



# California Water Commission

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# Terranova Ranch Floodwater Capture and Recharge

- Our History and Groundwater Conditions
- Floodwater on the Kings North Fork
- Conservation Innovation Grant 2011
- DWR Floodwater Corridor Grant
- Future Expansion-NRCS RCPP Grant

# On-Farm Flood Capture Project –2011-2019

## Projects

### **NRCS CIG Project**

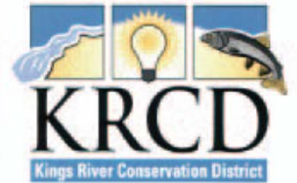
Cost Share by Terranova Ranch, UC Davis, Bachand and Associates and Sustainable Conservation

### **DWR Flood Corridor Project**

Cost Share by Terranova Ranch, Sustainable Conservation

### **CDEA Specialty Crop Block Grant**

Cost Share by Sustainable Conservation



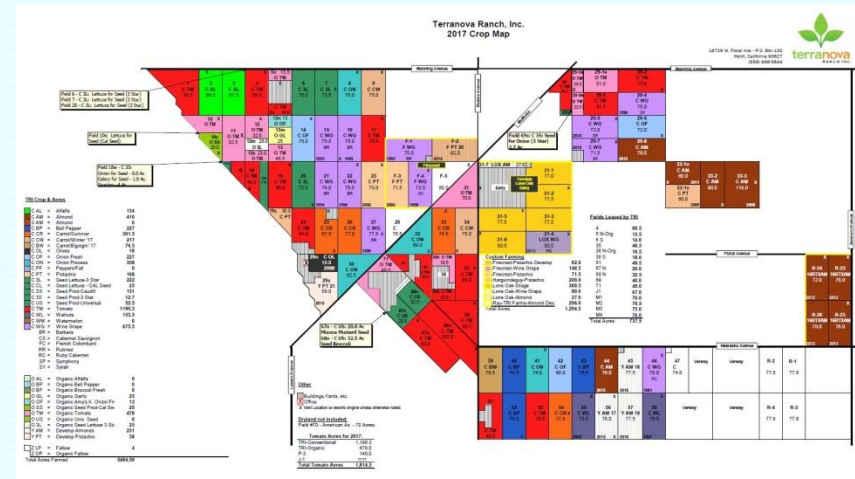
**Terranova Ranch**



Department of  
**LAND, AIR AND WATER RESOURCES**  
University of California, Davis  
Climate Change • Sustainable Agriculture  
Environmental Quality • Landscape Processes

**BACHAND & ASSOCIATES**

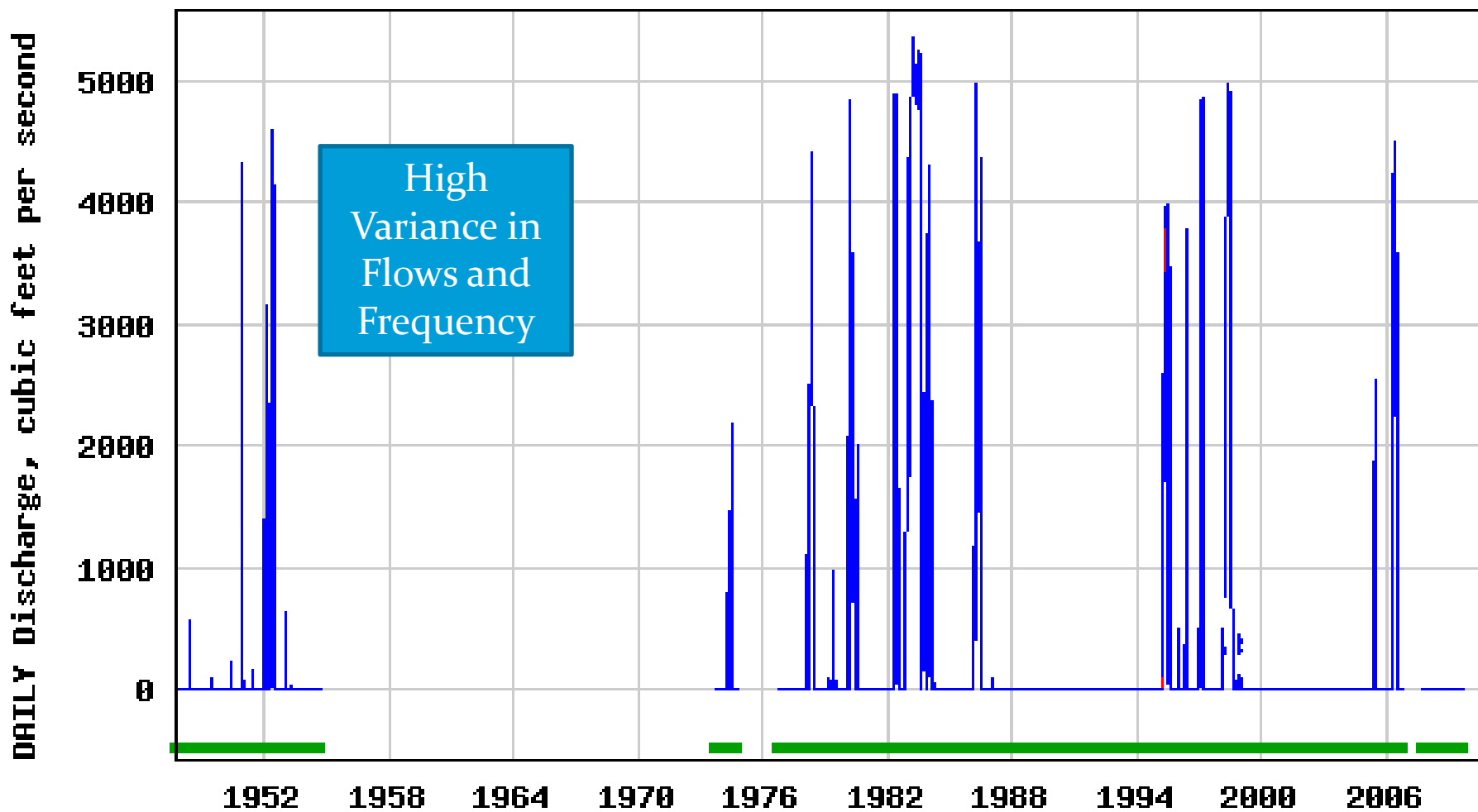
# Our Location and Crops



May 2011



# USGS 11253500 JAMES BYPASS (FRESNO SLOUGH) NR SAN JOAQUIN CA



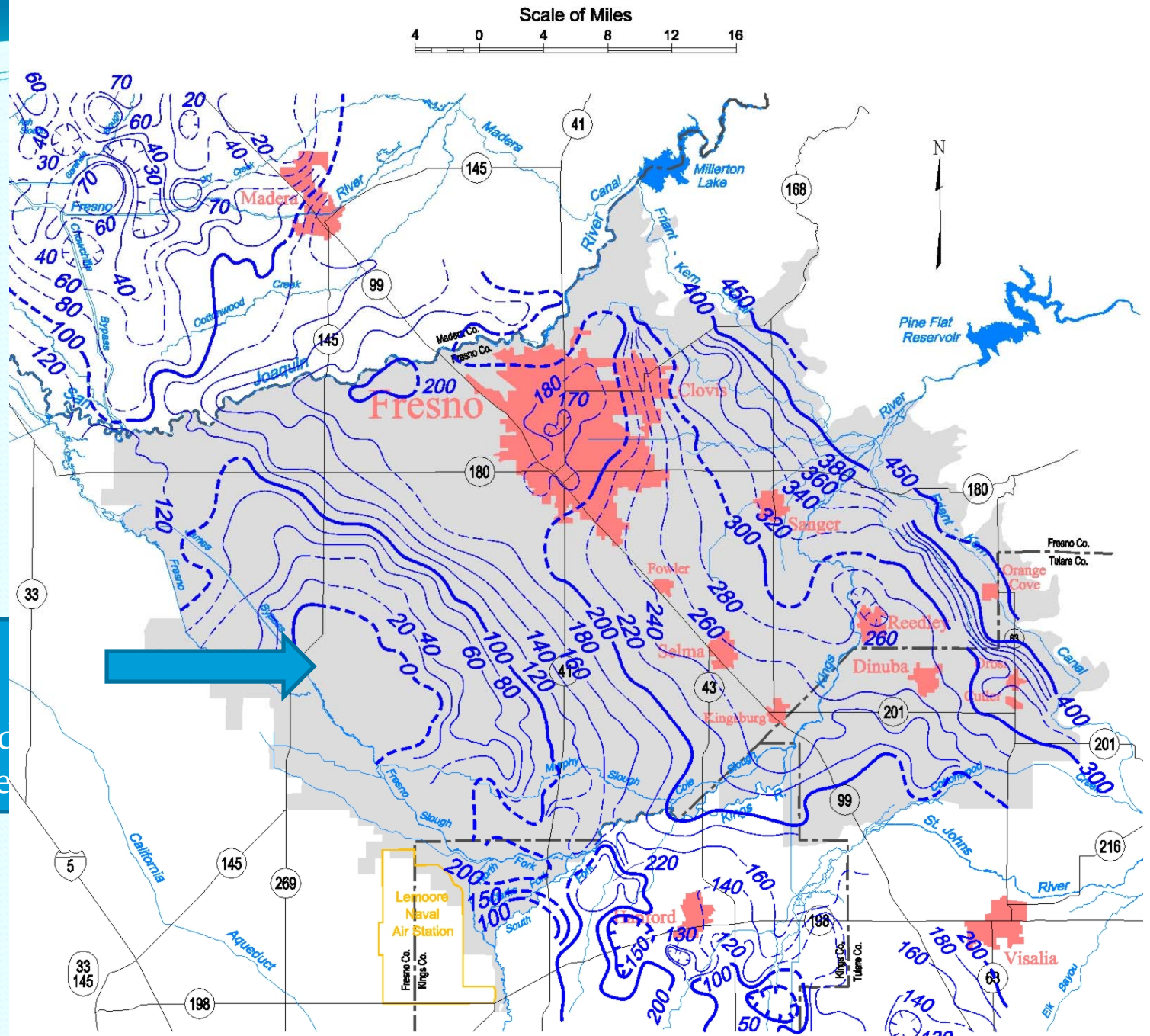
— Daily measured  
 — Estimate

Median Annual Volume during years of flow = **187,000 ac-ft**  
 (21 years of flow out of 42 year record)

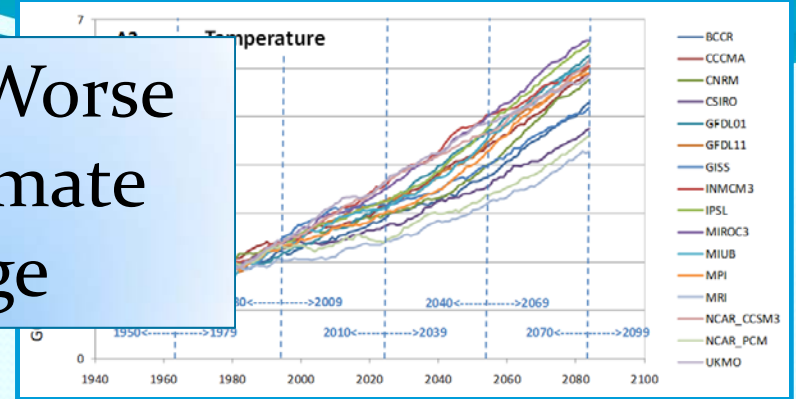
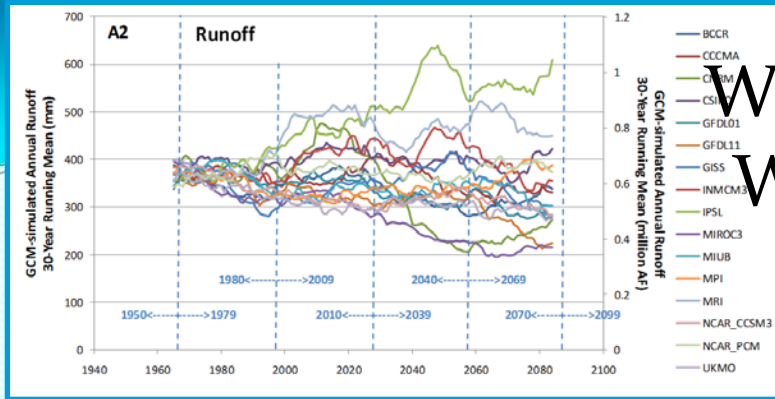
Severe  
Overdraft:

2009  
Groundwater  
Contours in the  
Kings Basin

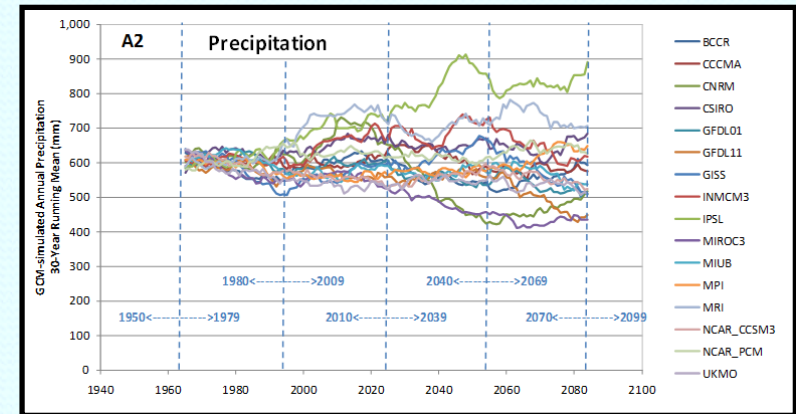
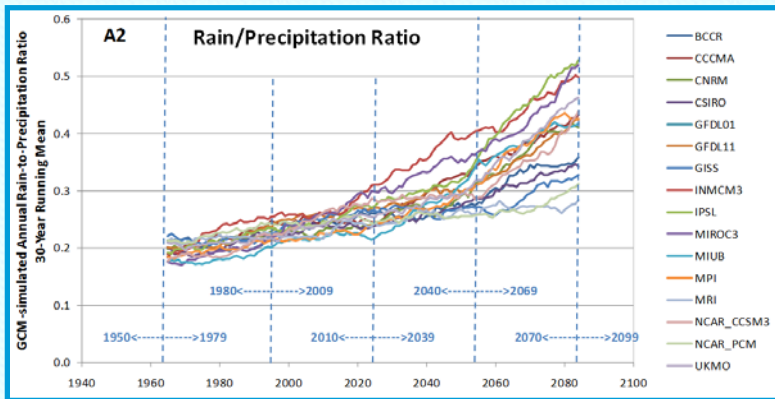
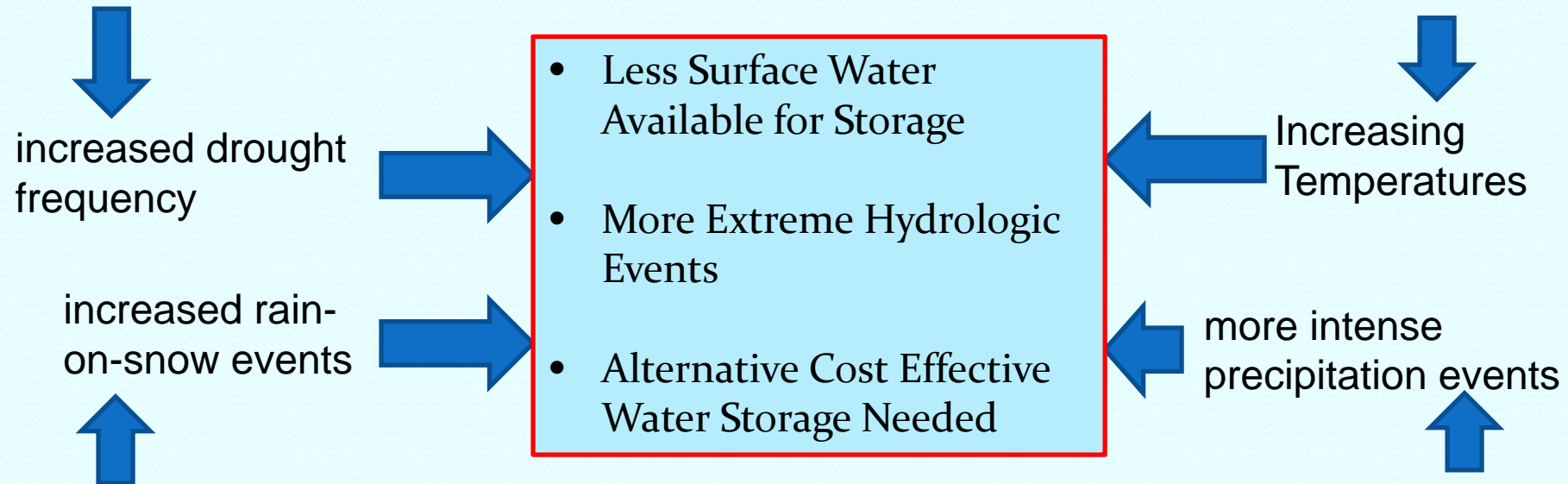
220 Ft.  
Below  
Ground  
Surface



Contours are dashed where inferred. Contour interval is 10, 20 and 50 feet.



# Will Get Worse With Climate Change

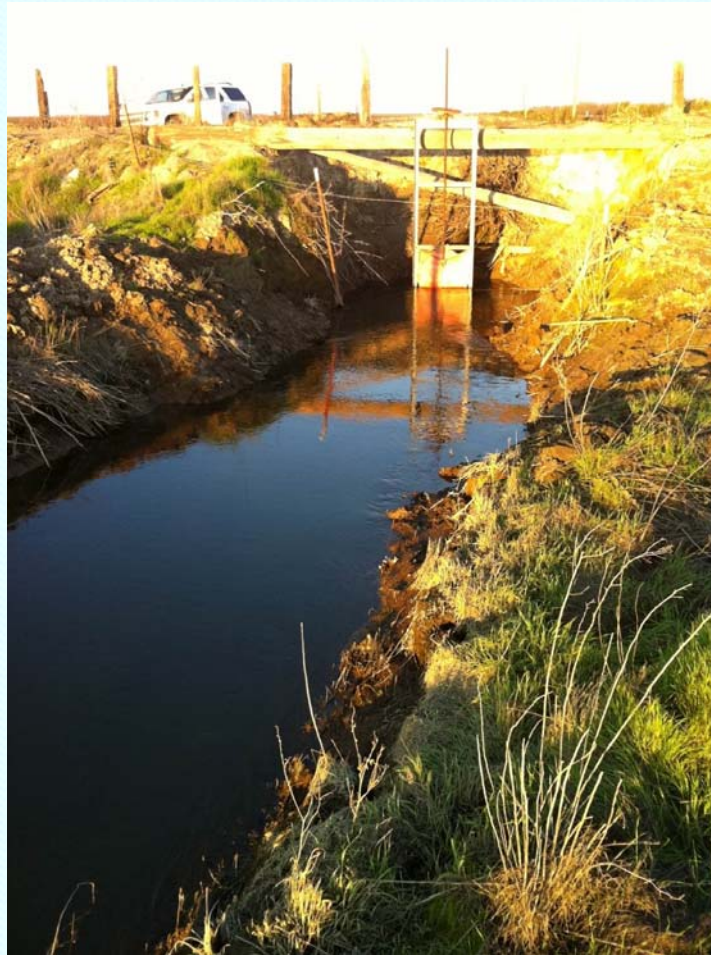




# Why Recharge?

- Declining Water Table
- SGMA 2014
- January 2020 GSP Must be Submitted and Implemented
- Check In Every 5 years
- Sustainability by 2040
- SWCB

# Conservation Innovation Grant 2011



3/13/2019

# Flooding Working Lands 2011



3/13/2019

# Flooding Wine Grapes 2011



3/13/2019

# Wine Grapes June 2011



3/13/2019

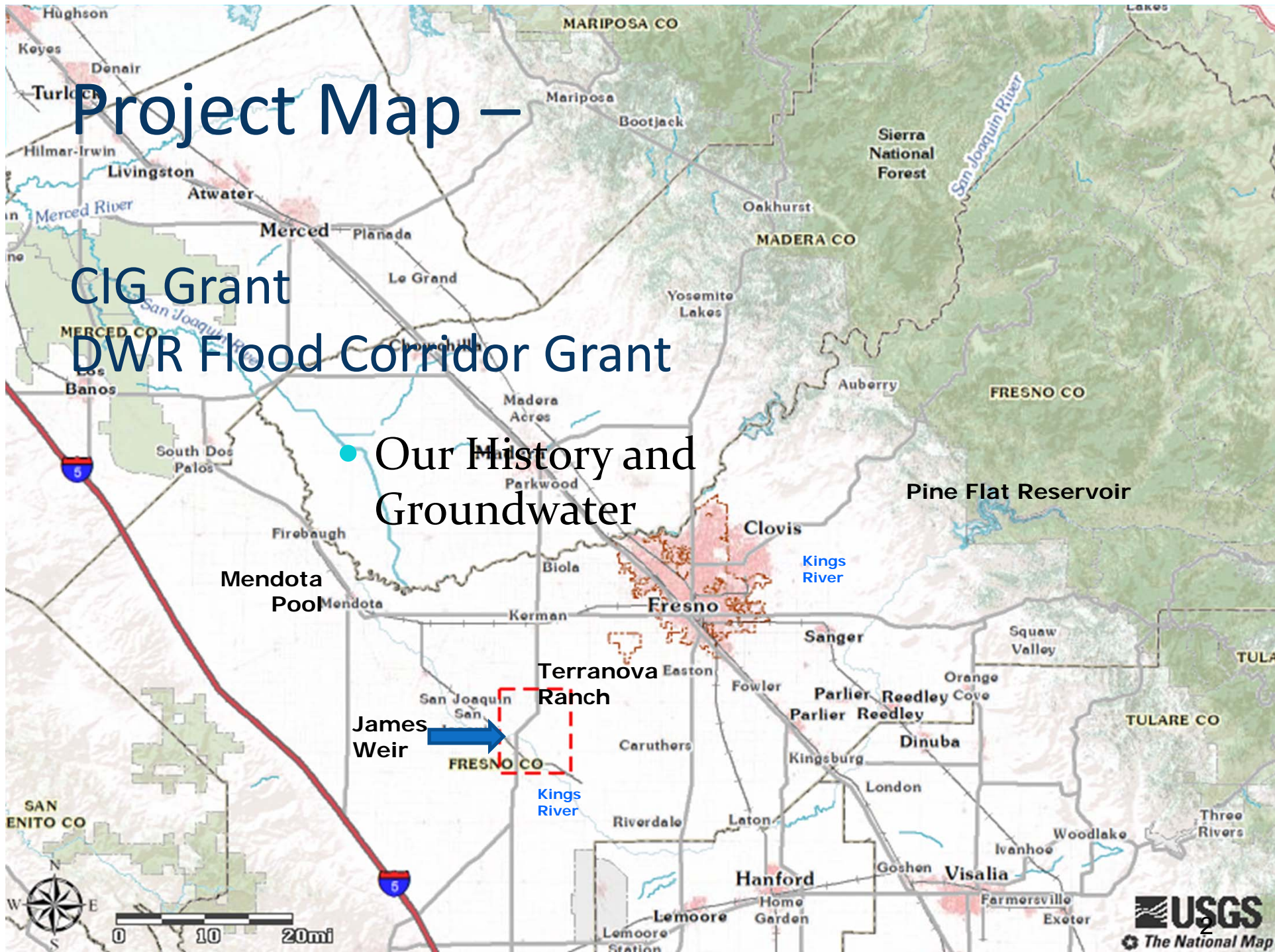
# DWR Floodwater Corridor Grant 2012

- Diversion of floodwater-500 cfs
- Sale of easements-400 acres permanent flood easement
- Must flood when water is available
- Downstream flood protection
- 500 cfs. capacity (1000 ac ft./24 hrs.)
- Phased construction 5,500 ac – 18,000 ac.
- Phase I Awarded in 2012, construction begins 2018

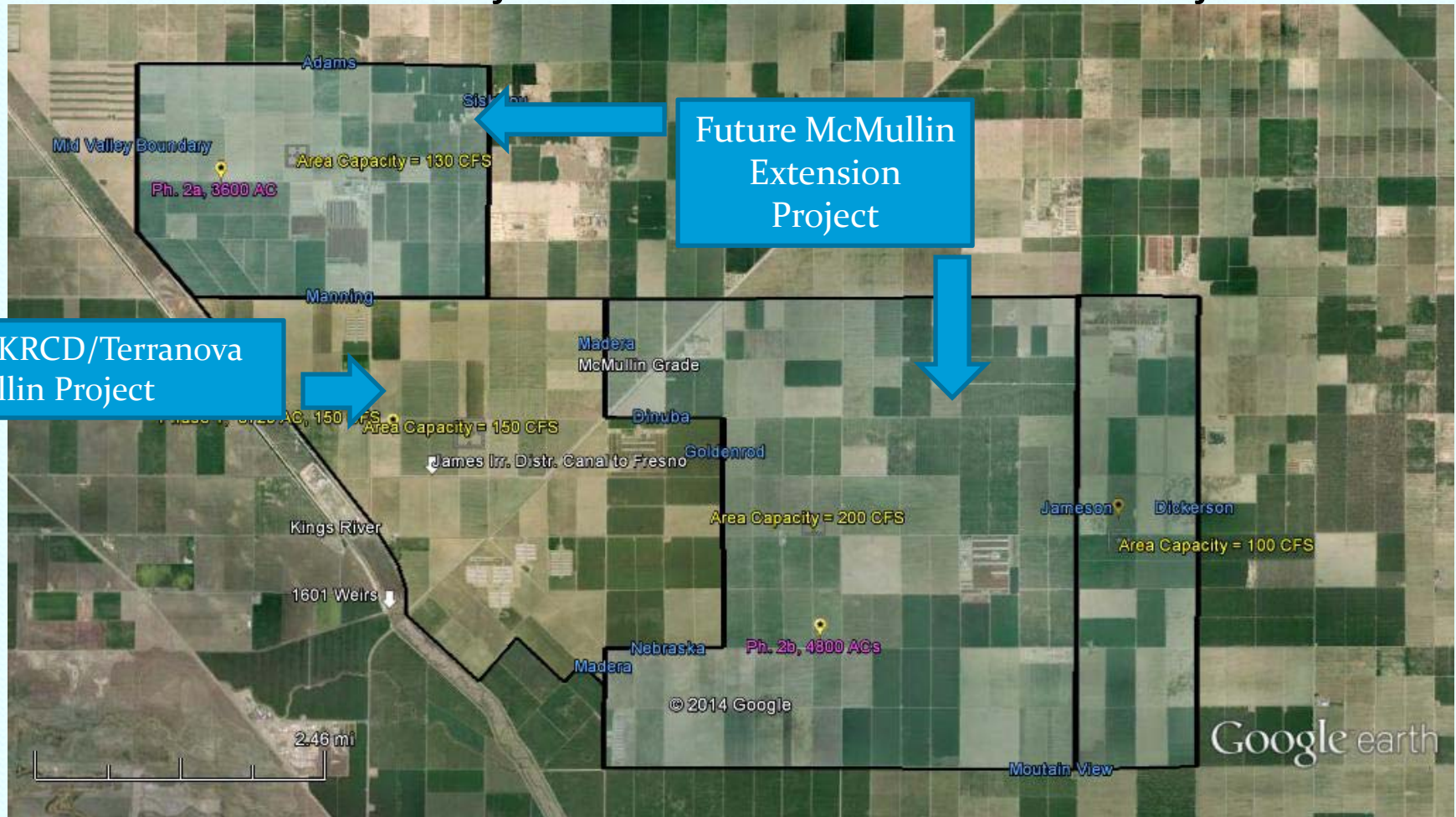
# Project Map –

CIJ Grant  
DWR Flood Corridor Grant

Our History and  
Groundwater

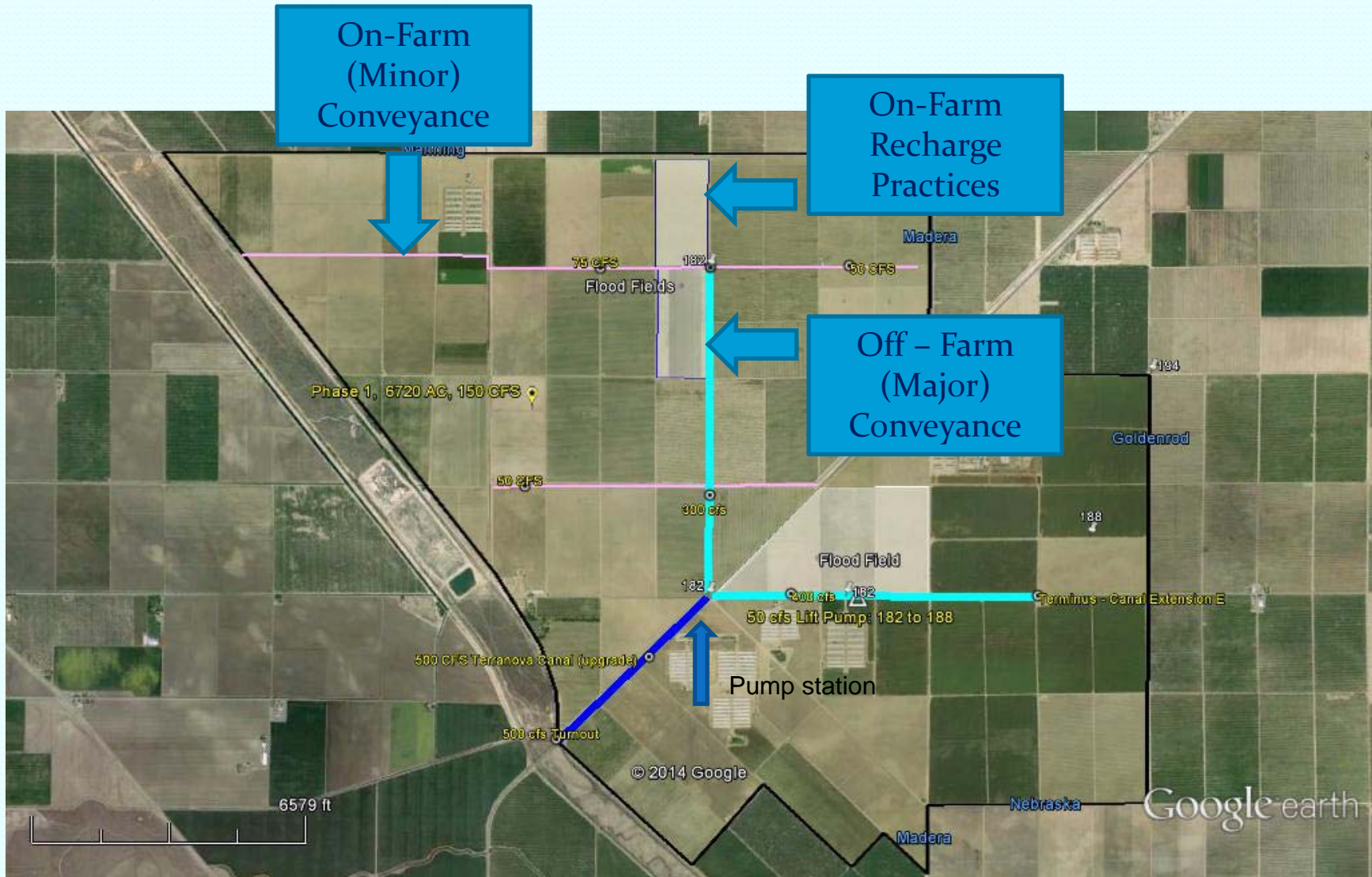



# DWR McMullin Project and McMullin Extension Project





# Phase 1 Off-Farm and On-Farm Conveyance and Capture Conservation Practices



A photograph showing a concrete bridge spanning a wide river. In the foreground, there is a turnout structure with a large red handwheel on a pipe. The riverbank is covered in green grass and vegetation. In the background, there are utility poles and a clear blue sky.

April 1, 2011,  
McMullin Grade at James Bypass

Major Conveyance:

*Turnout – Upgraded  
to 500 CFS*

New 500 cfs Headworks at Kings River  
February 2019



# Terranova Ditch, May 17, 2011

Major Conveyance:

Terranova Canal –  
To Be Upgraded to  
500 CFS

Terranova Canal 500 cfs  
February 2019





Minor Conveyance:

3500 GPM Pump  
Station with Portable  
Diesel Pump, May  
2011



**On-Farm Recharge  
Conservation Practice:**  
  
**Fallow (Tomato) Field with  
check berms and control  
structure, Jan 2011**



F22, Feb 2011

On-Farm Recharge  
Conservation Practice:

Flooded Wine Grapes,  
February 2011





On-Farm Recharge  
Conservation Practice:  
Flooded Wine Grapes,  
May 2011

# Recharge 2017

## Pistachios



## Wine Grapes



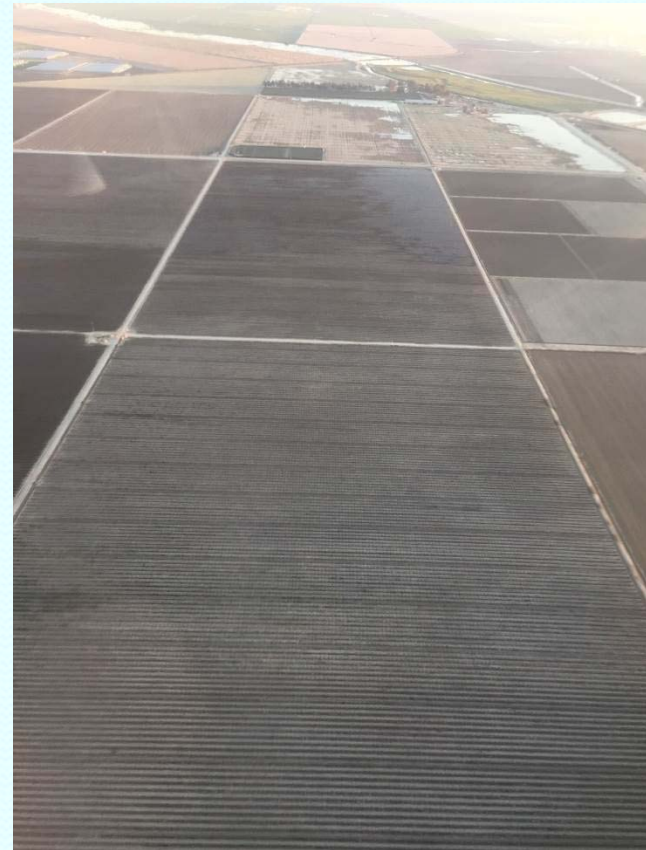
3/13/2019

# Recharge 2017

## Almonds



## Field Flooding



# Monitoring Wells and Data Collection



# Phase II a/b

- NRCS Grant –RCPP Awarded September 2018
- \$7 Million Grant \$7 Million Match from RCWD
- Expansion of McMullin Project
- Currently, Deciding on Direction (\$ vs area)
- 5 Year project.
- KRCD Submitted KBIRWM Project for Funding
- Goal; Achieve Recharge on 18,000 acres of SJV Farmland
- Mitigate and Stabilize Groundwater Decline

# Invitation To Visit



3/13/2019



# Questions?

# Thank You