

AMERICAN RIVER BASIN STUDY

PROJECT PURPOSE

The American River Basin Study (ARBS) leverages recent investments in analytical tools for local project operations in the upper American River Basin, and information on regional infrastructure capacity. The study will form a comprehensive, basin-wide analytical framework for unifying Federal and regional planning. Refined hydrology to be developed through the ARBS will be used to assess regional and agency-specific vulnerability to climate change and the effectiveness of identified mitigation and adaptation strategies.

REGIONAL APPROACH TO ADDRESS CLIMATE CHANGE AND WATER SUPPLY IMBALANCE

Build from the U.S. Department of the Interior, Bureau of Reclamation's (Reclamation) Sacramento and San Joaquin Rivers Basin Study (SSJRBS), completed in March 2016.

- ▶ Forecasts the potential impacts of climate change on water supply, water quality and critical habitat within California's Central Valley.
- ▶ Included 60,000 square mile study area for the SSJRBS encompasses all main tributaries within the Central Valley as well as the Sacramento-San Joaquin Delta (Delta), the largest estuary on the west coast of North America.
- ▶ Outlines projected impacts from climate change on various natural resources and presents portfolios of broad adaptive strategies for consideration by water agencies and other interests.
- ▶ Opportunities to improve Reclamation's flexibility in operating Folsom Reservoir to meet flow and water quality standards and protect endangered fishery species in the American River.

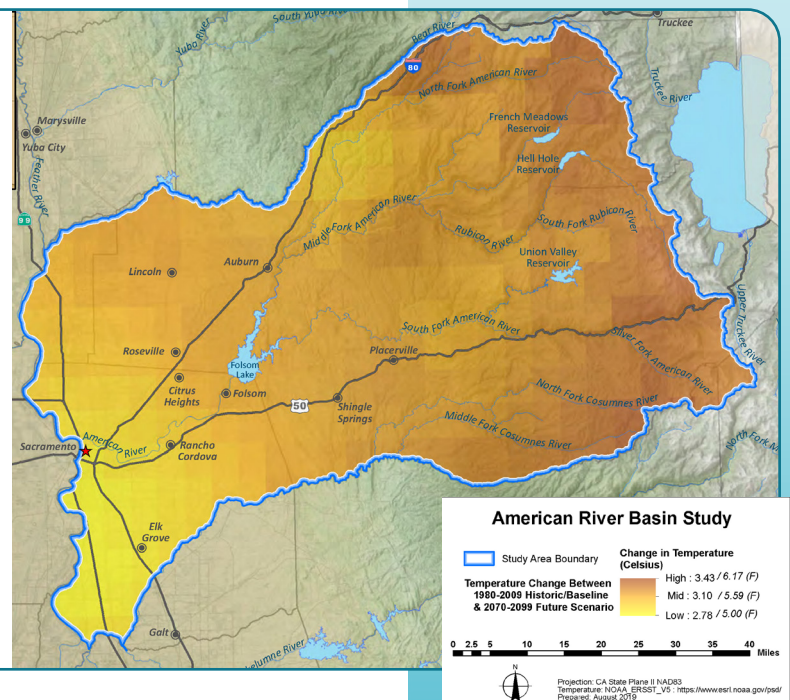


CITY OF
FOLSOM



STUDY OBJECTIVES

- ▶ Address regional demand-supply imbalance and infrastructure deficiencies under the threat of climate change.
- ▶ Improve regional self-reliance and collaboration for sustainable water resources management and quality of life.
- ▶ Integrate regional water supply reliability with operational flexibility for Reclamation's Folsom Dam and Reservoir to help meet all authorized purposes of the CVP.
- ▶ Align regional water management strategies and planning efforts with those of Reclamation.

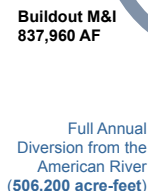


Several complementary cost-share efforts have been identified that will assist in development of the ARBS, including:

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| ▶ Regional Water Reliability Plan | ▶ Lake Natoma CE-QUAL W2 Model |
| ▶ Inflow Temperature Regression Model for Folsom Lake | ▶ Lower American River HEQ 5Q Model Update |
| ▶ Folsom Reservoir CE-QUAL-W2 Model | ▶ Alder Reservoir Feasibility Update |
| ▶ Lake Natoma CE-QUAL W2 Model | ▶ Alder Reservoir Options Development Analysis |

The historic drought serves as an indicator of the potential future supply and demand imbalances under climate change that include the following:

- ▶ Part of SMUD's hydropower system called the Upper American River Project (UARP)
- ▶ Population growth
- ▶ Revised CVP Operations
- ▶ Water Right Curtailments and Facility Constraints
- ▶ Gap between Federal and Local Project Operations
- ▶ Climate Change



Historical Runoff Midpoint

Historical Data (1922-2015)
2.58 MAF

Mid-Century 2035-2064 (Central Tendency)
2.57 MAF
30 days earlier

End-of-Century 2070-2099 (Central Tendency)
2.50 MAF
35 days earlier

Flood Operations | **Water Supply Operations**

Inflow to Folsom could occur **EARLIER BY 30 TO 40 DAYS** on average.

- Earlier runoff would **increase the chance of spills** from Folsom reservoir during flood season.
- Earlier runoff would **reduce water supply** available during summer and fall for M&I, ecosystem, hydropower irrigation, recreation, etc.

A public agency created under the 1959 El Dorado County Water Agency Act.