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# Turlock Management Zone Pilot Study

## Steering Committee Meeting

Stanislaus County Farm Bureau  
MARCH 6, 2019



## MEETING AGENDA

- Introductions/Agenda Review
- Participant Outreach
- Preliminary Identification of Permitted Dischargers
- Management Zone Boundary
- Initial Groundwater Assessment - Update
- Areas With Wells Exceeding Nitrate Objective – Update
- Early Action Plan – Process to Identify Domestic Well Residents
- Project Schedule
- Posting Pilot Study Materials
- Review Action Items
- Scheduling Future Meetings

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PARTICIPANT OUTREACH

Discussion

3/5/2019

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IDENTIFICATION OF PERMITTED DISCHARGERS

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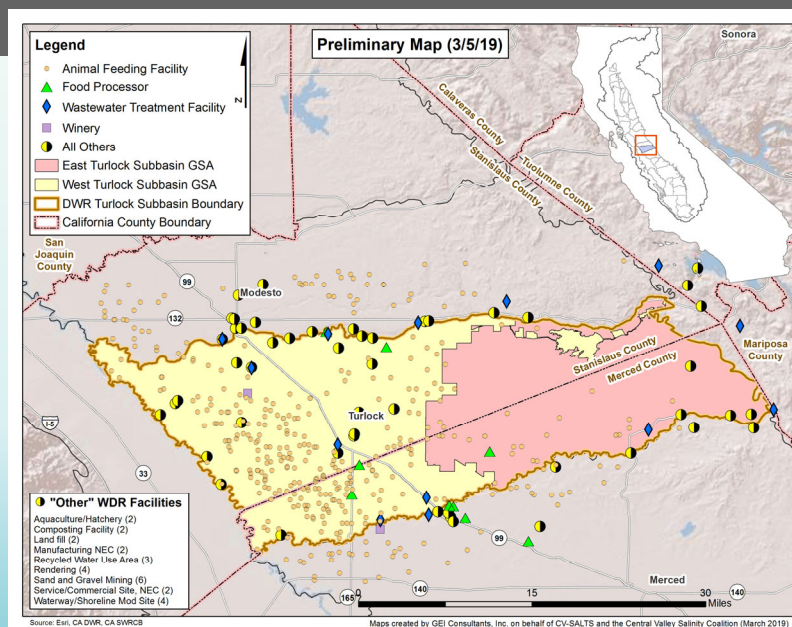
## IDENTIFICATION OF PERMITTED DISCHARGERS: PURPOSE

- Preliminary Management Zone Proposal must include the following:
  - Identification of other dischargers and stakeholders in the Management Zone area that the initiating group is in contact with regarding participation in the management zone
  - Identification/summary of current treatment and control efforts, or management practices

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## LOCATION OF OF KEY DISCHARGERS



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## PRELIMINARY DISCHARGER IDENTIFICATION: INITIAL FINDINGS

- Handouts – Preliminary List of Dischargers in Turlock East and West GSA; Source: California Integrated Water Quality System Project (CIWQS)
  - Turlock East GSA
  - Turlock West GSA
- List is preliminary only; generated by overlaying GIS coordinates of facilities with GSA boundaries
- Next Steps
  - Work with the Regional Board staff on refining the list
  - Conduct additional outreach where needed
  - For dischargers interested in Management Zone participation, obtain information on current nitrate management practices

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## MANAGEMENT ZONE BOUNDARY

Finalize Preliminary Boundary for the Management Zone

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## SELECTION OF TURLOCK MANAGEMENT ZONE BOUNDARY

- Question: Given differences in water quality should the Turlock Subbasin be one large Management Zone or subdivided into two Management Zones?
- If Subbasin is split and focus of the project is on the westside, remaining eastern part of Subbasin area remains Priority 1, unless effort made to change status:
  - Permittees may request, for a subbasin or a portion of a subbasin, that issuance of Notices to Comply be deferred
  - Request for deferral must be accompanied by documentation related to the factors considered during the original prioritization.
  - Request may be provided at any time up to six months prior to the scheduled issuance of a Notice to Comply

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## SELECTION OF TURLOCK MANAGEMENT ZONE BOUNDARY

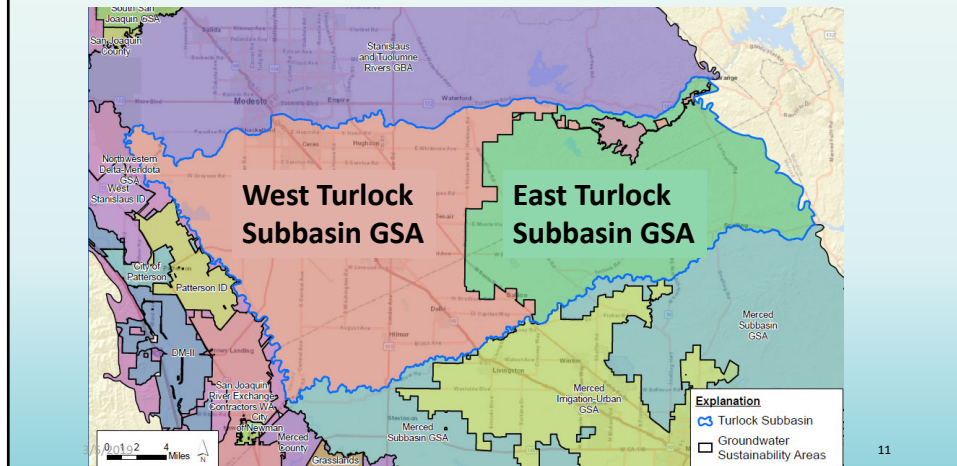
- Alternative approach to splitting the Turlock Subbasin – form single Management Zone, but under Management Zone Implementation Plan (MZIP), establish priority areas. Per MZIP requirements:
  - Identify nitrate management activities within a Management Zone which may be prioritized based on factors identified in the Central Valley SNMP (2016) and the results of the characterization of nitrate conditions. Prioritization provides the basis for allocating resources with resources directed to the highest water quality priorities first.

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## GSAs NEAR TURLOCK SUBBASIN

- Hydrologically contiguous area
- Dischargers in MZ work collectively to meet Nitrate Control Program goals
- Nitrate Program and SGMA: Consider some of the synergies

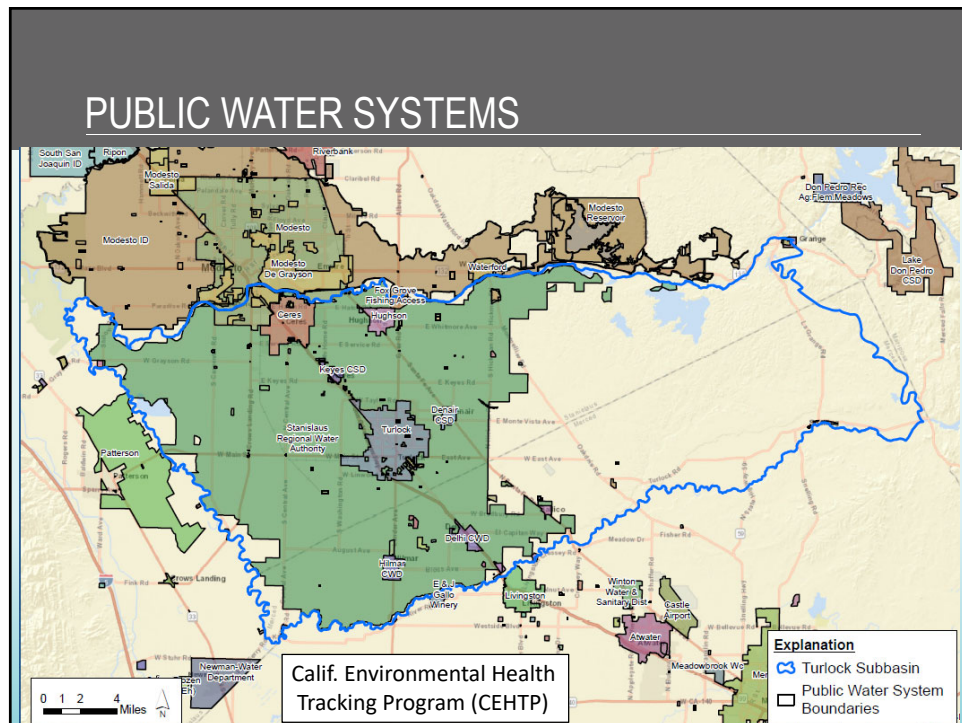
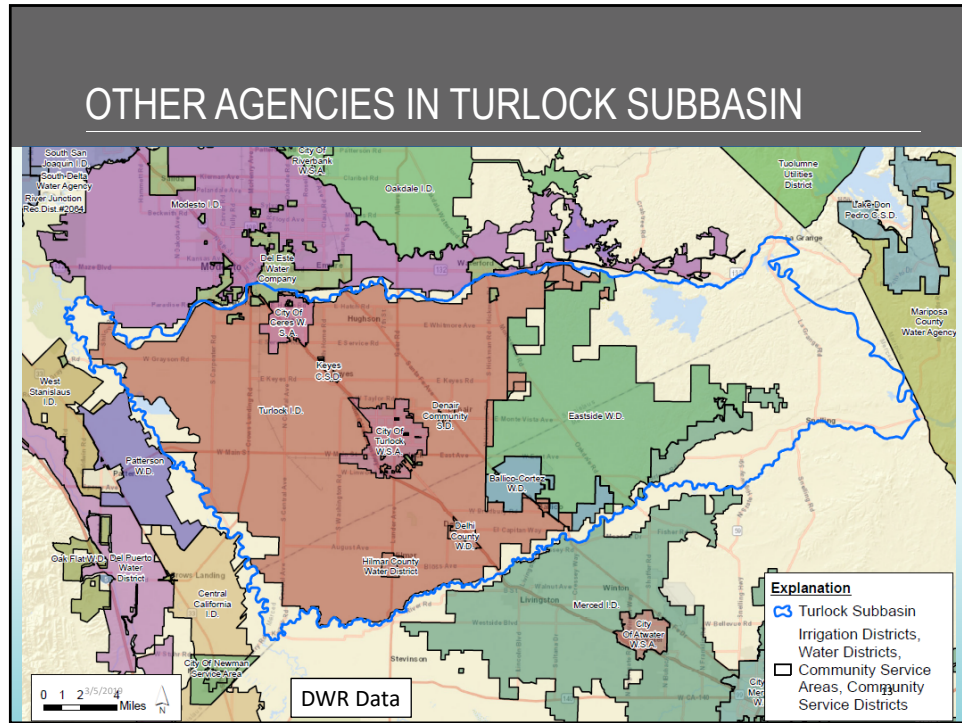


## ADDITIONAL DATA INQUIRIES

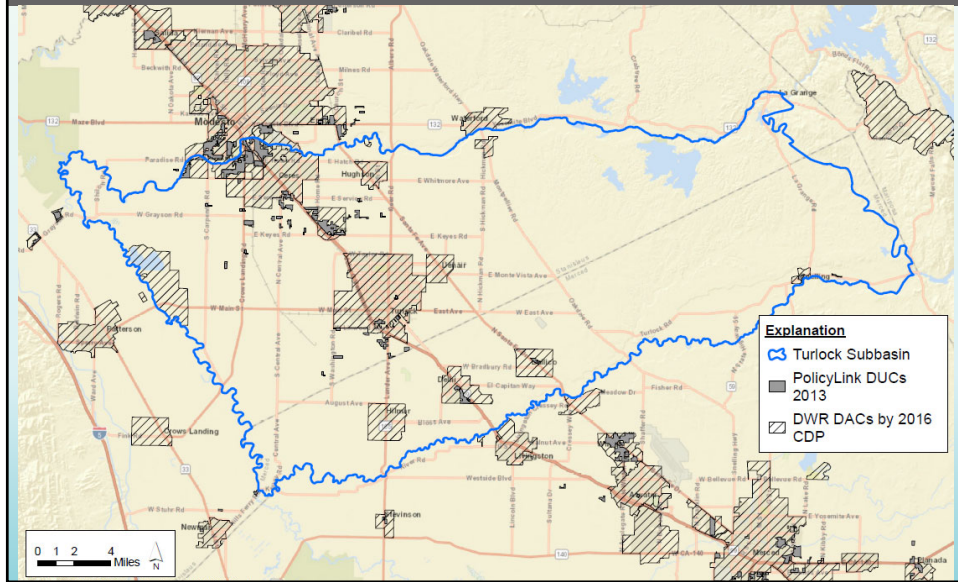
- DACs/DUCs/Related
  - Policy Link: DUC polygon information 2013 (published 2014)
- Domestic Wells
  - Better location information than in DWR dataset
  - Information to connect well/property owners to drillers' reports
  - Calls with Stanislaus and Merced Counties/Environmental Health re domestic well data; Stanislaus does not track; Merced has database
- Groundwater quality data
  - Seeking quality data not available on public websites
  - Groundwater quality data: Prefer for wells with construction information
  - State Smalls: Stanislaus (20 state smalls; WQ data last 5 yrs); Merced (data request submitted)
  - Hydrogeologic Conceptual Model (including GW quality)
- Permitted discharge sites
  - RWQCB update

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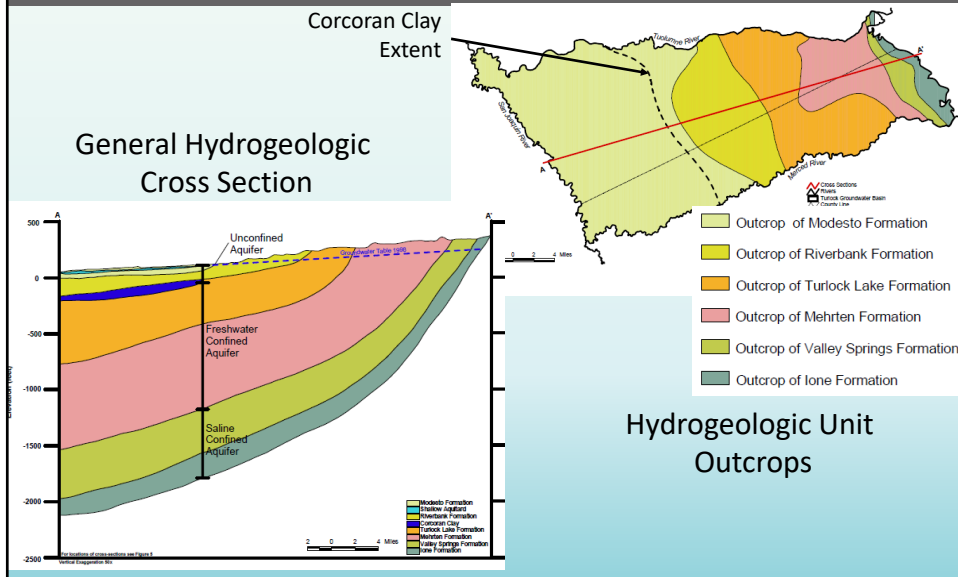




## PRELIMINARY MAP OF DISADVANTAGED COMMUNITIES

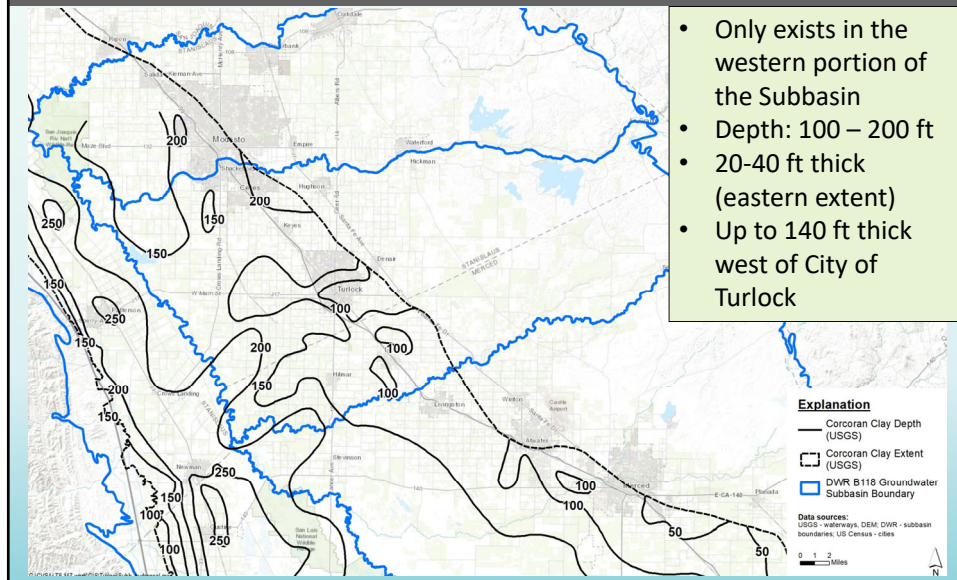


## HYDROGEOLOGIC UNITS – MAP AND CROSS SECTION (FROM TURLOCK GWMP, 2008)

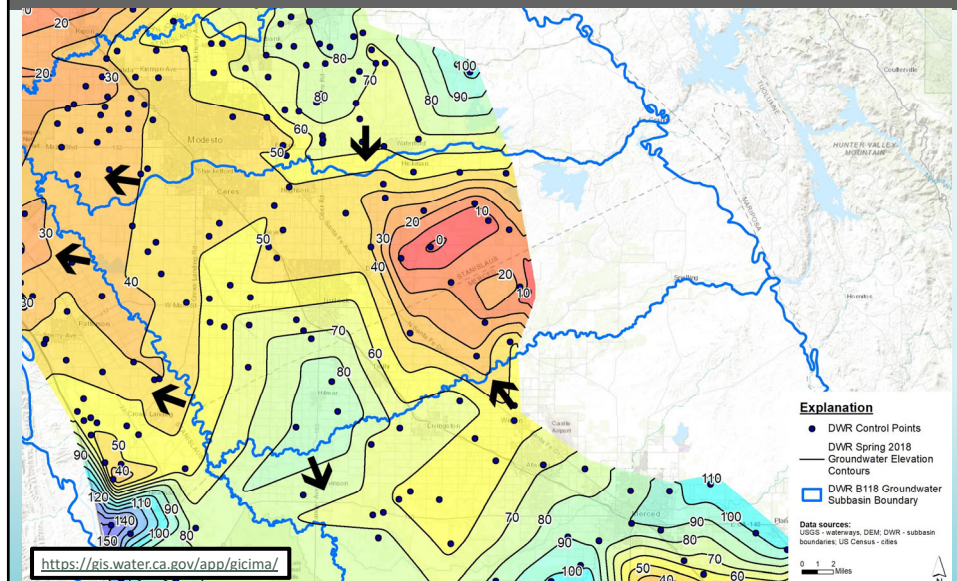




## CORCORAN CLAY DEPTH AND EXTENT

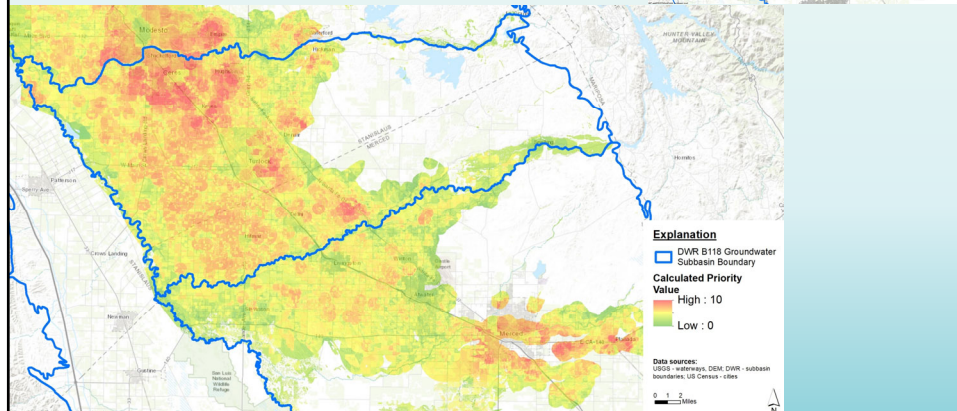


## GROUNDWATER ELEVATIONS AND FLOW DIRECTIONS (SPRING 2018, DWR)



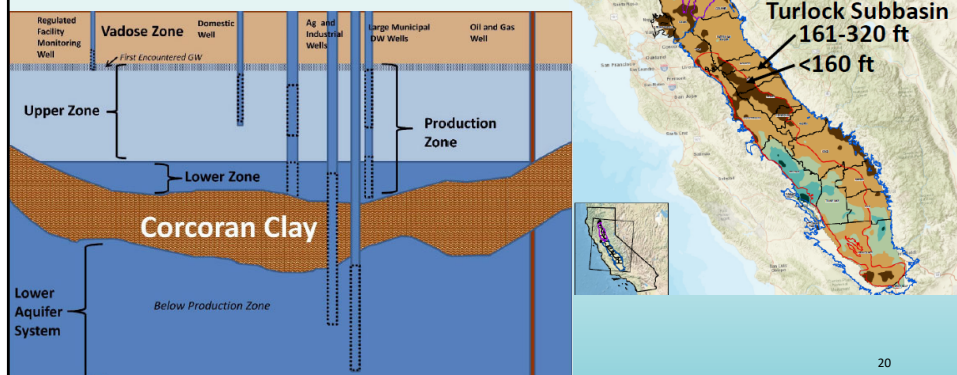
## HIGH VULNERABILITY AREA (HVA) MAPPING (ESJWQC GAR, 2014)

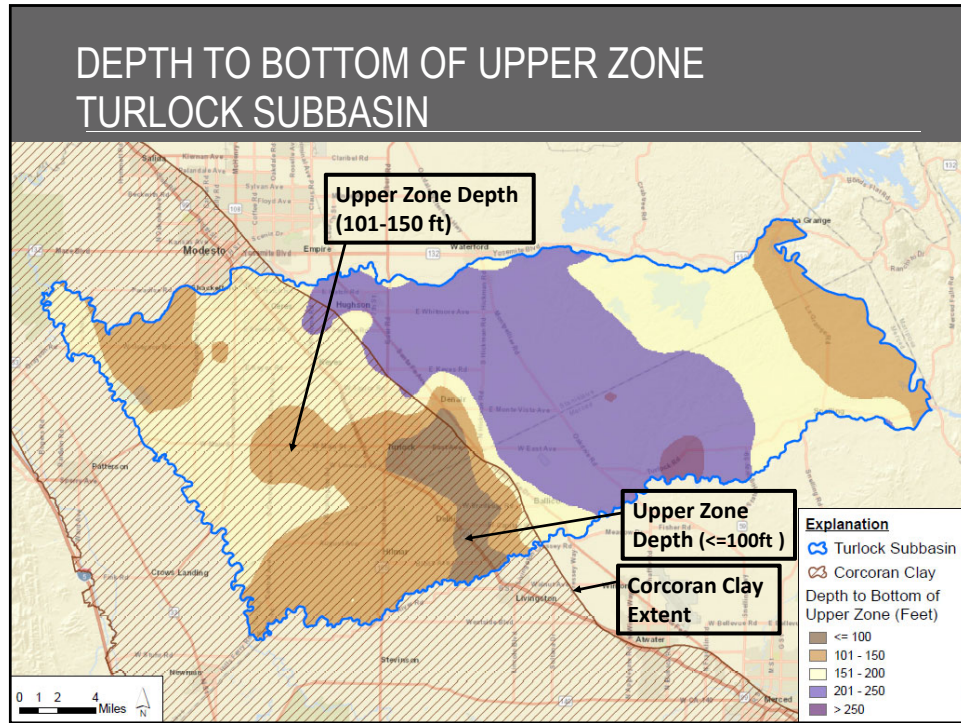
- Physical Intrinsic Vulnerability Approach with land use considerations to determine HVA
- Calculated Priority Values for HVAs (0 to 10 high)





## DEPTH TO BOTTOM OF UPPER ZONE (CENTRAL VALLEY)

- Results of CV-SALTS data interpretation
- Depth of Upper Zone variable across Central Valley; 1 sq. mile interpretation









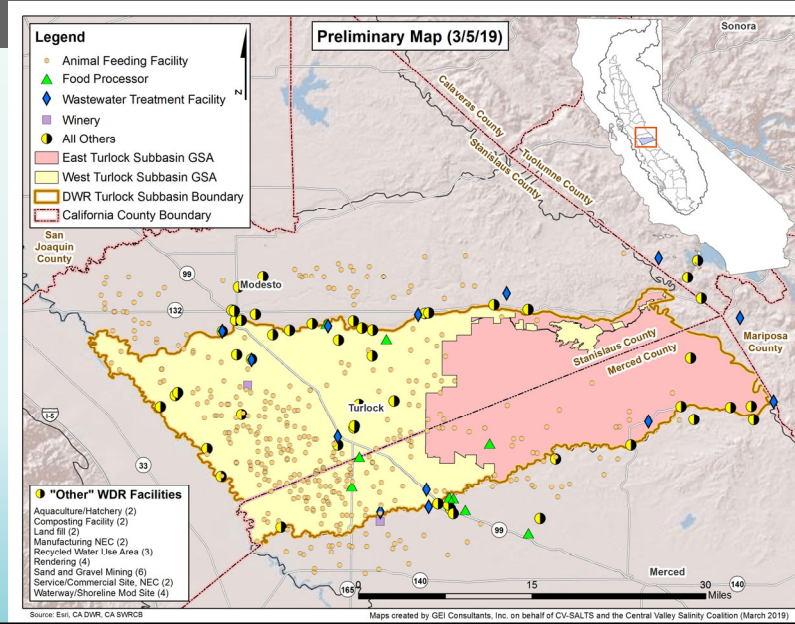
## DATA ANALYSIS - UPDATE

- Initial Groundwater Quality Assessment
- Wells Exceeding Nitrate Objective

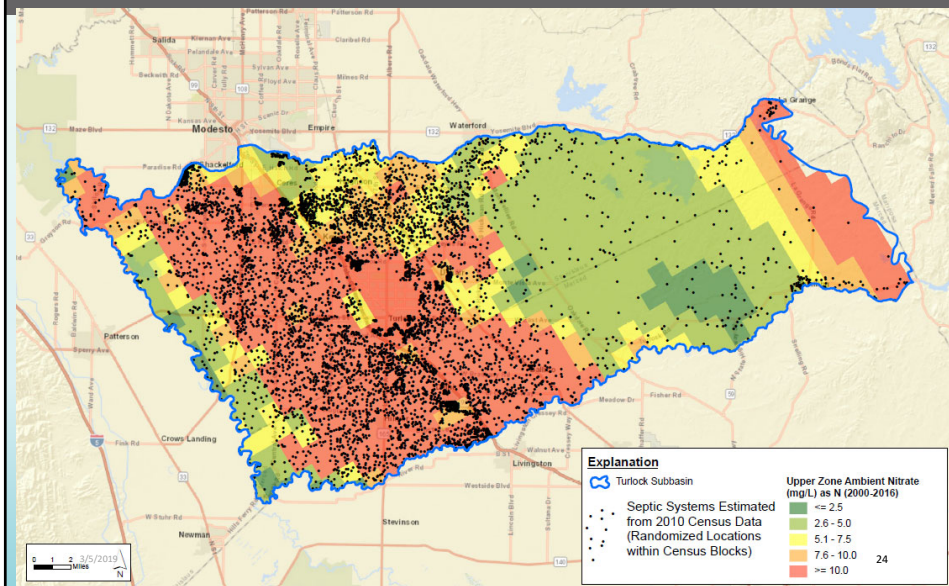
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## LOCATION OF OF KEY DISCHARGERS

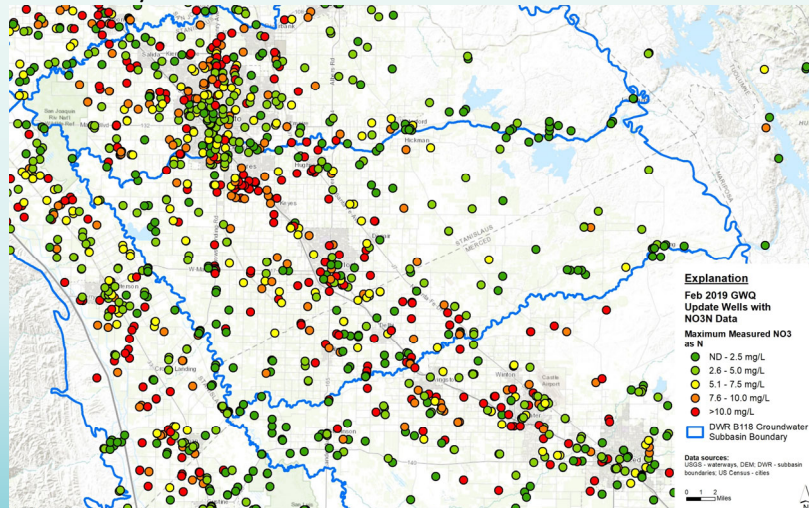


## SEPTIC SYSTEMS



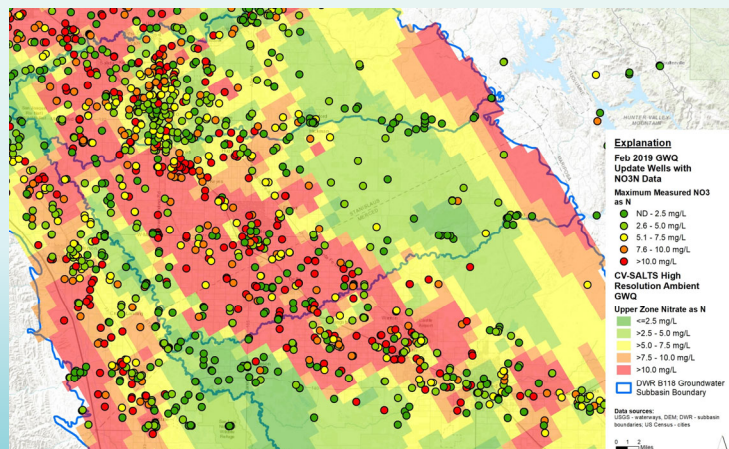
## NITRATE GROUNDWATER DATA UPDATE (PUBLICLY AVAILABLE DATA)

- Maximum Nitrate Concentrations in Groundwater Wells:  
All Publicly Available Data



## NITRATE DATA (PUBLICLY AVAILABLE): 1943-2018

- Maximum Nitrate Concentrations Measured in Groundwater Wells  
(1943-2018) **[Well Point Data Shown Below]**
- CV-Salts High Resolution Ambient Upper Nitrate **[Color Underlay]**



## NITRATE DATA UPDATE

Updated GeotrackerGAMA dataset wells with nitrate data in Turlock Subbasin MZ (all dates):

Category	No. (%)
Wells with Depth Info	231 (59%)
Wells without Depth Info	163 (41%)
<b>Total Number of GeotrackerGAMA Wells in Management Zone</b>	<b>394</b>

The above wells with data are from datasets posted on publicly available websites.

## NITRATE DATA WELL DEPTH CATEGORIZATION

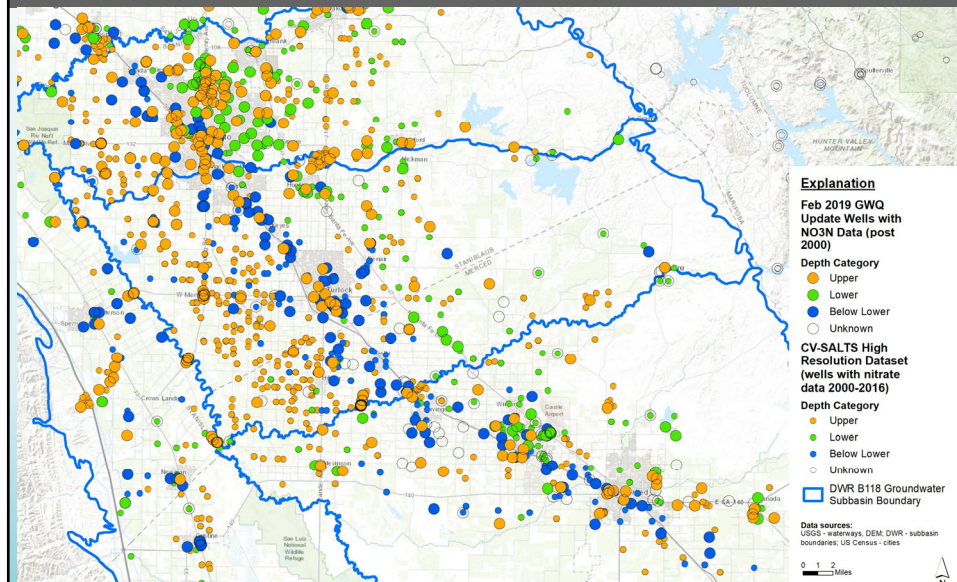
- First by Well Depth, if available
- Second (if no well depth info is available) by Well Type
  - Monitoring Wells (regulated facility) = Upper
  - Domestic Wells = Upper
  - Municipal Wells: Use DWR's Well Completion Report statistics for township/range-section's mean well depth
  - Unknown Well Type = Unknown Well Type

Wells with Nitrate Data in the Turlock Subbasin MZ

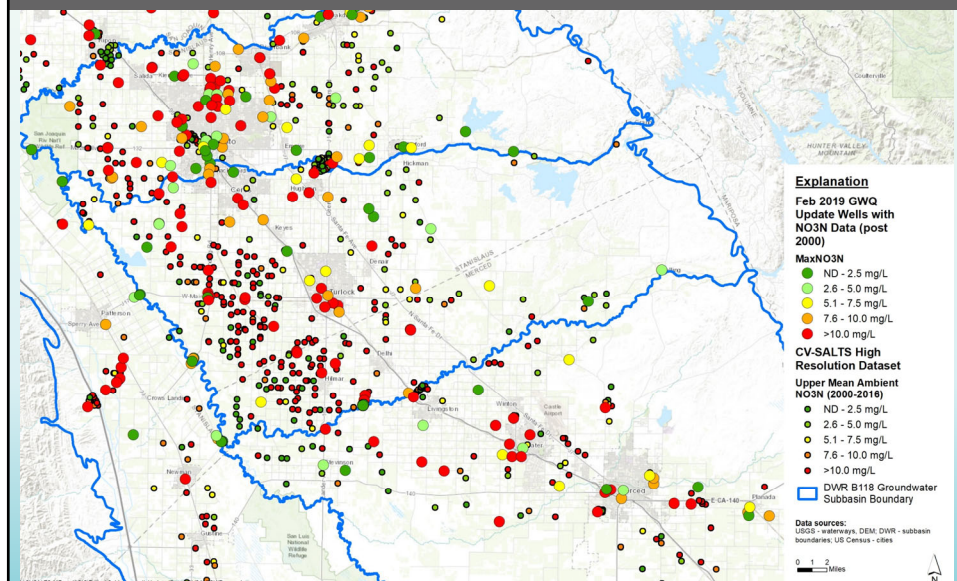
Depth Category	Updated GeotrackerGAMA Nitrate Wells	Original CV-SALTS Nitrate Wells
	No. of Wells	No. of Wells
Upper	136 (34%)	327 (67%)
Lower	18 (5%)	58 (12%)
Below Lower	103 (26%)	100 (21%)
Outside Valley Floor	0 (0%)	0
Unknown	137 (35%)	0
<b>Total</b>	<b>394</b>	<b>485</b>

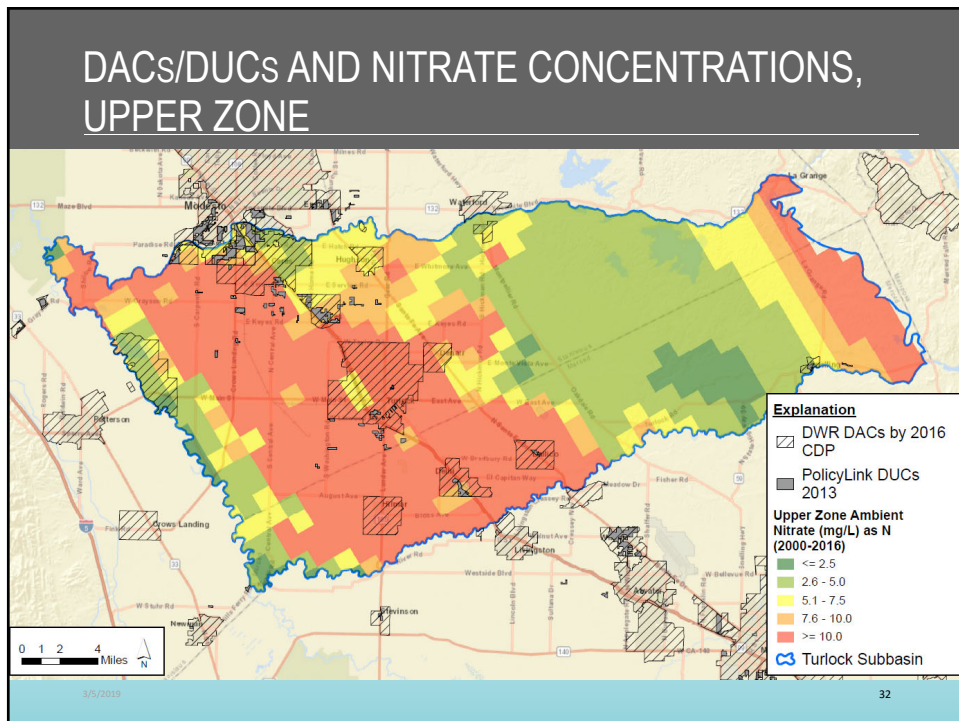
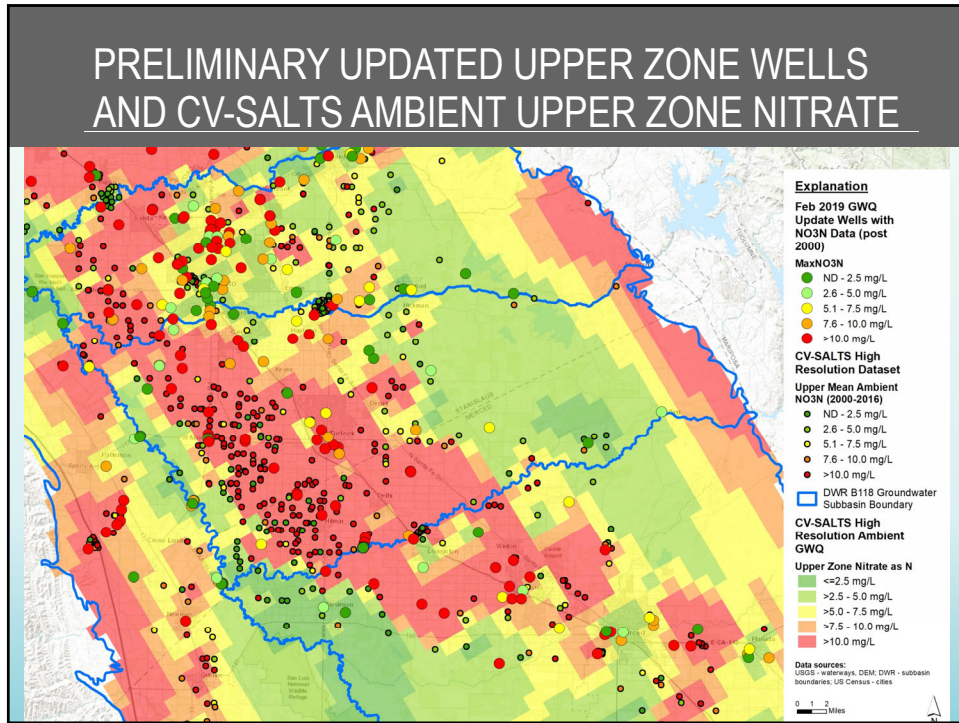


## POST-2000 NITRATE DATA & WELL DEPTH CATEGORIZATION

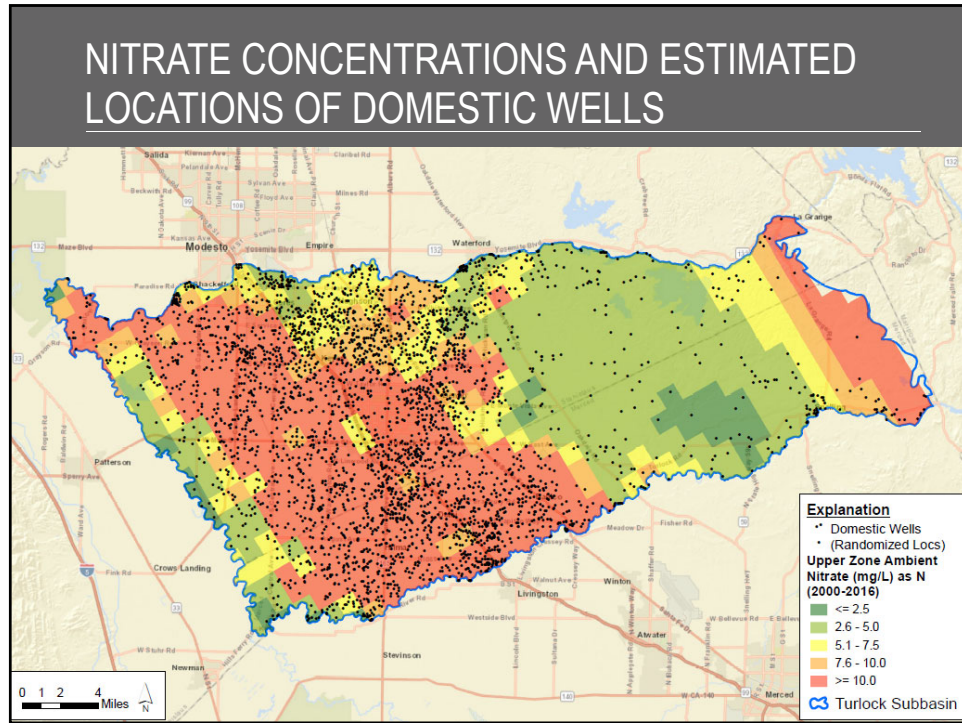



## PRELIMINARY UPDATED UPPER ZONE NITRATE (2000-2019 MAXIMUM)














## EARLY ACTION PLAN

### Process to Identify Residents with Domestic Wells

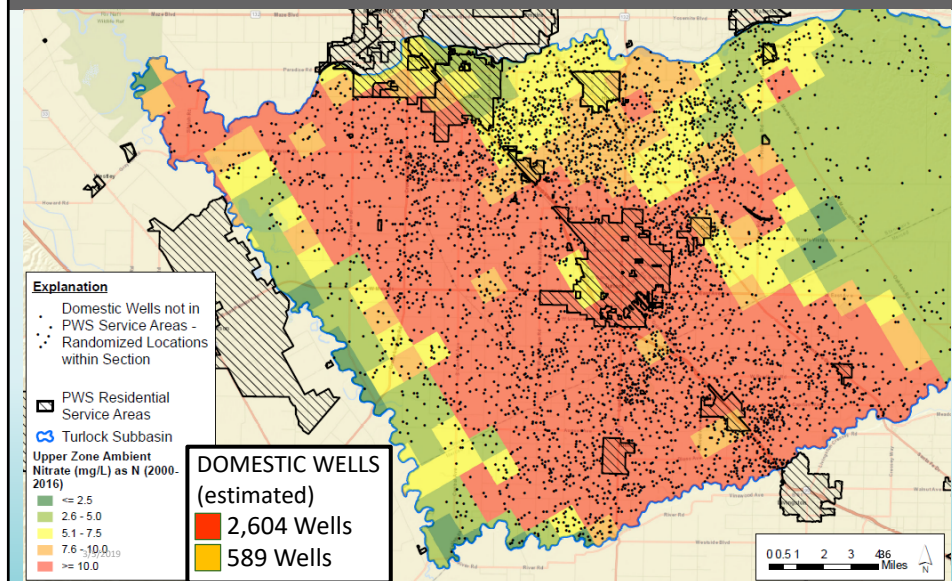
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## POTENTIAL APPROACHES TO IDENTIFY AREAS FOR EARLY ACTION PLAN

1. Identify areas most likely served by community water system groundwater source
    - Identify Public Water Supply service areas
    - Identify state small water system locations (wells; service areas if known)
  2. Domestic wells
    - Focus on wells likely located outside of areas most likely served by community water system
  3. Nitrate exceeding Drinking Water Standard
  4. Other? (e.g., update information with future domestic well water quality data)
- Intersect subset of Domestic wells with Nitrate areas where groundwater likely to exceed 10 mg/L as NO<sub>3</sub>-N

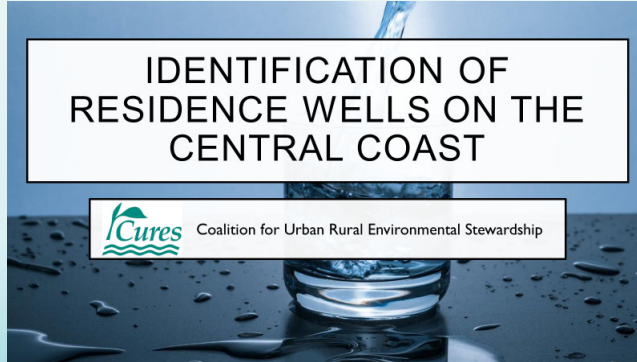
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## INTERSECTION OF PUBLIC WATER SUPPLY, DOMESTIC WELL AND ELEVATED NITRATE DATASETS



## EXAMPLE OF A DOMESTIC WELL IDENTIFICATION PROCESS

- Presentation – Coalition for Urban Rural Environmental Stewardship



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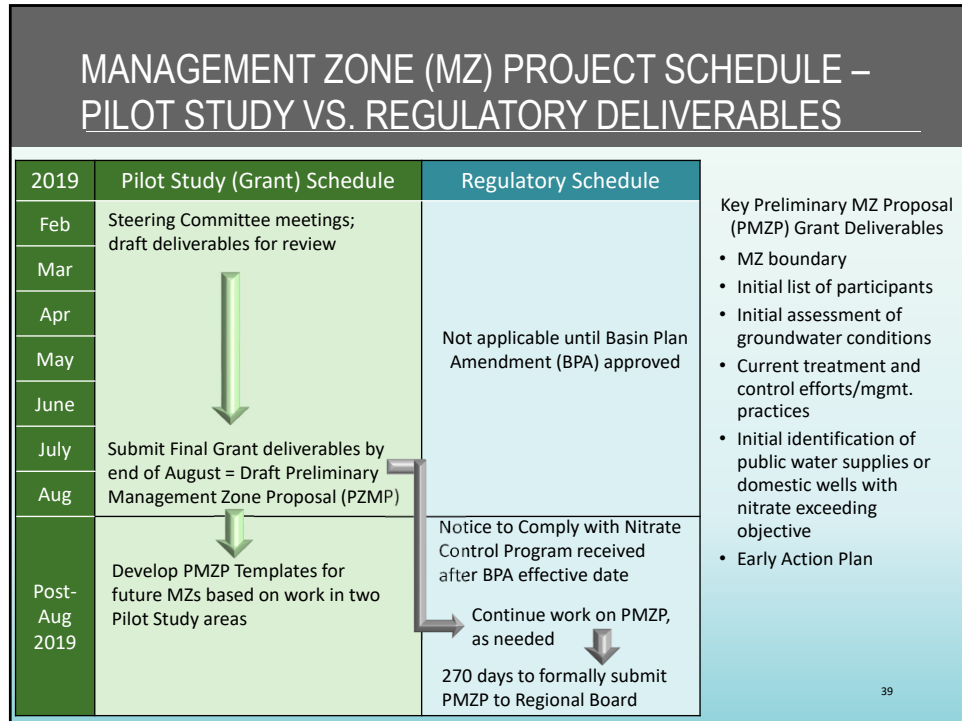
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## PROJECT SCHEDULE

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## FINAL AGENDA ITEMS

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## FINAL AGENDA ITEMS

- Posting Pilot Study Materials
- Review of Action Items
- Scheduling Future Meetings

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Adjournment