MEETING NOTICE AND AGENDA

TECHNICAL ADVISORY COMMITTEE OF THE SEASIDE BASIN WATER MASTER

DATE: Wednesday, July 8, 2020
MEETING TIME: 1:30 p.m.

IN KEEPING WITH GOVERNOR NEWSOMS EXECUTIVE ORDERS N-29-20 AND N-35-20, THE TECHNICAL ADVISORY COMMITTEE MEETING WILL BE CONDUCTED BY TELECONFERENCE AND WILL NOT BE HELD IN THE MONTEREY ONE WATER OFFICES.

YOU MAY ATTEND AND PARTICIPATE IN THE MEETING AS FOLLOWS:
JOIN FROM A PC, MAC, IPAD, IPHONE OR ANDROID DEVICE (NOTE: ZOOM APP MAY NEED TO BE DOWNLOADED FOR SAFARI OR OTHER BROWSERS PRIOR TO LINKING) BY GOING TO THIS WEB ADDRESS:
https://us02web.zoom.us/j/83510243520?pwd=d2JKSEJFWk1kdUR4ODg5UVZNNkQ4UT09
If joining the meeting by phone, dial either of these numbers:
+1 408 638 0968 US (San Jose)
+1 669 900 6833 US (San Jose)
If you encounter problems joining the meeting using the link above, you may join from your Zoom screen using the following information:
Meeting ID: 835 1024 3520
Password: 352424

OFFICERS
Chairperson: Jon Lear, MPWMD
Vice-Chairperson: Tamara Voss, MCWRA

MEMBERS
California American Water Company | **City of Del Rey Oaks** | **City of Monterey**
City of Sand City | **City of Seaside** | **Coastal Subarea Landowners**
Laguna Seca Property Owners | **Monterey County Water Resources Agency**
Monterey Peninsula Water Management District

The next regular meeting will be held on Wednesday August 12, 2020 at 1:30 p.m. That meeting will likely also be held via teleconference.

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE

** * * AGENDA TRANSMITTAL FORM * * **

MEETING DATE:	July 8, 2020
AGENDA ITEM:	2.A
AGENDA TITLE:	Approve Minutes from the June 10, 2020 Meeting
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:

Draft Minutes from this meeting was emailed to all TAC members. Any changes requested by TAC members have been included in the attached version.

ATTACHMENTS:	Minutes from this meeting
RECOMMENDED ACTION:	Approve the minutes

D-R-A-F-T
MINUTES

Seaside Groundwater Basin Watermaster
Technical Advisory Committee Meeting
June 10, 2020
(Meeting Held Using Zoom Conferencing)

Attendees: TAC Members

City of Seaside – Scott Ottmar
California American Water – Tim O'Halloran
City of Monterey – Tom Harty
Laguna Seca Property Owners – Wes Leith
MPWMD – Jon Lear
MCWRA – Tamara Voss
City of Del Rey Oaks – John Gaglioti
City of Sand City – Leon Gomez
Coastal Subarea Landowners – No Representative

Watermaster
Technical Program Manager - Robert Jaques
Administrative Officer – Laura Paxton

Consultants
Montgomery & Associates – Georgina King and Derrik Williams (for Agenda items 3 and 4)

Others
California American Water – Chris Cook

The meeting was convened at 1:40 p.m. after resolving Zoom log-in problems

1. Public Comments
There were no public comments.

2. Administrative Matters:

A. Approve Minutes from the March 11, 2020 Meeting
On a motion by Mr. O'Halloran, seconded by Mr. Gomez, the minutes were unanimously approved as presented, with Ms. Voss abstaining because she had not participated in that meeting.

B. Sustainable Groundwater Management Act (SGMA) Update
Mr. Jaques summarized the agenda packet materials for this item. There was no other discussion.

C. Groundwater Modeling Done for the Pure Water Monterey Expansion Supplemental EIR
Mr. Jaques summarized the agenda packet materials for this item.

Mr. Gaglioti asked if any further questions about the SEIR modeling work could be raised. Mr. Jaques responded that they could be raised, but that he was not sure of the status of certification of the SEIR.

There were multiple questions raised and responses provided regarding the groundwater modeling work done for the Pure Water Monterey Expansion Project.

Mr. Lear commented that, with regard to the current problem with the existing shallow (vadose zone) injection well, in areas further to the north of the present injection well location the Paso Robles aquifer has hydrogeologic properties better suited for injection. Investigation work is in progress to determine what needs to be done to correct the current vadose well injection problem.

3. Review of Previously Performed Laguna Seca Subarea Modeling Work

Mr. Jaques and Mr. Lear introduced this topic with a brief overview of the previously performed Laguna Seca Subarea (LSSA) modeling work.

Georgina King of Montgomery and Associates provided a comprehensive PowerPoint presentation describing that work. Copies of the PowerPoint slides are attached to these meeting minutes.

Ms. King noted that the greatest benefit of reducing pumping in the LSSA is raised groundwater levels in the central portion of the LSSA where the majority of the production wells are located.

Ms. King also noted that much more pumping is occurring outside and adjacent to the LSSA than is pumped within the LSSA itself.

In response to a question from Mr. Leith, Ms. King said that increases in groundwater levels in the last 10 years of the modeling scenario is due at least in part to the projected hydrologic cycle having more rainfall during that timeframe.

Mr. Lear went on to point out that when this modeling work was done, future hydrologic cycles were "best guesses" based on historical hydrologic patterns. In the most recent years actual rainfall data, which showed that more rainfall occurred than was predicted, could be used to more accurately predict groundwater levels in the early years of the modeling scenario.

Mr. Gaglioti asked if the Corral de Tierra wells were drawing water from the Paso Robles aquifer. Ms. King said she believed at least some of them were, but there was limited production well data available to her for that subarea.

Mr. Gaglioti asked if some of the LS SA wells were also pumping from the Paso Robles aquifer, and Ms. King responded that they were.

Mr. Gaglioti asked if increasing LSSA pumping from the Paso Robles aquifer would reduce or prevent loss of water to the Corral de Tierra subarea. Ms. King responded yes, but that increasing pumping might exceed the Decision-mandated allowances for groundwater pumping by producers in the LSSA and that groundwater levels would drop due to the increased pumping.

Mr. Jaques noted that the lowered groundwater levels resulting from increased pumping in the LSSA would cause higher pumping lifts which would be an additional operational expense for well owners. Further, since the well owners are already pumping the quantities of water that they need to meet their demands, there would have to be some way of using the additional water that was pumped. Also, if

groundwater levels fell deep enough, they might reach the bottom of the Paso Robles aquifer. Mr. Lear added that the Decision requires that "material injury" be prevented, and a determination would need to be made as to whether or not increased pumping would lead to "material injury."

Ms. Voss commented that the solution to the falling groundwater levels in the LSSA will require having measures included in the Corral de Tierra subarea Groundwater Sustainability Plan to help mitigate the problem.

4. Discussion of Possibly Modeling Certain Scenarios Related to the Monterey Peninsula Water Supply Project and an Expansion of the Pure Water Monterey Project

Mr. Jaques summarized the agenda packet materials for this item. In his comments, Mr. Jaques said that he felt the proposal should include making a presentation of the findings of that work to the Board, and not just to the TAC, and that there would be some additional expense for that additional presentation.

Mr. Gaglioti said he had not expected this work to cost as much as was being proposed, because he thought that existing reports and data could be used for this purpose. He also noted that the supply and demand assumptions in the proposal were different from those that were used in the previous Pure Water Monterey Project EIR. He commented that as far as he knew, only the Monterey Peninsula Water Management District had adopted the revised supply/demand assumptions from Mr. Stoldt's memo. He said he would rather have the Watermaster Board decide if it wants to spend this level of money to perform this work, and if it wants to use Monterey Peninsula Water Management District's supply/demand forecast rather than the previously used supply/demand forecast. Ms. Voss reported that Monterey County Water Resources Agency was also hesitant to use the Monterey Peninsula Water Management District's supply/demand figures.

Mr. Lear asked Mr. Gaglioti what information he was hoping to gain from performing this work. Mr. Gaglioti said he was interested in learning how much additional groundwater recharge would be needed to reach protective levels within the Seaside basin, and whether that amount of recharge water could be obtained.

Mr. Williams said that with regard to the supply/demand estimates, the model simulations include not having the desalination plant. He said that if the previous supply/demand values were used, and the desalination plant was not built, groundwater levels would be lower, and that if the Pure Water Monterey Expansion Project was also not built, then the problem would be even worse.

Mr. Jaques said it was his recollection that previous modeling work had predicted what groundwater levels would be without the desalination plant.

Mr. Williams and Mr. Lear said it would be necessary to see if Cal Am could meet their Cease-And-Desist Order requirements under either of the proposed scenarios. They went on to say that without some additional water source for recharge, the only way to stabilize groundwater levels would be to further reduce pumping.

Mr. Jaques offered to review the previous modeling work and to discuss these issues with Ms. King and Mr. Williams and provide to the TAC at its next meeting a summary of what information that work provides on this topic. There was consensus in support of Mr. Jaques' proposal.

5. Schedule

Mr. Jaques reported that he anticipated the need for TAC meetings in July, August, and September in order to complete work necessary to prepare the Monitoring and Management Plan, and its associated budgets, for 2021, and to develop the consultant contracts for 2021, so they could be presented to the

Budget and Finance Committee and then to the Board. He noted that there would likely not be a need to have a TAC meeting in October or December, but one would be needed in November.

6. Other Business

There was no other business to discuss.

The meeting adjourned at 3:06 p.m.

Summary of Past Groundwater Modeling Work in the Laguna Seca Subarea

Presented to Seaside Basin Technical Advisory Committee

June 10, 2020

Georgina King, PG., C.Hg.

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Summary of Groundwater Modeling for the Seaside Basin Watermaster

Year, Modeler	Model Area	Purpose
2013/2014, HydroMetrics	Basin	Estimate Laguna Seca Subarea safe yield
2016, Hydrometrics	Basin	Groundwater flow divides within and east of the Laguna Seca subarea

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Difference Between Laguna Seca Subarea Modeling Projects

Safe Yield (2013/2014)

- Determine impacts from potential pumping changes within and outside of the subarea
- Estimate the Natural Safe Yield and Operational Safe Yield

Groundwater Divide (2018)

- Map existing and potential future groundwater divides based on groundwater model simulations
- Show flow directions

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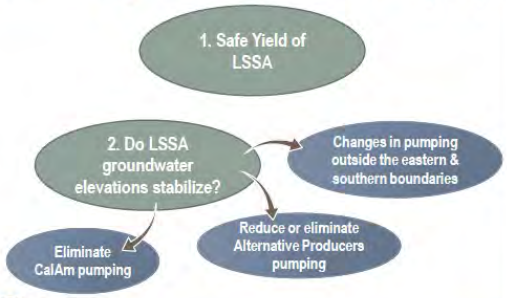
Estimate Laguna Seca Subarea Safe Yield (2014)



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Safe Yield Background

- The Decision safe yield for the Laguna Seca subarea at 608 AF/year
- Safe yield is generally defined as the amount of water that can be pumped from a basin without causing undesirable impacts
- Safe yield is achieved when all groundwater levels stabilize by the end of the model simulation

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Baseline Scenario Establishes Safe Yield

- Cal-Am's 25 Year Replenishment Plan
- Alternative Producers pump at 2011 rates
- Laguna Seca pumping ≈ 520 acre-feet/year

Safe Yield = Recharge + Inflow – Subsurface Outflow

- Annual average natural safe yield = 248 AF/year based on mass balance
- **Model scenario with LSSA pumping at 248 AF/year failed to achieve stable groundwater levels because of changing flows into and out of the LSSA**

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Does reducing or eliminating pumping by Alternative Producers in the LSSA appreciably reduce the rate at which groundwater levels are falling in the LSSA?

Three Scenarios

1. Current Alternative Producer Pumping (520 acre-feet/year)
2. "Safe Yield" Pumping (248 acre-feet/year)
3. No Alternative Producer Pumping

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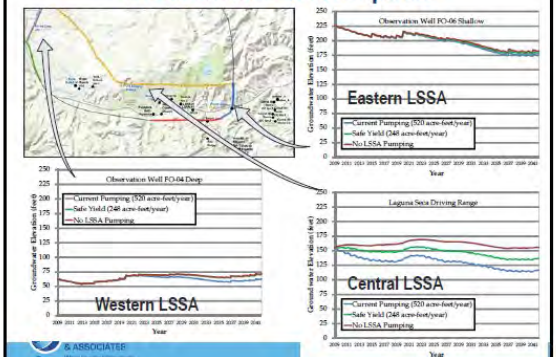
Groundwater Level Impacts



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Influence from Wells East of LSSA

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What is the impact on groundwater levels in the LSSA from pumping outside the eastern and southeastern boundaries of the LSSA?

Four Outside Pumping Scenarios

1. No Outside Pumping
2. Half of Existing Pumping
3. No Toro Wells Pumping
4. Existing Pumping

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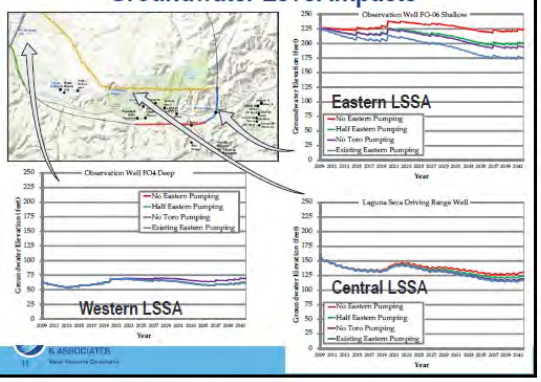
Groundwater Level Impacts



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Conclusions

LSSA pumping is concentrated in the central LSSA

- Reducing LSSA pumping significantly reduces the rate of drawdown in the central LSSA
- Reducing LSSA pumping has limited impact on the eastern LSSA

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Conclusions cont.

Pumping east of the LSSA has a significant impact on eastern LSSA groundwater elevations.

- Reducing total pumping or eliminating Toro pumping have similar impacts
- Significant reductions are necessary to prevent all groundwater elevation declines to be consistent with a safe yield of 248 acre-feet/year
- LSSA pumping continues to control central LSSA groundwater elevations

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Questions?

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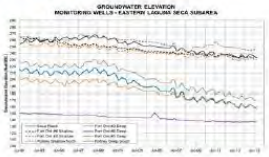
Groundwater Flow Divides Within and East of the Laguna Seca Subarea (2016)

- Declining groundwater levels in the LSSA
- Some areas of LSSA cannot be effectively managed by WM as wells outside of the Basin are causing the declines



- Map existing and future groundwater flow divides based on groundwater model

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Important Notes

- Flow divides are not static features or hard barriers to flow
- They will move in response to pumping stresses and changes in recharge

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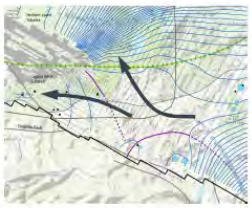
General Results

- Regional flow direction is consistent for all months examined
- Laguna Seca Anticline acts as a barrier to flow, splitting flow into two paths: one flowing west through the LSSA to the south of the barrier and one flowing northwest into the Northern Inland Subarea



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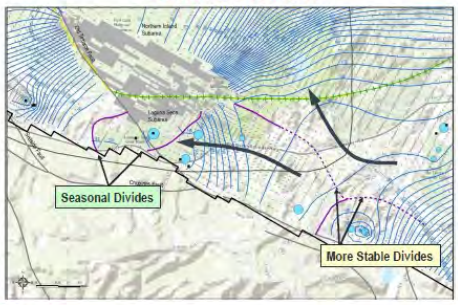
General Results



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Conclusions

- Under simulated future conditions, groundwater levels will continue to decline in east LSSA, but in the western and central portions of the LSSA they will stabilize by the end of the modeling period (2042)
- The divide between LSSA and Corral de Tierra should remain fairly stable
- Under simulated future conditions, groundwater flow in the Paso Robles (shallow) aquifer will switch direction to flow out of the LSSA's eastern boundary towards Corral Tierra
- Because the eastern portion of the LSSA is in greater hydraulic connection with the Corral de Tierra, it will not be possible for WM to implement management strategies to stop declining groundwater levels in the eastern portion of the LSSA

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Questions?

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SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE

** * * AGENDA TRANSMITTAL FORM * * **

MEETING DATE:	July 8, 2020
AGENDA ITEM:	2.B
AGENDA TITLE:	Sustainable Groundwater Management Act (SGMA) Update
PREPARED BY:	Robert Jaques, Technical Program Manager

At the State level:
Since my last update, I have not received any new materials from the State that would impact the Watermaster.

At the Monterey County level:
The Advisory Committee of the Salinas Valley Basin Groundwater Sustainability Agency met via Zoom on June 18, 2020. None of the topics discussed had a direct impact on the Seaside Basin or the Watermaster.

The Seawater Intrusion Working Group of the Salinas Valley Basin Groundwater Sustainability Agency met via Zoom on June 19, 2020. All of the topics discussed pertained to initial organizational and procedural matters and background information. None of the topics discussed had a direct impact on the Seaside Basin or the Watermaster.

The first meeting of the Monterey Subbasin GSP Committee is scheduled to be held on July 7, 2020. It will be a Zoom meeting and I plan to attend.

ATTACHMENTS:	None
RECOMMENDED ACTION:	None required – information only

SEASIDE BASIN WATER MASTER TECHNICAL ADVISORY COMMITTEE

** * * AGENDA TRANSMITTAL FORM * * **

MEETING DATE:	July 8, 2020
AGENDA ITEM:	2.C
AGENDA TITLE:	Formation of Seaside Water Quality and Operations Committee
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:

The email invitation below was received from M1W in late June:

The commissioning of the Pure Water Monterey Project is well underway, and this critical water supply is ready to serve the community. As we move into annual operations, we want to ensure the communication and collaboration amongst key project stakeholders remains strong.

Borrowing from our inaugural water project – the 22-year old Castroville Seawater Intrusion Project (CSIP) – a key to success has been the implementation of a standing, monthly committee that reviews the operations, maintenance, and water quality parameters of the project. The committee also provides guidance on items such as capital improvement and industry research, trends, and updates.

To create a fluid dialogue and dissemination of information, M1W proposes the creation of a similar committee to oversee Pure Water Monterey and the injection of advanced purified water into the Seaside Groundwater Basin. With recognition this will add an additional monthly obligation for those with already busy schedules, we believe this will greatly assist in the overall management of Pure Water Monterey. And the more stakeholders who participate, the greater the communication chain.

To begin forming this committee, we ask you to complete this Interest Form (see link below). This will help in identifying availability and ideas for additional participants if needed. One potential meeting idea is to piggyback on an existing monthly meeting like the Seaside Basin Watermaster. There is a section in the form to express interest/concern for this concept or similar ideas.

Our goal is to work through committee formation logistics in the coming weeks and be able to start meeting (remotely or in-person) by late summer.

Stay tuned and we look forward to working together as we build a safe and sustainable basin and water supply.

https://forms.office.com/Pages/ResponsePage.aspx?id=XT4GeIpx4Ee8mfHSFcuj92qtM1VdY5dMhpUWXQFEfsNUMlFUTjdHRVZEMkFRRzhNQVIyMVk3QVRGWi4u

Mike McCullough, MPA
Director of External Affairs

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE

**** * * AGENDA TRANSMITTAL FORM * * ****

AGENDA ITEM:	2.C (Continued)

I submitted my Interest Form to be on this committee so that the Watermaster can be kept abreast of developments in the operation of the PWM Project. I will report to the TAC on items of interest that I learn from those meetings.

ATTACHMENTS:	None
RECOMMENDED ACTION:	None required – information only

SEASIDE BASIN WATER MASTER TECHNICAL ADVISORY COMMITTEE

** * * AGENDA TRANSMITTAL FORM * * **

MEETING DATE:	July 8, 2020
AGENDA ITEM:	2.D
AGENDA TITLE:	Draft EIR for Potential Acquisition of Monterey Water Supply and District Boundary Adjustment Project
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:

The Monterey Peninsula Water Management District has prepared and completed an Environmental Impact Report (EIR) for the Potential Acquisition of Monterey Water Supply and District Boundary Adjustment Project. The Notice of Availability (NOA) of this EIR is attached.

Also attached is the Executive Summary from the Draft EIR.

This material is presented to the TAC for information, no action is required.

ATTACHMENTS:	1. Notice of Availability of the Draft EIR 2. Executive Summary from the Draft EIR
RECOMMENDED ACTION:	None required – information only

NOTICE OF AVAILABILITY OF AN ENVIRONMENTAL IMPACT REPORT FOR THE POTENTIAL ACQUISITION OF MONTEREY WATER SYSTEM AND DISTRICT BOUNDARY ADJUSTMENT PROJECT EIR

TO: Public Agencies
Interested Parties

FROM: Monterey Peninsula Water Management District
5 Harris Court, Building G
Monterey, CA 93940
(831) 658-5600

The Monterey Peninsula Water Management District (District), as Lead Agency, hereby gives notice that pursuant to the authority and criteria contained in the California Environmental Quality Act (CEQA) and the State CEQA Guidelines, the District has prepared and completed a Draft Environmental Impact Report (EIR) for the proposed Potential Acquisition of Monterey Water System and District Boundary Adjustment Project (proposed project). A Draft EIR is an informational document that evaluates a proposed project's potential to significantly impact the environment, while also identifying ways to reduce or avoid environmental impacts through mitigation measures and alternatives to the project.

Agencies: The District requests your agency's views on the scope and content of the environmental information relevant to your agency's statutory responsibilities in connection with the proposed project, in accordance with California Code of Regulations, Title 14, Section 15082(b). Your agency may need to use the EIR prepared by the District when considering any permits that your agency must issue or for any other approval for the project.

Interested Parties: The District requests your comments and concerns regarding the environmental issues associated with implementation of the proposed project.

Project Title: Potential Acquisition of Monterey Water System and District Boundary Adjustment

Project Location: The project area is within Monterey County and includes the Monterey Water System (MWS), currently served by the California American Water Company (CalAm) (Figure 1). This area is approximately 55 square-miles and includes approximately 40,000 customer connections. The project area is located within the Monterey Peninsula region and is bordered by California State University - Monterey Bay and the former Fort Ord to the north, unincorporated Monterey County to the east, the Big Sur coast and the Santa Lucia Mountains to the south, and the Pacific Ocean to the west. The majority of the project area is in District jurisdiction; however, the proposed project would also include connections to adjacent areas outside of the District's current service area. Specifically, these connections include approximately 33 residential connections at Yankee Point, south of the District boundaries; and 10 residential connections in Hidden Hills, east of the District boundaries. Thus, the project area includes the MCD water system, which entails areas within the current District boundaries plus these annexation areas, as shown in Figure 2.

Project Sponsor: Monterey Peninsula Water Management District
5 Harris Court, Building G
Monterey, CA 93940
Attn: David Stoldt, MPWMD General Manager

Project Description:

As instructed by the voters pursuant to Measure J, the District is proposing to acquire the MWS, that serves the Monterey Peninsula and outlying areas within unincorporated Monterey County and within the District's jurisdiction; the acquisition and subsequent operation of this water supply system by the District represents the proposed project. The existing system is currently owned and operated by CalAm, a subsidiary of the publicly-traded company, American Water Works Company, Inc. The District's proposed acquisition of the MWS would include all associated assets (i.e., real, intangible, and personal property) including, but not limited to:

- Water systems and production wells
- Utility plants
- Water rights
- Water supply contracts
- Records, books, and accounts

The proposed project includes the District's subsequent operation and maintenance of the MWS. The District is proposing only to acquire and operate the existing MWS, and is not proposing changes or expansion to the physical MWS or to the associated water rights nor is the District proposing any changes to the manner of operation of the MWS or the exercise of the associated water rights.

Currently, the primary source of water for the MWS is supplied to customers from the Carmel River and the Seaside Groundwater Basin with a majority of supplies from the Carmel River coming from water withdrawn from the Carmel Valley Alluvial Aquifer. Since 2003, CalAm has not pumped any of its supply directly from the Carmel River. These supplies are supplemented through withdrawals from the Seaside Groundwater Basin, an adjudicated basin. The District's acquisition of CalAm's water rights would entitle the District to the currently established allocations assigned to CalAm and would require the District meet the same standards in terms of replenishment if it were to exceed established limits on withdrawals.

In addition to water rights, the MWS includes infrastructure that allows for the production, distribution, and delivery of water supplies within its service area. Existing MWS facilities, infrastructure, and land include, but not limited to: lease of the Sand City Desalination Plant, 33 water wells, six water treatment facilities, 614 miles of pipeline, the Monterey Pipeline and Pump Station, 74 pump stations and one planned pump station (Carmel Valley Pump Station), 108 water storage facilities, 117 assessor parcels with a total area of approximately 4,753 acres that generally support system infrastructure (e.g., groundwater wells and water storage tanks), and associated fire hydrants and distribution valves. In addition, the MWS includes planned facilities associated with the Monterey Peninsula Water Supply Project (MPWSP) including the 6.4 million gallons per day Desalination Plant with sub-surface intake wells and related infrastructure improvements to convey source water to the MPWSP Desalination Plant, deliver product water, and dispose of brine.

The underlying purpose of the proposed project is for the District to acquire, operate, and maintain the MWS. The objectives of the proposed project are to implement the Purpose approved by the electorate in Measure J:

> "…to ensure the long-term sustainability, adequacy, reliability, cost-effectiveness and quality of water service within the Monterey Peninsula Water Management District area, to lower the cost of service to ratepayers, to promote and practice sustainable water management measures, and to establish public ownership of water system assets by establishing regulations requiring the District to take affirmative action, to the extent financially feasible, to acquire the water system assets owned and operated by the California American Water Company that currently provide water service to the District and its ratepayers."

The purpose of Measure J furthered by this proposed project shall include the following aspects:

- Allow the Monterey Peninsula to independently own and operate the water production and distribution system serving customers presently served by the CalAm's MWS
- Provide greater transparency and accountability to residents and businesses on the Monterey Peninsula regarding potable water supplies, as well as increased customer service and reliability
- Enhance customer service and responsiveness to affected CalAm customers
- Provide greater local control over the rate setting process and rate increases
- Provide direct access to locally elected policy makers for water operations
- Allow the District to pursue funding and other financing alternatives available to public agencies for future infrastructure needs, including grants and financing options not available to a California Public Utilities Commission (CPUC) regulated, privately-owned utility
- Ensure better coordination amongst local governmental decisions involving land use, emergency services, policy, the location and need for capital improvements, and overall planning in the water context

Implementation of the proposed project would require the following discretionary approvals:

- Approval by District Board of Directors for acquisition of the existing MWS that services the District, and some outlying areas, from CalAm or other legal owner
- Reports under Government Code section 65402
- If the MWS is acquired through a negotiated purchase, the District will need to obtain approval from the CPUC for transfer of ownership and operation of the MWS from CalAm to the District
- The Monterey County Local Agency Formation Commission (LAFCO) would also review and/or approve the project insofar as the project involves the District's acquisition and potential operation of extra-jurisdictional water systems

Potential Environmental Effects: The EIR addresses the potential physical environmental effects of the proposed project for each of the environmental topics outlined in the CEQA Guidelines, Appendix G. The EIR also addresses the cumulative impacts resulting from other past, present and reasonably foreseeable future projects. The EIR focuses on potential environmental impacts to the following resource areas: Air Quality, Greenhouse Gas Emissions, Hydrology and Water Quality, Noise, Transportation, and Utilities. The project would result in significant but mitigable impacts related to Greenhouse Gas Emissions. The EIR did not identify any significant and unavoidable project impacts. Portions of the project area include sites enumerated under Section 65962.5 of the Government Code.

Public Review Period: The District has made this Draft EIR available for public review and comment pursuant to California Code of Regulations, Title 14, Section 15082(b). Your response must be sent as soon as possible but not later than 45 days after receipt of this notice. All comments must be submitted in writing to the address below. The comment period during which the District will receive comments on the Draft EIR is:

Starting Date: June 18, 2020
Ending Date: August 3, 2020

Document Availability: The Draft EIR may be viewed on the District's website at https://www.mpwmd.net/resources/measure-j-information/. In light of the ongoing Coronavirus (COVID-19) pandemic and shelter-in-place regulations required throughout all of Monterey County, District offices remain closed to the public. As a result, public access to the Draft EIR can either be provided via a CD upon request or a hard copy of the Draft EIR can be viewed physically by appointment at the District offices located at the address below. Interested public members who wish to receive a CD or physically view a hard copy of the Draft EIR can make their request to: Arlene Tavani, Executive Assistant, Monterey Peninsula Water Management District via phone: (831) 658-5652 or email: Arlene@mpwmd.net. Also a hard copy will be available for curbside pick-up at the City of Monterey Public Library, 625 Pacific St, Monterey, CA 93940, Tuesday through Saturday from 11 a.m. to 6 p.m.

Public Meeting. All interested parties are invited to attend a public meeting to comment on the Draft EIR. The public meeting will be held on:

Thursday, July 9, 2020, at 5:00 p.m. Due to the COVID-19 shelter-in-place regulations this meeting will be held via Zoom, instruction to attend will be provided on the District website at: https://www.mpwmd.net/resources/measure-j-information/

Comments: All comments must be received no later than 5:00 p.m. on Monday, August 3, 2020. Please indicate a contact person for your agency or organization and send your comments to:

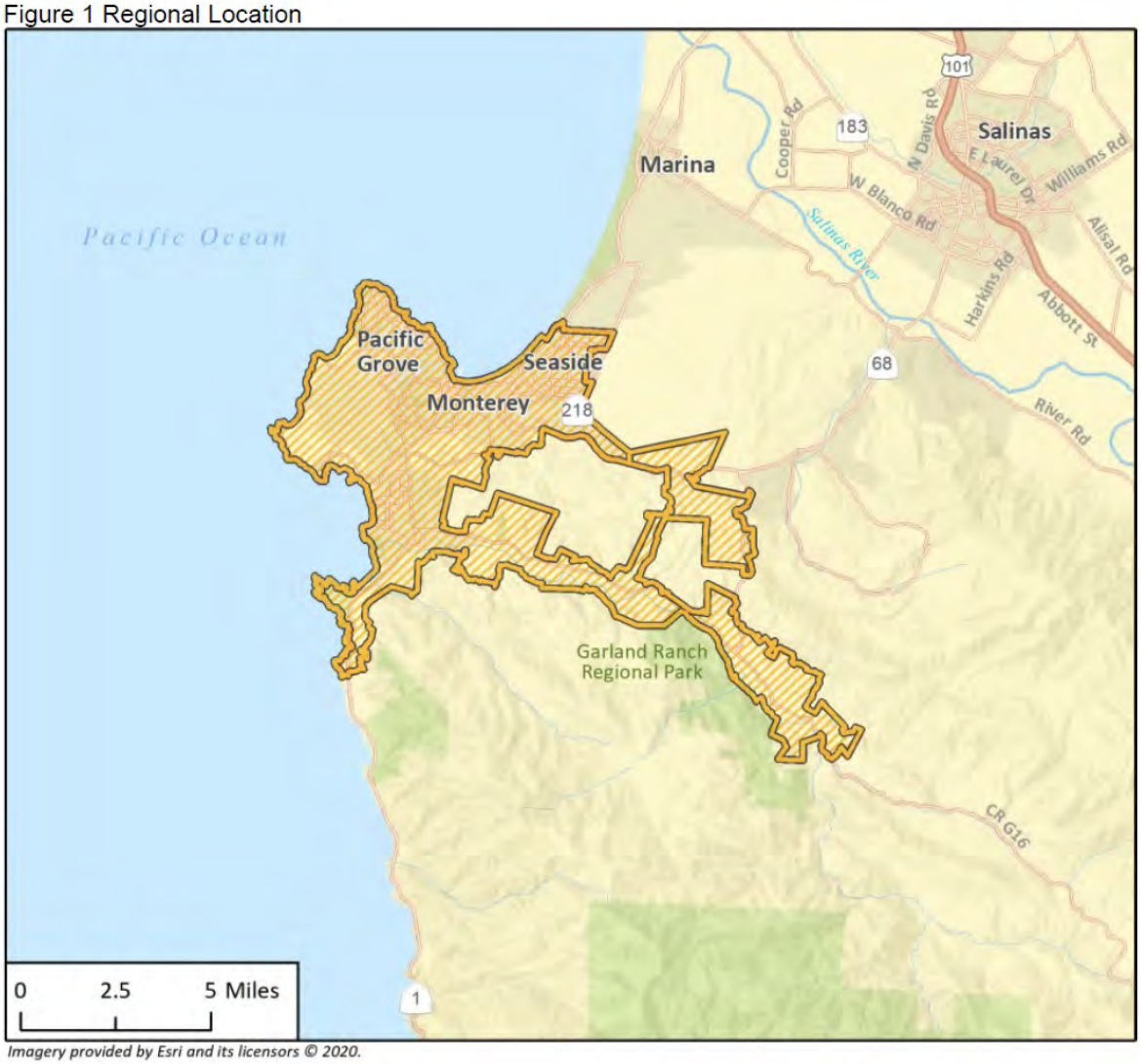
David Stoldt, General Manager
Monterey Peninsula Water Management District
5 Harris Court, Building G
Monterey, CA 93940
Fax: (831) 644-9560
Email: comments@mpwmd.net

Signature

June 12, 2020
Date

David Stoldt, MPWMD General Manager

Figure 1 Regional Location



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Monterey Water System

N

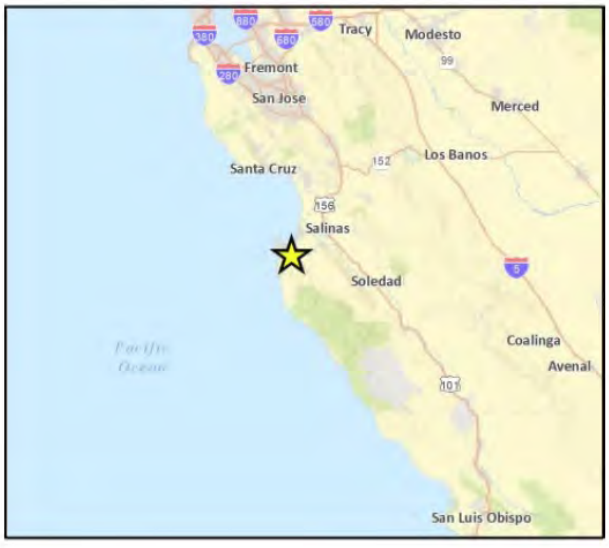
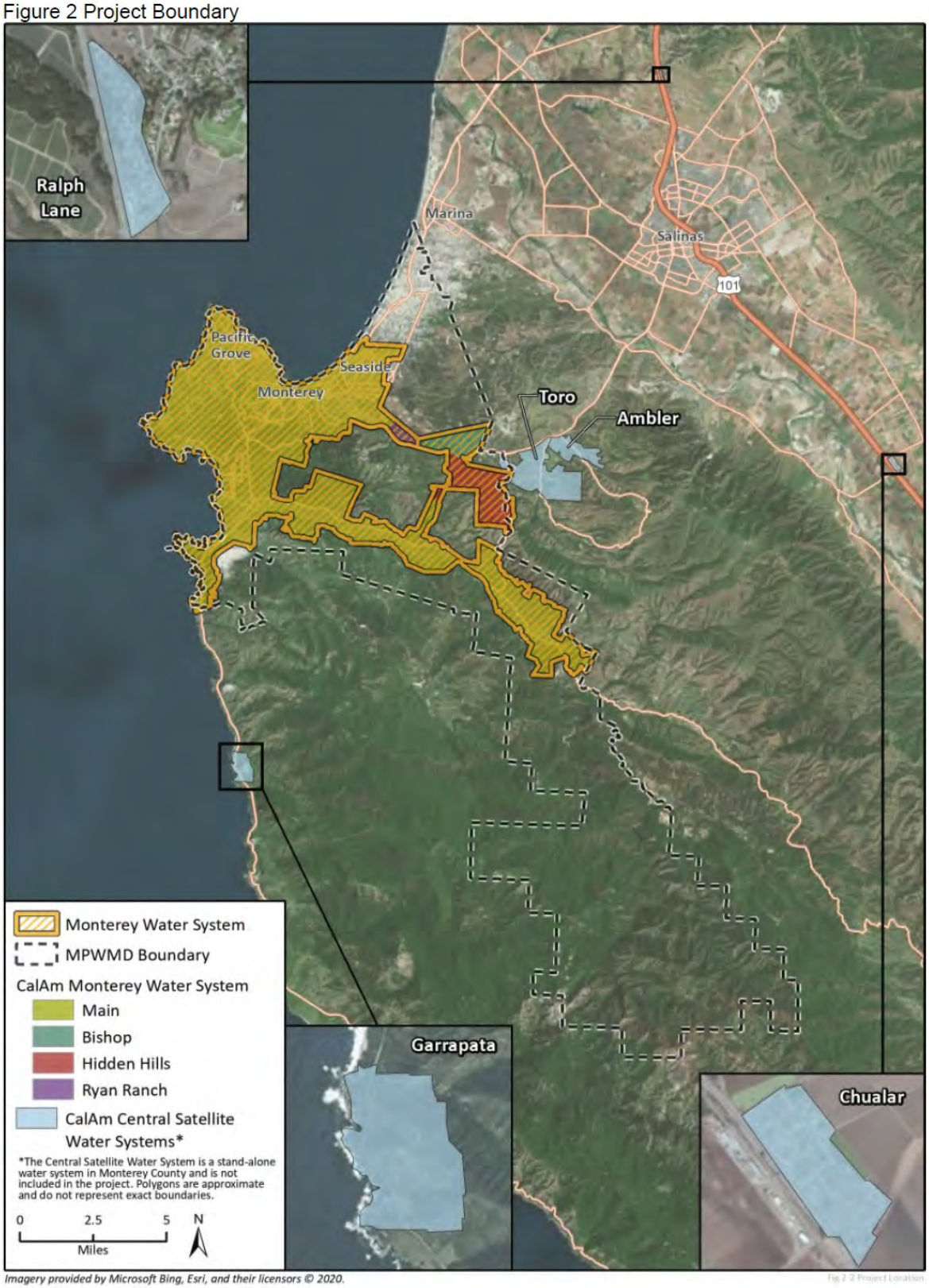


Figure 2 Project Boundary



Potential Acquisition of Monterey Water System and District Boundary Adjustment

Draft Environmental Impact Report

prepared by

Monterey Peninsula Water Management District
5 Harris Court, Building G
Monterey, California 93940
Contact: David Stoldt, General Manager

prepared with the assistance of

Rincon Consultants, Inc.
437 Figueroa Street, Suite 203
Monterey, California 93940

June 2020

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
rinconconsultants.com

Executive Summary

This document is an Environmental Impact Report (EIR) analyzing the environmental effects of the proposed Potential Acquisition of Monterey Water System and District Boundary Adjustment Project (proposed project or project). This section summarizes the characteristics of the proposed project, alternatives to the proposed project, and the environmental impacts and mitigation measures associated with the proposed project. The Monterey Peninsula Water Management District (District) is proposing to acquire from California American Water (CalAm) the Monterey Water System. The project involves acquisition and operation of the Monterey Water System (MWS) as well as an adjustment to the District's service boundaries.

Project Synopsis

Project Proponent/Lead Agency

Monterey Peninsula Water Management District
5 Harris Court, Building G
Monterey, California 93940
(831) 658-5600

Lead Agency Contact Person

David Stoldt, General Manager
Monterey Peninsula Water Management District
5 Harris Court, Building G
Fax: (831) 658-5651
Email: comments@mpwmd.net

Project Description

This EIR has been prepared to examine the environmental effects of the Potential Acquisition of Monterey Water System and District Boundary Adjustment project. The following is a summary of the full project description, which can be found in Section 2, *Project Description*.

Project Location

The project area is within Monterey County and includes the MWS, currently served by CalAm. This area is approximately 55 square miles and includes approximately 40,000 customer connections. The project area is located within the Monterey Peninsula region and is bordered by California State University – Monterey Bay and the former Fort Ord to the north, unincorporated Monterey County to the east, the Big Sur coast and the Santa Lucia Mountains to the south, and the Pacific Ocean to the west. Customer connections in the project area are within the Cities of Carmel-by-the-Sea, Del Rey Oaks, Monterey, Pacific Grove, Sand City, and Seaside, and unincorporated areas of Monterey County.

Project Background

In November 2018, Monterey Peninsula voters passed Measure J, which added Rule 19.8 to the District's Rules and Regulations, instructing the District to undertake a feasibility study on the public

take-over of CalAm's MWS. In August 2019 the District released "A Plan to Adopt and Implement a Policy to Secure and Maintain Public Ownership of All Water Production, Storage and Delivery System Assets and Infrastructure Providing Services within the Monterey Peninsula Water Management District Territory."

Project Characteristics

The proposed project would involve the District acquiring the MWS that currently serves the District's service area as well as approximately 43 new residential connections currently served by CalAm that would be annexed into the District's service area. The project also includes the subsequent operation of the MWS by the District. The District would operate and maintain the system from CalAm's existing main office, operations center, and corporate yard as well as the existing District administrative building. No changes or expansion to the physical MWS or associated water rights are proposed.

Project Objectives

The underlying purpose of the proposed project is for the District to acquire, operate, and maintain the MWS. The objectives of the proposed project are to implement the Purpose approved by the electorate in Measure J:

> "...to ensure the long-term sustainability, adequacy, reliability, cost-effectiveness and quality of water service within the Monterey Peninsula Water Management District area, to lower the cost of service to ratepayers, to promote and practice sustainable water management measures, and to establish public ownership of water system assets by establishing regulations requiring the District to take affirmative action, to the extent financially feasible, to acquire the water system assets owned and operated by the California American Water Company that currently provide water service to the District and its ratepayers."

The Purpose of Measure J furthered by this proposed project shall include the following aspects:

- Allow the citizens of the Monterey Peninsula to independently own and operate the water production and distribution system serving customers presently served by the CalAm's MWS;
- Provide greater transparency and accountability to residents and businesses on the Monterey Peninsula regarding potable water supplies, as well as increased customer service and reliability;
- Enhance customer service and responsiveness to affected CalAm customers;
- Provide greater local control over the rate setting process and rate increases;
- Provide direct access to locally elected policy makers for water operations;
- Allow the District to pursue funding and other financing alternatives available to public agencies for future infrastructure needs, including grants and financing options not available to a CPUC-regulated, privately-owned utility; and,
- Ensure better coordination amongst local governmental decisions involving land use, emergency services, policy, the location and need for capital improvements, and overall planning in the water context.

Alternatives

As required by the California Environmental Quality Act (CEQA), this EIR examines alternatives to the proposed project. Studied alternatives include the four alternatives described below. For full

descriptions and analysis of alternatives, refer to Section 6, *Alternatives*. Based on the alternatives analysis, none of the alternatives were determined to be environmentally superior to the proposed project. Environmental effects would be similar across all alternatives, including the proposed project, with some impacts greater and some less, depending on the resource topic. Of the alternatives considered, Alternative 3 is considered the environmentally superior alternative.

- Alternative 1: No Project Alternative
- Alternative 2: No Boundary Adjustment Alternative
- Alternative 3: Private Third-Party Operator Alternative
- Alternative 4: No Boundary Adjustment and Third-Party Operator Alternative

Alternative 1 (No Project Alternative) assumes that the proposed acquisition of the MWS by the District would not occur. Specifically, the District would not acquire CalAm's Main, Bishop, Hidden Hills, and Toro water systems and associated assets, including water systems and production wells; utility plants; vehicles and equipment; water rights; water supply contracts; records, books, and accounts; and, easements, and rental property. In addition, since the District would not acquire the MWS, a boundary adjustment to annex service areas into the District would not be necessary and, therefore, would not occur under Alternative 1. Under this alternative, CalAm would continue to operate and maintain the MWS from its existing facilities, including the construction and operation of the Monterey Peninsula Water Supply Project (MPWSP) Desalination Plant.[1] The No Project Alternative would not achieve any of the project objectives because it would not allow the District to implement the purpose approved by the electorate in Measure J.

Alternative 2 (No Boundary Adjustment Alternative) assumes that the proposed acquisition of the MWS by the District would proceed but that the application to annex areas outside of the District's boundaries would not be approved by the Local Agency Formation Commission of Monterey County (LAFCO). Instead, the District's boundaries would remain the same. Areas outside of the District's boundaries that would be annexed under the proposed project - including approximately 33 residential connections within the Main component of the MWS in the Yankee Point area and approximately 10 residential connections in the Hidden Hills component of the MWS - would still be acquired from CalAm by the District under this alternative. However, rather than through an annexation, service by the District would occur under a contract agreement. As a result, operation and maintenance of these areas outside the District would be the same as described under Section 2, *Project Description*; however, the governance structure would be different.

Under Alternative 2, project objectives would be met in areas that are currently within the District service area. However, areas outside of District boundaries would not be annexed, and therefore, customers in those areas would not be allowed to vote for District Board of Directors and would not have direct contract through their municipal elected officials as they would if those areas were annexed. As a result, Alternative 2 would not meet the following objectives for customers outside of District boundaries: provide direct access to locally elected policy makers for water operations; allow the District to pursue funding and other financing alternatives available to public agencies for future infrastructure needs, including grants and financing options not available to a CPUC-regulated, privately-owned utility; and, ensure better coordination amongst local governmental decisions involving land use, emergency services, policy, the location and need for capital improvements, and overall planning in the water context. . However, Alternative 2 would meet the

[1] If approved by the National Environmental Protection Agency lead agency, the Monterey Bay National Marine Sanctuary.

following objectives for citizens outside the District boundaries: provide greater transparency and accountability to residents and businesses on the Monterey Peninsula regarding potable water supplies, as well as increased customer service and reliability; enhance customer service and responsiveness to affected CalAm customers; and provide greater local control over the rate setting process and rate increases. For customers already in the District boundaries, all the objectives would be met, similar to the proposed project. For customers already in the District boundaries, all the objectives would be met, similar to the proposed project.

Alternative 3 (Private Third-Party Operator Alternative) assumes that the proposed acquisition of the MWS by the District would proceed but that CalAm would not make its existing employees available for integration into the District. Instead a private third-party operator would be contracted by the District to operate and maintain the system. The third-party operator would work out of the same operations and maintenance facilities and require the same number of employees to service the MWS (approximately 87 employees) as outlined in Section 2, *Project Description*. Further, employees hired by the third-party contractor would be domiciled locally (Stoldt 2020). The size of the system and the associated infrastructure would be the same for Alternative 3 as under the proposed project and no substantial construction would occur. Therefore, operation and maintenance of the system would remain the same as described in Section 2, *Project Description*, just performed by a third-party operator and not the District. This alternative still would achieve all of the stated project objectives, since the District would still acquire the system and operation and maintenance would remain the same. However, the water pricing reductions would not be as pronounced, due to the additional fees required to hire a third-party operator. Therefore, the purpose stated in Measure J to "to ensure the long-term sustainability, adequacy, reliability, cost-effectiveness and quality of water service within the Monterey Peninsula Water Management District area, to lower the cost of service to ratepayers…" would not be as fully realized as for the proposed project.

Alternative 4 (No Boundary Adjustment and Third-Party Operator Alternative) assumes that the proposed acquisition of the MWS by the District would proceed, but that the application to annex areas outside the District's boundaries would not be approved by LAFCO and the District would hire through a private third-party operator to operate and maintain the system. Instead, similar to Alternative 2, the District's boundaries would remain the same and areas outside the District would be served under contract agreement. In addition, similar to Alternative 3, a third-party operator would be contracted by the District to operate and maintain the system, including both areas within the District service area and areas outside the District's service area served under contract. Under this alternative, operation and maintenance of the system would remain the same. Therefore, the same number of employees would be retained by the third-party contractor as under the proposed project. Further, employees hired by the third-party contractor would be domiciled locally. Similar to Alternative 2, this alternative would not fully realize all of the project objectives because it would not allow the District to fully implement the purpose approved by the electorate in Measure J in these areas that are not annexed. Additionally, similar to Alternative 3, water pricing reductions would be less pronounced. Therefore, the purpose stated in Measure J to "to ensure the long-term sustainability, adequacy, reliability, cost-effectiveness and quality of water service within the Monterey Peninsula Water Management District area, to lower the cost of service to ratepayers…" would not be as fully realized as for the proposed project.

Areas of Known Controversy

The proposed project is the result of Monterey Peninsula voters passing Measure J, as described above and described in more detail in Section 2, *Project Description*. While 23,757 (55.81 percent) voters were in favor, 18,810 (44.19 percent) were opposed (Monterey County 2018). The project would require the purchase of the MWS, which CalAm has not offered for sale. Therefore, the project would potentially involve establishing a price and procedure for the proposed transfer of assets from CalAm to the District. Additionally, water supply and use in the Monterey Peninsula region has historically been the subject of heightened public interest and disagreement. There is known controversy regarding the assets and water rights that the District could obtain through the proposed project, including the proposed construction of the MPWSP Desalination Plant north of the City of Marina. However, that project has undergone a separate environmental review and the environmental effects of the MPWSP are not within the scope of this EIR. Refer to Section 2, *Project Description*, for a full description of MPWSP characteristics.

For a description of additional issues raised during the Notice of Preparation comment period, refer to Table 1-1 in Section 1, *Introduction*.

Issues to be Resolved

Responses to the Notice of Preparation of a Draft EIR and input received at the EIR scoping meeting are summarized in Table 1-1 found in Section 1, *Introduction*.

Issues Not Studied in Detail in the EIR

Section 1.4 lists the environmental topics evaluated in this EIR. Detailed evaluation in this EIR was not necessary for all environmental checklist items. Items that were determined not to be significant are discussed in Section 4.7, *Effects Found Less Than Significant*, and include aesthetics, agriculture and forestry resources, biological resources, cultural resources, energy, geology and soils, hazards and hazardous materials, land use and planning, mineral resources, population and housing, public services, recreation, tribal cultural resources, and wildfire, as well as three criteria for hydrology and water quality and three criteria for utilities and service systems.

Summary of Impacts and Mitigation Measures

Table ES-1 summarizes the environmental impacts of the proposed project, proposed mitigation measures, and residual impacts (the impact after application of mitigation, if required). Impacts are categorized as follows:

- **Significant and Unavoidable.** An impact that cannot be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires a Statement of Overriding Considerations to be issued if the project is approved per §15093 of the CEQA Guidelines.
- **Less than Significant with Mitigation Incorporated.** An impact that can be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires findings under §15091 of the CEQA Guidelines.
- **Less than Significant.** An impact that may be adverse, but does not exceed the threshold levels and does not require mitigation measures. However, mitigation measures that could further lessen the environmental effect may be suggested if readily available and easily achievable.

- **No Impact:** The proposed project would have no effect on environmental conditions or would reduce existing environmental problems or hazards.

Cumulative impacts are addressed at the end of each resource section, Sections 4.1 through 4.6.

Table ES-1 Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measure(s)	Residual Impact
Air Quality		
Impact AQ-1. The proposed project would not conflict with or obstruct implementation of the Monterey Bay Air Resources District (MBARD) 2015 Air Quality Management Plan. No impact would occur.	None required	No Impact
Impact AQ-2. The proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the MBARD region is in nonattainment under applicable federal or state ambient air quality standards. Therefore, impacts would be less than significant.	None required	Less than significant
Impact AQ-3. The proposed project would not expose sensitive receptors to substantial concentrations of carbon monoxide (CO) or toxic air contaminants (TACs). Therefore, impacts would be less than significant.	None required	Less than significant
Impact AQ-4. The proposed project would not create objectionable odors that would adversely affect a substantial number of people. No impact would occur.	None required	No Impact
Greenhouse Gas Emissions		
Impact GHG-1. The proposed project would generate greenhouse gas (GHG) emissions that may have a significant impact on the environment, and implementation of Mitigation Measure GHG-1 would be required. Impacts would be less than significant with mitigation incorporated.	**GHG-1 Greenhouse Gas Reduction Plan for Operational Emissions.** The District shall prepare and implement a Greenhouse Gas Reduction Program that reduces the net increase in GHG emissions of 62.7 metric tons of carbon dioxide equivalents to net zero (i.e., carbon neutral) over the operational life of the proposed project. To meet the net zero requirement, the District must reduce its operational GHG emissions by 62.7 metric tons of carbon dioxide equivalents per year. Potential options include, but would not be limited to, those listed in Table 4.2-2 in Section 4.2, *Greenhouse Gas Emissions*.	Less than significant with mitigation
Impact GHG-2. The proposed project would be consistent with plans, policies, or regulations adopted for the purpose of reducing GHG emissions, and implementation of mitigation measure GHG-1 would be required. Impacts would be less than significant with mitigation incorporated.	**GHG-1 Greenhouse Gas Reduction Plan for Operational Emissions.** *Mitigation Measure GHG-1* text is included above under Impact GHG-1.	Less than significant with mitigation

Impact	Mitigation Measure(s)	Residual Impact
Hydrology and Water Quality		
Impact HYD-1. The proposed project would alter the entity that operates the existing MWS, which could potentially alter the rate structure and fee charged for water service; if a reduction in pricing occurs, water use in the area could potentially increase because water use is linked to cost. However, the operator of the system would be required to comply with the Seaside Groundwater Basin Adjudication Decision, State Water Resources Control Board Order No. WR 2016-0016, and water use reduction strategies and goals contained within 2018 Water Conservation Legislation and the California Water Conservation Act of 2009. As a result, water use rates would continue to decline on a per capital basis regardless of potential changes in the system operator or water rate structures. Therefore, potential impacts to groundwater supply would be less than significant.	None required	Less than significant
Impact HYD-2. The project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. This impact would be less than significant.	None required	Less than significant
Noise		
Impact N-1. The proposed project would not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project area in excess of local standards. Impacts would be less than significant.	None required	Less than significant
Impact N-2. The proposed project would not result in the generation of excessive groundborne vibration or groundborne noise levels. No impact would occur.	None required	No Impact
Impact N-3. The proposed project would not expose staff to excessive noise levels from the Monterey Regional Airport. Impacts would be less than significant.	None required	Less than significant
Transportation		
Impact T-1. The proposed project would not conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. Impacts would be less than significant.	None required	Less than significant
Impact T-2. The project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b). Impacts would be less than significant.	None required	Less than significant

Impact	Mitigation Measure(s)	Residual Impact
Impact T-3. The proposed project would not substantially increase hazards due to a design feature or incompatible uses. No impact would occur.	None required	No Impact
Impact T-4. The project would not result in inadequate emergency access. No impact would occur.	None required	No Impact
Utilities and Service Systems		
Impact UTIL-1. The project would not require or result in the relocation or reconstruction of new or expanded water, wastewater treatment, or stormwater drainage and would not generate wastewater treatment demand in excess of existing supplies. Impacts would be less than significant.	None required	Less than significant
Impact UTIL-2. The project would not result in substantial new or increased water demands in the project area. Impacts would be less than significant.	None required	Less than significant

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE

** * * AGENDA TRANSMITTAL FORM * * **

MEETING DATE:	July 8, 2020
AGENDA ITEM:	3
AGENDA TITLE:	Continued Discussion of Possibly Modeling Certain Scenarios Related to the Monterey Peninsula Water Supply Project and an Expansion of the Pure Water Monterey Project
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:

At the March 11, 2020 TAC meeting Mr. Gaglioti said he would like to know what the impacts would be to the Seaside Basin if Cal Am's desalination plant is not built. Mr. Lear said he envisioned at least two scenarios that would be good to evaluate: (1) what the impacts would be if the desalination plant was not constructed and there was no expansion of the Pure Water Monterey Project, and (2) what would happen if the desalination plant was not built but the Pure Water Monterey expansion was built. At the June 10, 2020 TAC meeting this topic was discussed and a proposal from Montgomery & Associates to perform modeling work and prepare a Technical Memorandum discussing these impacts was presented. As reflected in the Minutes from that meeting, there was concern about the cost of the Montgomery & Associates proposal as well as some of the assumptions that were made in the previous modeling performed for the PWM Expansion Project. I reported that modeling work had been performed for the Watermaster and others that might be adequate to inform the TAC about the impacts of these scenarios. I offered to research that work and provide a summary of it to the TAC at its next meeting.

Attached is a paper that contains a compilation of modeling work and other reports that I believe provides sufficient information to assess the two scenarios described above. Here are the principle conclusions I drew from the attached paper:

<u>Current Groundwater Levels and Protective Elevations</u>

- Of the eight wells in the Northern Coastal Subarea only four have groundwater levels above sea level. These four are all shallow wells. All of the deep aquifer wells have groundwater levels well below sea level.
- All four of the Sentinel Wells have groundwater levels well below sea level.
- Of the three wells in the Northern Inland Subarea only the two shallow wells have groundwater levels above sea level. The one deep aquifer well has a groundwater level well below sea level.
- The two wells in the Southern Coastal Subarea are both shallow wells and both have groundwater levels above sea level.
- Of the six wells for which protective elevations have been developed, only two have groundwater levels above protective elevations. These are both shallow wells. All of the groundwater levels in the deep wells are well below protective elevations.

<u>If the Desalination Plant is Not Constructed and There is No Expansion of the Pure Water Monterey Project</u>

- This is referred to as the "Project" scenario in the modeling work done for the PWM EIR.
- Under this scenario the only project constructed is the original 3,500 AFY PWM Project. The

AGENDA ITEM:	3 (Continued)

desalination plant is not constructed.

- Groundwater levels rise slightly in some wells and fall slightly in some wells. This variation is due to the hydrologic cycle and the amounts of water that are injected and extracted in any given year. There is little net change in groundwater levels because on average the amount of water that is replenished is extracted and not left in the Basin.
- Of the two wells that have protective elevations established for them, and for which hydrographs were prepared for the Project scenario, one of the wells (a shallow well) has a groundwater level above its protective elevation, but this is also true even if the PWM Project is not constructed. The other well (a deep well) has a groundwater level that is well below its protective elevation.
- The Basin will not be protected against seawater intrusion if neither the desalination plant nor the PWM Expansion Project are constructed.

<u>If the Desalination Plant is Not Constructed and the Pure Water Monterey Expansion Project is Constructed</u>

- Under this scenario both the original PWM Project and the PWM Expansion Project would be in operation.
- These two projects are intended to deliver 5,750 acre-feet per year to the Seaside Basin.
- When the groundwater modeling for the original PWM Project was done, the same Cal Am water demand figures that were used in the EIR/EIS for the MPWSP were used. The groundwater modeling performed for the PWM Expansion Project used Cal Am water demand figures that are several thousand AFY lower than the demand figures that were used when the modeling was done for the original PWM Project. If the higher demand figures were used, projected groundwater levels would be lower than are predicted by the modeling that was done for the PWM Expansion Project.
- Simulated groundwater levels are, on average, higher than those under No-Project conditions at all simulated observation wells.
- The long-term coastal groundwater levels are also higher than those under No-Project conditions, indicating that the PWM Expansion Project is likely to reduce the potential for seawater intrusion.
- Groundwater storage is increased by about 400 AF/year because not all of the water that is injected is extracted. In the Paso Robles aquifer not all of the injected water reaches the extraction wells during the simulation period, so it remains in the aquifer as stored water. Also, some of the additional extraction water made possible by the PWM Expansion Project is water flowing into the Seaside Basin from the adjacent Monterey subbasin to the north.
- Offshore inflows are reduced and offshore outflows are increased, decreasing the potential for seawater intrusion in the Seaside Basin. This is primarily true in the shallower Paso Robles aquifer.
- There continues to be a potential for seawater intrusion in the Seaside Basin even if the PWM Expansion Project is constructed. If the higher Cal Am water demand figures mentioned above prove to be more accurate than those used in the PWM Expansion Project modeling, there will be an even greater potential for seawater intrusion.

<u>Additional Replenishment Water Will be Needed to Achieve Protective Elevations</u>

- Previous modeling indicates injecting on the order of 1,000 AFY of additional water into the Seaside Basin for 25 years, along with the existing original PWM Project and either the desalination plant or the PWM Expansion Project, may be necessary to achieve protective elevations at all Basin locations within 25 years.

SEASIDE BASIN WATER MASTER TECHNICAL ADVISORY COMMITTEE

** * * AGENDA TRANSMITTAL FORM * * **

AGENDA ITEM:	3 (Continued)

- Groundwater modeling that incorporates the actual projects that are to be constructed, i.e. either the desalination plant or the PWM Expansion Project, would need to be performed to refine the amount of additional injection water that would be needed.
- If the desalination plant is constructed, a smaller PWM Expansion Project could likely provide the additional water needed to achieve protective elevations.

The TAC is asked to discuss whether or not to recommend to the Board that any additional modeling or other work be undertaken, and to provide direction to the Technical Program Manager on this matter. If the TAC feels it would be beneficial to perform additional work, reasons to justify this should be developed so they can be presented to the Board in conjunction with recommending to the Board to pursue this work.

ATTACHMENTS:	Staff report titled *Impacts of Possible Groundwater Replenishment Scenarios*
RECOMMENDED ACTION:	Provide direction to the Technical Program Manager regarding performing any additional work on these issues.

IMPACTS OF POSSIBLE GROUNDWATER REPLENISHMENT SCENARIOS

The purpose of this paper is to draw upon previously performed modeling work and other reports to estimate the impacts on groundwater levels in the Seaside Basin under several possible groundwater replenishment scenarios. Two scenarios were proposed for evaluation at prior TAC meetings: (1) what the impacts would be if the desalination plant is not constructed and there is no expansion of the Pure Water Monterey Project, and (2) what would happen if the desalination plant is not built but the Pure Water Monterey expansion is built. These are discussed below.

Background Information

Protective Elevations Modeling

The Watermaster had its *Basin Management Action Plan* updated in 2018. That document includes information regarding protective elevations for wells within the Seaside Basin. Below are excerpts from that document.

The persistence of groundwater levels below most coastal protective groundwater elevations implies that seawater will likely eventually intrude into the Basin. Although intrusion may take many years or decades to occur, groundwater levels need to rise above protective elevations to ensure protection of the aquifers.

Hydrographs. To provide background information, Figure 2 below shows the locations of wells in the Seaside Basin and Figures 5 through 8 below show historical groundwater level hydrographs for a number of wells in the Seaside Basin.

Protective groundwater elevations. The 2009 BMAP used the Ghyben-Herzberg surface as the protective elevations. Since that report, groundwater elevations at several coastal monitoring wells have been developed with the aid of the groundwater model. As shown below in Table 5, the protective groundwater elevations at these wells range from 2 to 11 feet above mean sea level for the shallow aquifer and from 4 to 17 feet above mean sea level for the deep aquifer. Hydrographs for these wells are shown below in Figures 11 through 16.

Table 5. Summary of Protective Elevations for Coastal Monitoring Wells

Subarea	Well	Completion	Protective Elevation, feet above sea level
Northern Coastal	MSC	Deep	17
		Shallow	11
	PCA-W	Deep	17
		Shallow	2
	Sentinel Well 3	Deep	4
Southern Coastal	CDM-MW4	Shallow	2

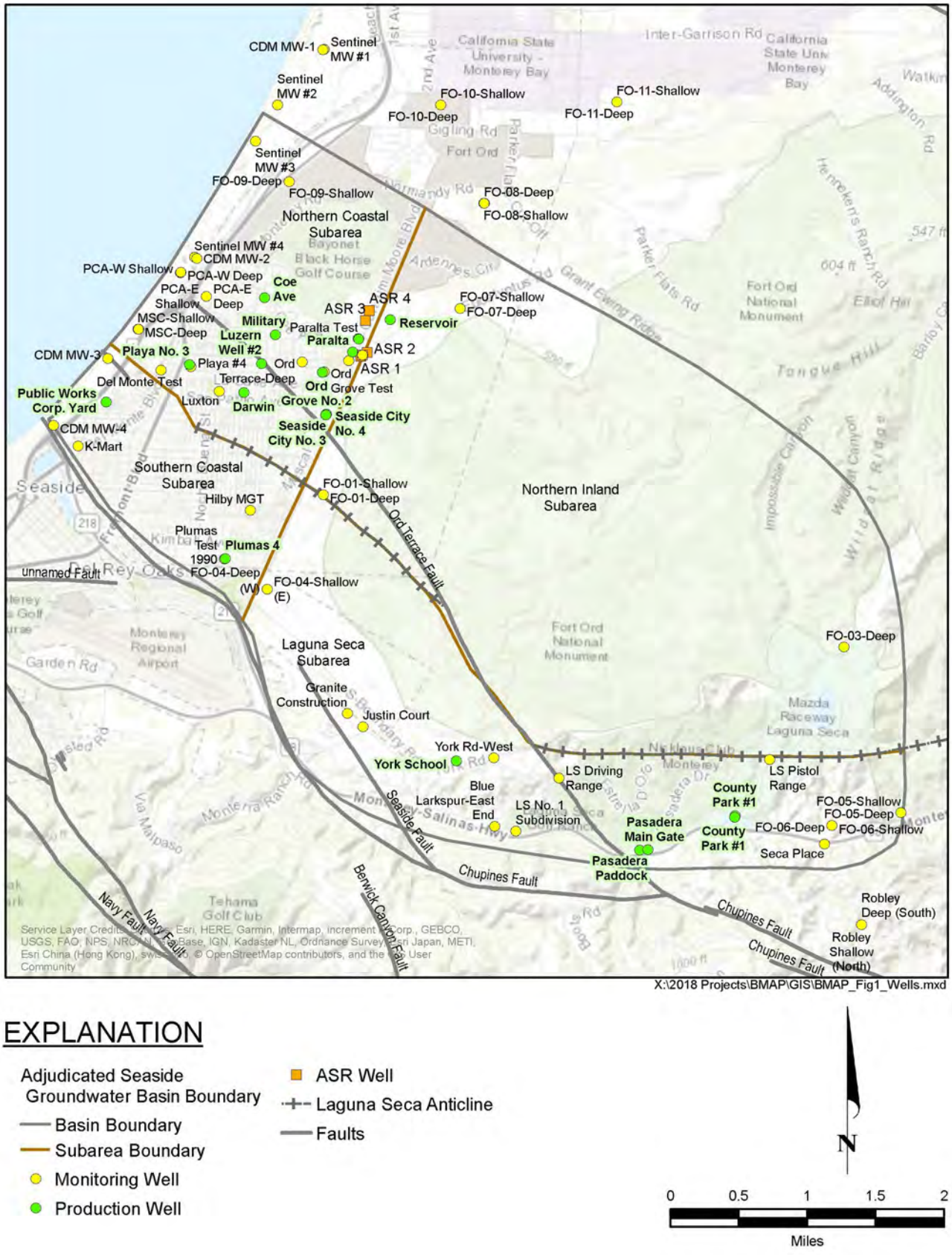


Figure 2. Seaside Basin Well Locations

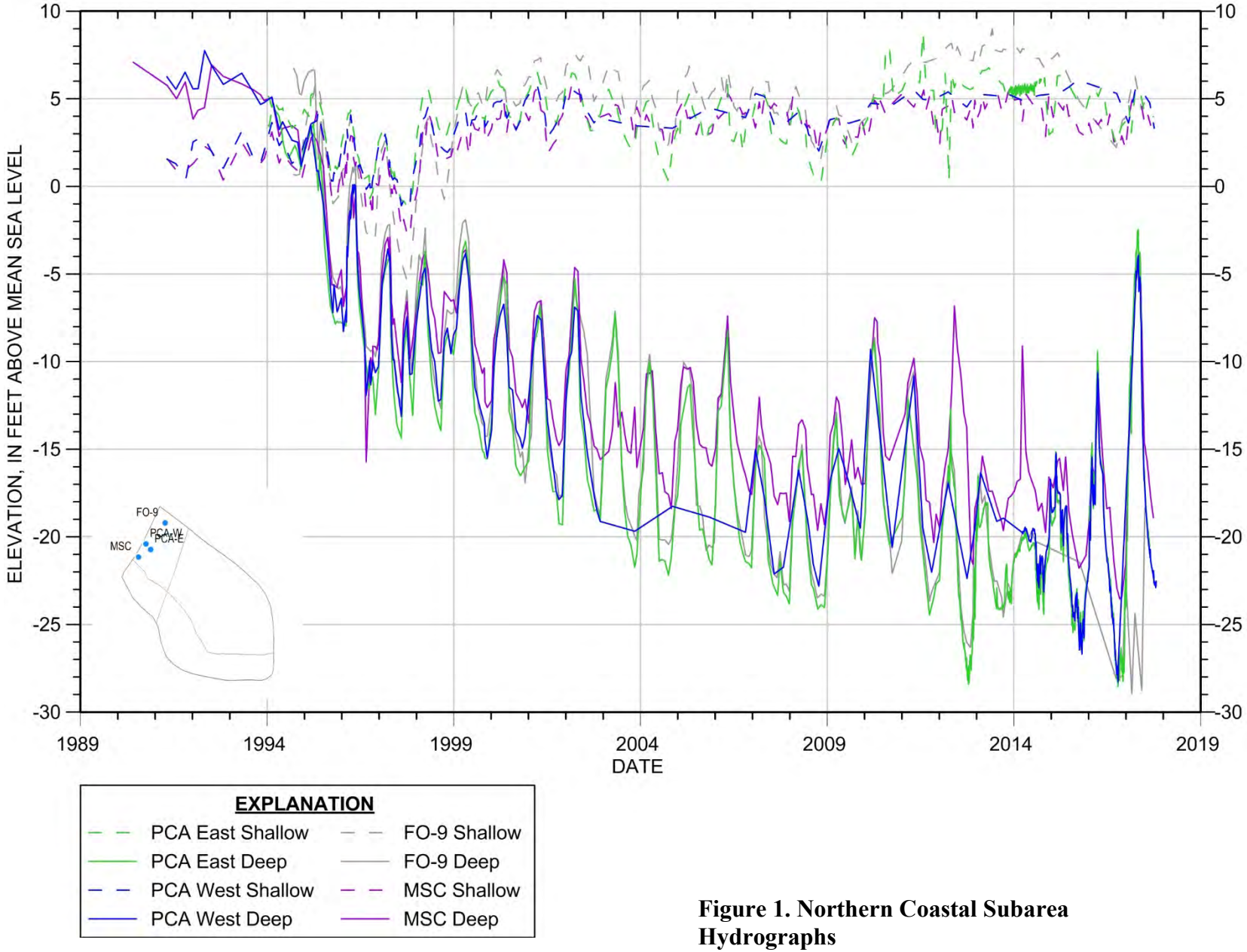


Figure 1. Northern Coastal Subarea Hydrographs

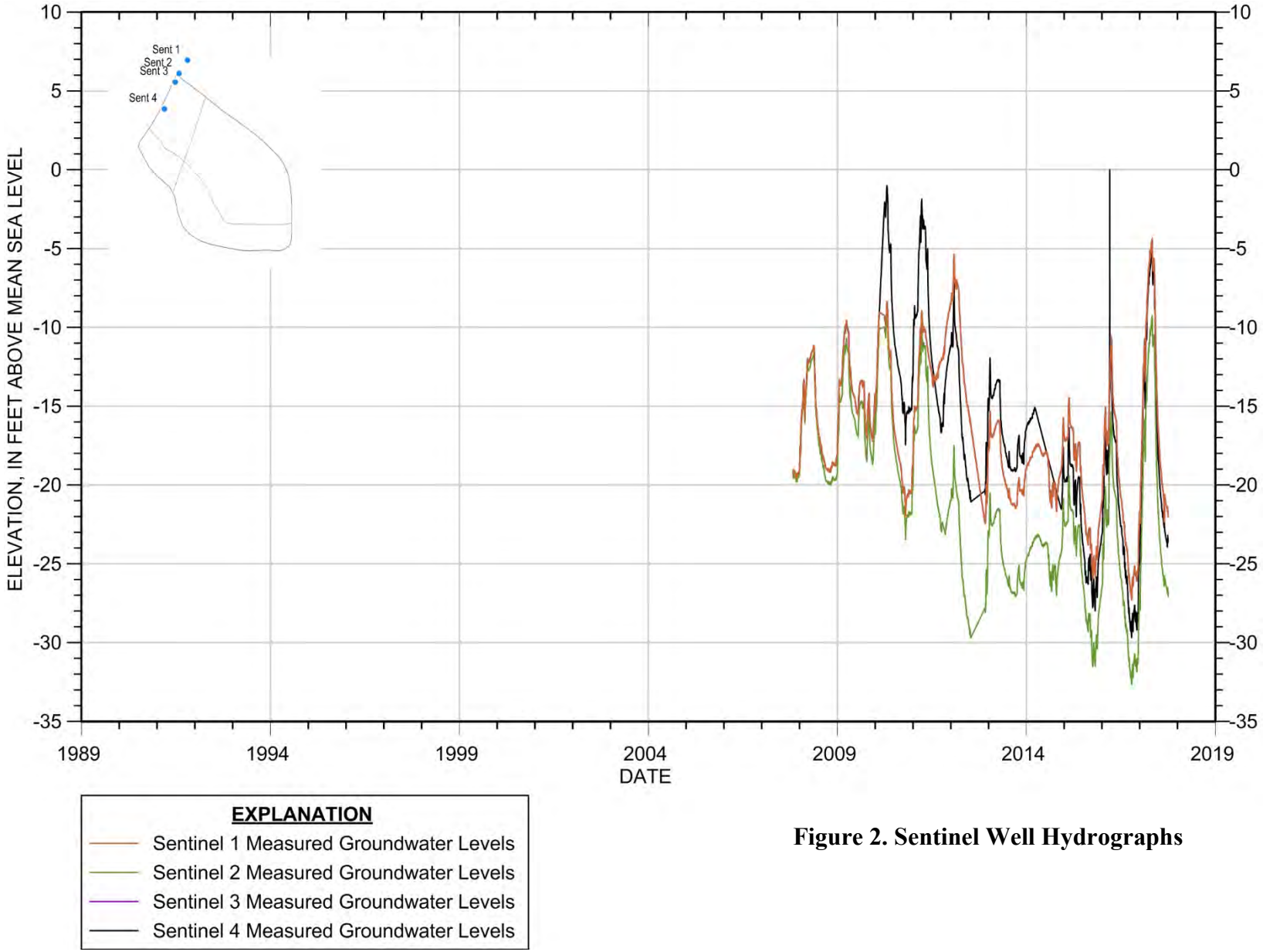


Figure 2. Sentinel Well Hydrographs

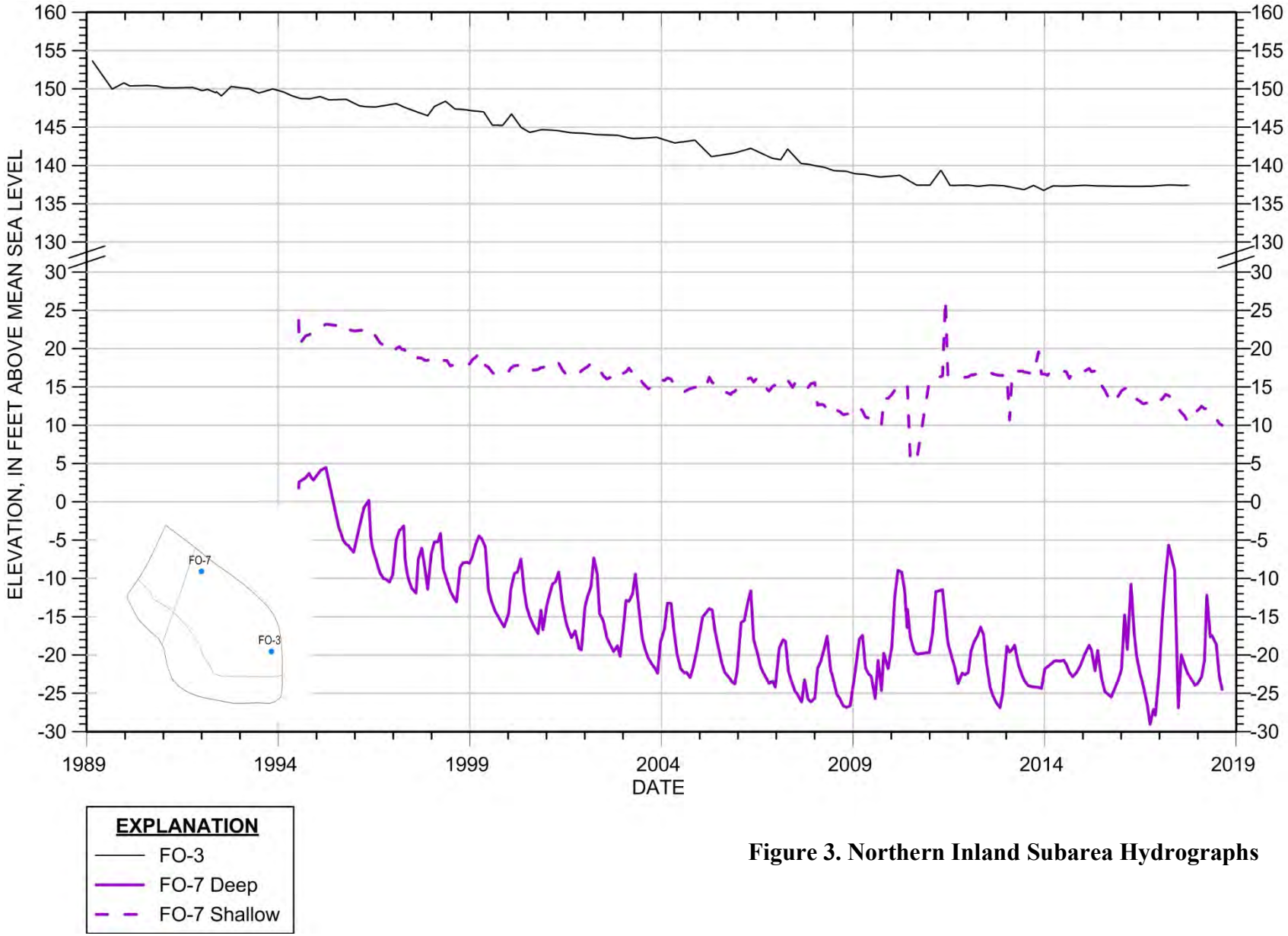


Figure 3. Northern Inland Subarea Hydrographs

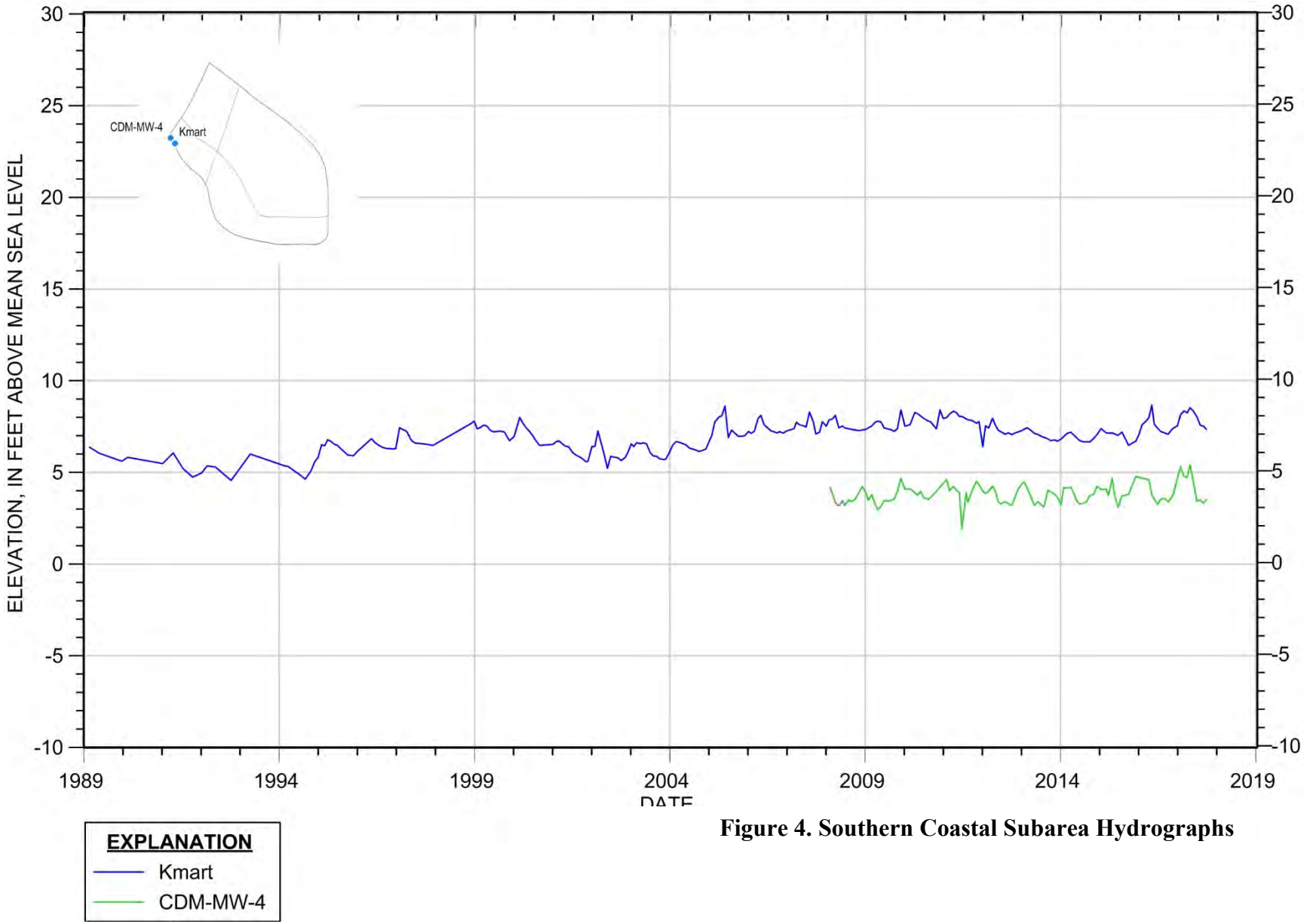


Figure 4. Southern Coastal Subarea Hydrographs

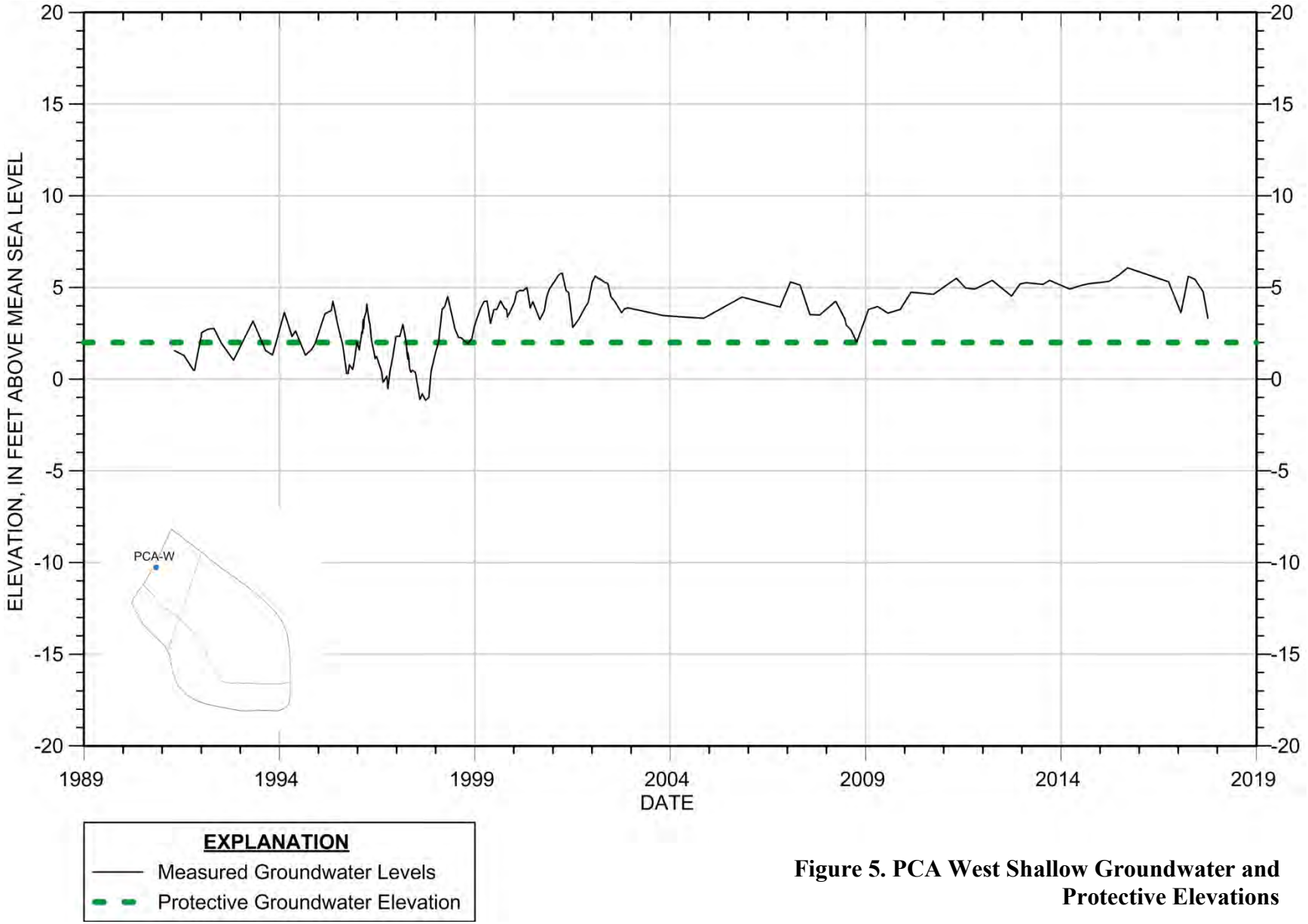


Figure 5. PCA West Shallow Groundwater and Protective Elevations

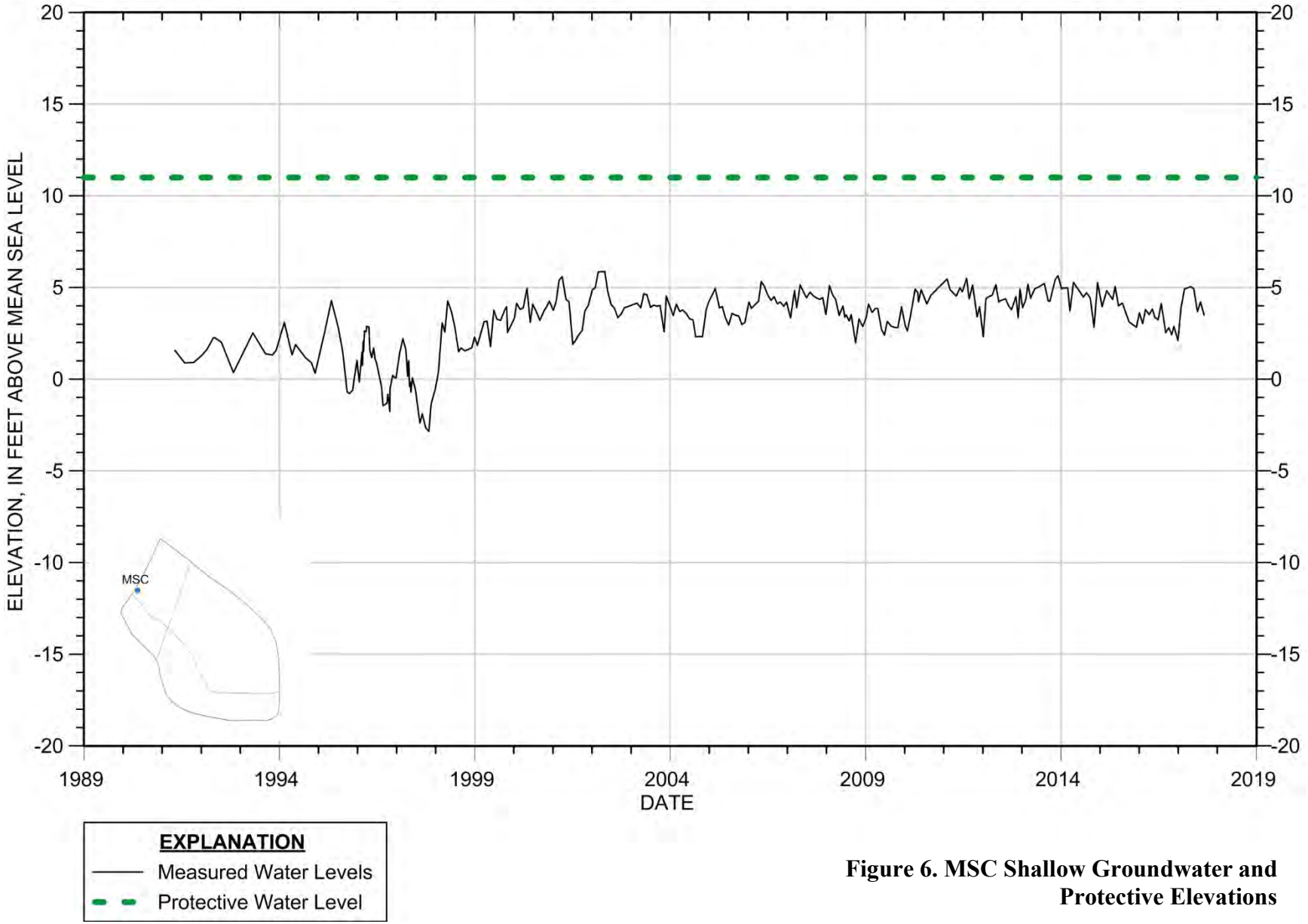


Figure 6. MSC Shallow Groundwater and Protective Elevations

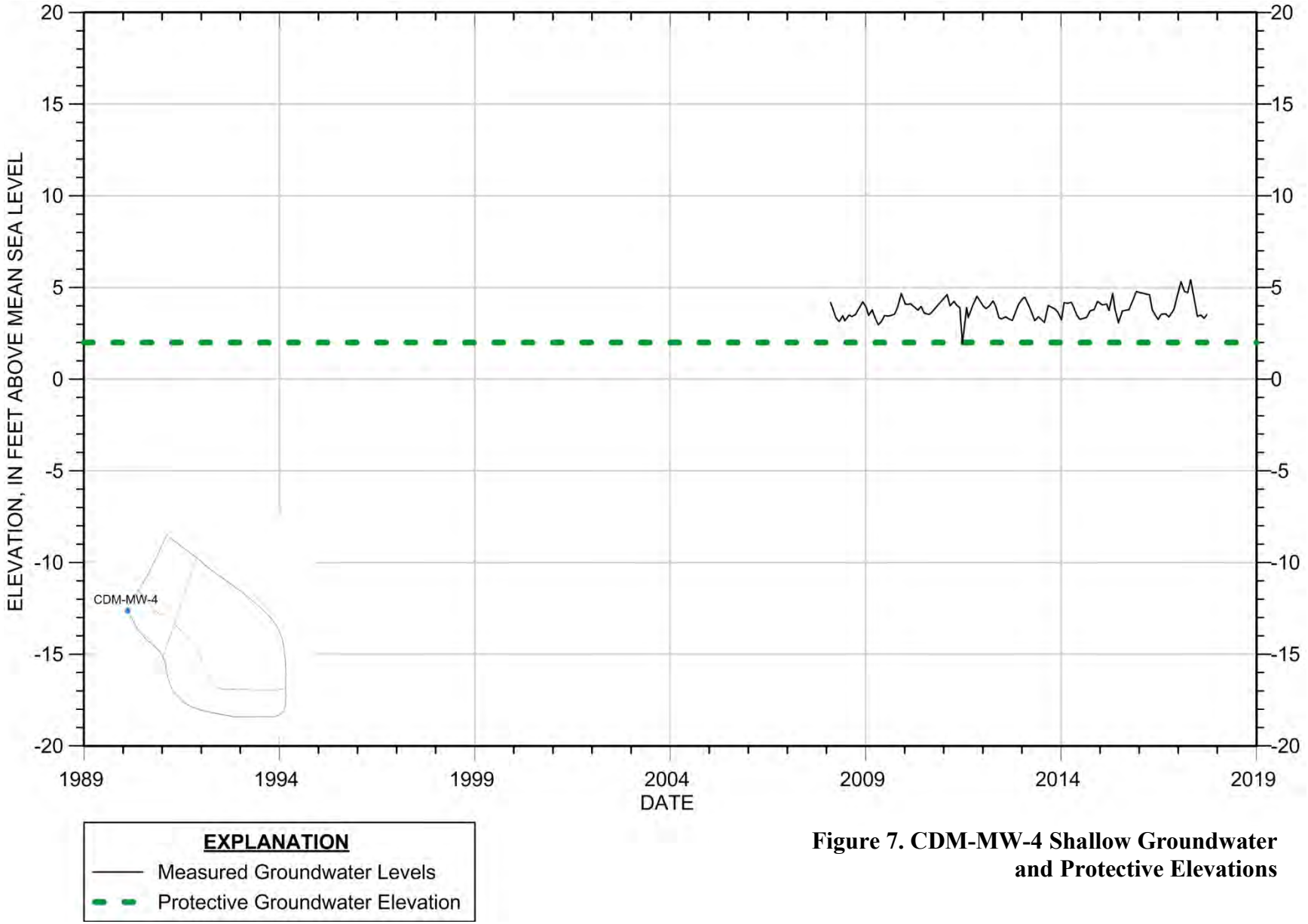


Figure 7. CDM-MW-4 Shallow Groundwater and Protective Elevations

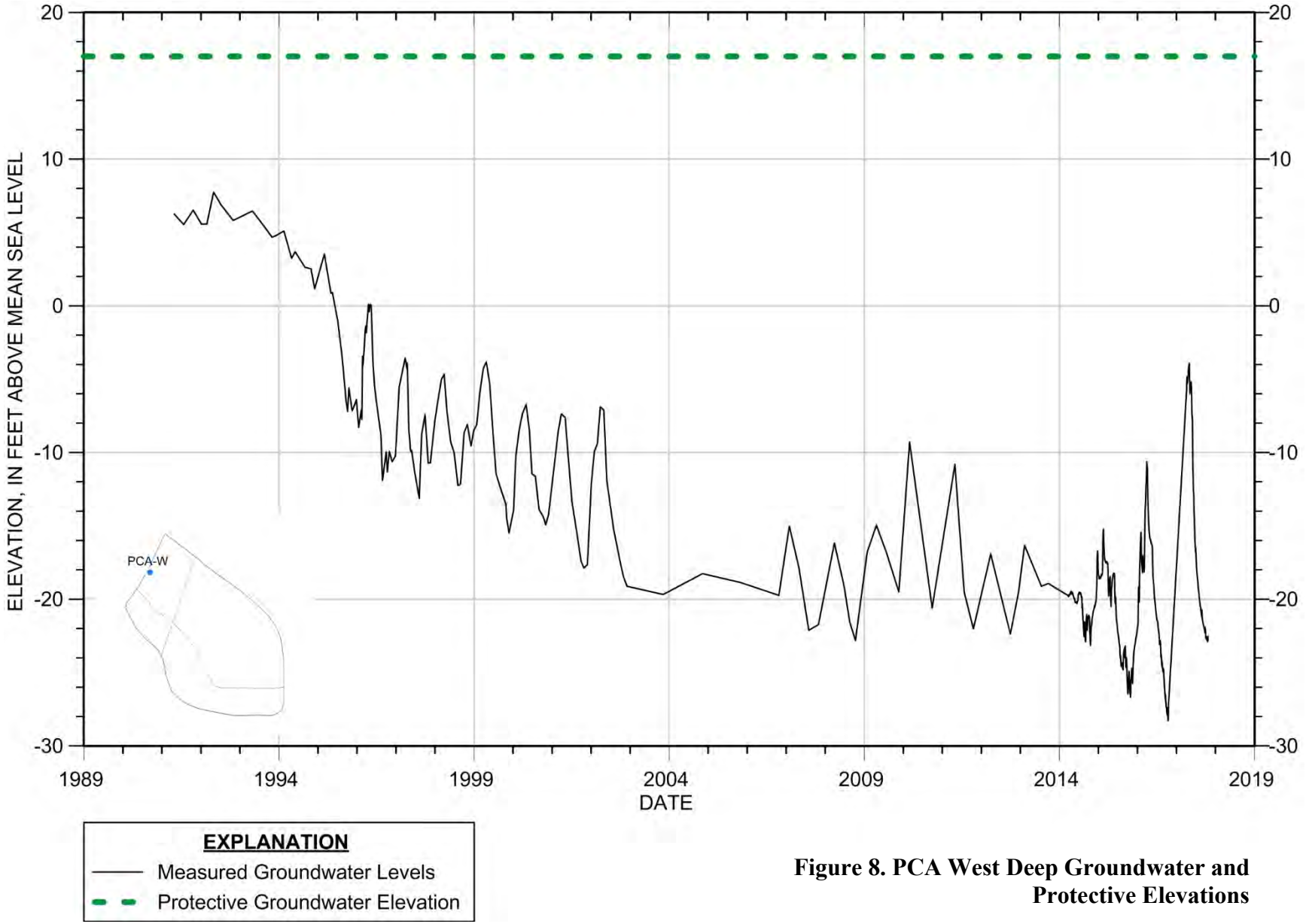


Figure 8. PCA West Deep Groundwater and Protective Elevations

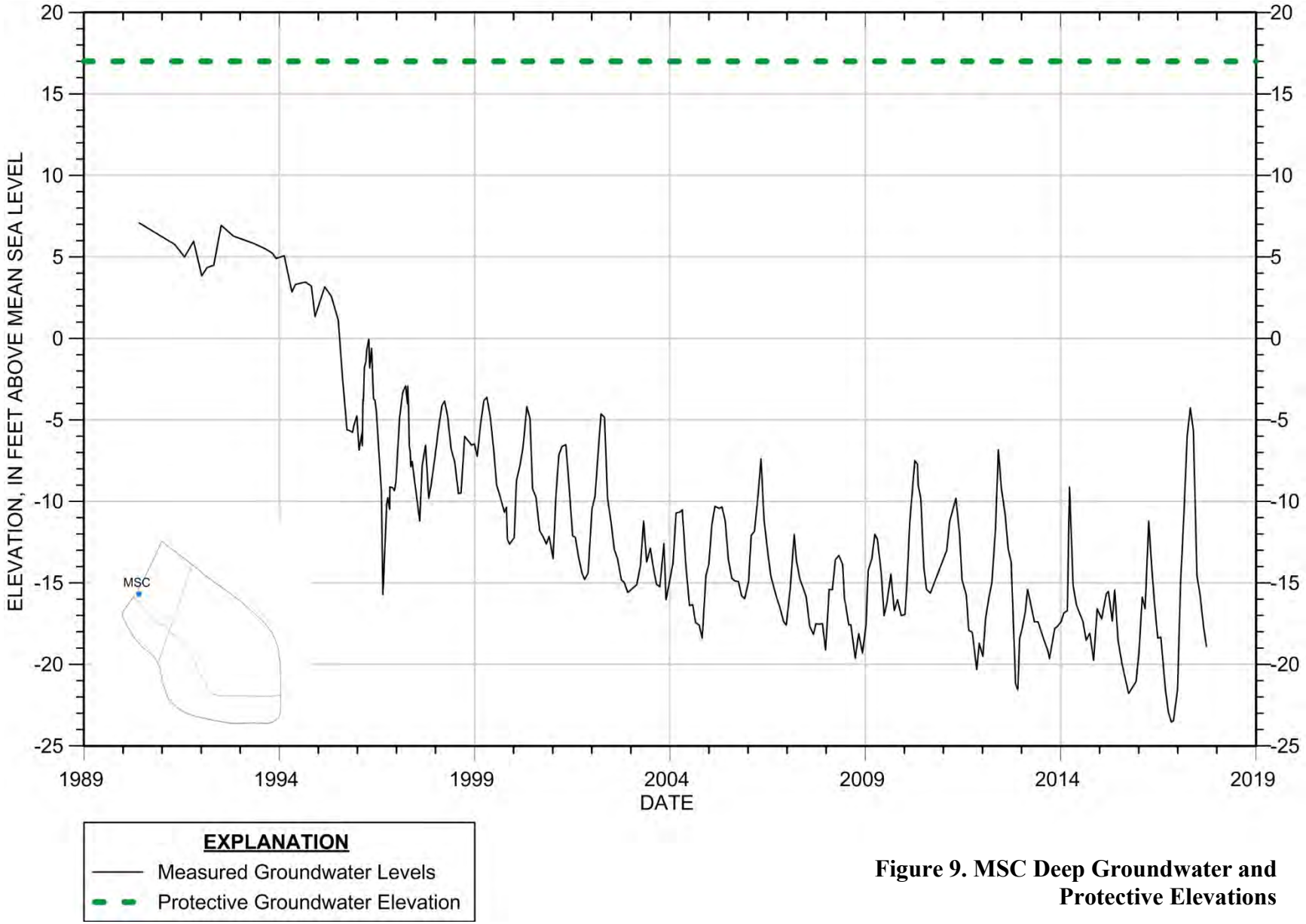


Figure 9. MSC Deep Groundwater and Protective Elevations

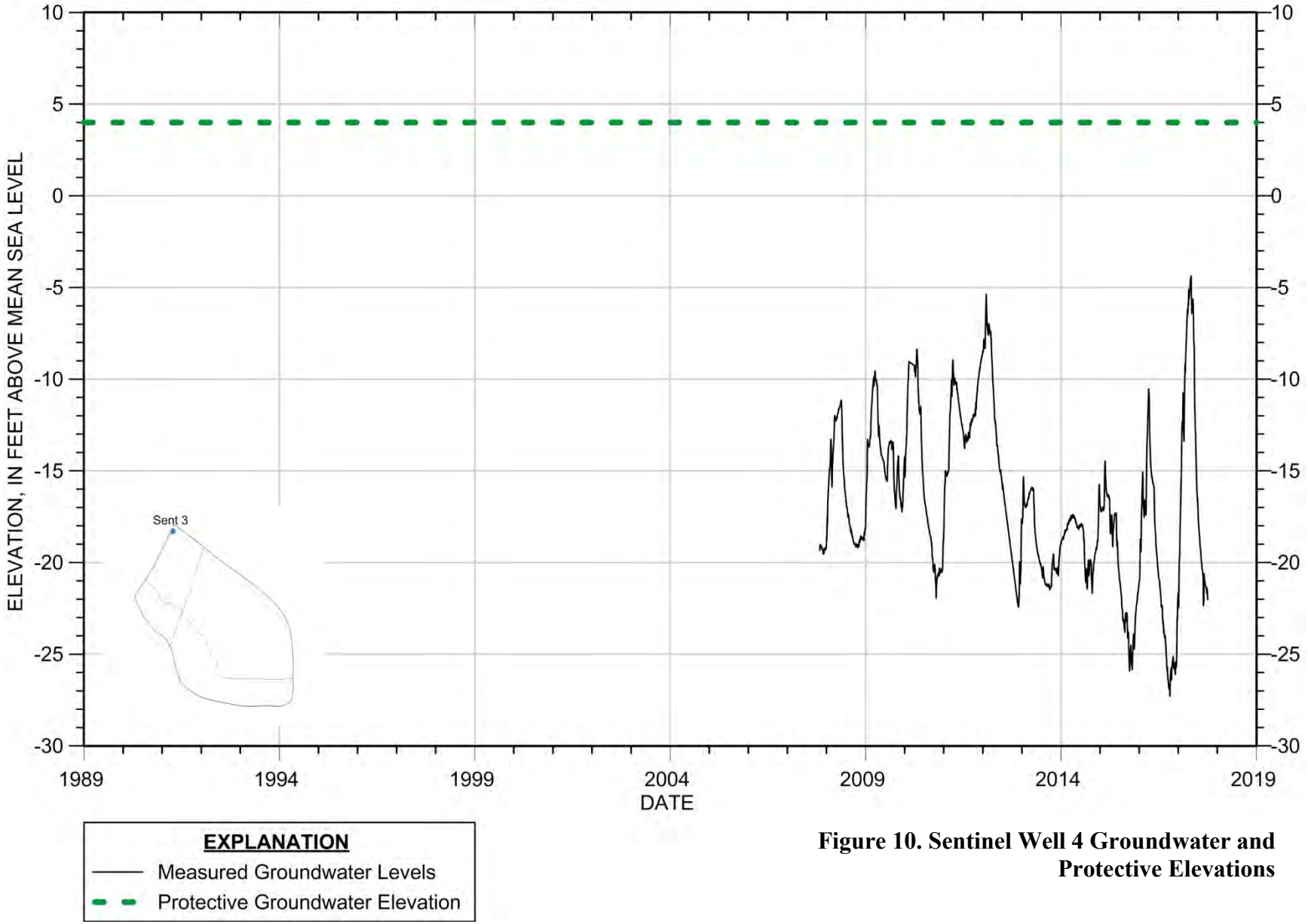


Figure 10. Sentinel Well 4 Groundwater and Protective Elevations

Cal Am Replenishment Repayment Modeling

In 2013 the Watermaster had HydroMetrics WRI prepare a document titled *Technical Memorandum Groundwater Modeling Results of Replenishment Repayment in the Seaside Basin* dated April 5, 2013. That report evaluates groundwater level impacts that will result from implementation of Cal Am's 700 acre-feet per year for 25-years overpumping repayment plan. That repayment plan was predicated upon Cal Am constructing the desalination plant to enable it to reduce its Seaside basin pumping by 700 acre-feet per year. However, the repayment plan could potentially also be implemented, or if the desalination plant is not built but the Pure Water Monterey Expansion Project is built, particularly if Cal Am's actual water demand is lower than projected in the Final EIR for the Monterey Peninsula Water Supply Project (MPWSP).

The modeling was performed to determine the impacts on groundwater levels for three scenarios. Two of these scenarios were:

> Scenario 1: For 25 years Cal Am reduces its Decision-allowed pumping by 700 AFY, from 1,474 AFY to 774 AFY, and all other Basin Standard Producers pump at their Decision-allowed pumping levels. Alternate Producers pump at their historical pumping levels. Cal Am's reduced pumping is distributed among Cal-Am wells relative to the amount each well pumps as a percentage of monthly pumping.
>
> Scenario 3: Same as Scenario 1 but replenishment water is injected through the ASR wells to reach Protective Elevations within the 25-year period during which Cal Am pumps at the 774 AFY level.

The following excerpts from this report describe the groundwater level impacts from these two scenarios.

Under Scenario 1 Cal-Am proposes to repay its post-adjudication overpumping by reducing its Seaside Basin pumping for 25 years. During this 25-year period, Cal-Am plans to provide a portion of the water to its customers from a desalination facility in-lieu of pumping. The desalination facility will be commissioned in 2017. Cal-Am's proposal consists of reducing its pumping by 700 acre-feet per year for 25 years, resulting in a total repayment of 17,500 acre-feet of water. Cal-Am and the Seaside Basin Watermaster Board of Directors asked HydroMetrics Water Resources Inc. (WRI) to perform modeling to determine if this repayment schedule would allow groundwater elevations to reach protective levels.

The objective of Scenario 3 is to achieve protective groundwater elevations within 25 years. In this scenario, Cal-Am reduces its pumping by 700 acre-feet per year for 25 years. Additional water is injected into the existing ASR wells to restore groundwater elevations. The amount of water injected into the ASR wells is iteratively adjusted until protective elevations are achieved in the four coastal monitoring well locations after 25 years of operation. The increased injection begins in December of 2016 and is applied at a constant rate in ASR wells 1 through 4 for the months of December through May. The injected water is divided evenly between the four injection wells.

The pumping assumptions used in Scenarios 1 and 3 are:

- Except for Cal Am, Standard Producer pumping follows the Decision-prescribed triennial reductions. All water injected by ASR wells is pumped from select Cal-Am wells. 1,445

AFY is assumed as the annual amount of [Carmel River] ASR water that is injected and recovered.

- Except for the Seaside golf courses, golf course wells pump at rates based on the hydrologic year. This ensures that the demand corresponds to the hydrology. If the amount pumped by a Producer pre-adjudication exceeded the Producer's adjudicated right, pumping was capped at the Producer's adjudicated amount.
- The City of Seaside expects to begin pumping an average of 360 AFY from its wells for golf course supply starting in September 2016. These projected quantities were used rather than using demand based on the hydrologic year.
- Alternative Producers, excluding golf courses, pump at their Water Year (WY) 2011 volumes from WY 2013 onwards.
- All other pumpers that are not covered by the Decision, including Cal Water Service and private wells, also pump at WY 2011 volumes from WY 2013 onwards.

The simulated groundwater elevations for each scenario were evaluated in six monitoring wells used for establishing protective elevations against seawater intrusion. These monitoring wells are: MSC Deep, MSC Shallow, PCA-West Deep, PCA-West Shallow, Sentinel Well 3, and CDM MW-4 (see Figure 1 below).

The protective elevations at each well were used as a benchmark for comparing the relative success of each scenario at achieving protective elevations. Simulated hydrographs for the baseline scenario and three model scenarios are provided below in Figures 3 through 5. In these figures, the hydrographs for well CDM MW-4 appear significantly different from the other hydrographs because well CDM MW-4 is very shallow and is located in a different model layer and hydrostratigraphic layer than the other wells. The spikes observed in the CDM MW-4 hydrograph are a response to recharge occurring during winter months. This behavior is not observed in the deeper wells where groundwater levels are less sensitive to seasonal and inter-annual variations in rainfall and recharge. Additionally, the groundwater elevation scale is different than the scales on the other plots.

Under Scenario 1 (Cal-Am's 25 year replenishment scenario), the model predicts some additional recovery above the baseline scenario [in which Cal Am continues pumping at its full Decision-allowed level with no pumping reduction], but not enough to bring any groundwater levels up to protective elevations (see Table 1 below). Groundwater levels recover 1 to 1.5 feet in the shallow wells and approximately 3 feet in the deep wells by the end of this scenario (see Table 2 below). As expected, there is almost no recovery in CDM-MW-4 because it is very shallow and Cal-Am pumps from deeper aquifers.

Under Scenario 3 (reduced Cal Am pumping with injection) an additional 1,000 AFY of water injected in ASR wells 1 through 4 was found to achieve protective elevations in all six coastal monitoring wells by 2041. This amount is in addition to the 1,445 AFY currently injected in ASR wells 1 through 4, for a total injection rate of 2,445 AFY. Unlike the 1,445 AFY stored and recovered in the aquifer by Cal-Am, the additional 1,000 AFY is allowed to remain in the aquifer without being pumped out.

Conclusions:

- Scenario 1: Cal-Am's proposed 25-year replenishment repayment increases groundwater elevations by 1 to 1.5 feet in the shallow aquifer coastal wells and 3 feet in the deep aquifer coastal wells. These increases do not achieve protective elevations.
- Scenario 3: When combined with Cal-Am's 25-year repayment schedule, protective elevations can be realized by injecting an additional 1,000 acre-feet per year of water into the existing ASR wells. Recharged water is left in the basin, and not pumped by Standard or Alternative producers. [*Note that the need to continue injecting water and leaving it in the Basin in order to maintain protective elevations beyond the end of the simulation period in 2041 was not evaluated or reported on in this Technical Memorandum. Other modeling work done for the Watermaster (Groundwater Modeling Results of Coastal Injection in the Seaside Basin, dated July 19, 2013 by HydroMetrics WRI) to compare the effectiveness of injecting water at coastal injection wells to injecting water at the existing ASR wells that are inland found that for injection at coastal wells it would be necessary to continue injecting 850 AFY on an ongoing basis to maintain protective elevations. That modeling report did not discuss whether or not there was a need for ongoing injection at the existing ASR well sites in order to maintain protective elevations.*]

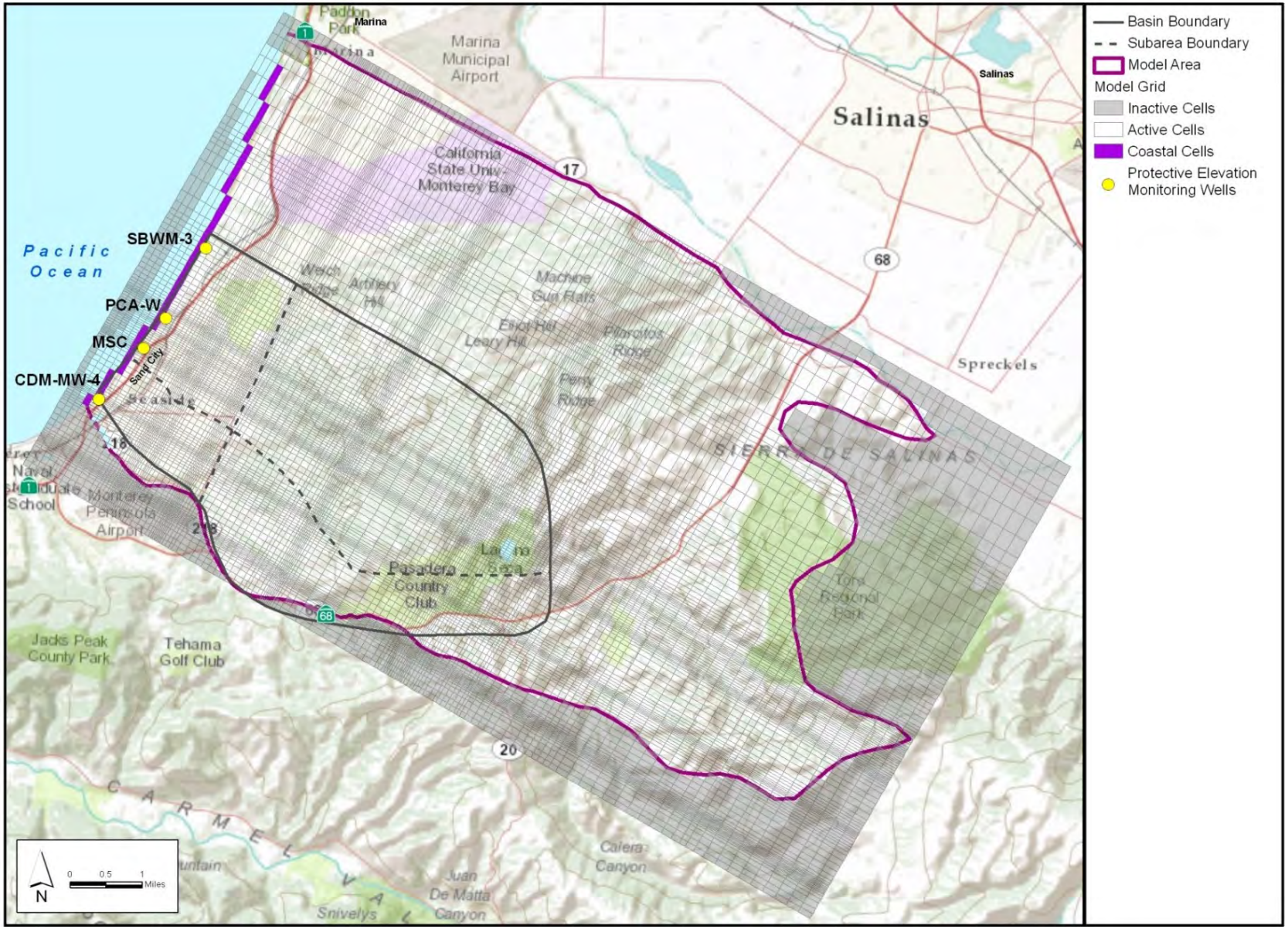


Figure 11: Location of Coastal Cells and Protective Elevation Monitoring Wells

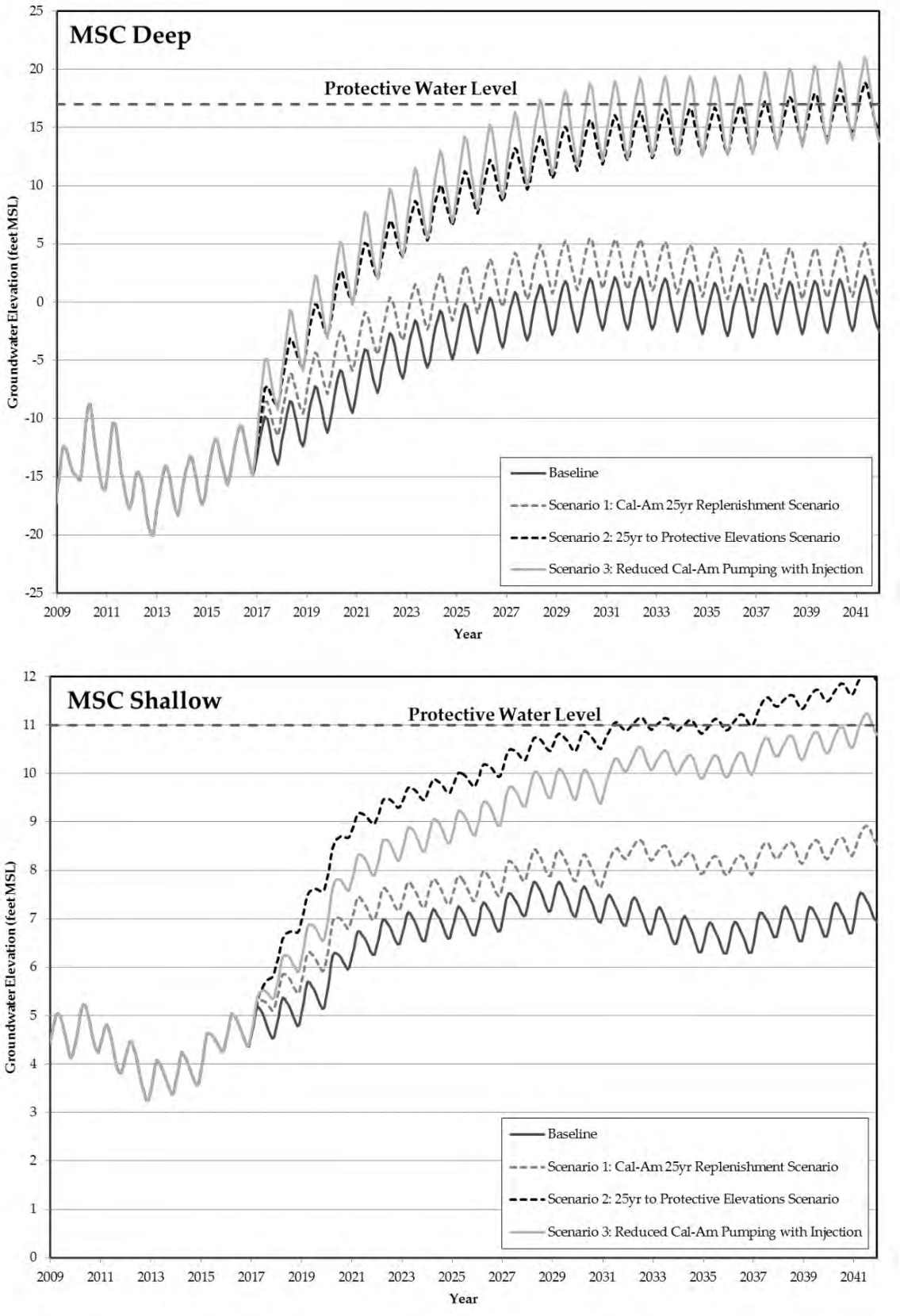


Figure 12: Predicted Groundwater Elevations and Protective Elevations for the MSC Wells

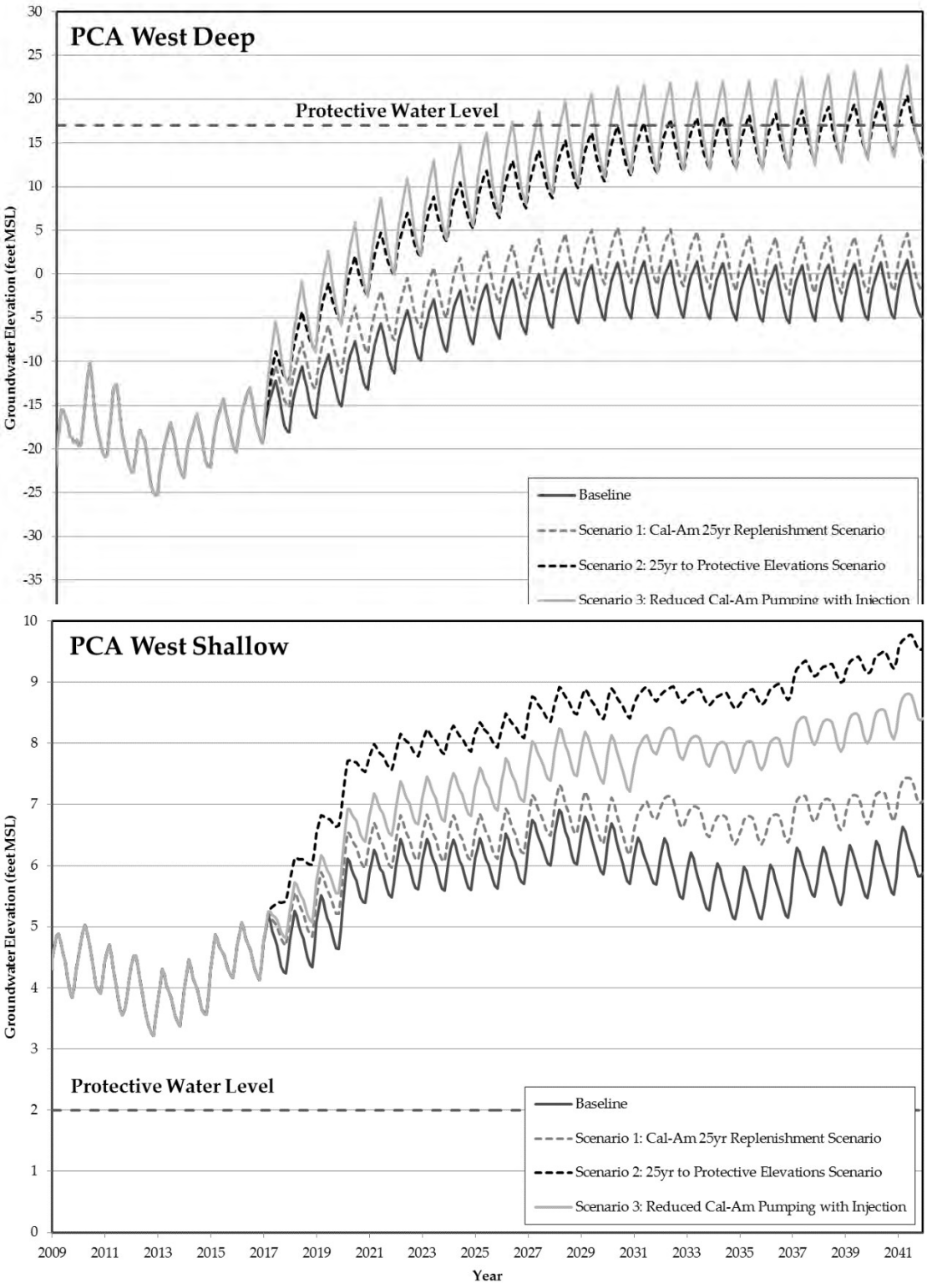


Figure 13: Predicted Groundwater Elevations and Protective Elevations for the PCA West Wells

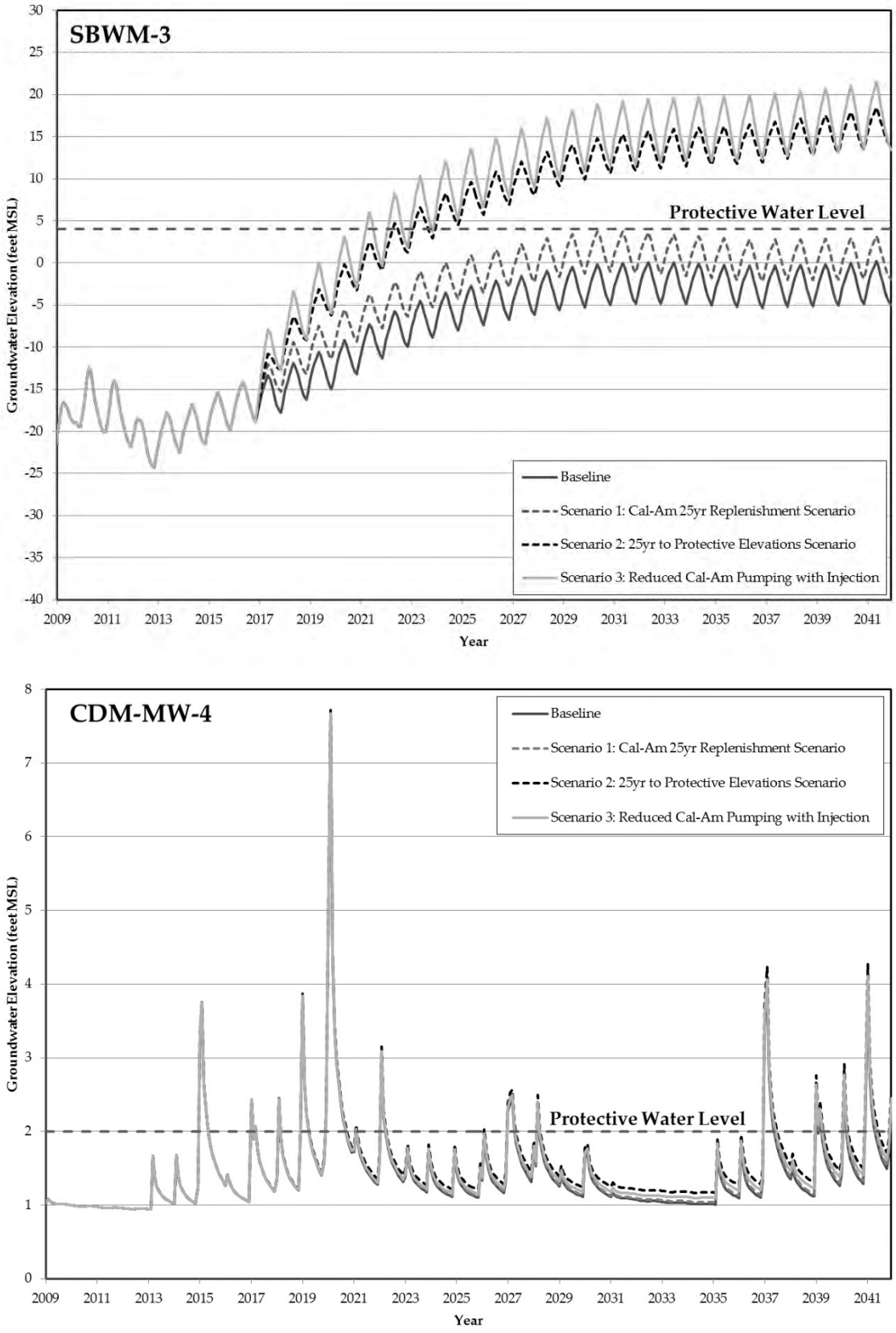


Figure 14: Predicted Groundwater Elevations and Protective Elevations for Sentinel Well 3 (SBWM-3) and CDM MW-4 Wells

Table 1: Summary of Protective Elevation Achievement

Scenario	MSC Deep	MSC Shallow	PCA-West Deep	PCA-West Shallow	Sentinel-3	CDM MW-4
Baseline	Not achieved	Not achieved	Not achieved	Already achieved	Not achieved	Not achieved
Scenario 1: 25 Year Cal-Am Replenishment Scenario	Not achieved	Not achieved	Not achieved	Already achieved	Not achieved	Not achieved
Scenario 3: 25 Year Cal-Am Replenishment Scenario with Additional Water Injection	Achieved in 2030	Achieved in 2041	Achieved in 2034	Already achieved	Achieved in 2022	Achieved in 2041

Table 2: Average Groundwater Elevation Difference at the End of Simulation (Scenario- Baseline)

Scenario	MSC Deep	MSC Shallow	PCA-West Deep	PCA-West Shallow	Sentinel-3	CDM MW-4
Scenario 1: 25 Year Cal-Am Replenishment Scenario	2.9	1.6	3.0	1.2	3.0	0.05
Scenario 3: 25 Year Cal-Am Replenishment Scenario with Additional Water Injection	18.8	3.9	22.2	2.6	21.3	0.1

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Below is the water service demand table from the Final EIR/EIS for the MPWSP. Demand assumptions differ between the various modeling reports that are discussed in the following sections of this paper.

2.3.2 Other Service Area Demand Assumptions

In addition to meeting existing annual demand and demand associated with the Pebble Beach water entitlements, CalAm proposes that the MPWSP be sized to provide, in conjunction with other supply sources, sufficient supplies to also meet the water demands associated with the anticipated economic recovery (or "rebound") of the local hospitality industry, resulting in increased water demand by existing businesses compared to current levels, and demand associated with the development of existing legal lots of record in jurisdictions served by the project (Svindland, 2013a). **Table 2-3** shows existing system demands together with demands associated with economic recovery and lots of record, which total approximately 1,680 afy; these demand components are discussed further below.

TABLE 2-3
OTHER DEMAND ASSUMPTIONS

Demand Component	Annual Demand (acre-feet)
Existing Annual Service Area Demand	12,270
Pebble Beach Water Entitlements	325
Hospitality Industry Rebound Economic Recovery	500
Legal Lots of Record	1,180
Total to Service Area	**14,275**

SOURCE: RBF Consulting, 2013; Svindland, 2016.

Impacts If the Desalination Plant Is Not Constructed

and

There Is No Expansion of the Pure Water Monterey Project

Under this scenario the only replenishment project in operation would be the original Pure Water Monterey Project, which is intended to deliver 3,500 acre-feet per year for injection into, and subsequent recovery from, the Seaside Basin.
The groundwater level impacts from this scenario were evaluated in the *Consolidated Final Environmental Impact Report for the Pure Water Monterey Groundwater Replenishment Project* (PWM EIR) dated January, 2016. Specifically, the modeling that was performed in conjunction with that project is contained in Appendix L and Appendix M rev to the PWM EIR. Those appendices contain several documents that are pertinent to this issue:

- Appendix L*: Recharge Impacts Assessment Report* dated March 2015, prepared by Todd groundwater.
    - Appendix A to the *Recharge Impacts Assessment Report* titled *Todd Groundwater Technical Memorandum Selection of Recharge Location for GWP Project Seaside Groundwater Basin*, dated May 29, 2014
    - Appendix C to the *Recharge Impacts Assessment Report* titled *Technical Memorandum-GWR Project EIR: Project Modeling Results* prepared by HydroMetrics WRI dated January 12, 2015.
- Appendix M_rev*: GWR Project EIR: Cumulative Projects Modeling Results* prepared by HydroMetrics WRI dated December 16, 2015.

The report titled *GWR Project EIR: Cumulative Projects Modeling Results* provides the most useful information for evaluating the impacts if the desalination plant is not constructed and there is no expansion of the Pure Water Monterey Project. In addition, it provides information about the impacts if the desalination plant is constructed and there is no expansion of the Pure Water Monterey Project. This report estimates the impacts on groundwater levels in the Seaside basin for: (1) The "No Project" scenario in which none of the proposed replenishment projects are built and the desalination plant is not built, (2) The "Project" scenario in which only the PWM Project (referred to in this report as the GWR Project) and not the desalination plant is built, and (3) The "Cumulative Projects" scenario in which both the PWM and the MPWSP desalination plant are built. The following excerpts from this report describe the groundwater level impacts from these three scenarios:

The Cumulative Projects analysis in the GWR Project's Environmental Impact Report (EIR) assesses the environmental impacts of operating the smaller desalination plant and the GWR Project jointly. The GWR Project EIR refers to the joint operation of the two projects as the Cumulative Projects. The MPWSP EIR refers to the joint operation of the two projects as the Variant Project.

Cal-Am provided average monthly projections of both the groundwater injection and groundwater pumping needed to meet their anticipated future demands for their Variant Project. [Note that these projections differ slightly from those contained in the Final EIR/EIS for the MPWSP.] These projections were incorporated into the predictive model to the degree possible. Some modifications to Cal-Am's projections were needed to compensate for anticipated pumping capacity shortfalls in specific future years.

Model results show that the Cumulative Projects Scenario is generally neutral or beneficial compared to the No Project conditions. Groundwater elevations are generally higher under the Cumulative Projects conditions than under the No Project conditions. These higher groundwater levels will tend to slow or stop seawater intrusion.

The simulated GWR Project recharges varying volumes of water each year, with an average of 3,500 acre-feet recharged per year. The amount of water recharged each year depends upon whether the predicted hydrology is in a drought or non-drought year, and upon a reasonable assumption of the rules for banking and delivering drought reserve water to the Castroville Seawater Intrusion Project (CSIP). In non-drought years, GWR Project deliveries to the Seaside Basin are 3,700 acre-feet. This provides 3,500 acre-feet for extraction by Cal-Am, and provides 200 acre-feet of groundwater storage for a Drought Reserve. The Drought Reserve is capped at 1,000 acre-feet. When the Drought Reserve is full and drought conditions do not exist, the GWR Project delivers 3,500 acre-feet to the Seaside Basin for extraction by Cal-Am. In drought years when Drought Reserve water is available, the GWR Project delivers less than 3,500 acre-feet to the Seaside Basin, and Cal-Am draws from the Drought Reserve.

The MPSWP small desalination plant that is part of the MPSWP Variant Project will provide 590 acre-feet per year of desalinated water for injection through the ASR wells, for subsequent extraction and distribution to Cal Am customers.

Table 1 below shows the average monthly supply and demand estimates provided by Cal-Am for the Cumulative Projects. This table was produced by Cal-Am as a part of their effort to analyze the groundwater impacts of the MPWSP Variant Project, and MPWMD and MRWPCA agreed to use it as the basis for the Cumulative Projects pumping and injection projections. *[Note that this table includes Cal-Am's 25-year overpumping repayment plan which reduces their Seaside Basin pumping from their Decision-allowable 1,474 acre-feet per year to 770 acre-feet per year. Also note that at the time HydroMetrics WRI prepared their report (December 2015) the only document available to them for this information was the Draft EIR for the MPWSP. Hence, Table 1 data came from the Draft EIR. The Final EIR for the MPWSP was issued in 2018 and contained revised (slightly lower) demand figures.]*

The impact of the Cumulative Projects on groundwater elevations was determined by comparing results from the Cumulative Projects simulation with results from the GWR Project and No-Project scenarios.

Hydrographs for simulated groundwater elevations under the Cumulative Projects, Project, and No-Project scenarios are shown below on Figures 12 through Figure 18. The blue lines represent the simulated static groundwater elevation under the No-Project scenario; the green lines represent the simulated static groundwater elevation under the GWR Project scenario, and the purple lines represent the simulated static groundwater elevation under the Cumulative Projects scenario. The simulated groundwater elevations are generally higher under the Cumulative Projects scenario than under the No-Project and GWR Project scenarios. This is primarily the result of reduced extraction of native groundwater that occurs under the Cumulative Projects scenario.

Simulated groundwater elevations around Cal-Am production wells, such as Ord Grove #2, are also higher under the Cumulative Projects scenario because they have lower extraction rates than under the GWR Project and No-Project scenarios.

Comparing GWR Project and No-Project Hydrographs of the PCA-West Deep and PCA-West Shallow wells allows us to evaluate how the Cumulative Project may impact seawater intrusion in the Seaside Basin. The simulated groundwater elevations at the PCA-West Deep and PCA-West Shallow wells are higher under the Cumulative Projects scenario than under the GWR Project and No-Project scenarios, indicating that the combined GWR and desalination project would not worsen the potential for seawater intrusion at this location. Instead, it appears that the Cumulative Projects would cause this location to become less vulnerable to seawater intrusion. *[Note that in 2009 the Watermaster had HydroMetrics WRI develop "Protective Elevations" for several wells closest to the coast. More information about these protective elevations is contained in the next section. The only protective elevation wells that have hydrographs shown for them in this report are the PCA-West Shallow and Deep wells. The hydrographs show that the Shallow well will have a groundwater level above its protective elevation under all scenarios, while the Deep well will not have a protective elevation under any scenario.]*

Table 1: Average Monthly CAW Supply and Demand

TYPICAL OPERATIONS BASED ON AVERAGE MONTHLY FLOWS – MPWSP VARIANT

	Average Monthly Flow (mgd)												TOTAL (AFY)
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	
Demand													
Average Demand	10.3	10.5	11.4	12.8	15.5	16.6	17.3	17.1	16.8	13.3	11.8	10.3	15,300
Water Returned to Salinas Valley	0.0	0.0	0.0	0.0	0.9	1.2	1.1	1.1	1.1	0.4	0.0	0.0	549
System Supplies													
Carmel River to Distribution System	5.7	5.7	5.7	5.2	2.2	1.0	1.0	1.0	1.0	1.0	1.0	5.7	3,376
Seaside GW Production Wells to Distribution System	0.0	0.0	0.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	0.5	0.0	770
Sand City Desalinated Supplies to Distribution System	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	94
Supplies Extracted from Seaside Groundwater Basin ASR System	0.0	0.0	0.0	0.9	6.8	9.6	10.4	10.2	9.5	5.9	4.1	0.0	5,390
MPWSP Desalinated Supplies to Distribution System	4.5	4.7	5.6	5.6	5.3	4.8	4.6	4.7	5.1	5.3	6.2	4.5	5,671
Total Supplies to Distribution System	**10.3**	**10.5**	**11.4**	**12.8**	**15.5**	**16.6**	**17.3**	**17.1**	**16.8**	**13.3**	**11.8**	**10.3**	**15,300**
MPWSP Desalination Plant Operations													
Desalinated Supplies for Distribution System	4.5	4.7	5.6	5.6	5.3	4.8	4.6	4.7	5.1	5.3	6.2	4.5	5,671
Desalinated Supplies for ASR Injection	1.7	1.5	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.4	0.0	1.7	590
Desalinated Supplies for Salinas Valley	0.0	0.0	0.0	0.0	0.9	1.2	1.1	1.1	1.1	0.4	0.0	0.0	549
Total Desalinated Supplies	**6.14**	**6.18**	**6.16**	**6.15**	**6.22**	**5.92**	**5.78**	**5.78**	**6.18**	**6.15**	**6.18**	**6.16**	**6,809**
Supplies Extracted from Seaside Groundwater Basin ASR System													
Highly Treated Wastewater from MRWPCA Regional WWTP	0.0	0.0	0.0	0.6	4.4	6.2	6.8	6.6	6.2	3.8	2.6	0.0	3,500
Carmel River	0.0	0.0	0.0	0.2	1.6	2.3	2.5	2.5	2.3	1.4	1.0	0.0	1,300
Desalinated Supplies	0.0	0.0	0.0	0.1	0.7	1.1	1.1	1.1	1.0	0.6	0.4	0.0	590
Total Extraction	**0.0**	**0.0**	**0.0**	**0.9**	**6.8**	**9.6**	**10.4**	**10.2**	**9.5**	**5.9**	**4.1**	**0.0**	**5,390**

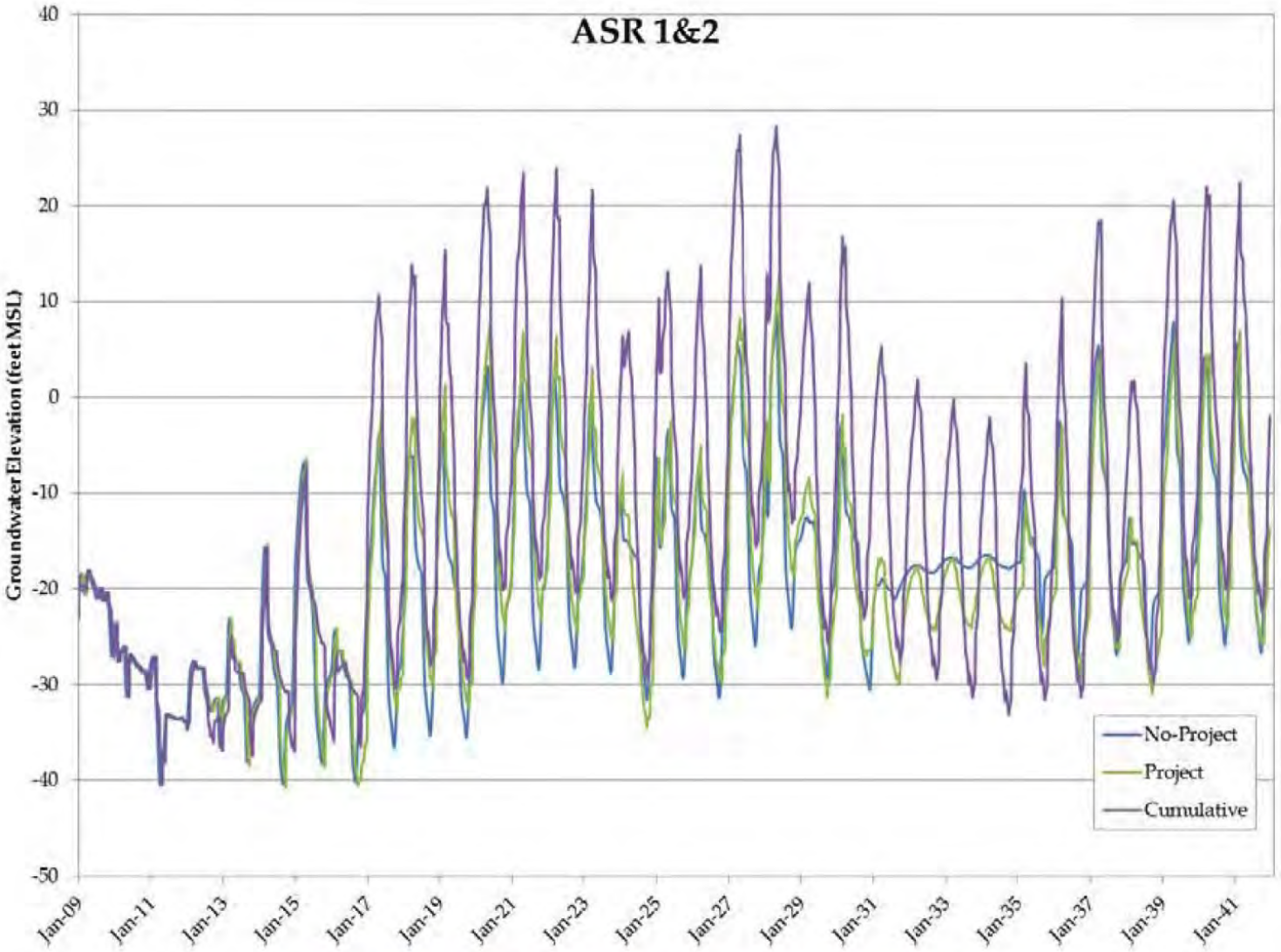


Figure 12: Predicted Static Groundwater Elevations at ASR 1&2 Wells

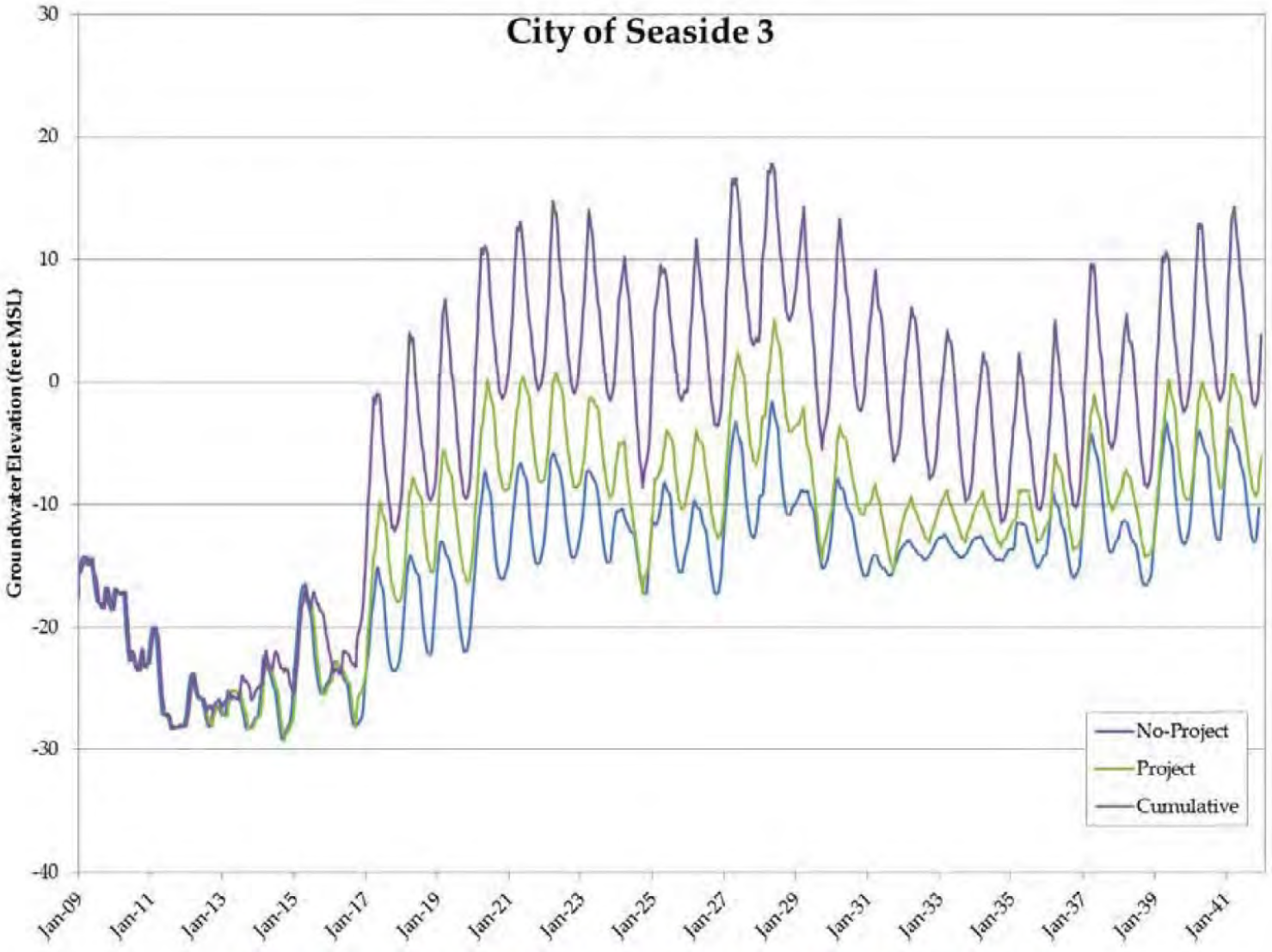


Figure 13: Predicted Static Groundwater Elevations at City of Seaside 3 Well

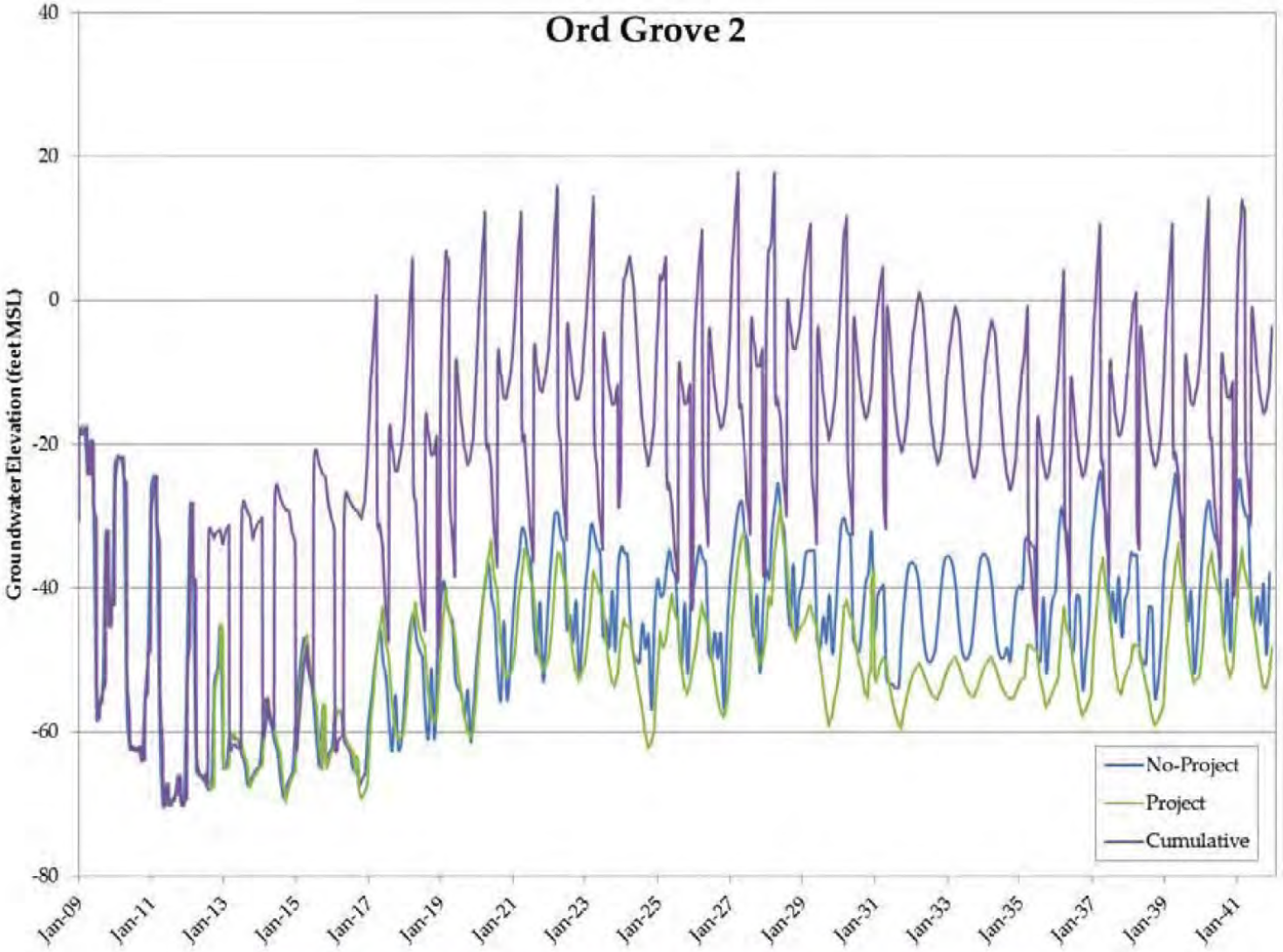


Figure 14: Predicted Static Groundwater Elevations at Ord Grove 2 Well

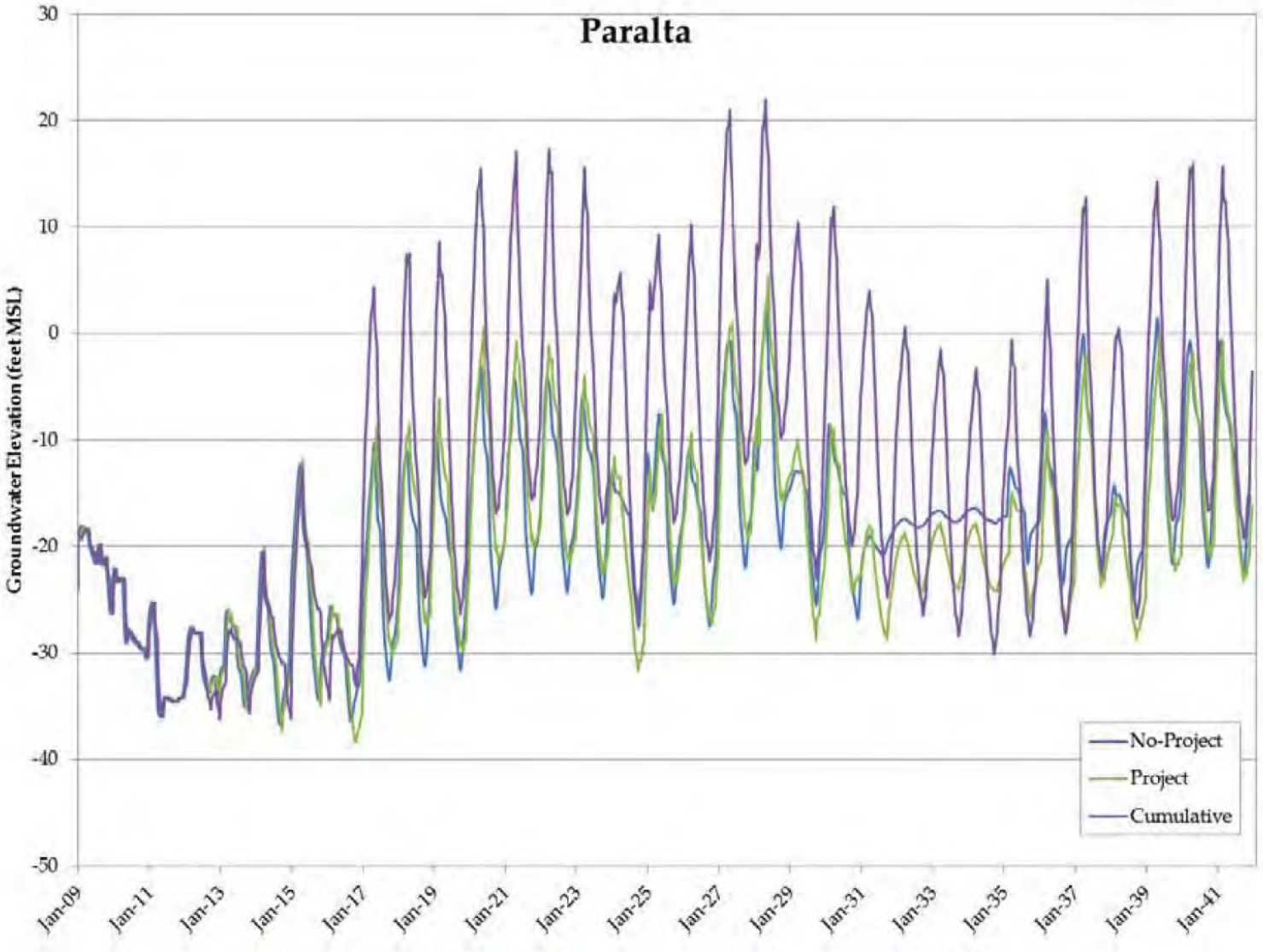


Figure 15: Predicted Static Groundwater Elevations at Paralta Well

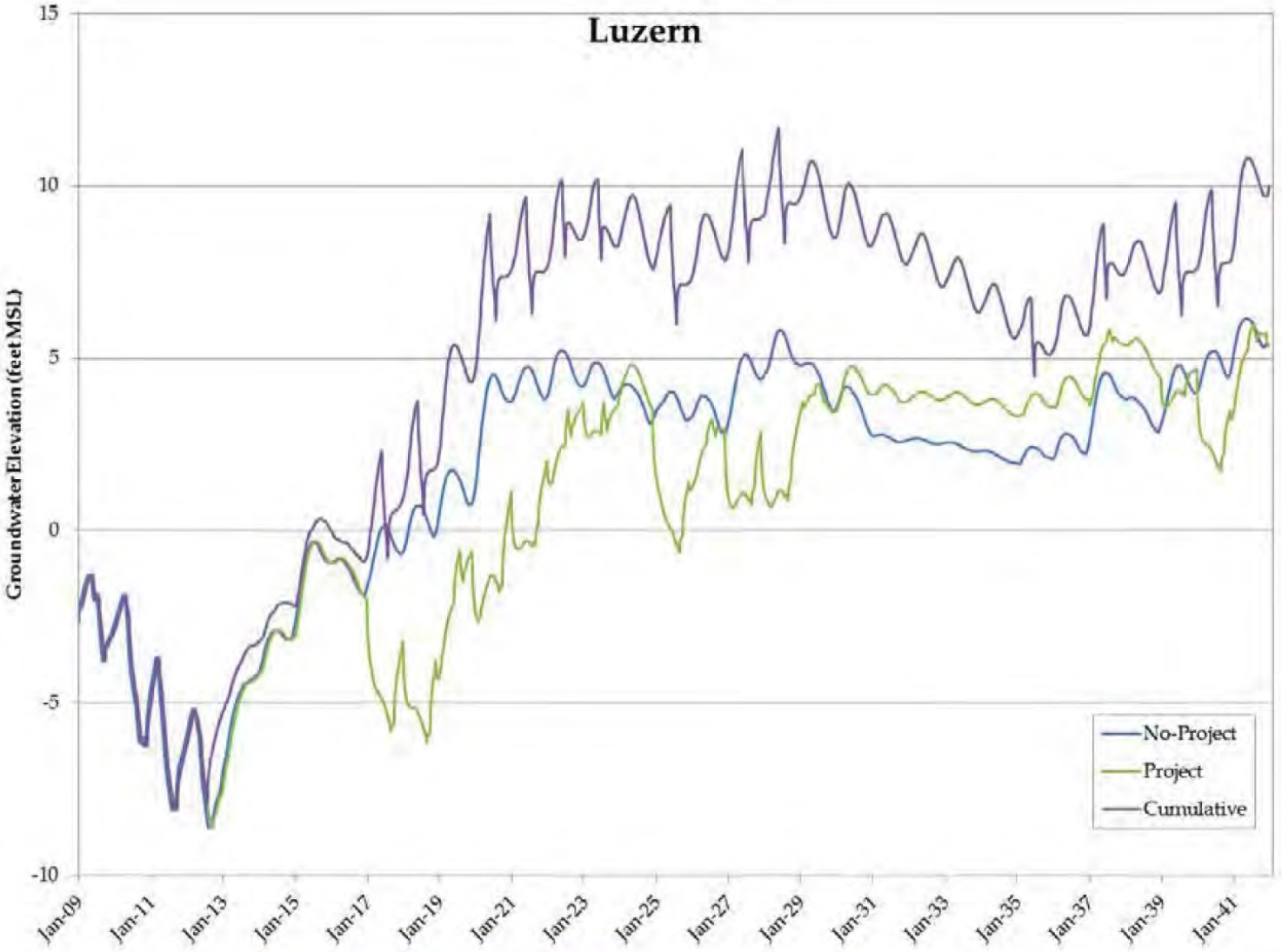


Figure 16: Predicted Static Groundwater Elevations at Luzern Well

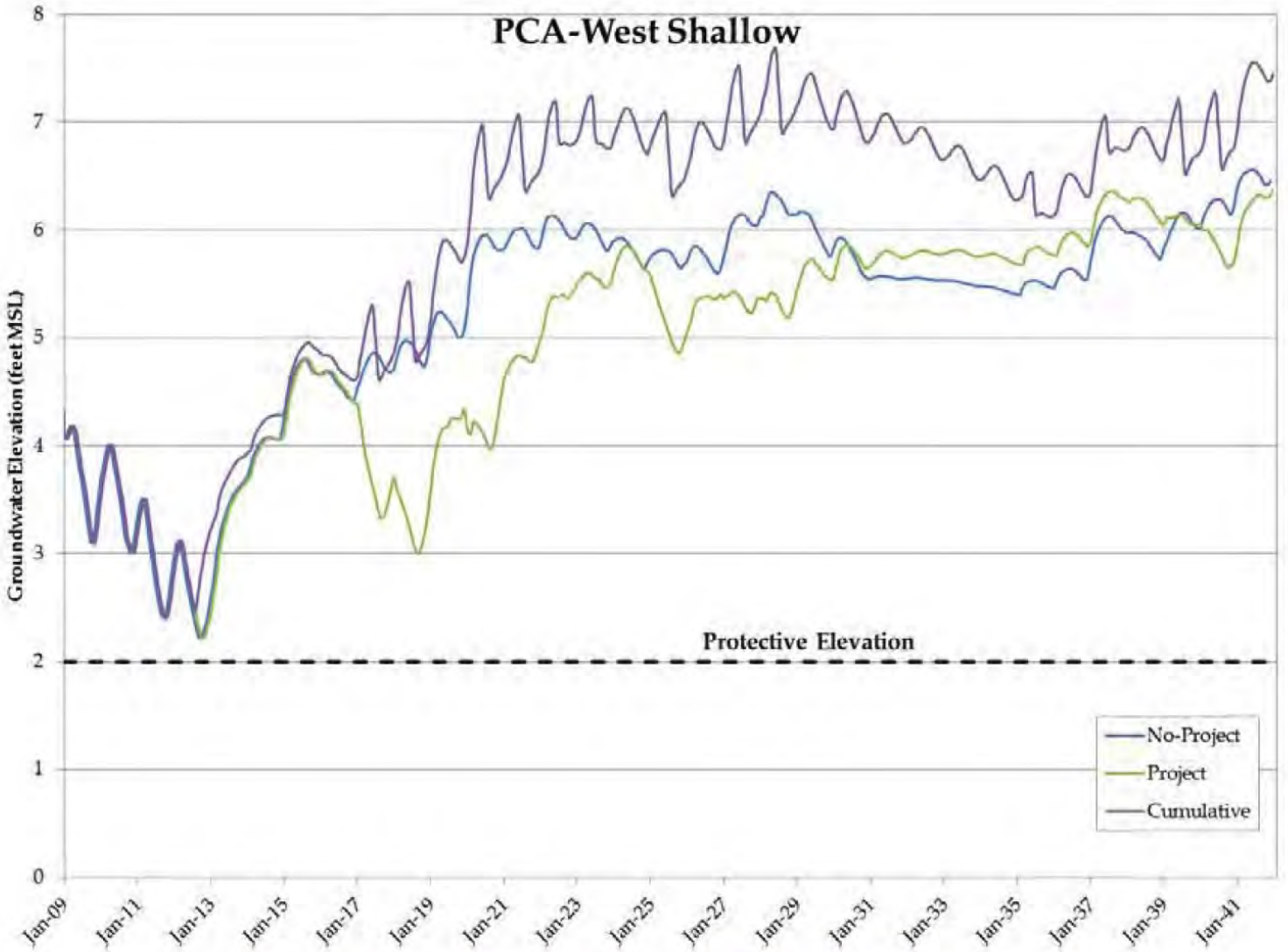


Figure 17: Predicted Static Groundwater Elevations at PCA-West Shallow Well

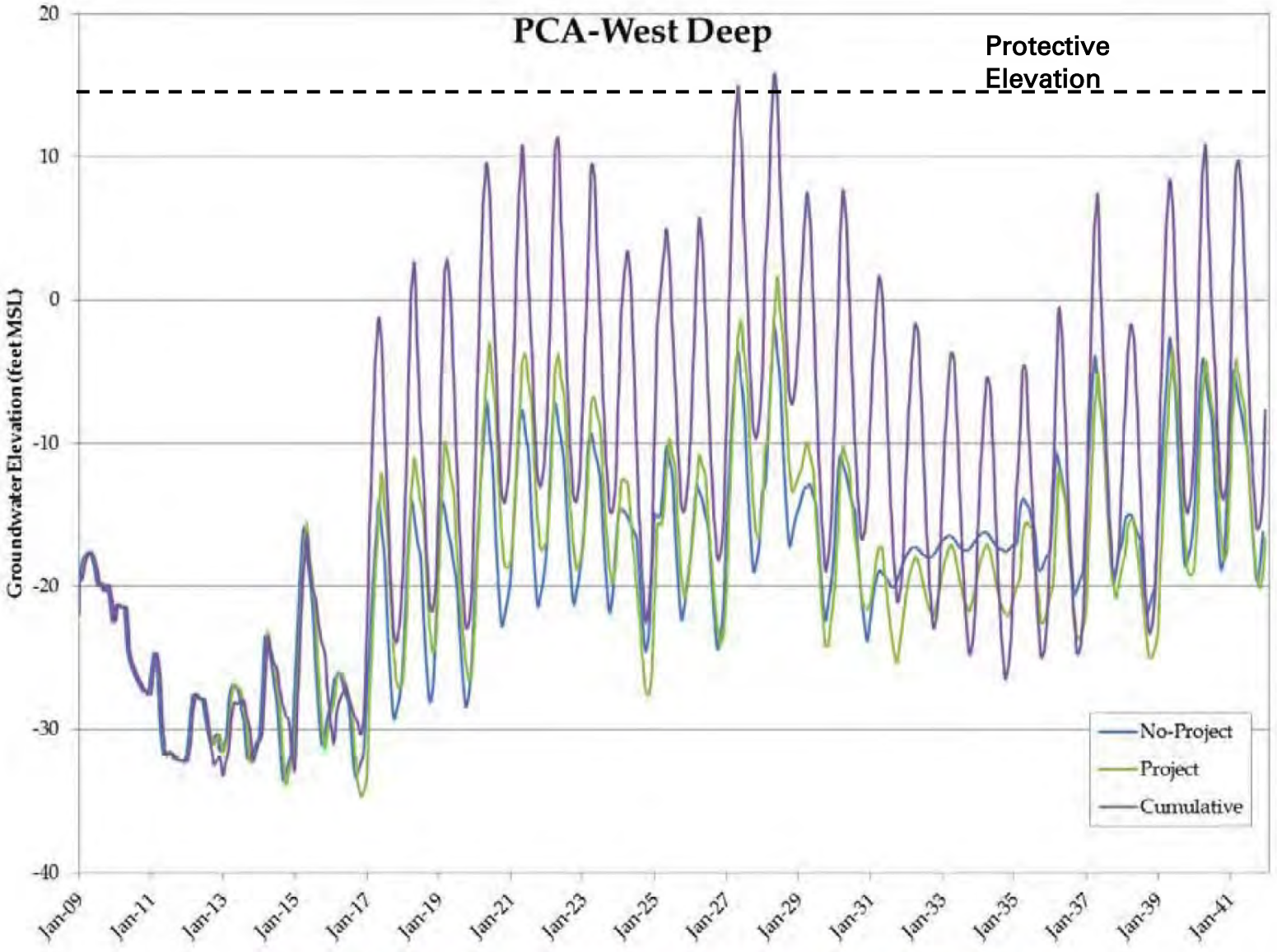


Figure 18: Predicted Static Groundwater Elevations at PCA-W Deep Well

Impacts If the Desalination Plant is Not Constructed

but

The Pure Water Monterey Expansion Project is Constructed

Under this scenario both the original PWM Project and the PWM Expansion Project would be in operation. Together these two projects are intended to deliver 5,750 acre-feet per year for injection into, and subsequent recovery from, the Seaside Basin.

The groundwater level impacts from this scenario were evaluated in the *Supplemental Environmental Impact Report for the Proposed Modifications to the Pure Water Monterey Groundwater Replenishment Project* (PWM SEIR) dated November 2019. Specifically, the modeling that was performed in conjunction with the expansion project is contained in Appendix D to the PWM SEIR. Appendix D contains the Technical Memorandum titled *Expanded PWM/GWR Project SEIR: Groundwater Modeling Analysis*, prepared by Montgomery & Associates dated November 1, 2019.

The *Expanded PWM/GWR Project SEIR: Groundwater Modeling Analysis* provides the most useful information for evaluating the impacts if the desalination plant is not constructed but there is an expansion of the Pure Water Monterey Project. This report estimates the impacts on groundwater levels in the Seaside basin for: (1) The No Project scenario (the same "No Project" scenario used in the original PWM EIR in which none of the proposed replenishment projects are built), and (2) The Project scenario in which both the original PWM Project and the expansion of the PWM Project are built, but no desalination plant is built. The following excerpts from this report describe the groundwater level impacts from the Project scenario.

The proposed modifications would expand the Advanced Water Purification Facility peak capacity from 5 MGD to 7.6 MGD and increase recharge of purified recycled water in the Seaside Basin by 2,250 AF/yr (for a total average replenishment rate of 5,750 AF/yr).

The original PWM Project included four injection well sites, however only two of the four approved well sites have been constructed based on final design of the original PWM Project. The proposed modifications include an expansion of injection well facilities into an expanded area to the east. The expanded injection well area includes up to three well sites. Under the proposed modifications, two of the four approved deep injection wells (DIWs) would be relocated into the expanded injection well area. In addition, one new DIW would be constructed and operated. No new vadose zone wells (VZWs) are proposed as part of the proposed modifications.

The proposed modifications require increased well injection capacity to accommodate the additional 2,250 AF/yr of purified recycled water. Of the average 5,750 AF/year of purified recycled water injected into the Seaside Basin, 90% will be injected/recharged into the deeper confined Santa Margarita Aquifer, while 10% will be injected/recharged into the shallower unconfined Paso Robles Aquifer. The amount of water recharged each year depends on whether the predicted hydrology is in a drought or non-drought year, and on the rules for banking and delivering water to the Castroville Seawater Intrusion Project (CSIP) for irrigation use in the Salinas Valley.

For Cal-Am to extract additional groundwater injected by the proposed modifications into the Seaside Basin, deliver it to meet its system demands at all times, and also provide system redundancy, the following Cal-Am potable water system improvements would be built and operated:

- Four new extraction wells and associated infrastructure; including two new extraction wells located at the Seaside Middle School (EW-1 and EW-2) and two new extraction wells located along General Jim Moore Boulevard (EW-3 and EW-4) and,
- New conveyance facilities along General Jim Moore Boulevard and at the Seaside Middle School site.

The calibrated groundwater flow model of the Seaside Groundwater Basin, the same model used to support the preparation of the approved PWM Project EIR (HydroMetrics, 2015), was used to evaluate potential changes to groundwater levels, changes to inflows and outflows to and from the Basin, and to estimate the underground retention time of injected purified recycled water from Project injection wells to nearby production wells in the Santa Margarita Aquifer and Paso Robles Aquifer.

A predictive model incorporating variable future hydrologic conditions was developed for this impact analysis. The groundwater model was calibrated through 2008; therefore, the predictive model begins in 2009. The predictive model simulates a 33-year period: from 2013 through 2045. Injection from the Pure Water Monterey project was assumed to start in October 2020 and was operating throughout the remaining 25 years of the simulation. The hydrogeological properties for the Santa Margarita Aquifer in the model were updated locally in the vicinity of the project to incorporate site specific data from aquifer pump tests conducted in project wells DIW-1 and DIW-2 and in five nearby wells consisting of ASR-1, ASR-2, ASR-3, ASR-4, and the Paralta well. The model was not recalibrated with updated parameters, though a comparison of calibration error statistics was evaluated and indicate no significant reduction or change to the calibration statistics at the regional model scale or the local basin subarea scale.

Monterey Peninsula Water Management District (MPWMD) estimated the amount of Carmel River water available for ASR injection for the predictive simulation based on historical streamflow records.

HydroMetrics WRI made a number of assumptions about future pumping rates by various entities in the Seaside Basin for the original PWM Project EIR modeling. For the expanded PWM Project simulation, new Cal-Am pumping assumptions were developed based on predicted hydrology, water demands, pumping capacity, operational rules, and water availability. These assumptions were incorporated into a spreadsheet water supply/demand model developed by MPWMD (*Supply and Demand for Water on the Monterey Peninsula*, dated September 19, 2019), which was then used to assign Cal-Am pumping rate inputs for the groundwater model. The MPWMD supply/demand model starts off with a Cal Am total demand of 10,398 acre-feet (AF) in October of 2020 (Model Year 8) and increases linearly to 11,325 AF through 2045 (Model Year 33). The monthly distribution of Cal-Am's annual deliveries, provided by MPWMD, was used to estimate future monthly demand, and are based on monthly averages of deliveries from 2007 to 2017. These values are summarized below in Table 3.

Table 3: Cal-Am Estimated Monthly Demand

Month	Percent of Annual Delivery	Estimated Future Monthly Demand (AF) Model Year 8	Estimated Future Monthly Demand (AF) Model Year 33
October	9.1%	950	1,034
November	7.5%	778	847
December	6.7%	702	764
January	7.9%	819	892
February	6.8%	702	765
March	8.3%	863	940
April	8.2%	852	928
May	9.0%	933	1,017
June	8.9%	923	1,005
July	9.5%	983	1,071
August	9.5%	986	1,074
September	8.7%	907	988

[Note that the original PWM EIR used a total Cal Am demand of 15,300 AFY for all future years, while the total starting demand in Model Year 8 of Table 3 is only 10,398 AFY, ramping up to 11,325 AFY in Model Year 33.]

Cal-Am's future pumping from the Seaside Basin will be drawn from three pools of water, listed in the order in which they are applied to meet monthly demand:

- Native groundwater
- PWM project water recovery
- Carmel River ASR recovery

Figure 6 below shows how Cal-Am's pumping is allocated to these three pools during the simulation. Pre-project values are consistent with previous model input (MY4 through MY7). On this figure, Cal-Am's annual Seaside Basin pumping needed to meet demand is shown by the dashed orange line. The area between the dashed orange line and the purple line represents the demand met by direct service of Carmel River water and Sand City Desal water. The amount of water pumped from each of the three pools is represented by the three colored areas under the dashed orange line. From WY 2022 onward, the allotment from the three water pools is sufficient to supply the requisite pumping. [*Note that this statement pertains to the requisite pumping needed to supply the demand in Table 3 above, not necessarily to the demand included in the Final EIR/EIS for the MPWSP. Also note that in Figure 6 the reason there is no ASR pumping shown in WYs 2022-2027 is because M1W and MPWMD agreed on different assumptions for how Cal-Am might operate their system in the future. The rule for ASR recovery provided by MPWMD in these simulations is that ASR water is only recovered if the Seaside Basin pumping demand cannot be met by a combination of pumping Cal-Am's native groundwater right plus recovering PWM water. ASR water is third priority in these simulations. With the expansion project, there is so much more PWM water, that there are periods when no ASR water is needed to meet to the demand, and the ASR water stays in storage in the aquifer.]*

Cal-Am forgoes 700 AF of water from the native groundwater pool every year as a replenishment repayment once the Cease and Desist Order on the Carmel River is met, which we assume occurs at the start of the project. We therefore assume that Cal-Am pumps only 774 AF/year of its assumed natural safe yield of 1,474 AF/year beginning in October 2020 (MY8).

The No-Project scenario developed for the original 2015 PWM Project EIR analysis was also used as a No-Project scenario in the PWM Expansion Project analysis to show overall changes in groundwater conditions due to implementation of the expanded PWM Project.

Hydrographs for simulated groundwater elevations under the No-Project and expanded PWM Project scenario are shown below on Figures 12 through Figure 19. The blue lines represent the simulated static groundwater elevation under the No-Project scenario and the green lines represent the simulated static groundwater elevation under the expanded Project scenario.

In general, the expanded PWM Project scenario hydrographs show long-term increases in average groundwater elevations relative to the No-Project hydrographs. Increased groundwater elevations are apparent within one year of the start of the expanded PWM Project, with the hydraulic head in the wells screened in the deeper confined Santa Margarita aquifer increasing the most quickly, and the water level rise in the wells screened in the unconfined shallow aquifers showing a more gradual increase. The hydrographs for the wells closest to the ASR and PWM injection sites (ASR 1&2, City of Seaside #3, Ord Grove #2, and Paralta) show long-term groundwater elevation increases of between approximately 5 to 20 feet above the No-Project baseline.

The expanded PWM Project scenario hydrographs also reveal increasing groundwater elevations farther to the west of the injection sites. At the Luzern well (Figure 14), screened in the shallower Paso Robles aquifer, groundwater elevations rise by between 5 and 10 feet above the No-Project baseline during the Project. At the PCA-West Shallow well (Figure 15), groundwater elevations rise by 1 to 2 feet. These wells are screened in the upper unconfined aquifer, so the effect of increased injection and extraction in the Santa Margarita Aquifer on annual variability is somewhat dampened.

A comparison of the simulated PCA-West well hydrographs for the expanded PWM Project and No-Project scenarios relative to the protective groundwater elevations provides insight into the potential impacts of the expanded PWM Project on seawater intrusion potential in the Seaside Basin. As shown on Figure 15, the groundwater elevations at the PCA-West Shallow well are consistently above the protective elevation for the shallow aquifer both during the expanded PWM Project and also for the No-Project baseline and reach over five feet above the protective elevation by the end of the simulated expanded PWM Project. Figure 16 shows that groundwater elevations at the PCA-West Deep well are consistently below the protective elevation for the Santa Margarita Aquifer in both the No-Project baseline and the expanded PWM Project scenario. This indicates that there is a potential for seawater intrusion both with and without the expanded PWM Project at this location.

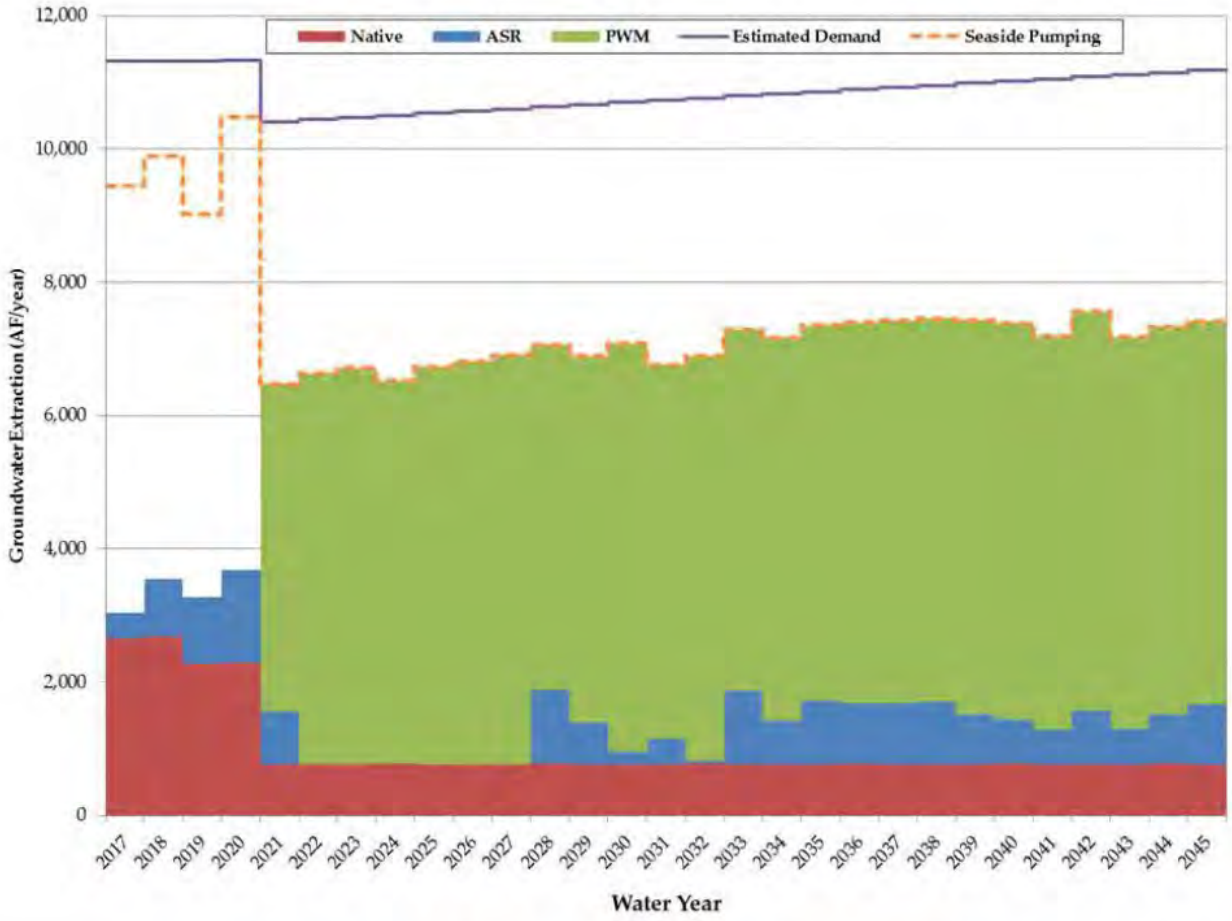


Figure 6: Annual Cal-Am Water Allocation by Water Right Source (expanded PWM/GWR Project)

The hydrographs for the Sentinel 3 monitoring well (Figure 19), located at the coast and screened in the deeper aquifer down gradient of the DIW-SITE-5 and DIW-SITE-6 injection sites, are similar to PCA-West Deep, where the No-Project baseline water levels are always below the protective elevation established for the well. The expanded PWM Project water levels are on average 5 to 10 feet above No-Project water levels and are above the protective elevation for periods of time, indicating that the expanded PWM Project decreases the potential for seawater intrusion at this location.

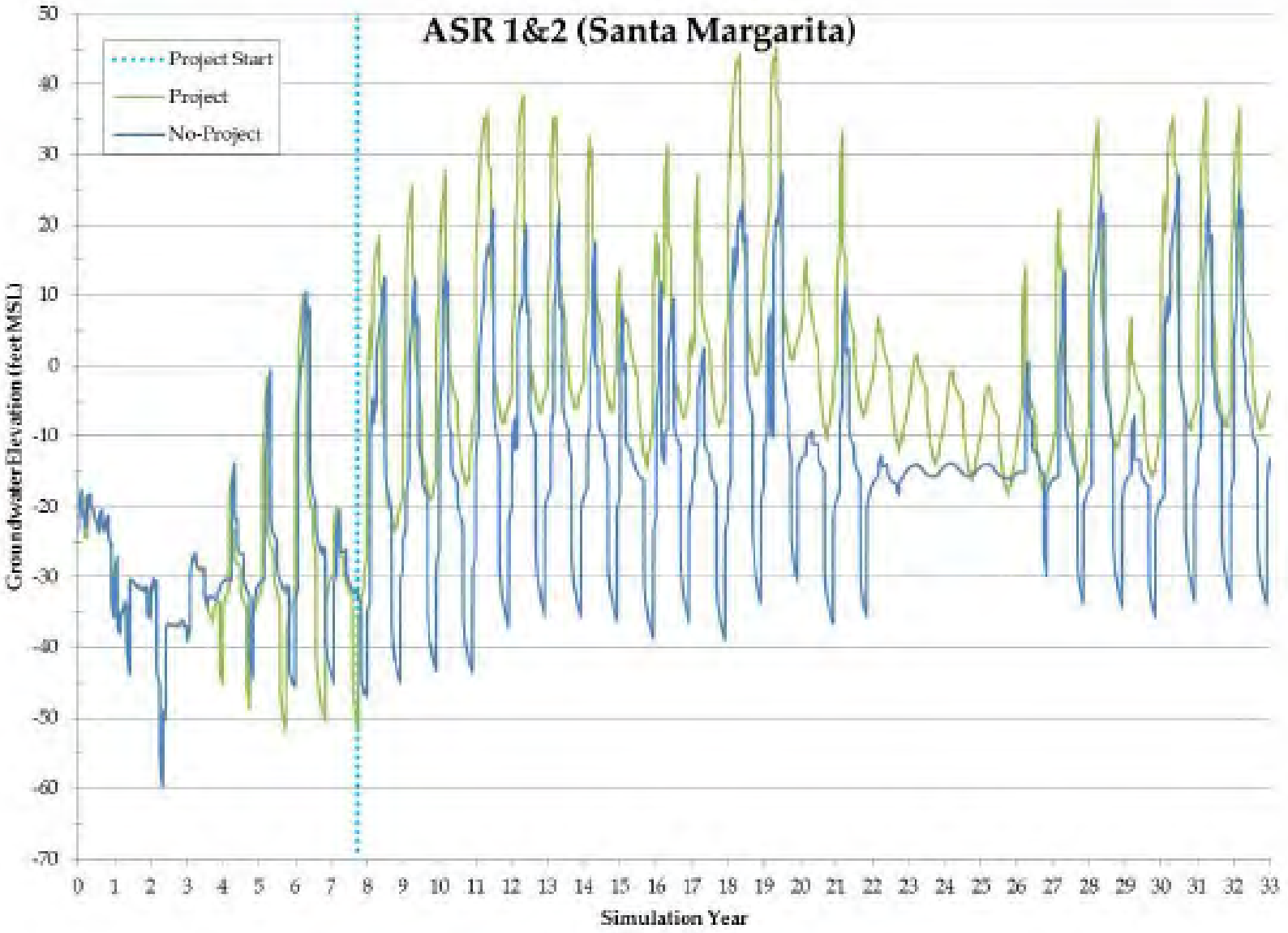


Figure 12. Predicted Static Groundwater Elevations at ASR 1&2 Wells

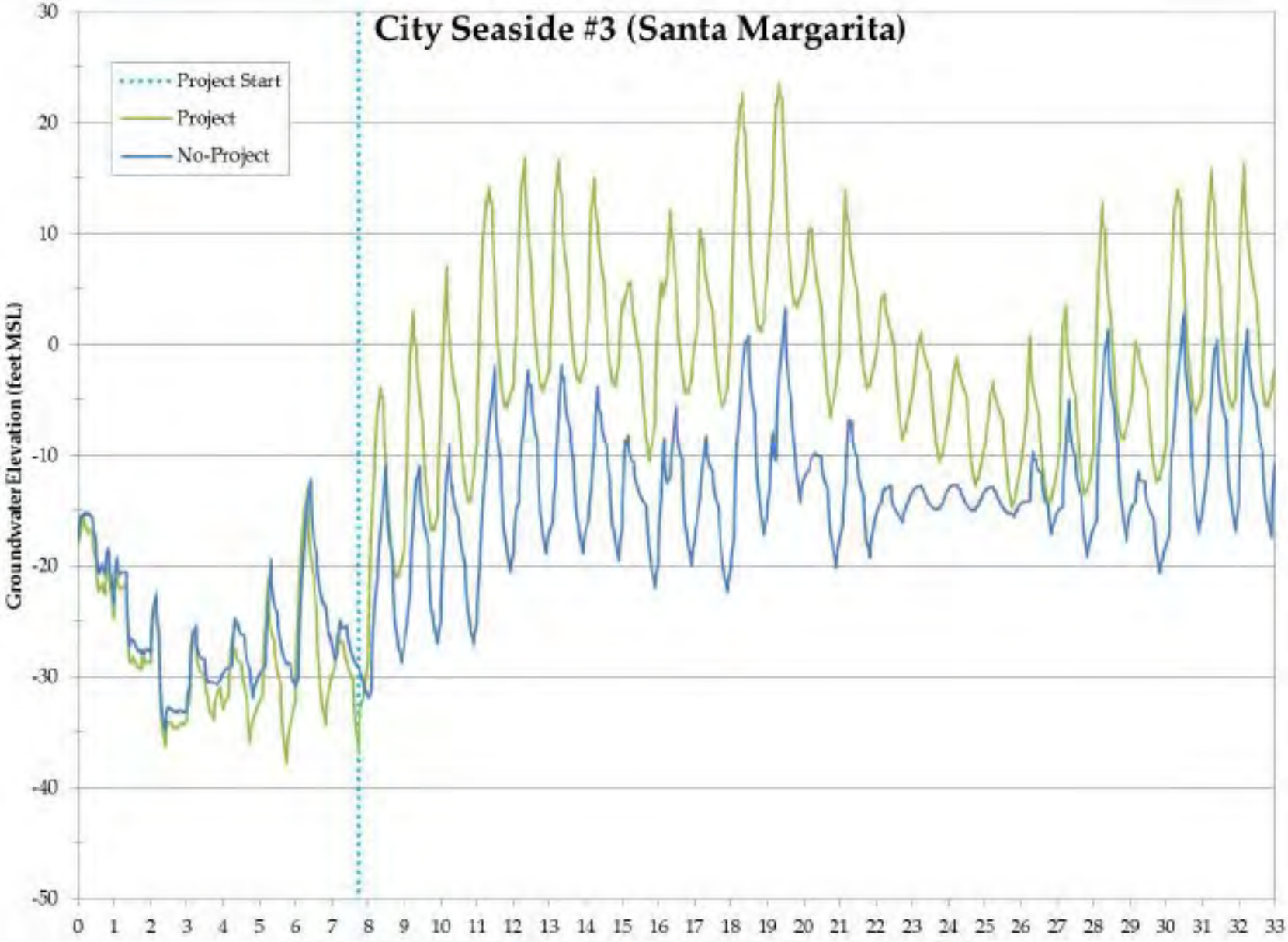


Figure 13. Predicted Static Groundwater Elevations at City of Seaside 3 Well

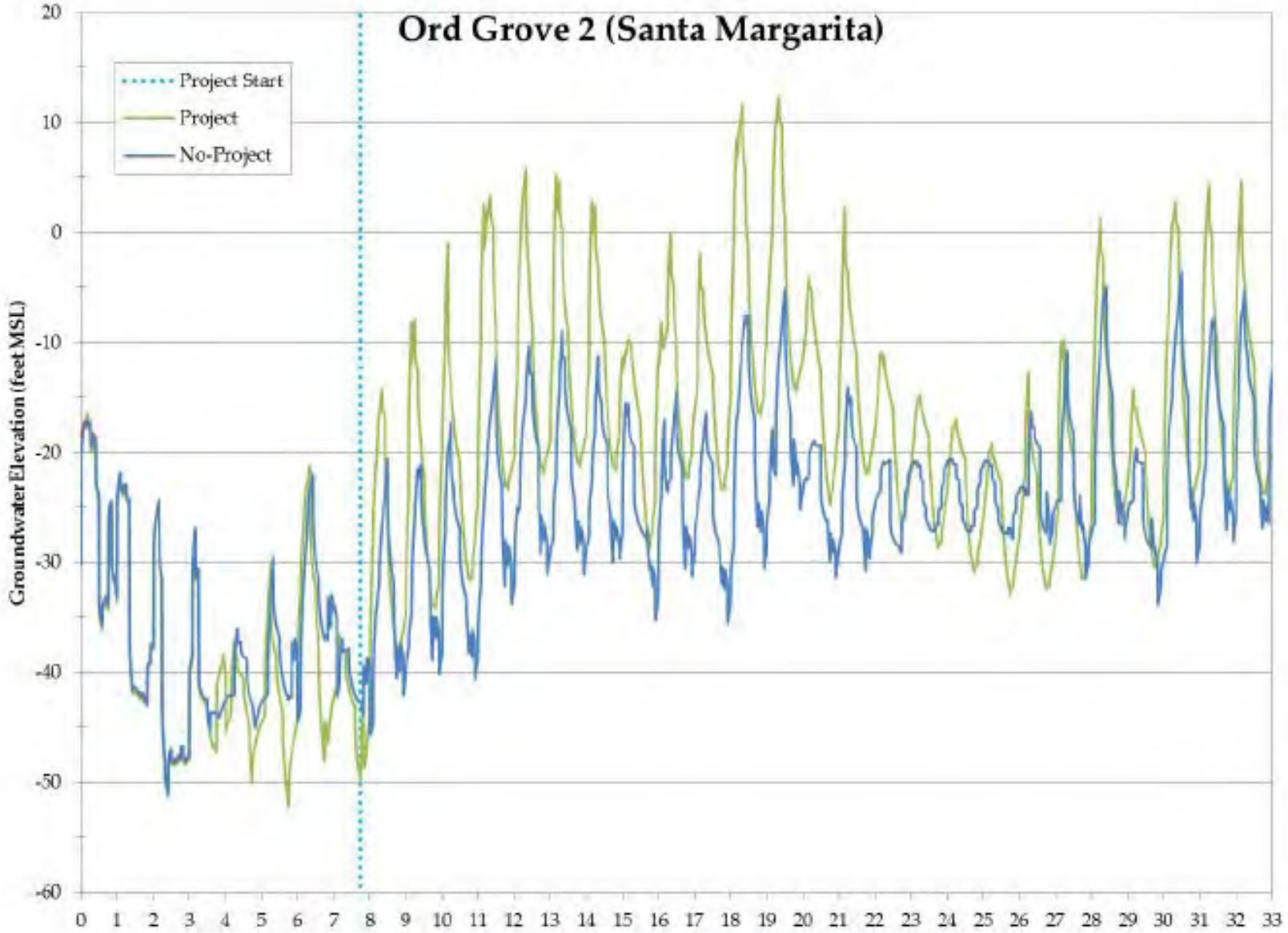


Figure 14. Predicted Static Groundwater Elevations at Ord Grove 2 Well

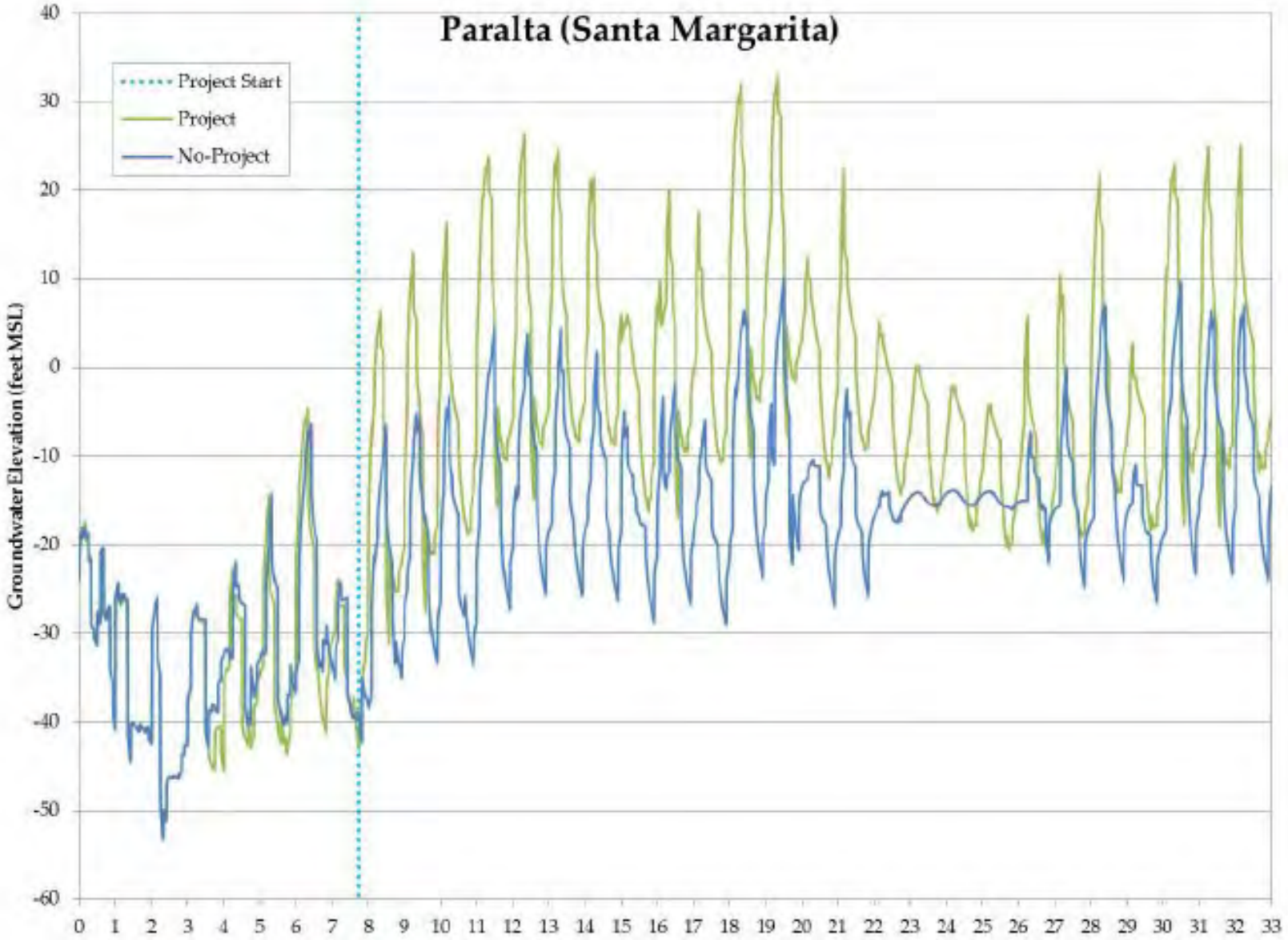


Figure 15. Predicted Static Groundwater Elevations at Paralta Well

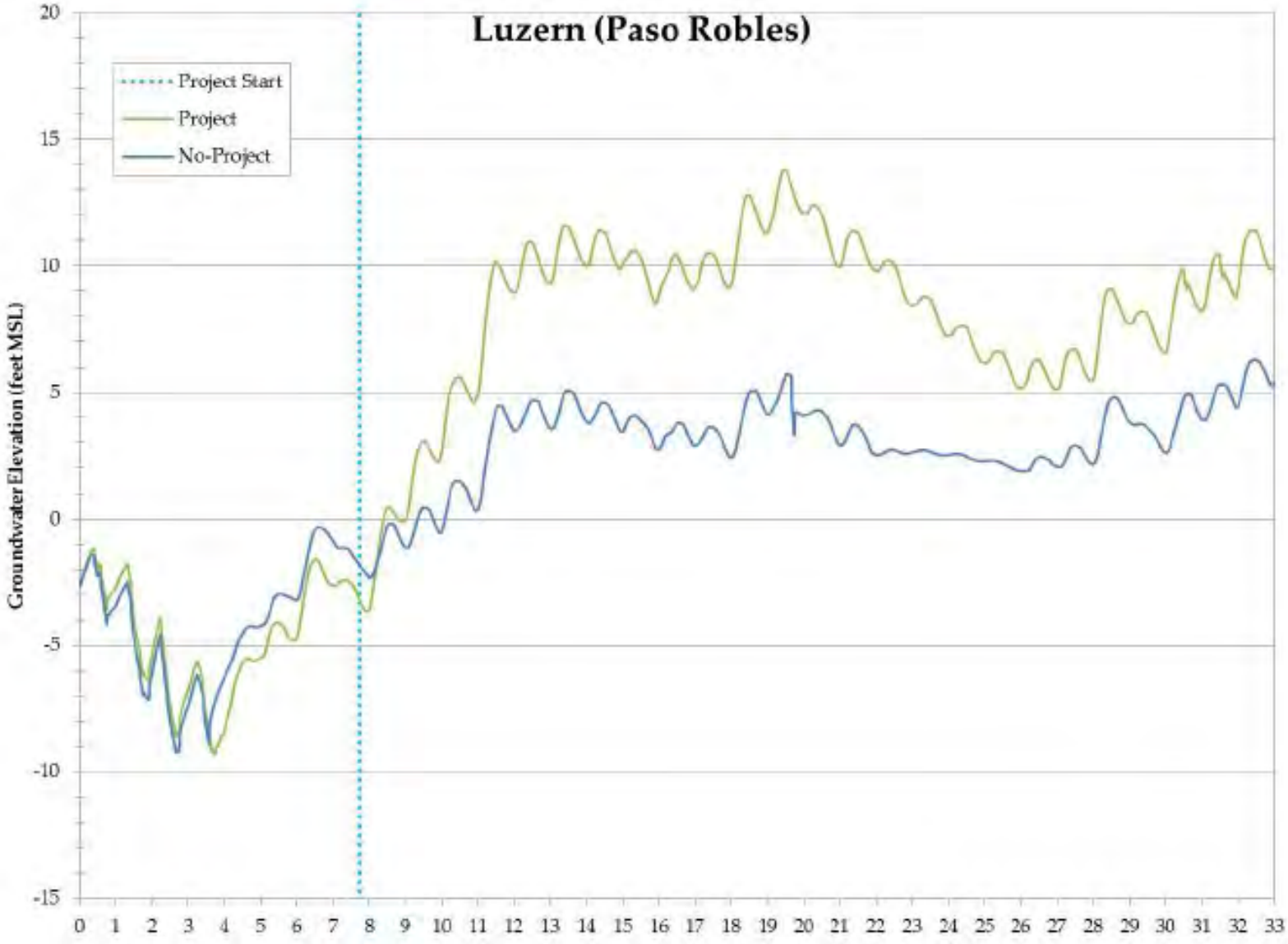


Figure 16. Predicted Static Groundwater Elevations at Luzern Well

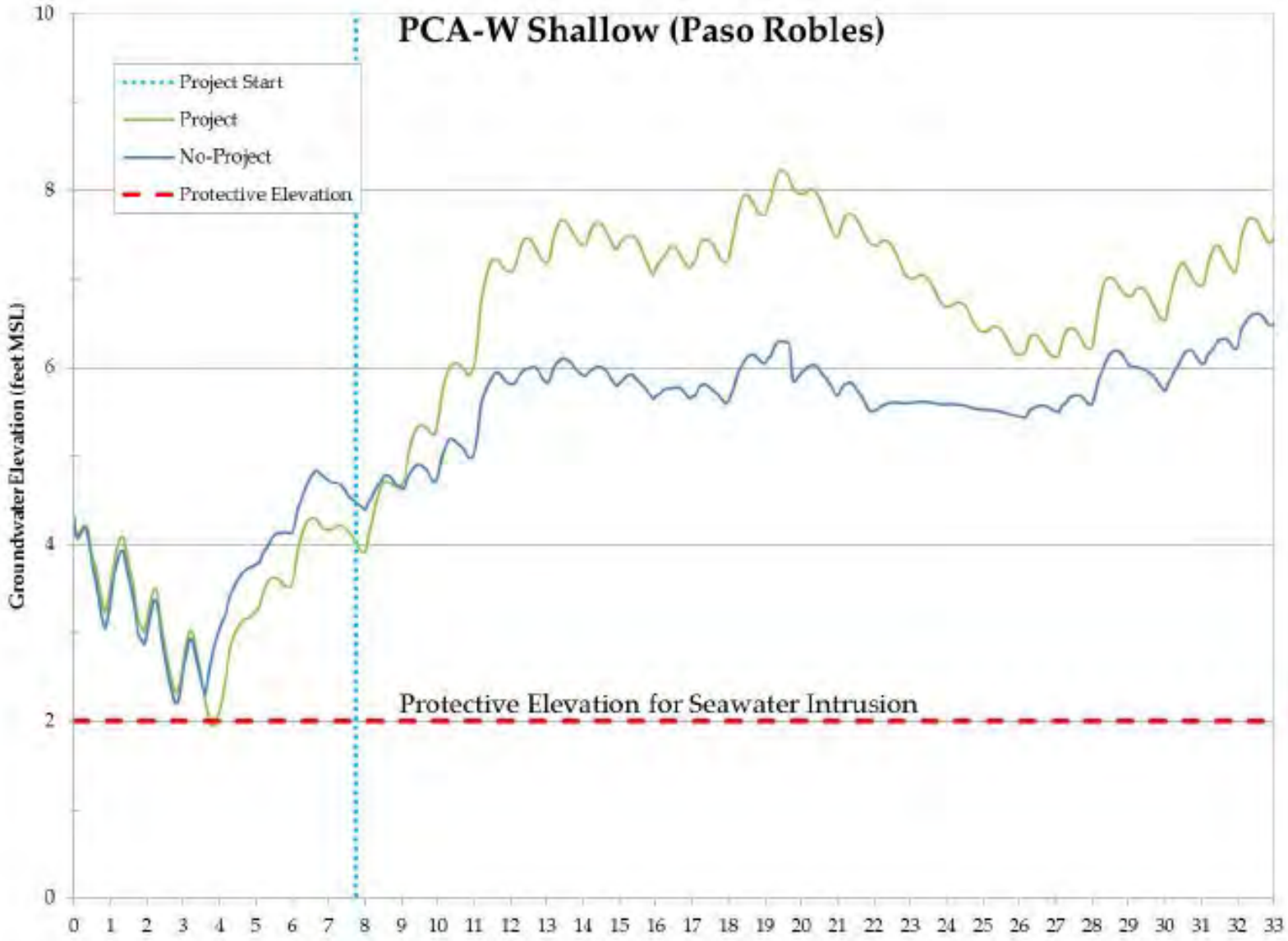


Figure 17. Predicted Static Groundwater Elevations at PCA-West Shallow Well

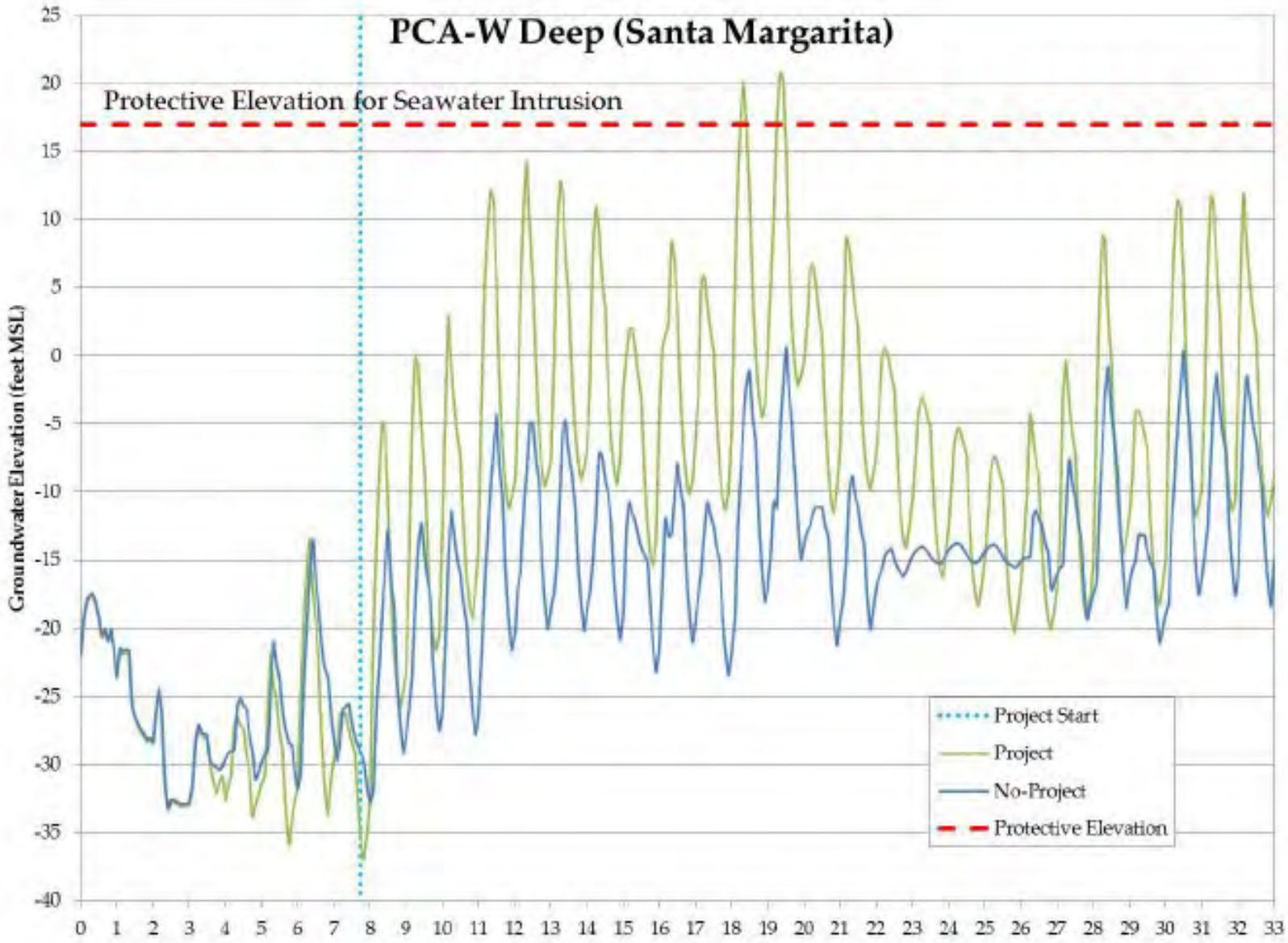


Figure 18. Predicted Static Groundwater Elevations at PCA-West Deep Well

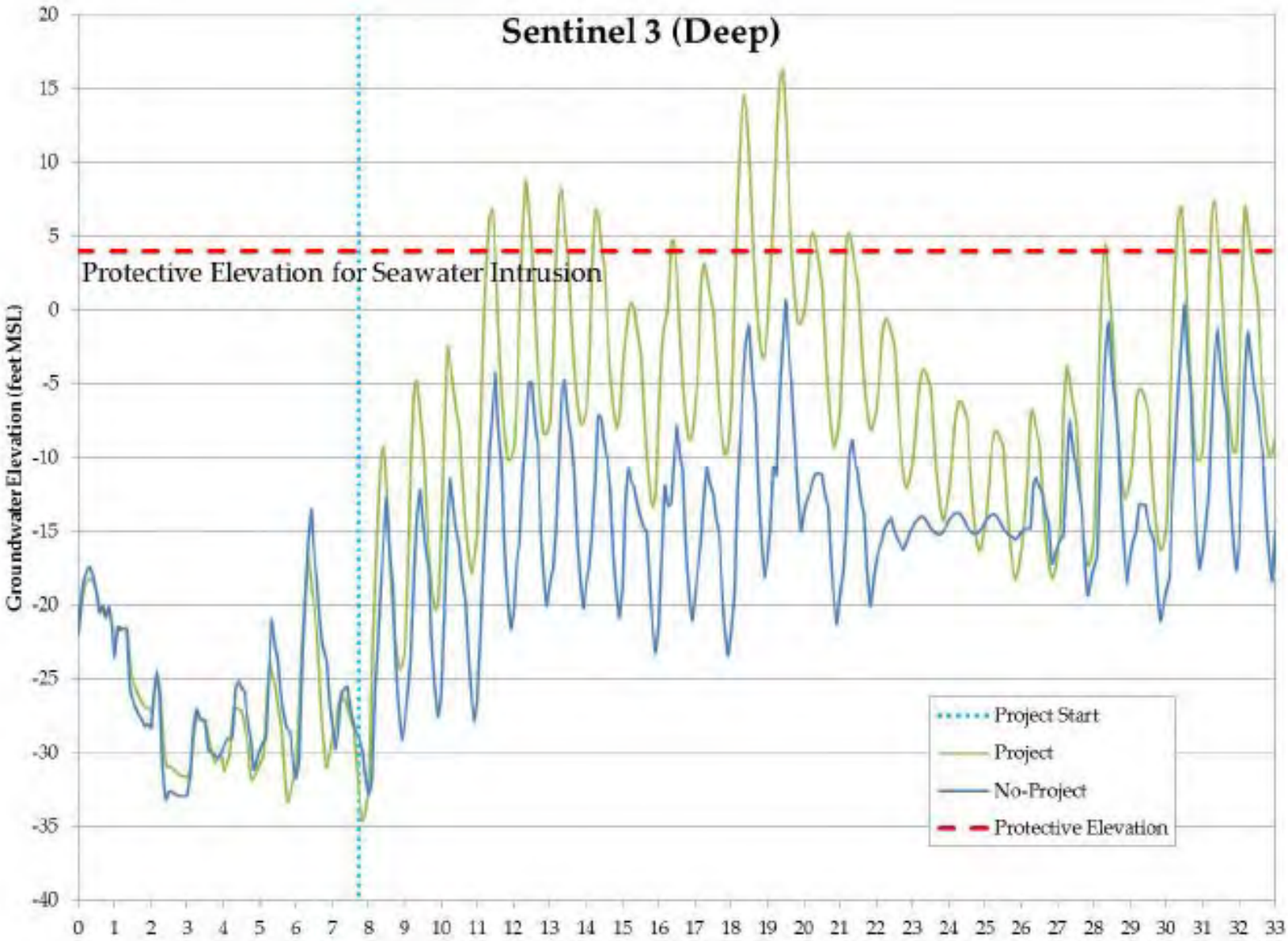


Figure 19. Predicted Static Groundwater Elevations at Sentinel 3 Well

SEASIDE BASIN WATER MASTER TECHNICAL ADVISORY COMMITTEE

** * * AGENDA TRANSMITTAL FORM * * **

MEETING DATE:	July 10, 2019
AGENDA ITEM:	5
AGENDA TITLE:	Initial Discussion Regarding Scope of Work for Monitoring and Management Program (M&MP) for FY 2021
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:

The Schedule calls for the TAC to approve a FY 2021 Work Plan and Budget for the 2021 Management and Monitoring Program (M&MP) at its August 2020 meeting. This will then go on to the Board for approval at its October 2020 meeting.

In order to obtain TAC input and direction regarding these items, I have reviewed the FY 2020 M&MP and have edited it to reflect those work items that I anticipate being performed in FY 2021. A copy of this Proposed Work Plan is contained in Attachment 1.

Items highlighted in yellow are costs for the various tasks that I will evaluate and update as necessary, based on the TAC's input at today's meeting and discussions with our consultants.

Other than the obvious need to change the dates in the M&MP from 2020 to 2021 (which I have done), all other proposed changes from the 2020 M&MP are shown in Track-Change format (deletions in ~~red~~ strikeout and additions in blue) for the TAC to consider in preparing the 2021 M&MP. Most of the proposed revisions are relatively minor, but I have included in Task I.3.a.3 some new modeling work pertaining to injection of water to raise groundwater levels. This additional work was proposed last year but was removed based on input from Todd Groundwater and Montgomery & Associates that pointed out that if all the water injected by the PWM and desalination plant projects is subsequently extracted, then there would be little if any net increase in groundwater levels. I am proposing to reinstate revised wording in the M&MP this year which is focused on getting additional water above and beyond that which would be injected by the desalination plant or the PWM Expansion Project (depending on which of these moves forward to construction) and not extracted in order to raise groundwater levels to protective elevations Basinwide.

I am also proposing to delete a few sections of the M&MP which have been completed and no longer need to be included.

Attachment 2 contains the Recommendations section from the 2018 update of the Basin Management Action Plan (BMAP). The TAC is requested to provide direction on whether some of these should also be included in the 2021 M&MP. They are summarized below:

Recommendation 1: Encourage Implementation of Selected Management Actions

1. **Install New Southern Coastal Subarea Wells**. Who would carry this work out, and how it would be funded, would need to be determined, as well as where the wells would be located and how much they could produce without causing harm to the Basin in the Southern Coastal Subarea, and how much benefit they would provide to the Northern Coastal Subarea.

SEASIDE BASIN WATER MASTER TECHNICAL ADVISORY COMMITTEE

** * * AGENDA TRANSMITTAL FORM * * **

AGENDA ITEM:	5 (Continued)

2. **Recycled Water for Laguna Seca Golf Courses**. Where the recycled water would come from and how it would be delivered to the golf courses, as well as how this would be funded, would need to be determined.
3. **Water Conservation**. This is already being carried out and reportedly to essentially its maximum practical extent.
4. **Coordination with the Salinas Valley Basin Groundwater Sustainability Agencies**. This is already being done through the Watermaster's representation on the Advisory Committee of the SVBGSA. When MCWD forms a similar advisory body, the Watermaster has been told that it will be invited to be a member.
5. **Enhanced Storm Water Recharge within the City of Seaside**. This appears to be something that would be carried out by the City of Seaside, but the Watermaster could be supportive of this.

Recommendation 2: Groundwater Modeling to Determine a Combination of Management Actions and Supplemental Supply Projects that Achieve Protective Groundwater Elevations. This would be the Sustainable Yield approach to Basin management. The Board determined to defer any action on this pending completion of the Groundwater Sustainability Plans for the Salinas Valley Groundwater Basin.

Recommendation 3: Continue Ongoing Groundwater Monitoring. We are already doing this.

Recommendation 4: Develop Long-Term Financing Plan for Replenishment Water. This seems like a good thing to do, but first it would seem necessary to identify the source(s) of replenishment water, so the costs and other things related to that could be defined.

If there are other revisions the TAC would like to make to prepare the M&MP for 2021, they can be brought up at today's meeting. The final M&MP for 2021, which will reflect any revisions or additions/deletions that come up at today's meeting, will be on the TAC's August 12, 2020 Agenda for approval.

ATTACHMENTS:	1. Preliminary Proposed FY 2021 Seaside Groundwater Basin M&MP 2. Recommendations in the Updated BMAP
RECOMMENDED ACTION:	Provide Input to Technical Program Manager Regarding Any Corrections or Additions to the Preliminary Proposed FY 2021 M&MP

Attachment 1

The tasks outlined below are those that are anticipated to be performed during 2021. Some Tasks listed below are specific to 2021, 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 ($19,000)	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: • Those associated with attendance at TAC meetings (either in person or by teleconference 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 teleconference 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** **($2,000)**	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** **($17,004)**	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. 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. No enhancements to the database are anticipated during 2021.
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 2021.

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 2021.
I. 2 b. 2 **Collect Monthly Manual Water Levels** **($3,726)**	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. This Task includes the purchase of one datalogger and parts for the datalogger to keep in inventory as a spare if needed.
I. 2. b. 3	Water quality data will be collected quarterly from certain of the

Collect Water Quality Samples. ($42,801)	monitoring wells, but will no longer be collected from the four coastal Sentinel Wells. Discontinuing water quality sampling in those wells is the result of the finding made in 2018 that the water quality samples being extracted from those wells are not representative of the aquifer. Those wells were designed for the purpose of electric induction logging, and will therefore continue to be induction logged twice a year in WY 2021. In 2012 water quality analyses were expanded to include barium and iodide ions, to determine the potential benefit of performing these additional analyses. These two parameters have been useful in analyzing seawater intrusion potential in other vulnerable coastal groundwater basins, and are briefly mentioned in the Watermaster's annual Seawater Intrusion Analysis Reports. These parameters were added to the annual water quality sampling list for the four Watermaster Sentinel wells (SBWM-1, SBWM-2, SBWM-3, and SBWM-4), and also for the 3 most coastal MPWMD monitoring wells (MSC, PCA, and FO-09). Barium and iodide analyses will continue being performed on the 3 most coastal MPWMD monitoring wells in 2021, but will no longer be performed on the Watermaster's coastal Sentinel Wells as discussed above. 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. Under this Task in 2013 retrofitting to use the low-flow purge approach for getting water quality samples was completed on all of the wells that are sampled. This 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 is found to be no longer adequate due to declining groundwater levels an allowance to purchase a replacement sampling pump has been included in this Task. Improvements to the QA/QC program for the water quality sampling work were adopted in mid-2017 and will be included in this work in 2021.
I. 2. b. 4 Update Program Schedule and Standard Operating Procedures. ($0)	All recommendations from prior reviews of the data collection program have been implemented. No additional work of this type is anticipated in 2021.
I. 2. b. 5 Monitor Well Construction ($0)	An additional monitoring well was installed in 2009. No further work of this type is anticipated in 2021.
I. 2. b. 6 Reports ($2,086)	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. 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.
I.2.b.7 **CASGEM Data Submittal** **($8,940)**	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.
	I. 3 Basin Management
I. 3. a. **Enhanced Seaside Basin Groundwater Model** **(Costs listed in subtasks below)**	The Watermaster and its consultants use a Groundwater Model for basin management purposes.
I.3.a.1 **Update the Existing Model** **($0)**	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. In 2018 the Model was recalibrated and updated. No further work of this type is anticipated in 2021.
I. 3. a. 2 **Develop Protective Water Levels** **($0)**	A series of cross-sectional models was created in 2009 in order to develop protective water levels for selected production wells, as well as for the Basin as a whole. This work is discussed in Hydrometrics' "Seaside Groundwater Basin Protective Water Elevations Technical Memorandum." In 2013 further work was started to refine these protective water levels, but it was found that the previously developed protective water levels were reasonable. Protective water levels will be updated, if appropriate, as part of the work of Task I.3.c.
I. 3. a. 3 **Evaluate Replenishment Scenarios and Develop Answers to Basin Management Questions** **($~~20,000~~70,000)**	In 2009 the updated Model was used to evaluate different scenarios to determine such things as the most effective methods of using supplemental water sources to replenish the Basin and/or to assess the impacts of pumping redistribution. This work is described in HydroMetrics' "Seaside Groundwater Basin Groundwater Model Report." In 2010, and again in 2013, HydroMetrics used the updated Model to develop answers to some questions associated with Basin management. 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 water. In the not-too-distant future there might be the ability of Monterey Peninsula Water Supply Project's (MPWSP) desalination plant (if it gets built) to provide additional water for Basin injection on an interim basis until California American Water's demand level reaches the

desalination plant's design capacity. There is some growth built into that plant's capacity for such things as lots of record and economy bounce back, which will likely not all be needed for some years into the future.

Also, if the Pure Water Monterey (PWM) Project were to be expanded this could be another source of water, at least some of which could be injected and left in the Basin to bring up water levels.

Montgomery & Associates agrees that injection is the quickest way to bring groundwater levels up in the Seaside Basin. The original 3,500 AFY PWM Project is already in operation, and construction of either the MPWSP desalination plant or the PWM Expansion Project is expected to begin in 2021. Modeling to determine the additional amount of replenishment water needed to achieve protective groundwater level elevations throughout the Basin, after those projects are constructed, could be performed to aid the Watermaster in pursuing approaches to obtain that additional water for Basin replenishment.

Based on the costs of previous modeling, it is expected to cost approximately $14,000 to model each scenario. Montgomery & Associates anticipates that it would take a minimum of 3 scenarios to perform an initial assessment of the most cost-effective method of using additional injected water to raise groundwater levels to protective elevations. This Task includes a $50,000 allowance to perform this modeling, if so directed by the Watermaster Board.

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. Additional modeling work may be performed in 2021 to further examine this situation. This Task provides a $20,000 allowance to perform modeling or other work to develop answers to basin management questions, 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
I. 3. c. **Refine and/or Update the Basin Management Action Plan** **($0)**	In 2019 the BMAP was updated based on new data and knowledge that has been gained since it was prepared in 2009. No further work of this type is anticipated in 2021. However, after the Groundwater Sustainability Plan (GSP) for the adjacent Monterey Subbasin of the Salinas Valley Groundwater Basin is completed, it may be appropriate to further update the BMAP to reflect the impacts of implementing that GSP. That GSP is scheduled to be completed by early 2022.
I. 3. d. **Evaluate Coastal Wells for Cross-Aquifer Contamination Potential** **($0)**	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 had compromised these seals, it would be possible for the intrusion to flow from one aquifer to another. An evaluation of this was completed in 2012 and is described in MPWMD's Memorandum titled "Summary of Seaside Groundwater Basin Cross-Aquifer Contamination Wells Investigation Process and Conclusions" dated August 8, 2012. This Memorandum did not recommend performing any further work on this matter, other than to incorporate into the Watermaster's Database data from wells that were newly identified by the work performed in 2012. That data has now been incorporated into the Database, and no further work by the Watermaster on this matter is anticipated. In late 2017 a request was made to MPWMD to destroy one of its no-longer-used monitoring wells that is perforated in multiple aquifers (Well PCA-East Multiple). MPWMD performed this work in 2018. No further work of this type is anticipated in 2021.
I.3. e. **Seaside Basin Geochemical Model** **($10,000)**	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 have been using geochemical modeling to predict the effects of injecting Carmel River water into the Seaside Groundwater Basin under the ASR program. 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.

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 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 any of the geochemical evaluations indicate 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 for each of these projects, 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 these new sources of 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. b.**~~
~~**Focused Hydrogeologic Evaluation**~~
~~**($0)**~~

~~MPWMD attempted to compile historical and current water quality data in the coastal area to provide more in-depth evaluation of conditions in the shallow Dune Sand/Aromas Sand aquifer in the vicinity of the Sand City Public Works well, where unique water quality conditions and variability have recently been observed as discussed at TAC meetings. However, it was found that no historical water quality data from Cal-Am's now-abandoned wells existed, and consequently it was not possible to answer the question of why water quality in the Sand City Public Works well differs from water quality in other wells in the Basin. The Sand City desalination plant could be affecting water quality in this area, but without the prior water quality data from now-abandoned wells, this could not be determined. The results of this work were summarized in 2013 in a brief Technical Memorandum prepared by MPWMD with conclusions and recommendations, and no further work on this matter is planned.~~

I. 4. c. **Annual Report- Seawater Intrusion Analysis** **($25,322)**	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 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. 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 annual EM 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. d**~~ ~~**Complete Preparation of Seawater Intrusion Response Plan**~~ ~~**($0)**~~	~~The Watermaster's Consultant (HydroMetrics) completed preparation of the long-term Seawater Intrusion Response Plans (SIRP) in February 2009. The Sections that are included in the SIRP are:~~ ~~Section 1 – Background and Purpose~~ ~~Section 2 – Consistency with Other Documents~~ ~~Section 3 – Seawater Intrusion Indicators and Triggers~~ ~~Section 4 – Seawater Intrusion Contingency Actions~~ ~~Section 5 – References~~ ~~No further work on the SIRP is anticipated in 2021.~~
I. 4. e. **Refine and/or Update the Seawater Intrusion Response Plan** **($0)**	At the beginning of 2009 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 2021.
I. 4. f. **If Seawater Intrusion is Determined to be Occurring, Implement Contingency Response Plan** **($0)**	The SIRP will be implemented if seawater intrusion, as defined in the Plan, is determined by the Watermaster to be occurring.

Attachment 2

BMAP Recommended Management Strategies

Many of the recommendations made in the 2009 BMAP have been implemented and have successfully contributed to producers adhering to triennial pumping reductions. Producers in the Basin have already demonstrated that they have the means to reduce pumping to close to 3,000 acre-feet per year. With the supplemental water supply projects currently under construction, basin producers are on track to achieving the Basin's Operating Yield at the Decision-Established Natural Safe Yield of 3,000 acre-feet per year by October 2020.
The modeling that developed the protective elevation groundwater surfaces for this report indicate that the MPWSP, in its current configuration, will not raise groundwater levels to protective groundwater elevations in all parts of the Basin. A further reduction of pumping in production wells screened in the deep aquifer of the Northern Coastal Subarea of approximately 1,800 acre-feet per year is needed for all protective groundwater elevations to be reached by the end of the predictive model period (2041). This will ensure that seawater intrusion will not impact the Basin and its production wells.

Recommendation 1: Encourage Implementation of Selected Management Actions
From the basin management actions outlined in Section 5, the following five are the most likely to be implemented cost-effectively and provide the greatest benefit to the Basin in the short-term. These recommended management strategies are focused on increasing recharge in the Basin and decreasing groundwater demand in the key areas of the Basin that are under stress: Northern Coastal and Laguna Seca Subareas. Any action that would assist in appropriate management of the Basin should be encouraged and supported by the Watermaster.

1. **Install New Southern Coastal Subarea Wells**
   This strategy further spreads pumping across the Basin. It could be implemented more quickly than the inland wells strategy if land is available to CAWC in the Southern Coastal Subarea. The Southern Coastal Subarea would be particularly advantageous, because it has more groundwater stored above sea level than the Northern Coastal Subarea. New well locations should be sited in coordination with the Watermaster to determine optimal locations that do not cause groundwater levels to fall below protective elevations.
2. **Recycled Water for Laguna Seca Golf Courses**
   The use of recycled water in the Laguna Seca Subarea for irrigation purposes should be encouraged by the Watermaster provided that no detrimental water quality impacts occur.
3. **Water Conservation**
   This is a management action without capital costs that results in a demand reduction. Water conservation should be given high priority with respect to the Watermaster's support of projects that reduce the amount of groundwater pumped from the Basin. Opportunities for additional water conservation, however, may be limited and therefore the benefit may be small.
4. **Coordination with the Salinas Valley Basin Groundwater Sustainability Agencies**
   Over the next few years, the Salinas Valley Basin and MCWD Groundwater Sustainability Agencies will be developing sections of their GSPs related to sustainable management criteria and the projects and management actions that will be implemented to achieve their sustainability goals for the Corral de Tierra and Ord subareas of the Monterey Subbasin by 2042. Their GSPs are required to be submitted by January 31, 2022. Since pumping in the Corral de Tierra subarea east of the Laguna Seca Subarea influences groundwater levels in Laguna Seca Subarea, and pumping in the Ord subarea can influence groundwater levels in the Seaside Basin's Northern Coastal Subarea, it is

vital that the Watermaster have technical representation at GSP coordination meetings required under SGMA with neighboring basins. Due to the extended timeline for GSP implementation, this management action is likely to have a longer-term impact on the Basin than the other recommendations.

5. **Enhanced Storm Water Recharge within the City of Seaside**
   Recharge project opportunities using storm water similar to the Del Monte Manor Park infiltration and the Drywell Aquifer Recharge Program should be supported by the Watermaster. The shallow aquifer will benefit from this type of recharge of stormwater that normally discharges to the ocean through outfalls to Monterey Bay.

Recommendation 2: Groundwater Modeling to Determine a Combination of Management Actions and Supplemental Supply Projects that Achieve Protective Groundwater Elevations

A calibrated groundwater flow model was developed for the Basin based on recommendations in the 2009 BMAP. The groundwater model has been used regularly to evaluate Basin conditions that result from various management actions and supplemental water supply projects. The model was updated in early 2018 prior to the preparation of this updated BMAP.

Although individual projects have been modeled and compared against protective groundwater elevations, the combination of basin management actions and supplemental water supply projects that are able to raise groundwater levels to protective elevations has not been studied. This is understandable, since the focus over the past nine years has been on meeting triennial pumping reductions. Since it is only two years until the last triennial reduction takes effect, the Watermaster should focus on establishing a path forward to meet coastal protective elevations.

Recommendation 3: Continue Ongoing Groundwater Monitoring

Groundwater level and groundwater quality monitoring is currently being conducted in accordance with the Seaside Basin M&MP and Seawater Intrusion Response Plan (SIRP). The M&MP is a key component of basin management that is already being implemented by the Watermaster. Continued monitoring in accordance with the M&MP and SIRP will provide data necessary for making future management decisions.

Water quality and groundwater level data from monitoring wells associated with new supplemental projects should be reported to the Watermaster.

Recommendation 4: Develop Long-Term Financing Plan for Replenishment Water

The Decision identifies three separate budgets that the Watermaster oversees: (1) the Monitoring and Management Plan budget, (2) an annual Administrative budget, and (3) a Replenishment budget. These budgets are set every year by the Watermaster.

The replenishment assessments are only intended to offset overproduction that has occurred after the Decision was issued. The current replenishment assessments are not sufficient to buy water that offsets over-pumping that occurred prior to the Decision. The over-pumping prior to the Decision added to the Basin's deficit. Offsetting only the over-production that occurred after the Decision may not be sufficient to raise groundwater levels in the Basin sufficiently to prevent seawater intrusion. The Watermaster should develop a plan to address this issue.

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE

** * * AGENDA TRANSMITTAL FORM * * **

MEETING DATE:	July 8, 2020
AGENDA ITEM:	5
AGENDA TITLE:	Schedule
PREPARED BY:	Robert Jaques, Technical Program Manager

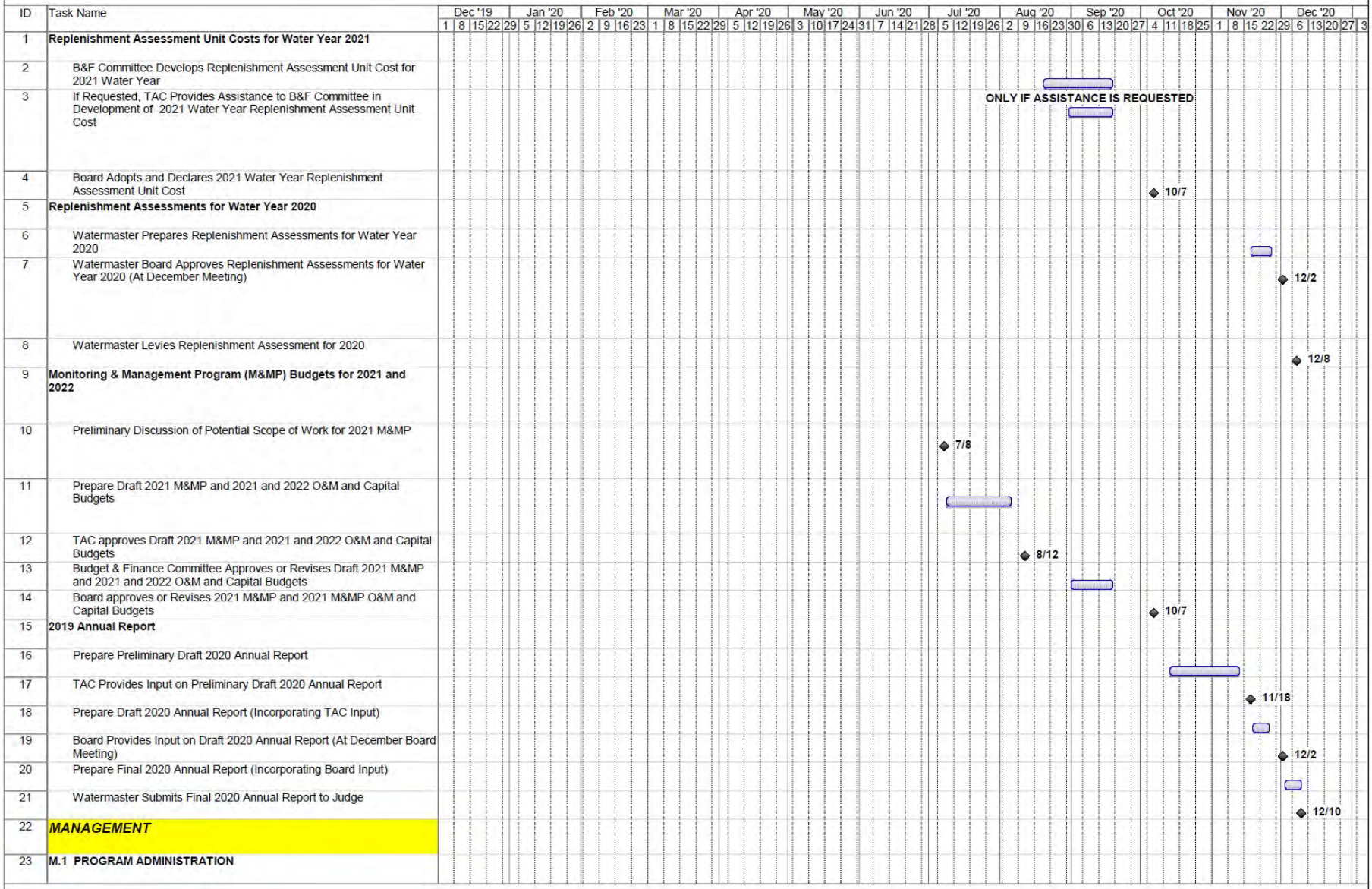
SUMMARY:

As a regular part of each monthly TAC meeting, I will provide the TAC with an updated Schedule of the activities being performed by the Watermaster, its consultants, and the public entity (MPWMD) which are performing certain portions of the work. Attached is the most recent updated schedule.

At the TAC's August meeting I plan to present the proposed 2021 Monitoring and Management Program and its associated budgets to the TAC for review and consider approving. At the September TAC meeting I plan to present the proposed 2021 consultant contracts to the TAC for review and consider approving.

ATTACHMENTS:	Schedule of Work Activities for FY 2020
RECOMMENDED ACTION:	Provide Input to Technical Program Manager Regarding Any Corrections or Additions to the Schedules

Seaside Basin Watermaster
2020 Monitoring and Management Program
Work Schedule

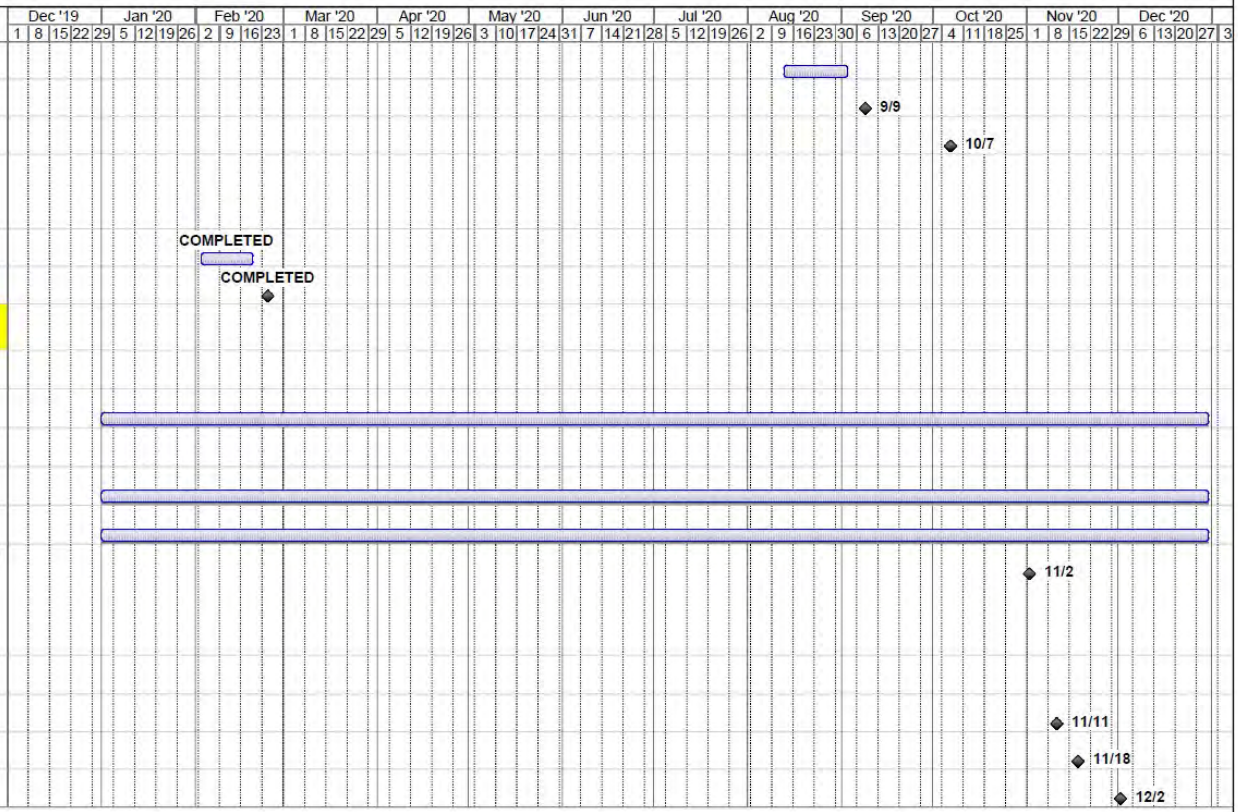


2020 Consultants Work Schedule 7-8-20.mpp

Page 1

Seaside Basin Watermaster
2020 Monitoring and Management Program
Work Schedule

ID	Task Name
24	Prepare Initial Consultant Contracts for 2021
25	TAC Approval of Initial Consultant Contracts for 2021
26	Board Approval of Initial Consultant Contracts for 2021
27	**M.1.g – Sustainable Groundwater Management Act Reporting Requirements**
28	Montgomery & Associates Prepares Draft Groundwater Storage Analysis
29	Submit SGMA Documentation to DWR
30	***IMPLEMENTATION***
31	**I.2.a DATABASE MANAGEMENT**
32	**I.2.a.1 Conduct Ongoing Data Entry/Database Maintenance**
33	**I.2.b DATA COLLECTION PROGRAM**
34	**I.2.b.2 Collect Monthly Water Levels (MPWMD)**
35	**I.2.b.3 Collect Quarterly Water Quality Samples (MPWMD)**
36	**I.2.b.6 MPWMD provides annual water quality and water level data to Montgomery & Associates for inclusion in the 2020 SIAR**
37	**I.4.c Annual Seawater Intrusion Analysis Report (SIAR)**
38	Montgomery & Associates Provides Draft SIAR to Watermaster
39	TAC Approves Annual Seawater Intrusion Analysis Report (SIAR)
40	Board Approves Annual Seawater Intrusion Analysis Report (SIAR)



SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE

** * * AGENDA TRANSMITTAL FORM * * **

MEETING DATE:	July 8, 2020
AGENDA ITEM:	6
AGENDA TITLE:	Other Business
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:
The "Other Business" agenda item is intended to provide an opportunity for TAC members or others present at the meeting to discuss items not on the agenda that may be of interest to the TAC.

ATTACHMENTS:	None
RECOMMENDED ACTION:	None required – information only