



Yolo Bypass Widening into the Elkhorn Basin: A Multi-Benefit Opportunity for Floodplain Habitat, Flood Relief and Fish Passage

SRF 2015

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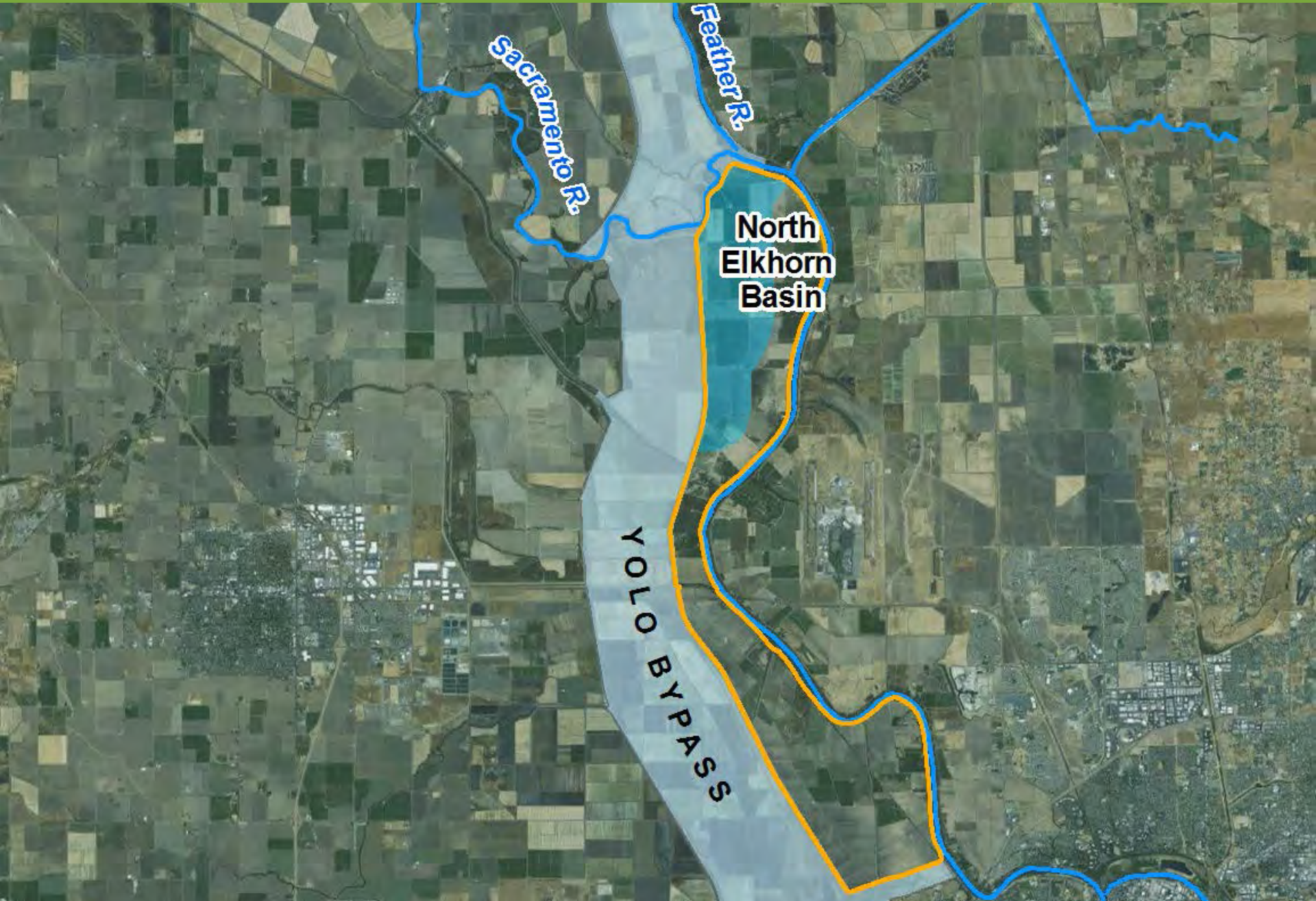
Chris Campbell, MS



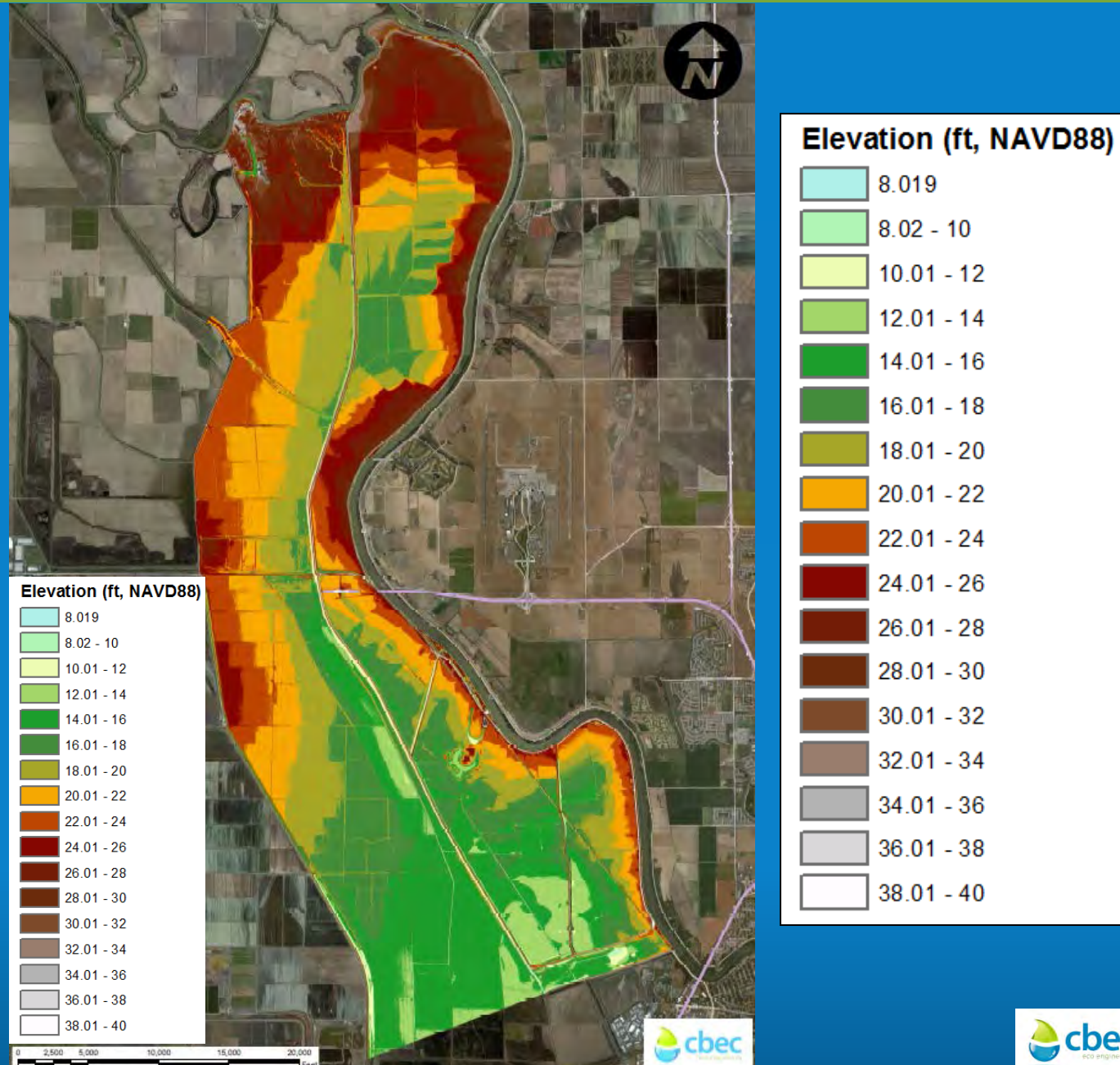
Acknowledgements

- DWR
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- Yolo County
- Knaggs Ranch
- CalTrout
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- MBK Engineers
- American Rivers
- Douglas Environmental
- AECOM
- ICF International
- Sacramento County
- Mick Klasson
- 2014 BiOp Hydrodynamic Modeling
- 2014 SAFCA Hydrodynamic Modeling

Elkhorn Basin Site Location

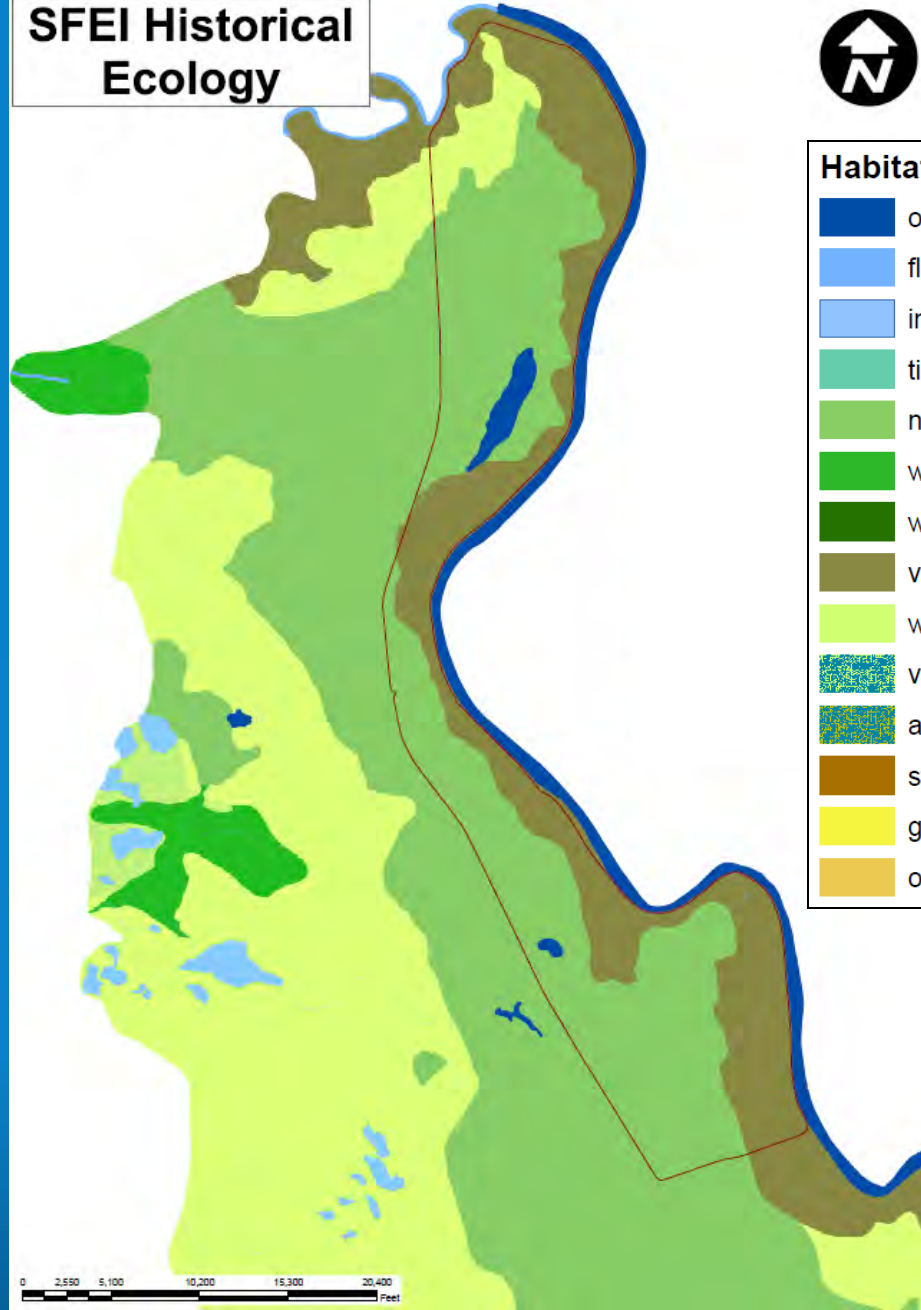


Elkhorn Basin and Yolo Bypass Topography



Elkhorn Basin Historical Habitat

SFEI Historical Ecology



Habitat_Type

- open water
- fluvial open water
- intermittent pond/lake
- tidal freshwater emergent wetland
- non-tidal freshwater emergent wetland
- willow thicket
- willow riparian scrub/shrub
- valley foothill riparian
- wet meadow/seasonal wetland
- vernal pool complex
- alkali seasonal wetland complex
- stabilized interior dune vegetation
- grassland
- oak woodland/savanna

0 2,550 5,100 10,200 15,300 20,400 Feet

Site Overview



Site Overview



View South from Fremont Landing



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Orchards on Eastern Side of Northern Elkhorn Basin



Photo by Mick Klasson

Mitigation Site



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Elkhorn Basin and Yolo Bypass Land Ownership

Land Ownership



Land Owners

- Other
- AJK Farms LLC
- Conoway Ranch Preservation Group, LLC
- Heer Pistachio Farms Inc.
- Knaggs Ranch LLC
- Lang Fam Partnership
- Riparian Ranch LLC
- Sacramento River Ranch LLC
- Sacramento Valley Conservancy
- Siddiqui Family Partnership
- Stanley Trust
- Te Velde Trust
- Woodland Development Co. LLC
- Yolo Land Trust

Benefits of Yolo Bypass Expansion into Elkhorn

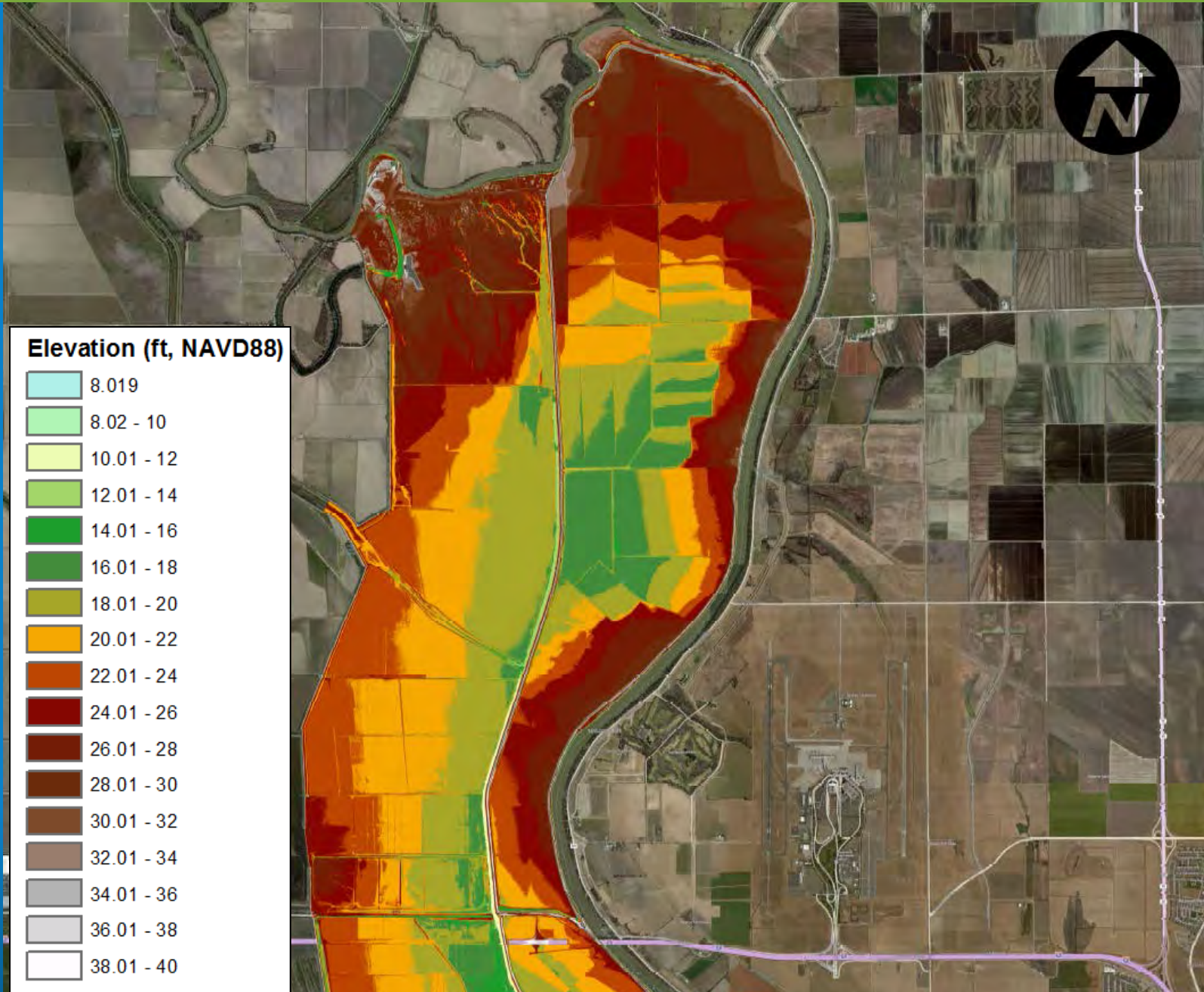
- Floodplain habitat creation
 - Increased acreage of juvenile salmonid rearing habitat
 - Increased duration and improved timing of inundation
- Flood relief
 - Decreased peak flood stage at Verona and reduced backwater effects on Natomas Cross Canal tributaries
 - Decreased peak flood stages along Sacramento River further downstream (Sacramento metro area)
- Fish passage
 - Improved upstream passage for sturgeon and salmonids

Elkhorn Basin Site Constraints

- Existing land use
 - Agriculture
 - Orchards
 - Annual crops
 - Agricultural structures
 - Residences
 - Mitigation banks
- Project compatibility with agriculture
- Existing levee under-seepage
- Discharges into Yolo Bypass



Elkhorn Basin and Yolo Bypass Topography



Elevation (ft, NAVD88)

8.019
8.02 - 10
10.01 - 12
12.01 - 14
14.01 - 16
16.01 - 18
18.01 - 20
20.01 - 22
22.01 - 24
24.01 - 26
26.01 - 28
28.01 - 30
30.01 - 32
32.01 - 34
34.01 - 36
36.01 - 38
38.01 - 40

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Elkhorn Concept Development

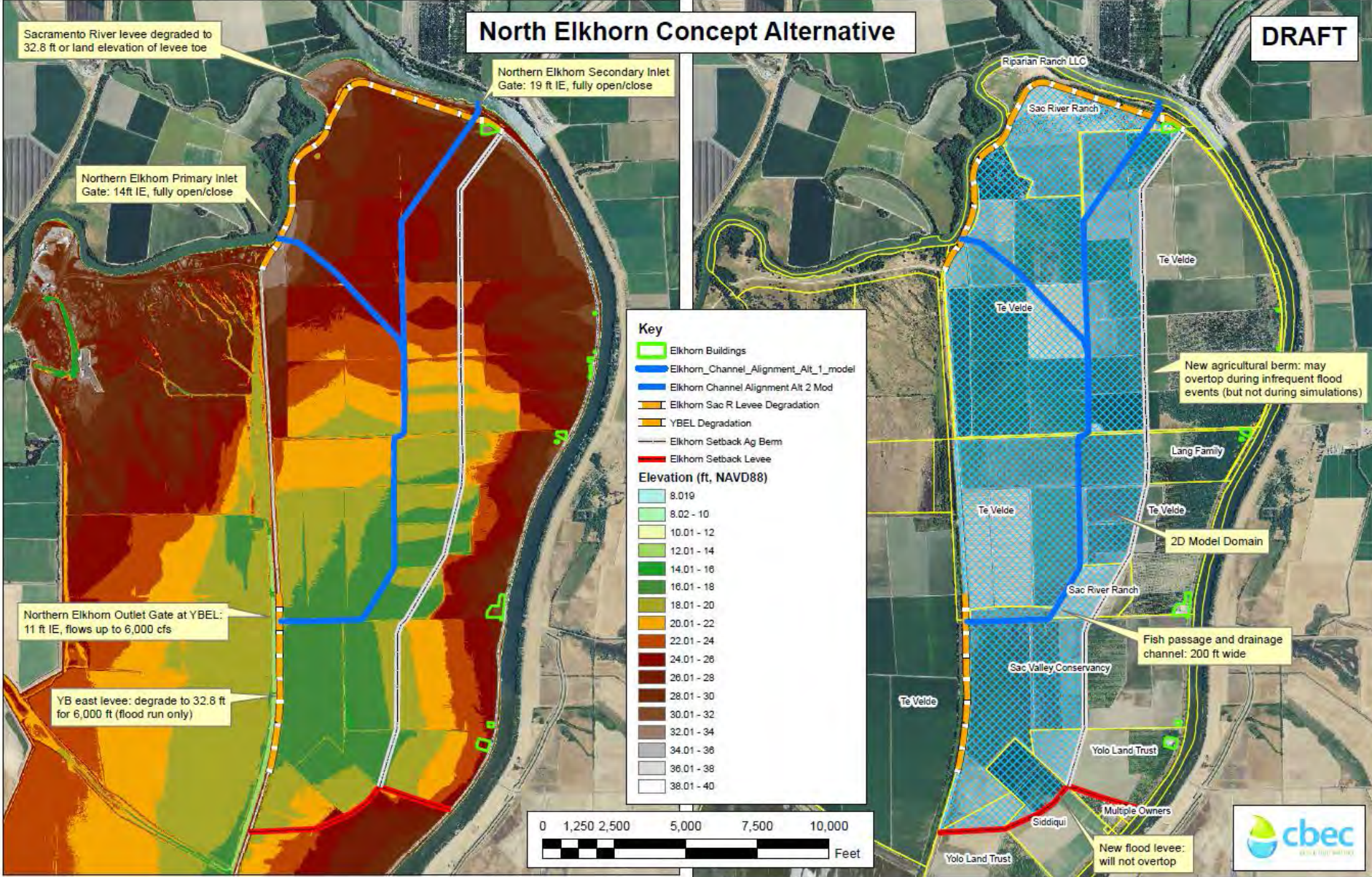
- Site visits
- Hydrologic and hydraulic analyses
- Concept-development charrette
- TAC meetings
- Meetings with landowners
- Hydrodynamic modeling



Initial Elkhorn Conceptual Design

DRAFT

North Elkhorn Concept Alternative



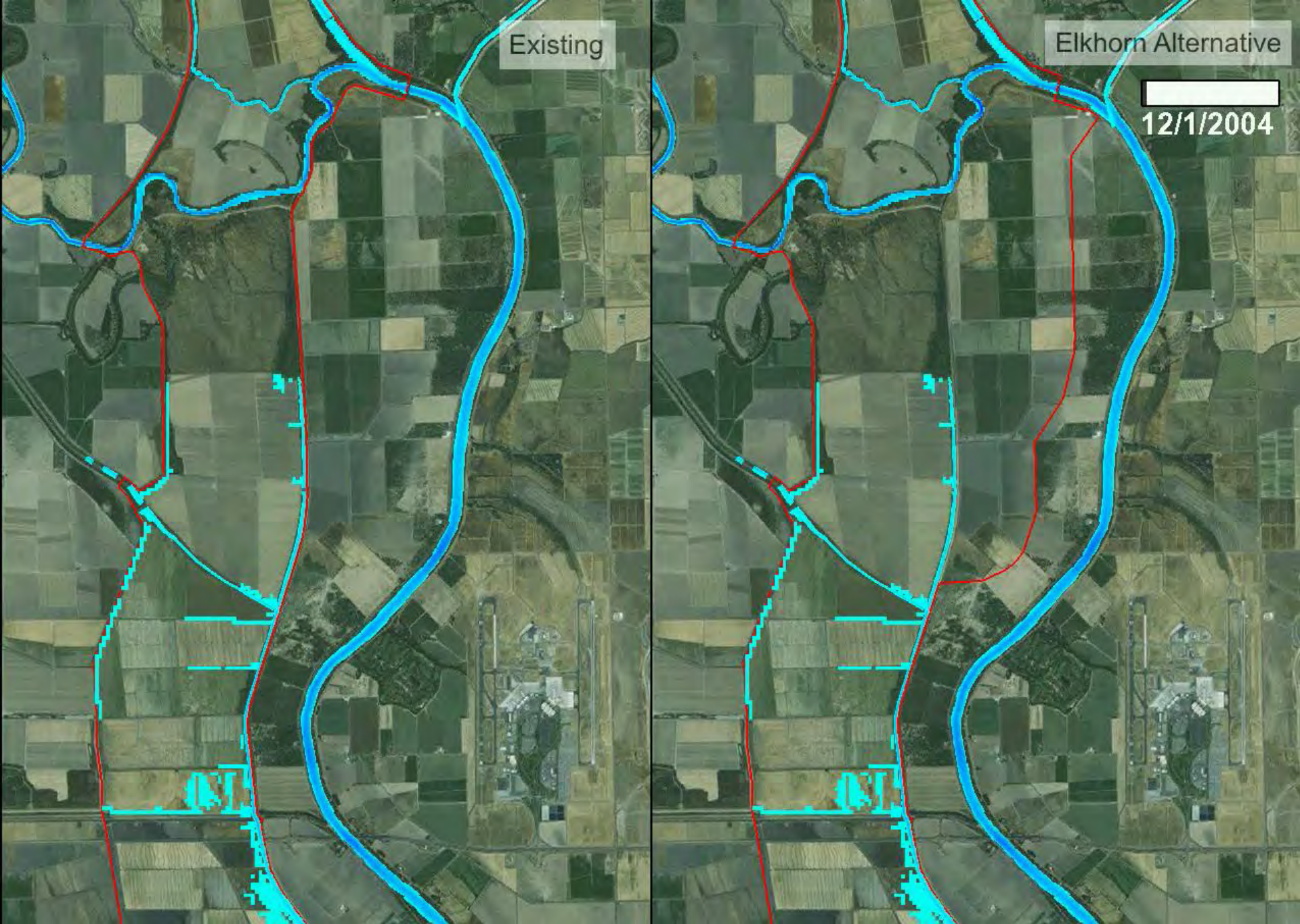
Model Animations

- Animations for the following years:
 - WY 2005 (wet conditions)
 - WY 2007 (dry conditions)

Existing

Elkhorn Alternative

12/1/2004

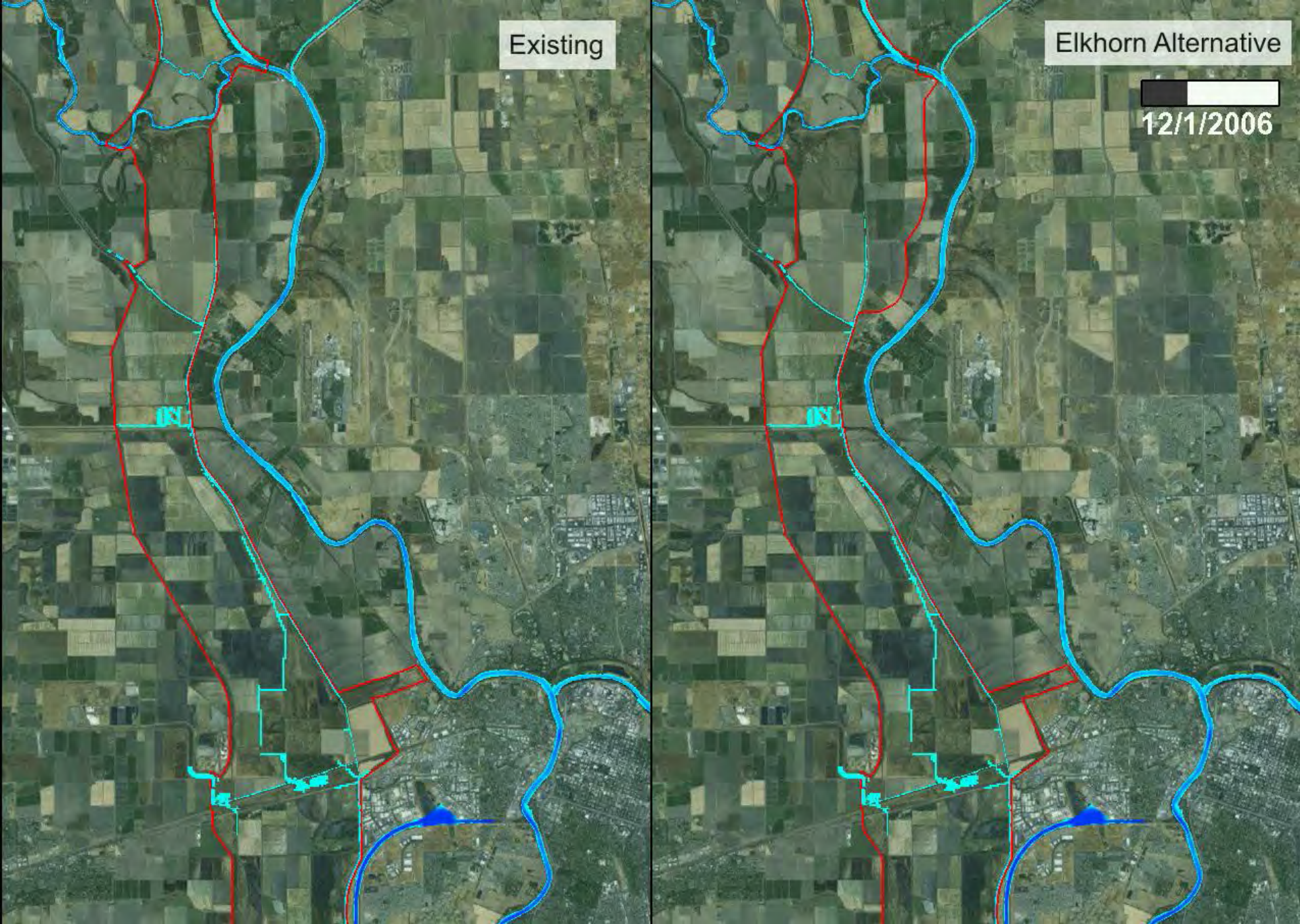


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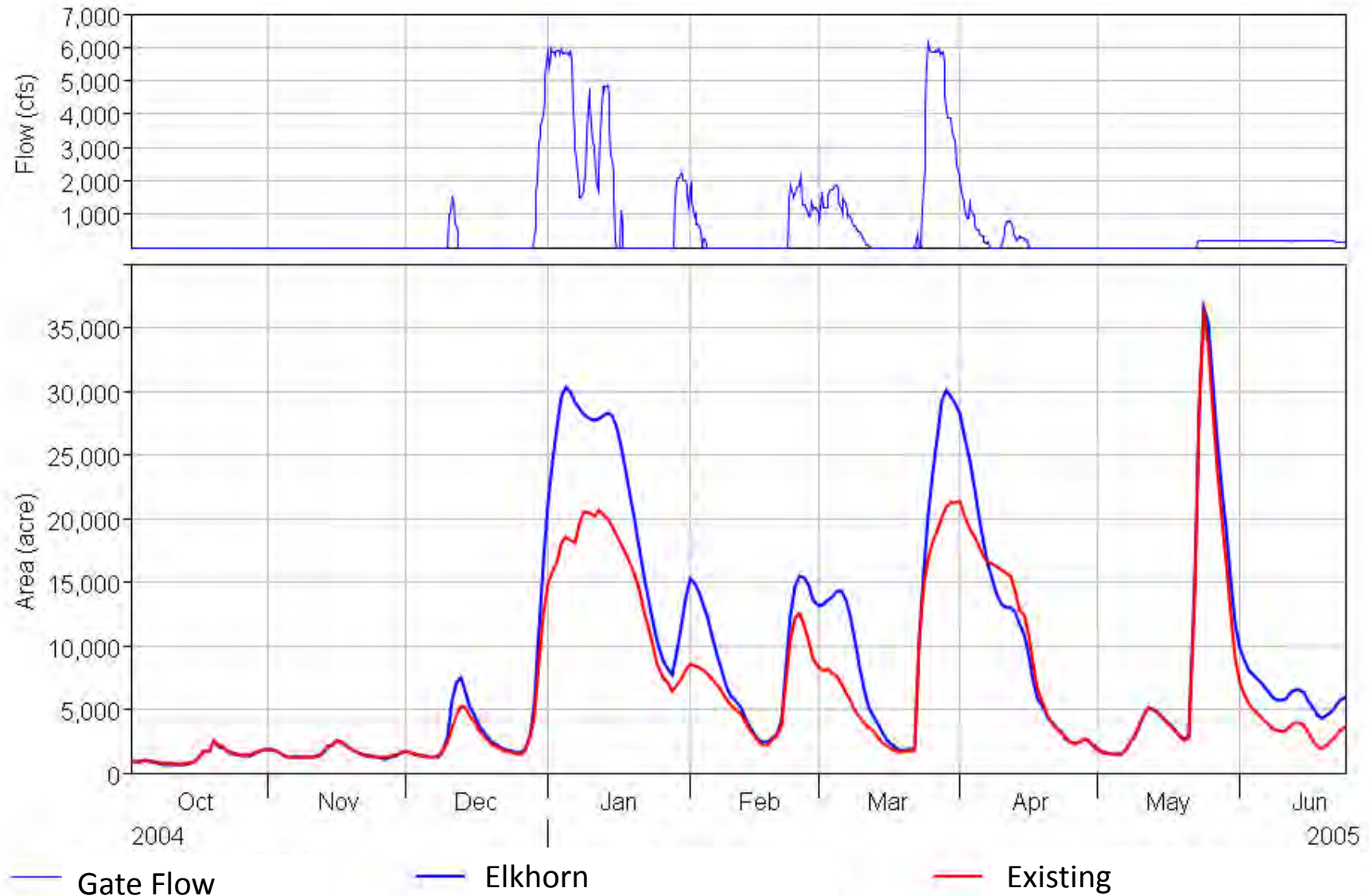
Existing

Elkhorn Alternative

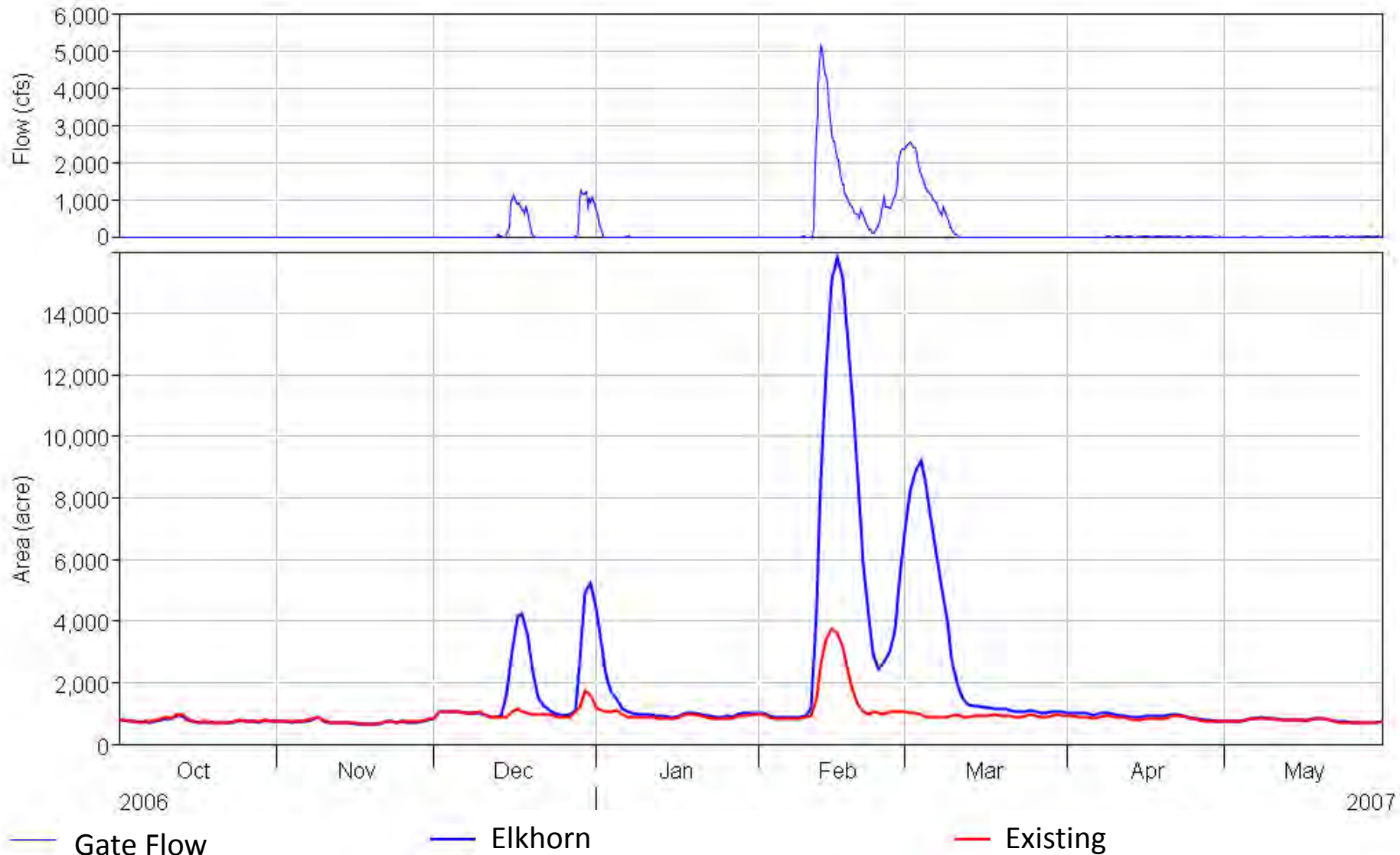
12/1/2006



Wetted Acres Comparison – 2005 (Wet Conditions)



Wetted Acres Comparison – 2007 (Dry Conditions)



Summary of Preliminary Results

- Floodplain habitat generation
 - Elkhorn could offer a highly connected floodplain area
 - Site management could provide greater late season inundation
- Flood relief
 - WS elevations at Verona reduced by more than 2 ft during the 1997 flood
 - Greater reductions when coupled with other Bypass improvements
- Likelihood for phasing habitat improvements and flood relief improvements at Elkhorn

Thank You



Questions?

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