

**SEASIDE GROUNDWATER BASIN WATERMASTER
REGULAR MEETING OF THE BOARD OF DIRECTORS**

AGENDA

Wednesday, September 6, 2023 – 2:00pm

IN-PERSON

Monterey One Water Board Room

5 Harris Court, Building “D”, Ryan Ranch, Monterey, California

Watermaster Board

Coastal Subarea Landowner – Director Paul Bruno

City of Seaside – Mayor Ian Oglesby, Chair

California American Water – Director Christopher Cook

City of Sand City – Mayor Mary Ann Carbone, Vice Chair

Monterey Peninsula Water Management District – Director George Riley

Laguna Seca Subarea Landowner – Director John Gaglioti, Treasurer

City of Monterey – Councilmember Kim Barber

City of Del Rey Oaks – Councilmember Kim Shirley

Monterey County/Monterey County Water Resources Agency – Supervisor Wendy Root Askew, District 4

I. CALL TO ORDER

II. ROLL CALL

III. PUBLIC COMMUNICATIONS

Oral communications are on each meeting agenda in order to provide members of the public an opportunity to address the Watermaster on matters within its jurisdiction. Matters not appearing on the agenda will not receive action at this meeting but may be referred to the Watermaster Administrator or may be set for a future meeting. Presentations will be limited to three minutes or as otherwise established by the Watermaster. In order that the speaker may be identified in the minutes of the meeting, it is helpful if speakers use the microphone and state their names.

IV. REVIEW OF AGENDA

A vote may be taken to add to the agenda an item that arose after the 72-hour posting deadline pursuant to the requirements of Government Code Section 54954.2(b). (A 2/3-majority vote is required).

V. CONSENT CALENDAR

A. Minutes of Regular Board meeting held July 5, 2023	3
B. Summary of Payments made June through July 2023 totaling \$23,891.40	5
C. Fiscal Year 2023 Financial Reports through July 31, 2023	7
D. Summary of Flow Direction Flow Velocity Analyses.....	13

VI. ORAL PRESENTATION – None

VII. OLD BUSINESS

A. Consider Approving Supplemental Cost-Sharing Agreement for Monitoring Well FO-9 Shallow Replacement Well Installation.....	29
B. Consider Approving Technical Advisory Committee holding meetings via Zoom	45

VIII. NEW BUSINESS

- A. Consider Approving Fiscal Year 2024 Annual Budgets:**
 - 1. Proposed Fiscal Year 2024 (January–December) Administrative Budget47
 - 2. Proposed Fiscal Year 2024 (January–December) Monitoring and Management Program (M&MP); and M&MP Fund-Operations and M&MP Fund-Capital Budgets49
 - 3. Proposed 2024 Replenishment Assessment Fund Budget – No Action Required.....65
- B. Consider Approving the Proposed 2024 Replenishment Assessment Unit Costs for Natural Safe Yield and Operating Yield Overproduction.....67**

IX. INFORMATIONAL REPORTS (No Action Required)

- A. Correspondence from Watermaster to Salinas Valley Basin Groundwater Sustainability Agency requesting the Seaside Subbasin be included as one of the end users of any water that would be generated by the desalination component of the Seawater Intrusion Extraction Barrier and Desalination Project.....71**
- B. Watermaster Report of Production of the Seaside Basin through 3rd Quarter Water Year 2023 (January 1, 2023 – June 30, 2023)73**
- C. Technical Advisory Committee (TAC) draft meeting minutes August 9, 2023.....75**
- D. Sustainable Groundwater Management Act Monthly Updates April – July 202383**

X. DIRECTOR’S REPORTS

XI. STAFF COMMENTS

XII. NEXT REGULAR MEETING DATE

- A. Consider **cancelling the October and November 2023 board** meetings and setting the next regular meeting date for **Wednesday, December 6, 2023 - 2:00 P.M.****

XIII. CLOSED SESSION

- A. A closed session is planned for Technical Program Manager and Administrative Officer performance evaluations.**

XIV. ADJOURNMENT

This agenda was forwarded via e-mail to the City Clerks of Seaside, Monterey, Sand City and Del Rey Oaks; the Clerk of the Monterey Board of Supervisors, the Clerk to the Monterey Peninsula Water Management District; the Clerk at the Monterey County Water Resources Agency, Monterey One Water and the California American Water Company for posting on or before August 31, 2023 per the Ralph M. Brown Act, Government Code Section 54954.2(a).

If requested, the agenda and documents in the agenda packet shall be made available in appropriate alternative formats to persons with a disability, as required by Section 202 of the Americans with Disabilities Act of 1990 (42 U.S.C. Sec. 12132), and the federal rules and regulations adopted in implementation thereof.

**SEASIDE GROUNDWATER BASIN WATERMASTER
REGULAR MEETING MINUTES
Wednesday, July 5, 2023 In-Person
Monterey One Water Board Room
5 Harris Court, Building “D”, Ryan Ranch, Monterey, California**

I. CALL TO ORDER – Mayor Oglesby called the meeting to order at 2:05p.m.

II. ROLL CALL

Laguna Seca Subarea Landowner – Director John Gaglioti
City of Seaside – Mayor Ian Oglesby
City of Sand City – Mayor Mary Ann Carbone
California American Water (CAW) – Director Chris Cook
Monterey Peninsula Water Management District (MPWMD) – Director George Riley
City of Monterey – Council Member Kim Barber
City of Del Rey Oaks – Council Member Kim Shirley

Absent: Monterey County/Monterey County Water Resources Agency – Supervisor Wendy Root Askew
Coastal Subarea Landowner – Director Paul Bruno

Others Present:

Laura Paxton, Watermaster Administrative Officer (AO)
Joseph Hughes, Watermaster Legal Counsel
Jonathan Lear, MPWMD
Sheri Damon, City Attorney, City of Seaside

III. PUBLIC COMMUNICATIONS – There were no public communications.

IV. REVIEW OF AGENDA – There were no requested changes to the agenda.

V. CONSENT CALENDAR

- A. Minutes of Regular Board meeting held March 1, 2023
- B. Summary of Payments made February through May 2023 totaling **\$52,918.33**
- C. Fiscal Year 2023 Financial Reports through May 31, 2023
- D. Consider Ratifying Central Coast Surveyors RFS No. 2023-01 for conducting corner search and ties, calculations, preparing legal description and plat exhibit for new easement from City of Seaside in preparation for replacing Monitoring Well FO-9 Shallow

It was moved by Mayor Carbone, seconded by Council Member Barber, and unanimously carried 6-0 to approve consent agenda as presented.

Director Gaglioti arrived at the meeting after this vote.

VI. ORAL PRESENTATION – None

VII. OLD BUSINESS – None

VIII. NEW BUSINESS

- A. Consider approving Professional Services Contract with the firm Klein, DeNatale, Goldner, Cooper, Rosenlieb and Kimball, LLP to provide Watermaster supplemental legal services

Ms. Paxton provided the draft agreement for legal services and introduced Joseph Hughes, point person from the firm recommended by staff to be Watermaster legal counsel. Mr. Hughes has 30+ years of experience as a water lawyer with water districts, groundwater sustainability agencies, and river programs. He has not represented adjudicated basins however has experience with those adjacent to his clients' basins. He will not charge travel as his car is his mobile office and he arranges to meet with other clients here when traveling to this area. There was no public comment.

It was moved by Director Riley, seconded by Director Cook, and unanimously carried 7-0 to approve the Legal Services Agreement with the firm Klein, DeNatale, Goldner, Cooper, Rosenlieb and Kimball, LLP for Watermaster supplemental legal services, and Request for Services (RFS) 2023-01 that covers the remainder of 2023.

IX. INFORMATIONAL REPORTS (No Action Required)

A. Status Report on Well ASR-1 Issues

Director Riley requested discussion on the item. Director Cook responded to Director Riley stating extraction wells 1 through 4 are planned for additional supply; wells 1 and 2 are approximately two years out. They would not replace the ASR-1 well used primarily for storage. Director Riley felt that the dispute over use of ASR-1 has no relevance anymore—what happened has happened. Director Cook gave a brief history of the travel time issue with the Pure Water Monterey project, and CAW's position at the time of needing to extract as much as possible during the drought to supply customers. Since experiencing the wet winter and replenishment of Carmel River aquifers, and with ASR-4 expected on line in mid-July and if it operates as designed, it is hopeful the ASR-1 well discussion can now be more on moving forward than looking back. Technical Program Manager, Bob Jaques provided Status Report on Well ASR-1 Issues on his own accord, with no contact or consultation with Director Cook, apparently in an effort to inform the board on all issues he deems pertinent to basin management. Director Cook did not feel the board needed to consider any action.

Director Riley felt the memorandum narrative highlighted the potential for conflict instead of the potential for resolution, and felt it not relevant to plans now underway. Director Shirley felt the narrative was slightly biased, that focus should be on maximizing injection, and that extraction issues should be secondary. Director Cook responded to Council Member Barber regarding mercury treatment at ASR-4, hopeful it will not be a long-term cost; Council Member Barber would like further discussion on who would bear the cost of long-term treatment if it comes to that.

Chair Oglesby appreciated Director Cook's responses however advised that official statements from CAW are what is to be received by the board for discussion or action consideration.

B. Watermaster Report of Production of the Seaside Basin through 2nd Quarter Water Year 2023 (January 1, 2023 – March 31, 2023)

X. DIRECTOR'S REPORTS – Director Riley requested the board meeting calendar each year anticipate meetings that are not needed and only list those that are. Special meetings can be held if needed.

XI. STAFF COMMENTS – There were no staff comments.

XII. NEXT REGULAR MEETING DATE – **It was moved by Director Gaglioti, seconded by Director Riley, and unanimously carried 7-0 to cancel August 2, 2023 Watermaster regular board meeting.**

A. Next meeting Wednesday, September 6, 2023 – 2:00 p.m.

XIII. ADJOURNMENT – There being no further business, the meeting was adjourned at 2:42 p.m.

Respectfully submitted by Laura Paxton, Board Secretary

SEASIDE GROUNDWATER BASIN WATERMASTER							ITEM V.B.
							9/6/23
TO:	Board of Directors						
FROM:	Laura Paxton, AO						
DATE:	September 6, 2023						
SUBJECT:	Summary of Payments made June through July 2023						
RECOMMENDATIONS:							
Consider approving payment of bills submitted and authorized to be paid June through July 2023							
Summary of Payments Made June 2023							
Paxton Associates (Administrative Officer (AO))				51.5	@110	\$	5,665.00
May 26 through June 25, 2023							
<p>Responded to telephone inquiries, e-mail, and other correspondence as needed regarding the Seaside Basin; prepare board orientation workshop historical document/orientation binders/prep for/attend orientation workshop June 7th; confer with Jaques about various issues; collect/follow up/post production and level reporting; confer with legal counsel candidate Hughes/prepare contract docs; follow up on collection services & replenishment assessment payments to WM; draft 7/5 board and ad hoc committee meeting agendas & begin assembling packets; prepare Feb-May financials and summary of payments; complete 3/1 board meeting minutes; Routinely picked up mail from PO Box; reconciled accounts to the City of Seaside Watermaster accounts; prepared financial reports; processed invoices; reviewed and posted items to web site.</p>							
Robert Jaques (Technical Program Manager)							
June 1 through June 30, 2023				33.5	@150	\$	5,025.00
<p>Responded to emails, telephone inquiries, and other correspondence on a variety of Watermaster issues; inspect contractor damage to Sentinel Well #4; pickup FO-9 Well Permit @ Seaside City Hall; contact M. Feeney re: Sentinel Well #4 damage; attend Board orientation meeting @ Supv. Askew's office; prepare FO-9 Well Notice of Exemption and send to City of Seaside for them to file; meet at Sentinel Well #4 w/ MPE and Newman Well Surveys to video inspect the well for cause of blockage; send M. Feeney info to A. Sterbenz re: SBWM #4 damage; review notes from 4/18/23 SVBGSA Groundwater TAC meeting re: SWI Model; work on 2024 M&MP; discuss cost-sharing agreement for FO-9 w/ P. Breen of MCWD & prepare supplemental agreement; discuss Watermaster issues w/ L. Paxton; discuss issues w/G. Riley; attend 6/28 PWM stakeholder meeting; review/approve invoices; prepare board meeting transmittals; prepare TAC agenda packet.</p>							
Montgomery & Associates (Technical Consultant)				4.0	\$228/hr	\$	912.00
May 1 through May 31, 2023				8.5	182		1,547.00
RFS 2022-05 & 2023-03, F-09 Well Installation				5.5	\$118		649.00
Expenses: Subtronic Corp Professional Services					\$1,130 + 10%		1,243.00
							\$ 4,351.00
Total for June 2023						\$	15,041.00

Summary of Payments Made July 2023						
Chris Campbell, Baker Manock & Jensen (WM Legal Counsel)				0.2	200	40.00
April 11, 2023				Telephone & postage		0.40
						\$ 40.40
Interoffice conference with Mr. Campbell regarding recent legislative revisions to the Brown Act related to virtual/remote participation.						
Paxton Associates (Administrative Officer (AO))				38.5	@110	\$ 4,235.00
June 26 through July 25, 2023						
Responded to telephone inquiries, e-mail, and other correspondence as needed regarding the Seaside Basin; prepare 7/5 Board & Ad Hoc Committee meeting packets/distribute; deposit ops assessment revenue at Seaside; prep for/attend 7/5 Board and Ad Hoc Com meeting; set 8/21 B&F Com meeting date w/Seaside; legal contract to WM Chair for signature; contact Hansford for potential replenishment funding feasibility services; cancel 8/2 Board meeting; assign Hughes to funding mechanism research/ provide copious documents for reference; confer with Jaques about various issues; routinely picked up mail from PO Box; reconciled accounts to the City of Seaside Watermaster accounts; prepared financial reports; processed invoices; reviewed and posted items to web site.						
Robert Jaques (Technical Program Manager)						
July 1 through July 31, 2023						
Responded to emails, telephone inquiries, and other correspondence on a variety of Watermaster issues; review Deep Aquifer Study Power Point slides from A. Ostevar for upcoming GTAC meeting; review State Parks documents for SBWM Sentinel Wells @ Fort Ord in prep for annual renewal of entry permit; discuss WM issues w/ T. O'Halloran of Cal Am; discuss FO-9 issues w/ B. DeBoer; edit 2024 M&MP per TAC meeting input; prepare 2024 M&MP budgets; Telecon w/ M. Feeney re: 2024 induction logging budget; discuss Watermaster issues w/ L. Paxton; review/approve invoices; prepare TAC meeting minutes; prepare monthly meetings summary; attend 7/27 SVBGSA-related meeting.						
Martin B. Feeney, PG CHg Consulting Hydrogeologist				3.0	\$200/hr	\$ 600.00
May - July 2023						
RFS 2023-01, Hydrogeologic Consulting						
Sentinel Well #4 repair guidance						
				Total for July 2023		\$ 8,850.40

Seaside Groundwater Basin Watermaster
Budget vs. Actual Administrative Fund
 Fiscal Year (January 1 - December 31, 2023)
 Balance through July 31, 2023

	2023 Adopted Budget October 5, 2022	Contract Amount	Year to Date Revenue / Expenses
Available Balances & Assessments			
Other Assessments	-		
FY (Rollover)	39,500.00		55,111.67
Admin Assessments	60,500.00		51,788.00
Available	100,000.00		106,899.67
Expenses			
Contract Staff	60,000.00	60,000.00	25,195.00
PAC / 3D Basin Modeling	3,000.00	3,000.00	2,610.00
Legal Counsel	12,000.00	20,000.00	-
Filing fees and postage			-
Total Expenses	75,000.00	83,000.00	27,805.00
Total Available	25,000.00		
Dedicated Reserve	25,000.00		-
Net Available	-		79,094.67

Seaside Groundwater Basin Watermaster
Budget vs. Actual Monitoring & Management - Operations Fund
 Fiscal Year (January 1 - December 31, 2023)
 Balance through July 31, 2023

	<u>2023 Adopted Budget</u>	<u>Contract Encumbrance</u>	<u>Year to Date Revenue/Expenses</u>
Available Balances & Assessments			
Operations Fund Assessment	\$ 274,930.00	\$ -	\$ 274,930.00
Pass Through		-	3,678.00
FY 2022 Rollover (estimated)	50,000.00	-	50,000.00
Total Available	\$ 324,930.00	\$ -	\$ 328,608.00
Appropriations & Expenses			
GENERAL			
Technical Project Manager*	\$ 75,000.00	\$ 75,000.00	\$ 32,475.00
Contingency @ 10% (not including TPM)	32,600.00	-	
Total General	\$ 107,600.00	\$ 75,000.00	\$ 32,475.00
CONSULTANTS (Montgomery; Web Site Database)			
Program Administration	\$ 22,744.00	\$ 25,144.00	\$ 5,717.83
Production/Lvl/Qty Monitoring	8,600.00		
Basin Management	70,000.00		
Seawater Intrusion Analysis Report	27,176.00	27,176.00	-
Total Consultants	\$ 128,520.00	\$ 52,320.00	\$ 5,717.83
MPWMD			
Production/Lvl/Qty Monitoring	\$ 49,754.00	64,297.00	-
Pass Through 2023	20,042.00	-	-
Basin Management	-	-	-
Seawater Intrusion	-	-	-
Direct Costs	-	-	-
Total MPWMD	\$ 69,796.00	\$ 64,297.00	\$ -
CONTRACTOR (Martin Feeney)			
Hydrogeologic Consulting Services	\$ 4,000.00	4,000.00	-
Production/Lvl/Qty Monitoring	11,014.00	11,013.30	-
	\$ 15,014.00	\$ 15,013.30	\$ -
CONTRACTOR (Todd Groundwater)			
Hydrogeologic Consulting Services	\$ 4,000.00	\$ 4,000.00	-
Total Appropriations & Expenses	\$ 324,930.00	\$ 210,630.30	\$ 38,192.83
Total Available	-		290,415.17

**Seaside Groundwater Basin Watermaster
Budget vs. Actual Monitoring and Management - Capital Fund
Fiscal Year (January 1 - December 31, 2023)
Balance through July 31, 2023**

	2023 Adopted Budget December 7, 2022	Contract Encumbrance	Year to Date Revenue / Expense
Available Balances and Assessments:			
Monitoring & Management Fund - Capital	\$ 240,000		\$ -
FY 2022 carryover	66,667		66,667
Transfer out to Operations Fund	-		-
Subtotal	<u>306,667</u>		<u>66,667</u>
Appropriations & Expenses:			
Professional Services			
Project Management	-	23,600 *	16,318
Subtotal	<u>-</u>	<u>23,600</u>	<u>16,318</u>
Direct Costs			
Well Drilling -	240,000 **	258,197	1,800
Subtotal	<u>240,000</u>	<u>258,197</u>	<u>1,800</u>
Total Appropriations and Expenses	<u>\$ 240,000</u>	<u>\$ 281,797</u>	<u>\$ 18,118</u>
Total Available	<u><u>\$ 66,666.99</u></u>		<u><u>\$ 48,549.16</u></u>

* RFS 2022-05 for \$23,600 covers design and planning for the new well and is funded by the 2022 \$66,667 carryover amount

**RFS 2023-03 for \$258,197 is for actual construction of the well. Costs increased between adoption of the budget and letting of the RFS with Montgomery and Associates. Watermaster will share the \$258,197 well construction expenses with MCWD & MPWMD - agreement in process. Capital Fund Assessments will be levied on Watermaster Standard Producers once the WM/MCWD/MPWMD cost share agreement is finalized.

Seaside Groundwater Basin Watermaster											VI.C
Replenishment Fund											9/6/23
Water Year 2023 (October 1 - September 30) / Fiscal Year (January 1 - December 31, 2023)											Page 1
Balance through July 31, 2023											
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
	WY 05/06	WY 06/07	WY 07/08	WY 08/09	WY 09/10	WY 10/11	WY 11/12	WY 12/13	WY 13/14	WY 14/15	WY 15/16
Assessment Water Year											
Unit Cost:	a \$ 1,132 / \$283	\$ 1,132 / \$283	\$ 2,485 / 621.25	\$ 3,040 / \$760	\$ 2,780 / \$695	\$ 2,780 / \$695	\$ 2,780 / \$695	\$ 2,780 / \$695	\$ 2,702/\$675.50	\$ 2,702/\$675.50	\$ 2,702/\$675.50
Cal-Am Water Balance Forward	b \$ -	\$ 1,641,004	\$ 4,226,710	\$ (2,871,690)	\$ (2,839,939)	\$ (3,822,219)	\$ (6,060,164)	\$ (8,735,671)	\$ (6,173,771)	\$ (3,102,221)	\$ (676,704)
Cal-Am Water Production (AF)	c 3,710.00	4,059.90	3,862.90	2,966.02	3,713.52	3,416.04	3,070.90	3,076.61	3,232.10	2,764.73	1,879.21
Cal-Am Water NSY Over-Production (AF)	d 1,862.69	2,266.32	2,092.16	1,241.27	1,479.47	1,146.71	820.48	856.42	1,032.77	782.17	-
Exceeding Natural Safe Yield Considering Alternative Producers	e \$ 2,106,652	\$ 2,565,471	\$ 5,199,014	\$ 3,773,464	\$ 4,112,933	\$ 3,187,854	\$ 2,280,943	\$ 2,380,842	\$ 2,790,539	\$ 2,113,414	\$ -
Operating Yield Overproduction Replenishment	f \$ -	\$ 20,235	\$ 8,511	\$ -	\$ -	\$ -	\$ 154,963	\$ 181,057	\$ 281,012	\$ 312,103	\$ -
Total California American	g \$ 2,106,652	\$ 2,585,706	\$ 5,207,525	\$ 3,773,464	\$ 4,112,933	\$ 3,187,854	\$ 2,435,907	\$ 2,561,899	\$ 3,071,550	\$ 2,425,516	
CAW Credit Against Assessment	h \$ (465,648)		\$ (12,305,924)	\$ (3,741,714)	\$ (5,095,213)	\$ (5,425,799)	\$ (5,111,413)				
CAW Unpaid Balance	i \$ 1,641,004	\$ 4,226,710	(2,871,690)	\$ (2,839,939)	\$ (3,822,219)	\$ (6,060,164)	\$ (8,735,671)	\$ (6,173,771)	\$ (3,102,221)	\$ (676,704)	\$ (676,704)
City of Seaside Balance Forward	j \$ -	\$ 243,294	\$ 426,165	\$ 1,024,272	\$ 1,619,973	\$ 891,509	\$ (110,014)	\$ (773,813)	\$ (1,575,876)	\$ (2,889,325)	\$ (3,346,548)
City of Seaside Municipal Production (AF)	k 332.00	287.70	294.20	293.44	282.87	240.68	233.72	257.73	223.64	185.01	195.16
City of Seaside NSY Over-Production (AF)	l 194.07	153.78	161.99	153.06	113.21	50.84	58.82	85.17	52.71	25.77	37.87
Exceeding Natural Safe Yield Considering Alternative Producers	m \$ 219,689	\$ 174,082	\$ 402,540	\$ 465,300	\$ 314,721	\$ 141,335	\$ 163,509	\$ 236,782	\$ 142,410	\$ 69,630	\$ 102,330
Operating Yield Overproduction Replenishment	n \$ 12,622	\$ 85	\$ 4,225	\$ 16,522	\$ 20,690	\$ -	\$ 1,689	\$ 27,007	\$ 3,222	\$ 38	\$ 11,959
Total Municipal	o \$ 232,310	\$ 174,167	\$ 406,764	\$ 481,823	\$ 335,412	\$ 141,335	\$ 165,198	\$ 263,788	\$ 145,631	\$ 69,667	\$ 114,290
City of Seaside - Golf Courses (APA - 540 AFY)											
Exceeding Natural Safe Yield - Alternative Producer	p \$ -	\$ -	\$ 131,705	\$ 69,701	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Operating Yield Overproduction Replenishment	q \$ -	\$ -	\$ 32,926	\$ 17,427	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Golf Courses	r \$ -	\$ -	\$ 164,631	\$ 87,128	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total City of Seaside*	s \$ 232,310	\$ 174,167	\$ 571,395	\$ 568,951	\$ 335,412	\$ 141,335	\$ 165,198	\$ 263,788	\$ 145,631	\$ 69,667	\$ 114,290
City of Seaside Late Payment 5%	t \$ 10,984	\$ 8,704	\$ 26,712	\$ 26,750	\$ 15,737						
In-lieu Credit Against Assessment	u \$ -	\$ -	\$ -	\$ -	\$ (1,079,613)	\$ (1,142,858)	\$ (828,996)	\$ (1,065,852)	\$ (1,459,080)	\$ (526,890)	\$ (162)
City of Seaside Unpaid Balance	v \$ 243,294	\$ 426,165	\$ 1,024,272	\$ 1,619,973	\$ 891,509	\$ (110,014)	\$ (773,813)	\$ (1,575,876)	\$ (2,889,325)	\$ (3,346,548)	\$ (3,232,420)
Mission Memorial Park											
Mission Memorial Park Production (AF)	w 20.80		20.80	26.40	12.80	22.40	27.00	24.95	24.89	17.97	13.67
Mission Memorial Park NSY Over-Production (AF)	x -	-	-	-	-	-	-	-	-	-	-
Exceeding Natural Safe Yield - Alternative Producer	y \$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Operating Yield Overproduction Replenishment	z \$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Mission Memorial Park	aa \$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Replenishment Fund Balance	bb \$ 1,884,298	\$ 4,652,874	\$ (1,847,417)	\$ (1,219,966)	\$ (2,930,710)	\$ (6,170,178)	\$ (9,509,483)	\$ (7,749,648)	\$ (5,991,546)	\$ (4,023,252)	\$ (3,909,125)
Replenishment Fund Balance Forward	cc \$ -	\$ 1,884,298	\$ 4,652,874	\$ (1,847,417)	\$ (1,219,966)	\$ (2,930,710)	\$ (6,170,178)	\$ (9,509,483)	\$ (7,749,648)	\$ (5,991,546)	\$ (4,023,252)
Total Replenishment Assessments	dd \$ 2,349,946	\$ 2,768,576	\$ 5,805,632	\$ 4,369,165	\$ 4,464,082	\$ 3,329,189	\$ 2,601,104	\$ 2,825,688	\$ 3,217,182	\$ 2,495,183	\$ 114,290
Total Paid and/or Credited	ee \$ (465,648)	\$ -	\$ (12,305,924)	\$ (3,741,714)	\$ (6,174,826)	\$ (6,568,657)	\$ (5,940,409)	\$ (1,065,852)	\$ (1,459,080)	\$ (526,890)	\$ (162)
Grand Total Fund Balance	ff \$ 1,884,298	\$ 4,652,874	\$ (1,847,417)	\$ (1,219,966)	\$ (2,930,710)	\$ (6,170,178)	\$ (9,509,483)	\$ (7,749,648)	\$ (5,991,546)	\$ (4,023,252)	\$ (3,909,125)
* 2010 = 319.55 AF golf course in-lieu replenishment and 68.8 AF 4-party agmt in-lieu replenishment											
2011 = 411.1 AF golf course in-lieu replenishment											
2012 = 298.2 AF golf course in-lieu replenishment											
2013 = 383.4 AF golf course in-lieu replenishment											
2014 = 552.4 AF golf course in-lieu capped at 540 AF											
2015 = 195.0 AF golf course in-lieu											
2016 = 00.06 AF golf course in-lieu											
2017 = 00.00 AF golf course in-lieu											

Seaside Groundwater Basin Watermaster									
Replenishment Fund									
Water Year 2023 (October 1 - September 30) / Fiscal Year (January 1 - December 31, 2023)									
Balance through July 31, 2023									
	2017	2018	2019	2020	WY 2021	WY 2022	Totals WY 2006 Through 2022	Budget WY 2023	Projected Totals Through WY 2023
Assessment Water Year	WY 16/17	WY 17/18	WY 18/19	WY 19/20	WY 20/21	WY 21/22		WY 22/23	
Unit Cost:	\$2,872 / \$718	\$2,872 / \$718	\$2,872 / \$718	\$2,872 / \$718	\$2,947 / \$737	\$3,260 / \$815		\$3,461 / \$865	
Cal-Am Water Balance Forward	\$ (676,704)	\$ (491,747)	\$ (48,797,949)	\$ (47,979,852)	\$ (46,855,121)	\$ (46,855,121)		\$ (46,855,121)	
Cal-Am Water Production (AF)	2,029.51	2,229.45	2,120.22	2,245.88	1,664.04	1,648.71	47,689.74		
Cal-Am Water NSY Over-Production (AF)	64.40	374.65	284.85	334.21	-	-	14,638.57		
Exceeding Natural Safe Yield Considering Alternative Producers	\$ 184,957	\$ 1,075,995	\$ 818,097	\$ 959,859	\$ -	\$ -	\$ 33,550,034	\$ 100,000	\$ 33,650,034
Operating Yield Overproduction Replenishment				\$ 164,872	\$ -	\$ -	\$ 1,122,753	\$ 20,000	\$ 1,142,753
Total California American	\$ 184,957	\$ 1,075,995	\$ 818,097	\$ 1,124,731	\$ -	\$ -	\$ 34,672,786	\$ 120,000	\$ 34,792,786
CAW Credit Against Assessment		\$ (49,382,196)	\$ -	\$ -	\$ -	\$ -	\$ (81,527,907)	\$ -	\$ (81,527,907)
CAW Unpaid Balance	\$ (491,747)	\$ (48,797,949)	\$ (47,979,852)	\$ (46,855,121)	\$ (46,855,121)	\$ (46,855,121)	\$ (46,855,121)	\$ (46,735,121)	\$ (46,735,121)
City of Seaside Balance Forward (120.28 AF)	\$ (3,232,420)	\$ (3,142,500)	\$ (3,022,249)	\$ (2,919,806)	\$ (2,802,831)	\$ (2,708,829)		\$ (2,661,184)	
City of Seaside Municipal Production (AF)	188.31	184.63	178.40	181.65	174.69	155.12	3,888.95		
City of Seaside NSY Over-Production (AF)	30.47	32.46	27.82	32.06	25.52	11.69	1,247.31		
Exceeding Natural Safe Yield Considering Alternative Producers	\$ 87,512	\$ 93,225	\$ 79,893	\$ 92,089	\$ 75,197	\$ 38,116	\$ 2,898,358	\$ 100,000	\$ 2,998,358
Operating Yield Overproduction Replenishment	\$ 2,409	\$ 27,026	\$ 22,550	\$ 24,886	\$ 18,806	\$ 9,529	\$ 203,263	\$ 10,000	\$ 213,263
Total Municipal	\$ 89,920	\$ 120,251	\$ 102,443	\$ 116,975	\$ 94,002	\$ 47,645	\$ 3,101,621	\$ 110,000	\$ 3,211,621
City of Seaside - Golf Courses (APA - 540 AFY)									
Exceeding Natural Safe Yield - Alternative Producer	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 201,406		\$ 201,406
Operating Yield Overproduction Replenishment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 50,353		\$ 50,353
Total Golf Courses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 251,759		\$ 251,759
Total City of Seaside*	\$ 89,920	\$ 120,251	\$ 102,443	\$ 116,975	\$ 94,002	\$ 47,645	\$ 3,353,380	\$ 110,000	\$ 3,463,380
City of Seaside Late Payment 5%							\$ 88,887		\$ 88,887
In-lieu Credit Against Assessment							\$ (6,103,451)		\$ (6,103,451)
City of Seaside Unpaid Balance	\$ (3,142,500)	\$ (3,022,249)	\$ (2,919,806)	\$ (2,802,831)	\$ (2,708,829)	\$ (2,661,184)	\$ (2,661,184)	\$ (2,551,184)	\$ (2,551,184)
Mission Memorial Park (APA - 31 AFY)									
Mission Memorial Park Production (AF)	13.74	14.43	16.07	20.00	46.77	33.95	335.84		
Mission Memorial Park NSY Over-Production (AF)	-	-	-	-	15.77	2.95	18.72		
Exceeding Natural Safe Yield - Alternative Producer	\$ -	\$ -	\$ -	\$ -	\$ 46,488	\$ 9,608	\$ 56,096		\$ 56,096
Operating Yield Overproduction Replenishment	\$ -	\$ -	\$ -	\$ -	\$ 11,626	\$ 2,402	\$ 14,028		\$ 14,028
Board Approved (5/4/22) Credit Against Assessment					(33,114)	-	\$ (33,114)		\$ (33,114)
\$8,500 Applied to Admin Fund to cover expenses					(8,500)				
Mission Memorial Park Unpaid Balance	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total	\$ -	\$ -	\$ -	\$ -	\$ 16,500	\$ 12,010	\$ 28,510	\$ -	\$ 28,510
Total Replenishment Fund Balance	\$ (3,634,247)	\$ (51,820,198)	\$ (50,899,658)	\$ (49,657,952)	\$ (49,563,950)	\$ (49,516,305)	\$ (49,487,795)	\$ (49,286,305)	\$ (49,286,305)
Replenishment Fund Balance Forward	\$ (3,909,125)	\$ (3,634,247)	\$ (51,820,198)	\$ (50,899,658)	\$ (49,657,952)	\$ (49,563,950)		\$ (49,516,305)	
Total Replenishment Assessments	\$ 274,877	\$ 1,196,246	\$ 920,540	\$ 1,241,706	\$ 110,502	\$ 59,655	\$ 38,143,563	\$ 230,000	\$ 38,373,563
Total Paid and/or Credited		\$ (49,382,196)		\$ (16,500)	\$ (12,010)	\$ (87,659,868)			\$ (87,659,868)
Grand Total Fund Balance	\$ (3,634,247)	\$ (51,820,198)	\$ (50,899,658)	\$ (49,657,952)	\$ (49,563,950)	\$ (49,516,305)	\$ (49,516,305)	\$ (49,286,305)	\$ (49,286,305)

SEASIDE GROUNDWATER BASIN WATERMASTER

TO: Board of Directors

FROM: Robert S. Jaques, Technical Program Manager

DATE: September 6, 2023

SUBJECT: Summary of Flow Direction Flow Velocity Analyses

RECOMMENDATION: Perform no further work on Flow Direction/Flow Velocity Analyses at this time.

BACKGROUND: During 2022 the TAC and Board received presentations on the work done by Montgomery & Associates to analyze the direction and velocity that seawater intrusion, if it were to occur, would move within the Seaside Basin. Both the TAC and Board felt it would be worthwhile to perform further analysis of this topic, using a different set of assumptions than were used in the earlier work.

At the March 8, 2023 TAC meeting a proposal from Montgomery & Associates to perform additional analyses was discussed. Mr. Benito, who had prepared the proposal, raised several issues for the TAC to consider before deciding whether to recommend to the Board that additional analyses be performed. The proposal was for over \$43,000, which is well above the \$30,000 amount that was budgeted for this work in 2023.

DISCUSSION: At the March 8 TAC meeting Mr. Benito pointed out that the maximum rate of inland movement of seawater intrusion will be in the Paso Robles aquifer. He said it was unlikely that further modeling would show appreciably more rapid movement, unless more severe drought assumptions were used. Using alternate assumptions including lower ASR injection rates and demand figures from the Cal-Am Urban Water Management Plan will show greater inland travel than the previously analyzed scenario because overall there will be greater pumping and less water being injected into the basin. However, this may not represent the most conservative set of assumptions with regard to uncertainty in future climate.

Mr. Gaglioti recommended preparing a simplified version of the 2022 Technical Memorandum that reflects this additional information. The simplified version is attached.

The 2022 analysis developed an order-of-magnitude estimate of the potential rate of inland travel of seawater intrusion under conservative assumptions. That analysis found that once seawater reaches the shoreline it could intrude towards the closest inland Cal-Am production wells within approximately a decade. A substantially different conclusion is unlikely to come from changing the future demand and ASR injection assumptions. The reason for this is that the 250 ft/day intrusion rate value from the 2022 analysis already reflects:

- A simulated period of extended drought conditions
- Little to no ASR recharge
- Very little recharge from rainfall
- And before:
 - The Seaside golf courses begin using recycled water
 - The PWM Project is expanded, and
 - Cal-Am's 700 AFY overpumping repayment program comes online.

Modeling scenarios should provide information that will be helpful in making basin management decisions. I reported to the TAC that it was my belief that the value of performing the work described in Mr. Benito's Proposal did not justify the cost of performing that work. It was therefore my recommendation that at this time no further work be performed on Flow Direction/Flow Velocity Analyses. Following discussion, the TAC unanimously passed a motion to make this recommendation to the Board.

If there is a desire to evaluate the impacts of a more severe or drier climate scenario, it would first be necessary to develop such a scenario. How that would be done, and how accurate it would be, would be problematic, unless there were already widely-accepted already-developed scenarios that could be drawn upon.

ATTACHMENT: Summary of Flow Direction/Flow Velocity Analysis

SUMMARY OF FLOW DIRECTION/FLOW VELOCITY ANALYSES

Prepared by Robert Jaques, P.E., Technical Program Manager, Seaside Basin Watermaster
March 17, 2023

EXECUTIVE SUMMARY

Groundwater modeling of the Seaside Basin performed in early 2022 was done to estimate the direction, velocity of movement, and potential inland distances of movement of seawater intrusion, if it were to occur along the coastline of Monterey Bay.

The analysis was based on the assumption that in 2024 several water supply/water replenishment projects would come on-line. These included the Pure Water Monterey Expansion Project, Cal Am's over-pumping replenishment payback program, and the use of recycled water to irrigate the Seaside Golf Courses.

A "worst case" scenario was evaluated to see what would occur if the 2024 water supply/replenishment projects were delayed or not implemented, and existing groundwater conditions otherwise stayed the same. In this worst-case scenario seawater would move inland from the coast at a rate of about 250 feet per year, and could reach major production wells in about a decade.

The analysis used a cyclical repetition of historical hydrology to simulate future rainfall patterns. It did not assess the impacts that would result if future years have longer and more frequent drier weather and drought periods. An analysis of recent hydrologic data indicates that this is beginning to occur. If this trend continues, the inland rate of movement of seawater intrusion would increase.

BACKGROUND

In February 2022 Montgomery & Associates performed groundwater modeling to estimate the velocities, time scales, and travel distances that seawater intrusion, if it were to occur, would move inland from locations along the coastline in the Northern Coastal Subarea of the Seaside Basin. The analysis considered both current conditions and projected potential future conditions. A Technical Memorandum dated February 25, 2022 was prepared providing a detailed discussion of the analysis. This Summary provides a condensed version of that Technical Memorandum as well as information provided to the Watermaster's Board at its September 7 and October 5, 2022 meetings.

In the Seaside Basin aquifers, the distance offshore of the interface between fresh groundwater and seawater (the seawater intrusion front) is currently unknown. However, this analysis can provide a range of potential seawater intrusion travel rates from the coastline under different potential Basin conditions, and as such can provide insights into the time scales and distances at which further inland intrusion could occur, if early signs of seawater intrusion were to be detected in coastal monitoring wells.

ANALYSIS

Scenarios

A “Baseline Scenario” was analyzed to evaluate the movement of seawater assuming the operation only of currently planned projects with no additional replenishment water added to the Basin. For Water Years (WY) 2018 through WY2021 the analysis was based on actual measured pumping, Aquifer Storage and Recovery (ASR) and Pure Water Monterey (PWM) injection, and hydrology (rainfall). For WY 2022 through WY 2050 it was based on projected future pumping, currently planned projects, and a repeat of the historical hydrology from the period between WY 1988 and WY 2016. The analysis also took into account projected sea level rise.

The Baseline Scenario was based on the following assumptions:

- Water supply and demand forecasts in MPWMD’s September 2019 “*Supply and Demand for Water on the Monterey Peninsula*”
- Cal-Am's 25 year 700 AFY plan to replenish the Basin for its historical overpumping begins in WY 2024
- The Pure Water Monterey (PWM) Expansion project begins operation in WY 2024
- The City of Seaside’s replacement of groundwater with recycled water for golf course irrigation begins in WY 2024
- The construction of the Security National Guaranty and Campus Town developments in the City of Seaside occur as currently planned
- No proposed Groundwater Sustainability Plan projects are implemented in the neighboring subbasins

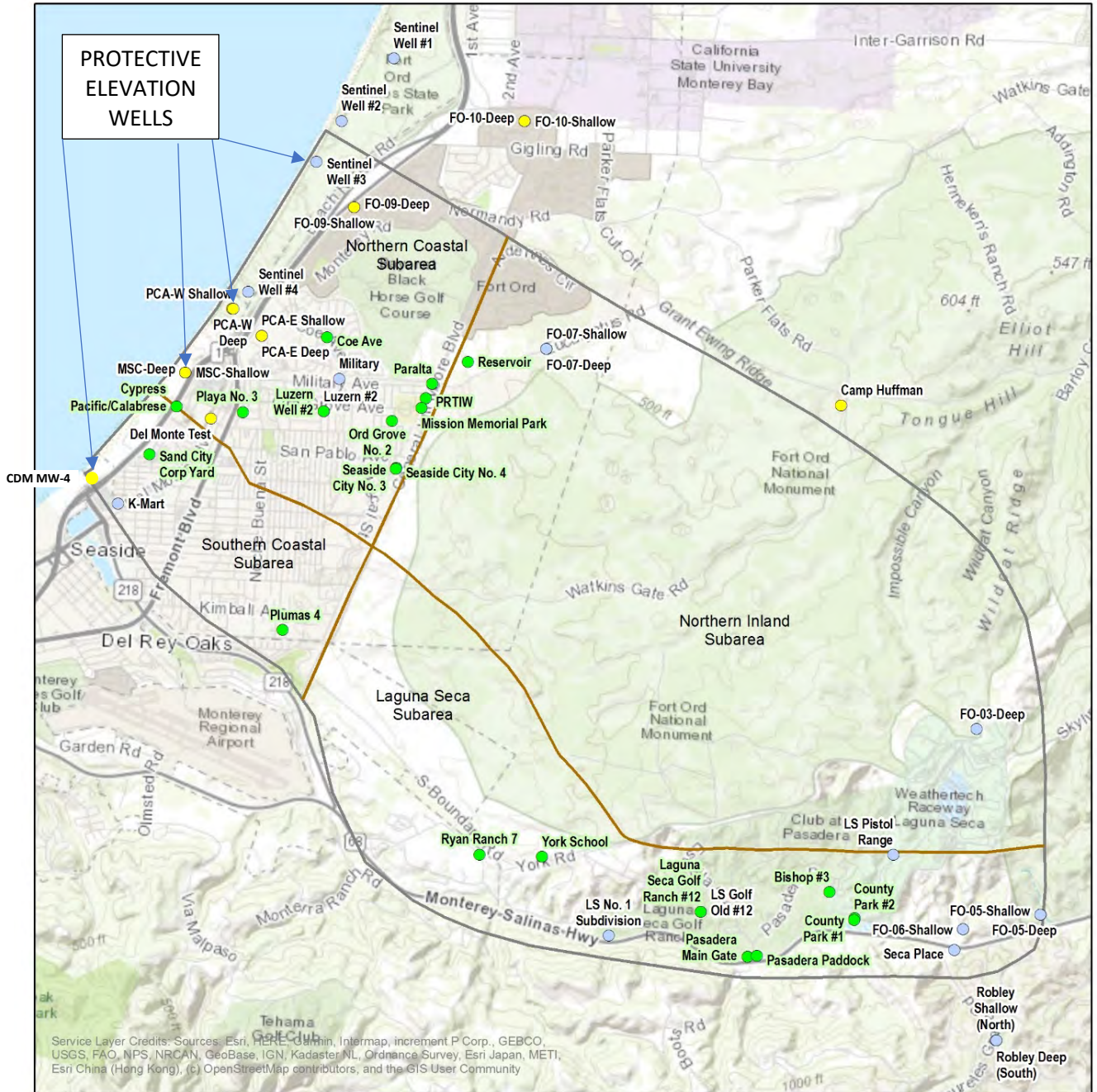
Groundwater Levels at Coastal Monitoring Wells

Six monitoring wells have been used for establishing protective elevations against seawater intrusion in the Basin. The protective elevation monitoring wells are shown in Figure 1. There are two wells (Shallow and Deep) at both PCA-West and MSC. Annually averaged groundwater elevations in these protective elevation wells under the Baseline Scenario are shown in Figure 2, which clearly shows the beneficial impact of these water supply/replenishment projects.

At all of the protective elevation monitoring wells except for CDM MW-4, groundwater levels rise steadily starting in WY 2024 (when the PWM Expansion, Cal-AM replenishment repayment, and Seaside Golf Course recycled water projects are assumed to begin) through WY 2033. After WY 2033 groundwater levels begin to either level off or drop to varying degrees in response to wetter and drier periods in the hydrologic cycle. CDM MW-4 is located in the Southern Coastal Subbasin, which is geologically separated from the Northern Coastal Subbasin where the other five protective elevation wells are located. For this reason, it is not affected by these projects.

Groundwater levels drop markedly in the last several years of the modeling period (WY 2046 through WY2050) due to the impacts of a simulated multi-year drought during which both ASR and PWM injection are greatly reduced and Cal-Am begins recovering banked ASR water credits to meet their system demands. The last 2 years of this period also coincides with the assumed end of Cal-Am’s replenishment repayment period, after which Cal-Am can return to pumping their full native groundwater rights.

Figure 1. Locations of Protective Elevation Wells



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EXPLANATION

- Monitoring Wells used for Groundwater Levels
- Monitoring Well with Water Level and Quality Data
- Production Well with Water Level and Quality Data
- Adjudicated Seaside Groundwater Basin Boundary
- Basin Boundary
- Subarea Boundary

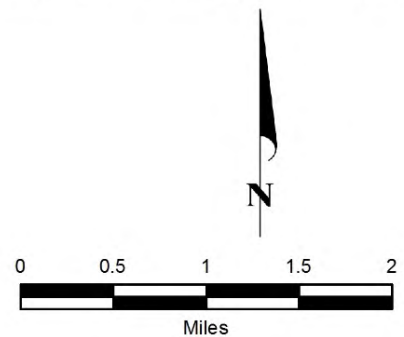


Figure 2. Groundwater Elevations in the Protective Elevation Wells

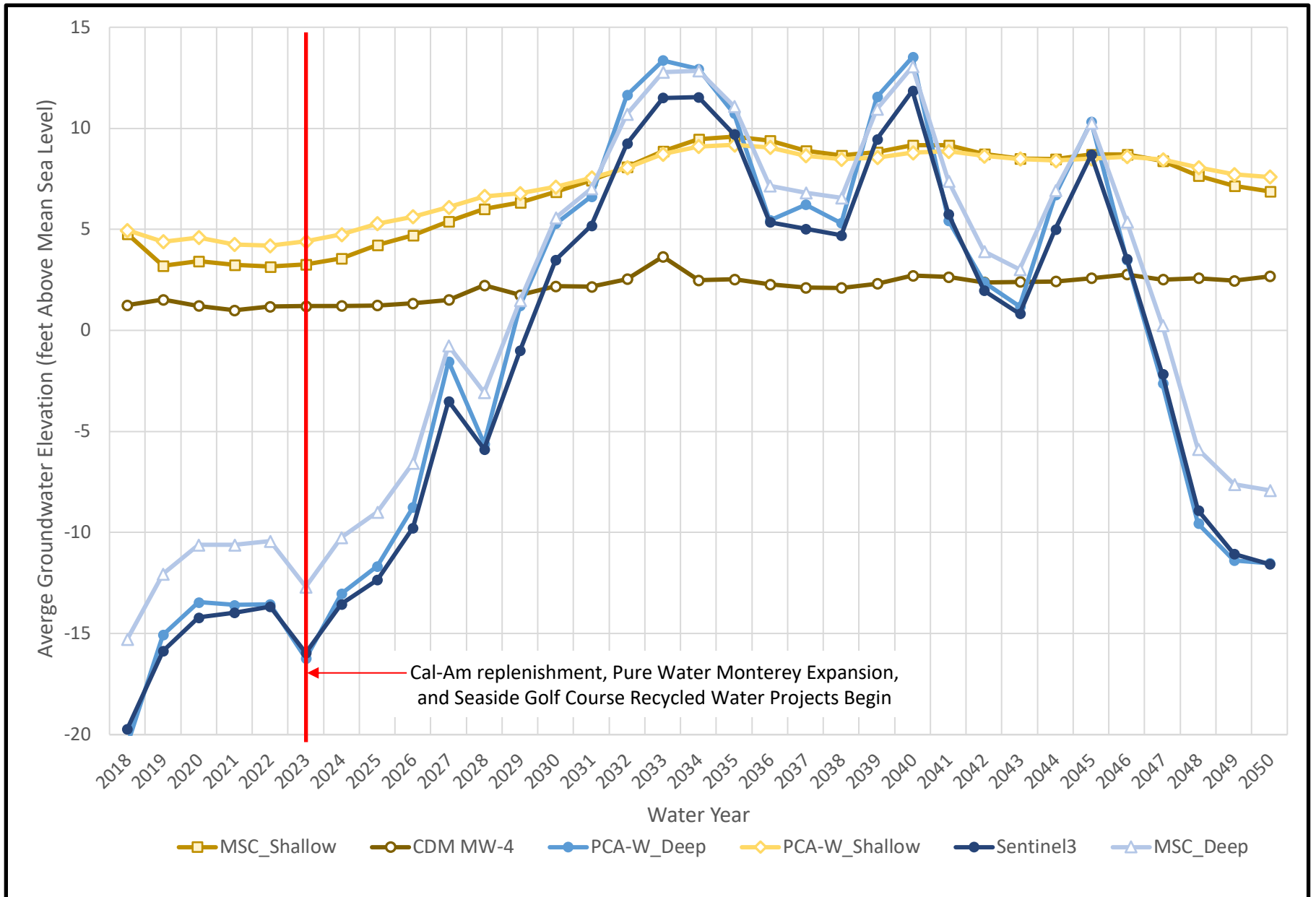


Figure 2 makes it clear that groundwater levels at the protective elevation wells will rise when the new water supply/replenishment projects begin operation, but that those groundwater levels will fall once the drought period returns, and in particular once Cal Am can resume its normal pumping level that is allowed by the Adjudication Decision (assumed to occur in 2049).

Depending on groundwater levels in the Basin along the coast, groundwater in the aquifer may flow inland from the Bay or may flow offshore toward the Bay.

Change in Flows Between the Basin and Monterey Bay

Figure 3 shows the estimated annual flows of groundwater to and from the Seaside Basin and Monterey Bay. Positive values are flows from the Bay into the Basin. Negative values are flows from the Basin into the Bay.

Prior to the projected start-up of the three water supply/replenishment projects in WY 2024, in the Northern Coastal Subarea there is a net inflow of water from the Bay. This may or may not be seawater intrusion, because there may be freshwater stored offshore in the aquifer. However, this represents a condition that would increase the potential for seawater intrusion. In WY 2024, when the three water supply/replenishment projects begin, groundwater levels begin to rise and flows change direction and become outflows of groundwater from the Basin into the Bay. The net outflow reaches a peak in WY 2033 following a series of above normal and extremely wet years. Thereafter, the flow to the Bay begins to decrease due to a multi-year drought in the hydrologic cycle.

As expected, due to the geologic separation of the Northern and Southern Coastal Subareas, Figure 3 shows that groundwater levels in the Southern Coastal Subarea are unaffected by the water supply/replenishment projects in the Northern Coastal Subarea. Water levels in the only protective elevation well in the Southern Coastal Subarea (CDM MW-4) are already at or above the protective elevation.

Methodology and Porosity

The movement of groundwater is very sensitive to the porosity (the openness or tightness) of the aquifer through which the groundwater is flowing. Because the porosity of the aquifer was not a calibrated parameter in the groundwater Model, a reasonable range of aquifer porosities was used to develop upper and lower estimates of seawater intrusion travel times from the coastline to varying distances inland. A porosity of 8% was used to represent the higher range of potential travel velocities, and a porosity of 16% was used to represent a lower range of potential velocities.

The methodology used for this analysis is referred to as “particle tracking.” Particles were simulated as being released into the groundwater every 500 feet along the entire length of the coastline of the Seaside Basin. The model tracked the individual flow paths of the particles throughout the 33-year period of the Baseline Scenario, ending in September 2050.



Figure 3. Flows Between the Seaside Basin and Monterey Bay

Particle tracking is not a substitute for full seawater intrusion modeling, which is a more complex methodology. However, it presents a range of potential groundwater travel rates under different Basin conditions, and thereby provides insight into the time scales and distances at which inland intrusion could occur.

Results of the Analysis

A zoomed-in view of the area of fastest inland movement of seawater intrusion (the Lower Paso Robles aquifer) is shown on the inset map on the left side of Figure 4. The graph on the right side of the figure shows the average annual inland velocity (in feet per year) where the fastest inland movement of water from Monterey Bay was found to occur.

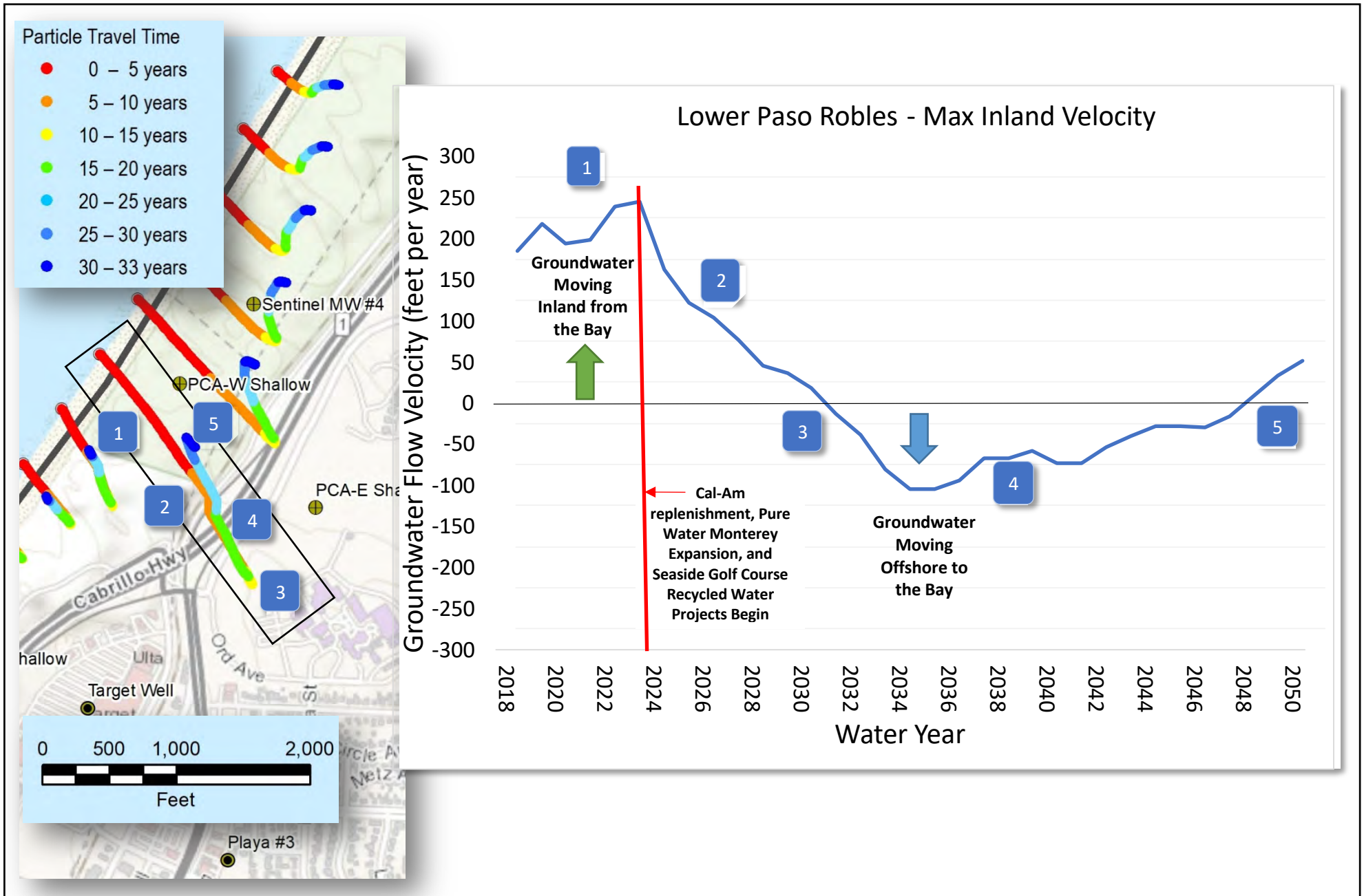
The numbered bullet points on the map and the graph in Figure 4 represent time periods under different operational and hydrologic conditions in the Basin as follows:

- 1** This first period represents the Basin under current operations before the water supply/replenishment projects begin in WY 2024 and is reflective of multi-year drought conditions preceding that date. Inland groundwater levels are at their lowest, creating conditions of maximum seawater intrusion potential and the highest inland flow velocity (as high as 250 feet inland per year). On the inset map this period is shown as the red color-coded portion of the particle paths.
- 2** This is the period when the water supply/replenishment projects come online in WY 2024 and after the multi-year drought period ends. Groundwater is still moving inland from the coast, but at increasingly slower velocities as groundwater levels in the Basin rise. This is shown as the orange and yellow segments on the particle path map.
- 3** This period represents a transition period when flows reverse from inflow from the Bay to outflow toward the Bay. Groundwater levels are at their highest as a result of five back-to-back extremely wet and above-normal wet years.
- 4** This period represents conditions when flows are still toward the Bay, but the velocity of flow begins to decrease after a series of dry and critically dry years.
- 5** This final period represents the effects of a new multi-year drought. Groundwater begins to move inland from the Bay, though at a much slower rate than during the earlier inland flow period, ending at rate of 50 feet of inland travel per year in WY 2050.

Potential Inland Travel Times of Seawater Interface Along a Preferential Flow Path

The seawater-to-freshwater interface of seawater intrusion occurs not as a uniform front moving inland across the entire coastline at one rate, but as a diffused transition zone between freshwater and full-strength seawater. This seawater interface transition zone can be characterized by the distance between the leading edge of this zone (where the salinity level is much lower than full strength seawater, but above the native groundwater salinity) and a midpoint between the leading

Figure 4. Area of Fastest Inland Movement of Seawater Intrusion (the Lower Paso Robles aquifer)



edge and full-strength seawater. The midpoint would have a very high salinity concentration much greater than that desired for the Basin. A transition zone width of 2,000 feet was assumed in this analysis. seawater. The midpoint would have a very high salinity concentration much greater than that desired for the Basin. The analysis found that the pathways with the greatest inland flow velocities from the Bay were in the Lower Paso Robles aquifer.

A “worst case” scenario was evaluated to see what would occur if the 2024 water supply/replenishment projects were delayed or not implemented, and existing groundwater conditions otherwise stayed the same. In this scenario, and with an assumed porosity of 8%, the seawater interface would move inland from the coast at a rate of 250 feet per year. The travel velocity will accelerate closer to an active production well because of the cone of depression that forms around a pumping well. Figure 5 shows a graph of distance traveled inland from the coastline versus travel time under this worst-case scenario. The names of several production and monitoring wells in the area are shown, placed vertically at their respective distances inland from the coastline. In this scenario it could take as little as four years between when the leading edge of seawater interface is detected at a coastal monitoring well (such as PCA-W) and when the leading edge would reach some of the small production wells located near to the coast. It could take on the order of eleven years for the leading edge to reach a large production well further inland, such as Cal Am’s Playa 3 well which is located 2,800 feet from the coastline.

Because a number of assumptions had to be made to perform this analysis, these estimates of the rate of inland movement of seawater should be taken only as order-of-magnitude values to provide a sense of the possible scale of travel times and distances. No data is currently available on the offshore location of the freshwater-seawater interface, nor of the width of the transition zone. Similarly, there is limited data available to estimate the aquifer porosities. Recently obtained data from a tracer study performed for PWM indicates that porosity in that part of the Basin may be as low as 5%. This would result in a much higher groundwater movement velocity than the 8% value that was assumed for this analysis. Thus, while the assumed 8% porosity value was considered representative of an aquifer with fast groundwater movement velocities, it may not necessarily represent the fastest travel rates that could occur.

Climate Change

As discussed above, significant future changes in climate can have a significant impact on the movement of groundwater within the Basin. The graphs in Figure 6 depict the differences in hydrologic conditions between the past 100 years and the past 50 years, based on a statistical analysis of data from the Carmel River Basin. In the 100-year graph, there were periods of normal rainfall 25% of the time, and less than normal periods occurred only 37% of the time. In comparison, during the last 50 years there were periods of normal rainfall only 16% of the time, increased further to 48% of the time. The data indicates a clear trend toward having a higher percentage of dry and critically dry years.

Figure 7 shows that in the most recent 35-year period, normal rainfall occurred 17% of the time, while less than normal periods increased to 44% of the time.

**Figure 5. Potential Maximum Inland Travel Times and Distances
in the
Lower Paso Robles Aquifer**

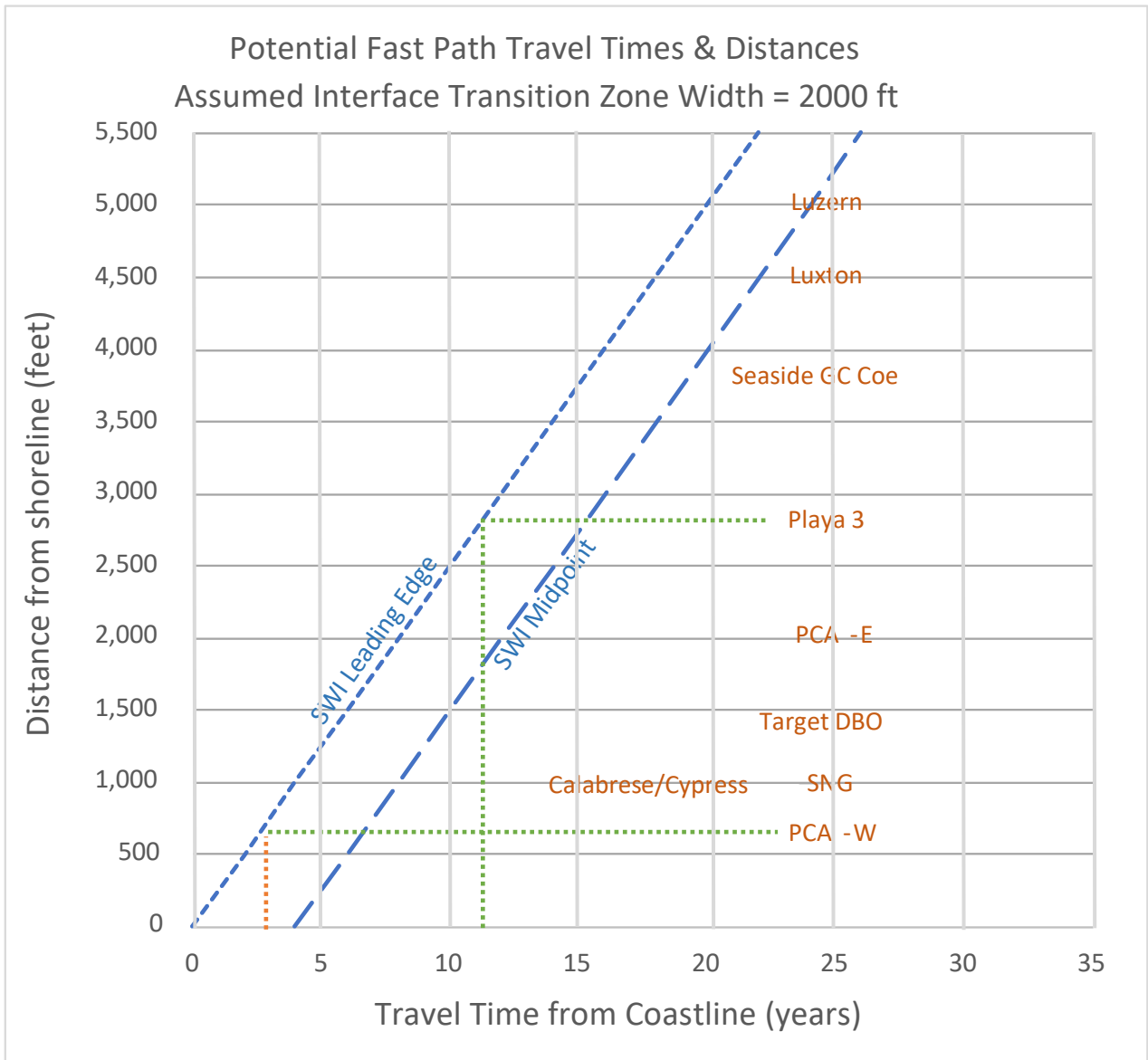


Figure 6. Climate Change During the Past 100 Years and the Past 50 Years

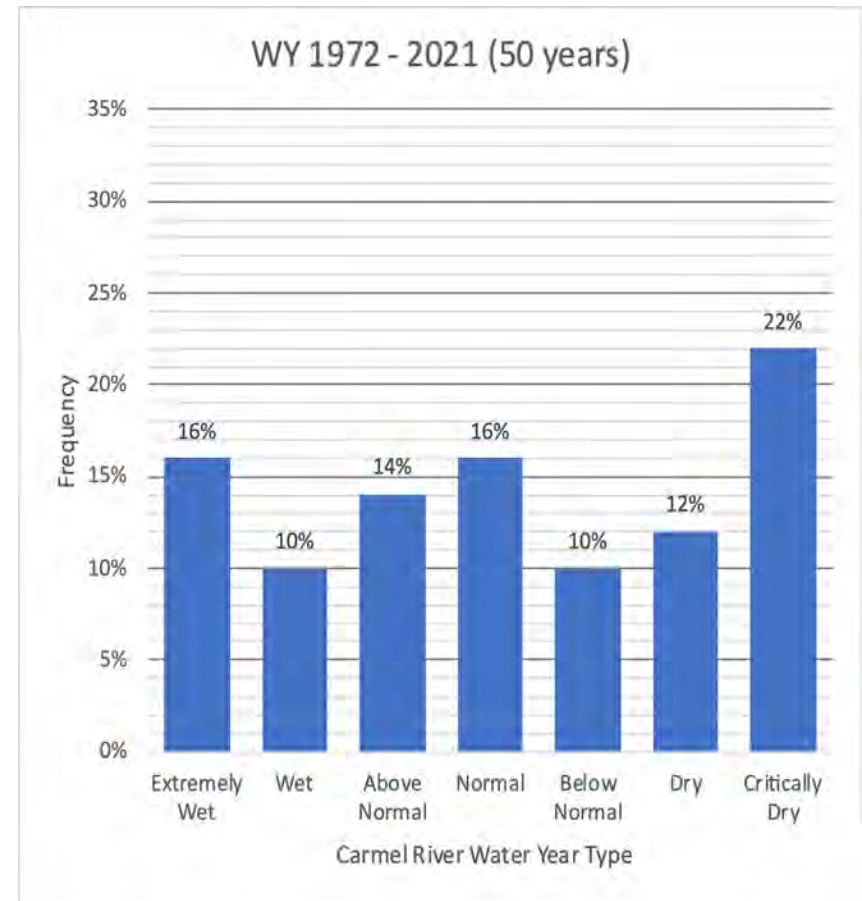
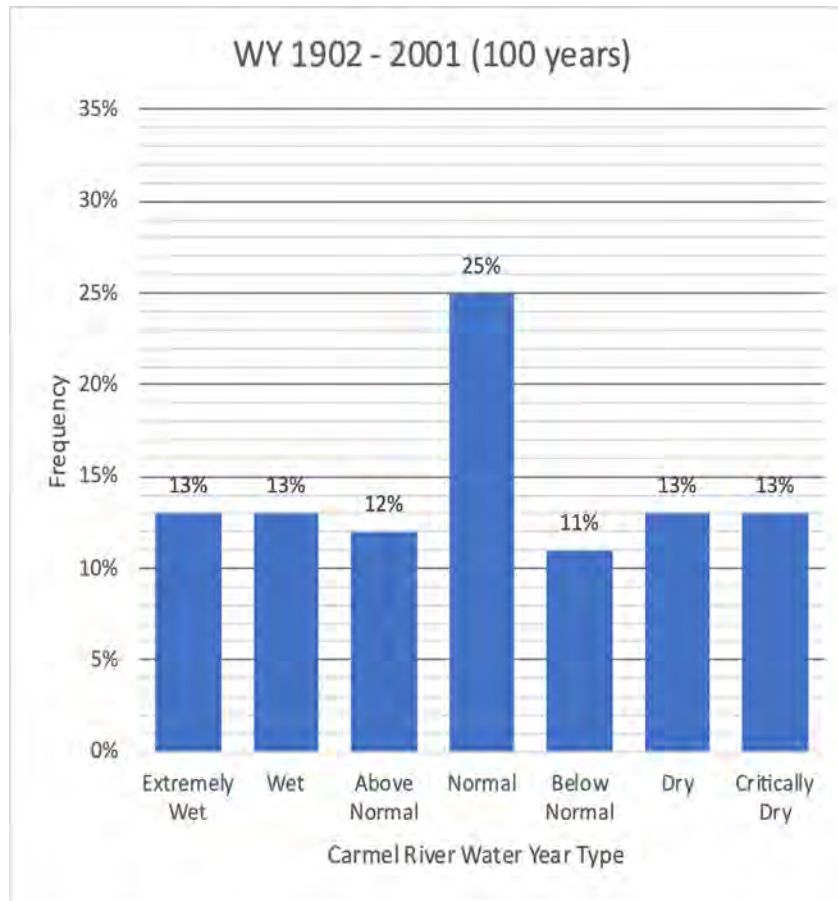
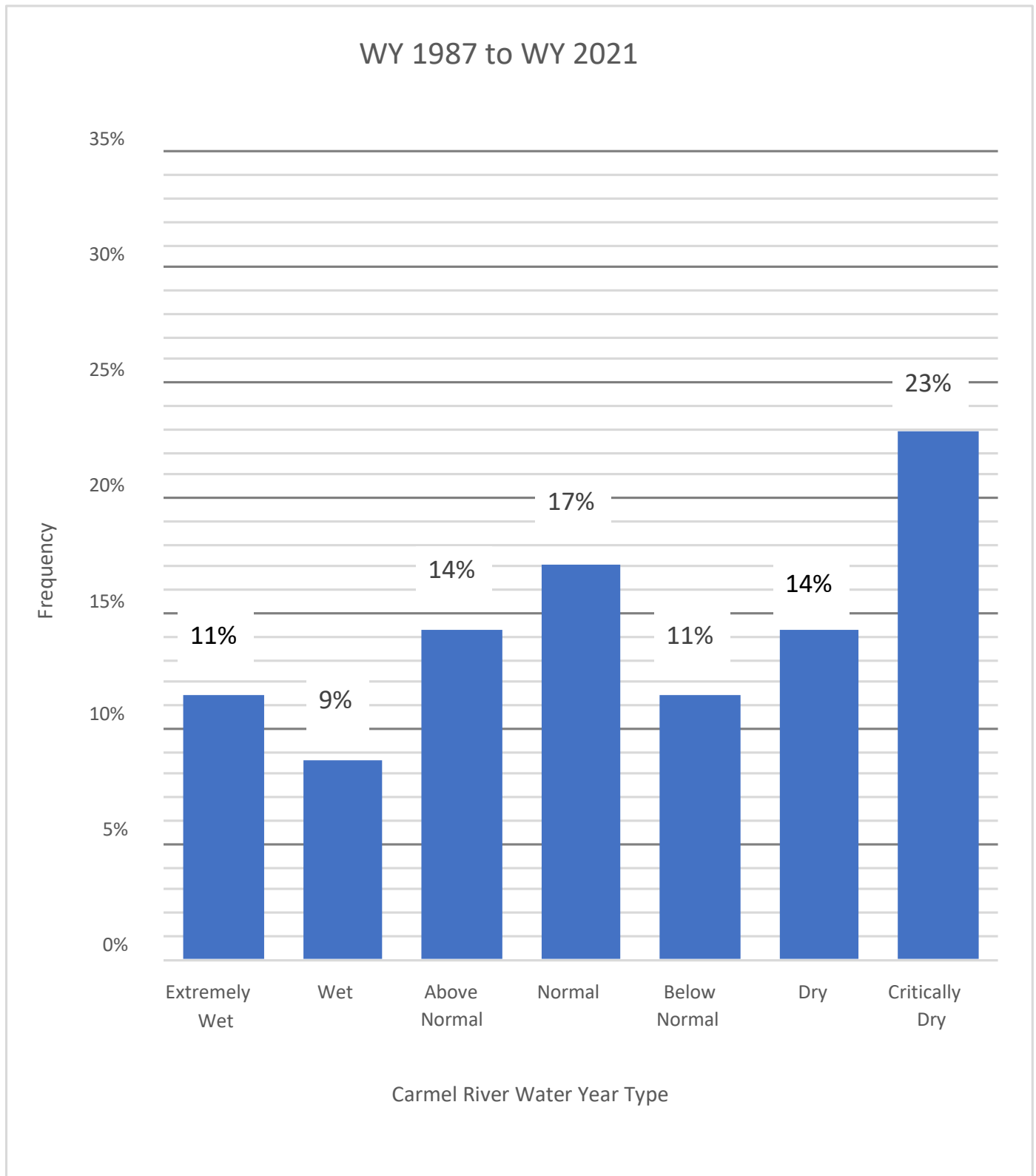


Figure 7. Climate Change During the Last 35 Years



PRINCIPAL CONCLUSIONS

1. The most significant inland flow of seawater intrusion (in terms of both rates and distance) occurs in the Lower Paso Robles aquifer in the Northern Coastal Subarea. The fastest travel times are concentrated in line with the main pumping depression where production wells are screened in the Lower Paso Robles. This is consistent with data used in calibrating the groundwater model. These velocities decrease as groundwater levels rise, and can reverse to an offshore flow direction if groundwater levels become high enough.
2. Maximum inland flow velocities of up to 250 feet per year can occur under current and near-term Basin conditions before the water supply/replenishment projects are implemented. If those projects do not become operational, once seawater reaches the shoreline it could reach the closest inland Cal-Am production wells in about a decade.
3. The inland velocities and travel distances are sensitive to changes in hydrologic conditions. Periods of prolonged drought will increase inland travel rates and increase the seawater intrusion risk. The repetitive hydrologic cycle used in the Baseline Scenario represents only one possible future hydrology scenario. Using a future hydrologic cycle with longer and/or more frequent periods of below average rainfall would show a higher rate of inland movement of seawater intrusion.
4. The lower ASR injection rates used in the alternate scenario analyzed in the August 5, 2022 Montgomery & Associates Technical Memorandum titled "*Hybrid Water Budget Analyses of Basin Replenishment Options & Alternate Assumptions*" were based on the assumption that the ASR injection rates in the 2019 MPWMD forecast were somewhat too high. They but were not based on using a more severe or drier future climate scenario. Therefore, using those lower ASR injection rates may not represent the most conservative set of assumptions with regard to uncertainty in future climate.
5. Given the unknowns about future hydrologic conditions, it is unlikely that anything that would be helpful in making Basin management decisions would be learned from performing further flow direction/flow velocity analyses using the supply and demand quantities in the Cal Am UWMP. The reason for this it that the intrusion rate of 250 feet-per-day already takes into account a simulated period of extended drought conditions with little to no ASR recharge and very reduced recharge from rainfall, and before any of the water supply/replenishment projects come online. These have a greater impact on seawater intrusion than do supply and demand quantities.
6. If there is a desire to evaluate the impacts of a more severe or drier climate scenario, it would first be necessary to develop such a scenario. How that would be done, and how accurate it would be, would be problematic.

TO: Board of Directors

FROM: Robert S. Jaques, Technical Program Manager

DATE: September 6, 2023

SUBJECT: Consider Approving Supplemental Cost-Sharing Agreement for Monitoring Well FO-9 Shallow Replacement Well Installation

RECOMMENDATION: Approve the attached Supplemental Cost Sharing Agreement.

BACKGROUND: As discussed in the 2021 and 2022 Watermaster Annual Reports, monitoring well FO-9 Shallow developed a leak in its casing and had to be destroyed to prevent cross-aquifer contamination. Capital Projects were included in the 2022 and 2023 Monitoring & Management Program (M&MP) Capital Budgets to design and install a replacement well. Data that will be obtained from the replacement well will be useful to MPWMD and MCWD as well as the Watermaster. Efforts in late 2022 and into early 2023 led to the development of a three-party cost-sharing agreement between these entities for the costs to install the replacement well.

At its February 14, 2023 meeting the Watermaster Board approved the attached *Memorandum of Agreement* for the Watermaster, MPWMD, and MCWD to share in the costs of that work. The Agreement was approved by the MPWMD on May 3, 2023.

DISCUSSION: MCWD said it was willing to approve the Agreement if it was provided assurances by the Watermaster that MCWD would be provided monitoring data obtained from the well by the Watermaster, and that MCWD would be able to access the well to obtain its own water quality and water level data, if it so desired. To provide those assurances, I prepared the attached *Supplemental Memorandum of Agreement* between the Watermaster and MCWD. MCWD approved both the *Memorandum of Agreement* and the *Supplemental Memorandum of Agreement* on July 20, 2023.

At its meeting of August 21, 2023 this topic was presented to and discussed by the Budget & Finance Committee. The Committee approved the *Supplemental Memorandum of Agreement* and forwarded it to the Board for approval.

Approval of the *Supplemental Memorandum of Agreement* will complete the process of entering into the three-party cost-sharing agreement which will significantly reduce the Watermaster’s costs to have the replacement well installed. The Watermaster will not incur any costs as a result of approving this supplemental agreement, since the Watermaster already publicizes the monitoring data from this well, and any monitoring work performed by MCWD would be at MCWD’s expense.

FISCAL IMPACT:

A Capital Fund Assessment of \$119,763.73 is proposed (42.5% of the \$281,797 cost of the well per the Cost Share Agreement). *This assessment applies to 2023 as the well construction is anticipated to be completed by the end of this calendar year (the Watermaster fiscal year). Assessment was pending execution of the Cost Share Agreement, and will be levied on parties after well construction is completed. Payments from parties most likely will be due in early 2024.*

The assessments for the parties required to contribute to the Capital Fund are:

California American Water 91.0%	\$108,984.99
City of Seaside 7.0%	8,383.46
D.B.O. 0.9%	1,077.87
Granite Rock 0.9%	1077.87
Cypress Pacific	<u>239.53</u>
	\$119,763.73

ATTACHMENTS:

1. *Memorandum of Agreement*
2. *Supplemental Memorandum of Agreement*

MEMORANDUM OF AGREEMENT

**BETWEEN THE SEASIDE BASIN WATERMASTER
THE MONTEREY PENINSULA WATER MANAGEMENT DISTRICT
AND
THE MARINA COAST WATER DISTRICT
TO SHARE IN THE COSTS OF INSTALLING A GROUNDWATER
MONITORING WELL**

THIS AGREEMENT is made and entered into this _____ day of _____, 2023, by and between the SEASIDE BASIN WATERMASTER, hereinafter referred to as the "WATERMASTER", and the MONTEREY PENINSULA WATER MANAGEMENT DISTRICT, hereinafter referred to as the "DISTRICT", and the MARINA COAST WATER DISTRICT, hereinafter referred to as "MARINA COAST," as follows.

In this Agreement the terms "Party" and "Parties" refer to the WATERMASTER, the DISTRICT, and/or MARINA COAST, either individually or collectively.

RECITALS:

- A. Under Case No. M66343, California Superior Court, Monterey County, on March 27, 2006 by entry of Judgment ("Judgment") the WATERMASTER was created. The purpose of the WATERMASTER is to assist the Court in the administration and enforcement of the provisions of the Judgment.
- B. As part of carrying out its duties and responsibilities under the Judgment, the WATERMASTER carries out a Monitoring and Management Program (M&MP). Under the M&MP groundwater level and groundwater quality data is collected from a network of monitoring and production wells.
- C. One of the monitoring wells, FO-9 Shallow, developed a casing leak and had to be destroyed. The Parties wish to install a new monitoring well to replace FO-9 Shallow.
- D. The Parties wish to enter into this Agreement to share in the cost of installing the replacement well.

Terms and Conditions

In consideration of the mutual promises contained herein, the WATERMASTER, the DISTRICT, and MARINA COAST hereby agree to the following terms and conditions:

- A. Work to be performed.** The WATERMASTER will have its consultant, Montgomery & Associates, design and install the replacement monitoring well. The Scope of Work and the estimated costs to perform this work are described in Attachment 1 to this Agreement. The staff of each of the Parties to this Agreement will be invited to attend any key meetings and/or conference calls that are held between the WATERMASTER and its consultant as the work is being performed, in order to enable each of the Parties to stay abreast of the work, raise pertinent questions in a timely manner, and provide input as appropriate.

The Parties hereto understand, as stated in Attachment 1, that it is difficult for Montgomery & Associates to accurately estimate the costs to perform the work and that the costs listed in the table in Exhibit C in Attachment 1 are Montgomery & Associates' best estimates. In the event it is determined, during the course of the work, that the cost to complete the work will be greater than the total cost listed in that table, the Parties agree to meet and confer to reach agreement on a revised cost that will be shared as described in paragraph B, so that the work can be completed. Agreement on said revised cost shall not be binding on any Party unless and until that Party formalizes its agreement to the revised cost in writing to each of the other Parties.

- B. Costs of installing the replacement well to be shared.** The costs to be shared are the Total Costs shown in the bottom row of the table in Exhibit C of Attachment 1. These costs will be shared in the following percentages:

WATERMASTER share = 42.5% (estimated to be \$119,763.73)

DISTRICT share = 15% (estimated to be \$42,269.55)

MARINA COAST share = 42.5% (estimated to be \$119,763.72)

(In the event a revised cost is agreed to, as described in paragraph A, these dollar figures will change in accordance with paragraph A).

- C. Documents to be provided.** Once the Draft Technical Specifications are prepared under Task 2 as described in Attachment 1, the WATERMASTER will provide the DISTRICT and MARINA COAST each with one copy of the Draft Technical Specifications for their review and comment. After receipt of those comments, and any comments the WATERMASTER provides, the Final Technical Specifications will be prepared incorporating any appropriate revisions to address those comments. The DISTRICT and MARINA COAST will each be provided one copy of the Final Technical Specifications that will be used for the installation of the replacement well, and will also be provided one copy of the Well Installation Report referred to in Task 3 of Attachment 1, following completion of installation of the replacement well.
- D. Payment of costs and reimbursement to the WATERMASTER.** The WATERMASTER will make progress payments to Montgomery & Associates as it satisfactorily performs the work described in Attachment 1. After the satisfactory completion of the work, the WATERMASTER will provide to the DISTRICT and to MARINA COAST, copies of the payments it made to Montgomery & Associates. Within 30 days of receiving those documents, the DISTRICT and MARINA COAST will reimburse the WATERMASTER for their percentage shares of those costs, subject to the limits set forth in sections A and B.

E. Term of Agreement. The term of this Agreement shall commence on the date of its execution, and shall continue in effect until the WATERMASTER has been reimbursed as described in paragraph D, , except that paragraphs F, G, H, and I shall continue in effect until the replacement well is destroyed.

F. Hold Harmless. Under this Agreement each of the Parties does hereby agree to indemnify, defend, and hold each of other the Parties and their Board members, officers, employees, agents, and representatives harmless from and against any and all liability, claims, suits, actions, damages, and causes of action of any kind arising out of the performance of the work described in this Agreement.

Notwithstanding any input from DISTRICT and/or MARINA COAST, the WATERMASTER shall have sole responsibility for the design, installation, operation, monitoring, repair, and any future replacement of the replacement monitoring well.

G. Venue. In the event that suit shall be brought by any Party to this Agreement, the Parties agree that venue shall be exclusively vested in the state courts of the County of Monterey, or, if brought in federal court, in the United States District Court handling matters arising in Monterey County. Further, the prevailing Party shall be entitled to reasonable attorney fees and costs.

H. Sharing of Well Data; Operational Changes. The WATERMASTER agrees to provide the other Parties with all monitoring data and other output information from the well and in a timely manner and to consult with the other Parties on any operational and other changes proposed to be made to the well.

I. Notices. Written notice shall be deemed to have been duly served if delivered in person or by mail to the individuals and at the addresses listed below:

A. WATERMASTER: Technical Program Manager
 Seaside Basin Watermaster
 P.O. Box 51502
 Pacific Grove, CA 93950

B. DISTRICT: General Manager
 Monterey Peninsula Water Management District
 5 Harris Court, Building G
 Monterey, CA 93940

B. MARINA COAST: General Manager
 Marina Coast Water District
 11 Reservation Road
 Marina, CA 93933

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement as of the dates shown below.

WATERMASTER

Date: _____

By: _____
(Name) Chair, Board of Directors

DISTRICT

Date: _____

By: _____
David Stoldt, General Manager

MARINA COAST

Date: _____

By: _____
Remleh Scherzinger, General Manager

ATTACHMENT 1
Scope of Work and Cost
to
Design and Install the Replacement Monitoring Well

Notes:

1. The Scope of Work in Exhibit A was taken from Montgomery & Associates' Proposal Letter Dated August 3, 2022
2. The well driller's cost quote dated 02/01/2023 is in Exhibit B.
3. The table showing the total estimated costs is in Exhibit C.

EXHIBIT A



**MONTGOMERY
& ASSOCIATES**

Water Resource Consultants

Groundwater experts since 1984

August 3, 2022

Mr. Bob Jaques
Seaside Watermaster Technical Program Manager
83 Via Encanto
Monterey, CA 93940

SUBJECT: SCOPE AND FEE FOR REPLACEMENT MONITORING WELL FO-9 SHALLOW

Dear Mr. Jaques,

Montgomery & Associates (M&A) is pleased to submit this scope, fee, and schedule proposal to the Seaside Groundwater Basin Watermaster (Watermaster) to provide hydrogeological support and construction management services for a replacement monitoring well for FO-9 shallow. The current FO-9 shallow monitoring well is constructed of 2-inch diameter PVC well casing with a screen intake from 610 to 650-feet below ground surface. This proposal assumes a borehole depth of 660-feet below ground surface (bgs), total well depth of 650-feet bgs, and proposes 2.5-inch Schedule 80 PVC well casing and screen. The deeper depth assumed is because the replacement well may not be located at the location of the original FO-9 shallow monitoring well. The actual location of the well will be determined during Task 2. Schedule 80 PVC is proposed to increase the lifespan of the replacement well.

M&A currently anticipates retaining the support of Maggiora Brothers Drilling (Maggiora) of Watsonville, CA, for well installation and development services. The drilling contractor is subject to change based on project requirements and with prior approval from Watermaster. Martin Feeny will additionally be retained to provide hydrogeological review and monitoring well design recommendations based on his history with Watermaster, as requested.

SCOPE OF WORK

The scope of work includes technical specifications, bidding and contract support, construction management, and reporting. M&A proposes the following tasks to complete the project:

- Task 1 – Project Management
- Task 2 – Technical Specifications
- Task 3 – Construction Management
- Task 4 – Reporting

These tasks are described individually below.

Estimated Drilling Costs

Estimated costs for the construction and development of monitoring well FO-9 shallow are included for budgetary purposes. These costs will be revised based on the selection of the well site and the final details of the technical specifications under Task 2. Costs included herein represent good-faith estimates based on current project understanding and/or assumptions, but may be revised to account for adjustments based on site conditions, well construction details and/or logistics, project duration, changes in labor or material rates, and other such factors. The technical specifications prepared under Task 2 will include a detailed bid schedule and timeline which will be used to refine M&A and Maggiora cost estimates. M&A will

1970 Broadway, Suite 225, Oakland, CA 94612 • 510.903.0458 • elmontgomery.com



provide revised costs for Task 3 and negotiate any required contract changes prior to beginning well construction activities.

Task 1: Project Management

M&A will provide administrative and budgetary management duties throughout the duration of the project, including but not limited to coordination with Watermaster, attendance at project meetings, assistance with site selection, permitting and providing information needed for Watermaster to obtain approvals from the landowner, budget management, and schedule management.

This task assumes a contract completion date of December 31, 2023. Progress reports will be included with invoice submittals.

Task 2: Technical Specifications

M&A will prepare technical specifications for the FO-9 shallow monitoring well to describe well design features, construction logistics, and installation and development procedures. Technical specifications will be used to gain agreement on the well design, construction logistics, and construction approach. Key components of the well design include borehole drilling, borehole geophysics, well installation, well development, and surface completion.

Task 2 includes preparation of draft technical specifications, one round of comments from Watermaster on the draft, and finalization. Draft and final technical specifications will be transmitted electronically. This task includes costs for one visit to the proposed well site with Watermaster and Maggiora to assess access and other site logistics.

M&A will assist the Watermaster with site selection for the well, including assistance in providing the information needed for Watermaster to obtain any necessary permits and approvals from the landowner. Watermaster is ultimately responsible for obtaining necessary permits.

Task 3: Construction Management

M&A will retain Maggiora to complete well installation and development, and will provide construction management during these activities. M&A will observe and document construction activities, including development of a lithologic log and determination of the final well design based on observations during drilling.

ASSUMPTIONS

- M&A can reasonably rely on the accuracy, timeliness, and completeness of information provided by Watermaster.
- M&A is responsible for tracking, cataloging, and approving submittals. M&A will provide Watermaster copies of all approved contractor submittals.
- Fieldwork will generally be conducted during 12-hour workdays on a standard 5-day workweek.
- Equipment rentals and fieldwork consumable purchases may be required. These may include but are not limited to field notebooks, chip trays and other miscellaneous project supplies. Costs for these items are included herein.
- M&A will assist the Watermaster in coordinating property access with the property owner.



- Prior to the start of drilling activities, M&A will coordinate and oversee subsurface utility locating by a Subtronic Corporation or equally qualified subsurface utility locating company. M&A is specifically not responsible for damages to buried utilities not identified by the property owner, Watermaster, Underground Service Alert of Northern California or the private utility locator.
- M&A and Maggiora will pay for and secure the Monterey County well permit.
- Costs for wellhead surveying (latitude, longitude, and elevation), groundwater sampling and well equipping (datalogger, sample pump, etc.) are not included in this proposal. Costs for these services can be provided upon request.

Construction management costs provided herein are estimated based on anticipated durations for each activity. The following durations are assumed for cost estimating purposes, for a total of approximately 24 field days:

- Utility clearance – 1 day
- Mobilization – 2 days
- Borehole drilling – 13 days
- Well installation – 3 days
- Well development – 3 days
- Well completion and demobilization – 2 days

Actual durations are subject to site conditions, drilling progress, weather and other factors not controlled by M&A. As such, actual costs are subject to increase or decrease based on actual durations. Field oversight costs are based on the Scientist 2 hourly rate, but efforts will be made to use the most cost-efficient, responsible staff level where feasible.

Task 4: Reporting

M&A will prepare a Well Installation Report following completion of site activities. The report will include a description of the work completed, description of the methods and procedures used, results and discussion of drilling and testing activities, conclusions and relevant appendices. A draft well installation report will be prepared in Microsoft Word format for Watermaster comment. Final submittal of this report will include one hardcopy and one PDF copy. The hardcopy report will additionally include long-form print outs of downhole logging (geophysical, caliper, alignment, spinner), a copy of the complete video survey in MP4 format (provided on DVD or flash drive), and one set of drill cutting chip trays.

Maggiora will file the Well Installation Report with the appropriate agency(s) including Monterey County Department of Health.

SCHEDULE

M&A assumes Task 2 will be completed by the end of calendar year 2022, provided the contract is executed by mid-October 2022 and that site selection is also completed during this time period. Well construction would occur in 2023 according to driller availability. The Well Installation Report will be completed within approximately 45 days following the completion of field activities.

EXHIBIT B

MAGGIORA BROS. DRILLING, INC.

DRILLING CONTRACTORS - PUMP SALES & SERVICE
CALIFORNIA CONTRACTOR'S LICENSE NO. 249957

Corporate Office
595 Airport Blvd.
Watsonville, CA 95076

Tel: (831) 724-1338
Tel: (800) 728-1480
Fax: (831) 724-3228

Contractor Bid - 02/01/2023

Montgomery & Associates
1970 Broadway, Suite 225
Oakland, Ca 94612
Attn. Bill DeBoer P.G., C.Hg.

Re: Construction of 2.5" Dia. x 655', PVC cased, monitoring well in Seaside, Ca.

The following is Maggiora Bros. Drilling, Inc. proposal:

1 Mobilization, includes permits	LS	1	\$10,000.00	\$10,000.00
2 Drill 10.75" bore hole	LF	670	\$92.00	\$61,640.00
3 E-log	EA	1	\$4,500.00	\$4,500.00
4 Caliper Log	EA	1	\$3,500.00	\$3,500.00
5 2.5" Sch 80, FT, Blank Casing F&I	LF	615	\$25.00	\$15,375.00
6 2.5", Sch80, FT, .030" screen F&I	LF	40	\$35.00	\$1,400.00
7 F & I Gravel Pack	LF	75	\$56.00	\$4,200.00
8 F & I sanitary seal	LF	595	\$55.00	\$32,725.00
9 Well Development - Airlift	HR	8	\$550.00	\$4,400.00
10 Video well	EA	1	\$3,500.00	\$3,500.00
11 Disposal of fluids & cuttings	LS	1	\$12,000.00	\$12,000.00
12 Install flush box and 4' x 4' pad	EA	1	\$1,950.00	\$1,950.00
13 Standby time	HR	0	\$550.00	\$0.00

Price: includes labor, equipment, material, taxes, & freight: \$155,190.00
Adder, if needed: 12" .250 wall x 60', MS Conductor: \$12,480.00

1. Customer is to provide access to site and to mark location of well.
2. Drilling Contractor will USA for drilling. We recommend that the customer have a private locator verify utilities at well location if needed.
3. Customer to provide a source of water for drilling at site and provide a level site for the well drilling equipment.
4. Cuttings and drill fluids to remain on site and are the responsibility of the Customer, unless other provisions have been made.
5. Temp fencing, sound-walls, traffic control, or other BMP's are not included. These can be provided at an additional cost.
6. Drilling Contractor will provide a drilling permit from the County. All other permits are excluded.
7. Test hole destruction, if required, will be \$75/ft. If drilling slows to < 8' in two hours, drilling converts to hourly at \$550.00

MAGGIORA BROS. DRILLING, INC.

DRILLING CONTRACTORS - PUMP SALES & SERVICE
CALIFORNIA CONTRACTOR'S LICENSE NO. 249957

Page 2

8. Bonding is not included in this proposal, but can be provided on a cost/plus basis.
9. Maggiora Bros. Drilling, Inc. current backlog is such that we may not be able to start the project for 4 to 5 months.
10. Proposal is valid for 30 days.
11. Due to the volatility of material & fuel costs in the current market, Maggiora Bros. Drilling, Inc. reserves the right to adjust pricing based on the actual cost of materials at the time of order.

Maggiora Bros. Drilling, Inc is a Union company; Operating Engineers, Local #3, as well as, a Certified Small Business. (34073)

If you have any questions, feel free to contact us!

Sincerely,

Michael F. Maggiora

EXHIBIT C

	Bill DeBoer Contract #	Field/Staff Hydrogeologist	Editing Technical Editor	Labor Costs	Expenses	Subcontractors			M&A DMM Group	TOTAL
						Martin Feeney	Maggiora Bros.	Subtronic Locating		
1 Project Management										
Progress tracking, coordination, meeting and	32	-	-	\$ 7,296	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,296
Task 1 Subtotals	32	0	0	\$ 7,296	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,296
2 Technical Specifications										
Site Visit	4	10	-	\$ 4,572	\$ 300	-	-	-	\$ 30	\$ 4,902
Draft Technical Specifications	8	32	4	\$ 8,840	\$ -	\$ 1,000	-	-	\$ 100	\$ 9,940
Final Technical Specifications	-	-	-	\$ -	\$ -	\$ 300	-	-	\$ 50	\$ 350
Construction Management cost revisions	4	-	-	\$ 912	\$ -	-	-	-	\$ -	\$ 912
Task 2 Subtotals	16	42	4	\$ 14,324	\$ 300	\$ 1,300	\$ -	\$ -	\$ 180	\$ 16,304
3 Construction Management										
Subsurface Utility Locating	2	10	-	\$ 1836	\$ 200	-	-	\$ 1600	\$ 90	\$ 3,826
Mobilization, Drilling, Well Installation*	12	276	-	\$ 32,544	\$ 4,600	\$ 500	\$ 145,020	-	\$ 6,082	\$ 198,446
Well Development	2	36	-	\$ 5,424	\$ 750	-	\$ 7,000	-	\$ 865	\$ 14,039
Wellhead Completion, Demobilization, Waste	2	24	-	\$ 3,768	\$ 600	-	\$ 3,950	-	\$ 1445	\$ 9,363
SUBTOTAL COST				\$ 43,572	\$ 5,050	\$ 500	\$ 167,670	\$ 1,600	\$ 17,572	\$ 236,864
Contingency (5%)**				\$ 2,179	\$ 253	\$ 25	\$ 8,384	\$ 80	\$ 879	\$ 11,843
Task 3 Subtotals	18	286	0	\$ 45,751	\$ 6,248	\$ 525	\$ 176,054	\$ 1,680	\$ 18,451	\$ 248,707
4 Reporting										
Draft Well Installation Report	6	24	2	\$ 7,120	\$ -	\$ 500	-	-	\$ 50	\$ 7,670
Final Well Installation Report	4	6	1	\$ 1,820	\$ -	-	-	-	\$ -	\$ 1,820
Task 4 Subtotals	10	30	3	\$ 8,940	\$ -	\$ 500	\$ -	\$ -	\$ 50	\$ 9,490
TOTAL HOURS	106	358	7							
TOTAL COST	\$ 24,368	\$ 49,404	\$ 560	\$ 70,311	\$ 6,548	\$ 2,525	\$ 176,054	\$ 1,680	\$ 18,681	\$ 281,797

* Includes addition of 12" conductor, if needed

** To provide for uncertainties in field conditions and cost changes mentioned in well driller's quote Footnote 11

SUPPLEMENTAL MEMORANDUM OF AGREEMENT

**BETWEEN THE SEASIDE BASIN WATERMASTER
AND
THE MARINA COAST WATER DISTRICT
TO PROVIDE MONITORING DATA AND ACCESS TO A
GROUNDWATER MONITORING WELL**

THIS SUPPLEMENTAL AGREEMENT is made and entered into this _____ day of _____, 2023, by and between the SEASIDE BASIN WATERMASTER, hereinafter referred to as the "WATERMASTER" and the MARINA COAST WATER DISTRICT, hereinafter referred to as "MARINA COAST," as follows.

In this Supplemental Agreement the terms "Party" and "Parties" refer to the WATERMASTER and/or MARINA COAST, either individually or collectively.

RECITALS:

- A. The Parties intend to enter into an agreement titled "*Memorandum of Agreement Between the Seaside Basin Watermaster, the Monterey Peninsula Water Management District, and the Marina Coast Water District, to Share in the Costs of Installing a Groundwater Monitoring Well.*" The monitoring well that is the subject of that Agreement is referred to a monitoring well FO-9 Shallow.
- B. The WATERMASTER will use this well to obtain water level and water quality data in order to fulfill its *Monitoring and Management Program* commitments. MARINA COAST will be able to use this well to augment its monitoring well network as described in Section 9.4.7 of the *Groundwater Sustainability Plan for the Monterey Subbasin*.
- C. MARINA COAST wishes to be assured that in return for its sharing in the costs of installing FO-9 Shallow, it will be provided the monitoring data that WATERMASTER obtains from that well, and also that it will be able to access the well to collect its own monitoring data, should it desire to do so.
- D. The Parties wish to enter into this Supplemental Agreement to provide these assurances.

Terms and Conditions

In consideration of the mutual promises contained herein, the WATERMASTER and MARINA COAST hereby agree to the following terms and conditions:

- A. **Sharing of Well Data.** The WATERMASTER agrees to provide to MARINA COAST all monitoring data that it collects from FO-9 Shallow.

- B. **Access to Well.** The WATERMASTER hereby grants MARINA COAST the right to access FO-9 Shallow when/if MARINA COAST wishes to obtain its own monitoring data from that well. The location of the well, and the dimensions of the easement within which the well may be accessed by MARINA COAST, are shown in Attachment 1.
- C. **Term of Agreement.** The term of this Supplemental Agreement shall commence on the date of execution by MARINA COAST of the cost-sharing Agreement referred to in Recital A, and shall continue in effect until terminated in writing by both Parties.
- D. **Venue.** In the event that suit shall be brought by any Party to this Supplemental Agreement, the Parties agree that venue shall be exclusively vested in the state courts of the County of Monterey, or, if brought in federal court, in the United States District Court handling matters arising in Monterey County. Further, the prevailing Party shall be entitled to reasonable attorney fees and costs.
- E. **Notices.** Written notice shall be deemed to have been duly served if delivered in person or by mail to the individuals and at the addresses listed below:

A. WATERMASTER: Technical Program Manager
 Seaside Basin Watermaster
 P.O. Box 51502
 Pacific Grove, CA 93950

B. MARINA COAST: General Manager
 Marina Coast Water District
 11 Reservation Road
 Marina, CA 93933

IN WITNESS WHEREOF, the Parties hereto have executed this Supplemental Agreement as of the dates shown below.

WATERMASTER

Date: _____

By: _____
 Ian Oglesby, Chair, Board of Directors

MARINA COAST

Date: 7/20/23

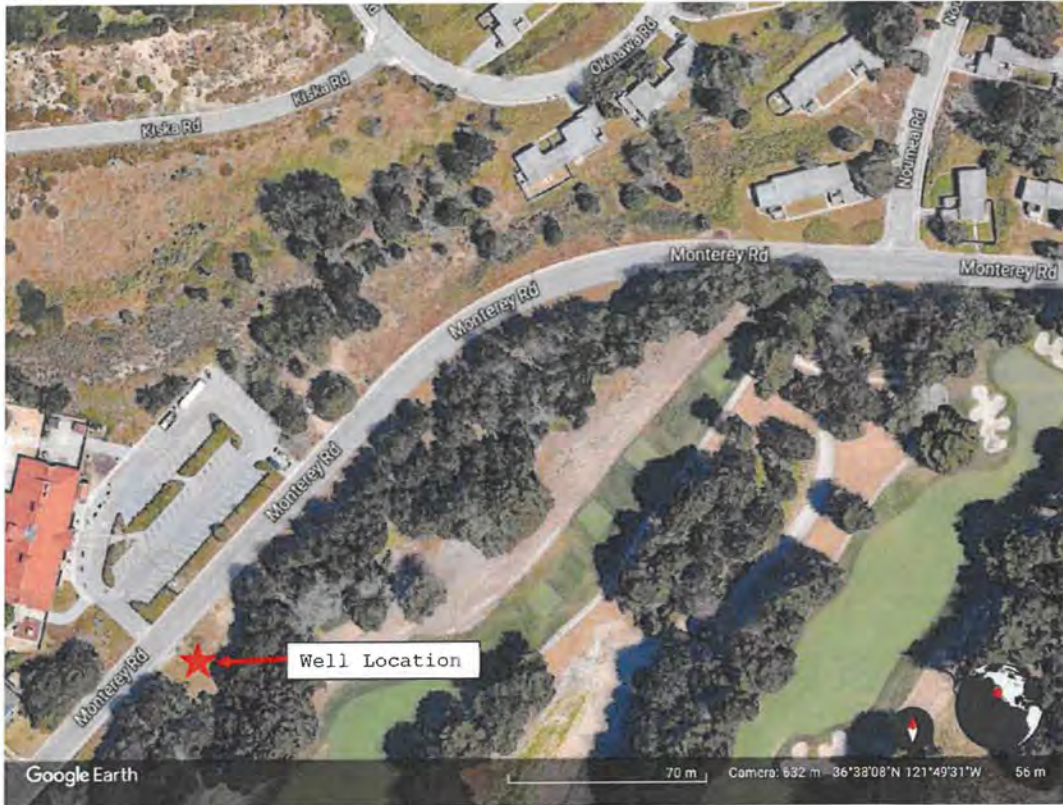
By: 
 Remleh Seherzinger, General Manager

ATTACHMENT 1

FO-9 Shallow Well Location Map

1/27/23, 1:47 PM

Google Earth



<https://earth.google.com/web/@36.6357821,-121.82532021,56.1729429a,575.78529377d,35y,360h,0t,0r>

1/1

TO: Board of Directors

FROM: Robert S. Jaques, Technical Program Manager

DATE: September 6, 2023

SUBJECT: Consider Approving Technical Advisory Committee Holding Meetings Via Zoom

RECOMMENDATION: Approve having the Watermaster’s Technical Advisory Committee hold its meetings using Zoom while complying with Traditional Brown Act teleconference requirements.

BACKGROUND:

At its March 1, 2023 meeting the Board considered a staff request to allow the Technical Advisory Committee (TAC) to hold its meetings using Zoom, even after the Governor’s proclaimed Covid-19 State of Emergency was no longer in effect. Following discussion, the Board passed a motion that stated in part “...that advisory committees meet in person per the Decision mandate to adhere to the Brown Act, and encourage committees to use traditional Brown Act remote attendance noticing requirements so that they can achieve quorum...”.

DISCUSSION:

At the Watermaster TAC’s meeting of July 12, 2023 there was discussion to determine the preference of TAC members to be able to meet via Zoom rather than in-person, if the Board was willing to approve that. Each member said they would prefer to have the option to meet via Zoom, and only hold meetings in-person if in-depth discussion of complex issues was going to be involved, or if there was some other reason to meet in-person. With that input I said I would pursue this with the Board.

I researched this to see if it would be permissible under the Brown Act requirements, and the various pieces of pertinent State legislation that have been enacted in the last several years, for the TAC to hold its meetings via Zoom. Here is what I learned, taken verbatim from the website of one of several of the law firms that have posted similar information about this topic:

Original Brown Act Teleconferencing Rules Remain Available

Local agencies may always rely on the [Brown Act] teleconferencing rules that applied pre-COVID:

- 1. All votes must be by rollcall*
- 2. The meeting must be conducted so as to protect the rights of the public appearing before the body or wishing to comment*
- 3. All members of the public must be able to access the meeting and provide public comment*
- 4. Teleconference locations must be identified in the agenda*
- 5. Copies of the agenda must be posted at all teleconference locations and teleconference locations must be open to the public*
- 6. At least a quorum of the members of the legislative body who are participating remotely must do so from locations within the agency’s jurisdiction.*

A presentation was made to the Salinas Valley Groundwater Sustainability Agency's Board of Directors on December 15, 2022 by Mr. Les Girard, County Counsel, about this topic. Mr. Girard's presentation stated in part *"In September of 2022 the Governor signed int law AB 2449, which will become effective January 1, 2023. The Statute incorporates Traditional Teleconferencing under the Brown Act..."* As a result of that information, the SVBGSA's Advisory Committee is now allowing members to participate in its meetings via Zoom.

Mr. Girard's presentation confirmed the website information regarding the ability to comply with the Brown Act post-pandemic by complying with the Traditional Brown Act Teleconferencing Rules.

I polled each member of the TAC to determine whether or not they would be comfortable complying with the six Traditional Brown Act Teleconferencing Rules listed above, and each member said he/she would be comfortable doing that.

Therefore, I am requesting the Board's approval for the TAC to hold its meetings via Zoom as long as those meetings comply with the Traditional Brown Act Teleconferencing Rules. This will aid the TAC in ensuring that a quorum of members participate, so that the TAC can conduct its meetings.

ATTACHMENTS: None

TO: Watermaster Board of Directors
FROM: Laura Paxton, Administrative Officer (AO)
DATE: September 6, 2023
SUBJECT: Proposed Fiscal Year (Calendar Year) 2024 Annual Administrative Fund Budget

RECOMMENDATION: The Watermaster Budget and Finance Committee at its August 21, 2023 meeting recommended the board approve the 2024 Administrative Fund Budget.

DISCUSSION: The court decision states that next fiscal year’s budgets must be approved by the Board of Directors no later than the end of October each year in order for tentative budgets to be circulated to each adjudication Party “no earlier than November 1 and no later than November 15” each fiscal year.

The need for legal services in 2023 has been minimal with \$40 spent to date. Joe Hughes, new legal counsel, contracted with Watermaster and began assisting the board in 2023. He is currently tasked with researching the Decision regarding aspects of Basin replenishment and it is anticipated this task will continue into 2024. Replenishment related services will be funded in 2024 by the estimated \$20,000 remaining balance in the Replenishment Assessment Fund after 2023 expenditures. The 2024 Legal line item for non-replenishment related legal services is proposed at \$22,000.

In anticipation of a potential cost increase to be considered under closed session today, it is proposed that the Administrative Officer line item be increased to \$63,500, up from \$60,000.

FISCAL IMPACT: An estimated \$23,500 in unspent 2023 funds are expected to be carried over to 2024. An Administrative Fund Assessment of \$70,000 is proposed: \$63,500(AO) + \$25,000(Legal) + \$25,000(Reserve) = \$113,500 - \$20,000(RA Fund) - \$23,500(Carryover) = \$70,000

The assessments for the parties required to contribute to the Administrative Fund are:

California American Water 83.0%	\$50,215
City of Seaside 14.4%	8,712
City of Sand City 2.6%	<u>1,573</u>
	\$70,000

ATTACHMENTS: 1. Proposed Administrative Fund Budget for FY (Calendar Year) 2024

**Seaside Groundwater Basin Watermaster
Administrative Fund Budget
Proposed Budget September 6, 2023
Administrative Year 2024**

	<u>2023</u> <u>Adopted</u> <u>Budget</u>	<u>2023</u> <u>Estimated</u> <u>Total</u>	<u>2024</u> <u>Proposed</u> <u>Budget</u>
Assessment Income			
Reserve/Rollover*	\$ 39,500	\$ 43,000	\$ 23,500
Administrative Assessment	60,500	60,500	70,000
Replenishment Related Legal Costs**	<u> </u>	<u>8,500</u>	<u>20,000</u>
Totals	<u>100,000</u>	<u>112,000</u>	<u>113,500</u>
Expenditures			
Contractual Services - Administrative	60,000	60,000	63,500
Legal Services	12,000	3,500	22,000
Public Awareness Committee	<u>3,000</u>	<u>2,610</u>	<u>3,000</u>
Total Expenses	<u>75,000</u>	<u>63,500</u>	<u>88,500</u>
Total Available	25,000	48,500	25,000
Less Reserve	<u>25,000</u>	<u>25,000</u>	<u>25,000</u>
Net Available	<u>\$ -</u>	<u>\$ 23,500</u>	<u>\$ -</u>

** Note: The reserve/rollover balance of \$23,500 was determined upon completion by Watermaster staff of a detailed reconciliation from 2006 through July 2023 of the Administrative Fund financial records held at the Watermaster office.*

*** Replenishment related legal costs will be covered by funds transferred into the Administrative Fund from the Replenishment Assessment Fund*

SEASIDE GROUNDWATER BASIN WATERMASTER

TO: Watermaster Board of Directors
FROM: Robert Jaques, Technical Program Manager
DATE: September 6, 2023
SUBJECT: Approve the FY 2024 Monitoring and Management Program (M&MP) and the FY 2024 M&MP Operations and Capital Budgets

RECOMMENDATION: The Watermaster Budget and Finance Committee at its August 21, 2023 meeting recommended the board approve the 2024 Monitoring and Management Program (M&MP) and the FY 2024 M&MP Operations and Capital Budgets.

SUMMARY:

Attached are the proposed FY 2024 M&MP and the proposed FY 2024 M&MP Operations and Capital Budgets for 2024 and 2025. The Board has asked that two-year budgets be developed to alert the Board to potential changes in scope and/or cost in near future years. Only the 2024 budgets are before the B&F Committee for approval. The 2025 budgets are for information only.

The attached documents were approved by the TAC at its August 9, 2023 meeting, with the TAC's recommendation that they be approved by the Board. The Watermaster Budget and Finance Committee at its August 21, 2023 meeting recommended they be approved by the board.

The following are comments and/or principal revisions from the 2023 M&MP Budget:

Technical Program Manager: Although the Groundwater Sustainability Plan for the adjacent Monterey Subbasin has been completed and was submitted in early 2022 by the Salinas Valley Basin and the Marina Coast Water District Groundwater Sustainability Agencies, there will continue to be regular meetings of their GSP-related committees that I serve on representing the Watermaster. Also, there will likely be further work related to obtaining replenishment water for the Basin. Therefore, I anticipate that the 2024 workload will be similar to that of 2023, so the proposed line-item budget amount has been maintained at \$75,000 in 2024.

Tasks Involving MPWMD and Montgomery & Associates: The scopes-of-work for both MPWMD and Montgomery & Associates are essentially unchanged from 2022. However, both will have hourly-rate increases in 2024, so the costs of the Tasks in which they are involved reflect somewhat higher dollar amounts in 2024 compared to 2023.

For several of the Tasks involving MPWMD (I.2.a.1, I.2.b.2, I.2.b.3) I have re-allocated certain of their costs to more closely match the Tasks to which they pertain. This accounts for some of the changes in costs of these Tasks in 2024 compared to their costs in 2023.

Task I.2.b.3 includes induction logging of the Sentinel Wells. Access to Sentinel Well #4 may be reduced if the access road leading to it is removed and re-vegetated in conjunction with the demolition of the Ord Village Pump Station. If that is the case, the induction logging vehicle will have to be located some distance away from this well, and the cable that connects the logging tool to the vehicle will have to be supported by a series of braces with pulleys on them.

Mr. Feeney included a contingency amount of \$5,000 in his cost estimate for this work in case this additional work is needed. This, along with increases in the charges from the induction logging subcontractor, led to the increase in the cost of this Task.

As a result of the changes described above, as indicated by the right-hand column titled “Comparative Costs from 2023 Budget” in Attachment 1, the proposed 2024 Budget is \$31,149 lower (\$324,930 -\$293,781) than the 2023 Budget.

Following B&F Committee approval of the 2024 M&MP and the 2024 M&MP Budgets, they will be forwarded to the Board for approval.

FISCAL IMPACT:

For the Monitoring & Maintenance – Operations Fund:

An estimated \$123,781 in unspent 2023 funds are expected to be carried over to 2024. An Operations Fund Assessment of \$170,000 is proposed (\$293,781 2024 Ops Budget - \$123,781 carryover = \$170,000).

The assessments for the parties required to contribute to the Operations Fund are:

California American Water 91.0%	\$154,700
City of Seaside 7.0%	11,900
D.B.O. 0.9%	1,530
Granite Rock 0.9%	1,530
Cypress Pacific	<u>340</u>
	\$170,000

ATTACHMENTS:

1. 2024 M&MP
2. 2024 and 2025 M&MP Operations Budgets
3. 2024 and 2025 M&MP Capital Budgets

Seaside Groundwater Basin 2024 Monitoring and Management Program

The tasks outlined below are those that are anticipated to be performed during 2024. Some Tasks listed below are specific to 2024, while other Tasks are recurring such as data collection, database entry, and Program Administration Tasks.

Within the context of this document the term “Consultant” refers either to a firm providing professional engineering or other types of technical services, or to the Monterey Peninsula Water Management District (MPWMD). The term “Contractor” refers to a firm providing construction or field services such as well drilling, induction logging, or meter calibration.

M.1 Program Administration

M. 1. a Project Budget and Controls (\$0)	Consultants will provide monthly or bimonthly invoices to the Watermaster for work performed under their contracts with the Watermaster. Consultants will perform maintenance of their internal budgets and schedules, and management of their subconsultants. The Watermaster will perform management of its Consultants.
M. 1. b Assist with Board and TAC Agendas (\$0)	Watermaster staff will prepare Board and TAC meeting agenda materials. No assistance from Consultants is expected to be necessary to accomplish this Task.
M. 1. c., M. 1. d, & M.1.e Preparation for and Attendance at Meetings, and Peer Review of Documents and Reports (\$19,530)	<p>The Consultants’ work will require internal meetings and possibly meetings with outside governmental agencies and the public. For meetings with outside agencies, other Consultants, or any other parties which are necessary for the conduct of the work of their contracts, the Consultants will set up the meetings and prepare agendas and meeting minutes to facilitate the meetings. These may include planning and review meetings with Watermaster staff. The costs for these meetings will be included in their contracts, under the specific Tasks and/or subtasks to which the meetings relate. The only meeting costs that will be incurred under Tasks M.1.c, M.1.d, and M.1.e will be:</p> <ul style="list-style-type: none"> • Those associated with attendance at TAC meetings (either in person or by videoconference connection), including providing periodic progress reports to the Watermaster for inclusion in the agenda packets for the TAC meetings, when requested by the Watermaster to do so. These progress reports will typically include project progress that has been made, problem identification and resolution, and planned upcoming work. • From time-to-time when Watermaster staff asks Consultants to make special presentations to the Watermaster Board and/or the TAC, and which are not included in the Consultant’s contracts for other tasks.

Appropriate Consultant representatives will attend TAC meetings (either in person or by videoconference connection) when requested to do so by Watermaster Staff, but will not be asked to prepare agendas or meeting minutes. As necessary, Consultants may provide oral updates to their progress reports (prepared under Task M.1.d) at the TAC meetings.

When requested by the Watermaster staff, Consultants may be asked to

assist the TAC and the Watermaster staff with peer reviews of documents and reports prepared by various other Watermaster Consultants and/or entities.

M. 1. f QA/QC (\$0)	A Consultant (MPWMD) will provide general QA/QC support over the Seaside Basin Monitoring and Management Program. These costs are included in the other tasks.
M.1.g Prepare Documents for SGMA Reporting (\$2,540)	Section 10720.8 of the Sustainable Groundwater Management Act (SGMA) requires adjudicated basins to submit annual reports. Most of the documentation that needs to be reported is already generated by the Watermaster in conjunction with preparing its own Annual Reports. However, some information such as changes in basin storage is not currently generated and will require consultant assistance to do so. This task will be used to obtain this consultant assistance, as needed.

I. 2 Comprehensive Basin Production, Water Level and Water Quality Monitoring Program

I. 2. a. Database Management

I. 2. a. 1 Conduct Ongoing Data Entry and Database Maintenance/ Enhancement (\$22,700)	<p>The database will be maintained by a Consultant (MPWMD) performing this work for the Watermaster. MPWMD will enter new data into the consolidated database, including water production volumes, water quality and water level data, and such other data as may be appropriate. Other than an annual reporting of data to another Watermaster Consultant at the end of the Water Year, as mentioned in Task I.4.c below, no reporting of water level or water quality data during the Water Year is required. However, MPWMD will promptly notify the Watermaster of any missing data or data collection irregularities that were encountered.</p> <p>Under this Task, when requested MPWMD will also respond to requests from consultants and others for data from the database.</p> <p>At the end of the Water Year MPWMD will prepare an annual water production, water level, and water quality tabulation in Access format and will provide the tabulation to another Watermaster Consultant who will use that data in the preparation of the SIAR under Task No. I.4.c of the Monitoring and Management Program.</p> <p>No enhancements to the database are anticipated during 2024.</p> <p>A separate consultant will maintain the Watermaster’s website.</p>
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I. 2. a. 2 Verify Accuracy of Production Well Meters (\$0)	To ensure that water production data is accurate, the well meters of the major producers were verified for accuracy during 2009 and again during 2015. No additional work of this type is anticipated during 2024.
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I. 2. b. Data Collection Program

I. 2. b. 1 Site Representation and Selection (\$0)	The monitoring well network review that was started in 2008 has been completed, and sites have been identified where future monitoring well(s) could be installed, if it is deemed necessary to do so in order to fill in data gaps. No further work of this type is anticipated in 2024.
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I. 2. b. 2 Collect Water Levels (\$21,128)	<p>Each of the monitoring wells will be visited on a regular basis. Water levels will be determined by either taking manual water levels using an electric sounder, or by dataloggers. The wells where the use of dataloggers is feasible or appropriate have been equipped with dataloggers. All of the other wells will be manually measured.</p> <p>This Task includes the purchase of one datalogger and parts for the datalogger to keep in inventory as a spare if needed.</p>
I. 2. b. 3 Collect Water Quality Samples. (\$38,446)	<p>As discussed in the 2018 Annual Report, water quality data will be collected quarterly from certain of the monitoring wells, but is no longer being collected from the four coastal Sentinel Wells. Because many years of data have shown essentially no change in aquifer water quality, beginning in WY2023 the frequency of induction logging of the Sentinel Wells was reduced to once per year.</p> <p>As discussed in the 2012 Annual Report, water quality analyses were expanded to include barium and iodide ions. Since these analyses have created more than 10 years of data, as discussed in the 2022 Annual Report the analyses were no longer being performed starting in WY 2023. They will only be resumed if the other water quality parameters are indicative of seawater intrusion.</p> <p>As discussed in the 2021 Annual Report, the frequency of sampling of SBWM-5 (the Camp Huffman well) has been reduced over the years. It is being sampled once every five years beginning in WY 2022.</p> <p>Water quality data may come from water quality samples that are taken from these wells and submitted to a State Certified analytic laboratory for general mineral and physical suite of analyses, or the data may come from induction logging of these wells and/or other data gathering techniques. The Consultant or Contractor selected to perform this work will make this judgment based on consideration of costs and other factors.</p> <p>Sampling equipment sits in the water column and may periodically need to be replaced or repaired. Accordingly, an allowance to perform maintenance on previously installed equipment has been included in this Task. Also, in the event a sampling pump fails or is found to be no longer adequate due to declining groundwater levels, an allowance of \$945 to purchase a replacement sampling pump has been included in this Task.</p>
I. 2. b. 4 Update Program Schedule and Standard Operating Procedures. (\$0)	<p>All recommendations from prior reviews of the data collection program have been implemented. No additional work of this type is anticipated in 2024.</p>
I. 2. b. 5 Monitor Well Construction (\$0)	<p>A well to replace Monitoring Well FO-9 Shallow, which in 2021 was found to have a leaking casing, was installed in 2023. No other monitoring wells are expected to be constructed in 2024.</p>

I. 2. b. 6 Reports (\$3,680)	<p>This task was essentially eliminated starting in 2020 by having the data collected by MPWMD under tasks I.2.b.1, I.2.b.2, and I.2.b.3 reported in the SIAR under Task I.4.c. The work remaining under this task is for MPWMD to prepare and provide the data appendix to the Consultant that prepares the SIAR.</p>
	<p>No formalized reporting on a quarterly basis is required. However, MPWMD will promptly notify the Watermaster and the Consultant that prepares the SIAR of any missing data or data collection irregularities in the water quality and water level data collected under Tasks I.2.b.2 and I.2.b.3.</p>
I.2.b.7 CASGEM Data Submittal (\$4,200)	<p>On the Watermaster’s behalf MPWMD will compile and submit data on the Watermaster’s “Voluntary Wells” into the State’s CASGEM groundwater management database. The term “Voluntary Well” refers to a well that is not currently having its data reported into the CASGEM system, but for which the Watermaster obtains data. This will be done in the format and on the schedule required by the Department of Water Resources under the Sustainable Groundwater Management Act.</p>
<i>I. 3 Basin Management</i>	
I. 3. a. Enhanced Seaside Basin Groundwater Model (Costs listed in subtasks below)	<p>The Watermaster and its consultants use a Groundwater Model for basin management purposes.</p>
I.3.a.1 Update the Existing Model (\$0)	<p>The Model, described in the report titled “Groundwater Flow and Transport Model” dated October 1, 2007, was updated in 2009 in order to develop protective water levels, and to evaluate replenishment scenarios and develop answers to Basin management questions. The Model was again updated in 2014.</p>
	<p>In 2018 the Model was recalibrated and updated. No further work of this type is anticipated in 2024.</p>
I. 3. a. 2 Develop Protective Water Levels (\$0)	<p>A series of cross-sectional models was created in 2009 in order to develop protective water levels for selected production wells, as well as for the Basin as a whole. This work is discussed in Hydrometrics’ November 2009 report titled “<i>Seaside Groundwater Basin Modeling and Protective Groundwater Elevations,</i>” which is the October 21, 2009 posting on the Watermaster’s website. As discussed in Attachment 10 of the 2013 Annual Report, further work was started in 2013 to refine these protective water levels, but it was found that the previously developed protective water levels were reasonable. Protective water levels will be updated, if appropriate, as part of the work of Task I.3.c.</p>

I. 3. a. 3

Evaluate Replenishment Scenarios and Develop Answers to Basin Management Questions (\$40,000)

Modeling performed to date indicates that the solution to the problem of water levels in the Seaside Basin being below Protective Water Levels will be to inject replenishment water.

Two projects are planned that have the potential to provide additional water for Basin replenishment. The first is the Pure Water Monterey Expansion (PWMX) Project for which construction bids were solicited in 2023 and is projected to become operational in 2025. The PWMX Project will increase the capacity of the existing 3,500 AFY PWM Project by 2,250 AFY. The second is the Monterey Peninsula Water Supply Project's (MPWSP) desalination plant which is still in the design and permitting stage with no currently projected implementation date. Growth is built into each of these projects' plant capacity, and the full capacity of these plants will likely not all be needed for some years into the future. During the time period that these projects would have excess capacity, they could potentially provide water for Basin replenishment.

Montgomery & Associates agrees that injection is the quickest way to bring groundwater levels up in the Seaside Basin. Modeling performed in 2022 and 2023 found that between 1,000 and 4,600 AFY of replenishment water will need to be needed, depending on future water demands and rainfall.

Modeling performed in 2014, 2015, and 2016 led to the conclusion that groundwater levels in parts of the Laguna Seca Subarea will continue to fall, even if all pumping within that subarea is discontinued, because of the influence of pumping from areas near to, but outside of, the Basin boundary. The Groundwater Sustainability Plan for Corral de Tierra area of the Monterey Subbasin includes projects to help to alleviate this problem, but they are unlikely to completely alleviate it.

This Task includes a \$40,000 allowance to perform further modeling or analyses pertaining to Basin management issues if so directed by the Watermaster Board.

**I. 3. b.
Complete Preparation of Basin Management Action Plan (\$0)**

The Watermaster's Consultant completed preparation of the Basin Management Action Plan (BMAP) in February 2009. The BMAP serves as the Watermaster's long-term seawater intrusion prevention plan. The Sections that are included in the BMAP are:

- Executive Summary
- Section 1 – Background and Purpose
- Section 2 – State of the Seaside Groundwater Basin
- Section 3 – Supplemental Water Supplies
- Section 4 – Groundwater Management Actions
- Section 5 – Recommended Management Strategies
- Section 6 – References

<p>I. 3. c. Refine and/or Update the Basin Management Action Plan (\$0)</p>	<p>In 2019 the BMAP was updated based on new data and knowledge that has been gained since it was prepared in 2009.</p> <p>No further work of this type is anticipated in 2024. However, although no funds are budgeted for this Task in 2024, since the Groundwater Sustainability Plan (GSP) for the adjacent Monterey Subbasin of the Salinas Valley Groundwater Basin was completed in early 2022, at some point it may be appropriate to further update the BMAP to reflect the impacts of implementing that GSP.</p>
<p>I. 3. d. Evaluate Coastal Wells for Cross-Aquifer Contamination Potential (\$0)</p>	<p>If seawater intrusion were to reach any of the coastal wells in any aquifer, and if a well was constructed without proper seals to prevent cross-aquifer communication, or if deterioration of the well led to casing leakage, it would be possible for the intrusion to flow from one aquifer to another.</p> <p>An evaluation of this was performed in 2012 and is described in Attachment 10 of the 2012 Annual Report.</p> <p>In 2021 the Watermaster TAC examined the feasibility of performing conductivity profiling of certain of the near-coastal wells that were evaluated in the 2012 Memorandum, as a method of determining if any of those wells was allowing downward migration of intruded water from the shallow dunes aquifer to enter the Paso Robles aquifer. However, it was concluded that conditions in those wells would make it infeasible to perform such work.</p> <p>No further work of this type is anticipated in 2024.</p>
<p>I.3. e. Seaside Basin Geochemical Model (\$10,000)</p>	<p>When new sources of water are introduced into an aquifer, with each source having its own unique water quality, there can be chemical reactions that may have the potential to release minerals which have previously been attached to soil particles, such as arsenic or mercury, into solution and thus into the water itself. This has been experienced in some other locations where changes occurred in the quality of the water being injected into an aquifer. MPWMD’s consultants used geochemical modeling to predict the effects of injecting Carmel River water into the Seaside Groundwater Basin under the ASR program.</p> <p>In order to predict whether there will be groundwater quality changes that will result from the introduction of desalinated water and additional ASR water (under the Monterey Peninsula Water Supply Project) and advance-treated water (under the Pure Water Monterey Project) geochemical evaluations, and potentially modeling, will be performed in the areas of the Basin where injection of these new water sources will occur.</p> <p>In 2019 a geochemical evaluation of introducing advance-treated water from the Pure Water Monterey Project was performed. That evaluation concluded that there would be no adverse geochemical impacts as a result of introducing that water into the Basin. A similar evaluation of the impact</p>

**I.3. e.
Seaside Basin Geochemical
Model
(Continued)**

of introducing ASR water also concluded that there would be no adverse geochemical impacts. An evaluation of introducing desalinated water will be performed, if the Monterey Peninsula Water Supply Project’s desalination plant proceeds into the construction phase.

If the geochemical evaluation of injecting desalinated water indicates the potential for problems to occur, then Montgomery and Associates may use the Watermaster’s updated groundwater model, and information about injection locations and quantities, injection scheduling, etc. provided by MPWMD and/or California American Water for this project, to develop model scenarios to see if the problem(s) can be averted by changing delivery schedules and delivery quantities. This Task includes an allowance of \$10,000 to have Montgomery and Associates perform such modeling, if necessary.

If the modeling predicts that there may be adverse impacts from introducing desalinated water, measures to mitigate those impacts will be developed under a separate task that will be created for that purpose when and if necessary.

***I. 4 Seawater Intrusion Response Plan (formerly referred to as the
Seawater Intrusion Contingency Plan)***

**I. 4. a.
Oversight of Seawater
Intrusion Detection and
Tracking
(\$0)**

Consultants will provide general oversight over the Seawater Intrusion detection program under the other Tasks in this Work Plan.

**I. 4. c.
Annual Report- Seawater
Intrusion Analysis
(\$28,020)**

At the end of each water year, a Consultant will reanalyze all water quality data. Water level and water quality data will be provided to the Consultant by another Consultant (MPWMD) in MS Access format. The Consultant will put this data into a report format and will include it as an attachment to the Seawater Intrusion Analysis Report. If possible, semi-annual chloride concentration maps will be produced for each aquifer in the basin. Time series graphs, trilinear graphs, and stiff diagram comparisons will be updated with new data. The induction logs will be analyzed to identify changes in seawater wedge locations. All analyses will be incorporated into an annual report that follows the format of the initial historical data report. Potential seawater intrusion will be highlighted in the report, and if necessary, recommendations will be included. The annual report will be submitted for review by the TAC and the Board. Modifications to the report will be incorporated based on input from these bodies, as well as Watermaster staff.

**I. 4. e.
Refine and/or Update the
Seawater Intrusion Response
Plan
(\$0)**

At the beginning of 2009, and again in 2021, it was thought that it might be beneficial or necessary to perform work to refine the SIRP and/or to update it based on new data or knowledge that was gained subsequent to the preparation of the SIRP. However, this did not prove to be necessary, and no further work of this type is anticipated in 2024.

Monitoring and Management Program Operations Budget For Tasks to be Undertaken in 2024							Comparative Costs from 2023 Budget	
Task	Subtask	Sub-Subtask	Cost Description	CONSULTANTS & CONTRACTORS ⁽⁹⁾				Total
				MPWMD	Private Consultants	Contractors		
Labor								
			Technical Project Manager	\$0	\$75,000	\$0	\$75,000	\$75,000
M.1 Program Administration								
	M.1.a		Project Budget and Controls	\$0	\$0	\$0	\$0	\$0
	M.1.b		Assist with Board and TAC Agendas	\$0	\$0	\$0	\$0	\$0
	M.1.c, M.1.d, & M.1.e		Preparation for and Attendance at Meetings and Peer Review of Documents and Reports ⁽⁸⁾	\$0	\$19,530	\$0	\$19,530	\$28,280
	M.1.f		QA/QC	\$0	\$0	\$0	\$0	\$0
	M.1.g		SGMA Documentation Preparation	\$0	\$2,540	\$0	\$2,540	\$2,464
I.1 Initial Phase 1 Monitoring Well Construction (Task Completed in Phase 1)								
I.2 Production, Water Level and Quality Monitoring								
	I. 2. a.		Database Management					
		I. 2. a. 1.	Conduct Ongoing Data Entry/ Database Maintenance ⁽¹⁵⁾	\$19,100	\$3,600	\$0	\$22,700	\$32,238
		I. 2. a. 2.	Verify Accuracy of Production Well Meters	\$0	\$0	\$0	\$0	\$0
	I. 2. b.		Data Collection Program					
		I. 2. b. 1.	Site Representation and Selection ⁽⁷⁾	\$0	\$0	\$0	\$0	\$0
		I. 2. b. 2.	Collect Water Levels ⁽⁵⁾⁽⁶⁾	\$21,128	\$0	\$0	\$21,128	\$20,042
		I. 2. b. 3.	Collect Water Quality Samples and Perform Sentinel Well Induction Logging ⁽¹⁾⁽⁵⁾	\$20,694	\$0	\$17,752	\$38,446	\$28,210
		I. 2. b. 4.	Update Program Schedule and Standard Operating Procedures.	\$0	\$0	\$0	\$0	\$0
		I. 2. b. 5.	Monitor Well Construction	\$0	\$0	\$0	\$0	\$0
		I. 2. b. 6.	Reports	\$3,680	\$0	\$0	\$3,680	\$3,568
		I. 2. b. 7.	CASGEM Data Submittal for Watermaster's Voluntary Wells	\$4,200	\$0	\$0	\$4,200	\$5,352
I.3 Basin Management								
	I. 3. a.		Enhanced Seaside Basin Groundwater Model	(Costs Shown in Subtasks Below)				
		I. 3. a. 1.	Update the Existing Model ⁽¹¹⁾	\$0	\$0	\$0	\$0	\$0
		I. 3. a. 2.	Develop Protective Water Levels ⁽¹²⁾	\$0	\$0	\$0	\$0	\$0
		I. 3. a. 3.	Evaluate Replenishment Scenarios and Develop Answers to Basin Management Questions ⁽¹⁰⁾	\$0	\$40,000	\$0	\$40,000	\$60,000
	I. 3. b.		Complete Preparation of Basin Management Action Plan	\$0	\$0	\$0	\$0	\$0
	I. 3. c.		Refine and/or Update the Basin Management Action Plan ⁽⁷⁾	\$0	\$0	\$0	\$0	\$0
	I. 3. d.		Evaluate Coastal Wells for Cross-Aquifer Contamination Potential	\$0	\$0	\$0	\$0	\$0
	I. 3. e.		Seaside Basin Geochemical Model ⁽¹³⁾	\$0	\$10,000	\$0	\$10,000	\$10,000
I.4 Seawater Intrusion Contingency Plan								
	I. 4. a.		Oversight of Seawater Intrusion Detection and Tracking ⁽¹⁷⁾	\$0	\$0	\$0	\$0	\$0
	I. 4. b.		Analyze and Map Water Quality from Coastal Monitoring Wells	(Costs Included Under I.4.a)				
	I. 4. c.		Annual Report- Seawater Intrusion Analysis ⁽¹⁶⁾	\$0	\$28,020	\$0	\$28,020	\$27,176
	I. 4. e.		Refine and/or Update the Seawater Intrusion Response Plan ⁽²⁾⁽⁹⁾	\$0	\$0	\$0	\$0	\$0
	I. 4. f.		If Seawater Intrusion is Determined to be Occurring, Implement Contingency Response Plan ⁽²⁾	(No Costs are Included for This Task, as This Task Will Likely Not be Necessary During 2021. If it Does Become Necessary, Use of Contingency Funds or a Budget Modification Will Likely be Necessary)				
TOTALS CONSULTANTS & CONTRACTORS				\$68,802	\$178,690	\$17,752		
SUBTOTAL not including Technical Program Manager =							\$190,244	\$217,330
Contingency (not including Technical Program Manager) @ 15% ⁽⁴⁾ =							\$28,537	\$32,600
Technical Program Manager =							\$75,000	\$75,000
TOTAL=							\$293,781	\$324,930

Footnotes:
(1) Under this Subtask the Watermaster will directly contract with an outside contractor to perform the Sentinel Well induction logging work, and to also collect water level data in conjunction with doing the induction logging. MPWMD will perform the other portions of the work of this Subtask. The Sentinel Wells will be induction logged once per year (in September).
(2) The response plan would only be implemented in the event sea water intrusion is determined to be occurring.
(3) Within the context of this document the term "Consultant" refers either to a Private Consultant providing professional engineering or other types of technical services, or to the Monterey Peninsula Water Management District (MPWMD). The term "Contractor" refers to a firm providing construction or field services such as well drilling, induction logging, or meter calibration.
(4) Due to the uncertainties of the exact scopes of some of the larger Tasks listed above at the time of preparation of this Budget it is recommended that a Contingency of 15% be included in the Budget.
(5) The MPWMD portion of these Tasks includes: For Task I.2.b.2: (1) \$527 for vehicle mileage costs for both this Task and Task I.2.b.3 and (2) \$893 to purchase a replacement datalogger (if For Task I.2.b.3: (1) \$5,670 for laboratory analytical costs, (2) \$158 for air compressor rental to sample the Camp Huffman well, (3) \$263 for CO2 bottles to run the sample pumps, (4) \$945 to purchase a replacement low flow sampling pump (if necessary) and (5) \$736 of administrative support costs for preparing billings and processing invoices from the water quality laboratory.
(6) Does not include costs for MPWMD to collect water level data or water quality samples from wells other than those that are part of the basic monitoring well network, i.e. for private well owners who have requested that the Watermaster obtain this data for them. Costs to obtain that data are to be reimbursed to the Watermaster by those well owners, so there should be no net cost to the Watermaster for that portion of the work under these Tasks.
(7) The BMAP was updated in 2018, and no further work on this Task is anticipated in 2024.
(8) This cost is for Montgomery and Associates, Todd Groundwater, and Martin Feeney to provide hydrogeologic consulting assistance to the Watermaster, beyond that associated with performing other specified Tasks, when requested to do so by the Technical Program Manager. This work may include, but not be limited to, participation in conference calls and reviewing documents prepared by others.
(9) If work under this Task is found to be necessary, it will be funded through the Contingency line item in this Budget.
(10) This Task is included to provide funds for the Watermaster to perform modeling and other investigative work to aid in making Basin management decisions that the Board may wish to perform in 2024.
(11) The Model was updated and recalibrated in 2018, so no costs for this Task are anticipated in 2024.
(12) The protective water levels developed in 2009 were examined in 2013 to see if they needed to be updated. It was concluded that the 2009 protective levels were still satisfactory for Basin management purposes, and that no revisions were needed. No work under this Task is anticipated in 2024.
(13) This was a new Task that was started in 2018, and was completed for the PWM AWT water in 2019. Funds allocated for this Task in 2024 would only be used if geochemical modeling is performed in 2024 for the MPWSP desalination plant water, and if that modeling indicates the need to have Montgomery and Associates use the Seaside Basin groundwater model to provide additional information needed by the geochemical model to develop mitigation measures for any adverse water quality impacts the geochemical model predicts could occur from introducing desalinated water into the Basin.
(14) Not used.
(15) Includes \$300/month for an outside consultant to maintain the Watermaster's website and post documents on it and \$2,300 for MPWMD to respond to requests from consultants and others for data from the database.
(16) MPWMD's costs to assist in this Task are included in its costs under Task I.2.b.6.
(17) MPWMD's and Montgomery & Associates' costs to provide oversight in this Task are included under their other Tasks.

Monitoring and Management Program Operations Budget							
For Tasks to be Undertaken in 2025 ⁽¹²⁾							
Task	Subtask	Sub-Subtask	Cost Description	CONSULTANTS & CONTRACTORS ⁽³⁾			Total
				MPWMD	Private Consultants	Contractors	
Labor							
			Technical Project Manager	\$0	\$75,000	\$0	\$75,000
M.1 Program Administration							
	M.1.a		Project Budget and Controls	\$0	\$0	\$0	\$0
	M.1.b		Assist with Board and TAC Agendas	\$0	\$0	\$0	\$0
	M.1.c, M.1.d, & M.1.e		Preparation for and Attendance at Meetings and Peer Review of Documents and Reports ⁽⁸⁾	\$0	\$20,116	\$0	\$20,116
	M.1.f		QA/QC	\$0	\$0	\$0	\$0
	M.1.g		SGMA Documentation Preparation	\$0	\$2,616	\$0	\$2,616
I.1 Initial Phase 1 Monitoring Well Construction (Task Completed in Phase 1)							
I.2 Production, Water Level and Quality Monitoring							
	I. 2. a.		Database Management				
		I. 2. a. 1.	Conduct Ongoing Data Entry/ Database Maintenance/Enhancement	\$19,673	\$3,708	\$0	\$23,381
		I. 2. a. 2.	Verify Accuracy of Production Well Meters	\$0	\$0	\$0	\$0
	I. 2. b.		Data Collection Program				
		I. 2. b. 1.	Site Representation and Selection ⁽⁷⁾	\$0	\$0	\$0	\$0
		I. 2. b. 2.	Collect Monthly Water Levels ⁽⁶⁾	\$21,762	\$0	\$0	\$21,762
		I. 2. b. 3.	Collect Quarterly Water Quality Samples ^{(1),(5)(6)}	\$21,315	\$0	\$18,285	\$39,599
		I. 2. b. 4.	Update Program Schedule and Standard Operating Procedures.	\$0	\$0	\$0	\$0
		I. 2. b. 5.	Monitor Well Construction ⁽⁷⁾	\$0	\$0	\$0	\$0
		I. 2. b. 6.	Reports	\$3,790	\$0	\$0	\$3,790
		I. 2. b. 7.	CASGEM Data Submittal for Watermaster's Voluntary Wells	\$4,326	\$0	\$0	\$4,326
I.3 Basin Management							
	I. 3. a.		Enhanced Seaside Basin Groundwater Model	(Costs Shown in Subtasks Below)			
		I. 3. a. 1	Update the Existing Model ⁽¹⁰⁾	\$0	\$30,000	\$0	\$30,000
		I. 3. a. 2	Develop Protective Water Levels	\$0	\$0	\$0	\$0
		I. 3. a. 3	Evaluate Replenishment Scenarios and Develop Answers to Basin Management Questions ⁽¹⁵⁾	\$0	\$30,000	\$0	\$30,000
	I. 3. b.		Complete Preparation of Basin Management Action Plan	\$0	\$0	\$0	\$0
	I. 3. c.		Refine and/or Update the Basin Management Action Plan ⁽¹¹⁾	\$0	\$0	\$0	\$0
	I. 3. d.		Evaluate Coastal Wells for Cross-Aquifer Contamination Potential ⁽¹³⁾	\$0	\$0	\$0	\$0
	I. 3. e.		Seaside Basin Geochemical Model ⁽¹⁴⁾	\$0	\$10,000	\$0	\$10,000
I.4 Seawater Intrusion Contingency Plan							
	I. 4. a.		Oversight of Seawater Intrusion Detection and Tracking	\$0	\$0	\$0	\$0
	I. 4. b.		Analyze and Map Water Quality from Coastal Monitoring Wells	(Costs Included Under I.4.a)			
	I. 4. c.		Annual Report- Seawater Intrusion Analysis	\$0	\$28,861	\$0	\$28,861
	I. 4. e.		Refine and/or Update the Seawater Intrusion Response Plan ⁽²⁾⁽⁹⁾	\$0	\$0	\$0	\$0
	I. 4. f.		If Seawater Intrusion is Determined to be Occurring, Implement Contingency Response Plan ⁽²⁾	(No Costs are Included for This Task, as This Task Will Likely Not be Necessary During 2019. If it Does Become Necessary, Use of Contingency Funds or a Budget Modification Will Likely be Necessary)			
			TOTALS CONSULTANTS & CONTRACTORS	\$70,866	\$125,301	\$18,285	
SUBTOTAL not including Technical Program Manager =							\$214,451
Contingency (not including Technical Program Manager) @ 15% ⁽⁴⁾ =							\$32,168
Technical Program Manager							\$75,000
TOTAL=							\$321,619

Footnotes:

- (1) Under this Subtask the Watermaster will directly contract with an outside contractor to perform the Sentinel Well induction logging work, and to also collect water level data in conjunction with doing the induction logging. MPWMD will perform the other portions of the work of this Subtask.
- (2) The response plan would only be implemented in the event sea water intrusion is determined to be occurring.
- (3) Within the context of this document the term "Consultant" refers either to a Private Consultant providing professional engineering or other types of technical services, or to the Monterey Peninsula Water Management District (MPWMD). The term "Contractor" refers to a firm providing construction or field services such as well drilling, induction logging, or meter calibration.
- (4) Due to the uncertainties of the exact scopes of some of the Tasks listed above at the time of preparation of this Budget, it is recommended that a 15% Contingency be included in the Budget.
- (5) A portion of this cost is for maintaining sampling equipment that was installed in prior years.
- (6) Does not include costs for MPWMD to collect water level data or water quality samples from wells other than those that are part of the basic monitoring well network, i.e. for private well owners who have requested that the Watermaster obtain this data for them. Costs to obtain that data are to be reimbursed to the Watermaster by those well owners, so there should be no net cost to the Watermaster for that portion of the work under these Tasks.
- (7) No additional monitoring well is expected to be constructed in 2025.
- (8) For Montgomery and Associates, Todd Groundwater, and Martin Feeney to provide hydrogeologic consulting assistance to the Watermaster, beyond that associated with performing other specified Tasks, when requested to do so by the Technical Program Manager.
- (9) If work under this Task is found to be necessary, it will be funded through the Contingency line item in this Budget.
- (10) The model was last updated in 2018. Information subsequently gained through implementation of the Pure Water Monterey Project may warrant updating the model again in 2025. Updating the model in 2018 cost \$54,370 and that cost was shared 50% by the Watermaster and 50% by MPWMD/M1W. The amount budgeted for this work assumes the 2025 update would cost approximately \$60,000 and that this same cost-share would be used, so the estimated cost to the Watermaster would be \$30,000.
- (11) The BMAP was updated in 2018, and no further work on this Task is anticipated in 2025.
- (12) Includes a 3% inflation factor on most annually recurring costs in the 2024 Budget, except the Technical Program Manager cost which has no inflation factor applied to it.
- (13) No further work on this Task is anticipated in 2025.
- (14) Work on this Task may not be performed in 2024, so work on this Task may need to be rebudgeted in 2025.
- (15) This Task is included to provide funds for the Watermaster to perform modeling and other investigative work to aid in making Basin management decisions that the Board may wish to perform in 2025.

Monitoring and Management Program Capital Budget For Tasks to be Undertaken in 2024
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No Capital projects are anticipated to be undertaken in 2024, so this budget is \$0.

Monitoring and Management Program Capital Budget For Tasks to be Undertaken in 2025
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No Capital projects are anticipated to be undertaken in 2025, so this budget is \$0.

Seaside Groundwater Basin Watermaster											Item VIII.A.3.
Replenishment Fund											9/6/23
Water Year 2024 (October 1 - September 30) / Fiscal Year (January 1 - December 31, 2023)											Page 1
Proposed 2024 Budget											
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Assessment Water Year	WY 05/06	WY 06/07	WY 07/08	WY 08/09	WY 09/10	WY 10/11	WY 11/12	WY 12/13	WY 13/14	WY 14/15	WY 15/16
Unit Cost:	a \$1,132 / \$283	\$1,132 / \$283	\$2,485 / \$621.25	\$3,040 / \$760	\$2,780 / \$695	\$2,780 / \$695	\$2,780 / \$695	\$2,780 / \$695	\$2,702/\$675.50	\$2,702/\$675.50	\$2,702/\$675.50
Cal-Am Water Balance Forward	b \$ -	\$ 1,641,004	\$ 4,226,710	\$ (2,871,690)	\$ (2,839,939)	\$ (3,822,219)	\$ (6,060,164)	\$ (8,735,671)	\$ (6,173,771)	\$ (3,102,221)	\$ (676,704)
Cal-Am Water Production (AF)	c 3,710.00	4,059.90	3,862.90	2,966.02	3,713.52	3,416.04	3,070.90	3,076.61	3,232.10	2,764.73	1,879.21
Cal-Am Water NSY Over-Production (AF)	d 1,862.69	2,266.32	2,092.16	1,241.27	1,479.47	1,146.71	820.48	856.42	1,032.77	782.17	-
Exceeding Natural Safe Yield Considering Alternative Producers	e \$ 2,106,652	\$ 2,565,471	\$ 5,199,014	\$ 3,773,464	\$ 4,112,933	\$ 3,187,854	\$ 2,280,943	\$ 2,380,842	\$ 2,790,539	\$ 2,113,414	\$ -
Operating Yield Overproduction Replenishment	f \$ -	\$ 20,235	\$ 8,511	\$ -	\$ -	\$ -	\$ 154,963	\$ 181,057	\$ 281,012	\$ 312,103	\$ -
Total California American	g \$ 2,106,652	\$ 2,585,706	\$ 5,207,525	\$ 3,773,464	\$ 4,112,933	\$ 3,187,854	\$ 2,435,907	\$ 2,561,899	\$ 3,071,550	\$ 2,425,516	
CAW Credit Against Assessment	h \$ (465,648)		\$ (12,305,924)	\$ (3,741,714)	\$ (5,095,213)	\$ (5,425,799)	\$ (5,111,413)				
CAW Unpaid Balance	i \$ 1,641,004	\$ 4,226,710	(2,871,690)	\$ (2,839,939)	\$ (3,822,219)	\$ (6,060,164)	\$ (8,735,671)	\$ (6,173,771)	\$ (3,102,221)	\$ (676,704)	\$ (676,704)
City of Seaside Balance Forward	j \$ -	\$ 243,294	\$ 426,165	\$ 1,024,272	\$ 1,619,973	\$ 891,509	\$ (110,014)	\$ (773,813)	\$ (1,575,876)	\$ (2,889,325)	\$ (3,346,548)
City of Seaside Municipal Production (AF)	k 332.00	287.70	294.20	293.44	282.87	240.68	233.72	257.73	223.64	185.01	195.16
City of Seaside NSY Over-Production (AF)	l 194.07	153.78	161.99	153.06	113.21	50.84	58.82	85.17	52.71	25.77	37.87
Exceeding Natural Safe Yield Considering Alternative Producers	m \$ 219,689	\$ 174,082	\$ 402,540	\$ 465,300	\$ 314,721	\$ 141,335	\$ 163,509	\$ 236,782	\$ 142,410	\$ 69,630	\$ 102,330
Operating Yield Overproduction Replenishment	n \$ 12,622	\$ 85	\$ 4,225	\$ 16,522	\$ 20,690	\$ -	\$ 1,689	\$ 27,007	\$ 3,222	\$ 38	\$ 11,959
Total Municipal	o \$ 232,310	\$ 174,167	\$ 406,764	\$ 481,823	\$ 335,412	\$ 141,335	\$ 165,198	\$ 263,788	\$ 145,631	\$ 69,667	\$ 114,290
City of Seaside - Golf Courses (APA - 540 AFY)											
Exceeding Natural Safe Yield - Alternative Producer	p \$ -	\$ -	\$ 131,705	\$ 69,701	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Operating Yield Overproduction Replenishment	q \$ -	\$ -	\$ 32,926	\$ 17,427	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Golf Courses	r \$ -	\$ -	\$ 164,631	\$ 87,128	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total City of Seaside*	s \$ 232,310	\$ 174,167	\$ 571,395	\$ 568,951	\$ 335,412	\$ 141,335	\$ 165,198	\$ 263,788	\$ 145,631	\$ 69,667	\$ 114,290
City of Seaside Late Payment 5%	t \$ 10,984	\$ 8,704	\$ 26,712	\$ 26,750	\$ 15,737						
In-lieu Credit Against Assessment	u \$ -	\$ -	\$ -	\$ -	\$ (1,079,613)	\$ (1,142,858)	\$ (828,996)	\$ (1,065,852)	\$ (1,459,080)	\$ (526,890)	\$ (162)
City of Seaside Unpaid Balance	v \$ 243,294	\$ 426,165	\$ 1,024,272	\$ 1,619,973	\$ 891,509	\$ (110,014)	\$ (773,813)	\$ (1,575,876)	\$ (2,889,325)	\$ (3,346,548)	\$ (3,232,420)
Mission Memorial Park											
Mission Memorial Park Production (AF)	w		20.80	26.40	12.80	22.40	27.00	24.95	24.89	17.97	13.67
Mission Memorial Park NSY Over-Production (AF)	x	-	-	-	-	-	-	-	-	-	-
Exceeding Natural Safe Yield - Alternative Producer	y \$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Operating Yield Overproduction Replenishment	z \$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Mission Memorial Park	aa \$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Replenishment Fund Balance	bb \$ 1,884,298	\$ 4,652,874	\$ (1,847,417)	\$ (1,219,966)	\$ (2,930,710)	\$ (6,170,178)	\$ (9,509,483)	\$ (7,749,648)	\$ (5,991,546)	\$ (4,023,252)	\$ (3,909,125)
Replenishment Fund Balance Forward	cc \$ -	\$ 1,884,298	\$ 4,652,874	\$ (1,847,417)	\$ (1,219,966)	\$ (2,930,710)	\$ (6,170,178)	\$ (9,509,483)	\$ (7,749,648)	\$ (5,991,546)	\$ (4,023,252)
Total Replenishment Assessments	dd \$ 2,349,946	\$ 2,768,576	\$ 5,805,632	\$ 4,369,165	\$ 4,464,082	\$ 3,329,189	\$ 2,601,104	\$ 2,825,688	\$ 3,217,182	\$ 2,495,183	\$ 114,290
Total Paid and/or Credited	ee \$ (465,648)	\$ -	\$ (12,305,924)	\$ (3,741,714)	\$ (6,174,826)	\$ (6,568,657)	\$ (5,940,409)	\$ (1,065,852)	\$ (1,459,080)	\$ (526,890)	\$ (162)
Grand Total Fund Balance	ff \$ 1,884,298	\$ 4,652,874	\$ (1,847,417)	\$ (1,219,966)	\$ (2,930,710)	\$ (6,170,178)	\$ (9,509,483)	\$ (7,749,648)	\$ (5,991,546)	\$ (4,023,252)	\$ (3,909,125)
* 2010 = 319.55 AF golf course in-lieu replenishment and 68.8 AF 4-party agmt in-lieu replenishment											
2011 = 411.1 AF golf course in-lieu replenishment											
2012 = 298.2 AF golf course in-lieu replenishment											
2013 = 383.4 AF golf course in-lieu replenishment											
2014 = 552.4 AF golf course in-lieu capped at 540 AF											
2015 = 195.0 AF golf course in-lieu											
2016 = 00.06 AF golf course in-lieu											
2017 = 00.00 AF golf course in-lieu											

										Item VIII.A.3.
Seaside Groundwater Basin Watermaster										9/6/23
Replenishment Fund										Page 2
Water Year 2024 (October 1 - September 30) / Fiscal Year (January 1 - December 31, 2023)										
Proposed 2024 Budget										
Replenishment Fund	2017	2018	2019	2020	WY 2021	WY 2022	Budget WY 2023	Totals WY 2006 Through 2023	Budget WY 2024	Projected Totals Through WY 2024
Assessment Water Year	WY 16/17	WY 17/18	WY 18/19	WY 19/20	WY 20/21	WY 21/22	WY 22/23			
Unit Cost:	\$2,872 / \$718	\$2,872 / \$718	\$2,872 / \$718	\$2,872 / \$718	\$2,947 / \$737	\$3,260 / \$815	\$3,461 / \$865		\$3,461 / \$865	
Cal-Am Water Balance Forward	\$ (676,704)	\$ (491,747)	\$ (48,797,949)	\$ (47,979,852)	\$ (46,855,121)	\$ (46,855,121)	\$ (46,855,121)		\$ (46,855,121)	
Cal-Am Water Production (AF)	2,029.51	2,229.45	2,120.22	2,245.88	1,664.04	1,648.71		47,689.74		
Cal-Am Water NSY Over-Production (AF)	64.40	374.65	284.85	334.21	-	-		14,638.57		
Exceeding Natural Safe Yield Considering Alternative Producers	\$ 184,957	\$ 1,075,995	\$ 818,097	\$ 959,859	\$ -	\$ -	\$ -	\$ 33,550,034	\$ -	\$ 33,550,034
Operating Yield Overproduction Replenishment				\$ 164,872	\$ -	\$ -	\$ -	\$ 1,122,753	\$ -	\$ 1,122,753
Total California American	\$ 184,957	\$ 1,075,995	\$ 818,097	\$ 1,124,731	\$ -	\$ -	\$ -	\$ 34,672,786	\$ -	\$ 34,672,786
CAW Credit Against Assessment		\$ (49,382,196)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (81,527,907)	\$ -	\$ (81,527,907)
CAW Unpaid Balance	\$ (491,747)	\$ (48,797,949)	\$ (47,979,852)	\$ (46,855,121)	\$ (46,855,121)	\$ (46,855,121)	\$ (46,855,121)	\$ (46,855,121)	\$ (46,855,121)	\$ (46,855,121)
City of Seaside Balance Forward	\$ (3,232,420)	\$ (3,142,500)	\$ (3,022,249)	\$ (2,919,806)	\$ (2,802,831)	\$ (2,708,828)	\$ (2,661,183)		\$ (2,661,183)	
City of Seaside Municipal Production (120.28 AF)	188.31	184.63	178.40	181.65	174.69	155.12		3,888.95		
City of Seaside NSY Over-Production (AF)	30.47	32.46	27.82	32.06	25.52			1,235.62		
Exceeding Natural Safe Yield Considering Alternative Producers	\$ 87,512	\$ 93,225	\$ 79,893	\$ 92,089	\$ 75,197	\$ 38,116	\$ -	\$ 2,898,359	\$ -	\$ 2,898,359
Operating Yield Overproduction Replenishment	\$ 2,409	\$ 27,026	\$ 22,550	\$ 24,886	\$ 18,806	\$ 9,529	\$ -	\$ 203,263	\$ -	\$ 203,263
Total Municipal	\$ 89,920	\$ 120,251	\$ 102,443	\$ 116,975	\$ 94,003	\$ 47,645	\$ -	\$ 3,101,622	\$ -	\$ 3,101,622
City of Seaside - Golf Courses (APA - 540 AFY)										
Exceeding Natural Safe Yield - Alternative Producer	\$ -	\$ -	\$ -	\$ -	\$ -			\$ 201,406		\$ 201,406
Operating Yield Overproduction Replenishment	\$ -	\$ -	\$ -	\$ -	\$ -			\$ 50,353		\$ 50,353
Total Golf Courses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 251,759	\$ -	\$ 251,759
Total City of Seaside*	\$ 89,920	\$ 120,251	\$ 102,443	\$ 116,975	\$ 94,003	\$ 47,645	\$ -	\$ 3,353,381	\$ -	\$ 3,353,381
City of Seaside Late Payment 5%								\$ 88,887		\$ 88,887
In-lieu Credit Against Assessment								\$ (6,103,451)		\$ (6,103,451)
City of Seaside Unpaid Balance	\$ (3,142,500)	\$ (3,022,249)	\$ (2,919,806)	\$ (2,802,831)	\$ (2,708,828)	\$ (2,661,183)	\$ (2,661,183)	\$ (2,661,183)	\$ (2,661,183)	\$ (2,661,183)
Mission Memorial Park (APA - 31 AFY)										
Mission Memorial Park Production (AF)	13.74	14.43	16.07	20.00	46.77	31.00		332.89		
Mission Memorial Park NSY Over-Production (AF)	-	-	-	-	15.77	58.00		73.77		
Exceeding Natural Safe Yield - Alternative Producer	\$ -	\$ -	\$ -	\$ -	\$ 46,488	\$ 9,608		\$ 56,096		\$ 56,096
Operating Yield Overproduction Replenishment	\$ -	\$ -	\$ -	\$ -	\$ 11,626	\$ 2,402		\$ 14,028		\$ 14,028
Board Approved (5/4/22) Credit Against Assessment					(33,114)			\$ (33,114)		\$ (33,114)
Mission Memorial Park Unpaid Balance	\$ -	\$ -	\$ -	\$ -	\$ 25,000	\$ 12,010	\$ -	\$ 28,510	\$ -	\$ 28,510
Total Replenishment Fund Balance	\$ (3,634,247)	\$ (51,820,198)	\$ (50,899,658)	\$ (49,657,952)	\$ (49,538,949)	\$ (49,504,294)	\$ (49,516,304)	\$ (49,487,794)	\$ (49,516,304)	\$ (49,516,304)
Replenishment Fund Balance Forward	\$ (3,909,125)	\$ (3,634,247)	\$ (51,820,198)	\$ (50,899,658)	\$ (49,657,952)	\$ (49,538,949)	\$ (49,504,294)		\$ (49,516,304)	
Total Replenishment Assessments	\$ 274,877	\$ 1,196,246	\$ 920,540	\$ 1,241,706	\$ 119,003	\$ 59,655	\$ -	\$ 38,152,064	\$ -	\$ 38,152,064
Total Paid and/or Credited		\$ (49,382,196)				\$ (25,000)	\$ (3,510)	\$ (87,659,868)	\$ -	\$ (87,659,868)
Funds Expended (transfer to Admin Fund)							\$ (8,500)	\$ (8,500)	\$ -	\$ (8,500)
Grand Total Fund Balance	\$ (3,634,247)	\$ (51,820,198)	\$ (50,899,658)	\$ (49,657,952)	\$ (49,538,949)	\$ (49,504,294)	\$ (49,516,304)	\$ (49,516,304)	\$ (49,516,304)	\$ (49,516,304)

TO: Watermaster Board of Directors
 FROM: Laura Paxton, Administrative Officer and Robert Jaques, Technical Program Manager
 DATE: September 6, 2023
 SUBJECT: Water Year 2024 Overproduction Replenishment Assessment Unit Costs for Water

RECOMMENDATION: The Watermaster Budget and Finance Committee at its August 21, 2023 meeting recommended the board adopt the straight average Replenishment Assessment Unit Cost of \$3,442/AF and \$860.50/AF for Natural Safe Yield and Operating Yield Overproduction, respectively, for Water Year 2024.

BACKGROUND: Per page 33 of the Decision, “The per acre-foot (AF) amount of the Replenishment Assessments shall be determined and declared by Watermaster in October of each Water Year in order to provide Parties with advance knowledge of the cost of Over-Production in that Water Year.” Thus, the per acre-foot amount determined by the Board on or before October of 2023 will be used to calculate Replenishment Assessments for pumping that occurs during Water Year 2024 (October 1, 2023 through September 30, 2024).

For Water Years 2014, 2015, and 2016 the Board adopted a Replenishment Assessment Unit Cost of \$2,702/AF for Natural Safe Yield Overproduction. This unit cost was developed starting with Water Year 2014 by taking the average of the Base Unit Cost (\$/AF) of the four potential water supply projects that the Board felt were the most likely to be implemented. For Water Year 2017 the Board adopted a revised Replenishment Assessment Unit Cost of \$2,872. This revised Unit Cost was calculated using updated unit cost data for the three projects which the Board at that time felt were the most likely to be implemented. The number of projects was reduced from four to three, because when the WY 2017 Unit Cost was being calculated, it was determined that two of the previous four projects (Regional Desalination and the Pure Water Monterey Groundwater Replenishment Projects) would be part of a combined project referred to as the Monterey Peninsula Water Supply Project (MPWSP). The unit cost for Water Year 2017 was carried over to the three subsequent Water Years because no updated cost data was available for those projects, and no other viable projects could be identified. In 2020, a blended unit cost value was provided for the Monterey Peninsula Water Supply Project based on a reduced size desalination plant offset by water to be provided by the Pure Water Monterey Project. Based on the updated Pure Water Monterey Project’s unit cost, the blended unit cost for that combined project was updated from \$4,591/AF to \$4,817/AF, resulting in a Water Year 2021 Replenishment Assessment Unit Cost of \$2,947/AF. In 2022, a blended unit cost value was calculated for the MPWSP based on an updated PWM unit cost for 3,500AF of potential volume from the project. The blended unit cost for that combined project was updated from \$4,817/AF to \$4,948/AF. For purposes of the 2022 Replenishment Assess Unit Cost calculation, \$2,808 was used as the RUWAP cost/AF. In 2023, a blended unit cost value was calculated for the MPWSP based on an updated PWM and PWMX unit cost for an increased 5,750AF of potential volume from both projects. The blended unit cost for the combined projects was updated from \$4,948/AF to \$4,872/AF.

DISCUSSION: The attached 2024 Table of calculations includes the same actual and estimated project costs as 2023. Beginning in 2024, both flow-weighted and straight average unit costs of the combined desalination, PWM and PWMX projects are presented in the table footnotes for the committee to consider:

- 1) A flow-weighted average unit cost of the combined desalination and PWM and PWMX projects is $(6,250 \times \$6,147 + 5,750 \times \$3,486) / 12,000 = \mathbf{\$4,872}$.
- 2) A straight average unit cost of the combined desalination and PWM and PWMX projects is $(\$6,147 + \$3,486) / 2 = \mathbf{\$4,817}$.

The proposed Replenishment Assessment Unit Costs would therefore be:

- 3) Flow-weighted = **\$3,461/AF**, calculated as: $(\$4,872 + \$2,025 + \$3,486) / 3$. These are the three bold-faced unit costs in the attached Table. Operating Yield Over Production Replenishment Assessment Unit Cost = 25% of that amount, or **\$865**.
- 4) Straight average = **\$3,442/AF**, calculated as $(\$4,817 + \$2,025 + \$3,486) / 3$. Operating Yield Over Production Replenishment Assessment Unit Cost = 25% of that amount, or **\$860.50**.

ATTACHMENTS: 2024 Unit Cost Data Table (footnotes (3) & (6) only updated information from 2023)

WATER YEAR 2023 (October 1, 2022-September 30, 2023)

**ANTICIPATED UNIT COSTS OF WATER COULD POTENTIALLY BE USED FOR
REPLENISHMENT OF THE SEASIDE BASIN**

POTENTIAL SOURCE OF REPLENISHMENT WATER	POTENTIAL DATE REPLENISHMENT WATER COULD BECOME AVAILABLE	POTENTIAL VOLUME OF WATER THAT COULD BE SUPPLIED BY THE PROJECT (AFY) ⁽¹⁾	BASE UNIT COST (\$/AF)	BASE UNIT COST YEAR
Regional Desalination ⁽²⁾	2024	6,250	\$6,147	2021
Pure Water Monterey and PWMX ⁽⁶⁾	2020	5,750	\$3,486	2021
Monterey Peninsula Water Supply Project (Combined Regional Desalination with Groundwater Replenishment Project)	PWM in 2020, Regional Desalination in 2024	12,000	\$4,872⁽³⁾	2022
Seaside Basin ASR Expansion ⁽⁴⁾	2021	1,000	\$2,025	2016
Regional Urban Water Augmentation Project ⁽⁵⁾	2021	1,400-1,700	\$3,486	2021

FOOTNOTES:

(1) For the Regional Desalination Project this is the total amount of water from this source which could potentially come to the CAW distribution system, based on the desalination plant having a 6.4 MGD capacity which is equivalent to 7,169 AFY. Only a portion of this amount might be available as initially unused capacity that could be used to help replenish the Seaside Basin. For the RUWAP this is the total amount of non-potable water from this source. Only a portion of this amount might be used for in-lieu replenishment of the Seaside Basin. For the ASR Expansion Project this is the additional amount of water that could potentially be provided by this project (see footnote 4). For the PWM and PWMX this is the quantity of water that is being planned at this time by CAW for inclusion in its Monterey Peninsula Water Supply Project. *Note that if the desalination plant is not built, PWM and PWMX will to bear conveyance, pumping, and delivery.*

(2) Base unit cost data based on PUC filing documents and provided by Dave Stoldt of MPWMD. The unit cost was confirmed in August 2021 by Ian Crooks of Cal Am as being the latest unit cost available for this project. *Note that if the desalination plant is not built, PWM and PWMX will to bear conveyance, pumping, and delivery.*

(3) Flow-weighted average unit cost of the combined desalination and groundwater replenishment projects, calculated as:

$$(6,250 \times \$6,147 + 5,750 \times \$3,486) / 12,000 = \mathbf{\$4,872}$$

(4) Base unit cost data provided by MPWMD in 2016. No updated unit cost was provided for this project. The 1,000 AFY of potential water that this project could supply would be in addition to the 1,300 AFY included as part of the Monterey Peninsula Water Supply Project, and would be an annual average taking into account river flow and hydrologic conditions that change from year to year.

(5) Project data updated in 2022. Patrick Breen of MCWD noted that to determine total cost per acre-foot, use the \$3,486/acre-foot cost from Pure Water Monterey (which would be RUWAP as well) and add MCWD O&M and Financing costs to be determined.

WATER YEAR 2024 (October 1, 2023-September 30, 2024)

**ANTICIPATED UNIT COSTS OF WATER COULD POTENTIALLY BE USED FOR
REPLENISHMENT OF THE SEASIDE BASIN**

POTENTIAL SOURCE OF REPLENISHMENT WATER	POTENTIAL DATE REPLENISHMENT WATER COULD BECOME AVAILABLE	POTENTIAL VOLUME OF WATER THAT COULD BE SUPPLIED BY THE PROJECT (AFY) ⁽¹⁾	BASE UNIT COST (\$/AF)	BASE UNIT COST YEAR
Regional Desalination ⁽²⁾	2024	6,250	\$6,147	2021
Pure Water Monterey and PWMX ⁽⁶⁾	2020	5,750	\$3,486	2021
Monterey Peninsula Water Supply Project (Combined Regional Desalination with PWM and PWMX Projects)	PWM in 2020, Regional Desalination in 2024	12,000	\$4,872⁽³⁾	2022
Seaside Basin ASR Expansion ⁽⁴⁾	2021	1,000	\$2,025	2016
Regional Urban Water Augmentation Project ⁽⁵⁾	2021	1,400-1,700	\$3,486	2021

FOOTNOTES:

(1) For the Regional Desalination Project this is the total amount of water from this source which could potentially come to the CAW distribution system, based on the desalination plant having a 6.4 MGD capacity which is equivalent to 7,169 AFY. Only a portion of this amount might be available as initially unused capacity that could be used to help replenish the Seaside Basin. For the RUWAP this is the total amount of non-potable water from this source. Only a portion of this amount might be used for in-lieu replenishment of the Seaside Basin. For the ASR Expansion Project this is the additional amount of water that could potentially be provided by this project (see footnote 4). For the PWM and PWMX this is the quantity of water that is being planned at this time by CAW for inclusion in its Monterey Peninsula Water Supply Project.

(2) Base unit cost data based on PUC filing documents and provided by Dave Stoldt of MPWMD. The unit cost was confirmed in August 2021 by Ian Crooks of Cal Am as being the latest unit cost available for this project.

(3) Flow-weighted average unit cost of the combined desalination and PWM and PWMX projects, calculated as:

$$(6,250 \times \$6,147 + 5,750 \times \$3,486) / 12,000 = \mathbf{\$4,872}$$

Straight average unit cost of the combined desalination and PWM and PWMX projects, calculated as:

$$(\$6,147 + \$3,486) / 2 = \mathbf{\$4,817}$$

(4) Base unit cost data provided by MPWMD in 2016. No updated unit cost was provided for this project. The 1,000 AFY of potential water that this project could supply would be in addition to the 1,300 AFY included as part of the Monterey Peninsula Water Supply Project, and would be an annual average taking into account river flow and hydrologic conditions that change from year to year.

(5) Project data updated in 2022. Patrick Breen of MCWD noted that to determine total cost per acre-foot, use the \$3,486/acre-foot cost from Pure Water Monterey (which would be RUWAP as well) and add MCWD O&M and Financing costs which are yet to be determined.

**Seaside Basin Watermaster
P.O. Box 51502
Pacific Grove, CA 93950
(831) 595-0996**

August 22, 2023

Ms. Piret Harmon, General Manager
Salinas Valley Basin Groundwater Sustainability Agency
P.O. Box 1350
Carmel Valley, CA 93924

Subject: Seawater Intrusion Extraction Barrier and Desalination Project Feasibility Study

Dear Ms. Harmon:

Background

The Salinas Valley Groundwater Basin (SVGB) is comprised of seven subbasins, one of which is the Seaside Subbasin. The Seaside Subbasin is an adjudicated basin. The adjudication Decision was issued by the Superior Court of the County of Monterey in 2006 under Case No. M66343. That Decision created the Seaside Groundwater Basin Watermaster (“Watermaster”) for the purpose of administering and enforcing the Decision.

Since the Seaside Subbasin has been adjudicated, it is not required to prepare a Groundwater Sustainability Plan (GSP) under the Sustainable Groundwater Management Act because the Decision essentially serves as the GSP for the Seaside Subbasin. The Decision required that pumping from the Seaside Subbasin be reduced from an initial 5,600 AFY down to the Subbasin’s natural safe yield of 3,000 AFY (a 46% reduction) over a 14-year period. This is the demand-management requirement imposed on the Seaside Basin. It is a parallel to the demand-management actions that many of the other SVGB subbasins are considering as their GSPs are implemented. The Seaside Basin’s ramp-down in pumping was completed in 2020 through increased water conservation, use of recycled water, and other measures.

Groundwater Modeling

Modeling performed for the Watermaster by its hydrogeologic consultants shows that the current and predicted groundwater outflow from the Seaside Subbasin into the Marina-Ord portion of the Monterey Subbasin is so large that it prevents the Seaside Subbasin from being protected against seawater intrusion. Modeling performed by EKI for the Marina-Ord portion of the Monterey Subbasin shows that the Monterey Subbasin loses a large amount of groundwater to the 180/400-Foot Aquifer Subbasin. Consequently, both the Seaside Subbasin and the Monterey Subbasin are adversely affected by the 180/400-Foot Aquifer Subbasin.

Need for Replenishment Water

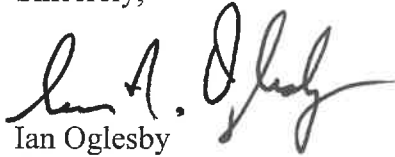
Even though pumping from the Seaside Subbasin has been reduced to the natural safe yield, the Subbasin remains at risk of seawater intrusion because groundwater levels in some parts of the Seaside Subbasin are below sea level. The Watermaster is currently studying ways of obtaining replenishment water to raise groundwater levels in the Seaside Subbasin. If injected into the groundwater aquifers,

the replenishment water would be left in the Subbasin, not pumped out, in order to protect the Basin against seawater intrusion. Natural replenishment of the Subbasin could also be accomplished by providing a source of potable water to users that currently pump from the Subbasin, so they could reduce their pumping and achieve in-lieu replenishment

Feasibility Study

The Seawater Intrusion Extraction Barrier and Desalination Project Feasibility Study is being performed as part of the implementation of the GSP for the 180/400-Foot Aquifer Subbasin. That subbasin is adversely impacting the Seaside Subbasin. By this letter the Seaside Groundwater Basin Watermaster is formally requesting that the Seaside Subbasin be included as one of the end users of any water that would be generated by the desalination component of the Seawater Intrusion Extraction Barrier and Desalination Project.

Sincerely,



Ian Oglesby
Chair, Seaside Basin Watermaster

Cc Emily Gardner, Deputy General Manager
Sarah Hardgrave, Deputy General Manager

SEASIDE GROUNDWATER BASIN WATERMASTER
Reported Quarterly and Annual Water Production From the Seaside Groundwater Basin
For All Producers Included in the Seaside Basin Adjudication -- Water Year 2023

(All Values in Acre-Feet [AF])

	Type	Oct	Nov	Dec	Oct-Dec	Jan	Feb	Mar	Jan-Mar	Apr	May	Jun	Apr-Jun	Jul	Aug	Sep	Jul-Sep	Reported Total	Yield Allocation	from WY 2022	for WY 2023															
Coastal Subareas																																				
CAW - Coastal Subareas	SPA	497.16	410.19	389.22	1,296.57	370.86	475.09	659.11	1,505.05	585.36	606.31	99.22	1,290.89	0.00			0.00	1,417.55	1,466.03	110.45	1,576.48															
Luzern		49.71	0.00	0.00	49.71	0.08	21.35	52.18	73.61	49.92	52.09	8.35	110.36				0.00	233.67																		
Ord Grove		107.26	101.65	107.01	315.92	107.13	103.08	125.80	336.00	123.14	125.76	25.68	274.58				0.00	926.50																		
Paralta		128.77	119.63	95.62	344.02	93.48	130.05	183.04	406.57	168.46	186.59	106.98	462.03				0.00	1,212.62																		
Playa		32.86	32.92	33.50	99.28	33.69	30.01	31.91	95.60	31.54	32.73	1.04	65.31				0.00	260.20																		
Plumas		27.64	26.92	27.46	82.03	27.60	24.67	26.76	79.04	23.50	26.82	0.85	51.17				0.00	212.23																		
Santa Margarita		150.92	129.07	125.62	405.62	108.88	165.93	239.42	514.23	188.79	182.32	162.21	533.32				0.00	1,453.17																		
ASR Recovery		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(205.88)	(205.88)				0.00	(205.88)																		
PWM Recovery		(404.79)	(333.96)	(359.30)	(1098.05)	(339.81)	(436.43)	(498.90)	(1,275.15)	(301.76)	0.00	0.00	(301.76)				0.00	(2,674.96)																		
City of Seaside (Municipal)	SPA	15.26	11.75	10.85	37.86	11.05	13.22	10.07	34.34	12.54	14.66	14.00	41.20				0.00	113.40	120.28	0	120.28															
Granite Rock Company	SPA	--	--	--	0.00	--	--	--	0.00	--	--	--	0.00				0.00	0.00	11.35	249.6	260.95															
DBO Development No. 30	SPA	--	--	--	0.00	--	--	--	0.00	--	--	--	0.00				0.00	0.00	20.59	447.12	467.71															
Calabrese (Cypress Pacific Inv.)	SPA	--	--	--	0.00	--	--	--	0.00	--	--	--	0.00				0.00	0.00	2.76	13.69	16.45															
City of Seaside (Golf Courses)	APA	41.260	0.00	0.00	41.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00	41.26	540.00		540.00															
Sand City	APA	0.16	0.14	0.06	0.36	0.07	0.18	0.00	0.25	0.06	0.14	0.08	0.28				0.00	0.89	9.00		9.00															
SNG (Security National Guaranty) / MLDC (Mountain Lake Dev. Corp.)	APA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00	0.00	90.00		90.00															
Calabrese (Cypress Pacific Inv.)	APA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00	0.00	59.00		59.00															
Mission Memorial (Alderwoods)	APA	3.47	1.01	0.65	5.13	0.78	0.36	0.25	1.40	0.82	1.71	4.89	7.43				0.00	13.96	31.00		31.00															
Coastal Subareas Totals					283.14				265.89				1,038.04				0.00	1,587.06	2,356.01	820.86	3,176.87															
Laguna Seca Subarea																																				
CAW - Laguna Seca Subarea	SPA	12.42	10.03	8.35	30.79				0.00				0.00				0.00	30.79	0.00		0.00															
Ryan Ranch Unit	05/21/21: Ryan Ranch Wells #7, #8, and #11 physically disconnected from the distribution system.																			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Hidden Hills Unit		12.42	10.03	8.35	30.79	7.82	6.93	7.47	22.22	8.66	11.26	13.96	33.88				0.00	86.90																		
Bishop Unit 3	05/27/21: Bishop Wells #1 and #3 physically disconnected from the distribution system.																			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Bishop Unit 7	The Monterey Main to Ryan Ranch & Bishop Interline was opened on 12/08/20																			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
The Club at Pasadera	APA	19.00	0.00	0.00	19.00	0.00	0.00	0.00	0.00	0.00	31.00	20.00	51.00				0.00	70.00	251.00		251.00															
Laguna Seca Golf Resort (Bishop)	APA	20.00	5.17	0.00	25.17	0.00	0.00	0.00	0.00	6.12	15.96	29.18	51.26				0.00	76.43	320.00		320.00															
York School	APA	1.40	0.12	0.02	1.54	0.01	0.00	0.00	0.01	1.25	1.33	2.48	5.07				0.00	6.62	32.00		32.00															
Laguna Seca County Park	APA	1.17	1.14	0.15	2.46	0.47	0.25	0.84	1.56	2.85	3.63	1.98	8.46				0.00	12.48	41.00		41.00															
Laguna Seca Subarea Totals					78.96				1.58				115.79				0.00	196.33	644.00	0.00	644.00															
Total Production by WM Producers					362.09				267.46				1,153.83				0.00	1,783.39	3,000.01	820.86	3,820.87															
																		Annual Production from APA Producers		221.64	1,379.00															
																		Annual Production from SPA Producers		1,561.75	2,441.87															

CAW / MPWMD ASR (Carmel River Basin source water)																		<i>Previous Balance</i>	<i>Total</i>		
Injection	0.00	0.00	37.49	37.49	244.16	323.50	299.63	867.29	344.76	406.89	0.00	751.64	0.00	0.00	0.00	0.00	0.00	1,656.42			
(Recovery)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(205.88)	(205.88)	0.00	0.00	0.00	0.00	0.00	(205.88)			
Net ASR	0.00	0.00	37.49	37.49	244.16	323.50	299.63	867.29	344.76	406.89	(205.88)	545.76	0.00	0.00	0.00	0.00	0.00	1,450.53	801.55	2,252.08	
Pure Water Monterey (PWM) Injection and Cal-Am Recovery																					
Balance Forward	1,164.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00	1,164.52			
Injection Drought Reserve	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00	0.00			0.00
Delivery to Basin	349.81	333.96	397.41	1081.18	423.25	379.74	434.04	1237.03	0.00	303.12	350.42	653.53	0.00	0.00	0.00	0.00	0.00	2,971.75			
CAW	(404.79)	(333.96)	(359.30)	(1,098.05)	(339.81)	(436.43)	(498.90)	(1,275.14)	(301.76)	0.00	0.00	(301.76)	0.00	0.00	0.00	0.00	0.00	(2,674.95)			
																		Balance Forward		296.80	
City of Seaside Golf Course Recycled Water Use/Municipal Potable Water Recovery 2.361AF Max																					
In-lieu Storage/Recycled Water Use	0.00	0.00	0.00	0.00	0.00	0.00	10.54	0.66	11.20	34.22	83.29	66.54	184.05	0.00	0.00	0.00	0.00	195.25	0.00		195.25
City of Seaside Municipal Extraction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Net In-lieu					0.00				11.20	34.22	83.29	66.54	184.05	0.00	0.00	0.00	0.00	195.25	0.00		195.25

Notes:

- The Water Year (WY) begins October 1 and ends September 30 of the following calendar year. For example, WY 2023 begins on October 1, 2022, and ends on September 30, 2023.
- "Type" refers to water right as described in Seaside Basin Adjudication decision as amended, signed February 9, 2007 (Monterey County Superior Court Case No. M66343).
- Values shown in the table are based on reports to the Watermaster received by July 15, 2023.
- All values are rounded to the nearest hundredth of an acre-foot. Where required, reported data were converted to acre-feet utilizing the relationships: 325,851 gallons = 43,560 cubic feet = 1 acre-foot.
- "Base Operating Yield Allocation" values are based on Seaside Basin Adjudication decision. These values are consistent with the Watermaster Producer Allocations Water Year 2023 (see Item IX.B. in 12/7/2022 Board packet).
- Any minor discrepancies in totals are attributable to rounding.
- APA = Alternative Producer Allocation; SPA = Standard Producer Allocation; CAW = California American Water.
- It should be noted that CAW/MPWMD ASR "Injection" and "Recovery" amounts are not expected to "balance" within each Water Year. This is due to the injection recovery "rules" that are part of SWRCB water rights permits and/or separate agreements with state and federal resources agencies that are associated with the water rights permits.
- Cal-Am Toro Well #3 Destroyed 09/30/21

D-R-A-F-T
MINUTES

**Seaside Groundwater Basin Watermaster
Technical Advisory Committee Meeting
August 9, 2023**

Attendees: TAC Members

City of Seaside – Carolyn Burke
California American Water – Tim O’Halloran
City of Monterey – No Representative
Laguna Seca Property Owners – No Representative
MPWMD – Jon Lear
MCWRA – Guillermo Diaz Moreno
City of Del Rey Oaks – Kim Shirley
City of Sand City – Leon Gomez
Coastal Subarea Landowners – No Representative

Watermaster

Technical Program Manager – Robert Jaques

Consultants

Montgomery & Associates – Pascual Benito (via telephone)
Montgomery & Associates – Derrik Williams on behalf of the SVBGSA

Others

Sarah Hardgrave – SVBGSA
MCWD – Patrick Breen

The meeting was convened at 1:36 p.m.

1. Public Comments

Ms. Hardgrave provided a brief introduction of her new role with the Salinas Valley Basin Groundwater Sustainability Agency. She asked to be added to the listserv for future TAC meeting announcements. Mr. Jaques will do that.

2. Administrative Matters:

A. Approve Minutes from the July 12, 2023 Meeting

On a motion by Mr. O’Halloran, seconded by Mr. Gomez, the minutes were unanimously approved as presented.

B. Sustainable Groundwater Management Act (SGMA) Update

Mr. Jaques summarized the agenda packet materials for this item and there was no other discussion.

3. Progress Report on FO-9 Replacement Well

Mr. Jaques summarized the agenda packet materials for this item and there was no other discussion.

4. Progress Report on Damage to Sentinel Well No. 4

Mr. Jaques summarized the agenda packet materials for this item. Mr. Lear reported that MPWMD was also on the waitlist for well drilling activities just as the Watermaster's request is.

5. Presentation on Development of the Seawater Intrusion Model for the Salinas Valley Basin Groundwater Sustainability Agency

Mr. Jaques introduced this item. Ms. Hardgrave said that the STB GSA will be using this model to evaluate various groundwater sustainability plan projects.

Mr. Williams provided a PowerPoint presentation, the slides of which are attached to these meeting minutes. Some of the points he made in his presentation included:

- A draft seawater intrusion model was released some time ago and the consultants are currently incorporating comments that were received.
- The model will be used by the SVBGSA as well as others.
- It will be used to address seawater intrusion issues related to projects in the northern part of the Salinas Valley.
- It is a density dependent model.
- There is only a small amount of offshore geologic data, therefore they had to extrapolate the aquifers offshore. Some of the aquifers daylight in the Monterey Canyon area of Monterey Bay.
- The model used several other models to inform it. These included the Salinas Valley Groundwater Basin Model, the EKI Monterey Subbasin Model prepared for Marina Coast Water District, Cal Am's North Marina Model, and the Salinas Valley Integrated Hydrologic Model. They did the best they could to match the various models together.
- The SWI model is focused on the 180/400-foot Aquifer and Monterey Subbasins because these are where most of the seawater intrusion is known to exist.
- Since no seawater intrusion has been detected in the Seaside Groundwater Basin, they were not able to use the model there because they do not know where the seawater/freshwater interface is located.
- Projects they will be looking at with the aid of the SWI model include:
 - An extraction barrier coupled with reuse of desalinated water. The extraction barrier would be a series of wells that would pull in seawater from the bay and also pull out inland intruded water.
 - Injection/temporary storage of Salinas River water in the 180/400-Foot Aquifer Subbasin. This would be similar to an ASR project with some of the injected water left in the basin to push out seawater intrusion.
 - Demand reduction.
- They will be using the 500 mg/L chloride isocontour as the metric for movement of the seawater intrusion front.
- The model matches well with MCWRA's isocontours in the 180 foot aquifer. In the 400 foot aquifer it also matches pretty well including locations where there are islands of intrusion. However, it shows some seawater intrusion in the Seaside Groundwater Basin which is not there, so it is not accurate there and should not be used in that basin. They are working on correcting geologic discrepancies near the Seaside Groundwater Basin/Monterey Subbasin boundary, as well as inaccurate seawater intrusion simulations in the Seaside Groundwater Basin. They don't know how far offshore the seawater

intrusion front is adjacent to the Seaside Groundwater Basin, so the model will not be useful for predicting seawater intrusion in the Seaside Groundwater Basin. They are also working on groundwater elevation calibration inaccuracies in the Salinas Valley.

Mr. Williams responded to various questions throughout the presentation.

6. Approve Monitoring and Management Program (M&MP) for FY 2024

Mr. Jaques summarized the agenda packet materials for this item. Ms. Shirley confirmed that her July 12th requested revision had been satisfactorily incorporated. On a motion by Ms. Shirley, seconded by Mr. Gomez, the 2024 Monitoring and Management Program was unanimously approved as presented.

7. Approve the FY 2024 Monitoring and Management Program (M&MP) Operations and Capital Budgets

Mr. Jaques summarized the agenda packet materials for this item. On a motion by Mr. Lear, seconded by Mr. O'Halloran, the 2024 Monitoring and Management Program budgets were unanimously approved as presented.

8. Schedule

Mr. Jaques reported that at this point it does not appear there will need to be a TAC meeting in the month of September. If that is the case Mr. Jaques will send out a TAC meeting cancellation notice.

Mr. Lear asked Mr. Jaques to briefly describe TAC activities for the rest of the year for the benefit of those who were new members of the TAC. Mr. Jaques described the steps involved in preparing the Annual Report, and highlighted that the November TAC meeting would be on the third Wednesday, rather than the normal second Wednesday, to allow consultants time to complete preparation of documents that need to be included in the Annual Report.

9. Other Business

Ms. Burke asked Mr. Jaques if any progress had been made with regard to allowing the TAC to have future meetings by Zoom rather than in-person. Mr. Jaques said that he was having this matter researched with the newly retained legal counsel for the Watermaster, and would update the TAC once that information had been obtained.

The meeting adjourned at 2:24 PM.

Salinas Seawater Intrusion Model Update




Seaside Watermaster Technical Advisory Committee
August 9, 2023

- Seawater Intrusion Model purpose
- How Salinas Valley groups plan to use it
- Initial calibration
- Response to GTAC comments

Need for Seawater Intrusion Model

Goal: Develop a tool to assess and design management actions and projects that address seawater intrusion in the Salinas Valley

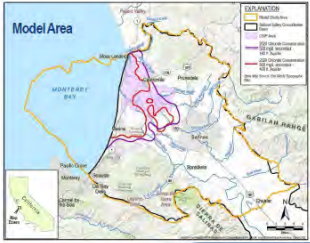
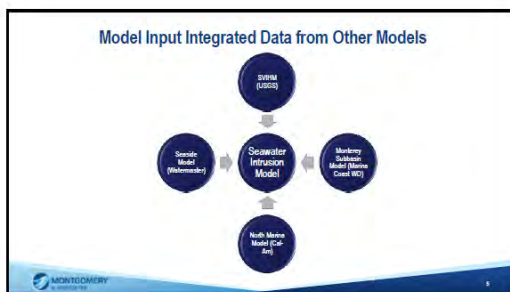


Seawater Intrusion Model

3D density dependent groundwater flow and transport

Extends offshore to account for ocean interface

Covers Seaside Subbasin at the request of stakeholders, and to extend to natural boundaries

Model Uses

Model is Focused on the 180/400-Foot Aquifer and Monterey Subbasins

Locations with the most seawater intrusion
Biggest (expensive) projects needed to solve seawater intrusion

MONTGOMERY
Environmental Science & Technology

Initially Assess Impacts of Three SWI Management Options

1. Extraction barrier in the 180/400-Footer Aquifer Subbasin
2. Injection/temporary storage of Salinas River water in the 180/400-Footer Aquifer Subbasin
3. Demand reduction

Each management option has sub-options

Predicting and managing seawater intrusion in the Seaside Basin is not a primary model objective.

MONTGOMERY
Environmental Science & Technology

Initial Calibration

Focused on the timing of seawater intrusion in the 180/400-Footer Aquifer Subbasin

MONTGOMERY
Environmental Science & Technology

Seawater Intrusion Advances at Same Rate and Direction as Observed Seawater Intrusion

180-Footer Aquifer

MONTGOMERY
Environmental Science & Technology

Seawater Intrusion Advances at Same Rate and Direction as Observed Seawater Intrusion

400-Footer Aquifer

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Environmental Science & Technology


GTAC Comments and Ongoing Activities

MONTGOMERY
Environmental Science & Technology

GTAC Presentation on

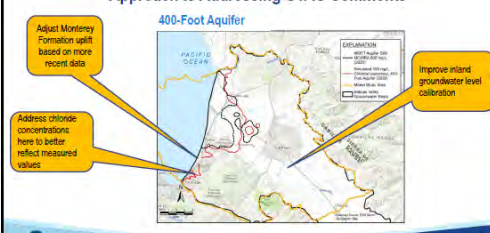

Three main comments

1. Geologic discrepancy near the Monterey Subbasin/Seaside Subbasin boundary
2. Inaccurate seawater intrusion simulated in the southern Seaside Subbasin
3. Simulated groundwater levels in the 180/400-Foot Aquifer Subbasin are too low




Approach to Addressing GTAC Comments

400-Foot Aquifer

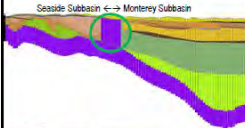



Initial Results From Addressing GTAC Comments

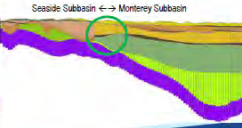



Shallow Monterey Fmt Along Seaside-Monterey Subbasin Boundary

Previous Version (Section Through Row 120)



Updated Version (Section Through Row 120)






Seawater Intrusion in the Seaside Subbasin

HGU: Para Robles / Santa Margarita




Groundwater Elevation Calibration

- Significantly improved
- Continuing to calibrate (along with Seaside Seawater Intrusion)



Questions



 Derrick Williams, P.G., C.Hg.

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 (510) 332-7898

 **MONTGOMERY & ASSOCIATES**
Water Treatment Consultants

SUMMARY OF
PURE WATER MONTEREY, AND
SALINAS VALLEY AND
MARINA COAST WATER DISTRICT GROUNDWATER
SUSTAINABILITY AGENCY ZOOM MEETINGS
IN APRIL 2023

Note: This is a synopsis of information from these meetings that may be of interest to the Seaside Basin Watermaster

SVBGSA Groundwater TAC Meeting, April 18, 2023:

Although I am not a member of this Committee I monitor their meetings and participate when there are items of interest to the Watermaster. At this meeting one of the items on the agenda was an update on the development and initial findings of the Seawater Intrusion Model that Montgomery & Associates has been preparing for the SVBGSA. It is intended to provide more accurate and more detailed information on seawater intrusion, and the model area includes the Seaside Basin. Attached are two of the slides that were presented at this meeting (which I was unable to attend due to a scheduling conflict) showing how the model simulations compare to MCWRA's seawater intrusion mapping, and what the model predicts as the extent of seawater intrusion up to the year 2070.

I expressed my concerns to Derrik Williams of Montgomery & Associates about these slides showing seawater intrusion moving into the Seaside Basin in the future. Mr. Williams responded to clarify that the Seawater Intrusion (SWI) model was primarily developed to assess impacts from potential projects in the 180/400-Foot Aquifer and Monterey Subbasins, and the focus of the calibration was on these two subbasins. MCWRA requested that the model be expanded to include all of MCWRA Zone 2C, and subsequently the model was expanded to include the Seaside subbasin. However, there was no seawater intrusion data in the Seaside subbasin and therefore it was not the focus of the model calibration.

Because it was not the focus of the calibration, no effort was made to remove the simulated seawater intrusion from the Seaside basin. The simulated seawater intrusion will be removed from the Seaside basin in the next iteration of the model. He went on to say that models cannot estimate when seawater intrusion will be observed in the Seaside basin without knowing the current offshore extent of seawater intrusion. Because the offshore extent of seawater intrusion is unknown, no model can predict the potential timing of future seawater intrusion into the Seaside basin. A caveat will be included in future reports stating that this model should not be used to predict seawater intrusion in the Seaside basin.

He also noted that neither the 180-Foot nor 400-Foot aquifers exist in the Seaside subbasin. Since the model focuses on seawater intrusion in the 180/400-Foot Aquifer Subbasin, the

graphics presented at the GTAC meeting identified depth zones in the model according to the named aquifers in that subbasin. The model layers simulating the 180-Foot and 400-Foot aquifers extend into the Seaside subbasin, but the aquifers themselves do not extend into the Seaside subbasin. Montgomery & Associates will try to make someone available at the June 14th Watermaster TAC meeting to answer any questions about this.

SVBGSA Advisory Committee Meeting, April 20, 2023:

The items on the agenda for this meeting were all administrative in nature and did not impact the Seaside Basin, so I did not attend this meeting.

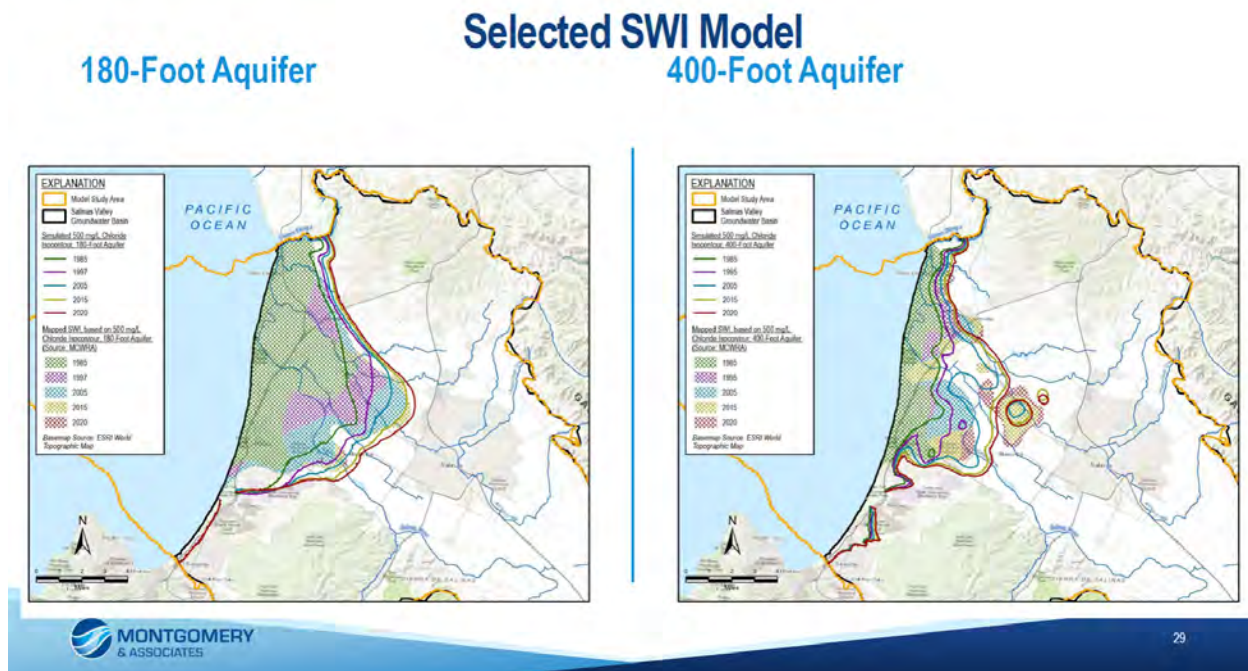
SVBGSA Monterey Subbasin Implementation Committee Meeting, April 26, 2023:

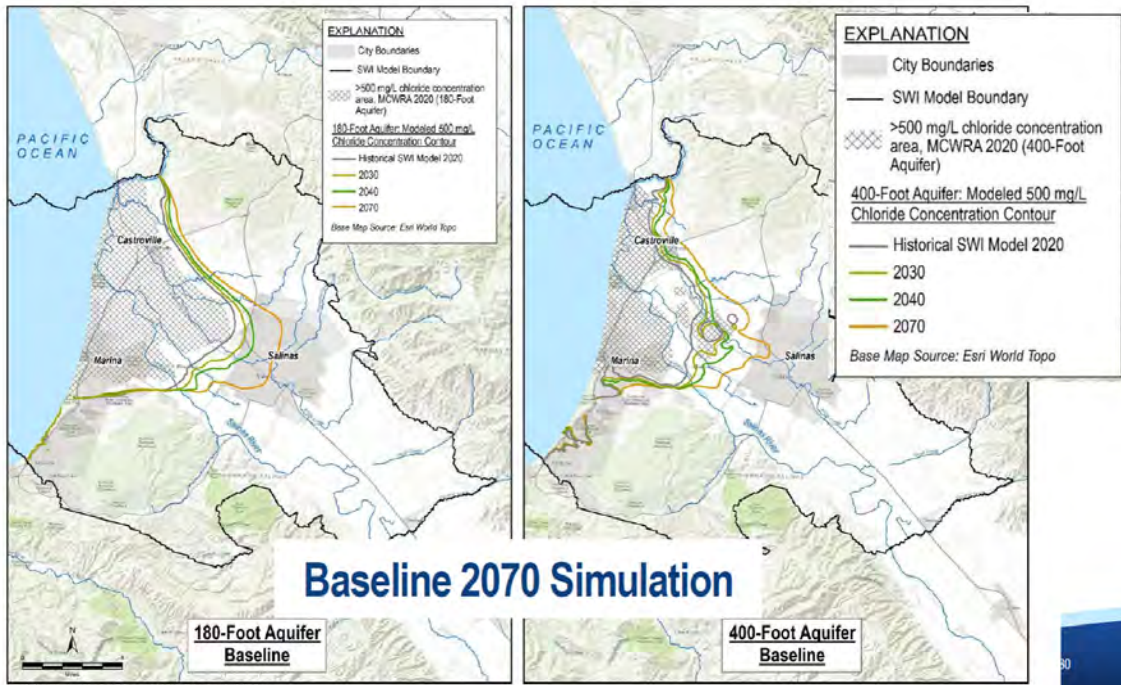
The agenda for this meeting mainly focused on the 2022 Annual Report on the Monterey Subbasin, and on the tier structure of fees to be collected from each of the subbasins (excluding the Seaside Subbasin).

The fees do not impact the Watermaster as they are only applied in the other subbasins of the Salinas Valley Basin.

The 2022 Annual Report showed a number of exceedances of Sustainable Management Criteria that were established in the Monterey Subbasin Groundwater Sustainability Plan. The attached PowerPoint slides that were presented at this meeting describe these.

The timeline for implementation of the various projects and management activities is also shown in the attached PowerPoint slides.





Monterey Subbasin: Water Year 2022 Annual Report Results



Prepared for: **Monterey Subbasin Implementation Committee**

April 26, 2023

Prepared by: Abby Ostovar, PhD

WY 2022 Annual Report
Monterey Subbasin

Marina Coast Water District Groundwater Sustainability Agency
Salinas Valley Basin Groundwater Sustainability Agency

April 1, 2023

GSP Annual Report Purpose

- Report monitoring data
- Summarize progress over the past year
- Help DWR understand implementation challenges and how they could help

Annual Reports developed based on GSP Regulations

§ 356.2 Annual Reports

- Groundwater elevation data
- Groundwater extraction
- Surface water supply
- Total water use
- Change in groundwater storage
- Progress towards implementing the GSP

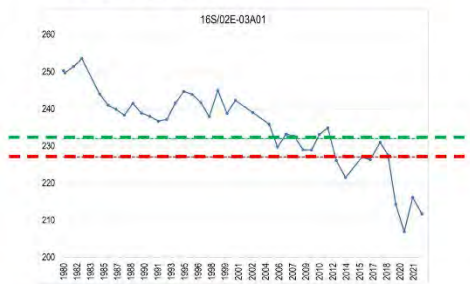
§ 354.40. Reporting Monitoring Data to DWR

- Copy of monitoring data

3

Sustainable Management Criteria: Groundwater Level Example

Example well hydrograph:



- Goal = Measurable Objective
- What we want to avoid = Minimum Threshold
- Undesirable Result = combination of minimum threshold exceedances that are significant and unreasonable

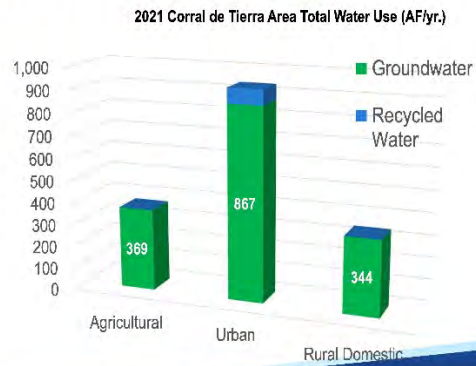
2 Undesirable Results in WY 2022

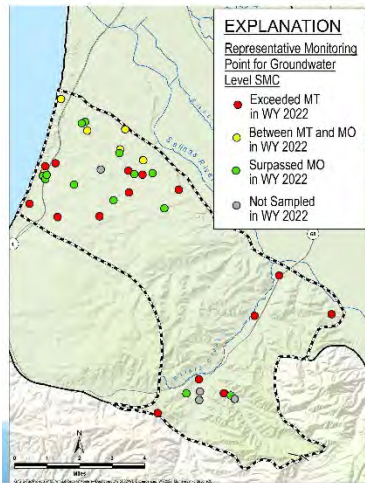
	Groundwater Levels	Seawater Intrusion	Groundwater Storage	Groundwater Quality	Land Subsidence	Depletion of ISW
Corral de Tierra	X	Not applicable	X	✓	✓	Lack of data
Marina/Ord	X	✓	X	✓	✓	✓
Monterey Subbasin	X	✓	X	✓	✓	✓



Corral Water Use Similar to Prior Year

	Total Water Use (AF)
2020	1,770
2021	1,648



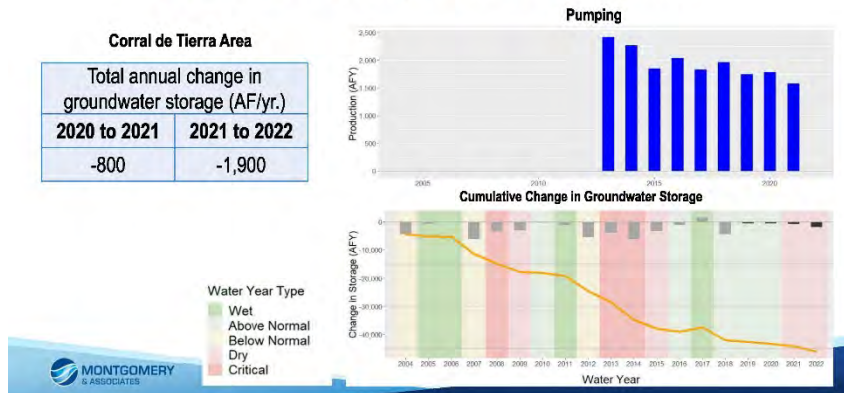


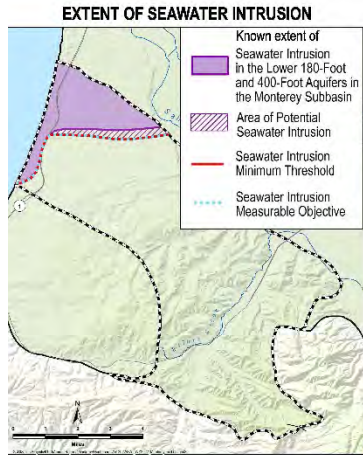
Groundwater Levels Continued to Decline

Chronic Lowering of Groundwater Levels

SMC Established in GSP	2022 Data
Measurable Objective: Set to 2008 groundwater elevations	23 wells were above the MO in WY 2022
Minimum Threshold: Set to 2015 groundwater elevations	20 wells were below MT in WY 2022
Undesirable Result: More than 20% of groundwater elevation MTs are exceeded	49% of wells exceeded groundwater elevation MTs

Groundwater Storage Decline Accelerated



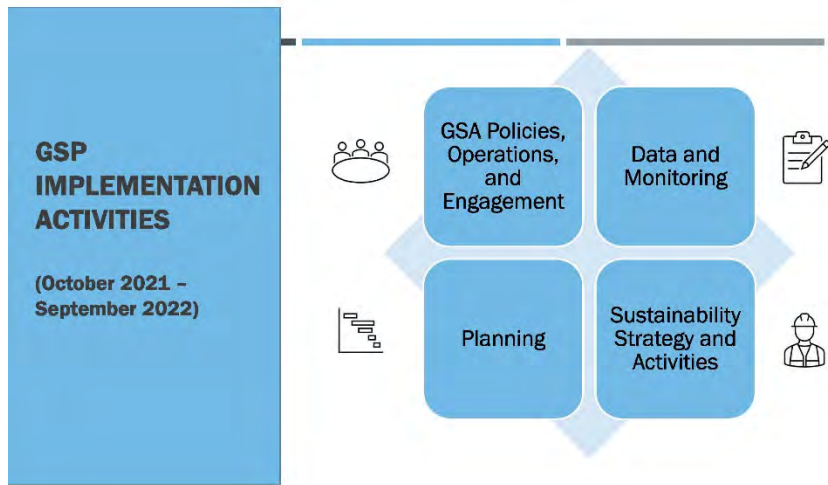


No Data Showed Additional Seawater Intrusion (Marina-Ord)

Seawater Intrusion	
SMC Established in GSP	2022 Data
<p>Measurable Objective and Minimum Threshold: 2015 extent of 500 mg/L chloride isocontour for the lower 180-Foot and 400-Foot Aquifers; Highway 1 in Dune Sand, Upper 180-Foot, and Deep Aquifers</p>	<p>✓ Seawater has not exceeded the 2015 extent for the lower 180-Foot and 400-Foot Aquifers; no seawater intrusion in the Dune Sand, Upper 180-Foot or Deep Aquifers; no intrusion in the Corral de Tierra Area</p>
<p>Undesirable Result: Exceedance of the MT</p>	<p>✓ No exceedance of MT</p>

Water Quality – Additional wells had higher concentrations of arsenic and iron

Degradation of Water Quality	
SMC Established in GSP	2022 Data
<p>Measurable Objective and Minimum Threshold: No additional exceedances of drinking water standards in potable supply wells or Basin Plan water quality objectives for agricultural supply wells as a result of GSP implementation</p>	<p>✗ 2 constituents of concern exceeded their MT</p>
<p>Undesirable Result: Future or new MT exceedances are caused by a direct result of GSA groundwater management action(s), including projects or management actions and regulation of groundwater extraction.</p>	<p>✓ MT exceedances were not due to GSA groundwater management action</p>



SVBGSA GSP IMPLEMENTATION ACTIVITIES



GSA Policies, Operations, and Engagement

- Revised committee structure, developed policies and procedures, and strengthened coordination



Data and Monitoring

- Conducted data and model tasks to fill data gaps and prepare for project development



Planning

- Submitted Monterey Subbasin GSP and 180/400 GSP Update

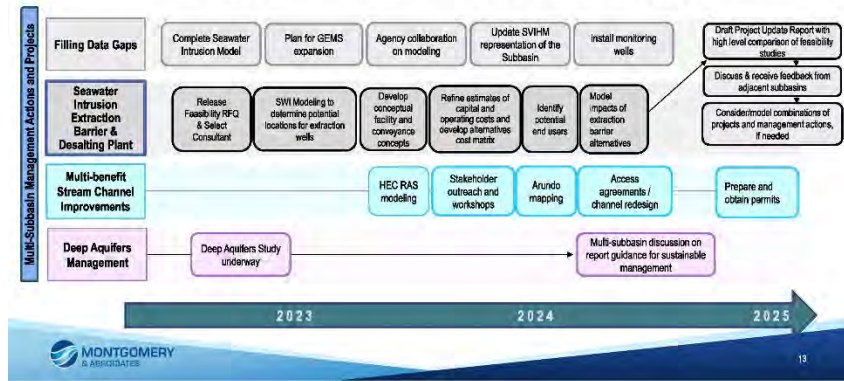


Sustainability Strategy and Activities

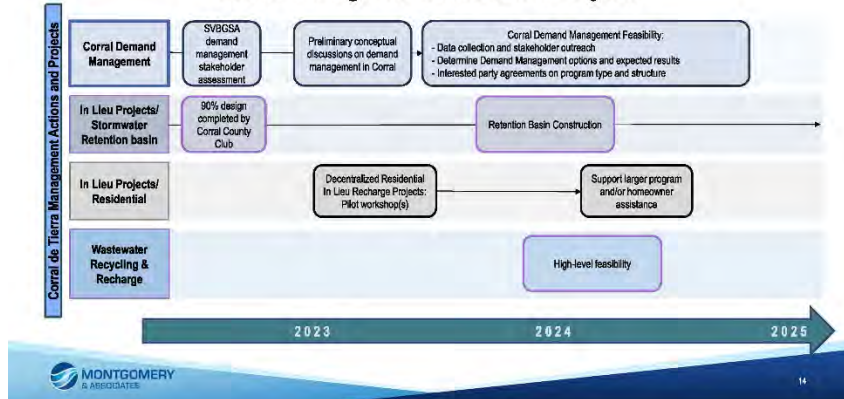
- Awarded SGMA Implementation Grant (\$7.6 mil)
- Completed preliminary investigation of the Deep Aquifers Study
- Corral de Tierra County Club proposed a retention basin to collect and reuse run-off
- Developed Sustainability Strategy for Subbasin

12

Sustainability Strategy: Multi-Subbasin Management Actions and Projects



Sustainability Strategy: Corral Management Actions and Projects

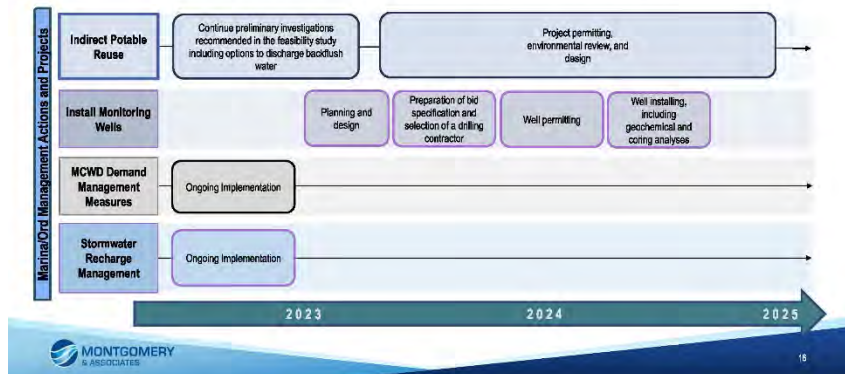


Marina – Ord SMC Summary

	Groundwater Levels	Seawater Intrusion	Groundwater Storage	Groundwater Quality	Land Subsidence	Depletion of ISW
Corral de Tierra	X	Not applicable	X	✓	✓	Lack of data
Marina/Ord	X	✓	X	✓	✓	✓
Monterey Subbasin	X	✓	X	✓	✓	✓



Sustainability Strategy: Marina/Ord Management Actions and Projects



SUMMARY OF
PURE WATER MONTEREY, AND
SALINAS VALLEY AND
MARINA COAST WATER DISTRICT GROUNDWATER SUSTAINABILITY
AGENCY ZOOM MEETINGS
IN MAY 2023

Note: This is a synopsis of information from these meetings that may be of interest to the Seaside Basin Watermaster

SVBGSA Special Joint Meeting of the 180/400, Eastside, and Monterey Subbasin Implementation Committees, May 3, 2023:

Although I am not a member of this Committee I monitor their meetings and participate when there are items of interest to the Watermaster. At this meeting the items on the agenda were related to the tiered rate structure that the SVBGSA plans to implement to fund its activities. The Watermaster is not subject to those fees, so I did not attend this meeting.

SUMMARY OF
PURE WATER MONTEREY, AND
SALINAS VALLEY AND
MARINA COAST WATER DISTRICT GROUNDWATER SUSTAINABILITY
AGENCY ZOOM MEETINGS
IN JUNE 2023

Note: This is a synopsis of information from these meetings that may be of interest to the Seaside Basin Watermaster

SVBGSA Advisory Committee Meeting, June 15, 2023:

The principal item on this Advisory Committee meeting agenda was discussion of the Proposed Tiered Fee Schedule that the SVBGSA Board will be considering adopting at its June 29, 2023 meeting. Since this fee does not directly impact the Watermaster, I would not normally have attended this meeting. However, to count as attending one had to attend in person, not by Zoom. The Advisory Committee, some years ago, adopted a policy that if a member failed to attend meetings, they could be dropped from the Committee. Therefore, in order to ensure that the Watermaster would continue to be a member, I attended this meeting in person. For future meetings, if there are no items that directly impact the Watermaster, I will attempt to make arrangements to attend remotely, with certain conditions having to be fulfilled in order to comply with the Brown Act.

Issues of interest at this meeting included:

- The new Senior Consultant/General Manager of the SVBGSA is Piret Harmon, replacing Donna Meyers. Sarah Hardgrave came on as a second Senior Advisor/Deputy General Manager, serving in that position along with Emily Gardner.
- Election of new Chair and Vice-Chair. Curtis Weeks of the Arroyo Seco GSA, and Dennis Lebow, were elected as Chair and Vice-Chair respectively.

- Considerable grant money has thus far been obtained to help pay for GSA activities. Grant money will eventually no longer be available to use to help fund the GSA's budgets.
- The proposed Tiered Fee Schedule has two tiers:
 - Tier 1: Groundwater Sustainability Fee for regulatory activities that pertain to all subbasins (\$2.3 million)
 - Tier 2: Unique to each subbasin for activities that pertain to that subbasin, but do not pertain to other subbasins. (\$1.2 million)
- For the Corral de Tierra subarea of the Monterey Subbasin, the fees for Tier 2 will total an estimated \$76K. This fee is expected to be allocated based on pumping quantities of users within that subarea. This subarea has the highest fee amount of all of the subbasins within the SVBGSA.
- Under the Tiered Fee Schedule Agriculture will constitute approximately 90% of the users, and All Others will constitute approximately 10% of the users. Agricultural Users will be charged on a dollars-per-acre basis, and All Other Users will be charged on a dollars-per-connection basis.
- At its June 29th meeting the SVBGSA will do one of two things:
 - Adopt a tiered fee structure such as the one being proposed, or
 - Stay with the current non-tiered fee structure.
- At the Advisory Committee meeting there was divided support for, and opposition to, adopting the proposed Tiered Fee Structure. The opinions expressed were fairly strong on both sides, indicating that the issue is rather controversial.
- There was brief discussion of the Advisory Committee Work Plan which the Board has approved, and the Groundwater Dependent Ecosystem Work Group which is still in the process of being formed. Advisory Committee members who offered to serve on that work group were Chris Bunn, Robin Lee, and Brian Frus.

Monterey Peninsula Water Operations Stakeholders Group Meeting, June 28, 2023:

This stakeholders group replaced the Seaside Water Quality and Operations stakeholders group that had been hosted by Monterey One Water. Because all water operations affect each other, MPWMD began hosting this meeting to facilitate common understanding and operational planning efficiency for the Pure Water Monterey Project.

Information provided at this meeting included:

- PWM delivered 3,500 AF during the fiscal year ending in April 2023
- ASR banked 1,656 AF in WY 2022 and 2,963 AF in WY 2023
- Tracer study information:
 - October 2021 tracer study successfully measured travel time from DIW-1 to the Paralta well
 - October 2022 tracer study, as of mid-June 2023:
 - DIW-4 tracer detected at the Ord Grove well after 7.5 months
 - DIW-4 tracer not detected at the Seaside Muni 4 well
 - DIW-3 tracer not detected at the Paralta well
 - Travel times calculated during the time period September through November of 2022:
 - From DIW-1 to the Paralta well ranged between 4.9 and 5.2 months
 - From DIW-2 to the Paralta well ranged between 7.5 and 7.6 months
 - From DIW-3 to ASR-3 and ASR-4 ranged between 6.7 and 6.8 months
 - ASR-4 will be included in tracer sampling when the well is certified for municipal production

- ASR-4 has a mercury removal treatment device installed and Cal Am expects it to be given the OK to begin being used as a production well in mid-July.
- M1W is pursuing a Title 22 Engineering Report addendum to enable the PWM project to increase its yield. It will probably take several more months to complete getting State approval of this.
- Bidding is in progress for construction of the Pure Water Monterey Expansion project.
- The next meeting of this group will be in late September 2023.

Monterey Subbasin GSP Implementation Committee Meeting, June 28, 2023:

Items discussed at this meeting included:

- DWR approved the Monterey Subbasin GSP with a list of Recommended Corrective Actions (RCAs). These pertained to getting more or better data to support the GSP, minimum thresholds for chronic lowering of groundwater levels, and revising the definition of undesirable results for degraded water quality.
- Committee members expressed some concern that the RCAs did not pertain to “solving the problem” of chronic lowering of groundwater levels.
- There was an abbreviated presentation on the proposed tiered fee structure that was made at the June 15th Advisory Committee meeting. Committee members expressed some concern about the high costs to be charged to users in the Monterey Subbasin under the proposed fee structure.
- Concern was also expressed about the ability to achieve sustainability in the Monterey Subbasin within the time frame required by the SGMA.

SUMMARY OF
PURE WATER MONTEREY, AND
SALINAS VALLEY AND
MARINA COAST WATER DISTRICT GROUNDWATER SUSTAINABILITY
AGENCY ZOOM MEETINGS
IN JULY 2023

Note: This is a synopsis of information from these meetings that may be of interest to the Seaside Basin Watermaster

SVBGSA Groundwater TAC July 27, 2023:

This meeting was held for Montgomery & Associates to provide an update on the Deep Aquifers study. Principal items discussed of interest to the Watermaster included:

- Field studies are in progress to gather more data.
- The water budget and draft management guidance will be developed later this year.
- Today's meeting was not to be a political discussion, but only to focus on technical issues.
- There was a review of the definition of Deep Aquifers
 - They used several sources of "existing lines of evidence" i. e. various reference sources including data from MCWRA, data from DWR AEM, data from Thorup papers, and WCR
 - They a lateral extent map to show where the deep offer is believed to exist.
 - They re-ran the AEM survey with more sensitive equipment and got better results
 - They ground-truthed the AEM data to the extent possible.
- They then went through a discussion of each of the seven areas that were evaluated
- The Coastal Southwest Extent is the area within which the Seaside Groundwater Basin is located.
 - The geology in this area is complex.
 - They tried to correlate geologic layers within each of the adjacent subbasins including Pajaro, 180/400 foot, Monterey, and Seaside.
 - AEM data is not very good at detecting chloride levels below 3,000 mg/L. The interpretation can be confused with some other strata that is not seawater.
 - Low resistivity readings can also be indicative of clay layers, not necessarily seawater intrusion.
- There are lots of data gaps making it difficult to interpret some of the results of the AEM data.
- They used the best reasonable Deep Aquifers extent interpretation to develop the lateral extent map.
- They are exploring remaining questions with the best available data.
- They cannot determine whether or not aquifers extend out into the bay. The conclusion is the greatest threat of seawater intrusion is downward migration from the shallow aquifers that do extend into the bay and which overlie the deeper aquifers.