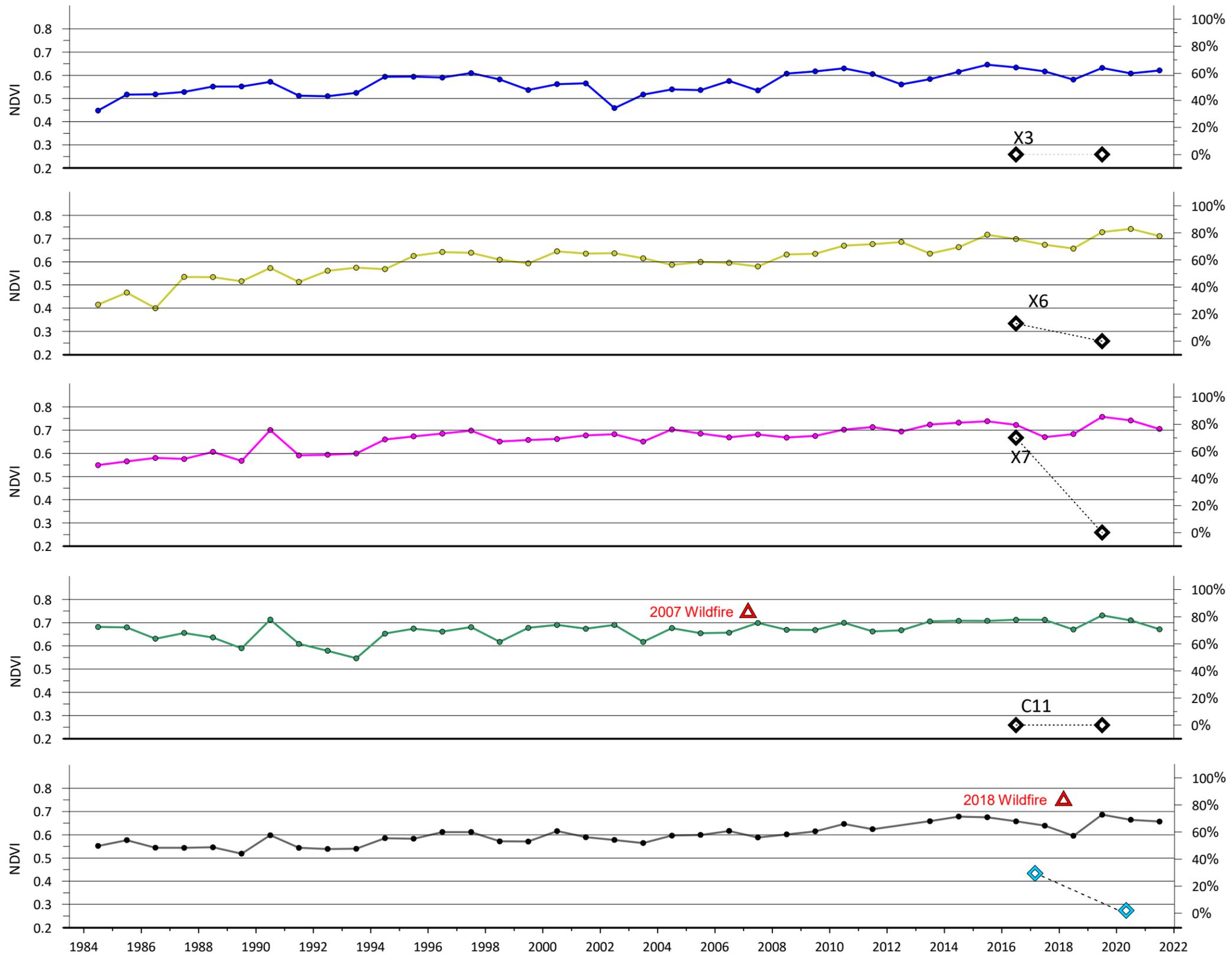
During the 2019 USBR vegetation surveys, the presence of the PSHB was identified at only seven of the 30 sites that were originally identified with PSHB presence in 2016—a 61 percent decrease. In 2019, the presence was only noted at sites along Chino and Mill Creeks; no presence was noted at sites along the SAR. The percentage of trees with the noted presence of the PSHB decreased from 28 to three percent at sites along Chino Creek; and decreased from 57 to nine percent at sites along Mill Creek. OCWD biologists have suggested that the wet year of 2019 may have allowed the riparian trees to better resist PSHB burrowing and fungal disease impacts (USBR, 2020). The reduced presence of the PSHB from 2016 to 2019 correlated to less stressed trees at each of the survey sites; however, the PSHB had an adverse impact from 2016 to 2019, as evidenced by the increased percentage of dead trees and some reductions in percent canopy cover at the survey sites (see Table 3-3 and the 2019 Annual Report Section 3.6.2).

Figures 3-20a through 3-20c are time-series charts that explore the relationship between PSHB occurrence and NDVI for three reaches in Prado Basin: Chino Creek, Mill Creek, and the SAR. These figures show the Average Growing-Season NDVI for 14 defined areas of riparian habitat discussed in Section 3.1 and shown in Figures 3-6, 3-7 and 3-8a through 3-8l. For each defined area, the percentage of infected trees relative within each survey site that is within the area are plotted on the charts. At all of these sites, the percentage of trees impacted decreased from 2016 to 2019, and the Average Growing-Season NDVI in the nearby defined areas increased from 2018 to 2020. These observations indicate that the reduced presence of the PSHB in 2019 is a contributing cause of the observed increases in NDVI along Chino Creek, Mill Creek, and the SAR.



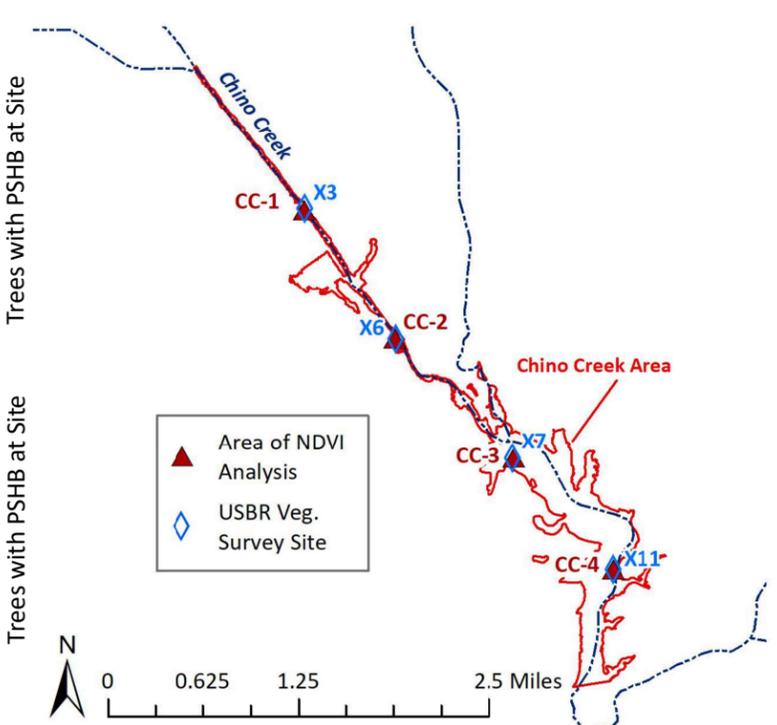
WEST_YOST - K:\Clients\941_Chino Basin Watermaster\00-00-00_Master\PE1 - Data_Monitoring\GIS\MXD\Prado\Annual Report\2021\Figure 3-19b_NDVI_fire_mxd - LH - Date: 5/4/2022

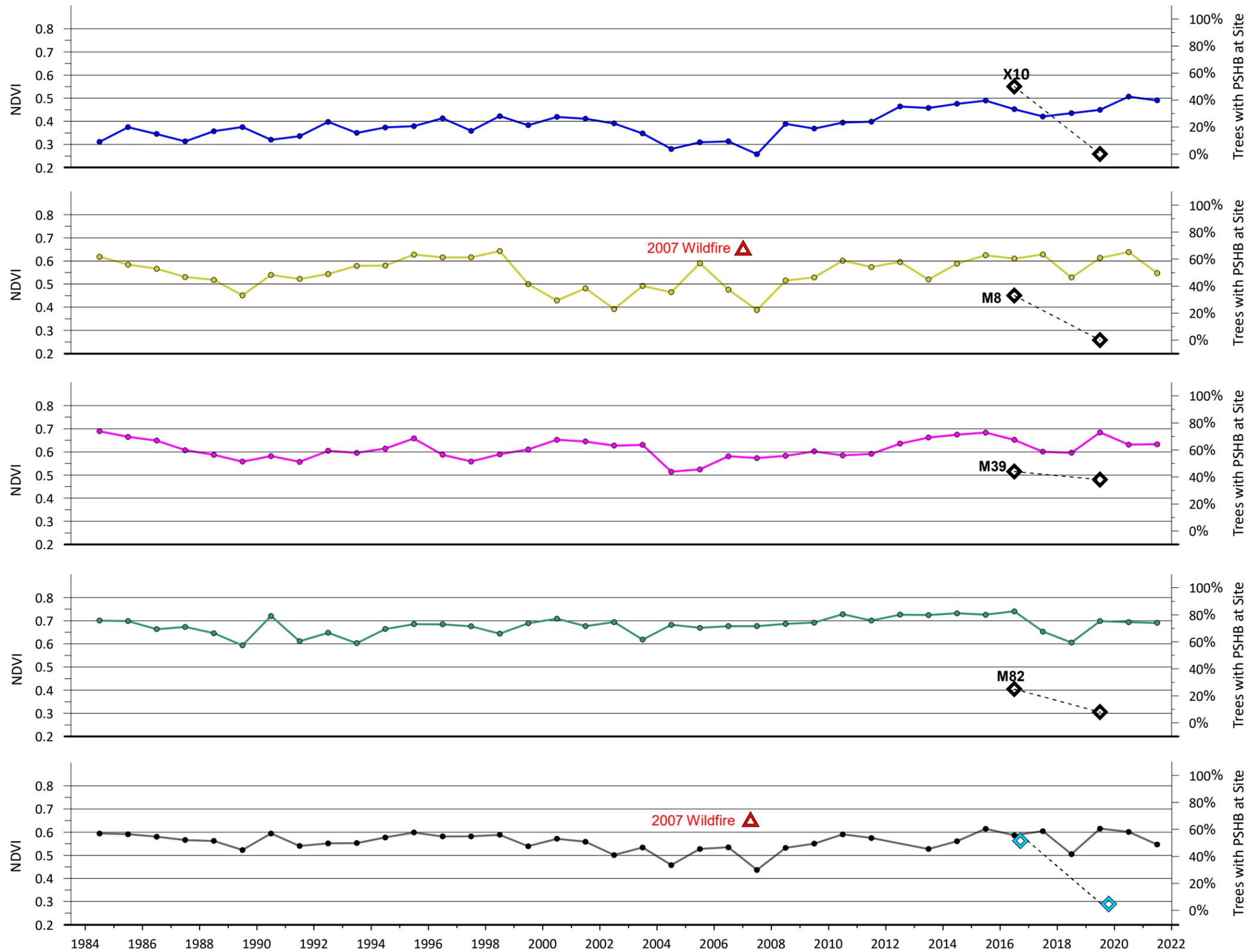




Other Factors

- ◆ USBR vegetation survey sites in the areas, that were surveyed in 2016 and 2019 where the presence of the Polyphagous Shot Hole Borer (PSHB) was noted - plotted by percentage of trees impacted at each site.
- ◇ Percentage of trees with the PSHB noted for all surveyed sites within the Chino Creek area
- △ Occurrence of Wildfire in NDVI Area



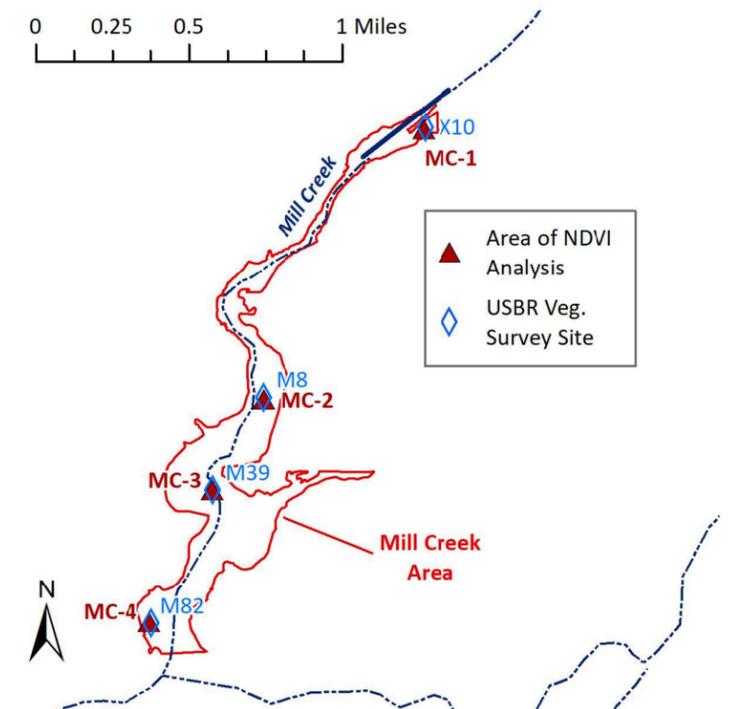


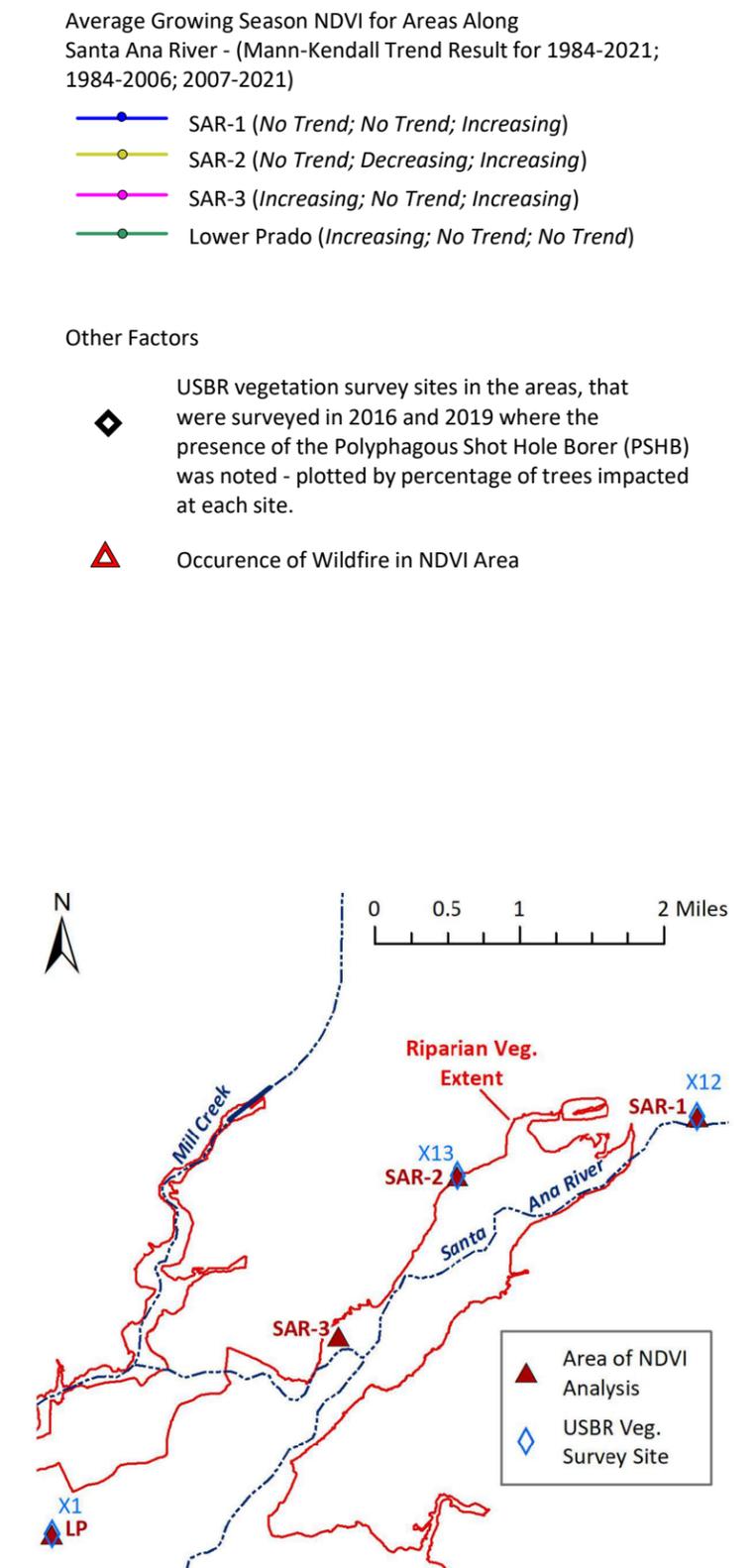
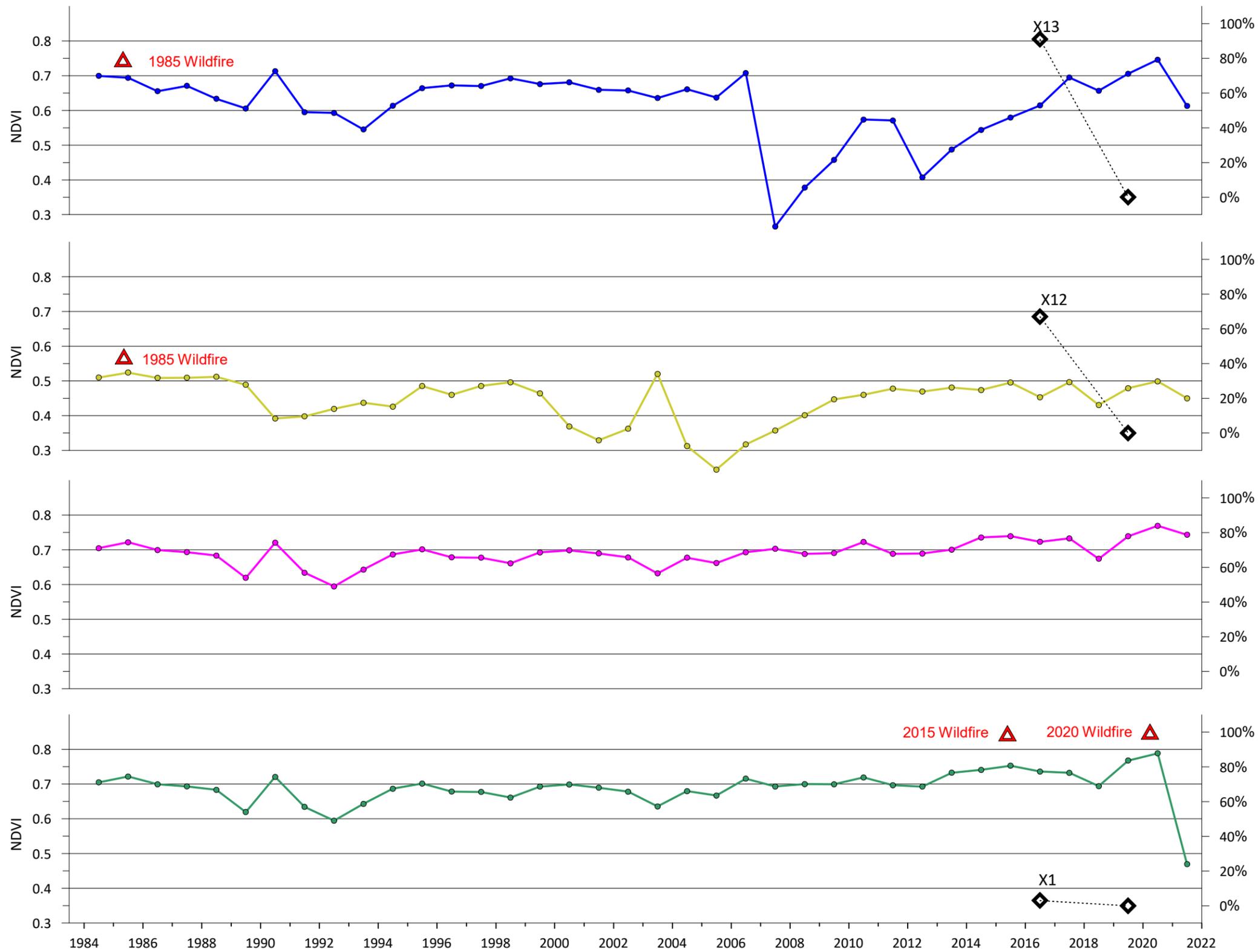
Average Growing Season NDVI for Areas Along Mill Creek - (Mann-Kendall Trend Result for 1984-2021; 1984-2006; 2007-2021)

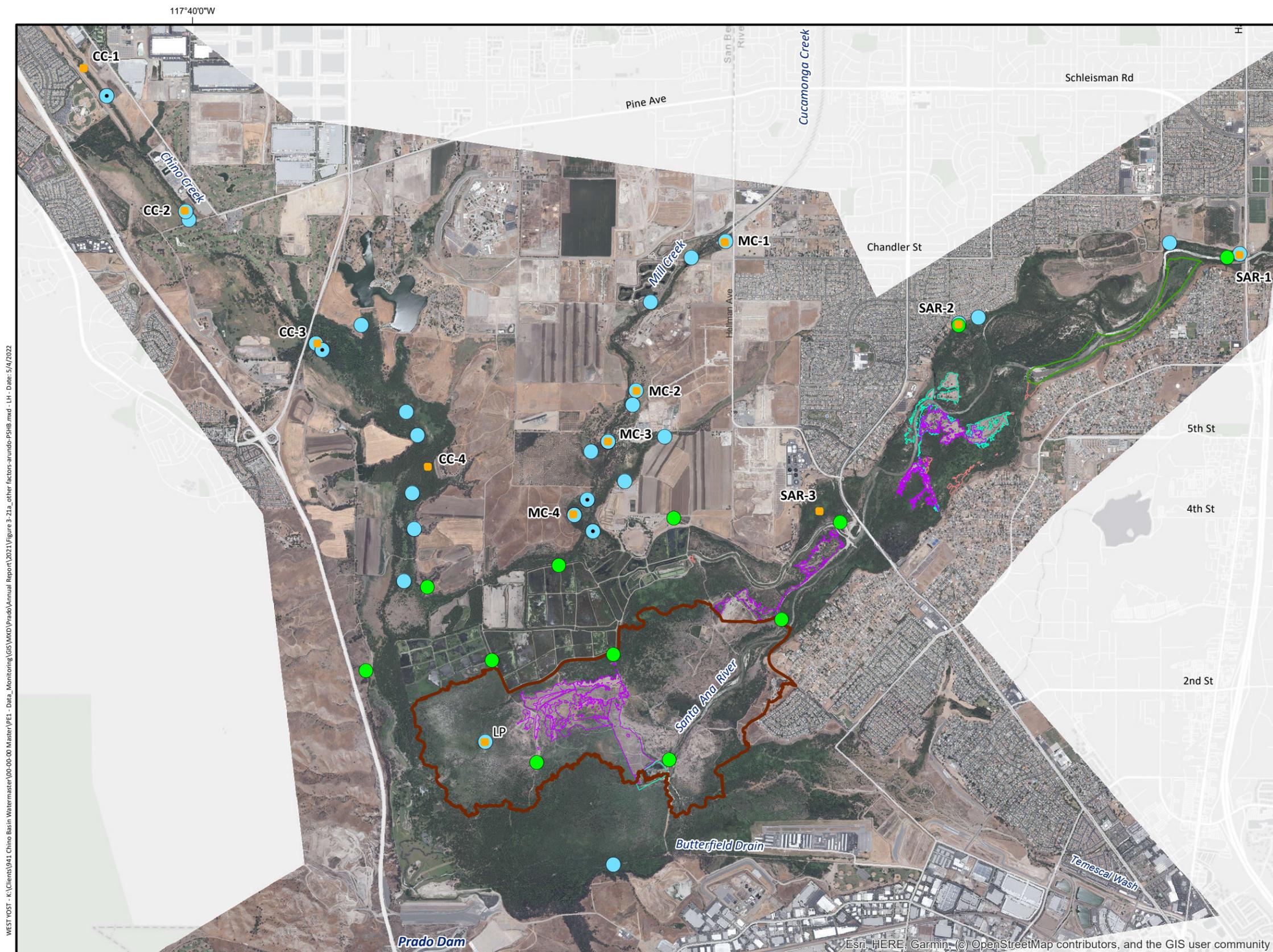
- MC-1 (Increasing; No Trend; Increasing)
- MC-2 (No Trend; No Trend; Increasing)
- MC-3 (No Trend; No Trend; Increasing)
- MC-4 (Increasing; No Trend; No Trend)
- Mill Creek Area (No Trend; Decreasing; No Trend)

Other Factors

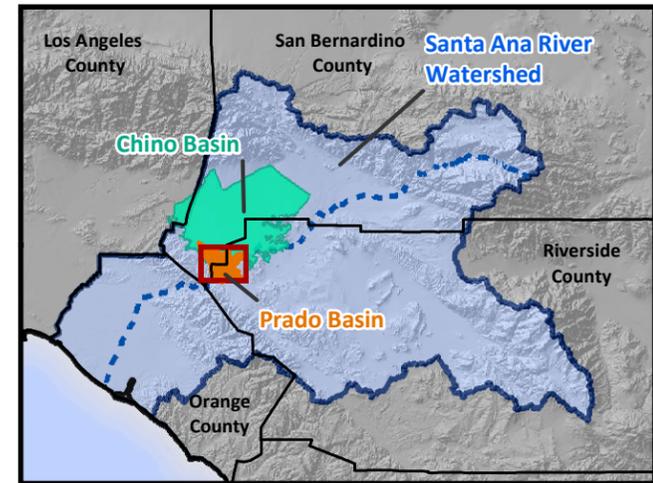
- ◆ USBR vegetation survey sites in the areas, that were surveyed in 2016 and 2019 where the presence of the Polyphagous Shot Hole Borer (PSHB) was noted - plotted by percentage of trees impacted at each site.
- ◇ Percentage of trees with the PSHB noted for all surveyed sites within the Mill Creek area
- △ Occurrence of Wildfire in NDVI Area







- Area of Recent Arundo Management**
- Arundo Removed by SAWA 2021
 - Arundo Removed by SAWA 2020
 - Arundo Removed by SAWA 2019
 - Arundo Removed by SAWA 2016-2018
 - Control of Arundo Regrowth by OCWD within the Perimeter of 2015 Wildfire
- Documented Locations of Polyphagous Shot-Hole Borer (PSHB)**
- Identified by in USBR during the 2016 Site-Specific Vegetation Surveys
 - Identified by in USBR during the 2016 and 2019 Site-Specific Vegetation Surveys
 - Location of PSHB Traps Deployed by OCWD and SAWA from August 2016 to April 2017
 - Small Defined Area Analyzed for NDVI Time Series - 1 NDVI pixel (30 x 30- meters)



Prepared by:



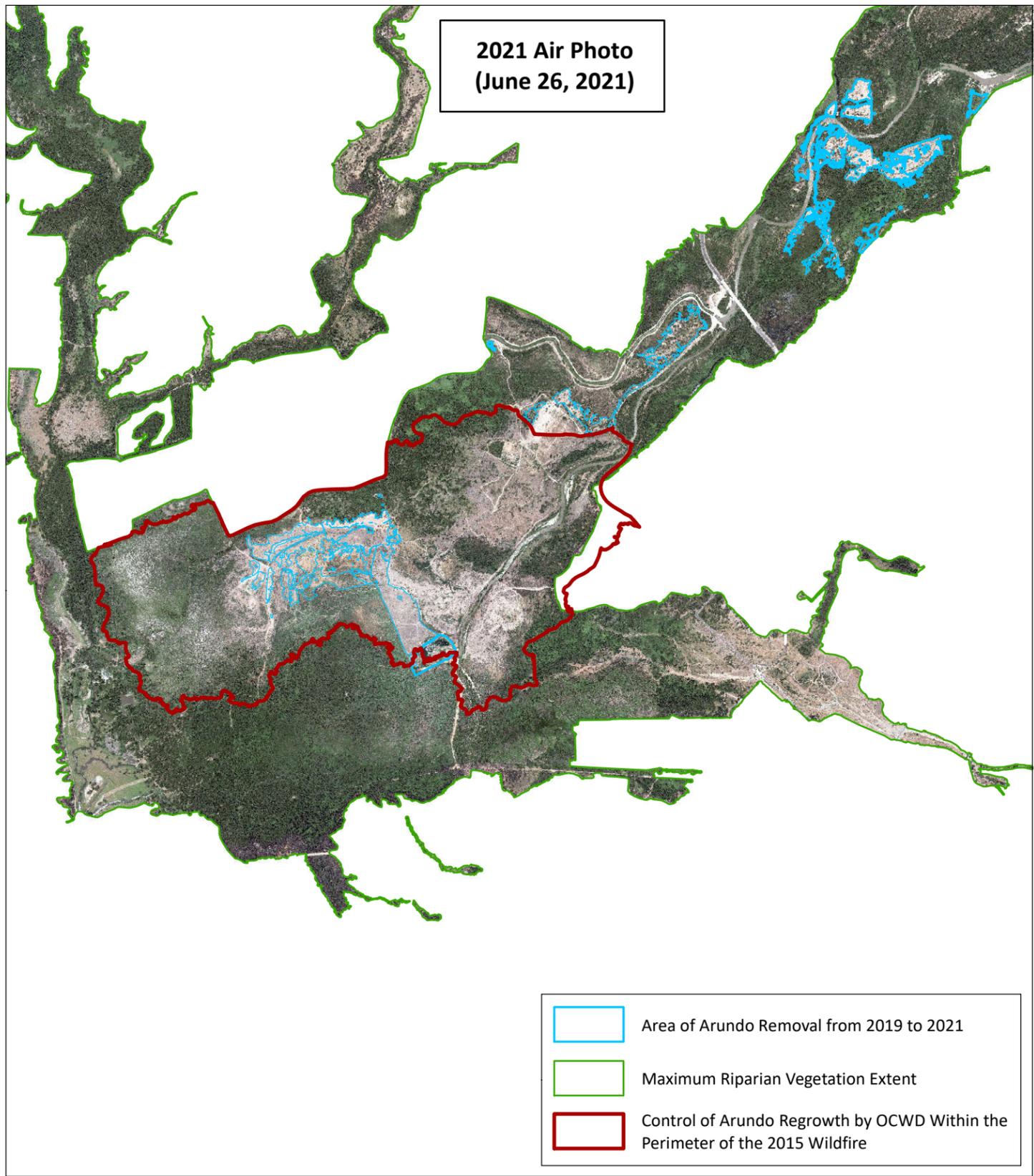
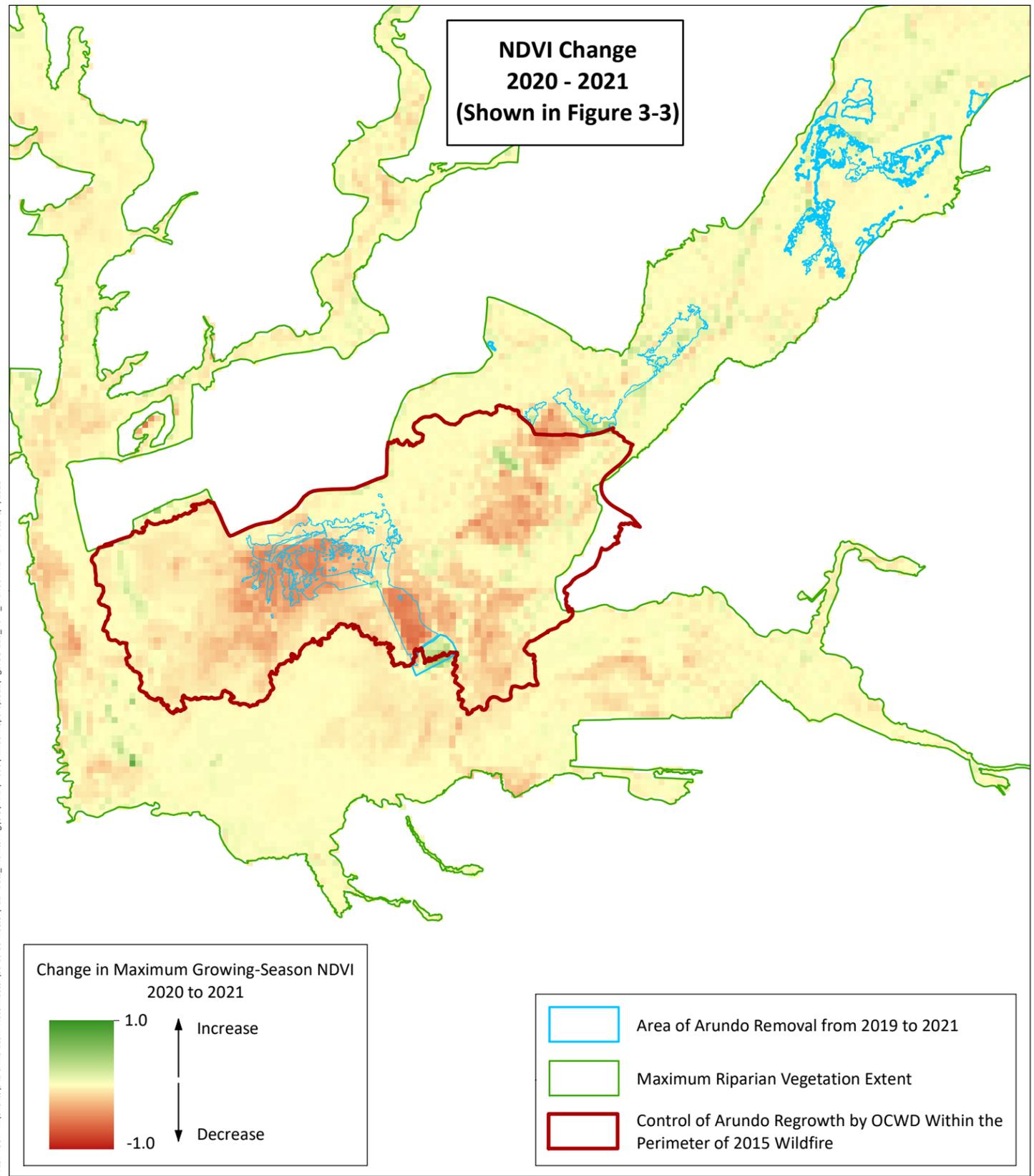

Chino Basin Watermaster and
 Inland Empire Utilities Agency
 2021 Annual Report of the

Prepared for:
 

**Location Map of Other Factors That
 Can Affect Riparian Habitat
 Arundo and PSHB**

Figure 3-21a

WEST YOST - K:\Clients\941 Chino Basin Watermaster\00-00-00 Master\PE1 - Data_Monitoring\GIS\MXD\Prado\Annual Report\2021\Figure 3-21b_NDVI_Arundo.mxd - LH - Date: 5/4/2022



3.7 Analysis of Prospective Loss of Riparian Habitat

The meaning of “prospective loss” of riparian habitat in this context is the “future potential loss” of riparian habitat. Watermaster’s recent predictive modeling results²¹ were used to identify areas of prospective loss of riparian habitat that may be attributable to the Peace II Agreement by projecting future groundwater-level conditions in the Prado Basin area through 2030. To perform this evaluation, the predictive model results were mapped and charted to identify areas, if any, where groundwater levels are projected to decline to depths that may adversely impact the riparian habitat in the Prado Basin.

Figure 3-22 is a map that shows the model-predicted change in groundwater levels in the Prado Basin area over the period of 2018-2030 from the planning scenario used to recalculate the Safe Yield of the Chino Basin in 2020 using Watermaster’s updated groundwater-flow model (WEI, 2020). The map shows that groundwater levels are predicted to remain steady across most of the Prado Basin area through 2030. The stability in groundwater levels is explained in part by projected declines in groundwater production from private wells in the area, the IEUA’s delivery of treated recycled water to this area for direct uses (such as outdoor irrigation), and the fact that most of the Chino Basin Desalter production will occur to the north and northeast. Figure 3-22 shows that the most likely area where groundwater levels are projected to decline by 2030 is the northern portions of Mill Creek and the SAR.

Figure 3-23 is a time-series chart of model-predicted groundwater levels at the PBHSP monitoring wells for the period of 2018 to 2030. These wells are strategically located adjacent to the riparian habitat south of the Chino Basin Desalter well field to understand the potential impacts of Peace II implementation on groundwater levels and the riparian habitat. The chart shows:

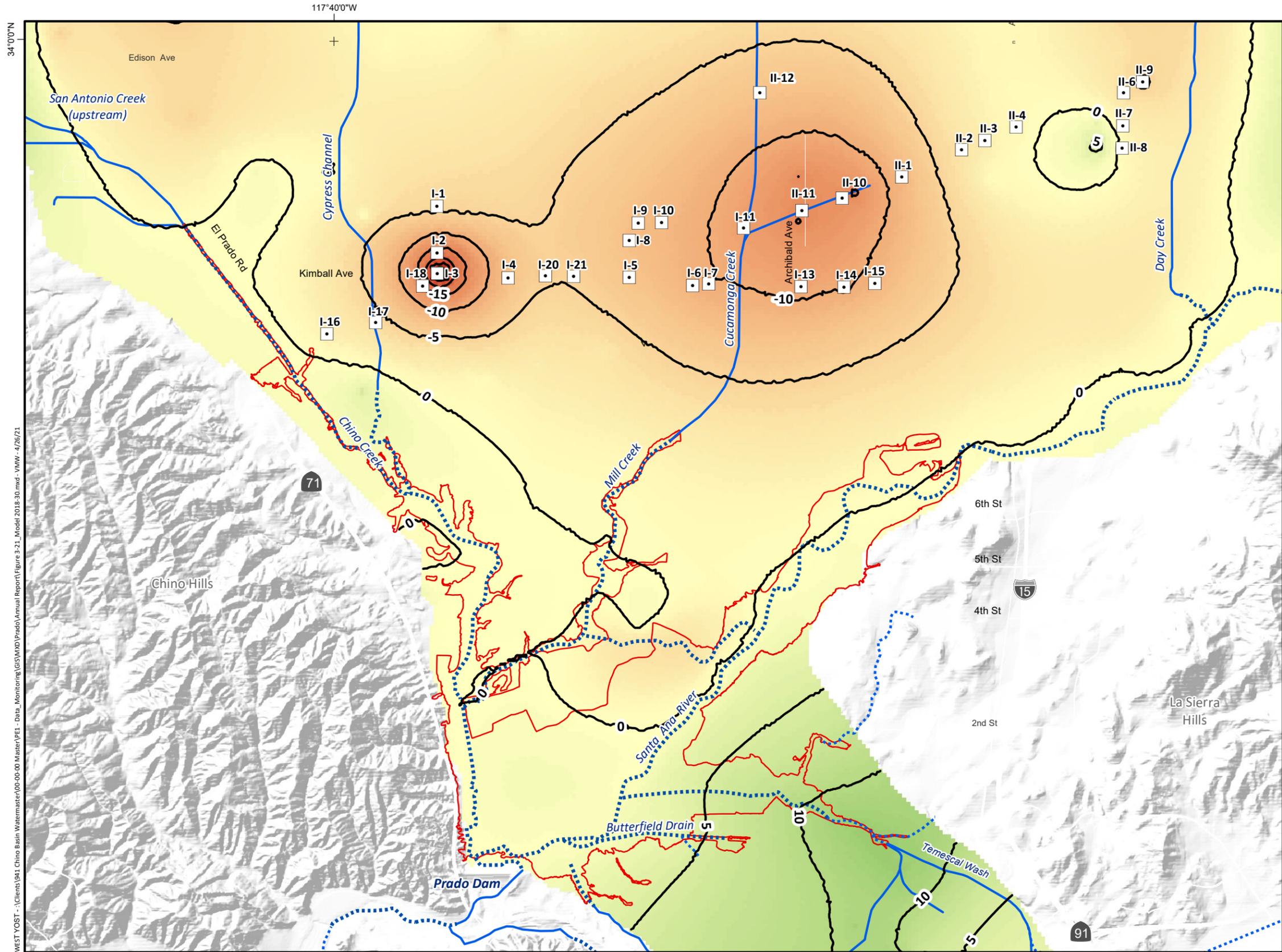
- Groundwater levels are projected to fluctuate seasonally at all PBHSP monitoring wells by about one to two feet.
- Groundwater-level trends are projected to remain stable at most of the PBHSP monitoring wells through the duration of the Peace II Agreement (through 2030).
- At two of the PBHSP monitoring wells, groundwater levels are projected to experience declines of about one to three feet from 2018 to 2030, which may represent a threat for prospective loss of riparian habitat:
 - **PB-2 above the northern reach of Mill Creek.** The model predicts a decline in groundwater levels at PB-2 of about three feet from 2018-2030. Figure 3-13b shows that groundwater levels declined at PB-2 by about five feet from 2018-2021, which is even greater than the decline predicted by the model through 2030. Figure 3-12 shows the current (Fall 2021) depth-to-groundwater where the riparian vegetation is growing along the northernmost reaches of Mill Creek ranges from about 5-16 ft-bgs. Hence, if the groundwater levels

²¹ The predicted groundwater level changes through 2030 were made with the 2020 Chino Valley Model (CVM) for Scenario 2020 SYR1 for Layer 1 of the aquifer. The results of this model scenario were used to recalculate the 2020 Safe Yield of the Chino Basin (WEI, 2020). Scenario SYR1 is based on the water demands and water supply plans provided by the Watermaster parties, Chino Basin parties’ planning assumptions on pumping groundwater and conducting recharge operations, planning hydrology that incorporates climate change impacts on precipitation and ETO, and assumptions regarding cultural conditions and future replenishment.

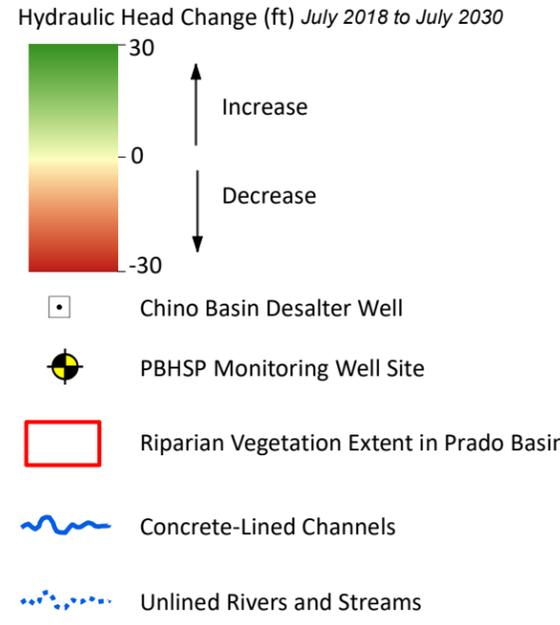


continue to decline along Mill Creek, then it could result in adverse impacts to the riparian habitat in this area.

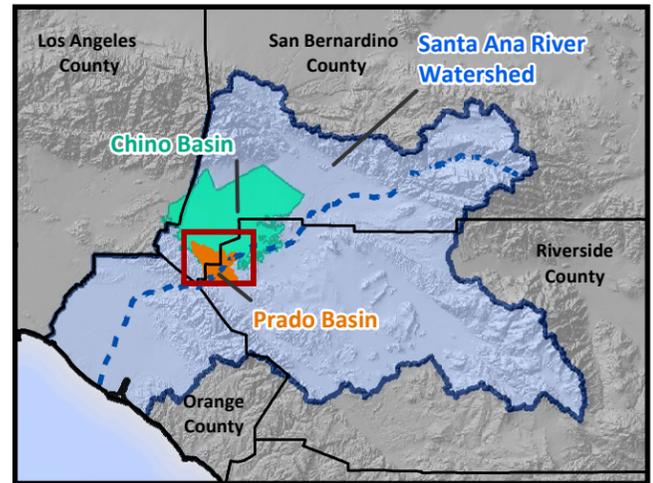
- **PB-3 along the northern portion of the SAR.** The model predicts a decline in groundwater levels at PB-3 of about one foot from 2018-2030. Figure 3-13c shows that groundwater levels declined at PB-3 by about two feet, from 2018-2021, which is greater than the decline predicted by the model through 2030. Figure 3-12 shows the current (Fall 2021) depth-to-groundwater where the riparian vegetation is growing along the northernmost reaches of the SAR ranges from 4-8 ft-bgs. If groundwater levels continue to decline at similar or higher rate through 2030, then it could result in a depth to groundwater greater than 15 ft-bgs and adverse impacts to the riparian habitat in this area.



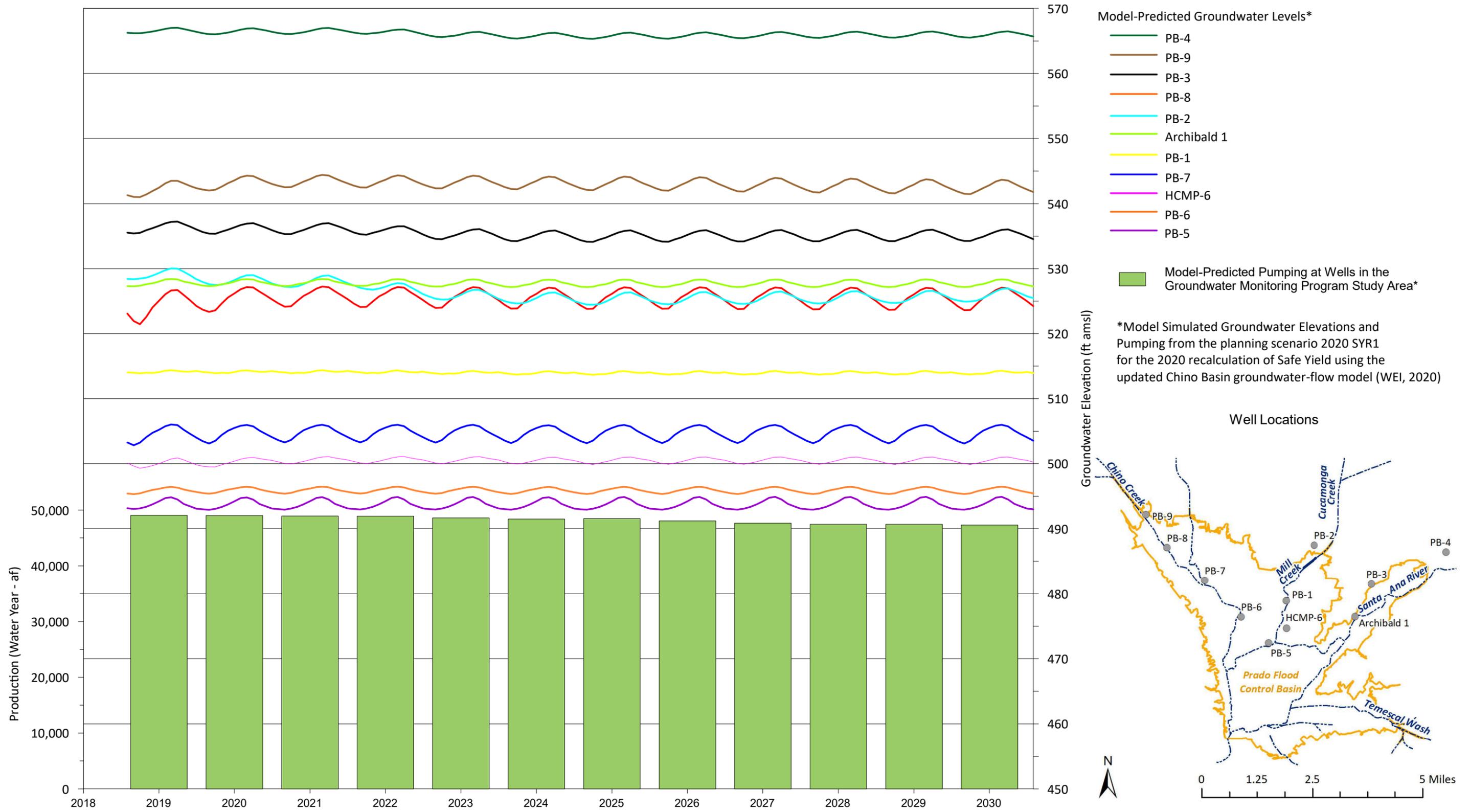
Contours of Model-Predicted Change in Groundwater Levels for Layer 1* July 2018 to July 2030, feet



* Model Predicted Change in Groundwater Levels from the planning scenario 2020 SYR1 for the recalculation of Safe Yield using the updated Chino Valley Model (WEI, 2020)



WEST YOST - \Clients\941 Chino Basin Watermaster\00-00-00 Master\PEI - Data_Monitoring\GIS\WMD\Prado\Annual Report\Figure 3-21_Model 2018-30.mxd - VMMW - 4/26/21



4.0 CONCLUSIONS AND RECOMMENDATIONS

The monitoring and mitigation requirements in the Peace II SEIR call for annual reporting for the PBHSP. Annual reports will be prepared and will include recommendations for ongoing monitoring and any adaptive management actions required to mitigate any measured loss or prospective loss of riparian habitat that may be attributable to the Peace II Agreement.

The following describes the main conclusions of this annual report and provides recommendations for future monitoring, reporting, and mitigation, if any.

4.1 Main Conclusions and Recommendations

4.1.1 Conclusions

The main conclusions of the PBHSC Annual Report for WY 2021 are:

- The quality (greenness) of the riparian habitat vegetation remained stable or decreased across most of the Prado Basin from 2020 to 2021. Most of the observed decreases were relatively minor and within the range of one-year changes observed historically. These slight decreases occurred during a time of below average precipitation, slightly lower temperatures, and lower stream discharge conditions for WY 2021. The dry conditions and declines in stream discharge may be a contributing cause of the declines observed in 2021. At the small MC-2 area along the center of Mill Creek there was a more notable decrease in green vegetation evident from the comparison of the 2020 and 2021 air photos. Areas of significant decreases observed in the riparian vegetation include: large patches along the SAR, lower Prado Basin below the OCWD Wetlands, and the lower portions of Chino Creek; and the small LP area in the lower Prado Basin. The decreases in the green vegetation at all of these locations are due to wildfires that occurred in 2018 and 2020 and/or areas of Arundo removal and Arundo regrowth management. There is no trend in the degradation of the riparian habitat that is contemporaneous with decreasing groundwater levels during Peace II Agreement.
- Groundwater levels at two of the PBHSP monitoring wells near the fringes of the riparian habitat (PB-2 and PB-3) have declined, to levels below that predicted by the Chino Basin groundwater-flow model. At well PB-2 just to the north of Mill Creek, the model predicts a decline in groundwater levels of about three feet from 2018-2030, and groundwater levels declined at PB-2 by about five feet from 2018-2021. And at PB-3 along the northern reach of the SAR, the model predicts a decline in groundwater levels of about one foot from 2018-2030, and groundwater levels declined at PB-3 by about two feet from 2018-2021.
- These declines in groundwater levels are likely due to increased pumping at the Chino Basin Desalter wells to the north. Groundwater production has increased in the GMP study area by almost 10,000 afy over the last two years from 2019 to 2021, mainly due to increases Chino Basin Desalter pumping. In the northernmost reach of Mill Creek where groundwater levels have declined the most (PB-2), there is no significant impact in the riparian habitat vegetation observed in this area. However, there are some areas along the northernmost reach of Mill Creek where the groundwater levels supporting the riparian vegetation is estimated as 15 to 17 ft-bgs, and if groundwater levels continue to decline then it could result in adverse impacts to the riparian habitat. The groundwater-level declines in the northern reach of the SAR (PB-3) are not a concern because the groundwater levels supporting the

riparian vegetation in this area is shallow (4-8 ft-bgs), and is an area characterized as a losing reach in the SAR where groundwater is supported by SAR recharge.

4.1.2 Recommendations

Based on the conclusions above, the PBHSP monitoring and reporting should continue to monitor the extent and quality of the riparian habitat and factors that can influence it. There are three areas where the monitoring and analysis should be augmented over the next year to track the notable changes observed in WY 2021 that are a concern for the extent and quality of the riparian habitat:

- Vegetation and surface-water discharge in the northernmost reach of Mill Creek. In 2021, groundwater levels at the northernmost reach of Mill Creek declined at rates and magnitudes greater than predicted by the model. Thus far, the monitoring and analysis of the riparian vegetation in this area does not indicate a significant change in the greenness or extent of the vegetation, but some areas underlying Mill Creek are beginning to experience depth to groundwater greater than 15 ft-bgs which could threaten the quality of the riparian habitat. In 2022, additional monitoring should be performed in the northernmost reach of Mill Creek. This additional monitoring should include: i) three additional vegetation-survey sites in the northernmost reach of Mill Creek for the 2022 vegetation surveys; ii) preparation and analysis of NDVI time-series for these new vegetation surveys sites; and iii) collection of information and measurements of the surface-water diversions from Cucamonga Creek to the Mill Creek Wetlands in the northern portion of Mill Creek. These data will improve the characterization of the quality of the riparian habitat and the surface water discharge into this habitat in the upper portion of Mill Creek.
- Updated digital elevation model for the Prado Basin. As described in the bullet above, in 2021 some areas of the riparian habitat along the northernmost reach of Mill Creek are overlying areas where the estimated depth to groundwater is greater than 15 ft-bgs, which could threaten the quality of the riparian habitat. Depth-to-groundwater is determined using the most current (September 2021) groundwater-elevation contours and rasters prepared for the GMP study area and subtracting from a one-meter digital-elevation model of the ground surface prepared in 2007. In 2020, during the acquisition of the 2020 air photo of the Prado Basin that was cost shared with the OCWD and the San Bernardino Valley Municipal Water District, LiDAR data of the entire Prado Basin was collected at a high-resolution (3-inch pixel). This LiDAR data should be post processed and spatial referenced to the vertical datum used in the southern Chino Basin and the PBHSP, to create an updated and higher-resolution digital elevation of the ground surface of the Prado Basin. This data will improve the estimates of current depth-to-groundwater in the PBHSP study area, and in critical areas where there are observed declines in groundwater levels that could potentially threaten the quality of the riparian habitat.
- Riparian vegetation at the MC-2 area. Observation of the 2020 and 2021 air photos for the MC-2 defined area along the central reach of Mill Creek showed a decrease in green vegetated areas during 2020-2021. A site visit should be performed to the MC-2 area to inspect and document the state of the vegetation. This site visit can be done during the field vegetation surveys that will be performed in the summer of 2022. The vegetation site M8 is in the center portion of the MC-2 area (see Figure 3-8f). Based on the results of the site visit, the PBHSC may consider revised monitoring if needed to better characterize the changes in the riparian vegetation and identify the causes of those changes.



4.2 Recommended Mitigation Measures and/or Adjustments to the AMP

This annual report documented no trend in the degradation of the extent or quality of riparian habitat along Chino Creek, Mill Creek, or the SAR that is contemporaneous with decreasing groundwater levels during the implementation of the Peace II Agreement. As such, no mitigation measures are proposed at this time.

No adjustments to the AMP are recommended at this time.

4.3 Recommended PBHSP for Fiscal Year 2022/23

Based on preliminary analysis of the PBHSP data for WY 2021, a draft *Technical Memorandum Recommended Scope and Budget of the Prado Basin Habitat Sustainability for FY 2022/23* was submitted to the PBHSC on March 2, 2022. On March 9, 2022, Watermaster's Engineer presented the recommended scope and budget for FY 2022/23 to the PBHSC for consideration. There were no changes recommended by the PBHSC on the proposed FY 2022/23 scope of work, and a final scope of work and budget was submitted to the PBHSC and will go through the Watermaster and the IEUA FY 2022/23 budgeting process in May and June of 2022. The scope of work for the PBHSP for FY 2022/23 is shown in Table 4-1 as a line-item cost estimate.

Table 4-1. Work Breakdown Structure and Cost Estimate Prado Basin Habitat Sustainability Program - Fiscal Year 2022/23

Task Description	Notes	Labor Total		Other Costs, dollars						Notes	Totals, dollars					
		No. of sites	Person Days	Total, dollars	Travel	Equipment Rental	Lab	Outside Pro	Equipment		Total	Recommended Budget, dollars 2022/23	Budget 2021/22	Variance from Prior FY	IEUA Share 2022/23	CBWM Share 2022/23
Task 1. Groundwater Level Monitoring Program			14.0	16,984						660		17,644	13,785	3,859	-	17,644
1.1 Collect Transducer Data from PBHSP Wells (Quarterly)		17	7.8	8,115	500	160				660		8,775	5,538			
1.2 Collect, Check, and Upload Transducer Data from PBHSP Wells (Quarterly)		17	6.2	8,869						0		8,869	8,246			
Task 2. Groundwater Quality Monitoring Program			0.0	5,342						0		5,342	5,373	-31	-	5,342
2.1 Check and Upload High-Frequency Probe Data from Pilot Monitoring Program (Quarterly)		4	3.4	5,342						0		5,342	5,373			
Task 3. Surface Water Monitoring Program			11	14,232						245		14,477	9,807	4,670	-	14,477
3.1 Collect, Check, and Upload Surface Water Discharge and Quality Data from POTWs, USGS; and Dam Level data from the ACOE (Annual)			2.5	3,532						0		3,532	3,562			
3.2 Collect, Check, and Upload High-Frequency Probe Data for Chino Creek from Pilot Monitoring Program (Quarterly)		2	8.8	10,700	125	120				245		10,945	6,245			
Task 4. Climate Monitoring Program			1.3	1,902						275		2,177	2,081	96	1,089	1,089
4.1 Collect, Check, and Upload Climatic Data (Annual)			1.3	1,902				275		275		2,177	2,081			
Task 5. Riparian Habitat Monitoring Program			17.3	30,332						53,500		83,832	32,696	51,136	41,916	41,916
5.1 Perform a Custom Flight to Acquire a High-Resolution 2022 Air Photo of the Prado Basin			1.3	2,500				13,500		13,500	(a)	16,000	11,386			
5.2 Catalog, and Review the Extent of the Riparian Vegetation in the 2022 Air Photo of the Prado Basin			3.5	6,350						0		6,350	6,104			
5.3 Collect, Check, and Upload 2022 Landsat NDVI Data to the PBHSP Database			9.8	16,664						0		16,664	15,206			
5.4 Conduct the Field Vegetation Monitoring for Summer 2022			2.8	4,818				40,000		40,000		44,818	0			
Task 6. Prepare Annual Report of the PBHSC			52.5	86,960						180		87,140	88,628	-1,488	43,570	43,570
6.1 Analyze Data and Prepare Admin Draft Report for CBWM/IEUA			38.0	60,496						0		60,496	63,060			
6.2 Meet with CBWM/IEUA to Review Admin Draft Report			2.0	4,168	90					90		4,258	4,090			
6.3 Incorporate CBWM/IEUA Comments and Prepare Draft Report: Submit Draft Report to PBHSC			5.0	8,244						0		8,244	7,904			
6.4 Meet with PBHSC to Review Draft Report			3.0	6,112	90					90		6,202	5,938			
6.5 Incorporate PBHSC Comments and Finalize Report			4.5	7,940						0		7,940	7,636			
Task 7. Project Management and Administration			10.3	20,134						90		20,224	20,102	122	10,112	10,112
7.1 Prepare Scope and Budget for FY 2022/23			4.0	7,774						0		7,774	7,696			
7.2 Meet with PBHSC to Review Scope and Budget for FY 2022/23			3.3	6,528	90					90		6,618	6,862			
7.3 Project Administration and Financial Reporting			3.0	5,832						0		5,832	5,544			
Totals			195	\$ 175,886	\$ 395	120	0	\$ 53,775	0	\$ 54,950		\$ 230,836	\$ 172,471	\$ 58,365	\$ 96,687	\$ 134,150

(a) This is half of the cost for the outside professional. OCWD will pay the other half.

The following describes the scope-of-work by major task for the PBHSP for FY 2022/23:

Task 1. Groundwater-Level Monitoring Program

The monitoring of groundwater levels in the Prado Basin is a key component of the PBHSP because declining groundwater levels could be a factor related to Peace II implementation that adversely impacts riparian vegetation. Sixteen monitoring wells were installed specifically for the PBHSP in 2015. These wells, plus monitoring wells HCMP-5/1 and RP3-MW3, are monitored for groundwater levels. The 18 monitoring wells are equipped with integrated pressure-transducers/data-loggers that measure and record water-level measurements every 15 minutes. This task includes quarterly field visits to all 18 PBHSP monitoring wells to download data. All data will be checked and uploaded to the PBHSP database. This task is consistent with the work performed during the previous FY.

Task 2. Groundwater-Quality Monitoring Program

Since the PBHSP monitoring wells were constructed in 2015, groundwater-quality monitoring has been tailored to discern the groundwater/surface-water interactions that are important to the sustainability of the riparian habitat in Prado Basin. From FY 2015/16 through 2017/18, quarterly groundwater samples were collected from the 18 PBHSP monitoring wells and analyzed at a minimum for general minerals. The general mineral chemistry data collected was analyzed along with groundwater-level data, model-generated groundwater-flow directions, and surface-water quality and flow data to help characterize groundwater/surface-water interactions in the Prado Basin and determine the source of the shallow groundwater that is available for consumptive use by the riparian vegetation.

During FY 2018/19, a pilot monitoring program was initiated at four monitoring wells at two locations along Chino Creek (PB-7 and PB-8) where the data loggers that measure groundwater levels at 15-minute intervals were replaced with data loggers that measure and record EC, temperature, and water levels at 15-minute intervals. The same high-frequency monitoring was initiated at two nearby surface water sites in Chino Creek (Task 3.2). Additionally, groundwater-quality samples were collected at these wells for the first two years either quarterly (FY 2018/19) or semi-annually (FY 2019/20) and were analyzed for EC, temperature, and general minerals to validate and support the high-frequency data, along with the collection of field measurements of EC and temperature. The purpose of the pilot monitoring program is to determine if the high-frequency data better reveals the groundwater/surface-water interactions and enhances the interpretation of the general mineral data derived from sampling. The data collected thus far as a part of the pilot monitoring program has provided more support for the characterization of groundwater/surface water interactions at these locations and warrants the continuation of the pilot program to collect more data. The effort to collect and review the high-frequency data is minimal as the installed data loggers are also part of the groundwater-level monitoring (Task 1) at these four wells.

Tasks 2.1 is to continue the pilot monitoring program in FY 2022/23 to collect the high-frequency data in groundwater to help discern the groundwater/surface water interactions near PB-7 and PB-8. The monitoring wells will be visited quarterly to download the data from the data loggers, and the costs to do so is assumed with Task 1. All data will be checked and uploaded to the PBHSP database.

Task 3. Surface-Water Monitoring Program

Surface-water discharge data from the SAR and the tributaries that cross Prado Basin are evaluated to characterize the influence of surface-water discharge on the riparian habitat. The SWMP utilizes publicly-available data sets which include: the USGS daily discharge measurements at six sites along the

SAR and its tributaries; daily discharge and water-quality data from POTWs that are tributary to Prado Basin; ACOE daily measurements of reservoir elevation and releases from the reservoir at Prado Dam; and Watermaster's quarterly surface-water-quality monitoring at two sites along the SAR.

Task 3.1 includes the annual collection of the USGS, POTW, and ACOE data for water year 2022, and the processing, checking, and uploading of these data to the PBHSP database. These tasks do not include the processing, checking, and uploading of the Watermaster-collected SAR data, which is performed for another Watermaster task. The scope of these tasks is consistent with the work performed for the previous FY.

High-frequency surface water-quality data are also collected and analyzed in the pilot monitoring program to help characterize groundwater/surface water interactions. As described in Task 2, a pilot monitoring program was initiated in FY 2018/19 at two locations along Chino Creek adjacent to wells PB-7 and PB-8. At these locations, data loggers were installed in Chino Creek to measure and record EC, temperature, and stage at 15-minute intervals in coordination with the similar high-frequency monitoring in groundwater at PB-7 and PB-8 (Task 2). Grab samples of surface water were also collected quarterly for EC, temperature, and general mineral analyses, along with field measurements of EC and temperature. As described above for *Task 2 – Groundwater-Quality Monitoring Program*, the purpose of the pilot monitoring program is to determine if the high-frequency data better reveals the groundwater/surface-water interactions and enhances the interpretation of the general mineral data derived from grab sampling. Periodically, the data loggers within the creek have been lost during large storm events and the casing that house the probes have experienced the accumulation of mud which has compromised the accuracy of the collected data. These monitoring challenges in the field have resulted in extended periods of no data or erroneous data and have necessitated additional field work to resolve. The data collected thus far for the pilot monitoring program has provided more support for the characterization of groundwater/surface water interactions at these locations and warrants the continuation of the pilot program to collect more data to draw defensible conclusions. The effort to continue to collect and review the high-frequency data from the surface water probes is minimal since the installed data loggers can be visited in the field at the same time as the four nearby monitoring wells (Tasks 1 and 2).

Tasks 3.2 is to continue the pilot monitoring program in FY 2022/23 to collect the high-frequency data in the surface water to help discern the groundwater/surface water interactions near wells PB-7 and PB-8. The probes will be visited quarterly at the same time as the nearby wells to download the data, collect field measurements for temperature and EC, and clean the probes and their housing to prevent the buildup of residue. There will be four additional field visits for routine cleaning of the probes and housing. All data will be checked and uploaded to the PBHSP database. The scope is consistent with the work performed for the previous fiscal year.

Task 4. Climate Monitoring Program

Climatic data are evaluated in the vicinity of the Prado Basin to characterize trends, and to determine if these trends contribute to impacts on the riparian habitat. The climate monitoring program utilizes publicly-available datasets. Two types of datasets are compiled: time-series data measured at weather stations and spatially-gridded datasets. Task 4 includes the annual collection of the time-series data and spatially-gridded datasets for water year 2021 (October 2021 – September 2022), and the checking and uploading of the data to the PBHSP database. The scope of this task is consistent with the work performed for the previous fiscal year.

Task 5. Riparian Habitat Monitoring Program

Monitoring the extent and quality of the riparian habitat in the Prado Basin is a fundamental component of the PBHSP to characterize how the riparian habitat changes over time. To characterize the impacts of Peace II implementation on the riparian habitat (if any) it is necessary to understand the long-term historical trends of its extent and quality and the factors that have affected it. The current riparian habitat monitoring program consists of both regional and site-specific components. The proposed riparian habitat monitoring program for FY 2022/23 is described in the subsections below.

- **Regional Monitoring:** The regional monitoring of riparian habitat is performed via two independent methods that complement each other: mapping and analysis of the riparian habitat using (i) air photos and (ii) the normalized difference vegetation index (NDVI) derived from the Landsat remote-sensing program. Tasks 5.1, 5.2, and 5.3 are for the collection and compilation of the regional monitoring data, including:
 - Perform a custom flight (via outside professional services) to acquire a high-resolution air photo (three-inch pixel) of the Prado Basin during summer 2022. The cost for the air photo is shared with OCWD.
 - Catalog and review the 2022 high-resolution air photo in ArcGIS and digitize the extent of the riparian habitat.
 - Collect, review, and upload the Landsat NDVI data for water year 2022.

Site-Specific Monitoring: The site-specific monitoring of the riparian habitat consists of periodic field surveys of the riparian vegetation at selected locations. These surveys provide an independent measurement of vegetation quality that can be used to “ground truth” the regional monitoring of the riparian habitat. To date, the United States Bureau of Reclamation (USBR) along with the OCWD²² has conducted field surveys once every three years. The most recent triennial field survey was conducted in the summer of 2019. Task 5.4 is to conduct the field surveys during the summer of 2022 at the 36 sites monitored in 2019 and up to three additional sites in the target area along the north portion of Mill Creek. As described above some additional focused monitoring in this area of Mill Creek is recommended to monitor for the potential impact to the riparian habitat from the observed decline in groundwater levels.

The proposed methodology for the 2022 field surveys is modified from the previous surveys to a reduced set of representative measurements and data to collect in the field that are best fit to ground truth the air photos and remote sensing data, and measure and track the quality of the riparian vegetation.²³ This reduced methodology is a cost savings of \$10,000. The field surveys will be performed by the USBR staff. Assistance from the OCWD staff in the field as needed, will be provided as in-kind services, and also results in a cost savings.

²² OCWD staff provides assistance to the USBR in the field as in-kind services.

²³ The field vegetation surveys were set up and conducted two times prior to the developed of the AMP, and there are measurements that were collected by the USBR in the field during previous surveys that have not been used in the PBHSP analysis and reporting and are no longer needed for the PBHSP. These include: tree/sapling diameter at breast height (DBH); shrub diameter at root collar (DRC); height of a tree, sapling, or shrub; and measurement of the lowest leaf level of a tree to calculate a crown ratio.



Task 6. Prepare Annual Report of the PBHSC

This task involves the analysis of the data sets collected by the PBHSP through water year 2022. The results and interpretations generated from the data analysis will be documented in the *Annual Report for Prado Basin Habitat Sustainability Committee for Water Year 2022*. This task includes the effort to prepare an administrative draft report for Watermaster and the IEUA staff review, a draft report for the review by the PBHSC, and a final report including comments and responses. A PBHSC meeting will be conducted in May 2023 to review the draft report and facilitate comments on the report. The scope of this task is consistent with the work performed for the previous FY.

Task 7. Project Management and Administration

This task includes the effort to prepare the PBHSP scope, schedule, and budget for the subsequent fiscal year. A draft *Technical Memorandum Recommended Scope and Budget of the Prado Basin Habitat Sustainability Program for FY 2023/24* will be submitted to the PBHSC in February 2023. A PBHSC meeting will be conducted in March 2023 to review the draft recommended scope and budget and facilitate comments. Also included in this task is project administration, including management of staffing and monthly financial reporting. The scope of this task is consistent with the work performed for the previous FY.

5.0 REFERENCES

- Achard F., and Estreguil, C. (1995). *Forest Classification of Southeast Asia using NOAA AVHRR data. Remote Sensing of the Environment* v. 56, pg. 198-208.
- Alfaro, E.J., Gershunov, A., and Cayan, D. (2006). *Prediction of Summer Maximum and Minimum Temperatures Over the Central And Western United States: The Roles of Soil Moisture And Sea Surface Temperatures. J. Clim* v. 19, 1407-1421.
- Army Corps of Engineers, Los Angeles District, with technical Assistance by the Orange County Water District. (2017). *Five Year (2017 to 2022) Planned Deviation to the Prado Dam Water Control Plan and Sediment Management Demonstration Project. Biological Assessment.* August 2017.
- Associated Engineers, Inc. (2007). *Digital Elevation Model of Southern Chino Basin. Acquired by Airborne 1 Corporation via LIDAR.* March, 2007.
- California Regional Water Quality Control Board, Santa Ana Region. (2016). *Water Quality Control Plan Santa Ana River Basin (Region 8) 1995.* Updated February 2008, June 2011, and February 2016.
- Campbell. (2007). *Introduction to Remote Sensing. Fourth edition.* Published 2007 Guilford Press.
- Chino Basin Watermaster. (2000). *Peace Agreement, Chino Basin. SB 240104 v 1:08350.0001.* 29 June 2000.
- Chino Basin Watermaster. (2007). *Peace II Agreement: Party Support for Watermaster's OBMP Implementation Plan, - Settlement and Release of Claims Regarding Future Desalters. SB 447966 v 1:008250.0001.* 25 October 2007.
- Chino Basin Municipal Water District v. City of Chino et al., San Bernardino Superior Court, No. 164327.* (1978).
- Chen, J., Jonsson, P., Tamura, M, Gu, Z., Matsushita, B., and Eklundh, L. (2004). *A Simple Method for Reconstructing a High-Quality NDVI Time-Series Data Set Based on the Savitzky-Golay filter. Remote Sensing of Environment* v. 91, pg. 332-344.
- Flood, N. (2014). *Continuity of Reflectance Data Between Landsat-7 ET<+ and Landsat-8 OLI, for Both Top-of Atmosphere and Surface Reflectance: A Study in the Australian Landscape. Remote Sensing* v. 6, pg. 7952-7970. August 26, 2014.
- Gandhi, M., Parthiban, S., Thummalu, N., and A., C. (2015). *Ndvi: Vegetation Changes Detection Using Remote Sensing and Gis – A Case Study of Vellore District. Procedia Computer Science* v. 57, pg. 1199-1210.
- Hatfield, J.L., and Prueger, J.H. (2015). *Temperature Extremes: Effect on Plant Growth and Development. Weather and Climate Extremes* v. 10, pg. 4-10.
- Hatfield, J.L, Boote, K.J, Kimball, B.A, Ziska, L.H, Izaurralde, R.C., Ort, D., Thomson, A.M., and Wolfe, D. (2011). *Climate Impacts on Agriculture: Implications for Plant Production. Agron J*, v. 103, P.351-370.
- Hird, J., and McDermid, G. (2009). *Noise reduction of NDVI time series: An Empirical Comparison of Selected Techniques. Remote Sensing of Environment* v. 113, pg. 248-258.
- H. T. Harvey & Associates. (2015). *Prado Basin Preliminary Riparian Habitat Health and Vigor Assessment. Memorandum to the Orange County Water District.* October 26, 2015.
- James, M., and Kalluri, S. (1994). *The Pathfinder AVHRR Land Data Set; an Improved Coarse Resolution Data Set for Terrestrial Monitoring. International Journal of Remote Sensing* v. 15, pg. 3347-3363.
- Jenson, J. (2007). *Remote Sensing of the Environment: An Earth Resource Perspective, Second Edition.* Published 2007 by Prentice-Hall, Upper Saddle River, N.J.
- Johnson, B., at Orange County Water District. (2019). *Email Communication on March 19, 2019.*
- Jones, H., and Vaughan, R. (2010). *Remote Sensing of Vegetation: Principles, Techniques and Applications.* Oxford University Press, Oxford.
- Ke, Y., Im, J., Lee, J., Gong, H., and Ryu, Y. (2015). *Characteristics of Landsat 8 OLI-derived NDVI by Comparison with Multiple Sensors and In-Situ Observations. Remote Sensing of Environment* v. 164, pg. 298-313.

Annual Report of the Prado Basin Habitat Sustainability Committee – WY 2021



- Knowles, N., Dettinger, M.D., and Canyon, D.R. (2006). *Trends in Snowfall Versus Rainfall in The Western United States. J Clim v.19, pg.4545-4599.*
- Law, J. at Santa Ana Watershed Association. *Verbal Communication* on April 11, 2019.
- Li, P., Jiang,L.,Feng,Z. (2014). *Cross Comparison of Vegetation Indices Derived from Landsat-7 Enhanced Thematic Mapper Plus (ETM+) and Landsat-8 Operational Land Imager (OLI) Sensors. Remote Sensing v. 6, pg. 310-329.*
- Lillesand,T., Kiefer, R, and Chipman, J. (2008). *Remote Sensing and Image Interpretation, sixth edition.* Published in 2008 by John Wiley & Sons, New York.
- Markon, C., Fleming, M., and Binnian, E. (1995). *Characteristics of Vegetation Phenology over Alaskan Landscape using AVHRR Time-Series Data. Polar Records v. 31, pg.179-190.*
- Markon, C., and Peterson, K. (2002). *The Utility of Estimating Net Primary Productivity over Alaska Using Baseline AVHRR Data. International Journal of Remote Sensing, v.23, pg. 4571-4596. v*
- McPherson, D., at United States Bureau of Reclamation. (2016). *Verbal Communication on November 2, 2016*
- Merkel & Associates, Inc. (2007). *Evapotranspiration Analysis of the Prado Basin Santa Anan River, California. Prepared for Wildermuth Environmental, Inc. November 2007.*
- Orange County Water District. (2018). *Prado Basin Water Conservation and Habitat Assessment 2017-2018 Report to U.S. Fish and Wildlife Service.* December 2018.
- Orange County Water District. (2022). *Prado Basin Water Conservation and Habitat Assessment 2020-2021 Report to U.S. Fish and Wildlife Service.* March 2022.
- Palenscar, K., at United States Fish and Wildlife. (2016). *Verbal Communication* on November 2, 2016
- Peters, A., Walter-Shea, E., Ji, L, Vina, A., Hayes, M., and Svoboda, M.D. (2002). *Drought Monitoring with NDVI-Based Standardized Vegetation Index. Photogrammetric Engineering & Remote Sensing v. 68, no. 1, pg. 71-75.*
- Pettorelli, N. (2013). *The Normalized Difference Vegetation Index. First edition.* Published 2013 by Oxford University Press.
- Pinzon, J., Brown, M., and Tucker, C. (2004). *Monitoring Seasonal and International Variations in Land-surface Vegetation from 1981-2003 Using GIMMS NDVI.*
- Roy, D., Kovalsky, V., Zhang, H., Vermote, E., Yan, L., Kumar, S, and Egorov, A. (2016). *Characterization of Landsat-7 to Landsat-8 Reflective Wavelength and Normalized Difference Vegetation Index Continuity. Remote Sensing of Environment v. 185, pg. 57-70. January 12, 2016.*
- Inland Empire Utilities Agency and Chino Basin Watermaster. (2008). *Memorandum of Understanding, Cooperative Efforts for Monitoring Programs Between the Inland Empire Utilities Agency and the Chino Basin Watermaster, Bright Line Approach.* 17 December 2008
- Intera Inc. (2015). *Memorandum Remote-Sensing Based Evaluation of Temporal Changes in Riparian Vegetation Health Along Temescal Creek, Prado Reservoir, Corona, California. Prepared for Orange County Water District.* January 30, 2015.
- Santa Ana River Watermaster. (2020). *Forty Seventh Annual Report of the Santa Ana River Watermaster for Water Year October 1, 2018 – September 30, 2019. Draft Report. Prepared for Orange County Water District v. City of Chino, et al. Case No. 117628 – County of Orange.* March 2020
- Santa Ana Watershed Association. (2020). *Annual Regulatory Report Mitigation Projects July 1, 2018 – June 30, 2019.*
- Schimdt, H. and Karnieli, A. (2000). *Remote Sensing of Seasonal Variability of Vegetation in a Semi-Arid Environment. Journal Of Arid Environments V.45, Pg. 43-59.*
- She, X., Zhang L., Cen, Y., Wu, T., Changping, H., and Ali Baig, H. 2015. *Comparison of the Continuity of Vegetation Indices Derived from Landsat * OLI and Landsat 7 ETM+ Data Among Different Vegetation Types. Remote Sensing v.7, pg. 13485-13506.* October 16, 2015.
- Tanre, D., Holden, B., and Kaufman,Y. (1992). *Atmospheric Correction Algorithm for NOAA_AVHRR Products; Theory and Application. IEE Journal of Geosciences and Remote Sensing, V. 30, Pg. 231-248.*

Annual Report of the Prado Basin Habitat Sustainability Committee – WY 2021



- Tom Dodson & Associates. (2000). *Program Environmental Impact Report for the Optimum Basin Management Program (SCH#2000041047)*. Prepared for the Inland Empire Utilities Agency. July 2000.
- Tom Dodson & Associates. (2010). *Final Subsequent Environmental Impact Report for the Inland Empire Utilities Agency Peace II Agreement Project*. Prepared for the Inland Empire Utilities Agency. 25 September 2010.
- Tucker C., Justice, C., and Prince, S. (1986). *Monitoring the Grasslands of Sahel 1984-1985*. *International Journal of Remote Sensing*, v. 71, pg. 1571-1581.
- Tucker C., Grant, D., and Dykstra, J.D. (2004). *NASA's Global Orthorectified Landsat Data Set*. *Photogrammetric Engineering & Remote Sensing*, v. 70, pg. 313-322.
- United States Bureau of Reclamation, Lower Colorado Regional Office. (2008). *Hydraulic Control Monitoring Plan, Task 5.2: Vegetation Survey at the Prado Reservoir, Report No 2 of 5*. Prepared for the Inland Empire Utilities Agency. March 2008.
- United States Bureau of Reclamation, Lower Colorado Regional Office. (2015). *Riverside and San Bernardino Counties, California Inland Empire Utility Agency Hydraulic Control Monitoring Plan, Task 5.2: Report No 3 of 5. Draft Report*. April 2015.
- United States Bureau of Reclamation. (2020). *Technical Service Center Hydraulic Investigation and Laboratory Services Ecological Research Laboratory. Prado Basin Vegetation Survey September 2019 Riverside and San Bernardino Counties, California Inland Empire Utility Agency Task 5.2 Draft Report*. March 2020.
- United States Department of Agriculture. (1996). *Using NDVI to Assess Departure from Average Greenness and its Relation to Fire Business*. Burgan, R.E., Hartford, R.A, and Eidenshink, J.C. *General Technical Report INT-GTR-333*. April 1996.
- United States Department of Agriculture. (1999). *Percent Canopy Cover and Stand Structure Statistics from the Forest Vegetation Simulator*. April 1999.
- United States Department of Agriculture, Forest Service Region Pacific Southwest Region – State and Private Forestry. (2013). *Pest Alert. New Pest Complex in California: The Polyphagous Shot Hole Borer, Euwallacea sp., and Fusarium Dieback, Fusarium euwallaceae. R5-PR-032*. November 4, 2013.
- United State Geological Survey. (2013). *Landsat Ecosystem Disturbance Adaptive Processing System (LEDAPS) Algorithm Description. Open-File Report 2013-1057*. 2013.
- United State Geological Survey. (2016). *Product Guide – Landsat Surface Reflectance-Derived Spectral Indices. Version 3.3*. December 2016.
- United State Geological Survey. (2017a). *Product Guide – Landsat 4-7 Climate Data Record (CDR) Surface Reflectance. Version 7.2*. January 2017.
- United State Geological Survey. (2017b). *User Guide – Earth Resources Observation and Science (EROS) Center Science Processing Architecture (ESPA) On Demand Interface. Version 3.7*. January 2017.
- Verbesselt, J., Hyndman, R., Newnham, G., and Culvenor, D. (2010). *Detecting Trend and Seasonal Changes In Satellite Image Time-Series*. *Remote Sensing of Environmental*, V. 17, Pg. 231-235.
- Weiss, J., Gutzler, D., Allred Coonrod, J., and Dahm, C. (2004). *Long-term vegetation monitoring with NDVI in a diverse semi-arid setting central New Mexico, USA*. *Journal of Arid Environments* v. 58, pg. 249-272.
- Wildermuth Environmental, Inc. (1999). *Optimum Basin Management Program. Phase I Report*. Prepared for the Chino Basin Watermaster. August 19, 1999.
- Wildermuth Environmental, Inc. (2007). *2007 Chino Basin Watermaster Groundwater Model Documentation and Evaluation of the Peace II Project Description. Final Report*. November 2007.
- Wildermuth Environmental, Inc. (2015). *2013 Chino Basin Groundwater Model Update and Recalculation of Safe Yield Pursuant to the Peace Agreement (Final Report)*. Prepared for the Chino Basin Watermaster. October 2015.
- Wildermuth Environmental, Inc. (2016). *2016 Adaptive Management Plan for the Prado Basin Habitat Sustainability Program, Final*. Prepared for the Inland Empire Utilities Agency and Chino Basin Watermaster. August, 2016.

Annual Report of the Prado Basin Habitat Sustainability Committee – WY 2021



- Wildermuth Environmental, Inc. (2017). *Annual Report of the Prado Basin Habitat Sustainability Committee Water Year 2016*. July 2017.
- Wildermuth Environmental, Inc. (2018). *Annual Report of the Prado Basin Habitat Sustainability Committee Water Year 2017*. June 2018.
- Wildermuth Environmental, Inc. (2019). *Annual Report of the Prado Basin Habitat Sustainability Committee Water Year 2018*. June 2019.
- Wildermuth Environmental, Inc. (2020). *2020 Safe Yield Recalculation Report*. May 2020.
- Wang, J., Rich, P., Price, K., and Kettle, W. (2004). *Relations Between NDVI and Tree Productivity in The Central Great Plains*. *International Journal of Remote Sensing*, V. 25, Pg. 3127-3138.
- Woodside, G., at Orange County Water District. *Verbal communication* on March 15, 2017.
- Xie, Y., Sha, Z., and Yu, M. (2008). *Remote Sensing Imagery in Vegetation Mapping: A Review*. *Journal of Plant Ecology*. V. 1, no.1, pg 9-23.
- Xue, J. and Su, B. (2017). *Significant Remote Sensing Vegetation Indices a Review of Development and Applications*. *Journal of Sensors* V. 2017, Article ID 1353691 17 pages.
- Zemba, R., at Orange County Water District. *Verbal communication* on March 14, 2017.
- Zemba, R., at Orange County Water District. *Email communication* on April 5, 2018.



A.1 BACKGROUND

Multi-spectral remote-sensing measurements of the Earth’s surface from satellites are a verifiable means of deriving complete spatial coverage of environmental information. Remote-sensing measurements have been collected in a consistent manner over time. They are updated regularly and can be analyzed retrospectively, which has made these measurements useful in various types of ecological and environmental monitoring, including vegetation monitoring (USDA, 1996; Schidt and Karnieli, 2000; Campbell, 2007; Lillesand et al., 2008; Xie et al., 2008; Jones and Vaughnan, 2010).

Remote sensing-based methods of vegetation monitoring commonly use vegetation indices that can be calculated from the wavelengths of light absorbed and reflected by vegetation (Jensen, 2007). NDVI is a widely used numerical indicator of vegetation extent and quality that is calculated from remote-sensing measurements (Ke et al., 2015; Xue,J and Su, B., 2017). Moreover, NDVI is an index of greenness correlated with photosynthesis and can be used to assess temporal and spatial changes in the distribution, productivity, and dynamics of vegetation (Pettorelli, 2013). NDVI is calculated from visible and near-infrared radiation reflected by vegetation using the following formula:

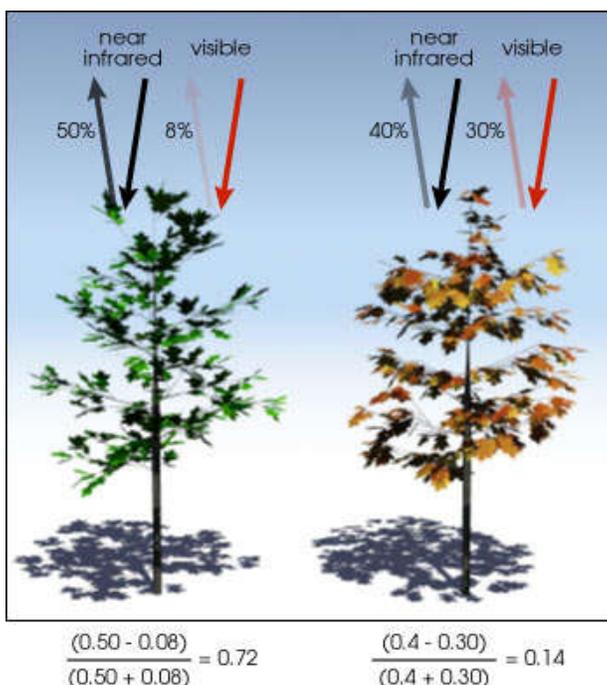
$$NDVI = \frac{(NIR - VIS)}{NIR + VIS}$$

Where: **NIR** = the spectral reflectance of near infrared radiation.

VIS = the spectral reflectance of visible (red) radiation.

During photosynthesis, healthy vegetation absorbs incoming visible light and reflects a large portion of near-infrared radiation. Unhealthy or dormant vegetation absorbs less visible light and reflects less near--infrared radiation. The figure¹ illustrates NDVI:

¹ [Nasa.gov](https://www.nasa.gov)



Near-infrared radiation and visible light spectral reflectance are both expressed as ratios of the reflected radiation over the incoming radiation (values between 0 and 1); therefore, NDVI estimates range between -1.0 and 1.0. Negative NDVI estimates correspond to standing water, and low positive values (0 to 0.1) correspond to non-vegetated areas, such as barren rock and sand, snow, and water. NDVI estimates ranging from 0.1 to 1.0 correspond to vegetated areas, with very low-end estimates indicating sparse, unhealthy, or dormant vegetation, and increasing estimates towards 0.9 indicating higher amounts of dense, healthy green vegetation.

Advantages and Limitations.

NDVI was chosen as a method for characterizing and monitoring the riparian habitat for the PBHSP for the following reasons:

- Peace II activities could cause regional changes in groundwater levels, which potentially could result in regional impacts to the riparian habitat that is dependent on shallow groundwater. The regional scale of NDVI makes it an appropriate “first indicator” of regional changes in the extent and quality of riparian vegetation. And, it has been widely used in the past to support similar environmental monitoring and management programs (Peters et al., 2002; Pinzon et al., 2004; Wang et al., 2004; Weiss et al., 2004; Intera, 2014; Verbesselt et al, 2010; Gandhi et al. 2015).
- There is a long time-series of historical NDVI (early 1980s to present) that spatially covers the entire Prado Basin. These datasets can be used to characterize the history of the spatial extent and quality of the riparian vegetation prior to and after the implementation of Peace II activities (2007).



- In the future, it is likely that multi-spectral remote sensing will continue to collect the commonly measured spectral bands that are used to calculate NDVI (red and near-infrared) and that these data will be available for use as part of the PBHSP at a low cost.

Like most monitoring tools, NDVI has its limitations, which can reduce its reliability and usefulness. Important examples include:

- Cloud cover, water vapor, and atmospheric contaminants can lead to false decreases in NDVI estimates compared to clear days (Tanre et al., 1992; Achard and Estreguil, 1995; Chen et al., 2004; Hird and McDermid, 2009).
- Satellite degradation, sensor errors, and data transmission errors can lead to false increases in NDVI estimates (James and Kalluri, 1994).
- Changes in soil moisture can lead to changes in NDVI estimates that are not necessarily related to changes in vegetation (Pettorelli, 2013).
- NDVI is a composite view of plant species diversity, form, structure, density, and vigor. As such, changes in NDVI may be caused by various changes in riparian habitat (Markon et al., 1995; Markon and Peterson, 2002). In other words, NDVI does not provide a complete picture of how and why vegetative changes are occurring; it simply indicates a change in vegetation.
- In densely vegetated areas, NDVI estimates have been shown to plateau during the growing season, indicating that NDVI can underestimate the green biomass in densely vegetated areas (Tucker et al., 1986).

These limitations demand that NDVI data be screened and filtered to identify or remove errors and noise. To reduce or eliminate noise, processing algorithms can be applied to “smooth” the time-series data and reveal patterns of change over time. For example, a smoothing technique applied in this report was the averaging of all NDVI from the growing season months. The average values are then plotted on time-series charts to display long-term trends in growing season vegetation quality.

The limitations also demand that NDVI not be interpreted in isolation. Interpretations of NDVI (vegetative changes) should be (i) verified with other georeferenced datasets, such as air photos and field vegetation surveys, and (ii) explained by comparison to datasets of causal factors of vegetative changes, such as water availability.

A.2 LANDSAT PROGRAM AND NDVI

The USGS and the National Aeronautics and Space Administration (NASA) jointly manage the Landsat Program,² a series of Earth-observing satellite missions that began in 1972 with sensors that observe the Earth’s surface and transmit information to ground stations that receive and process multi-spectral, remote-sensing data. Landsat satellites use technology that collects scenes of remote sensing

² [Nasa.gov](https://www.nasa.gov)



measurements at the same time and location on the Earth’s surface at a temporal frequency of about every two weeks. Landsat remote sensing measurements (Landsat imagery) is acquired in scenes that are approximately 106 by 115 miles. Landsat imagery is the only data source with more than thirty-years of continuous records of global land surface conditions at a spatial resolution of tens of meters (Tuck et al 2004). Landsat imagery is among the most widely used satellite imagery in ecology and conservation studies (Pettorelli, 2013), and the data have been available for no cost since about 2010.

The United States Geological Survey (USGS), in compliance with the Global Climate Observing System,³ produces spectral indices products from Landsat imagery to support land surface change studies, which includes NDVI from 1982 to present (USGS, 2016). The USGS uses remote sensing imagery from the Landsat satellites—*Landsat 4, Landsat 5, Landsat 7, and Landsat 8 (Landsat 4, 5, 7, and 8)*—to generate NDVI estimates of the Earth’s surface at a 30 x 30-meter pixel resolution. To apply the necessary atmospheric corrections and generate a surface reflectance product, the USGS uses a specialized software called Landsat Ecosystem Disturbance Adaptive Processing System (LEDAPS) to post-process the Landsat imagery (USGS 2015; 2017a). This surface reflectance product is then used to determine NDVI, among the other spectral indices.

A.3 Collection, Review, and Analysis of NDVI for the PBHSP

Collection

NDVI from the Landsat imagery for the period 1982 to 2021 were collected from the USGS, using the Earth Resources Observation and Science (EROS) Center Science Processing Architecture (ESPA) On Demand Interface⁴ (USGS 2017b). The interface requires a bulk request in the form of a text file list of specific Landsat scenes using the Landsat scene identifier ID.⁵ To obtain complete spatial coverage of the Prado Basin area, NDVI was requested for all Landsat scenes for Path 040, Rows 036 and 037.⁶ Table 1 below summarizes the Landsat satellites and periods for which NDVI was obtained to produce a near-continuous NDVI record.

³ [Link](#)

⁴ [USGS LINK](#)

⁵ Landsat imagery is captured in scenes that are about 106 by 114 miles. Each Landsat scene has a unique scene ID based on the specific Landsat satellite, Landsat path number, Landsat row number, and date the image was collected.

⁶ The Prado Basin is in an area of the Landsat path 040 that straddles Rows 036 and 037. Landsat scenes from Path 040 Row 036 and Path 040 Row 037 overlap each other throughout most of the Prado Basin region, but both are required to obtain complete spatial coverage of the Prado Basin.



Table 1. Landsat Satellites

Satellite	Instrument	Launched	Ended	Period of NDVI Data Obtained from USGS
Landsat 4	Thematic Mapper	July 16, 1982	December 14, 1993	1982 - 1983
Landsat 5	Thematic Mapper	March 1, 1984	June 5, 2013	1984 - 2011
Landsat 7	Enhanced Thematic Mapper	April 15, 1999	Still active	2012 - 2016
Landsat 8	Operational Land Imager	February 11, 2013	Still active	2013 - 2021

NDVI from scenes produced from the *Landsat 4, 5, 7, and 8* satellites were obtained from the USGS for the period 1982 through 2020. The source and frequency of availability of NDVI from the USGS varies over the period of record:

- From 1982 to 1989, NDVI is from Landsat 4 and 5 and is patchy, ranging from a frequency of eight days to one year.
- From 1990 to 1999, NDVI is from Landsat 5 at a frequency of 16 days.
- From 1999 to 2012, NDVI is from Landsat 5 and 7 at a frequency of eight days.
- From 2013 to 2021, NDVI is from Landsat 7 and 8 at a frequency of eight days.

NDVI were cataloged, processed, and uploaded into HydroDaVESM, a database management software that manages gridded datasets and features tools for viewing and extracting data.⁷ There is some overlap of NVDI data in areas where there is NVDI from Landsat scenes from Rows 036 and 037. HydroDaVE has the ability to compute a stacked average for Landsat scenes from Rows 036 and 037 for each NDVI pixel they overlay⁸ when viewing and extracting NDVI data.

Review

Spatial NDVI were reviewed for disturbances that can be caused by cloud cover, unfavorable atmospheric conditions, or satellite equipment malfunction. In HydroDaVESM, maps were prepared of spatial NDVI for the entire Prado Basin region for each date. The maps were reviewed and documented to identify specific dates for exclusion due to cloud cover or other disturbances. Erroneous NDVI estimates were discernable because NDVI patterns of permanent landscape features were distorted and/or NDVI estimates were clearly not consistent with estimates typically observed for a particular area both seasonally and over time. On average, about 21 percent of the NDVI were identified as erroneous and excluded from the

⁷ [Hydrodave Link](#)

⁸ Not all dates will have Landsat scenes for both Rows 036 and 037 if cloud cover was greater than 20 percent in one of them; Landsat scenes with a percent cloud cover greater than 20 percent were not obtained from the USGS for this study.



analysis. Most of which were rejected because of cloud coverage, which was further verified by referencing and viewing the specific Landsat scene on the USGS *EarthExplorer* website.⁹

After excluding erroneous NDVI estimates, there was one date for 1982, and there were no dates for 1983; as such, the time-series data discussed throughout Section 3 of the report include NDVI estimates for 1984-2021.

NDVI estimates derived from *Landsat 7* satellite imagery since mid-2003 have to be further reviewed date-by-date for the occurrence of spatial data gaps, resulting from the failure of the Scan Line Corrector (SLC) on the *Landsat 7* satellite, which accounts for the satellite's forward motion. SLC failure results in data gaps along scan line paths of variable widths and occurrences. An estimated 22 percent of any given *Landsat 7* scene is lost because of SLC failure; however, the imagery acquired between these gaps is valid and useable for analysis.¹⁰ All NDVI estimates derived from *Landsat 7* satellite imagery since 2003 were evaluated spatially date-by-date to determine if the valid portion of the data covers the defined areas of interest used for the temporal analysis of NDVI in the time series discussed in Section 3 of this report. Date-by-date analysis is necessary because the spatial position and size of the data gaps from the *Landsat 7* satellite vary for each date. Generally, areas of interest for NDVI analysis that are larger than about 400 square meters cannot use any NDVI determined from *Landsat 7* satellite imagery because it would include data gaps within the area; while areas of interest less than 400 square meters can use NDVI determined from the *Landsat 7* satellite imagery if the data gap area is not within the area of interest.

Analyses of Time-series Data

HydroDaVESM contains features to calculate and extract a spatial average NDVI for a designated area and time period. The NDVI spatial average for each available date is plotted in time-series charts to analyze seasonal and temporal changes for a defined area. Time-series charts of NDVI for various areas in the Prado Basin are first introduced in Section 3.1 of this report.

When viewing time-series charts of NDVI for the period of record, it should be noted that a methodological factor that can affect observed NDVI trends is the difference between the technology of the *Landsat 4, 5, and 7* satellites, and the *Landsat 8* satellite. The *Landsat 4, 5, and 7* satellites use thematic mapper technology to scan the land surface, whereas *Landsat 8* uses operational land imager sensors. It has been well documented that the NDVI estimates obtained from the operational land imager sensors used on the *Landsat 8* satellite generates slightly higher index values for vegetated land cover (Xu and Guo 2014; She et al., 2015). The *Landsat 8* satellite was launched in orbit in 2013, and since, NDVI has been available from both the *Landsat 7 and 8* satellites. In order to analyze the time-series of NDVI derived across all Landsat satellites for the period of record, a bias-correction factor of -0.05, derived from literature review (Li et al., 2014; Flood, 2014: and Ke et al., 2015), was used to transform all *Landsat 8* NDVI estimates such that all historical NDVI estimates could be analyzed collectively (Roy et al., 2016).

⁹ [Earthexplorer Link](#)

¹⁰ [Landsat Link](#)



A.4 References

- Achard F., and Estreguil, C. 1995. *Forest Classification of Southeast Asia Using NOAA AVHRR data*. Remote Sensing of the Environment v. 56, pg. 198-208.
- Chen, J., Jonsson, P., Tamura, M, Gu, Z., Matsushita, B., and Eklundh, L. 2004. *A Simple Method For Reconstructing A High-Quality NDVI Time-Series Data Set Based On The Savitzky-Golay Filter*. Remote Sensing Of Environment V. 91, Pg. 332-344.
- Campbell, 2007. *Introduction to Remote Sensing. Fourth edition*. Published 2007 Guilford Press.
- Gandhi, M., Parthiban, S., Thummalu, N., and A., C. 2015. *Ndvi: Vegetation Changes Detection Using Remote Sensing And Gis – A Case Study Of Vellore District*. Procedia Computer Science v. 57, pg. 1199-1210.
- Hird, J., and McDermid, G. 2009. *Noise reduction of NDVI time series: An Empirical Comparison of Selected Techniques*. Remote Sensing of Environment V. 113, Pg. 248-258.
- Intera Inc. 2015. *Memorandum Remote-Sensing Based Evaluation of Temporal Changes in Riparian Vegetation Health Along Temescal Creek, Prado Reservoir, Corona, California*. Prepared for Orange County Water District. January 30, 2015.
- Jones, H., and Vaughan, R. 2010. *Remote Sensing of Vegetation: Principles, Techniques and Applications*. Oxford University Press, Oxford.
- Jenson, J. 2007. *Remote Sensing of the Environment: An Earth Resource Perspective, Second Edition*. Published 2007 by Prentice-Hall, Upper Saddle River, N.J.
- James, M., and Kalluri, S. 1994. *The Pathfinder AVHRR Land Data Set; An Improved Coarse Resolution Data Set for Terrestrial Monitoring*. International Journal Of Remote Sensing V. 15, Pg. 3347-3363.
- Ke, Y., Im, J., Lee, J., Gong, H., and Ryu, Y. 2015. *Characteristics of Landsat 8 OLI-derived NDVI by Comparison with Multiple Sensors and In-Situ Observations*. Remote Sensing of Environment v. 164, pg. 298-313.
- Lillesand, T, Kiefer, R, and Chipman, J. 2008. *Remote Sensing and Image Interpretation, Sixth Edition*. Published in 2008 by John Wiley & Sons, New York.
- Markon, C., Fleming, M., and Binnian, E. 1995. *Characteristics of Vegetation Phenology Over Alaskan Landscape Using AVHRR Time-Series Data*. Polar Records v. 31, pg.179-190.
- Markon, C., and Peterson, K. 2002. *The Utility Of Estimating Net Primary Productivity Over Alaska Using Baseline AVHRR Data*. International Journal of Remote Sensing, v.23, pg. 4571-4596
- Pettorelli, N. 2013. *The Normalized Difference Vegetation Index*. First edition. Published 2013 by Oxford University Press.
- Peters, A., Walter-Shea, E., Ji, L, Vina, A., Hayes, M., and Svoboda, M.D. 2002. *Drought Monitoring with NDVI-Based Standardized Vegetation Index*. Photogrammetric Engineering & Remote Sensing v. 68, no. 1, pg. 71-75.
- Pinzon, J., Brown, M., and Tucker, C. 2004. *Monitoring Seasonal and International Variations in Land-surface Vegetation from 1981-2003 Using GIMMS NDVI* . [Landval Link](#)

Appendix A

NDVI



- She, X., Zhang L., Cen, Y., Wu, T., Changping, H., and Ali Baig, H. 2015. *Comparison of the Continuity of Vegetation Indices Derived from Landsat * OLI and Landsat 7 ETM+ Data Among Different Vegetation Types*. Remote Sensing v.7, pg. 13485-13506. October 16, 2015. pg. 13485-13506. October 16, 2015.
- Schimdt, H. and Karnieli, A. 2000. *Remote Sensing of Seasonal Variability of Vegetation In A Semi-Arid Environment*. Journal of Arid Environments v.45, pg. 43-59.
- Tucker C., Justice, C., and Prince, S. 1986. *Monitoring the Grasslands of Sahel 1984-1985*. International Journal of Remote Sensing, v. 71, pg. 1571-1581.
- Tucker C., Grant, D., and Dykstra, J.D. 2004. *NASA's Global Orthorectified Landsat Data Set*. Photogrammetric Engineering & Remote Sensing, v. 70, pg. 313-322.
- United State Geological Survey. 2013. *Landsat Ecosystem Disturbance Adaptive Processing System (LEDAPS) Algorithm Description*. Open-File Report 2013-1057. 2013.
- United State Geological Survey. 2016. *Product Guide – Landsat Surface Reflectance-Derived Spectral Indices*. Version 3.3. December 2016.
- United State Geological Survey. 2017a. *Product Guide – Landsat 4-7 Climate Data Record (CDR) Surface Reflectance*. Version 7.2. January 2017.
- United State Geological Survey. 2017b. *User Guide – Earth Resources Observation and Science (EROS) Center Science Processing Architecture (ESPA) On Demand Interface*. Version 3.7. January 2017.
- United States Department of Agriculture. 1996. *Using NDVI to Assess Departure From Average Greenness and its Relation to Fire Business*. Burgan, R.E., Hartford, R.A, and Eidenshink, J.C. General Technical Report INT-GTR-333. April 1996.
- Verbesselt, J., Hyndman, R., Newnham, G., and Culvenor, D. 2010. *Detecting Trend and Seasonal Changes In Satellite Image Time-Series*. Remote Sensing of Environmental, v. 17, pg. 231-235.
- Wang, J., Rich, P., Price, K., and Kettle, W. 2004. *Relations between NDVI and Tree Productivity in The Central Great Plains*. International Journal of Remote Sensing, v. 25, pg. 3127-3138.
- Weiss, J., Gutzler, D., Allred Coonrod, J., and Dahm, C. 2004. *Long-Term Vegetation Monitoring with NDVI In A Diverse Semi-Arid Setting Central New Mexico, USA*. Journal of Arid Environments v. 58, pg. 249-272.
- Xie, Y., Sha, Z., and Yu, M. 2008. *Remote Sensing Imagery In Vegetation Mapping: A Review*. Journal of Plant Ecology. V. 1, no.1, pg 9-23.
- Xue, J. and Su, B. 2017. *Significant Remote Sensing Vegetation Indices a Review of Development and Applications*. Journal of Sensors V. 2017, Article ID 1353691 17 pages

Mann-Kendall Analysis of NDVI



B.1 Introduction

The Mann-Kendall statistical trend test (Mann-Kendall test) was performed on the average growing--season NDVI metrics (NDVI) for the period of 1984 to 2020 for all 15 areas where NDVI are analyzed for the *Annual Report of the Prado Basin Habitat Sustainability Committee Water Year 2020*. The Mann--Kendall test was utilized to evaluate whether the average growing-season NDVI increased, decreased, or remained stable over time.

B.2 Methods

The Mann-Kendall test is a non-parametric statistical trend test. It is analogous to parametric trend testing such as regression (linear regression) except the data do not need to have a particular probability distribution (normal) and be accurately described by a particular measure of centrally tendency (mean, standard deviation, etc.) (Helsel and Hirsch, 2002).

To perform the test, the NDVI values are ordered chronologically and the signs (+/–) are recorded for all of the possible differences between a given NDVI value and every NDVI value that preceded it in the time series. The Mann-Kendall test statistic **S** is defined as the number of positive differences (+) minus the number of negative differences (–). From **S** and the number of NDVI values, **n**, the τ coefficient (analogous to the **r** correlation coefficient in linear associations) is then calculated. The τ coefficient represents the strength of the monotonic relationship between time and NVDI values with a possible range of -1 to 1. A perfect positive trend would yield a τ coefficient equal to 1, and a perfect negative trend would yield a τ coefficient equal to -1.

The Mann-Kendall test utilizes the null hypothesis that there is no trend. If the **S** test statistic and τ coefficient are significantly different than zero, the null hypothesis is rejected, and a trend exists. The level of statistical significance is expressed as a p-value between 0 and 1. The smaller the p-value the stronger the evidence that the null hypothesis should be rejected. In this study, a p-value of less than or equal to 0.05 was used to determine if a trend existed. In summary, the three possible outcomes of the test are

- Increasing trend (p-value \leq 0.05, $\tau > 0$)
- No trend (p-value $>$ 0.05)
- Decreasing trend (p-value \leq 0.05, $\tau < 0$)

B.4 Data Analysis and Results

The Mann-Kendall **S** test statistic, τ coefficient and p-value were computed for average-growing season NDVI from 1984 to 2020 for the 15 areas in Prado Basin, using the python package pyMannKendall (Hussain, 2019). Table B-1 through B-3 lists the results of the Mann-Kendall test for the three time periods of interest: 1984 through 2020; 1984 through 2006; and 2007 through 2020.

Appendix B

Mann-Kendall Analysis of NDVI Data I



Table B-1. 1984 to 2021

Area	n (number of NDVI values)	S Test Statistic	τ coefficient	p-value	Trend
Riparian Vegetation Extent	37	110	0.17	1.54E-01	No Trend
Chino Creek Area	37	414	0.62	6.61E-08	Increasing
Mill Creek Area	37	-32	-0.05	6.85E-01	No Trend
CC-1	38	349	0.50	1.21E-05	Increasing
CC-2	38	493	0.70	6.20E-10	Increasing
CC-3	38	453	0.64	1.33E-08	Increasing
CC-4	38	269	0.38	7.54E-04	Increasing
MC-1	38	339	0.48	2.14E-05	Increasing
MC-2	38	87	0.12	2.80E-01	No Trend
MC-3	38	91	0.13	2.58E-01	No Trend
MC-4	38	213	0.30	7.69E-03	Increasing
SAR-1	38	-97	-0.14	2.27E-01	No Trend
SAR-2	38	-59	-0.08	4.66E-01	No Trend
SAR-3	38	217	0.31	6.62E-03	Increasing
LP	38	207	0.29	9.60E-03	Increasing

Table B-2. 1984 to 2006

Area	n (number of NDVI values)	S Test Statistic	τ coefficient	p-value	Trend
Riparian Vegetation Extent	23	33	0.13	3.98E-01	No Trend
Chino Creek Area	23	99	0.39	9.65E-03	Increasing
Mill Creek Area	23	-97	-0.38	1.12E-02	Decreasing
CC-1	23	49	0.19	2.05E-01	No Trend
CC-2	23	137	0.54	3.28E-04	Increasing
CC-3	23	143	0.57	1.77E-04	Increasing
CC-4	23	19	0.08	6.35E-01	No Trend
MC-1	23	33	0.13	3.98E-01	No Trend
MC-2	23	-53	-0.21	1.70E-01	No Trend
MC-3	23	-47	-0.19	2.24E-01	No Trend
MC-4	23	13	0.05	7.51E-01	No Trend
SAR-1	23	1	0.00	1.00E+00	No Trend
SAR-2	23	-119	-0.47	1.83E-03	Decreasing
SAR-3	23	-55	-0.22	1.54E-01	No Trend
LP	23	-37	-0.15	3.42E-01	No Trend



Appendix B
Mann-Kendall Analysis of NDVI Data I

Table B-3. 2007 to 2021

Area	n (number of NDVI values)	S Test Statistic	τ coefficient	p-value	Trend
Riparian Vegetation Extent	14	3	0.03	9.13E-01	No Trend
Chino Creek Area	14	35	0.38	6.27E-02	No Trend
Mill Creek Area	14	29	0.32	1.25E-01	No Trend
CC-1	15	25	0.24	2.35E-01	No Trend
CC-2	15	63	0.60	2.15E-03	Increasing
CC-3	15	43	0.41	3.77E-02	Increasing
CC-4	15	41	0.39	4.78E-02	Increasing
MC-1	15	61	0.58	2.99E-03	Increasing
MC-2	15	49	0.47	1.75E-02	Increasing
MC-3	15	45	0.43	2.94E-02	Increasing
MC-4	15	-1	-0.01	1.00E+00	No Trend
SAR-1	15	77	0.73	1.69E-04	Increasing
SAR-2	15	43	0.41	3.77E-02	Increasing
SAR-3	15	51	0.49	1.33E-02	Increasing
LP	15	29	0.28	1.66E-01	No Trend

B.5 References

Helsel, D.R., and Hirsch R.M. 2002. *Statistical Methods in Water Resources*. Techniques of Water Resource Investigations of the United States Geological Survey, Book, 4 Hydrological Analysis and Interpretation. September 2002.

Hussain et al. 2019. *Journal of Open Source Software*. pyMannKendall: a python package for non parametric Mann Kendall family of trend tests. 4(39), 1556, <https://doi.org/10.21105/joss.01556>

CHINO BASIN WATERMASTER

III. REPORTS/UPDATES

E. INLAND EMPIRE UTILITIES AGENCY

1. MWD Update (Written)
2. State and Federal Legislative Reports (Written)
3. Community Outreach/Public Relations Report (Written)
4. Groundwater Recharge Update (Oral Report)



CHINO BASIN WATERMASTER

ADVISORY COMMITTEE

June 16, 2022

INLAND EMPIRE UTILITIES AGENCY REPORTS

The following items are provided for receive and file.

- MWD Dry Year Yield Program Update
- Metropolitan Water District Activities Report
- Water Supply Conditions
- State and Federal Legislative Reports
- Community Outreach/Public Relations Report

MWD Dry Year Yield Program Update

For the month of May 2022, there was a 2,528.8 AF withdrawal from the Dry Year Yield account by CVWD. The account balance is 0 acre-feet.

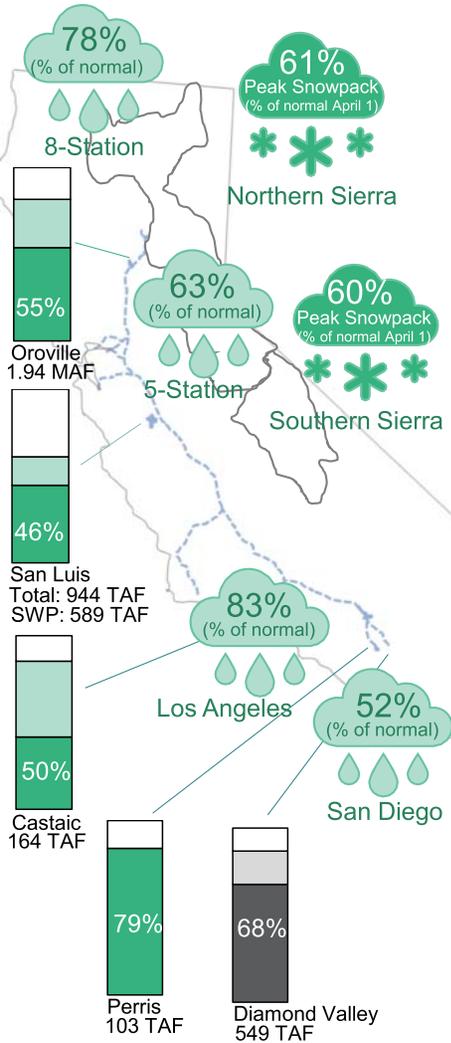
DYY Account Balance (June 2017-Present)	
"PUTS"	
Recharged water	58,387.92
ASR injection	4,935.70
"TAKES"	
CVWD	55,823.62
Fontana Water Co.	7,500.00
TOTAL	0.00

Month	Planned			Certified					
	Recharge	ASR	TAKES	Recharge	ASR	Losses	Basin Losses	TAKES***	
FY 16/17	June	6,000.0	-	-	6,318.7	-	3.8	-	-
	July	6,531.5	-	-	7,345.9	-	-	-	-
	August	6,531.5	-	-	7,074.8	-	6.7	-	-
	September	6,320.9	250.0	-	3,793.8	154.5	-	-	-
	October	2,922.6	250.0	-	4,538.1	277.6	249.3	-	-
	November	1,483.2	300.0	-	2,504.4	267.5	61.3	-	-
	December	1,222.4	400.0	-	3,639.3	276.4	285.8	-	-
FY 17/18	January	1,222.4	400.0	-	4,195.3	247.5	(86.0)	-	-
	February	1,222.4	400.0	-	-	316.2	-	-	-
	March	1,222.4	400.0	-	-	362.7	-	-	-
	April	1,695.7	100.0	-	-	287.0	-	-	-
	May	4,083.0	-	-	-	305.6	-	-	-
	June	6,143.9	-	-	-	-	-	4.4	-
FY 18/19	May	-	-	-	-	-	-	-	-
	June	5,000.0	350.0	-	4,413.5	389.4	185.4	29.0	-
	July	6,000.0	350.0	2,548.0	4,314.0	457.8	181.2	-	2,421.1
	August	6,000.0	350.0	2,852.0	4,803.9	434.2	201.8	-	2,861.4
	September	5,000.0	350.0	2,206.0	2,218.6	403.3	144.5	-	2,695.0
	October	4,000.0	350.0	1,874.0	1,842.5	277.3	105.8	-	2,922.3
	November	2,000.0	350.0	1,280.0	1,223.5	267.6	44.0	-	1,995.0
	December	2,000.0	350.0	971.0	1,176.3	211.1	17.6	-	500.0
FY 19/20	January	-	-	844.0	491.7	-	7.4	-	-
	February	-	-	780.0	-	-	-	-	-
	March	-	-	1,204.0	-	-	-	-	-
	April	-	-	1,710.0	-	-	-	-	-
	May	-	-	1,988.0	-	-	-	-	1,500.0
	June	-	-	1,743.0	-	-	-	32.2	2,500.0
	July	-	-	2,700.0	-	-	-	-	2,700.0
	August	-	-	2,500.0	-	-	-	-	2,500.0
	September	-	-	2,500.0	-	-	-	-	2,500.0
	October***	-	-	5,000.0	-	-	-	-	5,000.0
	November	-	-	-	-	-	-	-	-
	December	-	-	3,500.0	-	-	-	-	3,500.0
FY 20/21**	January	-	-	-	-	-	-	-	-
	February	-	-	-	-	-	-	-	-
	March	-	-	-	-	-	-	-	-
	April	-	-	1,000.0	-	-	-	-	2,000.0
	May	-	-	2,600.0	-	-	-	-	2,600.0
	June	-	-	2,700.0	-	-	-	32.2	2,200.0
	July	-	-	2,900.0	-	-	-	-	2,800.0
	August	-	-	2,800.0	-	-	-	-	2,800.0
	September	-	-	2,800.0	-	-	-	-	2,600.0
	October	-	-	5,000.0	-	-	-	-	2,000.0
	November	-	-	-	-	-	-	-	6,800.0
	December	-	-	3,500.0	-	-	-	-	1,000.0
FY 21/22	January	-	-	-	-	-	-	-	-
	February	-	-	-	-	-	-	-	-
	March	-	-	-	-	-	-	-	-
	April	-	-	1,000.0	-	-	-	-	2,400.0
	May	-	-	2,400.0	-	-	-	-	2,528.8
	June	-	-	2,600.0	-	-	-	-	-
	Subtotal	76,602.1	4,950.0	65,500.0	59,894.3	4,935.7	1,408.6	97.8	63,323.6
DYY Account Total									0.00

*estimated, not currently certified
 Note-- losses include ET losses at this time.
 January 2018 CB-15 certification corrected to include an additional 213.8 AF for a net credit of 86 AF.
 **June 2020 request was sent to all agencies to see if there was interest in voluntary withdrawals from the DYY account. CVWD and Fontana Water Co. responded. Opportunity for additional voluntary withdrawals will be offered to all agencies in March 2021.
 *** DYY Takes are for CVWD unless otherwise specified. October 2020 includes 2,500 AF certified Take from Fontana Water Co.

State Water Project Resources

SWP Table A – 5% - 95,575 AF



WATER SUPPLY CONDITIONS REPORT

Water Year
2021-2022
As of: June 02, 2022

Colorado River Resources

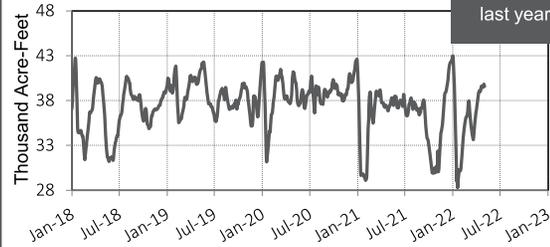
Projected CRA Diversions – 1,135,000 AF

Metropolitan Resources

Lake Skinner Storage

Capacity: 44 TAF

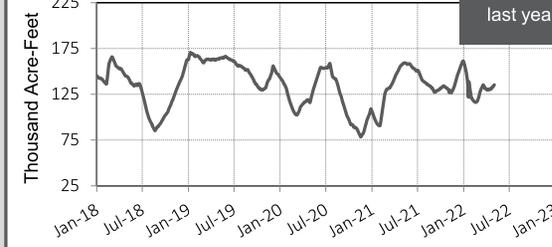
2.2 TAF
more than
last year



Lake Mathews Storage

Capacity: 182 TAF

23 TAF
less than
last year



MWD WSDM Storage

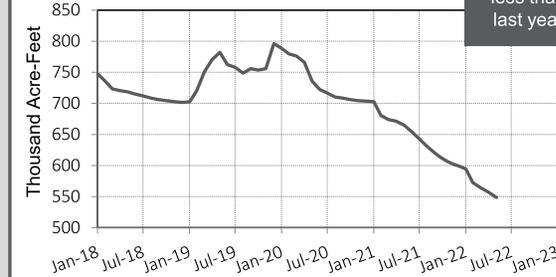
Calendar Year 2022

	Take Capacity
Colorado River Aqueduct Delivery System	351 TAF
State Water Project System	185 TAF
In-Region Supplies and WSDM Actions	426 TAF
Other Programs	10 TAF
Total WSDM Storage Take Capacity	972 TAF

Diamond Valley Lake Storage

Capacity: 810 TAF

116 TAF
less than
last year



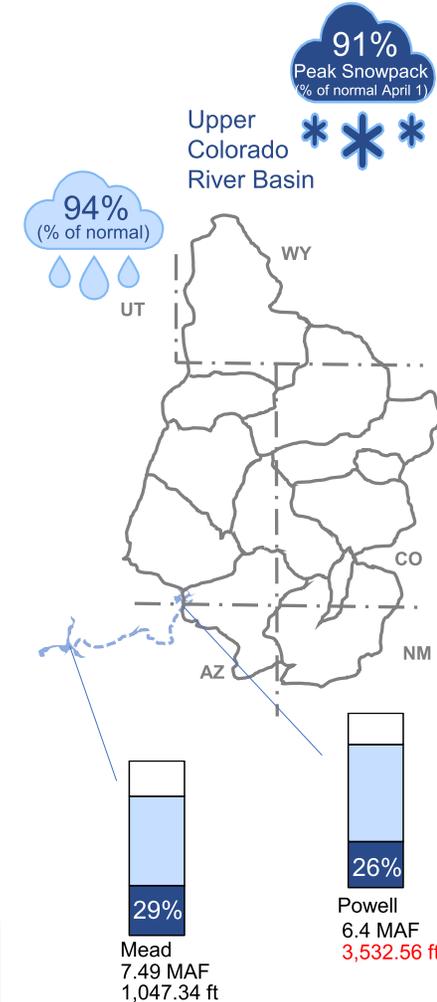
Highlights

- For more information on the current drought:
 - <https://www.mwdh2o.com/planning-for-tomorrow/how-we-plan/drought/>



This report is produced by the Water Resource Management Group and contains information from various federal, state, and local agencies. The Metropolitan Water District of Southern California cannot guarantee the accuracy or completeness of this information. Readers should refer to the relevant state, federal, and local agencies for additional or for the most up to date water supply information. Reservoirs, lakes, aqueducts, maps, watersheds, and all other visual representations on this report are not drawn to scale. Questions? Email mferreira@mwdh2o.com

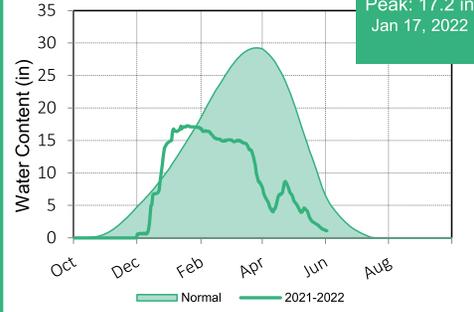
<http://www.mwdh2o.com/WSCR>



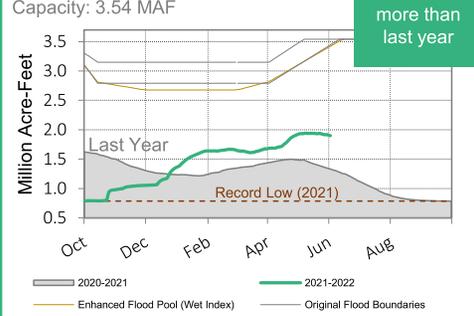
State Water Project Resources

As of: 06/02/2022

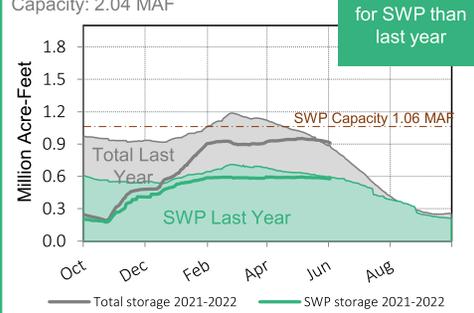
Northern Sierra Snowpack



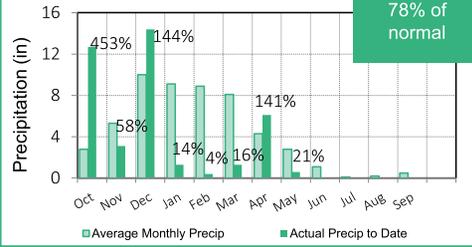
Orville Reservoir Storage



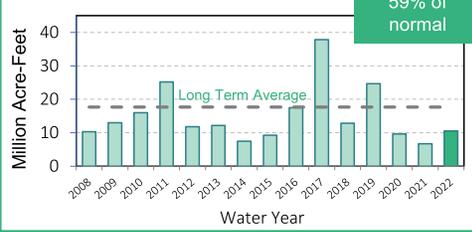
San Luis Reservoir Storage



8 Station Index Precipitation



Sacramento River Runoff

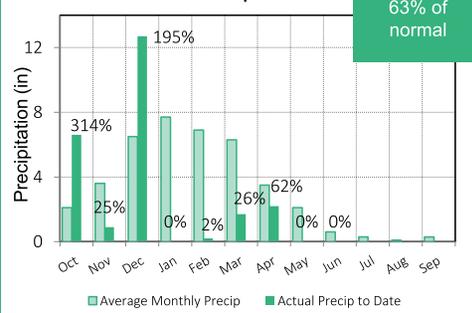


Other SWP Supplies

Calendar Year 2022

Carryover 38,000 AF (Est.)

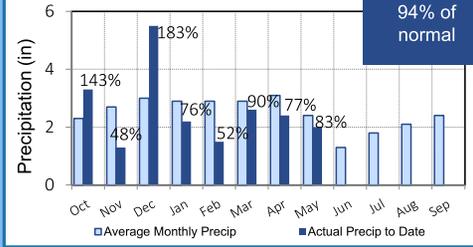
5 Station Index Precipitation



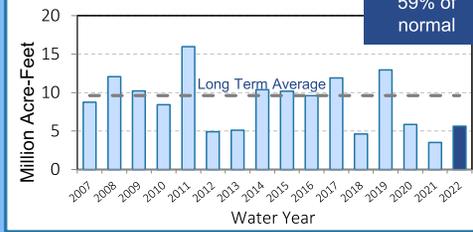
Colorado River Resources

As of: 06/02/2022

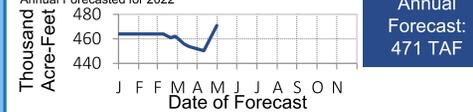
Upper Colorado Precipitation



Powell Unregulated Inflow



PVID/Yuma Agricultural Use



Projected Lake Mead ICS

Calendar Year 2022

Put (+) / Take (-)

-280,000 AF

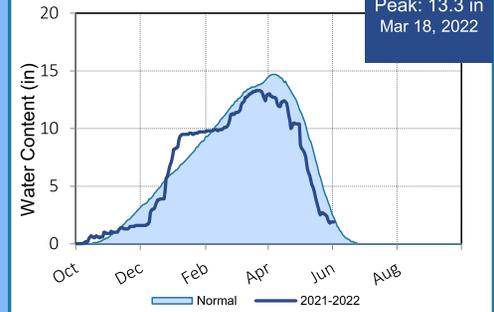
Lake Mead Surplus/Shortage Outlook

	2022	2023	2024	2025	2026
Surplus	0%	0%	0%	0%	0%
Shortage	100%	100%	93%	100%	87%
Metropolitan DCP*	180 TAF	272 TAF	290 TAF	299 TAF	

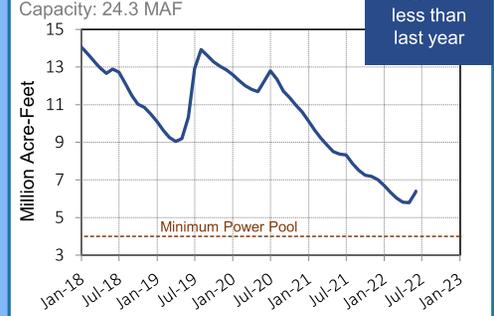
Likelihood based on results from the May 2022 CRMMIS in Ensemble Mode/CRSS model run. Includes DCP Contributions. Only includes 500+ Plan items implemented to date.

* Chance of required DCP contribution by Metropolitan. Volume is average contribution when needed.

Upper Colorado Snowpack



Lake Powell Storage



Lake Mead Storage



<http://www.mwdh2o.com/WSCR>

<http://www.mwdh2o.com/WSCR>



Metropolitan Water District of Southern California (MWD) Board Activities Report

June 2022

DROUGHT STATUS - AS OF 06/06/2022

Info: Cathleen Pieroni, IEUA

MWD approves seasonal distribution of State Water Project (SWP) allocation:

✉ cpieroni@ieua.org
☎ 909.217.6943

See www.MWDh2o.com for broadcasts of MWD Board meetings:

- June 13 & 14, 2022

Shift Scenario	June	July	Aug	Sept	Oct	Nov	Dec	Sub-Total
WFA	1,840	2,370	2,370	2,370	1,840	1,137	950	12,877
FWC	858	950	950	950	950	671	671	6,000
CVWD	2,184	2,184	2,184	2,184	2,184	2,183	2,183	15,286
Total IEUA	4,882	5,504	5,504	5,504	4,974	3,991	3,804	34,163

MWD Capital Improvement Program Updates

During the 3rd Quarter, board actions heard in open session included nine project-specific actions summarized in Table 1 below. These actions awarded three contracts totaling approximately \$7.4 million and authorized ten new professional/technical services agreements totaling a not-to-exceed amount of approximately \$15.3 million. The table below excludes information on board items heard in closed session.

Table 1: 3rd Quarter Board Actions

Month	Board Letter Item No.	Project	Action taken
January	7-2	Skinner Facility Area Paving	Awarded \$1,936,977 construction contract
February	7-2	Iron Mountain and Gene Pumping Plant Utility Replacement; CRA Desert Region Security Improvements; and Iron Mountain Pumping Plant Station Power and Lighting Switchrack Rehabilitation	Authorized three agreements not-to-exceed \$2,650,000, \$650,000, and \$650,000
February	7-3	La Verne Water Quality Laboratory Upgrades	Authorized two agreements not-to-exceed \$4,400,000 and \$550,000
February	7-4	West Area Water Supply Reliability Improvements: West Area Supply and Delivery Alternatives, Drought Response Westside Pump Station	Authorized two unplanned projects; authorized an agreement not-to-exceed \$300,000
February	7-5	PCCP Rehabilitation Valve and Equipment Storage Building	Awarded \$4,759,000 construction contract
March	7-2	Cabazon Radial Gate Facility Upgrades and San Diego Canal Radial Gate Replacement	Authorized two agreements not-to-exceed \$890,000 and \$904,000
March	7-3	Western San Bernardino County Operating Region Erosion Control Improvements – Stage 1	Awarded \$677,989 construction contract
March	7-4	CRA Conduit Erosion Control Improvements	Authorized an agreement not-to-exceed \$2,800,000
March	7-8	Diamond Valley Lake East Marina Utility Improvements	Authorized an agreement not-to-exceed \$1,500,000



Other Board Items of Interest:

- **MWD Continues to Seek Additional Drought Actions.** IEUA is working with its retail agencies to develop a list of projects providing short-term drought relief (see the chart to the left). MWD is looking for projects yielding over 400 TAFY of new water supplies.
- **MWD to Begin Repairs on Upper Feeder at Santa Ana Bridge.** MWD recently completed short-term repairs on the portion of the Upper Feeder pipeline along the Santa Ana bridge. A 14-day shutdown in August or September will be required to replace stainless steel slip joint. During this shutdown, MWD will need to access an estimated 20,000 of additional SWP supplies to meet demands that normally would be met by 750 cfs of Colorado River supplies. MWD plans to request additional Health & Safety SWP supplies from DWR during the shutdown to meet demands.

INNOVATIVE FEDERAL STRATEGIES, LLC

Comprehensive Government Relations

MEMORANDUM

To: IEUA Community and Legislative Affairs Committee

From: Letitia White, Jean Denton, and Drew Tatum

Date: May 26, 2022

Re: May Monthly Legislative Update

Top Democrats Speak Out after Draft Supreme Court Ruling Released

In early May, House Speaker Nancy Pelosi (D-CA) and Senate Majority Leader Chuck Schumer (D-NY) offered harsh criticism after a purported draft majority opinion that would overturn *Roe v. Wade* was leaked by Politico.

The draft opinion was written by Justice Samuel Alito and declares the 1992 decision in *Planned Parenthood v. Casey* has no constitutional grounding. The court is expected to release a final opinion on cases heard this term before the end of June when the court takes its traditional summer break.

Both Schumer and Pelosi said the draft ruling would “inflict the greatest restriction of rights in the past fifty years — not just on women but on all Americans.”

In a joint statement they said, “The Republican-appointed Justices’ reported votes to overturn *Roe v. Wade* would go down as an abomination, one of the worst and most damaging decisions in modern history.”

The leak is unprecedented as the Supreme Court hasn’t experienced leaks of Justices’ positions, much less draft opinions of the Court, prior to the public release of those documents.

It has also caused fierce debate and pushback from Democrats who are now calling to remove the legislative filibuster to pass legislation codifying *Roe vs. Wade*. However, they would need total unity from their caucus – which they don’t have.

Earlier this year, a vote in the Senate to codify abortion rights failed with a 46-48 vote. Senator Joe Manchin (D-WV) voted with Republicans.

Democrats are now using this ruling to energize their voting base as they head into midterm elections this November.

Senate Panel Advanced Water Projects Bill

The Senate Environment and Public Works Committee took an important step in advancing biennial legislation to authorize water resources projects.

Innovative Federal Strategies LLC

After EPW Committee Chairman Tom Carper (D-DE) released draft text, the Committee met on May 4, 2022 to report the legislation to the full Senate. It advanced out of the EPW Committee unanimously.

The Water Resources Development Act (WRDA) of 2022 would authorize much-needed investments in the projects and programs of the U.S. Army Corps of Engineers (Corps) across the country. For the first time since 2007, the bill authorizes new environmental infrastructure projects and modifies existing ones. It also directs the Corps to expedite the completion of several ongoing studies and projects that are critical to addressing coastal and inland flood risk mitigation, navigation, and ecosystem restoration.

“Our committee has shown, yet again, that we can come together across the aisle to help meet the pressing water infrastructure needs of the American people,” Senator Carper said. “This year’s reauthorization of the Water Resources Development Act would authorize the modification of existing and construction of new, critical Army Corps projects in Delaware and throughout the country — projects that will significantly improve quality of life, create good-paying jobs, and protect communities against the threats of climate change. I am proud of our committee’s bipartisan work in advancing this legislation and look forward to its consideration by the full Senate.”

In addition to key policy reforms, WRDA 2022 authorizes 36 new Corps feasibility studies and authorizes or modifies 21 projects for construction. The legislation also includes authorizations to study modifications to existing projects.

The legislation would facilitate the timely completion of much-needed improvements to the country’s inland waterways system by reducing the strain on the Inland Waterways Trust Fund. It also proposes to address harbor deepening and maintenance needs for commercially significant ports and authorizes new avenues for the provision of assistance to underserved community harbors that are critical to local and regional authorities.

The legislation also aims to improve inland and coastal resilience and restore ecosystems through investments in the protection and restoration of shorelines and riverbanks. The bill streamlines the implementation of shoreline protection and restoration projects to aid communities most vulnerable to coastal storms and enables communities to partner with the Corps to develop water resources projects that directly address risks of extreme weather.

The bill also authorizes the Corps to do significant work to mitigate the impact of repetitive drought conditions and conserve water supplies.

The House Transportation and Infrastructure Committee released their own version of the Water Resources Development Act in May, marking up the legislation on Wednesday, May 18. Similar to the Senate version of the legislation, the House advanced their version of the bill by voice vote.

Innovative Federal Strategies LLC

The House's bill authorizes the construction of 16 pending Corps Chief's Reports received since the enactment of WRDA 2020 and 72 feasibility studies for water resources development projects, including those identified through the public review process established by section 7001 of the Water Resources Reform and Development Act of 2014.

The Legislation directs the Corps to expedite the completion of 15 feasibility studies currently underway. It also authorizes critical water and wastewater infrastructure assistance for community driven projects carried out by the Corps throughout the nation.

Both the House and Senate are expected to consider their versions of the legislation during the coming months. Once both chambers have passed their respective bills, the legislation will be conferenced and a final conference report will be sent to both chambers for adoption. Congress has successfully enacted four consecutive WRDA bills on a biennial basis going back to 2014.

COVID Aid Funding Deal Needs to be Reworked after Funding Spent

Lawmakers will have to renegotiate a Covid-19 therapeutics and vaccine funding deal because billions of dollars designated as offsets have already been spent, key senators said.

Senators struck a bipartisan deal in April to spend \$10 billion on Covid resources, and to offset its cost by rescinding previously appropriated funds.

Now, some of the key authors of the initial deal, Sens. Mitt Romney (R-UT) and Roy Blunt (R-MO), said lawmakers will have to resume negotiations on the offsets when they eventually decide to take up a Covid bill. Between \$2 billion and \$4 billion of the \$10 billion in funds designated as offsets have already been spent.

Blunt added that the previous agreement to spend \$10 billion overall may also need to change. The needs have increased over nearly two months, he said.

White House officials have repeatedly asked for more than \$20 billion in Covid aid.

The development adds another challenge to the process of agreeing to a Covid bill, which has been delayed due to fights over offsets, immigration, international aid, and a general lack of motivation among lawmakers.

Romney said lawmakers will have to renegotiate the offsets, but that it won't happen until Senate Majority Leader Chuck Schumer (D-NY) looks to take up a bill. He said he thinks lawmakers will be able to find enough new offsets when they're motivated.

"We'll probably need to update the pay-fors, but so far Leader Schumer has not been willing to put the bill on the floor," Romney said. "Until he does, it's kind of moot."

DHS Secretary Faces Congressional Border Pushback

Department of Homeland Security Secretary Alejandro Mayorkas faced tough questions from House and Senate lawmakers this month about how his department is handling the crisis at the border. Secretary Mayorkas appeared Wednesday before two Senate Committees, following three House hearings during the prior week.

Lawmakers from both parties argued the Department of Homeland Security isn't prepared for an impending increase in migrant arrivals the agency expects when pandemic-related Title 42 border restrictions end.

"I remain concerned about the department's ability to get additional, much-needed resources to the border," said Sen. Maggie Hassan (D-NH), one of several Senate Democrats who've raised concerns about ending the public health authority.

Bipartisan concern over the planned termination derailed a vote last month on a Covid-19 aid package continued to complicate the Senate's effort to advance both Covid and Ukraine aid legislation. Title 42 has allowed border officials to immediately expel asylum-seekers and other migrants since 2020. The Biden administration has wanted to lift the policy this month, though court challenges may delay the timeline.

Sen. Kyrsten Sinema (D-AZ), who co-sponsored a bill to keep Title 42 in place, argued DHS lacks capacity to handle an increase in migrant arrivals. The agency has modeled scenarios of up to 18,000 migrants arriving a day after the policy ends, up from about 7,000 a day at the southern border in March.

Mayorkas told lawmakers on the Senate Homeland Security and Governmental Affairs Committee and the Appropriations Homeland Security Subcommittee that DHS has already surged personnel to the border and would try to move money within the agency to address growing needs at the southern border. Sen. Shelley Moore Capito (R-WV), the top Republican on the subcommittee, raised concerns about leaving other parts of DHS's mission under-funded.

Secretary Mayorkas said he would request supplemental funding from Congress if needed, a prospect that has already raised some skepticism in the House. He also repeatedly pressed lawmakers to pass legislation to improve the immigration system and relieve stress on the border.

Mayorkas tried to put to rest at least one border-related complaint, telling the appropriations panel the Department of Veterans Affairs would not divert resources to help with southern border management. Republicans seized on the prospect earlier in the month and introduced legislation to block the VA from spending money on border assistance.

Outrage over the border was partially overshadowed during the Senate hearings by DHS's latest politically volatile move: the creation of a disinformation board that Republicans have compared to an Orwellian "Ministry of Truth." Mayorkas tried to ease concerns by stressing that the initiative simply aims to establish standards and best practices for DHS's longstanding efforts to fight disinformation that threatens homeland security.

Note that the White House has been blocked from rescinding the Title 42 policy by a federal judge. On Friday, May 20, a federal judge out of Louisiana blocked the Biden administration from winding down the pandemic-related border restriction that allows for the immediate expulsion of asylum-seekers and other migrants.

The preliminary injunction, issued by the US District Court for the Western District of Louisiana, provides a more permanent stop to the administration's plans while the lawsuit led by a multi-state coalition of Republican attorneys general plays out.

Judge Robert R. Summerhays granted a temporary restraining order April 27 that prevented the Department of Homeland Security from phasing out Title 42 ahead of its planned end date.

The controversy surrounding Title 42 had been holding up COVID-relief legislation. Despite the court's ruling, Republicans are not expected to drop demands for a floor vote on a Title 42 related amendment as part of considering additional coronavirus relief.

EPA to Keep Obama-era Smog Standards

This month, the Environmental Protection Agency (EPA) suggested it will keep an Obama-era rule on ground-level ozone pollution.

The draft assessment is the first step in officially keeping the standard in place. In June, the EPA's Clean Air Scientific Advisory Committee will meet to make a decision. EPA Administrator Michael Regan must then sign off.

However, some environmentalists and anti-air pollution groups expressed concern as the rule affirms a final decision made by the Trump EPA in December 2020.

The 2015 standards established a maximum of 70 parts per billion for the ozone – the primary component of smog. Environmentalists have pushed to have this reduced to 60.

The Sierra Club's Senior Director of Energy Campaigns said, "Suggesting the EPA uphold the grossly outdated standards for smog pollution that have resulted in most Americans facing unhealthy summer air quality just as families and communities are hoping to spend more time outdoors, is not only wrong, it's dangerous. Climate change is making summertime smog pollution even worse, further burdening communities across the country – in particular Black and Brown communities – that have lived under the constant weight of dangerous pollutants driving respiratory illness and asthma rates. We urge the Biden Administration to apply a more sound scientific approach."

Five GOP Lawmakers Subpoenaed by January 6 Panel

The House Select Committee to Investigate the January 6th 2021 Attack on the Capitol issued subpoenas for five sitting Republican Members of Congress. Those subpoenaed include: Minority Leader Kevin McCarthy (R-CA), Representative Scott Perry (R-PA), Representative

Innovative Federal Strategies LLC

Jim Jordan (R-OH), Representative Andy Biggs (R-AZ), and Representative Mo Brookes (R-AL).

This is the first time the Select Committee has sent subpoenas to their own colleagues in the House.

Representative Bennie Thompson (D-MS), the chairman of the panel, said that the committee decided to send them after the Republican members refused to speak voluntarily.

“The Select Committee has learned that several of our colleagues have information relevant to our investigation into the attack on January 6th and the events leading up to it,” Thompson said in a statement. “Before we hold our hearings next month, we wished to provide members the opportunity to discuss these matters with the committee voluntarily,” Thompson said of the upcoming June public hearings.

Thompson noted that the Committee had previously asked these members for their voluntary cooperation, but noted that they refused to comply with that request and said the committee was “forced to take this step to help ensure the committee uncovers facts concerning January 6th.”

The Committee stated that Leader McCarthy was in communication with the White House before and after the Capitol attack.

The panel went on to say that Representative McCarthy, “...claimed to have had a discussion with the President in the immediate aftermath of the attack during which President Trump admitted some culpability for the attack.”

This is likely a reference to an interview in which McCarthy said, “I say [President Trump] has responsibility. He told me personally that he does have some responsibility. I think a lot of people do.”

Prior, the panel has focused its subpoenas on non-lawmakers like members of the Trump administration. It is rare for Committees, outside the House Ethics Committee, to subpoena sitting Members of Congress.

Several of the lawmakers subpoenaed, including McCarthy have already indicated they will challenge them in court as other witnesses have done. If the lawmakers refuse to cooperate, the Committee could refer their non-compliance to the House Ethics Committee, which has an equal number of Republicans and Democrats. Given the makeup of the Ethics Committee, the Select Committee could also seek to have the House hold those Members in contempt, but it is unclear if the Department of Justice or Federal Courts would want to get involved in a Legislative Branch dispute.

Department of Interior Announces 46 Water Infrastructure Projects Will Be Funded

The Department of Interior announced they will be allocating funding to prove water infrastructure in 46 projects across 11 states.

The funding will be around \$240.4 million from the Bipartisan Infrastructure Law and will include projects such as canal lining repairs and upgrades and replacements to water pipelines. Of the projects there will be canal repair projects in Arizona, California, Idaho, Nevada, and Wyoming and pipeline repairs in Nebraska.

Interior Secretary Deb Haaland said in a statement, “President Biden’s Bipartisan Infrastructure Law is making a historic investment in drought resilience and water infrastructure. As western communities face growing challenges accessing water in the wake of record drought, these investments in our aging water infrastructure will safeguard community water supplies and revitalize water delivery systems.”

David Palumbo, the Bureau of Reclamation’s Acting Commissioner added, “The Bureau of Reclamation, in partnership with states and local water districts receiving municipal water and irrigation water from federally-owned projects, is responsible for much of the water infrastructure in the West. These water systems work because of this federal to non-federal partnership, and this funding will help to complete necessary extraordinary maintenance keeping projects viable and partnerships strong.”

President Biden Signs Bill into Law to Expedite Ukrainian Military Aid

On May 9, the President signed a bill to expedite the process for the U.S. to send military equipment to Ukraine amidst the ongoing Russian invasion.

The Ukraine Democracy Defense Lend-Lease Act of 2022 passed Congress with bipartisan support. The bill was originally introduced by Senator John Cornyn (R-TX) and Senator Ben Cardin (D-MD) and allows the United States to lend or lease military equipment to Ukraine and other allies in Eastern Europe while making it easier to do so. The bill revives a World War II-era policy that was put in place to counter Nazi Germany.

After signing, President Biden stated, “Every day Ukrainians pay with their lives. The cost of the fight is not cheap but caving to aggression is even more costly. That’s why we’re staying in this.”

The bill’s passage was met with enthusiastic support from Ukrainian President Zelensky who tweeted, “Today’s signing of the law on Lend-Lease is a historic step. I am convinced that we will win together again. And we will defend democracy in Ukraine. And in Europe. Like 77 years ago.”

President Biden also announced he plans to send another \$150 million in military aid to Ukraine.

Congress also approved the Additional Ukraine Supplemental Appropriations Act, 2022, which President Biden signed into law on May 21, 2022. That legislation will provide Ukraine with an additional \$40 billion in security, economic, and humanitarian assistance.

House Passes Gasoline Price-Gouging Bill

The House passed, H.R.7688, the Democrats' bill aimed at combating "price gouging on gasoline" on May 19, 2022.

The bill passed 217-207, with 4 Democrats joining all Republicans in opposition. The legislation is unlikely to gain traction in the Senate where it would need support from ten Republicans to advance. Despite headwinds in the Senate, House Democrats view it as part of a major messaging push to blame the oil industry for skyrocketing prices.

Democrats claims of price gouging have been met with some skepticism from analysts, who continue to blame market forces for high gasoline prices. Still, Democrats point to record profits posted by major oil companies as evidence.

If this legislation were to become law, it would outlaw the selling of fuel at an "excessive" price during an energy emergency, though it does not detail any particular price threshold. This legislation would also empower the Federal Trade Commission (FTC) to pursue legal action if instances of price gouging were discovered.

Gas prices hit new highs averaging \$4.59/gallon and market analysts repeatedly suggest they are being primarily driven by Russia's invasion of Ukraine, as well as pandemic recovery. Others have pointed to factors including refiners shifting toward other, more profitable fuels.

House, Senate Work on Formula Shortage Legislation

The House and Senate have been working on multiple pieces of legislation aimed to assist families dealing with a shortage of infant formula.

Recently, both the House and Senate passed H.R.7791, the Access to Baby Formula Act of 2022. This legislation authorizes the Department of Agriculture (USDA) to take actions to address emergencies, disasters, and supply chain disruptions that impact participants of the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC).

The bill directs USDA to require each infant formula cost containment contract to include remedies in the event of an infant formula recall, including how an infant formula manufacturer would protect against disruption to WIC participants in the state. It also authorizes USDA to waive or modify any WIC qualified administrative requirement during emergencies, disasters, and supply chain disruptions.

The legislation passed the House on May 18 by a vote of 414-9 and by unanimous consent in the Senate on May 19. President Biden signed the legislation into law on May 21, 2022.

The House also passed H.R.7790, a supplemental appropriations bill to provide \$28 million in emergency funding that aims to give the U.S. Food and Drug Administration (FDA) the resources it needs to address the urgent infant formula shortage. This legislation may face opposition in the Senate, as Republicans have indicated the three-page bill will likely do little to directly assist in the middle of the crisis.

Innovative Federal Strategies LLC

A group of Senate Democrats introduced a bill to protect families who rely on infant formula and other essential sources of nutrition (ESN) from future shortages.

The Protect Infants from Formula Shortages Act would also safeguard the availability of these products by requiring manufacturers to notify the FDA of potential supply disruptions, giving the agency time to prevent or mitigate potential shortages. The proposed bill would also direct formula manufacturers to develop risk management plans for the supply of their products and increase the FDA's inspection authority.

Senators Bob Casey (PA), Sherrod Brown (OH), Elizabeth Warren (MA), Tammy Duckworth (IL), and Kristen Gillibrand (NY) introduced the legislation.

In a statement, Casey said Congress has the “responsibility” to tackle this issue, adding they must do everything to ensure that parents have formulas on the shelves.

Recently, 32 Senate Democrats sent a letter to President Biden requesting he appoint a White House coordinator to address the ongoing issue. Senators Tammy Baldwin (WI) and John Hoeven (ND) also wrote to FDA Commissioner Dr. Robert Califf on Thursday pressing his agency to provide information about its actions leading up to the shortage and what steps they are taking to prevent another one.

The White House has also taken steps independently to address the formula shortage, including by invoking the Defense Production Act for the materials used to manufacture and supply formula. The administration has also worked with foreign countries to acquire formula and has used government resources to airlift supplies to the United States.

However, the head of the FDA recently told Senators the nation's infant formula shortage likely won't be fully resolved until late July.

Speaker Pelosi Believes Congress Could Pass COMPETES Act Before July 4

House Speaker Pelosi told reporters that Congress could pass the “transformational” America COMPETES Act before July 4, saying they hope to celebrate its passage before the holiday. Negotiators on the conference committee from the House and Senate are actively working to negotiate a compromise that can pass both chambers.

The America COMPETES Act of 2022 would approve billions of dollars for programs to accelerate U.S. manufacturing of critical supplies and goods such as semiconductor chips, strengthening the U.S. in sectors dominated largely by China. The bill is also intended to address the supply chain disruptions still plaguing the nation, which has increased inflation.

The bill is more than 2,000 pages long and will authorize a wide array of services, investments and programs intended to increase American-made goods and address supply chain woes that shook the economy during the pandemic. Specifically, the bill will create a \$52 billion fund via the Chips for America Act to invest in U.S. produced semiconductor chips; authorize \$45 billion

Innovative Federal Strategies LLC

to bolster American supply chains; and create new programs and research centers to help advance scientific research into cutting edge technologies.

Supply chain disruptions — including a massive semiconductor chip shortage — caused by the pandemic are one reason for inflation reaching a 40-year high in April. High inflation and economic concerns are the largest concern for American voters ahead of the midterm elections, according to polls.

The America COMPETES Act first passed the House in February before the Senate used the bill to pass their own version of the legislation that had already passed the chamber in 2021.

21 Democratic AG's File Motion to Intervene in California Emissions Lawsuit

Democratic attorneys general from 20 states and the District of Columbia filed a motion on May 19 to intervene in a lawsuit from Republican attorneys general against the EPA over California's vehicle emissions standards.

The Democrats, led by California Attorney General Rob Bonta, filed the motion in defense of the state's standards which are stricter than federal standards.

The Trump administration had revoked a 2013 waiver in 2019 that allowed California to impose more stringent standards than the federal government, but EPA Administrator Michael Regan reversed the revocation in March after announcing in 2021 the EPA would review the decision.

“California's standards are some of the best tools we have to reduce emissions, fight climate change, and protect public health. But unfortunately, there are some who continue to ignore these benefits, choosing inexplicably to defend outdated, pollution-generating vehicles even as technologies enabling emissions reductions and cost savings continue to advance,” Bonta said in a statement.

Bonta filed the motion in the U.S. Court of Appeals for the D.C. Circuit. He was joined by the attorney general for Colorado, Connecticut, Delaware, Hawaii, Illinois, Maine, Maryland, Massachusetts, Minnesota, Nevada, New Jersey, New Mexico, New York, North Carolina, Oregon, Pennsylvania, Rhode Island, Vermont and Washington, as well as the District of Columbia and the cities of New York and Los Angeles.

17 Republican attorneys general, led by Ohio's Dave Yost, also announced a lawsuit against the EPA over the restoration of the waiver, claiming that allowing the state to set its own standards under the Clean Air Act violated the doctrine equal sovereignty.

President Biden to Visit Uvalde on Sunday in Wake of School Shooting

President Biden will travel to Uvalde, Texas to meet with community members and families in the aftermath of a school shooting that left 21 people dead, including 19 children.

Biden will be accompanied by first lady Jill Biden, the White House said. The two will “grieve with the community that lost twenty-one lives in the horrific elementary school shooting.” Both the president and first lady had previously indicated they would travel to Uvalde to mourn the shooting.

In the days since the shooting at Robb Elementary School, the president has expressed outrage over inaction on gun laws by Congress and frustration over the cycle of gun violence in the country. The Uvalde massacre came less than two weeks after a gunman killed 10 people inside a grocery store in Buffalo, N.Y.

The Texas massacre marked the deadliest school shooting since a 2012 attack on Sandy Hook Elementary School in Newtown, Conn., which left 26 people dead, including 20 children.

Much of the scrutiny in Uvalde is centering on the actions of law enforcement on the scene. Authorities originally said an officer engaged the shooter as he approached the school, but on Thursday police clarified nobody confronted the gunman before he entered the building.

Biden Signs Policing Order

President Biden issued an executive order to revise use-of-force policies for federal law enforcement on May 25’s two-year anniversary of the death of George Floyd at the hands of Minneapolis police.

The order restricts no-knock warrants and ban chokeholds by federal law enforcement agencies. It will also offer guidance on responding to mental health crises and create a central database for officer misconduct records.

Floyd’s death, and the deaths of several other people of color at the hands of law enforcement, sparked nationwide protests against racial injustice and police brutality. House Democrats passed a sweeping law-enforcement revamp named after Floyd in March 2021, but bipartisan negotiations in the Senate collapsed in September.

Biden’s executive order, which White House officials have been working on for months, includes several elements of the lawmakers’ efforts.

Bill Number	Sponsors	Title and/or Summary	Summary/Status	Latest Action
Not Yet Introduced	Various	FY23 Appropriations Bills	The House and Senate Appropriations Committee Deadlines have all passed as of the end of May for lawmakers to submit programmatic, language, and Community Project Funding / Congressionally Directed Spending Requests.	<p>The House Appropriations Committee is scheduled to markup all twelve of its FY23 Appropriations bills during the month of June. Subcommittee markups will be held during the weeks of June 12 and June 20. Full Committee markups will be held the week of June 20 and 27.</p> <p>The Senate Appropriations Committee has not yet scheduled markups, though the Professional Staff expect markups to begin in late July.</p>
H.R.5376	President Joe Biden / Congressional Democrats	Build Back Better Act	The Build Back Better Act proposes spending nearly \$2 trillion over a 10-year period, with certain programs expiring after only a year or two to keep the total cost of the bill down.	<p>Congressional Democrats hope to use the budget reconciliation process to pass elements of the administration's American Families Plan.</p> <p>Efforts to pass the legislation in 2021 were unsuccessful even after the House passed a modified version of the legislation.</p> <p>Senator Joe Manchin came out in opposition to the legislation in late-2021, though he has recently expressed a willingness to pass a scaled-back version of the legislation that is paid for through tax increases. He has indicated that the scope of the legislation would need to be limited to do a few things permanently rather than create several new programs for a short period of time.</p> <p>There is no current timeline or legislative language for a package that may be considered in the Senate.</p>

S. 29 / H.R. 2008	Sen. Amy Klobuchar (D-MN) / Rep. Angie Craig (D-MN)	Local Water Protection Act	A bill to amend the Federal Water Pollution Control Act to reauthorize certain programs relating to nonpoint source management, and for other purposes.	The Senate legislation was introduced on January 22, 2021 and referred to the Committee on Environment and Public Works. The legislation in the House was introduced on March 18, 2021 and passed the House under suspension of the rules on June 15.
H.R 1563	Rep. Mike Garcia (R-CA)	To extend the authorities under the Water Infrastructure Improvements for the Nation Act of 2016 providing operational flexibility, drought relief, and other benefits to the State of California	The legislation would extend the authorities under the Water Infrastructure Improvements for the Nation Act of 2016 providing operational flexibility, drought relief, and other benefits to the State of California. The legislation would extend 4007 authorities through January 1, 2028.	Introduced on March 3, 2021 and was referred to the House Committees on Natural Resources and Science, Space, and Technology.
S.984 / H.R.2238	Sen. Jeff Merkley (D-OR) / Rep. Alan Lowenthal (D-CA)	Break Free from Plastic Pollutions Act	The comprehensive legislation would require corporations to take responsibility for pollution, incentivize corporations to make reusable products and items that can be recycled, create a nationwide beverage container refund program, and other items to promote recycling and other investments in U.S. domestic recycling.	Introduced on March 25, 2021 and referred to the House Committees on Energy and Commerce, Ways and Means, Transportation, and Foreign Affairs.
H.R 866	Rep. Ken Calvert (R-CA)	FISH Act	This bill gives the Fish and Wildlife Service (FWS) the sole authority to protect endangered or threatened species that are anadromous species (species of fish that spawn in fresh or estuarine waters and that migrate to ocean waters) or catadromous species (species of fish that spawn in ocean waters and migrate to fresh waters). Currently, the FWS shares this authority with the National Marine Fisheries Service.	Introduced on February 5, 2021 and referred to the House Committee on Natural Resources.

H.R.1881	Rep. John Garamendi (D-CA)	To amend the Federal Water Pollution Control Act with respect to permitting terms, and for other purposes.	The legislation would extend permit terms for publicly owned water infrastructure projects under the National Pollutant Discharge Elimination System (NPDES) from 5 years to a maximum of 10 years.	Introduced on March 12, 2021 and referred to the Committee on Transportation and Infrastructure.
H.R. 1015	Rep. Grace Napolitano (D-CA)	Water Recycling Investment and Improvement Act	This bill makes permanent, and otherwise revises, the Bureau of Reclamation's grant program for the funding of water recycling and reuse projects. Specifically, the bill removes priority under the program for projects in areas that, in the preceding four-year period, have been (1) identified as experiencing severe, extreme, or exceptional drought; or (2) designated as a disaster area by a state. Additionally, the bill increases through FY2025 the authorization of appropriations for the program and otherwise revises provisions related to program funding.	Introduced on February 11, 2021 and referred to the House Committee on Natural Resources.
S.4231	Sens. Dianne Feinstein (D-CA), Mark Kelly (D-AZ), and Krysten Sinema (D-AZ)	Support To Rehydrate the Environment, Agriculture, and Municipalities Act or "STREAM" Act	This legislation would authorize additional funding for water infrastructure; expedites recycling, desalination and non-federal storage projects with less than \$250 million in federal funding by allowing Interior to approve projects; eliminates the WIIN Act requirement that the Appropriations Committee must not only appropriate storage, recycling, and desal funding but approve funding awards for specific projects; and expedites future federal storage projects where Reclamation notifies Congress of completed feasibility studies each year to set up an orderly process to authorize projects.	Sens. Feinstein, Kelly, and Sinema introduced the legislation on May 17, 2022. The Senate Energy and Natural Resources Subcommittee on Water & Power held a hearing on the legislation on Wednesday, May 25.

H.R. 737	Rep. David Valadao (R-CA)	RENEW WIIN Act	Extends the authorities under the WIIN Act of 2016 providing operational flexibility, drought relief, and other benefits to the State of California.	Introduced on February 2, 2021 and referred the House Committee on Natural Resources. 10 members of the CA delegation have cosponsored the legislation.
H.R. 2515	Rep. Garret Graves (R-LA)	Building U.S. Infrastructure through Limited Delays and Efficient Reviews (BUILDER) Act	The legislation modernizes the National Environmental Policy Act (NEPA) and aims to make infrastructure project reviews more efficient, reduce project costs, and spur economic recovery.	Introduced on April 14, 2021 and was referred to the House Committee on Natural Resources. The legislation's 46 cosponsors are all Republican, including members of GOP leadership.
H.R. 939	Rep. Doug LaMalfa (R-CA)	Combustion Avoidance along Rural Roads (CARR) Act	The bill exempts wildfire mitigation activities conducted within 300 feet of a road from all laws governing environmental review of proposed agency actions or protection of endangered or threatened species.	Introduced on February 8, 2021 and was referred to the House Committees on Natural Resources and Agriculture.
H.R.3267	Rep. Brendan Boyle (D-PA)	Protect Drinking Water from PFAS Act	The bill amends the Safe Drinking Water Act to require the Administrator of the Environmental Protection Agency to publish a maximum contaminant level goal and promulgate a national primary drinking water regulation for total per- and polyfluoroalkyl substances.	The legislation was introduced on May 17, 2021 and referred to the House Committee on Energy and Commerce.
H.R.3293	Rep. Lisa Blunt Rochester (D-DE)	Low-Income Water Customer Assistance Programs Act	The legislation would amend the Safe Drinking Water Act and the Federal Water Pollution Control Act to establish programs to assist low-income households in maintaining access to drinking water and wastewater services.	The legislation was introduced on May 18, 2021 and referred to the relevant committees. The legislation has passed out of the House Energy and Commerce Committee by a vote of 32-24 and now moves on to consideration on the House floor.

S. 953	Sen. Ron Wyden (D-OR)	Water for Conservation and Farming Act	The legislation would create a Reclamation fund of \$300M to support water recycling projects, water-use efficiency projects and dam safety projects; the WaterSMART program to increase water supply reliability by funding infrastructure and conservation projects; establishes a grant program for any Reclamation States, Tribes, nonprofit conservation organizations, irrigation or water districts, and regional and local authorities to complete habitat restoration projects that improve watershed health and mitigate climate change; among other actions.	Introduced on March 24, 2021 and referred to the Committee on Energy and Natural Resources.
H.R. 3286	Rep. Raul Ruiz (D-CA)	Emergency Order Assurance, Safety, and Inspection of water Systems (Emergency OASIS Act)	The legislation would require the EPA to establish regulations to flush a drinking water system if contaminants were present in the system for longer than six months, or if water stood motionless in the system for longer than six months.	Introduced on May 17, 2021 and referred to the House Committee on Energy and Commerce.
H.R. 3622 / S. 1907	Rep. Chris Pappas (D-NH) / Sen. Kirsten Gillibrand (D-NY)	Clean Water Standards for PFAS Act	The legislation would require the Administrator of the Environmental Protection Agency to develop effluent limitations guidelines and standards and water quality criteria for PFAS under the Federal Water Pollution Control Act, to provide Federal grants to publicly owned treatment works to implement such guidelines and standards	Introduced in the House on May 28, 2021, and in the Senate on May 27, 2021. The legislation in the House is bipartisan.

S. 2168 / S.2567	Sen. Mike Braun (R-IN) / Sen. Shelley Moore Capito (R-WV)	Define WOTUS Act / Navigable Waters Protection Act of 2021	The legislation would amend the Federal Water Pollution Control Act to modify the definition of navigable waters, and to make the definition of the "waters of the United States" permanent.	These bills were introduced in June and July of 2021 in response to the EPA's announcement earlier in June of its intent to rewrite the Navigable Waters Protection rule.
H.R. 3814 / S. 717	Rep. Liz Cheney (R-WY) / Sen. Mike Lee (R-UT)	Undoing NEPA's Substantial Harm by Advancing Concepts that Kickstart the Liberation of the Economy Act (UNSHACKLE Act)	<p>The legislation combines the following five stand-alone NEPA reform bills on agency process, state expansion, legal changes, and data reporting into one comprehensive text.</p> <ul style="list-style-type: none"> - NEPA Agency Process Accountability Act - NEPA Accountability and Enforcement Act - NEPA State Assignment Expansion Act - NEPA Legal Reform Act - NEPA Data Transparency Act 	<p>The Senate legislation was introduced on March 11, 2021 and referred to the Committee on Environment and Public Works.</p> <p>The House legislation was introduced on June 11, 2021 and referred to the House Committees on Natural Resources; Judiciary; Transportation and Infrastructure; and Energy and Commerce.</p>
H.R. 4647 / S. 2430	Rep. Jared Huffman (D-CA) / Sen. Dianne Feinstein (D-CA)	Water Conservation Rebate Tax Parity Act	The legislation would amend federal tax law so that homeowners wouldn't pay income tax on rebates from water utilities for water conservation and water runoff management improvements	The House legislation was introduced on July 22, 2021 and referred to the House Committee on Ways and Means. The legislation in the Senate was introduced on July 22, 2021 and referred to the Senate Committee on Finance.
S.2454	Sen. Alex Padilla (D-CA)	Water Reuse and Resiliency Act	The legislation would authorize \$1 billion over five years for the EPA's Pilot Program for Alternative Water Source Projects grants program. This is an increase from the \$125 million over five years authorized for the program in the Drinking Water and Wastewater Infrastructure Act passed by the Senate in April.	The legislation was introduced on July 22, 2021 and referred to the Senate Committee on Environment and Public Works.

H.R. 1352	Rep. Brenda Lawrence (D-MI)	Water Affordability, Transparency, Equity, and Reliability Act of 2021	The bill would create a trust fund to support drinking water and clean water infrastructure. Additionally, the bill provides \$34.85 billion a year to drinking water and wastewater improvements; creates a water trust fund; creates up to nearly 1 million jobs across the economy and protect American workers; prioritizes disadvantaged communities with grants and additional support; expands funding for technical assistance to small, rural, and indigenous communities; funds projects to address water contamination from PFAS; requires US EPA to study water affordability, shutoffs, discrimination, and civil rights violations by water providers; upgrades household wells and septic systems; helps homeowners replace lead service lines; and provides more than \$1 billion a year to update water infrastructure in public schools.	<p>The legislation was introduced on February 25, 2021 and was referred to the relevant committees.</p> <p>The legislation has 86 cosponsors, including 14 members of the California delegation.</p>
H.R.4915	Rep. Tom McClintock (R-CA)	Water Supply Permitting Coordination Act	The legislation would authorize the Secretary of the Interior to coordinate Federal and State permitting processes related to the construction of new surface water storage projects on lands under the jurisdiction of the Secretary of the Interior and the Secretary of Agriculture and to designate the Bureau of Reclamation as the lead agency for permit processing.	The legislation was introduced on August 3, 2021 and referred to the House Committee on Natural Resources.
H.R. 4976	Rep. Elissa Slotkin (D-MI)	Ensuring PFAS Cleanup Meets or Exceeds Stringent Standards Act	The legislation directs the Secretary of Defense to ensure that removal and remedial actions relating to PFAS contamination result in levels meeting or exceeding certain standards.	The legislation was introduced in the House on August 6, 2021 and was referred to the House Committees on Armed Services, Transportation and Infrastructure, and Energy and Commerce.

<p>S.2372 / H.R.2773</p>	<p>Sen. Heinrich, Martin (D-NM) / Representative Debbie Dingell (D-MI)</p>	<p>Recovering America’s Wildlife Act of 2021</p>	<p>The legislation would fund conservation efforts for more than 12,000 species of wildlife and plants in need of assistance by providing \$1.3 billion in dedicated annual funding for proactive, on-the-ground efforts across the country, ensure wildlife recovery efforts will be guided by the Congressionally-mandated State Wildlife Action Plans, which identify specific strategies to restore the populations of species of greatest conservation need, accelerate the recovery of 1,600 U.S. species already listed as threatened or endangered under the Endangered Species Act, and include improvements to ensure funds are appropriately targeted to the areas of greatest need and facilitate additional investments in protecting at-risk plant species.</p> <p>In the Senate, RAWA also directs fees and penalties assessed for environmental violations to help fund RAWA, using fee and penalty amounts that aren’t already targeted for existing environmental funds.</p>	<p>The legislation was introduced on July 15, 2021 and referred to the Committee on Environment and Public Works. It was reported favorably out of Committee on April 27 and placed on the Senate calendar.</p> <p>The House bill was introduced on April 22. The House Natural Resources Subcommittee on Water, Oceans, and Wildlife held a hearing on the legislation on July 29, 2021. On January 19, the legislation passed out of the House Natural Resources Committee by a vote of 29-15 and now moves on to consideration on the House floor.</p>
<p>H.R.4602 / S.3956</p>	<p>Rep. Alan Lowenthal (D-CA) / Rep. Lisa McClain (R-MI) and Sen. Jeff Merkley (D-OR) / Sen. Susan Collins (R-ME)</p>	<p>WIPPES Act</p>	<p>The legislation would direct the Federal Trade Commission to issue regulations requiring certain products to have “Do Not Flush” labeling</p>	<p>The legislation was introduced on July 21, 2021 and referred to the Committee on Energy and Commerce.</p> <p>Rep. Lowenthal introduced the stand-alone bill after introducing a similar amendment to the House’s infrastructure bill.</p> <p>The Senate bill was introduced on March 30, 2022.</p>

H.R.6591	Rep. Lisa McClain (R-MI) / Rep. Alan Lowenthal (D-CA)	PIPES Act	The legislation would require the Administrator of the Environmental Protection Agency to publish a rule that establishes standards for the flushability of disposable nonwoven wipes.	The legislation was introduced on February 3, 2022 and was referred to the House Committee on Energy and Commerce.
S. 2806 / H.R. 3534	Sen. Dianne Feinstein (D-CA) / Rep. Jimmy Panetta (D-CA)	Wildfire Emergency Act of 2021	Amongst other things, the legislation authorizes \$250 million over 5 years for up to 20 Forest Service projects of 100,000 acres or greater; Establish a new \$100 million grant program to assist critical facilities like hospitals and police stations become more energy efficient and better adapted to function during power shutoffs; Establishes one or more Prescribed Fire Centers to coordinate research and training of foresters and forest managers in the western United States in the latest methods and innovations in prescribed fire (controlled burns) practices.	The Senate legislation was introduced on September 22, 2021 and referred to the Committee on Energy and Natural Resources. The House bill was introduced on May 25, 2021 and was referred to the Subcommittee on Conservation and Forestry.
S. 3011 / H.R. 5735	Sen. John Cornyn (R-TX) / Rep. Dusty Johnson (R-SD)	State, Local, Tribal, and Territorial Fiscal Recovery, Infrastructure, and Disaster Relief Flexibility Act	The legislation provides additional flexibility for States, Tribes, and units of local government to spend their allocations of the COVID Relief Funds on certain infrastructure projects, including water, wastewater, and broadband infrastructure projects. The bill also allows these funds to be used to provide emergency relief from natural disasters. There is a cap—the greater of \$10 million or 30% of the funds—on how much of the COVID money can be spent on these new purposes.	The legislation was introduced on October 19, 2021 and passed the Senate by unanimous consent that day. Senator Alex Padilla (D-CA) is an original cosponsor of the legislation. The act was introduced in the House on October 26 and referred to the House Committee on Oversight and Reform.

<p>H.R. 6461 / S. 3531</p>	<p>Rep. Scott Peters (D-CA) / Sen. Chris Coons (D-DE)</p>	<p>National Climate Adaptation and Resilience Strategy Act</p>	<p>The legislation creates a Chief Resilience Officer, among other positions, that will assist the President to streamline the federal response to climate hazards that threaten human health, safety, and critical infrastructure.</p> <p>The act also calls for a Climate Adaptation and Resilience Strategy that outlines the federal government’s response to climate hazards such as sea level rise, drought, biodiversity loss, and coastal bank erosion.</p>	<p>The legislation was introduced in the House on January 20, 2022 and referred to the Committee on Energy and Commerce.</p> <p>The legislation was introduced in the Senate on January 20, 2022, read twice, and referred to the Committee on Homeland Security and Government Affairs.</p>
<p>H.R. 6396</p>	<p>Rep. Earl Blumenauer (D-OR)</p>	<p>Climate RESILIENCE Act</p>	<p>The act amends FEMA's disaster definition to include extreme temperature events, like heat waves and freezes; changes FEMA's definitions and cost share eligibility requirements for disadvantaged communities and underserved communities; includes a focus on resiliency planning and investments; provides both financial and non-financial technical assistance for hazard mitigation planning, as well as for grant applications for small impoverished and disadvantaged communities; and expands Pre-Disaster Mitigation Assistance funding to address FEMA’s oversubscription issues.</p>	<p>The legislation was introduced in the House on January 13, 2022 and referred to the Committee on Transportation and Infrastructure.</p> <p>The legislation has 32 cosponsors, including 8 members of the California delegation.</p>

H.R.6492	Rep. Pramila Jayapal (D-WA)	Climate Resilience Workforce Act	<p>The bill establishes a climate resilience workforce in communities most affected by the climate crisis. It also funds the development of regional, state, local, and community-based climate resilience action plans.</p> <p>The legislation creates an Office of Climate Resilience within the White House, starts new workforce development programs, and removes barriers to employment in climate resilience jobs based on immigration status and prior involvement with the criminal justice system.</p>	<p>The legislation was introduced in the House on January 25, 2022 and referred to the Subcommittee on Conservation and Forestry.</p> <p>The legislation has 38 cosponsors, including 9 members of the California delegation.</p>
H.R. 6989	Rep. Ted Lieu (D-CA)	Housing for All Act of 2022	<p>This legislation would address critical affordable housing shortages in California and across the country by investing in hotel and motel conversions to permanent supportive housing with supportive services; investing in the Eviction Protection Grant Program; investing in mobile crisis intervention teams to help those with medical or psychological needs avoid the criminal justice system; investing in libraries that support people experiencing homelessness; investing in programs that offer a safe place to park overnight and facilitate access to rehousing services and essential services; and investing in inclusive, transit-oriented development and infill development</p>	<p>The legislation was introduced in the House on March 8, 2022 and referred to the Subcommittee on Highways and Transit.</p> <p>The legislation has 14 cosponsors, including 12 members of the California delegation.</p>
S. 623	Sen. Marco Rubio (R-FL)	Sunshine Protection Act of 2021	<p>This bill makes daylight saving time the new, permanent standard time, effective November 5, 2023.</p>	<p>The legislation passed the Senate on March 15, 2022 and sent to the House.</p>

S. 4081	Sen. Tammy Baldwin (D-WI)	Healthy H2O Act	The bill provides grants for water testing and treatment technology directly to individuals, non-profits and local governments in rural communities. Grants, provided by the USDA, would allow the purchase and installation of point-of-use or point-of-entry water quality improvement systems that remove or significantly reduce contaminants from drinking water.	The legislation was introduced in the Senate on April 26, 2022 and referred to the Senate Committee on Agriculture, Nutrition, and Forestry.
H.R. 7696 / s. 4161	Rep. Chris Pappas (D-NH) / Sen. Kirsten Gillibrand (D-NY)	Clean Water Standards for PFAS 2.0 Act of 2022	The bill would further regulate PFAS by setting deadlines for the EPA to develop water quality criteria and limits on industrial PFAS discharges into water and to water treatment plants. The bill would also authorize \$200 million per year in grants to assist Publicly Owned Treatment Works with program implementation, which would be appropriated through Fiscal Years 2022-2026.	<p>The legislation was introduced in the House on May 10, 2022 and referred to the Subcommittee on Water Resources and Environment.</p> <p>The legislation was introduced in the Senate on May 9, 2022 and referred to the Committee on Environment and Public Works.</p>
S.1179 / H.R.2552	Sen. Dianne Feinstein (D-CA)	Canal Conveyance Capacity Restoration Act	This bill authorizes the Bureau of Reclamation to provide financial assistance for various projects in California to mitigate the sinking or settling of the ground (i.e., subsidence mitigation), specifically for projects related to the Friant-Kern Canal, the Delta-Mendota Canal, and certain parts of the San Luis Canal/California Aqueduct.	<p>This legislation was introduced on April 15, 2021 in the Senate. The House Companion bill was introduced the same day.</p> <p>The Senate Energy and Natural Resources Subcommittee on Water & Power held a hearing on the legislation on Wednesday, May 25.</p> <p>The House Natural Resources Committee has not yet considered the legislation.</p>



May 27, 2022

To: Inland Empire Utilities Agency
From: Michael Boccadoro
Beth Olhasso
RE: May Report

Overview:

With June just days away, and record temperatures for May in the books, water managers and regulators are taking steps and outlining possible next steps to combat the drought. Lake Oroville is at just 55 percent capacity and San Luis Reservoir is at 46 percent capacity. With the snowpack down to 10 percent of normal, there isn't hope for additional snowmelt to replenish supplies.

The State Water Resources Control Board recently passed regulations implementing the Governor's Executive Order on drought. The regulations focus on prohibiting the use of potable water to irrigate non-functional turf. The Governor has recently said that if he doesn't see any significant increase in voluntary conservation, he will consider more drastic actions later in the summer.

In other State Board action, a recent workshop was held to discuss the impacts the water-use efficiency standards may impact local wastewater management. Staff spent significant time presenting the approach they are using to assess indoor water use trends throughout the state. The data they presented suggests that for the first part of 2022, the statewide average indoor GPCD is under 40 GPCD.

The California Air Resources Board is getting closer to finalizing their Advanced Clean Fleets rule. The current proposal would require half of the vehicles government agencies purchase to be zero-emission starting in 2024.

The Governor released his May Revision budget, adding more funding for drought relief—bringing his total 2022-23 proposal to just about \$2 billion. In contrast, the Senate Democratic proposal is requesting \$7.5 billion for drought relief. The Legislature, leadership and the Governor will now work to iron out differences and come up with a compromise to vote on ahead of the June 15 deadline.

The Legislature has been working on the two thousand bills that were introduced for the second year of this two-year session. The deadline for bills to pass out of their house of origin was May 27. With more water-related bills this year legislative water discussions have been robust and extensive. ACWA's legislation to provide for a tax exemption for turf removal rebates has moved to the Senate. CASA's bill to require products containing PFAS to register their products on a publicly accessible database struggled with significant opposition from manufactures but was able to pass out of the Assembly with just enough votes. MWD's legislation to allow for alternative project delivery methods for several of their projects recently also moved out of the Assembly, while similar legislation (SB 991, Newman) to allow for alternative project delivery for projects over \$5 million also easily passed out of the Senate. Policy committees will again start to work feverishly ahead of the July summer recess.

Inland Empire Utilities Agency Status Report – May 2022

Water Supply Conditions

Summer is rolling into California and with it, any hope of measurable precipitation vanishes until the fall. Once at 103 percent of normal, the Sierra snowpack it is down to just 10 percent of normal. Lake Oroville is sitting at 69 percent of historical average and 55 percent capacity. San Luis Reservoir, the main south-of-Delta storage facility for the State Water Project, is at just 63 percent of average for this time of the year and 46 percent capacity.

SWRCB Approves Emergency Conservation Regulation

In response to the Governor’s March Executive Order on drought, the SWRCB has approved their proposal to implement the order. The highlights include:

- Requires urban water suppliers to implement, at a minimum, all demand reduction actions identified in Level 2 of their locally adopted Water Shortage Contingency Plans.
- Requires urban water suppliers to submit a preliminary water supply and demand assessment to the Department of Water Resources by June 1, 2022.
- Prohibits irrigation of non-functional turf with potable water in the commercial, industrial, and institutional sector. The ban on irrigation would include non-residential grass areas that are considered ornamental and not otherwise used for recreation or other community purposes.

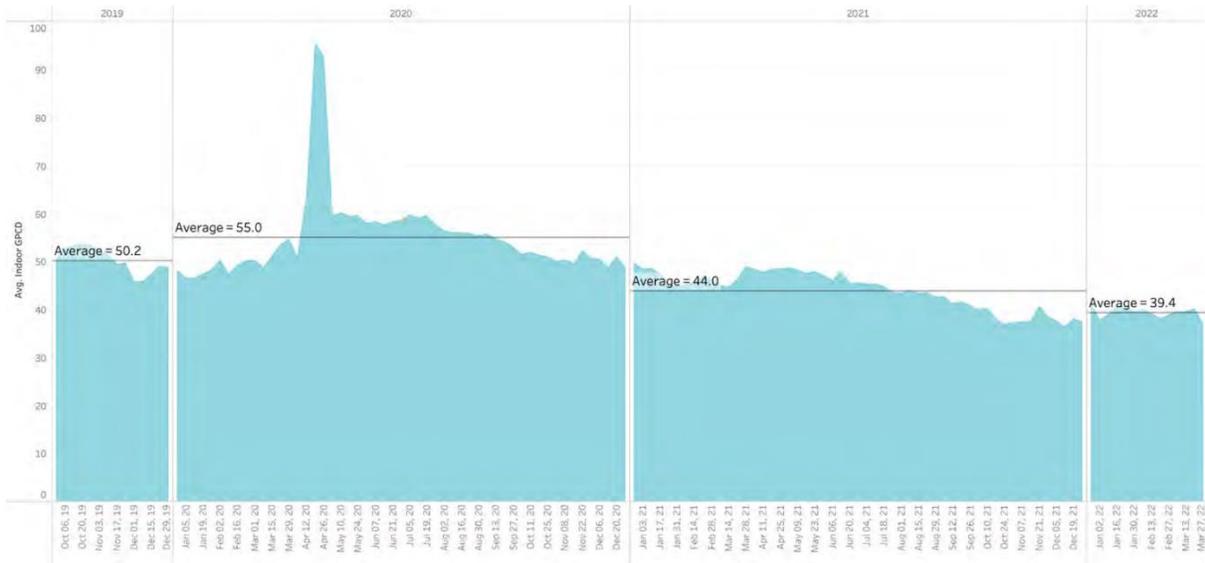
The regulation is expected to go into effect June 6.

Notably, when the Governor was meeting with water leaders recently, he warned that if voluntary conservation numbers don’t soon improve, he is prepared to issue mandatory conservation orders “sometime this summer.”

SWRCB Workshop on Efficiency Standards

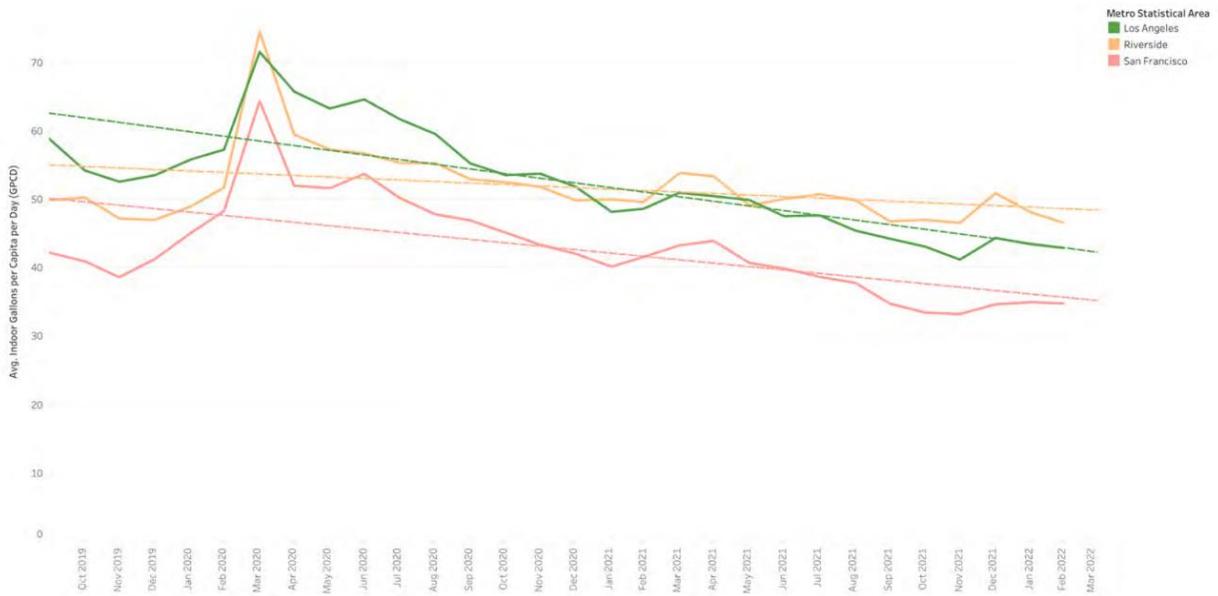
The State Water Resources Control Board (SWRCB) recently held a workshop to discuss how water-use efficiency standards may impact local wastewater management. While the presentation wasn’t terribly robust when talking about specific POTW impacts, they did spend significant time trying to quantify current indoor water use by analyzing flume sensor data throughout the state. It is important to understand what data regulators are looking at as they move to implement the urban water use objective. Throughout the presentation, it was clear that staff believe 35 GPCD is attainable. They did not recommend a 35 GPCD, but using the number as a scenario signals they believe more extreme indoor conservation is achievable in CA.

Indoor Water Use in California (all Flume Sensors)



info@flumedatalabs.com | www.flumedatalabs.com

Indoor Water Use in California (Selected MSA's)



info@flumedatalabs.com | www.flumedatalabs.com

Advanced Clean Fleets Proposal Released

The California Air Resources Board recently released a revised regulatory proposal and held a workshop on the state’s Advanced Clean Fleets rule. The primary requirement under the proposed rules is for state and local government fleets to purchase half of vehicles they purchase starting in 2024 to be zero-emission and all additions to be ZEV starting in 2027. There are several exemptions including a “ZEV or NZEV Unavailability Exemption.”

“May Revise” Released

As is custom, the Governor released his May Revision of his proposed 2022-23 state budget. The Revise reflects the financial status of the state after April 15 tax filings. The state is flush with cash with a \$96 billion surplus, but there are concerns for the next few years. The Legislative Analyst’s Office (LAO) has noted that the “May Revision sets up a fiscal cliff for 2023-23.” The LAO estimates that 2023-24 could have a \$25 billion deficit, resulting in a significant budget problem, which would require reductions to programs.

Included in the May Revise is an additional \$1.5 billion for drought response and resilience- bringing his 2022-23 total to about \$2 billion. In addition to the drought package, the Governor proposes \$500 million in FY 2025-26 for Prop 1 Water Storage Investment Program projects.

Drought Resilience and Response
(Dollars in Millions)

Investment Category	Department	Program	2021 Package Total	Accelerated Drought Resilience Package		Total
				Governor’s Budget	May Revision	
Immediate Drought Support	Department of Water Resources	Small Water Suppliers Drought Relief & Urban Water Management Grants	\$484	\$120	\$180	\$784
		Water Transfers Pilot Project	\$0	\$0	\$20	\$20
	State Water Resources Control Board	Water Rights Modernization and Drought Resilience	\$0	\$0	\$44	\$44
	Department of Social Services	Drought Food Assistance	\$0	\$0	\$23	\$23
		Various	Data, Research, and Communications	\$127	\$0	\$116.8
	Drought Technical Assistance and Emergency Drought Response		\$57	\$25	\$161	\$243
Drinking Water, Water Supply and Reliability, Flood	State Water Resources Control Board	Drinking Water/Wastewater Infrastructure and State Revolving Fund	\$1,300	\$0	\$400	\$1,700
		PFA’s Support	\$100	\$0	\$0	\$100
		Water Recycling/Groundwater Cleanup	\$400	\$0	\$100	\$500
	Department of Water Resources	Salton Sea	\$220	\$0	\$0	\$220
		Water Conveyance	\$200	\$0	\$0	\$200
		Flood	\$638	\$0	\$0	\$638
		Aqueduct Solar Panel Pilot Study	\$20	\$0	\$30	\$50
	Natural Resources Agency	Watershed Climate Studies	\$25	\$0	\$0	\$25
Clear Lake Rehabilitation		\$5.7	\$0	\$0	\$6	
Conservation/ Agriculture	Department of Water Resources	SGMA Implementation	\$300	\$30	\$26	\$356
		Agriculture and Delta Drought Response Programs	\$8	\$0	\$60	\$68
	Department of Food and Agriculture	Relief for Small Farmers	\$0	\$5	\$20	\$25
		On-farm Water Use and Agriculture Technical Assistance	\$5	\$0	\$15	\$20
		State Water Efficiency and Enhancement Program	\$100	\$20	\$40	\$160
	Department of Conservation	Multi-benefit Land Repurposing	\$50	\$40	\$0	\$90
	Various	Water Conservation Programs (Small and Urban), Turf Replacement, and State Water Conservation Projects	\$0	\$185	\$26	\$211
Habitat/ Nature-Based Solutions	Department of Fish and Wildlife/	Fish and Wildlife Protection	\$0	\$75	\$100	\$175
		Improving Drought Resiliency on State-Owned Land and Migratory Bird Habitat	\$8	\$0	\$25	\$33
	Department of Water Resources	Studying Salmon and Tribal Co-Management Activities	\$0	\$0	\$7.3	\$7.3
		Climate Induced Hatchery Upgrades	\$33	\$0	\$17	\$50
	Department of Water Resources	Aquatic Habitat and Drought Resilience and Expediting Large Scale Habitat	\$0	\$0	\$130.6	\$130.6
Various	Additional Nature-Based Solutions	\$1,033	\$0	\$0	\$1,033	
Total			\$5,157	\$500	\$1,550	\$7,207

In addition to the May Revise, Senate Democrats also released their “Budget Blueprint” which proposed to invest significantly more funds in water and drought. Specifically, the Senate proposes \$7.5 billion in state and federal funds to build a climate resilient water system. Priorities include:

- \$2 billion to rebalance state water supply and water rights
 - \$1.5 billion for new CA Water Trust to acquire lands with senior water rights from willing sellers.
 - \$500 million to acquire and repurpose lands to implement SGMA
- \$1.5 billion for safe drinking water
- \$1.5 billion for improving watershed climate resilience regionally.
- \$1.5 billion for Drought Resilient Water Supply grants to assist with recycling, stormwater capture and groundwater cleanup.
- \$1 billion for flood management and dam safety

Both the Senate and Assembly Budget Sub Committees on Resources have discussed the drought proposal. No vote was taken yet as the two houses and the Governor move into a period of negotiation. The budget is required to be passed by June 15, however as in the past years, budget amendments will continue to be made during the legislative session.

Legislative Update

Legislators have been working feverishly to shepherd their bills through their house of origin. The deadline for bills to get out of their first house was May 27. Policy committees will now resume hearings the first week of June and work through the month before the July summer recess.

Updates on priority bills:

AB 2142 (Gabriel): This bill would provide an income tax exemption for rebates from a turf removal program. Sponsored by ACWA. The bill passed out of the Revenue and Taxation Committee and moved off the Assembly floor onto the Senate.

AB 1845 (Calderon): MWD sponsored bill to allow for alternative project delivery methods for specific MWD projects. The bill was heard in the Assembly Local Government Committee and Water, Parks and Wildlife Committees and passed out unanimously and passed off the Assembly floor 70-0

SB 991 (Newman): This bill is similar to MWD’s AB 1845 but it would allow for progressive design build to be used on any project over \$5 million. The bill is already over in the Assembly and will be heard in the Local Government Committee in June.

AB 2247 (Bloom): CASA sponsored bill would require products sold in CA that contain PFAS to register the product on a publicly accessible reporting platform. The bill was recently amended to remove some of the enforcement language, which should remove some of the opposition. The bill was heard in the Environmental Safety & Toxic Materials Committee where manufacturing community voiced their opposition. The bill passed out 7-2, with Republicans voting no. The bill passed out of the Assembly with *just* enough votes and will move onto the Senate.

AB 2787 (Quirk): An extension of the original microbeads bill, this legislation would ban the sale or distribution of products that contain intentionally added microplastics. The bill passed out of both Natural Resources and Environmental Safety and Toxic Materials Committee. Dr. Quirk decided to hold the bill in the Assembly and it will not move this year.

AB 2811 (Bennett): Would require newly constructed large commercial buildings to be dual plumbed for recycled water and also require large commercial buildings to install onsite reuse systems. The bill could not overcome the concerns of the water and labor community and was not ever considered by the Environmental Safety and Toxic Materials Committee.

SB 1157 (Hertzberg): This legislation is identical to AB 1434 (Friedman) from 2021. The bill would implement the indoor GPCD targets outlined in the DWR/SWRCB draft report to the Legislature for 47 GPCD by 2025 and 42 GPCD by 2030. The bill passed out of Natural Resources and Water Committee despite significant concerns from Senator Ben Hueso (D-San Diego). The bill was quickly moved to the floor of the Senate where it passed 28-9. Throughout the whole process, the author has committed to working with the opposition, so there is still a possibility that the amendments the water community is looking for will be amended into the bill. The amendments, if taken, would require DWR and the SWRCB to study the effects 2030 target would have on wastewater flows before instituting the 42 GPCD requirement.

IEUA BILLS— BILLS WITH POSITIONS- 2022 Session May 27, 2022

Bill Number	Author/Sponsor	Title and/or Summary	Summary	IEUA Position/ Bill Location	Positions Taken by Associations & Regional Agencies
AB 1845	Calderon MWD Sponsored	Metropolitan Water District of Southern California: alternative project delivery methods	Would authorize the Metropolitan Water District of Southern California to use the design-build procurement process for certain regional recycled water projects or other water infrastructure projects. The bill would define "design-build" to mean a project delivery process in which both the design and construction of a project are procured from a single entity. The bill would require the district, if using this procurement process, to follow certain procedures, including preparing and issuing a request for qualifications, preparing a request for proposals including the scope and needs of the project or contract, and awarding projects based on certain criteria for projects utilizing either lowest responsible bidder or best value selection criteria.	SUPPORT Passed out of Assembly In Senate	MWD, ACWA, WRCA in support
AB 2142	Gabriel	Income taxes: exclusion: turf replacement water conservation program	This bill would, for taxable years beginning on or after January 1, 2022, and before January 1, 2027, under both of these laws, 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 for participation in a turf replacement water conservation program.	SUPPORT Passed out of Assembly In Senate	ACWA, MWD in Support
AB 2247	Bloom CASA Sponsored	PFAS products: disclosure: publicly accessible reporting platform	This bill would require the Department of Toxic Substances Control to work with the Interstate Chemicals Clearinghouse to establish, on or before January 1, 2024, a publicly accessible reporting platform to collect information about PFAS and products or product components containing regulated PFAS, as defined, being sold, offered for sale, distributed, or offered for promotional purposes in, or imported into, the state. The bill would require, on or before March 1, 2024, and annually thereafter, a manufacturer, as defined, of PFAS or a product or a product component containing regulated PFAS that is sold, offered for sale, distributed, or offered for promotional purposes in, or imported into, the state to register the PFAS or the product or product component containing regulated PFAS, and specified other information, on the publicly accessible reporting platform.	SUPPORT Passed out of Assembly In Senate	CASA, WRCA, ACWA in support

AB 2449	Rubio Three Valleys	Open meetings: local agencies: teleconferences	This bill would authorize a local agency to use teleconferencing without complying with those specified teleconferencing requirements if at least a quorum of the members of the legislative body participates in person from a singular location clearly identified on the agenda that is open to the public and situated within the local agency's jurisdiction. The bill would impose prescribed requirements for this exception relating to notice, agendas, the means and manner of access, and procedures for disruptions. The bill would require the legislative body to implement a procedure for receiving and swiftly resolving requests for reasonable accommodation for individuals with disabilities, consistent with federal law.	SUPPORT Passed out of Assembly In Senate	ACWA & MWD Support
AB 2787	Quirk	Microplastics in products	<i>The Microbeads Nuisance Prevention Law prohibits a person from selling or offering for promotional purposes in the state any personal care products containing plastic microbeads that are used to exfoliate or cleanse in a rinse-off product, including, but not limited to, toothpaste. This bill would, on and after specified dates that vary based on the product, ban the sale, distribution in commerce, or offering for promotional purposes in the state of designated products, such as leave-in cosmetics products and waxes and polishes, if the products contain intentionally added microplastics, as defined. The bill would exclude from this ban products consisting, in whole or in part, of specified substances or mixtures containing microplastics. The bill would make a violator liable for a civil penalty not to exceed \$2,500 per day for each violation.</i>	SUPPORT Held in Assembly--- NOT MOVING FORWARD IN 2022	CASA in support
AB 2811	Bennett Plumbers Union	California Building Standards Commission: recycled water: nonpotable water systems	Would require, commencing January 1, 2024, all newly constructed nonresidential buildings be constructed with dual plumbing to allow the use of recycled water for all applicable nonpotable water demands, as defined, if that building is located within an existing or planned recycled water service area, as specified.	Oppose Env. Safety & Toxic Materials Comm--- no hearing Bill not moving forward this year.	CASA & WRCA oppose unless amended. ACWA & CMUA Oppose
SB 222	Sen. Dodd	Water Affordability	Would establish the Water Affordability Assistance Fund in the State Treasury to help provide water affordability assistance, for		Opposed by ACWA

		Assistance Program	both drinking water and wastewater services, to low-income ratepayers and ratepayers experiencing economic hardship in California. The bill would make moneys in the fund available upon appropriation by the Legislature to the state board to provide, as part of the Water Affordability Assistance Program established by the bill, direct water bill assistance, water bill credits, water crisis assistance, affordability assistance, and short-term assistance to public water systems to administer program components.	Two-Year Bill Assembly Floor	
SB 230	Portantino/ CMUA & MWD	State Water Resources Control Board: Constituents of Emerging Concern	Would require the State Water Resources Control Board to establish, maintain, and direct an ongoing, dedicated program called the Constituents of Emerging Concern Program to assess the state of information and recommend areas for further study on, among other things, the occurrence of constituents of emerging concern (CEC) in drinking water sources and treated drinking water. The bill would require the state board to convene, by an unspecified date, the Science Advisory Panel to review and provide recommendations to the state board on CEC for further action, among other duties. The bill would require the state board to provide an annual report to the Legislature on the ongoing work conducted by the panel.	SUPPORT Assembly waiting for committee assignment	Favor by ACWA
SB 991	Newman Water Collaborative Delivery Association (formerly the Water Design-Build Council)	Public contracts: progressive design-build: local agencies	Current law, until January 1, 2025, authorizes local agencies, as defined, to use the design-build procurement process for specified public works with prescribed cost thresholds. Current law requires specified information submitted by a design-build entity in the design-build procurement process to be certified under penalty of perjury. This bill, until January 1, 2033, authorizes local agencies, defined as any city, county, city and county, or special district authorized by law to provide for the production, storage, supply, treatment, or distribution of any water from any source, to use the progressive design-build process for public works projects in excess of \$5,000,000, similar to the progressive design-build process authorized for use by the Director of	SUPPORT Passed out of Senate Assembly Local Gov Comm.	WRCA Support

			General Services. The bill would require specified information to be verified under penalty of perjury.		
SB 1157	Hertzberg	Urban water use objectives: indoor residential water use	Current law requires the Department of Water Resources, in coordination with the State Water Resources Control Board, and including collaboration with and input from stakeholders, to conduct necessary studies and investigations and authorizes the department and the board to jointly recommend to the Legislature a standard for indoor residential water use. Current law, until January 1, 2025, establishes 55 gallons per capita daily as the standard for indoor residential water use. Existing law establishes, beginning January 1, 2025, the greater of 52.5 gallons per capita daily or a standard recommended by the department and the board as the standard for indoor residential water use, and beginning January 1, 2030, establishes the greater of 50 gallons per capita daily or a standard recommended by the department and the board as the standard for indoor residential water use. This bill would eliminate the option of using the greater of 52.5 gallons per capita daily and the greater of 50 gallons per capita daily, as applicable, or a standard recommended by the department and the board as the standard for indoor residential water use.	Passed out of Senate Assembly Water, Parks & Wildlife Committee	Oppose unless amended by WateReuse & ACWA, CASA & CMUA

Date: June 15, 2022

To: The Honorable Board of Directors

From: Shivaji Deshmukh, General Manager

Committee: Community & Legislative Affairs

06/08/22

Executive Contact: Shivaji Deshmukh, General Manager

Subject: Public Outreach and Communication

Executive Summary:

- June 5, World Environment Day
- June 7, IERCA Celebration, 12645 6th Street, Rancho Cucamonga, 10:00 a.m. – 11:00 a.m.
- June 8, World Oceans Day
- June 23, Intl. Women in Engineering Day
- June 30, World Social Media Day

Staff is working with MWD and customer agencies to enhance and implement drought messaging and collateral across the region. The Agency's campaign strategy and messaging have led to the development of "The Time is Now" brand for drought awareness. IEUA has partnered with customer agencies for feature campaign ads.

The Agency recognized May as Water Awareness Month through a social media giveaway. The public was encouraged to share their water-wise tips and techniques to qualify for different giveaways throughout the month. Social media messaging and emails were accepted for participation.

Staff's Recommendation:

This is an informational item for the Board of Directors to receive and file.

Budget Impact Budgeted (Y/N): Y Amendment (Y/N): Y Amount for Requested Approval:

Account/Project Name:

Fiscal Impact (explain if not budgeted):

Prior Board Action:

N/A

Environmental Determination:

Not Applicable

Business Goal:

IEUA is committed to providing a reliable and cost-effective water supply and promoting sustainable water use throughout the region.

IEUA is committed to enhancing and promoting environmental sustainability and the preservation of the region's heritage.

Attachments:

Attachment 1 - Background

Background

Subject: Public Outreach and Communication

June

- June 5, World Environment Day
- June 7, IERCA Celebration Event, 12645 6th Street, Rancho Cucamonga, 10:00 a.m. – 11:00 a.m.
- June 8, World Oceans Day
- June 21, First Day of Summer
- June 23, Intl. Women in Engineering Day
- June 30, World Social Media Day

July

- July 20, IEUA Employee Appreciation Summer Picnic, HQA Grass Area, 11:00 a.m. – 3:00 p.m.

Media and Outreach

- Staff continues to utilize the Pledge to Save Water QR code campaign. Once scanned, the QR code takes readers to the IEUA Take the Pledge webpage where they can learn more about the Agency, current drought conditions, water-wise tips, and participate by taking the pledge to save water.
- IEUA and its customer agencies launched a new drought tagline and campaign collateral, *The Time is Now*, which features real photos, facts, and people to encourage the public to know the facts, change their habits, and step up their efforts. The collateral still utilizes the #StepItUpIE message and follows the campaign plan framework that was developed by the Inland Empire Clean Water Partnership as well as adopts a serious tone to convey the severity of the State's current situation. A toolkit has been made available to all customer agencies for their use. Staff continues to meet with representatives from each of its customer agencies for further support regarding outreach and/or collaboration opportunities (i.e., partnership ads) for this campaign and makes regular updates to the toolkit based on feedback. New backgrounds with *The Time is Now* branding have been uploaded to the network and are available for use on Teams.
- The Agency recognized May as Water Awareness Month through a social media giveaway. The public was encouraged to share their water-wise tips and techniques to qualify for different prizes throughout the month. Members of the public without a social media account were also invited to participate by sending an email sharing their water-wise tips.
- Staff recognized International Compost Awareness Week throughout the first week of May. Information on IERCA's awards, milestones, and a partnered compost giveaway with the City of Chino were shared to IEUA's social media channels.

- The Agency recognized May as Internal Audit Awareness Month. Staff features of the IEUA Internal Audit team were shared on social media.
- Staff issued a joint press release on May 24 with the Chino Basin Water Conservation District highlighting the partnership grant from MWD for the Stormwater for Recharge Pilot Program.
- The Agency continues to publish content on LinkedIn and has gained 77 followers since April, with 467 page views in the last 30 days.
- May: 33 posts were published to the IEUA Facebook page, 35 tweets were sent on the @IEUAWater Twitter handle, 33 posts were published to IEUA’s Instagram grid, and 19 posts were published to the IEUA LinkedIn page.
 - The top three Facebook posts, based on reach and engagement, in the month of May were:
 - 5/5 International Compost Awareness Week- IERCA Spotlight
 - 5/12 IEUA Board President Elie Elected to NWRI Board of Directors
 - 5/22 Intl. Day for Biological Diversity
 - The top three Twitter tweets, based on reach and engagement, in the month of May were:
 - 5/12 IEUA Board President Elie Elected to NWRI Board of Directors
 - 5/5 International Compost Awareness Week- IERCA Spotlight
 - 5/2 IEUA and Monte Vista Water District RP-5 Tour
 - The top three Instagram posts, based on reach and engagement, in the month of May were:
 - 5/9 The Time is Now
 - 5/5 International Compost Awareness Week- IERCA Spotlight
 - 5/2 IE Landscape Contest Promotion
 - The top three LinkedIn posts, based on impressions and reactions, in the month of May were:
 - 5/12 IEUA Board President Elie Elected to NWRI Board of Directors
 - 5/2 IEUA and Monte Vista Water District RP-5 Tour
 - 5/11 IEUA Change Management Workshop
- A “Water-Wise Education” ad ran on April 22 in the Inland Empire Magazine.
- A “Water-Wise Education” spadea ran on May 22 in the Daily Bulletin.
- A “Water-Wise Education” ad ran on May 2 in La Opinion.
- A partnership ad with the city of Chino, Chino Hills, and Monte Vista Water District as well as an advertorial ran in the Champion Newspaper’s *Progress Edition* on May 28.
- An article featuring IEUA, written by IEUA Board President Steve Elie, was featured in the Champion Newspaper’s *Progress Edition* on May 28.

For the month of May, there were 11,412 searches for a park in IEUA’s service area on Yelp, where Chino Creek Wetlands and Educational Park was viewed 765 times.

Education and Outreach Updates

- Three high schools within IEUA’s service area competed in MWD’s Solar Cup 2022: Colony High School – Ontario, Chino Hills High School – Chino Hills and Upland High School – Upland. All teams were recognized during MWD’s Virtual Awards Ceremony on May 12, with the three schools winning a total of 16 awards for the Inland Empire

region. Staff is working with team advisors, captains, and their respective cities to coordinate further recognition at upcoming Board and City Council meetings throughout the following month.

- Staff hosted the US Army Corps of Engineers on May 16. The day began with a welcome from General Manager Deshmukh and followed with a discussion on Engineering with Nature featuring San Bernardino Valley Municipal Water District CEO/General Manager Heather Dyer and Santa Ana Watershed Project Authority General Manager Jeff Mosher. The event concluded with a tour of the Chino Creek Wetlands and Educational Park led by External Affairs staff.
- Chino Basin Water Conservation District (CBWCD) has completed the garden design and install and is collaborating on planting days for Our Loving Savior School in Chino Hills for the Garden in Every School® (GIES) program. Staff is working with Randall Pepper Elementary in Fontana and CBWCD to proceed with their garden install. Both gardens are scheduled to be completed by mid-June.

Agency-Wide Membership Updates

- Randy Lee, Director of Operations and Maintenance, attended the California Water Environment Association (CWEA) Awards Luncheon on April 14.
- Richard Lao, Senior Environmental Resources Planner, attended the Southern California Alliance of Publicly Owned Treatment Works (SCAP) Air Quality Committee Meeting on April 19.
- Richard Lao, Senior Environmental Resources Planner, attended the California Association of Sanitation Agencies (CASA) Regulatory Workgroup Meeting on April 21.
- Randy Lee, Director of Operations, attended the Southern California Water Coalition Quarterly Luncheon (SCWC) on April 22.
- Richard Lao, Senior Environmental Resources Planner, attended the California Association of Sanitation Agencies (CASA) Air Quality, Climate Change, & Energy Workgroup Meeting on April 28.
- Randy Lee, Director of Operations, attended the Southern California Alliance of Publicly Owned Treatment Works (SCAP) Board Strategic Planning Session on April 28.