SANTA CRUZ MID-COUNTY GROUNDWATER SUSTAINABILITY PLANNING

Advisory Committee Meeting #4

SANTA CRUZ MID-COUNTY GROUNDWATER AGENCY

Wednesday, February 28, 2018, 5:00 – 8:30 p.m.
Santa Cruz County Sheriff's Office

Welcome and Introductions

- Groundwater Sustainability Plan (GSP) Advisory Committee
- Staff
- Public

Meeting Objectives

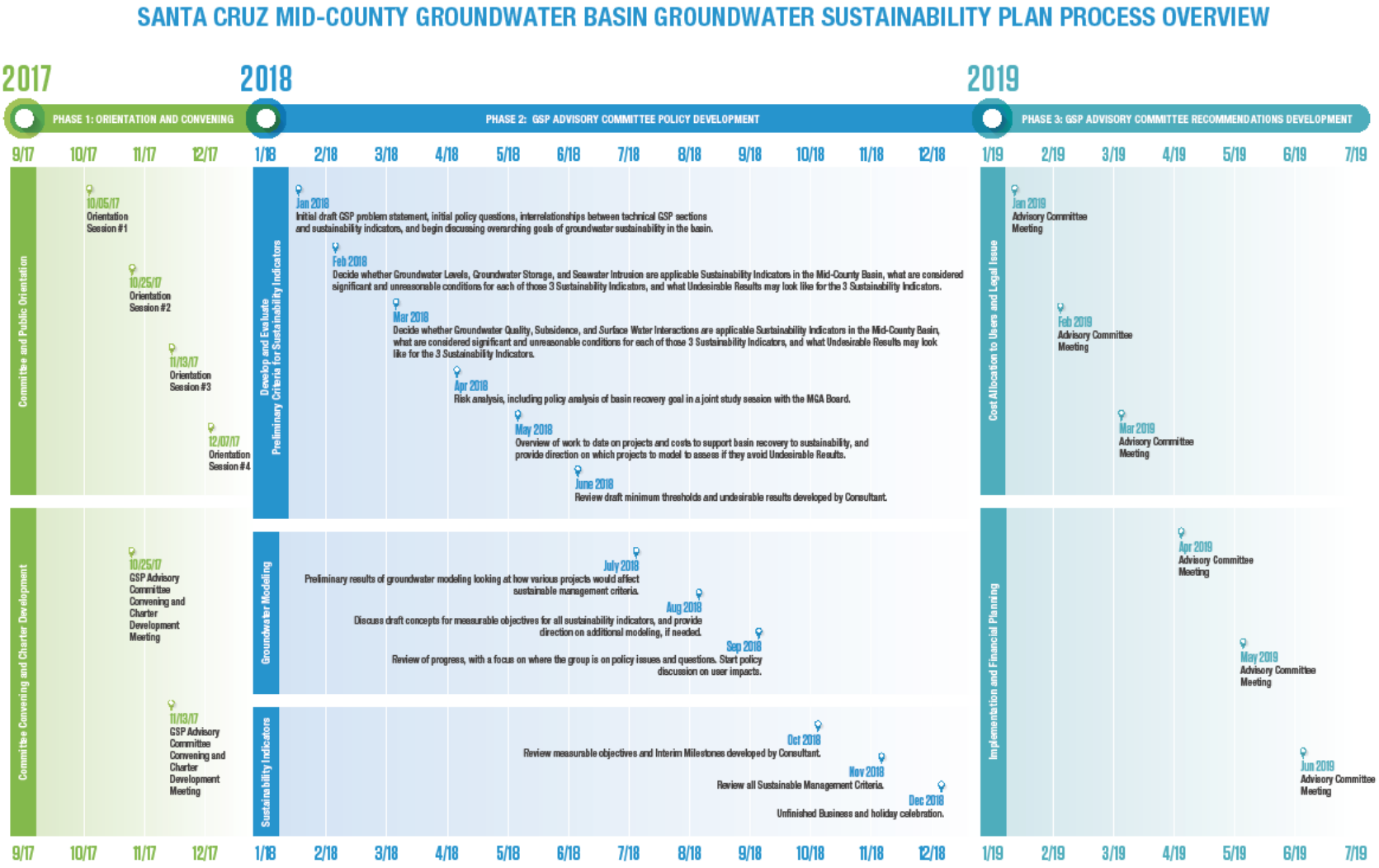
1. Begin discussing three Sustainability Indicators: groundwater levels, groundwater storage, seawater intrusion.
   a. Applicability of Sustainability Indicators in the Mid-County Basin
   b. Identify Significant and Unreasonable Conditions for Sustainability Indicators
   c. Identify Undesirable Results for Sustainability Indicators
2. Provide additional background information to Advisory Committee members.

Agenda

5:30	Welcome, Introductions, Objectives and Agenda Review
5:45	Confirm January 24 Advisory Committee Meeting Summary
5:50	Brief Update on Information Requests
6:00	Orientation Refresher on SGMA Terminology and Basin Conditions for three focal Sustainability Indicators
6:20	Applicability of Sustainability Indicators in Basin
6:30	Significant and Unreasonable Conditions
7:30	*Break*
7:45	Undesirable Results
8:40	Public Comment
8:50	Recap and Next Steps
9:00	*Adjourn*

GSP Project Timeline

GSP Process Timeline – Phase 2



Confirm

January 24, 2018

GSP Advisory Committee Meeting Summary

Update

Informational Requests

- *Relationship of Plan Elements Graphic*
- *Cross-walk between GSP and information to inform Advisory Committee discussions*
- *Annotated outline of GSP*

SUSTAINABILITY INDICATORS:

GROUNDWATER LEVELS
GROUNDWATER STORAGE
SEAWATER INTRUSION

Advisory Committee Meeting #4

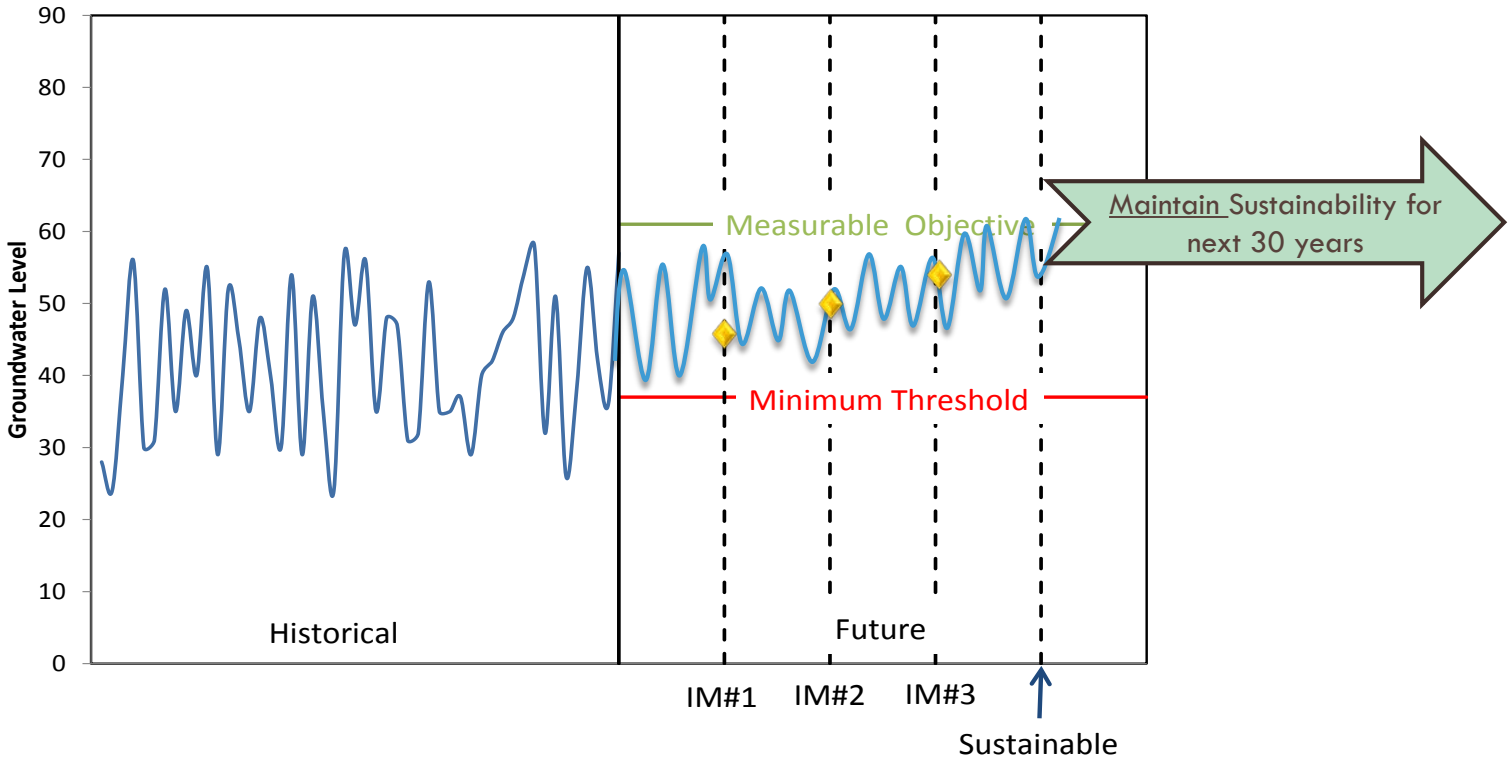
SANTA CRUZ MID-COUNTY GROUNDWATER AGENCY

Presenters: Derrik Williams and Georgina King
HydroMetrics Water Resources Inc.

Wednesday, February 28, 2018

Review Sustainable Groundwater Management Act (SGMA) Terminology

Basic Sustainable Management Criteria (SMC) Concepts



Undesirable Results

"The description of undesirable results … shall be based on a quantitative description of the ***combination of minimum threshold exceedances*** *that cause significant and unreasonable effects in the basin."*

Reminder: Avoiding Undesirable Results is how you prove sustainability

Undesirable Results are a Combination of Minimum Thresholds

Example 1: An undesirable result occurs when 10% of your groundwater elevations, measured at Representative Monitoring Points, drop below the associated Minimum Thresholds

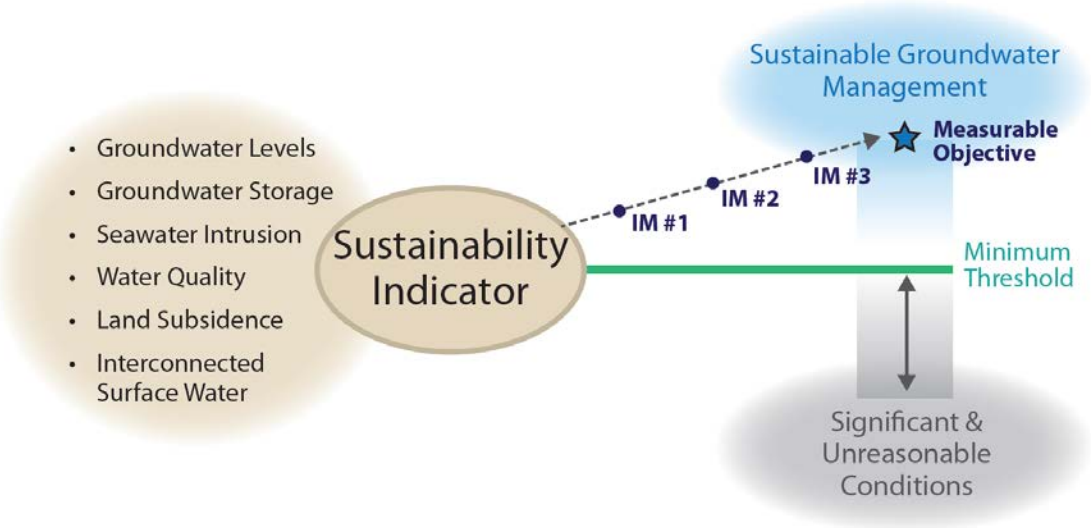
This might be an example definition of Undesirable Results for groundwater levels

How you define Undesirable Results is how you can accommodate flexibility

Steps for Defining Sustainability

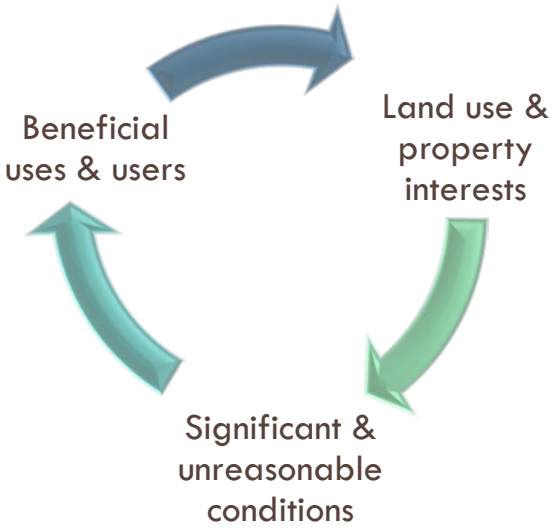
How are SMC Developed?

- **Assess which of the six sustainability indicators are applicable**
- **Develop draft descriptions of what is significant and unreasonable**
- Set minimum thresholds at each representative monitoring point to reflect what locally is significant and unreasonable



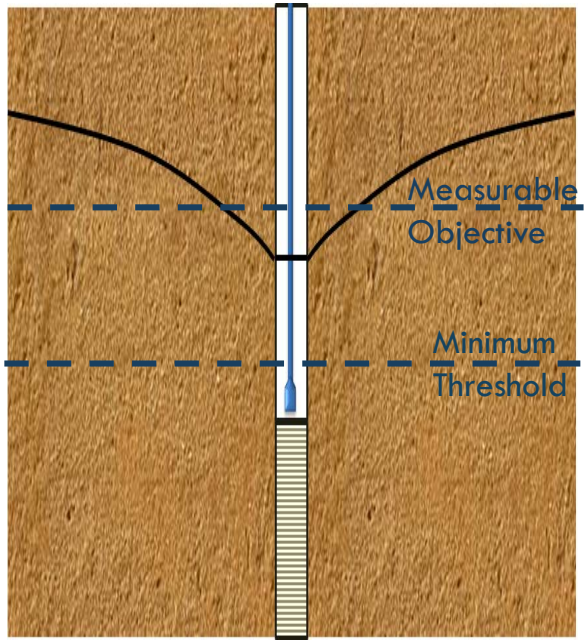
How are SMC Developed? cont.

- **Decide how to combine each of the six sets of Minimum Thresholds into six Undesirable Results**
- Likely an iterative process:
  - How does this undesirable result affect beneficial uses and users of groundwater
  - How does this undesirable result affect land uses and property interests
  - Does the undesirable result adequately characterizes conditions that are significant and unreasonable



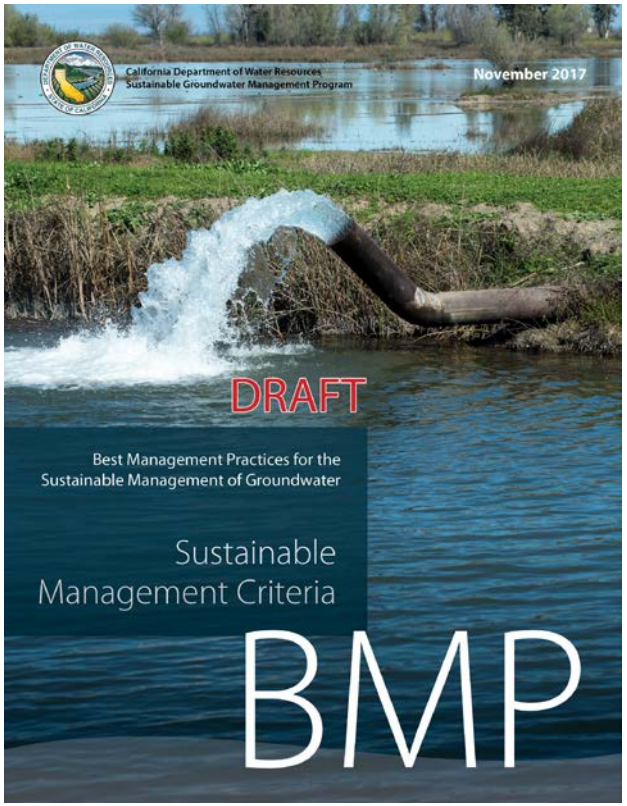
How are SMC Developed? cont.

- Model effects of projects and management actions on the Basin
- Set Measurable Objectives and Interim Milestones, based on the agreed to Minimum Thresholds
- Iterate



DWR Guidance

- Draft Best Management Practice document for **Sustainable Management Criteria**



Brief Review of Groundwater Conditions

Additional information can be found at:

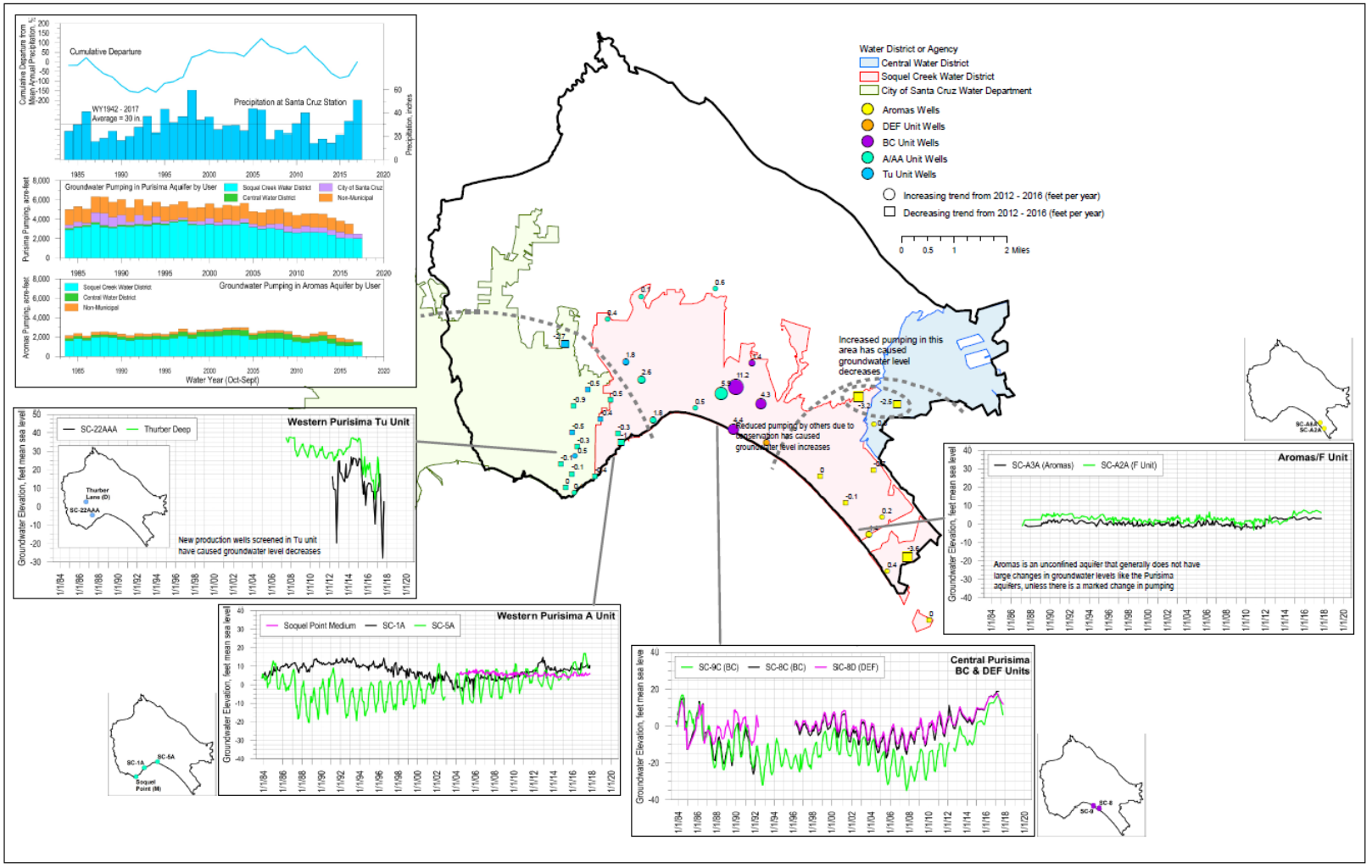
State of the Basin Public Orientation Session

http://www.midcountygroundwater.org/gsp-advisory-committee/groundwater-workshops

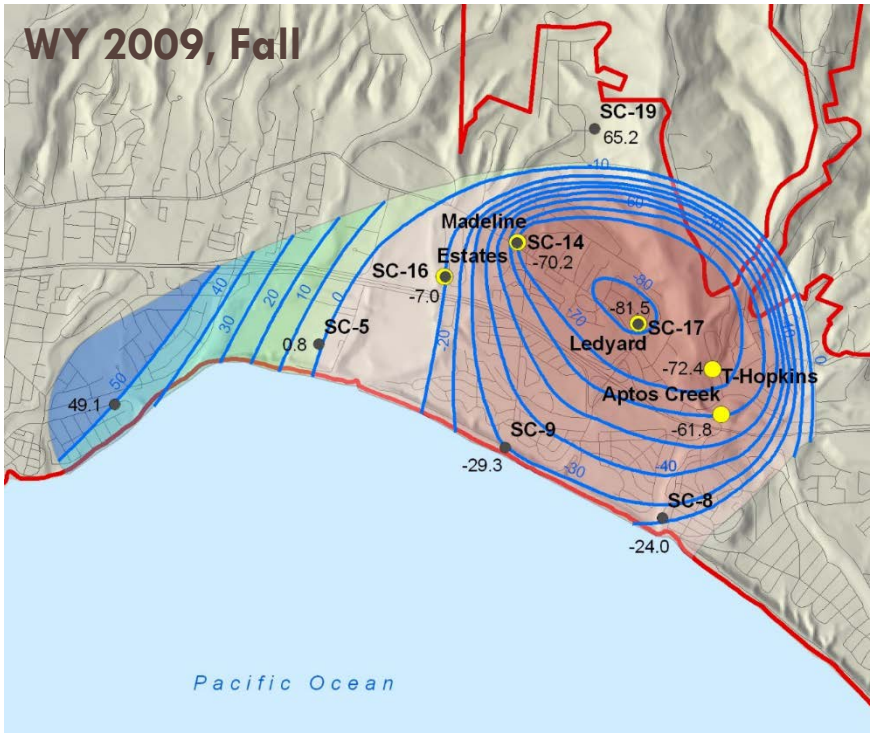
Monitoring and Annual Reports

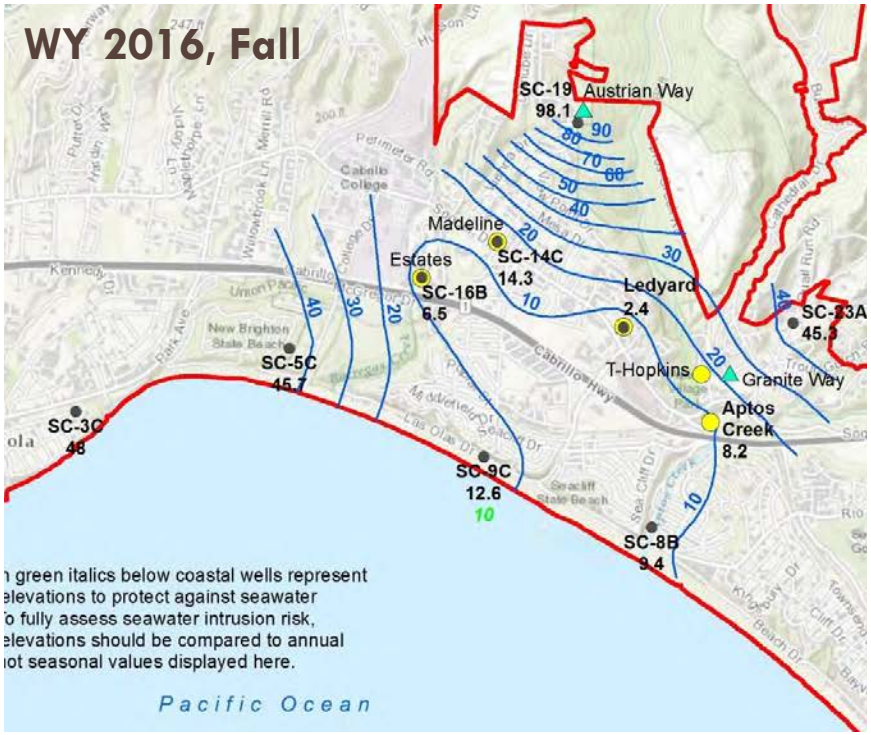
http://www.midcountygroundwater.org/resource-library

Ground-water Levels



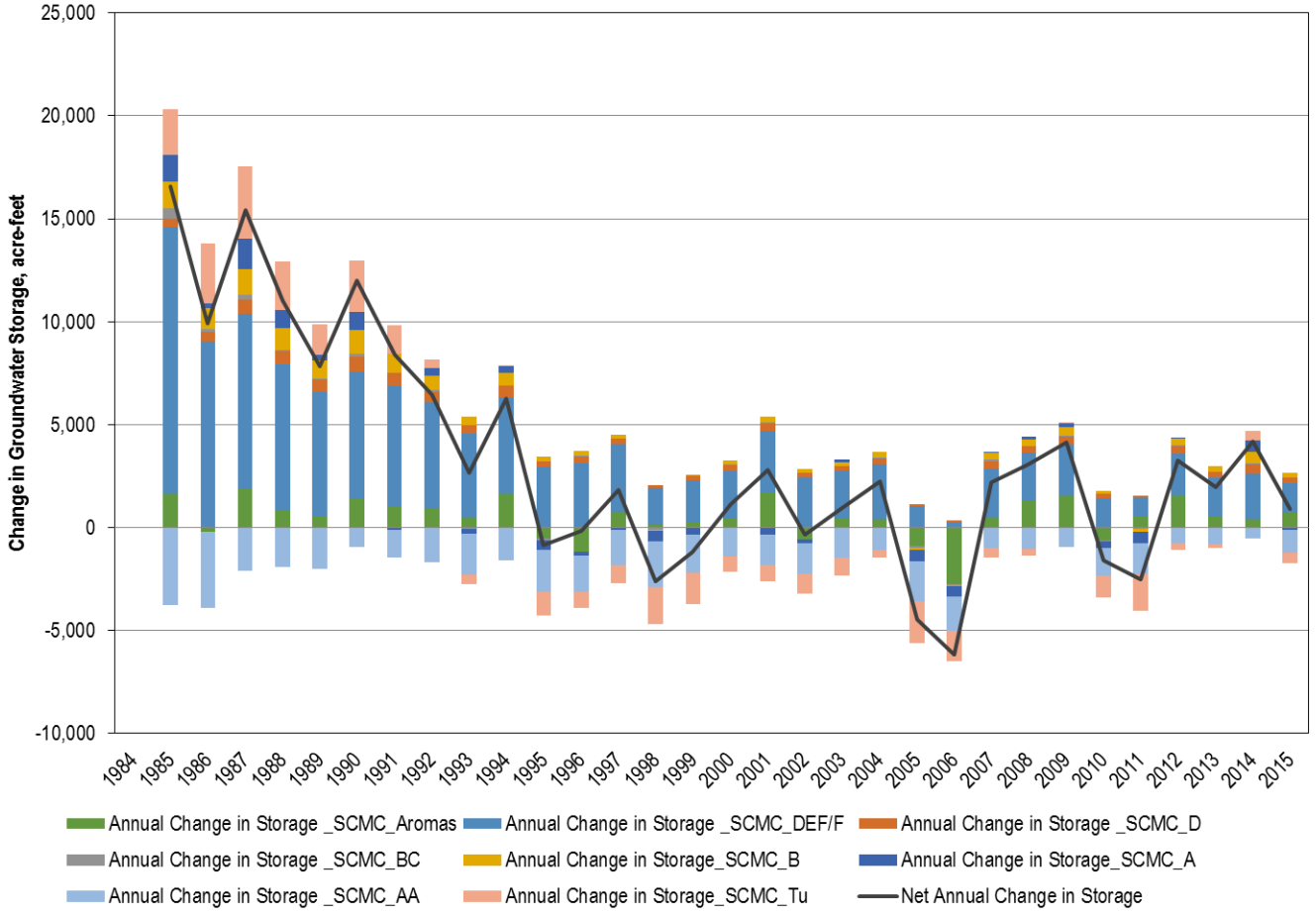
Groundwater Contours – BC-Unit





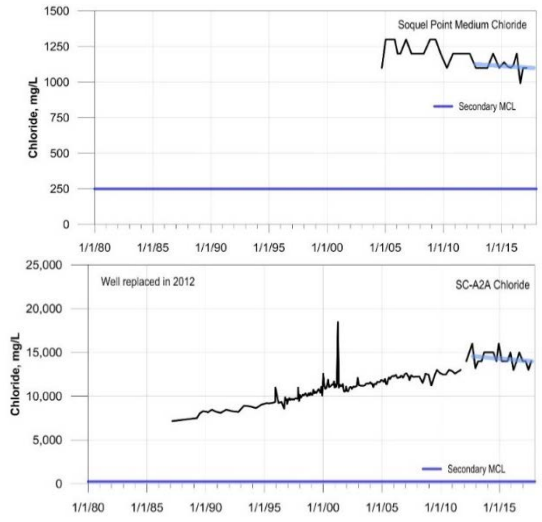
Groundwater Storage

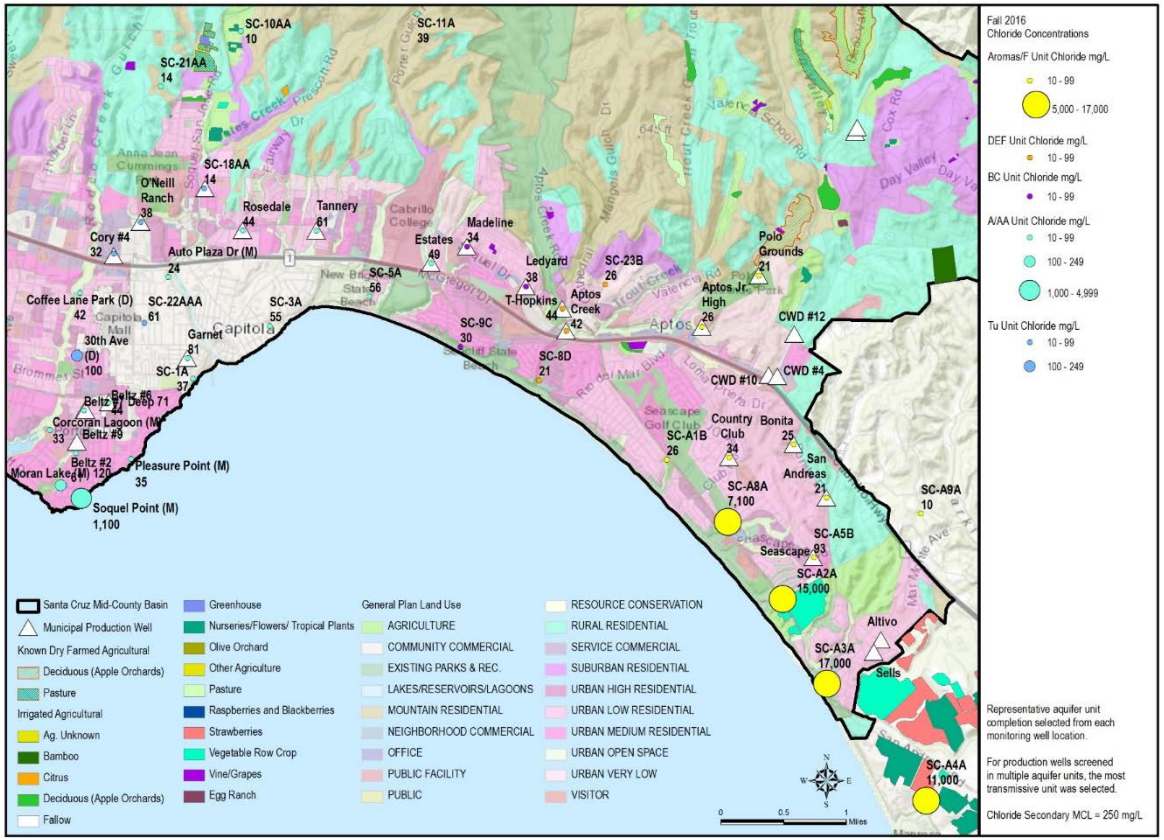
- Groundwater storage estimates have not been made before
- MGA model now allows for estimation of storage



Seawater Intrusion

- Chloride concentrations
- SkyTEM Geophysics to identify saltwater (in progress)

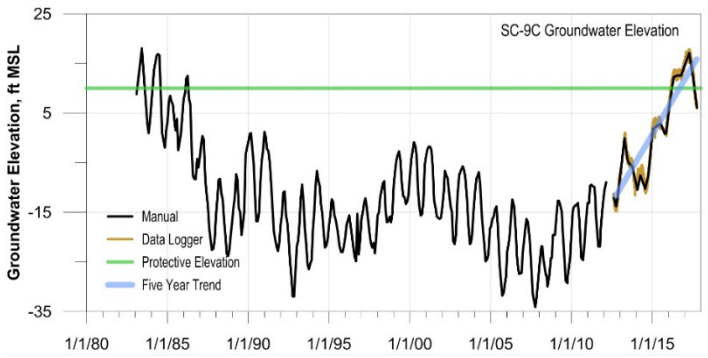




Basin Overdraft

- SqCWD Resolution 14-22 (2014)

  a peer review panel of qualified groundwater hydrologists have concurred with the District's groundwater hydrologist that the cumulative effects of pumping more groundwater than is annually replenished through rainfall has resulted in a serious state of overdraft of our local aquifers
- Groundwater levels that are below protective elevations in both Purisima and Aromas aquifers
- Rising chloride levels in portions of the coastal Aromas area



Applicability of Sustainability Indicators

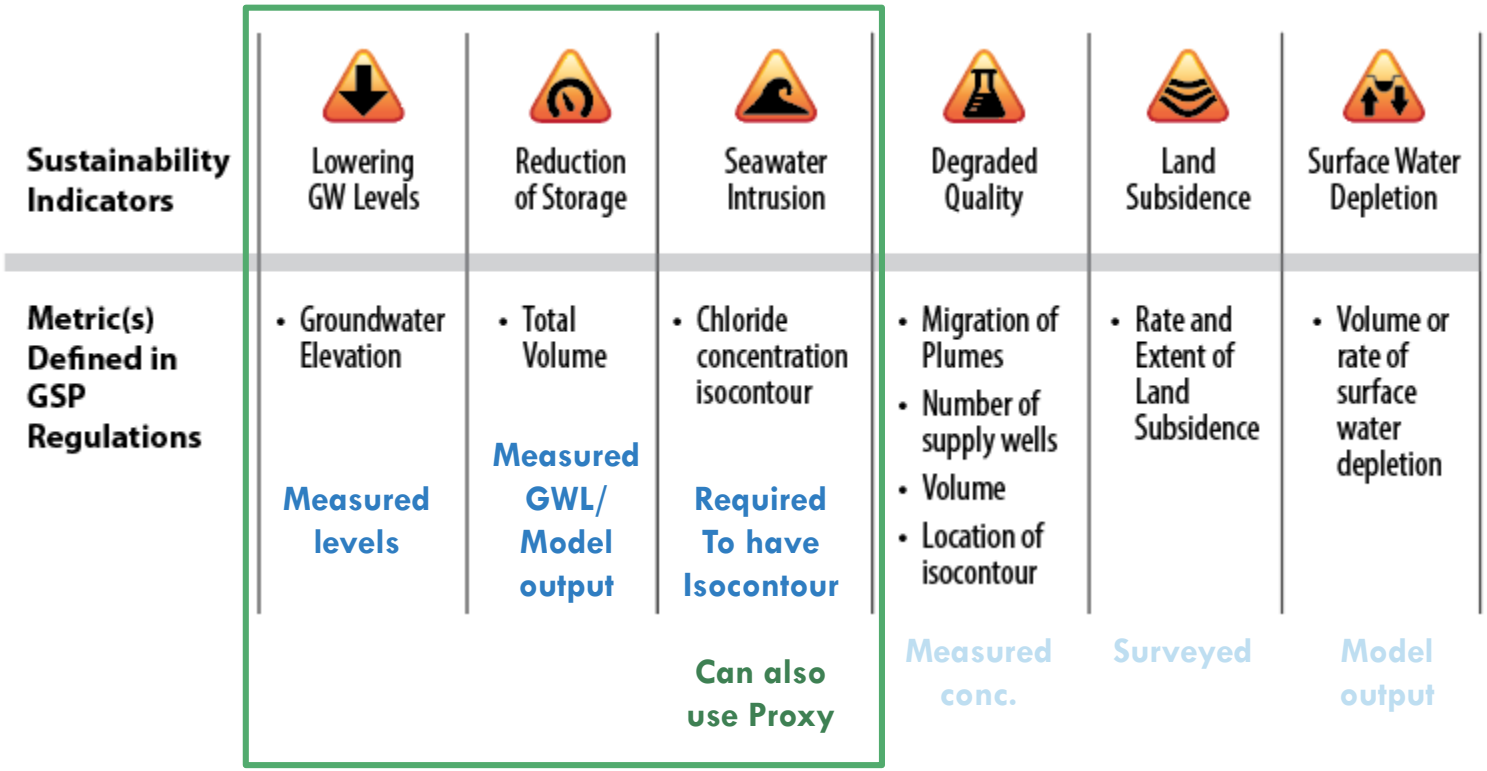
Sustainability Indicators

Sustainability Indicator	Known Issues in the Basin &/or Potential Issues If Basin is not Managed
Groundwater Levels	Historical declines which are now recovering to 1980 levels
Groundwater Storage	Currently unknown but gw model will be used to estimate Desire to use available gw storage more in the future
Seawater Intrusion	Increasing chlorides linked to SWI

The default position for GSAs should be that all six sustainability indicators apply to their basin. If a GSA believes a sustainability indicator is not applicable for their basin, they must provide evidence that the indicator does not exist and could not occur

Advisory Committee to Discuss and Agree on Applicable Sustainability Indicators

Sustainability Indicator Metrics



Significant and Unreasonable Conditions

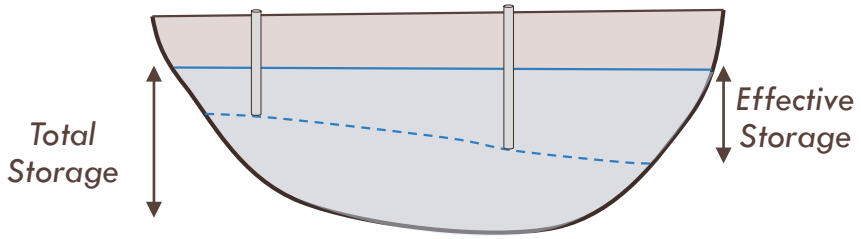
Groundwater Sustainability Agencies (GSAs) must consider and document the conditions at which each of the six sustainability indicators become significant and unreasonable in their basin, including the reasons for justifying each particular threshold selected

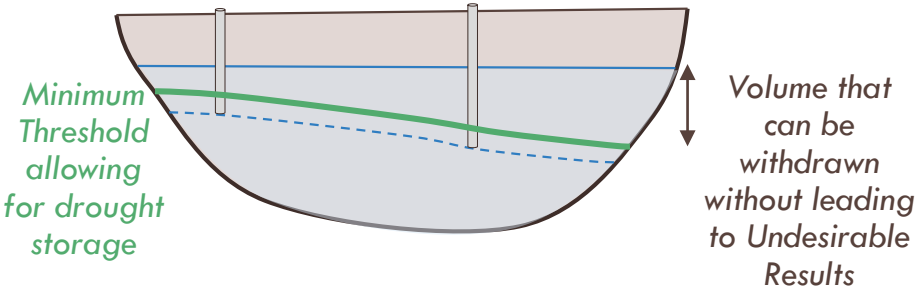
Chronic Declines in Groundwater Levels

- **What is Significant and Unreasonable?**
- Considerations
  - What in our historical water level record was Significant and Unreasonable, and why?
  - We don't want our wells (ag, domestic and muni) to go dry
  - Groundwater levels so low that creeks and streams fed by groundwater cannot support fish and groundwater dependent ecosystems (GDE)
  - Onshore flow of seawater because of lowered Basin groundwater levels
  - Etc.

Reduced Groundwater Storage

- Minimum Threshold for reduction of storage is a volume of groundwater that can be <u>withdrawn</u> without leading to undesirable results





Reduced Groundwater Storage

- **What is Significant and Unreasonable?**
- Considerations
  - What in our historical record was Significant and Unreasonable, and why?
  - No groundwater in storage to rely on during drought
  - It is unreasonable to have less than X years of water in storage to get through a drought
  - Have production wells ever gone dry?
  - What is the effective storage of the basin? This may include understanding of the:
    - Average, minimum, and maximum depth of municipal, agricultural, and domestic wells
    - Impacts on pumping costs (i.e., energy cost to lift water)

Reduced Groundwater Storage

- This is a difficult Sustainability Indicator to define what is Significant and Unreasonable because other Indicators influence it so heavily. Technical team suggests leaving this Indicator until Minimum Thresholds for all others have been determined. It is likely that the Thresholds from the other Sustainability Indicators will result in a Storage Threshold that does not cause Undesirable Results.

Seawater Intrusion

- **What is Significant and Unreasonable?**
- Considerations
  - What is the historical rate and extent of seawater intrusion in affected principal aquifers?
  - How are land uses in the basin sensitive to seawater intrusion?
  - What are the financial impacts of seawater intrusion on agricultural, municipal, and domestic wells?
  - What are the Regional Water Quality Control Board Basin Plan objectives?
  - Can we live with a certain amount of seawater intrusion?
  - Do we need to reverse all the intrusion currently taking place?

Seawater Intrusion

- Examples of Significant & Unreasonable conditions
  - Preventing land being used for current or planned uses
  - Seawater impacts wells used for current (and planned) domestic, agricultural or municipal purposes
  - Exceeding Regional Water Quality Control Board Basin Plan objectives (250 mg/L for chloride)

Discussion of Significant & Unreasonable Impacts

- **What would be significant and unreasonable impacts to the basin (i.e., what could we not live with in the basin)?**
  - Chronic lowering of groundwater levels
  - Reduced groundwater storage
  - Seawater Intrusion

Undesirable Results

How flexible are we with Minimum Thresholds for each Sustainability Indicator

Undesirable Results for Chronic Decline in Groundwater Levels

- **How flexible are we with Minimum Thresholds being exceeded?**
- Considerations
  - At certain wells? (consider well types/uses)
  - In certain areas? (consider land use)
  - What percentage of wells with an exceedance is undesirable?

Undesirable Results for Reduction in Storage

- **How flexible are we with Minimum Thresholds being exceeded?**
  - Consideration: There is only one Minimum Threshold for the Basin – wait to establish Minimum Thresholds for other Indicators before Storage Minimum Thresholds are worked on

Undesirable Results for Seawater Intrusion

- **How flexible are we with Minimum Thresholds being exceeded?**
- Considerations
  - At certain wells? (consider well types/uses)
  - In certain areas? (consider land use)
  - What percentage of wells with an exceedance is undesirable?
  - Consider both the Isocontour (250 mg/L) and protective elevations

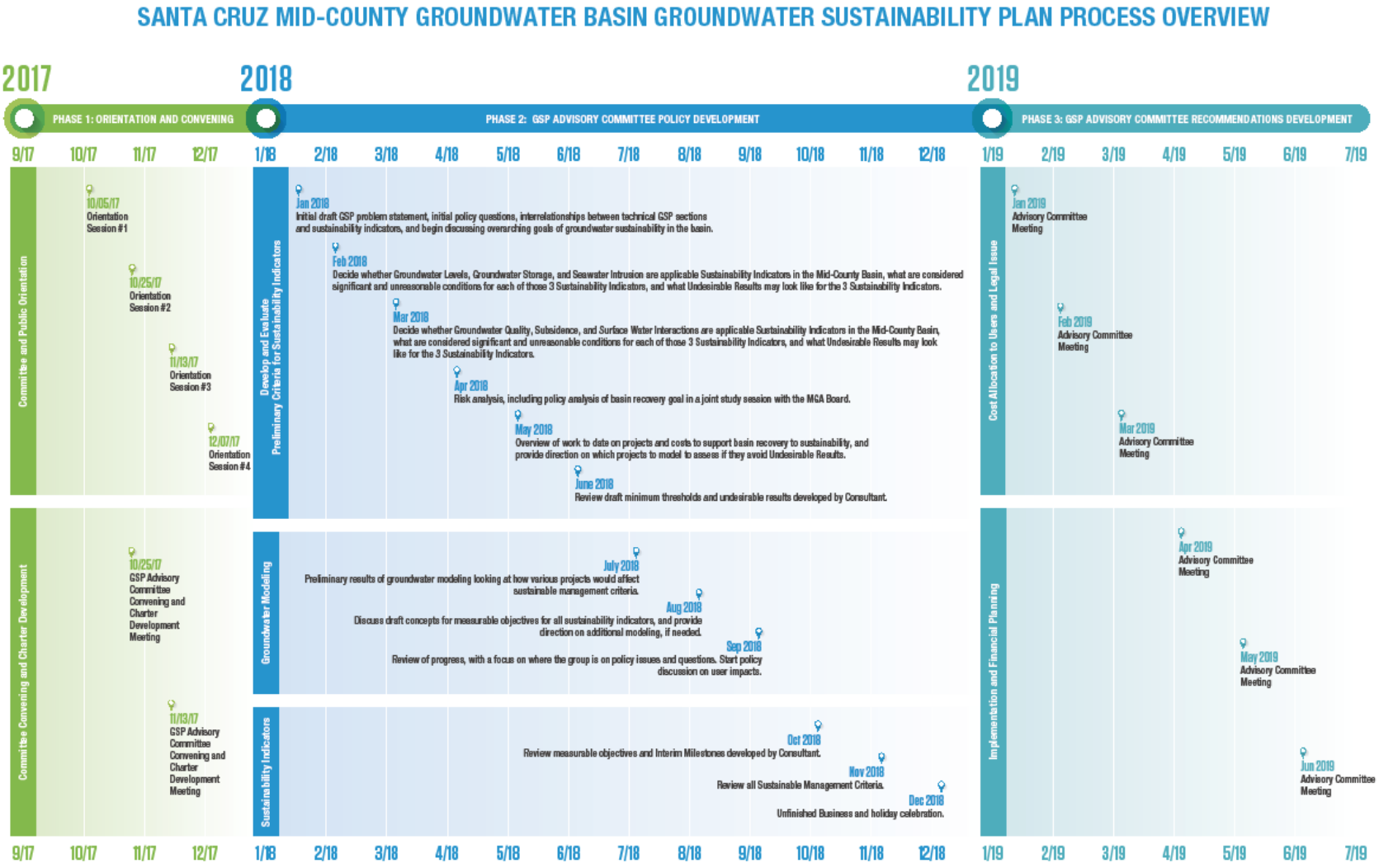
Discussion of Undesirable Results

- **How flexible are we with Minimum Thresholds being exceeded?**
  - Chronic lowering of groundwater levels
  - Reduced groundwater storage
  - Seawater Intrusion

Public Comment

Recap and Next Steps

GSP Process Timeline – Phase 2



Next Steps – Meeting 5

- Meetings 3-5 (January-March):
  - Conceptual discussion (not numeric yet)
  - Meeting 4-5: Discuss what is sustainable for the six sustainability indicators (where do we want to be in 20 years?)
- Meeting 5
  - Water Quality
  - Streamflow
  - Land Subsidence

THANK YOU!

FOR ANY QUESTIONS, PLEASE CONTACT:
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SANTA CRUZ MID-COUNTY
GROUNDWATER AGENCY

www.midcountygroundwater.org