Eastern San Joaquin Subbasin

Groundwater Sustainability Workgroup

October 9, 2018

EASTERN SAN JOAQUIN
GROUNDWATER AUTHORITY

Agenda

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- Comments on Meeting Notes
- Follow-Up from Last Meeting
- Projected Water Budget
- Sustainable Yield
- Projects and Management Actions – Introduction and Approach
- Announcements
  - Second Informational Meeting
- Other Topics

Comments Received

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To address:

- Crop type by acreage (1995 and 2015)
- Meeting with representatives of DAC communities
- Locating next informational meeting where critical overdraft is occurring

Review: Crop Type by Acreage

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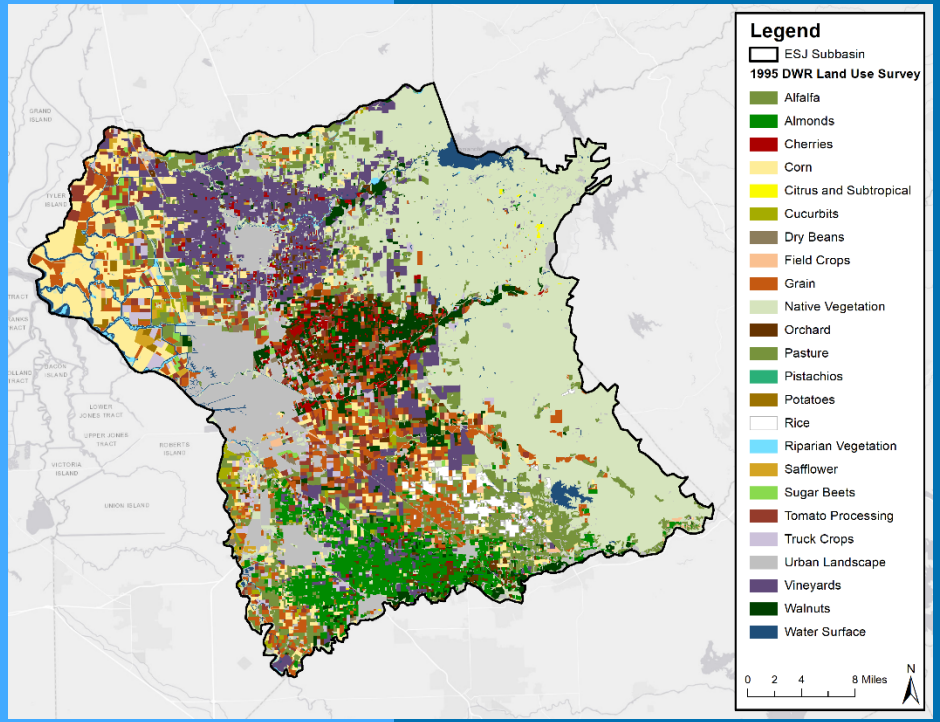
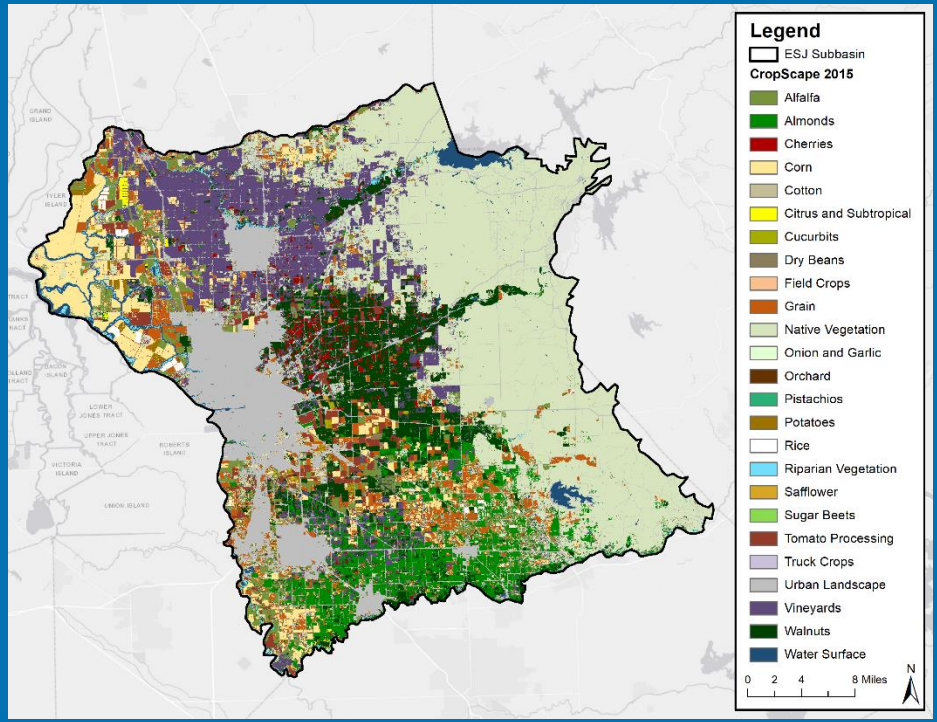


1995 Cropping Patterns



2015 Cropping Patterns

Comments Received – Spreadsheet Provided for Acreage by Crop Type

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Water Year	Alfalfa*	Almonds	Cherries	Corn*	Cotton	Citrus & Subtropical	Cucurbits	Dry Beans	Field Crops	Grain*	Onion & Garlic	Orchard	Pasture*
1995	26,545	38,953	10,466	54,473	0	481	4,854	6,873	3,111	48,686	0	13,985	12,490
2015	29,063	57,069	12,060	53,949	196	2,801	1,924	1,286	201	26,756	309	2,859	14,975

Water Year	Pistachios	Potatoes	Rice	Safflower	Sugar Beets	Tomato Processing	Truck Crops	Vineyards	Walnuts	Native Vegetation	Riparian Vegetation	Urban Landscape	Water Surface	Total
1995	96	2,182	7,141	3,751	3,859	22,905	12,235	75,345	35,280	283,328	16,615	83,416	5,307	772,377
2015	33	2,268	2,792	1,532	0	18,576	791	95,240	73,416	242,942	15,148	110,884	5,307	772,377

*Indicates potential use for livestock feed

Comments Received – Meeting with DAC Representatives

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- How can we better hear DAC issues?
- Proposed meeting with DAC representatives

Comments Received – Potential Informational Meeting Locations

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- Locating a meeting where critical overdraft is occurring
- How to target outreach to farms/growers?

Follow-Up from Last Meeting

Comments Received

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To address:

- DACs/Cal Impact map overlay
- Urban water demand totals and populations served
- Oxidation of peat soils as a potential subsidence concern

Disadvantaged Community (DAC) Definitions

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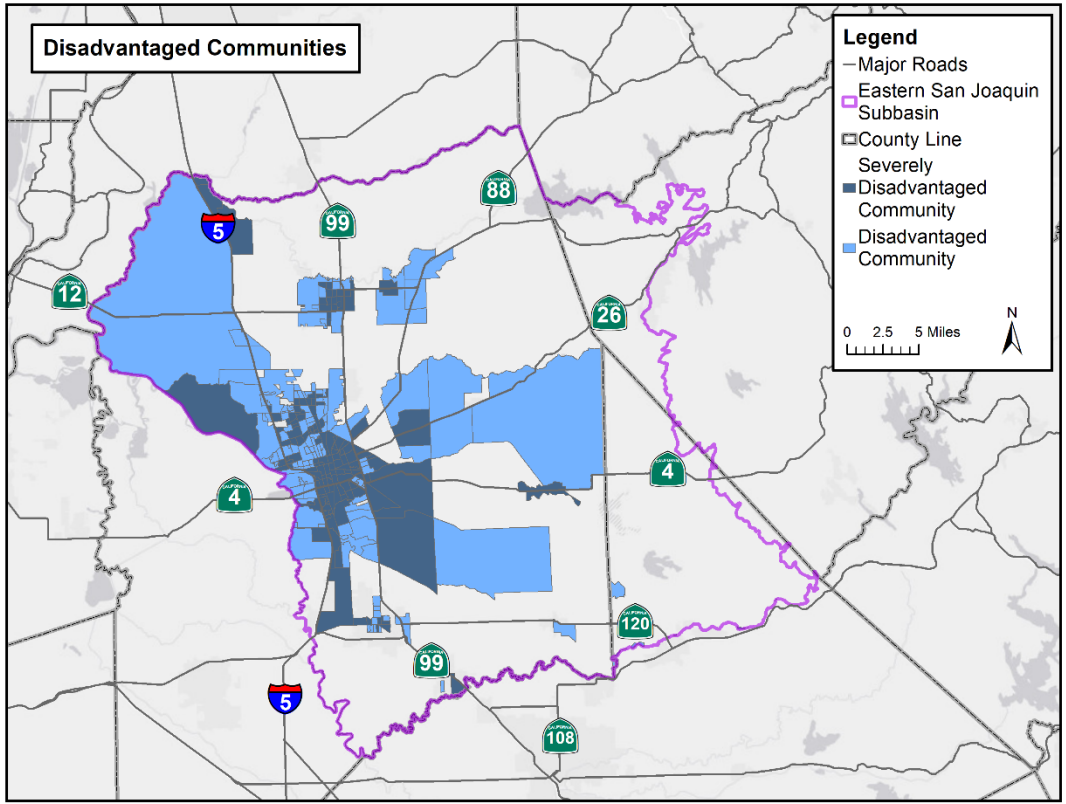

Disadvantaged Communities (DACs) are defined as census geographies with a median household income less than 80% of the statewide average.

Severely Disadvantaged Communities (SDACs) are defined as census geographies with a median household income less than 60% of the statewide average.

Environmental Impacts Map

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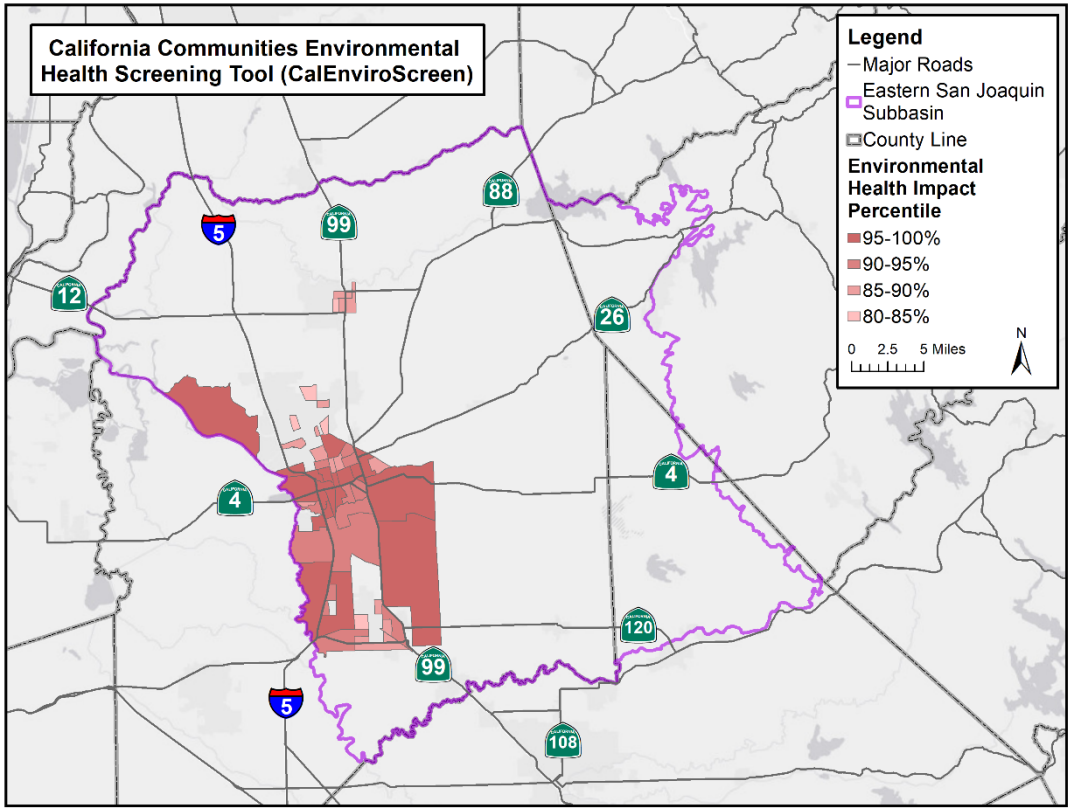

The CalEnviroScreen dataset assigns communities a numerical score (from 0 to 100) representing degree of environmental health burden.

Scores are based on many factors, including pollution, health records, and socioeconomic characteristics.

This map shows communities in the top 20% of scores statewide.

Environmental Impacts-DAC Overlay

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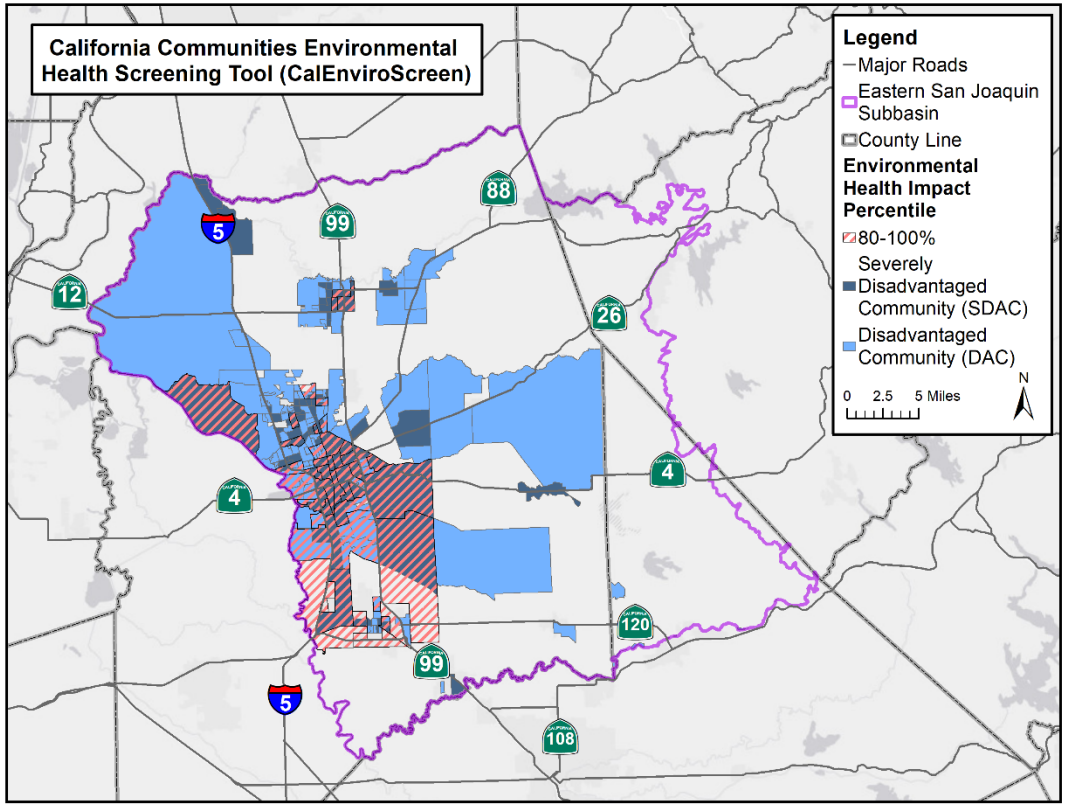

Areas with the greatest environmental health impacts tend to be located in severely disadvantaged communities (SDACs)

Urban Water Demand: Changes in Use Over Time

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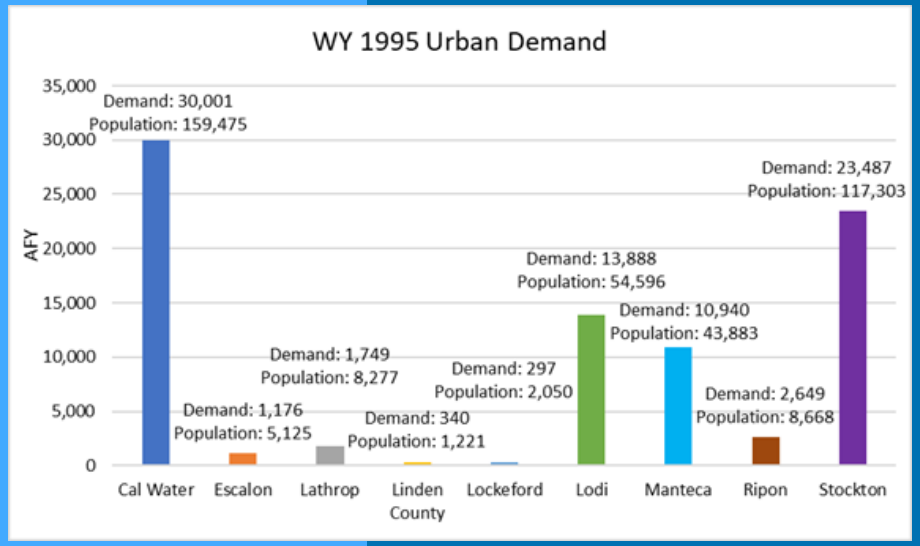
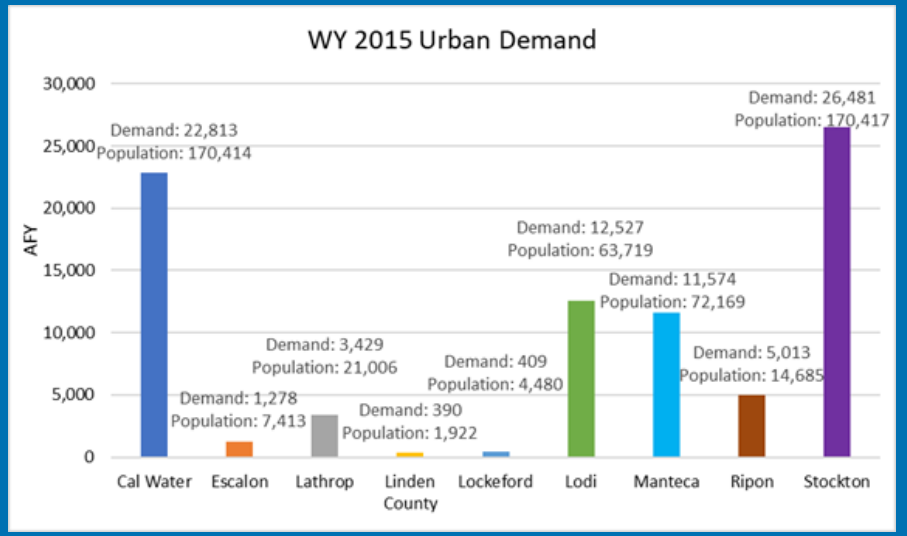
Totals and populations served have been added



1995



2015

Subsidence of Peat Soils in the Delta

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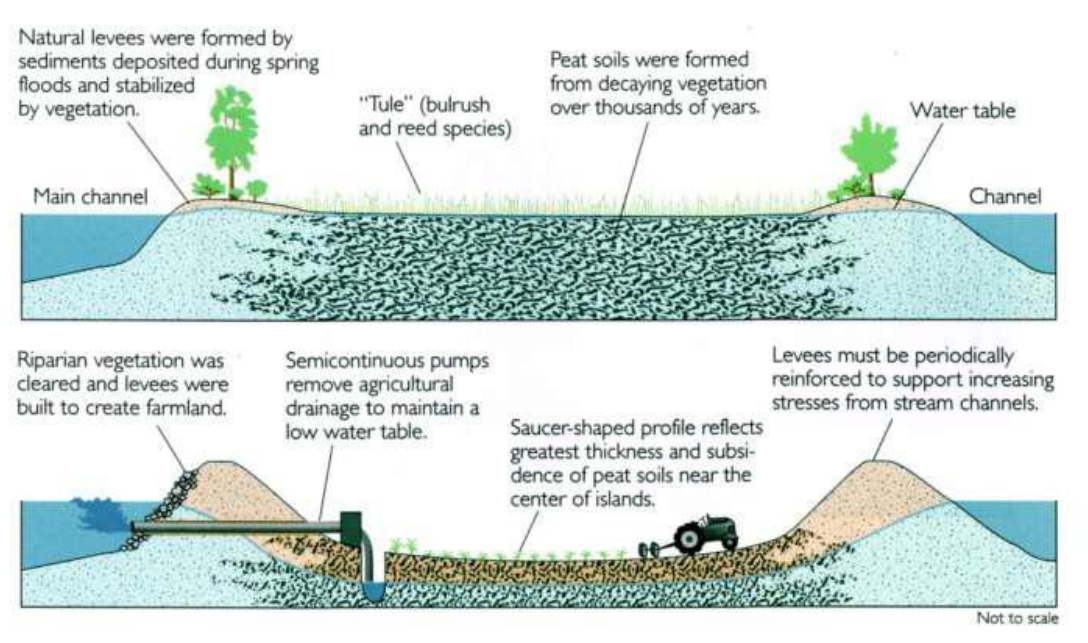

Mechanism:

Oxidation occurs when historically submerged peat soils contact the air, causing localized subsidence. This is primarily caused by conversion of land for agricultural uses.

Areas with Known Subsidence Due to Oxidation of Peat Soils

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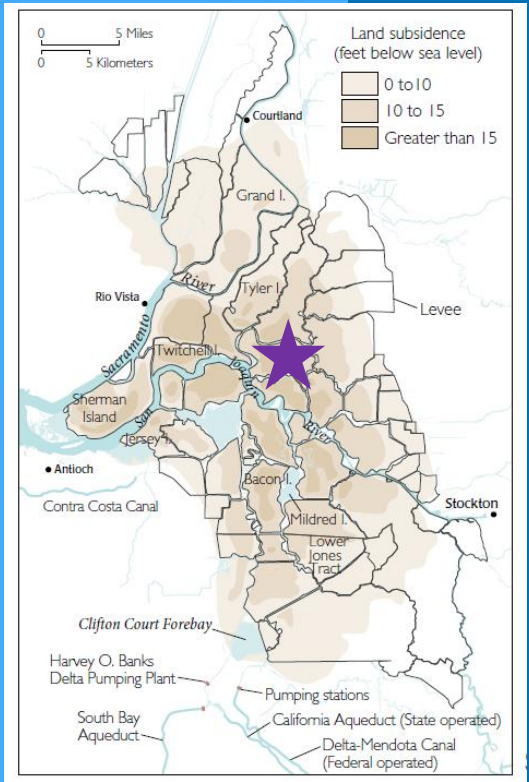
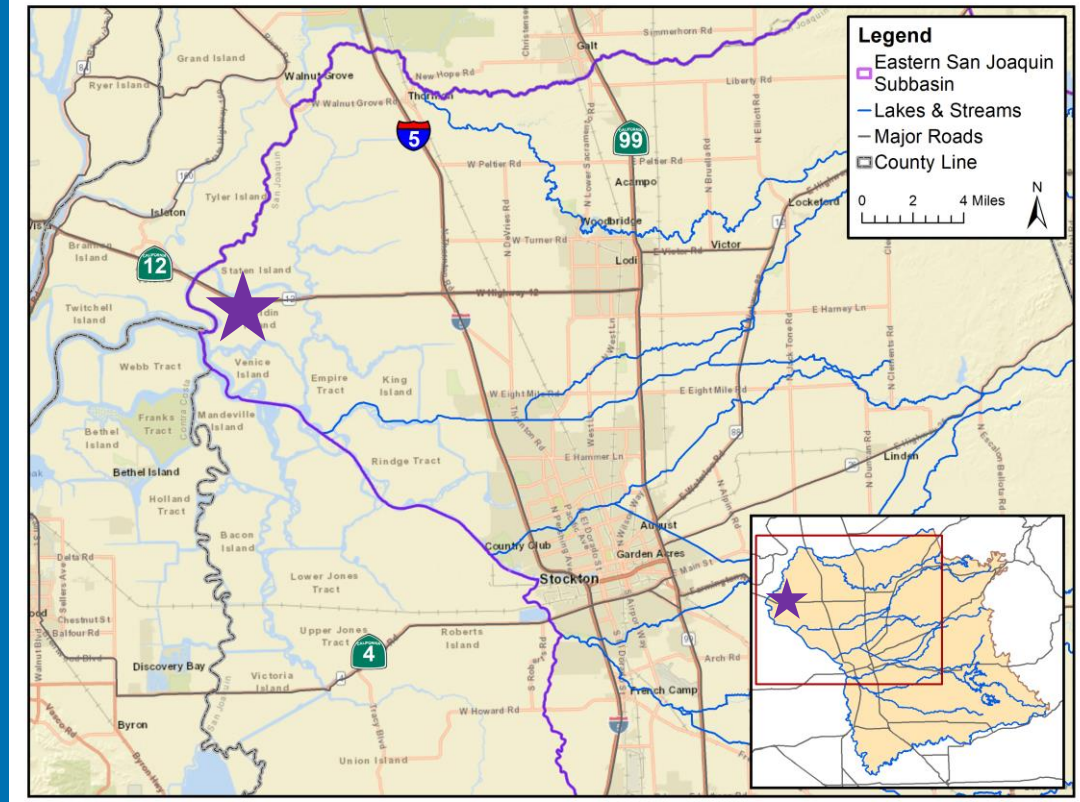


Source: United States Geological Survey (USGS)



Approach: Manage What We Have the Ability to Control Through GW Levels

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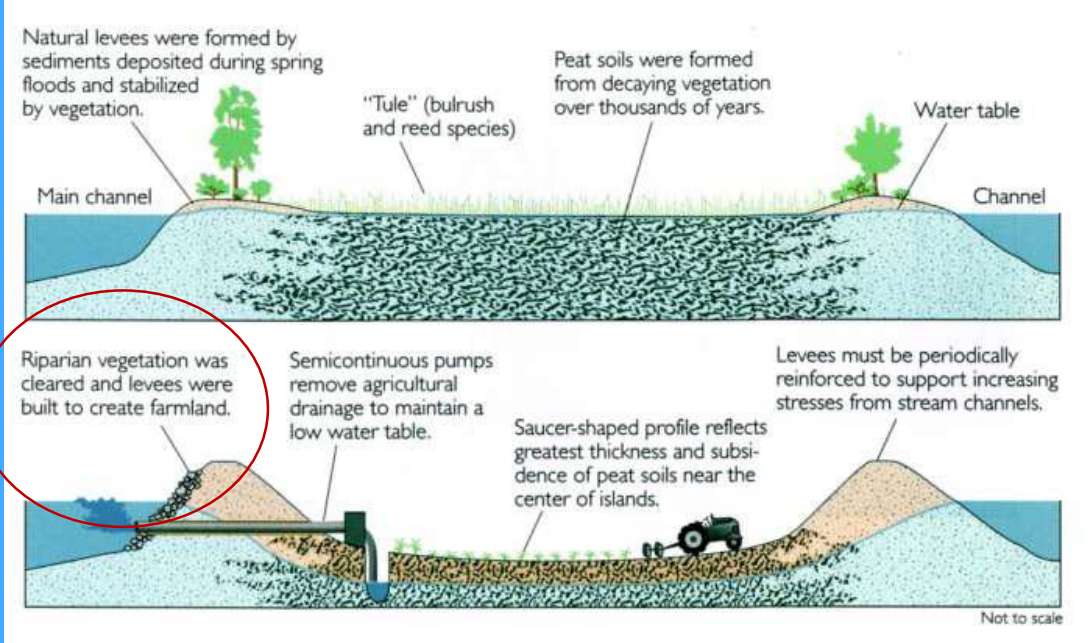

Because this is primarily caused by levees, it is unlikely reductions in groundwater pumping will have an impact on soil oxidation in these areas

Projected Water Budget

Review – What is a Water Budget?

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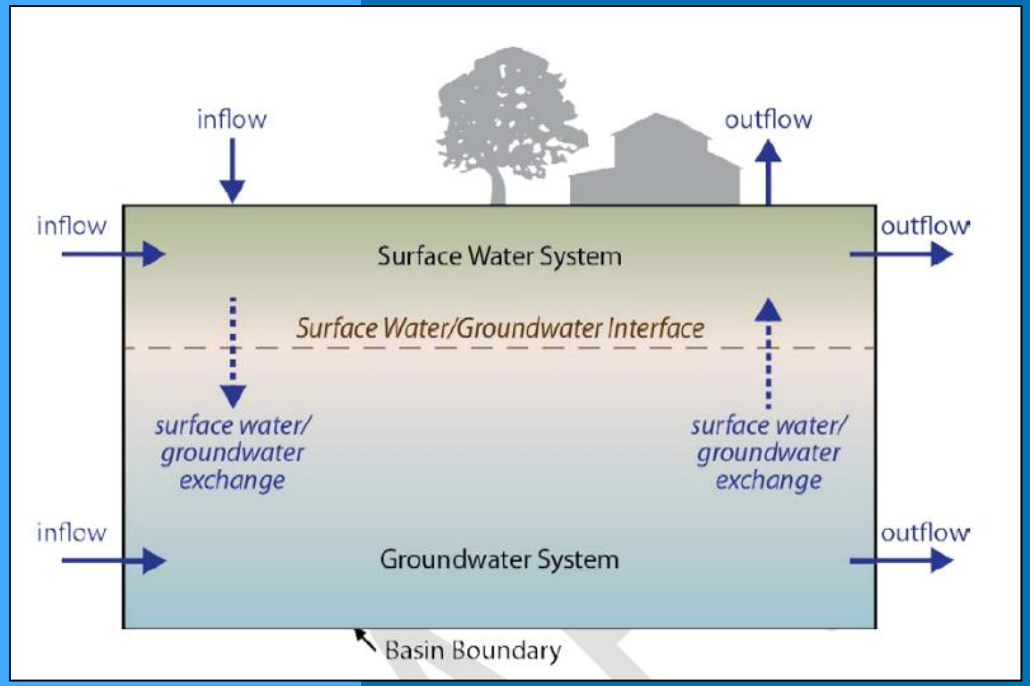

A Water Budget is an accounting of the total groundwater and surface water entering and leaving a groundwater basin

A Water Budget Operates like a Bank Account

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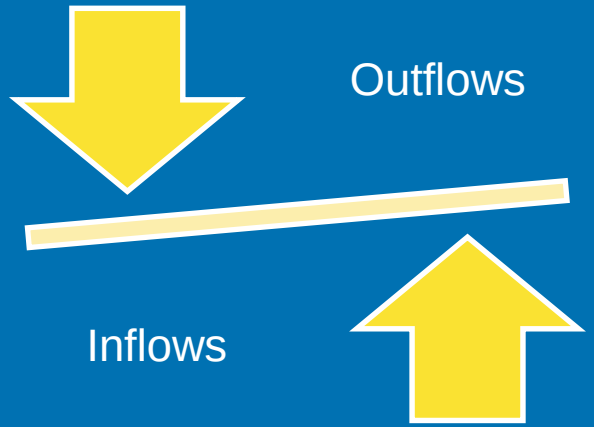
Inflows (supplies) and outflows (demands) are tracked and compared over time to identify change in amount of water stored.



Why are Water Budgets Important?

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- "You can't manage what you don't measure"
- A series of ongoing negative balances can result in long-term conditions of overdraft (the ESJ Subbasin is currently classified as "critically overdrafted")
- Carefully calculated Water Budgets increase the likelihood that planned projects and management actions will achieve the intended outcome within the intended timeframe

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.

Discussed last time

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.

Discussed last time

Projected Water Budget

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

Discussing today

Projected Water Budget Assumptions

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Urban Demand:

- Population growth based on San Joaquin Council of Governments
- Urban Demand growth from GSA planning documents (UWMPs)
- Gallons per capita per day (GPCD) calculated based on population and demand

Land Use and Cropping Pattern:

- Cities expand to sphere of influence (SOI)
- Land use and cropping patterns, 2014 DWR (LandIQ)

Projected Water Budget Assumptions

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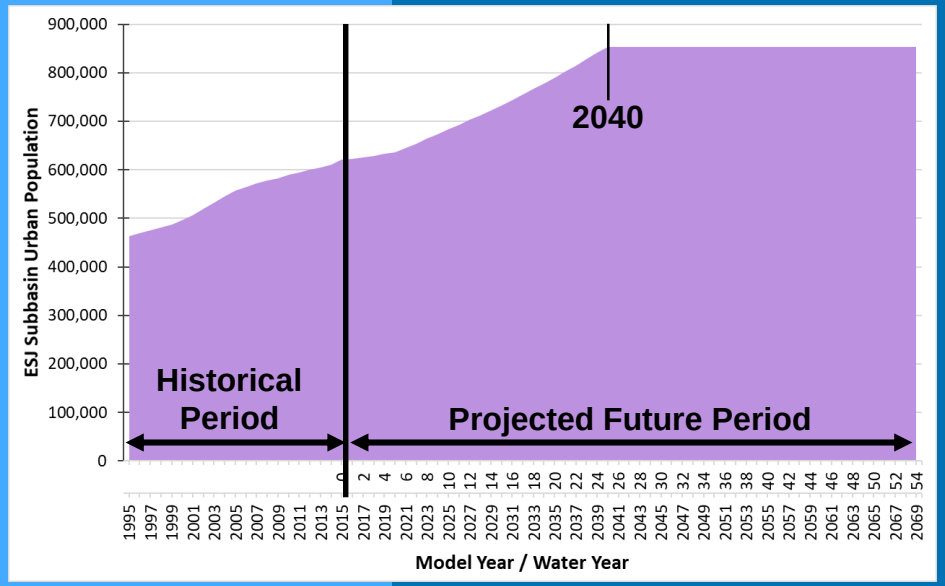
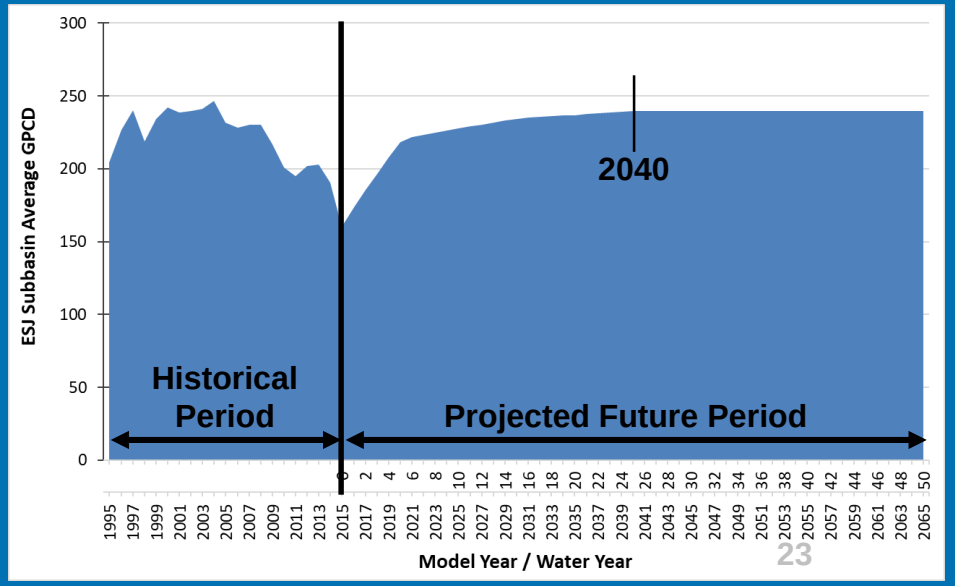
ESJ Subbasin Urban Population (1995-2069)



ESJ Subbasin Average Gallons Per Capita Per Day (GPCD) (1995-2065)



Projected Urban Land & Water Use

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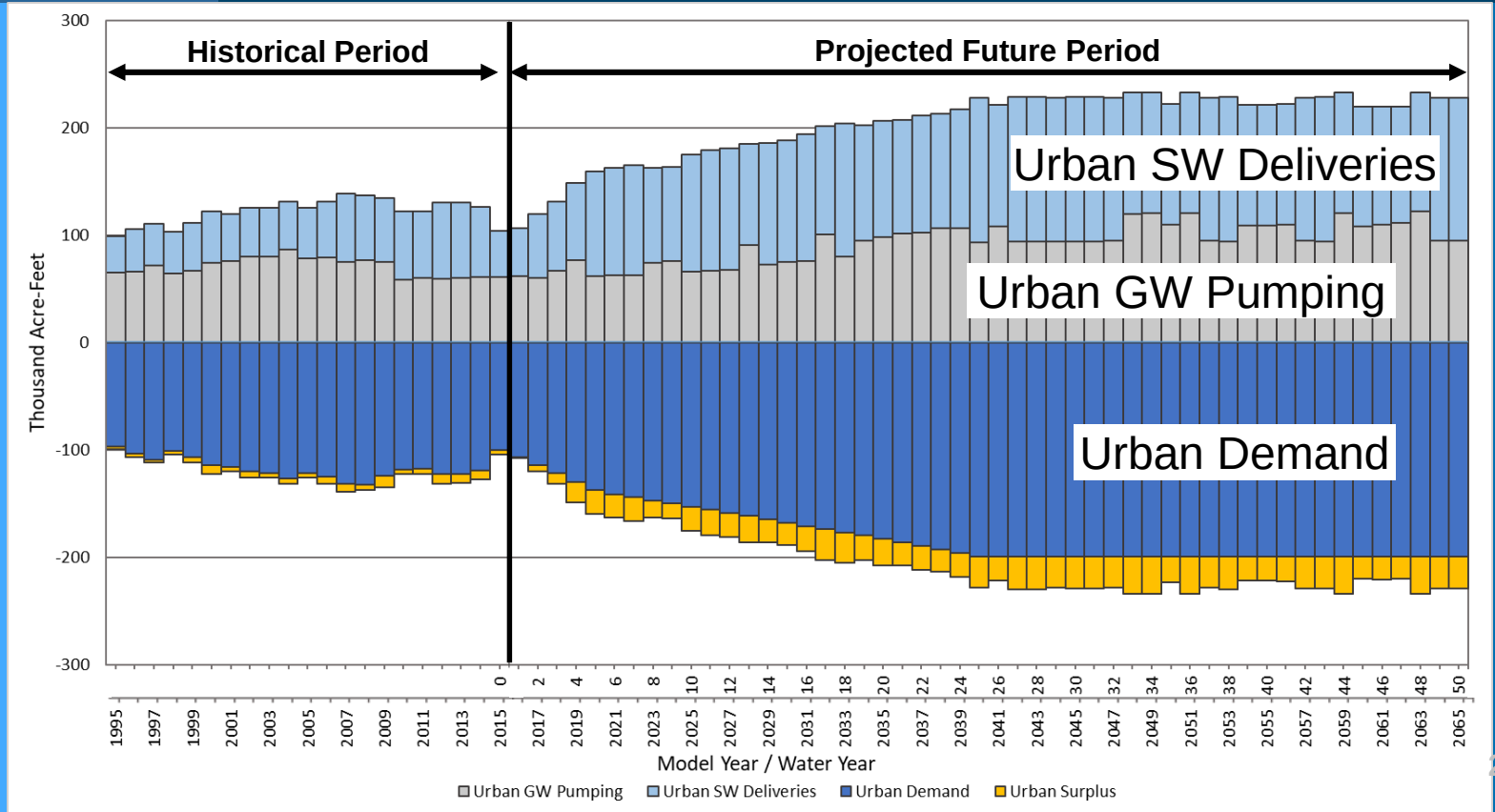

Projected Cropping Patterns

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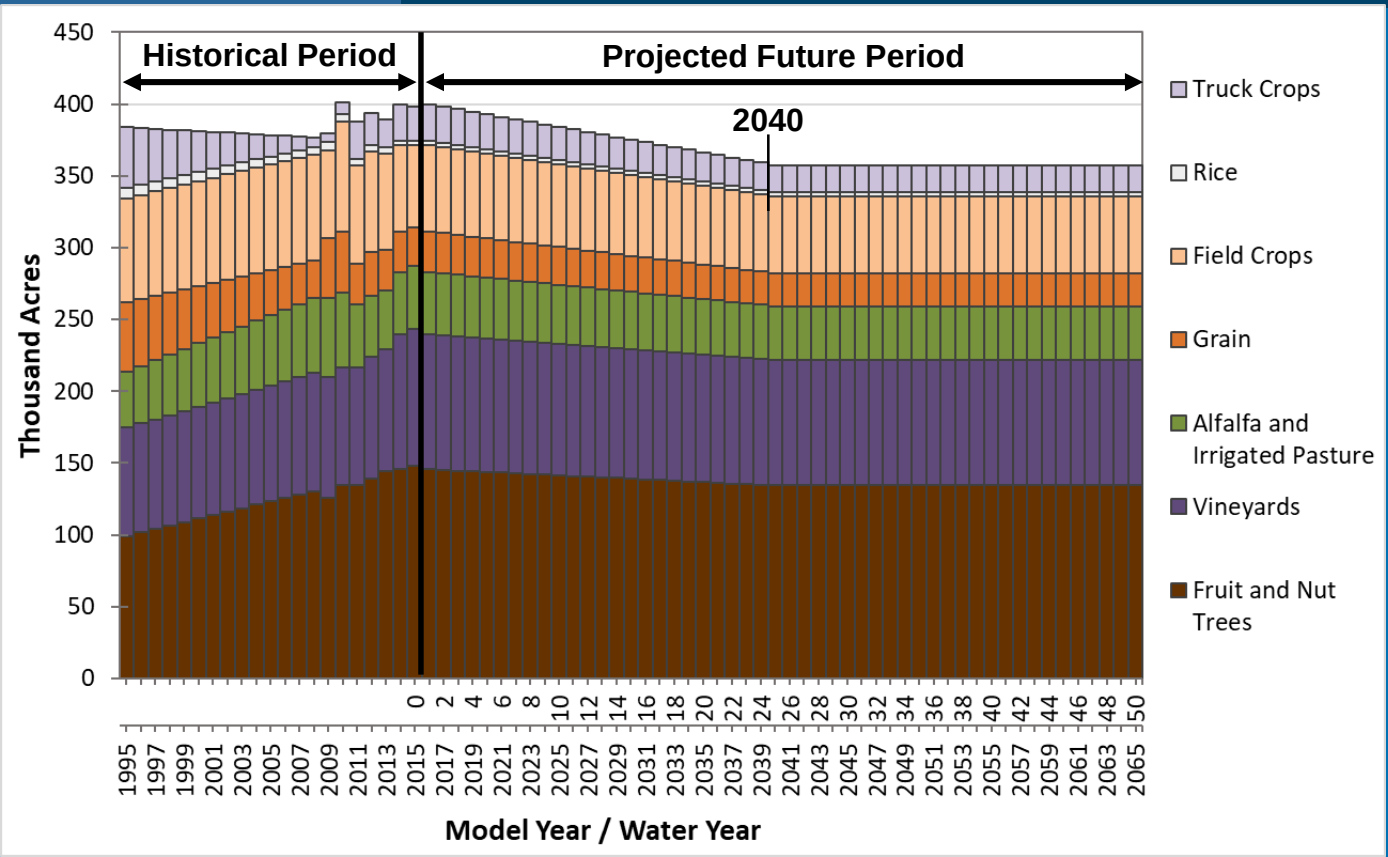

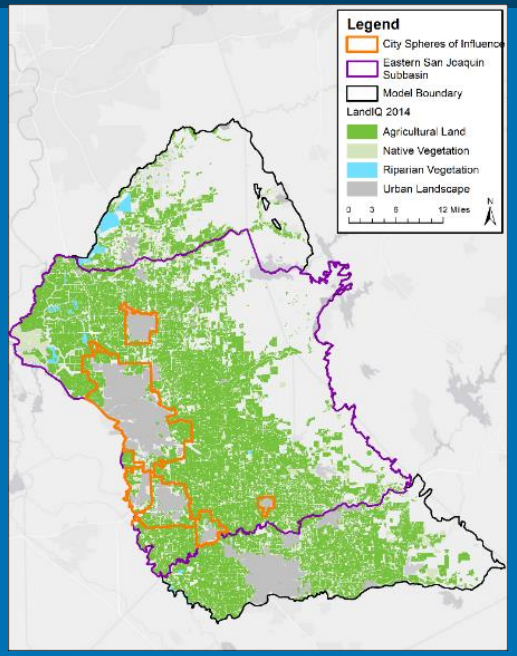

Projected Agricultural Land & Water Use

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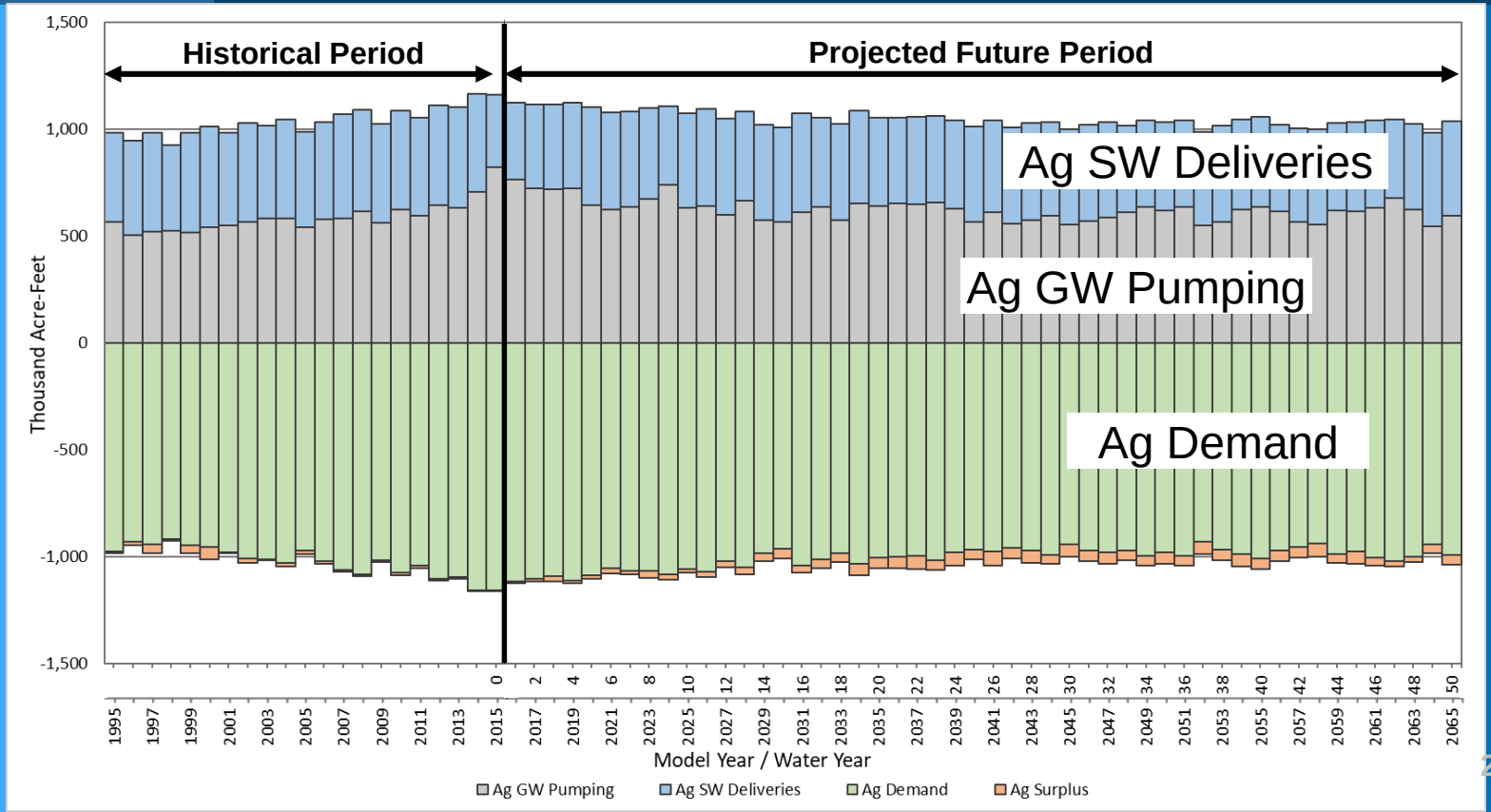

Projected Water Budget

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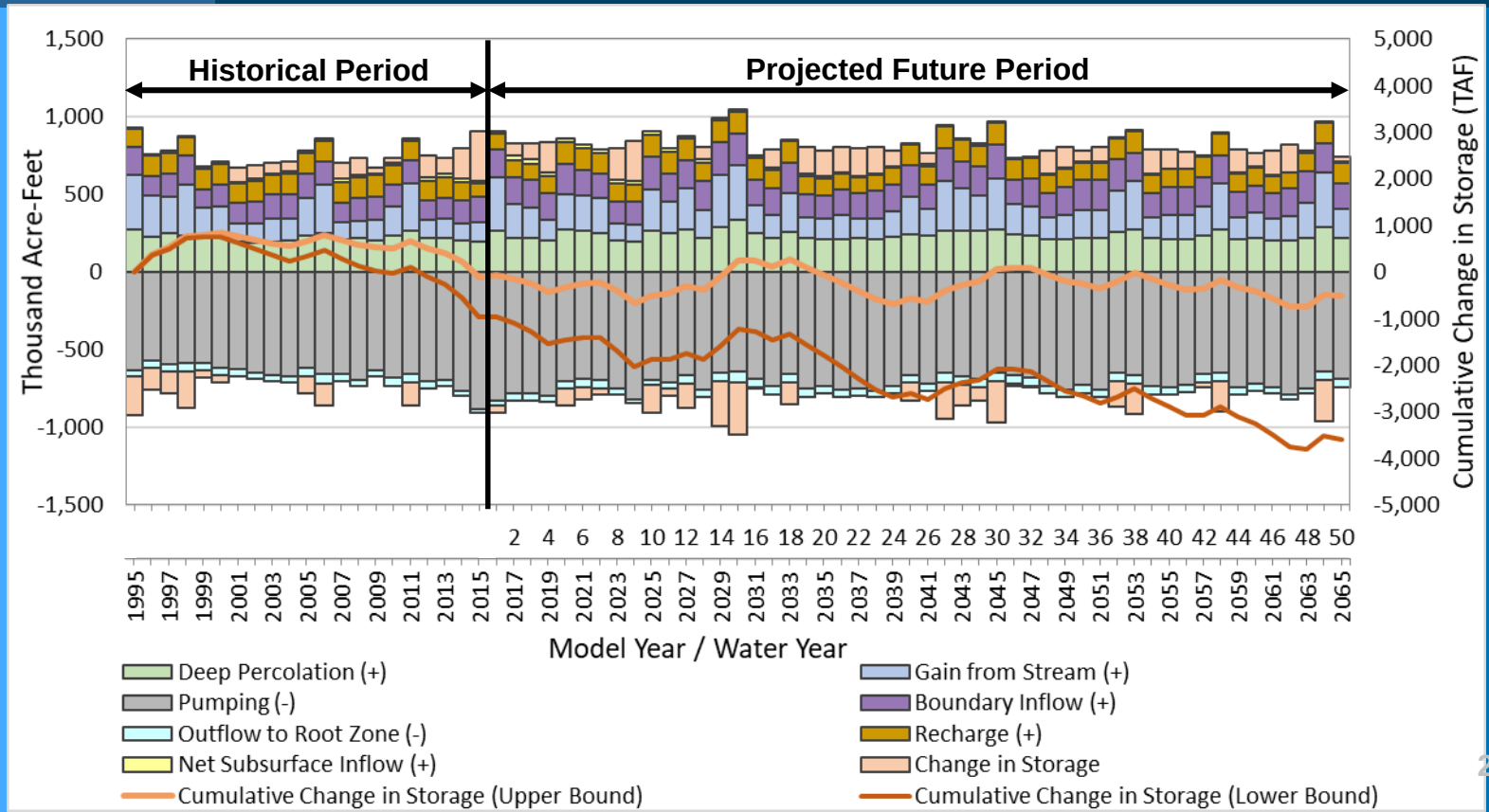

Projected Water Budget

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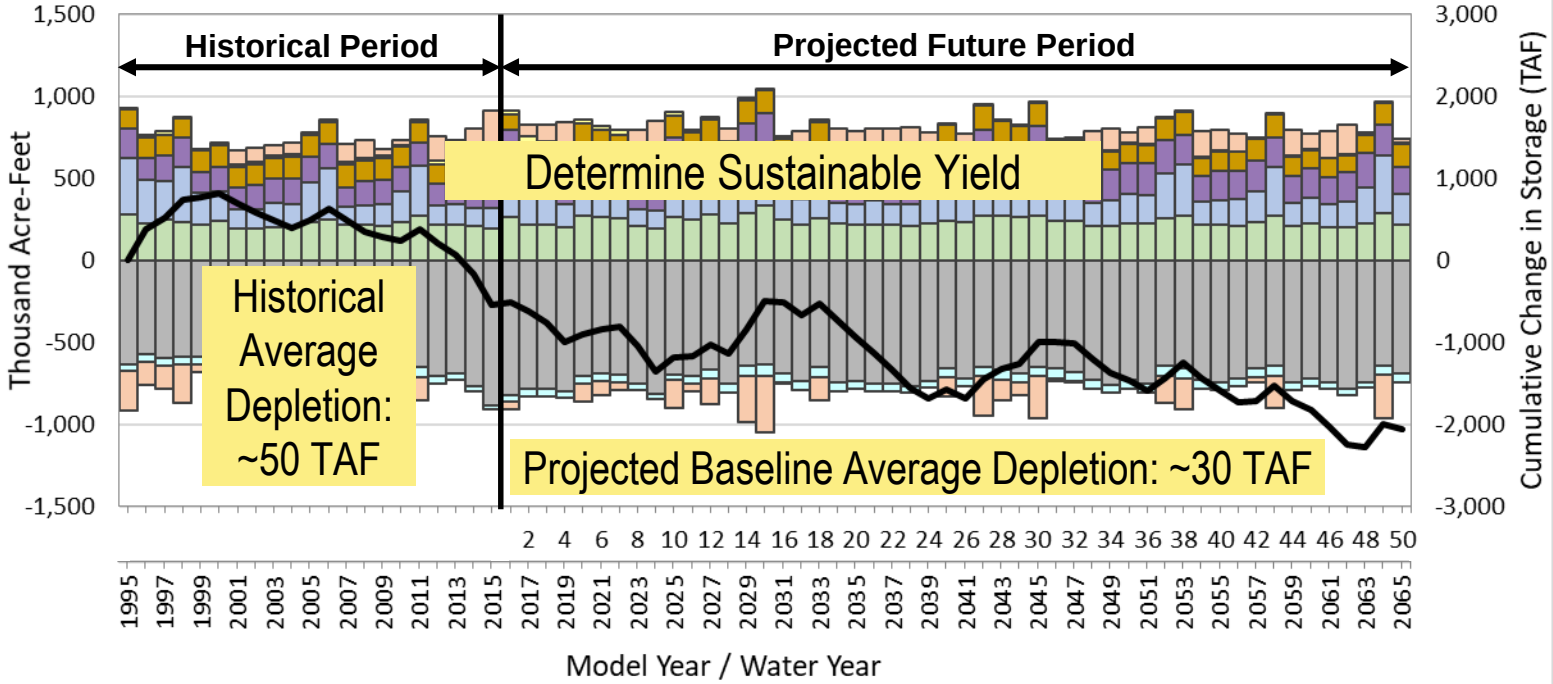

Sustainable Yield

What is Sustainable Yield?

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"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."

California Water Code Section 10721

Sustainable Yield Actions

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Demand-side sustainability actions:

- Reduce agricultural and urban GW use to achieve sustainability

Supply-side sustainability actions:

- Identify project and management actions to achieve sustainability

Composite sustainability actions:

- Combination of demand-side and supply-side actions

Sustainable Yield Modeling Assumptions

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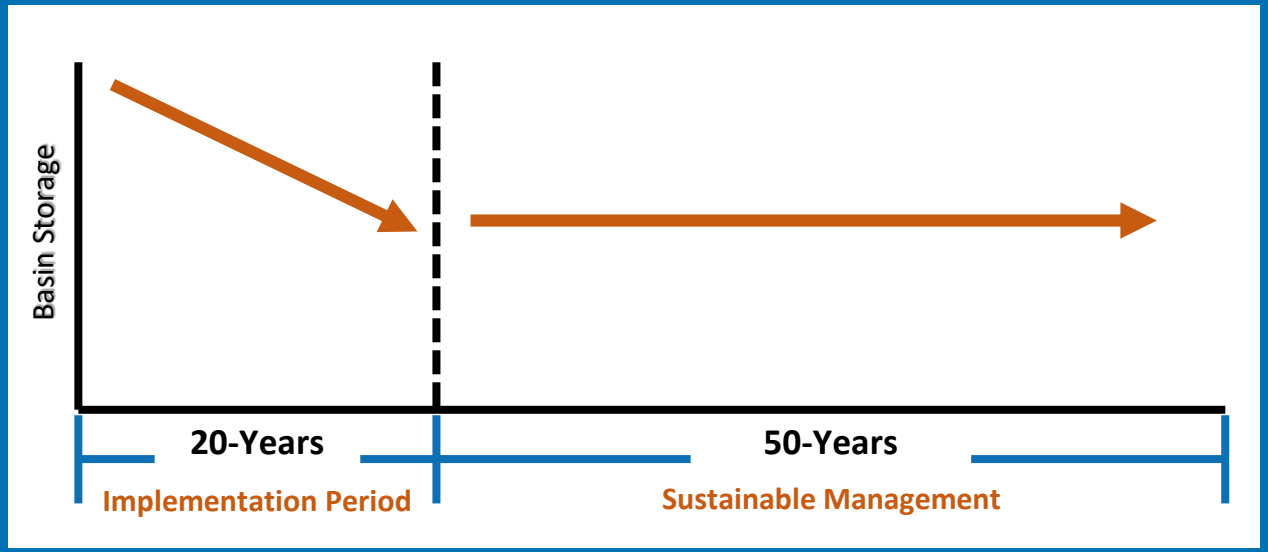
- Determine GW use reduction by 2040 to provide a soft transition to complete sustainability conditions



Summary: Sustainable Yield

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- To maintain sustainability, long-term GW use must be reduced by approximately 12-15%

Next Steps:

- Sustainability actions: Identify project and management actions to achieve sustainability

Projects and Management Actions – Introduction and Approach

Approaches to Meeting Sustainable Yield

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Allocation Approach

AF/acre groundwater allocation to meet sustainable yield.

Groundwater allocations are assigned to GSAs based on acreage; GSAs implement additional supply projects as needed / desired.

Basin-Wide Approach

Basin-wide supply projects eliminate overdraft

All groundwater users pay into project implementation

Basin Sustainability

Comparison of Approaches

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	Pros	Cons
Allocation Approach	• Standardized approach • Clear cut limits on pumping	• Metering needed • Pumping limitations may be significant in some areas • More GSA oversight required
Basin-Wide Approach	• May be more cost-effective • Could be scalable • Well positioned for outside funding • Preserves flexibility	• Projects must be economically feasible

Categories of Projects and Management Actions

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- Flood/Stormwater Management
- Recycling
- Conservation
- Recharge
- Transfers

Examples of Projects and Management Actions

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- Intra-basin transfers (water transfers to Stockton East, Central San Joaquin)
- Non-potable supply projects
- Conservation
- Potential ordinances
- Fallowed land program
- Groundwater markets

Approach

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GSAs have initiated discussion on and established framework for Projects and Management Actions

Following the October 10 Board Meeting, GSAs will participate in a Project and Management Actions Workshop

- Brainstorming session around values related to projects and management actions to be implemented

Announcements

Second Informational Meeting

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November 7th , 6:30-8:00 PM

Manteca Transit Center
220 Moffat Blvd.
Manteca, CA 95336

- Format will be open house style with an introductory presentation repeated throughout the evening
- Outreach materials have been sent to GSAs

Topics for Second Informational Meeting

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- SGMA Background and Basin Conditions
- Sustainability Indicators, Undesirable Results, and Minimum Thresholds
- Projects and Management Actions (introduction and approach)

What are critical messages to convey on each topic?

The GWA is on Facebook

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- The ESJ GWA Facebook page provides updates on GSP development and upcoming events
- You can like the page, share posts, or tag the page in your own posts

www.facebook.com/ESJGroundwaterAuthority

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Groundwater Sustainability Workgroup

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