Proposed
Process for Coordinating SMCs and GSPs in Tule Subbasin

Bryce G. McAteer
Executive Director, ETGSA

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Background

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Purpose of Future Projection Scenario Runs

The Tule Subbasin Groundwater Flow Model (GWFM), developed by Thomas Harder & Co (TH&Co) for the Tule Subbasin GSAs, is used to perform Future Projection Scenario Runs (FPSRs) that help to accomplish 3 primary objectives.

Sustainable Management Criteria Development

- By evaluating projected future *groundwater levels* and *land subsidence*, GSAs can consider what Sustainable Management Criteria (e.g. minimum thresholds, measurable objectives, and sustainability goals) they may wish to establish

Project Evaluation

- GSAs can evaluate the effect of different projects within the Subbasin and/or individual GSAs on future groundwater levels and land subsidence

Future Water Budgets

- GSAs are able to prepare future water budgets that estimate future baseline conditions over the planning and implementation horizon (*present* – 2070)
    - ***Note*** *– Future Water Budgets are a required component of the GSP, per DWR's GSP Regulations.*

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What are Sustainable Management Criteria?

Agencies will develop **Sustainable Management Criteria** (SMC) for each of the 6 sustainability indicators (i.e. undesirable results) within their management area(s) in order to achieve their sustainability goal. SMC are composed of:

- Minimum Thresholds
- Interim Milestones
- Measurable Objectives

The **sustainability goal** is a basin-wide goal that culminates in the absence of undesirable results within 20 years of the applicable statutory deadline.

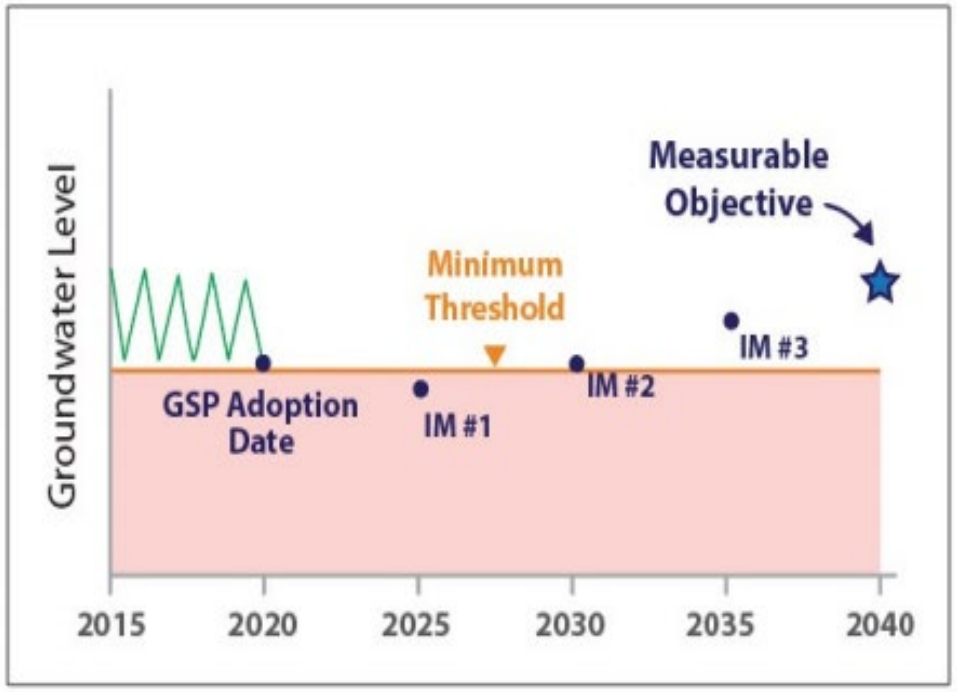

Image Source: DWR Draft BMP 6

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Sustainability Indicators & Monitoring

Each undesirable result has an associated Sustainability Indicator.

Sustainability Indicator	Lowering of GW Levels	Reduction of Storage	Seawater Intrusion	Degraded Quality	Land Subsidence	Surface Water Depletion
Metric(s)	Groundwater elevation	Total volume that can be withdrawn*	Chloride concentration isocontour*	Migration of plumes Number of supply wells, volume of water, or isocontour affected	Rate and extent of subsidence	Rate or volume of surface water depletion

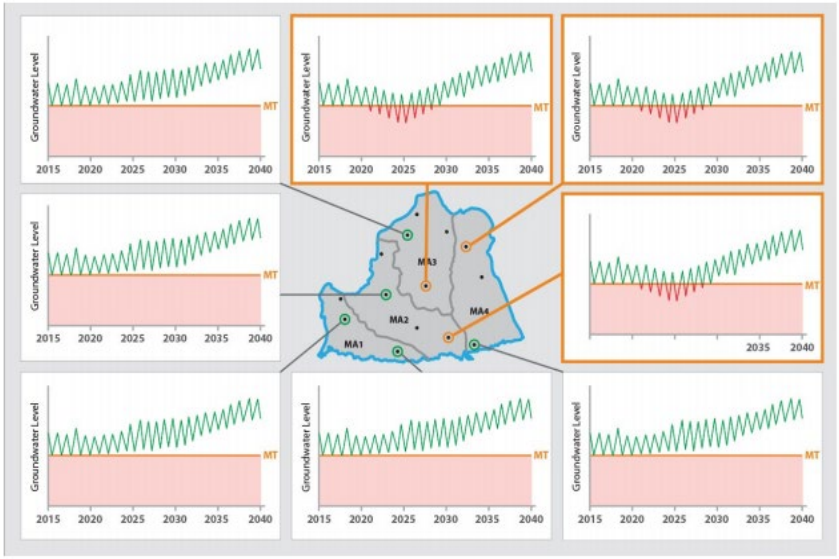
Note: Groundwater elevation may be used as a proxy metric for monitoring other sustainability indicators.

**Note: Contrary to the general rule, these indicators are set for a basin or management area rather than at each representative site*

Representative Monitoring sites are chosen to monitor sustainability indicators across a Basin.

The SMCs associated with each representative monitoring site may be different.

The site of a representative monitoring site should adequately represent the general conditions in the area.



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Proposed Process

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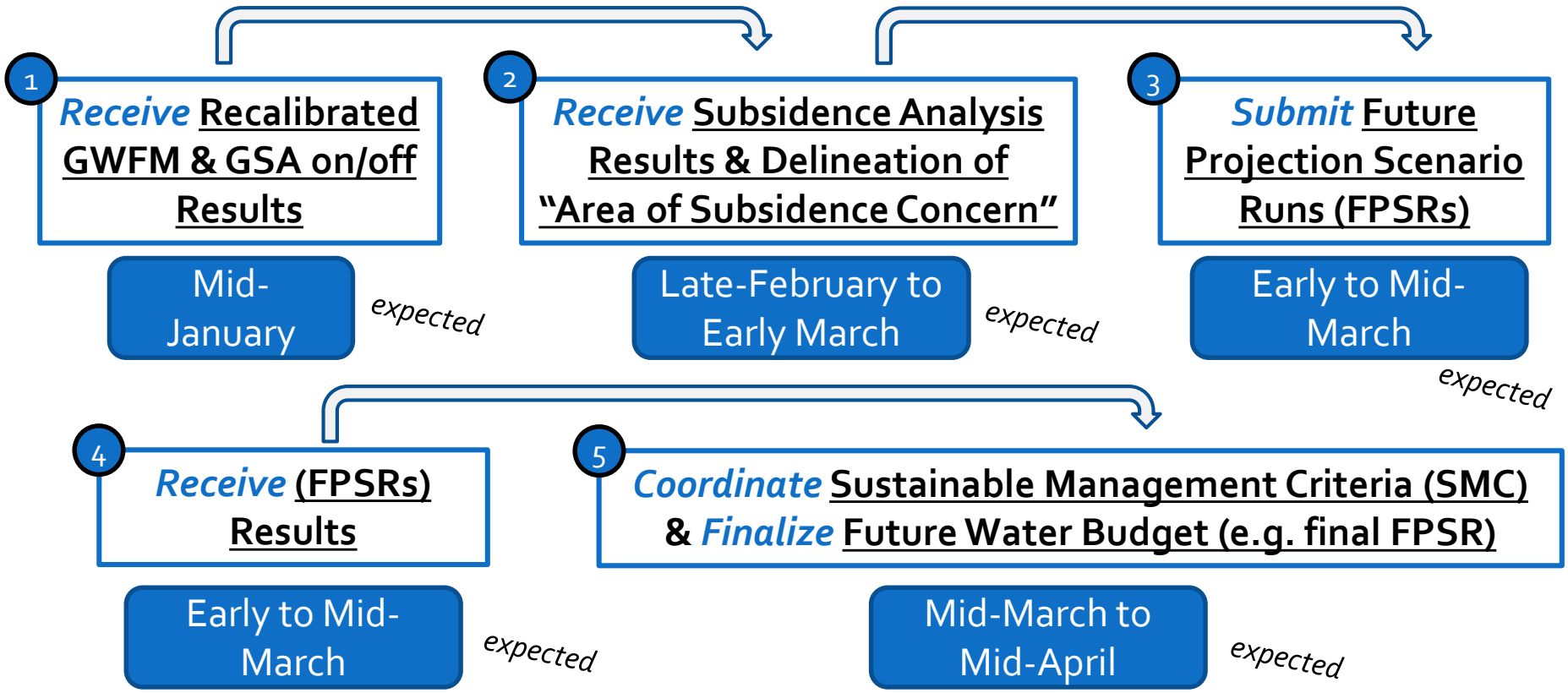
Proposed Steps for Coordination



By reviewing TH&Co's results between each of these steps and data deliverables, the GSAs will be able to iteratively:

- Consider how they might set SMCs based on the results received,
- And/or propose Projects and Management Actions to help them achieve certain sustainability objectives

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What Results are We Receiving?

1

Recalibrated GWFM Results

- **5 Scenarios on Ramp Down**
  - Includes Hydrographs & Land Subsidence Levels across Subbasin
- **Subsidence Contribution Analysis**
  - Analyzes 3 Points (East to West) across the Subbasin
  - Analyzes general contribution of individual GSA's pumping to Subsidence at those 3 Points
- **Individual GSA Water Budgets**

2

Subsidence Analysis & "Area of Subsidence Concern" (AoSC) Results

- **Analyze impact of distance of pumping (from FKC) and depth of pumping; identify AoSC**
  - Delineates geographic area that significantly contributes to FKC subsidence
- **3 Variable Ramp Down Scenarios**
  - Analyzes impact of variable ramp down between AoSC and remainder of Subbasin

3/4

Future Projection Scenario Runs

- **All GSAs submit projects & TAC (with home board approval) finalizes 1-4(?) scenarios to be run**
  - Receive Hydrographs & Land Subsidence Levels across Subbasin

5

Coordinate Sustainable Management Criteria & Finalize Future Water Budget

- **Choose mutually agreed upon Scenario to serve as "Final" for our Future Water Budget**
  - Receive Hydrographs & Land Subsidence Levels across Subbasin
  - Receive individual and Tule Subbasin-wide Water Budget

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What Question are We Trying to Answer?

Question: ***What future*** (groundwater levels & subsidence) are we ***comfortable with*** and ***striving for*** (w/ Projects & Management Actions or "PMAs") across the Tule Subbasin?

Every time the GWFM is run, we get *different "versions" of potential futures.*

The *iterative process* of new runs (and receiving their results) is meant to allow the Tule Subbasin GSAs to collectively assess potential futures and, thereafter, propose honed individual PMAs that allow them to achieve a *mutually coordinated and desired future.*

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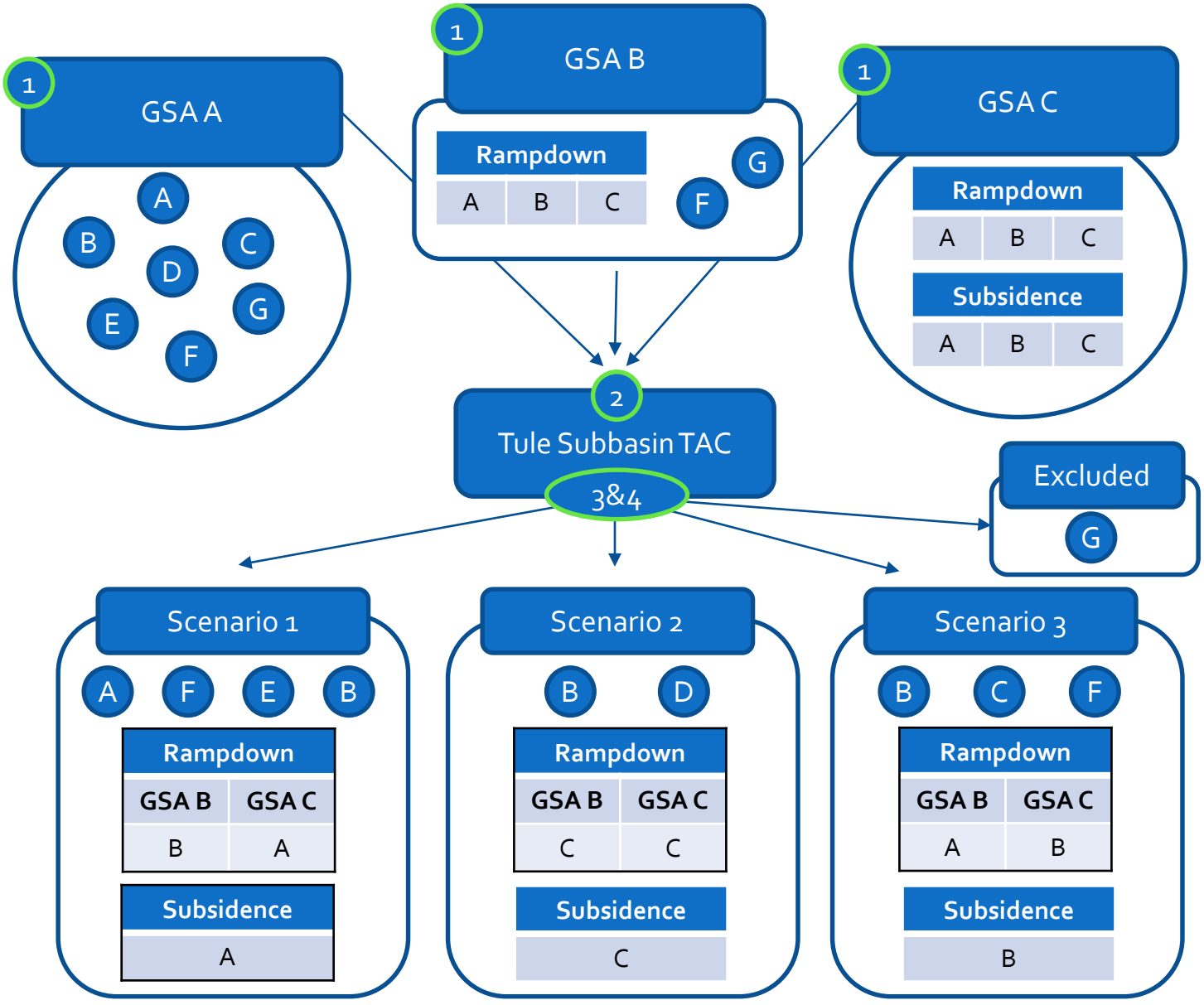
EXAMPLE - Subbasin FPSR Finalization

STEPS

1. GSAs Individually Compile Proposed PMAs
2. Proposed PMAs are discussed @ TAC
3. Desired PMAs are Sorted, Finalized, & Approved by Home Boards
4. Desired PMA Scenarios are sent to TH&Co
5. Future Hydrographs, Land Subsidence results, and Water Budgets provided by TH&Co



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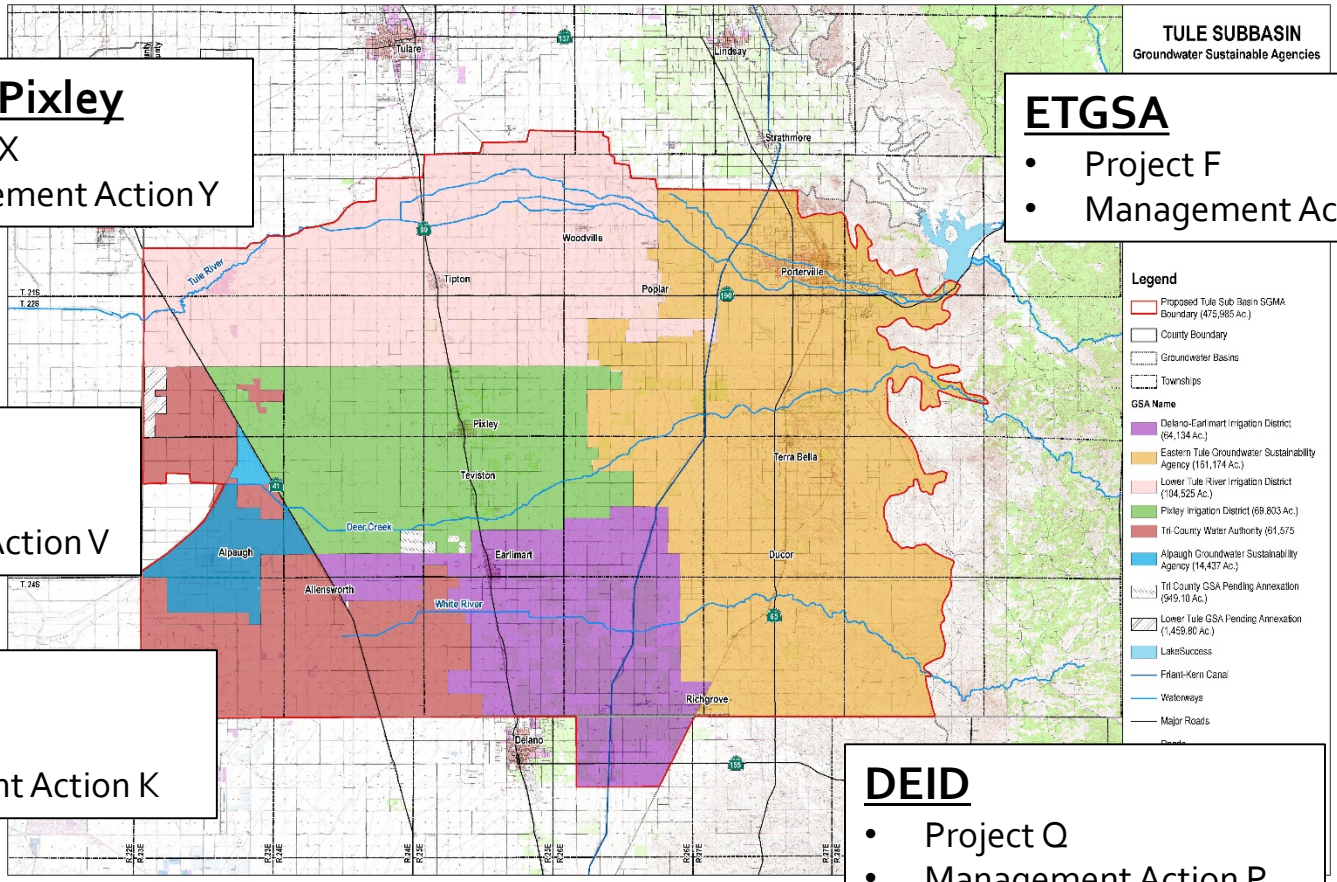
EXAMPLE - Finalized FPSR "Scenario M"

LTRID & Pixley
- Project X
- Management Action Y

ETGSA
- Project F
- Management Action Z



Tri-County
- Project U
- Management Action V

Alpaugh
- Project N
- Management Action K

DEID
- Project Q
- Management Action P

Example - Proposed Hydrologic Baseline
- Below Average (2020-2038), Above Average (2038-50), Average (2050-70)

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