



October 15, 2025

TO: Utilities Advisory Committee

FROM: Ron Munds, General Manager

SUBJECT: **Agenda Item 3 – 10/15/2025 Utilities Advisory Committee Meeting – Basin Management Committee (BMC) Updates**

BMC 10/2/25 Meeting Summary

The BMC held a special meeting on October 2nd to primarily discuss the methodology and assumptions used in determining the Sustainable Yield number for calendar year 2026. The BMC report (attached) provides the history and background of the framework and the methodology for estimating, agreed upon by the parties to the Stipulated Judgement in 2015.

There was a robust discussion by the committee members and the public regarding the methodology. An explanation on how moving the pumping rates between the various wells, in the Golden State Water Company and Los Osos CSD's well system, can maximize the amount of water that can be pumped without exceeding the criteria established in the Adaptive Method for seawater intrusion over a 50-yr period.

The outcome of the meeting was direction being provided to staff to confirm with the water purveyors that they can meet the pumping rates at each well that were used in the Transient Model to calculate the Sustainable Yield and report back to the BMC the findings at the October 15th meeting.

Additional information regarding the October 15th BMC meeting will be provided at the UAC meeting. The agenda for the meeting and supporting information can be found on the BMC website; <https://www.losososbmc.org/>.

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TO: Los Osos Basin Management Committee

FROM: Dan Heimerl, Executive Director

DATE: October 2, 2025

SUBJECT: Item 4a – Transient Model Sustainable Yield Adaptive Method Approach Methodology

Recommendations

Receive information on a potential Transient Model Sustainable Yield Adaptive Method approach methodology and provide input to Staff.

Background

In the Stipulated Judgement (SJ) and the Basin Plan, the BMC Parties agreed on a framework and methodology for estimating and updating the Sustainable Yield for the Los Osos Basin (Basin), referred to as Sustainable Yield_x, where “X” represents the Sustainable Yield estimate for that year. The SJ and Basin Plan require the BMC to annually evaluate, confirm and set the Sustainable Yield_x based on the best available data and evidence.

Section 6.3.2 (A) of the Basin Plan defines Sustainable Yield_x as:

Sustainable Yield_x equals the maximum amount of groundwater that may be extracted from the Basin in Year X without causing seawater to advance further inland and with no active well producing water with chloride concentrations above 250 mg/l...

The Sustainable Yield_x is determined for a given set of infrastructure in place by using the Model to determine the maximum amount of groundwater extractions that may occur with a stable seawater intrusion front, and no active well producing water with chloride concentrations above 250 mg/l.

The amount of water that can be extracted under these criteria has historically been determined using the Steady State Model¹ created for the Basin.

¹ Section 2.1 of the Stipulated Judgement describes the model as follows:

The current computer generated numerical model (“Model”) was created and is maintained by Cleath-Harris Geologists, Inc. (“CHG”) on behalf of the parties acting collectively. The Model is described in the Basin Plan, Section 5.6. The parties hereby agree and stipulate that the Model has been constructed in a reasonable, technically adequate manner and is useful for evaluating the Basin and the projected impacts on the Basin from various proposed management actions.

Sustainable Yield_x Estimate Update Timeline

The following is description of the timeline regarding the initial establishment and updates to the Sustainable Yield_x for the Los Osos Basin by the BMC.

- 2015** – The Basin Plan and SJ established the initial Sustainable Yield_x estimate at 2,400 AFY.
- 2016** – The 2015 Los Osos Basin Annual Report, prepared by CHG, included a Sustainable Yield_x estimate of 2,450 AFY, based on infrastructure in place at the end of 2015 and was unanimously approved by the BMC at its June 30th, 2016 Meeting.
- 2017** – In 2017, CHG prepared the “Basin Yield Metric response to reduced long-term precipitation in the Los Osos Groundwater Basin” Technical Memorandum, which included an updated Sustainable Yield Estimate that accounted for completion of projects in 2016 included in Programs A and C of the Basin Plan. With the completion of these programs the updated estimate of Sustainable Yield was calculated to be 2,760 AFY. The BMC received and filed the TM at its March 15, 2017 Meeting. The 2016 Annual Report prepared by CHG included the updated Sustainable Yield_x estimate of 2,760 AFY and was unanimously approved by the BMC Directors at its June 21st, 2017 BMC Meeting.
- 2018** – The Sustainable Yield_x estimate included in the 2017 Annual Report prepared by CHG remained at 2,760 AFY and the Annual Report was unanimously approved by the BMC at its June 20, 2018 Meeting.
- 2019** – The Sustainable Yield_x estimate included in the 2018 Annual Report prepared by CHG remained at 2,760 AFY and the Annual Report was unanimously approved by the BMC at its June 19, 2019 Meeting.
- 2020** – The Sustainable Yield_x estimate included in the 2019 Annual Report prepared by CHG remained at 2,760 AFY and the Annual Report was unanimously approved by the BMC at its June 17, 2020 Meeting.
- 2021** – During the BMC’s June 16, 2021 consideration of the 2020 Annual Report, which included the Sustainable Yield_x estimate of 2,760 AFY, the BMC approved submitting the 2020 Annual Report to the Court. However, in its motion approving the 2020 Annual Report the BMC clarified that approval of the report should not be construed as “evaluating, setting or establishing” the Sustainable Yield_x under the terms of the SJ, directed staff to conduct a review of the Sustainable Yield_x estimate and stated that major management decisions would be deferred until an updated Sustainable Yield_x is reviewed and approved by the BMC through a more formal process in accordance with the requirements of the SJ.
- 2022** – At the October 21, 2021 BMC Meeting, the Board adopted a new methodology (Adaptive Method) for calculating the Sustainable Yield. The Sustainable Yield for CY 2022 was adopted at this meeting. The SY was calculated with this new methodology was 2,380 AFY. See the next section of this Staff Report for more details.
- 2023** – The Board adopted the same Sustainable Yield as 2022 for CY 2023: 2,380 AFY.
- 2024** – The Board adopted the same Sustainable Yield as 2022 for CY 2024: 2,380 AFY.
- 2025** – The Board adopted the same Sustainable Yield as 2022 for CY 2025: 2,380 AFY.

Adaptive Method Sustainable Yield Methodology

At the [July 21, 2021 BMC Meeting](#), the BMC directed staff to review the Sustainable Yield estimate and to bring back recommendations for calculating the Sustainable Yield_x for 2022. At the [October 27, 2021](#)

[BMC meeting](#), the BMC adopted a new Sustainable Yield Calculation Methodology (the Adaptive Method) which included the following changes:

1. **Seawater Intrusion Threshold** - The Adaptive Method Sustainable Yield calculation limits the extent of seawater intrusion to not intrude farther inland than the 2021 Basin conditions, whereas previous sustainable yield calculations allowed seawater to intrude further into the Basin. This approach establishes that further degradation of the Basin is an undesirable effect and basin pumping should be managed to, at a minimum, not further degrade the basin and with the goal (Basin Yield Metric 80 pumping target) of reversing seawater intrusion and pushing the seawater intrusion front back toward the Bay.
2. **Broderson Mound** - The Adaptive Method Sustainable Yield calculation utilizes the assumption that the Broderson Mound is only developed to an extent based on the current observed extent, not the anticipated fullest extent at some future date.
3. **Available Infrastructure** – The Adaptive Method Sustainable Yield calculation includes only currently available infrastructure and infrastructure anticipated to be available for the majority of the upcoming year during which the Sustainable Yield is being estimated.
4. **Precipitation** – The Adaptive Method Sustainable Yield Calculation includes updated rainfall accumulation data to account for more recent hydrologic conditions.

Utilizing the Adaptive Method Sustainable Yield calculation methodology, the BMC unanimously approved a Sustainable Yield estimate for Calendar Year 2022 (Sustainable Yield₂₀₂₂) of 2,380 AFY, which represented a reduction from the 2021 Sustainable Yield estimate of 2,760 AFY. Additional details on the Adaptive Method for Sustainable Yield calculation are included in the [October 27, 2021 BMC meeting](#) recording. The same Sustainable Yield estimate (2,380 AFY) was subsequently approved by the BMC for Calendar Years 2023, 2024, and 2025.

Discussion

To support the BMC in evaluating approaches for developing the Sustainable Yield estimate for 2026, Cleath-Harris Geologists prepared the [Sustainable Yield 2026 Baseline Scenario Results for the Los Osos Basin Technical Memorandum \(TM\)](#) included as Attachment 1. This TM discusses the calculation of a potential Sustainable Yield estimate for 2026 utilizing the Adaptive Methodology and the Transient Model.

Transient Model

The development of the Transient Model is included as part of the Los Osos Water Recycling Funding Program (WRPF) Study. The WRFP grant was awarded to the BMC by the State Water Resource Control Board (SWRCB) to develop a transient numerical groundwater flow model (Transient Model) and analyze recycled water and supplemental water projects to improve the sustainability of the Los Osos Basin (collectively the WRFP Study). The Transient Model was developed in 2025 and is a tool that provides a calibrated, dynamic simulation of groundwater levels and seawater intrusion in the Basin and will be utilized by the BMC to assist in its management of this critical resource for the community of Los Osos. The Transient Model is an improvement upon the Steady State Model that the BMC utilized

previously for developing Sustainable Yield estimates and predicting potential future conditions in the Basin. The Transient Model allows for prediction of impacts from variable hydrology (i.e. extended droughts, above average rainfall periods, etc.) and incorporates new information on the structure (i.e. depth, layering, etc.) of the Basin that was not previously available.

The BMC selected Cleath-Harris Geologists (CHG) to prepare the Transient Model and GSI Water Solutions (GSI) as a peer-review hydrogeologic consultant to oversee the construction and calibration of the Transient Model. In addition to GSI, the County of San Luis Obispo's Groundwater Sustainability Department retained another hydrogeologic consultant team, Lynker and One-Water Hydrologic, to complete an additional peer review of the Transient Model. CHG completed a draft of the Transient Model Construction and Calibration Technical Memorandum (TM) and provided it to the peer review consultants for their review. GSI and Lynker completed their peer reviews in early June 2025 and their comments and responses to comments are incorporated as appendices to the [Public Draft Transient Model Construction and Calibration TM](#).

The GSI peer review determined that the Transient Model was constructed and calibrated within industry standards and suitable for application in evaluating anticipated effects on groundwater systems from various groundwater management strategies. The Lynker peer review initially identified a number of potential issues to consider and address before the Transient Model could be considered a robust tool for the evaluation of management alternative to mitigate against seawater intrusion, but based on follow-up discussions with CHG, Lynker determined that these issues were considered and addressed and that the model was adequately calibrated for use in the WRF Study.

In September 2025, the same individuals who prepared the Lynker peer review, but as a different company, prepared an additional Technical Memorandum detailing key findings and conclusions on the Transient Model. This Technical Memorandum addresses questions asked by the County of San Luis Obispo related to the seawater intrusion, model accuracy, and discrepancies between measured and modeled data, and potential future improvements to the model. For additional details, see the technical memorandum here: [IRPW-OneWater Los Osos Basin Key Findings and Recommendations Technical Memorandum: Los Osos Basin Groundwater Flow and Seawater Intrusion Model](#).

[Sustainable Yield 2026 Baseline Scenario](#)

The Transient Model was utilized to simulate a potential Sustainable Yield Adaptive Method approach methodology and is provided to the BMC for its consideration in determining a Sustainable Yield estimate for 2026. Based on input from the Technical Advisory Committee for the WRF Study and from BMC Staff, the Adaptive Method Sustainable Yield calculation utilizes a 50-Yr implementation period, which includes the 45-Yr calibration base period followed by five additional years of balanced hydrologic conditions from the record (2002-2006). A 50-Yr base period was chosen because it aligns with SGMA's planning and implementation horizon of 50 years and is consistent with similar sustainable and/or safe yield modeling assumptions for other adjudicated basins (e.g. Chino Basin).

The results of the 50-Yr base period Sustainable Yield estimate scenario indicate that with optimized distribution of pumping, utilizing existing Los Osos Purveyor (i.e. Los Osos Community Services District,

Golden State Water Company, and S & T Mutual Water Company) infrastructure 2,020 AFY could be extracted from the Basin without exceeding the criteria established in the Adaptive Method for seawater intrusion over a 50-yr period.

The Transient Model was also utilized to calculate a Sustainable Yield estimate utilizing a 90-Yr base period (i.e. two cycles of the calibration period), which resulted in a Sustainable Yield estimate of 1,880 AFY, however, the 50-Yr base period was chosen for presentation for the following reasons.

- **Uncertainty** - Due to limitations in the Transient Model's ability to mimic observed physical conditions in the Basin, extending projections beyond a 50-Yr base period would increase the amount of uncertainty in the modeling results.
- **Infrastructure Remaining Useful Life** – The infrastructure currently modeled as part of the Sustainable Yield scenarios has exceeded or likely will exceed its remaining useful life before the end of the 50-Yr base period, which will require replacement and/or relocation, and therefore does not seem appropriate to model beyond that timeframe.
- **Annual Evaluation and Adoption Consideration** – The Stipulated Judgement and Basin Plan require annual evaluation and approval of a Sustainable Yield estimate for the Basin based on the best available then existing data and evidence. Therefore, the BMC will annually re-evaluate and consider adjusting sustainable yield estimates as there are changes in observed conditions, infrastructure, and/or hydrogeologic understanding.

The results of the 2026 Sustainable Yield scenarios indicate a potential higher Sustainable Yield estimate than the pumping estimate included in the [Public Draft Los Osos Basin Transient Model Baseline Scenario Technical Memorandum](#) prepared by CHG in June 2025 because they include an optimized distribution of pumping. The pumping distribution included in the Baseline Scenario was based on average well production from 2019 – 2023 (1,830 AFY), but did not account for new extraction facilities that will be available for the use in the future (i.e. Los Osos Community Services District Bay Oaks Well) and opportunities to shift pumping amongst existing wells to reduce the impact on seawater intrusion. The pumping distribution across the basin, both laterally and vertically, affects the movement of the seawater intrusion front and optimizing the pumping distribution could allow for a higher sustainable yield.

Recommendations

Staff recommends that the BMC review the information provided on a potential Transient Model Sustainable Yield Adaptive Method approach methodology and provide input to Staff. BMC Staff will receive the input provided and develop recommendations for the Calendar Year 2026 Sustainable Yield estimate and provide them to the BMC at the regularly scheduled October 15, 2025 BMC Meeting for adoption consideration.

Attachments

1. [Sustainable Yield 2026 Baseline Scenario Results for the Los Osos Basin Technical Memorandum](#)

2. [Public Draft Transient Model Construction and Calibration TM](#)
3. [IRPW-OneWater Los Osos Basin Key Findings and Recommendations Technical Memorandum:
Los Osos Basin Groundwater Flow and Seawater Intrusion Model](#)