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Agenda

Santa Cruz Mid-County Groundwater Sustainability Plan (GSP)

Advisory Committee Meeting #4

Wednesday, February 28, 2018, 5:30 – 9:00 p.m.

Santa Cruz County Sheriff's Office, Conference Room, 5200 Soquel Avenue, Santa Cruz

Meeting Objectives

1. Begin discussing three Sustainability Indicators: groundwater levels, groundwater storage, and seawater intrusion.
 - a. Decide whether these three are applicable Sustainability Indicators in the Mid-County Basin
 - b. Discuss what are considered significant and unreasonable conditions for each of those three Sustainability Indicators
 - c. Discuss what Undesirable Results may look like for the three Sustainability Indicators
2. Share additional background information with Advisory Committee members.

Agenda

| Time | Topic | Presenter & Materials |
|-----------|---|--|
| 5:15 p.m. | <i>Arrivals/Committee members collect food for dinner</i> | |
| 5:30 p.m. | Welcome, Introductions, Meeting Objectives, and Agenda Review <ul style="list-style-type: none"> • Review project timeline | <ul style="list-style-type: none"> • Ron Duncan, Soquel Creek Water District • Eric Poncelet, Facilitator <i>Materials:</i> <i>Item 1. Agenda</i> <i>Item 2. Meeting #4 Presentation Slides</i> <i>Item 3. GSP Process Timeline Phase 2 - Graphic</i> |
| 5:45 p.m. | Confirm January 24, 2018 Advisory Committee Meeting Summary | <ul style="list-style-type: none"> • All • Eric Poncelet, Facilitator <i>Materials:</i> <i>Item 4. Draft Meeting Summary from Jan. 24</i> |
| 5:50 p.m. | Brief Update on Informational Requests (note: for presentation only) <ul style="list-style-type: none"> • Information to support Advisory Committee discussions on GSP | <ul style="list-style-type: none"> • All <i>Materials:</i> <i>Item 5. Relationship of Plan Elements Graphic</i> <i>Item 6. Cross-walk between GSP and information to inform Advisory Committee discussions</i> |

| Time | Topic | Presenter & Materials |
|-----------|---|--|
| | | <i>Item 7. Annotated outline of GSP Section 2.0</i> |
| 6:00 p.m. | Receive orientation refresher on SGMA terminology and basin conditions for the three focal Sustainability Indicators: groundwater levels, groundwater storage, seawater intrusion <ul style="list-style-type: none"> • Review SGMA terminology • Review steps for defining sustainability • Review groundwater conditions in the Basin | <ul style="list-style-type: none"> • HydroMetrics <p><i>Materials:</i> <i>Item 8. Presentation: Sustainability Indicators: Groundwater Levels, Groundwater Storage, Seawater Intrusion</i> <i>Item 9. SGMA terminology document</i></p> |
| 6:20 p.m. | Discuss and decide on applicability of Sustainability Indicators <ul style="list-style-type: none"> • <i>Discussion question: Any objections to including all three Sustainability Indicators?</i> | <ul style="list-style-type: none"> • HydroMetrics • All <p><i>Materials:</i> <i>Refer to Item 8. Presentation Slides</i></p> |
| 6:30 p.m. | Discuss what would be considered <u>Significant and Unreasonable Conditions</u> for each of the three focal Sustainability Indicators; discuss indicator by indicator <ul style="list-style-type: none"> • <i>Discussion question: For each focal Sustainability Indicator, what would be significant and unreasonable impacts to the basin (i.e., what could we not live with?)?</i> | <ul style="list-style-type: none"> • HydroMetrics • All (Breakout Groups) <p><i>Materials:</i> <i>Refer to Item 8. Presentation Slides</i> <i>Item 10. Considerations in Identifying Significant and Unreasonable Conditions</i></p> |
| 7:30 p.m. | Break | |
| 7:45 p.m. | Discuss what <u>Undesirable Results</u> may look like for the three focal Sustainability Indicators <ul style="list-style-type: none"> • <i>Discussion question: For each focal Sustainability Indicator, how flexible are we with Minimum Thresholds being exceeded?</i> | <ul style="list-style-type: none"> • HydroMetrics • All (Breakout Groups) <p><i>Materials:</i> <i>Refer to Item 8. Presentation Slides</i></p> |
| 8:40 p.m. | Public Comment Focus on: Significant and Unreasonable Conditions, and Undesirable Results | <ul style="list-style-type: none"> • Eric Poncelet, Facilitator • Public |
| 8:50 p.m. | Recap and Next Steps | <ul style="list-style-type: none"> • Facilitator |
| 9:00 p.m. | Adjourn | |



SANTA CRUZ MID-COUNTY GROUNDWATER SUSTAINABILITY PLANNING

Advisory Committee Meeting #4

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.

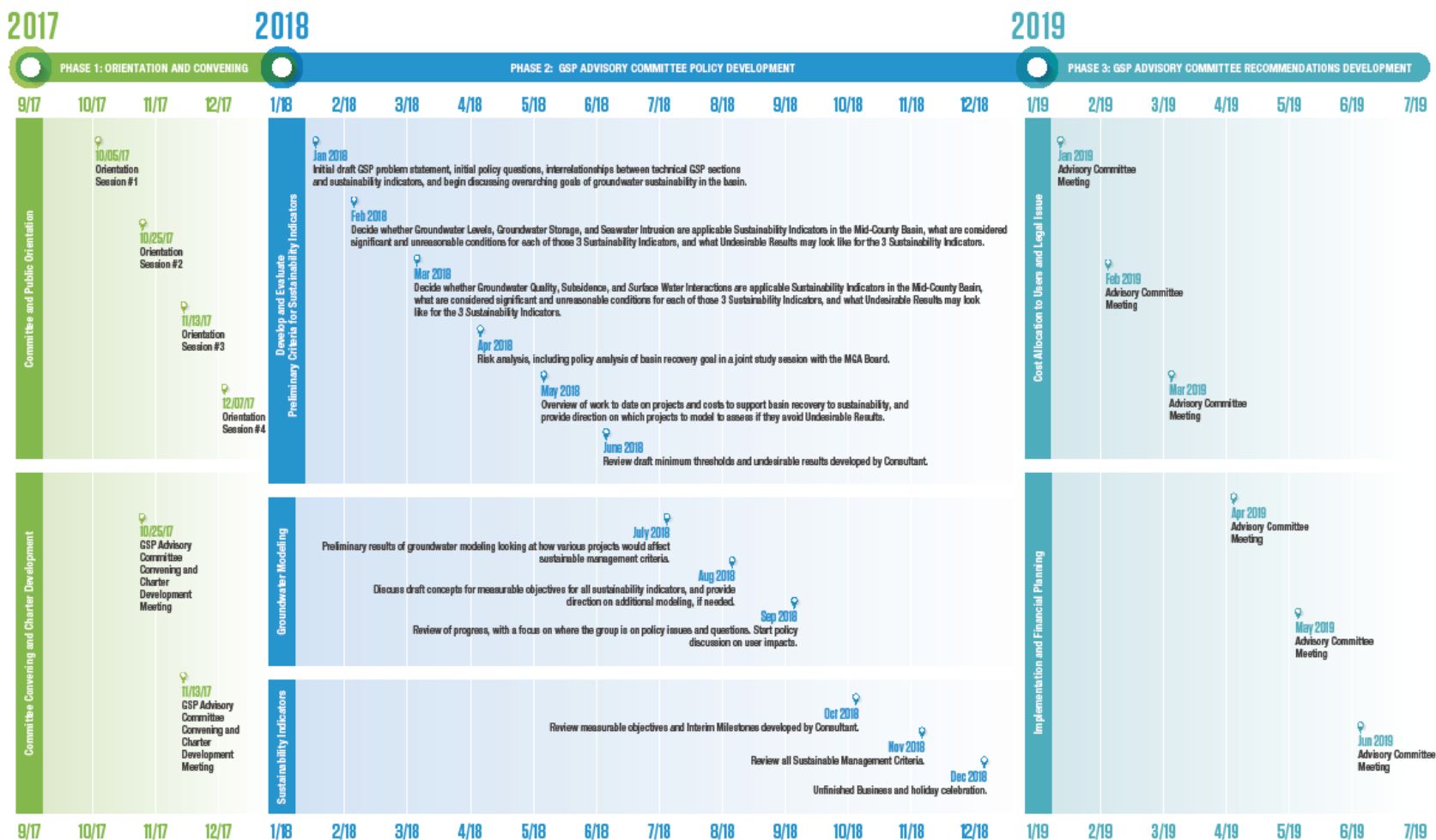
Agenda

- 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

SANTA CRUZ MID-COUNTY GROUNDWATER BASIN GROUNDWATER SUSTAINABILITY PLAN PROCESS OVERVIEW



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

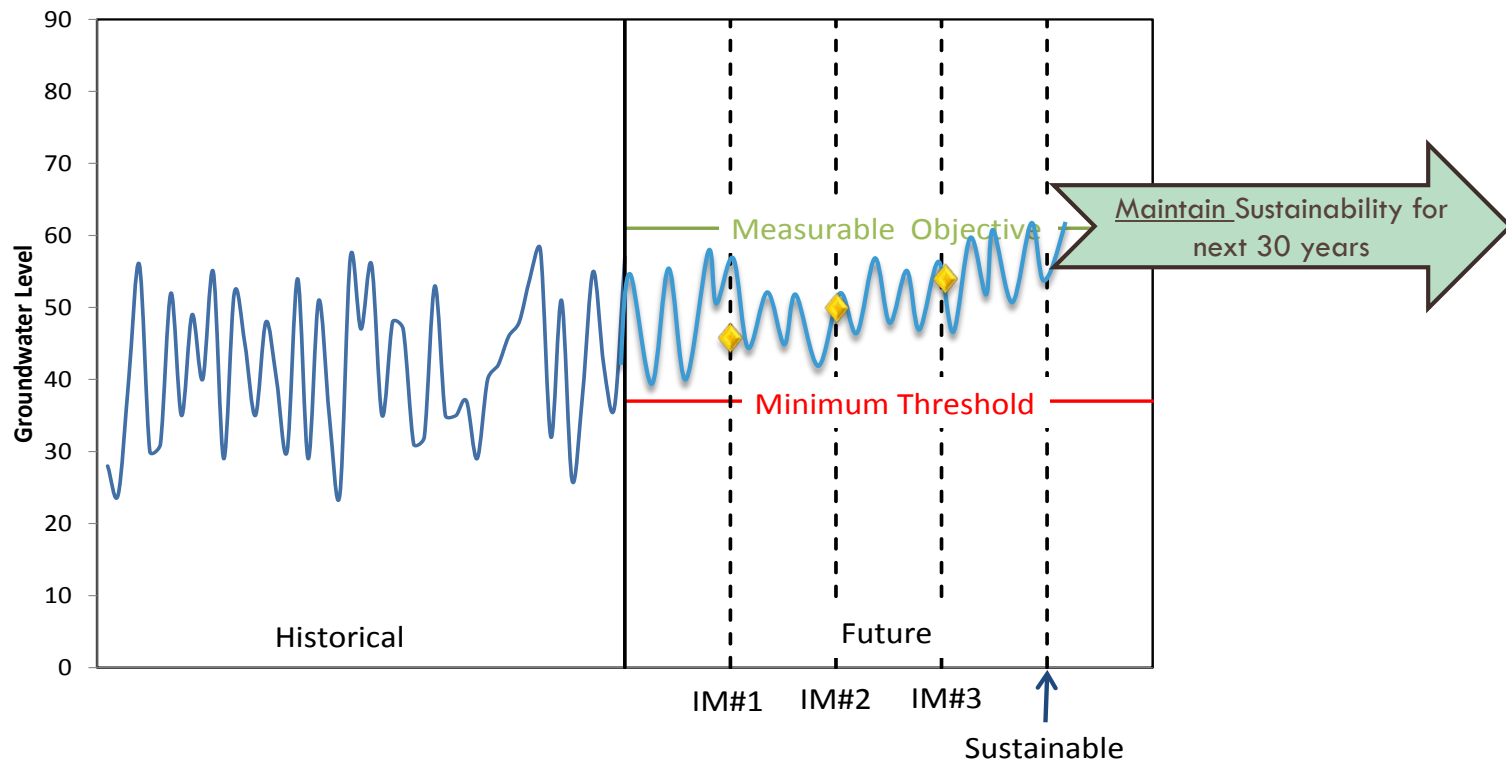
Presenters: Derrik Williams and Georgina King
HydroMetrics Water Resources Inc.

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

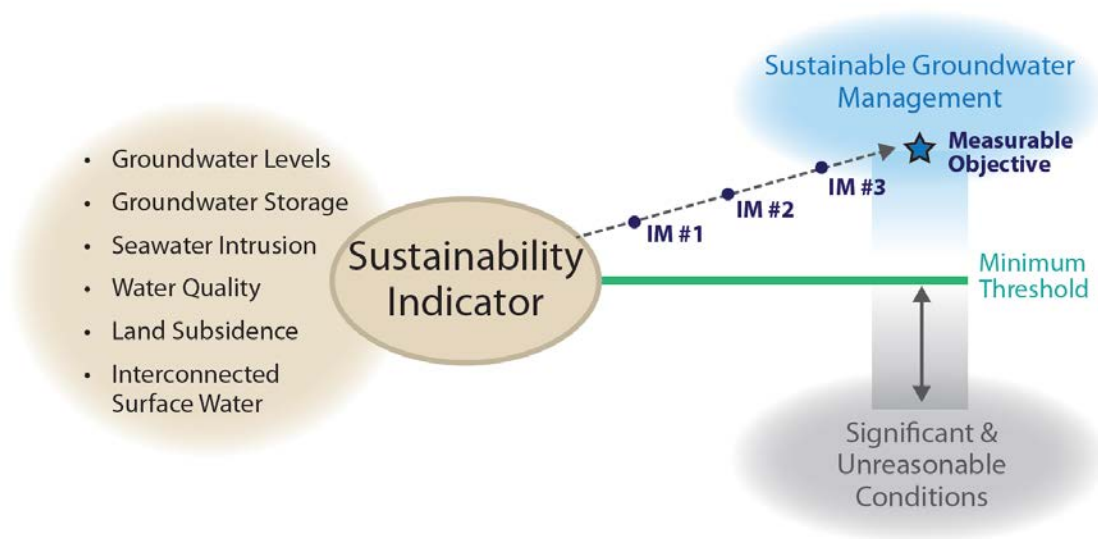
This might be an example definition of Undesirable Results for groundwater levels

How you define Undesirable Results is how you can accommodate flexibility

Steps for Defining Sustainability

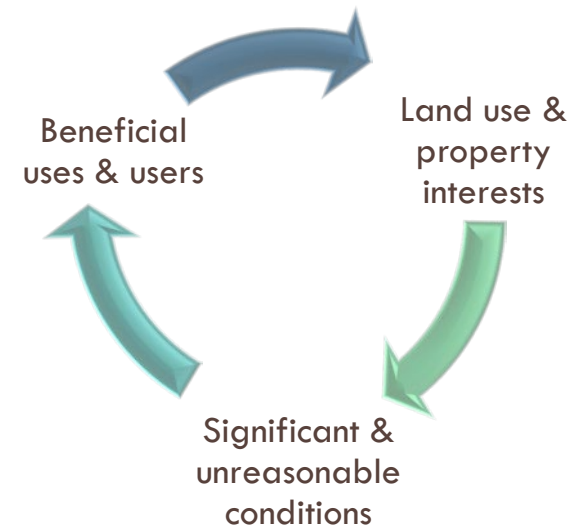
How are SMC Developed?

- **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



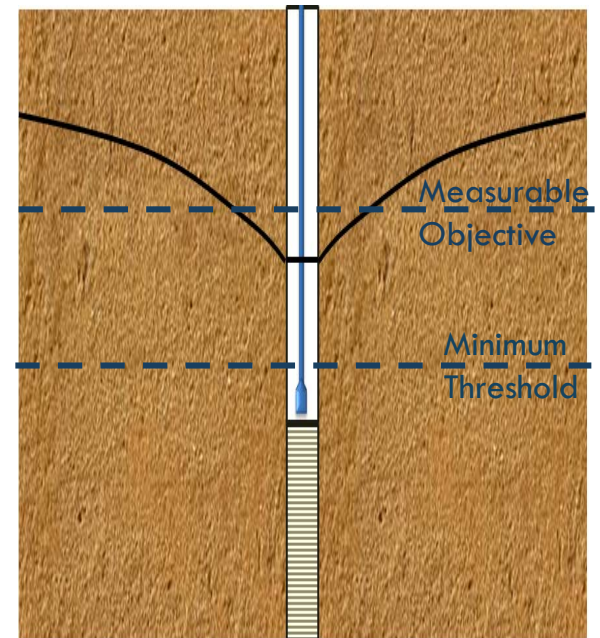
How are SMC Developed? cont.

- **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



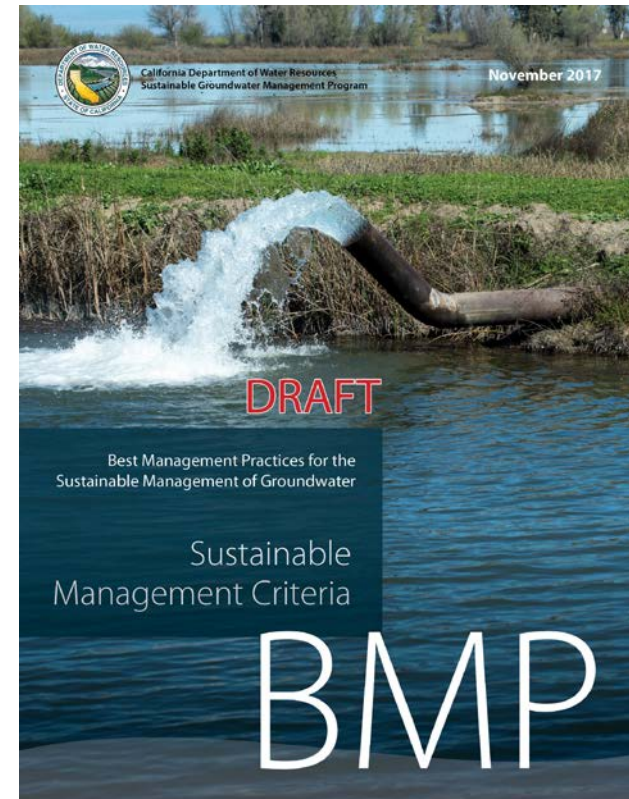
How are SMC Developed? cont.

- 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:

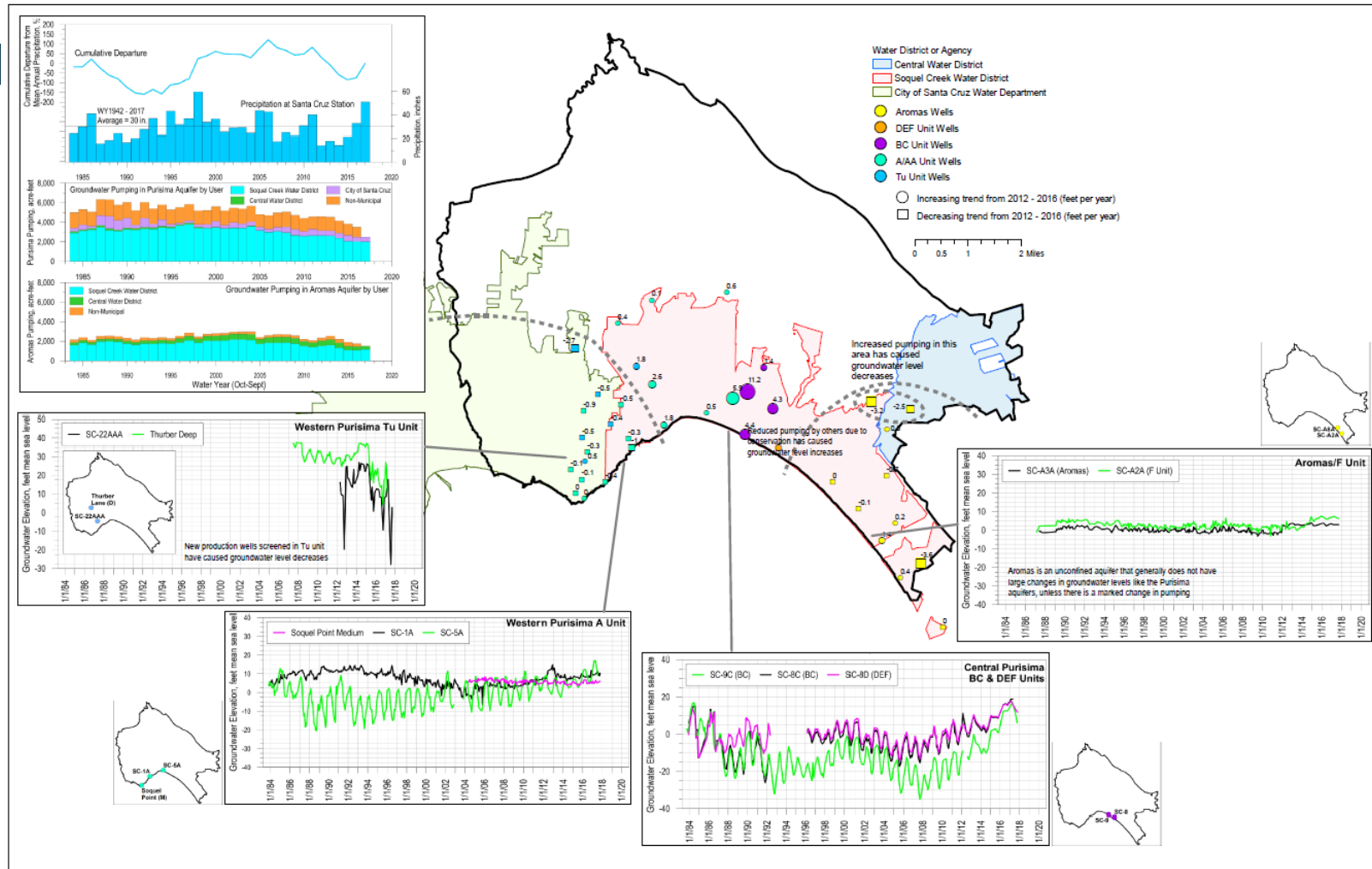
State of the Basin Public Orientation Session

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

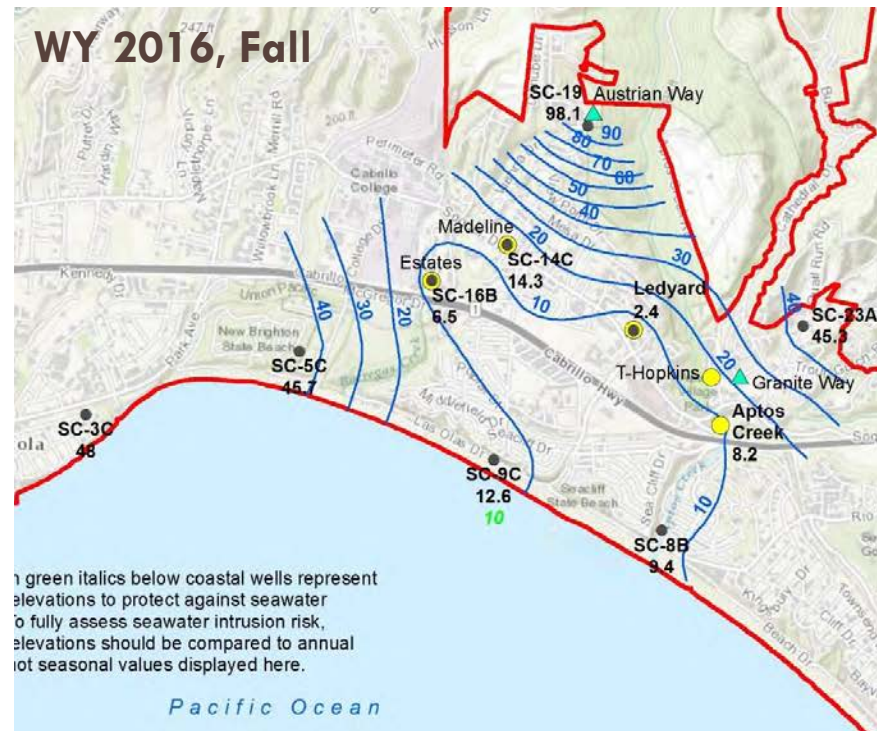
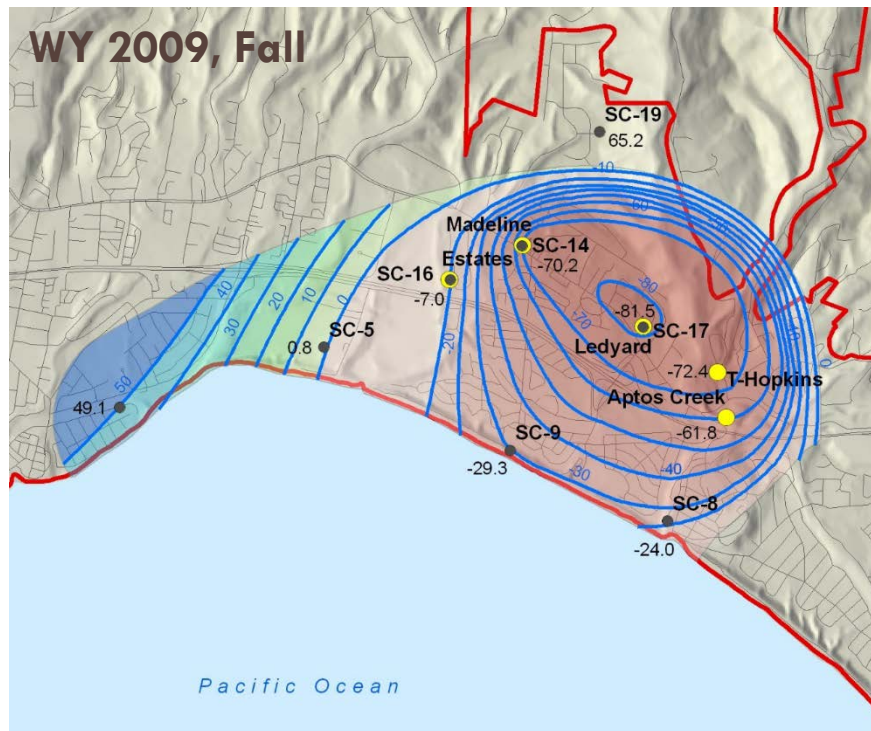
Monitoring and Annual Reports

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

Ground- water Levels

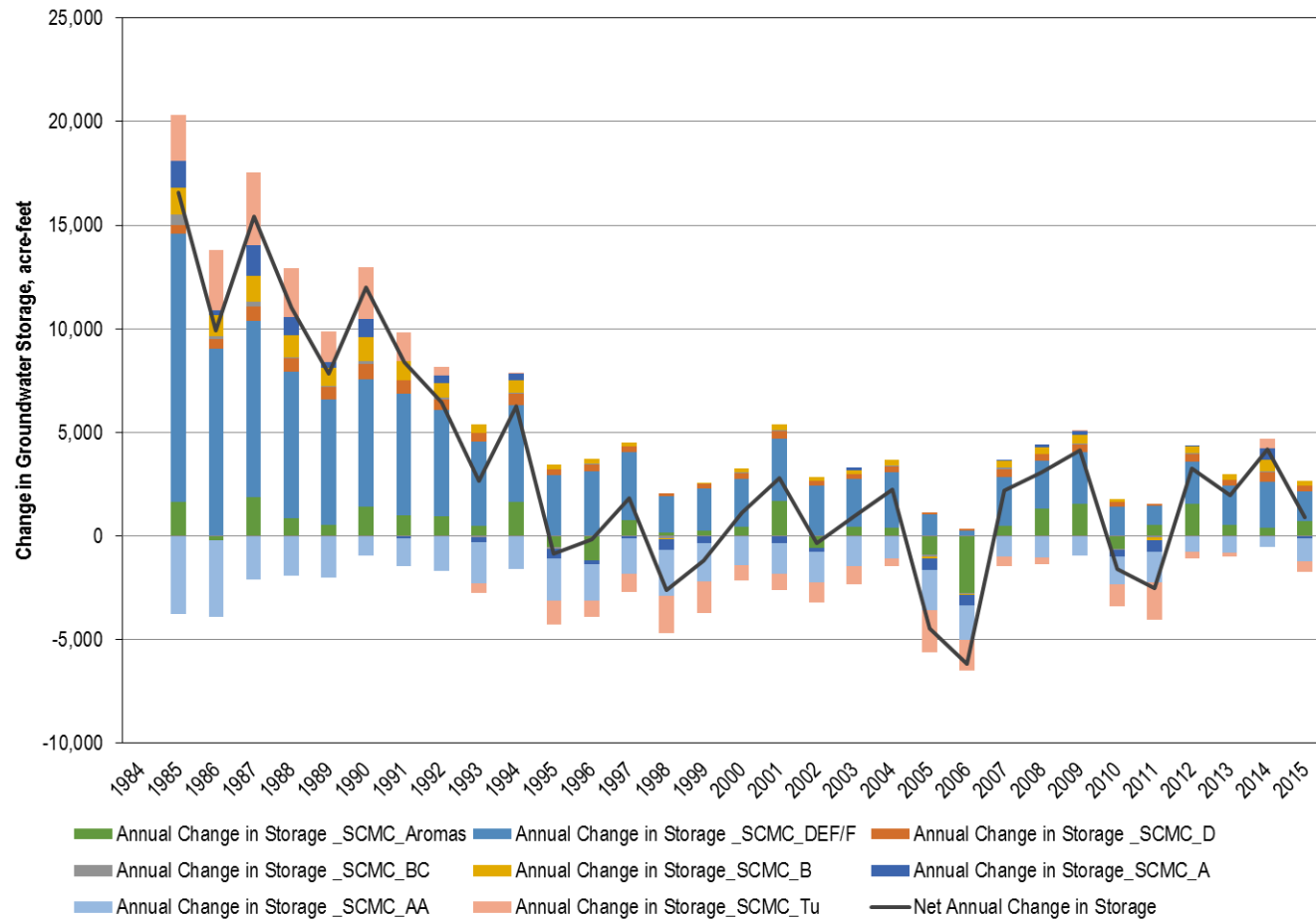


Groundwater Contours – BC-Unit



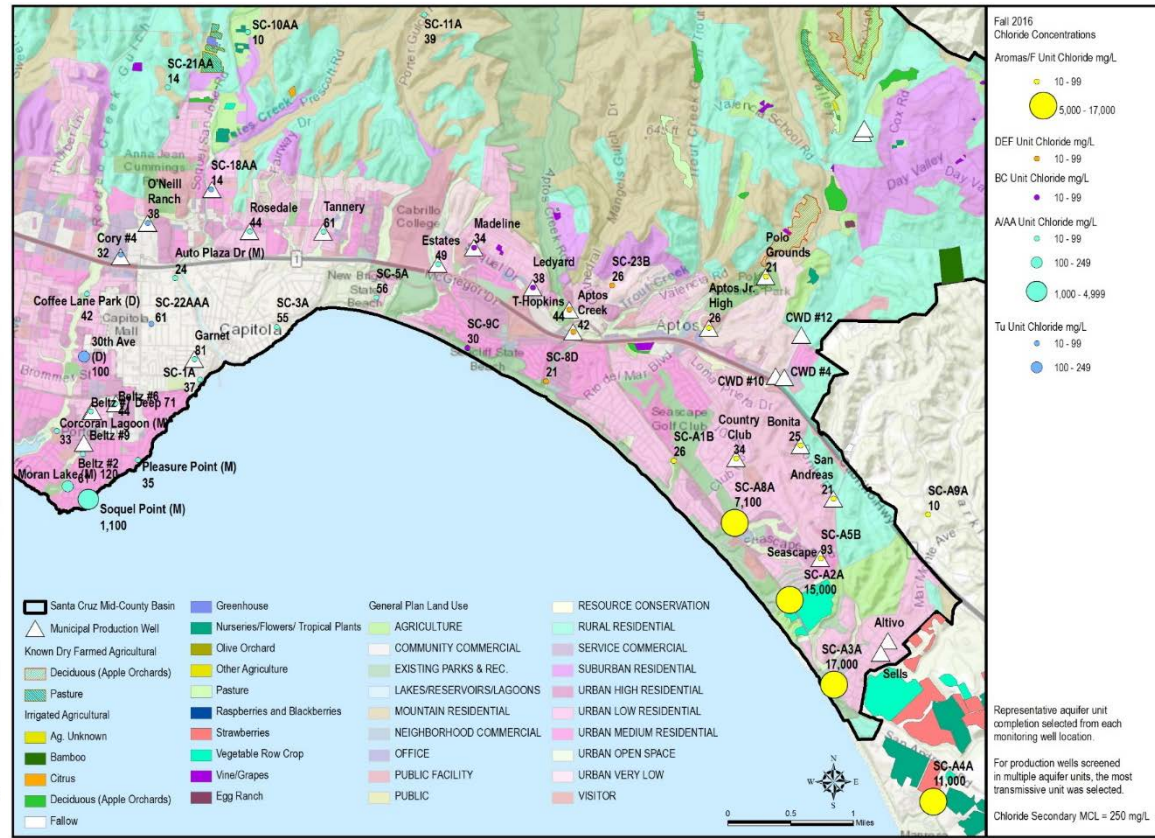
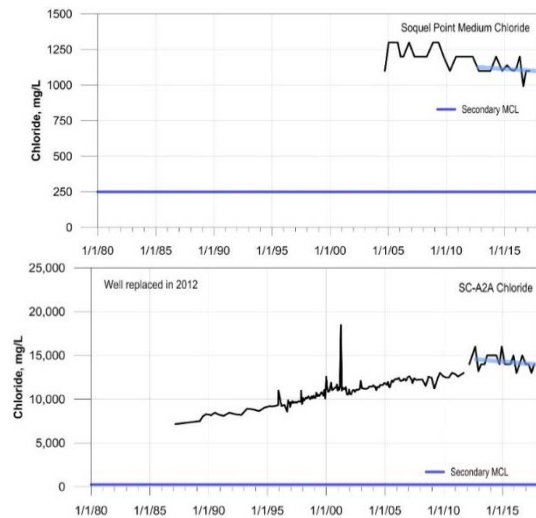
Groundwater Storage

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



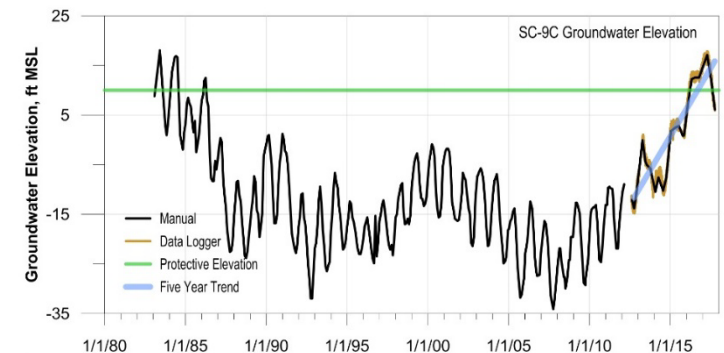
Seawater Intrusion

- 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

| Sustainability Indicators |  Lowering GW Levels |  Reduction of Storage |  Seawater Intrusion |  Degraded Quality |  Land Subsidence |  Surface Water Depletion |
|--------------------------------------|---|---|--|---|--|---|
| Metric(s) Defined in GSP Regulations | <ul style="list-style-type: none"> Groundwater Elevation <p>Measured levels</p> | <ul style="list-style-type: none"> Total Volume <p>Measured GWL/ Model output</p> | <ul style="list-style-type: none"> Chloride concentration isocontour <p>Required To have Isocontour</p> <p>Can also use Proxy</p> | <ul style="list-style-type: none"> Migration of Plumes Number of supply wells Volume Location of isocontour <p>Measured conc.</p> | <ul style="list-style-type: none"> Rate and Extent of Land Subsidence <p>Surveyed</p> | <ul style="list-style-type: none"> Volume or rate of surface water depletion <p>Model output</p> |

Significant and Unreasonable Conditions

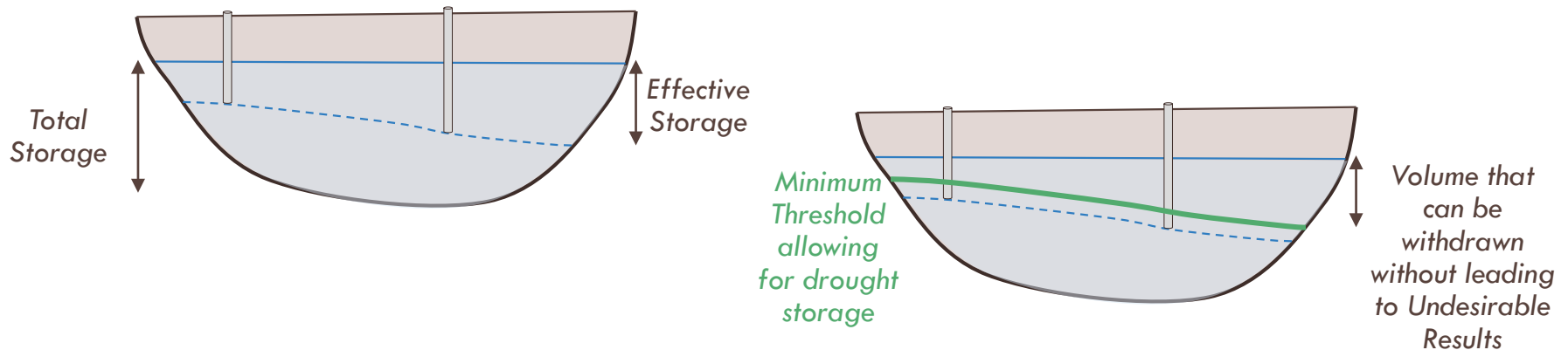
Groundwater Sustainability Agencies (GSAs) must consider and document the conditions at which each of the six sustainability indicators become significant and unreasonable in their basin, including the reasons for justifying each particular threshold selected

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 withdrawn 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

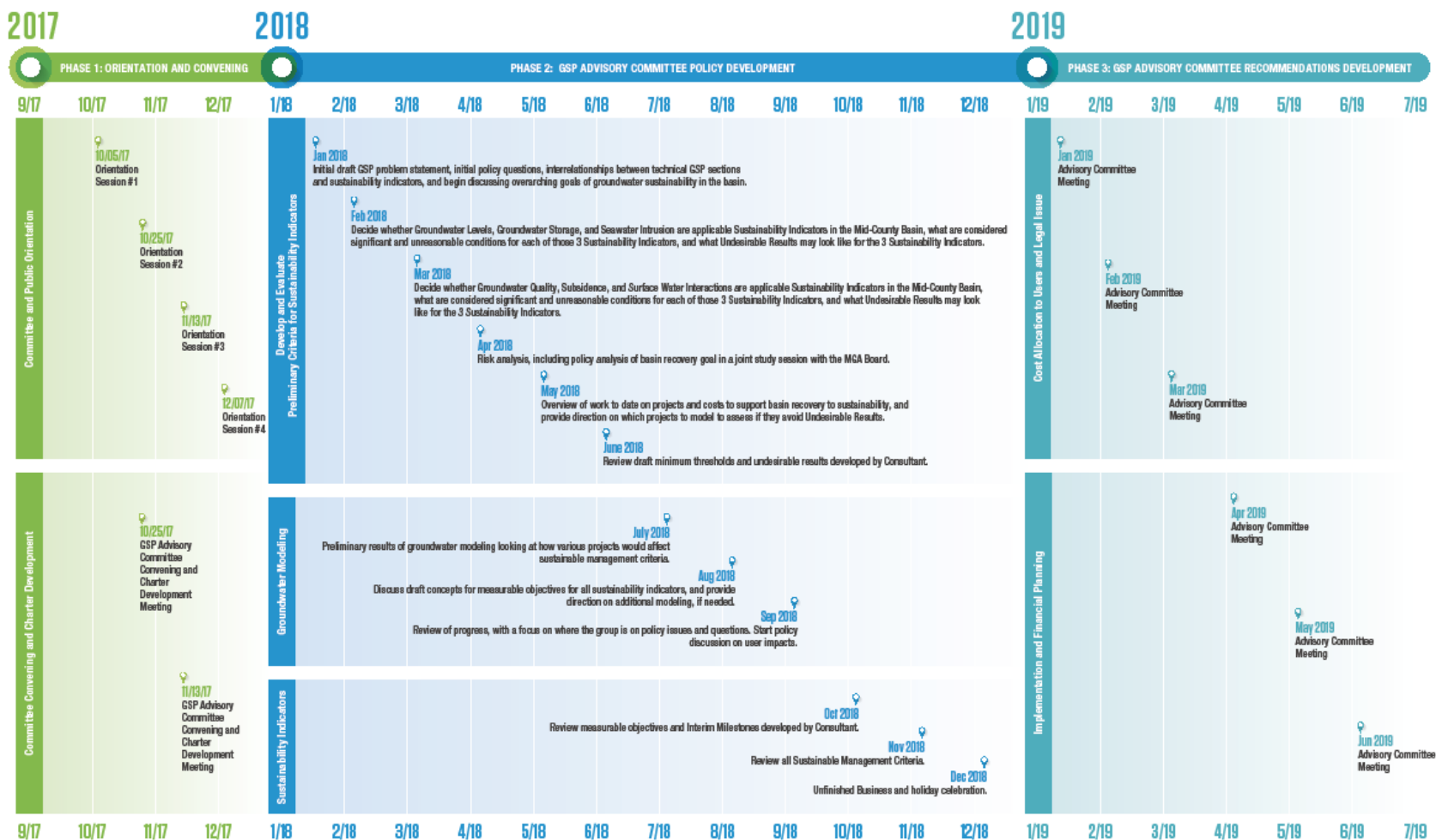
- **How flexible are we with Minimum Thresholds being exceeded?**
 - ▣ Chronic lowering of groundwater levels
 - ▣ Reduced groundwater storage
 - ▣ Seawater Intrusion

Public Comment

Recap and Next Steps

GSP Process Timeline – Phase 2

SANTA CRUZ MID-COUNTY GROUNDWATER BASIN GROUNDWATER SUSTAINABILITY PLAN PROCESS OVERVIEW



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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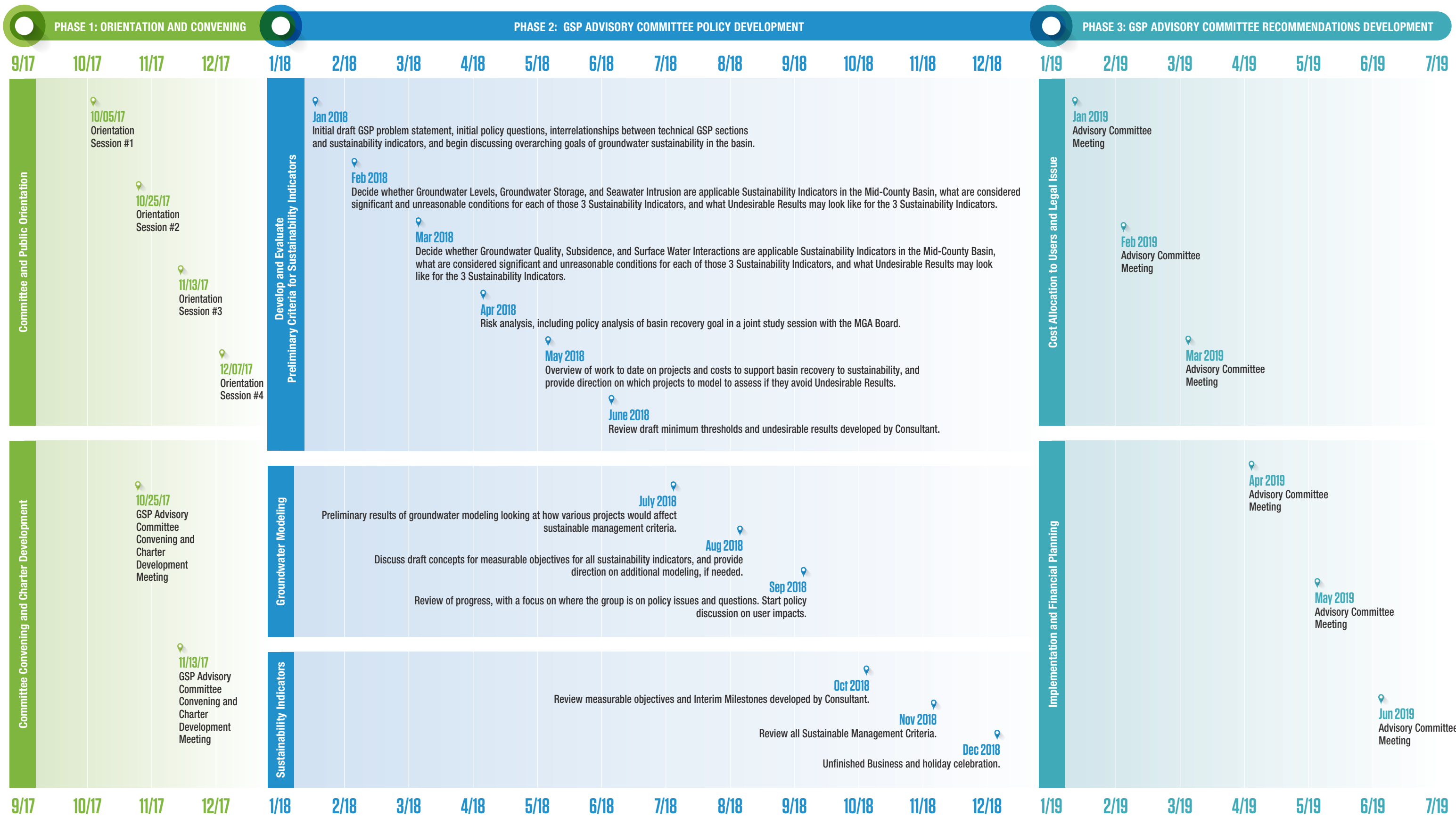
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SANTA CRUZ MID-COUNTY GROUNDWATER BASIN GROUNDWATER SUSTAINABILITY PLAN PROCESS OVERVIEW

2017

2018

2019





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Draft Meeting Summary

Santa Cruz Mid-County Groundwater Sustainability Planning (GSP) Advisory Committee Meeting #3 January 24, 2018, 6:00 – 9:00 pm

This meeting was the third convening of the Groundwater Sustainability Planning (GSP) Advisory Committee. It took place on January 24, 2018 from 6:00-9:00 p.m. at the Santa Cruz County Sheriff's Office. This document summarizes presentations to the Advisory Committee and discussion of several topics, including reflections on the orientation sessions, information needs, and goals of groundwater sustainability. It also captures clarifying questions from Advisory Committee members and Santa Cruz Mid-County Groundwater Agency (MGA) staff responses, as well as an overview of public comment. It is not intended to serve as a detailed transcript of the meeting.

Meeting Objectives

1. Begin discussing initial draft GSP problem statement.
2. Identify additional information needs.
3. Receive orientation to initial policy questions.
4. Understand the interrelationships between technical GSP sections and sustainability indicators.
5. Begin discussing overarching goals of groundwater sustainability in the basin.

Action Items

Committee members identified the following action items from the meeting discussions:

Near-term (prior to next Advisory Committee meeting)

1. Kearns & West to revise the October 25 meeting summary based on comments provided.
2. Executive Team to transmit both the October 25 and November 13 meeting summaries to the MGA Board for their information (per the Charter).
3. Advisory Committee members to review Staff Report on Policy Questions and transmit any additional comments, additions, revisions to Darcy by COB, Wednesday, Jan. 31
4. Staff to prepare a cross-walk between the GSP outline and the upcoming GSP meetings
5. Staff to prepare an annotated outline of the GSP that more clearly indicates where the content will come from and exactly what the Advisory Committee will be focusing on. Clearly indicate this focus for the Advisory Team for all meeting materials as appropriate.



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Staff to prepare a numerical example associated with our discussions of the Sustainability Indicators at the February meeting #4.

Longer term

6. Staff to set up drop-in sessions on key topics once these have been identified.
7. Agendize a discussion of the model of “baseline” conditions at a future Advisory Committee meeting, associated with discussions of the water budget.

Meeting attendance

Committee members in attendance included:

1. David Baskin, City of Santa Cruz
2. Bruce Jaffe, Soquel Creek Water District
3. Dana Katofsky McCarthy, Water Utility Rate Payer
4. Jon Kennedy, Private Well Representative
5. Jonathan Lear, At-Large Representative
6. Charlie Rous, At-Large Representative
7. Allyson Violante, County of Santa Cruz

Committee members who were absent included:

1. John Bargetto, Agricultural Representative
2. Rich Casale, Small water System Representative
3. Douglas P. Ley, Business Representative
4. Marco Romanini, Central Water District
5. Ned Spencer, At-Large Representative (has withdrawn as a member of the Advisory Committee)

Meeting - Key Outcomes (linked to agenda items)

1. Introduction

John Ricker, County of Santa Cruz, opened the meeting and welcomed participants. Mr. Ricker introduced members of the MGA Executive Team and staff, the MGA consultant support team, and he addressed members of the public in attendance. John announced that Ned Spencer, At-Large Representative, is moving out of the state and has withdrawn from the Committee.

Eric Poncelet, Facilitator, reviewed the agenda, meeting objectives, and the GSP process timeline.

2. Confirm October 25th and November 13th Advisory Committee Meeting Summaries

The Committee members provided feedback on and edits to the two summaries for the October 25 and November 13 Advisory Committee meetings and confirmed them for sharing with the MGA Board.



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3. Problem Statement

Darcy Pruitt, Regional Water Management Foundation introduced the MGA Board's problem statement to the Committee members and requested feedback on the public orientation sessions in order to inform staff on further **information needs. Staff reiterated that the Advisory Committee will be returning to and refining the problem** statement as needed as several intervals in the GSP process.

4. Orientation to GSP Policy Questions

Rosemary Menard, City of Santa Cruz, provided Committee members with an orientation to a draft set of GSP policy questions that will be a major focus of the Committees' work in the GSP process. Rosemary shared her working *Draft of Policy Question to be Addressed as Part of Developing the Mid-County Groundwater Sustainability Plan*. She also walked the Committee through the anticipated outline of the GSP, referring to the California Department of Water Resources' *Groundwater Sustainability Plan Annotated Outline*.¹

Committee members identified the following information needs related to these materials:

- A cross-walk between the GSP outline and the upcoming GSP meetings.
- An annotated outline of the GSP that more clearly indicates where the content will come from and exactly what the Advisory Committee will be contributing to. Clearly indicate this focus for the Advisory Team for all meeting materials as appropriate.
- A numerical example associated with Committee discussions of the Sustainability Indicators at the February meeting #4.

5. Orientation to the Interrelationships Between Technical GSP Sections and Sustainability Indicators

Georgina King, HydroMetrics presented the Committee members with an orientation to the interrelationships between technical GSP sections and sustainability indicators.

Key discussions points on this topic included:

- The GSP model can calculate data historically and will be able to make projections up to and beyond the year 2020.
- Long term conservation (not emergency conservation) is inherent within the model analysis.
- In discussing projected water budgets, it will be important to use the model to first examine "baseline" conditions before exploring the potential impacts of proposed projects or management measures.

¹ Link to GSP Annotated Outline: http://water.ca.gov/groundwater/sgm/pdfs/GD_GSP_Outline_Final_2016-12-23.pdf



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6. Overarching Goals of Groundwater Sustainability

Each Committee member present shared his or her overarching goals of groundwater sustainability, considering the following questions as guidelines:

- 1) What should the basin be in 20 years?
- 2) What would be undesirable results?

Some common themes emerged from the Committee members' reflections on what a sustainable groundwater basin should be like in 20 years. These included:

- Groundwater would be available to a diverse population of users of all socioeconomic status;
- Sufficient and affordable water supply would exist in streams to support thriving communities;
- Groundwater overdraft problems are overcome;
- Biodiversity is maintained, and the basin supports diverse and healthy fish habitat; and
- Public health and happiness is supported.

Committee members also expressed common themes in terms of what they considered to be undesirable results. Commonly expressed undesirable results included:

- Groundwater is still in overdraft and insufficient water supply exists;
- There is significant seawater intrusion and a lack of stream flow;
- There is a lack of diversity in fish habitat;
- There is a loss of groundwater storage; and
- Poor public health.

7. Public Comment

Members of the public who attended the Advisory Committee meeting provided comments (C) and questions (Q) on the following topics related to sustainability and in general:

- C: I would encourage the Advisory Committee to work on controlling growth in the Mid-County Basin and developing a GSP that can provide answers to this and other issues.
- C/Q: I grew up here and would like to preserve the beauty of this area as I knew it. Soquel is not incorporated, we need to organize this town. What is the Advisory Committee going to do to about helping this town, and when will you act?



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- C: My definition of sustainability is personal accountability. If I'm doing it and everyone is doing it, would it work? If not, then it is not sustainable. The damage to the basin has been done. It is time to move forward, to be accountable for our actions; everything is interconnected.
- C: Our government needs to be transparent, honest and competent. We are withdrawing too much water from our Basin; we are depleting our resources to benefit developers. Desalination is not the solution. We should not allow any new hook ups.
- Q: How can stakeholder groups effectively interact with their respective representative on the Advisory Committee and how can public comments be incorporated into the GSP process?

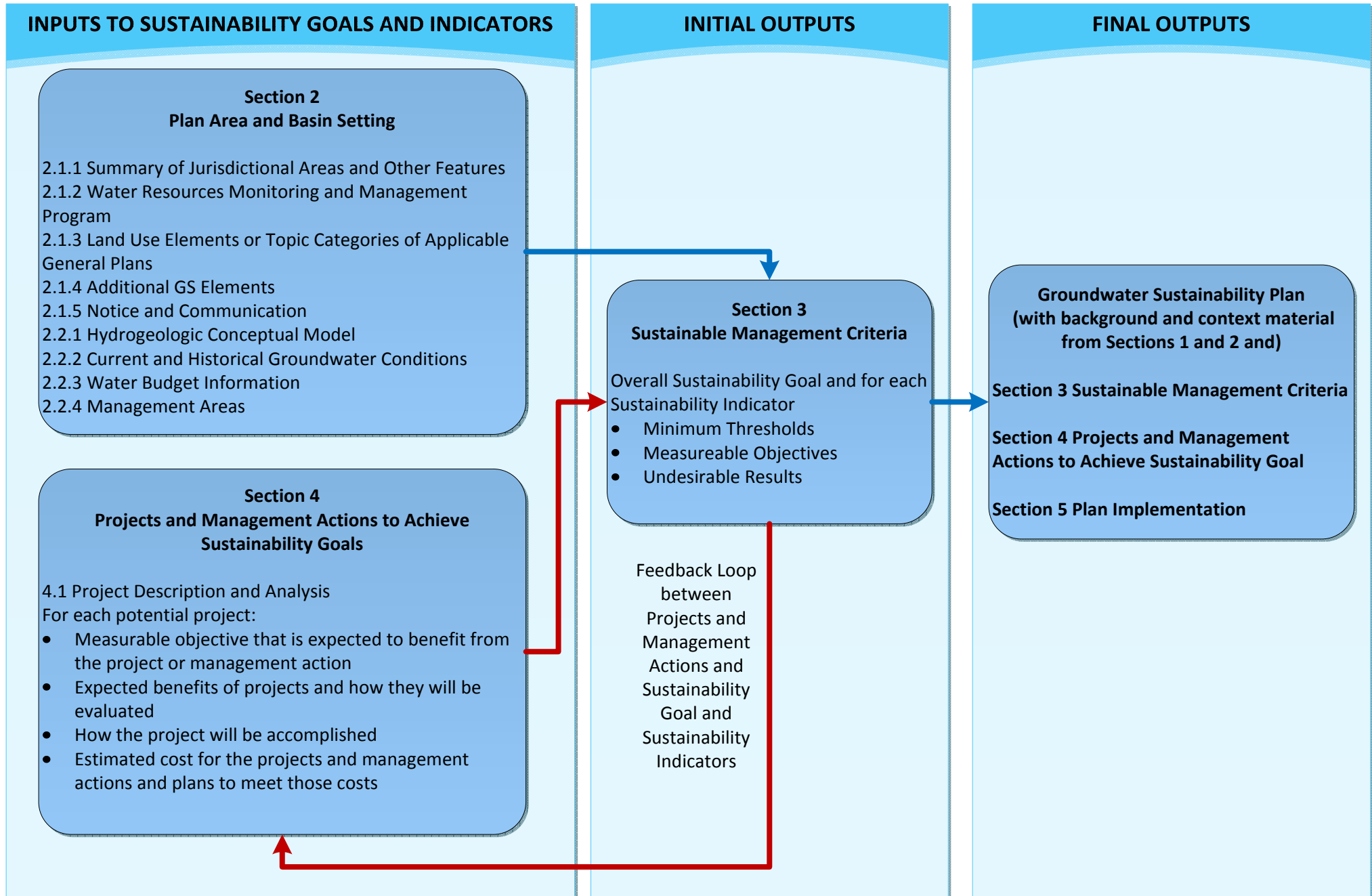
8. Introduction to MGA Website

Sierra Ryan, County of Santa Cruz and Darcy Pruitt, RWMF, provided the Committee members with a live orientation to the MGA website. Sierra and Darcy encouraged Committee members to use the website and offered additional assistance to Committee members as needed.

9. Next Steps

In closing, Mr. Poncelet reviewed the anticipated meeting objectives for the February and March Advisory Committee meetings as well as action items from this meeting. Mr. Ricker closed the meeting by thanking the attendees for their participation.

RELATIONSHIPS OF GROUNDWATER SUSTAINABILITY PLAN ELEMENTS



CROSS WALK BETWEEN GSP PLAN SECTIONS THAT ARE INPUTS TO THE SUSTAINABILITY GOAL AND SUSTAINABILITY INDICATORS

| Plan Section | Sustainability Goal and Sustainability Indicators | | | | | | |
|--|---|--------------------|---------------------|---------------------|---------------|------------|-----------------|
| | Sustainability Goal | Groundwater Levels | Groundwater Storage | Sea-Water Intrusion | Water Quality | Streamflow | Land Subsidence |
| 2.1 Description of Plan Area | | | | | | | |
| 2.1.1 Summary of Jurisdictional Areas and Other Features (esp. Existing land use designations, and Density of wells per square mile) | | | | | | | |
| 2.1.2 Water Resources Monitoring and Management (esp. Description of how existing water resources monitoring and management programs may limit operational flexibility in the basin, and Description of conjunctive use programs). | | | | | | | |
| 2.1.3 Land Use Elements or Topic Categories of Applicable General Plans | | | | | | | |
| 2.1.4 Additional GSP Elements (esp. Replenishment of groundwater extractions, Conjunctive use of underground storage, Efficient water management practices, Land use plans and efforts to coordinate with land use planning agencies, and Impacts on groundwater dependent ecosystems) | | | | | | | |
| 2.2 Basin Setting | | | | | | | |
| 2.2.1 Hydro-geologic Conceptual Model (esp. Delineation of existing recharge areas that substantially contribute to replenishment of the basin) | | | | | | | |
| 2.2.2 Current and Historical Groundwater Conditions | | | | | | | |
| 2.2.3 Water Budget Information | | | | | | | |
| 4.0 Projects and Management Actions to Achieve Sustainability Goal | | | | | | | |
| 4.1 Project Description (multiple) | | | | | | | |

As illustrated in the graphic “Relationship of Plan Elements,” the content that is required to be included in Plan Sections 2 and 4 will provide much of the baseline information that the Committee will use to inform their discussion and support their development of recommendations about the Sustainability Goal and Sustainability Indicators.

At its January 24th meeting Advisory Committee members asked for a “crosswalk” between the content that will be developed in Section 2 and 4 and the Sustainability Goal and Sustainability Indicators. In the table above, a yellow highlighted block is an indication that content from that plan element will contribute to the collection of facts that the Committee will use to inform their discussions about that Goal or Indicator. The planned iterative process for developing the Sustainability Goal and the required elements for each Sustainability Indicator will include increasing levels of detail available for each iteration, which will allow Committee members to develop their understanding of the way the information fits together over time.

February 22, 2018

**MEMO TO THE SANTA CRUZ MID-COUNTY GROUNDWATER
SUSTAINABILITY PLAN ADVISORY COMMITTEE**

Title: Provisional response to Groundwater Sustainability Plan (GSP)
Advisory Committee request for an MGA Annotated Outline based
on DWR's GSP Annotated Outline.

Attachment:

- A. Draft MGA GSP Annotated Outline–Section 2.0 (MGA Section 2.0)

BACKGROUND: At its January 24th meeting, the Groundwater Sustainability Plan (GSP) Advisory Committee membership requested MGA specific information to understand its resources available to fulfill DWR's GSP planning requirements. This request was the result of the advisory committee's review of California Department of Water Resources (DWR)'s GSP annotated outline guidance. The committee felt DWR's outline could be expanded as a tool for greater understanding of the policy challenges before them. A link to DWR's GSP Annotated Outline is found here:

https://www.water.ca.gov/LegacyFiles/groundwater/sgm/pdfs/GD_GSP_Outline_Final_2016-12-23.pdf

DISCUSSION: In response to the advisory committee's request for information, MGA staff has prepared a Draft MGA GSP Annotated Outline-Section 2.0 (MGA Section 2.0). Draft MGA Section 2.0 is intended to start a conversation about the available information responsive to DWR's stated GSP content requirements. The draft outline is a work in progress that will be developed through the planning process.

Section 2.0 was selected as a starting point because it includes much of the available information necessary to provide a framework for understanding basin management to date. MGA Section 2.0 includes: (1) DWR's outline structure. (2) Specific MGA references responsive to each DWR outline sub-section (where available), (3) Key summary information provided in text boxes, and (4) Provisional information where formal references are not currently available.

Attachment A

Santa Cruz Mid-County Groundwater Agency (MGA)

Groundwater Sustainability Plan (GSP) Annotated Outline

Section 2.0

2.0 Plan Area and Basin Setting

DWR Guidance on Basin Setting – description of groundwater conditions requires hydrologic conceptual model with qualitative and quantitative understanding of basin physical and aquifer and surface water interaction over time (GSP Emergency Regulations Guide p. 13).

http://www.water.ca.gov/groundwater/sgm/pdfs/GSP_Final_Regs_Guidebook.pdf

2014 IRWM Plan sections 3.1-3.2 – Introduction, description of geology and regional setting.

https://drive.google.com/file/d/0B6HSltdu_eBkV2dYWDIJWGtaYkE/view

2007 Soquel-Aptos Area Groundwater Management Plan (GMP) (and updates through 2015-2016 Biennial Review and Report (BRR)) provides detailed physical and geologic setting information for the basin (see section 3).

<http://www.midcountygroundwater.org/sites/default/files/uploads/Groundwater%20Management%20Plan%202007%20Final%20Complete%20with%20Figures.pdf>

Hydrometrics Basin Groundwater Model and Model Report will include additional quantitative information required for the GSP

Draft Model Report due to staff June 2018

2.1 Description of the Plan Area [Reg.354.8]

MGA Basin Boundary Modification Process outlines basin boundary and describes the geologic and jurisdictional elements that make up the basin boundary. Also includes information on affected water agencies and systems.

<http://www.midcountygroundwater.org/soquel-aptos-basin-area/basin-boundary-modification-process>

http://www.midcountygroundwater.org/sites/default/files/uploads/FINAL_boundarymodification.pdf

2.1.1 Summary of Jurisdictional Area and Other Features [Reg.354.8 b]

2.1.1.1 Maps [Reg.354.8 a]

- *Area covered by GSP*

Basin Boundary Modification provides MGA basin map

http://www.midcountygroundwater.org/sites/default/files/uploads/FINAL_boundarymodification.pdf

- *Adjudicated areas, other Agencies within the basin, and areas covered by an Alternative*

Within the basin, surface water rights on Soquel Creek are adjudicated. Information on the adopted order is found here:

https://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/judgments/docs/soquelcreek_id.pdf

There are no adjudicated groundwater areas within the Mid-County GW Basin.

The neighboring jurisdiction (PV Water) has submitted an alternative plan, but it is not yet clear if that alternative will be accepted by DWR.

A jurisdictional map has been prepared for the MGA with information available as GIS layers from County database. (see MGA Jurisdictional Boundary Map (with cities)).

<http://www.midcountygroundwater.org/groundwater-plan/soquel-aptos-basin-area/maps>

- *Jurisdictional boundaries of federal and State land*

A map showing federal and State land has been prepared for the MGA basin that includes wildlands and water body information available as GIS layers from the County GIS database.

[Map in preparation]

- *Existing land use designations*

Land use information is available from cities within the basin and county in the unincorporated areas. Land use is not standardized across agencies to reflect water consumption or land use density.

(See section 2.1.3 below for supporting data references)

GSP Planning Standardization could be developed in collaboration between land use authorities, water agencies, and technical experts to correlate land use with water use groundwater model assumptions.

- *Density of wells per square mile*

A map showing density of wells has been prepared for the MGA basin with information available from the County GIS database. The current map needs to incorporate revisions to the private well database that County Environmental Health is currently updating. (see Stakeholder Map).

<http://www.midcountygroundwater.org/groundwater-plan/soquel-aptos-basin-area/maps>

2.1.2 Water Resources Monitoring and Management Programs

2.1.2.1 Description of Water Resources Monitoring and Management Programs

2007 Soquel-Aptos Area GMP outlines historic and ongoing basin management objectives, including discussion of the monitoring network (section 3.8)

The Groundwater Basin has been managed for 50 years, beginning with the initial USGS investigation (Hickey, 1968). Management includes regular groundwater level and quality monitoring, water conservation, pumping management and redistribution, groundwater management plans, and conjunctive use plans by SqCWD, CWD, and the City of Santa Cruz. More detailed descriptions of these activities are included in Section 5 of the 2007 Soquel-Aptos Area Groundwater Management Plan.

<http://www.midcountygroundwater.org/sites/default/files/uploads/Groundwater%20Management%20Plan%202007%20Final%20Complete%20with%20Figures.pdf>

2015-16 BRR provides most current Basin Management Objectives and MGA basin management status update, including discussion of monitoring program updates (section 6).

<http://www.midcountygroundwater.org/sites/default/files/uploads/Water%20Year%202015-2016.pdf>

Basin Management Objectives and MGA basin management progress over time is also found in GMP 2009-2014 Annual Review and Report (ARR) documents collected here:

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

2.1.2.2 Description of how monitoring networks of those programs will be incorporated into the GSP

2015-16 Basin Review and Report (BRR) includes discussion of how the Groundwater Management Plan will be incorporated into and implemented through SGMA (section 6).

<http://www.midcountygroundwater.org/sites/default/files/uploads/Water%20Year%202015-2016.pdf>

2.1.2.3 Description of how those programs may limit operational flexibility in the basin

[Information not developed yet]

2.1.2.4 Description of conjunctive use programs

Summarized in 2015-16 BRR at section 6.4 (see BMO 1-2 on page 6-4)

<http://www.midcountygroundwater.org/sites/default/files/uploads/Water%20Year%202015-2016.pdf>

2.1.3 Land Use Elements or Topic Categories of Applicable General Plans

Santa Cruz IRWM Section 3.6 – General introduction with description of predominant land uses in the county. Must be edited to reflect MGA basin boundary.

https://drive.google.com/file/d/0B6HSltdu_eBkV2dYWDIJWGtaYkE/view

Hydrometrics Draft Model Report (due June 2018) for model assumptions on various land use types.

The Conservation and Open Space Chapter of Santa Cruz County General Plan (1994) includes a Water Resources Section with policies and programs for Watershed Protection (5.5), Maintaining Adequate Streamflows (5.6), Maintaining Surface Water Quality (5.6), and Groundwater Protection (5.8).

<http://www.sccoplanning.com/Portals/2/County/userfiles/106/GP%20Chapter%205.pdf>

Identification of land uses and their corresponding definitions for Capitola, City of Santa Cruz and Santa Cruz County.

Capitola Zoning/Land Use Maps/ and related municipal code sections

http://www.cityofcapitola.org/sites/default/files/fileattachments/community_development/page/1460/zoning24x18.pdf (zoning map)

http://www.cityofcapitola.org/sites/default/files/fileattachments/community_development/page/1464/general_plan_land_use_map.pdf (land use map)

<http://www.codepublishing.com/CA/Capitola/> (see title 17 - zoning)

City of Santa Cruz Zoning/Land Use Maps/ and related general plan/municipal code sections

<http://www.cityofsantacruz.com/home/showdocument?id=34412> (land use map)

<http://www.cityofsantacruz.com/home/showdocument?id=33418> (see Ch 4 – land use element)

<http://www.cityofsantacruz.com/home/showdocument?id=26460> (zoning map)

<http://www.codepublishing.com/CA/SantaCruz/> (see title 24 – zoning)

County of Santa Cruz Zoning/Land Use Maps and related Municipal code sections

<http://www.sccoplanning.com/PlanningHome/ZoningDevelopment/What%E2%80%99sMyZoning.aspx> (zoning GIS how to tool)

<https://www.codepublishing.com/CA/SantaCruzCounty/#!/SantaCruzCounty13/SantaCruzCounty13.html> (see title 13 - planning and zoning)

2.1.3.1 Summary of General Plans and Other Land Use Plans

California state law requires municipal jurisdictions (counties and cities) to prepare a general plan that includes mandatory land use and housing elements (Gov. Code § 65302 and Gov. § Code 65580). Land use elements must reflect the content of the other general plan elements and must account for “rivers, creeks, streams, flood corridors, riparian habitats, and land that may accommodate floodwater for purposes of groundwater recharge and stormwater management...” as identified in the conservation element (Gov. Code § 65302(d)(3))¹. The housing elements must be updated on a five

¹ General Plan Guidelines, Chapter 4 – Required Elements p.46 http://opr.ca.gov/docs/OPR_C4_final.pdf

year cycle to correspond with state regional housing needs allocations (Gov. Code § 65584 (b)).

The Mid-County Groundwater Basin includes areas covered by general plans of three municipal jurisdictions: the City of Santa Cruz, the County of Santa Cruz and the City of Capitola. The land use designations of the three municipal entities are different and will need to be described and mapped consistently in the GSP (see section 2.1.3 above for planning references).

2.1.3.2 Description of how implementation of the GSP may change water demands or affect achievement of sustainability and how the GSP addresses those effects

[Information not developed yet]

2.1.3.3 Description of how implementation of the GSP may affect the water supply assumptions of relevant land use plans

[Information not developed yet]

2.1.3.4 Summary of the process for permitting new or replacement wells in the Basin

Well permits inside the Mid-County Groundwater Basin are issued by the cities and county within their respective municipal boundaries. These agencies include the cities of Santa Cruz and Capitola and the County of Santa Cruz in the unincorporated area of the county. Each agency relies on water well standards developed and updated by the California Department of Water Resources. Each agency then specifies any additional requirements in its municipal code that apply to well installation and destruction within its municipal boundaries.

The Water Director is responsible for issuing water well permits within the City of Santa Cruz boundaries. Santa Cruz City water well permit requirements are outlined in the city's municipal code section 16.06 found here:

<http://www.codepublishing.com/CA/SantaCruz/>

The County Health Officer (Environmental Health Division) is responsible for issuing water well permits within Capitola city boundaries. City of Capitola water well permit requirements are outlined in the city's municipal code section 8.24 found here:

<http://www.codepublishing.com/CA/Capitola/?Capitola01/Capitola0101.html&?f>

The County Health Officer (Environmental Health Division) is responsible for issuing water well permits within the unincorporated areas of Santa Cruz County. Santa Cruz County water well permit requirements are outlined in Section 7.70.030 of the county's municipal code, found here:

<http://www.codepublishing.com/CA/SantaCruzCounty/html/SantaCruzCounty07/SantaCruzCounty0770.html>

Both Capitola and the County of Santa Cruz have well drilling restrictions that limit issuance of well permits within Soquel Creek Water District Service Area due to concerns related to overdraft and seawater intrusion. These restrictions have been in

place since 1981 (cite). The County also requires documentation of water efficiency measures as a condition of approval for any well serving a non-de minimis use greater than two (2) acre-feet per year.

2.1.3.5 Information regarding the implementation of land use plans outside the basin that could affect the ability of the Agency to achieve sustainable groundwater management

MGA will coordinate with neighboring GSAs and land use jurisdictions to ensure that regional sustainability is achieved throughout Santa Cruz County. (see BRR 2015-2016 Section 6, Element 4: Interagency Coordination for model). Will need to develop collaborative relationships with land use agencies within and outside the MGA Basin.

<http://www.midcountygroundwater.org/sites/default/files/uploads/Water%20Year%202015-2016.pdf>

2.1.4 Additional GSP Components

2.1.4.1 Control of Saline Water Intrusion

Mid-County Groundwater Basin management activities have primarily focused on controlling saltwater intrusion. The City of Santa Cruz and Soquel Creek Water District, MGA member agencies with boundaries that adjoin the coast, have established protective groundwater elevations as targets to assess progress toward basin recovery from long-term groundwater storage deficit. The basin's historic groundwater storage deficit has been reduced over time and the basin continued to recover during the recent drought.

Long-term overdraft of the basin has led to ongoing risk of seawater intrusion. As a result of long-term recovery and an acceleration of recovery during Water Years 20015-2016, average groundwater levels in Water Year 2016 met the established protective elevations at the most monitoring wells since the wells were installed. Average groundwater levels in Water Year 2016 met established protective elevations at 8 of 13 of the wells. Since five wells have average groundwater levels below established protective elevations, full basin recovery has not been achieved and the basin is still considered in long-term overdraft. Recovery of the basin and overdraft will be eliminated when coastal groundwater levels rise to protective elevations at all coastal wells. The MGA will also need to reevaluate the established protective elevations for the GSP.²

Basin management strategies are discussed in the 2007 Soquel-Aptos Area GMP. The most recent update to these management strategies is detailed in section 6.0 of the 2015-2016 BRR, found here:

<http://www.midcountygroundwater.org/sites/default/files/uploads/Water%20Year%202015-2016.pdf>

2.1.4.2 Wellhead Protection

MGA member agencies maintain and update Drinking Water Source Assessment and Protection (DWSAP) reports for each of their well sites. Drinking water supply agencies

² 2015-2016 BRR - Executive Summary

control contaminants into drinking water supplies by testing and treating water to meet California's safe drinking water standards and by following well abandonment and destruction procedures outlined in county requirements to prevent contaminant pathways into groundwater.³

The 2007 Soquel-Aptos Area GMP discusses prevention and monitoring of contaminant pathways. The most recent discussion is found in the 2015-2016 BRR at Section 6 BMO 2-3, which also provides citations to DWSAP reports and other information sources.

<http://www.midcountygroundwater.org/sites/default/files/uploads/Water%20Year%202015-2016.pdf>

2.1.4.3 Well Abandonment and Well Destruction Program

The County of Santa Cruz issues well destruction permits for wells being abandoned within the Mid-County Groundwater Basin. Well destruction requirements are found in the County Code, Chapter 7.70.100.

The purpose of the County's well abandonment and well destruction policies is to prevent inactive or abandoned wells to act as pathways the vertical movement of contaminants into groundwater.

A link to Santa Cruz County Code's water well requirements, including well abandonment and destruction is found here:

<http://www.codepublishing.com/CA/SantaCruzCounty/html/SantaCruzCounty07/SantaCruzCounty0770.html>

2.1.4.4 Replenishment of Groundwater Extractions

Studies on effective groundwater replenishment have been conducted throughout the county, including in the MGA basin by a joint project between the Santa Cruz County Resource Conservation District and University of California Santa Cruz Hydrogeology Group.

A program outline is available here: <http://rcdsantacruz.org/managed-aquifer-recharge>

Inside the MGA Basin, the County of Santa Cruz is partnering with the Resource Conservation District of Santa Cruz County (RCD) and Soquel Creek Water District to further assess and develop groundwater recharge sites. PV Water, the MGA's neighboring GSA to the south, has implemented a pilot program with RCD to develop recharge projects on suitable private lands to recharge groundwater in PV Water's management area. The County has developed stormwater recharge projects at Polo Grounds Park and Brommer Park.

2.1.4.5 Conjunctive Use and Underground Storage

MGA member agencies and the Santa Margarita Groundwater Agency are actively pursuing conjunctive use programs. The objective is to transfer excess surface water and use existing underground aquifer storage capacity to recharge regional groundwater

³ 2015-2016 BRR Section 6

basins. This would help to address basin overdraft and enhance water supply reliability during future droughts.

The County of Santa Cruz Health Services developed *Final Report on Conjunctive Use and Water Transfers* with Proposition 50 Integrated Regional Water Management funds. The report outlines the opportunities and challenges of conjunctive use and is found here:

<http://www.midcountygroundwater.org/sites/default/files/uploads/05-19-15%20Item%206.3.2%20Attachment%202%20Surface%20Water%20Exchange%20Report.pdf>

2.1.4.6 Well Construction Policies

Santa Cruz County permits water wells within the Mid-County Groundwater Basin. Well construction standards are found in the County Code, Chapter 7.70.

The purpose of the County's well construction policies is to provide for the location, construction, repair, and reconstruction of all wells to prevent groundwater contamination. The County policies ensure that water obtained from groundwater wells is suitable for the purpose for which it is used and will not jeopardize the health, safety or welfare of the people of Santa Cruz County. [Ord. 4901 § 1, 2008; Ord. 4593A § 1, 2000].

A link to Santa Cruz County municipal code's water well requirements is found here:

<http://www.codepublishing.com/CA/SantaCruzCounty/html/SantaCruzCounty07/SantaCruzCounty0770.html>

2.1.4.7 Groundwater Contamination Cleanup, Recharge, Diversions to Storage, Conservation, Water Recycling, Conveyance and Extraction Projects

The 2007 Soquel-Aptos Area GMP includes information on current basin management strategies implemented to improve groundwater reliability in the Mid-County Basin. The status of Basin Management Objectives (BMOs) and Basin Management Elements (Elements) to address this category are outlined in Sections 4 and 5. Updated BMOs and Elements are found in the most recent BRR at sections 6.2 and 6.3. County General Plan, Code, and Design Criteria require that for new development projects stormwater be infiltrated to maintain predevelopment rates of infiltration and runoff.

2007 Soquel-Aptos Area GMP

<http://www.midcountygroundwater.org/sites/default/files/uploads/Groundwater%20Management%20Plan%202007%20Final%20Complete%20with%20Figures.pdf>

2015-2016 BRR

<http://www.midcountygroundwater.org/sites/default/files/uploads/Water%20Year%202015-2016.pdf>

The State Water Resources Control Board's (SWRCB) Geotracker is an online data management system for sites that impact, or have the potential to impact water quality in

California, with an emphasis on groundwater. Geotracker can be used to identify contamination sites under regulatory action.

<https://geotracker.waterboards.ca.gov/>

2.1.4.8 Efficient Water Management Practices

MGA member agencies began formal implementation of water conservation programs in 1997. Currently, each of the MGA member agencies has a full range of water conservation programs in place. All MGA member agencies participate in the Water Conservation Coalition of Santa Cruz County. MGA member agencies have moved production wells inland from the coast and carefully manage groundwater extractions to reduce the potential for seawater intrusion. New well permits are restricted within Soquel Creek Water District boundaries to limit further impacts to basin groundwater.

The Water Conservation Coalition of Santa Cruz County has created a regional source for county-wide water reduction measures, rebates, and resources, found at:

<https://watersavingtips.org/>

Additional conservation program information is described in detail at each water agency's individual websites:

Central Water District: <https://sites.google.com/view/centralwaterdistrict/conservation>

City of Santa Cruz Water Department: <http://www.cityofsantacruz.com/government/city-departments/water/conservation>

County of Santa Cruz: <http://scceh.com/Home/Programs/WaterResources/WaterConservationProgram.aspx>

Soquel Creek Water District: <http://www.soquelcreekwater.org/conserving-water>

Groundwater management practices are summarized in section 6 of the 2015-2016 Biennial Review and Report.

2015-2016 BRR

<http://www.midcountygroundwater.org/sites/default/files/uploads/Water%20Year%202015-2016.pdf>

2.1.4.9 Relationships with State and Federal Regulatory Agencies

2007 Soquel-Aptos Area GMP includes a discussion of agency consultations during initial plan development (see Section 2.4). Updated information is found in 2015-2016 BRR's Element 4 (section 6.2). MGA agency staff is coordinating with relevant state and federal agencies and will document.

2007 GMP

<http://www.midcountygroundwater.org/sites/default/files/uploads/Groundwater%20Management%20Plan%202007%20Final%20Complete%20with%20Figures.pdf>

2015-2016 BRR (see Element 4, section 6.2)

<http://www.midcountygroundwater.org/sites/default/files/uploads/Water%20Year%202015-2016.pdf>

2.1.4.10 Land Use Plans and Efforts to Coordinate with Land Use Planning Agencies to Assess Activities that Potentially Create Risks to Groundwater Quality or Quantity

MGA will coordinate with land use agencies that have jurisdiction over land uses supplied by the basin to ensure that regional sustainability is achieved. (see BRR 2015-2016 Section 6, Element 4: Interagency Coordination for model). Will need to develop collaborative relationships with land use agencies within and outside the MGA Basin to comply with GSP regulations.

<http://www.midcountygroundwater.org/sites/default/files/uploads/Water%20Year%202015-2016.pdf>

2.1.4.11 Impacts on Groundwater Dependent Ecosystems

Identification of Groundwater Dependent Ecosystems and interconnected surface and groundwater within the MGA basin will be developed within Hydrometric's GSP scope of work. We will also use County GIS mapping of streams, wetlands and riparian woodlands.

The Nature Conservancy has developed guidance and a website mapping tool responsive to the Sustainable Groundwater Management Act (SGMA) mandate that may be useful:

<https://www.scienceforconservation.org/assets/downloads/GDEsUnderSGMA.pdf>

<http://www.groundwatercalifornia.org/>

2.1.5 Notice and Communication

2.1.5.1 Description of Beneficial Use and Beneficial Users

Agricultural users: There is limited farming within the basin boundary area, using approximately 10% of total water pumped from the Santa Cruz Mid-County Groundwater Basin. The agricultural sector is primarily served by private wells that support vineyards, vegetables, orchards, pasture, and berries. The MGA board includes a private agricultural well owner and the GSP Advisory Committee includes an agricultural representative to ensure that the agricultural community is represented and informed about groundwater sustainability planning within the basin.

Domestic Well Users: Private residential well owners are estimated to pump approximately 10% of water from the Santa Cruz Mid-County Groundwater Basin. To ensure private well owners are represented, the MGA Board includes three private well owner representatives, and one of those representatives also serves on the GSP Advisory Committee.

Municipal Well Operators and Public Water Systems: The MGA board includes two elected representatives from each of the municipal well operators in the Basin. These municipal well operators are: the City of Santa Cruz Water Department, Central Water

District and Soquel Creek Water District. All the public water system operators in the Basin are on the MGA email list. The County oversees the public water systems in the basin and offers quarterly forums. The SGMA was discussed in several of these, and staff from the MGA agencies have presented at this forum. The MGA is in regular communication with the public water systems within the basin and the president of Trout Gulch Mutual is an alternate on the MGA Board.

Environmental Users of Groundwater: There are numerous environmental interest groups in the Basin. The member agencies of the MGA have long history of working with many of these groups. A seat on the GSP Advisory Committee was reserved for and filled by a representative of environmental interests. Representatives from the various environmental interest groups are on the MGA email distribution list which provides regular news and updates.

Disadvantaged Communities (DAC): There are 10 DACs and three Severely Disadvantaged Communities (SDAC) located within the basin as identified with DWR's DAC mapping tool which utilizes the US Census American Community Survey 5-Year Data: 2010 – 2014. These communities are decentralized throughout the basin. The planned basin-wide outreach process is comprehensive. MGA staff will seek some coordination between the related outreach efforts to these communities and the Integrated Regional Water Management (IRWM) Disadvantaged Community Involvement Program.

See MGA SGMA Portal submission, section E, Interested parties, here:

<http://sgma.water.ca.gov/portal/gsa/print/24>

2.1.5.2 Decision Making Process

The Santa Cruz Mid-County Groundwater Agency (MGA) board is the final decision making body for the Santa Cruz Mid-County Groundwater Basin's Groundwater Sustainability Plan. The MGA board directs agency staff to fulfill requirements of SGMA. MGA staff work with the public, advisory committee members, technical consultants, and local, state, and federal agency representatives to provide the board with research and recommendation memos, work plans, technical summaries, budgets, and other work products as required to support informed board decision making.

MGA holds public board of directors meetings every other month. These meetings are noticed and meet all of the requirements of the Ralph M. Brown Act for transparency in California government. Written notice of meetings is provided through the MGA's e-newsletter and reminders are sent to the e-mail list when board packets are available. Meeting agenda and materials are posted on the MGA website at least 72-hours prior to the meeting time. Meeting agenda are also posted at the meeting location prior to the meeting as required.

The MGA Board welcomes public comments at its meetings. Public comment time is provided at the beginning of each board meeting for general public comments and during agenda items that require a decision by the MGA board. General comments allow community members to raise any groundwater related issue that is not on the agenda and often results in new items being added to future MGA agendas. Public comments

during scheduled agenda items allows the board to incorporate public comment opinion into its decision making process.

2.1.5.3 Public Engagement

In addition to its board meetings, the MGA holds bi-monthly drop-in sessions when the public can meet with MGA Board members and MGA staff and other public engagement events. Drop-in sessions are held in Aptos from 10:00 am-noon at the Community Foundation on the months when the MGA board does not meet.

To support preparation of public policy throughout its Groundwater Sustainability Plan (GSP), the MGA has established a GSP Advisory Committee to represent basin water uses and users and other identified interests within the groundwater basin. The GSP advisory committee includes seven public representatives and five MGA Board representatives. The public members represent: agriculture, business, environmental interests, small water system management, water utility rate payers as well as at-large representatives who represent general interests within the basin. An institutional seat was identified and filled, but is currently vacant.

2.1.5.4 Encouraging Active Involvement

MGA has a communication and engagement plan (C&E plan) that is a living document. The C&E plan outlines messaging and engagement forums that the MGA is currently using and would like to develop throughout the GSP planning process. The C&E plan is approved by the MGA board to direct staff outreach efforts. A link to the draft plan is found here (see item 6.7):

<http://www.midcountygroundwater.org/sites/default/files/uploads/meetings/board-packet/Final%20Packet%202017-0921.pdf>

Current outreach includes: informational website, public meetings (live and recordings on website), drop-in sessions, special meetings for community groups, regional outreach events (Connecting the Drops), monthly e-newsletter, MGA issue oriented emails, advertising (press releases, newspapers, radio), media posts through agency outreach channels (websites, bill inserts, facebook, etc.)

2.1.5.5 Informing the Public on GSP Implementation Progress

Public Meetings (MGA, GSP Advisory, Special Topics)

Website

Monthly eblast

Reminder eblast

2.2 Basin Setting

2.2.1 Hydrogeologic Conceptual Model

In development by Hydrometrics, Draft Model Report due June 2018

2.2.1.1 Description of Hydrogeologic Conceptual Model

In development by Hydrometrics, Draft Model Report due June 2018

2.2.1.2 At least two scaled cross-sections

2007 Soquel-Aptos Area GMP contains one cross-section (figure 3-10), Hydrometrics to prepare a second (see also Figure 1-2 in 2015-2016 BRR)

<http://www.midcountygroundwater.org/sites/default/files/uploads/Water%20Year%202015-2016.pdf>

2.2.1.3 Maps of Physical Characteristics

- *Topographic Information*

Topographic map and data are found in 2007 Soquel-Aptos Area GMP (see Section 3.1.1 and Figure 3-1)

<http://www.midcountygroundwater.org/sites/default/files/uploads/Groundwater%20Management%20Plan%202007%20Final%20Complete%20with%20Figures.pdf>

Revised topographic maps will be prepared for the GSP

- *Surficial Geology*

Geologic information is found in GMP Soquel-Aptos Area 2007 (see Section 3.3.1)

<http://www.midcountygroundwater.org/sites/default/files/uploads/Groundwater%20Management%20Plan%202007%20Final%20Complete%20with%20Figures.pdf>

- *Soil Characteristics*

Soil Characteristics are found in GMP Soquel-Aptos Area 2007 (see Section 3.3.1)

<http://www.midcountygroundwater.org/sites/default/files/uploads/Groundwater%20Management%20Plan%202007%20Final%20Complete%20with%20Figures.pdf>

- *Delineation of existing recharge areas that substantially contribute to the replenishment of the basin, potential recharge areas, and discharge areas*

The County has mapped primary groundwater recharge areas and has policies for protection of those areas. Research on effective groundwater replenishment has been conducted throughout the county, including in the MGA basin by a joint project between the Santa Cruz County Resource Conservation District and UCSC Hydrogeology Group. A program outline, report and figures are available at this webpage:

<http://rcdsantacruz.org/managed-aquifer-recharge>

2.2.1.3.5 Surface Water Bodies

[Information not yet identified]

2.2.1.3.6 Source and Point of Delivery for Imported Water Supplies

All water used within the Santa Cruz Mid-County Groundwater Basin originates as local precipitation. Some water (~40 acre-feet per year) is imported to small public water

systems within the Soquel Creek Watershed, but well upstream of the boundary of the groundwater basin.

2.2.2 Current and Historical Groundwater Conditions

Historic groundwater condition data is available in 2007 Soquel-Aptos Area GMP (see section 3.4)

<http://www.midcountygroundwater.org/sites/default/files/uploads/Groundwater%20Management%20Plan%202007%20Final%20Complete%20with%20Figures.pdf>

Long-term overdraft of the basin has led to ongoing risk of seawater intrusion. As a result of long-term recovery and an acceleration of recovery during Water Years 2015-2016, average groundwater levels in Water Year 2016 met the established protective elevations at the most monitoring wells since the wells were installed. Average groundwater levels in Water Year 2016 met established protective elevations at 8 of 13 of the wells. Since five wells have average groundwater levels below established protective elevations, full basin recovery has not been achieved and the basin is still considered in long-term overdraft. The MGA will also need to reevaluate the established protective elevations for the GSP.⁴

Groundwater conditions have been updated annually in the Annual Review and Report (2008-2014). ARR 2012 provides an additional review of GMP groundwater conditions (see section 2.3). ARRs are found here:

ARR 2008 (see section 2.2)

http://www.midcountygroundwater.org/sites/default/files/uploads/SqCWD%202008%20Final%20Draft%20Basin%20Report_Web.pdf

ARR 2009 (see sections 3.2, 4.2, & 5.2)

http://www.midcountygroundwater.org/sites/default/files/uploads/2009-ARR-FINAL_UPDATED_JULY_2014_DUE_TO_SURVEY_REVISIONS.pdf

ARR 2010 (see sections 3.2, 4.2, & 5.2)

http://www.midcountygroundwater.org/sites/default/files/uploads/2010-ARR-Finalweb2_UPDATED_JULY_2014_DUE_TO_SURVEY_REVISIONS.pdf

ARR 2011 (see sections 3.2, 4.2, & 5.2)

http://www.midcountygroundwater.org/sites/default/files/uploads/2011-ARR-FINAL_for_double_sided_printing_web_UPDATED_JULY_2014_DUE_TO_SURVEY_REVISIONS.pdf

ARR 2012 (see sections 2.3, 3.2, 4.2, & 5.2)

<http://www.midcountygroundwater.org/sites/default/files/uploads/2012-ARR-finalALLweb.pdf>

⁴ 2015-2016 BRR - Executive Summary

ARR 2013 (see sections 3.2, 4.2, & 5.2)

<http://www.midcountygroundwater.org/sites/default/files/uploads/2013-ARR-finalALL%20web%20secured.pdf>

ARR 2014 (see sections 3.2, 4.2, & 5.2)

<http://www.midcountygroundwater.org/sites/default/files/uploads/2014-ARR-SAGMCdraft.pdf>

The current update of basin Groundwater Conditions is found in the 2015-2016 Biennial Review and Report (BRR see sections 3.2, 3.3, 3.5, 4.2, 4.4, 5.2, 5.4)

<http://www.midcountygroundwater.org/sites/default/files/uploads/Water%20Year%202015-2016.pdf>

Hydrometrics Draft Model Report will provide an integrated picture of historic groundwater conditions. Estimated due date June 2018 for MGA staff review

2.2.2.1 Groundwater Elevation Data

See section 2.2.2 for information sources on groundwater elevation data.

Current groundwater elevation data is found in the 2015-2016 Biennial Review and Report (BRR see sections 3.2, 3.3, 3.5, 4.2, 4.4, 5.2, 5.4)

<http://www.midcountygroundwater.org/sites/default/files/uploads/Water%20Year%202015-2016.pdf>

2.2.2.2 Estimated Groundwater Storage

MGA member agencies have commissioned a 3D groundwater flow model to simulate groundwater historic and expected future conditions in the MGA basin, including groundwater storage and other important variables to assist with GSP planning and management within the MGA basin. The Draft Model Report's estimated due date 6/2018.

2.2.2.3 Seawater Intrusion Conditions

The Santa Cruz Mid-County Groundwater Basin is hydrologically connected to the Pacific Ocean. There is an ongoing risk of seawater intrusion into the productive aquifer units of the Santa Cruz Mid-County Groundwater Basin when coastal groundwater levels fall below protective elevations. Observed Total Dissolved Solids (TDS) and chloride concentrations are used to assess seawater intrusion.

The occurrence of seawater intrusion varies by area in the Santa Cruz Mid-County Basin. Generally, there is evidence of seawater intrusion at the southern and northern coastal ends of the MGA Basin. Seawater intrusion has not impacted production wells. Over the past few years, through the application of water conservation and pumping management strategies, groundwater levels have increased to rise above most

protective elevations in wells along the coast. Increases in groundwater elevations have been associated with decreased chloride and TDS concentrations.

A detailed seawater intrusion discussion is found in the 2015-2016 BRR (see Executive Summary and sections 3.5, 4.4, 5.4)

<http://www.midcountygroundwater.org/sites/default/files/uploads/Water%20Year%202015-2016.pdf>

The MGA contracted with SkyTEM and Ramboll to carry out a helicopter geophysical survey to characterize seawater intrusion into the productive aquifer units offshore. A draft report was submitted to staff and a final report is under revision. This offshore investigation will provide a more complete picture of saltwater intrusion threats to the MGA basin.

Information on the MGA helicopter survey is found here:
<http://www.midcountygroundwater.org/node/106>.

2.2.3 Water Budget Information (Reg. 354.18)

2.2.3.1 Description of inflows, outflows and change in storage

MGA will use the groundwater model output to describe the basin's water budget (inflow – outflow +/- change in storage).

The Draft Model Report is due to staff June 2018.

2.2.3.2 Quantification of Overdraft (as applicable)

MGA's groundwater model will be used to estimate basin overdraft.

The Draft Model Report is due to staff June 2018.

See also section 2.2.2 above for current information resources in ARR and BRR

2.2.3.3 Estimate of Sustainable Yield

MGA's groundwater model will be used to estimate the MGA basin's sustainable yield.

The Draft Model Report is due to staff June 2018.

See 2015-2016 BRR Section 6.2 Basin Management Objective 1-1

<http://www.midcountygroundwater.org/sites/default/files/uploads/Water%20Year%202015-2016.pdf>

See also section 2.2.2 above for current information resources in ARR and BRR

2.2.3.4 Quantification of Current, Historical, and Projected Water Budget

MGA's groundwater model will quantify current, historical, and projected water budget.

The Draft Model Report is due to staff June 2018.

2.2.3.5 Description of Surface Water supply used or available for use for groundwater recharge or in-lieu use

[Information not yet developed.]

2.2.4 Management Areas (as applicable) (Reg 354.20)

The 2007 Soquel-Aptos Area GMP has been refined over time to identify productive aquifers within the basin, managed based on their individual characteristics that determine water levels. Although these productive units are managed differently, it is unlikely that regional geology will be used to define management areas for the GSP.

For practical purposes, DWR has begun to envision management areas within GSPs developing along member agency jurisdictional boundaries. These agency oriented management areas would leverage existing MGA agency resources within their jurisdictional area, while effectively implementing jointly agreed planning objectives specified by the MGA in the basin's GSP.

An example of management areas is the way that the City of Santa Cruz Water Department and Soquel Creek Water District currently work as regional partners to manage the risk of seawater intrusion. Each agency has set complimentary protective groundwater elevations for coastal monitoring wells within its own jurisdictional boundaries. Each agency then uses its own staff and infrastructure resources to individually manage their groundwater production and test their coastal monitoring wells with the shared goal of preventing seawater intrusion within the basin.

2.2.4.1 Reason for creation of each management area

2.2.4.2 Level of monitoring and analysis

2.2.4.3 Description of management areas

2.2.4.4 Explanation of how management of management areas will not cause undesirable results outside the management area.

SGMA Terminology Reference

(listed in ascending alphabetic order)

Groundwater sustainability plan (GSP). In groundwater basins designated by the Department of Water Resources (DWR) as critically-overdrafted high and medium priority, local public agencies and GSAs are required to develop and implement groundwater sustainability plans (GSPs) by January 31, 2020. All other groundwater basins designated as high or medium priority basins to be managed under a GSP by January 31, 2022.

Interim milestone (IM) refers to a target value representing measurable groundwater conditions, in increments of 5 years, set by an Agency as part of a GSP.

Management area refers to an area within a basin for which the GSP may identify different minimum thresholds, measurable objectives, monitoring, or projects and management actions based on differences in water use sector, water source type, geology, aquifer characteristics, or other factors.

Measurable objectives refer to specific, quantifiable goals for the maintenance or improvement of specified groundwater conditions that have been included in an adopted GSP to achieve the sustainability goal for the basin.

Minimum threshold refers to a numeric value for each sustainability indicator used to define undesirable results.

Sustainability indicator refers to any of the effects caused by groundwater conditions occurring throughout the basin that, when significant and unreasonable, cause undesirable results, as described in Water Code Section 10721(x). Undesirable results are one or more of the following effects:

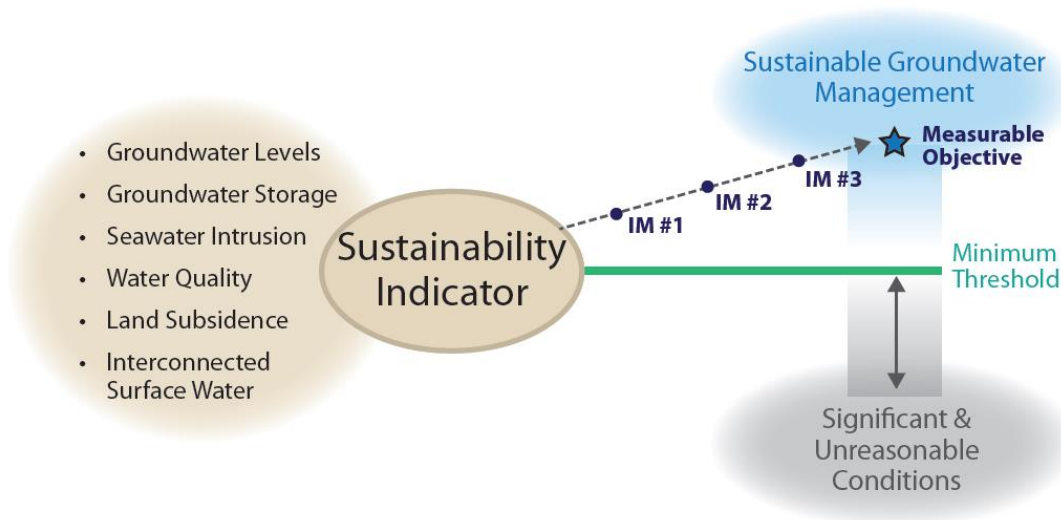
- Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon. Overdraft during a period of drought is not sufficient to establish a chronic lowering of groundwater levels if extractions and groundwater recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods.
- 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 have significant and unreasonable adverse impacts on beneficial uses of the surface water.

Sustainable management criteria (SMC) refers collectively to sustainability goal, undesirable results, minimum thresholds, and measureable objectives.

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.

Undesirable results refers to a quantitative description of the combination of minimum threshold exceedances that cause significant and unreasonable effects in the basin. Undesirable results will be defined by minimum threshold exceedances at a single monitoring site, multiple monitoring sites, a portion of a basin, a management area, or an entire basin.



References:

Groundwater Sustainability Plan (GSP) Emergency Regulations Guide. July 2016.
http://www.water.ca.gov/groundwater/sgm/pdfs/GSP_Final_Regs_Guidebook.pdf

Draft Best Management Practices for the Sustainable Management of Groundwater: Sustainable Management Criteria
http://www.water.ca.gov/groundwater/sgm/pdfs/BMP_Sustainable_Management_Criteria_2017-11-06.pdf

Considerations in Identifying Significant and Unreasonable Conditions

GSA's 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

Discussion Question: What would be Significant and Unreasonable impacts to the Basin (i.e., what could we not live with)?

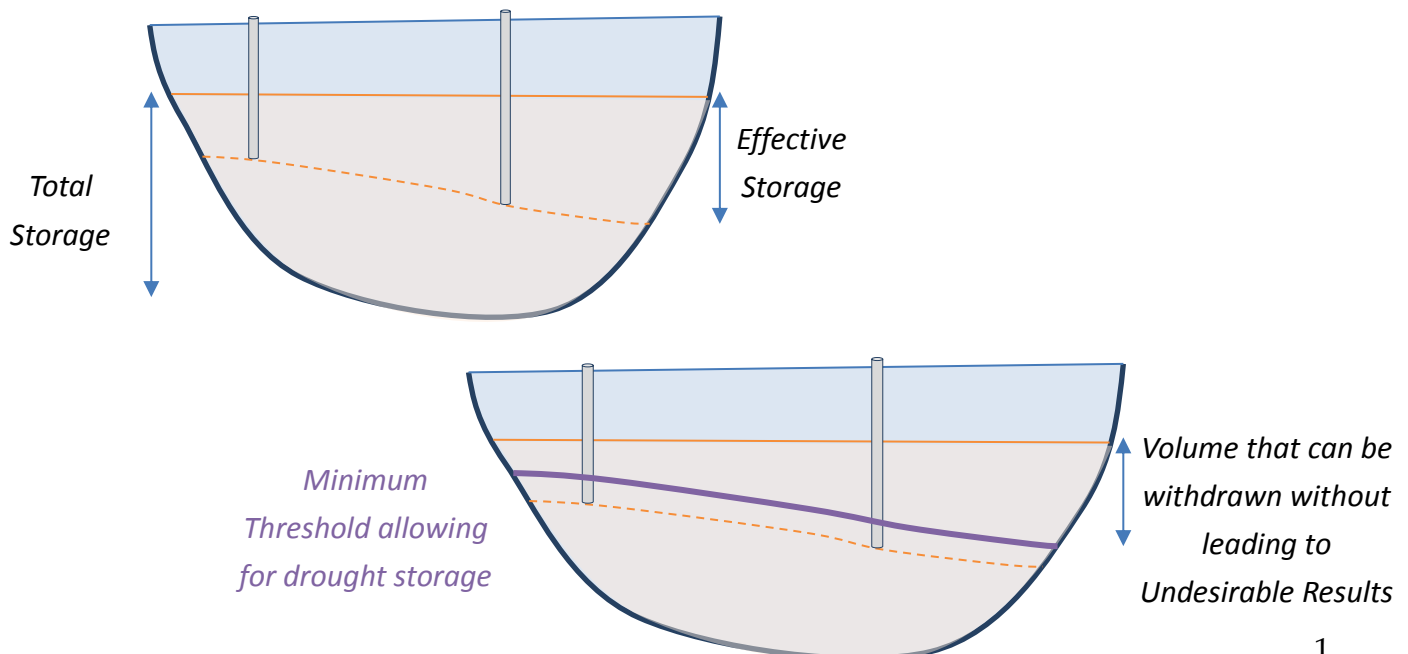
CHRONIC DECLINES IN GROUNDWATER LEVELS

■ 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 withdrawn without leading to undesirable results



■ **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)
- 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

■ **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?
- 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)

Considerations in Identifying Undesirable Results

Discussion Question: How flexible are we with Minimum Thresholds being exceeded?

UNDESIRABLE RESULTS FOR CHRONIC DECLINE IN GROUNDWATER LEVELS

▣ 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

▣ Considerations

- ☐ 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

▣ 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