

July 20, 2015

# Sustainable Groundwater Management Program

Information Meeting and Webcast

Batch 1 Issue Topics

Draft Groundwater Sustainability Plan

(GSP) Emergency Regulations



California  
Department of Water Resources

# Presentation Outline

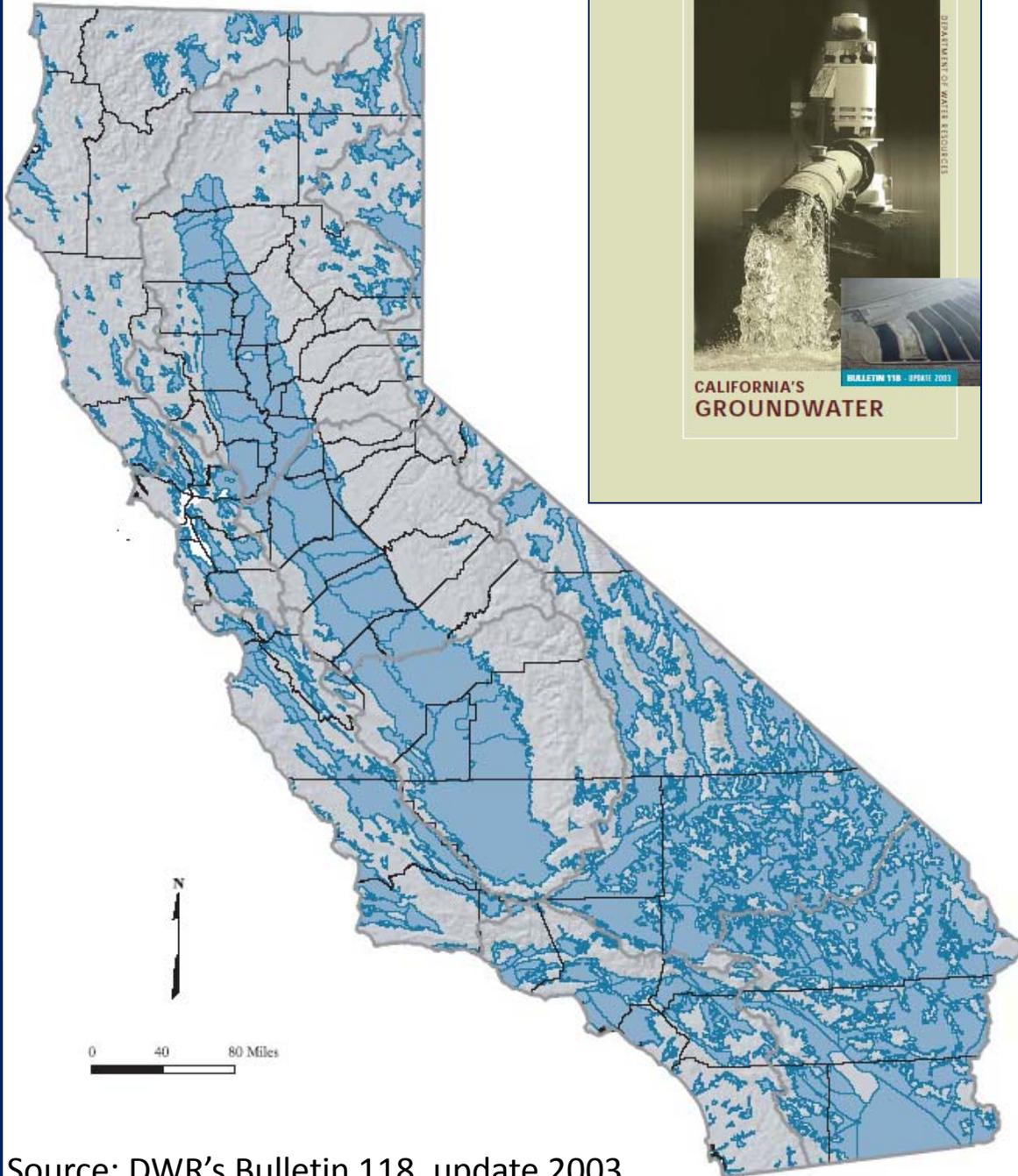
- Meeting Purpose
- California's Groundwater
- Sustainable Groundwater Management (SGM) Act
- DWR's SGM Program - *Strategic Plan*
- Groundwater Sustainability Plan (GSP)/Alternative
- GSP Emergency Regulations - Outreach Approach
- GSP Regulations – Topic Discussions
  - How to define sustainability?
  - Topic 1: Pre-SGMA Conditions and Undesirable Results
  - Topic 2: Measurable Objectives and Interim Milestones
  - Topic 3: Land Use and County Involvement

# Comments and Questions

Email us at

[sierrarm@calepa.ca.gov](mailto:sierrarm@calepa.ca.gov)

# California's Groundwater



# California's Groundwater Basins

- 515 alluvial basins/subbasins
- ~ 40% of state's water supply
- Basins, precipitation, population, and demands are not evenly distributed

Source: DWR's Bulletin 118, update 2003



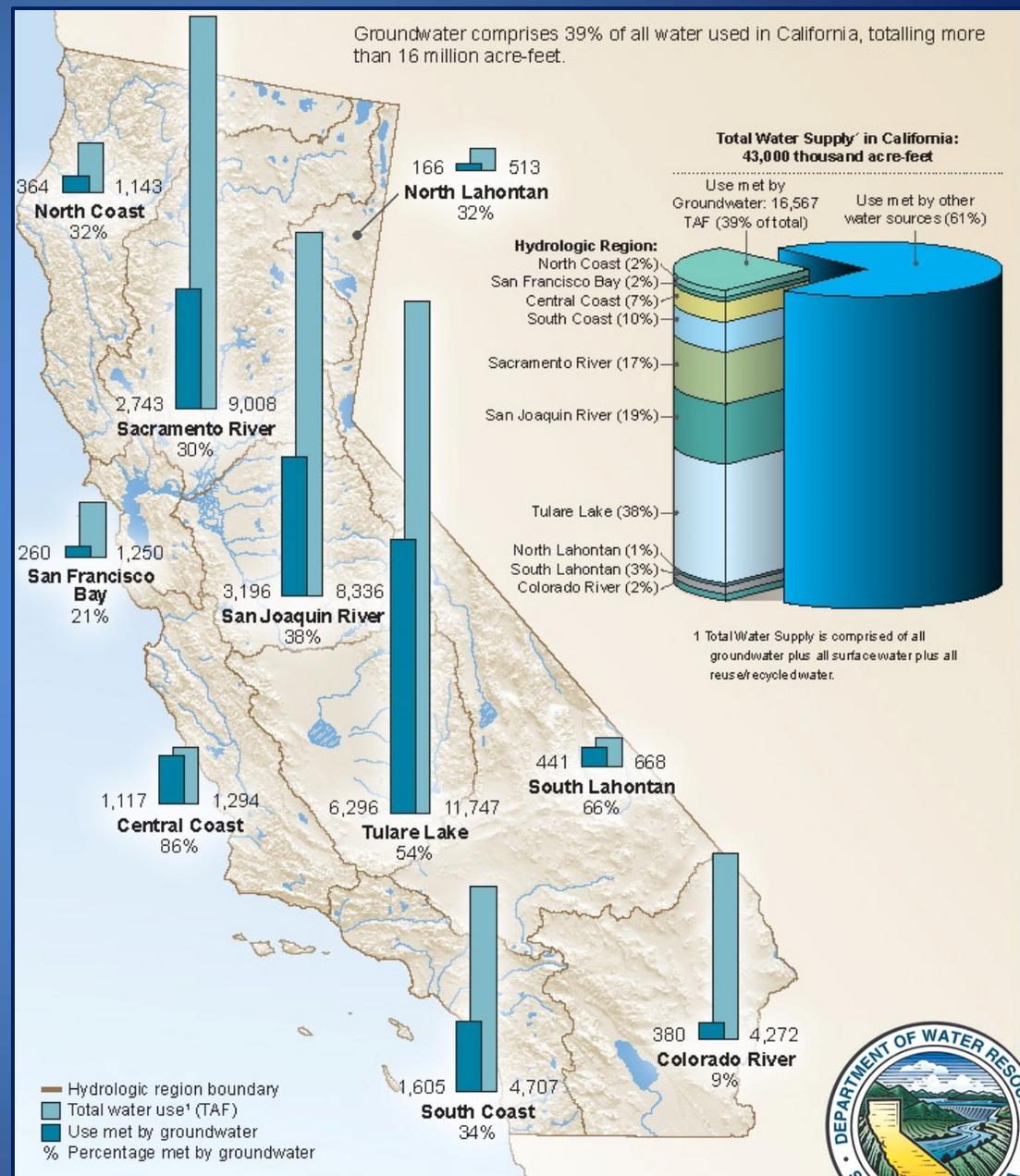
# Statewide Groundwater

Regions with highest use:  
(relative to statewide total)

- Tulare Lake 38%
- San Joaquin River 19%
- Sacramento River 17%
- South Coast 10%
- Central Coast 7%

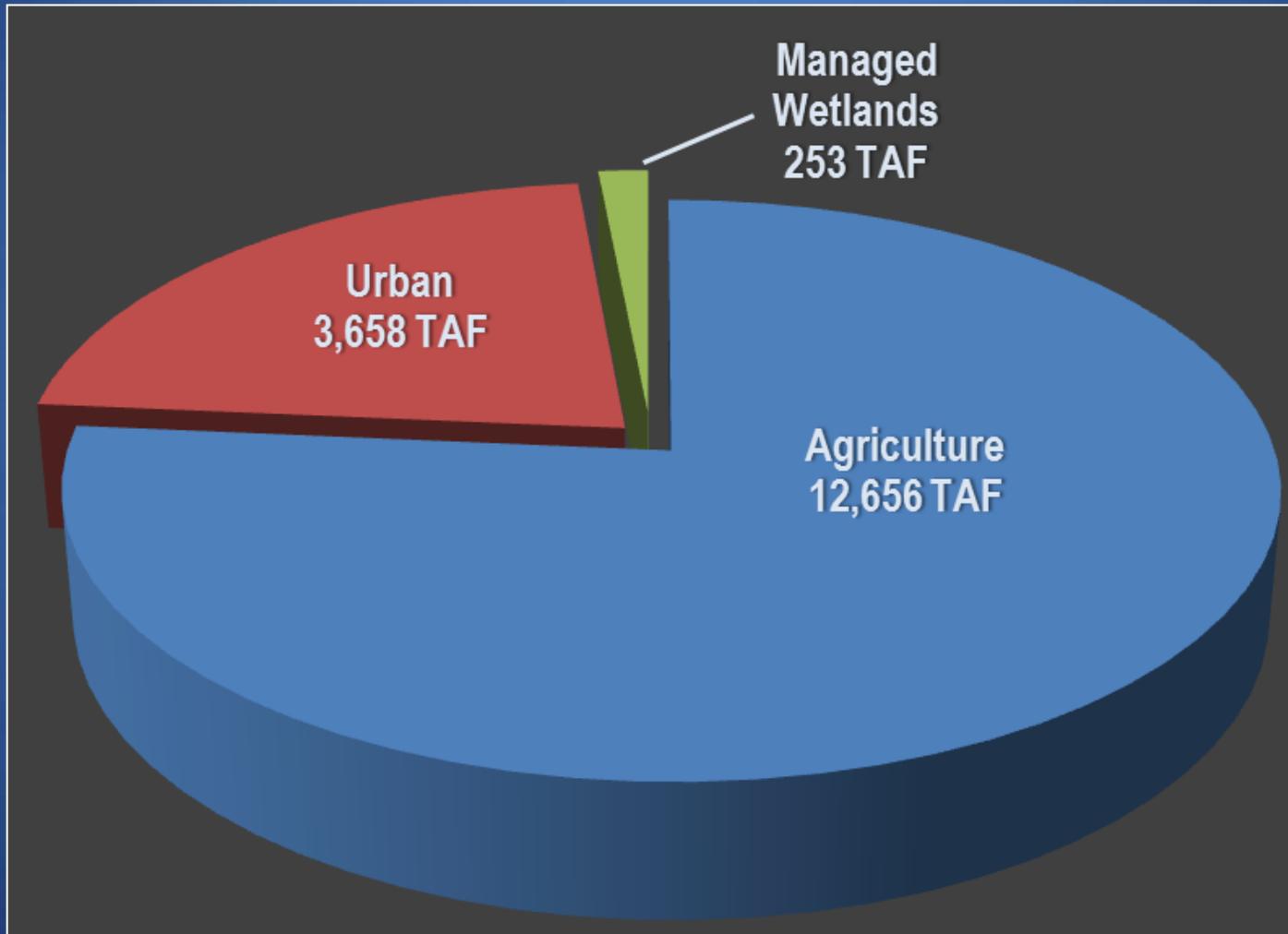
(2005 to 2010 Average Annual Data)

Source: California Water Plan Update 2013



# Statewide Groundwater

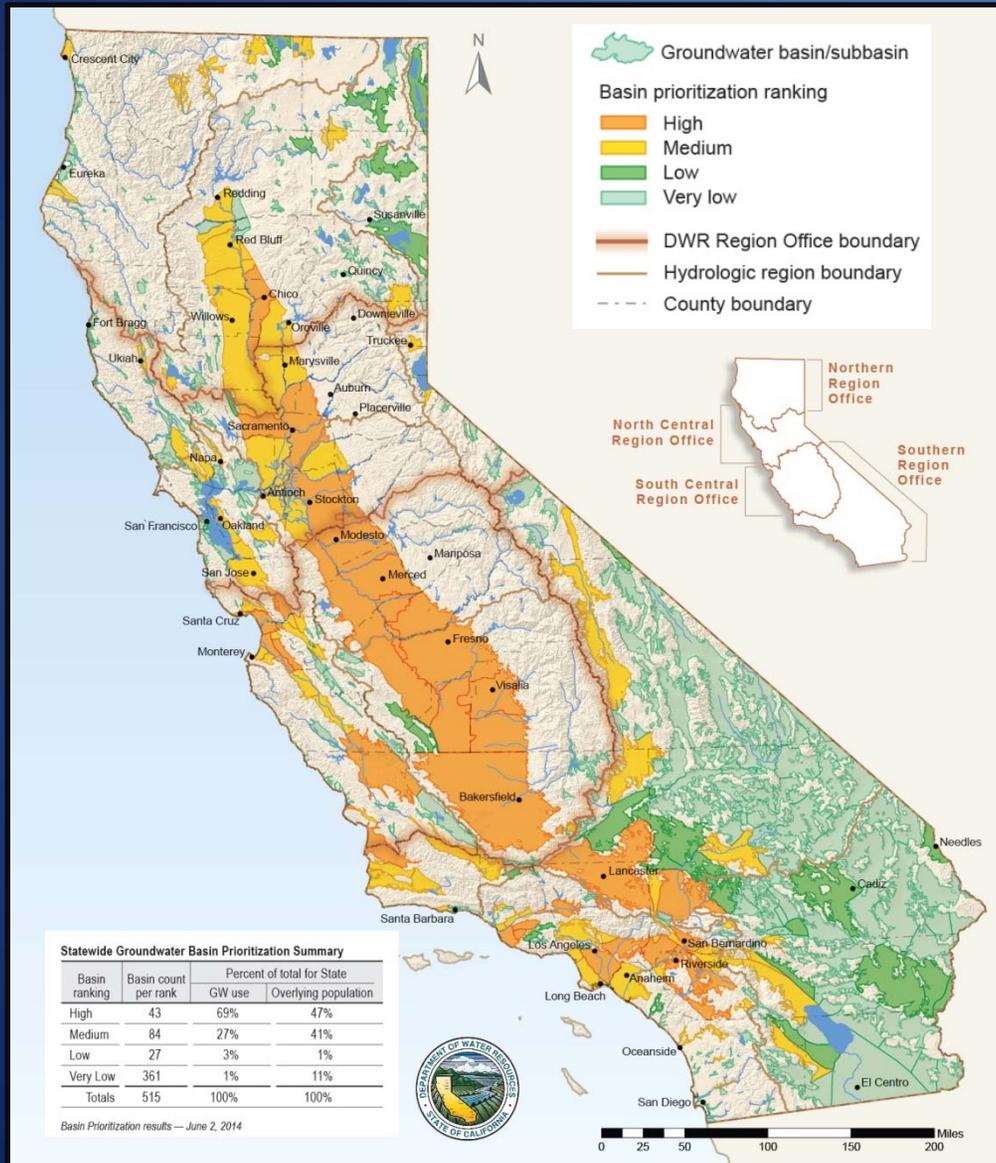
2005-2010 Average Annual: 16,567 (TAF)



Source: California Water Plan Update 2013



# CASGEM Basin Prioritization



## Statewide Breakdown

Basin Ranking	Basin Count per Rank	Percent of Total for Hydrologic Region	
		GW Use	Overlying Population
High	43	69%	47%
Medium	84	27%	41%
Low	27	3%	1%
Very Low	361	1%	11%
Totals	515	100%	100%

127 High & Medium Priority basins

- 96% of groundwater use
- 88% of overlying population

<http://www.water.ca.gov/groundwater/casgem/>



# Sustainable Groundwater Management Act

# Sustainable Groundwater Management Act

- KEY PRINCIPLES

- Groundwater best managed at the local /regional level

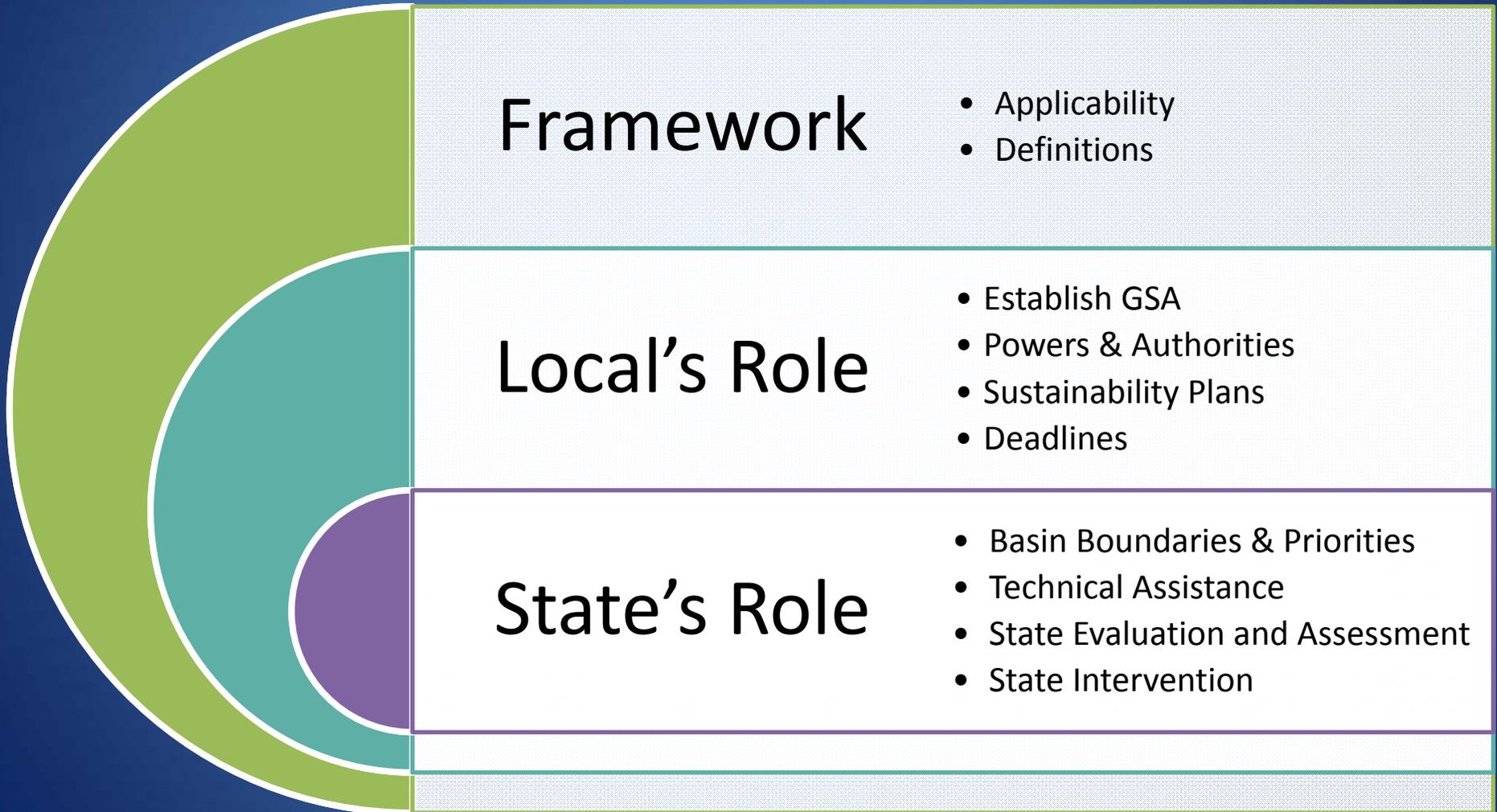
- Groundwater needs to be managed sustainably

- Local agencies should have necessary authority & tools

- State assistance and oversight – intervention only when needed

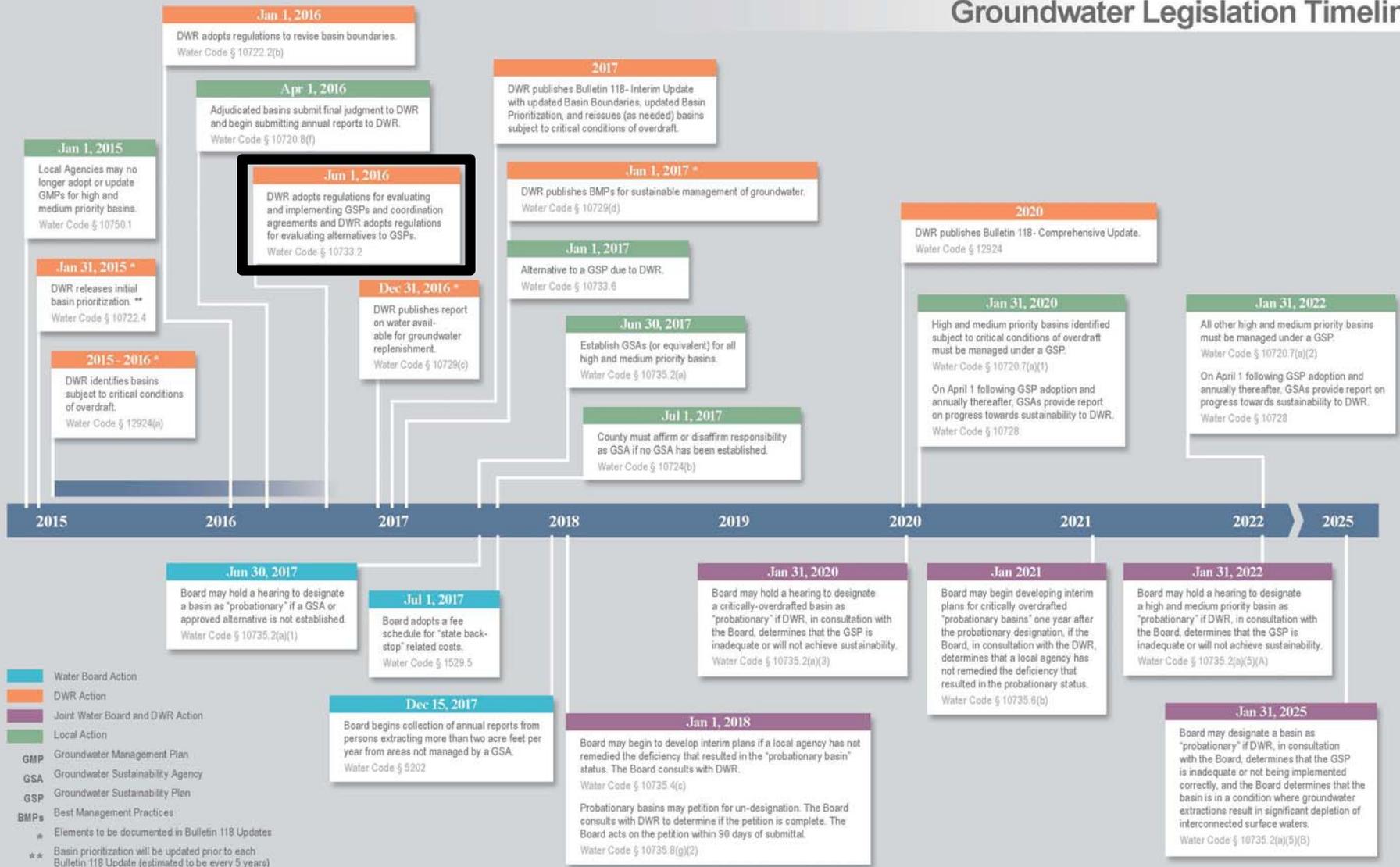


# Sustainable Groundwater Management Act



# Sustainable Groundwater Management Act

## Groundwater Legislation Timeline



DWR's Sustainable Groundwater  
Management Program  
Strategic Plan

# DWR's Sustainable Groundwater Management Program - Strategic Plan



California Department of Water Resources

## Groundwater Sustainability Program Draft Strategic Plan



January 6, 2015

PHASE 1	PHASE 2	PHASE 3	PHASE 4					
Realignment of Basins and Establishment of Basin Governance (2015 – 2017)	Development and Adoption of Groundwater Sustainability Plans (2017 – 2020/22)	Initial Management through Water Budgets (2020/22 – 2040/42)	Sustainable Groundwater Management (2040/42 and beyond)					
2015	2016	2017	2018	2019	2020	2030	2040	FUTURE
<b>Objective 1: Develop a Framework for Sustainable Groundwater Management</b>								
Action 1.1 Develop Comprehensive Water Budgets for the Entire Basin								
							ONGOING	
Action 1.2 Update Basin Prioritizations								
Action 1.3 Develop Best Management Practices								
Action 1.4 Develop and Adopt Regulations for Basin Boundary Revisions								
Action 1.5 Develop and Adopt Regulations for Groundwater Sustainability Plan Assessment and GSP Alternatives								
Action 1.6 Identify Basins Subject to Critical Conditions of Overdraft								
Action 1.7 Evaluate Adequacy of Groundwater Sustainability Plans								
<b>Objective 2: Provide Statewide Technical Assistance to Groundwater Sustainability Agencies</b>								
Action 2.1 Develop a Groundwater Management Information System								
							ONGOING	
Action 2.2 Collect Groundwater Quality Data								
							ONGOING	
Action 2.3 Collect Groundwater Elevation Data								
							ONGOING	
Action 2.4 Collect Subsidence Data								
							ONGOING	
Action 2.5 Establish Well Standards								
Action 2.6 Implement the CASGEM Program								
							ONGOING	
Action 2.7 Promote Water Conservation								
							ONGOING	
<b>Objective 3: Provide Statewide Planning Assistance to Support Groundwater Sustainability</b>								
Action 3.1 Update Bulletin 118 (in 2017, 2020, and every 5 years thereafter)								
Action 3.2 Integrate Groundwater Information into Bulletin 160 (2018 and every 5 years)								
Action 3.3 Local Assistance for Recharge Projects								
TBD								
<b>Objective 4: Assist State and GSA Alignment and Provide Financial Assistance</b>								
Action 4.1 Alignment for Management of Groundwater Programs								
							ONGOING	
Action 4.2 Provide Financial Assistance								
Action 4.3 Provide Education and Communication Assistance								
Action 4.4 Provide Facilitation and Engagement Assistance								
<b>Objective 5: Provide Interregional Assistance</b>								
Action 5.1 Assist in the Implementation of Storage and Conveyance Projects								
TBD								
Action 5.2 Provide Information on Surface Water Reliability								
							ONGOING	
Action 5.3 Advance Studies on Surface/Groundwater Interaction								
							ONGOING	
Action 5.4 Provide Information for Water Availability for Replenishment								

**GSP/Alt Regulations**

**Outreach Approach**

# 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

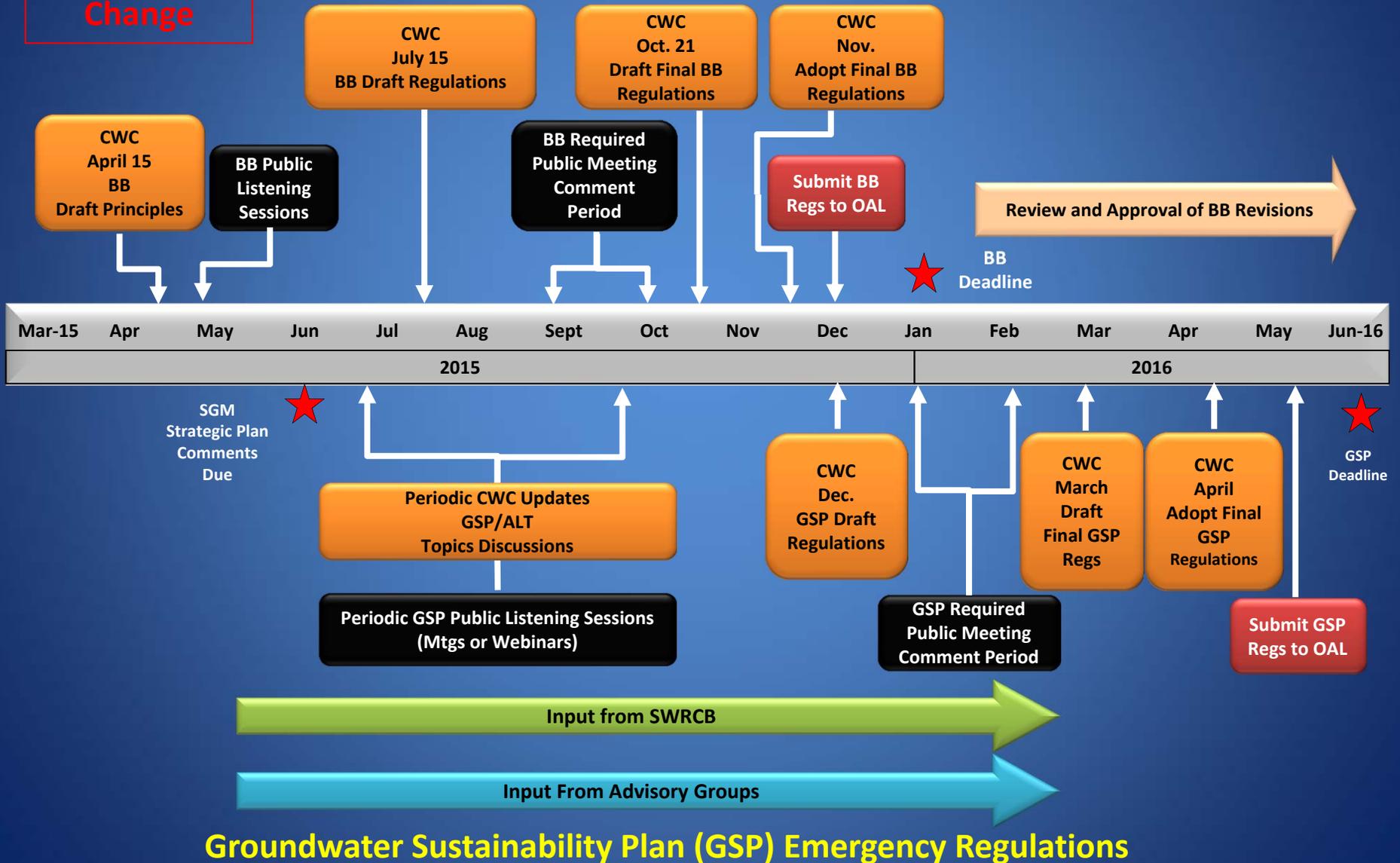
- CWC Approval
- Noticing and Submittal to OAL

Input and Feedback from the CWC and SWRCB

# Basin Boundary and GSP/ALT Regulations

## Estimated Project Timeline

### Basin Boundary (BB) Emergency Regulations



# 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)



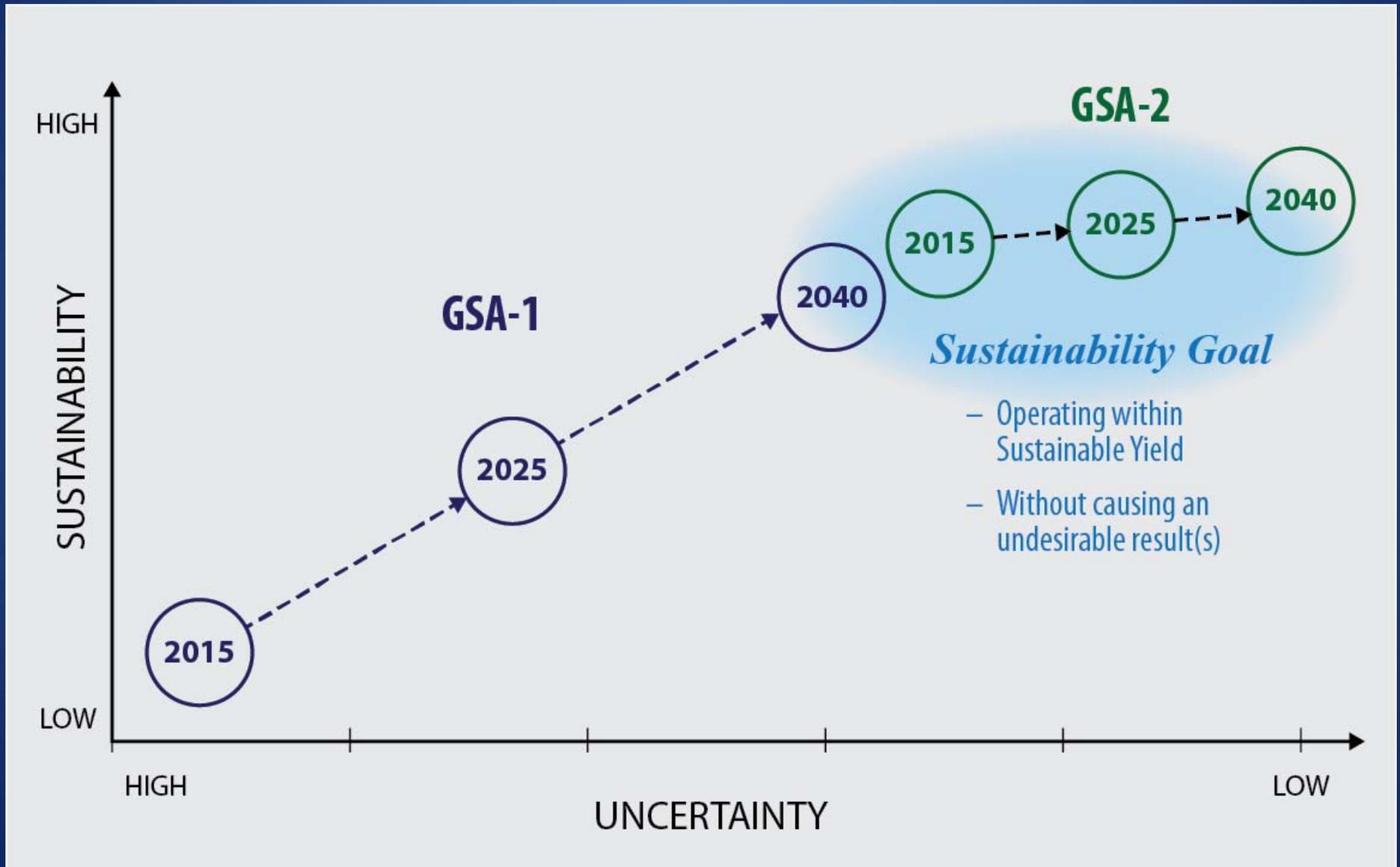
# **Regulations on Groundwater Sustainability Plans and Alternatives**

**How to define Sustainability?**

# 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.*

# 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.*

# Topic 1 – Questions 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?
- 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?

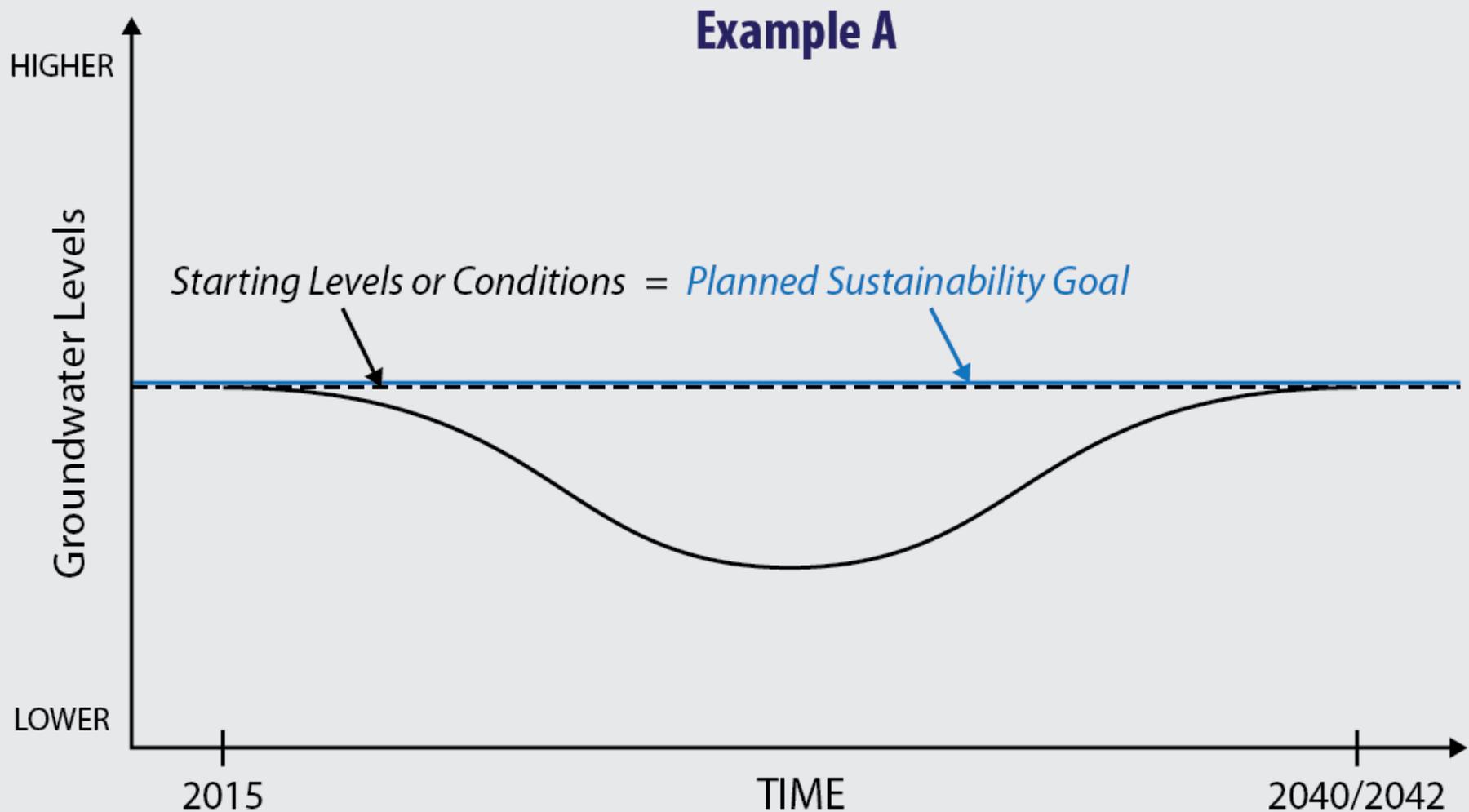
# Topic 1 – Questions Received (cont.)

- 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?

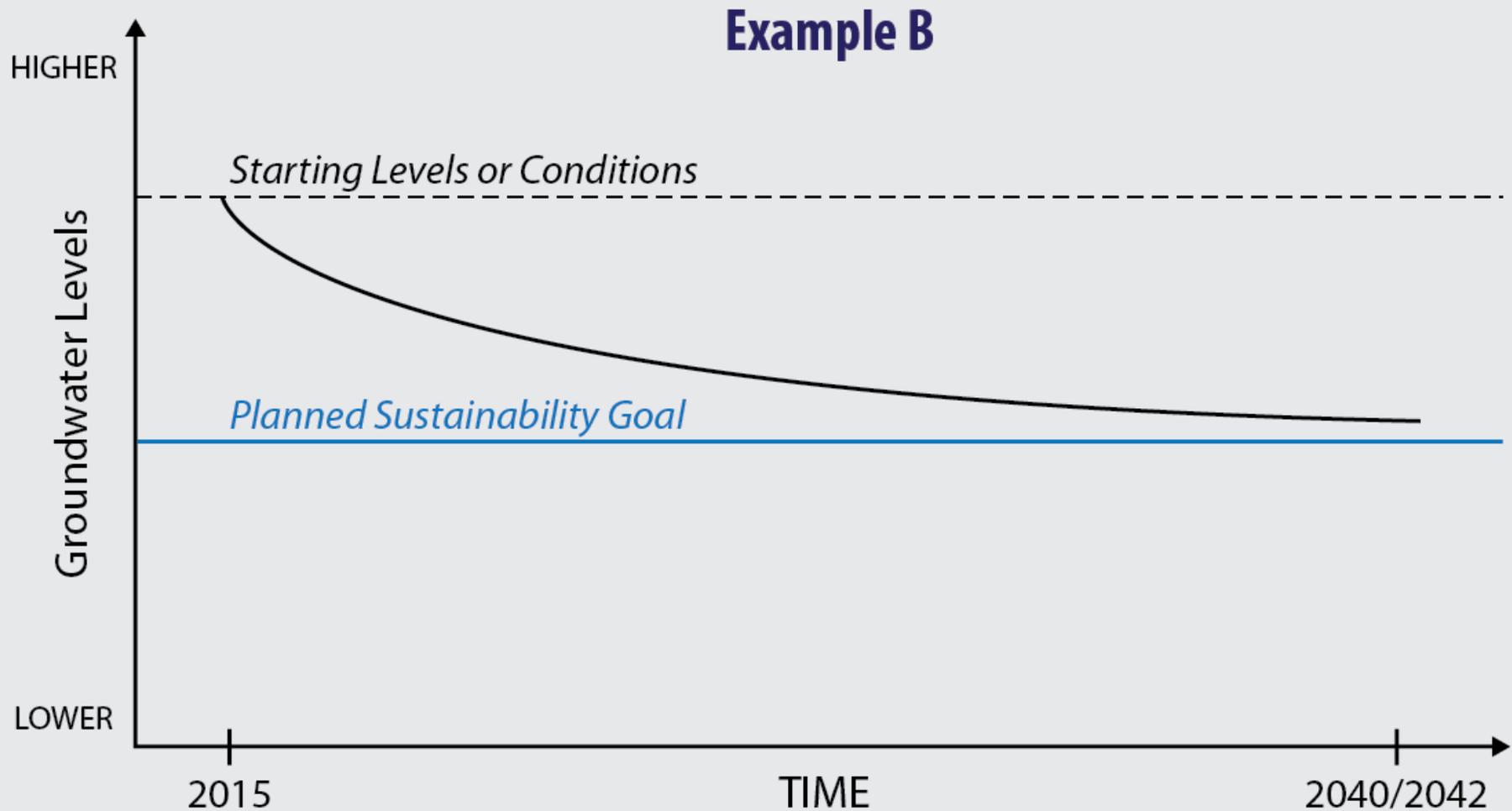
(Ex. Chronic Lowering of Groundwater Levels)



# Pre-SGMA Conditions

## Paths to Sustainability?

(Ex. Chronic Lowering of Groundwater Levels)

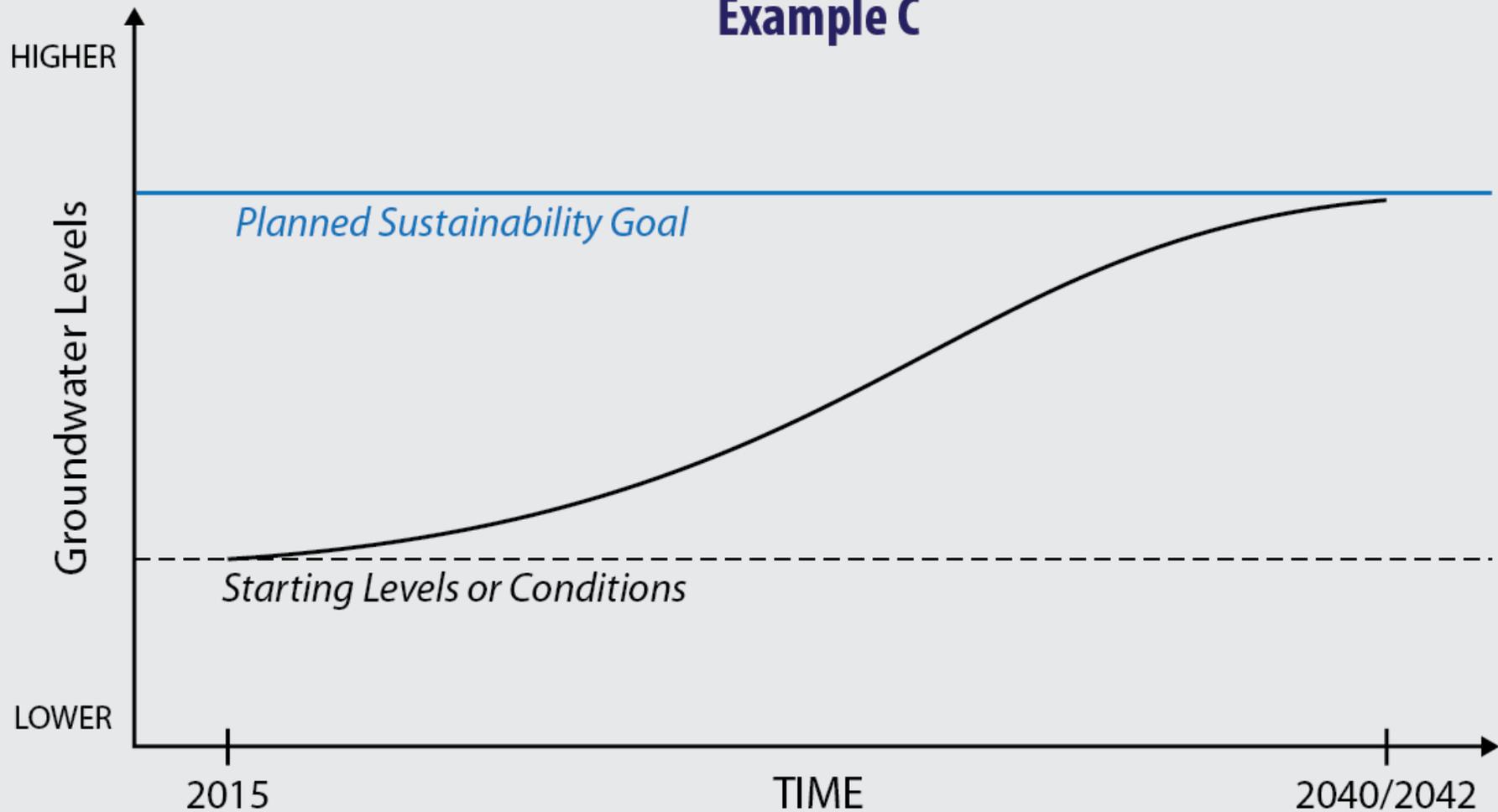


# Pre-SGMA Conditions

## Paths to Sustainability?

(Ex. Chronic Lowering of Groundwater Levels)

### Example C



## 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 a Potential State Framework or Minimum Standards – Should a framework be considered, if so qualitative or quantitative?

## Secondary Considerations and Questions

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

- **Existing SWRCB authority** in cases of threats to irreparable injury to aquifer.

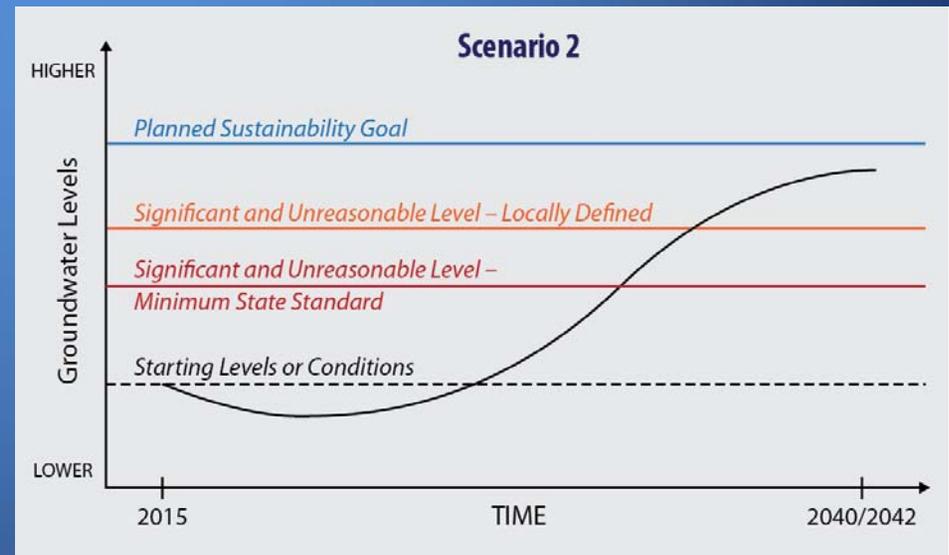
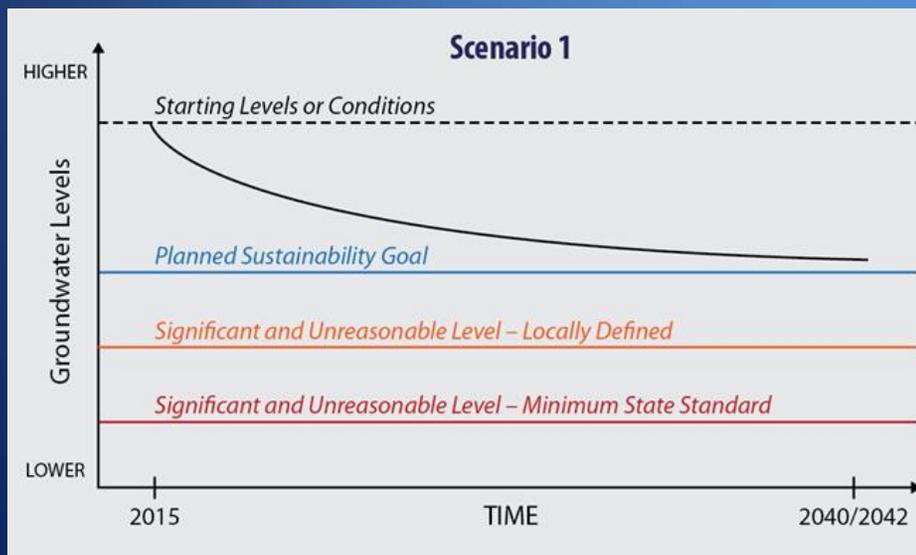
- Which **existing water quality management programs** might complement or conflict with GSP?

- **Should a Risk assessment** evaluation be a completed and **Mitigation Measures** be considered where impacts affect infrastructure or environment?

- How will potential **environmental impacts** be identified and quantified?

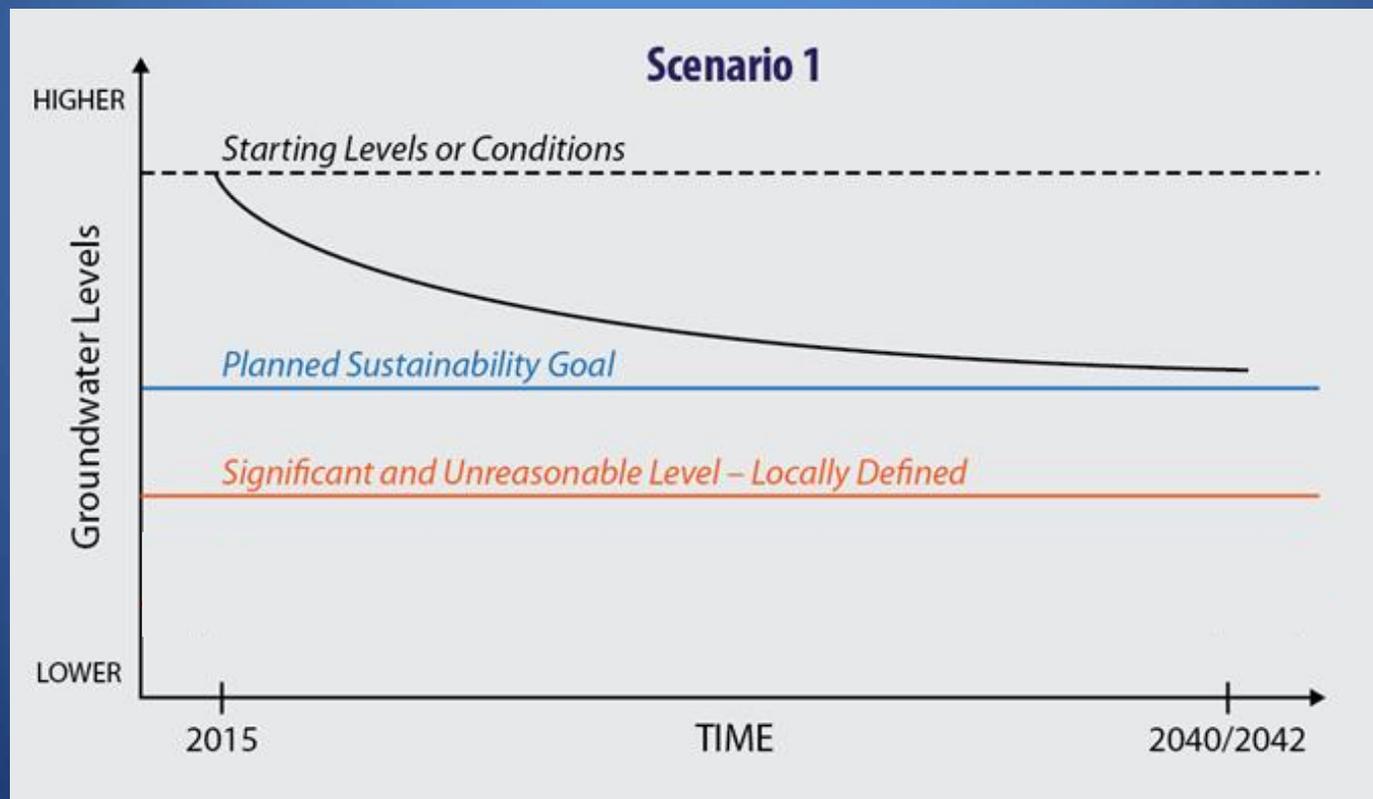
# Topic 1 Questions

- 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 ?



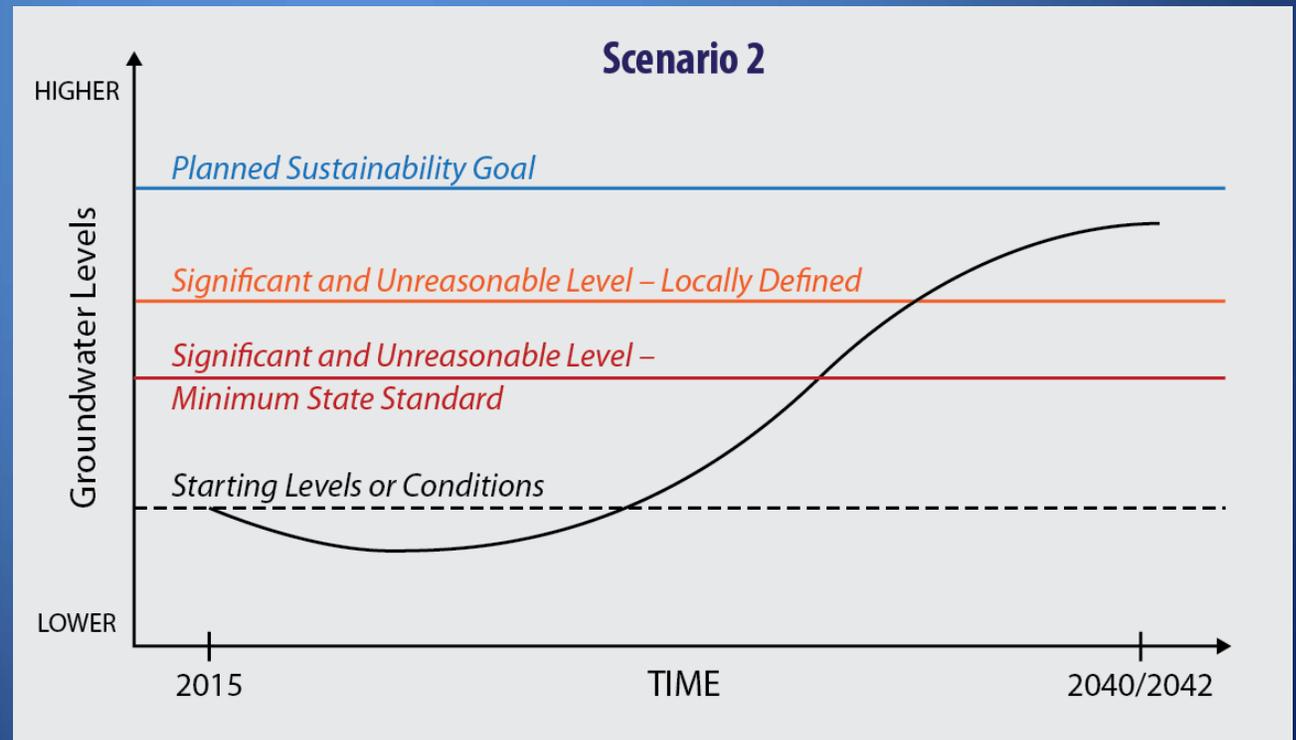
## Topic 1 Questions (continued)

- Should “significant and unreasonable” largely be based on site specific considerations and defined/developed at the local level?



## Topic 1 Questions (continued)

- Should there be a state-developed minimum standard (i.e. threshold) or framework for each undesirable result, regardless of site specific conditions? And if so, how should a framework be established?



# **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

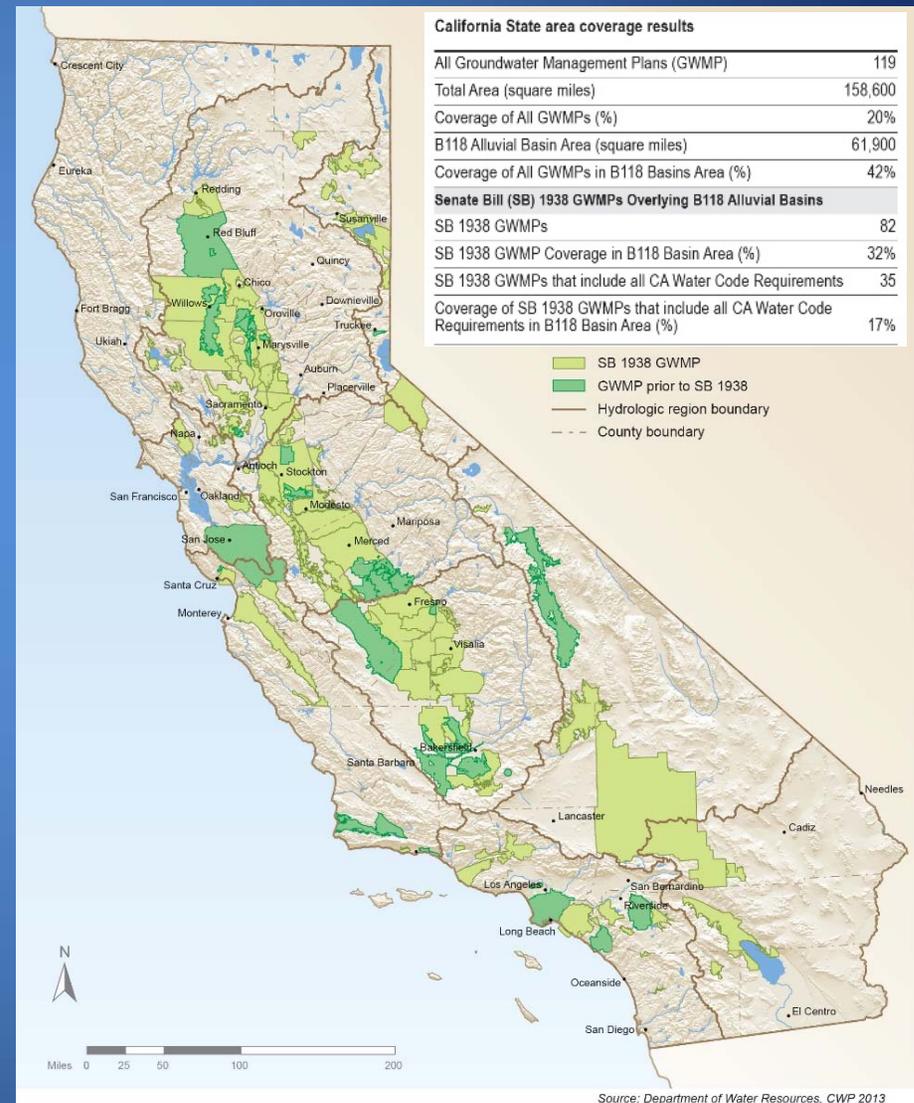
## Existing GMP Requirement's

- 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*



# MO and IM Issues Received

- What is DWR's definition of "MO"?
- Will the MO be required to be discrete values?
- Can MOs change over time?
- Will DWR provide clear guidelines for inter-basin coordination with respect to MOs? One subbasin's MOs may not be achievable by an adjacent subbasin. Will regulations identify requirements for coordination?

# Possible GSA Path to Sustainability

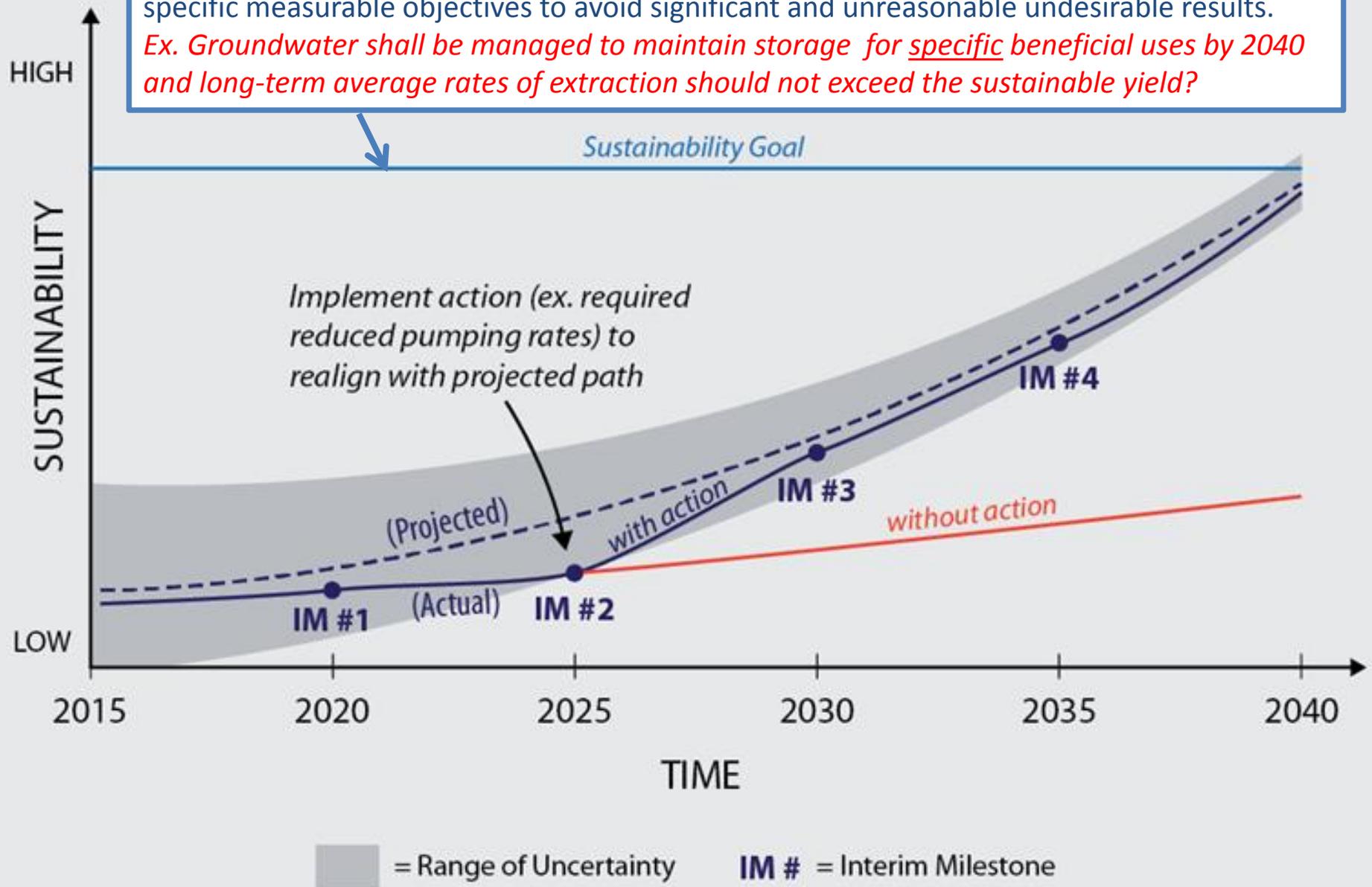


■ = Range of Uncertainty    **IM #** = Interim Milestone

### Measurable Objective

What are you trying to do? Improve existing condition or avoid future condition? Setting specific measurable objectives to avoid significant and unreasonable undesirable results.

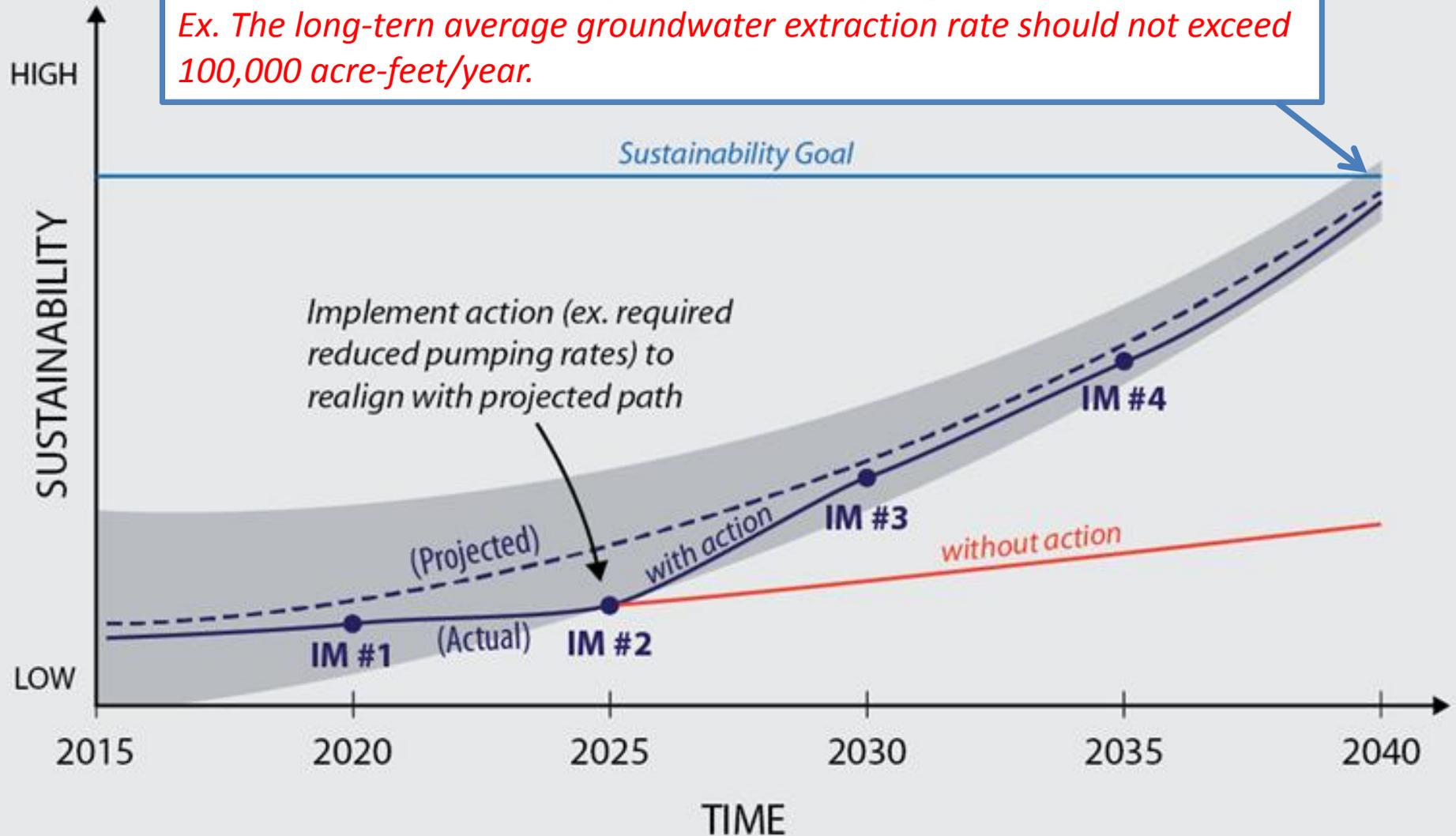
*Ex. Groundwater shall be managed to maintain storage for specific beneficial uses by 2040 and long-term average rates of extraction should not exceed the sustainable yield?*



## Threshold

Provide a target level to avoid significant and unreasonable conditions and stay on track. How will you know when you get there (by 2040/42)?

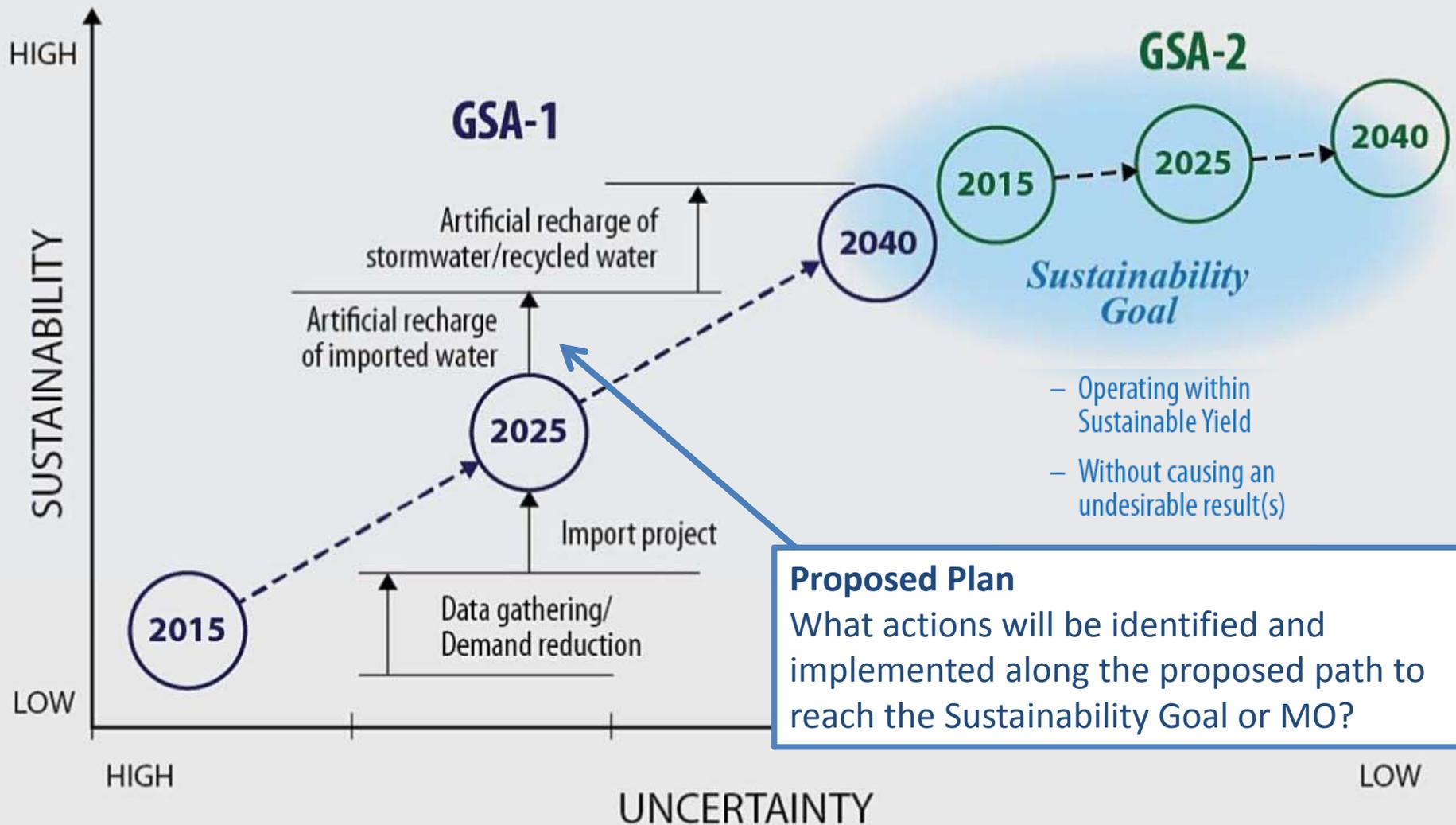
*Ex. The long-term average groundwater extraction rate should not exceed 100,000 acre-feet/year.*



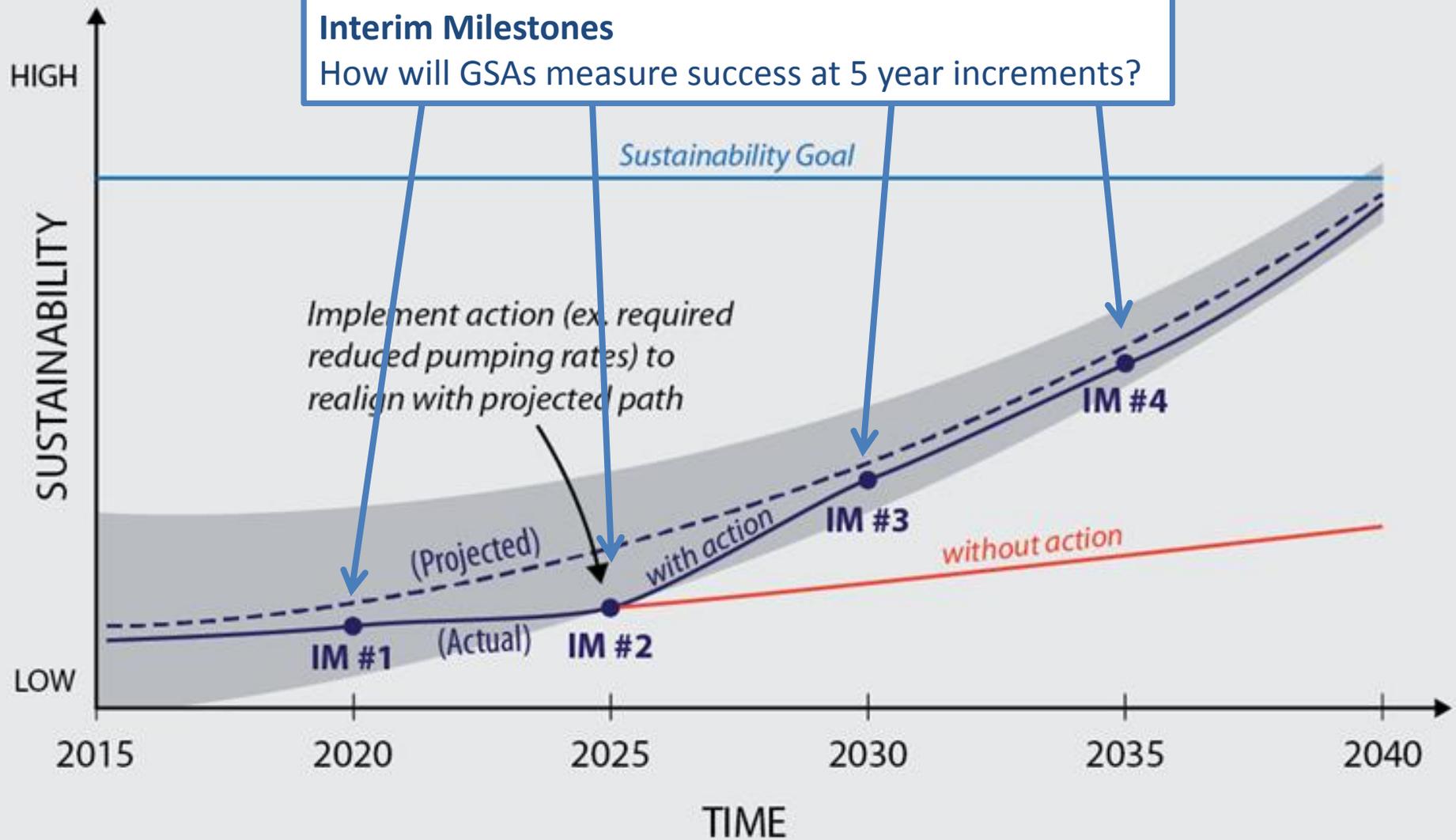
= Range of Uncertainty

IM # = Interim Milestone

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



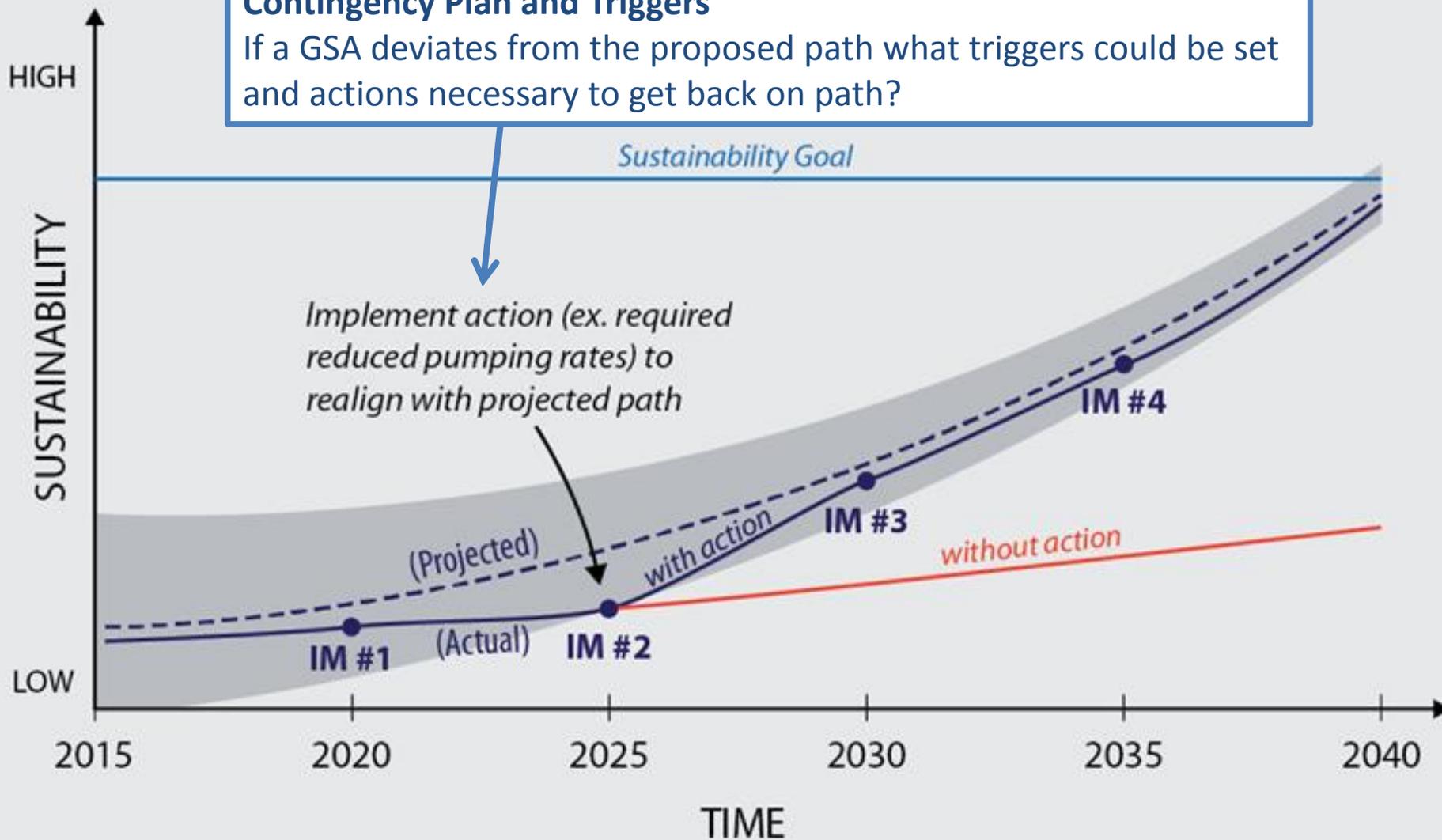
**Interim Milestones**  
How will GSAs measure success at 5 year increments?



■ = Range of Uncertainty    IM # = Interim Milestone

### Contingency Plan and Triggers

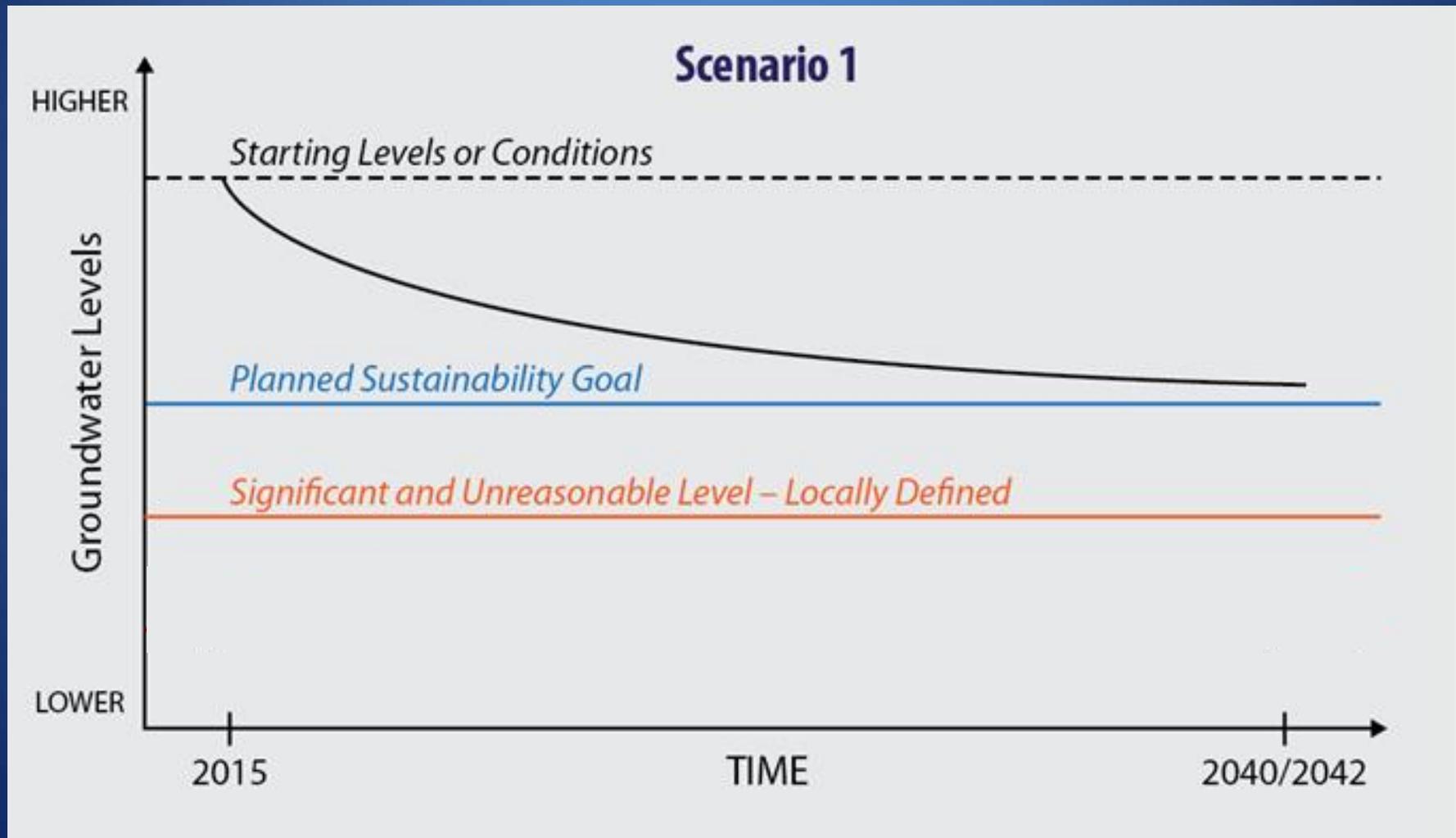
If a GSA deviates from the proposed path what triggers could be set and actions necessary to get back on path?



■ = Range of Uncertainty    IM # = Interim Milestone

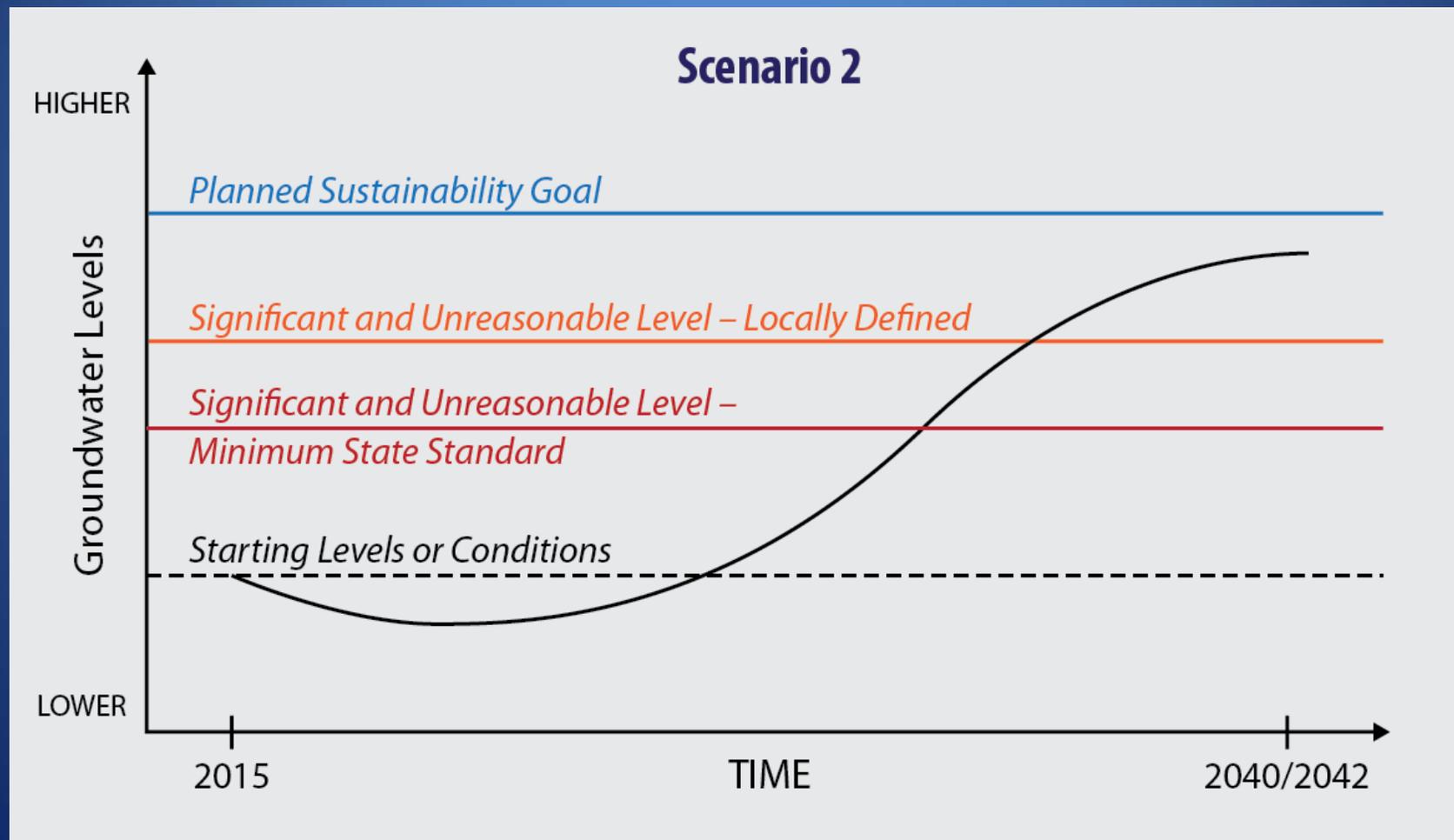
## Topic 2 Questions

- Should a MO be developed for each of the significant and unreasonable undesirable results?



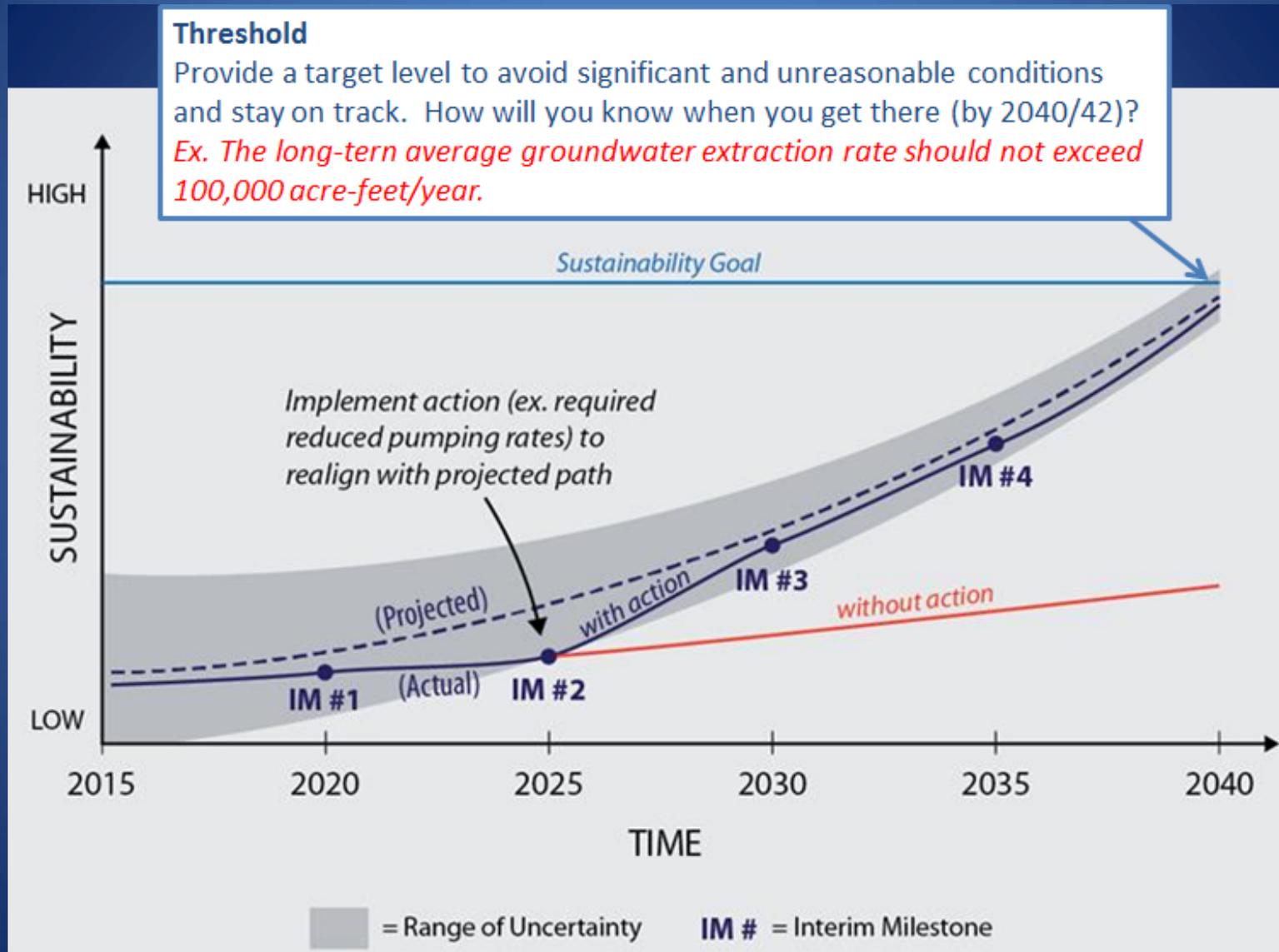
## Topic 2 Questions

- Should a MO be based on broad consideration of plan implementation to avoid or minimize permanent or irreversible impacts at the local level?



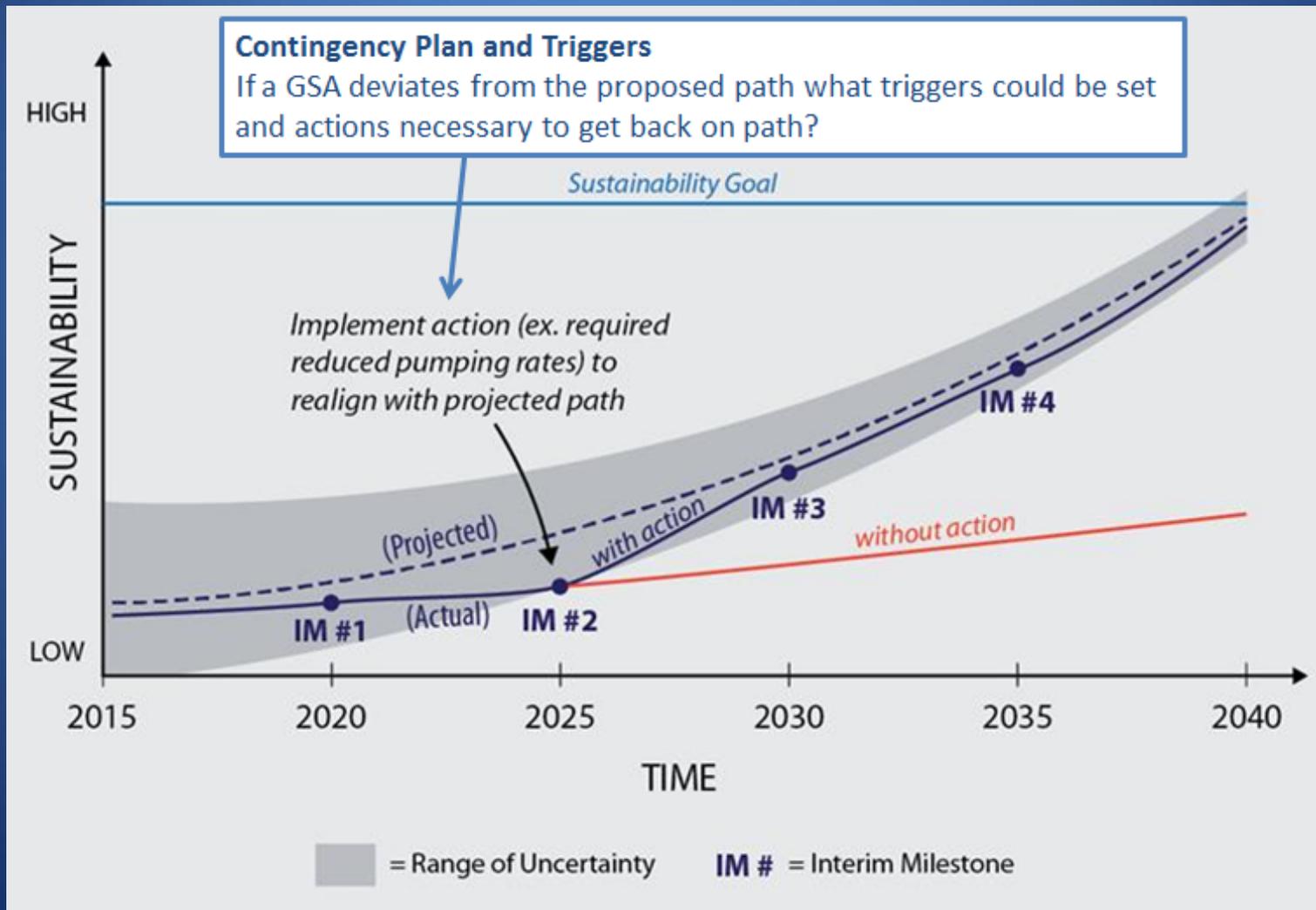
## Topic 2 Questions

- Should all MO be specific and include numerically based quantitative thresholds to measure progress?



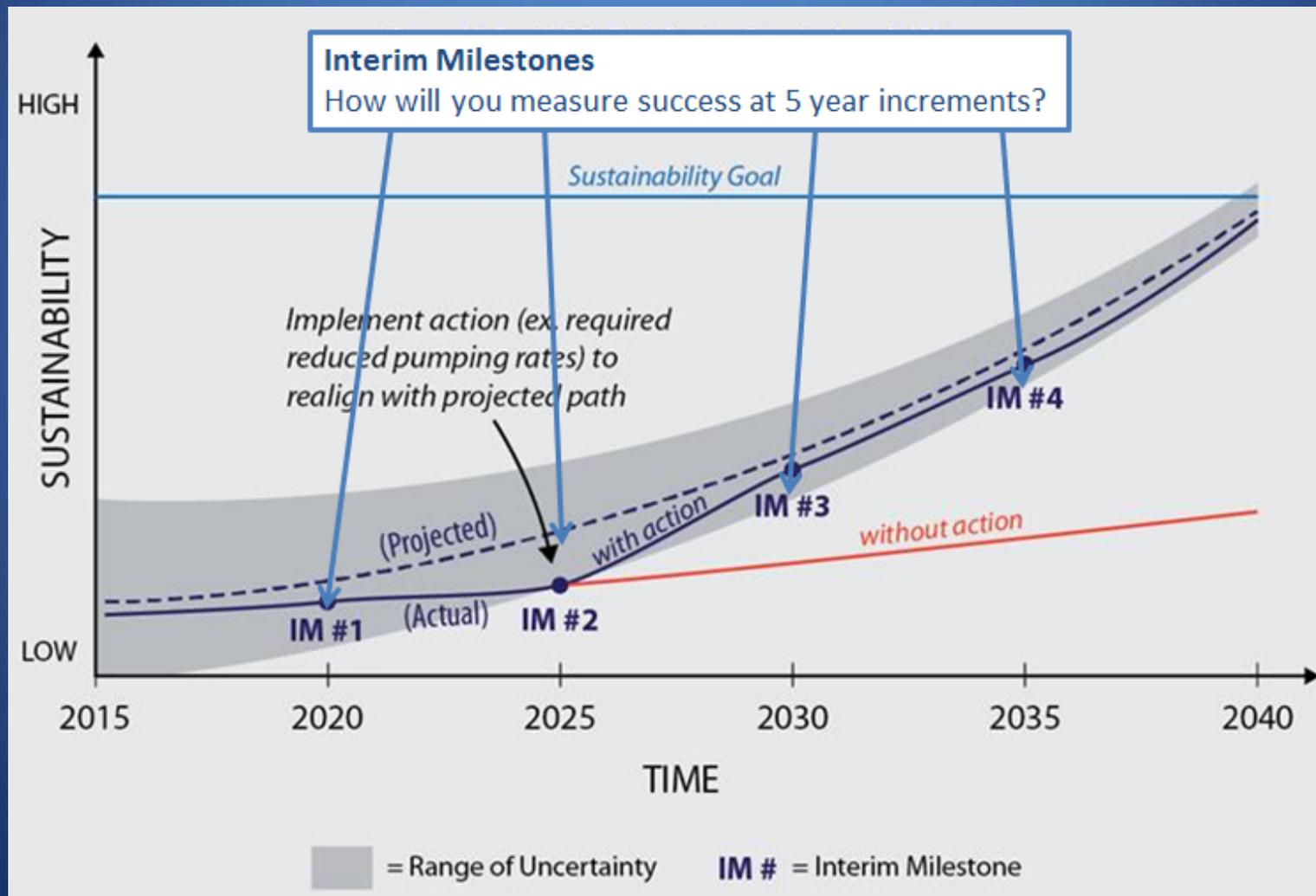
## Topic 2 Questions

- What type of “Contingency Plan” triggers and actions should be considered if planned activities are not progressing toward, or resulting in, the sustainability goal?



## Topic 2 Questions

- Are there other concepts that GSAs and groundwater managers could use to clearly document when actions are needed to maintain progress toward their sustainability goals?



# **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.*

# 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.*

# 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**

*(a) In the event that there is an area within a basin that is not within the management area of a groundwater sustainability agency, the county within which that unmanaged area lies will be presumed to be the groundwater sustainability agency for that area.*

# 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.*

## Topic 3 Questions

- 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 ?
- How should the planning agency's consideration of a GSP be reflected in the general plan in terms of policies and land use?
- How will GSAs and land use agencies reconcile their different obligations to achieve sustainable groundwater management?

# Upcoming Public Workshops

- GSP Informational Meeting and Webinars
  - Batch 2 Topics, Sacramento, August 27
  - Batch 3 Topics, Sacramento, Sept 21
- Basin Boundary Draft Regulation Public Workshops
  - Sacramento, August 31
  - Bakersfield, September 2
  - Santa Ana, September 3



# Resources

- **DWR Sustainable Groundwater Management (SGM)**

<http://www.water.ca.gov/groundwater/sgm/index.cfm>

- **Subscribe to DWR SGM Email List**

<http://www.water.ca.gov/groundwater/sgm/subscribe.cfm>

- **DWR Groundwater Sustainability Plan Website**

<http://www.water.ca.gov/groundwater/sgm/gsp.cfm>

- **DWR Water Management Planning Tool**

<https://gis.water.ca.gov/app/boundaries/>

- **Questions or Comments for DWR**

[sgmps@water.ca.gov](mailto:sgmps@water.ca.gov)