

Managing Flood Risk in a Changing Climate: Water Year 2023

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**Floodwater from the reemerging Tulare Lake near Corcoran,
California, May 1, 2023.**

David Paul Morris | Bloomberg | Getty Images

Types of Different Flood Hazards



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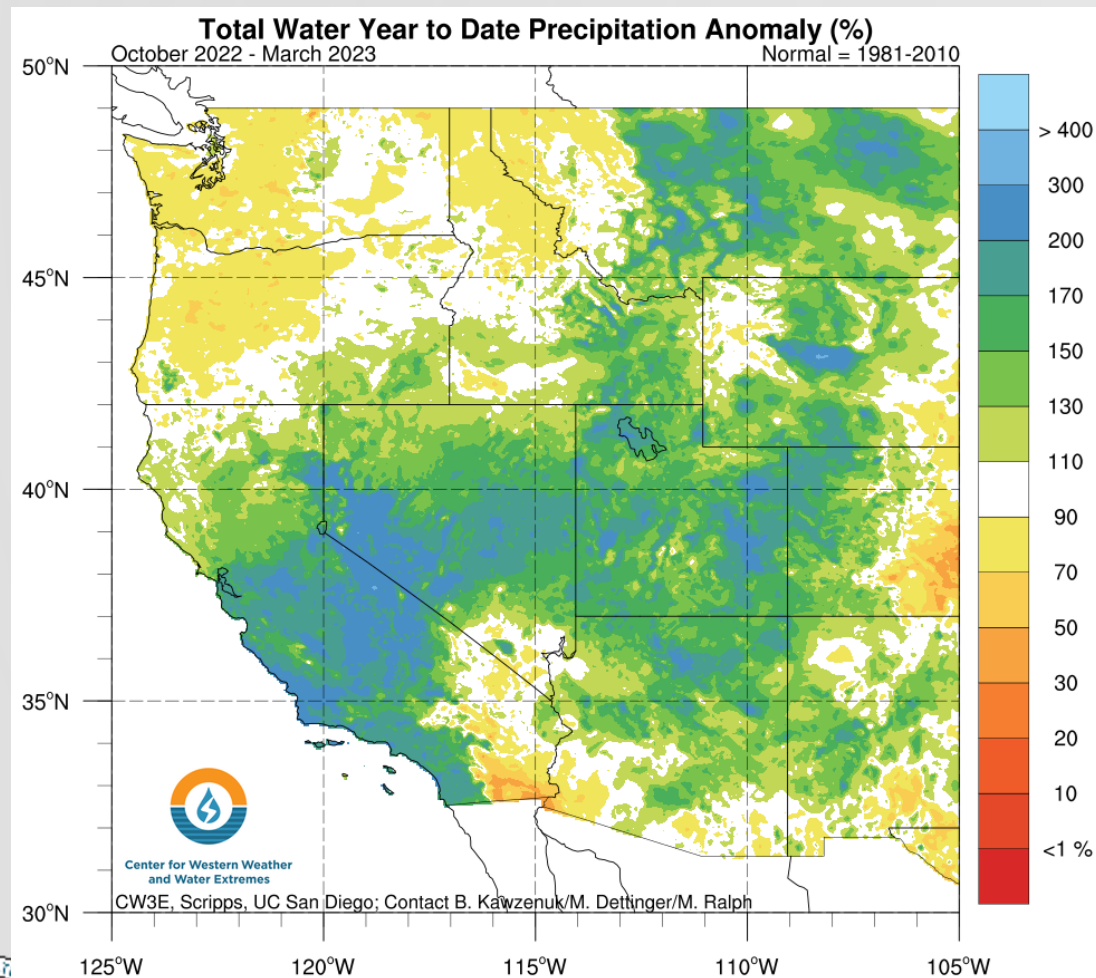
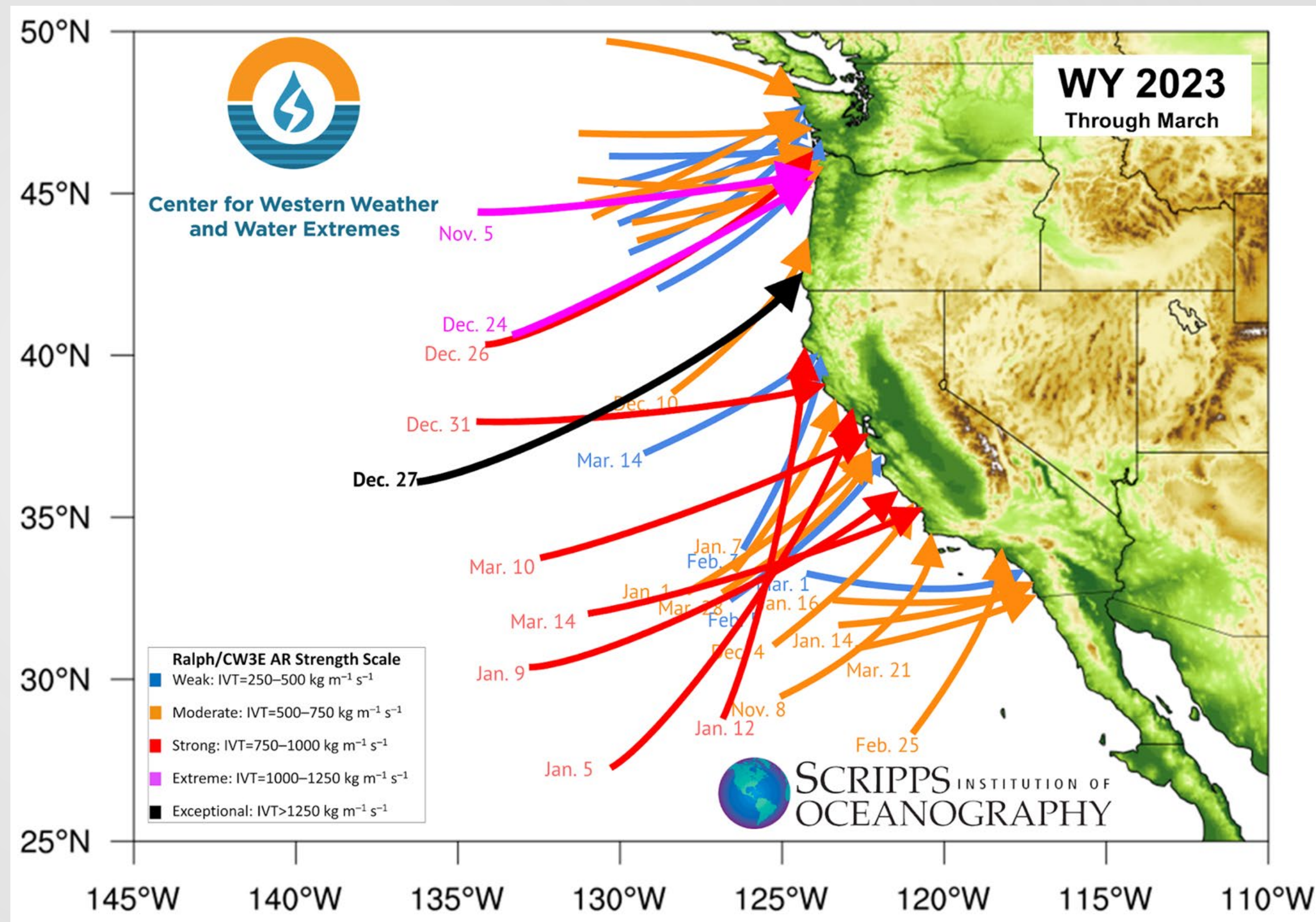
California experienced 7 of 8 flood hazards during the past water year!



The Parade of Storms Dec 2022 – Mar 2023

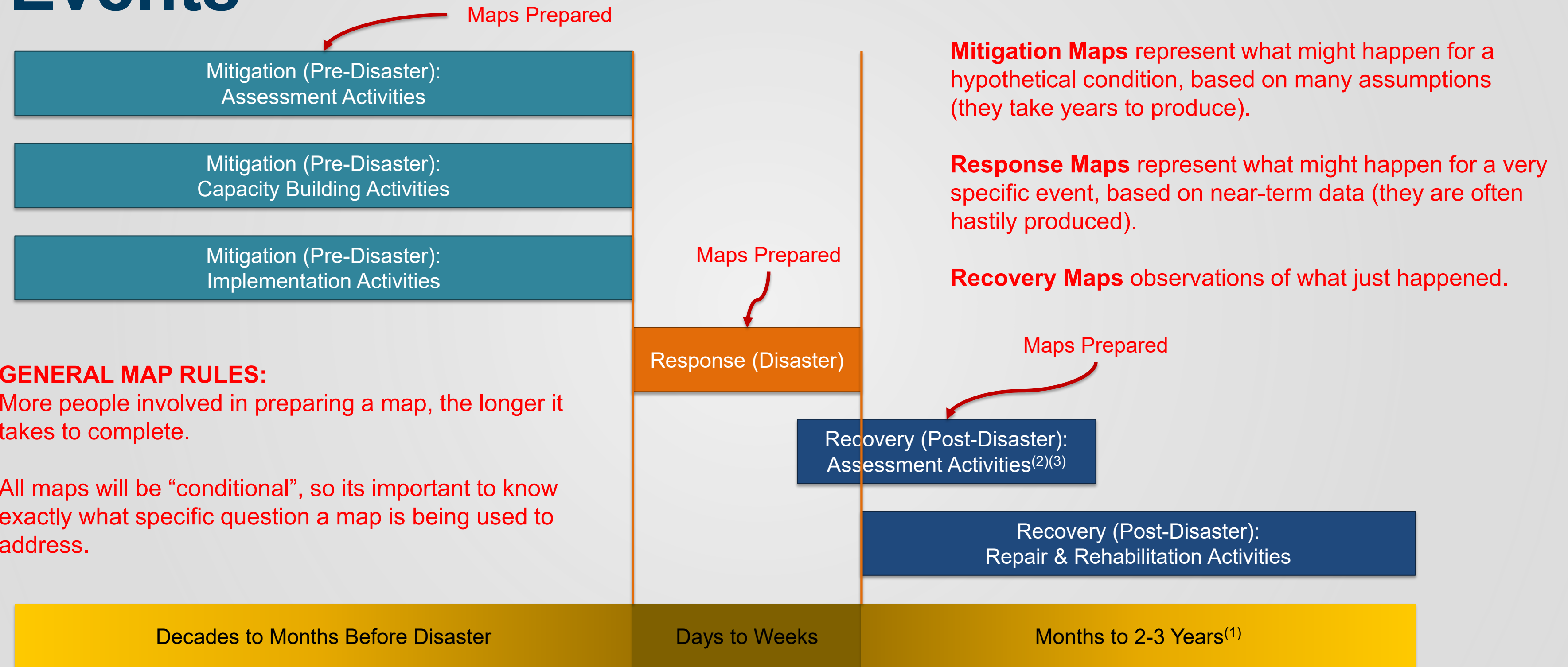
Breakdown by Strength	
Strength	Number of ARs
Weak	11
Moderate	13
Strong	6
Extreme	1
Exceptional	0
Total	31

31 atmospheric rivers impacted the California between October 1st 2022 and March 31st 2023



Data courtesy: PRISM Climate Group, Oregon State University, <http://prism.oregonstate.edu>

Disaster Cycle Phases for Large Scale Flood Events



GENERAL MAP RULES:

More people involved in preparing a map, the longer it takes to complete.

All maps will be “conditional”, so its important to know exactly what specific question a map is being used to address.



1. FEMA Public Assistance Recovery projects should take only 18 months to complete.
2. Previous PA projects trigger Loss Avoidance Studies (an additional assessment) for future disasters.
3. Recovery also triggers a Joint Mitigation Strategy which eventually leads to future mitigation funding.

January Storms



January 9, 2023, Santa Maria levee breach causing extensive flooding in the City of Guadalupe of Santa Barbara County.



January 10, 2023, Levee break on Bear Creek in Merced, CA.



March Storms



March 12, 2023, Pajaro levee breach causing extensive flooding in the Town of Pajaro of Monterey County.



March 24, 2023, Tulare Lake begins to refill after multiple strong atmospheric rivers make landfall on the region. Kings and Tulare Counties experience significant flooding.



Tropical Storm Hilary



Image: Mudflow damage in Cathedral City, CA following TS Hilary on Aug. 21, 2023.
(Source: Taya Gray / The Desert Sun).

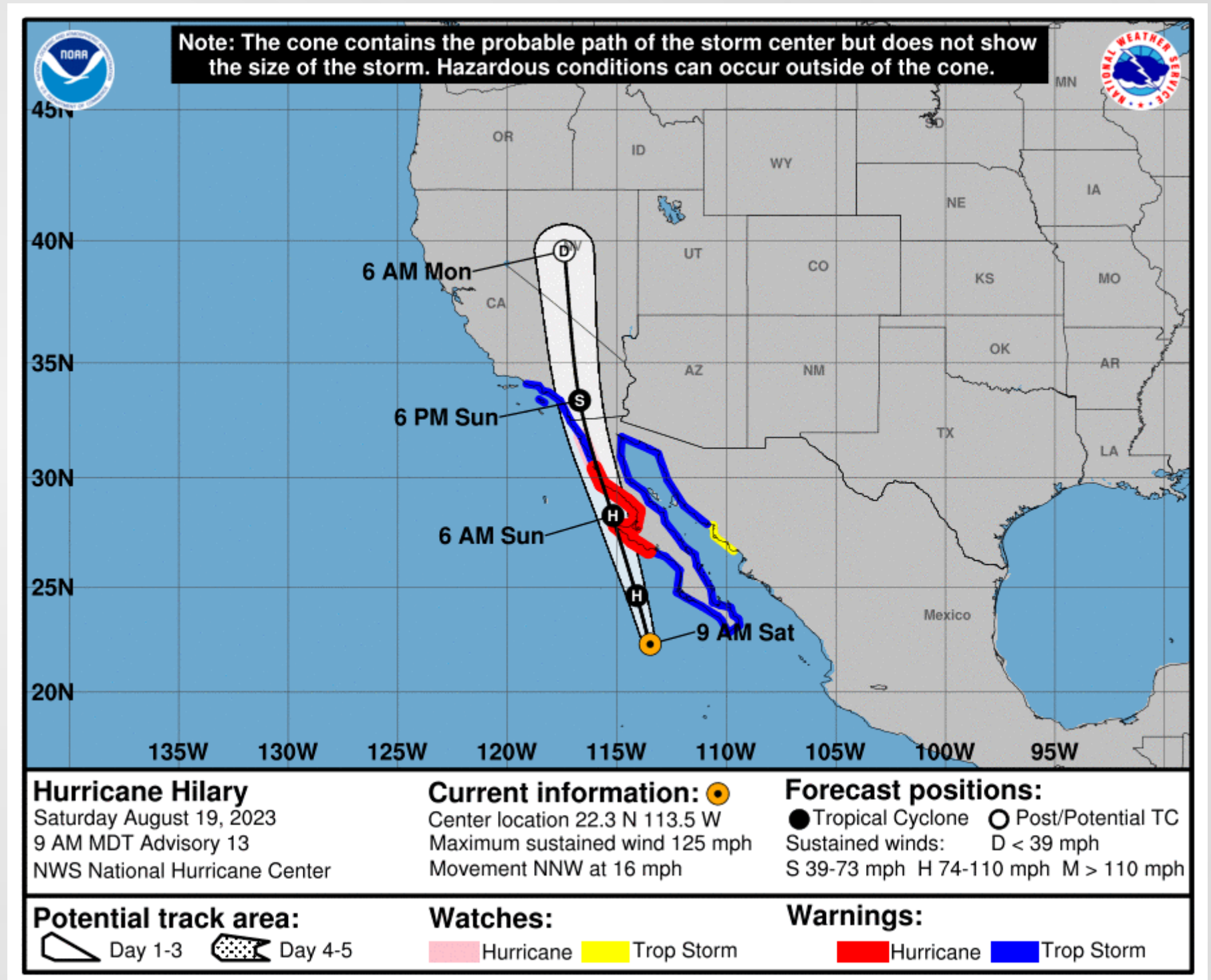
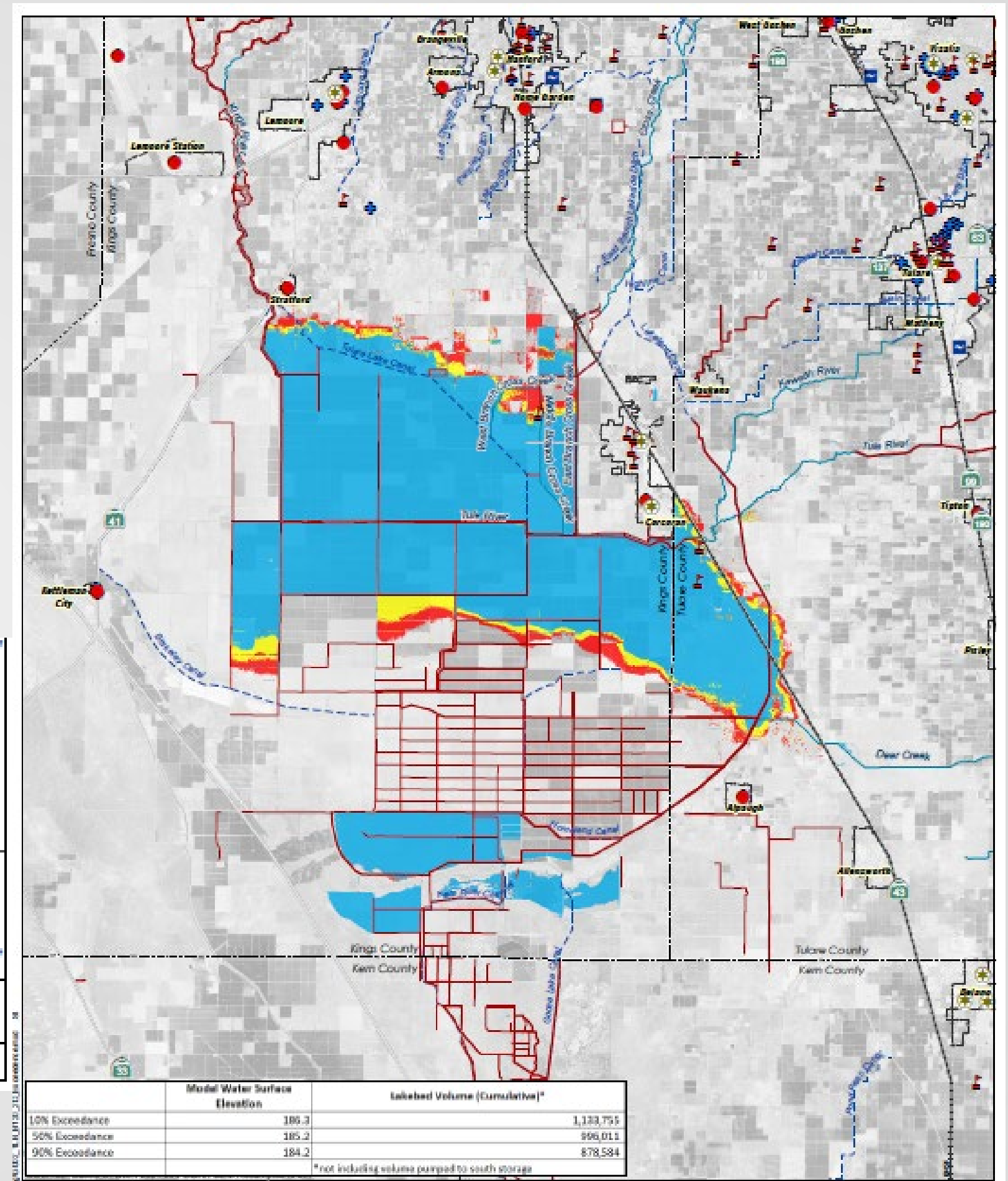
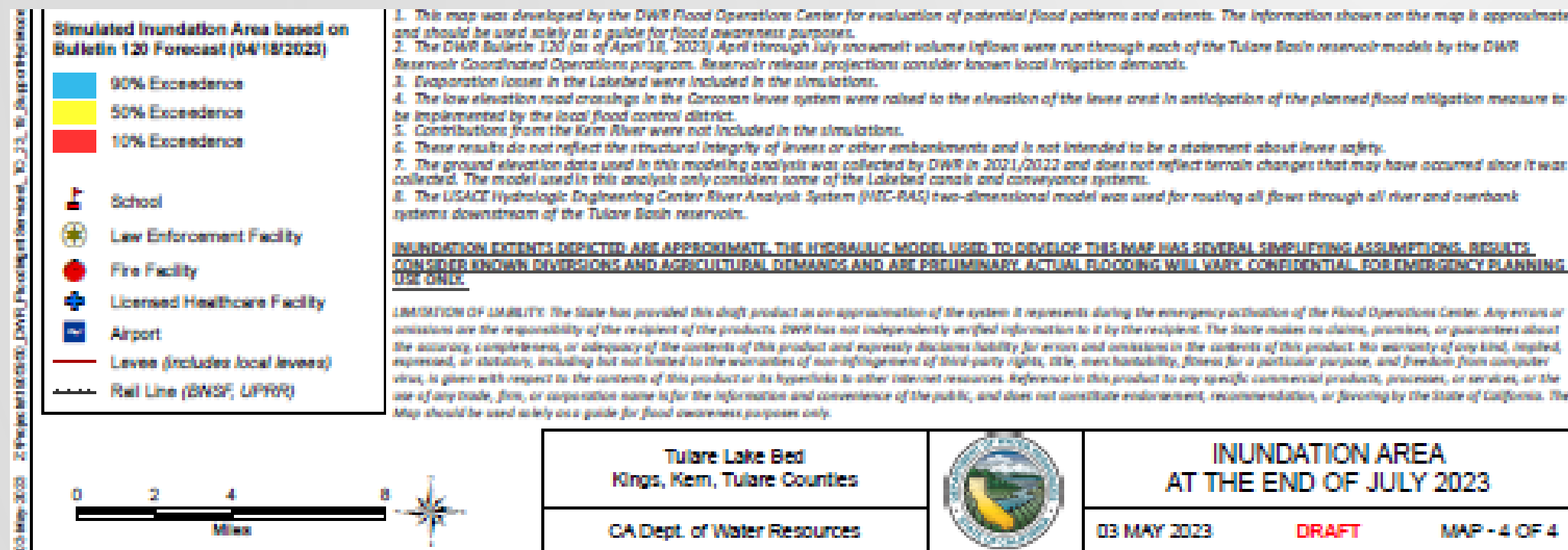


Image: 5-day Cone for Hurricane Hilary, Advisory 13, Aug. 19, 2023.

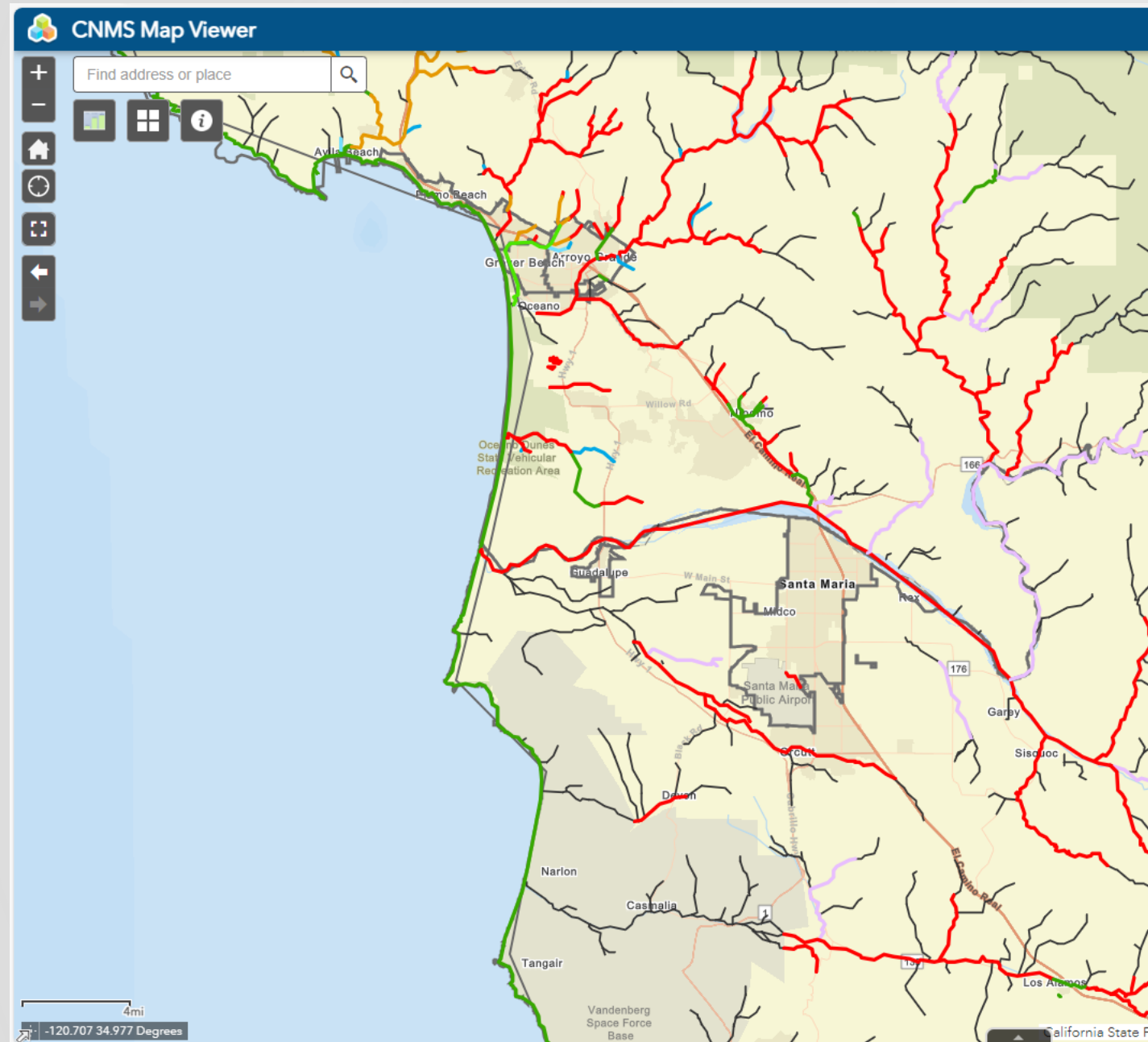


Tulare Lake 2D Maps

- Flood Operations Center Tulare Advanced Planning Unit (TAPU) prepared several maps projecting lakebed inundation based on the Hydrology team's B-120 water supply forecasts
- The lakebed features extensive canals defined by hundreds of miles of channels and levees



FEMA's Coordinated Needs Management Strategy (CNMS)



FEMA's Coordinated Needs Management Strategy (CNMS) uses a geospatial database to identify and track flood hazard study lifecycle and mapping needs within the flood hazard mapping program. CNMS supports community officials and FEMA personnel in analyzing and depicting the validity of flood studies to enhance the understanding of flood hazard risk and make informed decisions on community planning and flood mitigation.

Images: CNMS screen shot of the downstream reach of the Santa Maria River (Sept. 27, 2023) – this is an unverified study area, i.e. needs to be updated.



Contact Info

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CA Dept. Water Resources



Image: Salinas River (Monterey County), Jan. 2023.

