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25 years since the New Year's flood of 1997: What's changed and where are we today?

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Yuba Water Agency Mission Areas



Flood Risk Reduction



Sustainable Water Supply



Hydropower Generation



Fisheries Protection
and Enhancement

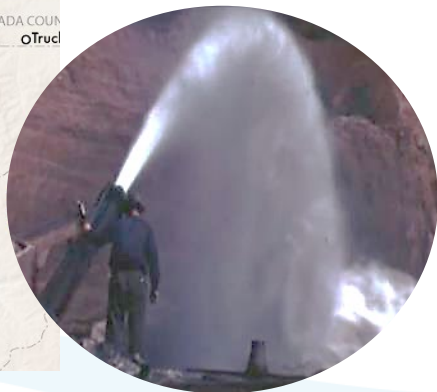


Recreation at
New Bullards Bar

Yuba County Flood History: A Highly-Productive Watershed

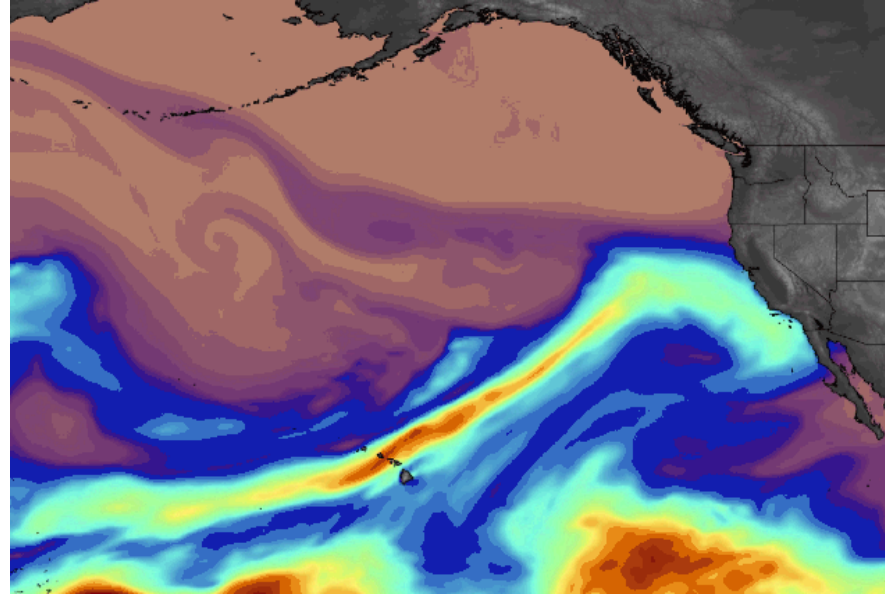


- Highly-productive watershed surrounded by three major rivers (Yuba, Feather and Bear)
- Hydraulic mining legacy contributed to large sediment build-up, raised riverbeds
- Piecemeal, earthen levees built by early settlers



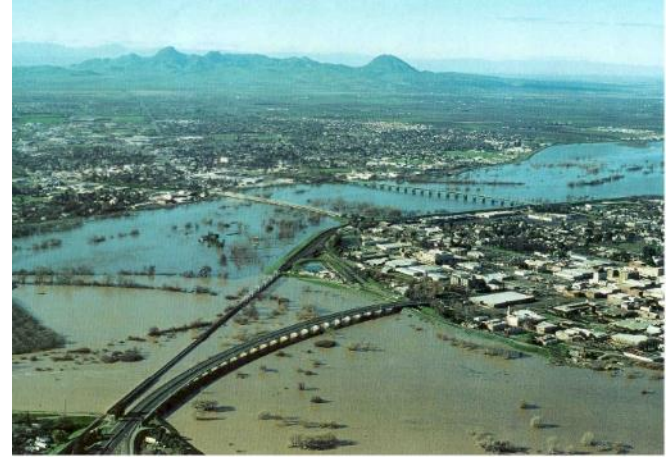
Atmospheric Rivers Cause Most Floods in Yuba County

- Atmospheric rivers are “rivers in the sky,” or long, narrow bands of water vapor that produce major rainfall
- These storms can transport as much water in the form of vapor as 25 Mississippi Rivers
- Atmospheric rivers have caused all major floods in Yuba County, including 1997



Most Recent Devastating Floods: 1986 and 1997

February 20, 1986: As the Yuba River recedes after a week of historic flows, a portion of the levee protecting Linda collapses, killing two and inundating 4,000 homes



January 1997: After eight days of heavy rainfall that caused rapid snowmelt and runoff and swollen rivers, two levee breaches claim three lives and nearly 1,000 homes

25 Years Since the 1997 Flood: What's Changed?



Yuba Water Agency

MARKING 25 YEARS SINCE THE NEW YEAR'S FLOOD OF 1997

It's been 25 years since a record storm in early 1997 caused widespread flooding in southern Yuba County. See what's changed and where we are today.

In addition to what we're covering in this presentation today, visit yubawater.org for a timeline of 1997 flood and major actions and improvements since then.



Flood Risk Reduction Partners and Projects

Yuba Water Flood Risk Reduction Partners

- Yuba Water works with dozens of local, state and federal agencies, Congress and many others to increase public safety by reducing flood risk for the people of Yuba County



US Army Corps
of Engineers®



STATE OF CALIFORNIA
CENTRAL VALLEY
FLOOD PROTECTION BOARD

**Marysville Levee
Commission**



RD 817

RD 10

RD 2103



Yuba Water Flood Risk Reduction Goals

- 200-year level of protection* for **urban areas**, 100-year level of protection for **agricultural areas**
- **Coordinate and unify** smaller improvement projects for increased efficiency
- Develop a **long-term plan to complete construction** and repairs necessary to achieve reduced flood risk



*A 200-year level of flood protection means there is less than a 1-in-200 (half of a percent) chance in any year that a storm more powerful than the system is designed to handle will come along

Local Levee Districts and Yuba Water



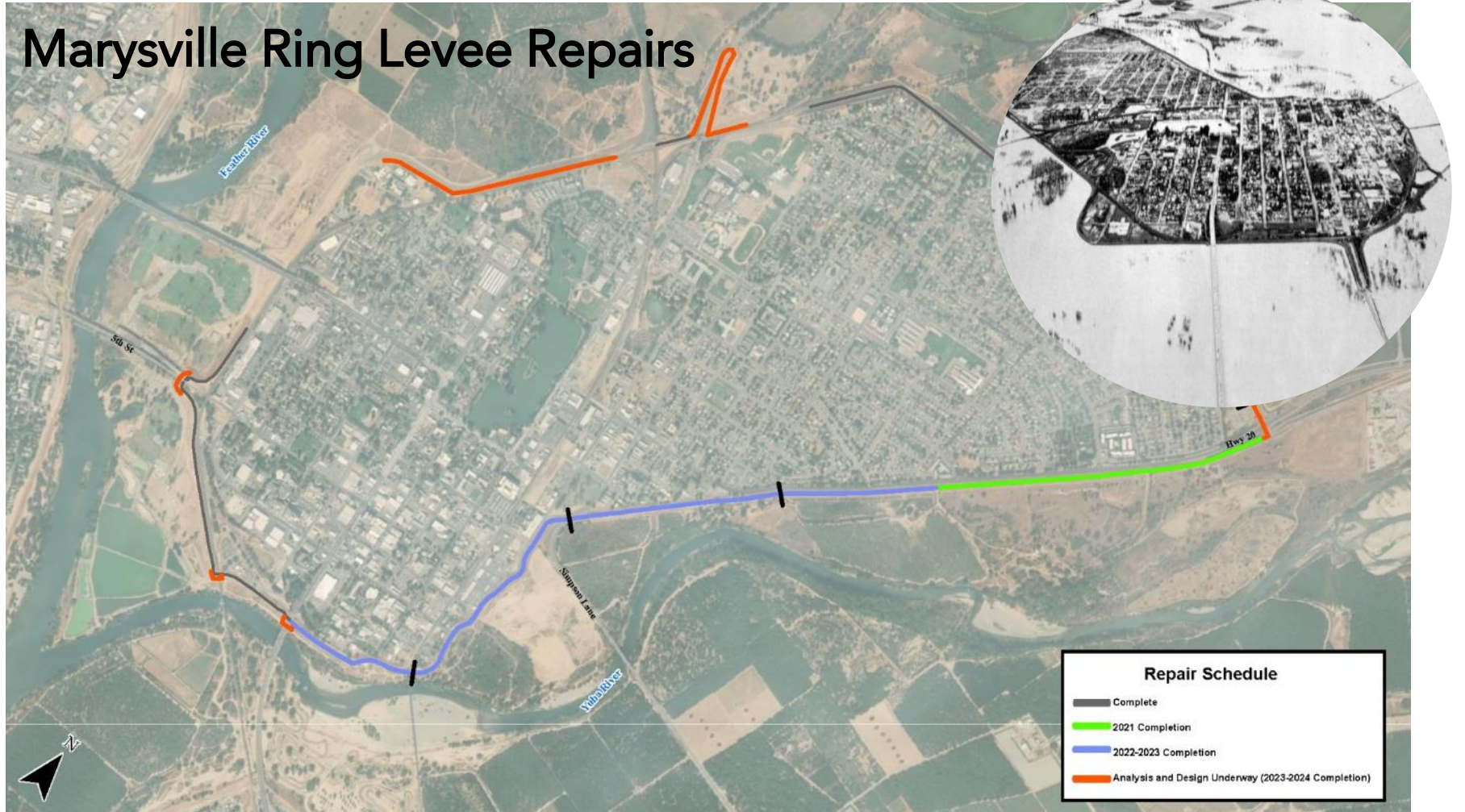
- Although Yuba Water supports flood risk reduction through coordination and funding, the agency does not maintain or repair levees
- Yuba County's local levee Reclamation Districts are responsible for reclaiming and maintaining levees

Feather and Bear River Setback Levees

- Multi-partner projects contributing to 200-year level of flood protection for south Yuba County
- Lowers flood stage upstream by 1 foot (Bear) and 3 feet (Feather)
- Expanded ecological preserve and floodway
- Completed 2007 (Bear) and 2010 (Feather)

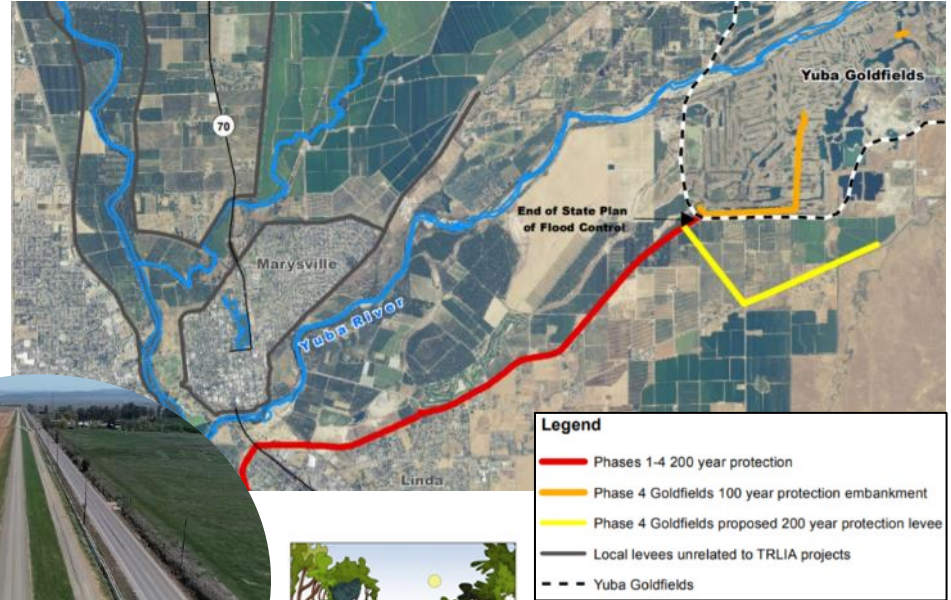


Marysville Ring Levee Repairs



Yuba Goldfields Levee Improvements

- Three Rivers Levee Improvement Authority project to build new levee from the existing levee on Hammonton-Smartsville Road
- Critical to achieving 200-year level of protection for southern Yuba County
- Completed summer 2021



Multi-Partner Hallwood Side Channel Project



- Removal of 3.2 million cubic yards of sediment from lower Yuba River lowers water surface elevations and speed during high water and reduces levee stress
- Enhancement of 157 acres of habitat to restore natural floodplain processes
- First two phases (out of four) complete; next phase begins in April 2022

Summary of Projects and Investments Since 1997



2 ongoing flood risk reduction programs



13 flood risk reduction projects complete or in construction



3 studies underway, 4 projects in planning or design phase

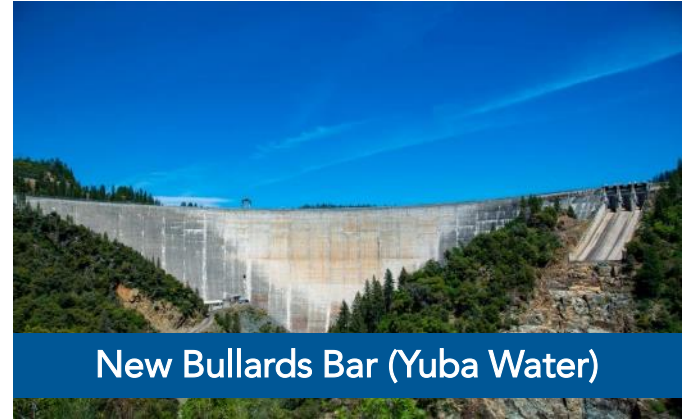


\$33 million invested by Yuba Water to leverage \$600 million in state and federal funding



Looking Ahead: Future Investments in Public Safety

Forecast-Coordinated Operations (F-CO)



- Launched in 2005, F-CO expanded and improved monitoring and information-sharing among federal, state and local agencies in the Yuba-Feather watershed
- The next phase of F-CO is updating the water control manuals – which regulate how much water we can release and when – for each reservoir and adding new forecasting abilities to our operations

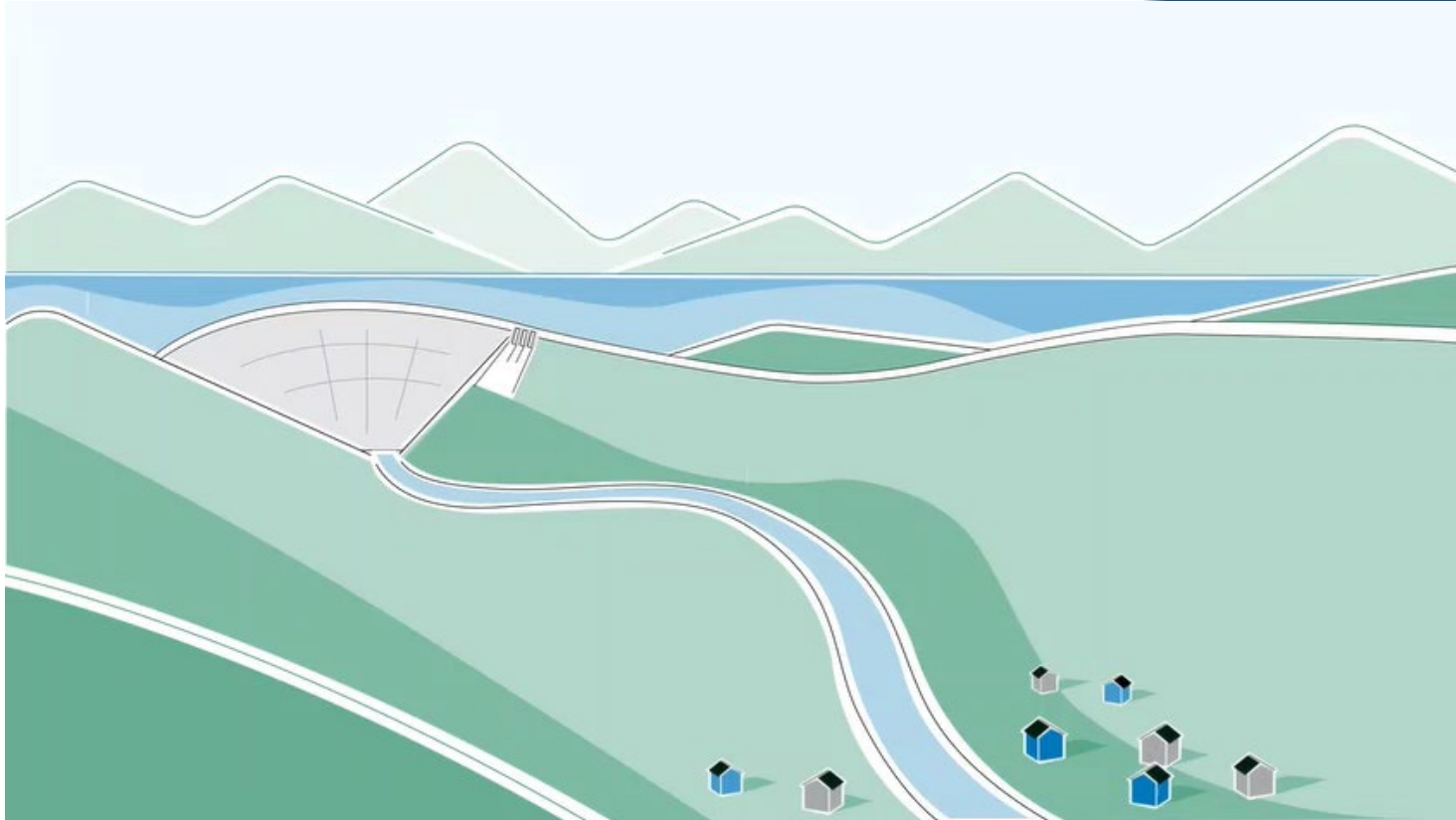


Forecast-Informed Reservoir Operations (FIRO)

- F-CO laid the foundation for a new, forward-looking forecast and operations methodology called Forecast-Informed Reservoir Operations (FIRO)
- Uses improved forecasting to increase flexibility to store or release water
- Benefits include **reduced flood risk**, potential **water supply improvements**, resilience to changing conditions



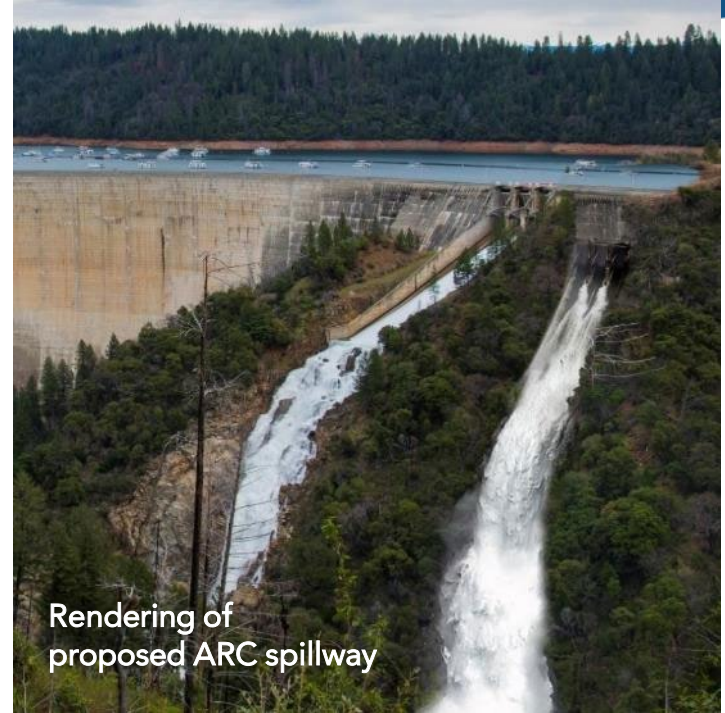
New Bullards Bar Atmospheric River Control (ARC) Spillway



New Bullards Bar ARC Spillway Benefits

- Additional, **lower** outlet allows operators to pre-release water ahead of atmospheric river storms
- Reduces downstream water levels by 2-3 feet in Yuba-Sutter region
- Increases level of flood protection by 100- to 300-year levels*

**The term "100-year flood" is used to simplify the definition of a flood that statistically has a 1-percent chance of occurring in any given year.*

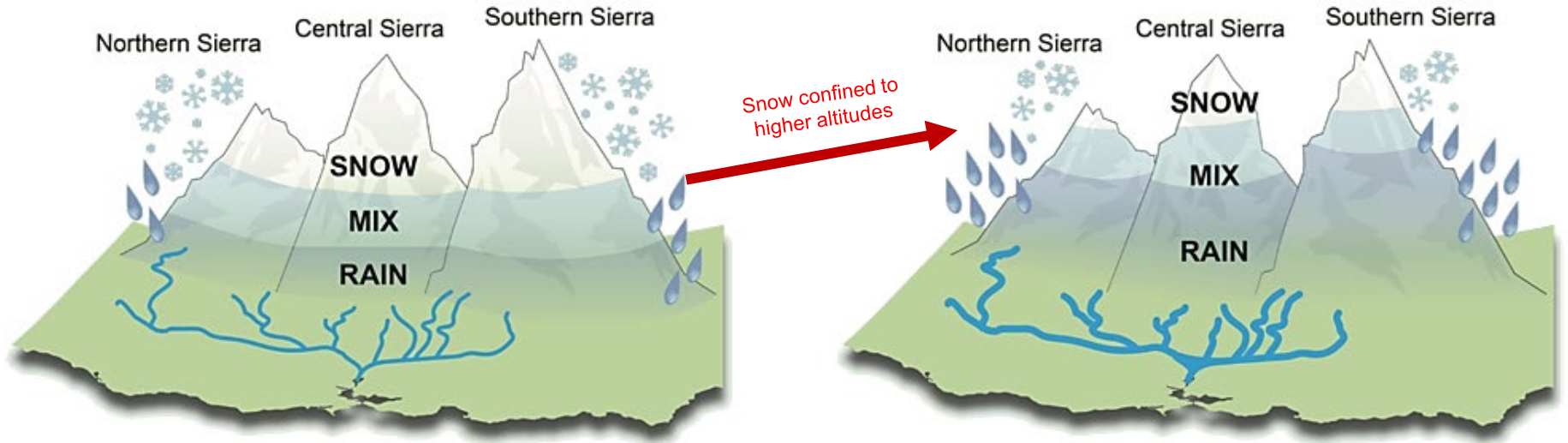


Rendering of
proposed ARC spillway

Building Resilience to California's Changing Climate

TODAY

FUTURE



CVFPP 2017

What Does This Mean for Me?

- Lower flood insurance premiums
- Ensures local developments can move forward without additional building or permitting costs
- Public safety, security and long-term resilience for our communities



In Summary...

- Despite its flood history, Yuba County is now among the best protected urban areas in the state thanks to significant investments by Yuba Water and local, state and federal partners
- Atmospheric rivers have caused most floods in Yuba County and still contribute to flood risk today
- A planned atmospheric river control spillway and implementation of Forecast-Informed Reservoir Operations at New Bullards Bar Dam would be our most significant investment in public safety since construction of the dam



Thank you!

Questions?



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