San Mateo Plain Groundwater Basin Assessment Stakeholder Workshop #9

STAKEHOLDER DISCUSSION TOPIC 2: Groundwater Basin Assessment Report

Think about the technical analyses and conclusions in the Draft San Mateo Plain Groundwater Basin Assessment Report. Provide any feedback or comments you have on the report or the work done.[1]

1.0 Introduction	2.0 Basin Overview	3.0 Stakeholder Engagement	4.0 Review and Compilation of Available Data	5.0 Basin Water Quality Evaluation	6.0 Hydrogeologic Conceptual Model
7.0 Basin Water Balance	8.0 SMP Groundwater Flow Model (SMPGWM)	9.0 Evaluation of Risk of Potential Undesirable Results	10.0 Initial Evaluation of Basin Management Options	11.0 Scenario Evaluations Using the SMPGWM	12.0 Conclusion

Technical Feedback & Comments on the Groundwater Basin Assessment Report

Group A

- Clarify bay wetlands drain/Evapotranspiration (Et) representation
  - Sections 6-8
  - *"Marsh drains were specified in Basin model cells near the bay representing areas of tidal marsh and open water. Marsh drains are assigned a drain elevation of land surface, and the drain conductance adjusted during calibration to optimize comparisons between model-calculated and measured water levels in shallow zone wells but maintain a net outflow of water flowing in the shallow zone from the Basin to the east" (8-3). Figure 8-4 shows the "marsh" drains apply to a widespread areally extensive area between the urban areas and the bay.*
- Model – how does it work with Westside Basin and the other regional models? Implications for future model use/development?
  - *The SMPGWM does not replace the other regional models, but it does provide a means for improving the representation of groundwater conditions at their common boundaries. For example, changes in cross-boundary flows (inter-basin flows) as a result of local management actions within the different basins (intra-basin conditions).*
  - *SWPGWM overlaps in time and space with existing regional models representing adjacent basins (WSBM, NEBIGSM, and iMOD). The recharge and pumping data from these models is integrated into the SMPGWM. The observation point data in these models (e.g., water levels in wells) was similarly integrated into the SMPGWM (8.1).*
    - *Channel gains and losses were extracted from the NEBIGSM in overlapping areas, and RIV package boundary conditions were also extracted from the areas represented by the iMOD (8.3.2) and integrated into the SMPGWM.*
    - *Pumping (8.3.3) and recharge (8.4.4) rates were used from NEBIGSM, WSBM, and iMOD where applicable and available (see Fig 8-1).*

[1] Written comments on the Draft San Mateo Plain Groundwater Basin Assessment Report can be sent to cice@smcgov.org.

- *"Consistency with previous groundwater studies in the region was achieved by integrating the information from these local models with the results of the recent geohydrologic studies for the Basin into the SMPGWM" (Phase 1 Report 8.1).*

- Location of indirect potable reuse (IPR) injection wells vs. extraction wells in model scenario → should they be closer to each other?
  - *The IPR constraints analysis includes the criterion: "Minimum of 1,000 feet away from public supply or large irrigation wells" (11-4).*
  - *"Lastly, each simulated injection well site is greater than 1,500 feet from the extraction wells implemented in Scenario 3 and greater than 1,500 feet from the nearest injection well" (11-8).*

Group B

- Climate change scenarios – look more at potential range of conditions
  - *This is a recommendation for future work – not this study. This is what was done for this study:*
    - *For sea level rise, National Research Council values of 6±2" in 2030 and 11±4" in 2050 (11-5). These estimates are "considered the most up to date and best available estimates of sea level rise for California" according to the California Ocean Protection Council.*
    - *For stream flow and recharge, California Water Commission WSIP, using differences between historical (1995) and 2030 values (11-6).*
- More concrete discussion of potential projects to improve recharge (RW, ASR)
  - *In other words, investigation of "real" projects. This is a recommendation for future work.*
- Undesirable Results (more information) – stream/aquifer interconnection
  - *This was directed at future work efforts.*
  - *Discussion of channel gains and losses in the model (8.3.2).*

Group C

- Relate model layers to geology better → figure/cross-section
  - *See Phase 1 Report Figures 8-2 through 8-4.*
- Recharge model – code documentation?
  - *Soil Moisture Budget model documented in: Phillips, S. P., S. N. Hamlin, and E. B. Yates. 1993. Geohydrology, water quality, and estimation of ground-water recharge in San Francisco, California, 1987-92. Water-Resources Investigations Report 93-4019. U.S. Geological Survey, Sacramento, CA.*
  - provide more information e.g. timestep? *Description in Appendix B specifies daily time step.*
- How was Bay exactly handled? e.g., constant head boundary?
  - *General-head boundary (11-5; Phase 1 Report 8-7).*
- Maybe do a peer review of model?
  - *Noted*
- To improve model – what should be priority in terms of data gap filling (Chapter 4)
  - *Specific data gaps we mention are: distribution of shallow wells having water level data, and borehole data. These especially exist outside the local model domains and the southern portion of the basin (Prelim 8-15).*

Group D

- Table 11-2

- Concern about inflows/outflows in southern part of subbasin between historical and "Baseline" (Scenario 1).
  - *The scenarios are "hypothetical" and used to assess changes. As noted in the text, baseline represents "current" land and water use conditions; "current" groundwater production rates are defined as average production rates from 2011-2015 (see footnote 95). It is not a "prediction" of future conditions. As indicated in the text, the baseline results are due to greater pumping and lower average simulated groundwater levels in the Santa Clara Subbasin. In other words, average 2011-2015 pumping in the Santa Clara Subbasin is greater than average pumping during 1991-2015. Accordingly, average model-calculated groundwater levels are lower than average 1991-2015 water levels. This explains why there is less inflow from the south in the baseline relative to the historical. Interpretation of the scenario results is based on comparisons between runs, and much less so on each run in isolation. For example, the difference between historical and baseline represents the change in basin conditions assuming a continuation of 2011-2015 average production rates. Similarly, the difference between the baseline and any other scenarios isolates the effect of the simulated management change (pumping rate, recharge, land use, climate, etc.).*
- Sea level rise magnitude – too low?
  - *For sea level rise, we used the National Research Council values of 6±2" in 2030 and 11±4" in 2050 (11-5). These estimates at the time were "considered the most up to date and best available estimates of sea level rise for California" according to the California Ocean Protection Council. Since completing the scenario work, DWR provided DRAFT "Guidance for Climate Change Data Use During Groundwater Sustainability Plan Development" which could provide useful guidance for updating projected sea level rise in the model.*