East Turlock Subbasin Groundwater Sustainability Agency

Multibenefit Land Repurposing Program

RECHARGE AND RETENTION BASINS

How it Works

Recharge and Retention Basins refers to the repurposing of an area of irrigated agricultural land into artificial basins designed to store water temporarily, serving two primary purposes: recharge basins allow water to percolate into the groundwater to replenish aquifers, while retention basins store water for future use, such as irrigation during dry periods. Both types of basins help manage water resources sustainably by facilitating the beneficial use of water, while providing additional benefits that may include improved water quality, flood risk reduction, and habitat opportunities.

Benefits

Water Security – Stored water for irrigation during dry periods leads to reduced dependency on external water supplies.

Groundwater Recharge – Enhanced groundwater replenishment helps restore depleted aquifers and maintain sustainable water tables.

Flood Mitigation – Reduced downstream flooding and erosion.

Improved Water Quality – Allows for sedimentation and natural filtration of water, reducing sediment and nutrient loads in downstream water bodies.

Biodiversity and Habitat – New aquatic habitats that can support a range of wildlife are supported, including birds, amphibians, and beneficial insects.

Implementation Incentive Payment

The ETSGSA will be able to provide incentive payments to growers to implement multibenefit land repurposing using funding from a grant awarded to the GSA by the CA Department of Conservation.

Additional Considerations

Water Losses – Evaporation from ponds can lead to water losses.

Regulatory and Permitting Complexity – Multiple permits may be required.

Maintenance Requirements – Ponds require regular maintenance to prevent sediment buildup, manage vegetation, and ensure the structural integrity of embankments.

Climate Considerations – Design ponds to accommodate changing weather patterns and potential climate impacts, such as increased frequency of extreme weather events.

Long-term Sustainability – Develop a sustainable management plan that includes funding for ongoing maintenance and monitoring activities to ensure the long–term success of the ponds.

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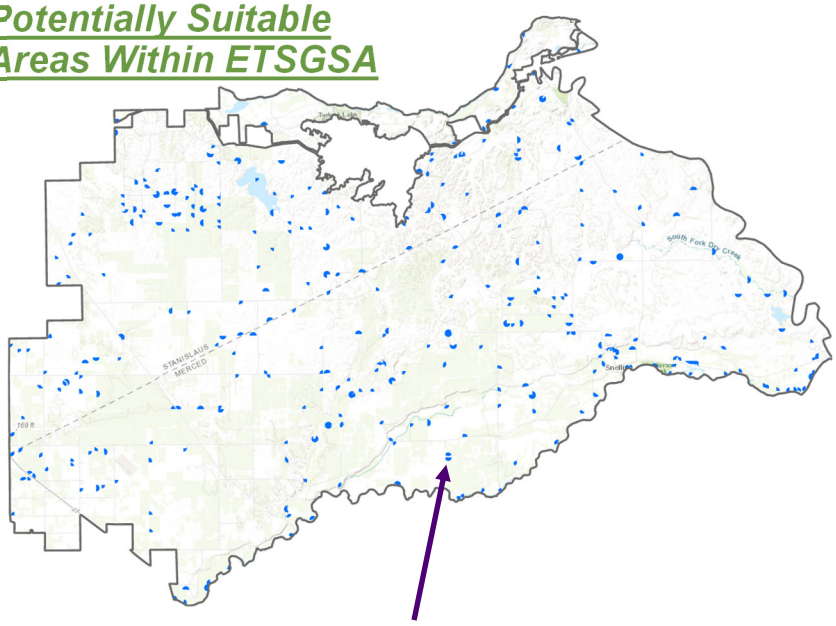
Implementation Steps

1) **Site Assessment and Planning** – Conduct hydrogeological assessment.
2) **Design and Engineering** – Develop design plans for pond construction, including inlet and outlet structures, overflow spillways, etc.
3) **Land Preparation and Construction** – Remove crop and irrigation system, construct pond.
4) **Water Management Systems Installation** – Install inflow/outflow systems, monitoring wells, pond liner, etc. per design.
5) **Vegetation Establishment** – Plant vegetation around pond edges for bank stabilization and inflow water quality improvement.
6) **Monitoring** – Monitor pond functioning (water levels, water quality, groundwater recharge rates, etc.).
7) **Maintenance** – Perform vegetation and sediment management/removal.
8) **Structural Inspections** – Conduct routine inspections of embankments, and perform as-needed repairs.
9) **Pest Control** – Monitor and manage pests.

Potentially Suitable Areas Within ETSGSA

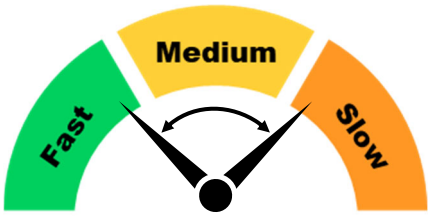


Priority Areas (2,302 acres identified): Areas with high seasonal water availability, frequent irrigation needs, and declining groundwater levels where enhancing water storage and groundwater recharge can improve water security and agricultural sustainability.

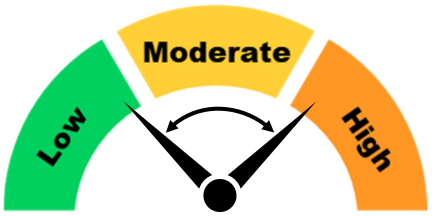
[1] Land area estimation from Formation Environmental Land Suitability Assessment. MLRP mapping is provided for preliminary planning purposes only. Project designs will need to be based on parcel-specific analysis.

Potential Permitting and CEQA Process

The general permitting and CEQA timeframe and complexity are shown below. However, permitting and CEQA requirements for specific projects may vary based on site- and project-specific conditions, and may be greater than indicated.



Permitting / CEQA



Permitting / CEQA

Additional Information / Resources:

- **NRCS Conservation Practice Standard | 815 Groundwater Recharge Basin or Trench** (USDA)
- **NRCS Conservation Practice Standard | 638 Water and Sediment Control Basin** (USDA)
- **Building Multibenefit Recharge Basins** (Sustainable Conservation)

For more information on the ETSGSA Multibenefit Land Repurposing Program visit: https://turlockgroundwater.org/multibenefit-land-repurposing

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