

Fall 2023 Countywide Plenary for Water: *Creating Synergy Among Economic Prosperity, Watershed Health, and Community Resilience*

October 19, 2023



Agenda

8:30 AM	Registration and Coffee
9:00 AM	Plenary Opening Remarks
9:10 AM	Keynote Address
9:40 AM	Lightning Panel 1: Align Economic Development with Working Landscape-based Watershed Management
10:05 AM	Breakout Groups and Q&A with Panelists
11:05 AM	Break
11:15 AM	Lightning Panel 2: Invest in Forecasting for Water Availability and Flood to Improve Management and Preparedness
11:40 AM	Grab Lunch
11:50 AM	Breakout Groups and Q&A with Panelists
12:50 PM	Plenary Closing Remarks
01:00 PM	Adjourn





Plenary Opening Remarks



REBECCA GUO
General Manager, El Dorado Water Agency





Plenary Keynote Address



SENATOR MARIE ALVARADO-GIL
California Senate District 4



Lightning Panel

Align Economic Development with Working Landscape-based Watershed Management



WENDY THOMAS

El Dorado Water Agency and El Dorado
County Board of Supervisor, District III



JAMES SARMENTO

Executive Director of Cultural Resources,
Shingle Springs Band of Miwok Indians



ZACH GIGONE

Environmental Scientist, Shingle
Springs Band of Miwok Indians



MICHAEL RANALLI

President, El Dorado Farm Bureau



ZACHARY OATES

Senior Civil Engineer, El Dorado
County Transportation Commission

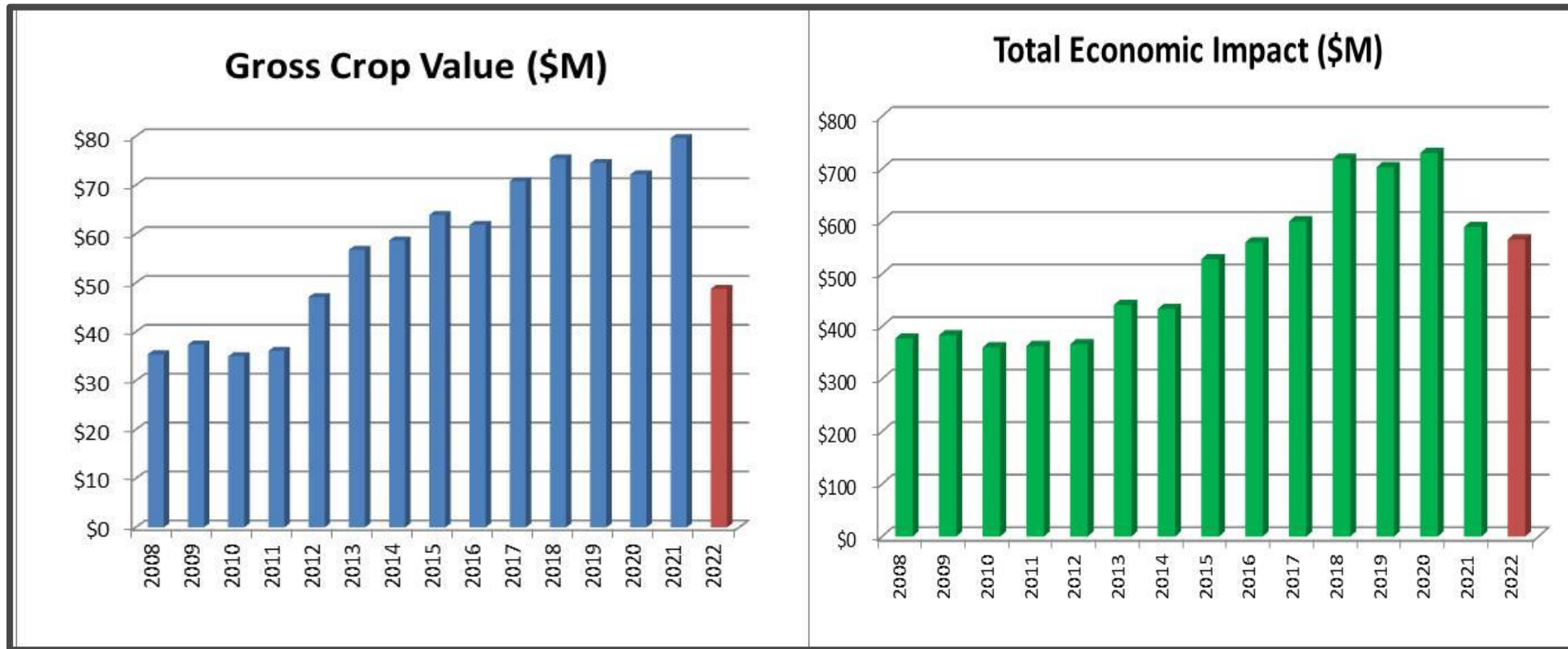


ANNA LEANZA

Senior Planner, Planning and Building
Department, County of El Dorado



El Dorado County Recent Agricultural Trends



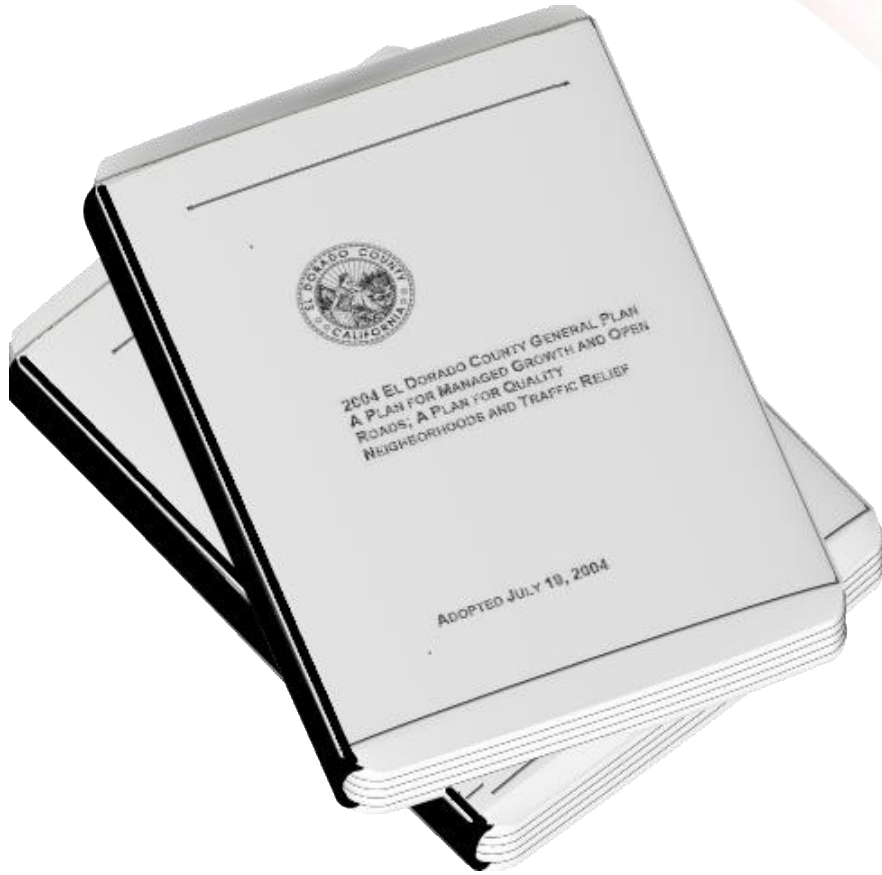
Data Source: El Dorado Counties Department of Agriculture, Weights and Measures (Prepared by Farm Bureau)



EL DORADO COUNTY GENERAL PLAN AGRICULTURE AND FORESTRY ELEMENT

INTRODUCTION

“In El Dorado County, these lands are regarded by residents as fundamental components of the County’s rural character and way of life”





Discussion

1. What coordination is needed to better align watershed management, economic development, and cultural and community resilience? What are the barriers to incorporating ecosystem goods and services into decision-making and planning?
2. What are the institutional and resource barriers that we need to address to create more alignment?
3. Where can we start to gain early success to encourage further alignment in planning and project implementation?



Q&A with Panelists

Align Economic Development with Working Landscape-based Watershed Management



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Break

**Reconvene at 11:15 AM for
Lightning Panel 2**



Lightning Panel 2

Invest in Forecasting for Water Availability and Flood to Improve Management and Preparedness



REBECCA GUO

General Manager, El Dorado
Water Agency



JORDAN BAXTER

Hydrologist, El Dorado
Irrigation District



GARY BARDINI

Director of Planning, Sacramento Area
Flood Control Agency



DAVE RIZZARDO

Senior Civil Engineer, El Dorado
County Transportation Commission



ELIZABETH KITECK

Manager Water Operations Division,
Central Valley Operations Office,
California-Great Basin Region, U.S. Dept
of Interior, Bureau of Reclamation



KEY POINTS: Snow and rain showers continue Tuesday and Wednesday with a low snow elevation around 2500'. Warmer atmospheric river arrives Thursday bringing warmer temperatures, increases precipitation, and wind. Snow elevation quickly climbs to over 8000' late Thursday / early Friday. Rain on snow will increase streamflow across the watershed. No Public Safety Power Shutoff (PSPS) in the 7-day PG&E forecast.

EL DORADO HILLS (797')

	Tue 3/7	Wed 3/8	Thu 3/9	Fri 3/10
High (°F)	50	49	53	57
Low (°F)	37	38	33	47
Rainfall (in)	0.04	0.23	1.10	1.76
Wind (mph)	6 - 9	6 - 10	6 - 22	15 - 28
Weather	Chance Rain Showers	Chance Rain Showers	Rain and Thunderstorms	Rain and Thunderstorms

PLACERVILLE (2000')

	Tue 3/7	Wed 3/8	Thu 3/9	Fri 3/10
High (°F)	43	43	50	52
Low (°F)	32	32	28	42
Rainfall (in)	0.09	0.32	1.33	2.69
Wind (mph)	6 - 7	6 - 10	5 - 23	16 - 22
Weather	Chance Rain Showers	Chance Rain Showers	Rain and Thunderstorms	Rain and Thunderstorms

POLLOCK PINES (4198')

	Tue 3/7	Wed 3/8	Thu 3/9	Fri 3/10
High (°F)	34	34	41	45
Low (°F)	25	23	24	37
Rainfall (in)	0.25	0.36	1.56	3.27
Snowfall (in)	3.90	5.70	0.00	0.00
Wind (mph)	8 - 10	7 - 15	7 - 28	17 - 24
Snow Level (ft)	2100 - 2900	1700 - 2200	2000 - 7600	7000 - 8400
Weather	Snow Showers	Snow Showers	Rain and Thunderstorms	Rain and Thunderstorms

ECHO SUMMIT (7596')

	Tue 3/7	Wed 3/8	Thu 3/9	Fri 3/10
High (°F)	27	26	28	41
Low (°F)	13	14	13	32
Rainfall (in)	0.19	0.27	1.43	2.31
Snowfall (in)	3.60	5.60	4.50	3.30
Wind (mph)	15 - 18	9 - 20	9 - 32	28 - 35
Snow Level (ft)	1600 - 2400	1400 - 2400	3900 - 8200	7200 - 8200
Weather	Snow Showers	Snow Showers	Snow Transitioning to Rain	Heavy Rain Transitioning to Snow

CAPLES LAKE (7947')

	Tue 3/7	Wed 3/8	Thu 3/9	Fri 3/10
High (°F)	23	22	33	36
Low (°F)	11	11	10	26
Rainfall (in)	0.18	0.34	2.11	3.05
Snowfall (in)	3.60	7.10	14.70	14.30
Wind (mph)	20 - 22	13 - 26	13 - 38	25 - 36
Snow Level (ft)	1700 - 2600	1500 - 2500	3900 - 8200	7300 - 8200
Weather	Snow Showers	Snow Showers	Snow	Rain and Snow Mix. Sierra Cement

Meteorological Forecast / Hindcast

NOAA / National Weather Service

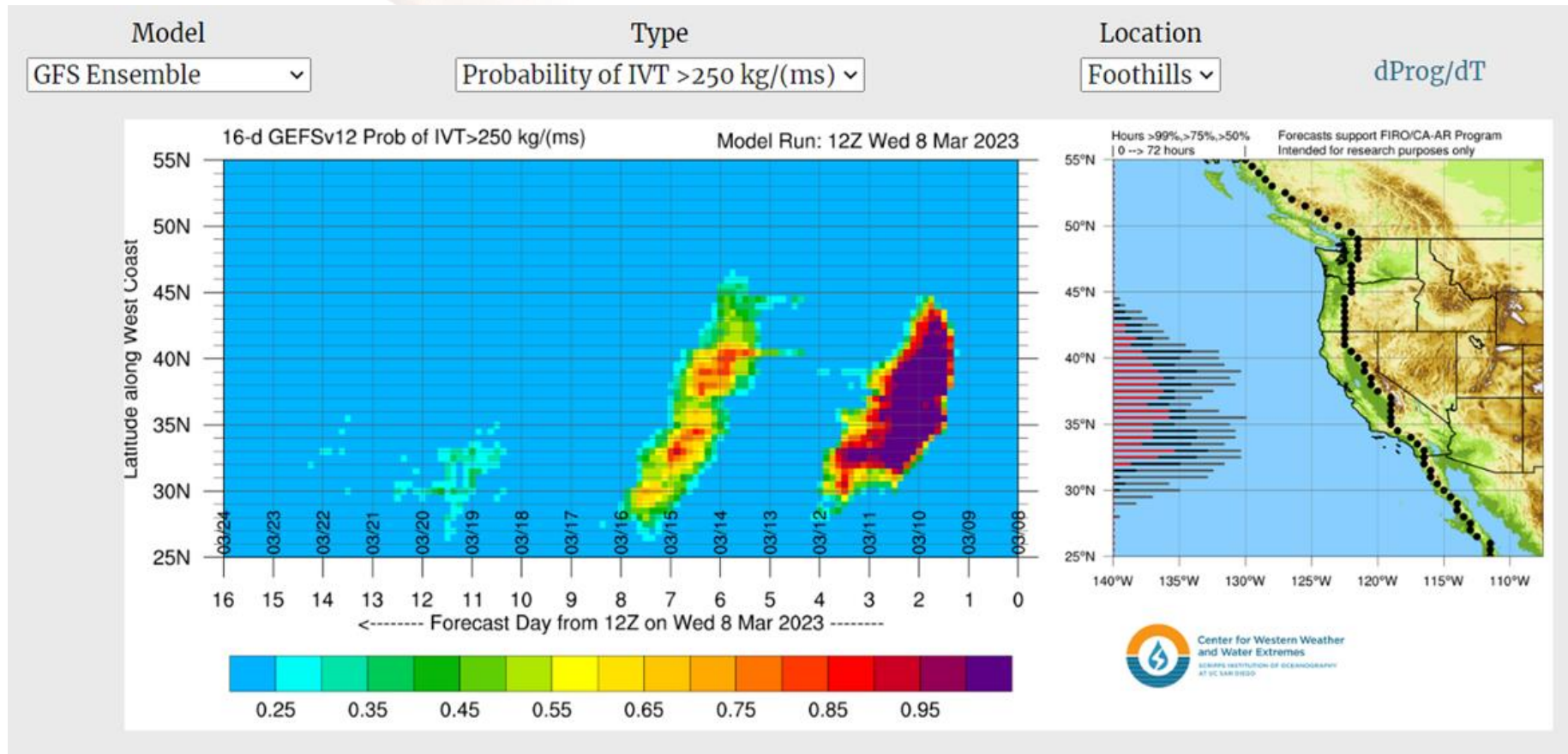
- Climate Prediction Center (long-term)
- Weather Prediction Center (Quantitative Precipitation Forecasts)
- Weather Table (short-term point forecasts)
- Advanced Hydrologic Prediction Service (Quantitative Precipitation Estimates)

Center for Western Weather and Water Extremes (CW3E)

- Atmospheric River (AR) Landfall Tool
- AR Scale and Precipitation Maps
- Watershed Precipitation Forecasts
- Watershed Freezing-Level Forecasts



ATMOSPHERIC RIVER FORECAST



Credit: Center for Western Weather and Water Extremes (Scripps Institution of Oceanography)



FORECASTED 7-DAY PRECIPITATION

Watershed Information:

Watershed Name: South Fork American
Watershed ID: 18020129
Watershed State(s): CA
Watershed Area: 543766.31 Acres

7-day Mean Areal Precipitation (MAP) Forecast

Model	Initialized	7-day QPF	7-day Volume
GFS (Op)	2023030800	9.66 in.	437 TAF
ECMWF (Op)	2023030800	8.12 in.	367 TAF
NOAA WPC	2023030800	10.36 in.	469 TAF
National Blend	2023030800	9.11 in.	412 TAF
GEFS Ensemble Mean	2023030800	8.38 in. $\pm$ 2.27	379 TAF $\pm$ 179
ECMWF Ensemble Mean	2023030800	6.83 in. $\pm$ 1.24	309 TAF $\pm$ 98

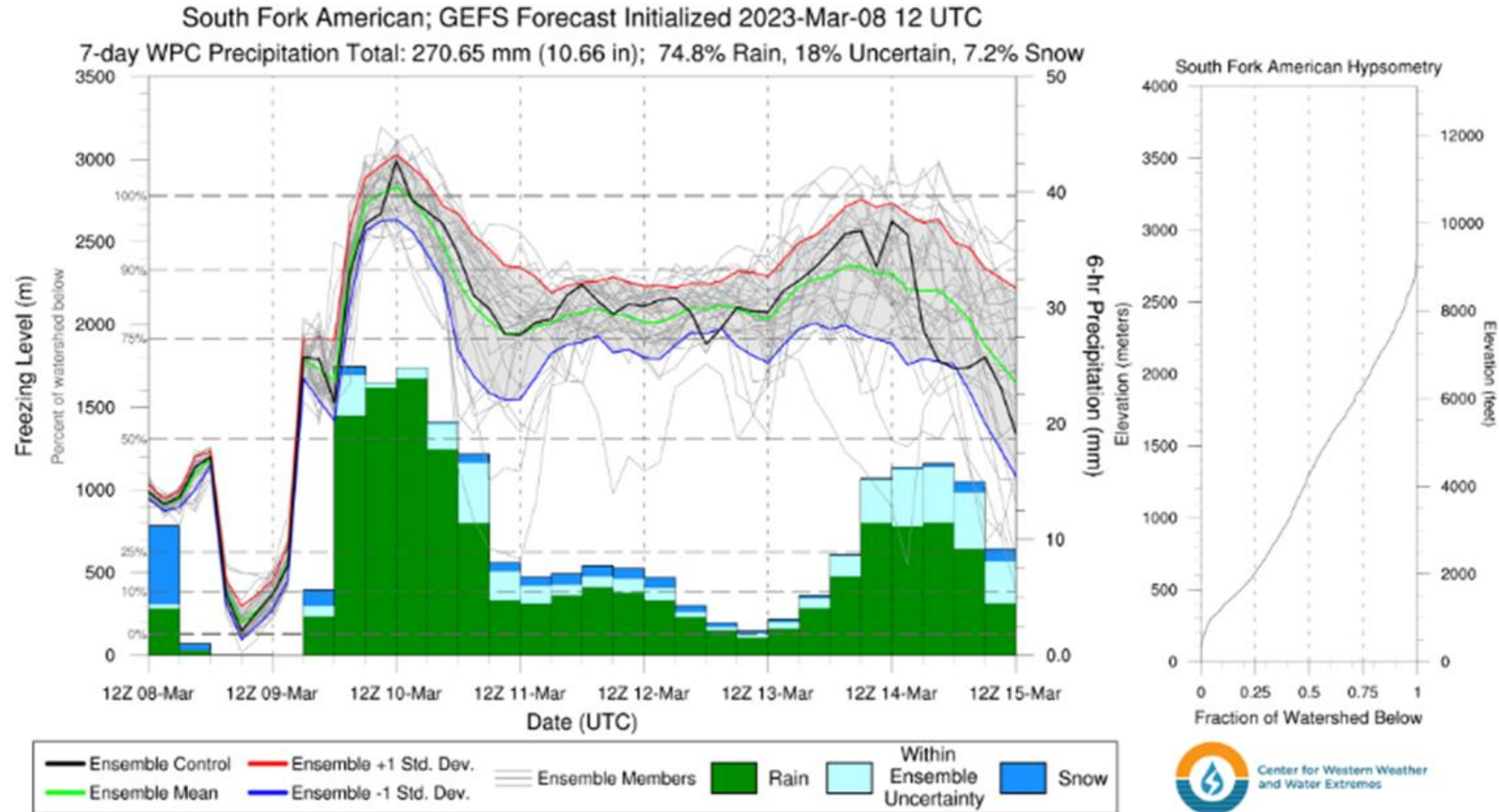
Daily Mean Areal Precipitation (MAP) for the next 7 days:

Model	Day-1	Day-2	Day-3	Day-4	Day-5	Day-6	Day-7
GFS (Op)	0.53	0.20	2.75	1.24	1.33	0.21	3.40
ECMWF (Op)	0.42	0.16	2.78	0.75	1.34	1.22	1.44
NOAA WPC	0.50	0.13	3.82	1.68	0.77	1.09	2.37
National Blend	0.50	0.14	3.33	1.62	0.94	0.65	1.93
GEFS Ensemble Mean	0.50	0.20	3.20	1.40	1.23	0.42	1.43
ECMWF Ensemble Mean	0.39	0.19	2.38	0.92	0.77	1.04	1.13

Credit: Center for Western Weather and Water Extremes (Scripps Institute of Oceanography)



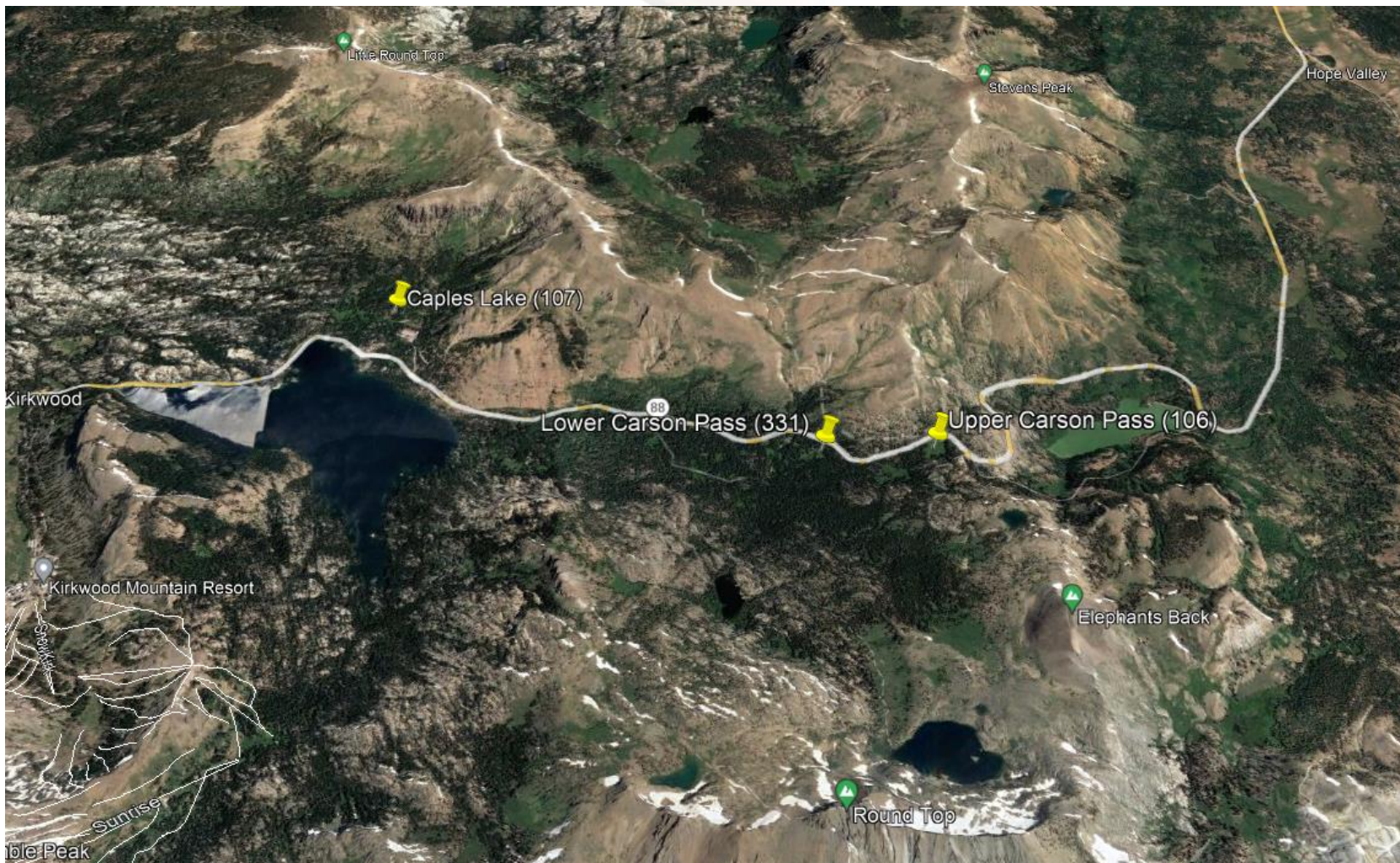
FORECASTED FREEZING LEVEL



Credit: Center for Western Weather and Water Extremes (Scripps Institute of Oceanography)



Snow Courses Useful for EID Forecasting



Snow Courses Measured by EID

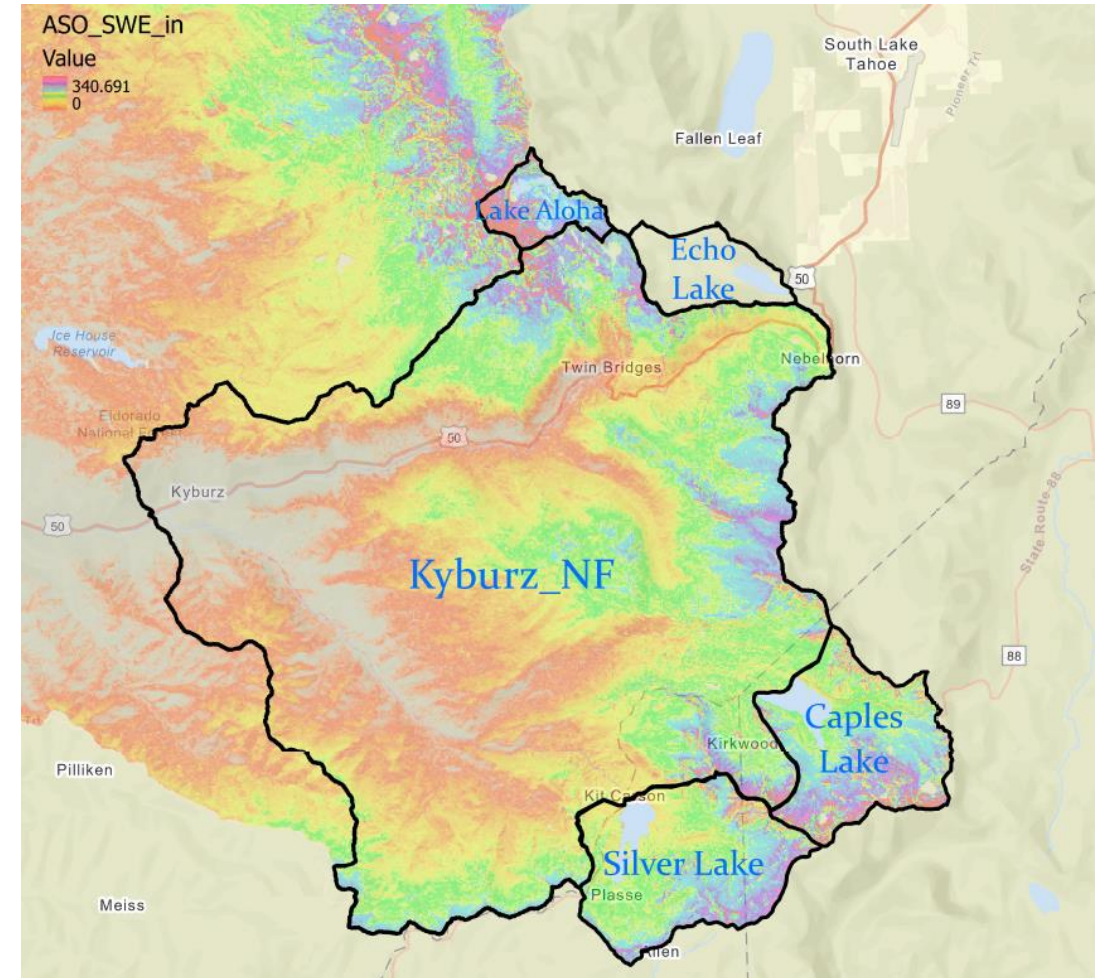
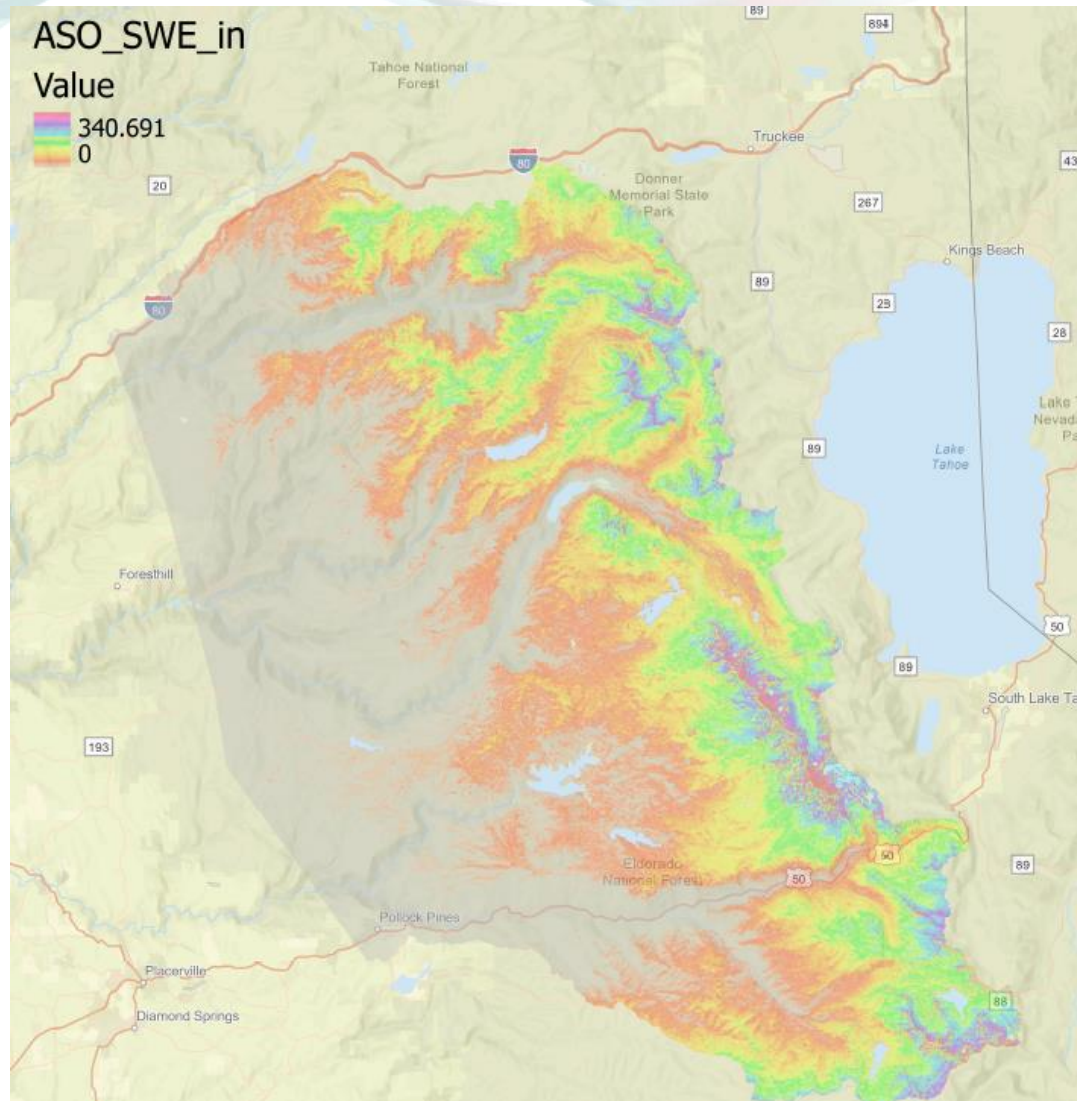
- **Caples Lake (22,340 AF)**
 - Caples Lake (CAP): 8,000'
 - CAP Snow Pillow
 - Lower Carson Pass (LCP): 8,400'
 - Upper Carson Pass (UCP): 8,500'

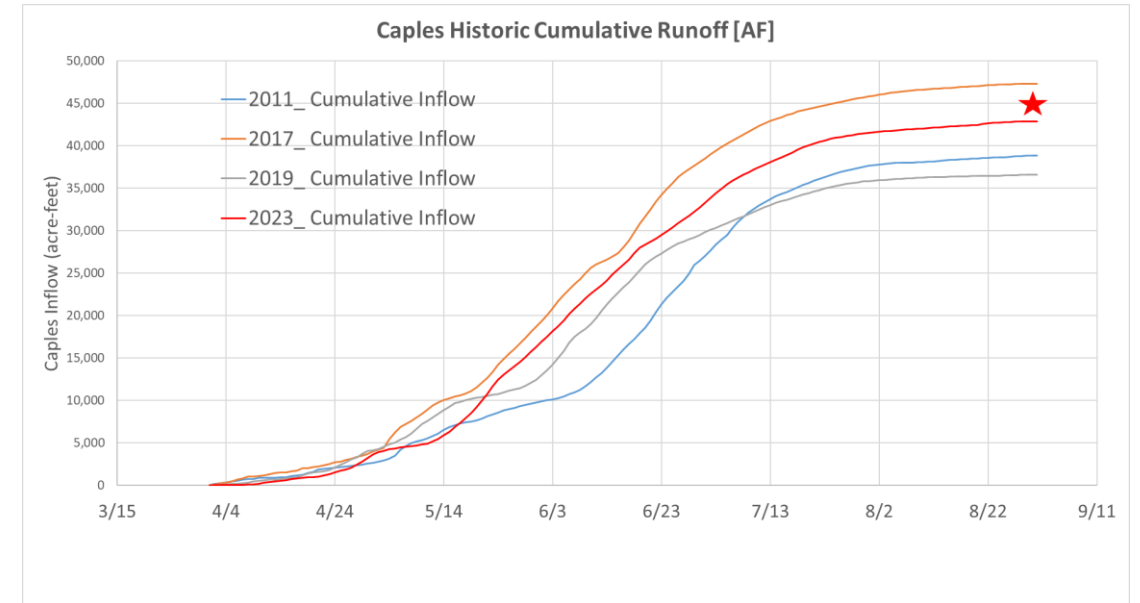
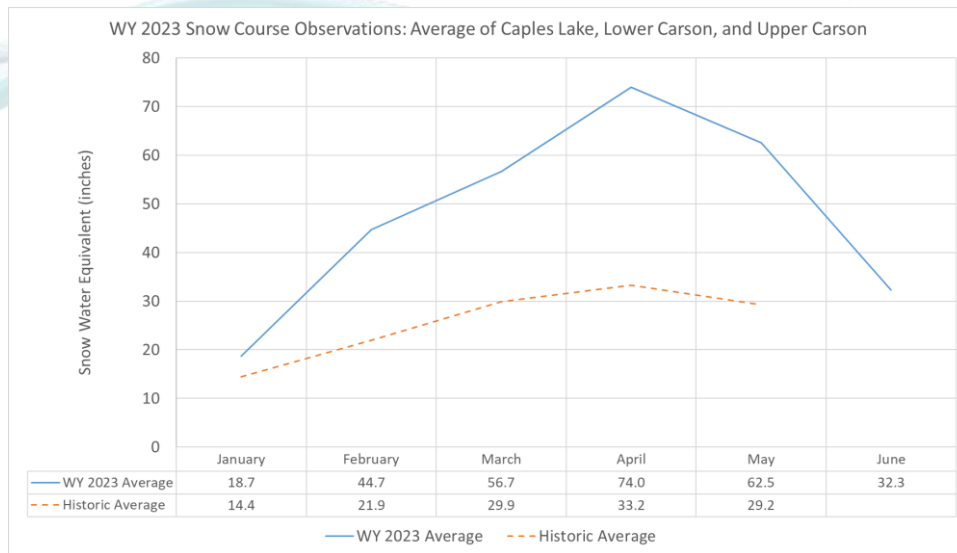
Other Cooperator Sites

- **Silver Lake (8,912 AF)**
 - Silver Lake (SIL) Snow Course & Pillow: 7,100'
- **Lake Aloha (5,004 AF)**
 - Lake Lucille Snow Course (LLL): 8,200'
- **Echo Lake (1,943 AF)**
 - Echo Peak 5 Snow Pillow (EP5): 7,800'

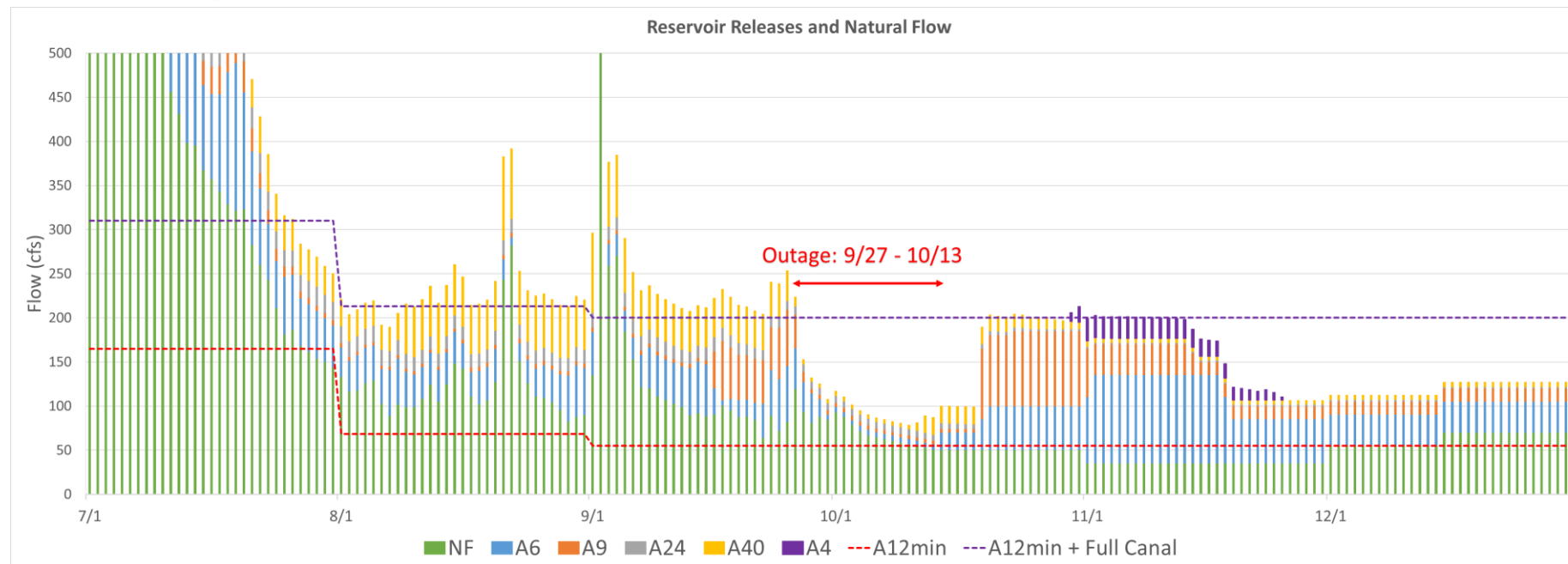


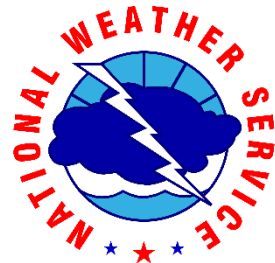
Airborne Snow Observatories in the American Basin





***ASO Mid April Flight: 74.76"**





For many: the Pre-Katrina attitude to Flood Management



BUILDING SYSTEM RESILIENCE

Sacramento Area Flood Control Agency (SAFCA) delivered a nearly **300-year level of flood protection**

- **70 miles of levee upgrades** along the Sacramento and American rivers
- secured **over \$4 billion in funding** for improving infrastructure and operations of Folsom Dam and Yolo Bypass in the past decade.

Despite these investments, **Sacramento remains one of the most at-risk cities in the Nation for riverine flooding.**

- Over 700,000 people and \$90 billion in property assets at risk,
- Up to 20 feet flood depth with significant challenges for emergency response and risks of hypothermia in 1 to 3 hours from exposure to low temperature of floodwater.
- Increasing intensity and frequency of devastating atmospheric river events as occurring in early 2023.

GOAL: A 500-Year Level of Flood Protection for Sacramento, California

HOW: Partnership and Innovation for completing the following.



Levee, Channel, and Weir Improvements and Folsom Dam Raise

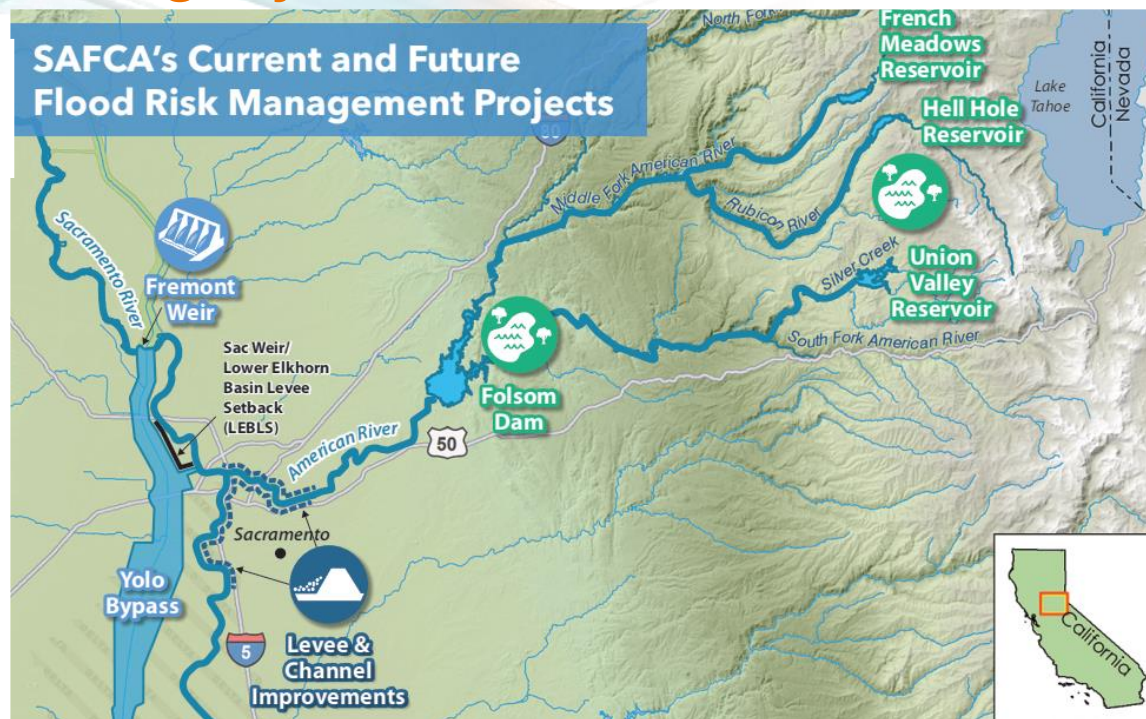


Fremont Weir and Yolo Bypass Capacity Expansion

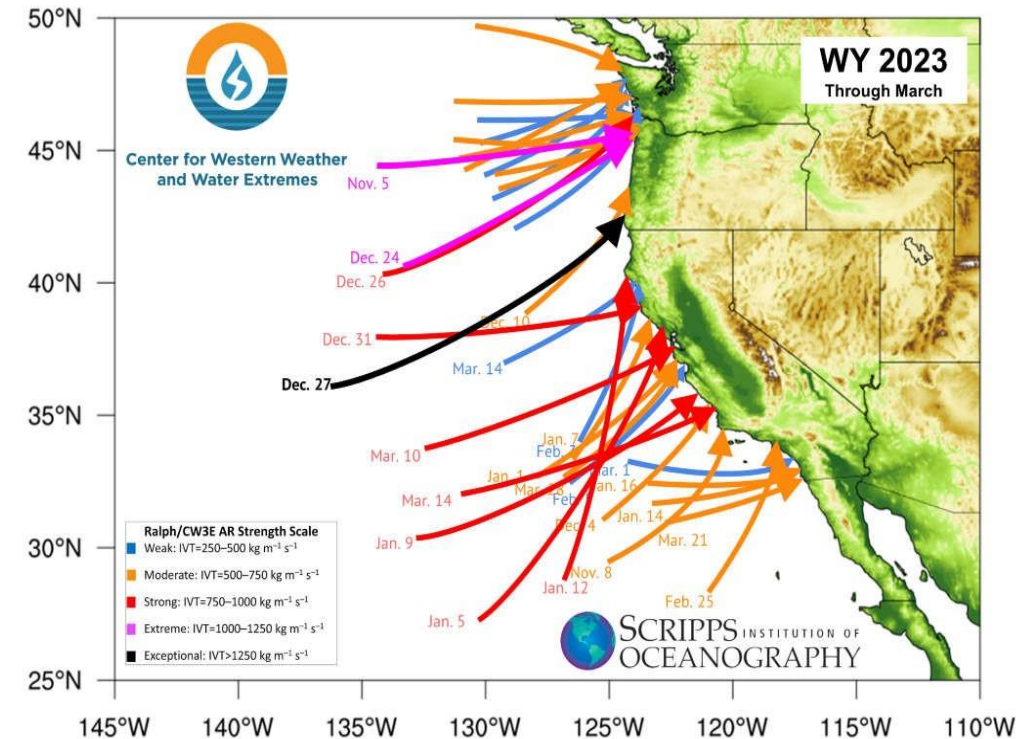


American River Watershed Forecast-Informed Reservoir Operation

Building System Resilience



Future Climate



NOW → FUTURE (500-year level of protection)

- | | | |
|--|--|--|
|  Levee, Channel, and Weir Improvements and Folsom Dam Raise |  Fremont Weir and Yolo Bypass Capacity Expansion Program |  American River Watershed Forecast-Informed Reservoir Operation Program |
| <ol style="list-style-type: none"> 1 American River Channel and Levee Improvement for accommodating 160,000 cfs 2 Sacramento River Channel and Levee Improvement 3 Sacramento Weir and Lower Elkhorn Basin Levee Setback 4 Folsom Dam Raise (3.5 feet) and Temperature Shutter Upgrade | <ol style="list-style-type: none"> 1 Fremont Weir Capacity Expansion 2 Yolo Bypass Capacity Expansion 3 Yolo Bypass Fishery Habitat Enhancement | <ol style="list-style-type: none"> 1 Forest Management and Other Nature-based Solutions 2 Hell Hole Reservoir Facility Modifications 3 French Meadows Reservoir Facility Modifications 4 Union Valley Reservoir Facility Modifications 5 Folsom Dam Water Control Manual Update |

Water Year 2023 is a perfect example of the extreme conditions. After 2 years of drought, since the new year of 2023, 31 Atmospheric River systems impacted California

Progression of Forecast Informed Reservoir Operation (FIRO) in the American River Basin



KEY PARTNERS

FIRO (JFP)

Completed 2019

Joint Federal Project
with Water Control
Manual Update

REGIONAL
LEAD



FIRO (FDR)

In Progress

Folsom Raise and
Temperature
Control Shutters
Upgrade with Water
Control Manual
Update

REGIONAL
LEAD



ARBS Non-
Federal
Partners*

Watershed
FIRO

Future Project

PCWA and SMUD
Upstream
Reservoir Facility
Modifications

REGIONAL
LEAD



ARBS Non-
Federal Partners*

More in discussion

Key:



New spillway
increases
discharge
capacity by
312,000 cfs

New gates for
more flexible
releases (50 feet
lower than
existing spillway
gates)



Achieving Multi-Benefit Projects for Sacramento Region

AMERICAN RIVER UPSTREAM
FORECAST-INFORMED RESERVOIR OPERATIONS
AND MANAGED AQUIFER RECHARGE PROGRAM

The Enabler

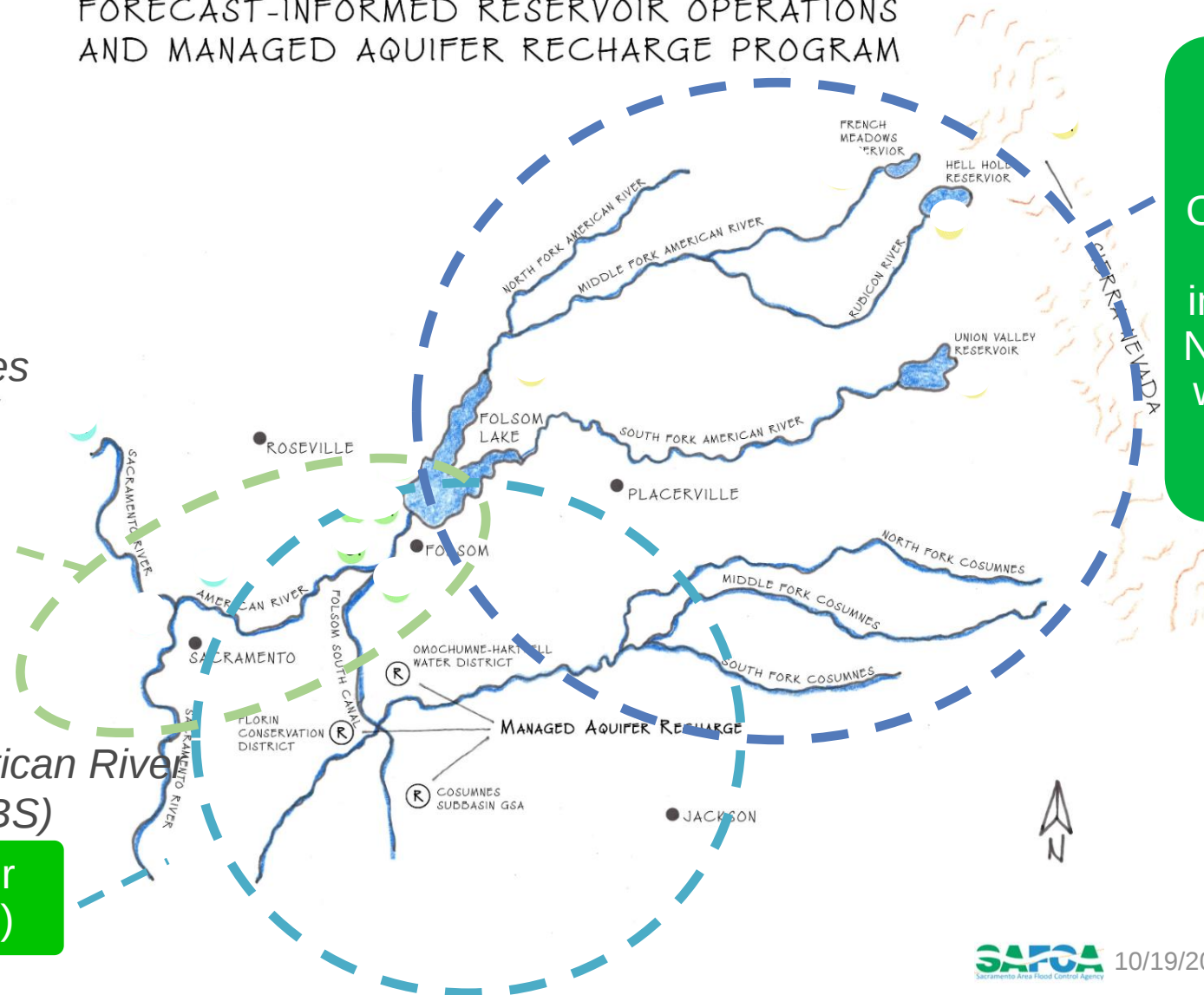
Watershed Forecast
Informed Reservoir
Operations (Watershed
FIRO) enhanced by
incorporating upstream
Nature-based Solutions
working with upstream
interests

Additional Opportunities

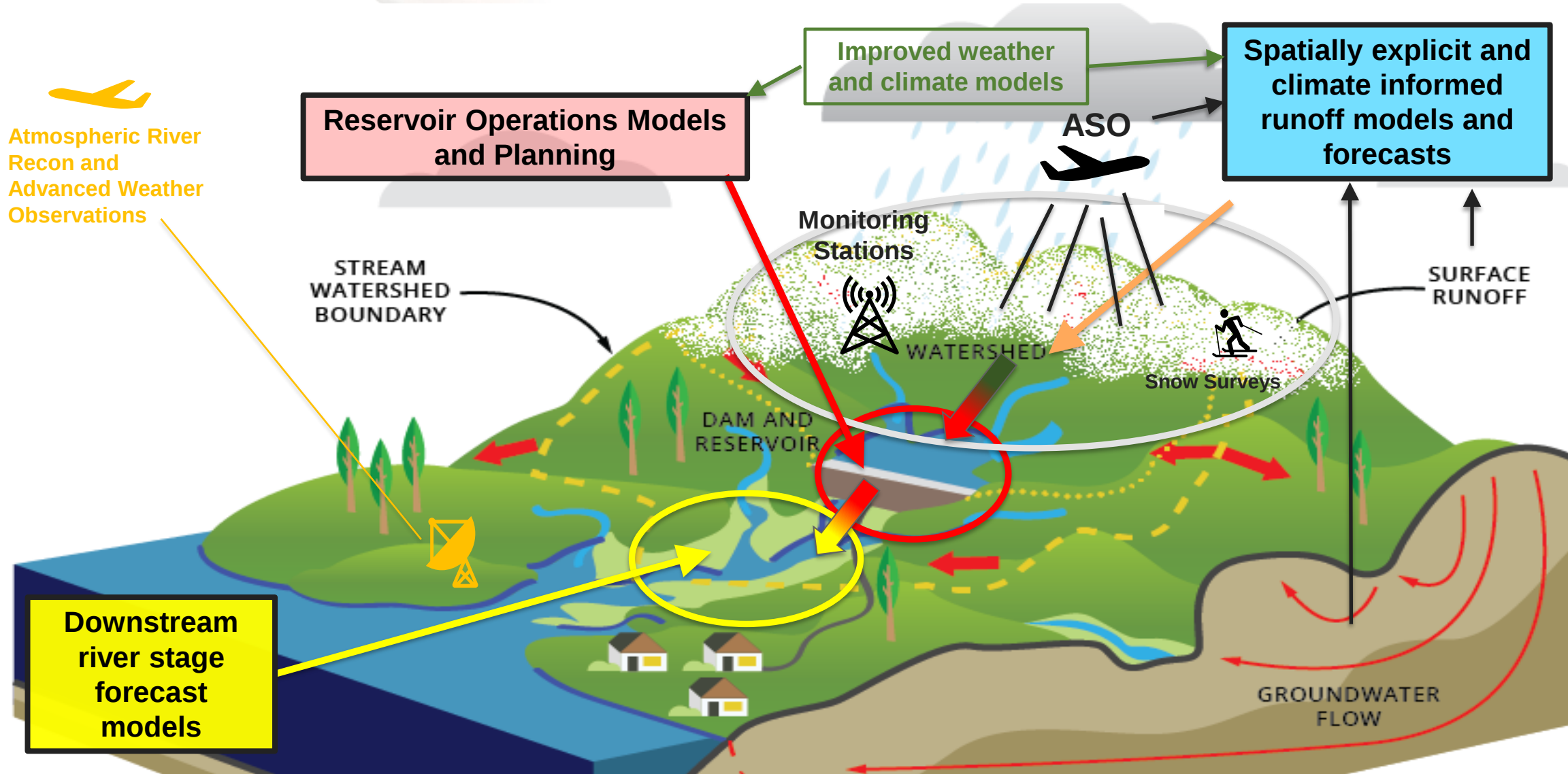
Benefits for LAR and
the Delta are also
possible through
Folsom operation (with
or without MAR)

*Identified in American River
Basin Study (ARBS)*

Managed Aquifer
Recharge (MAR)



The connection between runoff forecasts, reservoir operations, and how that translates to downstream river levels





Break – Grab Lunch

**Reconvene for Breakout
Groups at 11:50 A.M.**





Discussion

1. What are our needs for EDC and the upper American River watershed from water availability and flood forecast?
2. What investments in data and technology are needed to:
 - Improve watershed management and community resilience?
 - Better account for the benefits the watershed may provide?
3. How can we improve communication and coordination on data acquisition and information sharing?



Q&A with Panelists

Invest in Forecasting for Water Availability and Flood to Improve Management and Preparedness



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