

# July 16, 2015

## County Advisory Group

California  
Department of Water Resources



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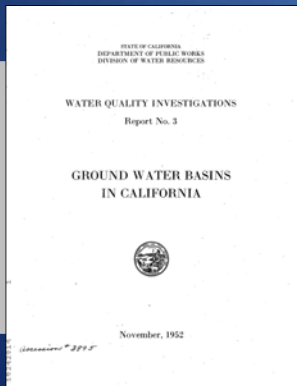
# Presentation Outline

- Basin Boundary Draft Regulations Update
- GSP/Alt Regulations Outreach Approach and Overview of Summer Meetings
- GSP Regulations – Topic Discussions
  - Approach for GSP Development and Implementation
  - Pre-Existing Conditions and Undesirable Results
  - Measurable Objectives and Interim Milestones
  - Land Use and County Involvement

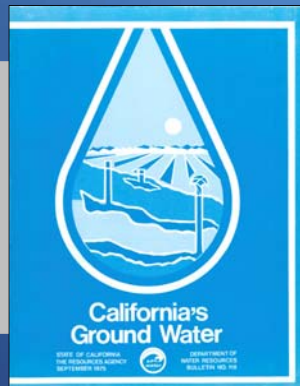
# Groundwater Basin Boundary Revision Regulations - Update

# CA Groundwater Basins

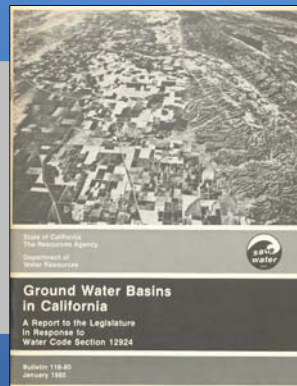
- Groundwater Basins & Subbasins Are Defined in DWR Bulletin 118 Using the Best Available Data
- Revisions to Basin Boundaries Have Occurred During B-118 Updates (Water Code § 12924)



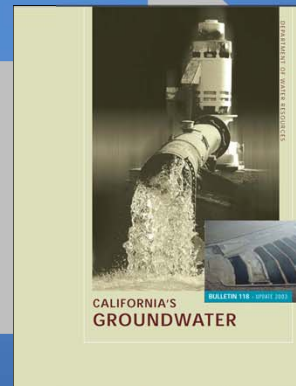
1952



Bulletin 118  
1975



Bulletin 118  
1980

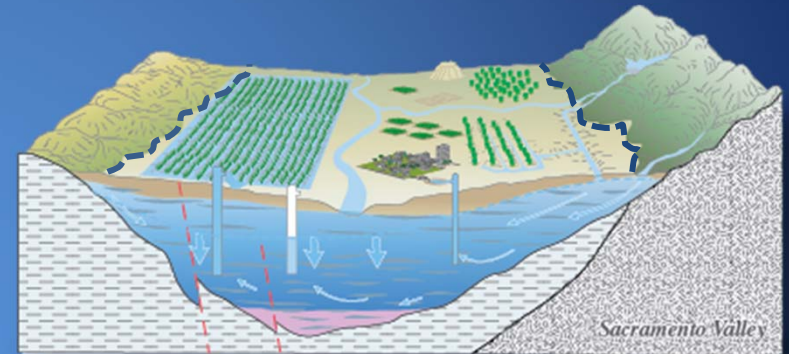


Bulletin 118  
2003

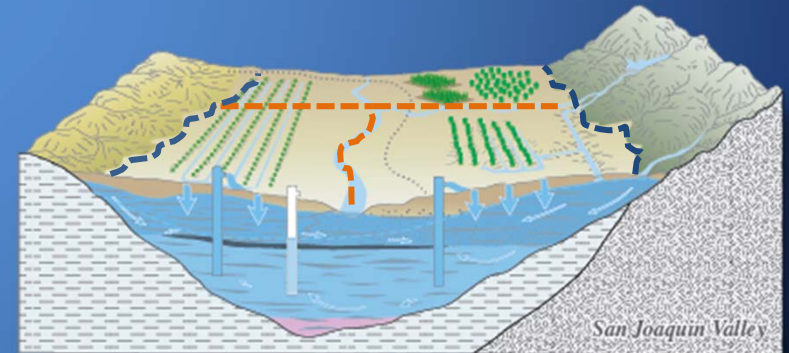
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# Groundwater Basins & Subbasins

- **SGMA Definition**
- **Groundwater Basin** – An alluvial aquifer or a stacked series of alluvial aquifers with reasonably well-defined boundaries in a lateral direction and having a definable bottom
- **Groundwater Subbasin** – A subbasin is created by dividing a groundwater basin into smaller units using geologic and hydrologic barriers or institutional boundaries



Modified from Faunt, 2009



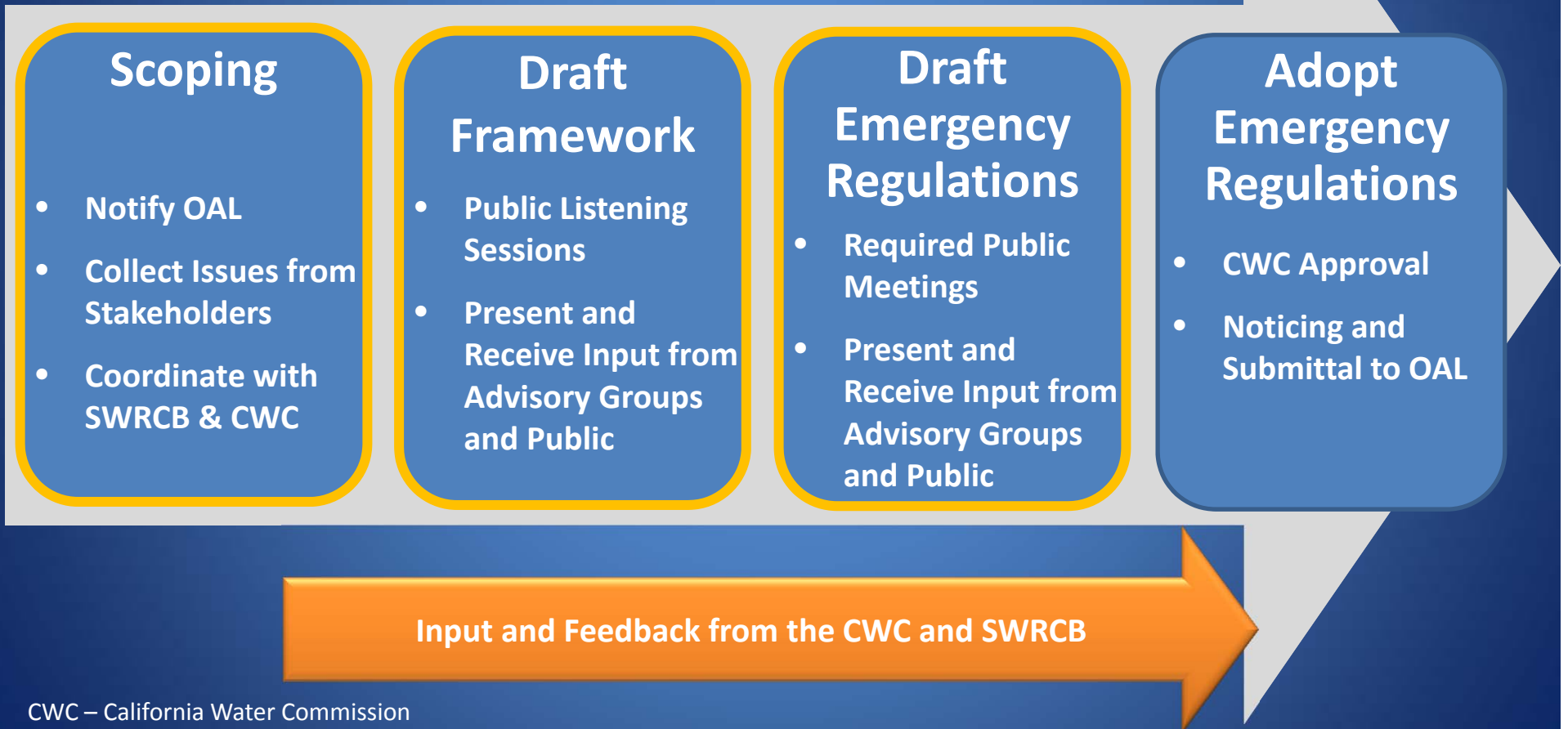
Modified from Faunt, 2009

# SGMA Requirements

- **Emergency Regulations to Establish a Process For Local Agencies to Request Revisions to Existing Basin Boundaries**
  - **DWR Shall Adopt by January 1, 2016**
  - **Instructions to Local Agencies on Submittal of:**
    1. Information demonstrating proposed basin can be sustainably managed
    2. Technical information on boundaries and conditions in proposed basin
    3. Consultation with interested parties in affected basins
    4. Other information DWR deems necessary to justify revision
  - **Methodology and Criteria on how to assess:**
    1. Likelihood proposed basin can be sustainably managed
    2. Whether proposed basin would limit the SGM of adjacent basin
    3. Whether there is a history of SGM of groundwater levels in the proposed basin

# Basin Boundary Regulations Process

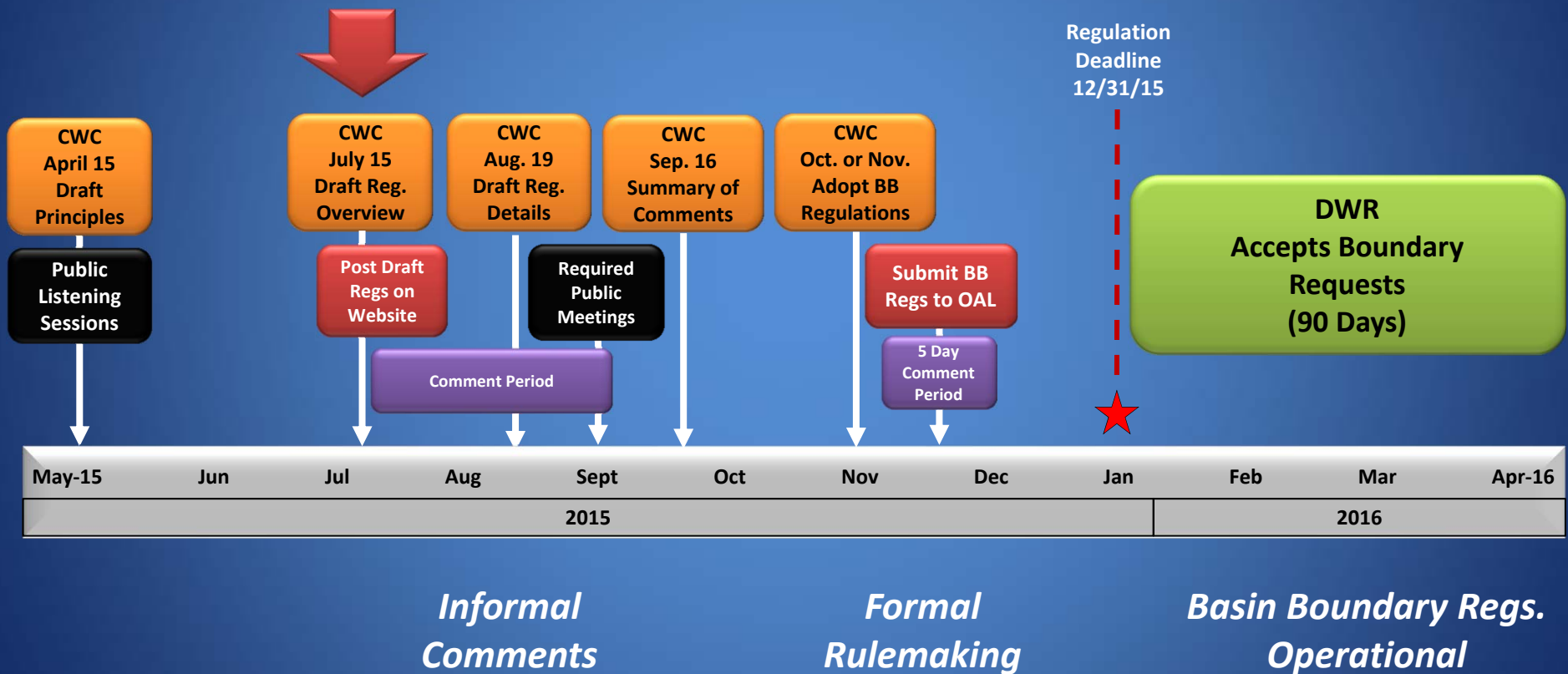
- Phases of Implementation



CWC – California Water Commission  
SWRCB – State Water Resources Control Board  
OAL – Office of Administrative Law

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# Basin Boundary Regulations Estimated Timeline



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# Draft Regulation Approach

- **Existing Boundaries and GSA Formation**
- **Local Flexibility with Adequate Justification**
  - Broad Agreement and Coordination
  - Technical Information
- **Type of Boundary Revisions**
  - Minor vs. Major Revisions
  - Basin vs. Subbasin Boundary Revisions
  - Basin Adequately Sized For Sustainable Management

# **GSP/Alt Regulations Outreach**

## **Approach and Overview of**

### **Summer Meetings**

# GSP/ALT Regulations Process

- Phases of Implementation

## Scoping

- Notify OAL
- Collect Issues from Stakeholders
- Coordinate with SWRCB & CWC

## Draft Framework (Topic Based)

- Public Listening Sessions
- Present and Receive Input from Advisory Groups and Public

## Draft Emergency Regulations

- Required Public Meetings
- Present and Receive Input from Advisory Groups and Public

## Adopt Emergency Regulations

- CWC Approval
- Noticing and Submittal to OAL

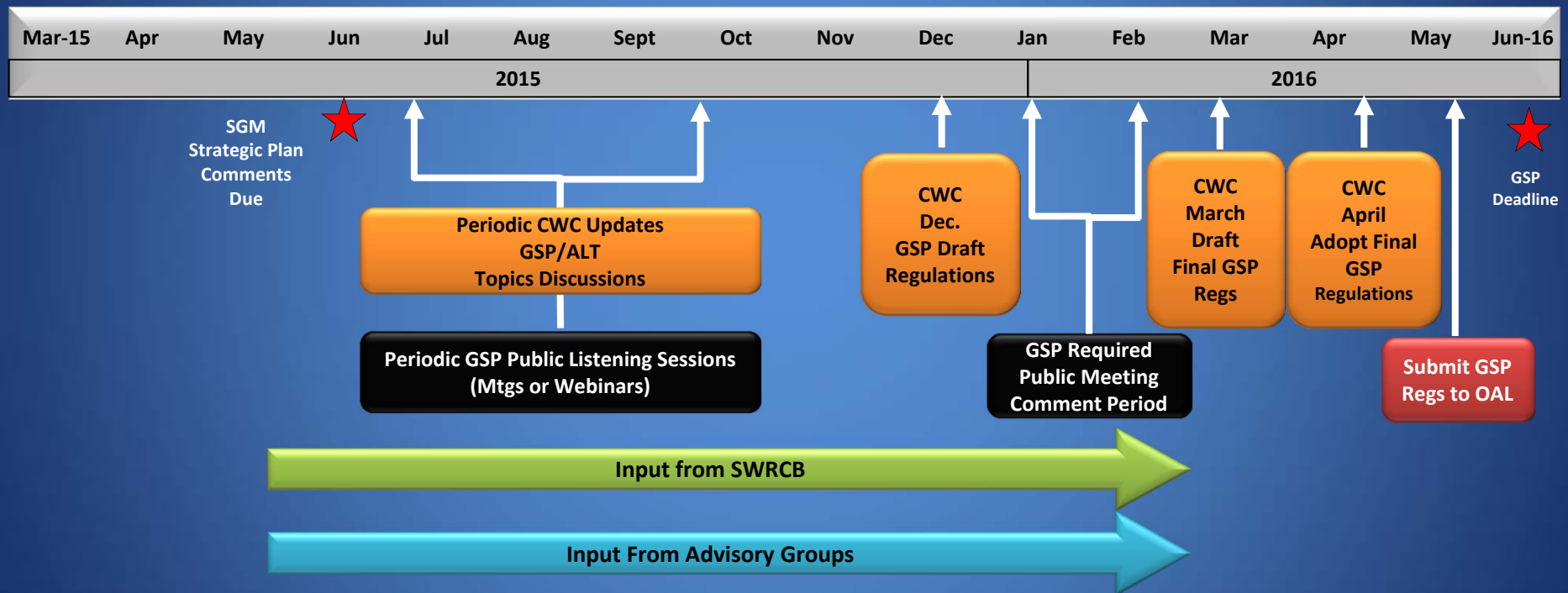
Input and Feedback from the CWC and SWRCB

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SWRCB – State Water Resources Control Board  
OAL – Office of Administrative Law

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# GSP/ALT Regulations

## Estimated Project Timeline



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# GSP Issue Topics for Regulation Development

Phase 1 –  
Scoping  
(Collection  
of Issues)

All 10  
Topics  
(May-Jun)

Phase 2 –  
Draft  
Framework  
(Present  
and Receive  
Input from  
Advisory  
Groups and  
Public)

1<sup>st</sup> Batch  
(Jun-Jul)

2<sup>nd</sup> Batch  
(Jul-Aug)

3<sup>rd</sup> Batch  
(Aug-Sep)



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# **Topic 3 – Land Use and County Involvement**

**(Consideration of GSP)**

**(Consideration of Beneficial Uses)**

**(County Presumption of a GSA for  
Unmanaged Areas)**

# Land Use and County Issues Received

- Both counties and water agencies identified a mutual need for more communication.
  - It was suggested that there is currently very little, if any, ongoing or routine communication between counties and water agencies at this time.
- Concerns about the reality of trying to implement land use changes by GSAs that do not actively involve counties.
- Issues surrounding land use authority – land use agencies need to have a seat at the table; special districts with no land use authority need to work with counties, who do have land use authority.

# Consideration of GSPs

## 4.1 Government Code Section 65350.5. Review and Consideration of Groundwater Requirements

*Before the adoption or any substantial amendment of a city's or county's general plan, the planning agency shall review and consider all of the following:*

- *(a) An adoption of, or update to, a groundwater sustainability plan or groundwater management plan pursuant to Part 2.74 (commencing with Section 10720) or Part 2.75 (commencing with Section 10750) of Division 6 of the Water Code or groundwater management court order, judgment, or decree.*

### **Questions and Considerations:**

- How should the planning agency's consideration of a GSP be reflected in the general plan document in terms of policies and land use?



# Consideration of Beneficial Uses

## 4.4 Water Code Section 10723.2. Consideration of All Interests of All Beneficial Uses and Users of Groundwater

*The groundwater sustainability agency shall consider the interests of all beneficial uses and users of groundwater, as well as those responsible for implementing groundwater sustainability plans. These interests include, but are not limited to, all of the following:*

*(d) Local land use planning agencies.*

### Questions and Considerations:

- What does “consideration of local land use planning agencies interests” mean in practice?
- How will local land use interests be reconciled with potentially incompatible GSP objectives?

# County Presumption of a GSA for Unmanaged Areas

**4.5 Water Code Section 10724. Presumption That County Will Manage Areas Not Covered By a Groundwater Sustainability Agency; Extraction Reporting to State Board if County Does Not Manage Those Areas**

## **Questions and Considerations:**

- How will the counties approach the decision to decide on whether or not it will be the GSA for areas within the same basin but not covered by another GSA?

# Additional Authorities of GSAs

## 4.6 Water Code Section 10726.4. Additional Authorities of Groundwater Sustainability Agency

*(a) A groundwater sustainability agency shall have the following additional authority and may regulate groundwater extraction using that authority:*

- (1) “To impose spacing requirements on new groundwater well construction to minimize well interference and impose reasonable operating regulations on existing groundwater wells...”*
- (2) “To control groundwater extractions by regulating, limiting, or suspending extractions from individual groundwater wells...”*  
*“Those actions shall be consistent with the applicable elements of the city or county general plan, unless there is insufficient sustainable yield in the basin to serve a land use designated in the city or county general plan. A limitation on extractions by a GSA shall not be construed to be a final determination of rights to extract groundwater from the basin or any portion of the basin.*

# Additional Authorities of GSAs (cont.)

## Questions and Considerations:

- Could limitations on groundwater extractions imposed as a means to achieve sustainable groundwater goals result in *de facto* land use restrictions?
- How will GSAs quantify where and when water reductions are necessary, and communicate these reductions to basin water purveyors, and to land use agencies?
- What is the role of the GSA relative to land use agencies and water purveyors to establish a sustainability goal that may be implemented by the other agencies?

# Regulations on Groundwater Sustainability Plans and Alternatives

# Major Considerations

## Topic 1 – Pre-SGMA Conditions and Undesirable Results

- Locally defined site specific definitions of “significant and unreasonable” within a possible minimum standard set by DWR
- Addressing undesirable results to levels observed Jan 1, 2015 may be dependent on site specific conditions and undesirable result.

## Topic 2 – Measurable Objectives (MO) and Interim Milestones (IM)

- Locally defined site specific measurable objectives and interim milestones developed within a framework set by DWR.
- Important planning concepts of thresholds & trigger actions are necessary to evaluate MOs at IMs.

## Topic 3 – Land Use and County Involvement

- Coordination between Counties (Land Use Authority) with other new GSAs (predominately water agencies)
- County approach to presumption of a GSA in unmanaged areas.
- Challenges between new GSPs and General Plans.

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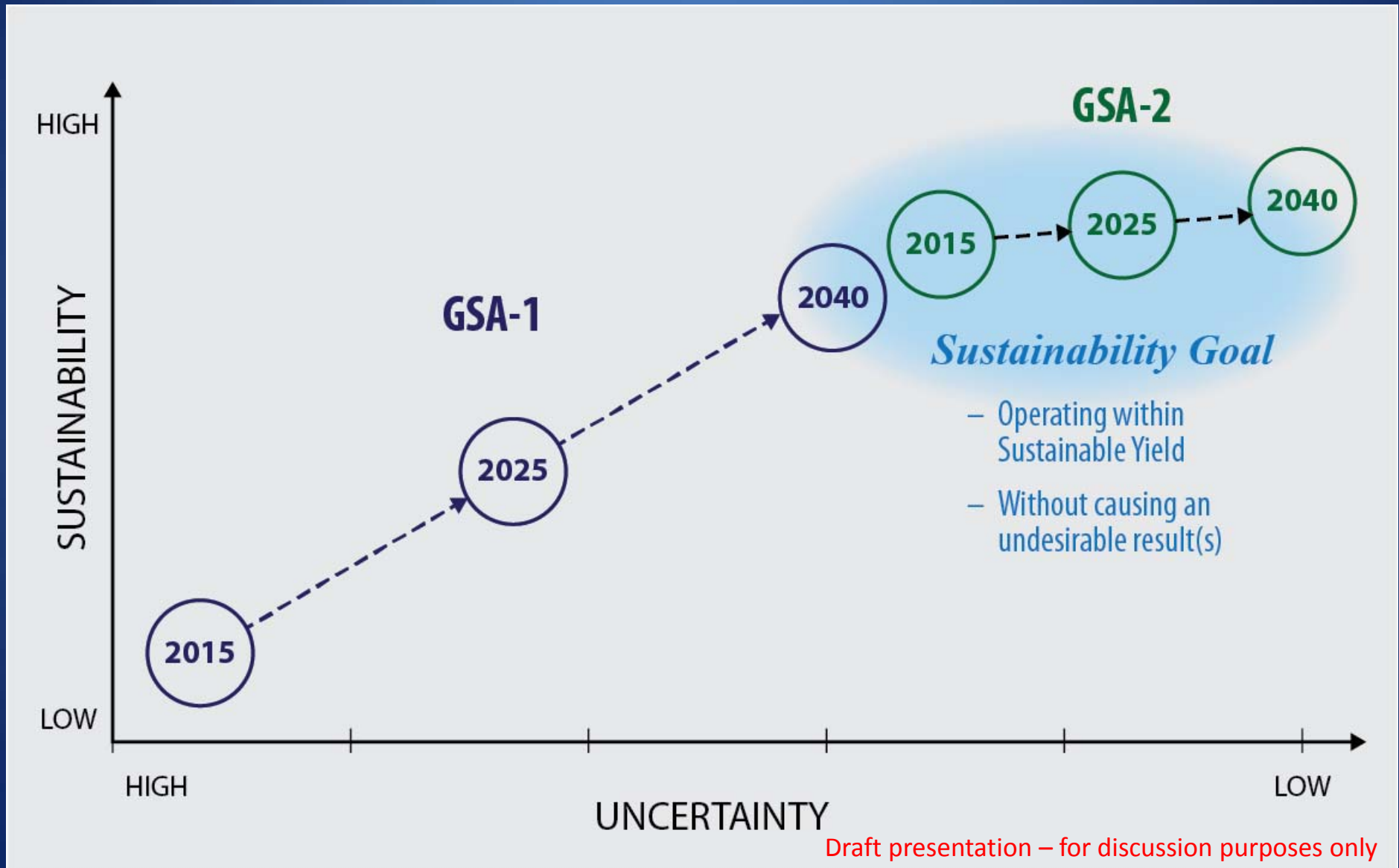
# Approach for GSP Development and Implementation

# How is sustainability defined

- (t) *“Sustainability goal” means the existence and implementation of one or more groundwater sustainability plans that achieve sustainable groundwater management by identifying and causing the implementation of measures targeted to ensure that the applicable basin is operated within its sustainable yield.*
- (u) *“Sustainable groundwater management” means the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results.*
- (v) *“Sustainable yield” means the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result.*



# How is sustainability defined (cont.)



# **Topic 1 – Pre-SGMA Conditions and Undesirable Results**

**(Groundwater Levels and Storage)**

**(Seawater Intrusion)**

**(Water Quality)**

**(Land Subsidence)**

**(Depletions of Interconnected Streams)**

# Undesirable Results Definition

*(w) “Undesirable result” means one or more of the following effects caused by groundwater conditions occurring throughout the basin:*

- *Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon.*
- *Significant and unreasonable reduction of groundwater storage.*
- *Significant and unreasonable seawater intrusion.*
- *Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies.*
- *Significant and unreasonable land subsidence that substantially interferes with surface land uses.*
- *Depletions of interconnected surface water that has significant and unreasonable adverse impacts on beneficial uses of the surface water.*

# Undesirable Results Issues Received

- Inelastic land subsidence cannot be reversed. What will be the requirement to address any subsidence impacts realized between January 1, 2015 and the date of GSP adoption and/or start of GSP implementation (i.e. January 31, 2020 or 2022)?
- Will the regulations have enough flexibility to allow GSAs to draw down groundwater levels where groundwater levels are relatively high for the purposes of conjunctively using the basin or creating future storage?
- Will DWR establish a minimum standard for significant and unreasonable undesirable results?

# Pre-SGMA Definition

## 10727.2. Required Plan Elements

*A groundwater sustainability plan shall include all of the following:*

- (b) (4) The plan may, **but is not required to**, address undesirable results that **occurred before**, and have not been corrected by, **January 1, 2015**. Notwithstanding paragraphs (1) to (3), inclusive, a groundwater sustainability agency has discretion as to whether to set measurable objectives and the timeframes for achieving any objectives for undesirable results that occurred before, and have not been corrected by, **January 1, 2015**.*

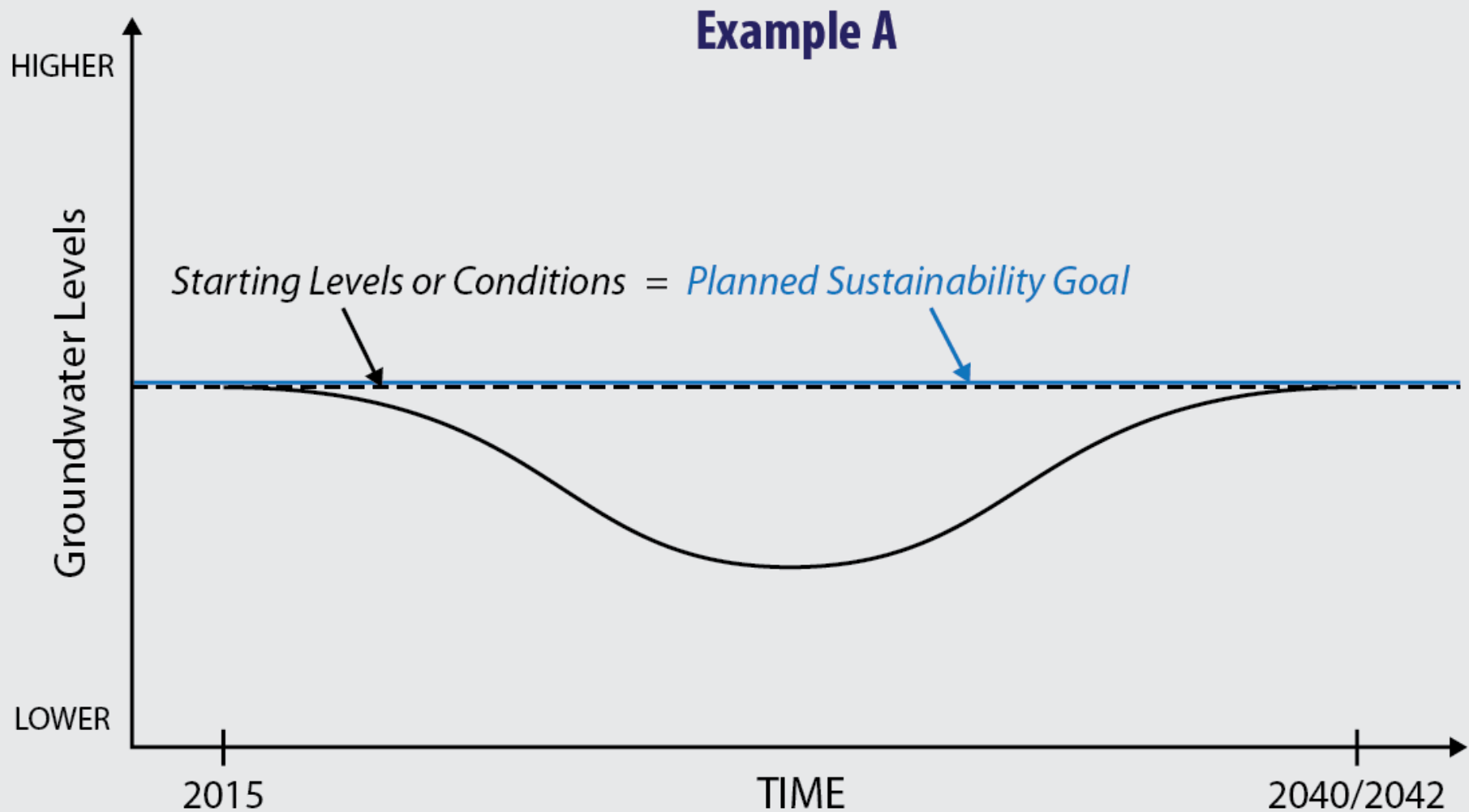
# Pre-SGMA Issues Received

- Can declining groundwater-level trends prior to January 1, 2015 continue as part of the plan then level off, or should trends be required to level off immediately?
- Does this (i.e. pre-SGMA) provision equate to a voluntary requirement for GSAs to address undesirable results before January 1, 2015? Conversely, after January 1, 2015, do GSAs need to begin to address undesirable results and obtain balance or sustainability by 2040 or 2042 and avoid significant and reasonable undesirable results?
- Does this requirement to address undesirable results after January 1, 2015, apply everywhere in the GSP area, or should it only represent an average condition of the GSP area or basin?

# Pre-SGMA Conditions

## Paths to Sustainability

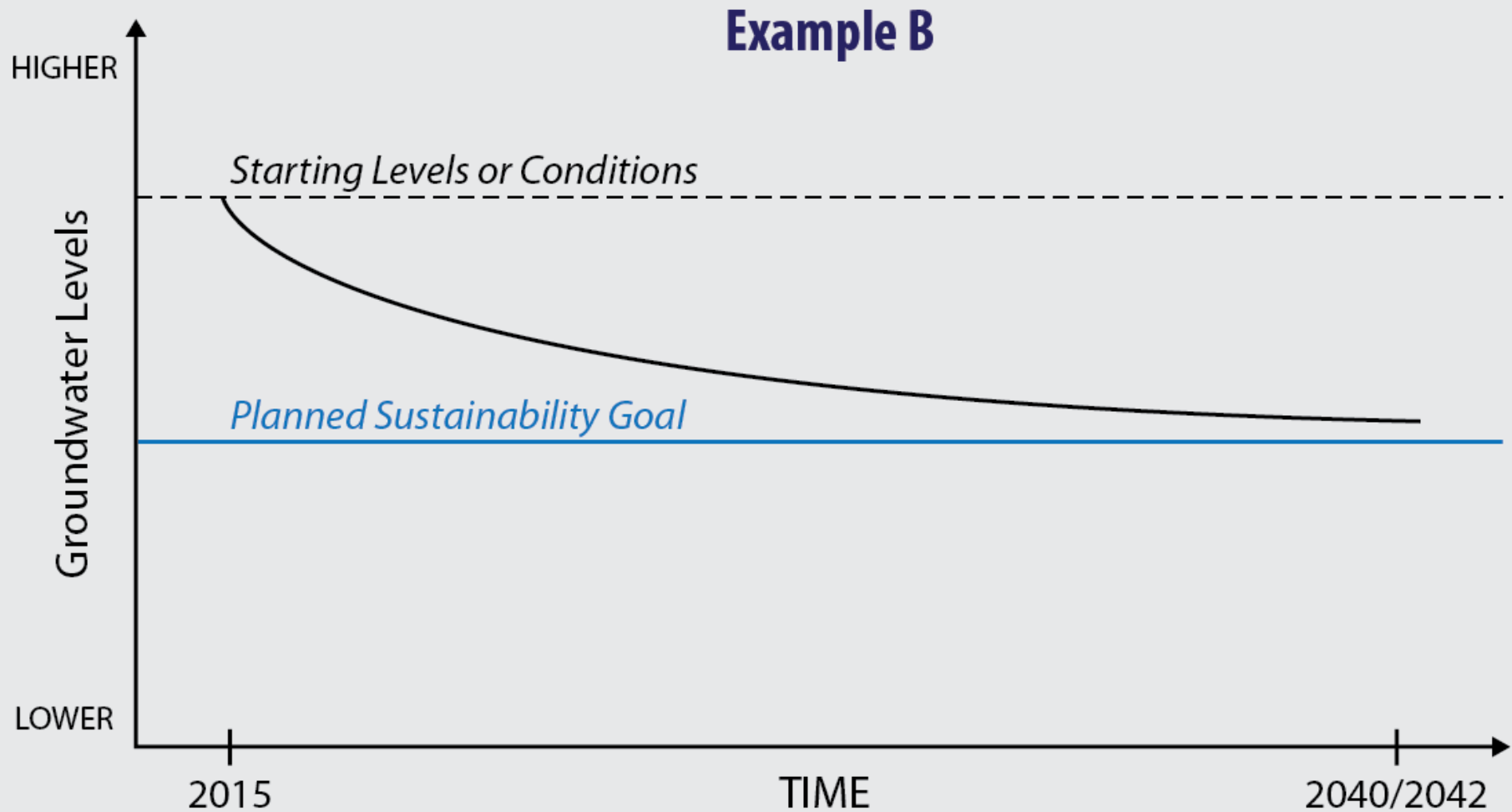
(Ex. Chronic Lowering of Groundwater Levels)



# Pre-SGMA Conditions

## Paths to Sustainability

(Ex. Chronic Lowering of Groundwater Levels)



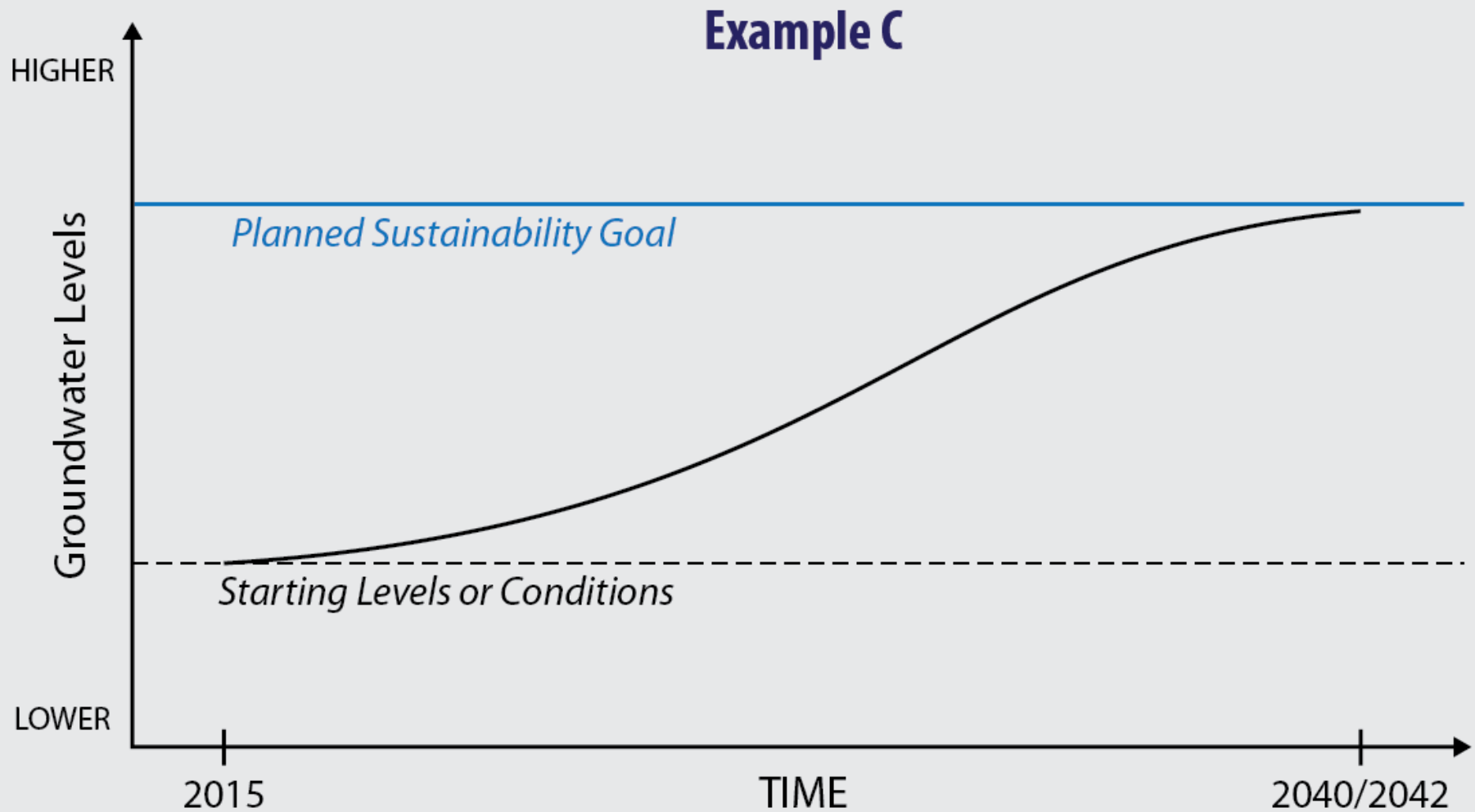
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# Pre-SGMA Conditions

## Paths to Sustainability

(Ex. Chronic Lowering of Groundwater Levels)



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# Pre-SGMA Questions

- Do undesirable results that occurred before January 1, 2015 not have to be addressed, but need to be fully defined and GSP actions included, that will manage undesirable results above significant and unreasonable levels by 2040 or 2042?

# Undesirable Result Questions

- **Site Specific developed at Local Level** - Should “significant and unreasonable” largely be based on site-specific considerations and defined as a measurable objective (developed at the local level), and be based on broad consideration of whether implementation of the measurable objectives will avoid or minimize permanent or irreversible impacts?
- **Minimum Standard** - Should there be a minimum standard or threshold for each undesirable result established, regardless of site specific conditions?
- **Justification for Site Specific** - Will it be important to document the variability of basin conditions if site-specific definitions of significant and unreasonable undesirable results are developed locally, to support DWR’s evaluation of future thresholds for management of those undesirable results?

## Undesirable Result

GW Levels and Storage

Seawater

Water Quality

Land Subsidence

Interconnected Surface Water

## Initial Questions

**Defining Significant and Unreasonable** – What are the methods or approach GSAs can use to define significant and unreasonable levels?

**Defining Minimum Standards** – What Statewide minimum standard should be considered, should it be qualitative or quantitative?

## Secondary Considerations and Questions

- How to approach **operating limits**?
- How to evaluate if “emptying” aquifer **threatens supply reliability**?

- **Existing SWRCB authority** in cases of threats to irreparable injury to aquifer.
- Should limited **additional advancement be allowable**?

- Which **existing water quality management programs** might complement or conflict with GSP?
- Allow for **limited groundwater quality degradation**?

- **Risk assessment** evaluation of impacts?
- **Mitigation measures** considered where impacts affect infrastructure or environment?
- Allow for **limited additional subsidence**?

- **Standardized methods** defined by industry standards or DWR?
- How will potential **environmental impacts** be identified and quantified?

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# Topic 2 – Measurable Objectives and Interim Milestones

(Quantitative Thresholds)

(Triggers and Actions)

(Uncertainty)

# MO and IM Definition

## 10727.2. Required Plan Elements

*A groundwater sustainability plan shall include all of the following:*

- *(b) (1) **Measurable objectives**, as well as **interim milestones** in increments of five years, to achieve the sustainability goal in the basin within 20 years of the implementation of the plan.*
- *(b) (2) A description of **how the plan helps meet each objective** and **how each objective is intended to achieve the sustainability goal** for the basin for long-term beneficial uses of groundwater.*

# MO and IM Definition (cont.)

## 10733.2. Department to Adopt Emergency Regulations Concerning Plan Review and Implementation

- *(a) (1) By June 1, 2016, the department shall adopt regulations for evaluating groundwater sustainability plans, the implementation of groundwater sustainability plans, and coordination agreements pursuant to this chapter.*
- *(2) The regulations shall identify the necessary plan components specified in Sections 10727.2, 10727.4, and 10727.6 and other information that will assist local agencies in developing and implementing groundwater sustainability plans and coordination agreements.*

# Basin Management Objective vs Measurable Objectives

## Existing GMP Requirement's

- Basin Management Objectives
- Monitoring of groundwater
- Plan to involve other agencies
- Documentation of public involvement
  - Required, Recommended, and Voluntary Components

## New GSP Requirements

- Physical description of the basin (water level, quality, etc.)
- Measurable objectives and interim milestones
- Description of how these objectives will be achieved
- Monitoring and management provisions
- How the plan will affect other county/city general plans

*Specific new GSP requirements WC 10727.2, 10727.4, and 10727.6*

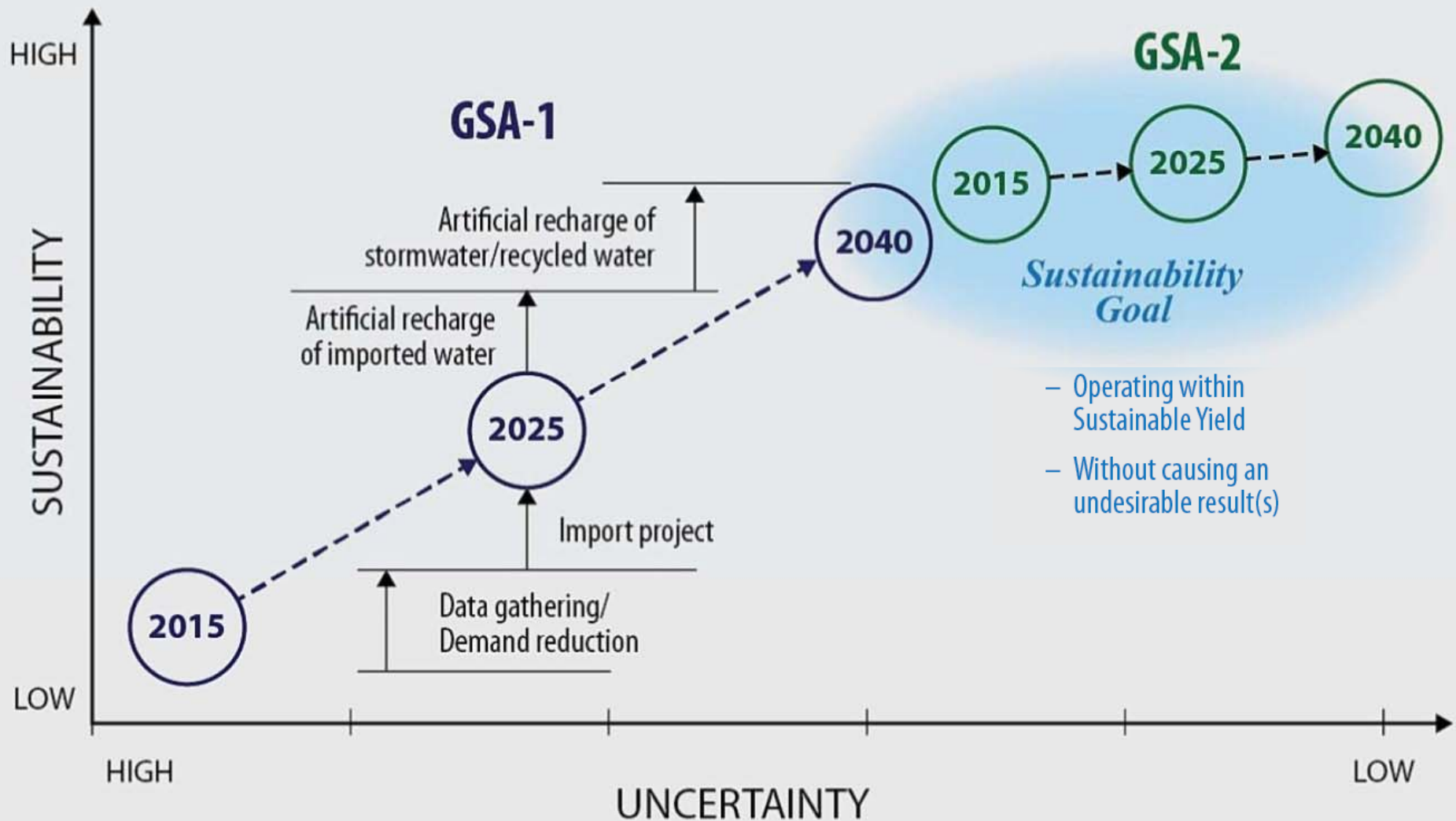
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# MO and IM Issues Received

- What is DWR's definition of "measurable objectives"?
- Will the measurable objectives be required to be discrete values? Or acceptable operational ranges?
- Will MO and interim milestones be evaluated on an annual basis with submission of an annual report?
- Can measurable objectives change over time?
- Will DWR provide clear guidelines for inter-basin coordination with respect to measurable objectives? One subbasin's measurable objectives may not be achievable by an adjacent subbasin. Will regulations identify requirements for coordination?

# MOs and IMs Necessary to Reduce Uncertainty and Achieve or Maintain Basin Sustainability



# Possible GSA Path to Sustainability



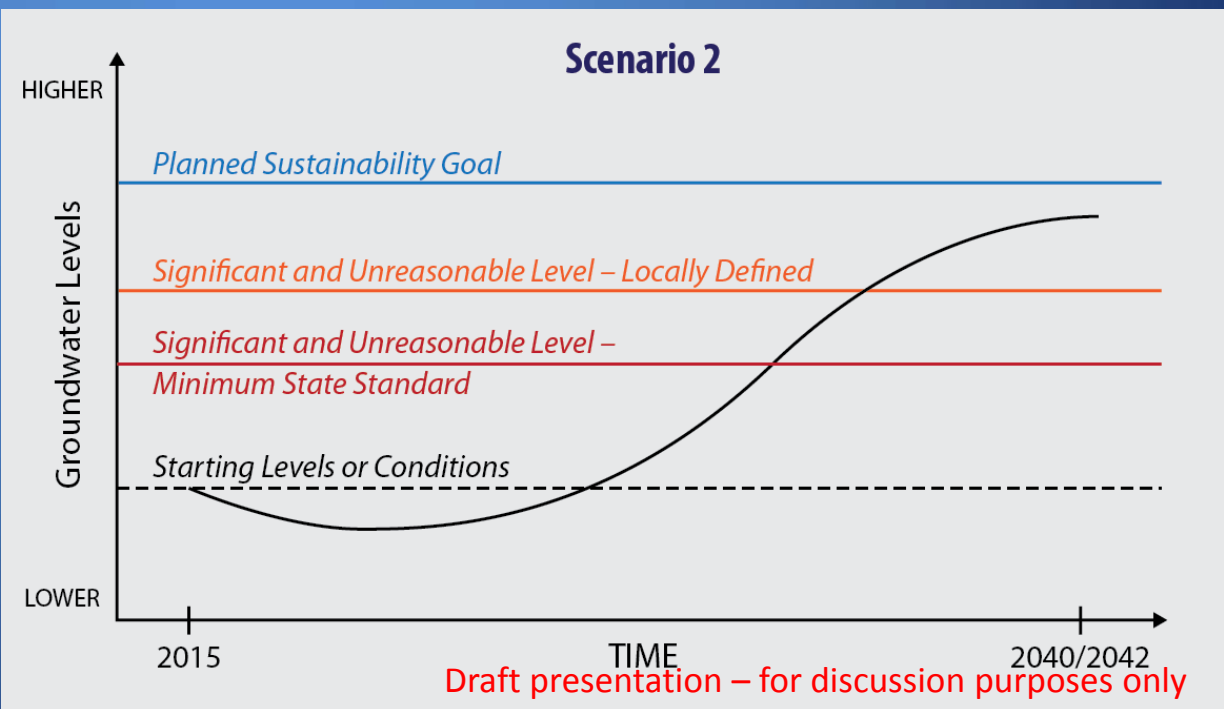
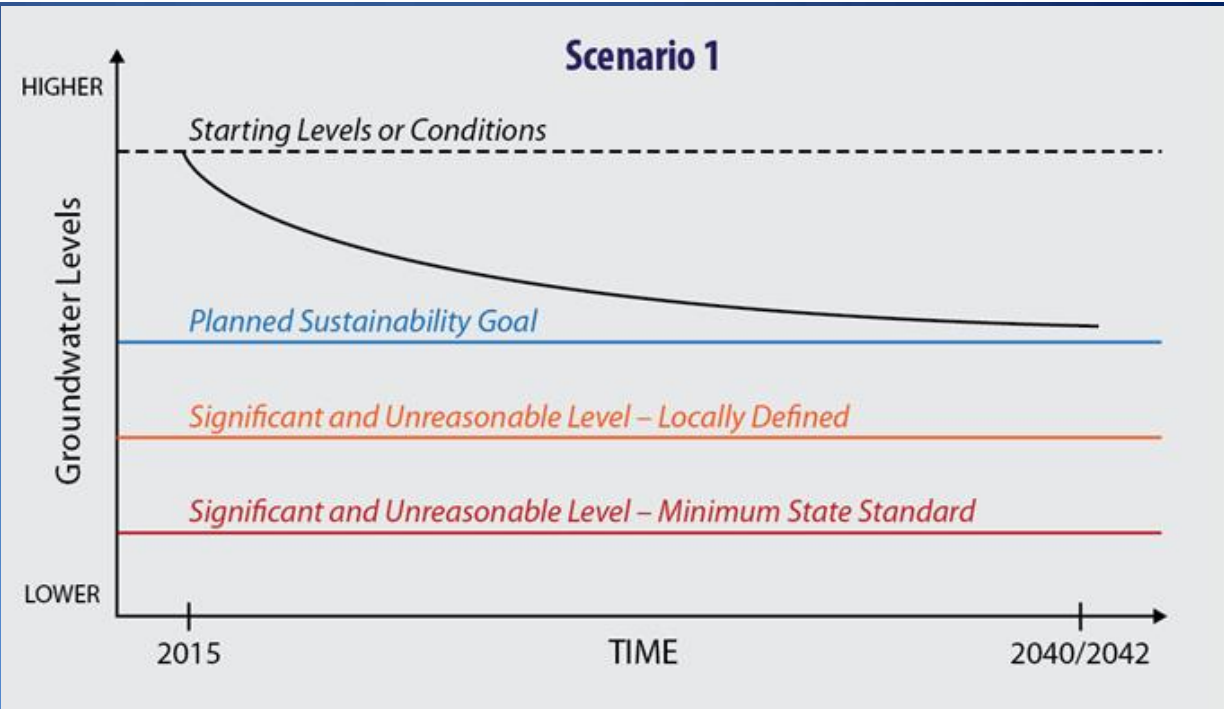
■ = Range of Uncertainty    **IM #** = Interim Milestone

# MO and IM General Questions

- **Local Flexibility and State Evaluation** - How should locally-defined MO and IM be developed to balance local flexibility and allow the State to complete evaluation and assessments of GSPs?
- **Site Specific developed at Local Level** - Should a measurable objective be developed for each of the significant and unreasonable undesirable results and be based on broad consideration of whether implementation of the measurable objectives will avoid or minimize permanent or irreversible impacts at a local level?
- **Justification for Site Specific** - Will it be important to document the variability of basin conditions if site-specific definitions of significant and unreasonable undesirable results are developed locally, to support DWR's evaluation of future thresholds for management of those undesirable results?

# Measurable Objectives Based on Undesirable Results

## Setting Planned Goals and Significant and Unreasonable Thresholds

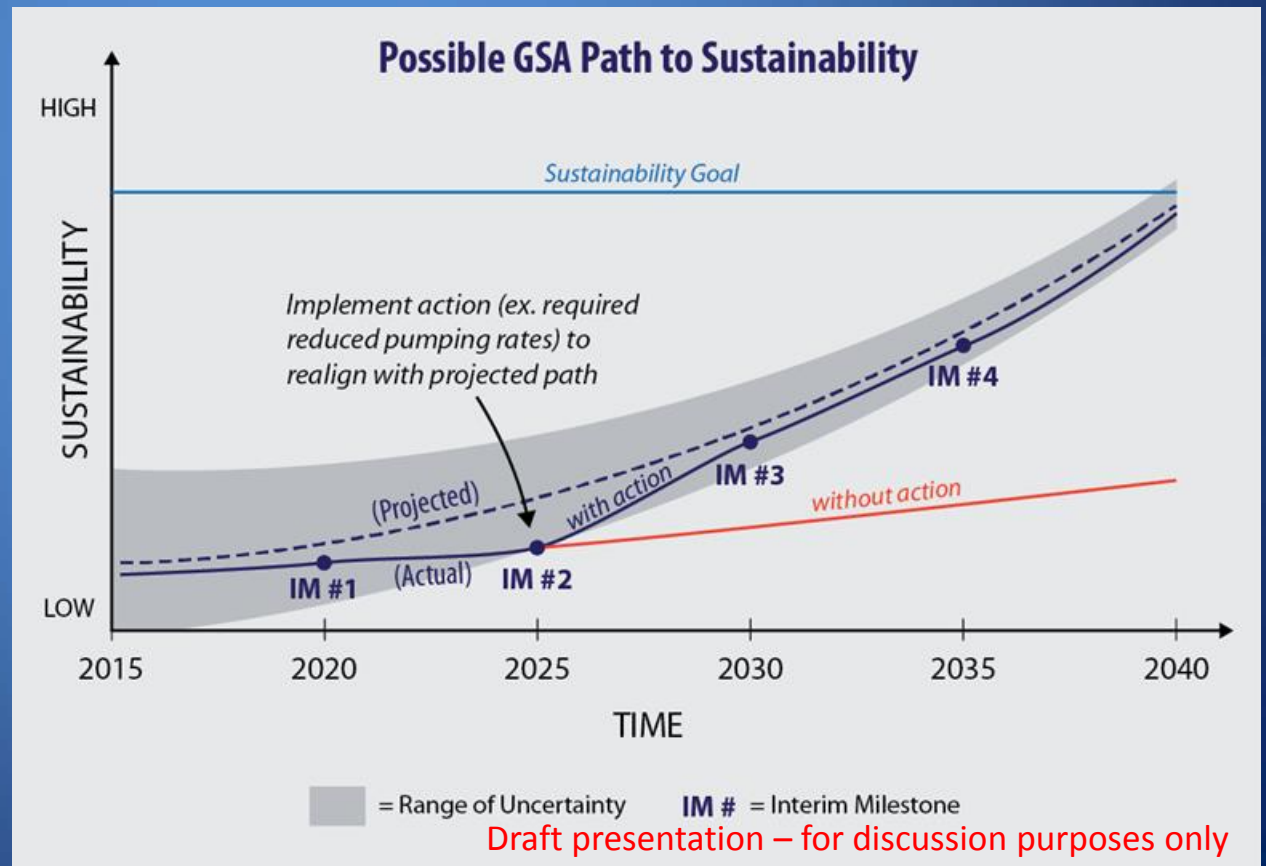


# Specific MO and Quantitative Thresholds

- **Specific and Quantitative** - Should all measurable objectives be specific and include numerically-based quantitative thresholds to measure progress?
  - Should this be done so that DWR will be able to say unambiguously whether the GSP is on track to meet the sustainability goal(s)?
- **Matching MO and Undesirable Results** - Should at least one measurable objective with a quantitative threshold be included in GSPs for each of the applicable “undesirable results”?
- **Narrative Thresholds** - If goal statement type measurable objectives with narrative thresholds were allowed, how would DWR and the GSAs implementing GSP(s) in a basin agree on the level of progress toward the sustainability goal at interim milestones?
  - Are there additional characteristics that need to be considered, other than numeric- or narrative-based measurable objectives and thresholds?

# Triggers & Actions Related to IM

- Would trigger actions, as explained above, aid GSAs in obtaining statewide sustainability?
- What type of “Contingency Plan” trigger(s) should be considered if planned activities are not progressing toward, or resulting in, the sustainability goal?
- Are there other concepts that GSAs could use to clearly document when actions are needed to maintain progress toward their sustainability goals?



## Measurable Objective (i.e. for each undesirable result or other planning objectives)

Threshold	Triggers	Actions
<p>Groundwater levels in monitoring wells at the coastline must average at least X feet above sea level to avoid sea water intrusion.</p>	<p><b>Initial Trigger</b> – Might correspond to the identified threshold value. If so, this trigger value might indicate that the actual conditions are consistent or paralleling planned conditions. (Ex. Groundwater levels fluctuate on annual average at X feet above sea level)</p>	<p>Actions at this trigger value may be used to further evaluate data if uncertainty exists, or advance other planned activities to provide a measure of safety to ensure continued success toward planned conditions.</p>
	<p><b>Mid-Level Trigger(s)</b> – (Ex. Groundwater levels fluctuate 10 feet below threshold value resulting in inland advancement of saline water)</p>	<p>Action(s) at this trigger(s) may need to be designed to address conditions that are possibly threatening the sustainability goal, where actual conditions are deviating negatively from planned conditions. Example actions could include increased monitoring, importing water, conservation measures, mandatory demand reduction measures, etc. The severity of the action(s) may depend on the final trigger value.</p>
	<p><b>Final Trigger</b> – (Ex. Groundwater levels fluctuate 30 feet below threshold value resulting in inland advancement of saline water)</p>	<p>Action(s) at this trigger might be designed to address conditions where it's clear based on the trigger value the sustainability goal is being threatened (actual conditions are clearly deviating negatively from planned conditions) and there is an immediate need to address conditions to avoid significant and unreasonable undesirable results. A "Contingency Plan" focused on demand reduction activities to balance supply and demand may be necessary.</p>

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# Uncertainty

- What steps can GSAs and basin managers be taking now to reduce uncertainty so that achievable sustainability goals can be set in their GSPs, which are supported by realistic measurable objectives?
- What role should DWR play in assisting GSAs in basins where relatively high levels of uncertainty exists due to poor or no past record keeping of basic GW Info (i.e. water levels, pumping quantities, quality)?

