



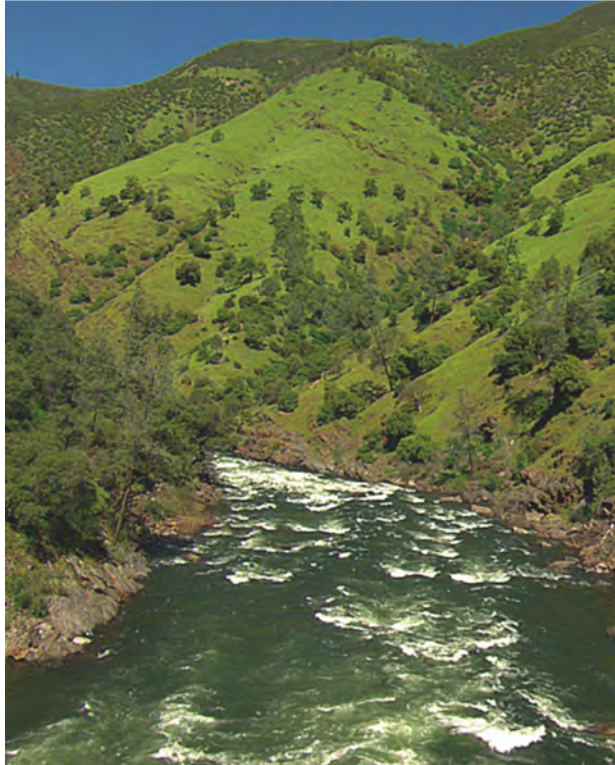
VIRTUAL COMMUNITY MEETING #2 **GROUNDWATER SUSTAINABILITY PLAN DEVELOPMENT**


September 16, 2020

Funding for this project has been provided in full or in part from the Water Quality, Supply, and Infrastructure Improvement Act of 2014 and through an agreement with the State Department of Water Resources.



PROTOCOLS FOR ONLINE MEETINGS



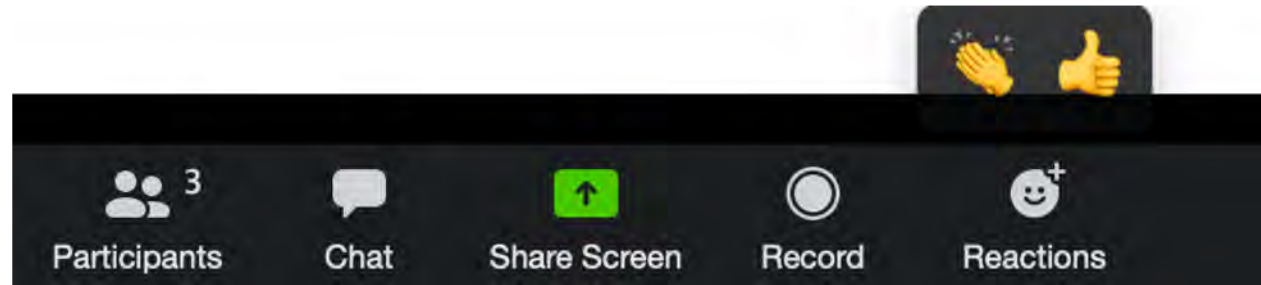
- Please **mute yourself** unless you are speaking
- Facilitator may mute you at different points, please don't take it personally
- Cameras are optional, though always lovely to see faces
- We are recording this session  A small icon of a microphone with a red dot and the word 'REC' below it, indicating recording.
- Please type questions into chat window and/or raise hand



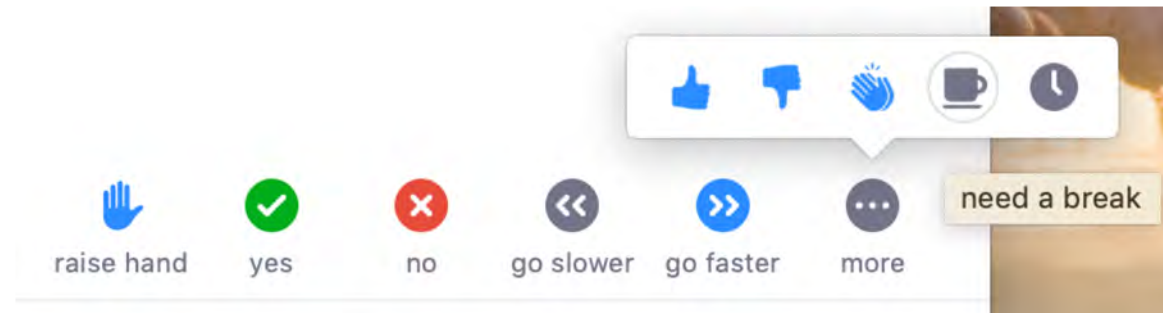
PARTICIPANT TOOLS & NON-VERBAL REACTIONS



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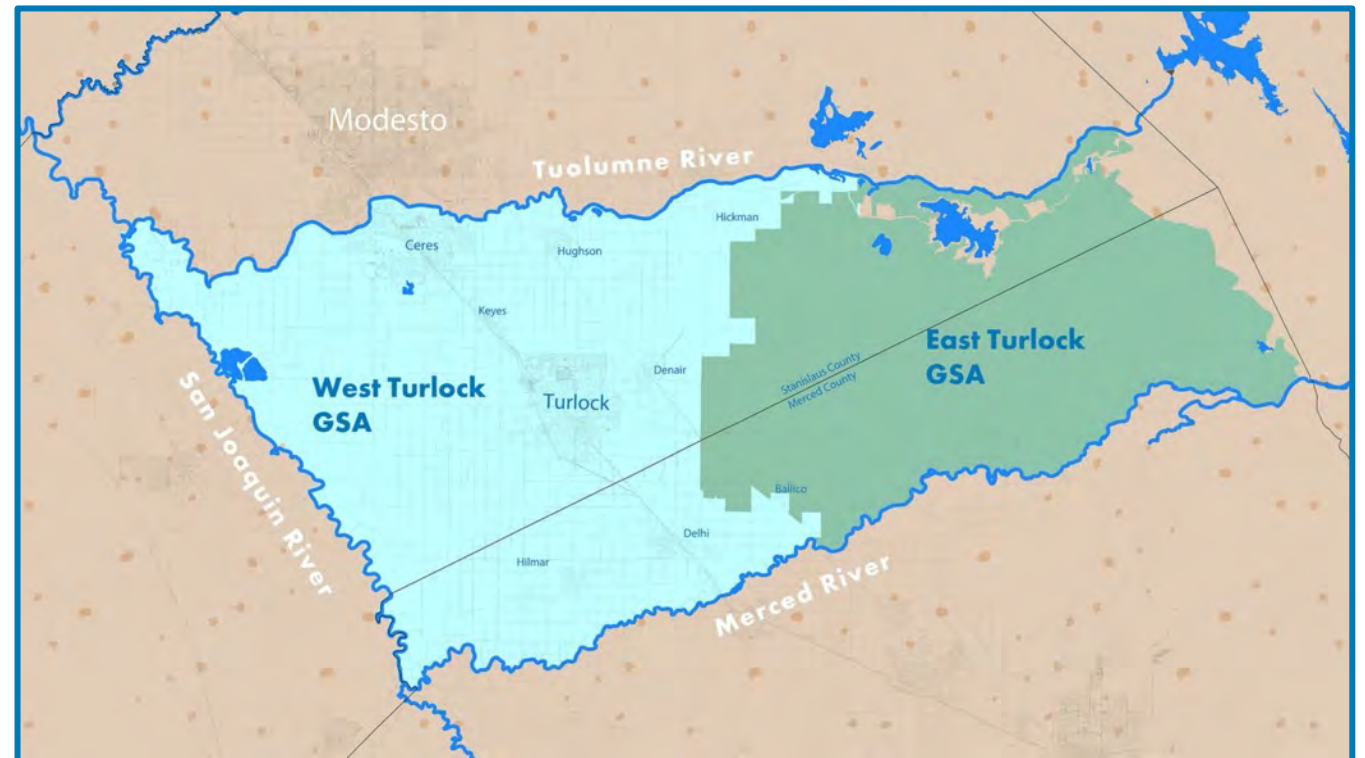


Via Participant Pop-out Box:



AGENDA

- Groundwater Sustainability
- Sustainable Management Criteria
- Prop 218 Update
- Moving Forward
- Open Q&A Session (30+ mins)



GSP CONTENTS



Technical Components

Data Compilation / Data Management System

Institutional Setting: Water Supply / Plan Area

Hydrogeologic Conceptual Model / Groundwater Model

Water Budget [Current and Historical]

Policy Components

Sustainability Goals and Criteria



Management & Plan Components

Management Scenarios / Projected Water Budget

Monitoring Networks / Plan Development



TURLOCK GROUNDWATER



GROUNDWATER SUSTAINABILITY



Amanda Peisch-Derby, DWR



TURLOCK GROUNDWATER

SUSTAINABLE MANAGEMENT CRITERIA

September 16, 2020

Amanda Peisch-Derby, P.E.
Senior Water Resources Engineer
South Central Region Office, DWR



CALIFORNIA DEPARTMENT OF WATER RESOURCES
SUSTAINABLE GROUNDWATER
MANAGEMENT OFFICE

LEGISLATION – THE LAW

- **California Water Code**

- Sustainable Groundwater Management Act (SGMA)

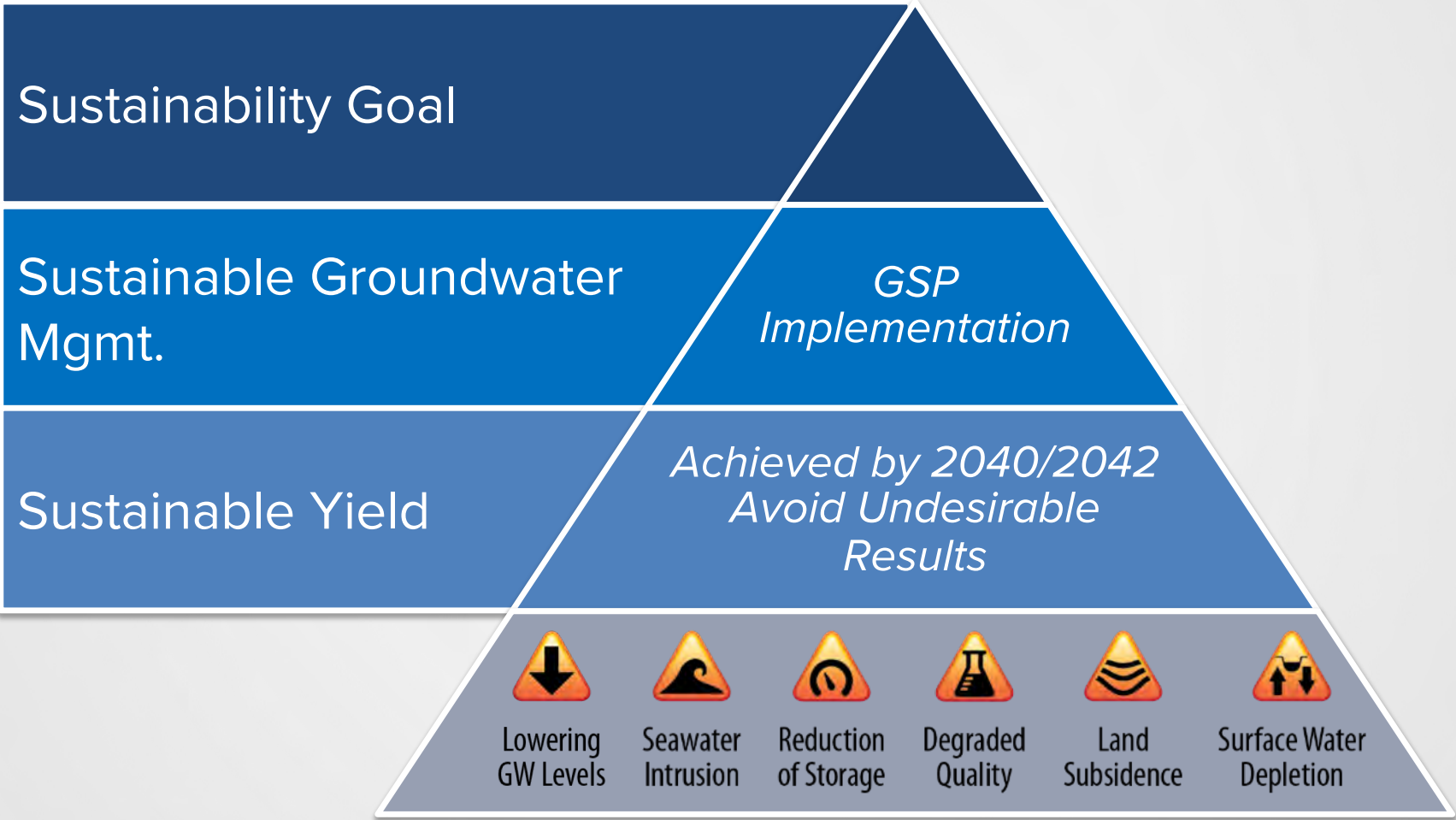
- <https://water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management>

- **GSP Emergency Regulations**

- <https://water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management/Groundwater-Sustainability-Plans>



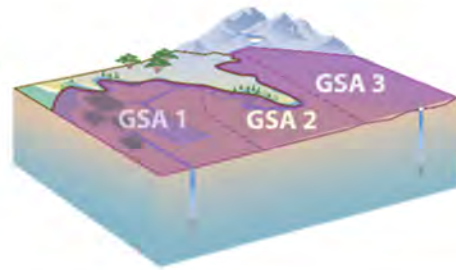
SUSTAINABILITY



ARTICLE 5 – PLAN CONTENTS

Who

- Administrative Information -



What

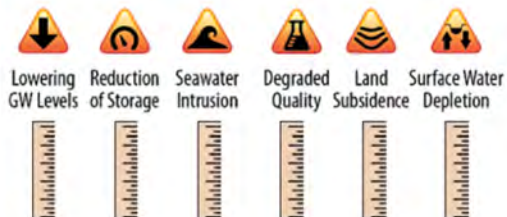
- Basin Setting -



GSP

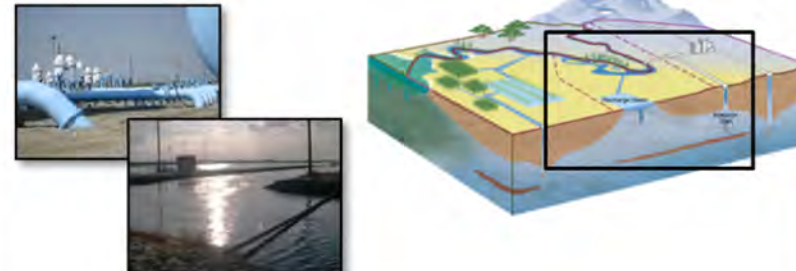
Where

- Sustainable Management Criteria -
- Monitoring Network -



How

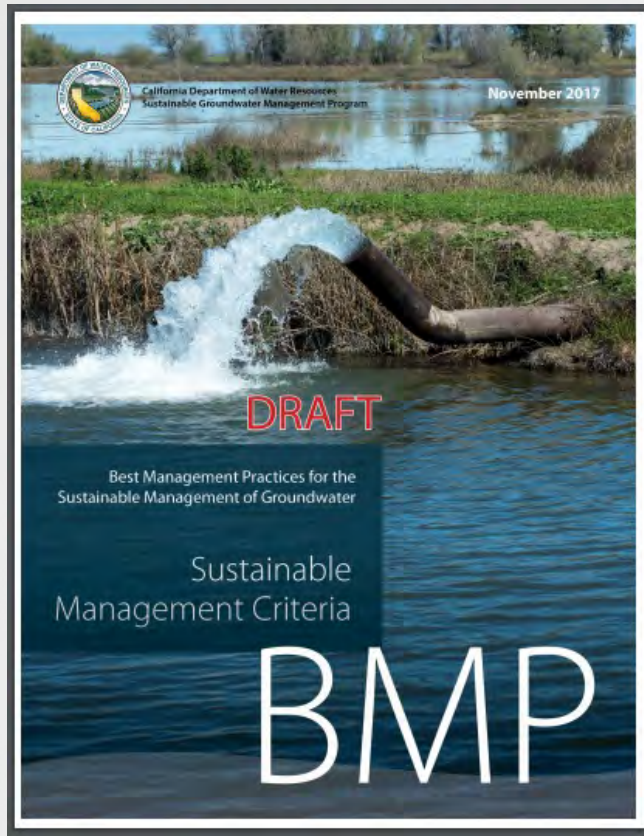
- Projects & Management Actions -



FOCUS TOPICS

- Sustainability Goal
- Sustainable Management Criteria (SMC)
 - Sustainability Indicators
 - Undesirable Results
 - Minimum Thresholds
 - Measurable Objectives
 - Interim Milestones





DWR GUIDANCE

DWR Draft SMC Best Management Practices (BMP):

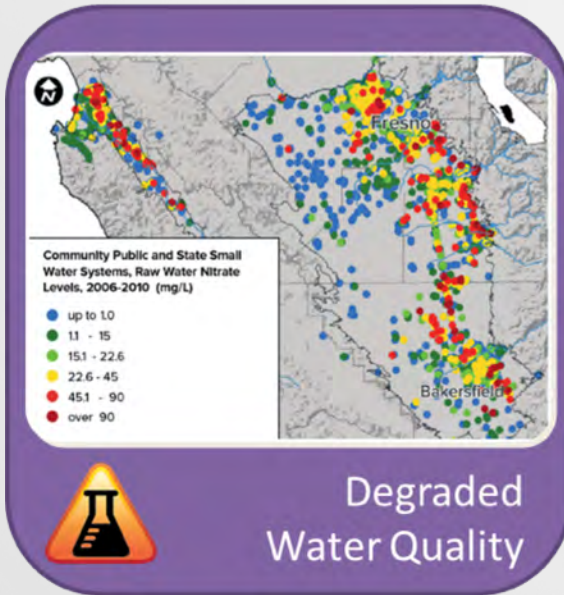
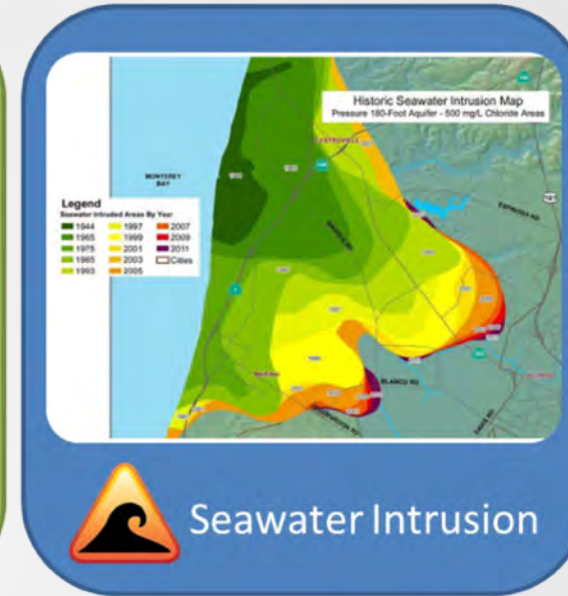
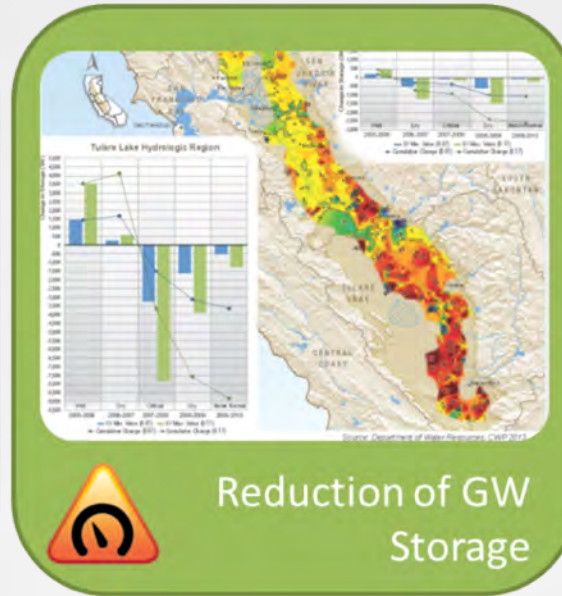
<https://www.water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents>

DWR Draft SMC BMP Webcast:







https://www.youtube.com/watch?v=LUicg6Ot6_k&feature=youtu.be



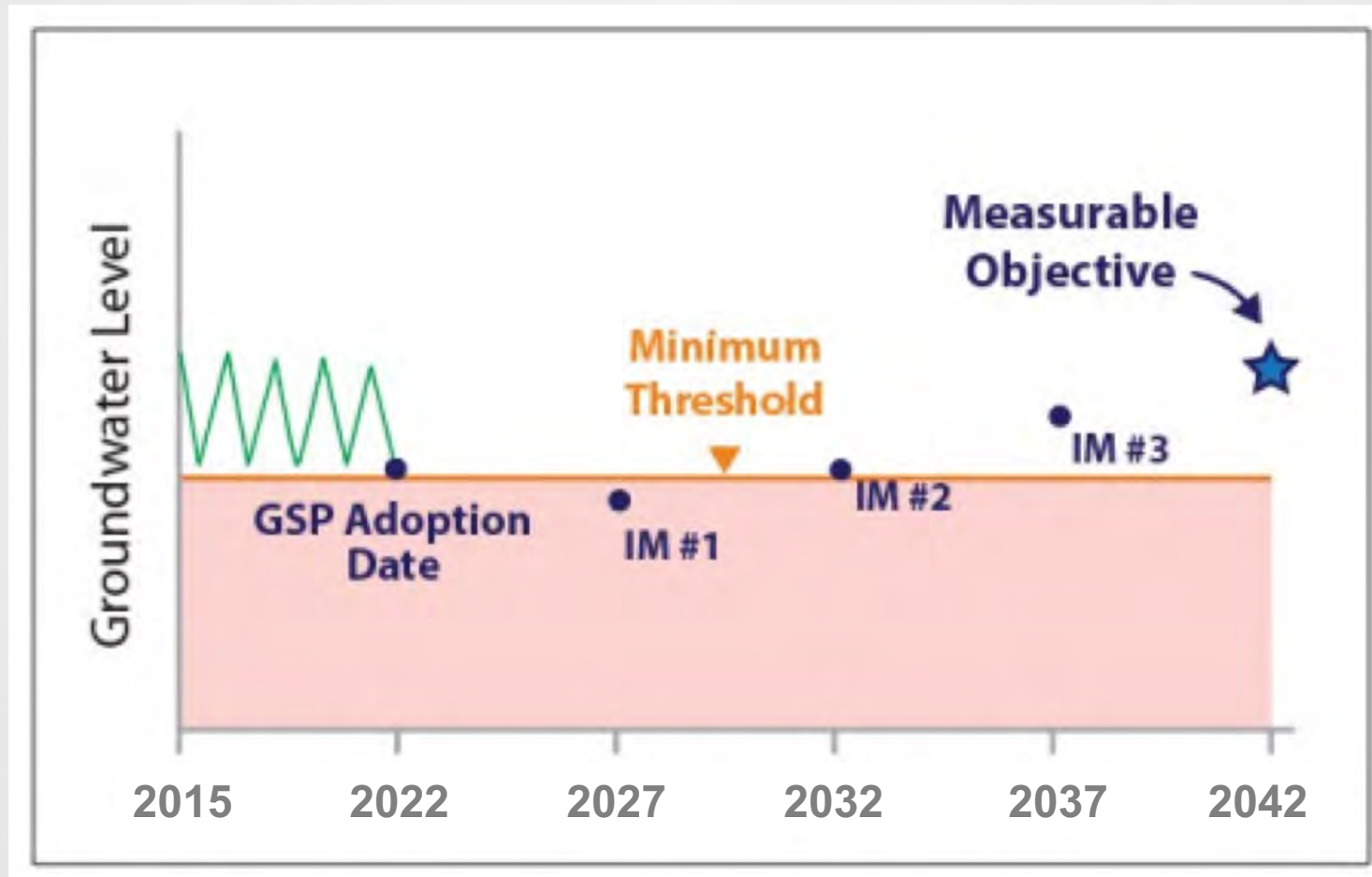
SUSTAINABILITY INDICATORS & UNDESIRABLE RESULTS



MINIMUM THRESHOLDS

<p>Sustainability Indicators</p>	 <p>Lowering GW Levels</p>	 <p>Reduction of Storage</p>	 <p>Seawater Intrusion</p>	 <p>Degraded Quality</p>	 <p>Land Subsidence</p>	 <p>Surface Water Depletion</p>
<p>Metrics Defined in GSP Regulations</p>	<ul style="list-style-type: none"> • Groundwater Elevation 	<ul style="list-style-type: none"> • Total Volume 	<ul style="list-style-type: none"> • Chloride Concentration Isocontour 	<ul style="list-style-type: none"> • Migration of Plumes • Number of Supply Wells • Volume • Location of Isocontour 	<ul style="list-style-type: none"> • Rate and Extent of Land Subsidence 	<ul style="list-style-type: none"> • Volume or Rate of Surface Water Depletion

MINIMUM THRESHOLDS, MEASURABLE OBJECTIVES AND INTERIM MILESTONES



SUSTAINABILITY GOAL

- Not quantitative
- Mission Statement of the subbasin
 - Goal
 - Measures
 - Achieved in next 20 years



CONTACT

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Senior Water Resources Engineer
amanda.peisch@water.ca.gov
(559) 230-3307



CALIFORNIA DEPARTMENT OF WATER RESOURCES
SUSTAINABLE GROUNDWATER
MANAGEMENT OFFICE



SMCs & UNDESIRABLE RESULTS FOR THE TURLOCK SUBBASIN



Michael Cooke, Chair of the West Turlock Subbasin GSA TAC



TURLOCK GROUNDWATER

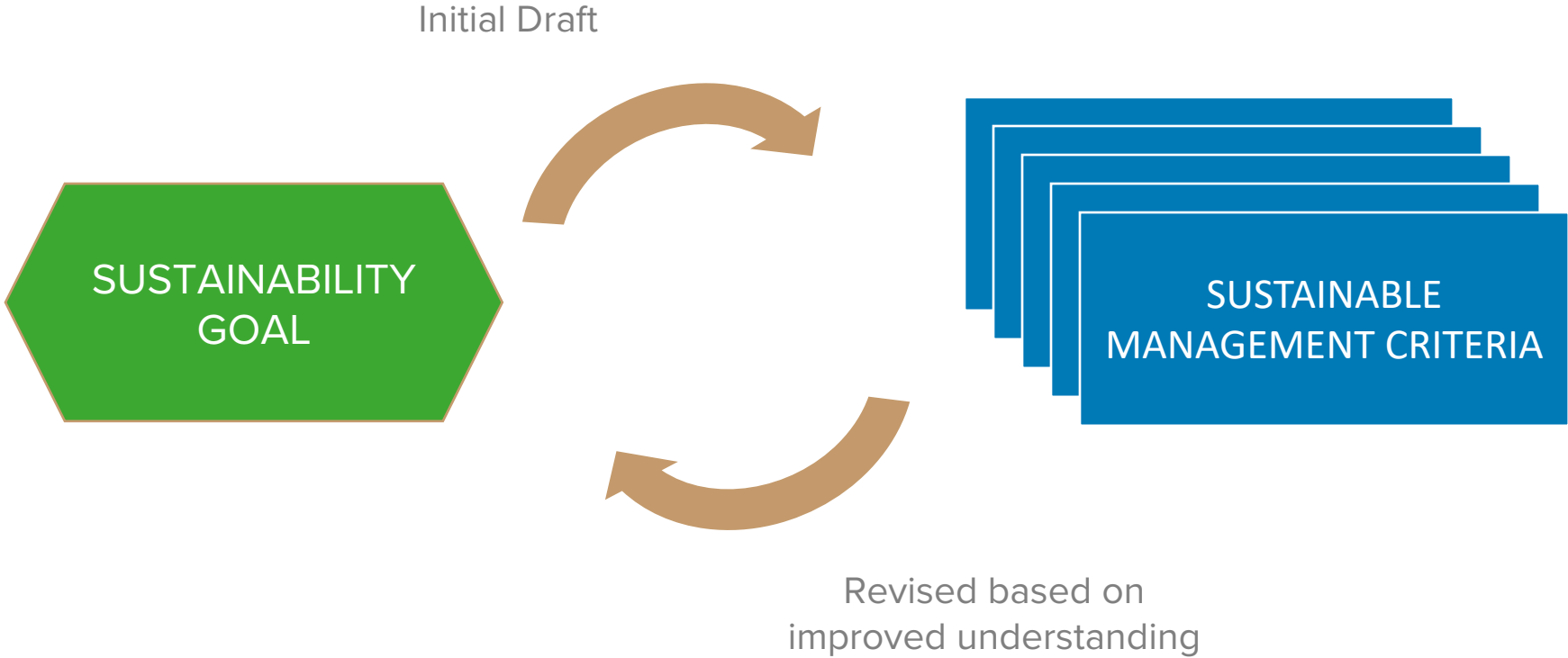
What does **SUSTAINABILITY** mean to you?



TURLOCK GROUNDWATER

INITIAL DRAFT SUSTAINABILITY GOAL TURLOCK SUBBASIN

The Sustainability Goal for the Turlock Subbasin is to manage groundwater in a sustainable manner that **avoids undesirable results**.



*Graphic adapted from Montgomery & Associates

INITIAL DRAFT SUSTAINABILITY GOAL

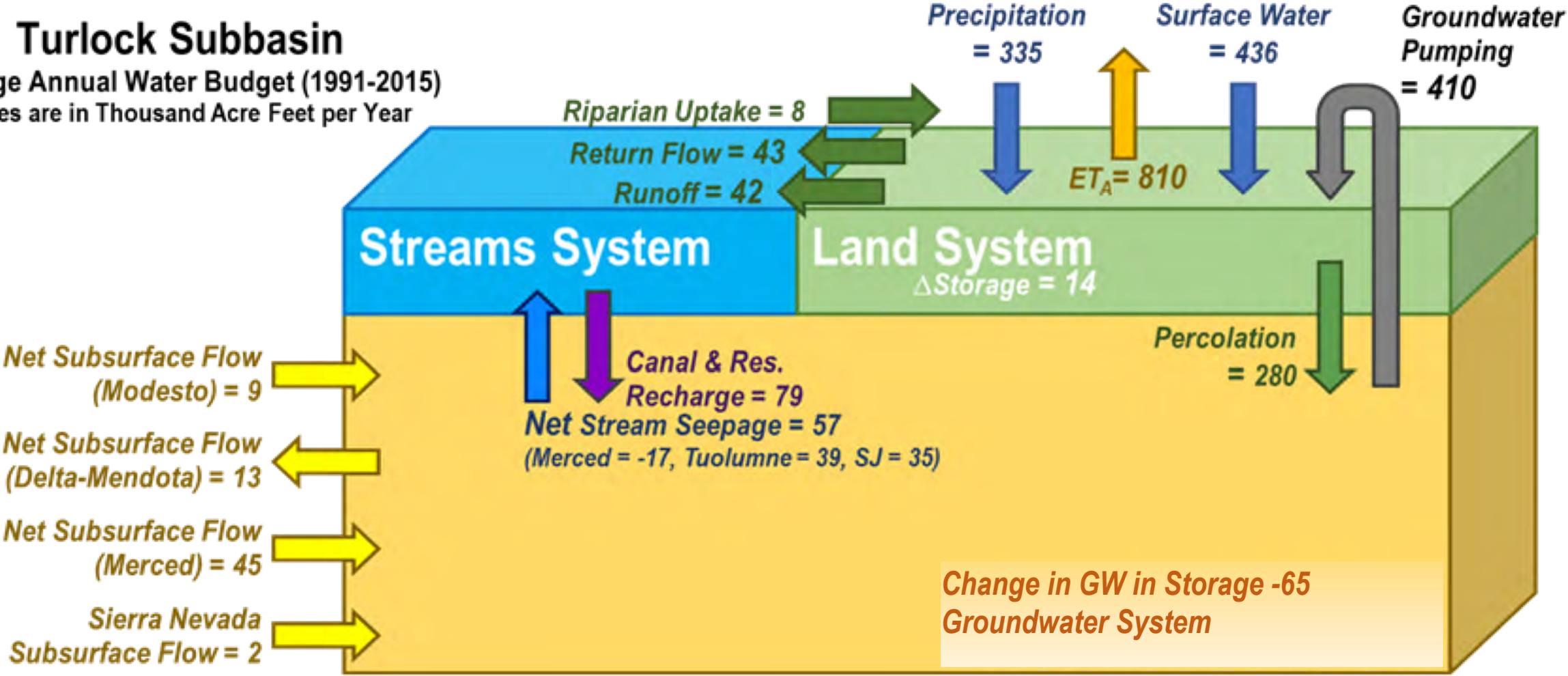
TURLOCK SUBBASIN

This goal is supported by and includes the following actions:

- Manage groundwater within defined sustainable yield within 20 years.
- Implement projects and programs to ensure a sustainable groundwater supply.
- Achieve groundwater supply reliability through multi-year droughts.
- Optimize conjunctive use of surface water and groundwater.
- Monitor groundwater conditions to avoid undesirable results.
- Allow for operational flexibility in the use of regional water resources.
- Modify groundwater management activities, as needed.

HISTORICAL GROUNDWATER BUDGET DIAGRAM

Turlock Subbasin
 Average Annual Water Budget (1991-2015)
 Values are in Thousand Acre Feet per Year





- Subbasin has a historical water deficit of **65,000 AFY** on average
- Use this data to develop ***projected water budgets*** to estimate future conditions
 - With consideration of the 5 sustainability indicators
 - What projects and management actions will we take over next 20 yrs to ensure sustainability?

SUSTAINABILITY INDICATORS



Chronic Lowering of Water Levels



Reduction of Groundwater Storage



Degradation of Water Quality



Land Subsidence Affecting Land Use



Depletion of Interconnected Surface Water Affecting Beneficial Use

*Seawater Intrusion is not applicable to the Turlock Subbasin

WORKING DEFINITIONS: UNDESIRABLE RESULTS (UR) FOR THE TURLOCK SUBBASIN



Significant and unreasonable water level declines such that water supply wells are adversely impacted during multi-year droughts in a manner that cannot be readily managed or mitigated.



Significant and unreasonable depletions of total groundwater in storage have not occurred; usable storage accessed by existing wells has been impacted. Protect future depletion with SMC of WL indicator above.



Significant and unreasonable impacts to groundwater quality, as identified by the GSAs as a constituent(s) of concern, affect the reasonable and beneficial use of groundwater and has been caused by or exacerbated by GSA projects or management actions.



Significant and unreasonable inelastic land subsidence that adversely affects land use or reduces the viability of the use of critical infrastructure (critical infrastructure to be determined).



Model surface water depletions associated with management actions and GSP projects and consider impacts to land uses. Water levels can also serve as a proxy.

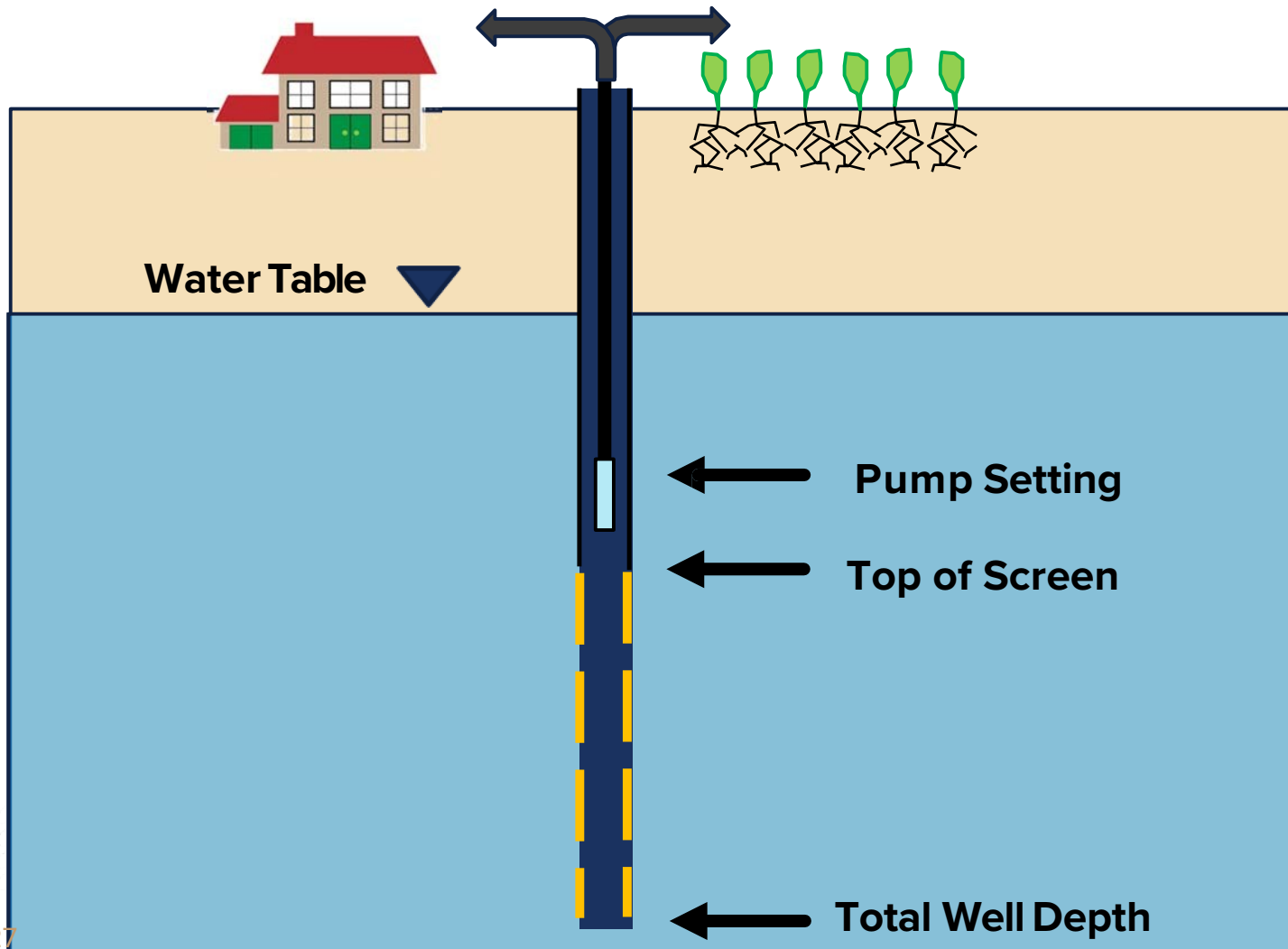
How could this IMPACT you?



TURLOCK GROUP

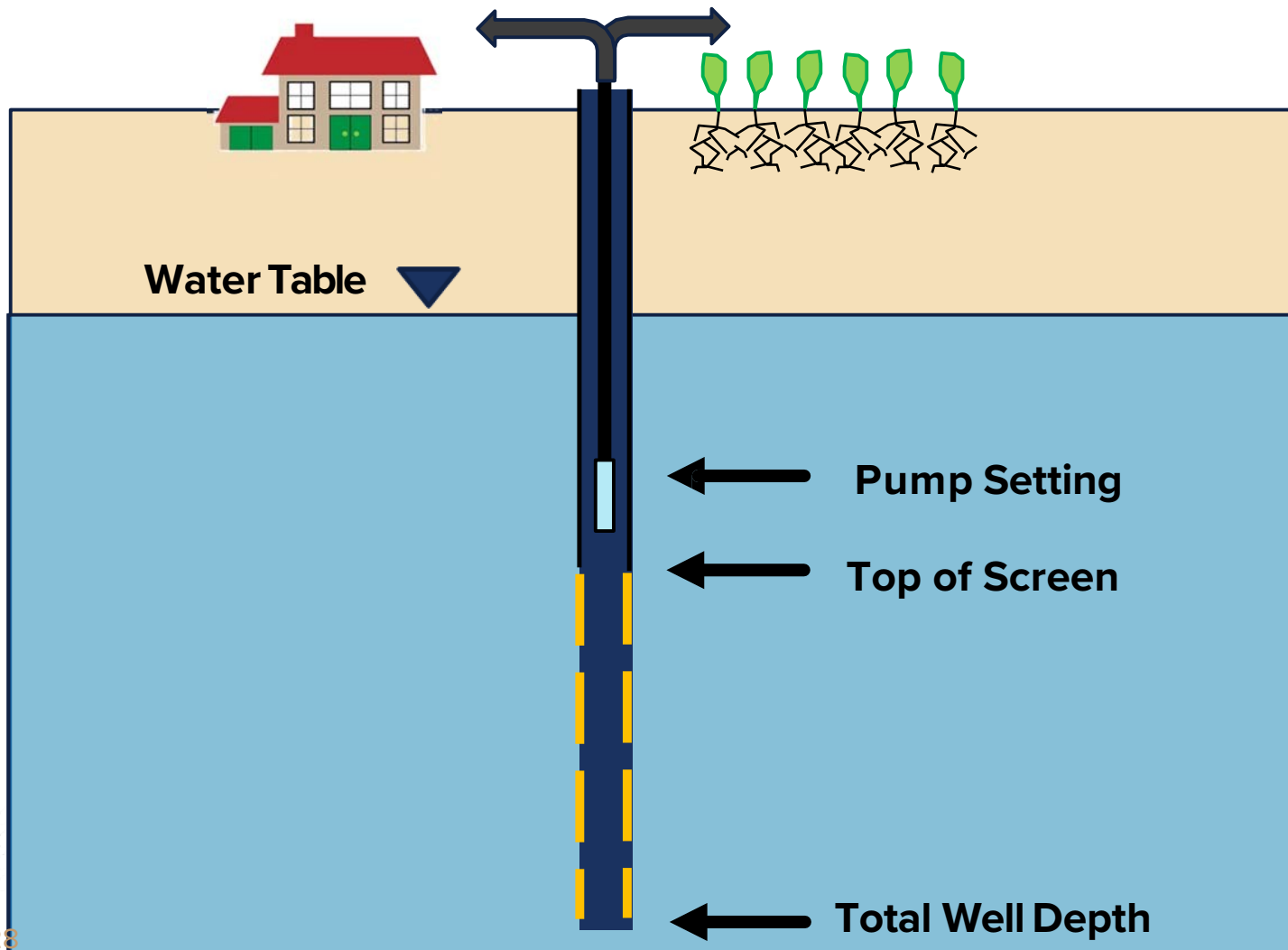


CHRONIC LOWERING OF WATER LEVELS (and reduction in groundwater storage)





CHRONIC LOWERING OF WATER LEVELS (and reduction in groundwater storage)

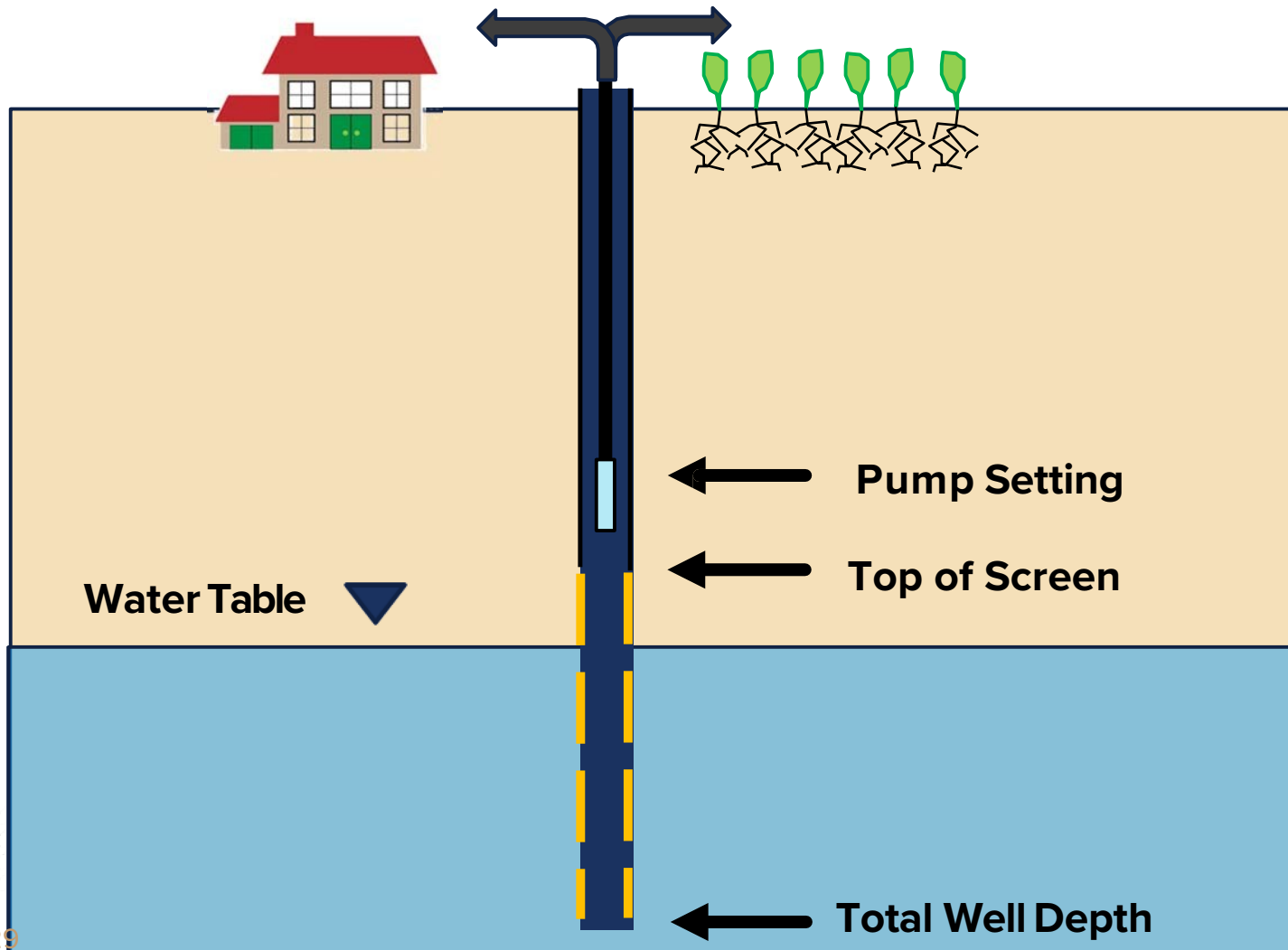


Chronic Lowering of Levels indicates a long-term decline over average hydrologic conditions, even if levels stabilize or recover during wet periods.

“Chronic” indicates long-lasting.



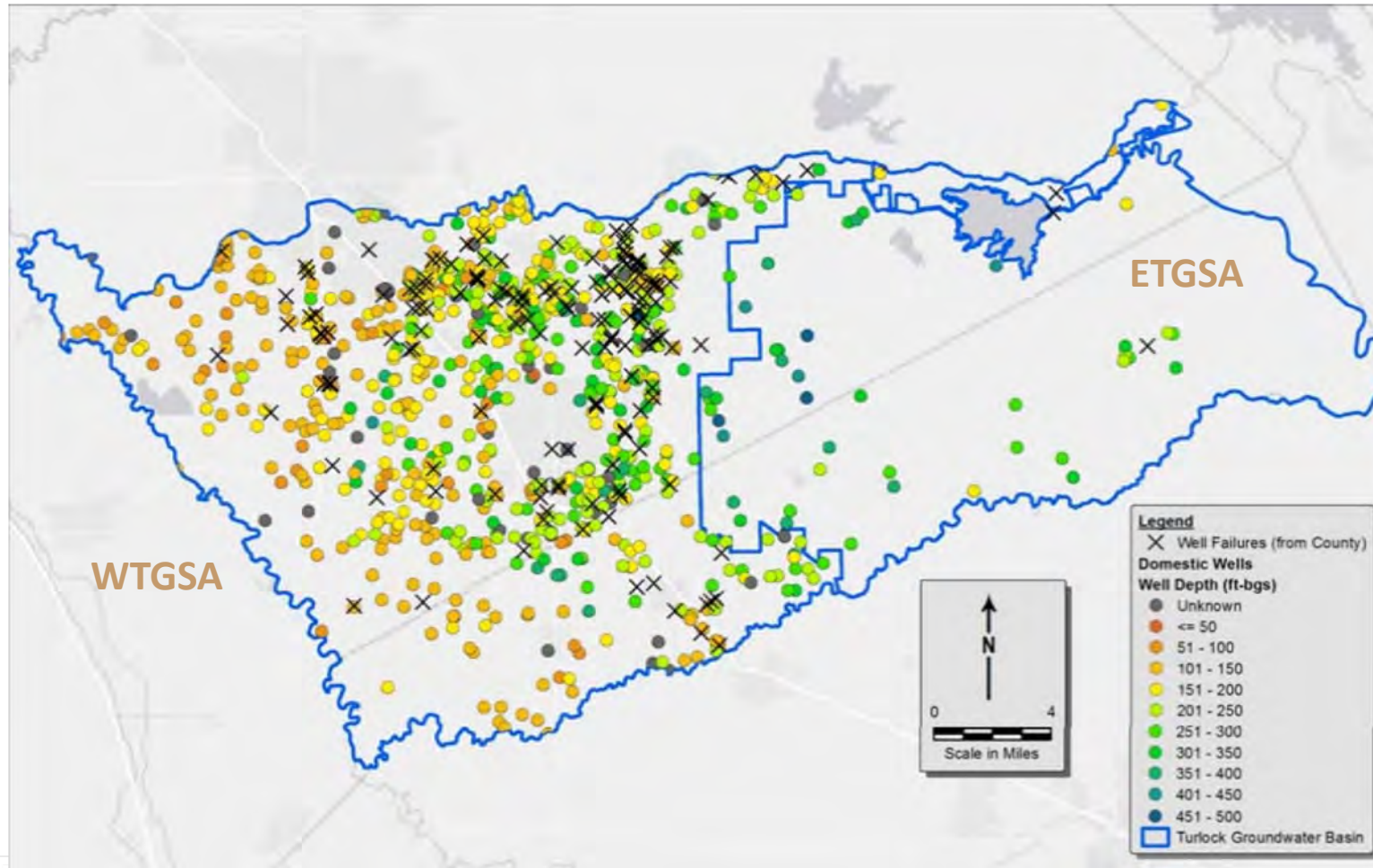
CHRONIC LOWERING OF WATER LEVELS (and reduction in groundwater storage)



- **Adverse impacts** to water supply wells related to historic low water levels
- Potential **undesirable results**
- Can these impacts be managed or mitigated?



LOCATIONS OF FAILED DOMESTIC WELLS



X = Well failures identified by counties



MANAGEMENT ACTIONS TO MITIGATE WELL PROBLEMS

Examples

- New/ replacement/ deepening wells (Turlock, Hilmar, others)
- Trucked water program (Merced County)
- Water tanks (Stanislaus County)
- Financial incentives for deepening (Stanislaus County)
- Decrease pumping rates (to improve water quality) (Modesto)





Speak Up!

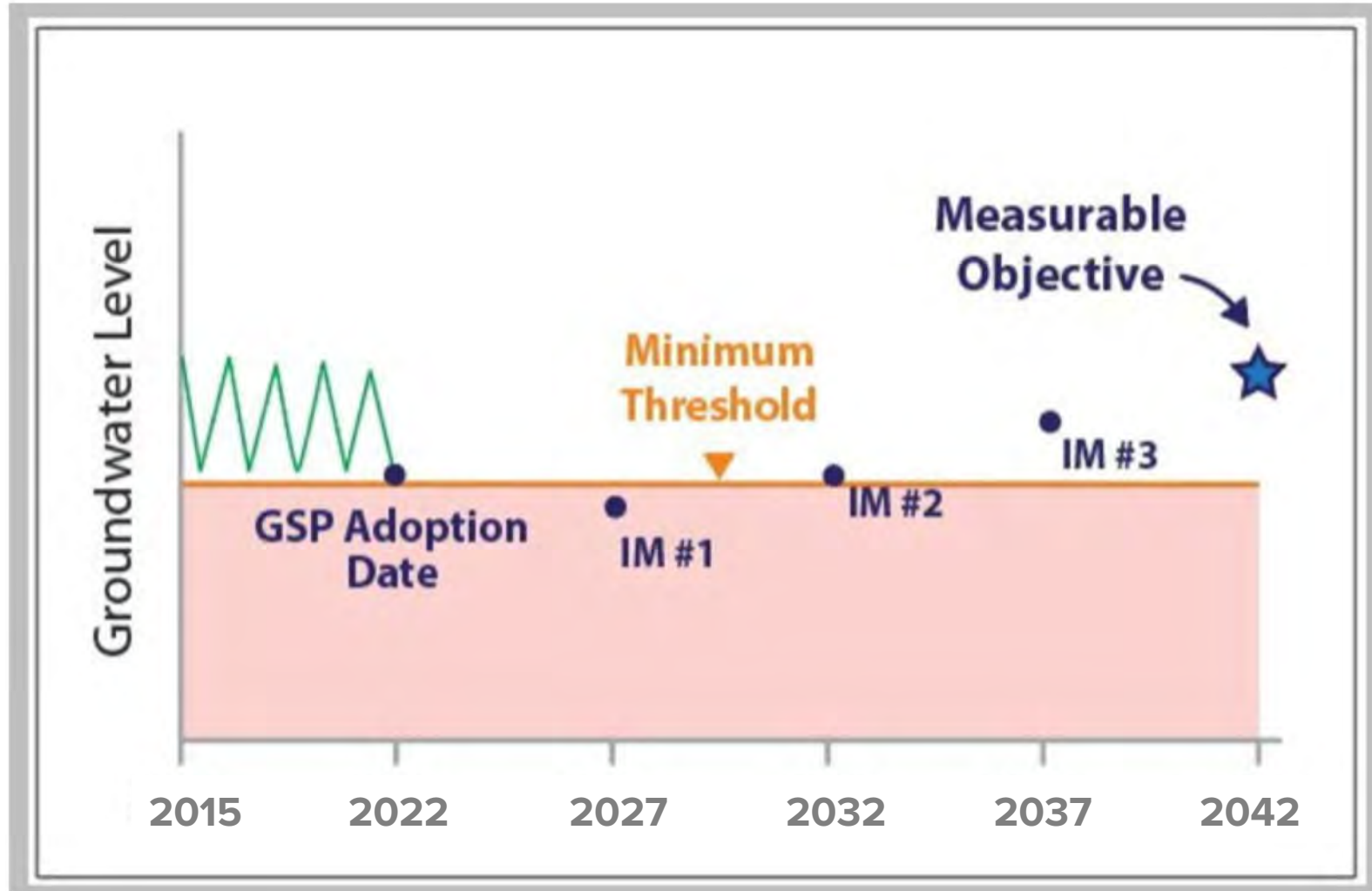
- **Additional Adverse Impacts to consider?**
- **Additional considerations for URs /framework?**

HOW CAN WE QUANTITATIVELY MEASURE THIS?

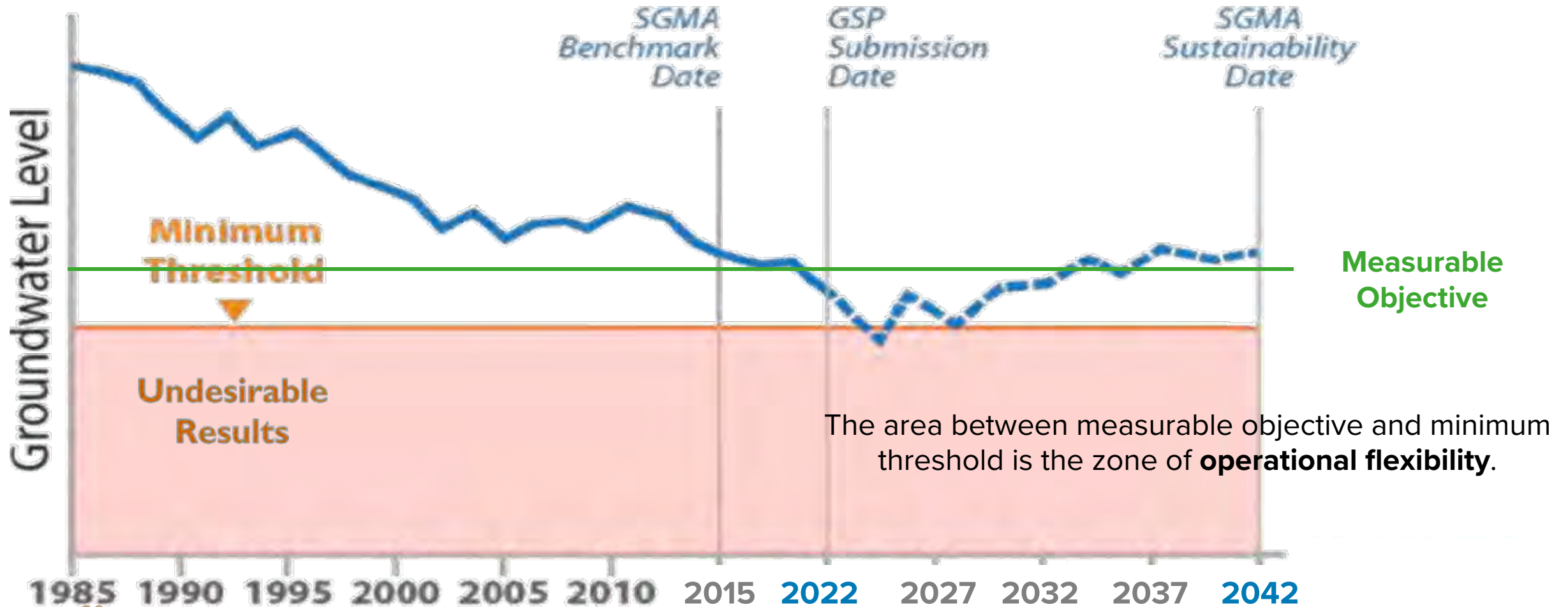


FRAMEWORK FOR IDENTIFICATION OF UNDESIRABLE RESULTS (UR) FOR THE TURLOCK SUBBASIN	
	URs will be evidenced by an exceedance of minimum thresholds (MTs) (minimum water levels to be determined) in xx% of GSP monitoring wells in # consecutive semiannual monitoring events.
	Use sustainable management criteria from above.

HOW CAN WE QUANTITATIVELY MEASURE THIS?



HOW CAN WE QUANTITATIVELY MEASURE THIS?



This framework will be applied to each of the 5 sustainability indicators.



SUSTAINABLE MANAGEMENT CRITERIA: STEPS FOR ANALYSIS



1. Analyze the 5 **Sustainability Indicators** (applying conditions from the Basin Setting)
2. Define **Undesirable Results** (conditions we want to avoid)
3. Select a **Minimum Threshold (MT)** for each Indicator – i.e. a *metric* that can be used to define undesirable results
4. Select a **Measurable Objective** for each indicator – i.e., a target metric to stay away from MTs and undesirable results
5. Select **Interim Milestones** that show progress towards each **Measurable Objective** over the 20-year planning horizon.



2018 - 2022

Identify Problems
[for each SMC]



Example:
Chronic water level decline
in north central area of Subbasin

2022 through 2042

Identify Undesirable Results (UR)

UR example:
Water levels at 'X'-wells measured at 'Y'-feet below ground surface for more than 3 consecutive semi-annual measurements

Implement Mgmt Actions + Projects

In event of UR occurring:
Potentially having to accelerate management actions including GWR projects

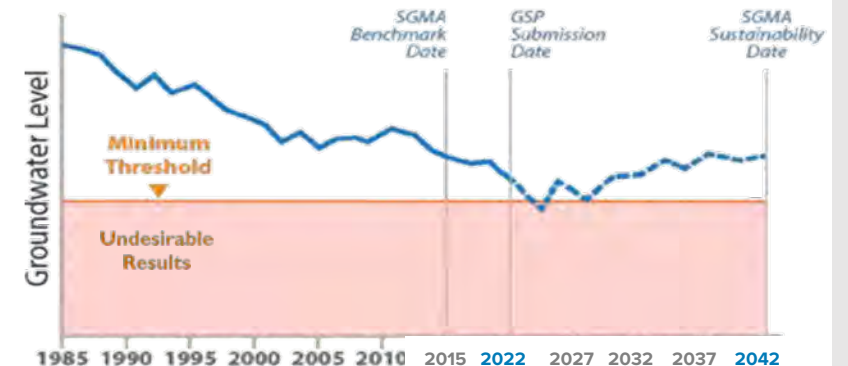
Conduct Monitoring & Adjust as Needed

Interim Milestones and 5 Year Review. Adjust UR and Mgmt Actions as needed.

2042

SGMA Sustainability Date

Groundwater Sustainability goal continues





PROP 218 ETSGSA UPDATE



Kevin Kauffman, East Turlock Subbasin GSA TAC



TURLOCK GROUNDWATER

VIRTUAL PUBLIC WORKSHOP: SMGA COMPLIANCE

Proposed Funding of GSP by East Turlock Subbasin GSA

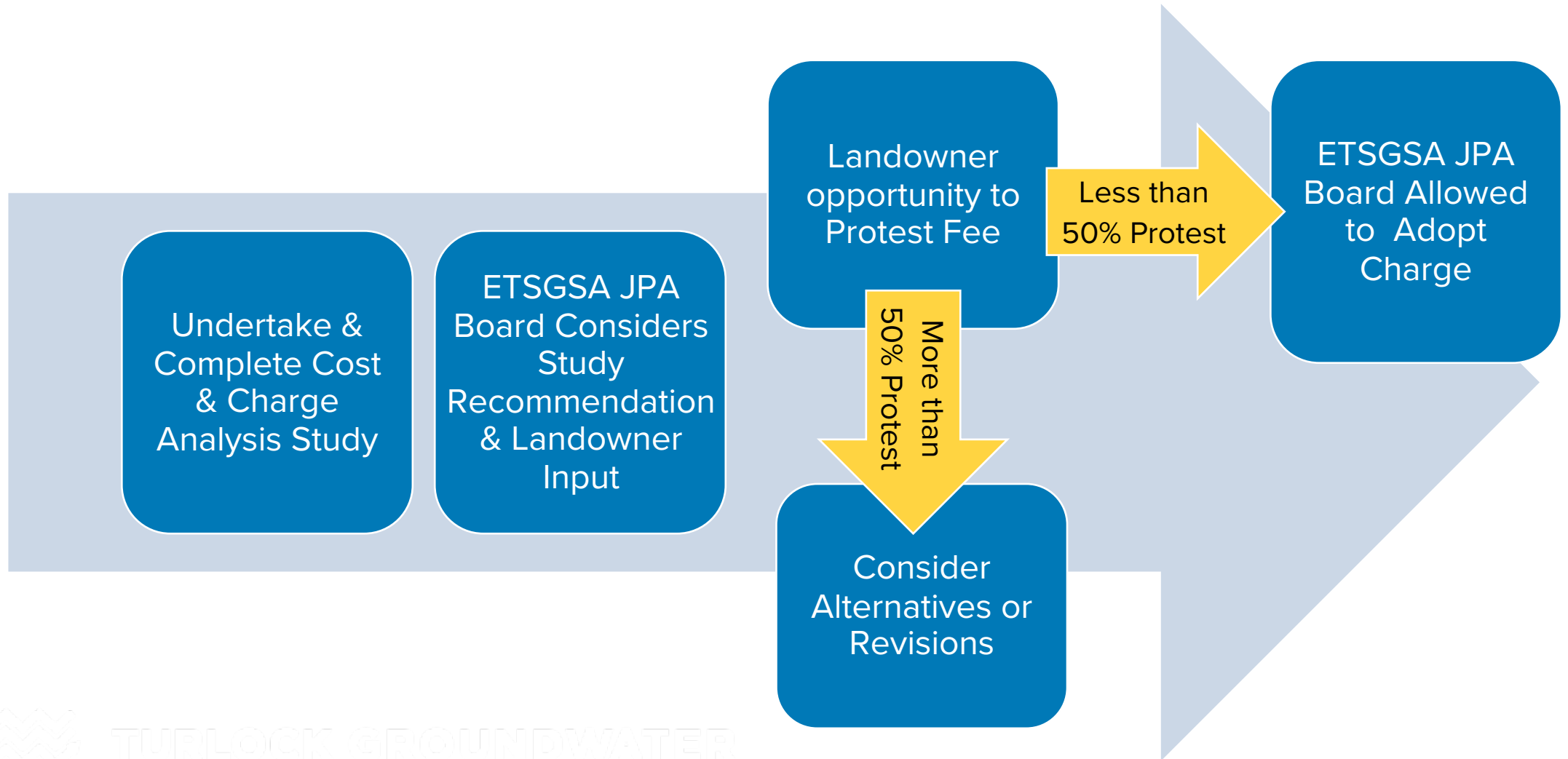
Coming in December!



Workshop Topics Will Include:

- **Sustainable Groundwater Management Act (SGMA) and its requirements**
 - ✓ Local Control vs. State Intervention
 - ✓ Costs to meet this underfunded mandate need to be funded
- **East Turlock Subbasin Joint Powers Authority Groundwater Sustainability Agency (ETSGSA) facts:**
 - ✓ ETSGSA Joint Powers Authority (JPA) is responsible for SGMA planning and implementation in the East Turlock Groundwater Subbasin GSA
 - ✓ JPA membership includes Ballico-Cortez Water District, Eastside Water District, Merced ID, and Merced and Stanislaus counties
 - ✓ GSP is being prepared for the entire Turlock Subbasin together with the West Turlock Groundwater Subbasin GSA
- **GSP funding cost and charge analysis study needs your input!**

Process Required for any SGMA Programs Charge:





MOVING FORWARD



Herb Smart, Turlock Irrigation District



TURLOCK GROUNDWATER

TAKE THE TURLOCK SUBBASIN STAKEHOLDER SURVEY



Example Questions

- How would you rate your **level of concern** over the region's groundwater supply?
- Please identify what you think **the top three water supply challenges** are facing the Turlock Subbasin.
- Which of these items should be considered to **reach groundwater sustainability**?



surveymonkey.com/r/TurlockSGMA

⁴⁴surveymonkey.com/r/TurlockSGMASpanish



TURLOCK GROUNDWATER

4 Cs OF GSP COMMUNICATIONS



- **C**ontent
 - **C**hannels
 - **C**ommunities
 - **C**omprehension

NEXT STEPS FOR GSP CONTENTS



- Address Comments on Model Calibration, as appropriate
- Projected Water Budgets
- Selection of Preliminary Sustainable Management Criteria
 - Input needed on Undesirable Results Definitions
 - Input needed on Undesirable Results Framework
- Projects and Management Actions – begins in October

GSP TIMELINE

2018

2019

2020

2021

2022

COMPILE DATA

DEVELOP LOCAL GROUNDWATER MODEL

DEFINE PLAN AREA

HYDROGEOLOGIC CONCEPTUAL MODEL / GROUNDWATER CONDITIONS

CURRENT AND HISTORICAL WATER BUDGETS

DEFINE & DEVELOP SUSTAINABLE MANAGEMENT CRITERIA

ANALYZE ACTIONS (PROJECTS & PROGRAMS)
TO ACHIEVE SUSTAINABILITY

DEVELOP GSP MONITORING

PLAN DEVELOPMENT &
GSP DOCUMENTATION

GSP REVIEW /
GSA ADOPTION

SUBMIT GSP

PROJECT ADMINISTRATION / OUTREACH / COORDINATION

GSP CONTENTS



*REVISED PRELIMINARY
DRAFT*

**TURLOCK SUBBASIN
GROUNDWATER
SUSTAINABILITY PLAN
(GSP)**

WEST TURLOCK SUBBASIN
GROUNDWATER
SUSTAINABILITY AGENCY

EAST TURLOCK SUBBASIN
GROUNDWATER
SUSTAINABILITY AGENCY

DATE

TODD 
GROUNDWATER

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
510.747.6920
www.toddgroundwater.com



TURLOCK GROUNDWATER

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NEXT STEPS FOR CONNECTING WITH YOU



- In addition to email newsletters, website and social media
 - **Stakeholder Survey**
 - Conduct “**Office Hours**”
 - More **Workshops** – virtual or in person
 - Develop mechanisms for receiving **formal GSP comments**
 - New **Videos**
 - **Other ways to connect with you? Email us at turlockgroundwater@gmail.com and let us know!**

THANK YOU!



@TurlockSubbasin



Turlock Groundwater



Turlock Groundwater



TURLOCKGROUNDWATER.ORG

Funding for this project has been provided in full or in part from the Water Quality, Supply, and Infrastructure Improvement Act of 2014 and through an agreement with the State Department of Water Resources.

