Contact Us

Your name:	Lynette Brooks
Your email:	[redacted]
Subject:	Transient model meeting
Message:	Because the model will be used to set sustainable yield and development policy, it is very important to the citizens of Los Osos. Consider having a special meeting to present the model instead of doing it during the regularly scheduled meeting at 1:30 on a work day. Plan a meeting in the evening or on a Saturday afternoon so more people can attend the meeting.
Attachment:	

From: George Hinkins [redacted]
Sent: Wednesday, June 4, 2025 2:09 PM
To: Daniel Heimel <danheimel@confluencees.com>
Subject: Sea Pines contributing to groundwater pollution?

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide sensitive information unless you recognize the sender and know the content is safe.

Hello Dan
Please read the attached PDF concerning data about golf courses and their associated adverse health effects (neurodegenerative diseases) through plausible pesticides and other chemicals leaching into the groundwater.
I plan to attend the BMC meeting on Wednesday June 18th at 1:30 pm.
Regards, George Hinkins
[redacted]

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Parkinson's link to golf courses

Living close to a golf course could double your risk of developing Parkinson's disease, reports *The Daily Telegraph* (U.K.). Researchers examined data on more than 4,500 people in Minnesota and Wisconsin. They found that those who lived within a mile of a golf course had a 126% higher chance of developing the neurodegenerative disease than those in homes more than 6 miles away. The farther away, the better: Each mile of distance from the greens was associated with a 13% reduction in risk of diagnosis. The study established only correlation, not causation, but lead author Brittany Krzyzanowski of the Barrow Neurological Institute in Phoenix says one plausible explanation is that the pesticides used to keep greens and fairways lush may be leaching into the ground and contaminating the drinking water. Previous studies have suggested that exposure to certain pesticides can increase the risk of Parkinson's. And the team found that residents in water service areas that contained a golf course had nearly double the odds of having the condition compared with those in service areas without a course.

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11 different howlers in all—as they went about their daily business. In most, likely all, of the cases, the infant died for lack of its mother's

Jamie Girouard

From: Daniel Heimel
Sent: Tuesday, June 17, 2025 5:07 PM
To: Jamie Girouard
Subject: FW: Coments

Please add to public correspondence

Dan Heimel, PE, MS
danheimel@ConfluenceES.com
(805) 459-8498

From: Sarveybob[redacted]
Sent: Tuesday, June 17, 2025 4:59 PM
To: Daniel Heimel <danheimel@confluencees.com>
Subject: Coments

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide sensitive information unless you recognize the sender and know the content is safe.

Robert Sarvey

4th Street

Los Osos

Robert Sarvey Comments on Los Osos Basin Plan Groundwater monitoring program 2024 Annual Monitoring Report.

The final annual report fails to include the two sets of comments I have provided on the draft report. At the May BMC meeting I provided 5 pages of comments that were not included in the final report. The second set of comments I filed on May 27, 2025 were

included in the final report but the response was inadequate as it failed to address the substantive issues I raised in either set of comments. I also requested an extension of time in my May 27, 2025 comments which the BMC essentially ignored.

<u>The final annual report fails to address the main questions and comments that I have submitted.</u>

-

First, I have asked for a definition of sustainability which no response was included in the final report. That issue is important as the conversation at the May 17, 2025 meeting indicated that BMC members lack a concrete definition of what a sustainability is. The basin has meet none of the metrics that are supposed to represent sustainability. The 2024 annual report shows that all the basin metrics deteriorated in 2024. According to the 2018 metric evaluation, *"Trends in the basin metrics are indicators of whether basin conditions are improving or deteriorating over time, and can be compared to anticipated trendlines for adaptive management."[1]* Clearly the results of the 2024 annual report show a basin in decline with a basin yield metric of only 71.

Not only has the aquifer not meet any of its targets its supposed to meet to demonstrate sustainability its failing to meet the previous estimates of when the proposed targets are to be met. For example, the 2018 Basin Plan Metric Review and Plan C Evaluation states that, "*the 2018 the Chloride Metric values reached a maximum of 225 mg/L chloride in 2016, and have declining to 123 mg/L chloride through Spring 2018. If the metric continues to decline at the current rate of approximately 30 mg/L per year,* ***the targeted value of 100 mg/L chloride or lower would be reached by 2019, approximately 4 years after the Basin Yield Metric moved below the targeted value of BYM 80.****"[2]* Currently the 2024 chloride metric is 249 mg/l demonstrating that the basin yield metric of even 71 is unsustainable.

According to the 2018 metric evaluation by Cleath-Harris, "the Basin Yield Metric and the Water Level Metric are closely correlated due to the relationship between groundwater production and water levels."[3] At a 2024 basin yield metric of 71 the basin water level dropped .2 feet with above average rainfall. The BMC target for the water level is 8 feet above mean sea level which the BMC estimated it would reach by 2022 and yet the water level decreased to 4.1 feet above mean sea level in 2024 which indicates the current water production is unsustainable particularly considering the 20% increase in the chloride metric and a 10.5% increase in the nitrate metric.

According to the BMC consultant, "*The anticipated trendline for the Nitrate Metric was for values to remain stable through 2020, followed by a gradual decline, and reaching the targeted metric value of 10 mg/L by 2050."[4]* The nitrate metric increased 10% in 2025. According to the 2018 nitrate metric evaluation by Cleath Harris*, "The current Nitrate Metric trend is inconsistent with the anticipated trend.*"[5]

Issues the Final Report Ignores from my comments.

The Basin Management Committee website has no information related to sustainability only a notice of upcoming information. The 2024 Report provides no information.

The drastic 360- acre feet of Ground Water Production reduction alleged in the 2023 report was attributed to, "The estimate of private domestic water use in 2023 has been reduced significantly from previous years, based on the recommendations of the 2023 Water Offset Study (Maddaus Water Management, 2023)."

The Report does not provide a description of sustainability and does not respond to comments by the executive director, stating the only previous description of the sustainability of the aquifer is based on recorded seawater intrusion.

The final report does not explain how the current status of the basin complies with the stipulated judgement. **The Los Osos Basin Stipulated Judgement states, "For purposes of adjudication of a groundwater basin, "safe yield" is defined as "the maximum quantity of water which can be withdrawn annually from a ground water supply under a given set of conditions without causing an undesirable result." An undesirable result means "a gradual lowering of the ground water levels resulting in depletion of the supply" or other adverse impacts, such as permanent ground subsidence or seawater intrusion."**

The 2024 Annual Report completely ignores any comments I made on the chloride metric. "The Los Osos Area subbasin is classified as subject to critical overdraft due to seawater intrusion. This classification was confirmed by the California Department of Water Resources (DWR) in 2021. The Los Osos Valley Groundwater Basin is considered a high priority basin and is designated as being in a "condition of critical overdraft". The term "critical overdraft" indicates that the average annual amount of groundwater extraction exceeds the long-term average annual supply to the basin, leading to potential impacts like seawater intrusion.

No response in the final annual report addresses the following comment, “Seawater intrusion is increasing in many wells. Increasing seawater intrusion is the current definition of unsustainability according to the BMC executive director and the stipulated judgement hence further land use development should not occur based on underreported groundwater production which leads to a false basin yield metric and undesirable increases in the chloride and nitrate metrics.

The final Report does not address, “Chromium-6 has also been a concern in several shallow wells as described in the 2015 Annual Groundwater Monitoring Report (CHG, 2015). The final report says we may consider it in the next report.

The final Report does not address, “Sucralose concentrations increased from 12,600 mg/L to 23,000 mg/L at FW5 between 2023 and 2024.

The final report does not address the equitable cost of water supply to the residents.

[1] https://www.losososbmc.org/files/bc6a86ee8/2018-Adaptive-Management-Technical-Memo.pdf Page 5 of 24

[2] https://www.losososbmc.org/files/bc6a86ee8/2018-Adaptive-Management-Technical-Memo.pdf Page 9 of 24

[3] https://www.losososbmc.org/files/bc6a86ee8/2018-Adaptive-Management-Technical-Memo.pdf Page 5 of 24

[4] https://www.losososbmc.org/files/bc6a86ee8/2018-Adaptive-Management-Technical-Memo.pdf Page 9 of 24

[5] https://www.losososbmc.org/files/bc6a86ee8/2018-Adaptive-Management-Technical-Memo.pdf Page 9 of 24

Beth Reineke (S&T Mutual) – Written/Verbal Comments – BMC Meeting 06.18.2025

Call for actionable measures: I respectfully request that Chair Zimmer receive my comments and consider my proposed actions to address the dire state of our basin. My Comments are summarized in the following list and expanded upon thereafter:

SUMMARY

1. **Prioritize a reduction in pumping to stop and reverse seawater intrusion.**
   - Connect to the State Water pipeline to help offset pumping from our basin in wet years. This could prevent the pumping of 200-600 acre feet a year (AFY) from our basin.
   - Use the 2023 Maddaus Study as a guideline for where conservation is still needed in the community. This would save 118 AFY for our basin.
   - Seek out solutions to reduce the estimated pumping from private well owners (Maddaus reported an average of 390 gallons each house per day).
   - Insist on maximal use of recycled water in each possible area of Los Osos.
2. **Connect all remaining non-sewered homes to the sewer collection system.**
   - Cabrillo Estates is ready and willing to connect to the sewer; the BMC should support this project.
   - The other non-sewered areas of Los Osos should also be added to the sewer to maximize the flow of recycled water and reduce nitrate loading into the basin.
3. **Implement a stormwater capture program.**
   - Use the Transient Model to identify opportunity areas for capture measures. Educate the community and incentivize household-scale catchment systems.
4. **Add forever chemicals (PFAS) and chromium-6 to our Basin Management Plan**
   - The BMC must take a stance on the contamination in our basin. We need to work vigorously to stop the sources and mitigate the ongoing issues of PFAS and chromium-6 in our water supply.

COMMENTS

Seawater intrusion and over-pumping: If the current average over the last five years is not sustainable, as the Cleath Harris Geologists (CHG) Memo directly states, we are effectively pumping more than 100 percent of the sustainable yield. That means the basin is currently being over-pumped several hundred acre-feet per year if we aim to stay below 80 percent of the sustainable yield.

Table 1 Comparison of Historic Pumping to the Known Unsustainable Value of 1830 AFY

Year	TOTAL (AFY)	Current Average (AFY) This value is cited in the CHG Report as "not sustainable"	Percent of 1830 AFY	80 Percent of 1830 AFY	Amount Over 80 Percent in AFY
2013	2560	1830	140%	1464	1096
2014	2400	1830	131%	1464	936
2015	2170	1830	119%	1464	706
2016	2160	1830	118%	1464	696
2017	2070	1830	113%	1464	606
2018	2030	1830	111%	1464	566
2019	1900	1830	104%	1464	436
2020	2010	1830	110%	1464	546
2021	2000	1830	109%	1464	536
2022	2010	1830	110%	1464	546
2023	1650	1830	90%	1464	186
2024	1690	1830	92%	1464	226

Audubon Center
Morro Coast Audubon Society Sweet Springs
Shark Inlet
Coastal Access Facility at Morro Strand
Morro Strand State Park
Morro Bay Community Center
Morro Bay Boat Yard
Morro Bay Yacht Club
Morro Bay Sailing Club
Morro Bay Sailing Club
Morro Bay Sailing

that the 250 mg/L front of seawater intrusion will move in significantly. The area of our basin that will potentially be lost in 45 years is depicted in Figure 1 and amounts to 120 acres. We are over-pumping right now - by a lot. If we proceed at this rate, we will lose an average of 2.66 acres of area in our Zone D each year. The model will be an essential tool in determining the extent to which we have exceeded the sustainable yield. Still, there is no question that we must act decisively and quickly to implement measures to reduce future intrusion and make every attempt to regain the earlier point of the 250 mg/l line.

Title 19 Study: The Maddaus report provided us with some very useful information. According to the report, there are roughly 118 AFY in credits to be found in our community. I propose that we repurpose Title 19 from a growth-support tool to a program report that benchmarks where we need to seek accountability for water use in our community. Conservation efforts should be a required responsibility for each of us, not a choice that should be monetized at will. Figures 2 and 3 show the typical water use and breakdown of where credits were predicted to be available when the study was completed.

Residence Type [1]	Water Source	Indoor [2]	Outdoor [3]	Total	Percent Indoor and Outdoor
SF	Water Purveyor	92	36	128	72% indoor 28% outdoor
	Self-Source		298	390	24% indoor 76% outdoor
MF	Water Purveyor	58	43	100	58% indoor 43% outdoor
	Self-Source		54	112	52% indoor 48% outdoor

Figure 2 Estimated average indoor/outdoor water use for private wells (self-source) and purveyors (SLO County, Title 19)

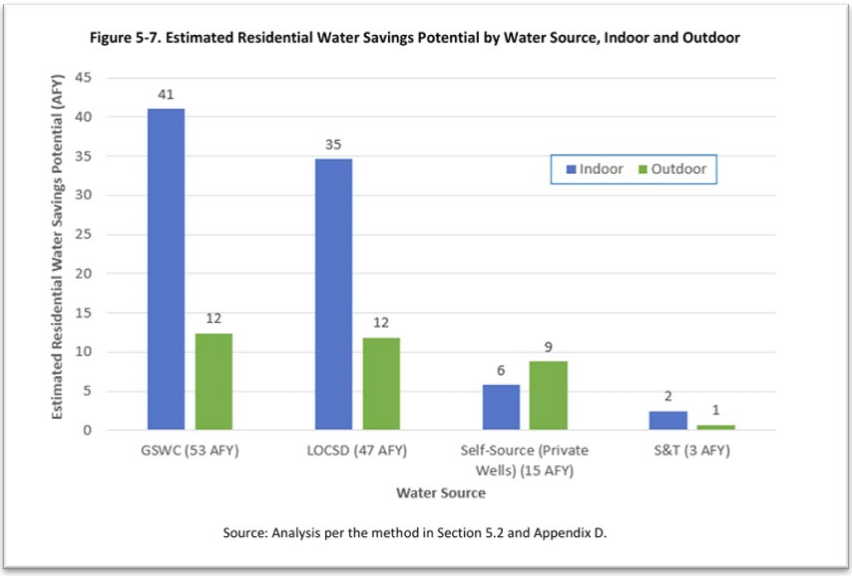

Figure 3 Maddaus Study Estimates of Available AFY in Credits by Source

Sewer connections: Only about 4,700[1] out of roughly 6,500[2] homes are connected to the sewer system, and the most recent nitrate metric is showing worsening groundwater quality conditions. The sewer was installed in 2016 to reduce nitrate loading, yet we are still failing to reap the expected benefit of the project. The cost to the community is still very real, with most typical households paying about $1980 per year, according to the County's website. If the County is collecting around $9 million each year from the citizens of Los Osos, then it may be time that we reevaluate the overall success of the project and begin to rethink how safe it actually is to keep a quarter of our homes on septic systems. Figure 4 on the following page presents the areas with their severity of nitrate loading shown on a color scale of green (low severity) to purple (most severe). Two tracts of Los Osos are severe, and one is moderately severe. Given the extensive research that is invested in compiling the Local Area Management Program (LAMP)[3], it would be wise for the BMC to recognize that we have more work to do in the area of reducing upper aquifer nitrate contamination, and eliminating septic systems is a place to start. Additionally, by connecting 1800 more homes to the sewer system, we can potentially capture, treat, and recycle an extra 240 acre-feet per year (AFY). This will also allow the County to make more future investments into the reclamation facility since these homes would be providing additional revenue toward operations and maintenance of the system.

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[1] 4.14 Wastewater - LOCP DEIR

[2] Los Osos, Ca housing - Census Bureau Tables

[3] 2020 SLO County Local Area Management Program (LAMP)

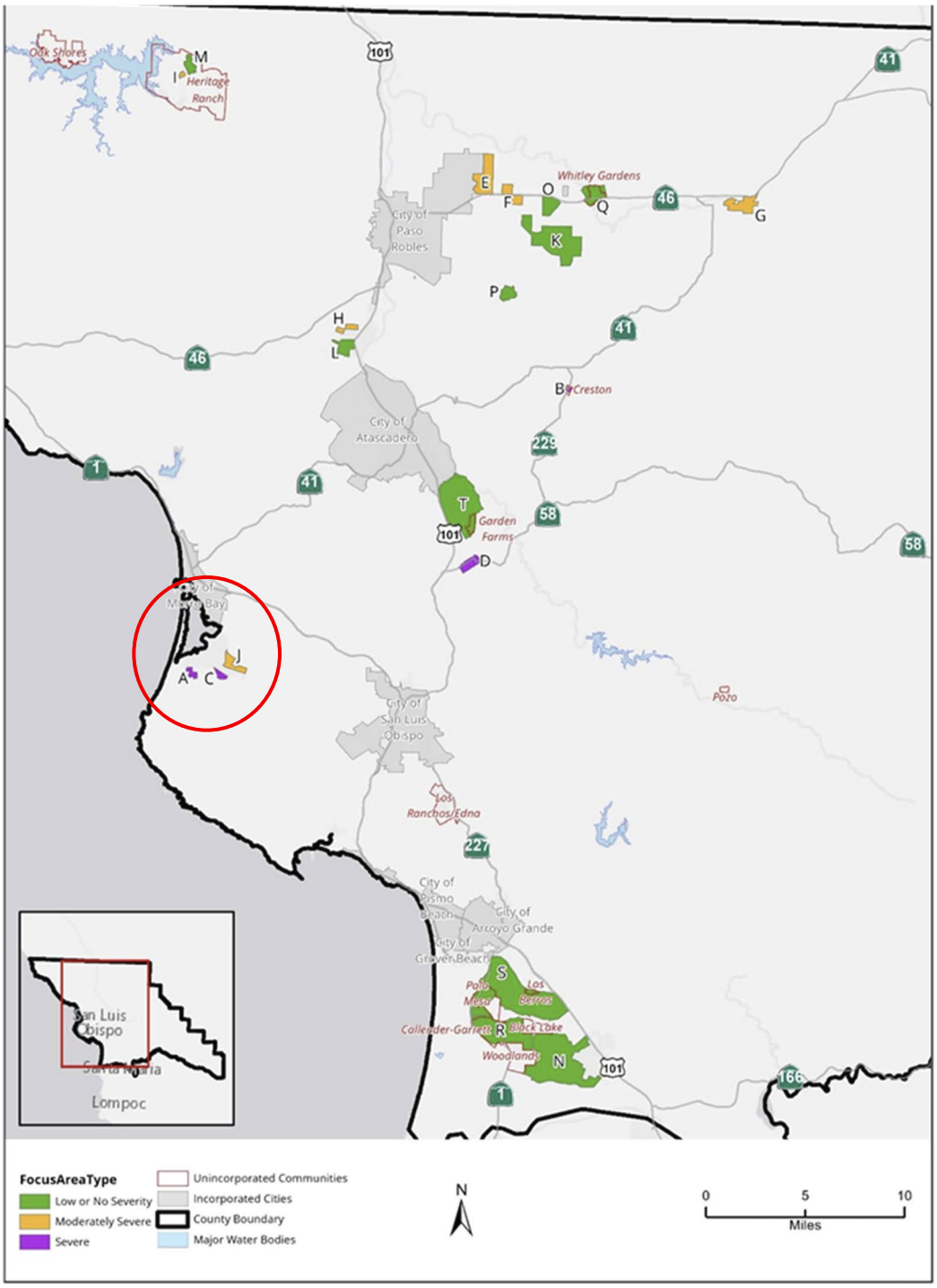

Figure 4 SLO County LAMP (Septic System Governance) Showing the Severe Nitrate Loading Areas

- **Cabrillo Estates Homeowners <u>want</u> a sewer connection:** There are 266[4] homes in Cabrillo Estates, and most want the County to help facilitate their sewer connections. Currently, they are facing administrative obstacles. This delay is hurting our basin. We need to maximize our use of the recycled water, and the Cabrillo neighborhood could easily be a source of another 25-acre feet per year in additional recycled water. The BMC should support this project, and the County should ensure that the pathway to construction is as seamless and direct as possible for the Cabrillo homeowners. Based on the report commissioned by Cabrillo Estates to determine feasibility of the sewer project, the County would collect $6.6 million in connection fees alone, and the homeowners would pay for the cost of the construction. The planning of this project should be provisioned in the 2027 County Budget, if not sooner.
- **State Water as an Offset to Pumping:** State Water will play a crucial role in the future of the Los Osos Groundwater Basin. State Water will function within our water portfolio as an offset to using our groundwater during wet years when it is available. If we can use State Water and eliminate pumping of 200-600 acre-feet in a wet year, we are leaving those vital resources in place to stave off seawater intrusion. This should be considered a crucial component of our water future in Los Osos.
- **Stormwater Recharge:** We have several opportunity areas where we can implement stormwater capture to allow for more recharge from rain events. Right now, much of our water flows out to the bay because most of the town is sloped in that direction. This is a simple solution that could pay dividends with relatively low investment. I recommend that we use the Transient Model to identify such locations and look into investing in catchment facilities where such solutions are feasible. In a very simplified sense, we can assume that a one-inch storm over the 2,880 acres that comprise Los Osos would effectively drop approximately 240 acre-feet of water. The calculation is based on the fact that one inch of rain over one acre produces about 27,154 gallons of water, which is equivalent to approximately 0.083 acre-feet. Capturing rainfall can be done on macro and micro scales, from large basins to small cisterns.
- **Emerging contaminants:** New data indicate additional risks, including PFAS and chromium-6 contamination, highlighting a major vulnerability to our existing water supply. These cannot be ignored in the context of our basin. Both contaminants have been detected in all three of the purveyor wells. PFAS is found in the county's monitoring wells throughout Los Osos, and is a known part of the recycled water effluent going to the Broderson Mound. If we do nothing to recognize this water quality threat, we might see a day when at least one of these contaminants impacts all wells in our community. PFAS are

[4] https://www.cepoalosososos.com/wastewater.html

incredibly pervasive, exceptionally persistent, and very difficult to eradicate from groundwater. We must include the issues of PFAS and chromium-6 in the next Basin Management Plan, along with strategies to mitigate their impact on our drinking water supply.

Equity for All Users

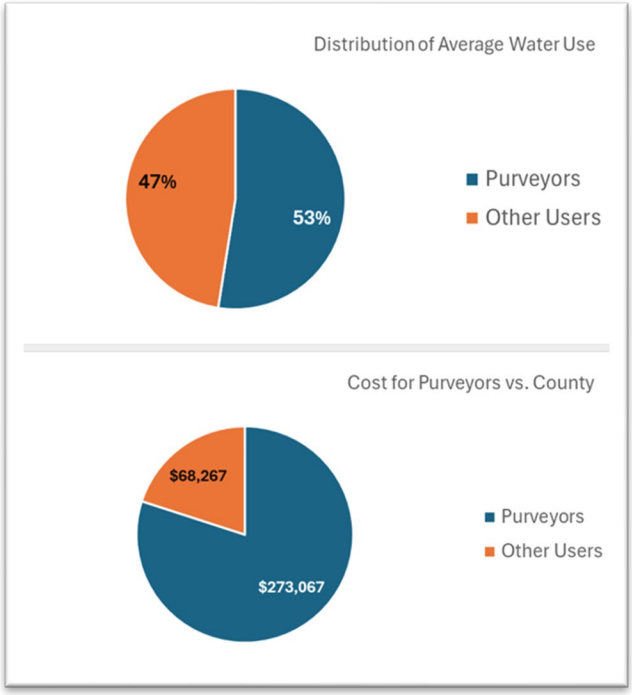

Figure 5 Comparison of Water Use Percentage Versus Cost Percentage of the BMC Annual Fees

I would like to bring to your attention a significant financial imbalance within the Los Osos community. Currently, residents within the historic prohibition zone are assessed nearly $2000 annually for sewer services, and the basin management fees of $273,067 are largely borne by this group. In contrast, well owners who pump from our basin are not subject to any assessment for their use. Additionally, the $68,267 paid by the County is likely derived from the General Fund, which is contributed to by all property taxpayers in Los Osos, not just well owners.

It is imperative that all water users share equal responsibility in terms of both cost and conservation. Financial incentives and monitoring have been crucial in achieving water-saving goals in Los Osos. By installing meters and increasing water rates, S&T Mutual halved our water use in the span of a decade from 55 AFY in 2013 to 27 AFY in 2023. So, I believe it is time to extend this philosophy to the remaining users who also rely heavily on our shared water resources.

By ensuring that all users contribute fairly, we can promote sustainable water management as we strive to bring the basin back into balance.

Jamie Girouard

From: Daniel Heimel
Sent: Tuesday, June 17, 2025 5:42 PM
To: Jamie Girouard
Subject: FW: Model Report

Please add to public correspondence

Dan Heimel, PE, MS
danheimel@ConfluenceES.com
(805) 459-8498

From: Lynette Brooks [redacted]
Sent: Monday, June 16, 2025 3:11 PM
To: Daniel Heimel <danheimel@confluencees.com>
Subject: Model Report

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide sensitive information unless you recognize the sender and know the content is safe.

Dan,

The version of the draft model report on the web doesn't include all of the data for the chloride mass balance. The table at the very end of the appendixes end with July 2013.

Lynette

Los Osos Basin Management Committee
June 18, 2025
Comments about Model Report by Rhett Brooks

The model report, as the previous model report, is lacking in detail and data to make the model understandable. In fact, the GSI peer review found the report so lacking that they created 113 pages of figures and tables to better understand the model. They also include 18 pages of closely spaced text describing their review. In contrast, the part about the model in the main part of the CHG report is on 27 pages long, many of which are figures. Some parts about the model are also in appendixes.

The report does not discuss model sensitivity to recharge, but it is probably large. Recharge, however, is calculated independently of the model and is not shown to be adjusted during calibration. It is possible that small changes in recharge could have large changes in water levels or chloride concentrations. Appendix I describes the Recharge Pre-processor, and includes a table showing that recharge is about 2,100 acre-feet per year. The table does not state if that is an average or for one particular year. Table 7 in the main report, however, shows recharge of about 3,600 acre-feet per year. If the pre-processor is only calculating 2,100 acre-feet per year, where is the other 1,500 acre-feet per year coming from? The GSI review suggests displaying the individual components of recharge calculated using the Recharge Pre-Processor in the water budget reporting, rather than just providing the lumped value. GSI also recommends using an independent watershed model to verify the Recharge Pre-Processor input.

The problem with bad documentation about recharge is not new. The Stetson review for the 2009 model "suggested that the preprocessor documentation be updated such that the input data sources and methods of calculating deep percolation and evapotranspiration is transparent. Changes to the model for use in successive models should be sufficiently described, accessible and readily available for review. Flow diagrams showing how the spreadsheet preprocessor works and its most sensitive variables should be included." And yet, none of this has been done.

Most of the figures prepared by GSI should be prepared by CHG because model changes have occurred. CHG mentions in one of their comments to the reviews that not all data examined during calibration is presented in the report. It should be. Not showing data makes the public wonder what you are hiding.

Los Osos Basin Management Committee
June 18, 2025
Comments about Transient Model by Lynette Brooks

Given that the transient model seems to be matching current intrusion relatively well, and that it predicts farther intrusion with current pumping, it is a large step forward in having a model that matches known intrusion. The model and report, however, do have some problems, as also noted by the peer reviews.

First, for some reason, parameter estimation software was not used. This makes it impossible to get statistics about sensitivity and prediction uncertainty. The Baseline Technical Memorandum acknowledges this inability to quantify prediction uncertainty. The GSI peer review recommended using parameter estimation software, but was ignored. Many other recommendations from both reviews appear to have been ignored. As I have said before, the Stipulated Judgment mandates peer reviews; I do not think the judge meant for the reviews to be ignored.

Second, and related to the first, the report does not mention if manual sensitivity analyses were done for recharge and pumping. These values were estimated outside of the model and have uncertainty associated with them. How does changing them by 10% (or something like that) affect simulated water levels and chloride concentrations?

Third, the calibration does not capture seasonal variations in water levels in many areas and simulated seasonal variation is almost completely absent in Zone E. Zone E appears to be isolated from seasonal changes in recharge and pumping in the model, but not in reality. Using time changes in water levels instead of just water levels as calibration targets may have helped determine the parameters that are obviously incorrect in the model. As this is the zone with the most intrusion (because it is the deepest zone), it is critical that this part of the system be simulated correctly. It is not.

Fourth, the simulated chloride concentrations through time are not even close. The maps show the intrusion front is simulated in about the right position, but the GSI review states, "for the transport component of the LOBGM, matching the arrival time and extent of the seawater front, along with the general chloride trends observed in wells, is of greater importance [than] closely matching individual measured chloride data." The model does not match the arrival time or the general trends (observed trends are much steeper). This inability of the model to accurately simulate the arrival of the intrusion front and the rapid rises in chloride that occur in the aquifer bring a great deal of uncertainty in the model's use as a prediction tool for management changes.

Los Osos Basin Management Committee
June 18, 2025
Comments about Sustainable Yield by Lynette Brooks

Sustainable yield is not on the agenda today, but needs to be updated now, not in October or even later if the transient model is not finalized. For years, you used the wrong definition of "stop intrusion." Even now, the definition allows more intrusion in many areas. You have been misleading the citizens of Los Osos by your own definition of "stop" and by your own definition of sustainable yield.

You have known that actual data showed that intrusion is continuing. You have known that CHG had doubts about the accuracy of the sustainable yield being used as given by statements in the Annual Reports, such as "Seawater intrusion in Zone E continued to move inland through LA11 in 2023, despite a Basin Yield Metric value of 69, which [is] significantly less than the goal of 80 or less," and "a Basin Yield Metric value of 69 suggests the level of Basin production in 2023 should be sustainable, yet Zone E intrusion continues."

But you continued to ignore those data, told the California Coastal Commission that everything was fine, and did not protest the County allowing new development. The BMC continued to pretend to be stopping salt water intrusion. CHG did not have the backbone to say that the model was wrong and could not be used to estimate sustainable yield. The Stipulated Judgment demands better. The citizens of Los Osos deserve better. You should come out publicly (in a large meeting in the evening or on a Saturday) to say that you have been wrong, then you should resign, the Stipulated Judgment should be determined ineffective, and Los Osos should be declared a SGMA basin in critical overdraft.