Eastern San Joaquin Subbasin

Groundwater Sustainability Workgroup

June 12, 2019

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GROUNDWATER AUTHORITY

Agenda

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- Meeting Objectives
- Groundwater Recharge Projects
- Bundles 2 and 3 – Draft Chapter Overview
- Implementation Plan
- Announcements

Meeting Objectives

Meeting Objectives

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1. Discuss existing groundwater recharge project successes and lessons learned (Guest speaker: Cathy Lee, Stockton East Water District)
   - Presentation and Q&A
2. Discuss draft chapters and review Water Budget/Sustainable Management Criteria
   - Presentation and discussion of draft GSP chapters in Bundle 2 and 3 and timeline for comments
3. Identify elements needed in GSP implementation plan
   - Discussion of elements needed in the GSP implementation plan and next steps

Groundwater Recharge Areas

Recharge Projects in ESJ

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- **In-lieu Recharge** – occurs wherever surface water is being delivered to offset the use of groundwater. Agencies include CCWD, City of Lodi, City of Manteca, City of Stockton, CSJWCD, OID, SEWD, SSJID, and WID. Riparian users of surface water are also benefitting from in-lieu recharge.

Recharge Projects in ESJ

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- **Direct Recharge –** projects exist in NSJWCD and SEWD. Seepage occurs in other GSAs through canals.
  - NSJWCD's Tracy Lake Groundwater Recharge Project includes direct recharge of 500 to 1,000 AFY by placing surface water in the bed of South Tracy Lake to allow for percolation.
  - Cal-Fed/Costa Recharge project includes direct recharge of about 300 AFY by flooding about 20 acres of vineyards post-harvest.
  - SEWD's Farmington Groundwater Recharge Program recharges via field flooding on about 1,200 acres. Since 2003, SEWD operated a 60-acre recharge site as a result of the Farmington Program with additional 73 acres coming online in 2019.

Existing Recharge Projects: What's Working?

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Stockton East Farmington Groundwater Recharge Project

- Constructed in 2002
- To date, about 57,000 AF has been recharged
- Observed recharge ranges from 2,800 to 5,800 AF/Y with an average of 4,400 AF/Y
- The District extracted close to 20,000 AF during the drought.

Existing Recharge Projects: What's Working?

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Challenges: Cost of initial construction and the lack of water during dry years.

Lessons learned: It is a valuable way to recharge the groundwater basin and we wish there were more opportunities in the area where groundwater levels are low. For water treatment operations, it provides another avenue for raw water storage.

Bundles 2 and 3 – Draft Chapter Overview

Draft GSP Chapters

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Bundles 2 and 3 are available website homepage:
www.esjgroundwater.org

- Text includes includes:
  - Water Budgets
  - Current and Historical Groundwater Conditions
  - Sustainable Management Criteria
  - Monitoring Network
- Comments due July 1, 2019 (note: this is in addition to the 45-day public review period for the draft GSP)

Draft GSP – Water Budgets

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- 3.3 Water Budgets
  - 3.3.1 Water Budget Background Information
  - 3.3.2 Identification of Hydrologic Periods
  - 3.3.3 Use of the ESJWRM and Associated Data in Water Budget Development
  - 3.3.4 Water Budget Definitions and Assumptions
  - 3.3.5 Water Budget Estimates
  - 3.3.6 Sustainable Yield Estimate
  - 3.3.7 Climate Change Analysis

Draft GSP – Current and Historical Groundwater Conditions

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- 3.4 Description of the Plan Area
  - 3.4.1 Groundwater Elevation
  - 3.4.2 Groundwater Storage
  - 3.4.3 Seawater Intrusion
  - 3.4.4 Groundwater Quality
  - 3.4.5 Land Subsidence
  - 3.4.6 Interconnected Surface Water Systems
  - 3.4.7 Groundwater-Dependent Ecosystems
    - 3.4.7.1 Methodology for GDE Identification
    - 3.4.7.2 Areas Identified as GDEs

Draft GSP – Sustainable Management Criteria

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4.1 Sustainable Management Criteria
4.1 Sustainability Indicators
- 4.2.1 Chronic Lowering of Groundwater Levels
- 4.2.2 Reduction in Groundwater Storage
- 4.2.3 Degraded Water Quality
- 4.2.4 Seawater Intrusion
- 4.2.5 Land Subsidence
- 4.2.6 Depletion of Interconnected Surface Water

Draft GSP – Monitoring Network

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4.3 Monitoring Network

- 4.3.1 Monitoring Network for Chronic Lowering of Groundwater Levels
- 4.3.2 Monitoring Network for Reduction in Groundwater Storage
- 4.3.3 Monitoring Network for Degraded Water Quality
- 4.3.4 Monitoring Network for Seawater Intrusion
- 4.3.5 Monitoring Network for Land Subsidence
- 4.3.6 Monitoring Network for Depletion of Interconnected Surface Waters
- 4.3.7 Data Gaps

Review: Water Budgets

What is a Water Budget?

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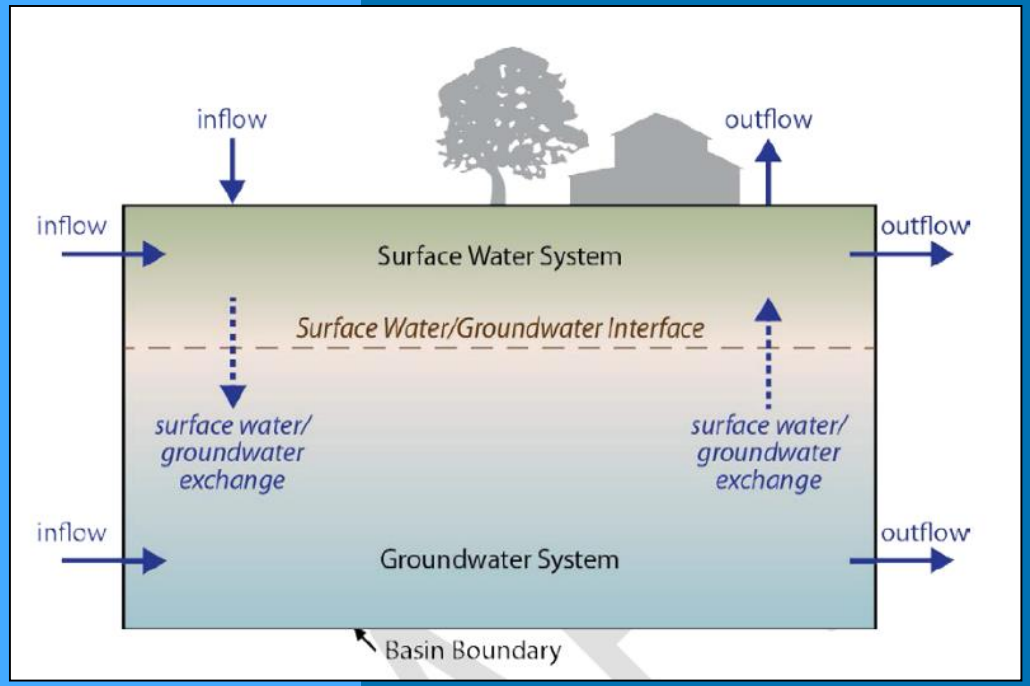

A Water Budget is an accounting of the total groundwater and surface water entering and leaving a groundwater basin.

Water Budget Time Frames

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Historical Water Budget

Uses historical information for temperature, precipitation, water year type, and land use going back a minimum of 10 years.

Current Conditions Baseline

Uses the most recent data on population, land use, temperature, year type, and hydrologic conditions projected out over 50 years of hydrology.

Projected Water Budget

Uses estimated future population growth, land use changes, climate change, and sea level rise projected out over 50 years of hydrology.

Sustainable Management Criteria

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- **Undesirable Results** – Significant and unreasonable negative impacts associated with each sustainability indicator, avoidance of which is used to guide development of GSP components
- **Minimum Threshold** – Quantitative threshold for each sustainability indicator used to define the point at which undesirable results may begin to occur
- **Measurable Objective** – Quantitative target that establishes a point above the minimum threshold that allows for a range of active management in order to prevent undesirable results
- **Interim Milestones** – Targets set in increments of five years over the implementation period of the GSP to put the basin on a path to sustainability
- **Margin of Operational Flexibility** – The range of active management between the measurable objective and the minimum threshold

Implementation Plan

Implementation Elements

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- Monitoring and Reporting
  - 2020 Annual Report (due April 2020)
  - DMS Updates
- Data Collection and Analysis
- Administrative Actions
- 5-year Update
- Public Outreach and Website Maintenance
- Grant Writing

Monitoring and Reporting

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Well Type	#	Monitoring Network	Constituent Monitored		Proposed Frequency
			Elevation	Water Quality	
Dedicated Level Threshold	19	Representative Monitoring	X		Semi-Annually
Dedicated Groundwater Quality Threshold	10	Representative Monitoring	X	X	Semi-Annually
CASGEM Wells (Official)	76	Broad	X		Semi-Annually
Nested &/or Clustered Wells	16	Broad	X	X	Semi-Annually
TSS Wells + 10 New Wells (Planned)	12	Broad	X	X	Semi-Annually
Additional local wells in water quality network	5	Broad	X	X	Semi-Annually

Parameters: TDS, Arsenic, Cations/Anions; Field: EC, Temp, pH

Monitoring and Reporting – Annual Reports and DMS

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Annual Reports

- DWR requires annual reporting starting April 1, 2020 for adaptive management
- Provide monitoring and total groundwater use data to DWR
- Compare monitoring data to sustainable management criteria

DMS Updates

- Update and maintain Data Management System

Data Collection and Analysis

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- Mokelumne River Loss Study project
- Model refinements
  - Historical calibration
  - Scenarios
- SW-GW refinement monitoring
- Additional Wells if needed
- Annual review of water quality data in Broad network

Administrative Actions

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- Governance structure
- Regular meeting structure
- Coordinate on specific studies
- Track and evaluate implementation and sustainability conditions
- Assess benefit to subbasin

5-Year GSP Update

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- 5-Year GSP Assessment due 2025
- Evaluate GSP to assess if achieving sustainability goal
- Addressing data gaps and deficiencies identified in the 2020 Plan
- Rerunning and changes to Sustainable Management Criteria
- Includes new information since adoption and subsequent changes to plan

Public Outreach and Website Maintenance

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- Public outreach – two approaches:
  1. GSAs provide routine outreach to the public
  2. Outreach consultant performs regular outreach meetings across basin, newsletter, general outreach

Website maintenance (posting meeting information, data, reports)

Grant Writing

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- State grants
  - Proposition 68 – $500k available to ESJ (near-term administration needs)
- Federal grants

Announcements

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- GSP Public Draft: available July 10 – August 25. Comments due August 25 to info@esjgroundwater.org.
- Fourth informational meeting: July 18, 5-8 PM at the Agricultural Center (Assembly Room 1 – large room)
- July 10 GWA Board and Advisory Committee meetings will be held at the Manteca Transit Center (220 Moffat Blvd., Manteca). This change is only for the month of July. All other remaining meetings are anticipated to be held at the Agricultural Center.

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