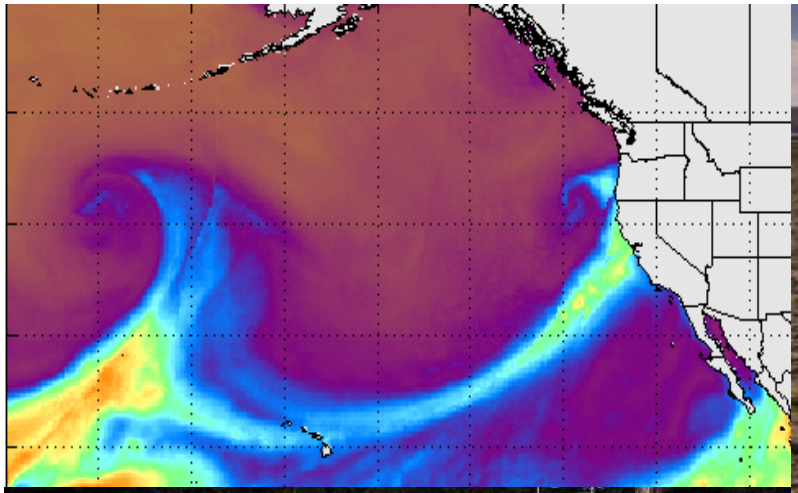
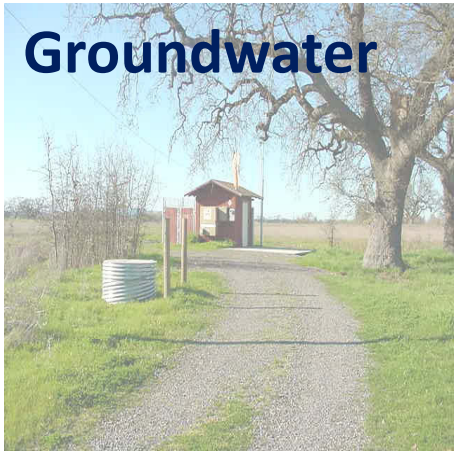
Sonoma Water Regional Water Resource Climate Adaptation Programs



SGMA Compliance Requires Proactive Integrated Water Resource Management Strategies

Balance

Maximize



Investing in Science & Technology

Assess Future Watershed Hydrology

- Downscale climate models to 270 meter grids – watershed scale
- Reservoir storage, Russian River & tributary flows
- Groundwater basins
- USGS collaboration since 2008

NOAA Habitat Blueprint

- NOAA, USGS, Point Blue analysis of sea-level rise & storm surge

NOAA Sectoral Applications Research Program

- Climate risk assessment
- Future atmospheric river occurrence & drought readiness assessment
  Collaboration with Scripps & USGS

Sonoma Water

Local & State Collaborations & Partnerships

Local:

- County of Sonoma & Open Space District
- North Bay Climate Adaptation Initiative
- Regional Climate Protection Authority
- Water Contractors

State:

- Department of Water Resources
- Scripps/UC San Diego – Center for Western Weather & Water Extremes

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Federal Collaborations & Partnerships

Federal:

- **NOAA** – Office of Oceanic & Atmospheric Research & Nat. Weather Service
- **White House –** Office of Science, Technology & Policy
- **U.S. Geological Survey** – Cooperative Water Program
- **Integrated Water Resources Sciences & Services**
  - NOAA, USGS, & Corps of Engineers
  - Russian River Watershed IWRSS demonstration area

US Army Corps of Engineers ®
San Francisco District

USGS science for a changing world

EXECUTIVE OFFICE OF THE PRESIDENT OF THE UNITED STATES · OFFICE OF SCIENCE AND TECHNOLOGY POLICY

NOAA · NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION · U.S. DEPARTMENT OF COMMERCE

What is the Science Telling Us?

- Increased temperatures
- Increased precipitation variability
  - More severe droughts & floods
- Increased risk & severity of wildfires
- Sea-level rise will have consequences, including the Sonoma & Petaluma Valley groundwater basins

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Examples of Sonoma Water Climate Adaptation Programs

- **Water Supply & Flood Management:** *Forecast Informed Reservoir Operations*
- **Flood & Emergency Management:** *Advanced Quantitative Precipitation Information (AQPI) System & Alert Gages*
- **Wildfire Resiliency:** *Fire Cameras*
- **Water Supply:** *Regional Resiliency Study*
- **Climate Adaptation Planning**

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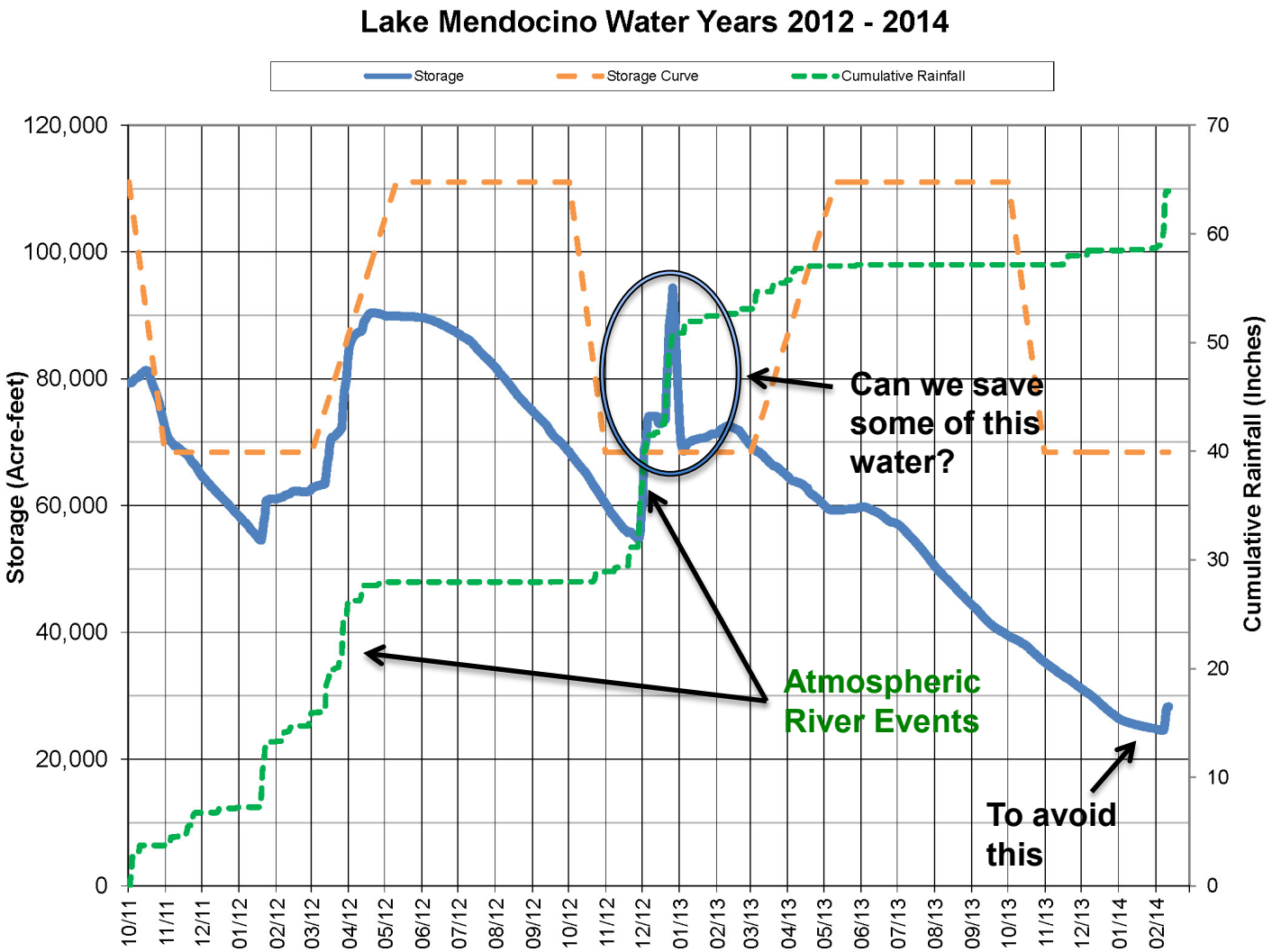
Forecast Informed Reservoir Operations



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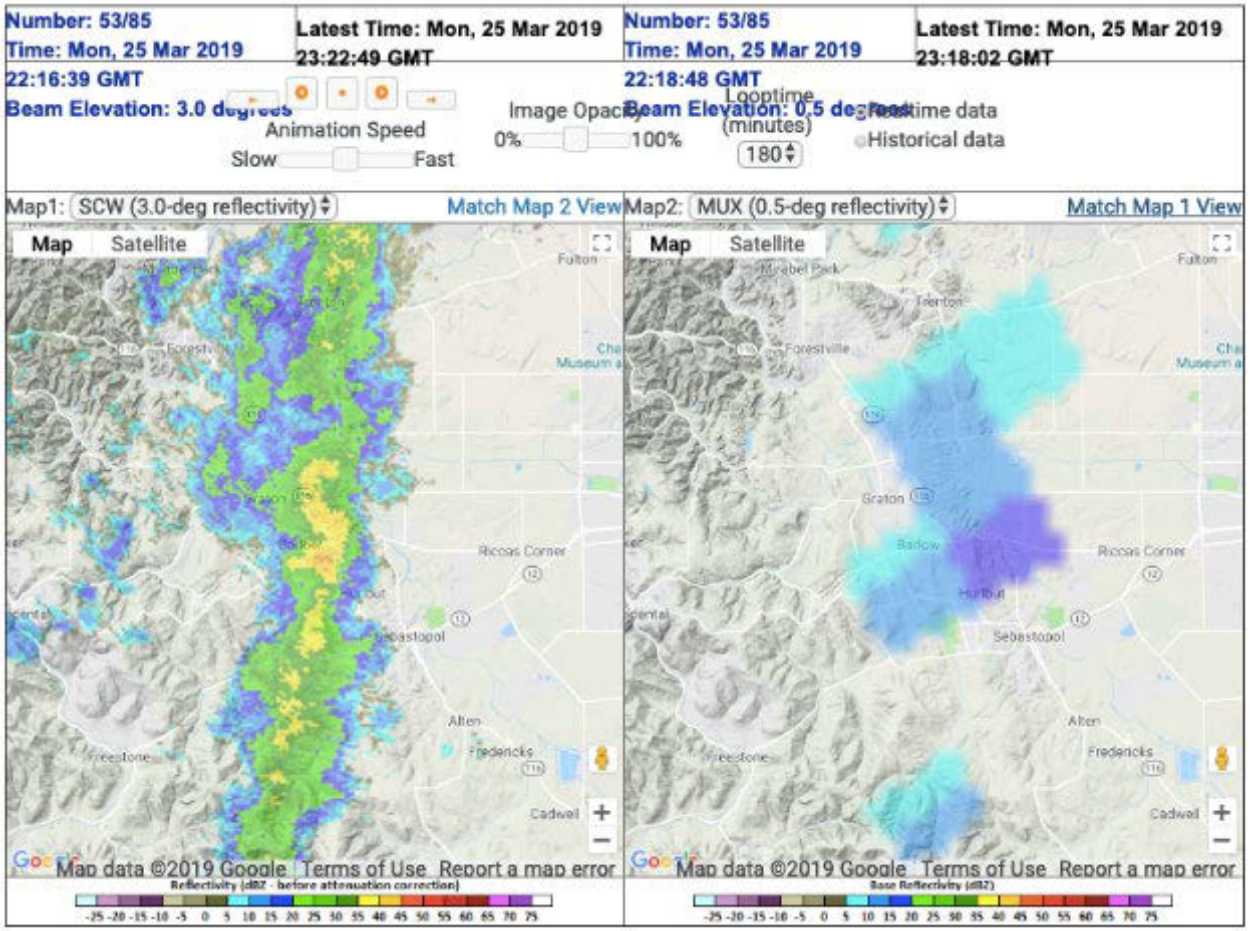
AQPI for Extreme Storm Events

- Temporary X-Band Radar Installed in 2018 -2019
- Forecast location & timing of strong precipitation bands
- Manage increased risk of flooding/debris flows in or below burn areas
- Permanent radar part of AQPI project



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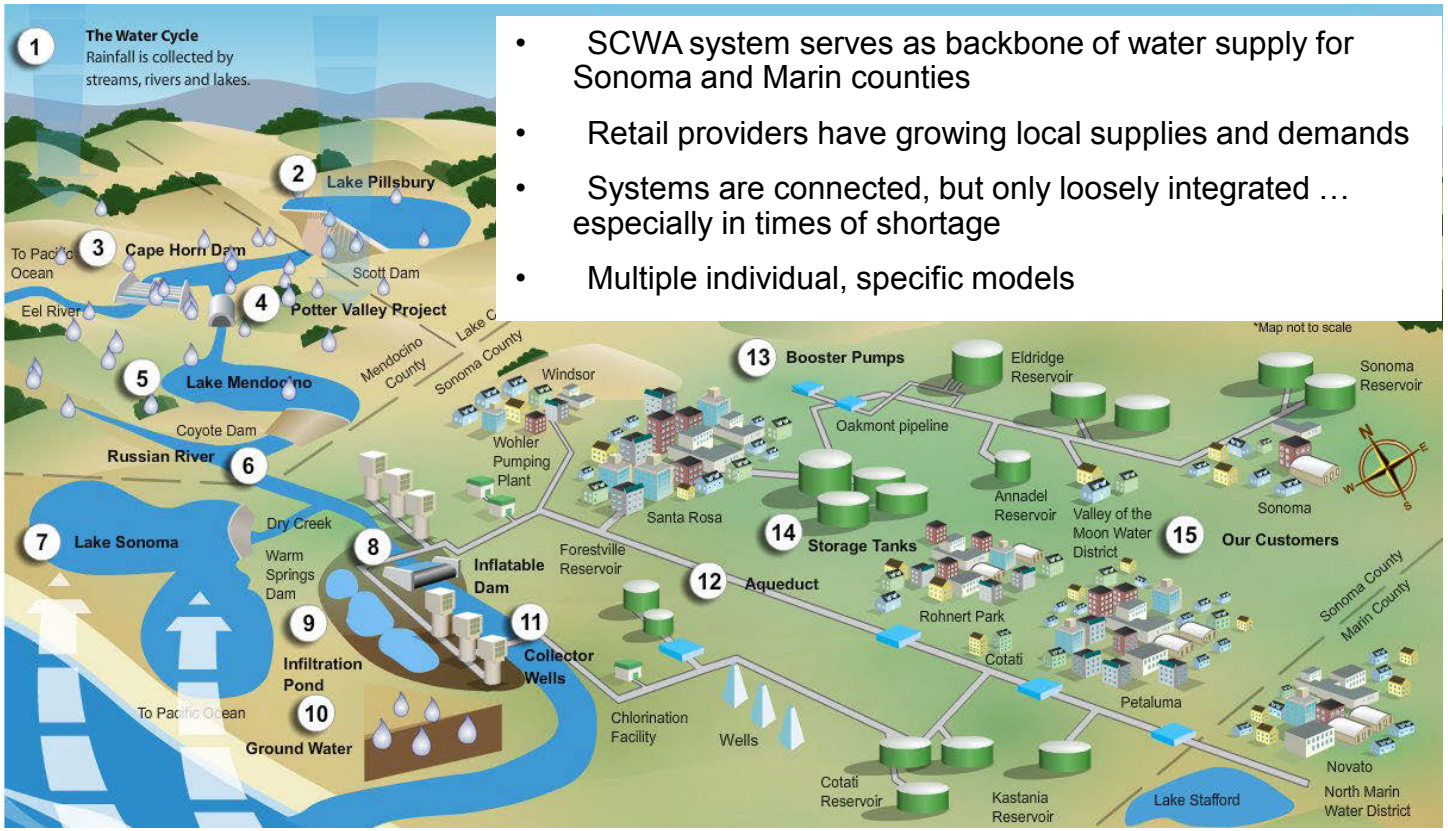
Regional Water Supply Resiliency Study: Water Shortage "Stress Tests"

A Complex Interconnected System

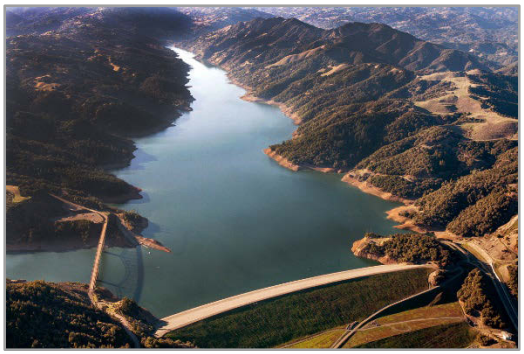


- SCWA system serves as backbone of water supply for Sonoma and Marin counties
- Retail providers have growing local supplies and demands
- Systems are connected, but only loosely integrated … especially in times of shortage
- Multiple individual, specific models

Sonoma Water

Climate Adaptation Plan

- **Conduct Vulnerability Assessment**
  - Are facilities, systems or operations threatened?
- **Perform Risk Assessment**
  - How likely is a failure to occur – Prioritize vulnerabilities
  - What are the consequences of failure?
- **Prioritize Adaption Needs**
  - Develop a plan of adaptation projects & strategies
  - Incorporate into FEMA Local Hazard Mitigation Plans similar to natural hazards



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