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MINUTES

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**Seaside Groundwater Basin Watermaster
Technical Advisory Committee Meeting
March 9, 2022
(Meeting Held Using Zoom Conferencing)**

Attendees: TAC Members

City of Seaside – Nisha Patel
California American Water – Tim O’Halloran
City of Monterey – Cody Hennings
Laguna Seca Property Owners – Wes Leith (joined the meeting at 1:59 p.m.)
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

Consultants

Montgomery & Associates – Pascual Benito

Others

MCWDGSA – Patrick Breen

The meeting was convened at 1:33 p.m.

1.Public Comments

There were no public comments.

2.Administrative Matters:

A. Approve Minutes from the January 12, 2022 Meeting

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

B. Sustainable Groundwater Management Act (SGMA) Update

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

C. Make Findings Required Under AB 361 Regarding Holding Meetings Via Teleconference

Mr. Lear briefly summarized the agenda packet materials for this item. A motion was made by Mr. Gaglioti, seconded by Mr. O’Halloran, to adopt the findings contained in the agenda packet. The motion passed unanimously.

Mr. Jaques reported that he would contact County legal counsel Les Girard to verify that the Governor's proclamation and the other conditions that allow meetings to be held by Zoom were still in effect.

Mr. Gaglioti noted that Monterey Salinas Transit is returning to in-person meetings. He noted that if the Monterey One Water conference room was available for in-person meetings, then it might be possible to resume in-person meetings.

3. Presentation and Discussion of Flow Velocity Modeling

Mr. Jaques introduced this item and Mr. Benito provided a PowerPoint presentation on the modeling work. Copies of his presentation slides are attached.

Mr. Gaglioti asked about what level of confidence there was in the findings of the modeling. Mr. Benito responded that the modeling is based on repeating historical hydrology patterns. Mr. Gaglioti said he felt future years are likely to be drier than the historical patterns.

Mr. Lear commented that in Santa Cruz County the Mid-Coast Basin is modeling more conservative (drier) hydrology projections.

Mr. Benito said other climatic conditions and hydrology projections could be considered. He reported that depressed water levels inland has the greatest impact on the advance of sea water intrusion. He went on to say that the use of recycled water on the Seaside golf courses will have a significant beneficial impact, as will the Cal Am payback program.

Mr. Gaglioti observed that ASR has a strong impact, and if ASR is less than is being projected it would have a harmful impact. Also, he asked if Seaside's use of recycled water at its golf courses to enable it to serve new development projects had been considered. Mr. Benito responded that this has been addressed in the modeling work.

Ms. Voss asked Mr. Benito a question about recharge during wet years. He responded that surface recharge has little impact, mainly in wet years there can be an increase in ASR as a result of increased rainfall in Carmel Valley. This helps raise groundwater levels due to the banking of the ASR-injected water.

Mr. O'Halloran said he views the assumptions used in the modeling work as a best-case scenario, and expressed concern that demand will be higher and Cal Am may not be able to do all of its projected payback, and that the hydrology projections used in the modeling may be overly optimistic.

Mr. Lear commented that looking at other scenarios in the replenishment water modeling work will provide some insight.

Mr. Benito reported that a recent tracer study with the Pure Water Monterey Project found that the initially estimated porosity values needed to be adjusted in order to match the tracer study results. So in the Technical Memorandum includes a range of porosity values (8% to 16%).

He also pointed out that particle tracking is not a substitute for full seawater intrusion modeling. Also, it does not tell us where the seawater-freshwater interface is located now, or where it will be in the future.

The most significant inland flows occur in the lower Paso Robles aquifer.

The hydrologic conditions that are assumed in the modeling have a significant impact on travel times.

There was brief discussion of the potential benefit of evaluating the impacts of adjacent subbasin Groundwater Sustainability Plan projects being implemented.

Mr. Jaques asked Mr. Benito how it might be possible to locate the seawater-freshwater interface in the offshore area. He responded that the Seawater Intrusion Group's seawater intrusion model and airborne electromagnetic work may provide helpful information. Mr. Lear commented that in the Mid-County Basin in Santa Cruz County they did repeatable surveys to detect changes in location.

Mr. Gaglioti asked Mr. Jaques the status of the airborne electromagnetic work. Mr. Jaques said he was not aware of the status of Rosemary Knight's proposed development of further airborne electromagnetic surveys. He noted that DWR is apparently not planning to do airborne electromagnetic surveys in the Seaside basin.

Mr. Gaglioti recommended that in the staff report to the Board on this modeling work that the time-series graphics should be highlighted as being very climate dependent. He felt that people could get a misleading impression by assuming that the climate pattern will repeat itself. He went on to say he would like to see more "dire" (likely) drought conditions evaluated in the flow direction and flow velocity modeling work. He referred to Mr. Benito's slides number four and five which he felt could give the wrong impression that everything will be fine with Pure Water Monterey Expansion and Cal Am payback taking place.

Mr. O'Halloran said that if the TAC recommends running additional replenishment water scenarios (a topic to be discussed under agenda item 4 during today's meeting) it would be beneficial to put discussion of the flow direction and flow velocity Technical Memorandum on hold and then determine if it should include modeling of additional scenarios.

Ms. Voss said it was important to highlight which components affect the results of the flow direction and flow velocity analysis the most, e.g. ASR, Pure Water Monterey Expansion, Cal Am repayment, etc. Mr. Lear suggested identifying what percentage of groundwater level rise is attributed to each of those components. Mr. Benito said he could develop graphics and text to explain this.

Mr. Lear recommended tabling further discussion of the flow direction and flow velocity modeling Technical Memorandum for the time being, and there was consensus to support this recommendation.

4. Discuss Performing Additional Replenishment Water Modeling Using Different Assumptions

Mr. Jaques summarized the agenda packet materials for this item.

Mr. Lear proposed first discussing whether the TAC wants to see additional scenarios run, and then if so, what do we want to learn from those scenarios.

Mr. O'Halloran said he was looking for a more realistic (more conservative) analysis using what he felt were more realistic assumptions. He expressed concern that Cal Am could have to over pump its Seaside basin water rights in order to meet its customers' demands. There was some discussion of ASR injection volumes, timing of ASR injection on a seasonal basis, and climate change impacts on ASR injection.

Mr. Lear asked if the TAC supported having scenarios one and two as described in the agenda packet evaluated.

Mr. Gaglioti said he supported evaluating those scenarios, and that Mr. Jaques should get a cost and scope proposal from Montgomery Associates to do that and bring it back to the TAC for possible refinement of the scope and cost before sending it forward to the Board to authorize this work.

A motion was made by Mr. Gaglioti, seconded by Mr. O'Halloran, to have Montgomery and Associates cost-out scenarios one and two and return to the TAC for further discussion. The motion passed unanimously.

5. Discuss and Provide Direction on Concerns About the Final Draft Groundwater Sustainability Plan for the Monterey Subbasin

Mr. Jaques summarized the agenda packet materials for this item.

Mr. Gaglioti felt comments should be submitted.

Mr. O'Halloran, Mr. Lear, Mr. Gaglioti, and Ms. Voss all said they shared the concerns described in the agenda packet. There was some discussion about how long the comment period will be open by DWR as it evaluates the recently submitted Monterey Subbasin Groundwater Sustainability Plan. Ms. Voss reported that that comment period ends April 23.

Mr. Lear said that MPWMD management did not recommend sending a letter opposing approval, rather just submitting the concerns via comments. Mr. Breen said these were valid concerns, and asked that the same types of comments be submitted with regard to the 180/400-foot aquifer Groundwater Sustainability Plan.

Mr. Lear, Ms. Voss, Mr. Leith, and Mr. Gaglioti said they were all okay with the TAC submitting these comments through the comment portal available on the DWR website.

Mr. Gaglioti said he also wanted the Board to have the opportunity to submit a formal letter.

A motion was made by Mr. Gaglioti, seconded by Mr. Lear, to submit the comments contained in the agenda packet and to also forward them to the Board to determine whether the Board wishes to send a formal letter. The motion passed unanimously.

6. Discuss Groundwater Level Protective Elevations

Mr. Jaques summarized the agenda packet materials for this item. He noted that one reason that seawater intrusion may not yet have been detected at the MSC-Shallow well, even though it is not at a protective water level, could be because the seawater intrusion front has not yet advanced that far inland.

Mr. Benito said if the offshore geology were different from what has been used in the modeling, this could change the protective water levels. The current protective water levels are conservative and protective of the basin. He said there could be a three-dimensional component, such that if one well achieved protective water level it might affect the location of the seawater-freshwater interface and might keep it from reaching another well. Also, the seawater intrusion model being developed by the Seawater Intrusion Work Group might provide some insight. It will utilize a three-dimensional density dependent seawater intrusion modeling technique.

Ms. Voss asked what additional data would be needed to refine the protective water levels. Mr. Benito responded that he would need information about the geometry of the aquifers offshore. Mr. Jaques noted that the USGS apparently has some geologic mapping information offshore, and is hoping to get a copy of this which he would share with Mr. Benito.

There was consensus that there is some uncertainty in the accuracy of the protective water levels. Due to a lack of offshore geologic information, it does not appear warranted to do any further analysis of protective water levels.

7. Schedule

Mr. Jaques noted that the only change in the schedule in this update was the timing of the presentations on the flow velocity/flow direction modeling work. There was no other discussion.


8. Other Business

There was no other business.

The meeting adjourned at 4:07 PM.


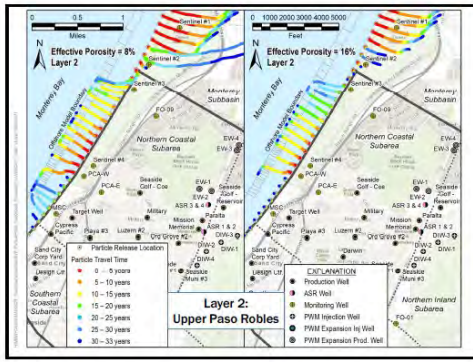
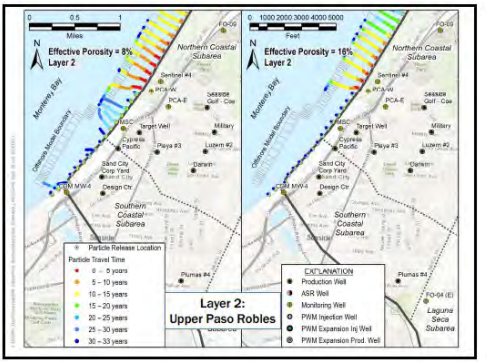
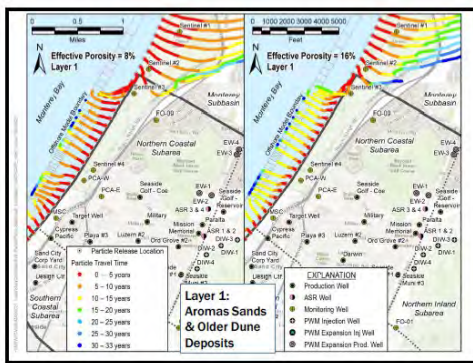
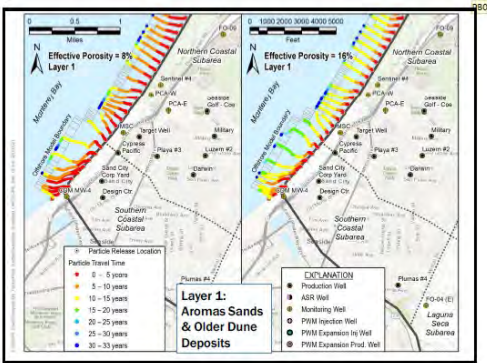
PARTICLE PATHS & TRAVEL TIMES

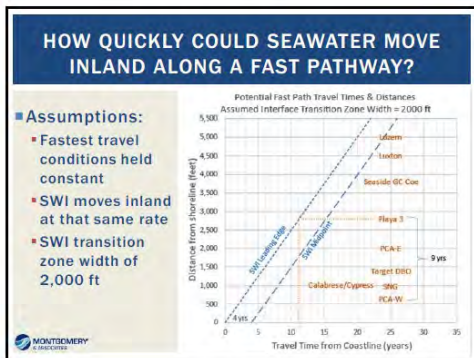
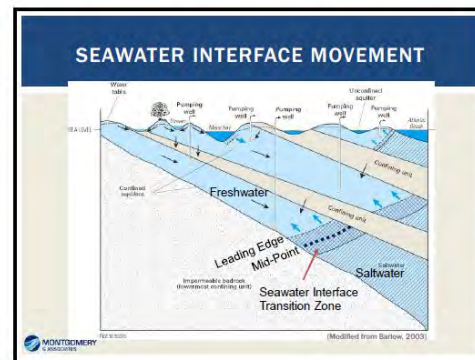
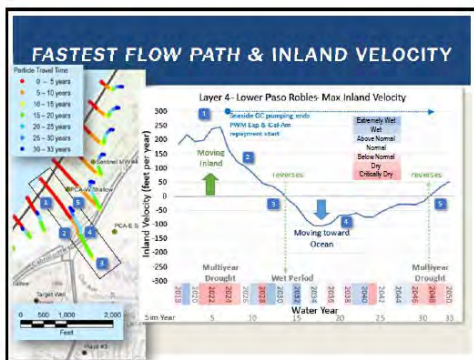
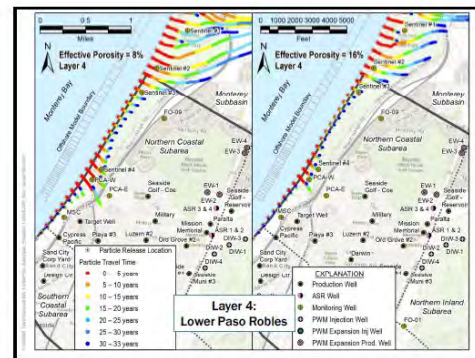
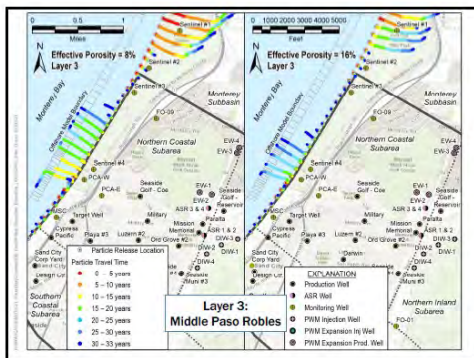
- The travel velocity is inversely dependent on effective porosity of the aquifer material
 - higher porosity → slower velocities, shorter travel distances
 - lower porosity → faster velocities, greater travel distances
- Effective porosity is not a calibrated value in the model, so evaluate range of values
 - Higher Velocity Scenario: 8% effective porosity
 - Lower Velocity scenario: 16% effective porosity



CAVEATS/LIMITATIONS

- Particle tracking is not a substitute for full sea water intrusion modeling (e.g. like a SEAWAT density-dependent flow & transport model)
- Represents advective groundwater transport with no density dependence and with no dispersion/spreading
- Seaside Model has been calibrated to water levels, but not to mass transport data, like travel time of solutes
- Does not tell us where the current sea water interface is located offshore or where it will be in the future
- But does give us potential range of groundwater travel rates from the coastline under a range of conditions





CONCLUSIONS

- In Layers 1 (Aromas) and Layers 2-3 (Upper and Middle Paso Robles) flow in the subs basin is predominantly in offshore direction
- Offshore flow rates increase and accelerate as recharge operations in the basin increase post WY2024 (projects + simulated wetter period)
- Significant inland flows occur in Layer 4 (Lower Paso Robles) in the Northern Coastal Subarea
- Fastest travel is concentrated inline with the main pumping depression and in area where model calibration also has higher K values



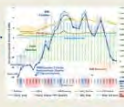
CONCLUSIONS

- Max inland velocities of 250 ft/yr simulated under current & near-term basin conditions
- Inland velocity rates decrease as water levels rise and can reverse direction as gradients change from an inland to offshore direction
- Inland travel rates are sensitive to changes in hydrologic conditions that impact the amount of water available for net-ASR recharge
- Periods of prolonged drought increase potential inland travel rates & seawater intrusion risk



FUTURE CONSIDERATIONS

- Projected hydrologic conditions is one of many possible future hydrology scenarios. Other future climatic conditions could be considered for future modeling
- Cross-boundary flows with the Monterey Subbasin depend on assumed groundwater levels in the Marina/Ord area of model. The assumption that these remain unchanged (i.e. no GSP projects) should be reviewed and the impact evaluated.
- Need improved understanding of where SWI currently located offshore



QUESTIONS & DISCUSSION

