

American, Bear, and Cosumnes Watersheds—Watershed Delineation

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Project name:	American, Bear, and Cosumnes (ABC) Watersheds Resilience Plan	2485 Natomas Park Drive Suite 600 Sacramento, CA 95833-2937 United States
Attention:	Ryan Ojakain, Jim Peifer, Trevor Joseph	T +1.916.920.0300
Client:	Regional Watershed Authority	F +1.916.920.8463
Prepared by:	Reed Thayer, PE	www.jacobs.com
Reviewed by:	Devyani Kar, Tapash Das	
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1. Introduction

This technical memorandum describes the development of study area boundary that will be used for the American, Bear, and Cosumnes (ABC) Watersheds Resilience Plan for the Regional Water Authority. This boundary builds upon the 2022 study area boundaries developed for the *American River Basin Study* (ARBS) by the US Department of the Interior Bureau of Reclamation (Reclamation) (Reclamation 2022) and the California Department of Water Resources' (DWR's) *California Watershed Resilience Assessment* (DWR 2024). The boundary developed for the ABC Watersheds Resilience Pilot is in line with the watershed-level focus of the *California Water Plan Update 2023* (DWR 2023).

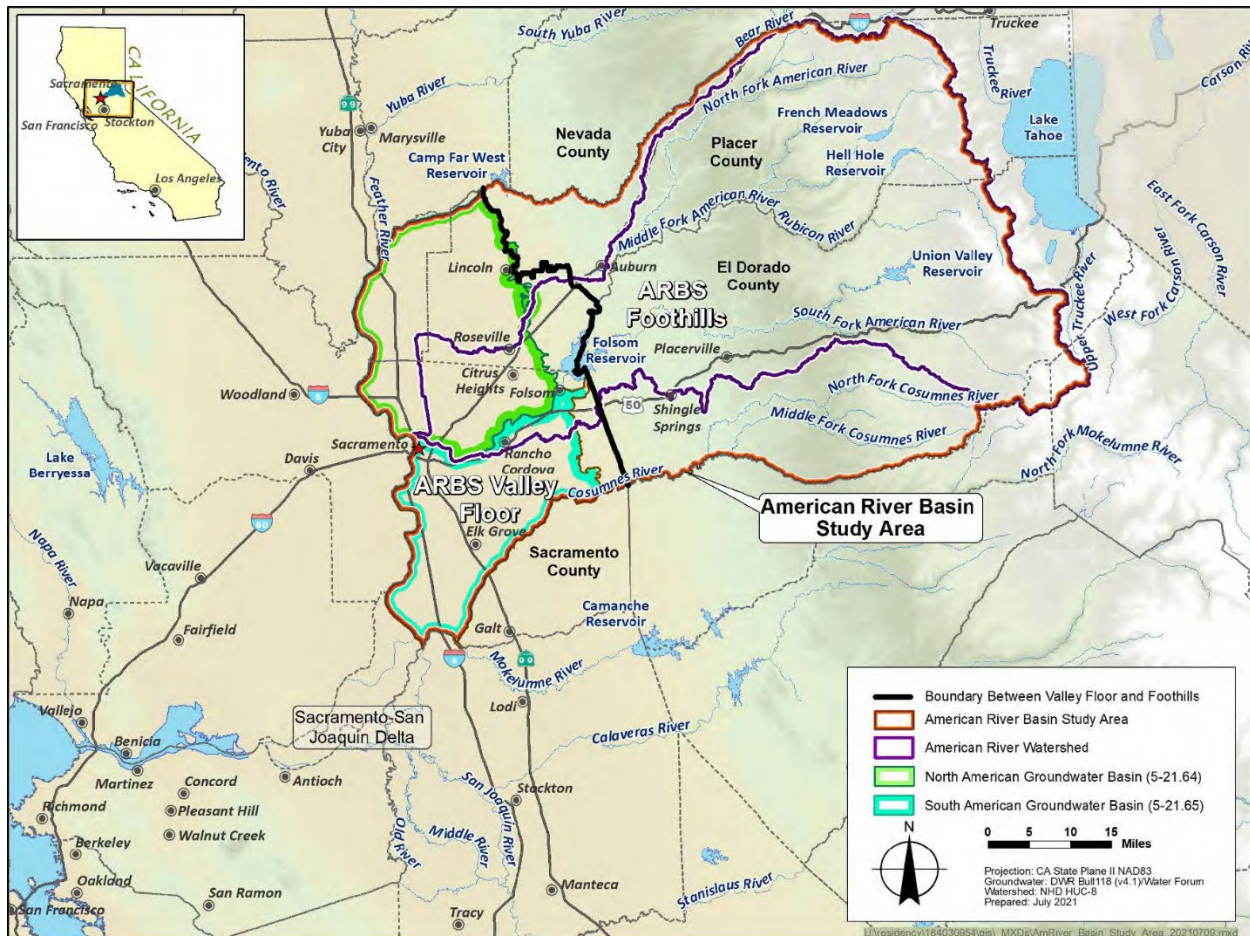
This technical memorandum describes the differences between the proposed study area boundary and those developed by Reclamation and DWR for their respective studies.

2. Description of Previous Study Area Boundaries

2.1 American River Basin Study

Reclamation developed the ARBS as part of the WaterSMART Basin Studies program, which is a series of watershed studies that evaluated future supply and demand and proposed resiliency strategies. Figure 1 shows the study area boundary. The study area boundary includes the American River watershed (ARW); the Bear River watershed south of the Bear River, Feather River, and Sacramento River eastside tributaries between the mouths of the Bear and Mokelumne rivers; and the Cosumnes River watershed north of the Cosumnes River. This boundary was intended to include non-Federal partners outside of the ARW that receive American River water, as well as the two groundwater basins that overlap with the ARW (Reclamation 2022).

Figure 1. American River Basin Study Boundary



Source: Reclamation 2022.

2.2 DWR's California Watershed Resilience Assessment

California Water Plan Update 2023 recommends a watershed-scale approach to developing solutions to California's water management challenges (DWR 2023). In response, DWR proposed a series of watershed resilience assessments. A total of 48 watersheds was delineated across the state, following US Geological Survey Hydrologic Unit Code (HUC)-8 boundaries. The program of assessments combined the American River and Bear River watersheds, referred to as "American-Bear." Figure 2 shows the American-Bear study area, which consists of the following HUC-8s:

- 18020129: South Fork American
- 18020128: North Fork American (includes Middle Fork)
- 18020126: Upper Bear
- 18020108: Lower Bear

Figure 2. American-Bear Watershed



Source: DWR 2024.

3. Proposed Study Area Boundary

For the ABC Watersheds Resilience Plan, the proposed boundary largely builds on the Reclamation ARBS boundary. The boundary includes the entire American River, Cosumnes River, and Bear River watersheds, eastside tributaries of the Feather River and Sacramento River between the mouths of the Bear and Mokelumne rivers, and the City of West Sacramento.

Figure 3 shows the proposed watershed study area, superimposed on the Reclamation ARBS boundary and the DWR study areas. The blue line delineates the revised watershed study area, the red line delineates the boundary of the Reclamation ARBS study area, and the purple lines delineate the HUC-8 boundaries that make up the DWR study area.

The proposed study area includes the following HUC-8s:

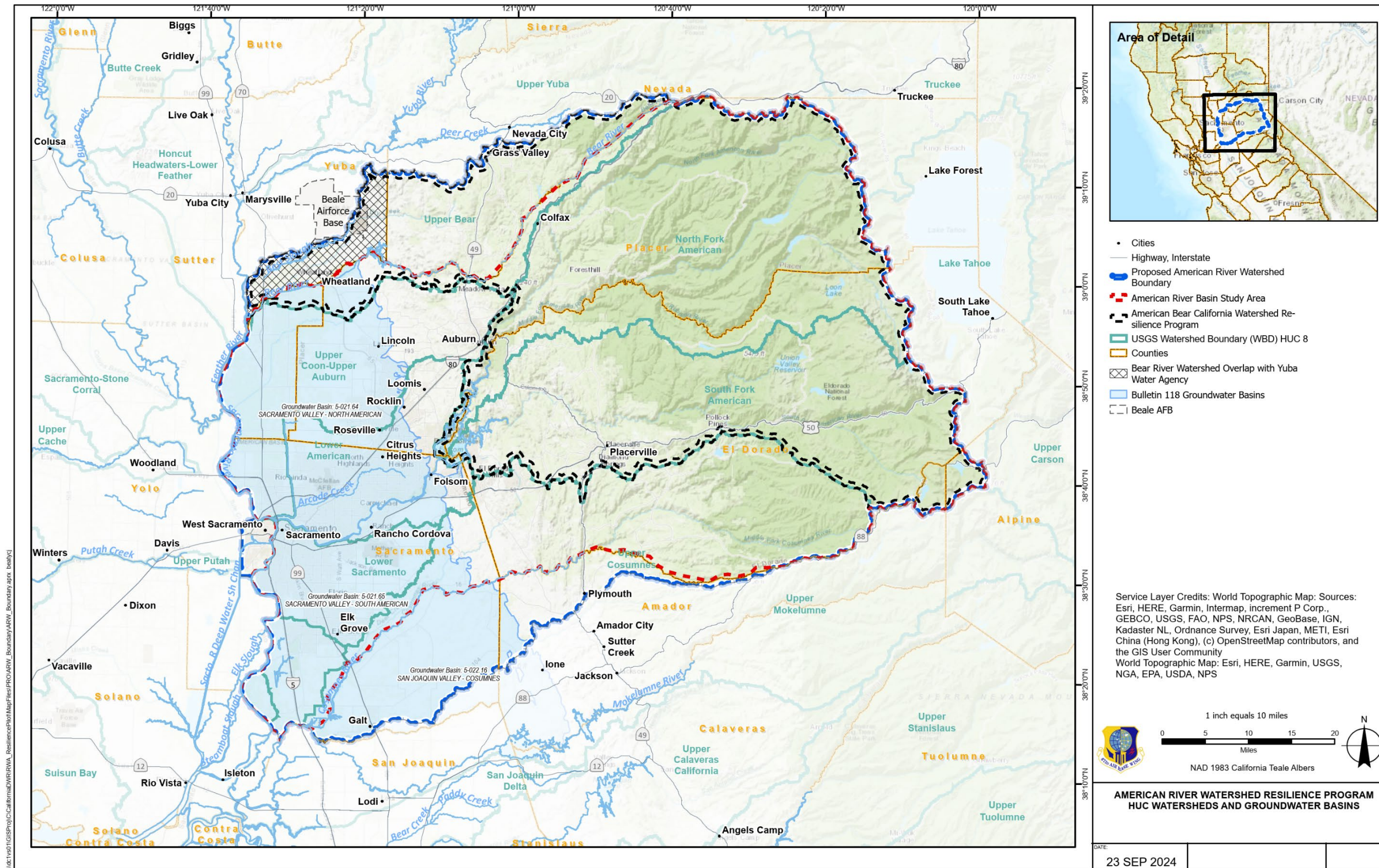
- 18020128: North Fork American (includes Middle Fork)
- 18020129: South Fork American
- 18020111: Lower American
- 18020126: Upper Bear
- 18040013: Upper Cosumnes
- 18020161: Upper Coon-Upper Auburn
- Portion of 18020163: Portion of Lower Sacramento that is east of the Sacramento River
- Portion of 18040012: Portion of Upper Mokelumne

The Cosumnes River watershed is included because it supplies water to Sacramento County and interacts with groundwater basins that overlap with the ARW. Unlike in the ARBS (Reclamation 2022), the north slope of the Bear River and the south slope of the Cosumnes River watersheds are included to capture all inflows.

Figure 3 shows the portion of the lower Bear River watershed that lies in Yuba County. This area is in the Yuba Water Agency service area and includes a portion of Beale Air Force Base.

The revised study area also includes the City of West Sacramento. The boundary line follows the south levee of the Sacramento Weir because flood waters from the American River and eastside tributaries drain into the Sacramento River and contribute to high flows. Additionally, the Sacramento Weir provides major flood protection for the City of Sacramento.

Figure 3. Proposed American, Bear, and Cosumnes Watersheds Resilience Plan Area



4. Summary of Differences Between Study Area Boundaries

4.1 American River Basin Study

The ABC Watersheds Resilience study boundary differs from the ARBS in that it includes the north slope of the Bear watershed, the south slope of the Cosumnes watershed, and the City of West Sacramento. These changes fully encompass the hydrologic and hydrogeologic conditions that affect the American River service area.

4.2 DWR's California Watershed Resiliency Assessment

The ABC Watersheds Resilience study area differs from DWR's American-Bear watershed study area in that it includes the Cosumnes River watershed, eastside streams south of the Bear River and north of the Mokelumne River, the lower American River, and the City of West Sacramento. This incorporates the hydrologic and hydrogeologic conditions that affect the American River service area and includes the most populous areas of the region.

5. References

California Department of Water Resources (DWR). 2023. *California Water Plan 2023 Update*. December. <https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/California-Water-Plan/Docs/Update2023/Final/California-Water-Plan-Update-2023.pdf>

California Department of Water Resources (DWR). 2024. *California Watershed Resilience Assessment*. Prepared as part of the Watershed Resilience Program. July. <https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/California-Water-Plan/Docs/Update2023/Supporting-Documents/California-Watershed-Resilience-Assessment.pdf>.

US Department of the Interior Bureau of Reclamation (Reclamation). 2022. *American River Basin Study*. Part of the *WaterSMART Basin Studies*. August. <https://www.usbr.gov/watersmart/bsp/docs/arbs/ARBS-Study.pdf>.