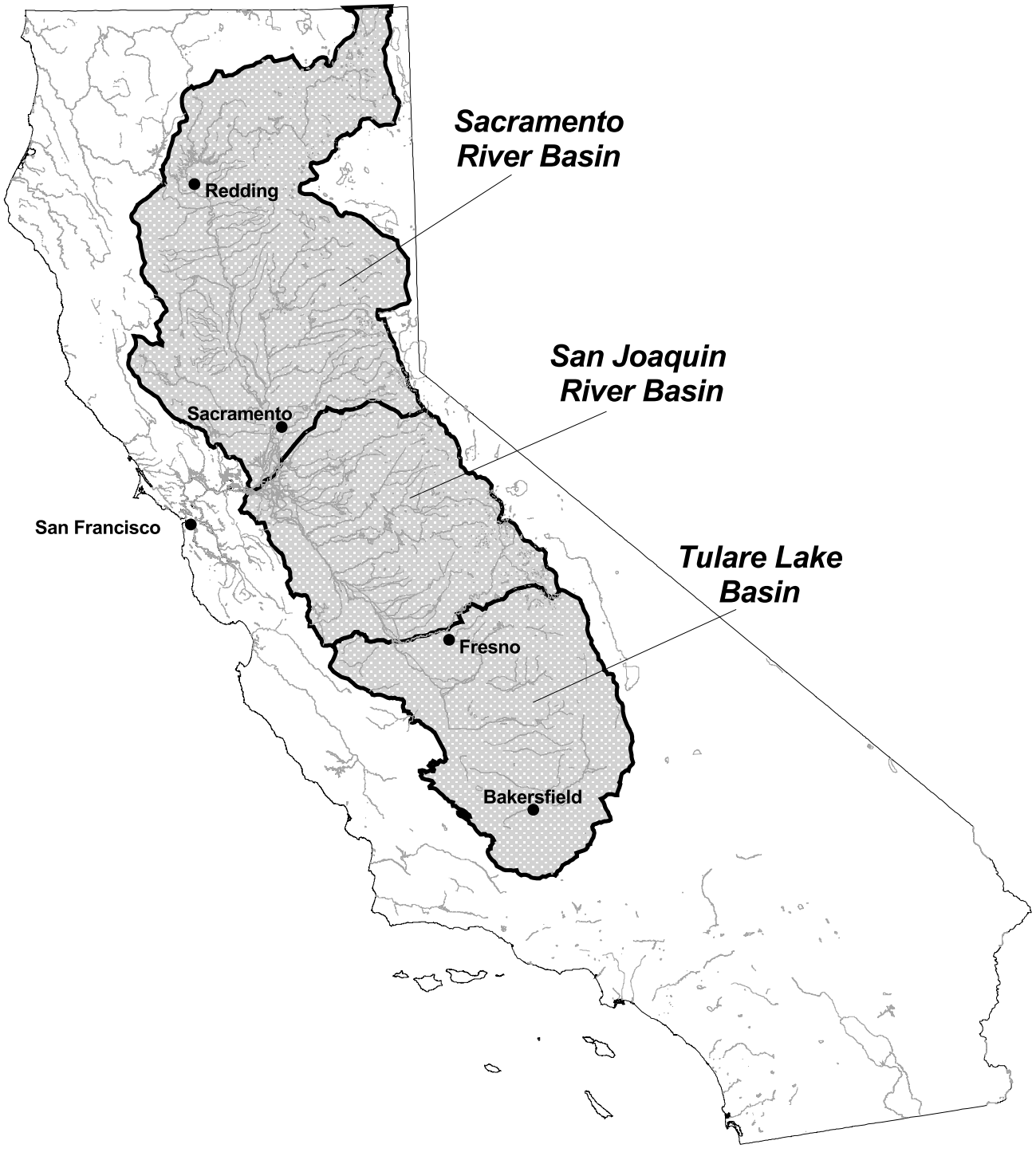


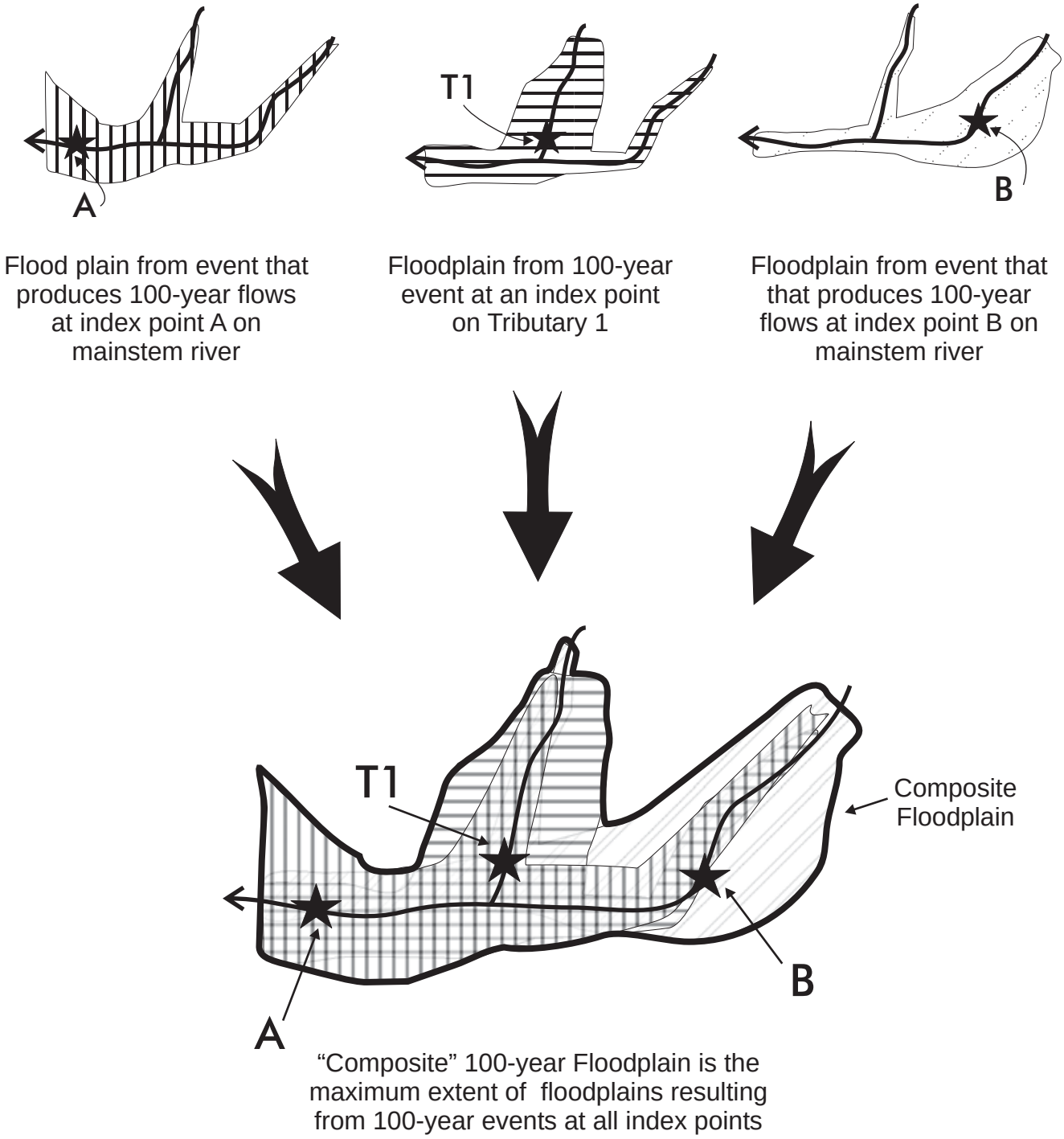
20 0 20 40 60 80 Miles

Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 1

Study Area Map

U.S. Army Corps of Engineers
Reclamation Board, State of California June 2002



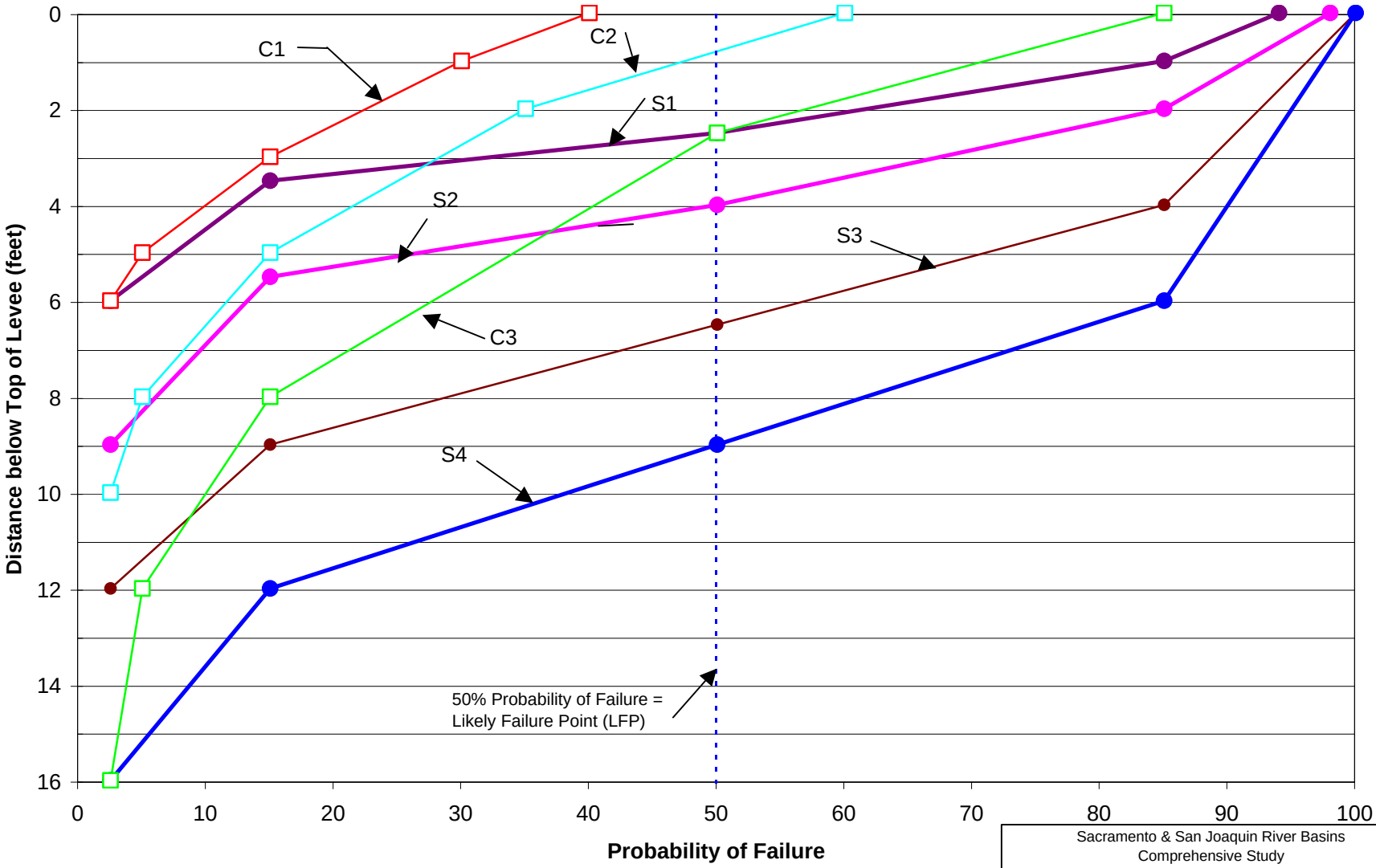
Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 2

Composite Flood Plain Concept

U.S. Army Corps of Engineers
Reclamation Board, State of California

June 2002

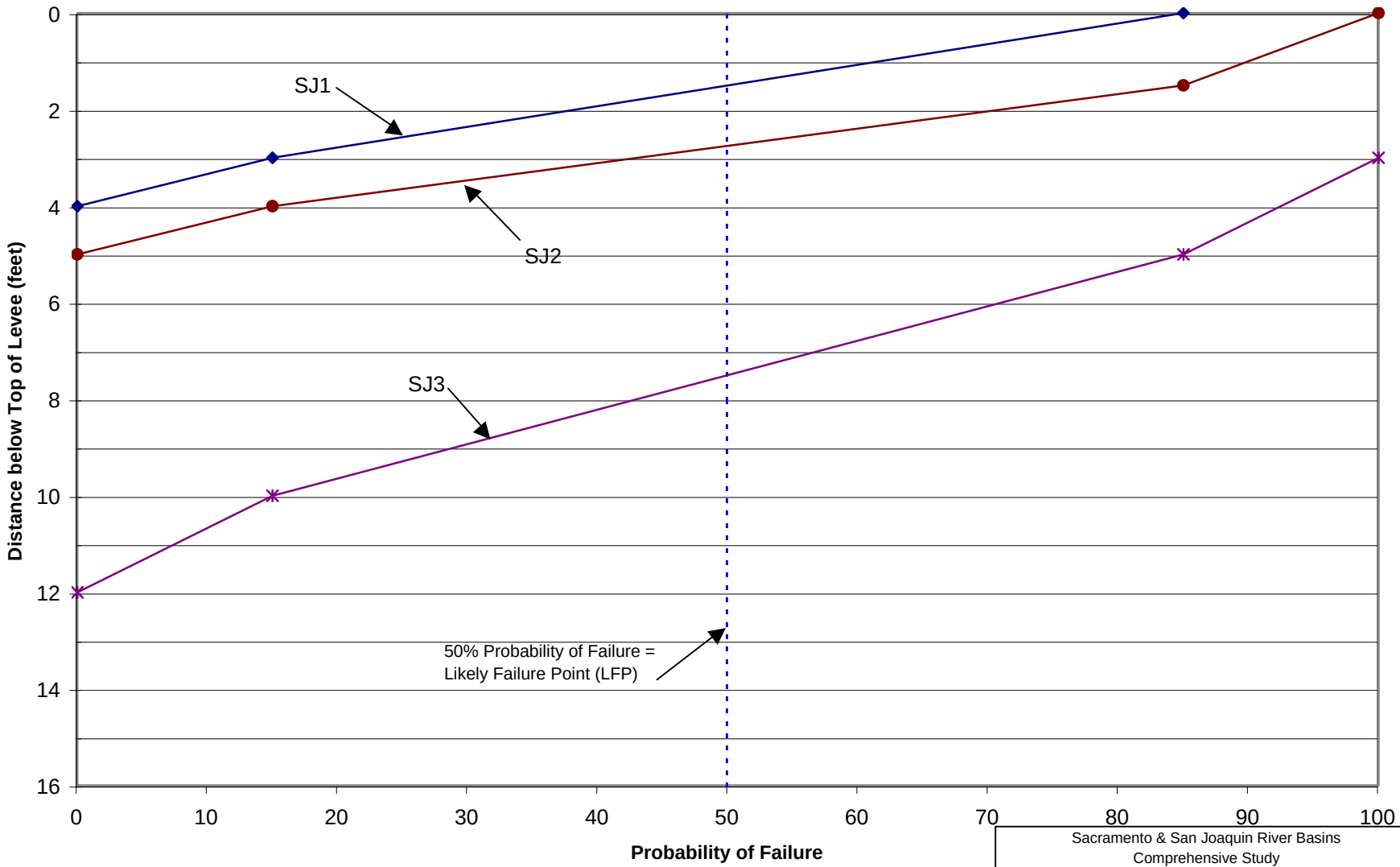


Sand Levee (S1)
Sand Levee (S2)
Sand Levee (S3)
Sand Levee (S4)
Clay Levee (C1)
Clay Levee (C2)
Clay Levee (C3)
Likely Failure Point (LFP)

Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 3
Probable Failure Curves for
Sacramento River Basin Levees

US Army Corps of Engineers
The Reclamation Board, State of California
June 2002

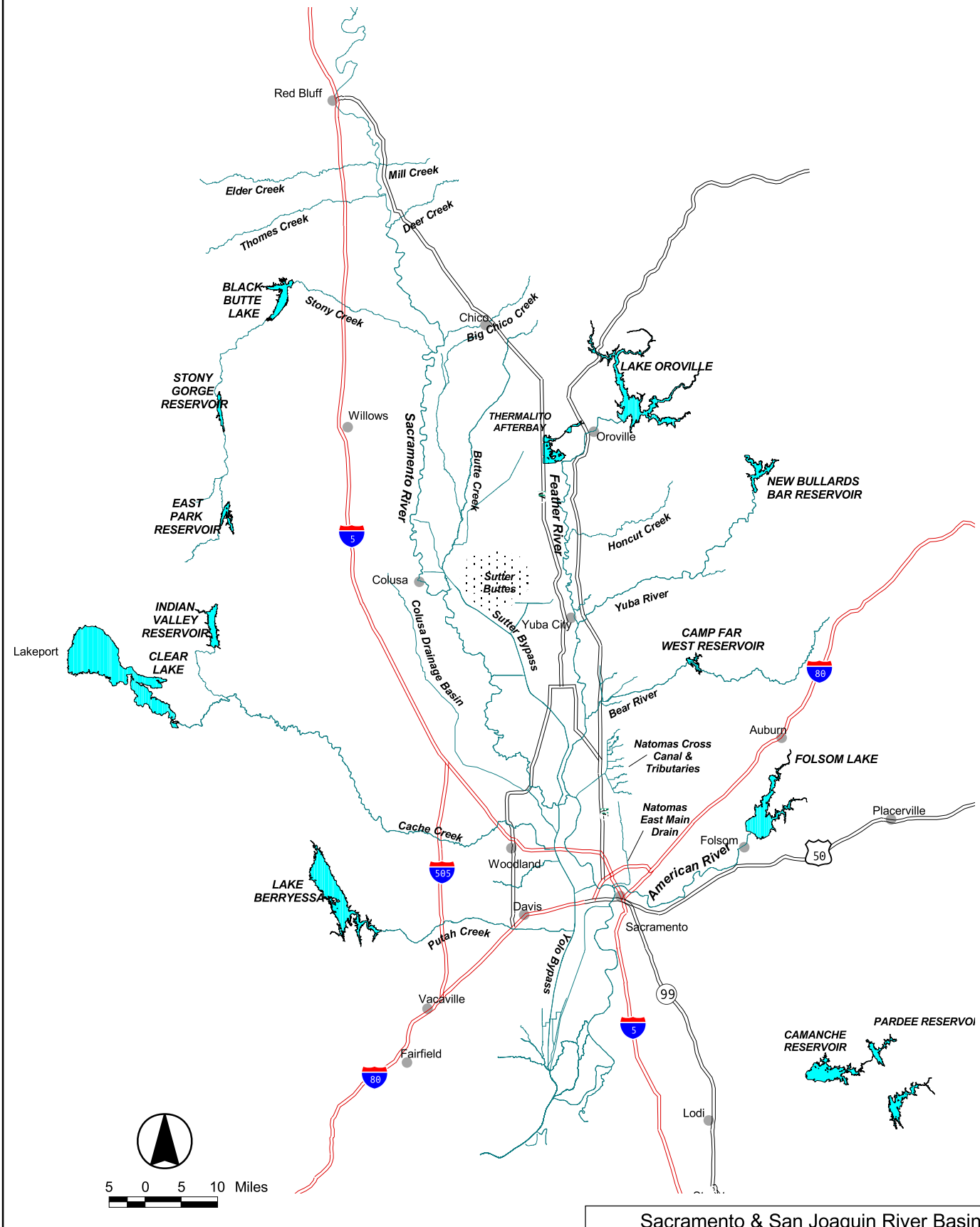


Sand Levee (SJ1) - SJO
Sand Levee (SJ2) - SJO
Sand Levee (SJ3) - SJO
Likely Failure Point (LFP)

Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 4
Probable Failure Curves for
San Joaquin River Basin Levees

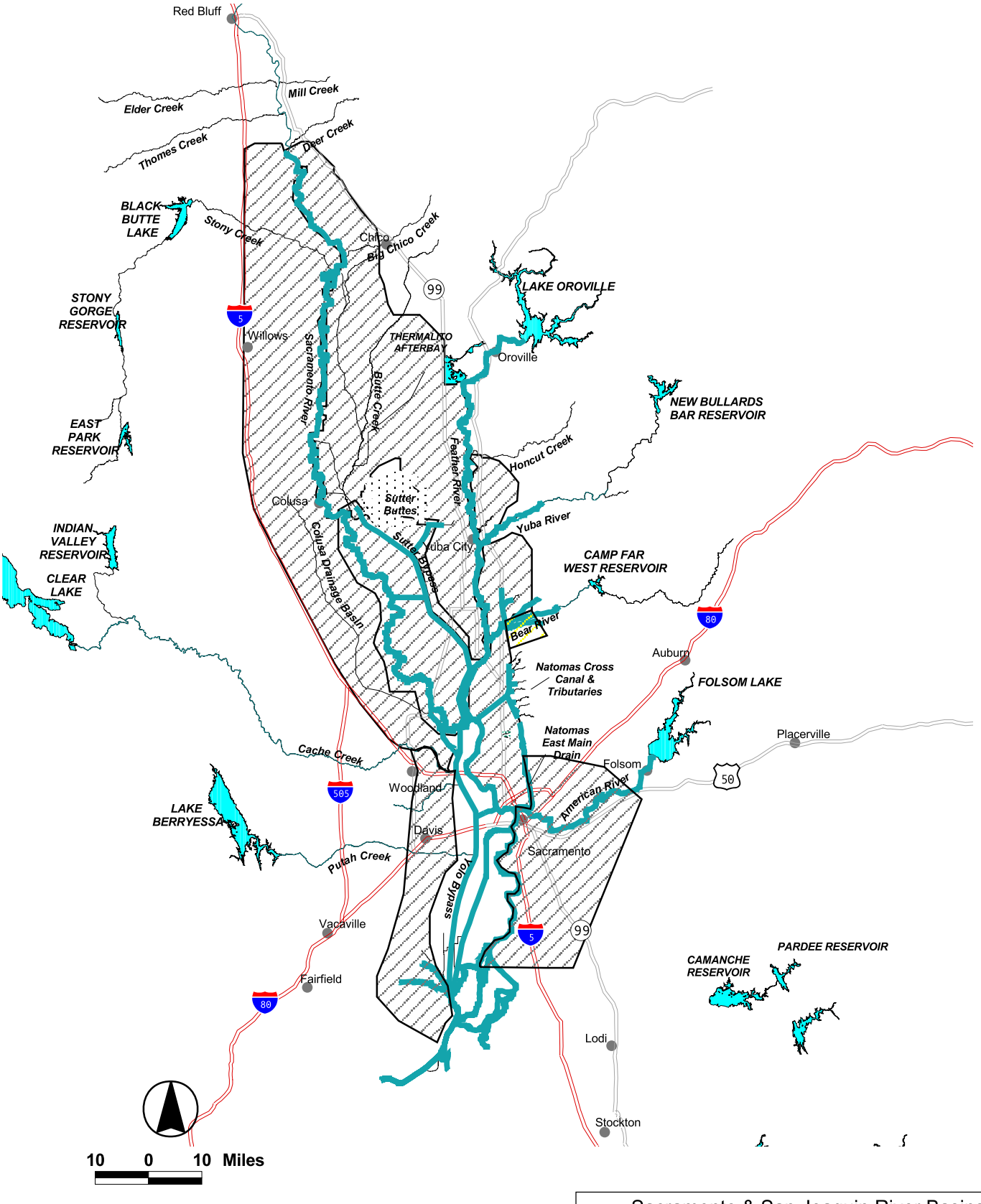
US Army Corps of Engineers
The Reclamation Board, State of California
June 2002



Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 5
Sacramento River Basin
Location Map

U.S. Army Corps of Engineers
Reclamation Board, State of California June 2002



Legend

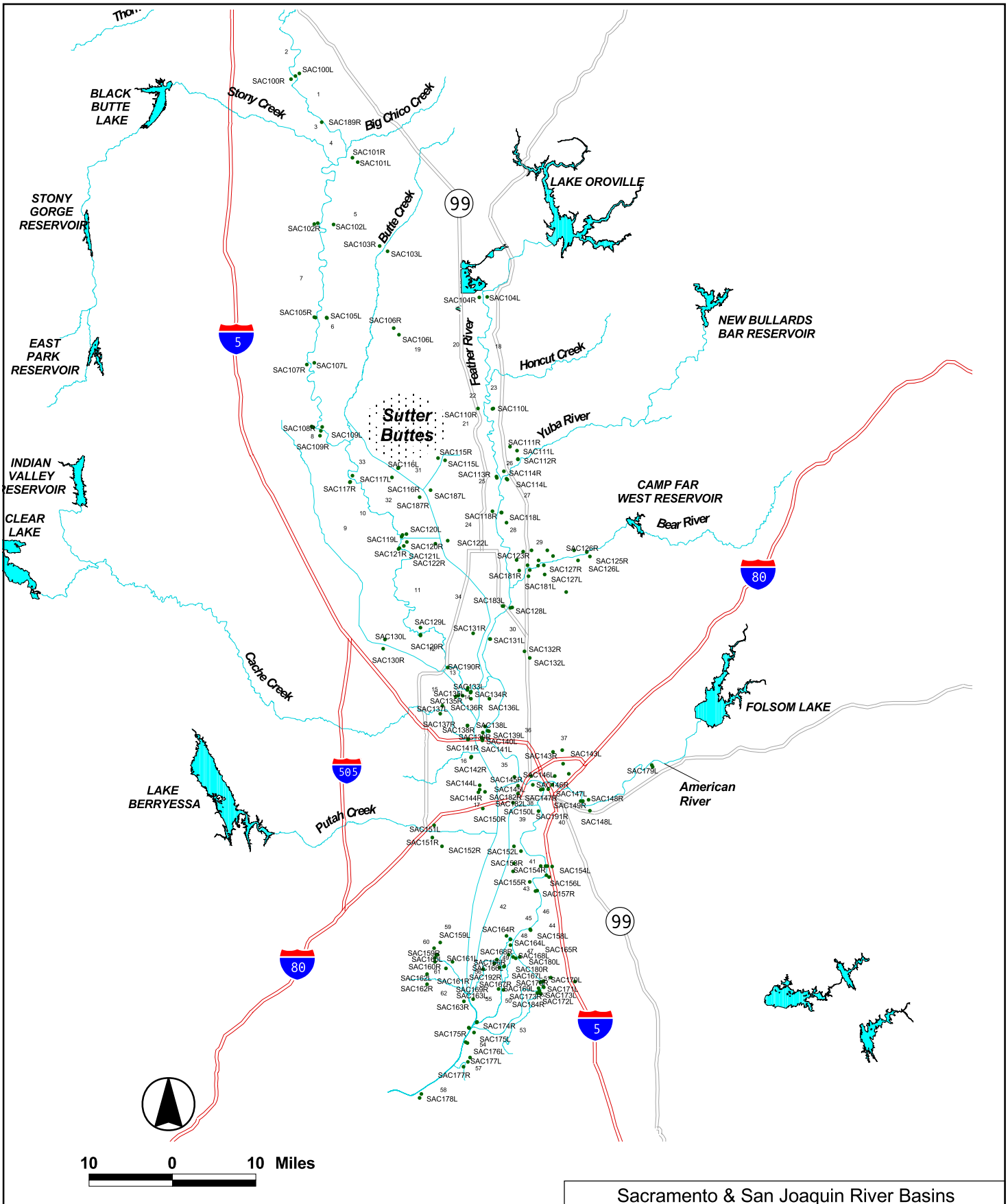
UNET Modeling Extent

FLO-2D Modeling Extent

Sacramento & San Joaquin River Basins Comprehensive Study

Plate 6
Sacramento River Basin
Extent of UNET & FLO-2D Modeling

U.S. Army Corps of Engineers
Reclamation Board, State of California June 2002



Legend

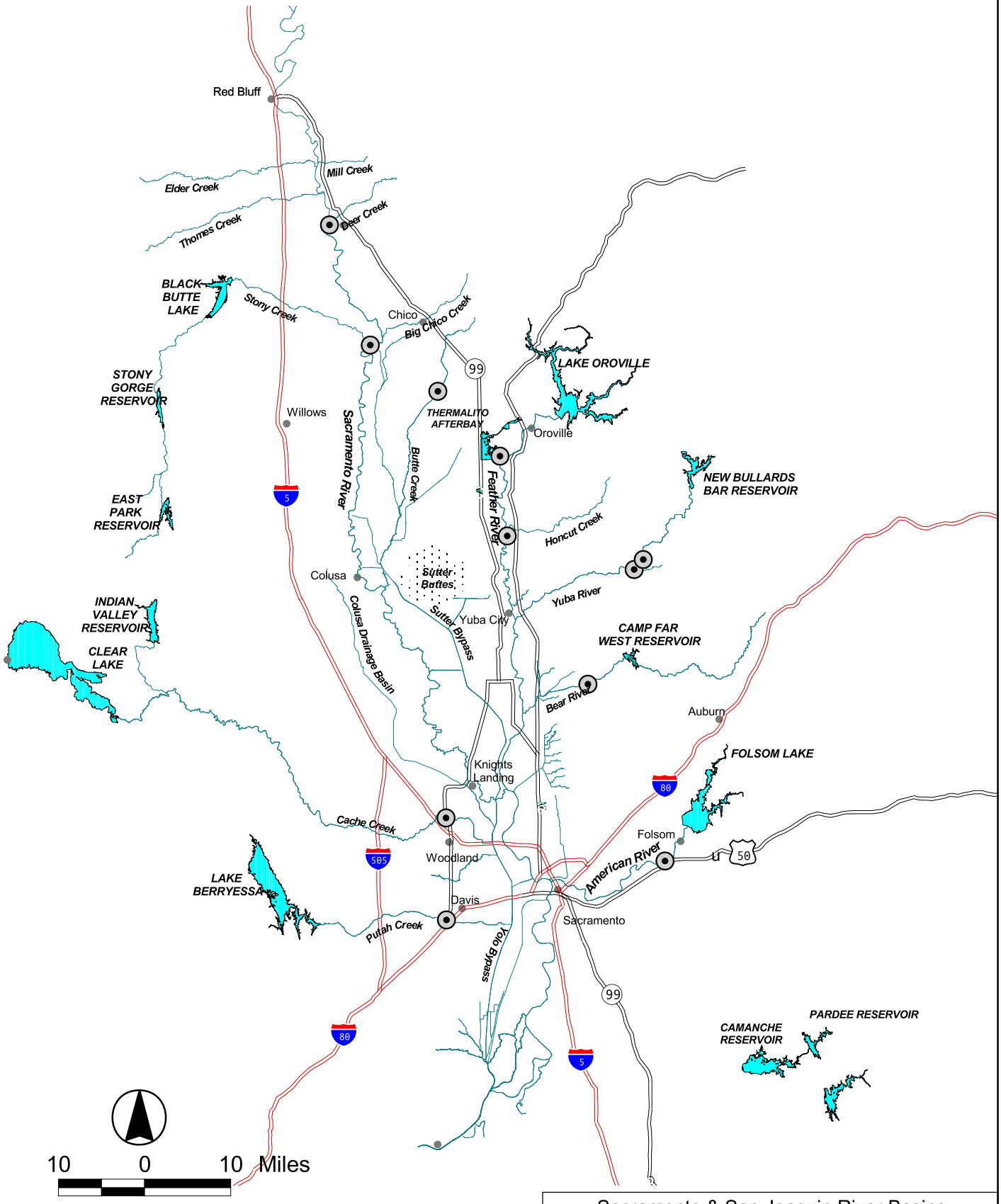
	Boundary of Impact Area
42	Impact Area ID
•	Index Point
SAC27	Index Point ID

Sacramento & San Joaquin River Basins Comprehensive Study

Plate 7

Sacramento River Basin Without-Project Impact Areas & Index Points

U.S. Army Corps of Engineers
Reclamation Board, State of California June 2002



Legend

Hydrologic-Hydraulic Handoff Points

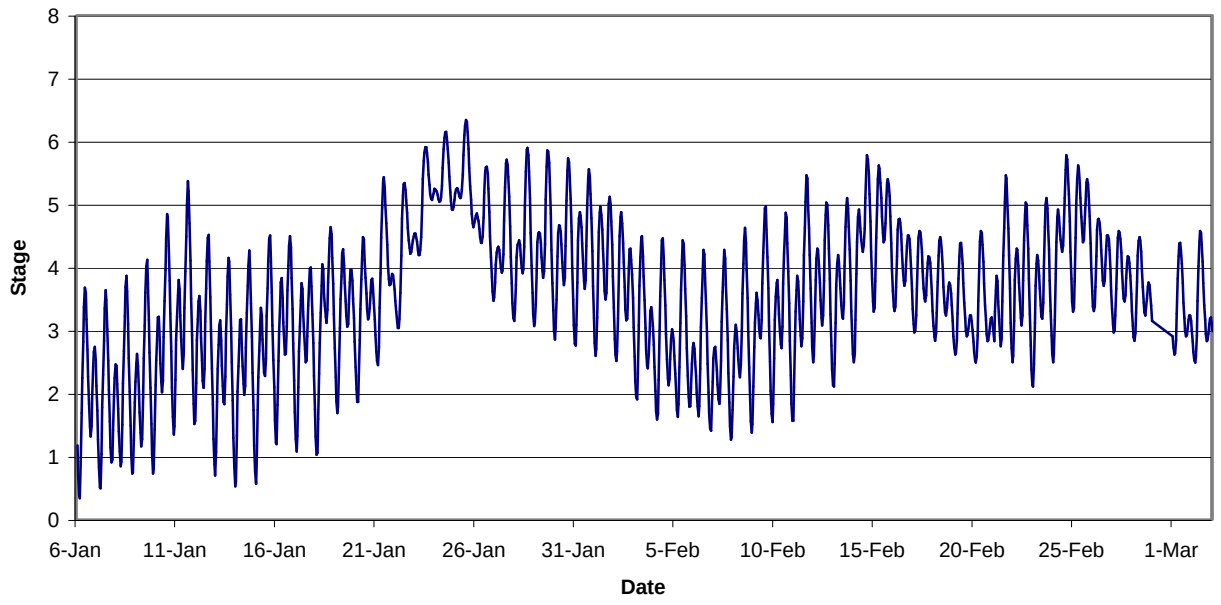
Sacramento & San Joaquin River Basins Comprehensive Study

Plate 8

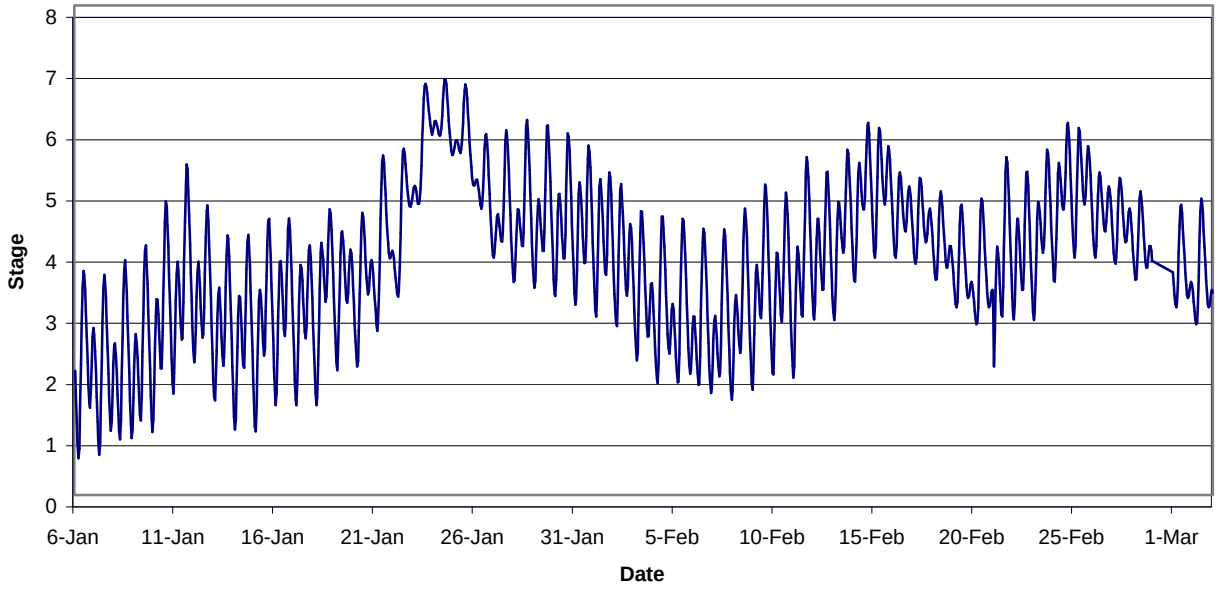
Sacramento River Basin Hydrologic-Hydraulic Handoff Points

U.S. Army Corps of Engineers
Reclamation Board, State of California June 2002

Sacramento Basin-Tailwater Hydrograph
San Joaquin River (3-Mile Slough), 1997 Event



Sacramento-Basin-Tailwater Hydrograph
Mokelumne River (Georgiana Slough), 1997 Event

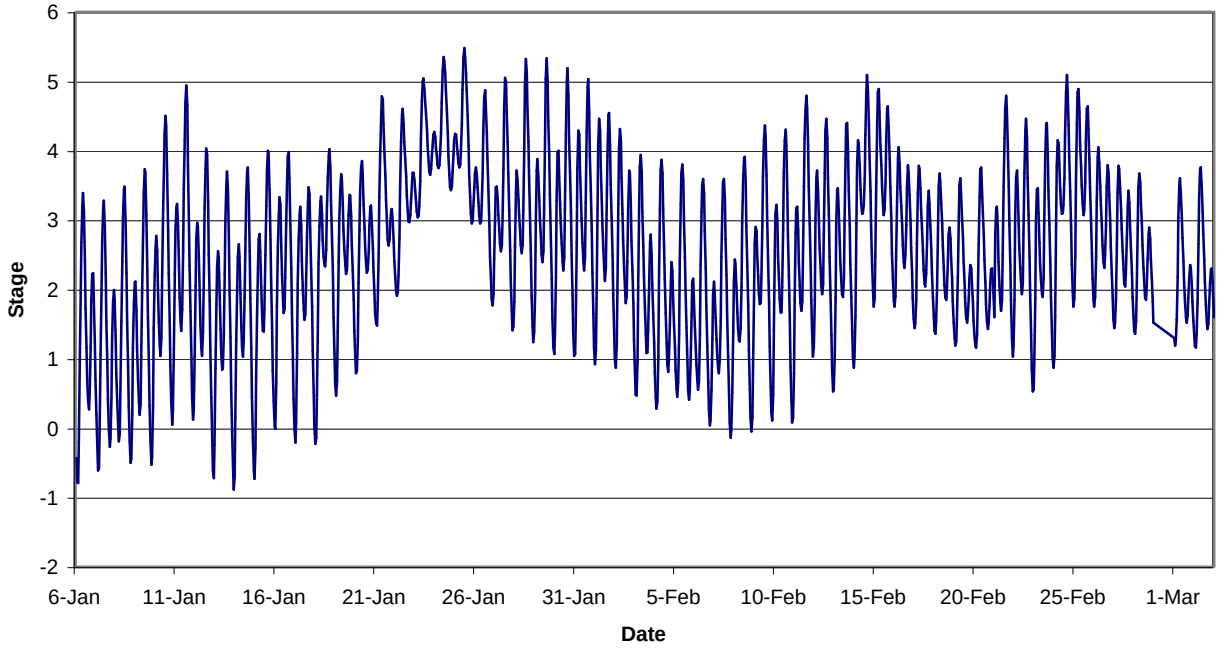


Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 9a
Tailwater Hydrographs-Sacramento Basin

US Army Corps of Engineers
The Reclamation Board, State of California June 2002

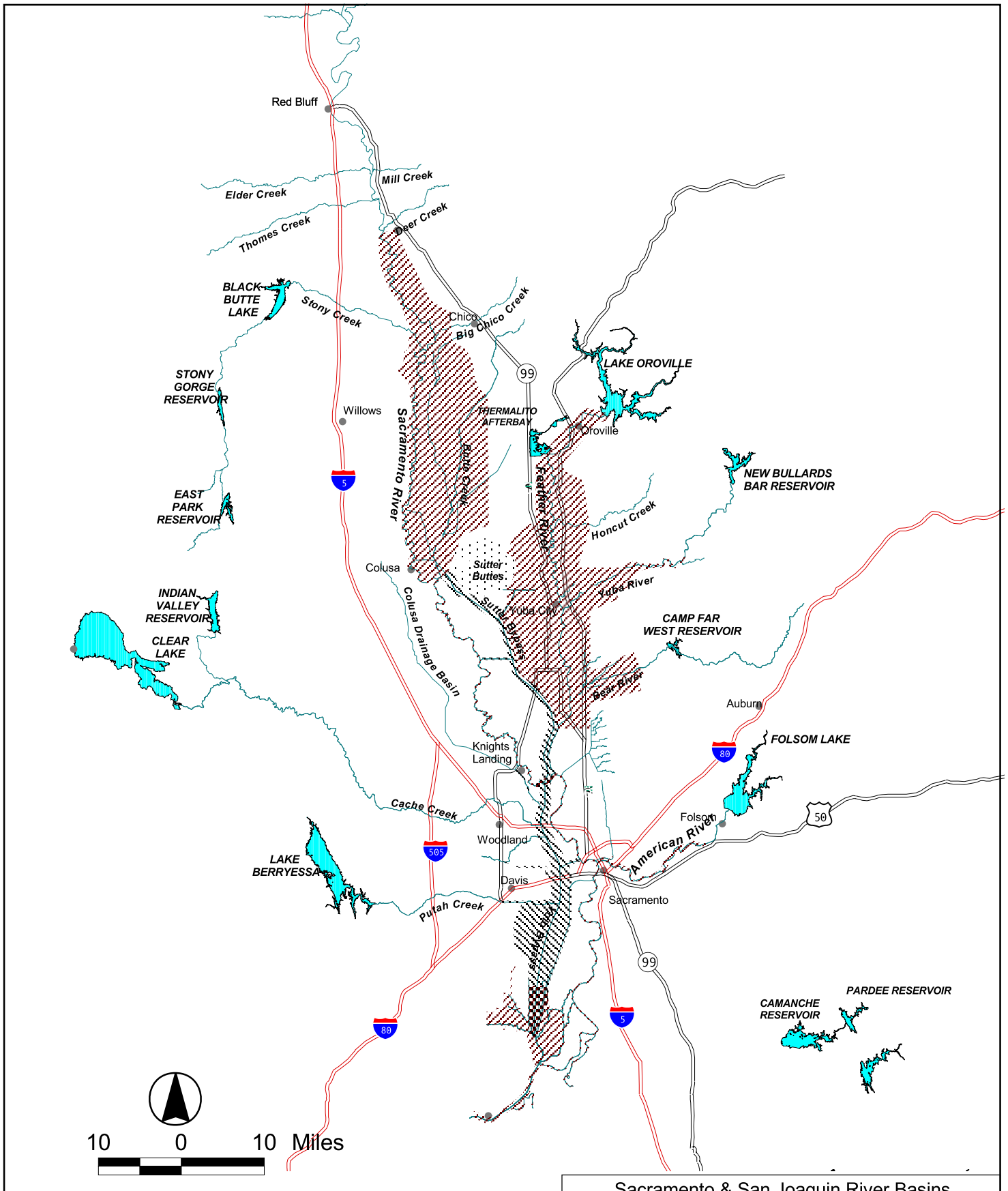
Sacramento Basin-Tailwater Hydrographs
Sacramento River (Collinsville), 1997 Event



Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 9b
Tailwater Hydrographs-Sacramento Basin

US Army Corps of Engineers
The Reclamation Board, State of California June 2002



Legend

Cross Section Areas

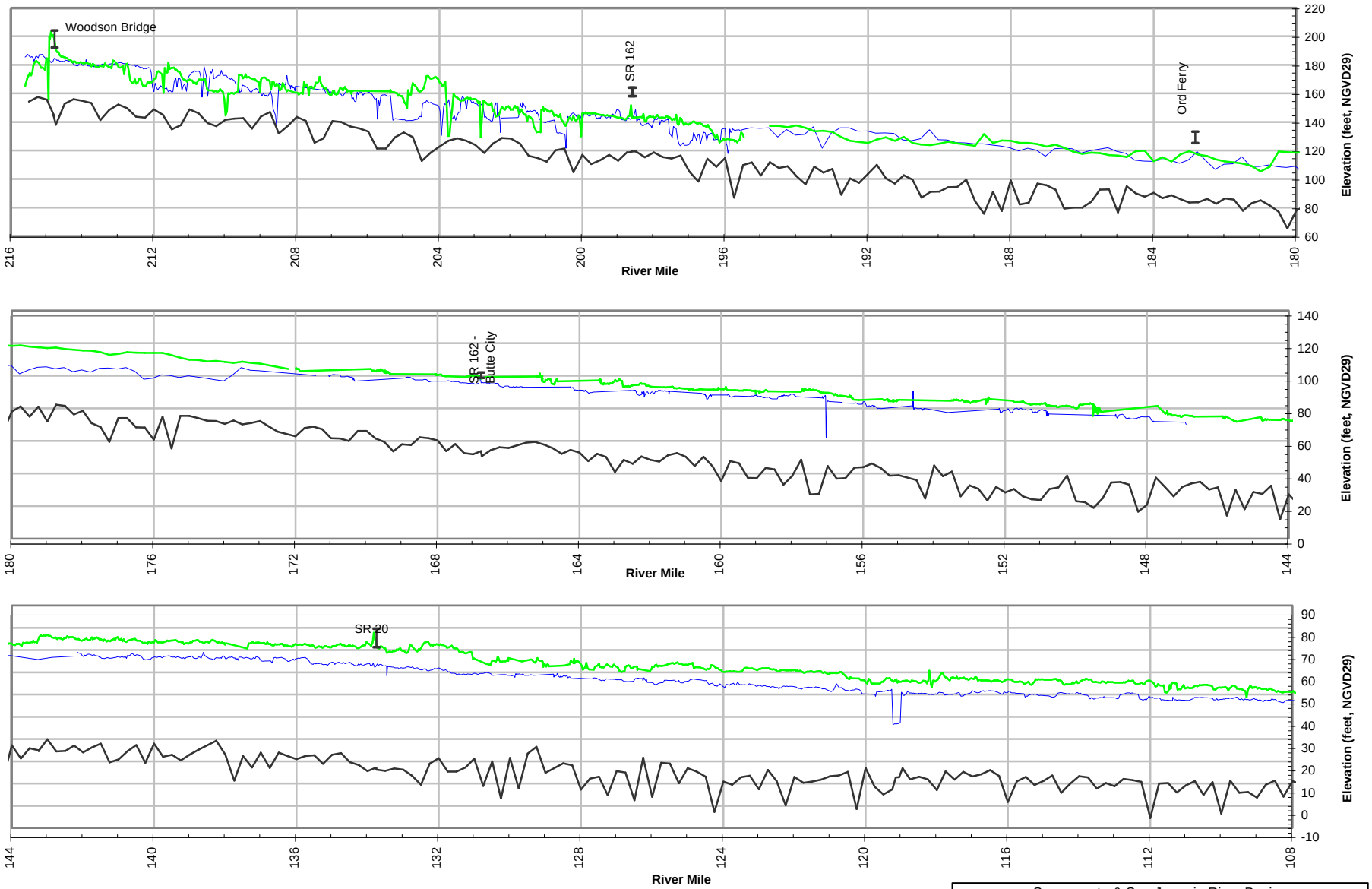
Topographic Survey Areas

Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 10

Sacramento River Basin
Extent of Topographic Data Collection

U.S. Army Corps of Engineers
Reclamation Board, State of California June 2002



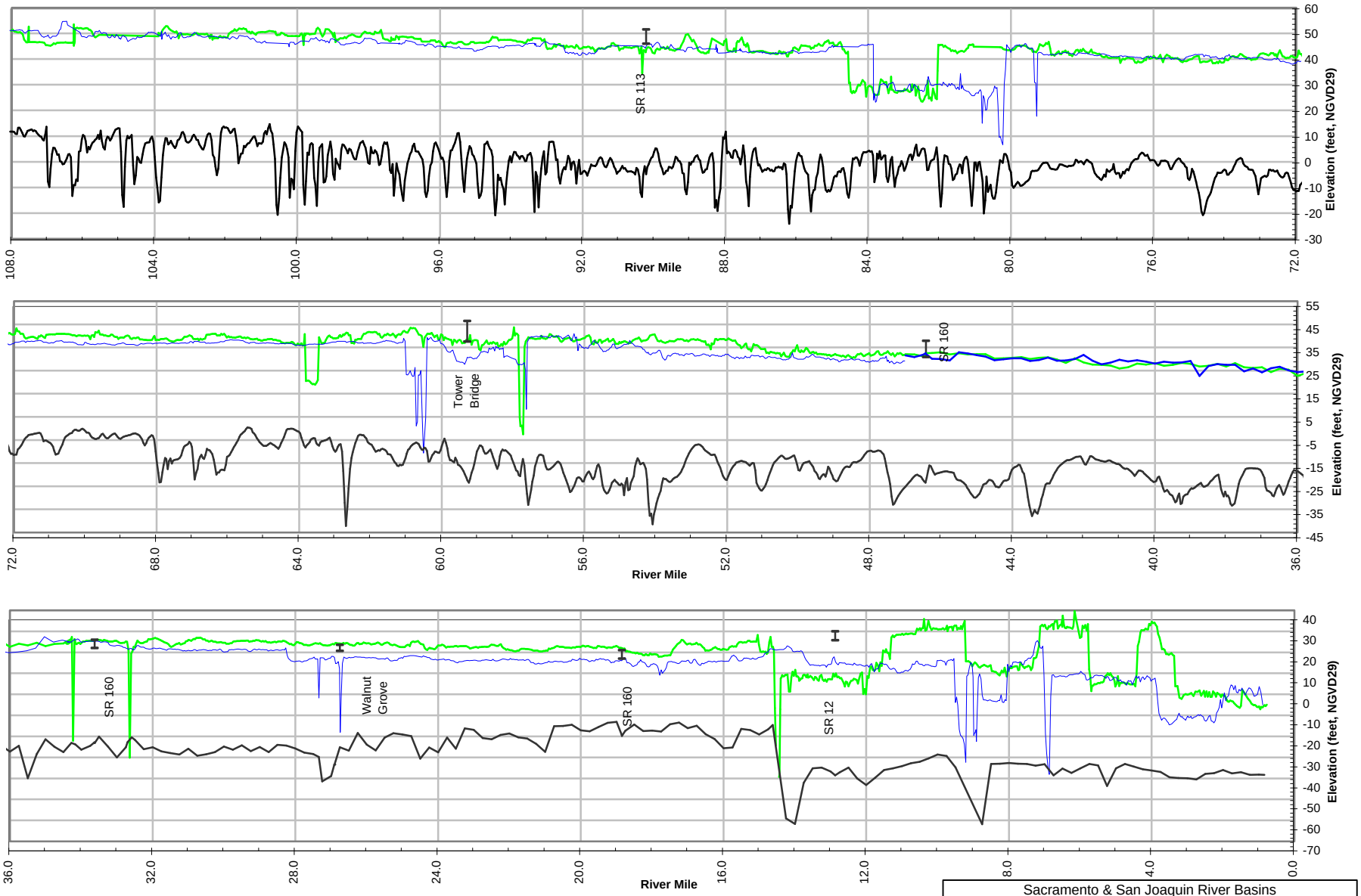
Sacramento River

LEGEND
- Top of Left Bank / Levee
- Top of Right Bank / Levee
- Bottom of Channel

Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 11
Sacramento River Channel Profiles
RM 108-216

US Army Corps of Engineers
The Reclamation Board, State of California
June 2002



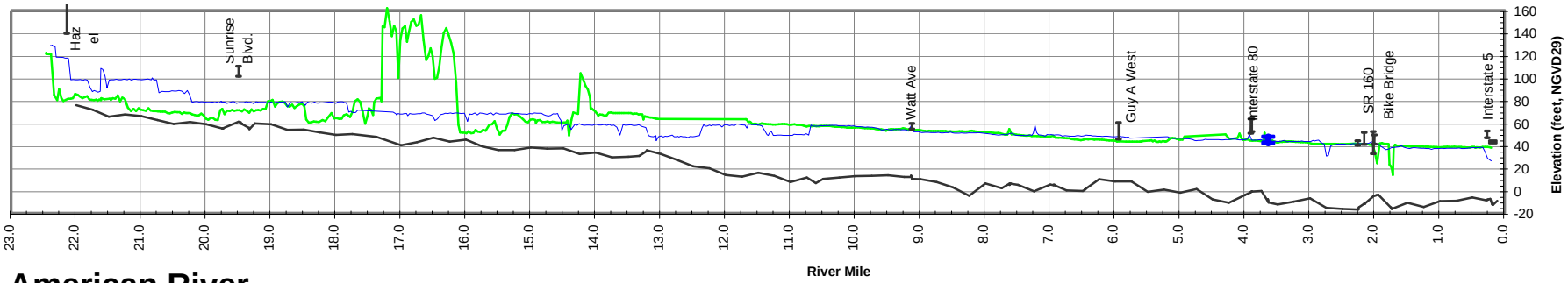
Sacramento River

LEGEND
- Top of Left Bank / Levee
- Top of Right Bank / Levee
- Bottom of Channel

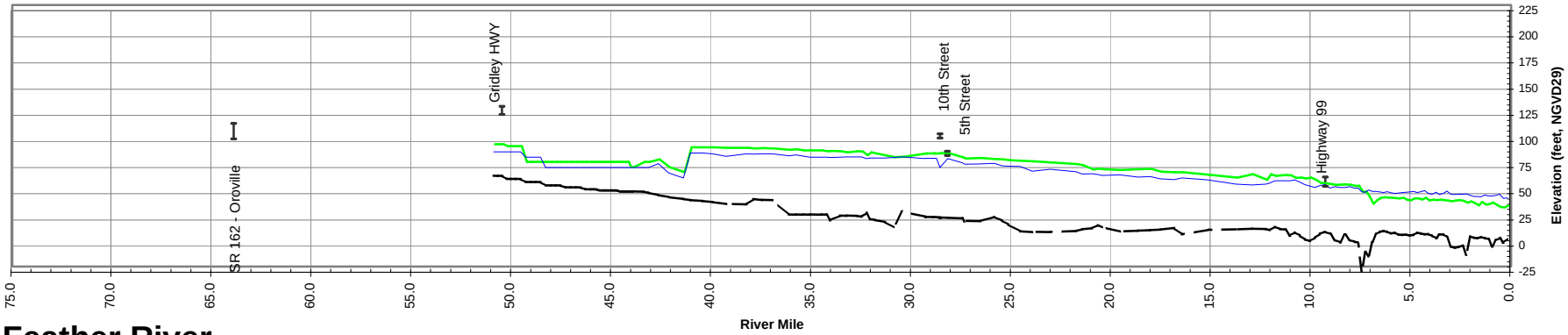
Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 12
Sacramento River Channel Profile
RM 0-108

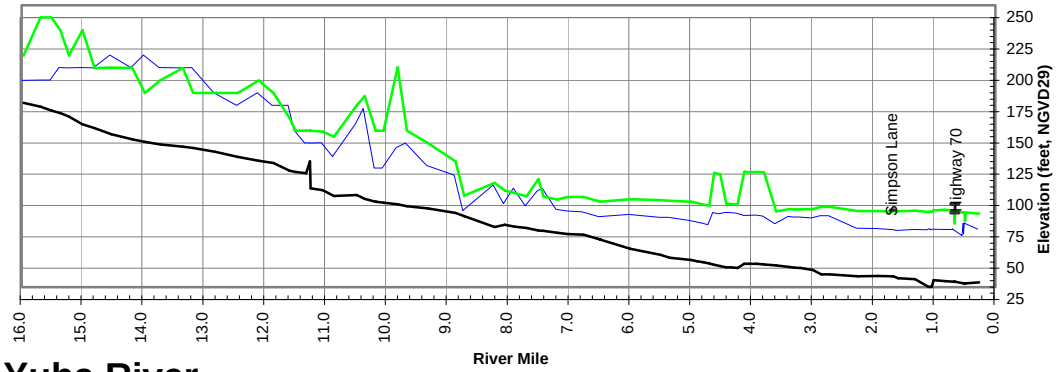
US Army Corps of Engineers
The Reclamation Board, State of California
June 2002



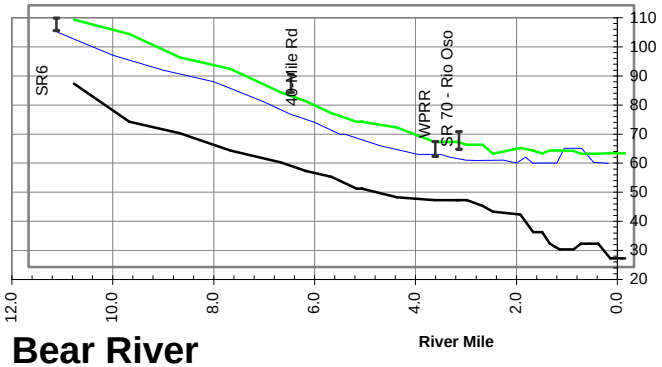
American River



Feather River



Yuba River



Bear River

LEGEND

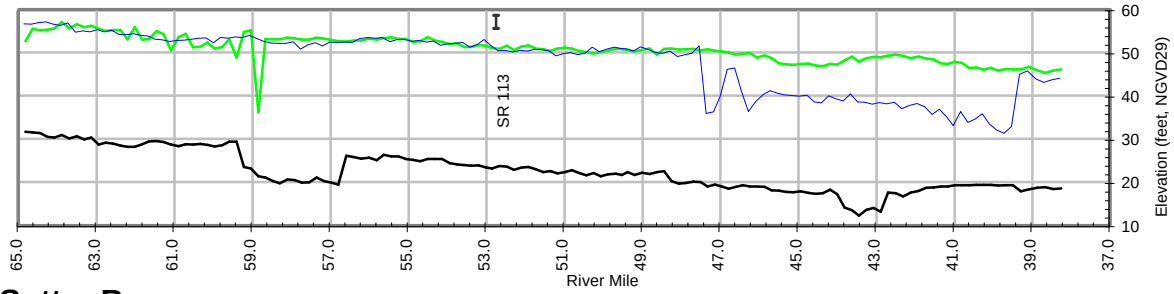
- Top of Left Bank / Levee
- Top of Right Bank / Levee
- Bottom of Channel

Sacramento & San Joaquin River Basins
Comprehensive Study

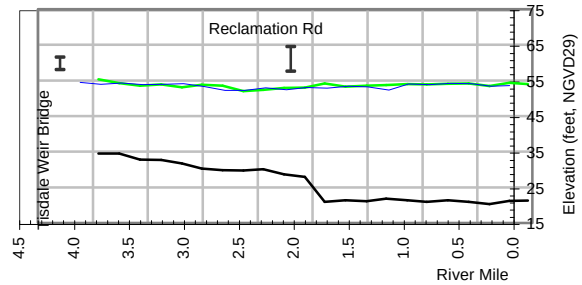
Plate 13

Profiles of American, Feather, Bear, and Yuba Rivers

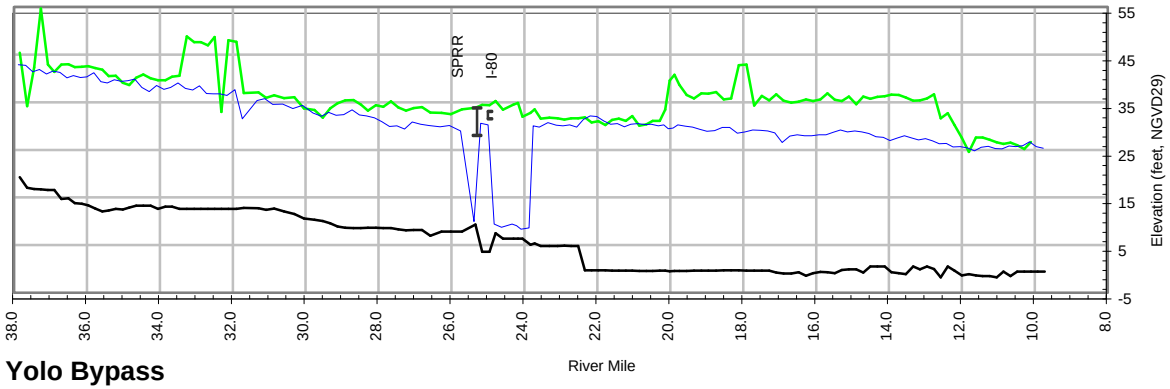
US Army Corps of Engineers
The Reclamation Board, State of California June 2002



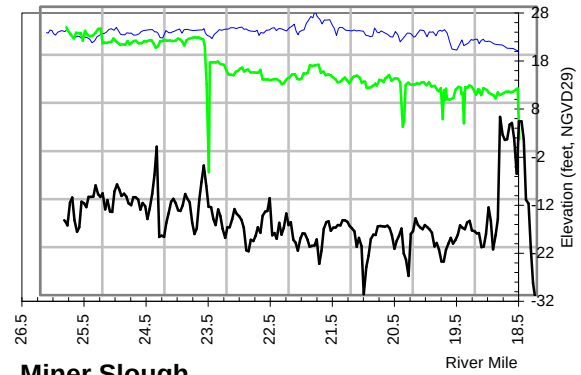
Sutter Bypass



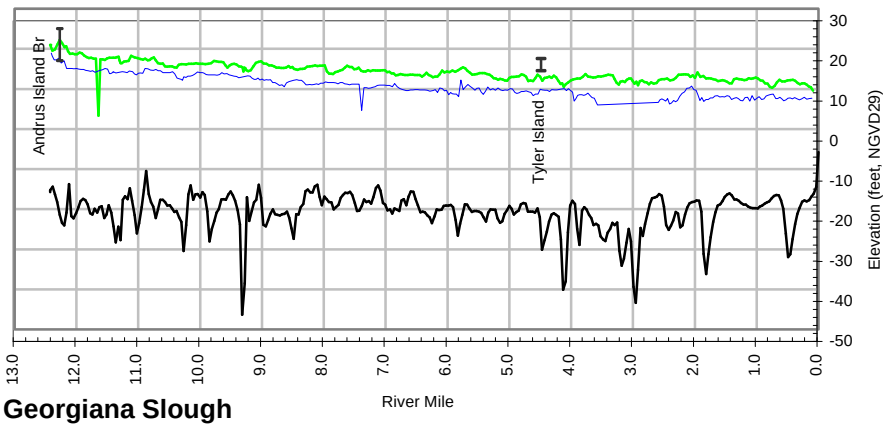
Tisdale Bypass



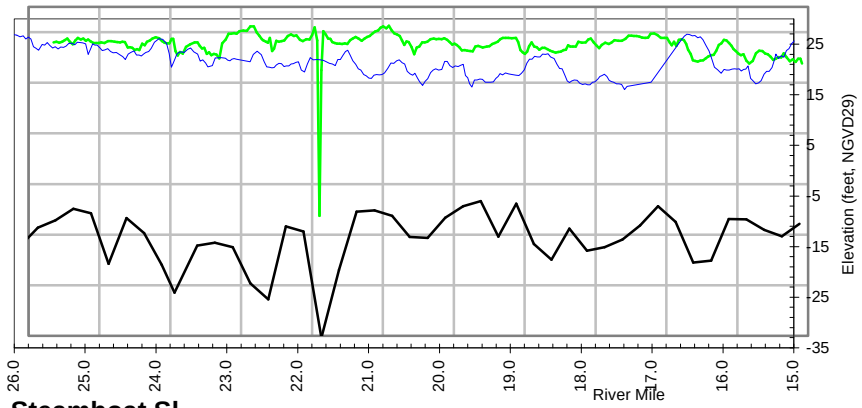
Yolo Bypass



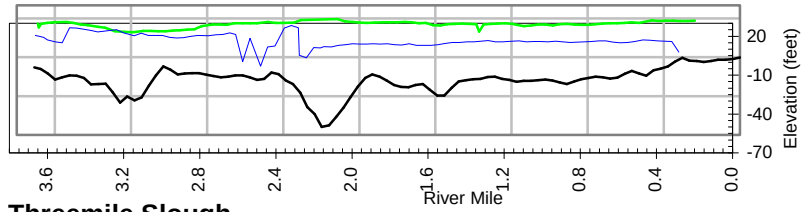
Miner Slough



Georgiana Slough



Steamboat Sl



Threemile Slough

LEGEND

- Top of Left Bank / Levee
- Top of Right Bank / Levee
- Bottom of Channel

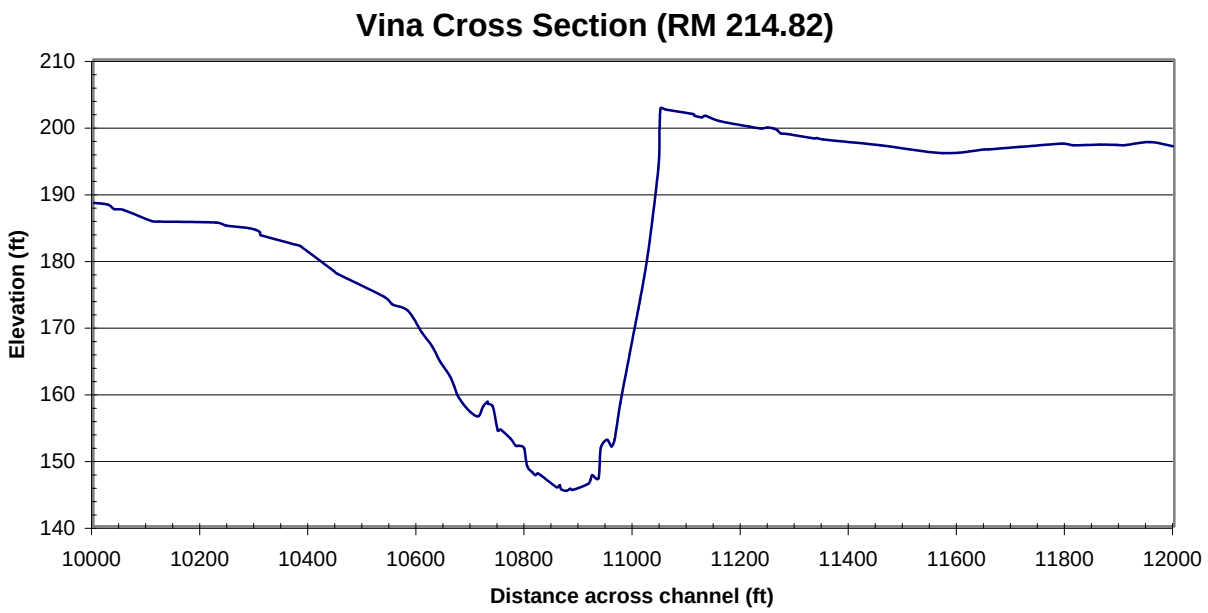
Sacramento & San Joaquin River Basins
Comprehensive Study

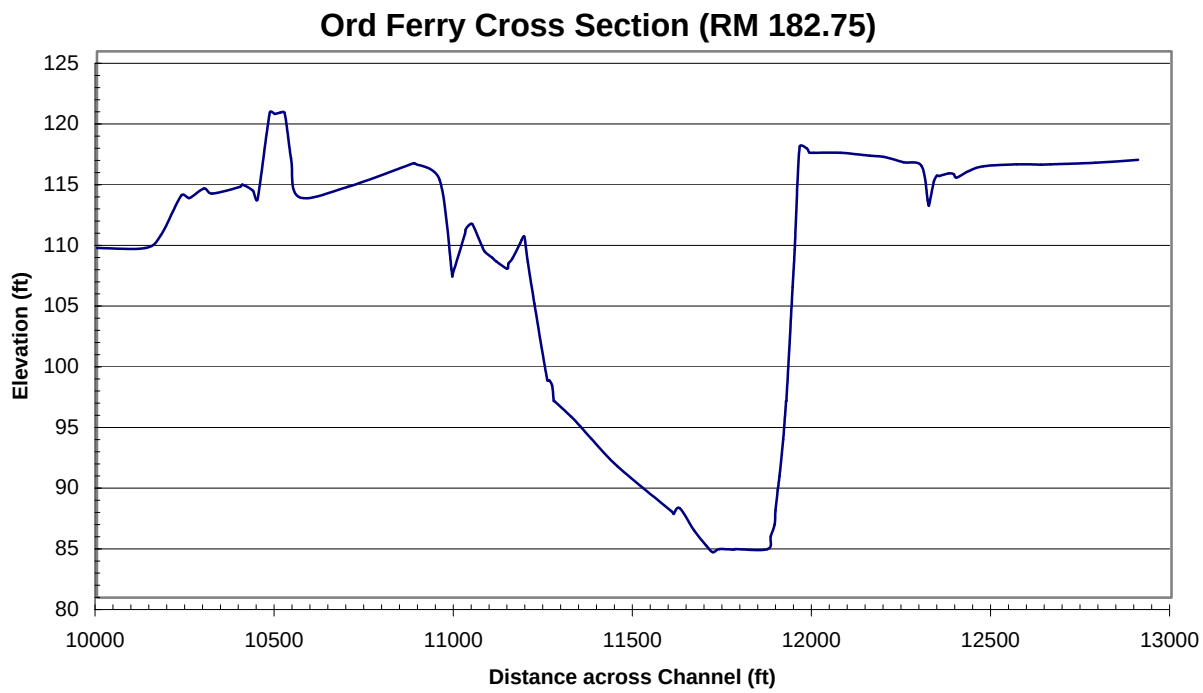
Plate 14

Profiles of Sacramento River
Bypasses and Tributaries

US Army Corps of Engineers
The Reclamation Board, State of California

June 2002





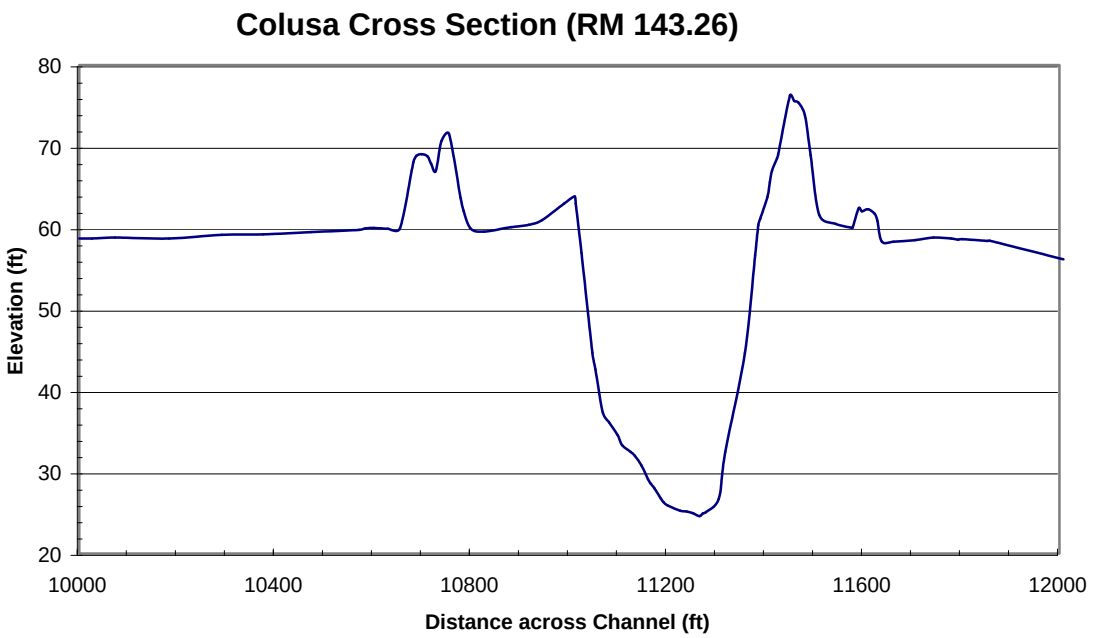
Note:
All cross sections are depicted looking downstream.

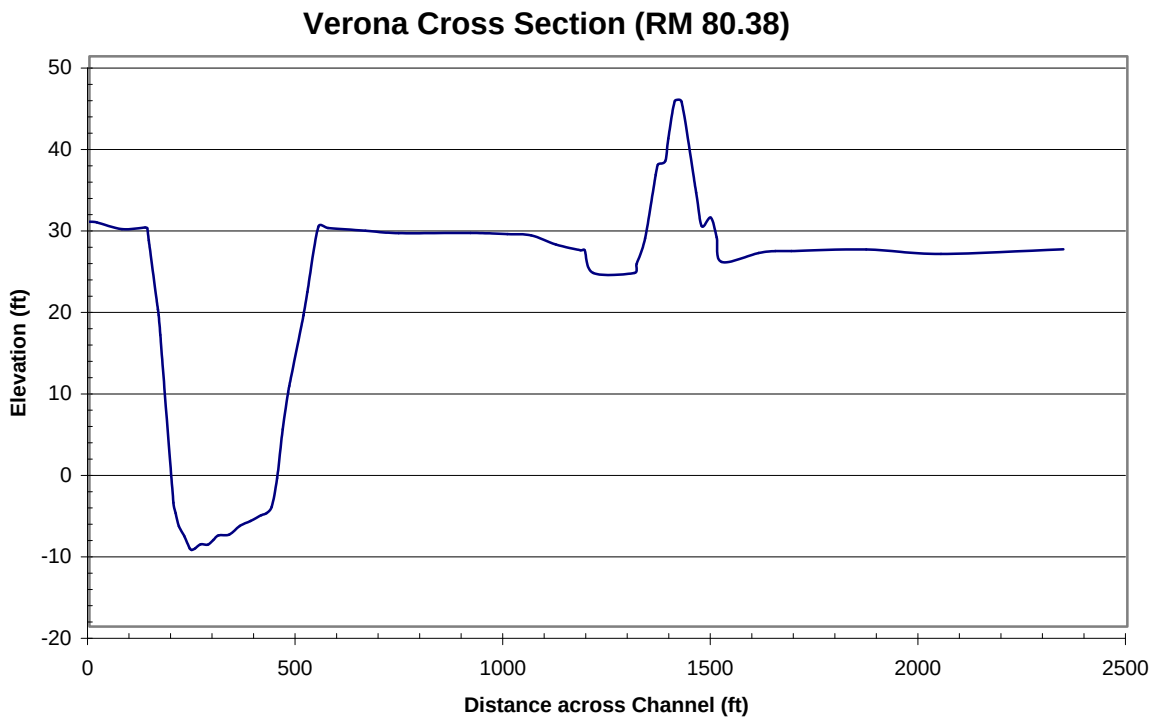
Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 15
Representative Cross Sections in the Sacramento River Basin
(Vina and Ord Ferry)

US Army Corps of Engineers
The Reclamation Board, State of California

June 2002





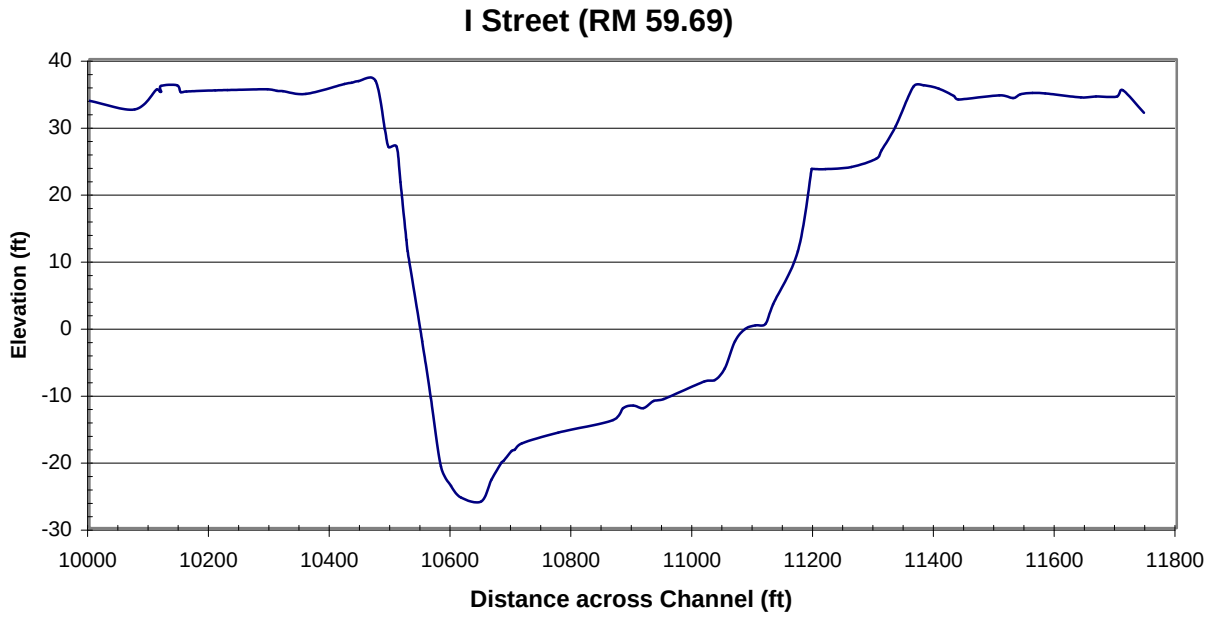
Note:
All cross sections are depicted looking downstream.

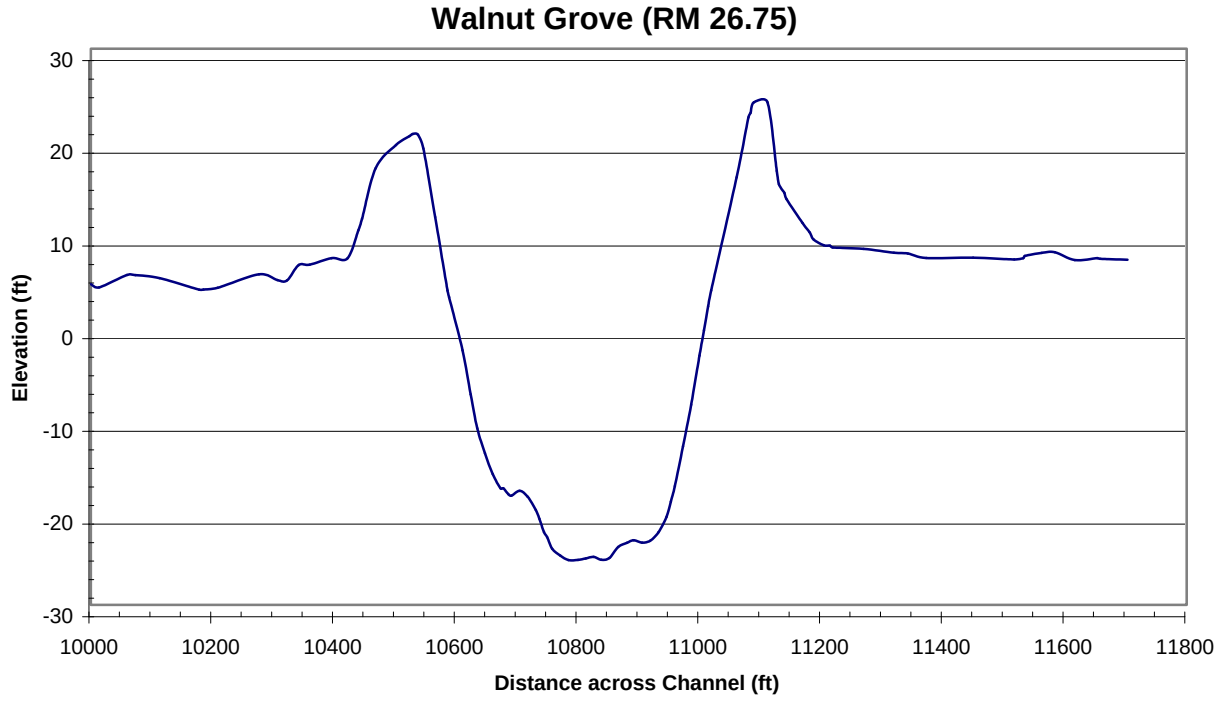
Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 16
Representative Cross Sections in the Sacramento River Basin (Colusa and Verona)

US Army Corps of Engineers
The Reclamation Board, State of California

June 2002





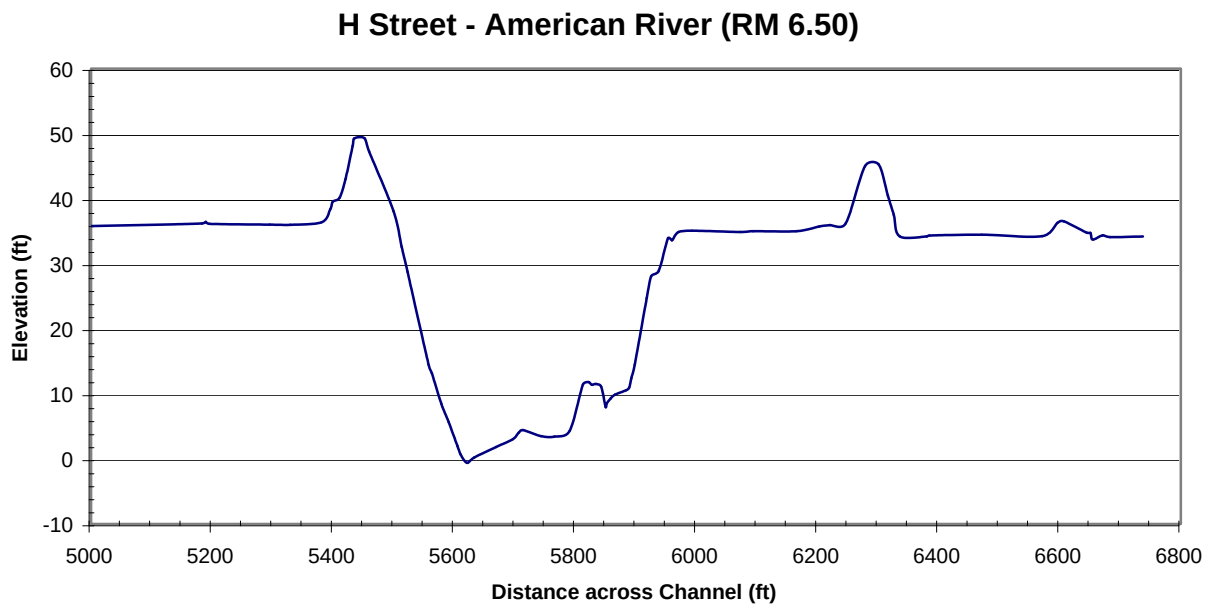
Note:
All cross sections are depicted looking downstream.

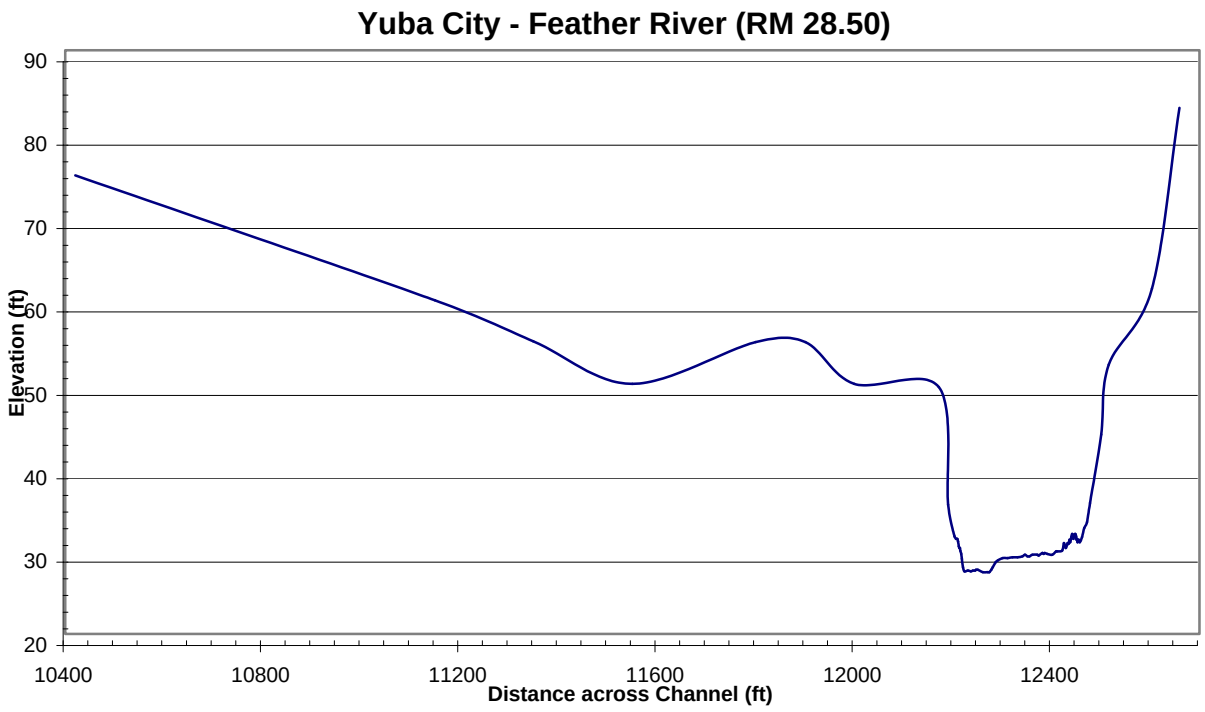
Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 17
Representative Cross Sections in the Sacramento River Basin
(I Street and Walnut Grove)

US Army Corps of Engineers
The Reclamation Board, State of California

June 2002





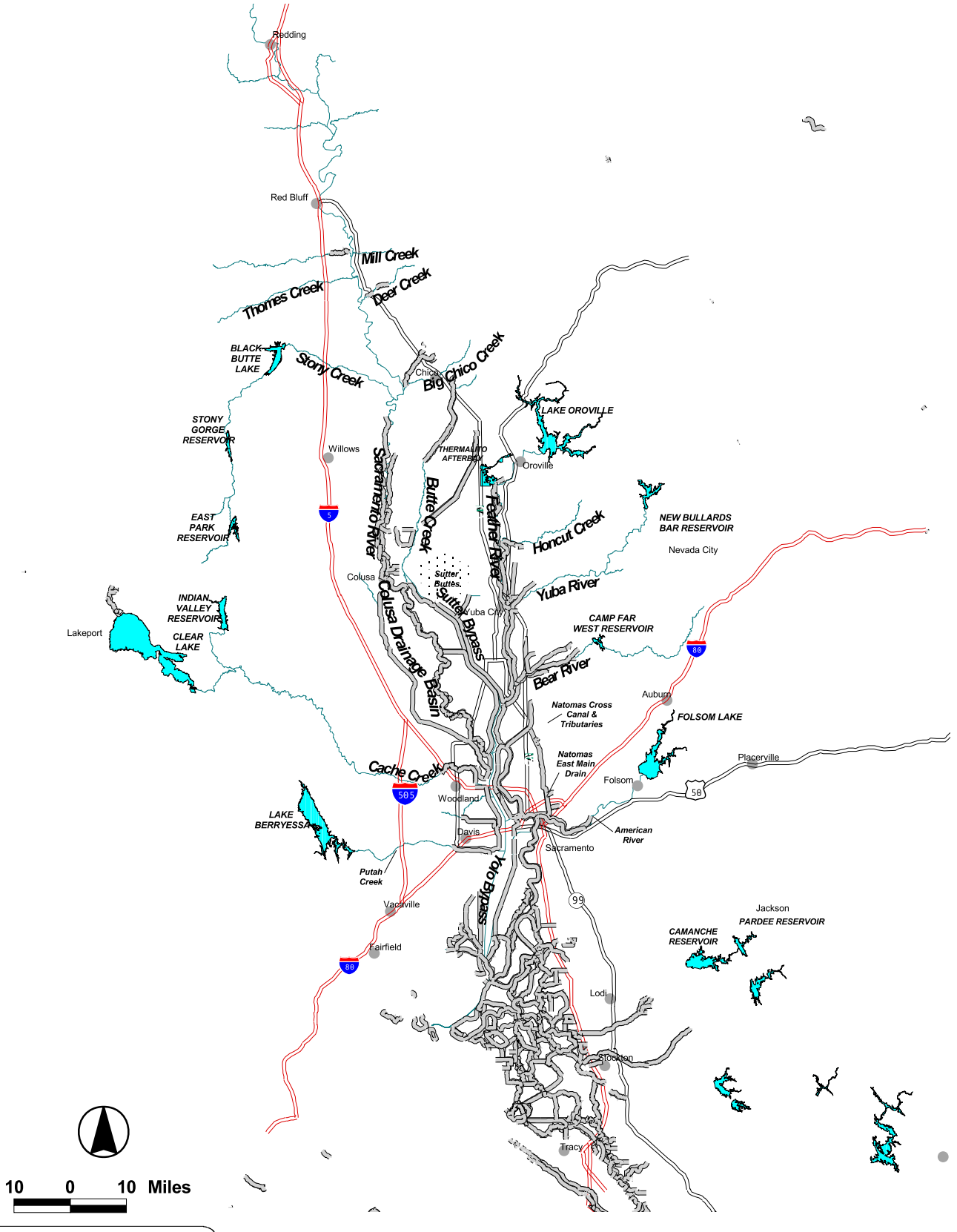
Note:
All cross sections are depicted looking downstream.

Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 18
Representative Cross Sections in the Sacramento River Basin
(H Street and Yuba City)

US Army Corps of Engineers
The Reclamation Board, State of California

June 2002



Legend

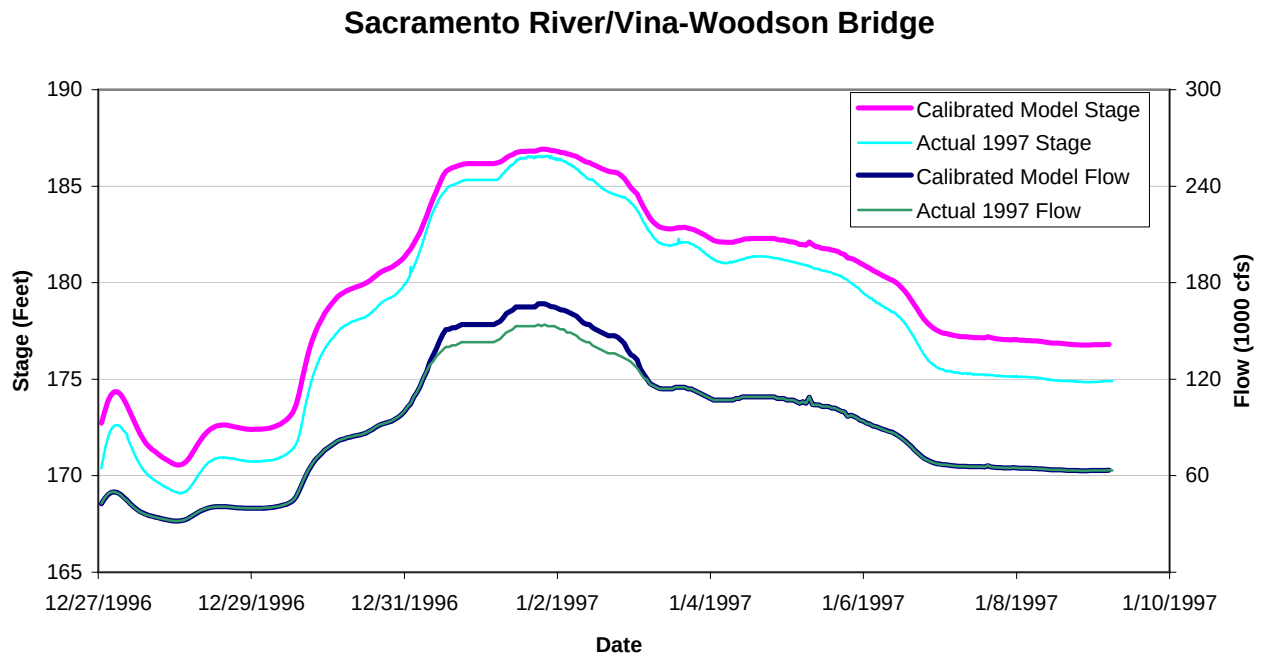
Federal Project Levees

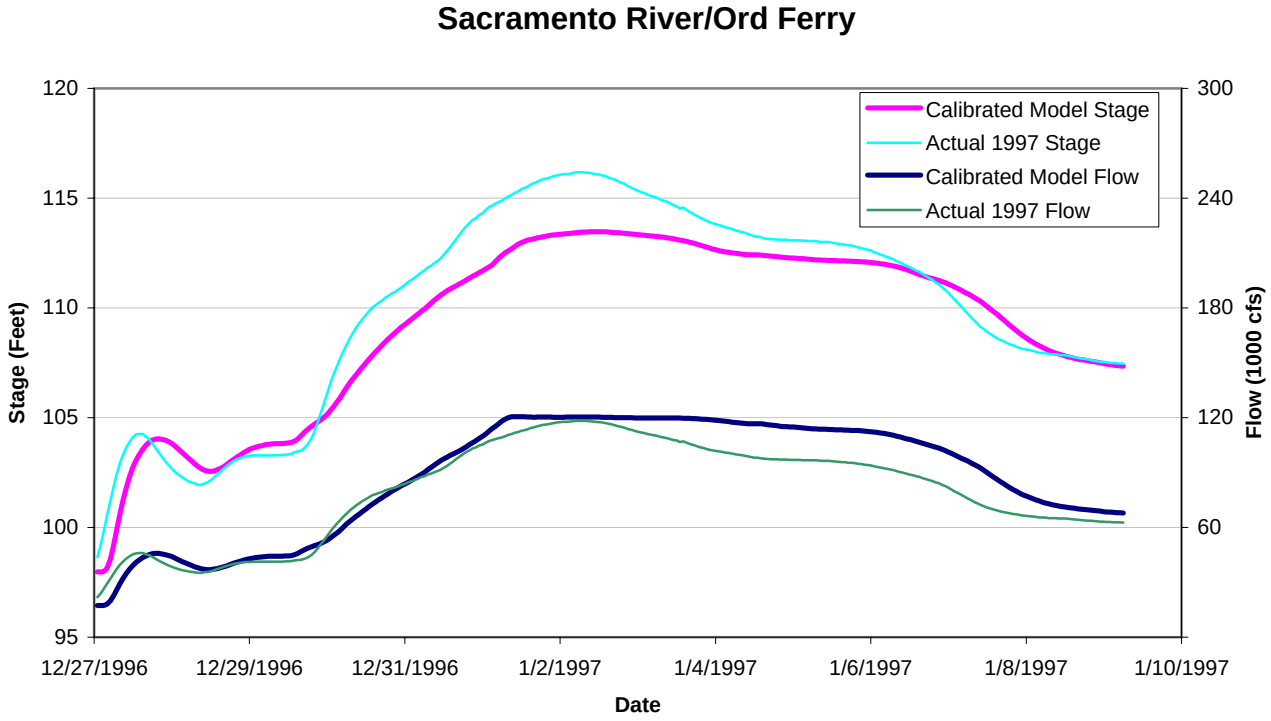
Sacramento & San Joaquin River Basins Comprehensive Study

Plate 19

Sacramento Basin Levees

U.S. Army Corps of Engineers
Reclamation Board, State of California June 2002



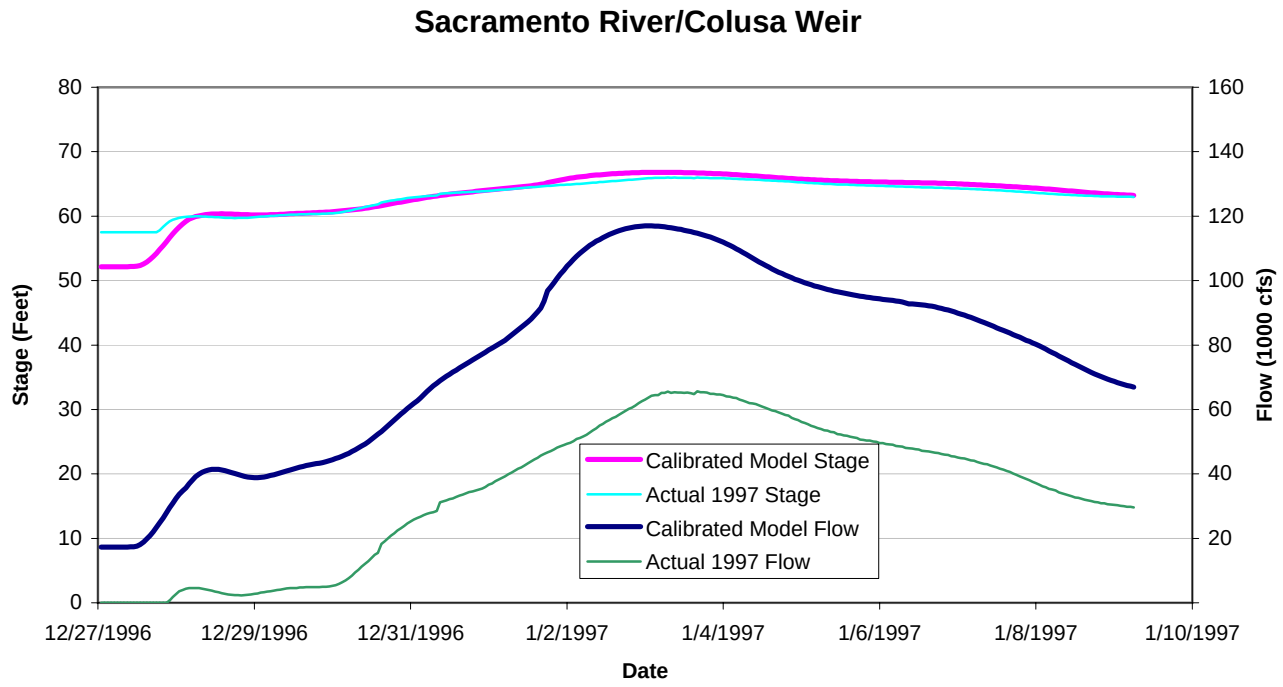


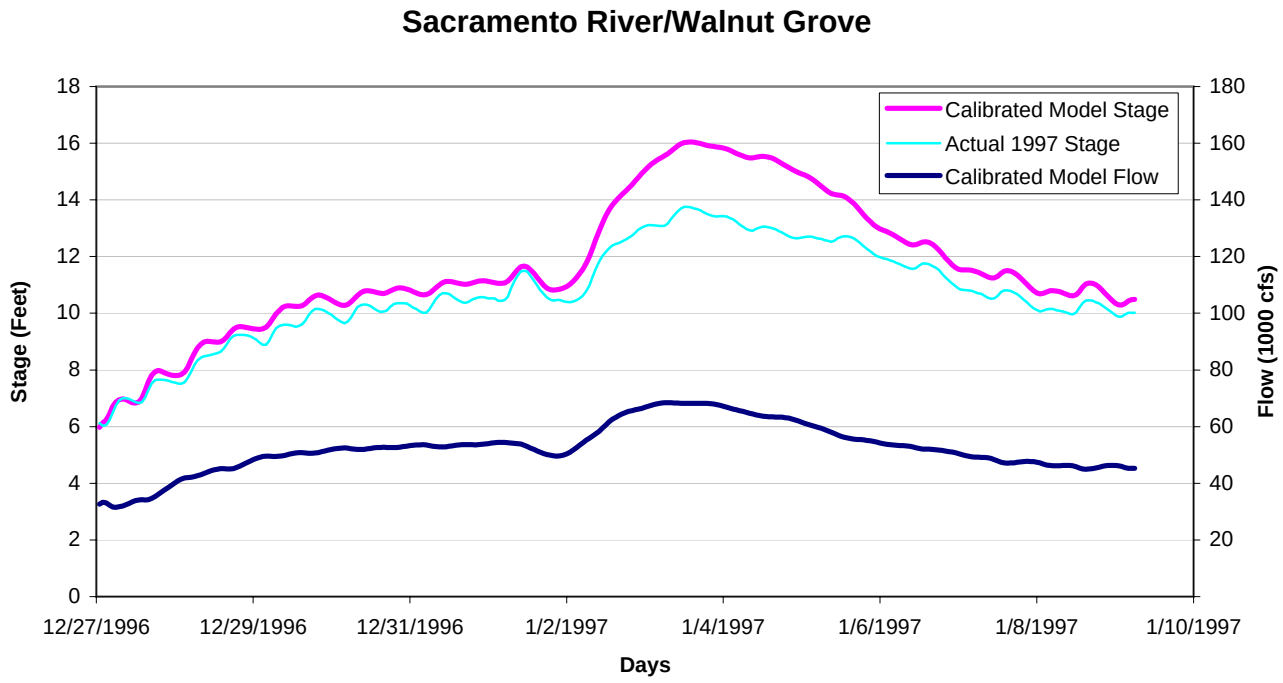
Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 20

Calibration: Modeled vs. Actual Hydrographs for Sacramento Basin

US Army Corps of Engineers
The Reclamation Board, State of California October 2002



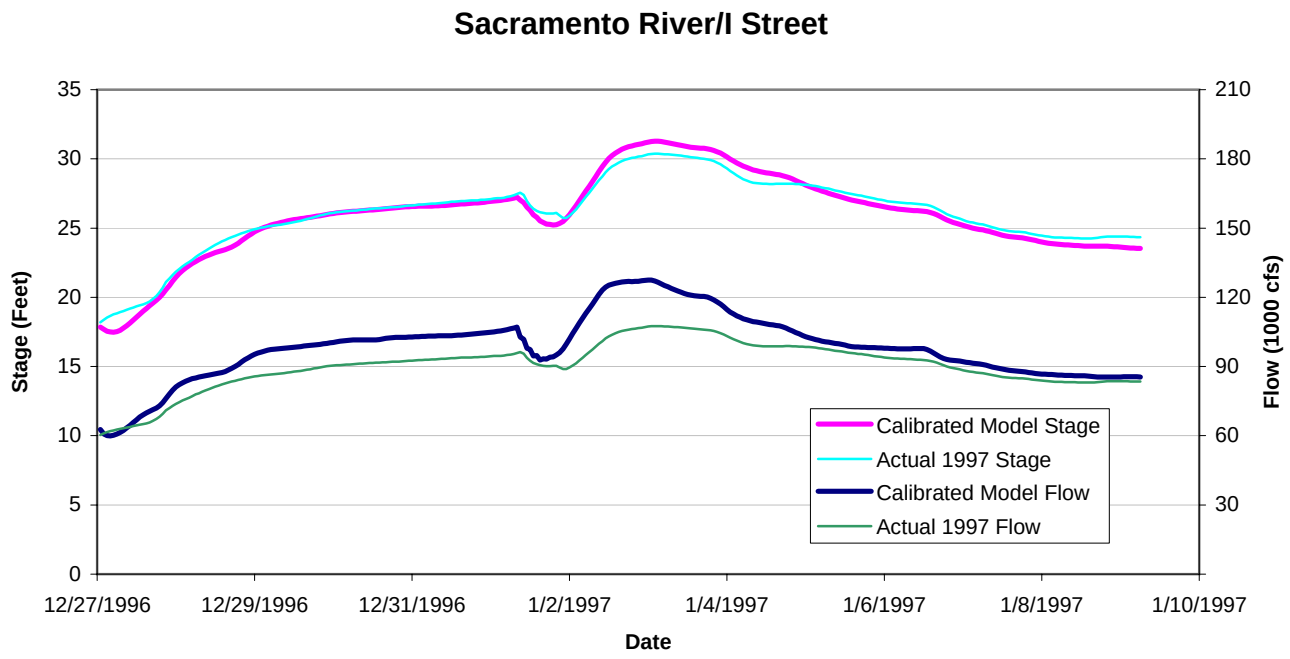


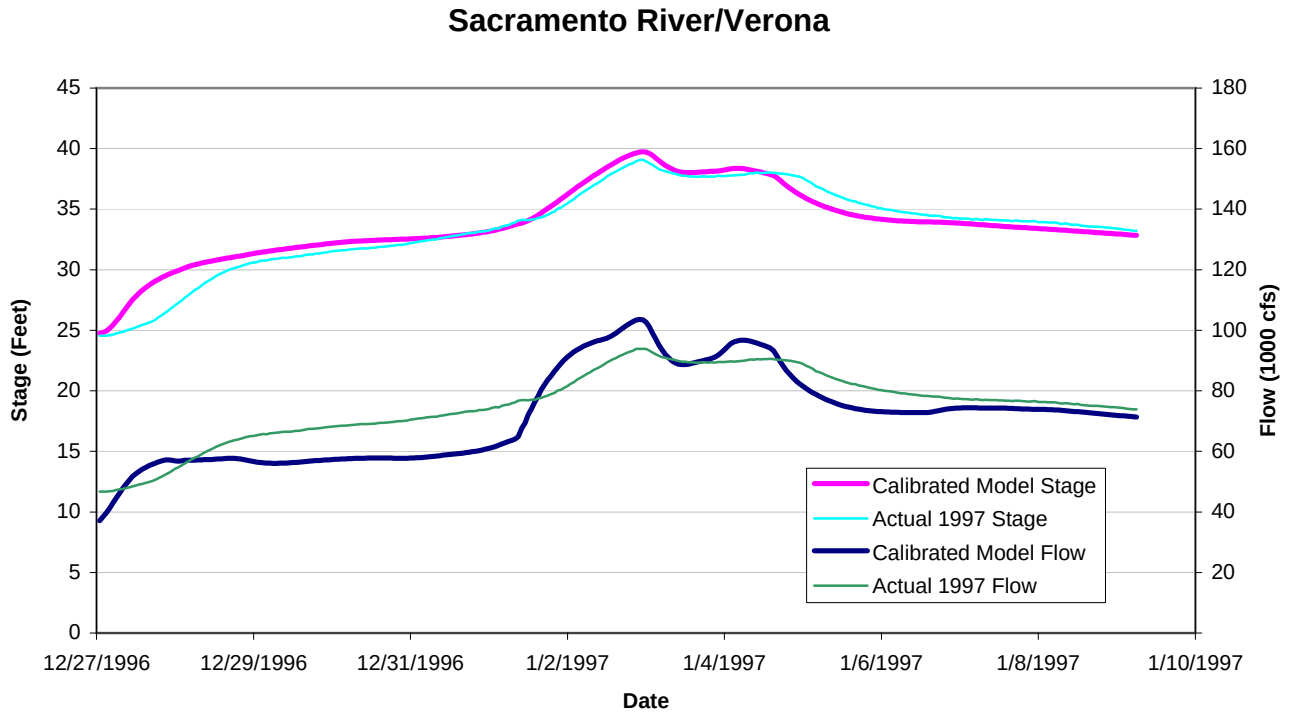
Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 21

Calibration: Modeled vs. Actual Hydrographs for Sacramento Basin

US Army Corps of Engineers
The Reclamation Board, State of California October 2002



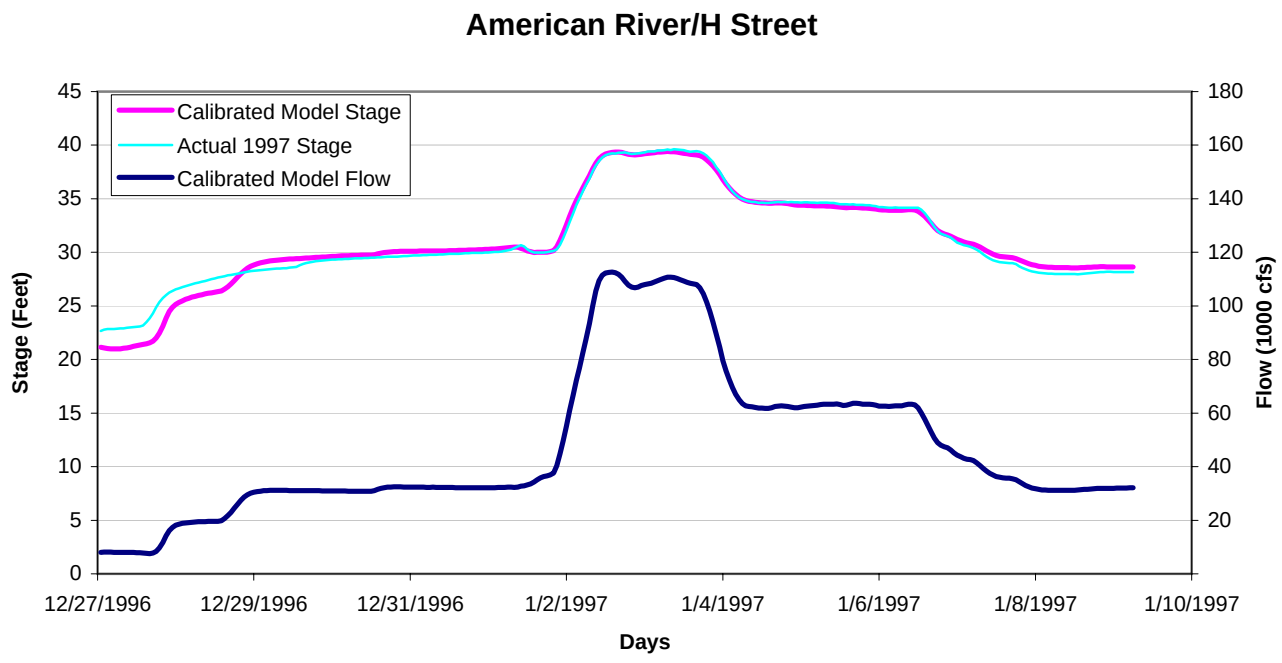


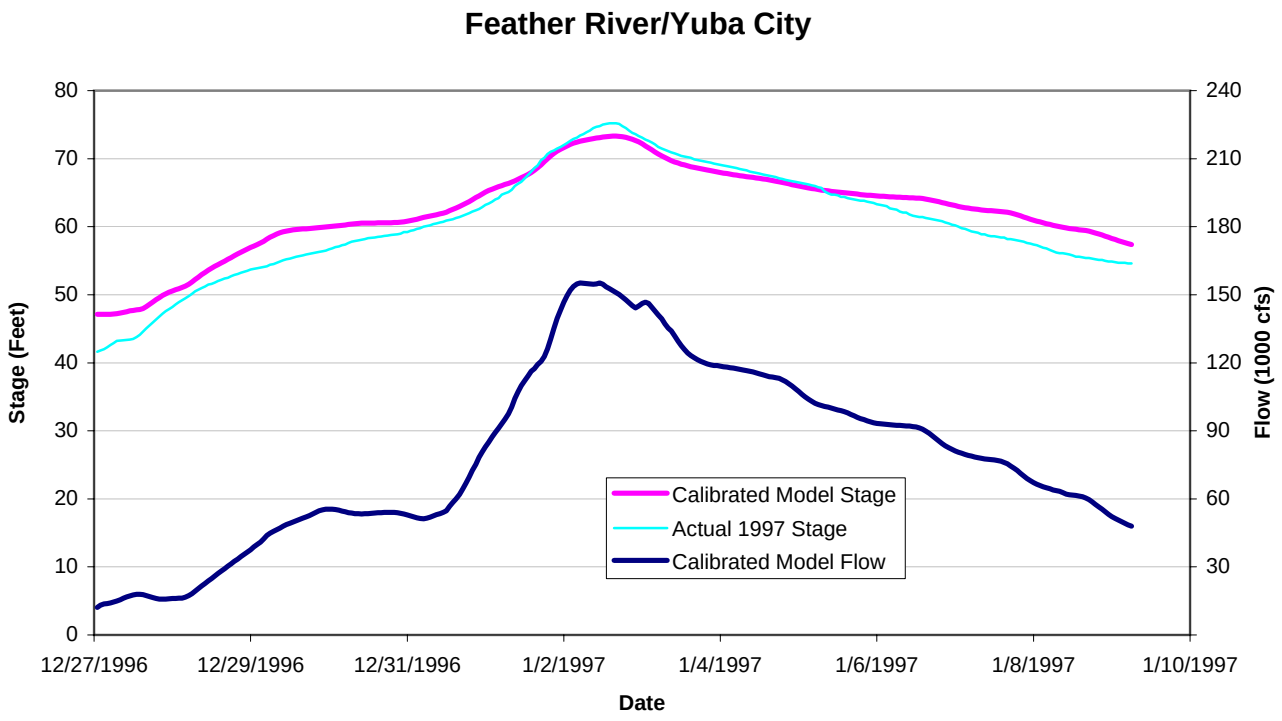
Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 22

Calibration: Modeled vs. Actual Hydrographs for Sacramento Basin

US Army Corps of Engineers
The Reclamation Board, State of California October 2002



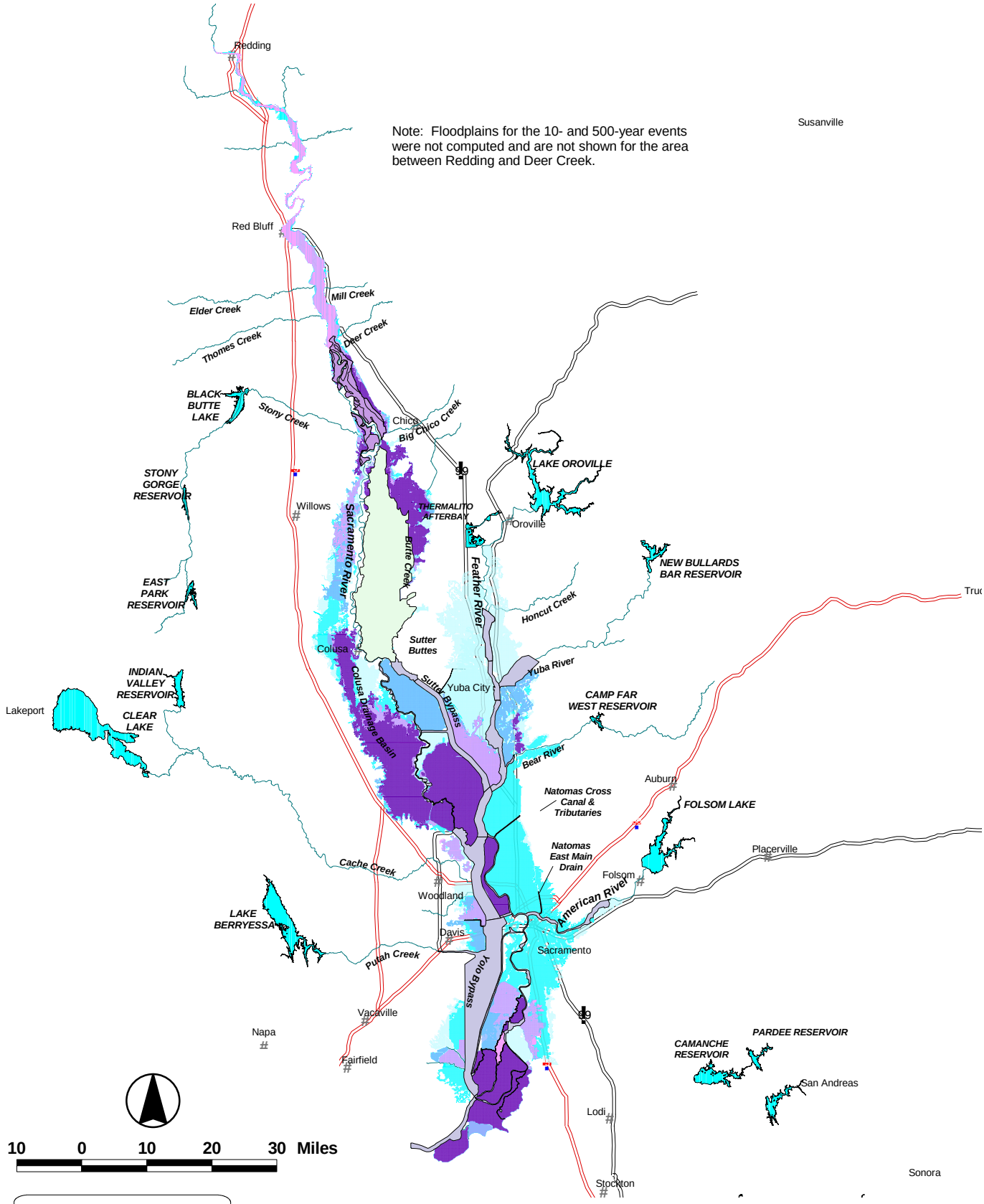


Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 23

Calibration: Modeled vs. Actual Hydrographs for Sacramento Basin

US Army Corps of Engineers
The Reclamation Board, State of California October 2002



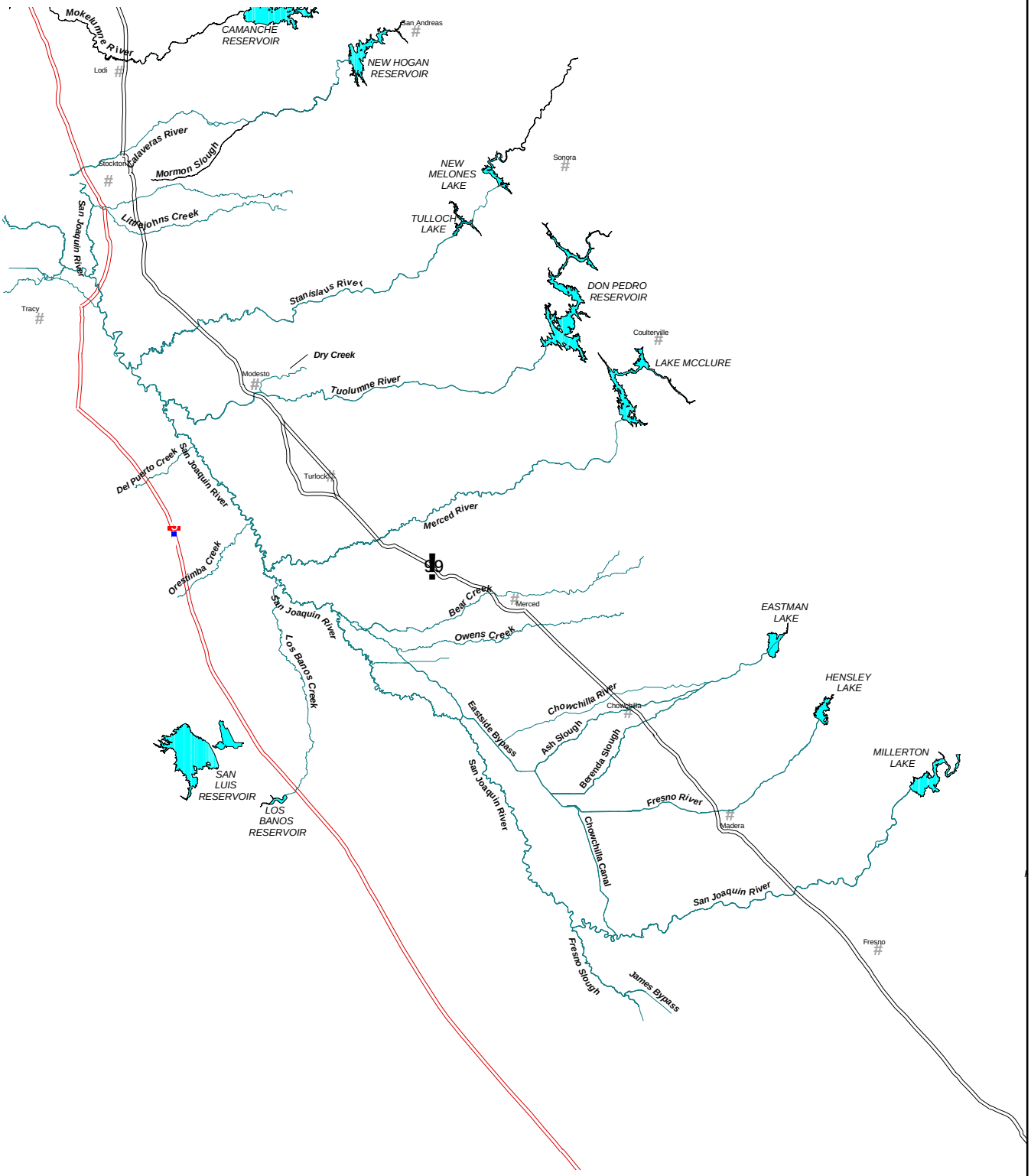
Note: Composite floodplains shown do not include operational effects of headwaters reservoirs (storage facilities upstream of the major flood control reservoirs).

Sacramento & San Joaquin River Basins Comprehensive Study

Plate 24

Sacramento River Basin Floodplain Delineations

U.S. Army Corps of Engineers
Reclamation Board, State of California October 2002



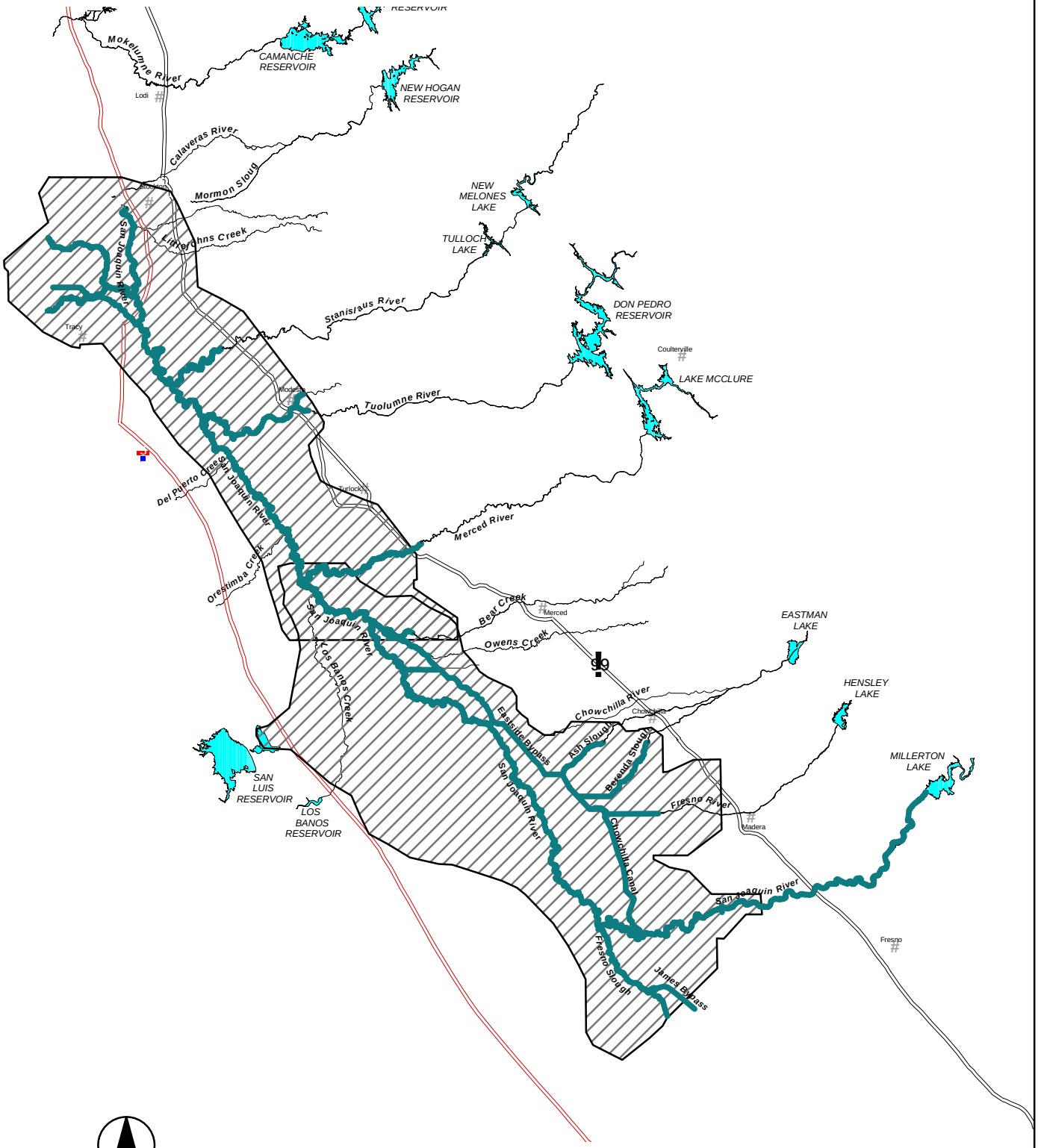
10 0 10 Miles

Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 25

San Joaquin River Basin
Location Map

U.S. Army Corps of Engineers
Reclamation Board, State of California June 2002



Legend

UNET Modeling Extent

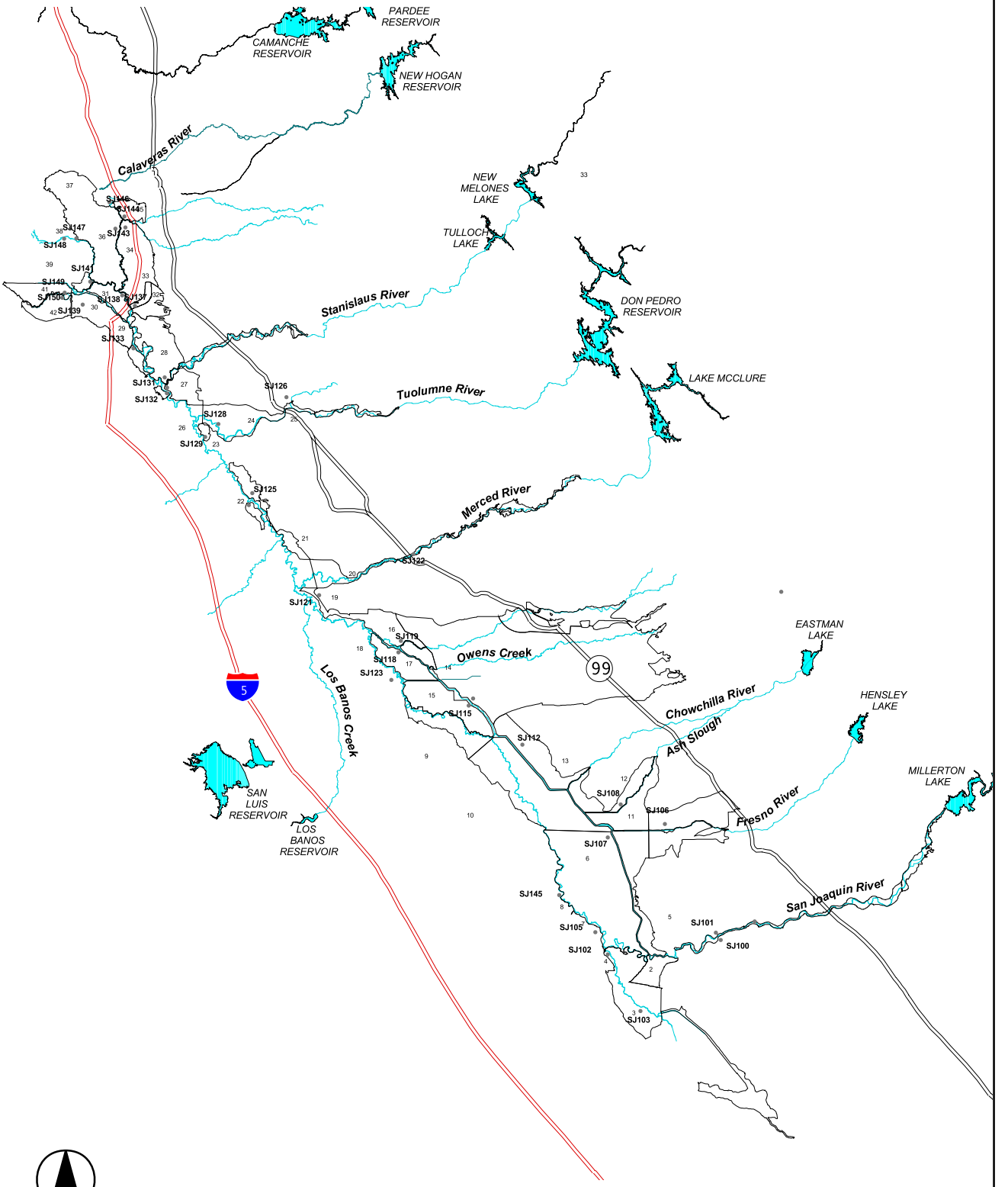
FLO-2D Modeling Extent

Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 26

San Joaquin River Basin
Extent of UNET & FLO-2D Modeling

U.S. Army Corps of Engineers
Reclamation Board, State of California June 2002



10 0 10 Miles

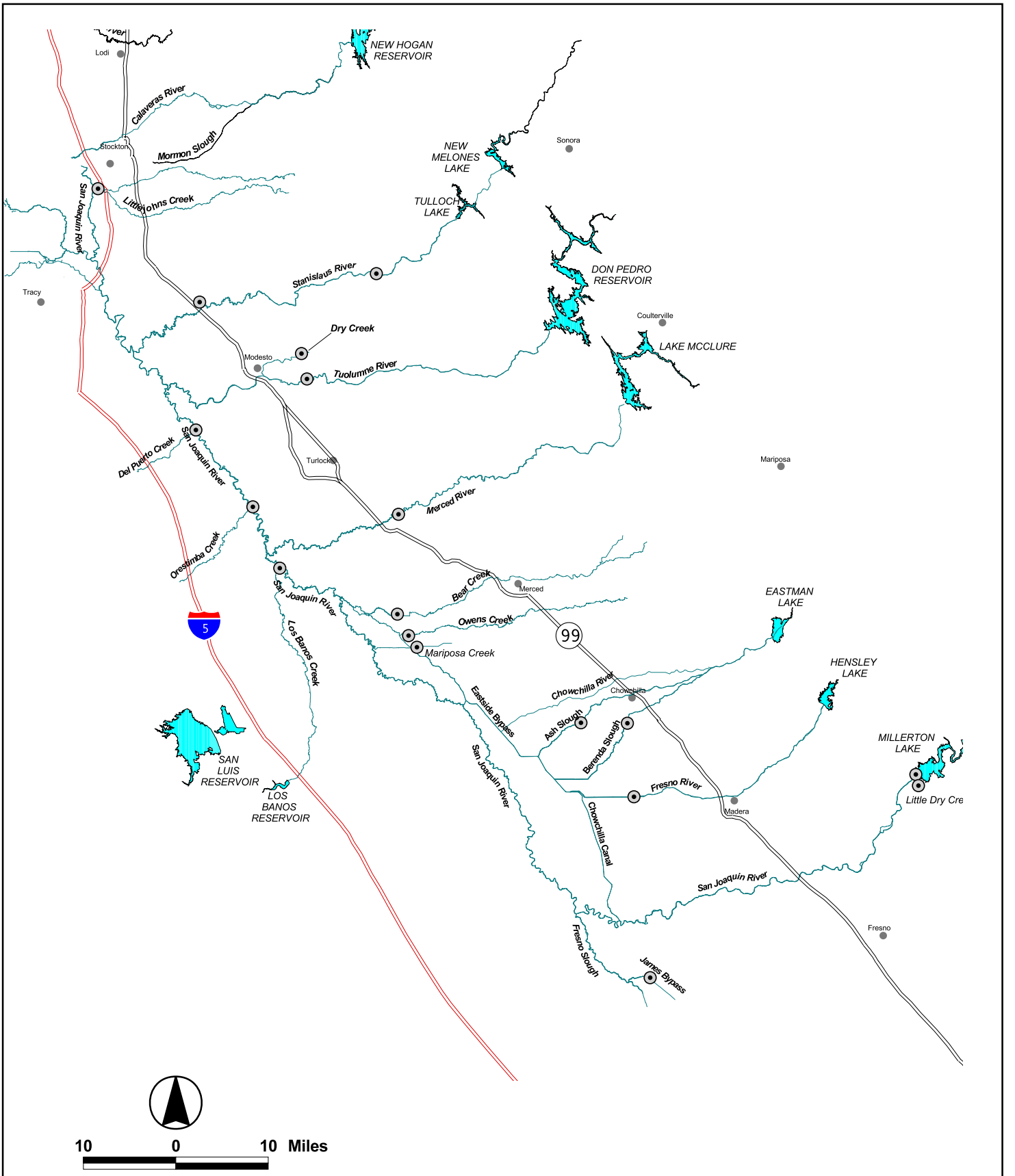
Legend

	Boundary of Impact Area
42	Impact Area ID
●	Index Point
SJ27	Index Point ID

Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 27
San Joaquin River Basin
Without-Project Impact Areas
& Index Points

U.S. Army Corps of Engineers
Reclamation Board, State of California June 2002



Legend

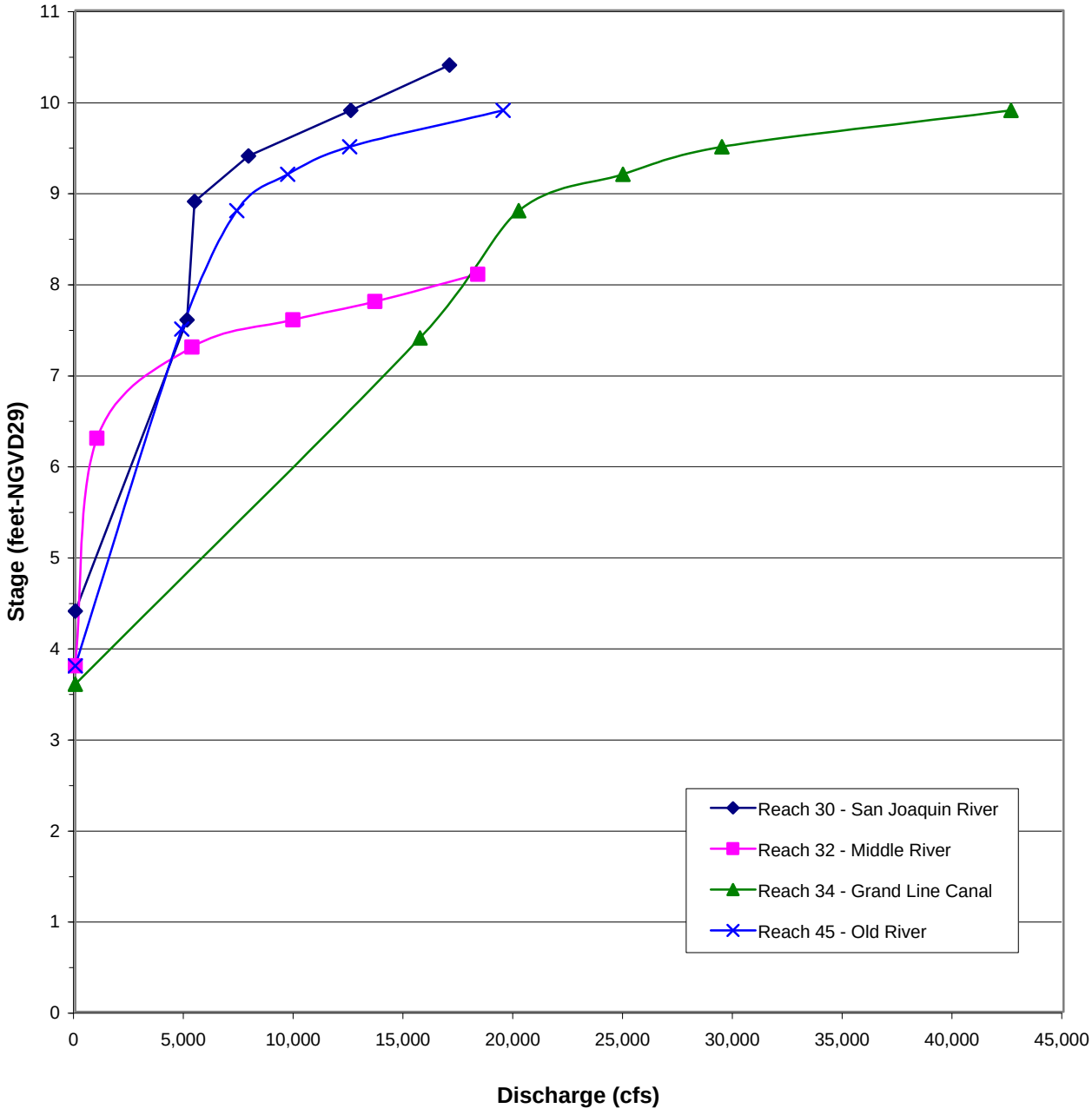
Hydrologic-Hydraulic Handoff Points

Sacramento & San Joaquin River Basins Comprehensive Study

Plate 28

San Joaquin River Basin Hydrologic-Hydraulic Handoff Points

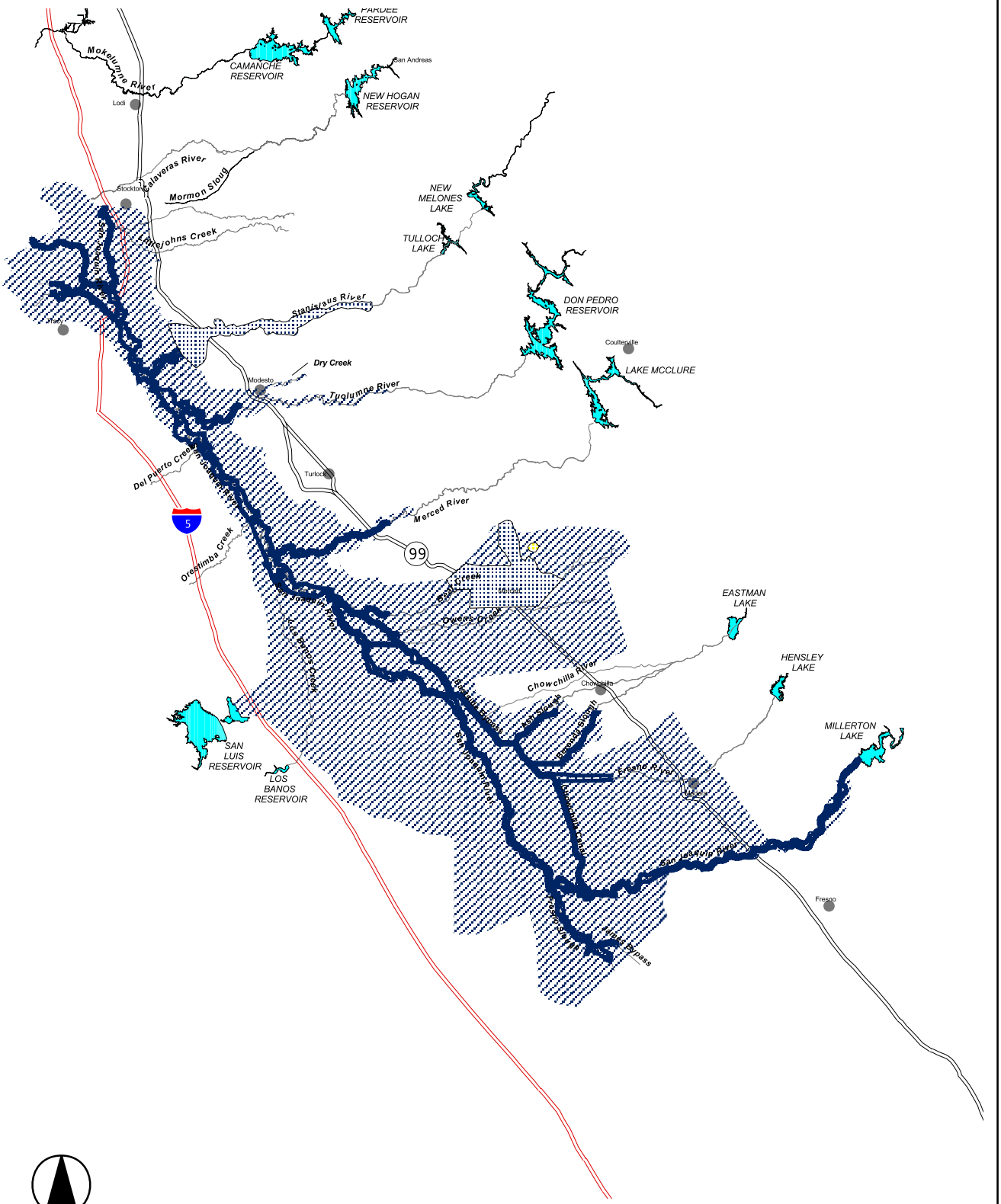
U.S. Army Corps of Engineers
Reclamation Board, State of California June 2002



Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 29
Tailwater Rating Curves
San Joaquin Basin

US Army Corps of Engineers
The Reclamation Board, State of California June 2002



10 0 10 Miles

Legend

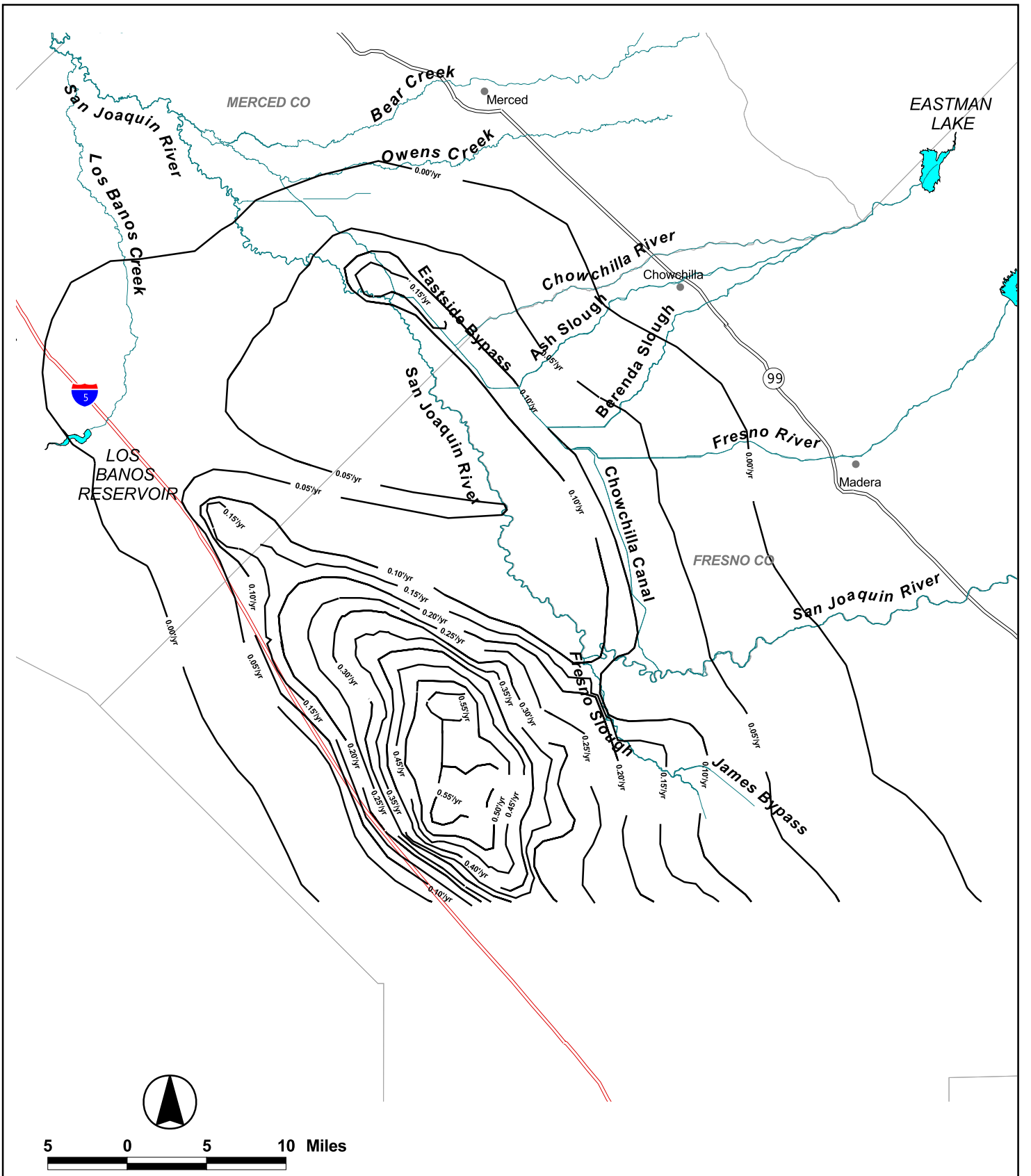
- Extent of 2000 survey
- Overbank areas where mapping exists
- Extent of 1998 survey

Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 30

San Joaquin River Basin
Extent of Topographic Data Collection

U.S. Army Corps of Engineers
Reclamation Board, State of California June 2002



5 0 5 10 Miles

Legend

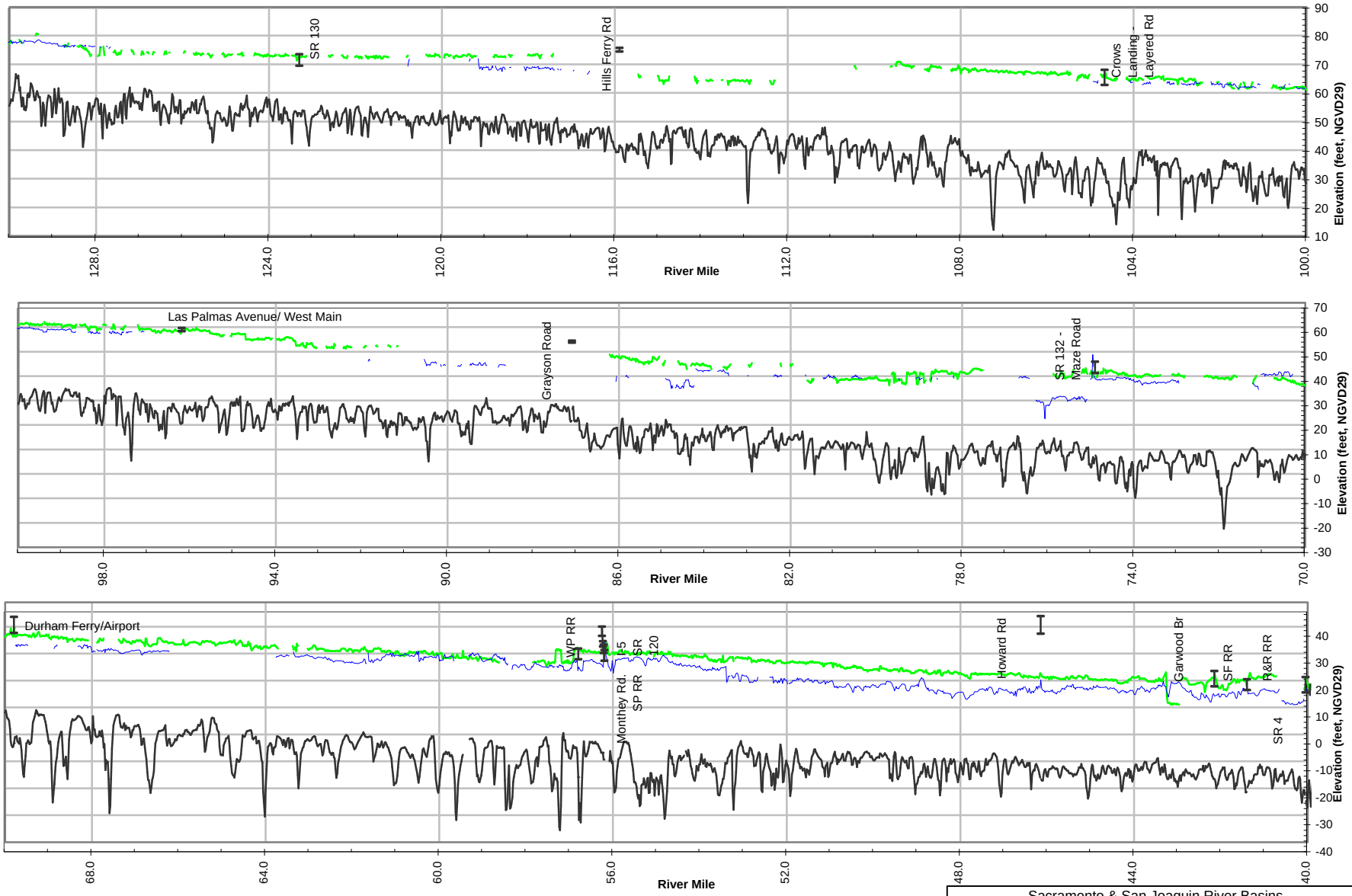
0.25'/yr Subsidence Contour

Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 31

San Joaquin River Basin
Subsidence Rates

U.S. Army Corps of Engineers
Reclamation Board, State of California June 2002



San Joaquin River

LEGEND

- Top of Left Bank / Levee
- Top of Right Bank / Levee
- Bottom of Channel

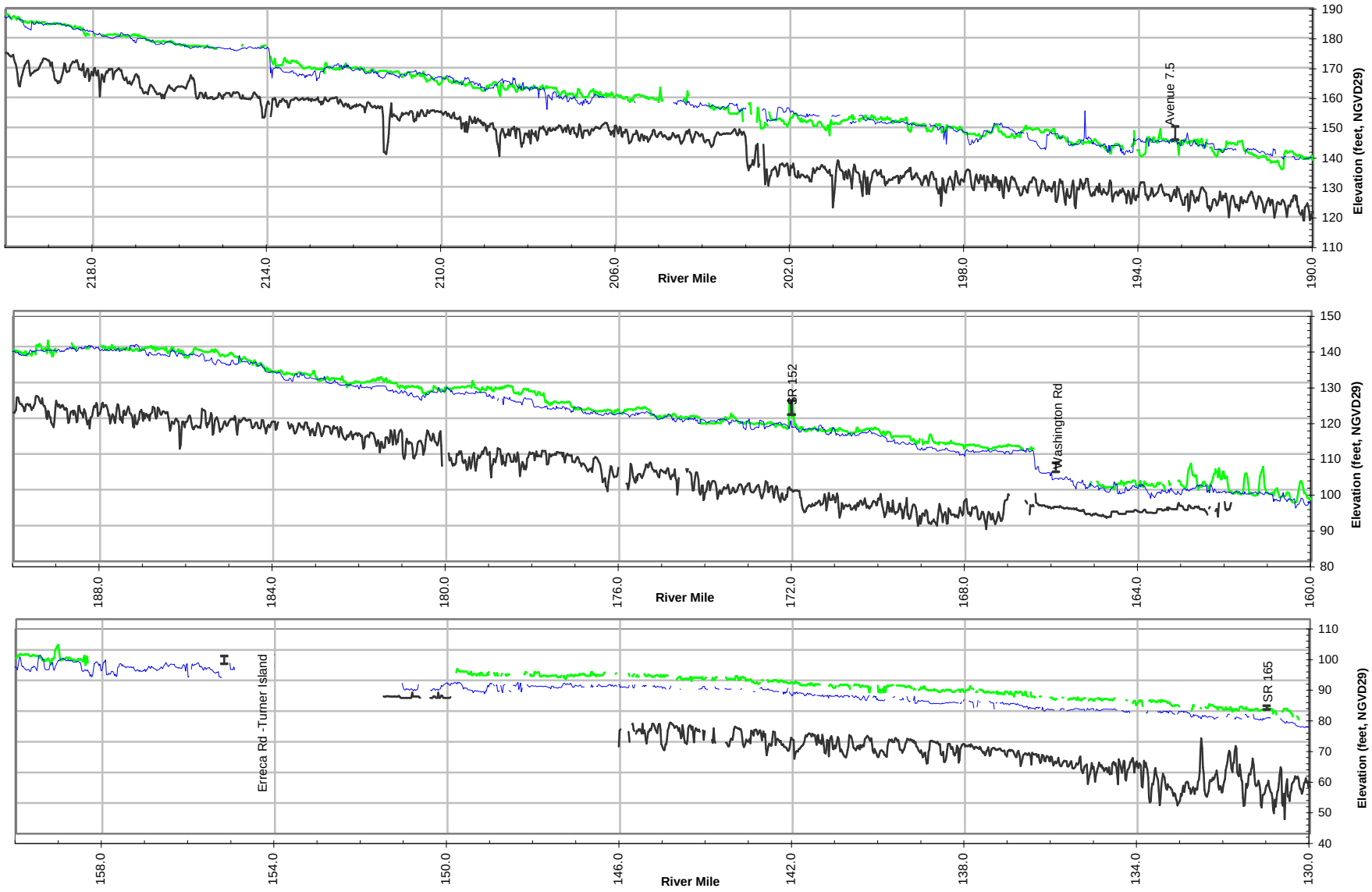
Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 32

San Joaquin River Channel Profile
RM 40-130

US Army Corps of Engineers
The Reclamation Board, State of California

June 2002



San Joaquin River

LEGEND

- Top of Left Bank / Levee
- Top of Right Bank / Levee
- Bottom of Channel

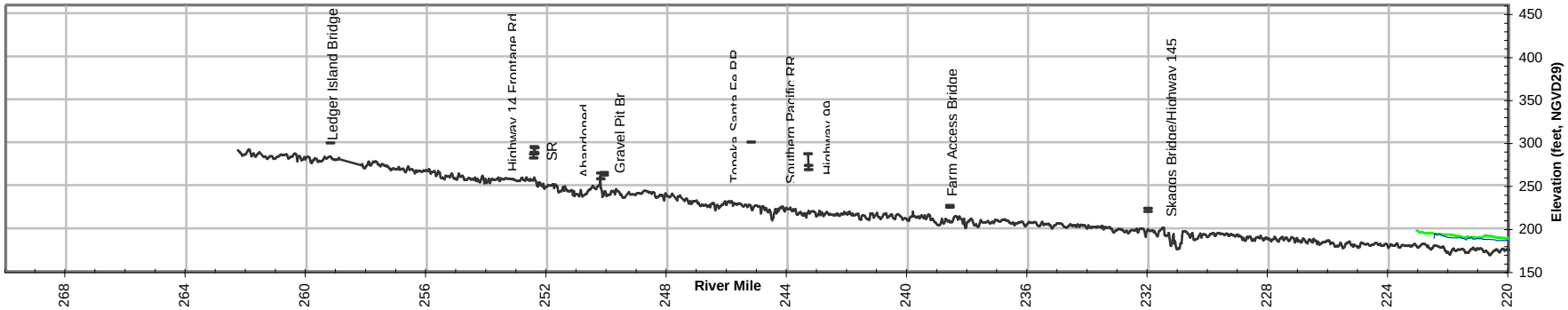
Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 33

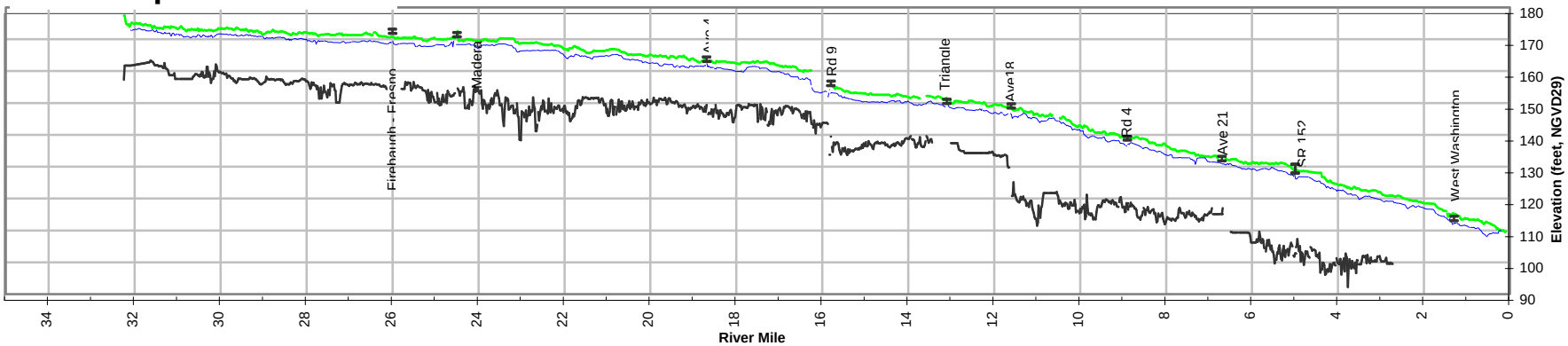
San Joaquin River Channel Profile
RM 130-220

US Army Corps of Engineers
The Reclamation Board, State of California

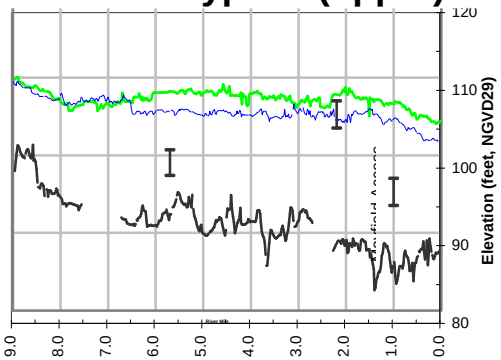
June 2002

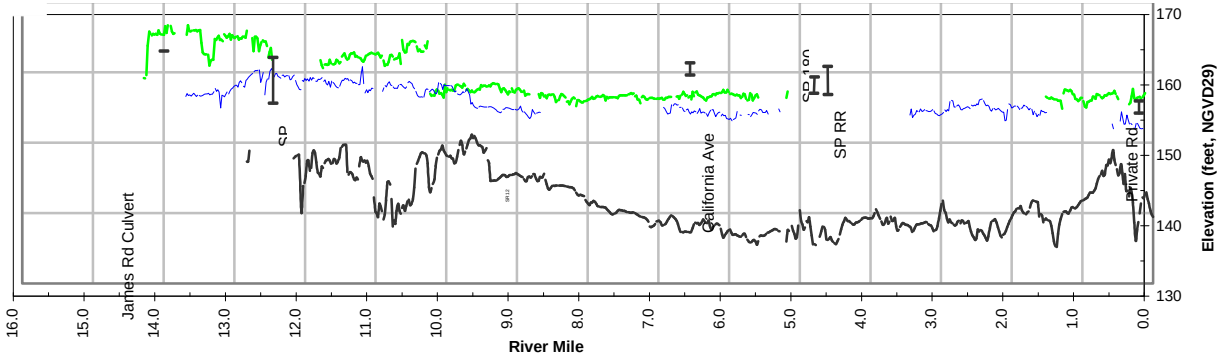


San Joaquin River



Eastside Bypass (upper)





Eastside Bypass (lower)

Fresno Slough

LEGEND

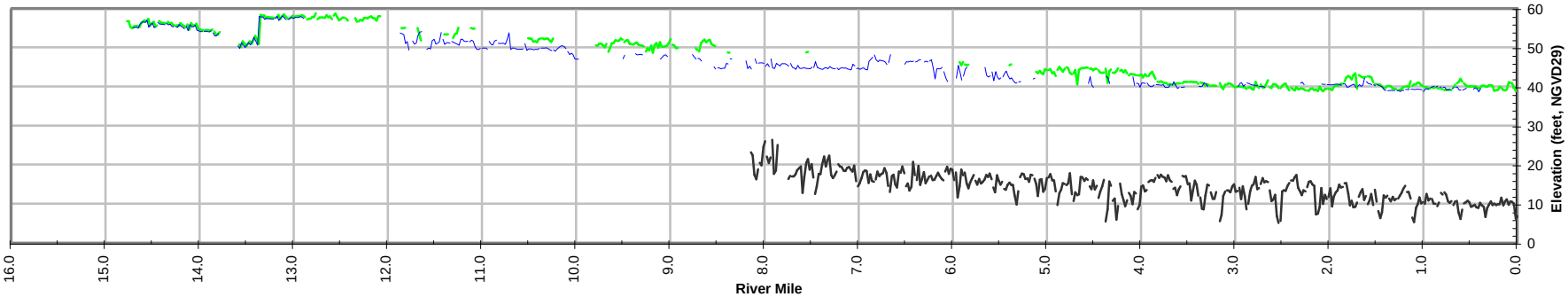
- Top of Left Bank / Levee
- Top of Right Bank / Levee
- Bottom of Channel

Sacramento & San Joaquin River Basins
Comprehensive Study

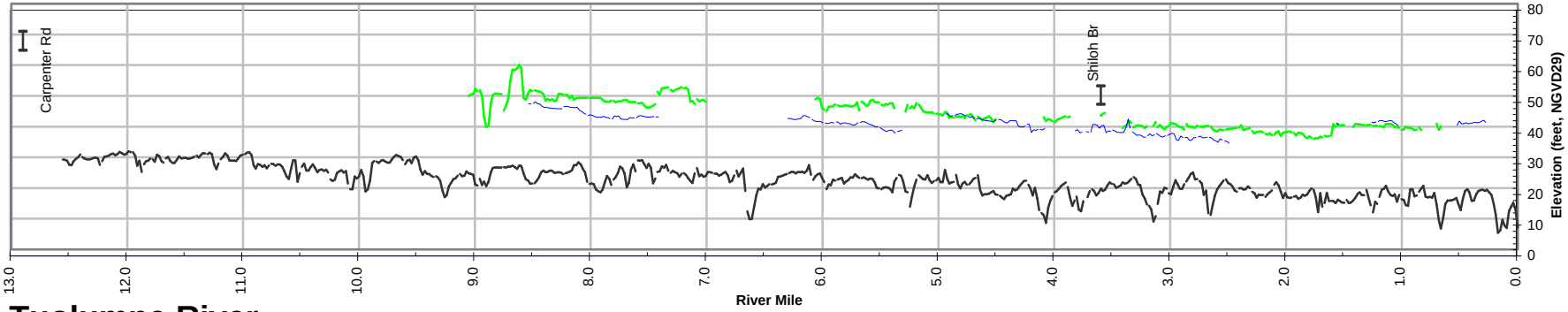
Plate 34

Profiles of San Joauqin River, Eastside Bypass and Fresno Slough

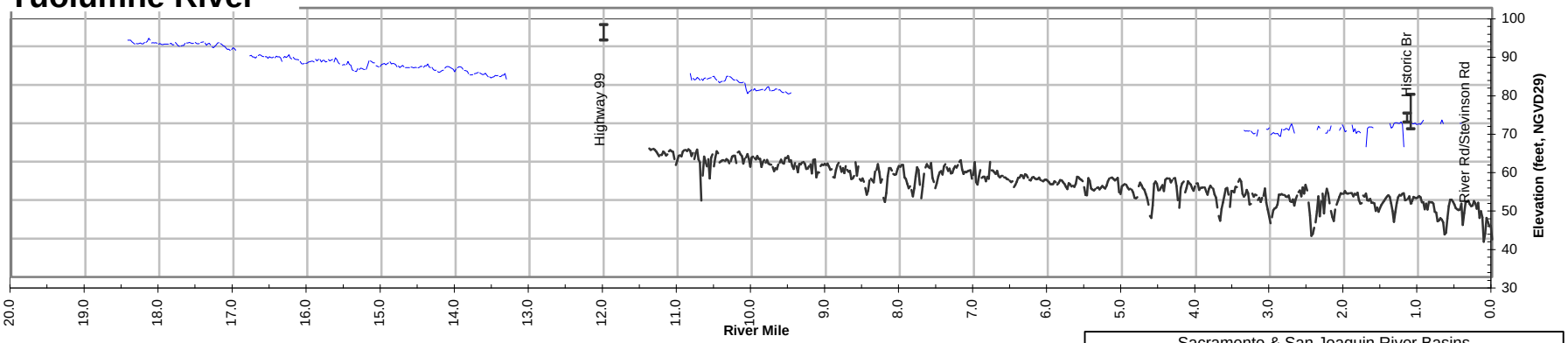
US Army Corps of Engineers
The Reclamation Board, State of California June 2002



Stanislaus River



Tuolumne River



Merced River

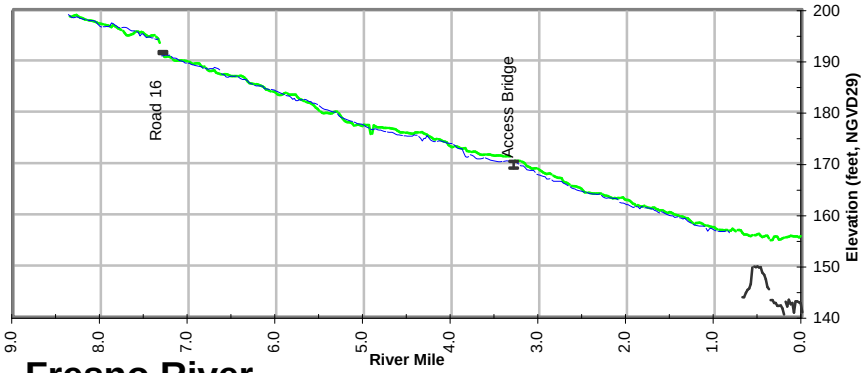
LEGEND
- Top of Left Bank / Levee
- Top of Right Bank / Levee
- Bottom of Channel

Sacramento & San Joaquin River Basins
Comprehensive Study

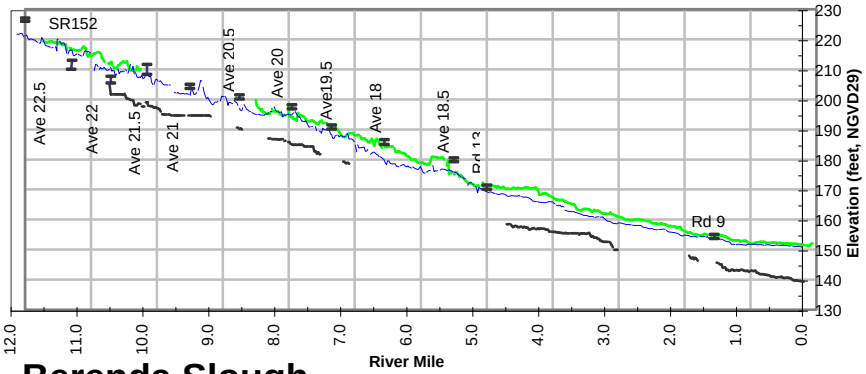
Plate 35

Profiles of Stanislaus River, Tuolumne River and Merced River

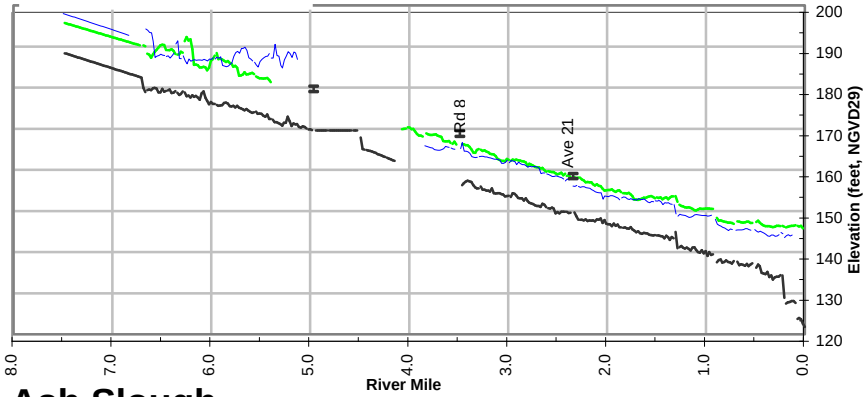
US Army Corps of Engineers
The Reclamation Board, State of California
June 2002



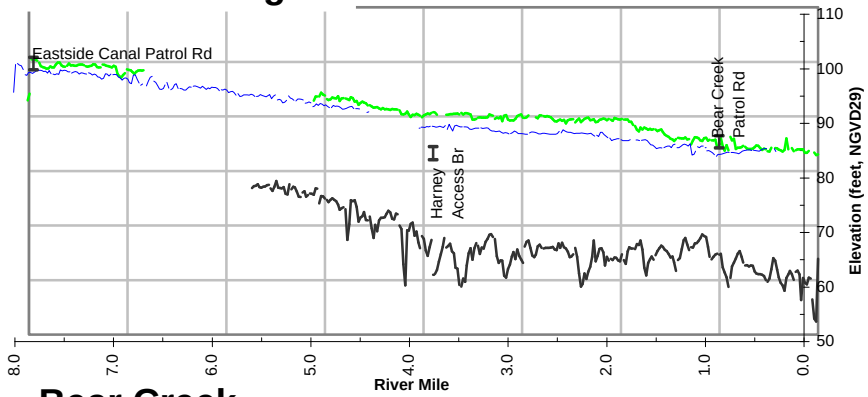
Fresno River



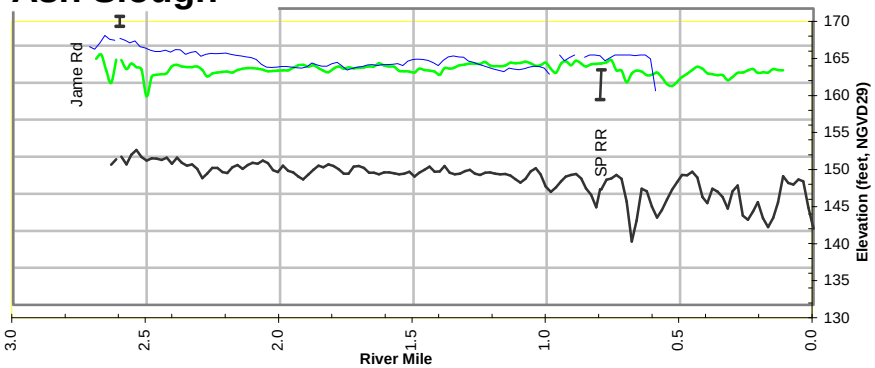
Berenda Slough



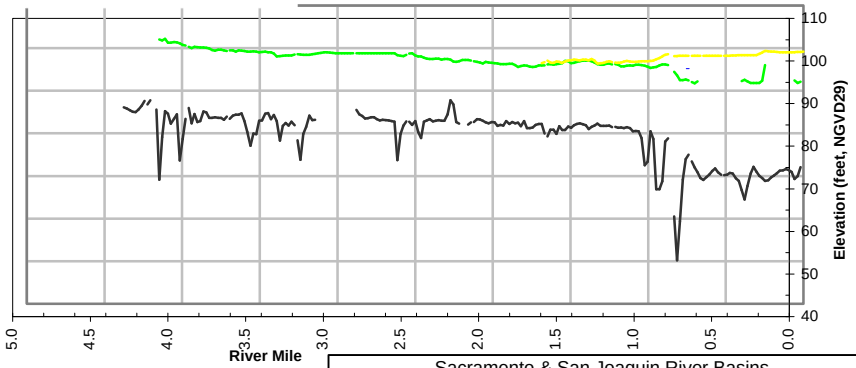
Ash Slough



Bear Creek



James Bypass



Mariposa Bypass

LEGEND

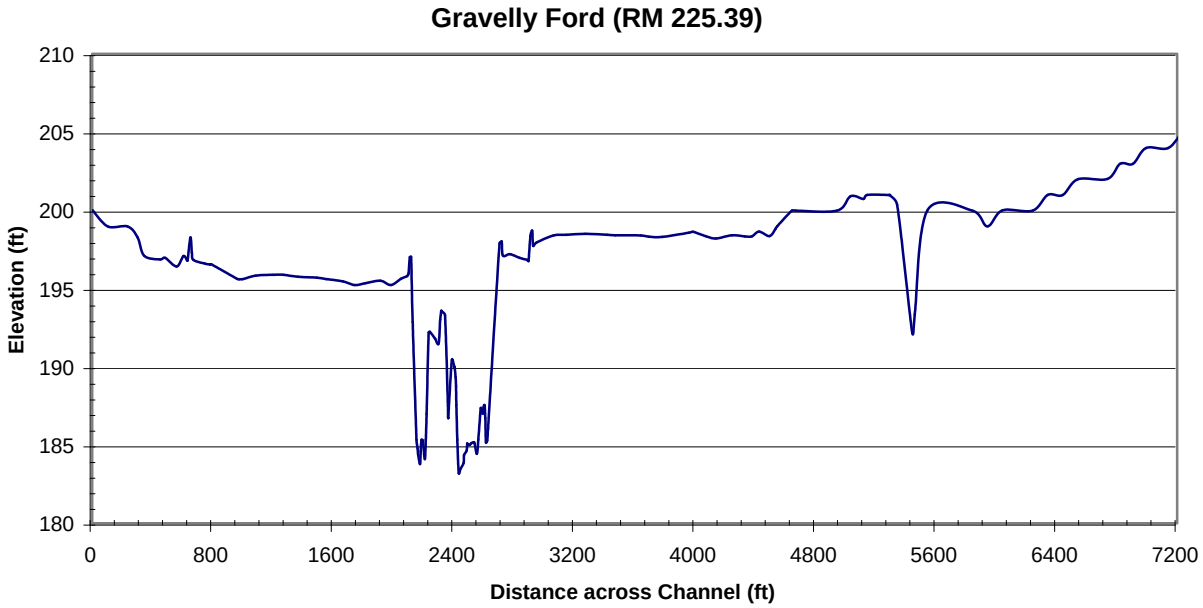
- Top of Left Bank / Levee
- Top of Right Bank / Levee
- Bottom of Channel

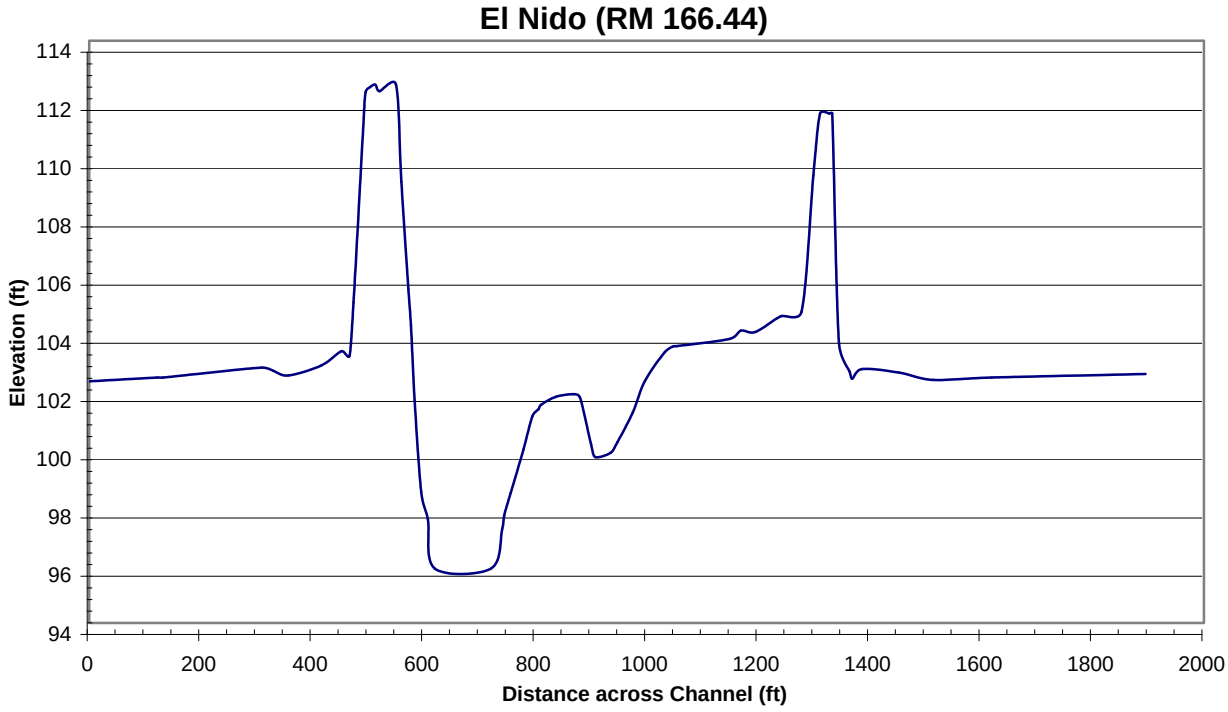
Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 36

Profiles of San Joauqin River Tributaries and Bypasses

US Army Corps of Engineers
The Reclamation Board, State of California
June 2002





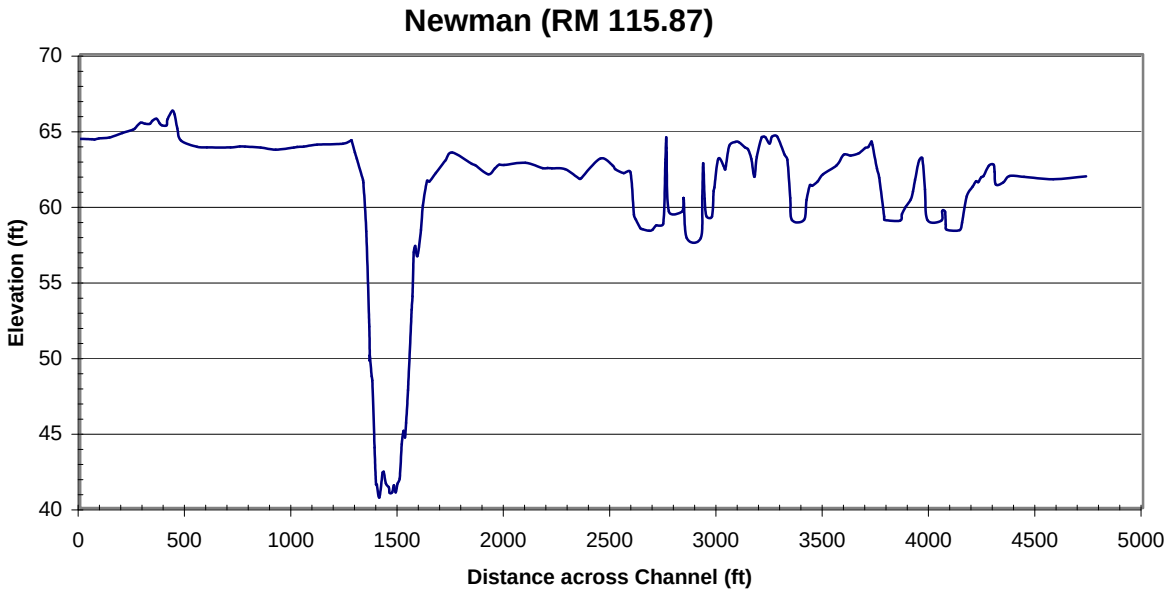
Note:
All cross sections are depicted looking downstream.

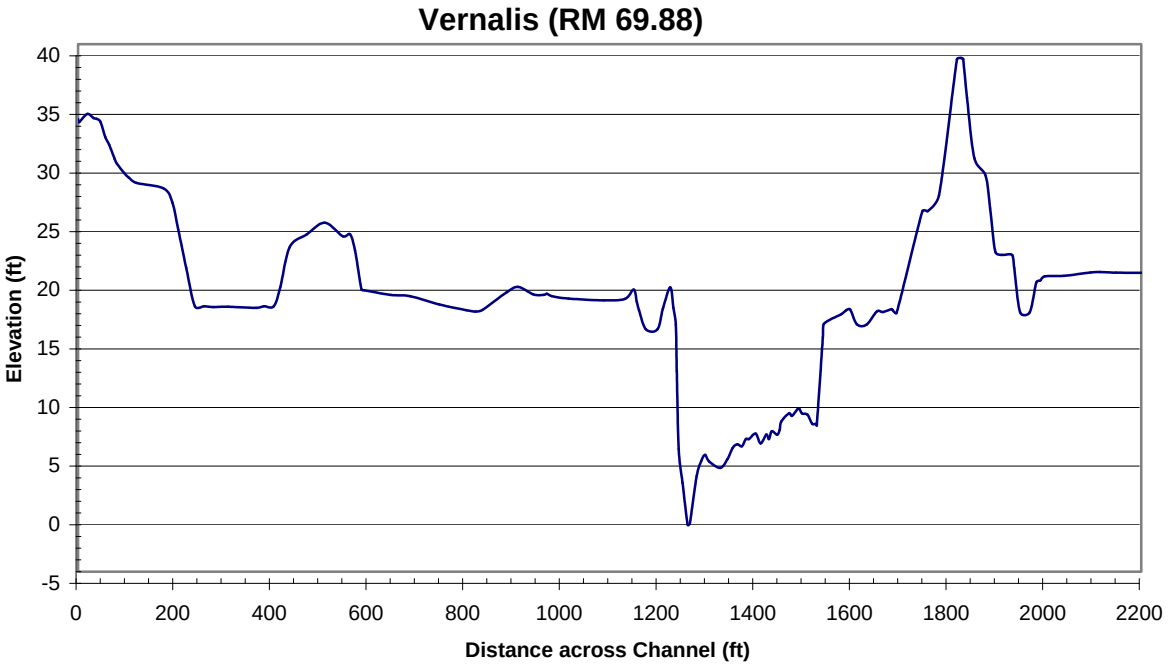
Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 37
Representative Cross Sections in the San Joaquin River Basin
(Gravelly Ford and El Nido)

US Army Corps of Engineers
The Reclamation Board, State of California

June 2002





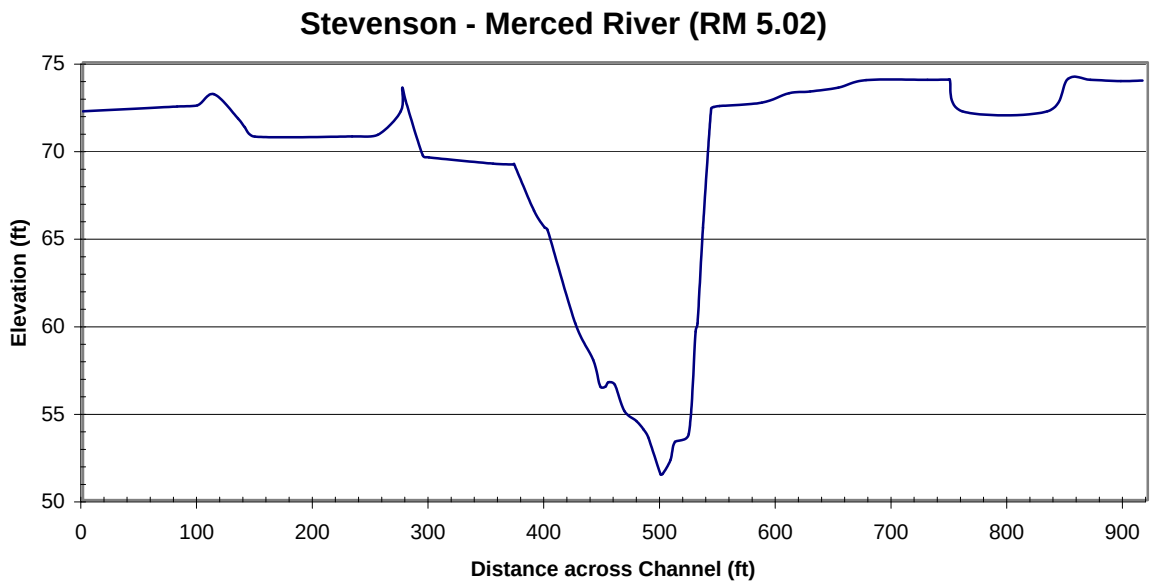
Note:
All cross sections are depicted looking downstream.

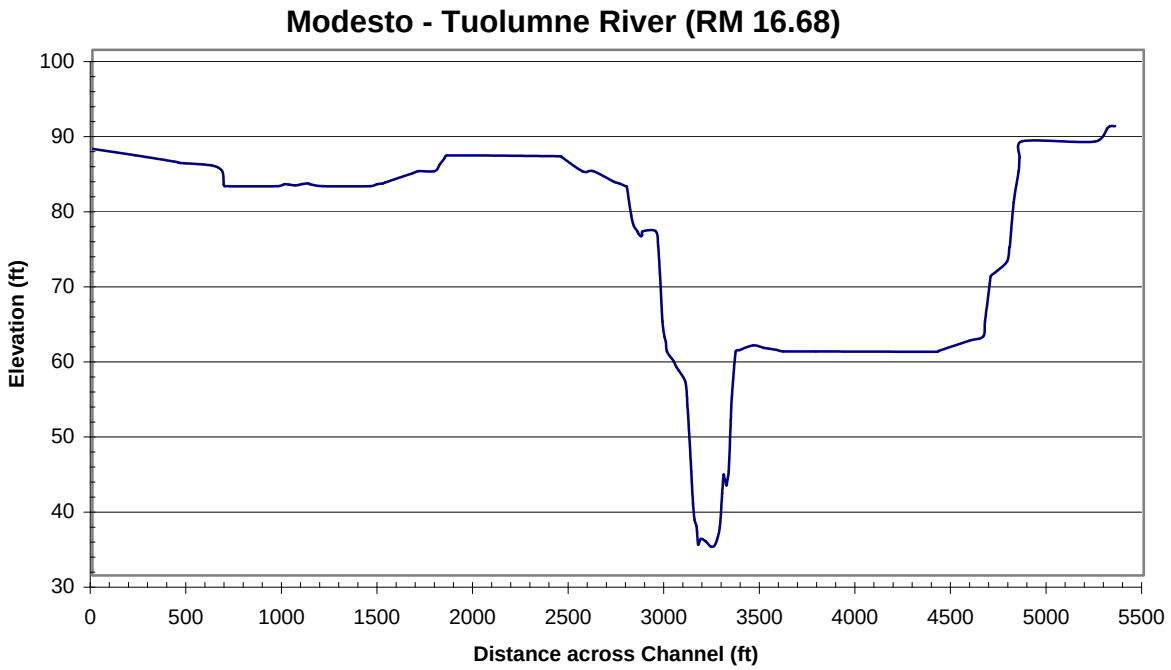
Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 38
Representative Cross Sections in the San Joaquin River Basin
(Newman and Vernalis)

US Army Corps of Engineers
The Reclamation Board, State of California

June 2002





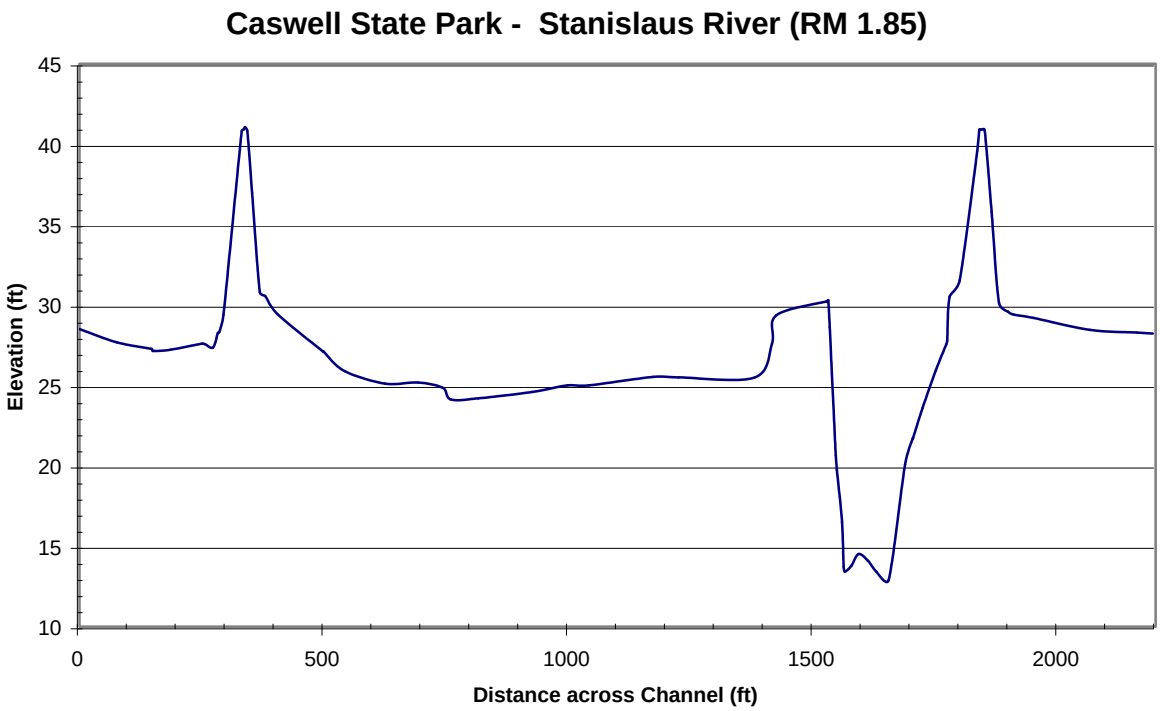
Note:
All cross sections are depicted looking downstream.

Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 39
Representative Cross Sections in the San Joaquin River Basin
(Stevenson and Modesto)

US Army Corps of Engineers
The Reclamation Board, State of California

June 2002



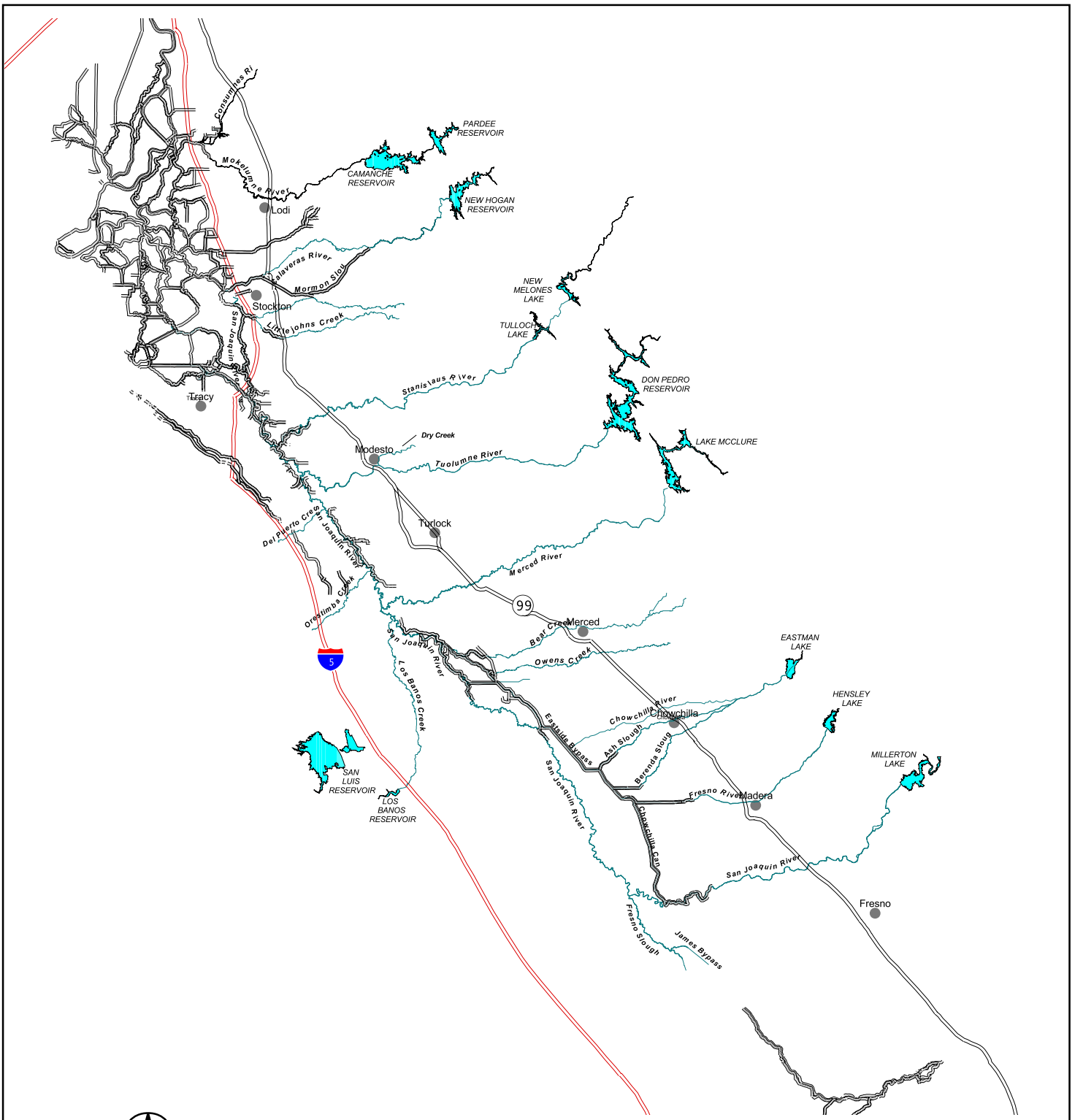
Note:
All cross sections are depicted looking downstream.

Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 40
Representative Cross Sections in the San Joaquin River Basin
(Caswell State Park)

US Army Corps of Engineers
The Reclamation Board, State of California

June 2002



Legend

Levees

Sacramento & San Joaquin River Basins
Comprehensive Study

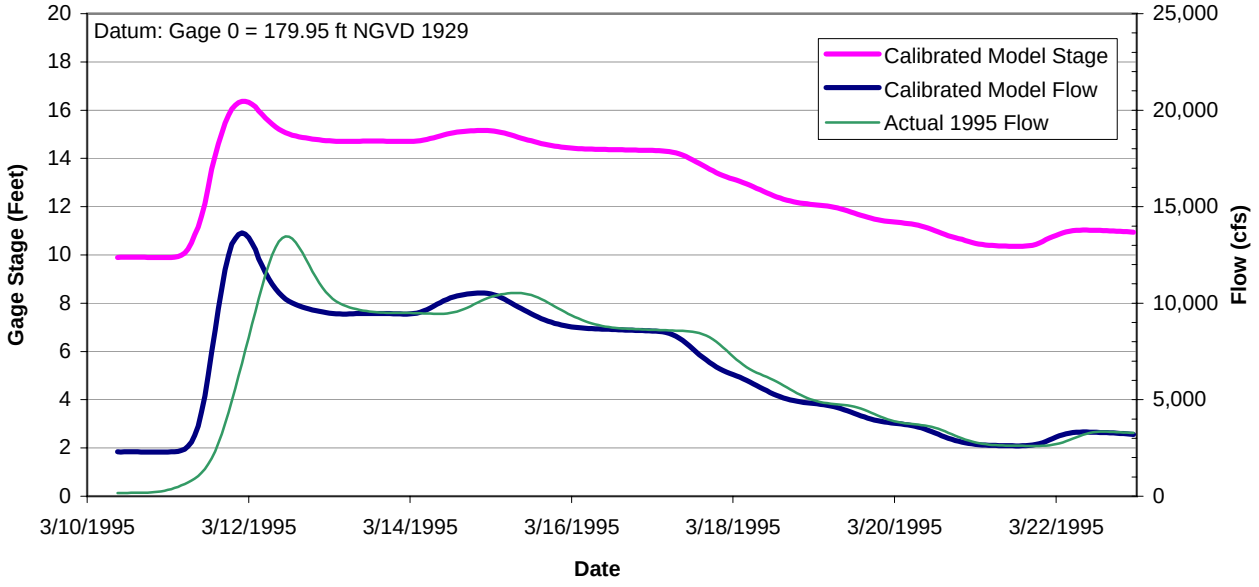
Figure 41

San Joaquin River Basin
Levees

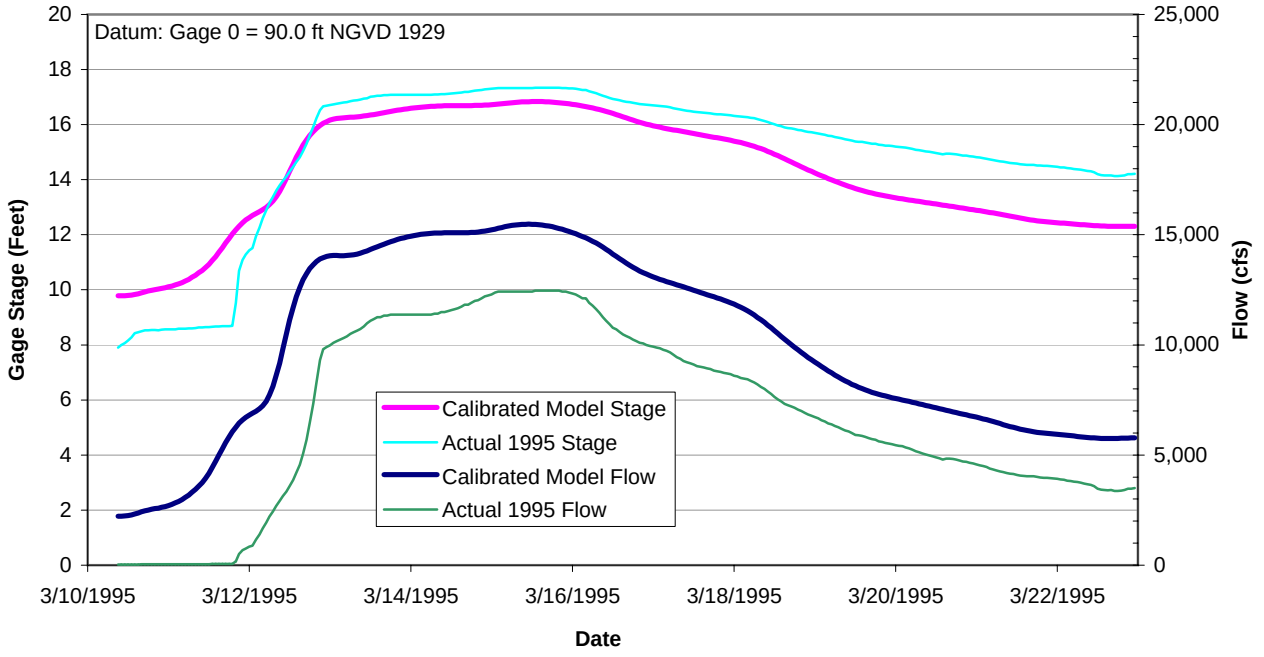
U.S. Army Corps of Engineers
Reclamation Board, State of California

June 2002

San Joaquin River/Gravelly Ford



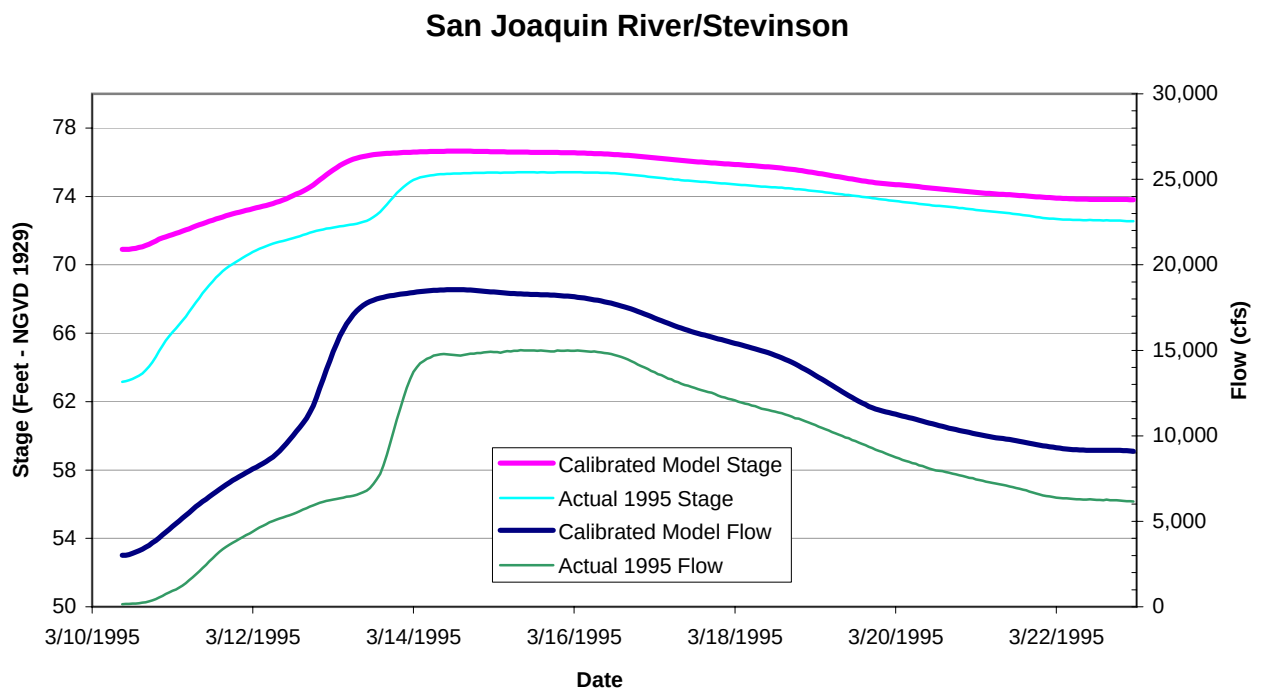
San Joaquin River/El Nido

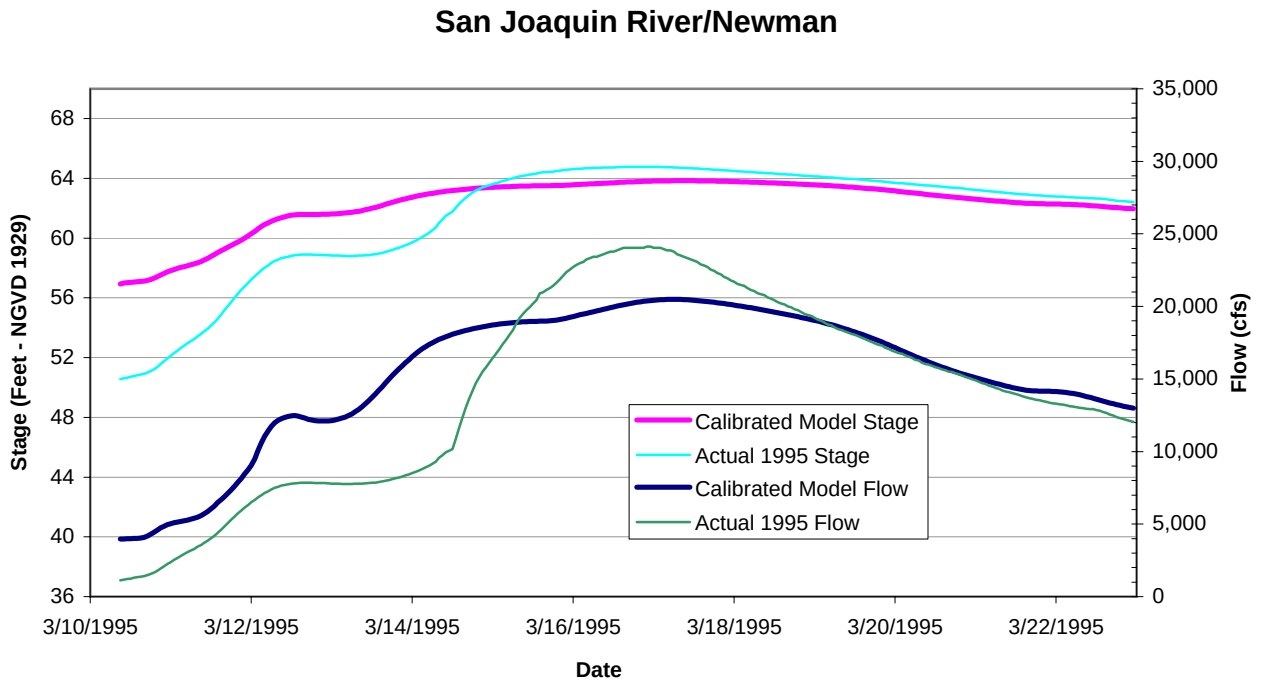


Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 42
Calibration: Modeled vs. Actual Hydrographs for San Joaquin Basin

US Army Corps of Engineers
The Reclamation Board, State of California October 2002

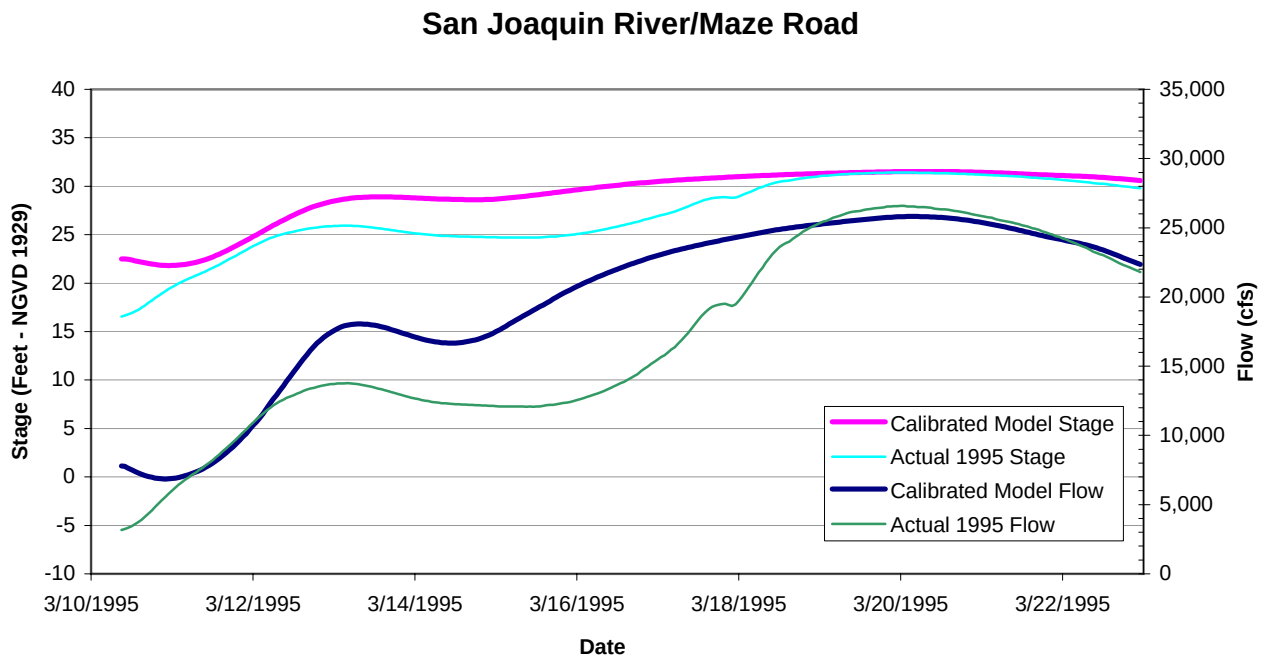


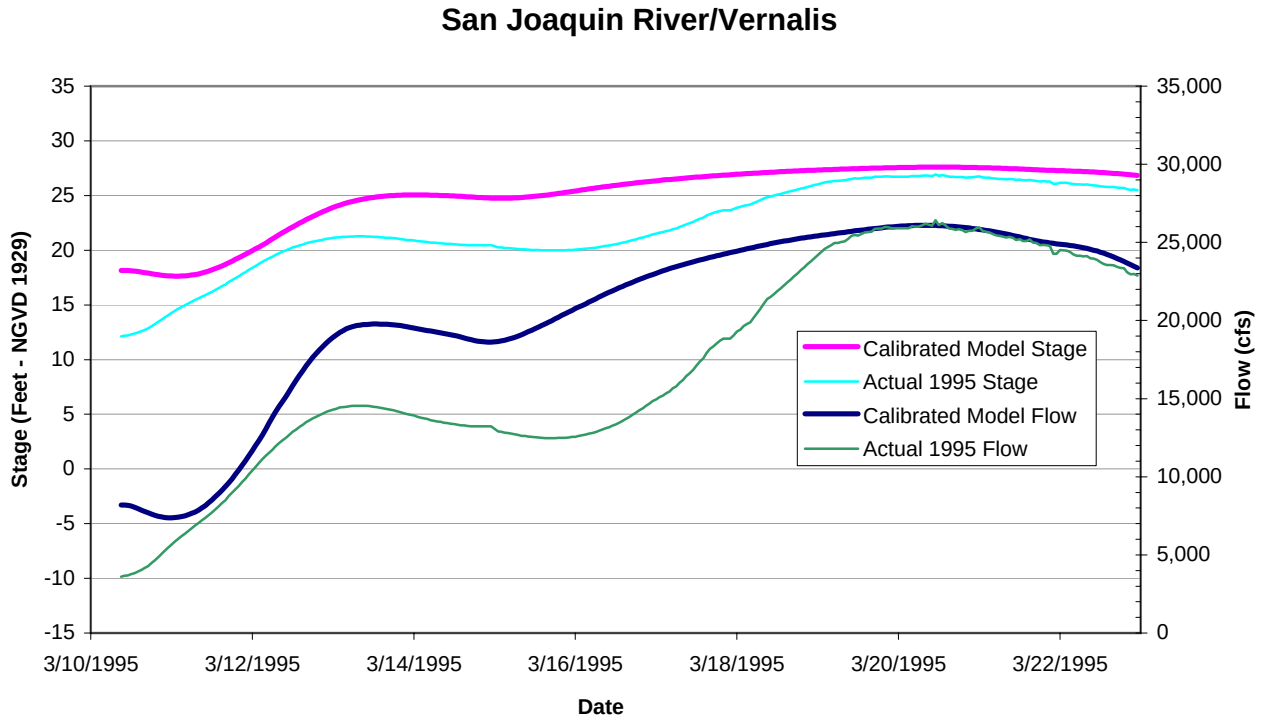


Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 43
Calibration: Modeled vs. Actual Hydrographs for San Joaquin Basin

US Army Corps of Engineers
The Reclamation Board, State of California October 2002

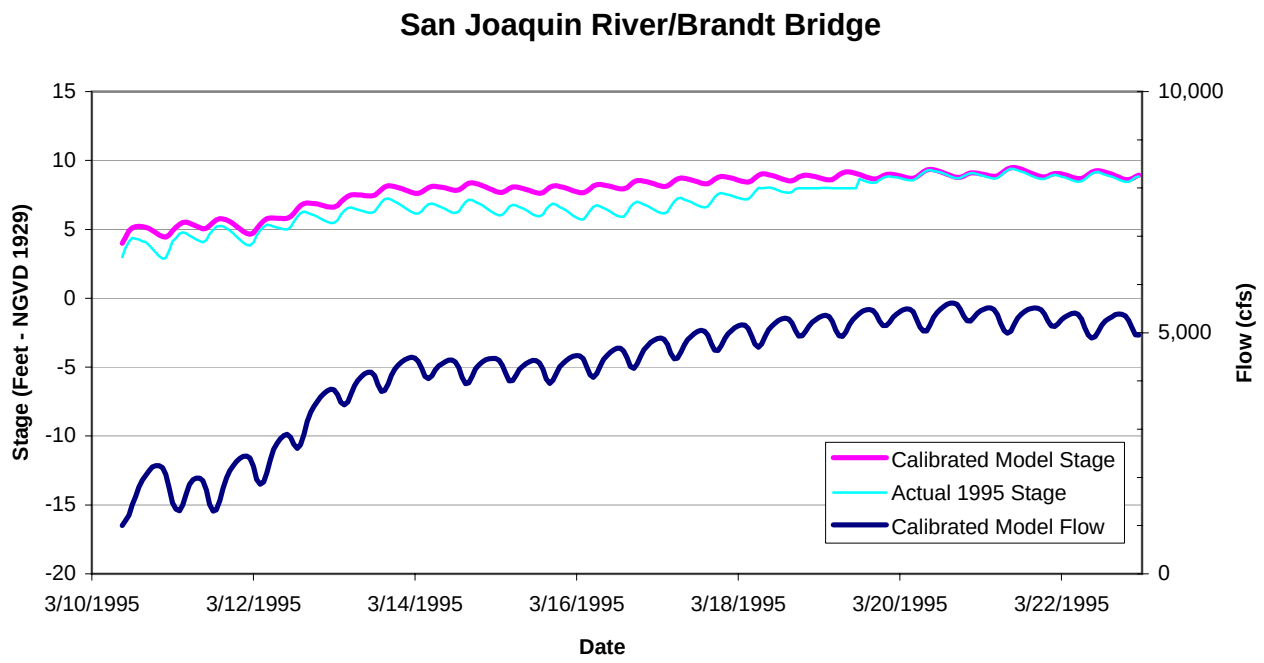


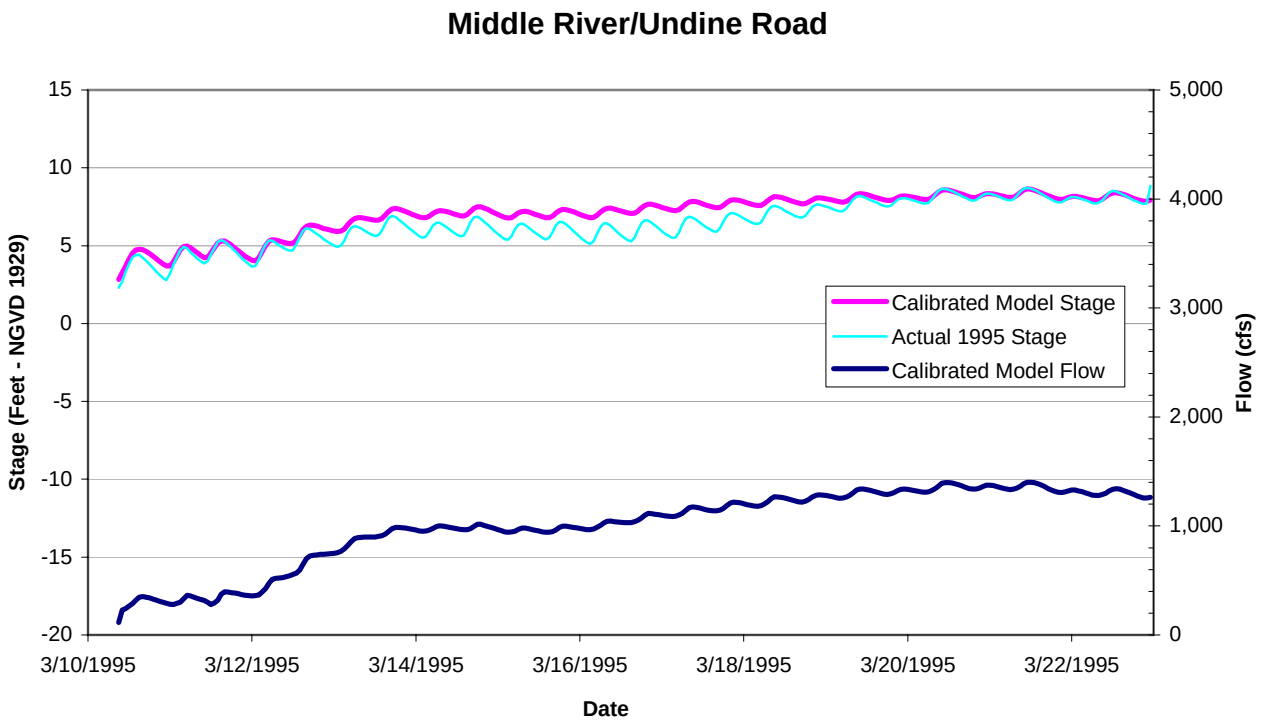


Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 44
Calibration: Modeled vs. Actual Hydrographs for San Joaquin Basin

US Army Corps of Engineers
The Reclamation Board, State of California October 2002

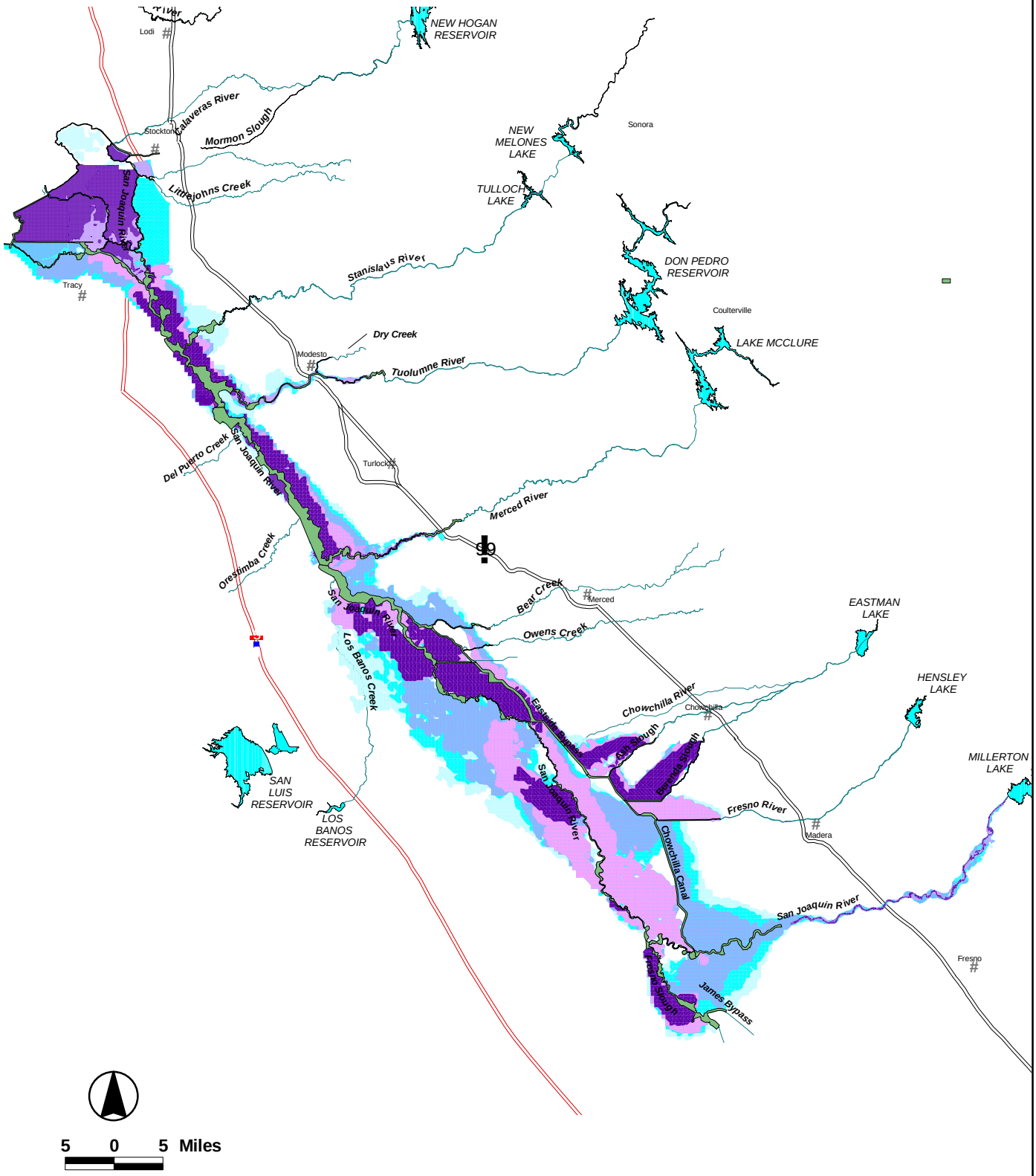




Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 45
Calibration: Modeled vs. Actual Hydrographs for San Joaquin Basin

US Army Corps of Engineers
The Reclamation Board, State of California October 2002



Legend

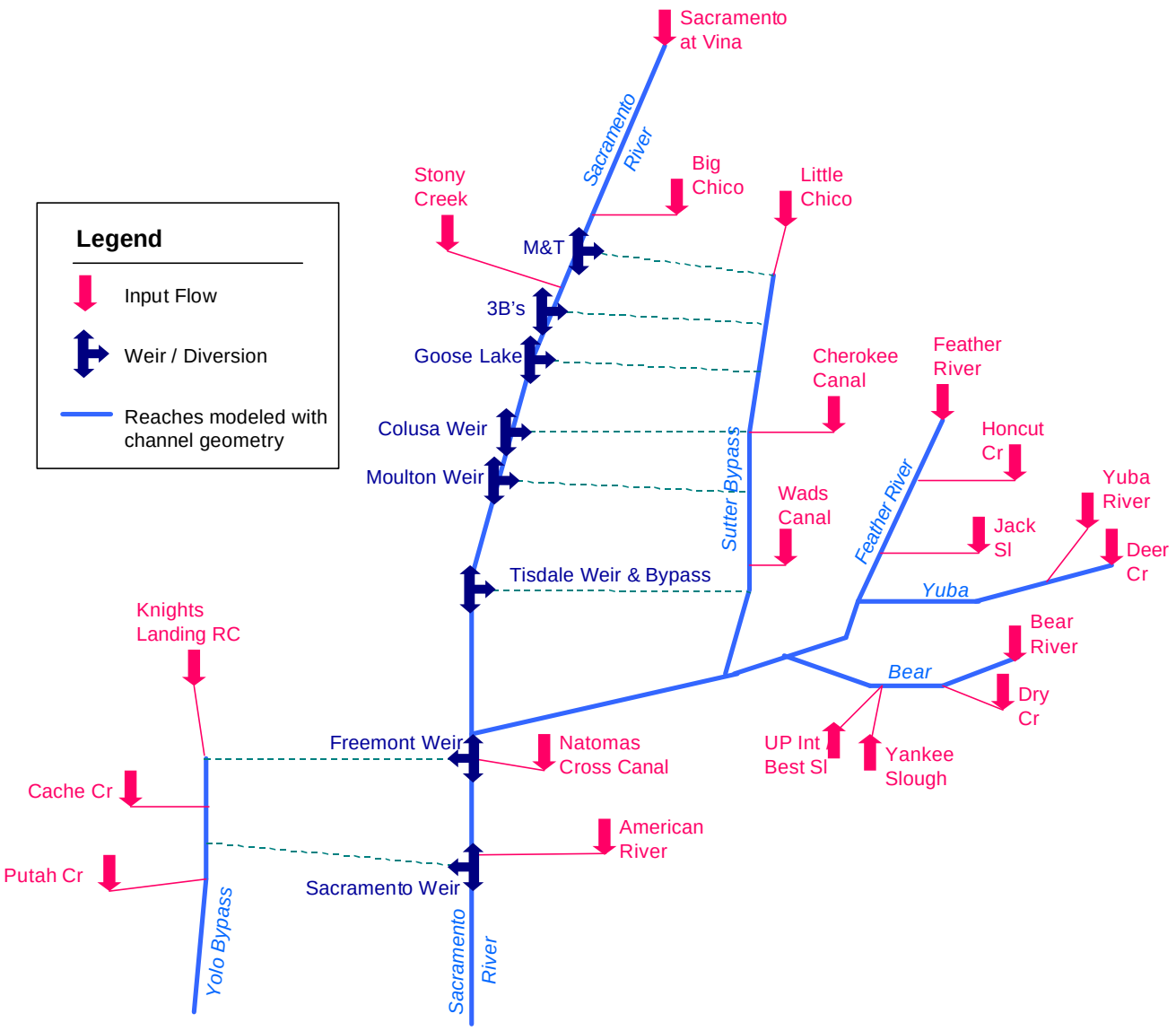
- 10-Year Floodplain
- 50-Year Floodplain
- 100-Year Floodplain
- 200-Year Floodplain
- 500-Year Floodplain

Note: Composite floodplains shown do not include operational effects of headwaters reservoirs (storage facilities upstream of the major flood control reservoirs).

Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 47
San Joaquin River Basin
Floodplain Delineations

U.S. Army Corps of Engineers
Reclamation Board, State of California October 2001



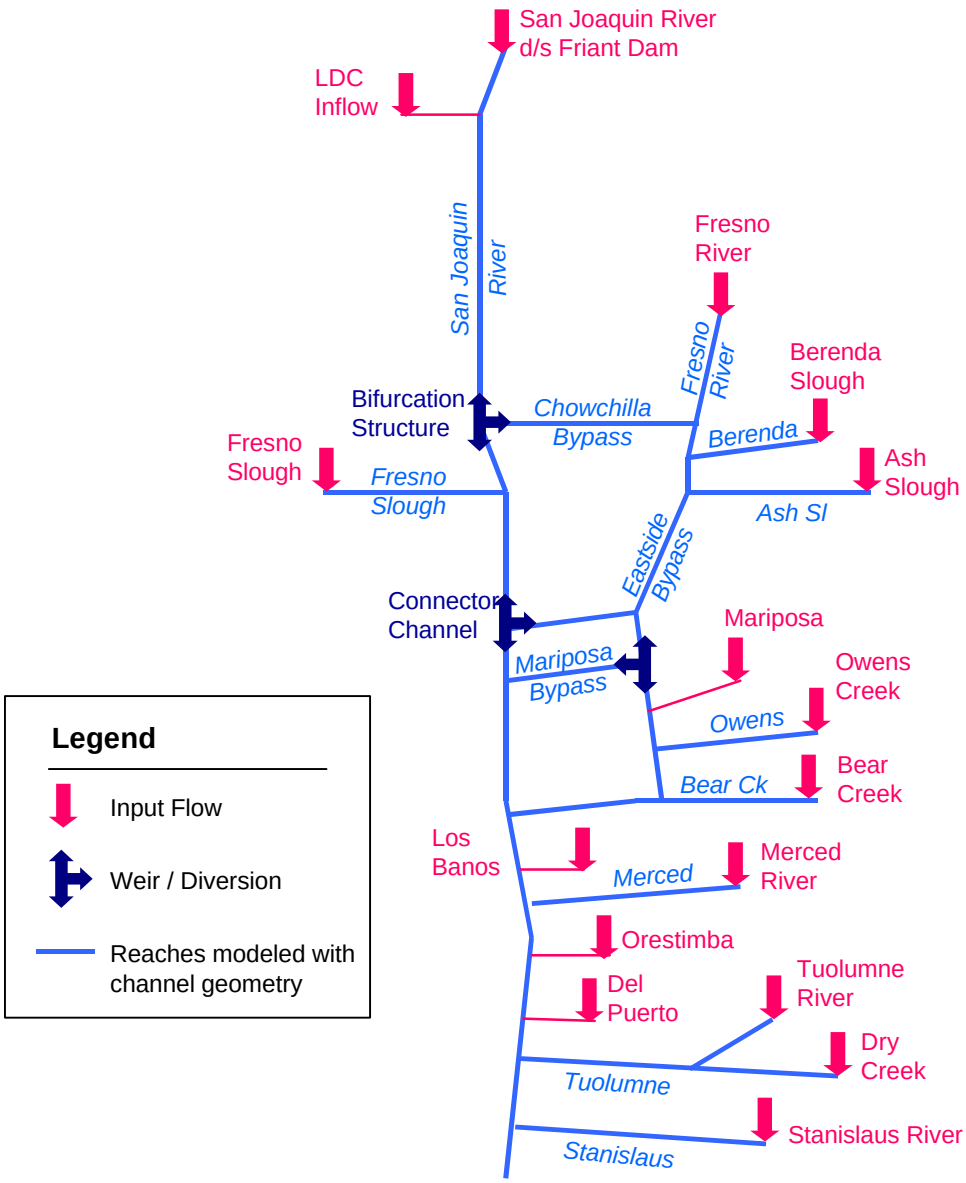
Not to scale.

Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 47
Sacramento River Basin
HEC-HMS Model Schematic

US Army Corps of Engineers
The Reclamation Board, State of California

June 2002



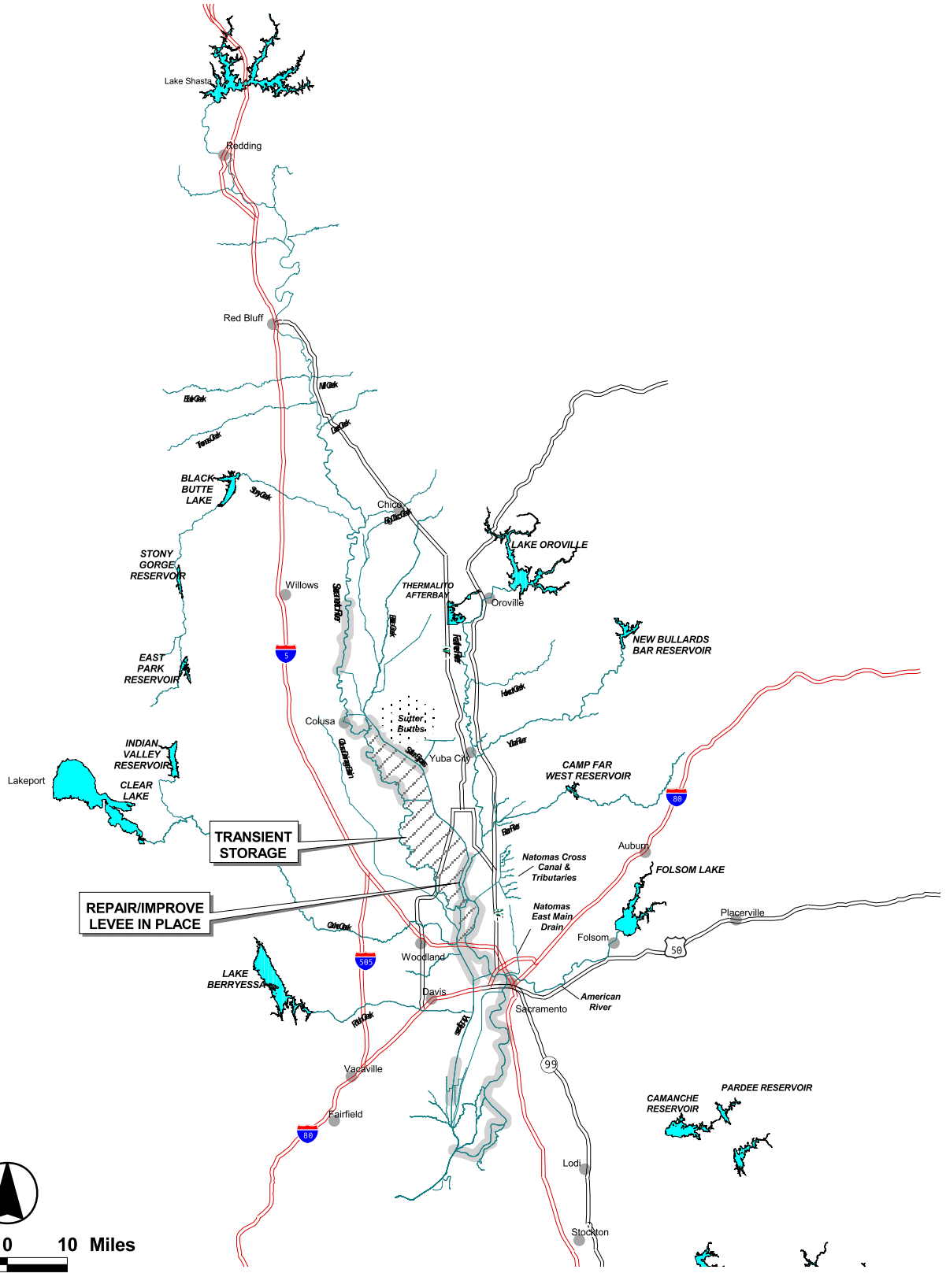
Not to scale.

Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 48
San Joaquin River Basin
HEC-HMS Model Schematic

US Army Corps of Engineers
The Reclamation Board, State of California

June 2002



Legend

Transient Storage

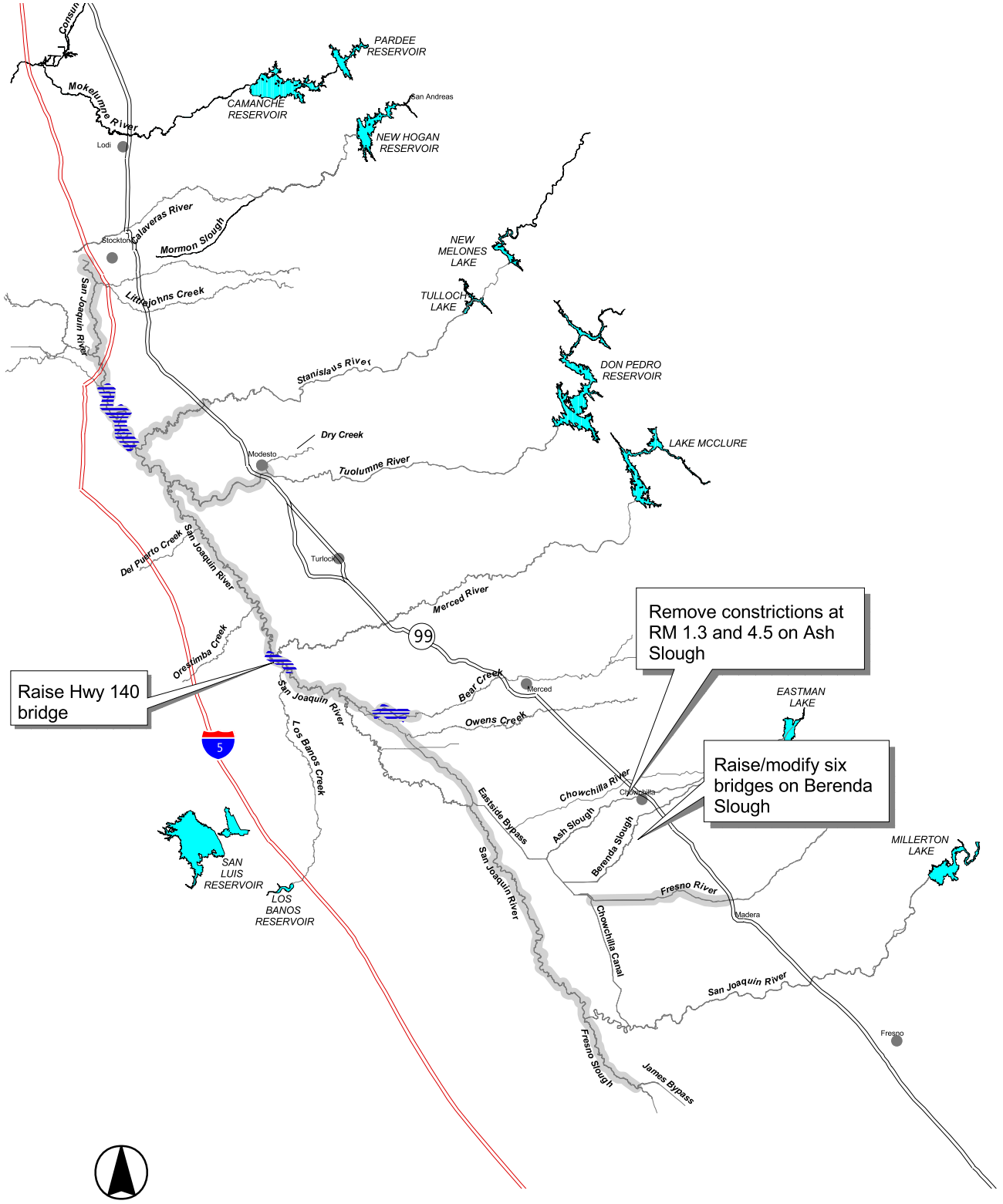
Repair/Replace Levee in Place

Sacramento & San Joaquin River Basins Comprehensive Study

Plate 49

Sacramento River Basin
Concept 1

U.S. Army Corps of Engineers
Reclamation Board, State of California June 2002



Legend

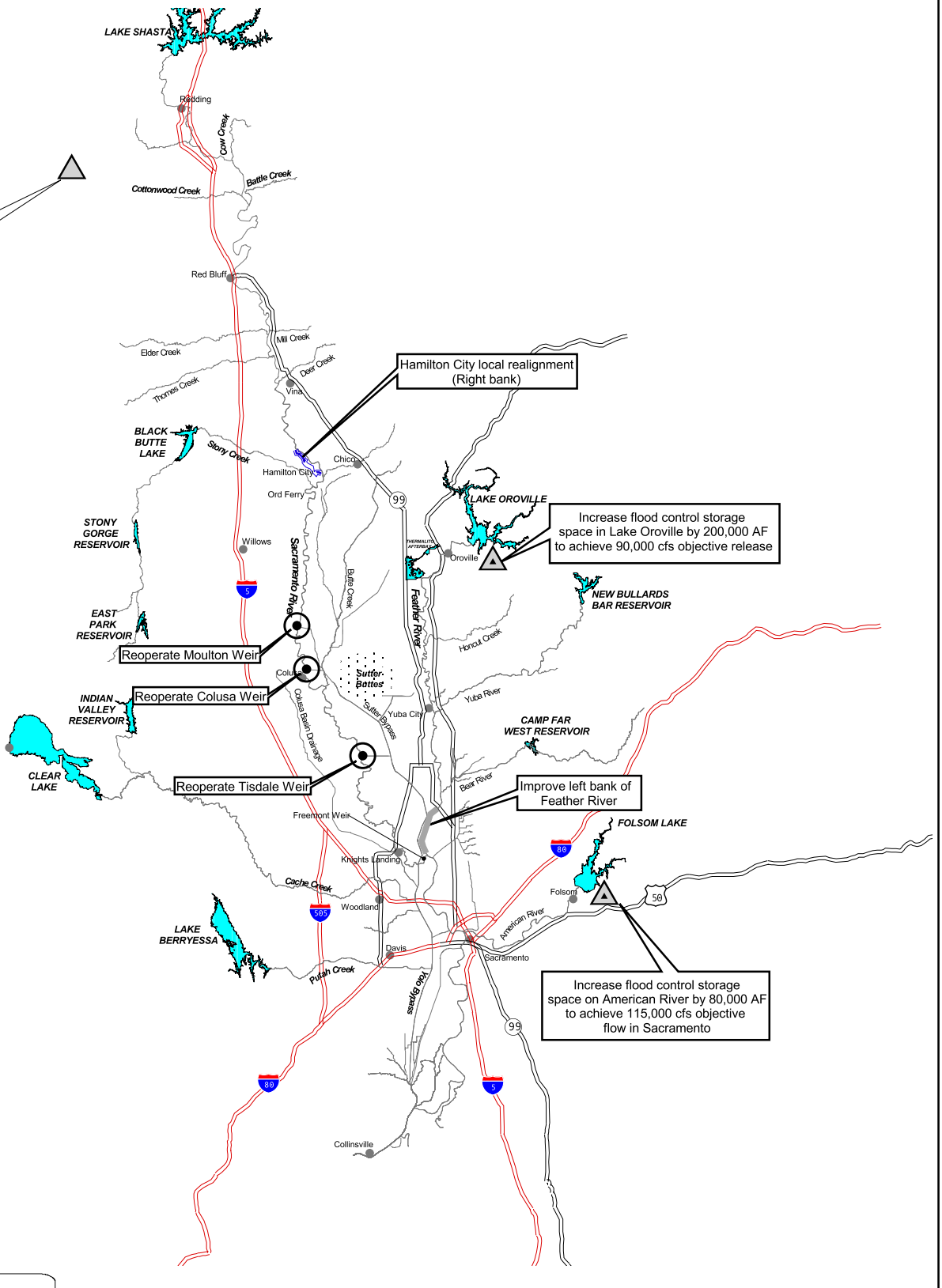
Area of Levee Realgnment

Repair/improve levees in place

Sacramento & San Joaquin River Basins Comprehensive Study

Plate 50
San Joaquin River Basin
Concept 1

U.S. Army Corps of Engineers
Reclamation Board, State of California June 2002

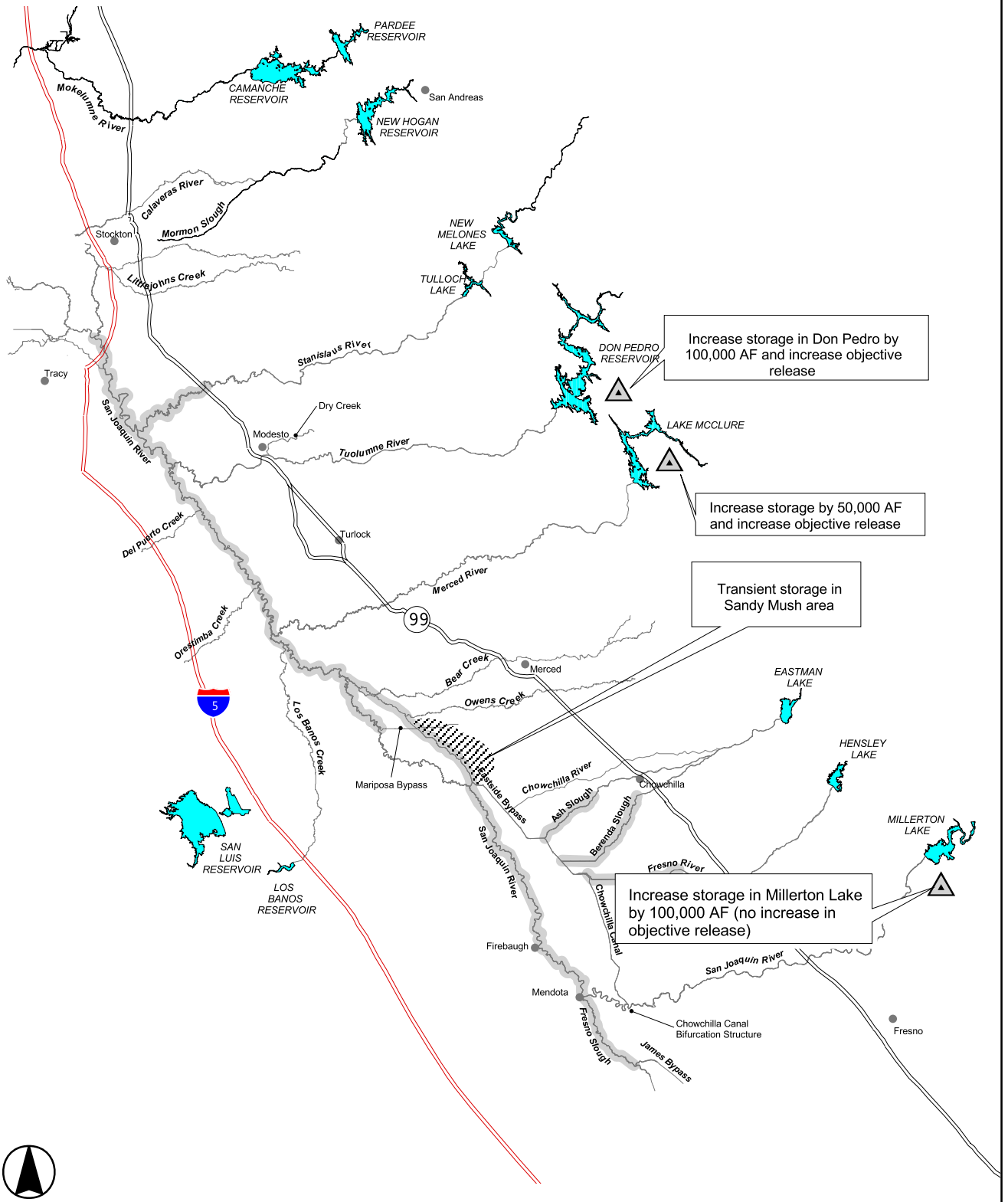


Sacramento & San Joaquin River Basins Comprehensive Study

Plate 51

Sacramento River Basin Concept 2

U.S. Army Corps of Engineers
Reclamation Board, State of California June 2002



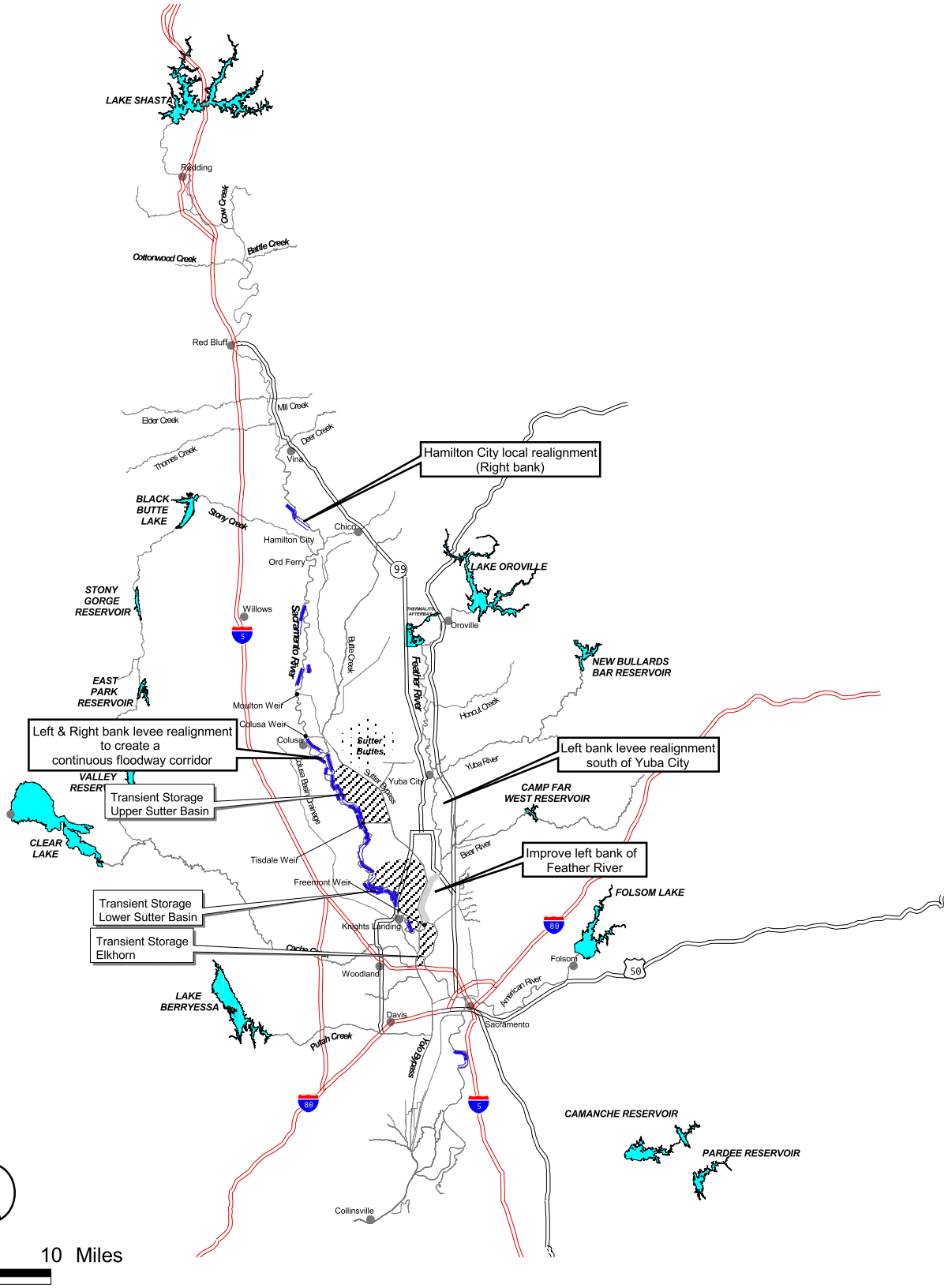
Legend

- Transient storage in floodplain
- Increase existing upstream storage
- Repair/improve levees in place

Sacramento & San Joaquin River Basins Comprehensive Study

Plate 52
San Joaquin River Basin
Concept 2

U.S. Army Corps of Engineers
Reclamation Board, State of California June 2002

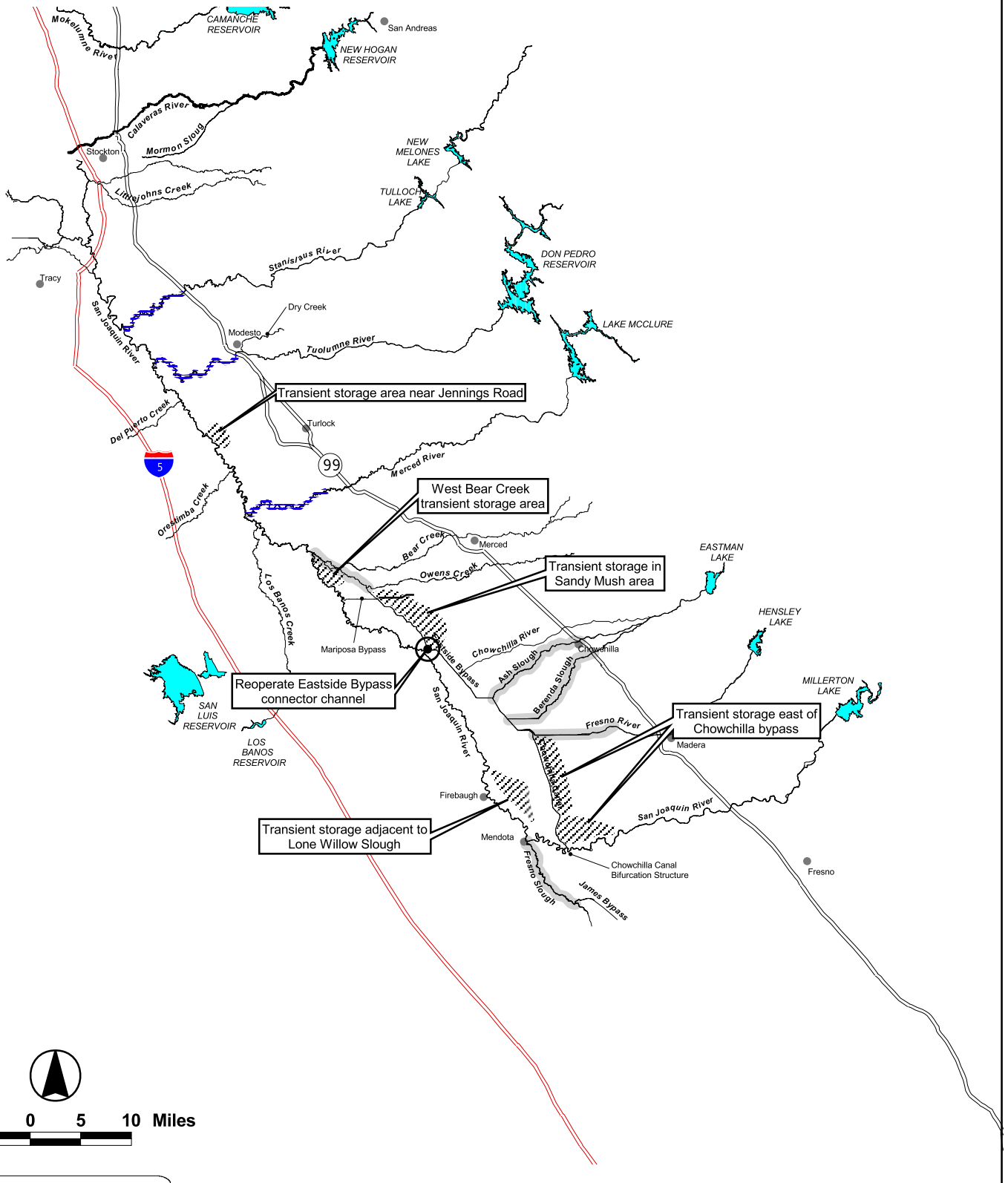


Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 53

Sacramento River Basin
Concept 3

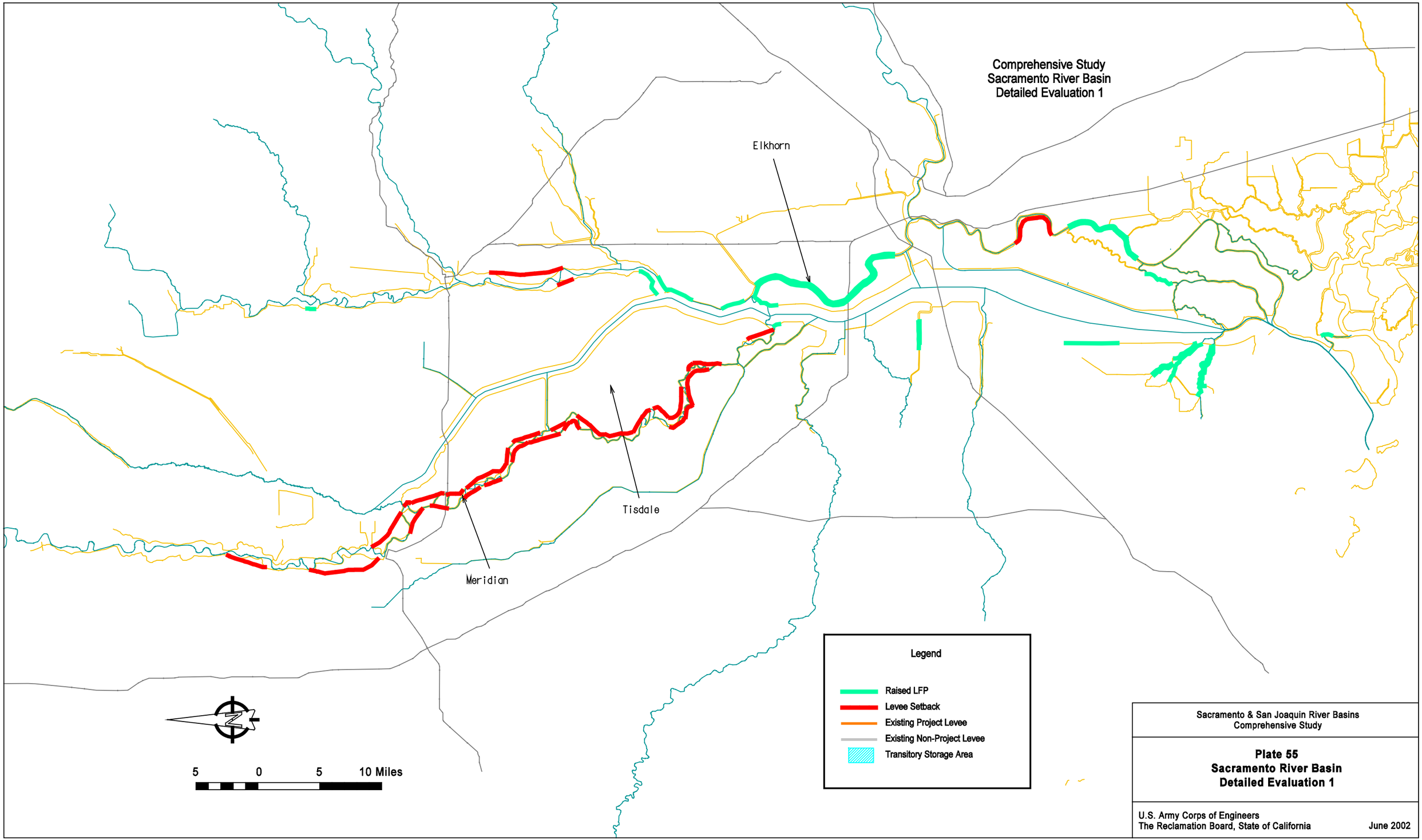
U.S. Army Corps of Engineers
Reclamation Board, State of California June 2002



Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 54
San Joaquin River Basin
Concept 3

U.S. Army Corps of Engineers
Reclamation Board, State of California June 2002



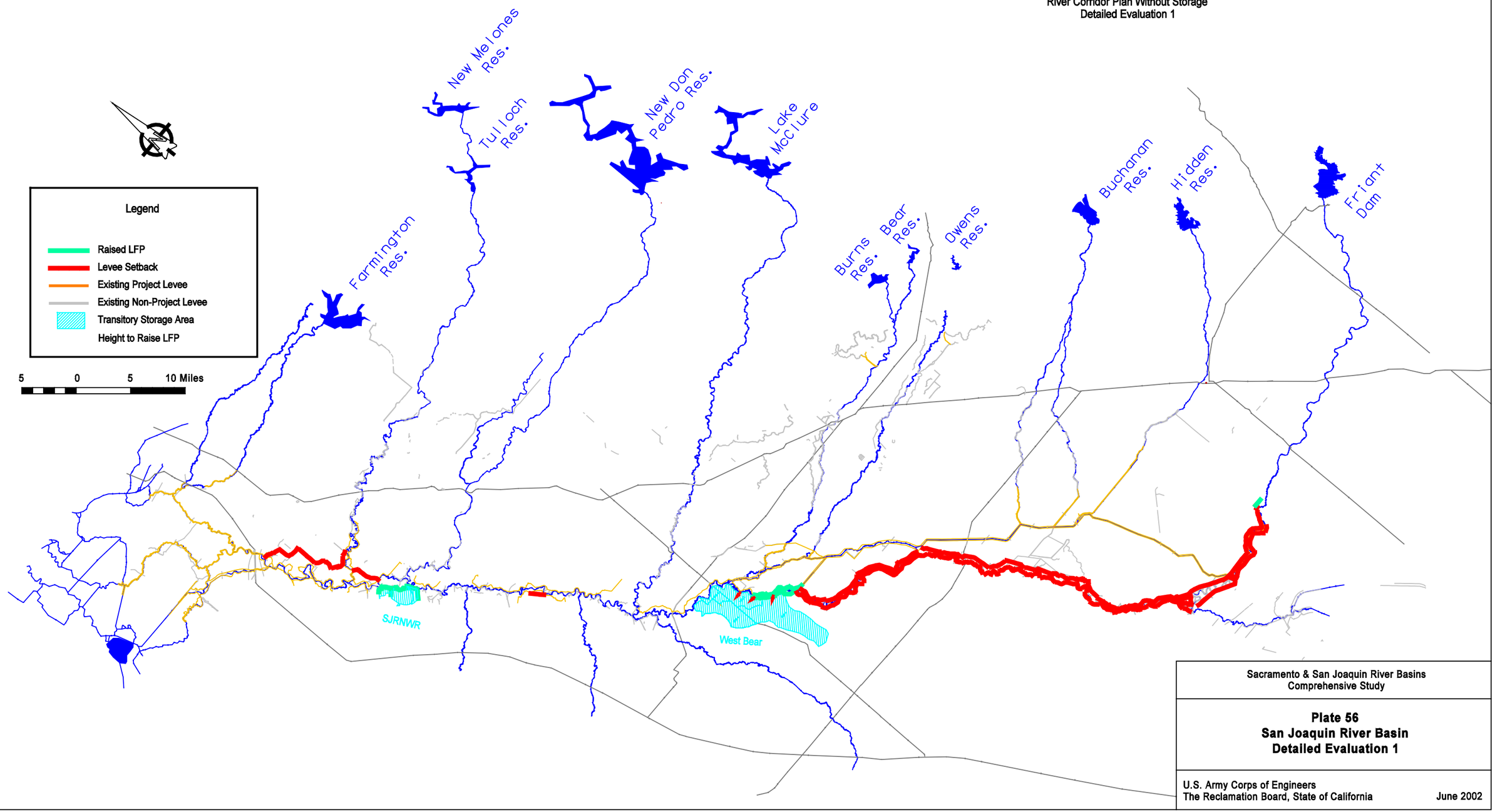
Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 55
Sacramento River Basin
Detailed Evaluation 1

U.S. Army Corps of Engineers
The Reclamation Board, State of California

June 2002

Comprehensive Study
San Joaquin River Basin
River Corridor Plan Without Storage
Detailed Evaluation 1

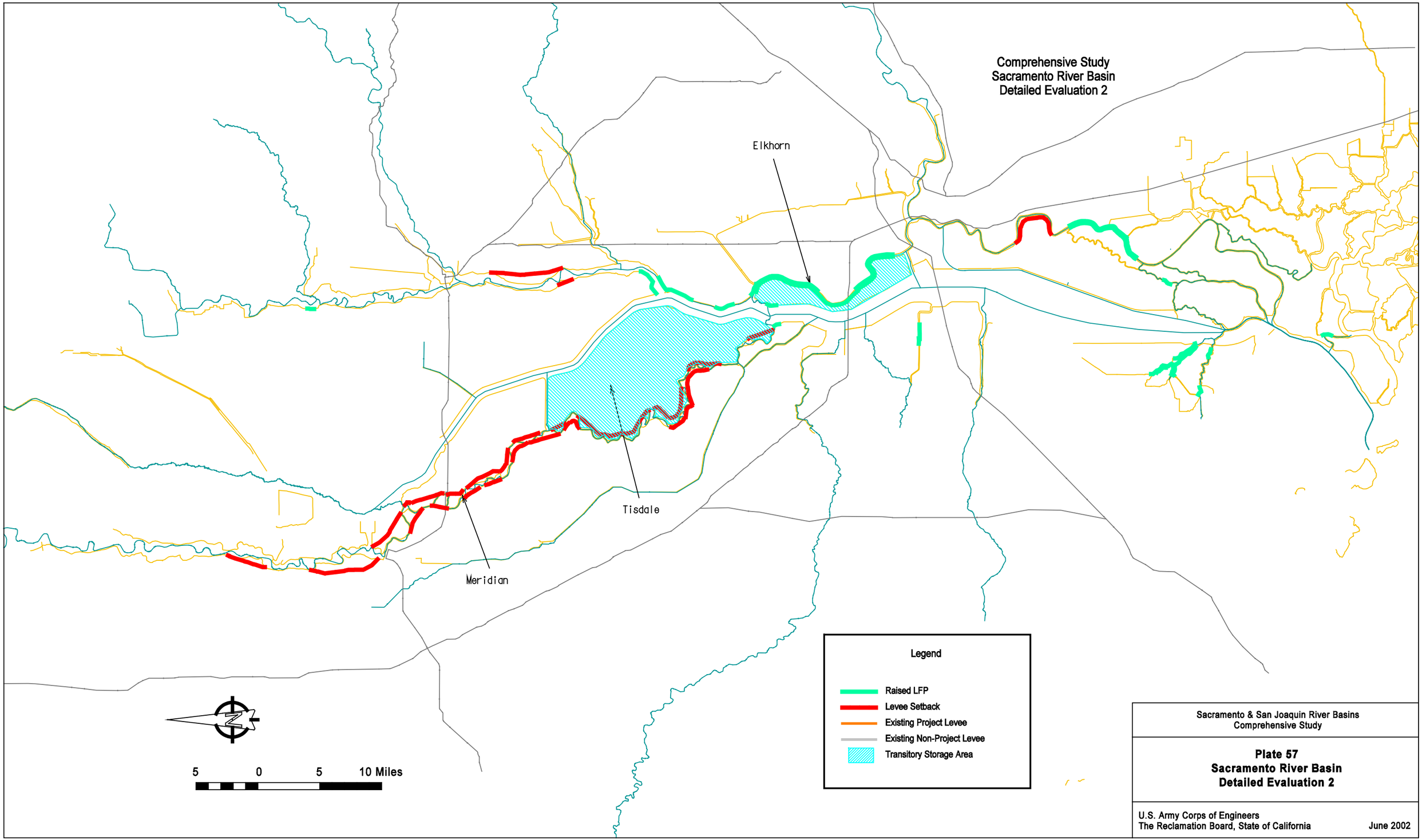


Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 56
San Joaquin River Basin
Detailed Evaluation 1

U.S. Army Corps of Engineers
The Reclamation Board, State of California

June 2002



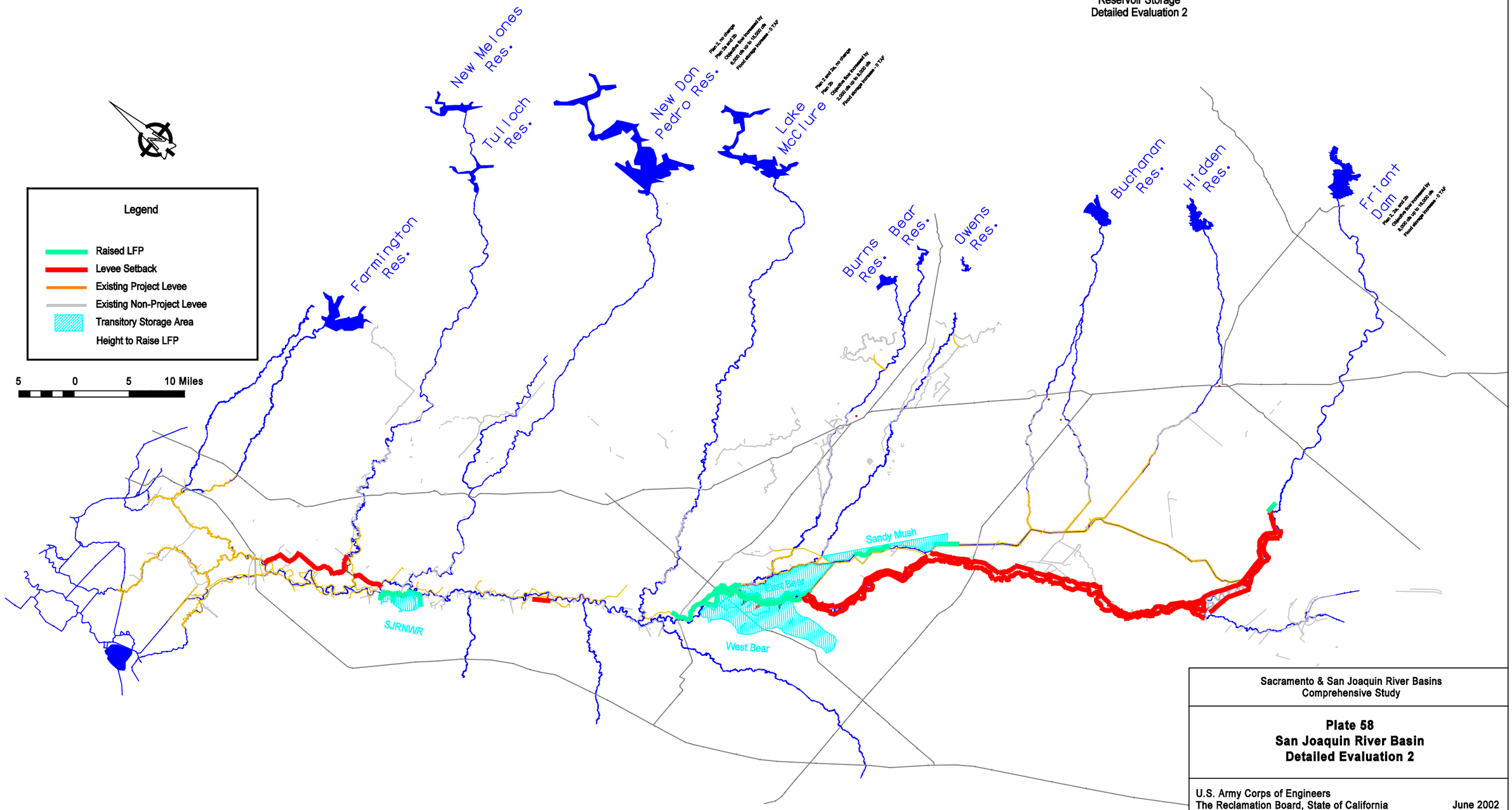
Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 57
Sacramento River Basin
Detailed Evaluation 2

U.S. Army Corps of Engineers
The Reclamation Board, State of California

June 2002

Comprehensive Study
San Joaquin River Basin
River Corridor Plan With Transitory and
Reservoir Storage
Detailed Evaluation 2

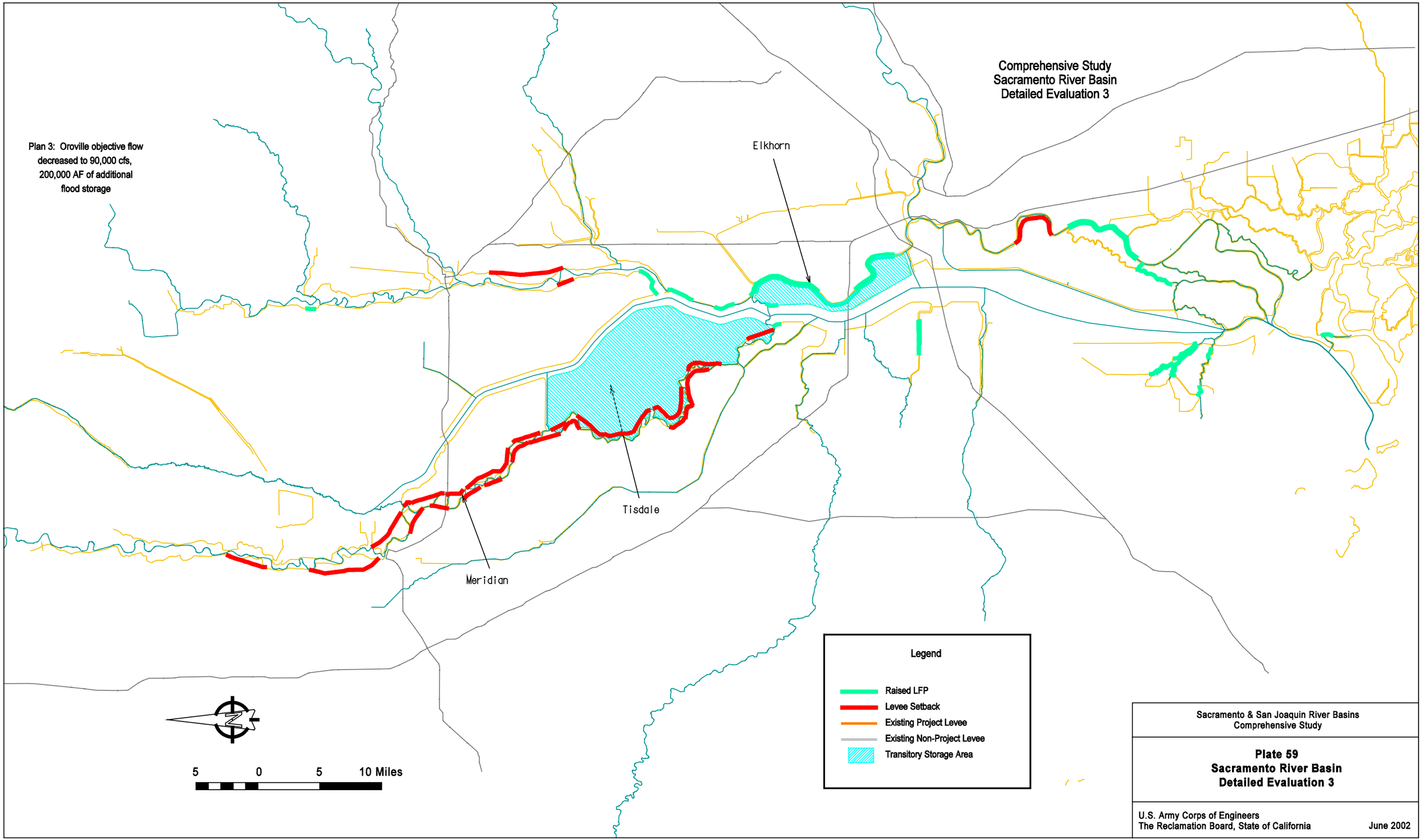


Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 58
San Joaquin River Basin
Detailed Evaluation 2

U.S. Army Corps of Engineers
The Reclamation Board, State of California

June 2002



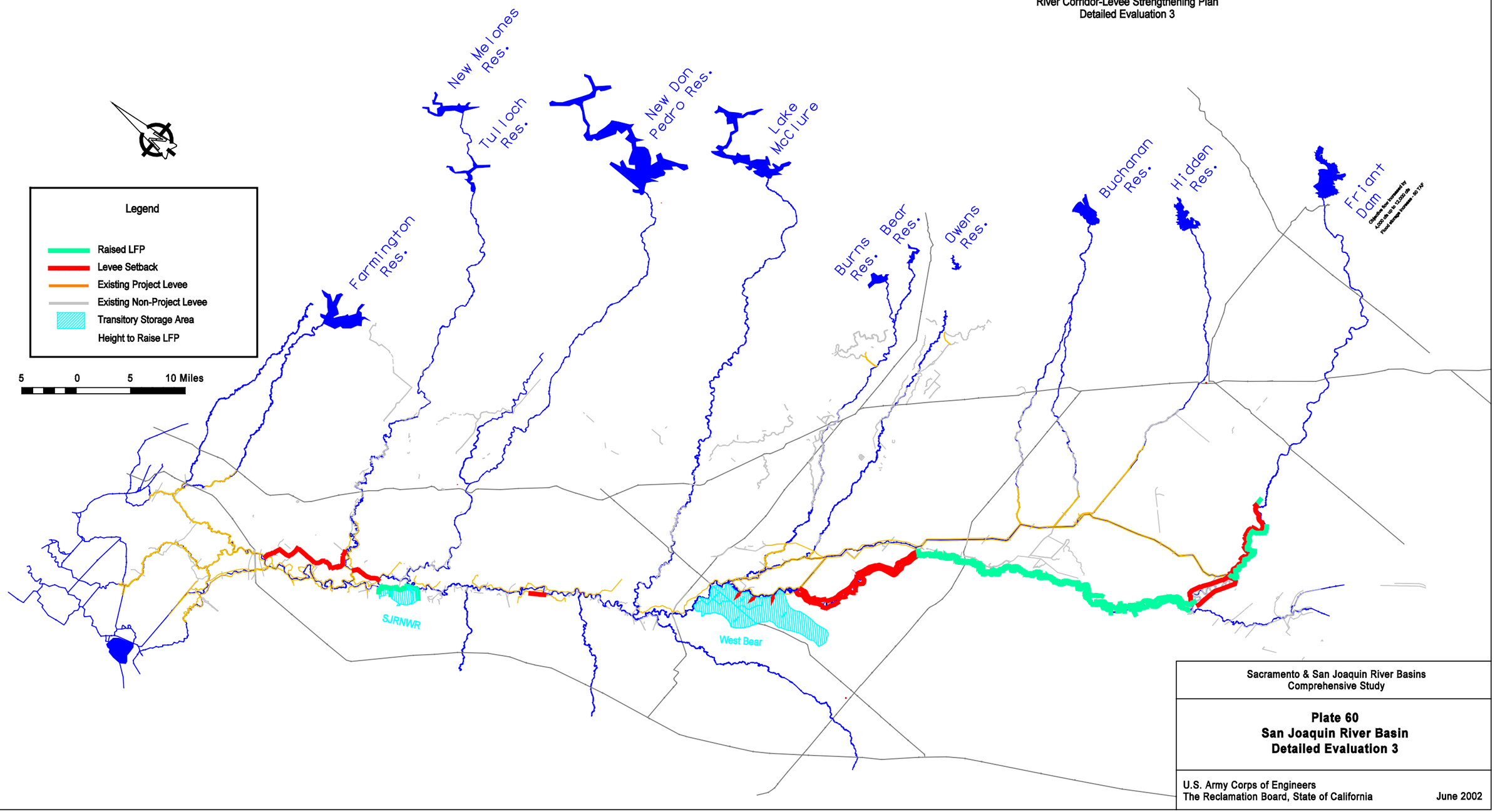
Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 59
Sacramento River Basin
Detailed Evaluation 3

U.S. Army Corps of Engineers
The Reclamation Board, State of California

June 2002

Comprehensive Study
San Joaquin River Basin
River Corridor-Levee Strengthening Plan
Detailed Evaluation 3



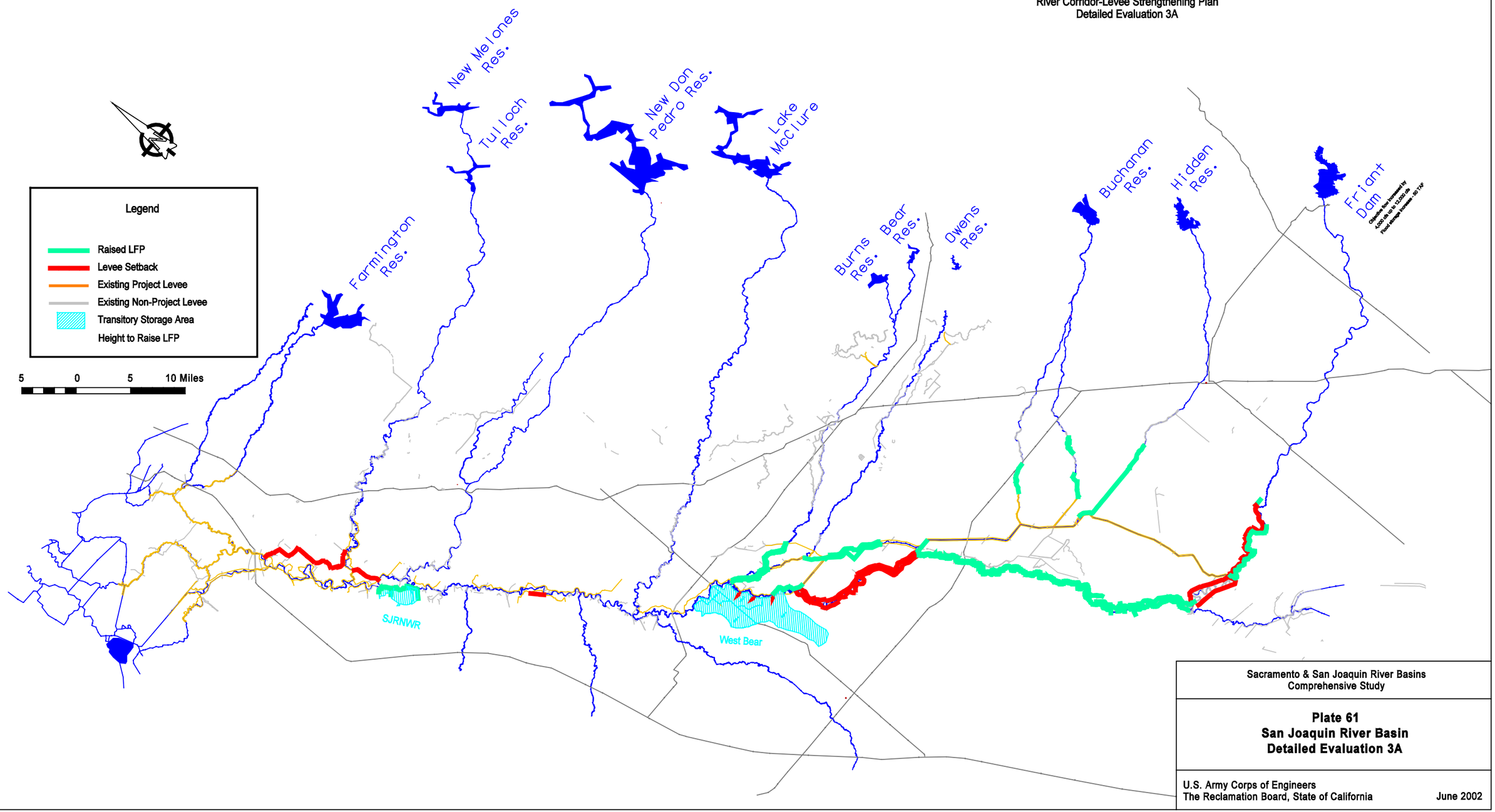
Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 60
San Joaquin River Basin
Detailed Evaluation 3

U.S. Army Corps of Engineers
The Reclamation Board, State of California

June 2002

Comprehensive Study
San Joaquin River Basin
River Corridor-Levee Strengthening Plan
Detailed Evaluation 3A



Sacramento & San Joaquin River Basins
Comprehensive Study

Plate 61
San Joaquin River Basin
Detailed Evaluation 3A

U.S. Army Corps of Engineers
The Reclamation Board, State of California

June 2002