

Brett Milligan

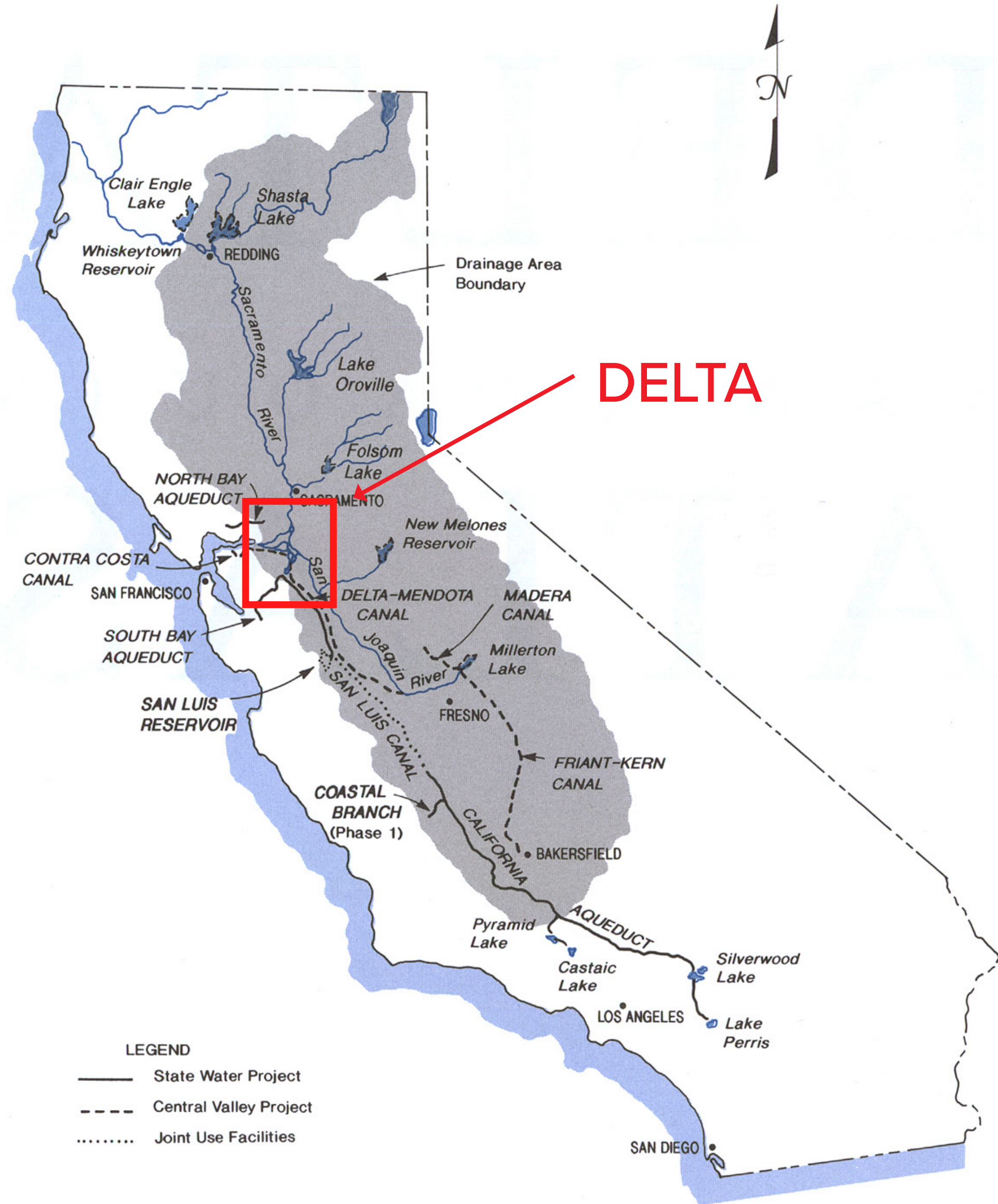
Professor, Department of Human Ecology

Director, Metamorphic Landscapes Lab

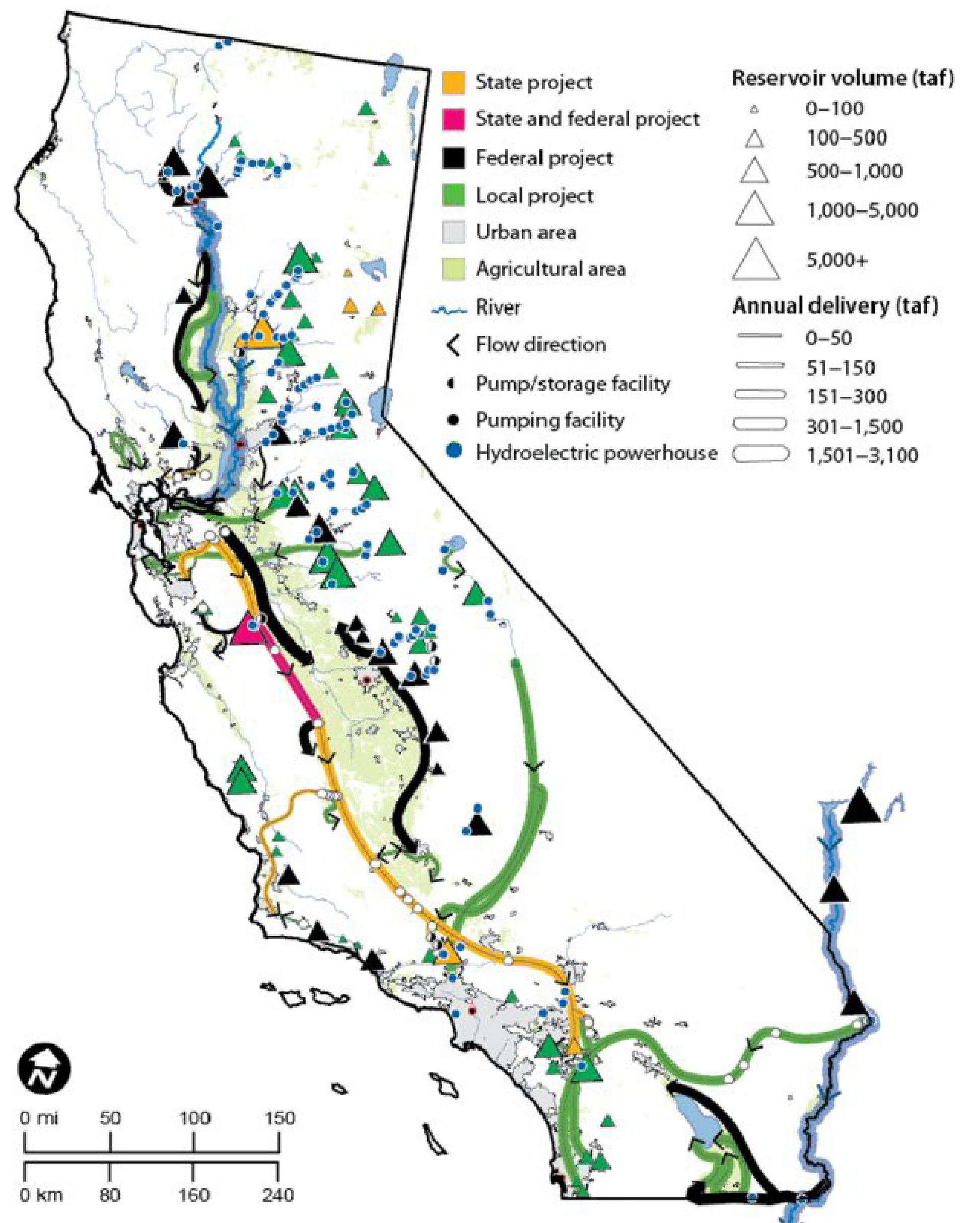
UC Davis

Short primer on California's Bay-Delta

BAY-DELTA WATERSHED



STATE WATER PROJECTS





SACRAMENTO

BAY

DELTA

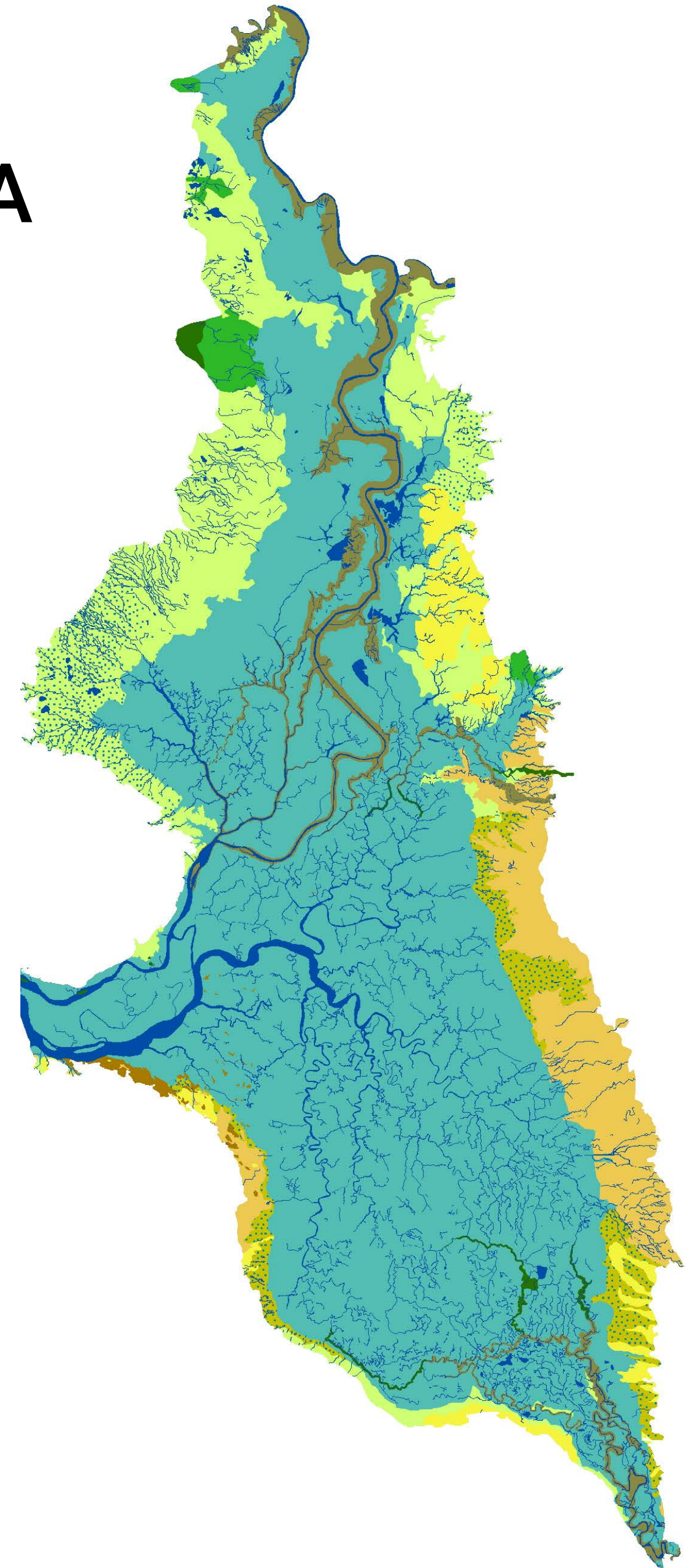
STOCKTON

PACIFIC
OCEAN

SAN
FRANCISCO

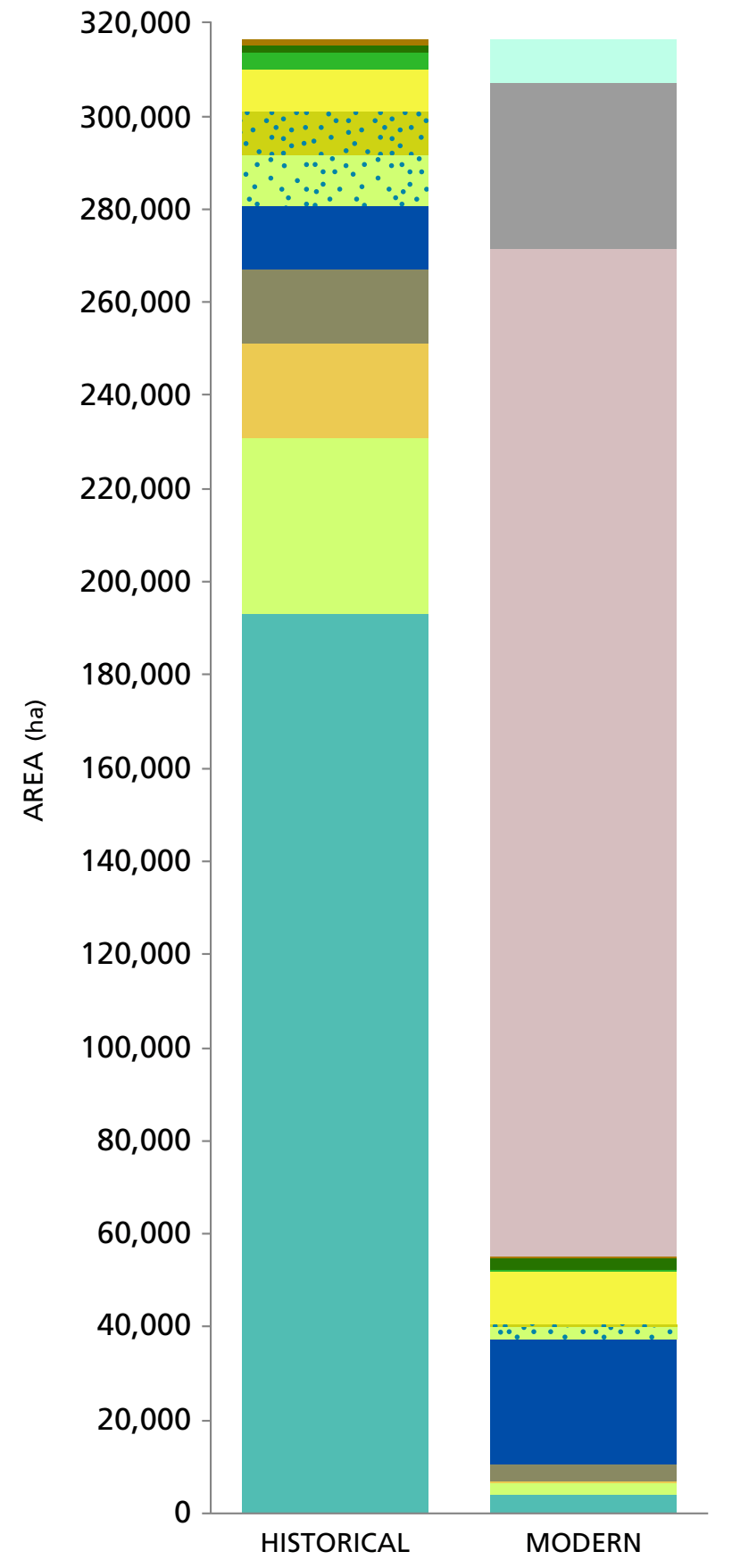
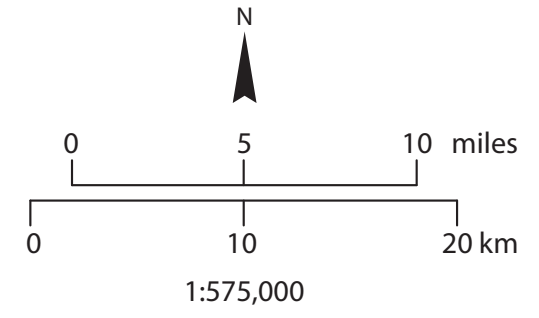
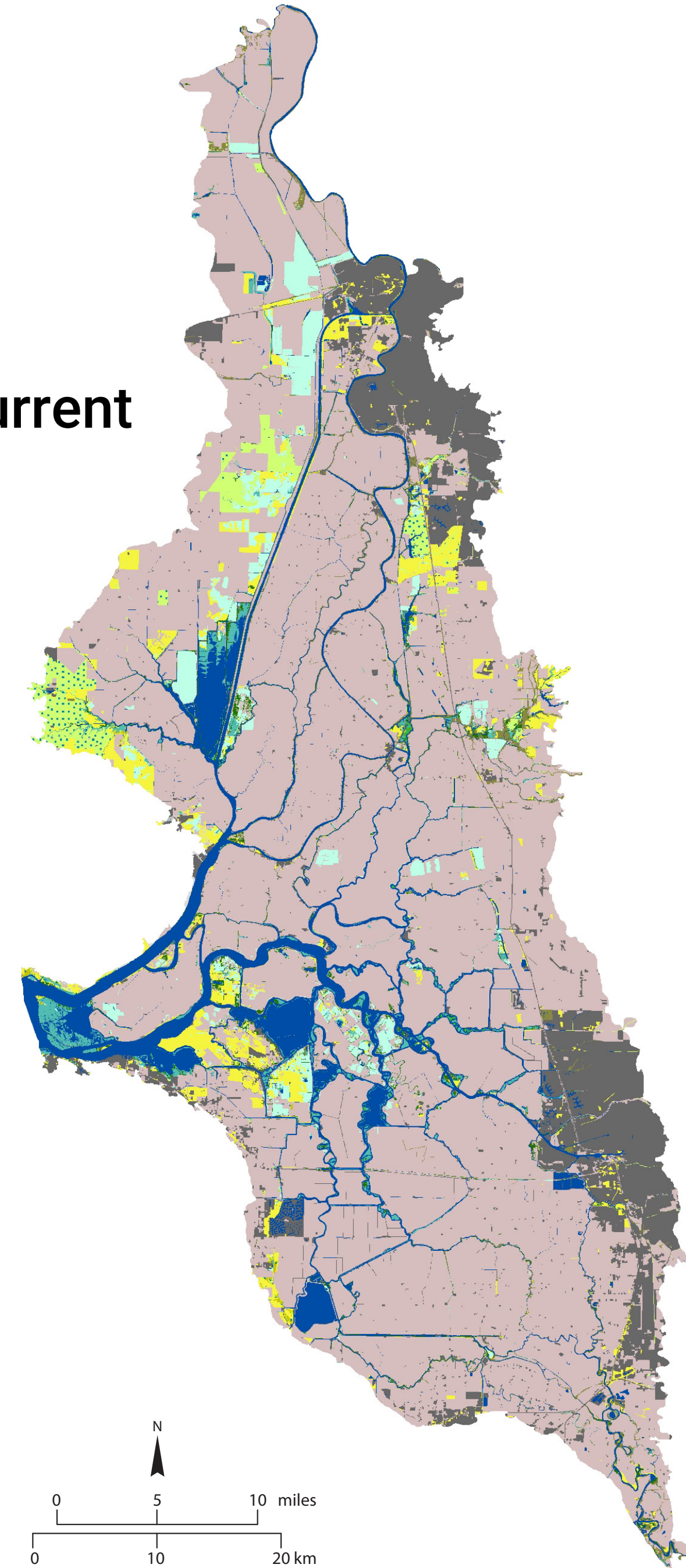
A RADICALLY ALTERED DELTA

Historic
(pre-reclamation)

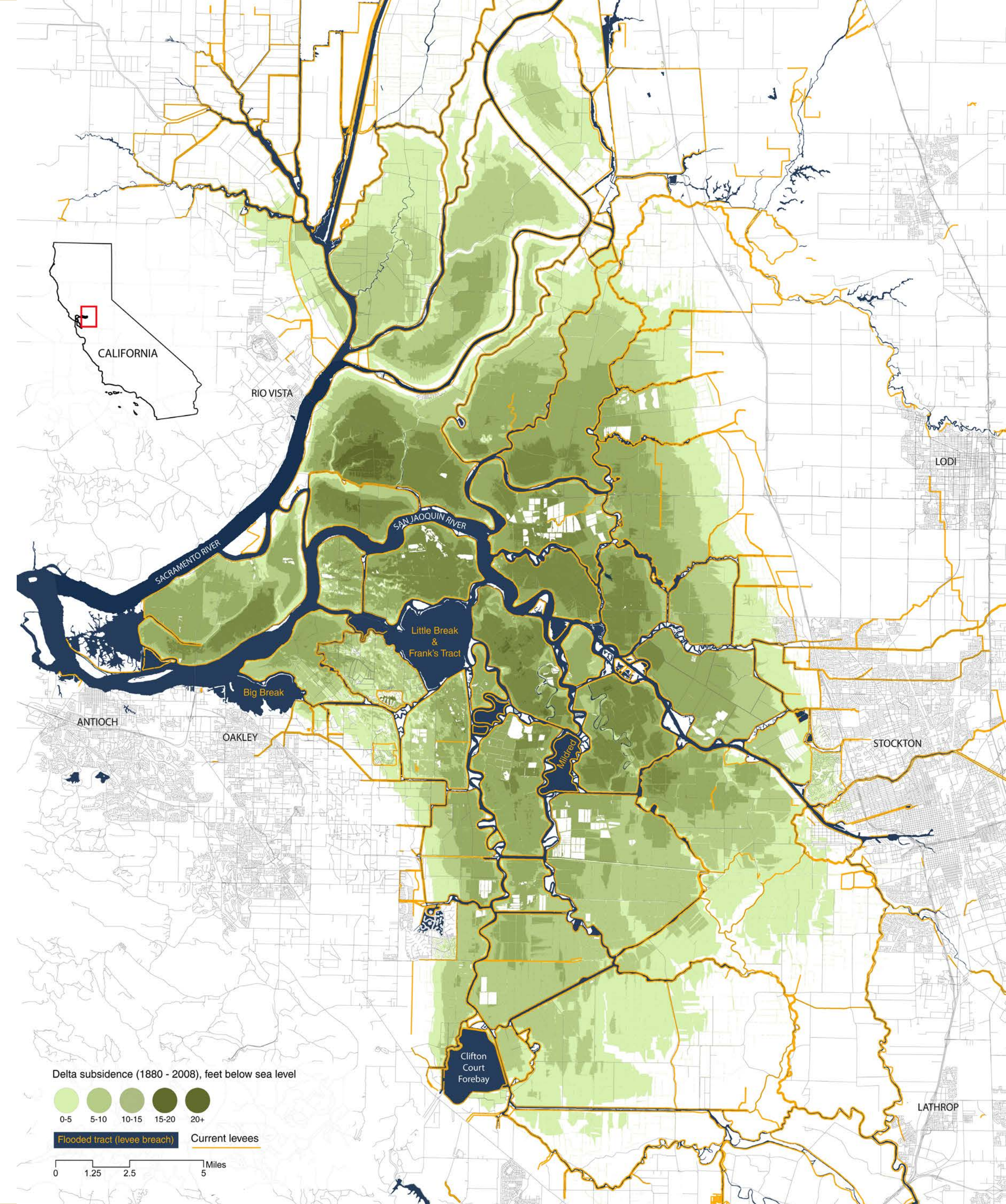
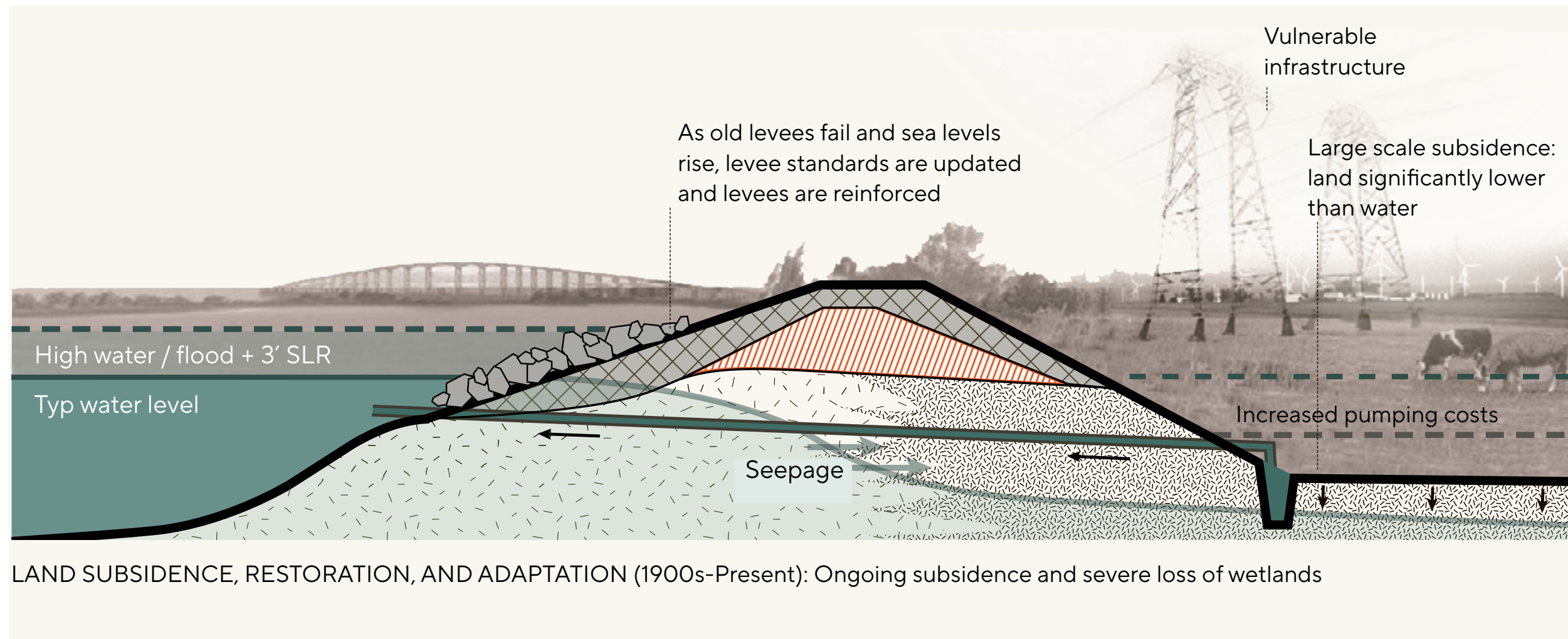


- Urban/Barren
- Agriculture/Non-native/Ruderal
- Stabilized interior dune veg.
- Willow riparian scrub/shrub
- Willow thicket
- Grassland
- Alkali seasonal wetland complex
- Vernal pool complex
- Water
- Valley foothill riparian
- Oak woodland/savanna
- Wet meadow/Seasonal wetland
- Freshwater emergent wetland

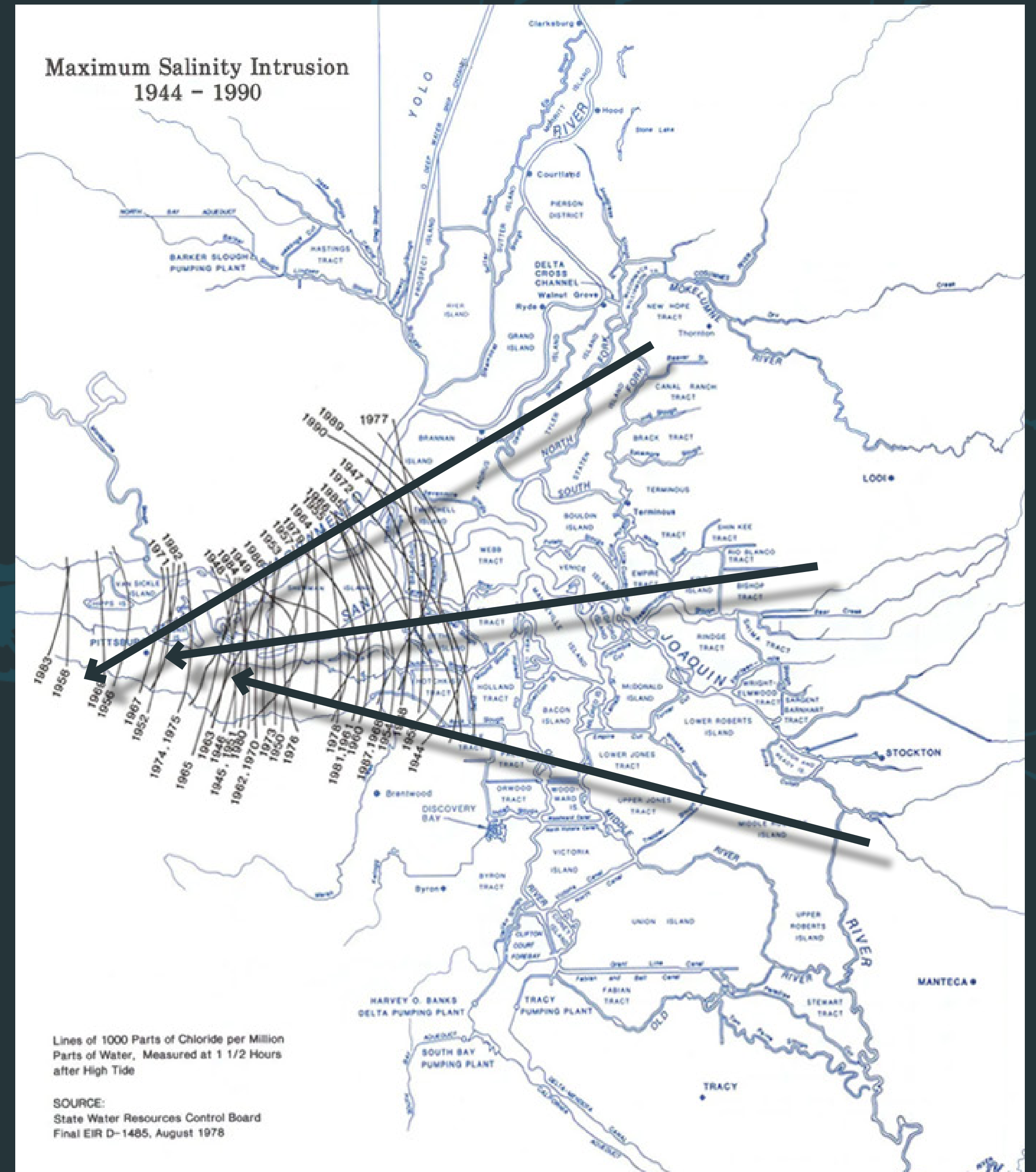
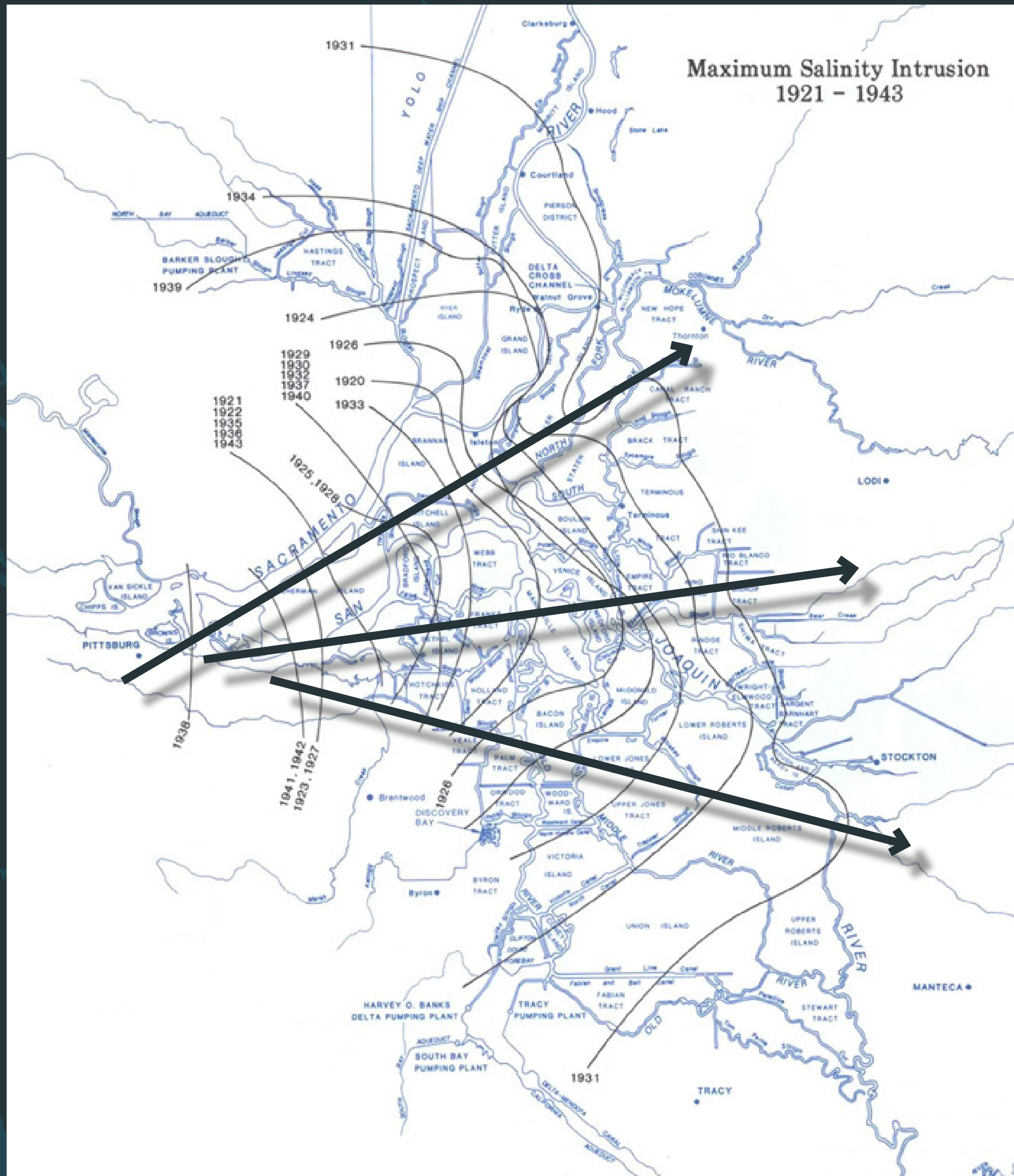
Current



RECLAMATION & LAND SUBSIDENCE



SALINITY INTRUSION



GOVERNANCE

Delta Stewardship Council and The Delta Plan:

Implementing The co-equal goals of “providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem”

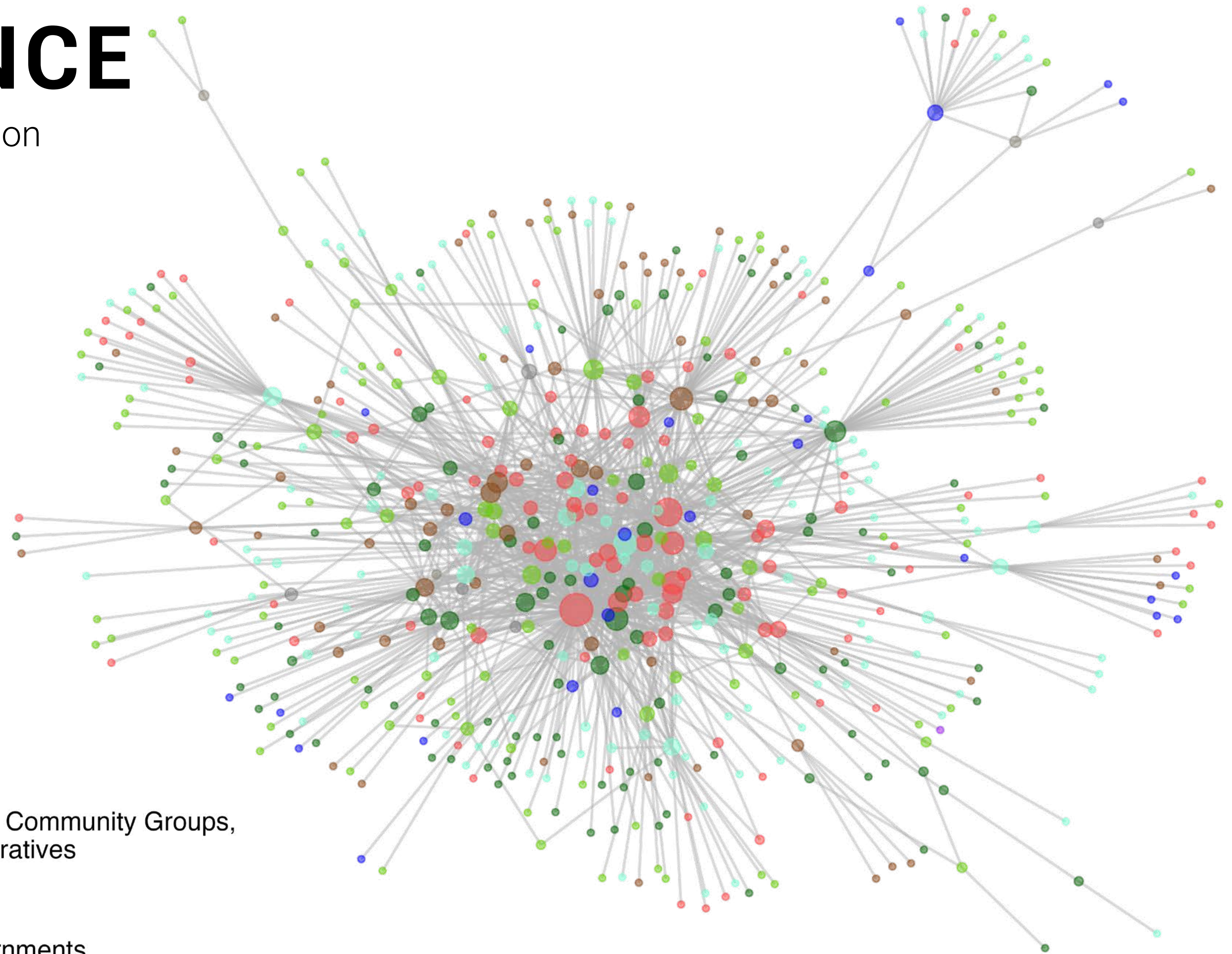
*“...in a manner that preserves the values of the **Delta as an Evolving Place**”*

SOME CHALLENGES...

- Extreme vulnerability to climate change impacts
- Science can't keep up with the pace of environmental change (Delta is changing faster than can be understood)
- Lack of integrated modeling efforts (need for a collaboratory)
- Limited funding
- Complex governance (hundreds of agencies/collaborations)
- Moving past a culture of conflict
(“Wicked problem“ of situated problem definition)
- Lack of trust

GOVERNANCE

Organization-level collaboration network for adaptation in the Delta (Pozzi et al. 2025)



- Universities and Private Sector
- Regional, State, and Federal Governments
- Special Districts
- Unknown

- Non-Profits, Community Groups, and Collaboratives
- Individuals
- Local Governments
- Tribal Entities

DECISION MAKING

Do you think decision-making regarding climate adaptation and salinity management in the Delta is equitable or inequitable?

DON'T
KNOW

8.5%

EQUITABLE

8.5%

INEQUITABLE

83%

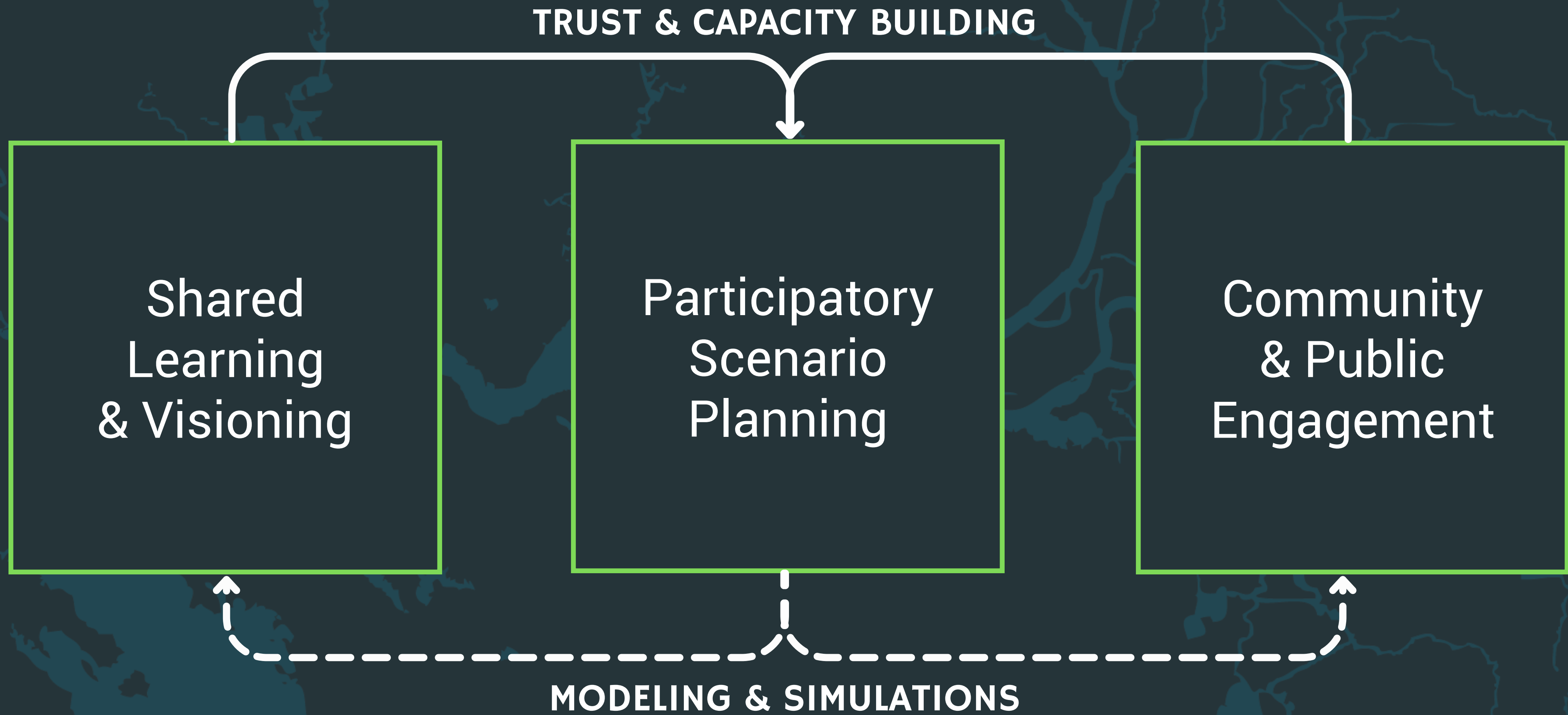


JUST TRANSITIONS IN THE DELTA

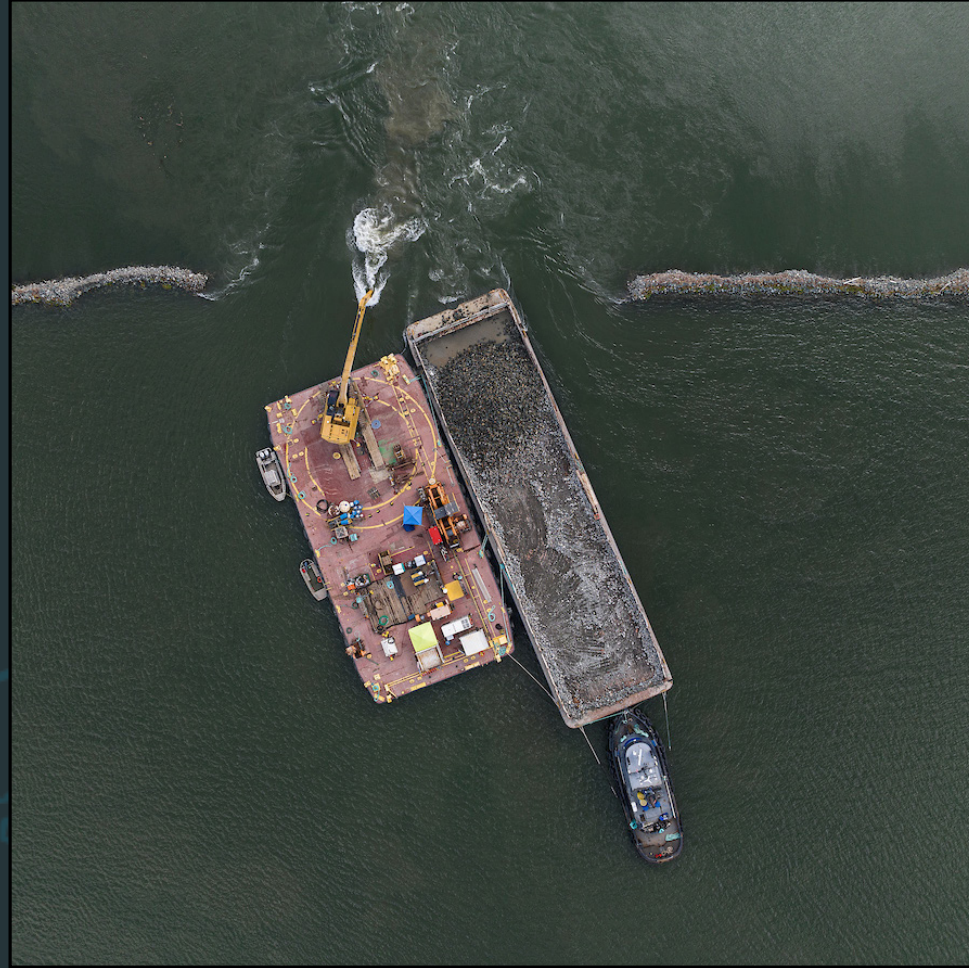
Drought, Salinity and Sea Level Rise

UNIVERSITY
OF
CALIFORNIA

RESEARCH FRAMEWORK



SIX SCENARIOS



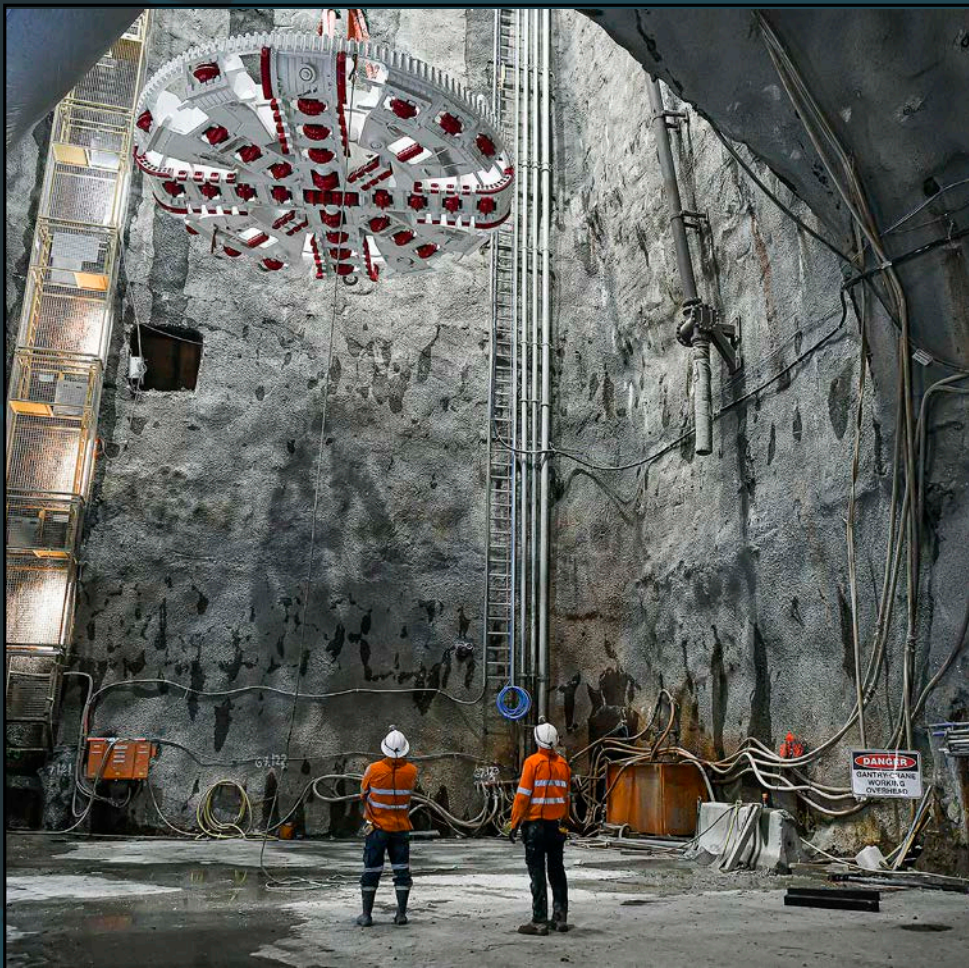
BUSINESS AS USUAL



ECO MACHINE



CALLING ON RESERVES



A TUNNEL



NEW GREEN WATERSHED



BOLSTER & FORTIFY

What water issues matter to you?

Water is important to all of us – from farmers in the Central Valley to communities in the Delta, from salmon in the Sacramento River to urban water users in Los Angeles. We can consider how decisions affect the issues people care about.

Community water systems

Whether people and communities can reliably access safe drinking water for daily life, health, and essential services

Coming soon

Farms and groundwater

Whether agricultural water deliveries can sustain food protection, while preventing over-draft of groundwater basins

Coming soon

Rivers, salmon and the Delta ecosystem

Whether rivers, salmon, and the Delta estuary receive the flows they need to remain functional and resilient

[Learn more →](#)

The Delta as a living place

Whether the Delta is a place where communities, farms, and ecosystems coexist and thrive.

[Learn more →](#)

Operations and impacts

How water management decisions affect trade-offs, equity and resilience.

Coming soon

Search

Search scenarios by name or description

View outcomes by climate (coming soon)



S0039 THE DELTA AS A LIVING PLACE

USBR Alt 3: 65% unimpaired Delta outflow

USBR Alternative 3 with allocation reductions and 65% unimpaired Delta outflow require... more

Key operations



Key outcomes



Community deliveries



Agricultural revenue



Environmental flows



Reservoir storage



Groundwater storage



Delta estuary ecology



Freshwater for Delta exports



Freshwater for in-Delta uses



Winter-run salmon



S0040 THE DELTA AS A LIVING PLACE

USBR Alt 3: 35% unimpaired Delta outflow

USBR Alternative 3 with allocation reductions and 35% unimpaired Delta outflow require... more

Key operations

