Status of Near-Term Delta Activities

Special Committee on Bay-Delta
Item 3b, September 24, 2013

Presentation Overview

- Metropolitan's Delta Action Plan (2007)
- Near-Term Activities
  - Biological Opinion –
    Collaborative Science & Adaptive Management Program
  - Habitat Restoration
  - Emergency Response Planning/Near-Term Actions
  - Other Stressors & Science

Metropolitan Board Policy
Delta Action Plan Framework (Jun'07)

- Short-Term Action Plan
  - Secure permits to operate Bank's Pumping Plant
  - Implement/Fund Delta Levee Emergency Preparedness and Response Plan
  - Select and approve key elements of BDCP and Delta Vision
- Mid-Term Action Plan
  - Secure long-term operating permits for SWP under BDCP
  - Develop implementation plan & environmental documentation
  - Implement ecosystem restoration projects
- Long-Term Action Plan
  - Implement long-term comprehensive solution

Biological Opinion

Collaborative Science and Adaptive Management Program

Background

- Biological Opinion Litigation Overview
- Consolidated Smelt Litigation
  - Required US Bureau of Reclamation & US Fish and Wildlife Service to complete a revised BiOp
  - Conduct analysis under National Environmental Policy Act of impact of proposed CVP and SWP operations
- Consolidated Salmonid Litigation
  - Requires Reclamation and National Marine Fisheries Service to complete BiOp
  - Conduct analysis under NEPA of impact of proposed CVP & SWP operations on five aquatic species

Background

- Court extended deadlines in both cases by one year
- Joint status report due to court on Feb 15, 2014
- Court will entertain a request to extend remand schedule by an additional year
- Other extensions are possible

Mission

The Collaborative Adaptive Management Team (CAMT) will work, with a sense of urgency, to develop a robust science and adaptive management program that will inform both the implementation of the current Biological Opinions, including interim operations; and the development of revised Biological Opinions*

** The term "interim" refers to the period during which revised Biological Opinions are being developed.*

Policy Group

- **Jim Beck**
  Kern County Water Agency
- **Thomas Birmingham**
  Westlands Water District
- **Chuck Bonham**
  Cal Dept. of Fish & Wildlife
- **Mark Cowin**
  Cal Dept. of Water Resources
- **Zeke Grader**
  Golden Gate Salmon Association
- **Jeffrey Kightlinger**
  Metropolitan Water District
- **Ren Lohoefener**
  US Fish and Wildlife Service
- **David Murillo**
  US Bureau of Reclamation
- **Dick Pool**
  Water4Fish
- **Kate Poole**
  Natural Resource Defense Council
- **Melissa Poole**
  Coalition for a Sustainable Delta
- **Will Stelle**
  NOAA Fisheries
- **Jay Ziegler**
  The Nature Conservancy

Working Team Members

- **Gary Bobker**
  The Bay Institute
- **Frances Brewster**
  Santa Clara Valley WD
- **Mike Chotkowski**
  US Fish & Wildlife Service
- **Valerie Connor (Co-Chair)**
  State Federal Contractors WA
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  NOAA Fisheries
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  Interagency Ecological Program
- **Maria Rea**
  NOAA Fisheries
- **Carl Wilcox**
  Cal Dept. of Fish & Wildlife
- **Leo Winternitz (Co-Chair)**
  The Nature Conservancy

Timeline

CSAMP workteam meetings	Jun – Feb
Define mission & operating process	Jun – Jul
Define CSAMP 2013 priorities	Jul – Oct
Develop key questions & experimental designs	Jul – Oct
Develop CSAMP work plan for 2014-16	Oct – Dec
Prepare progress report	Dec – Feb
Submit report to District Court	Feb 15, 2014

Habitat Restoration Status Update

Habitat Restoration
Purpose

- Existing – Biological Opinions
  - Compliance with Endangered Species Act permits for operations of the state & federal water projects
- Proposed – Bay Delta Conservation Plan
  - Multi-species protection (57 species)
  - Aquatic & terrestrial habitat communities

Near-Term Regulatory Requirements

Ecosystem Restoration

Yolo Bypass

Sacramento

Cache Slough

Suisun Marsh

Cosumnes

Dutch Slough

SWP Pumps

CVP Pumps

Salmon/Smelt Biological Opinions

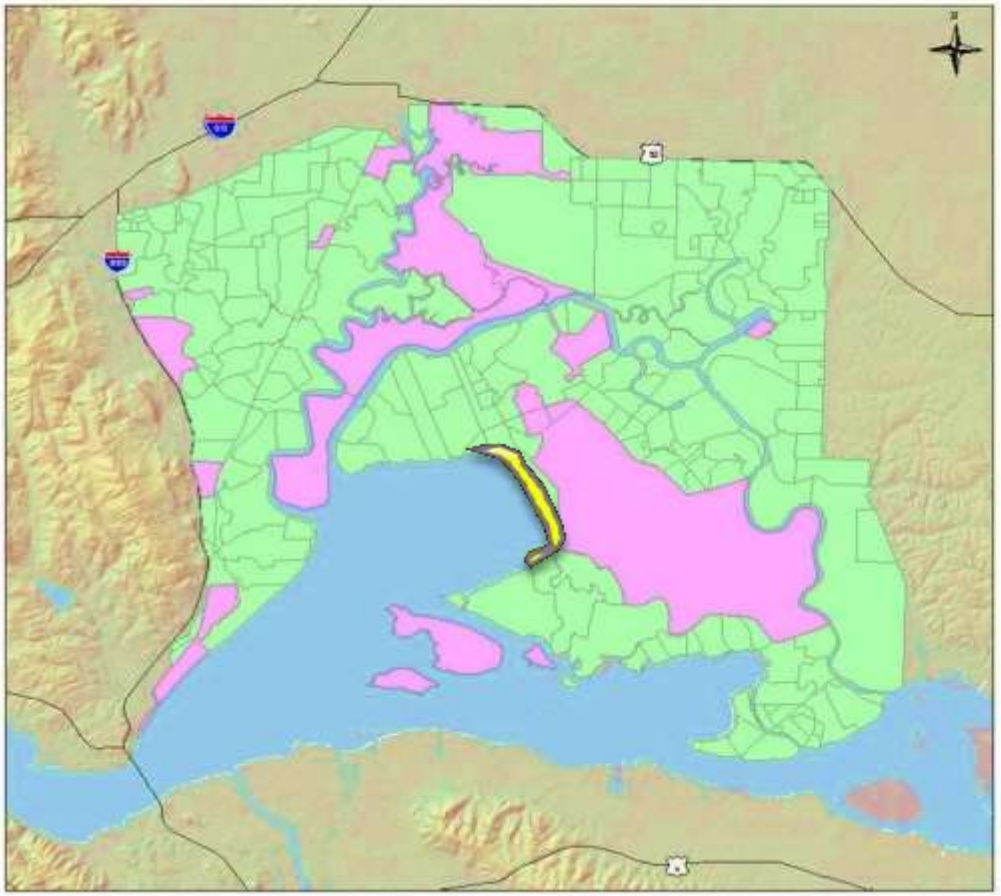
Restoration Requirements by 2019

Tidal Marsh	8,000 ac
Seasonal Floodplain	17-20,000 ac
TOTAL ~ 28,000 acres	

Near-Term Regulatory Requirements

Ecosystem Restoration

Public Lands in Suisun Marsh



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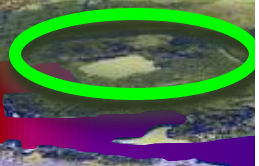


pinions
2019

8,000 ac

20,000 ac

s

Tule Red Restoration Project

Suisun Marsh

Grizzley Bay

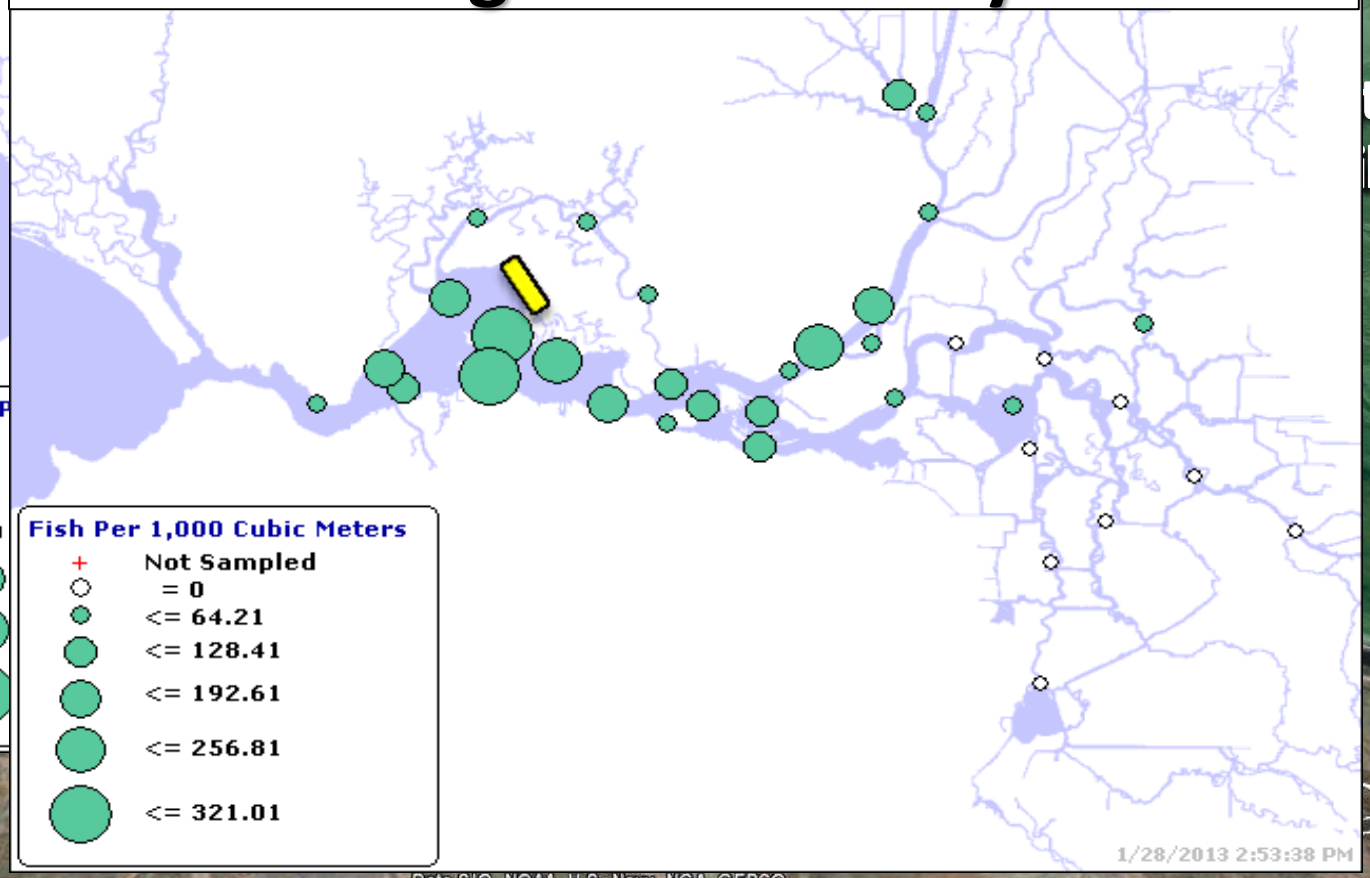
Cal. Dept. of
Fish & Wildlife

Tule Red Restoration Project

Chinook Salmon Survey

Delta Smelt Survey

Longfin Smelt Survey



Tule Red Restoration Project

Suisun Marsh

Critical land-water interface

Existing

Lands elevation suitable for tidal marsh habitat

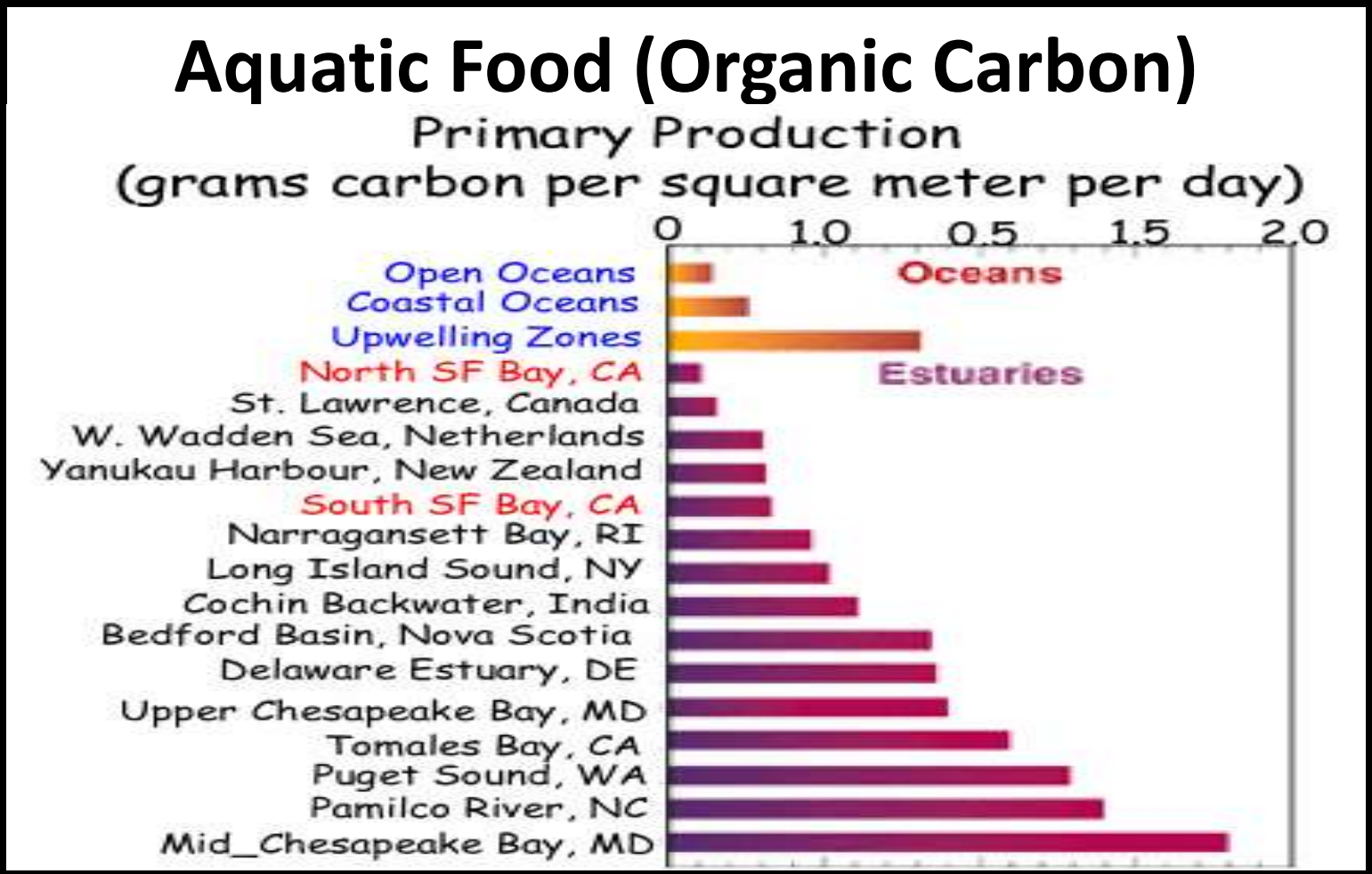
Yolo Bypass

Habitat & Food-Web Opportunities

Yolo Bypass

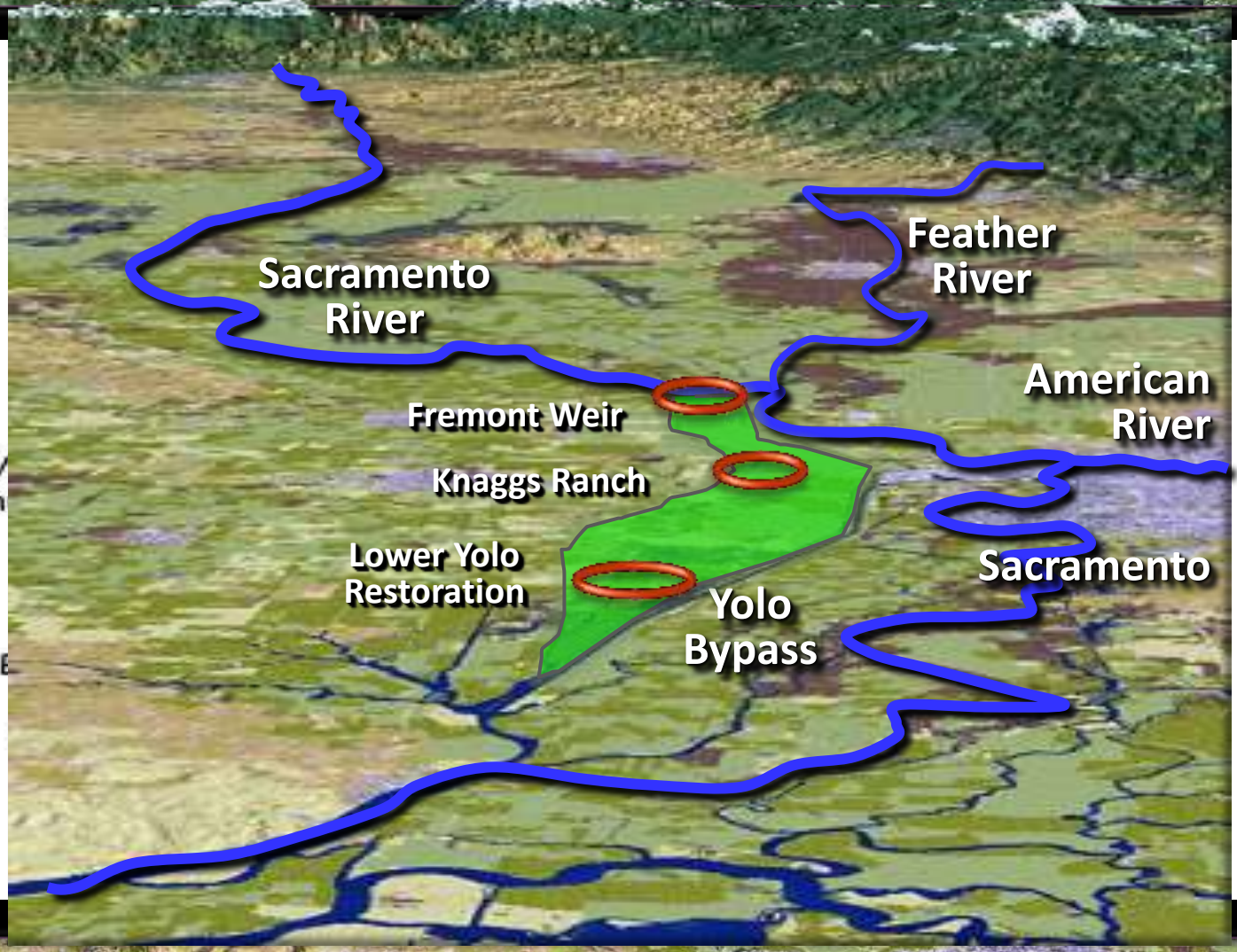
Habitat & Food-Web Opportunities

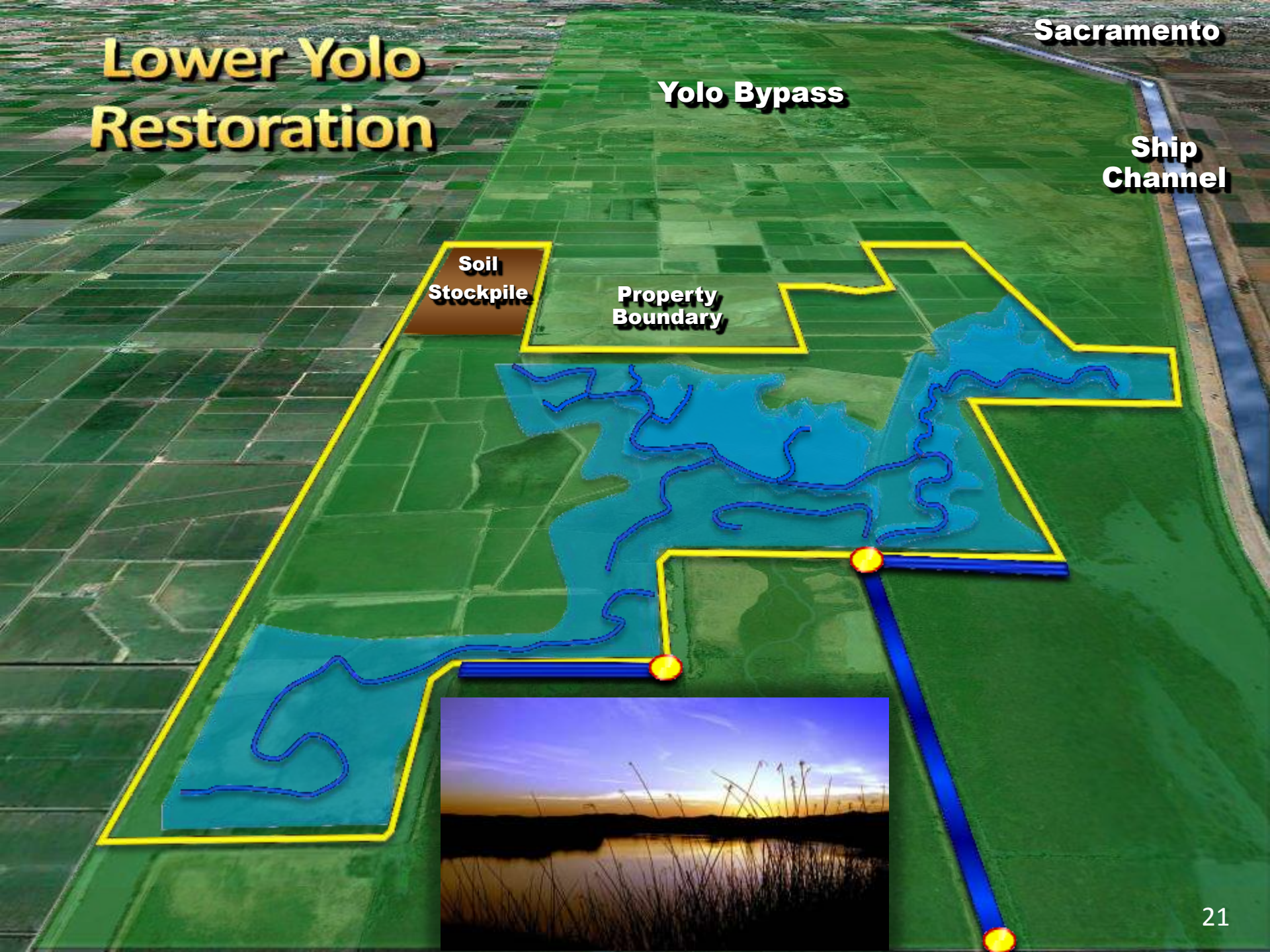
Aquatic Food (Organic Carbon)



Yolo Bypass

Habitat & Food-Web Opportunities




Lower Yolo Restoration
Sacramento
Yolo Bypass
Ship Channel
Soil Stockpile
Property Boundary

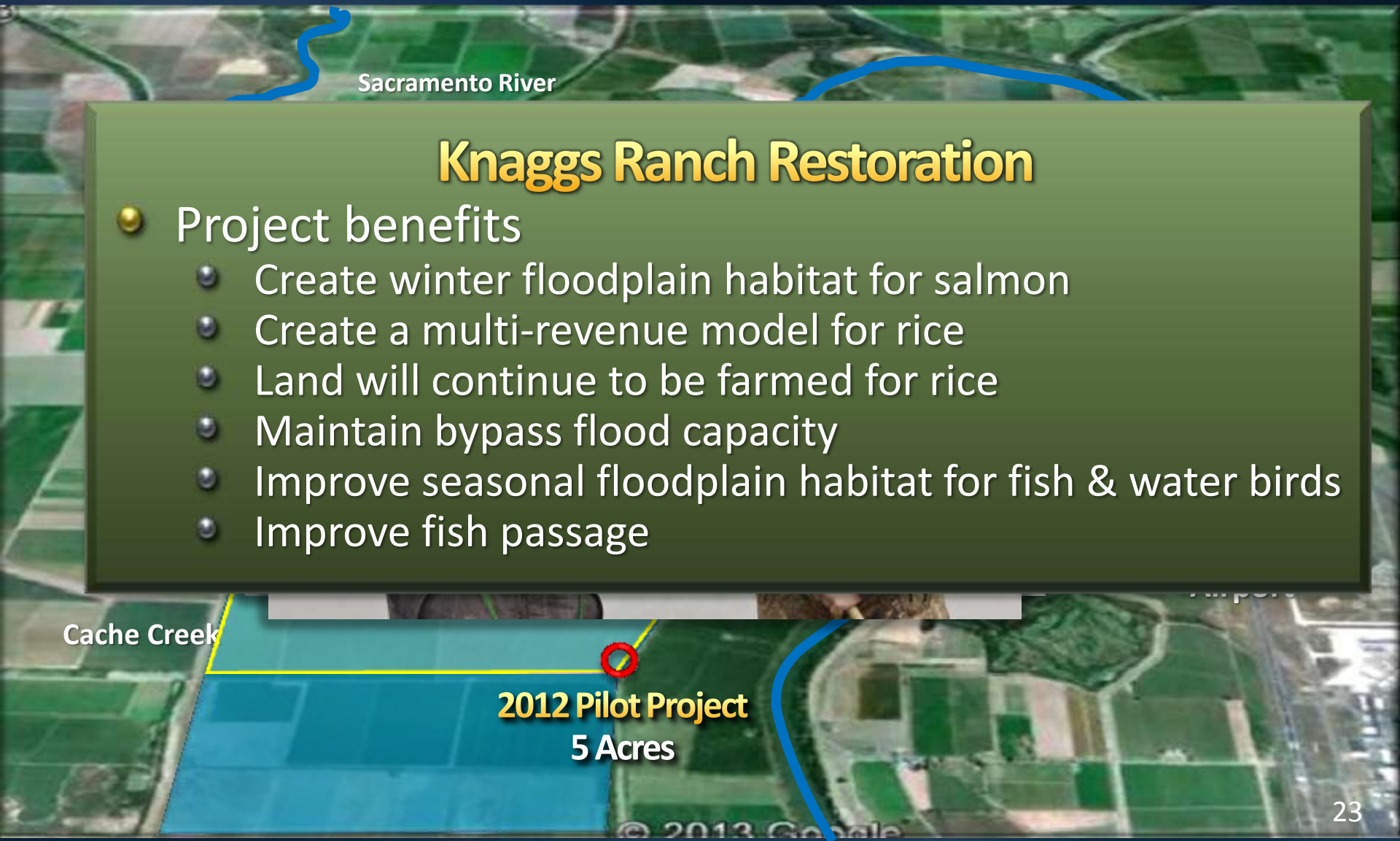
Lower Yolo Bypass Habitat Project

Progress and Next Steps

- Progress
  - Completed flood modeling
  - Developed 90% wetland design
  - Adopted EIR and filed permits
  - Drafted crediting agreements with resource agencies
- Next Steps
  - Perform a property appraisal
  - Develop purchase/sale with the owner (Westlands WD)
  - Develop adaptive management / monitoring program
  - Prepare bid documents
  - Develop financing
  - Construction spring 2014

Upper Yolo Bypass Projects

Fremont Weir Fish Ladder & Knaggs Ranch Restoration



Knaggs Ranch Restoration

- Project benefits
  - Create winter floodplain habitat for salmon
  - Create a multi-revenue model for rice
  - Land will continue to be farmed for rice
  - Maintain bypass flood capacity
  - Improve seasonal floodplain habitat for fish & water birds
  - Improve fish passage

Upper Yolo Bypass Projects

Fremont Weir Fish Ladder & Knaggs Ranch Restoration

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& water birds

David Katz – Cal Marsh & Farm

Cache Creek

Results

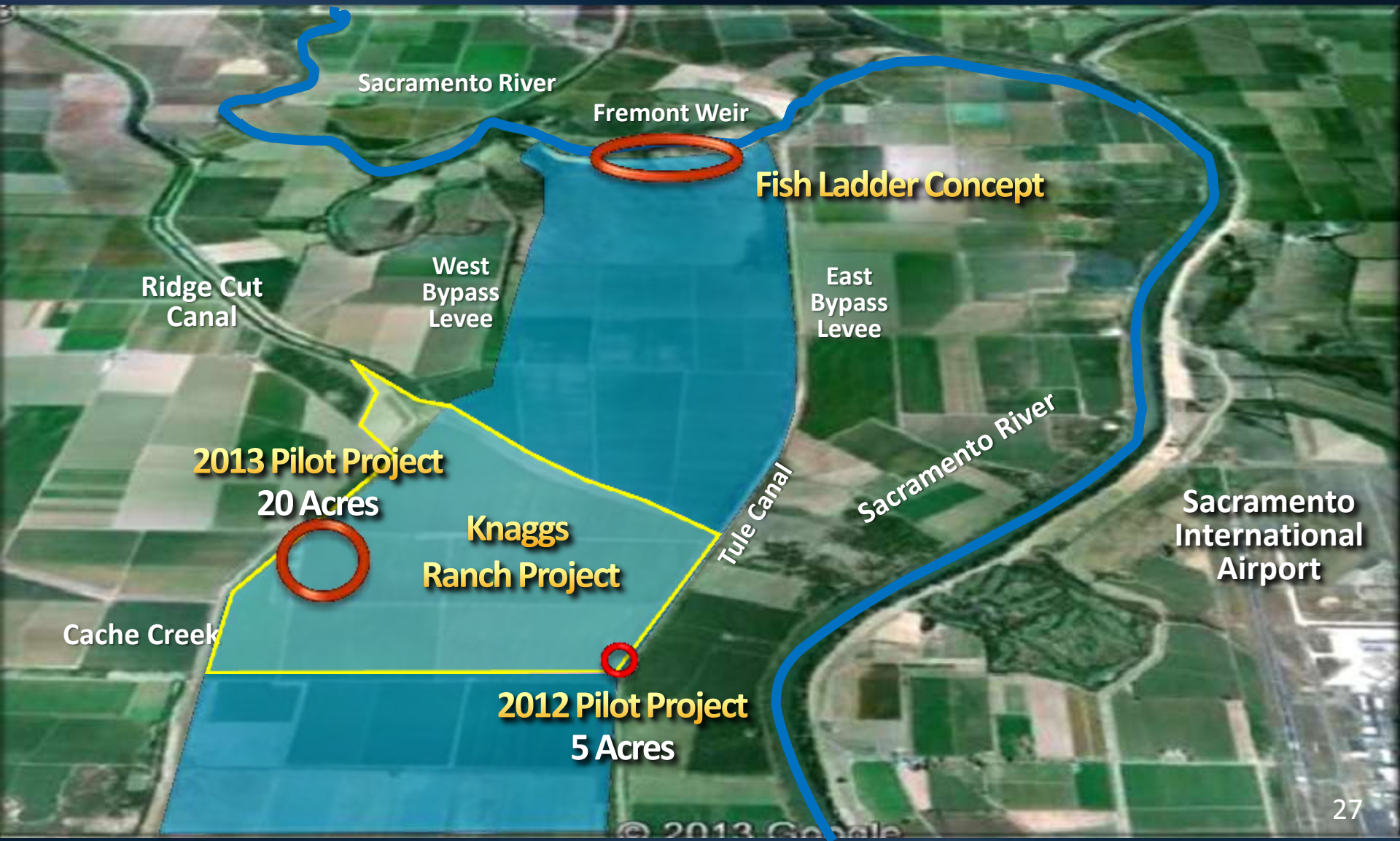
Knaggs Ranch Habitat Restoration – Nigiri Project

Salmon Habitat on Rice Fields

- Cooperative Partnership
  - Cal Marsh and Farm Ventures, LLC
  - Knaggs Ranch, LLC
  - California Waterfowl Association
  - California Trout
  - California Department of Water Resources
  - California Department of Fish and Wildlife
  - UC Davis Center for Watershed Sciences
  - NOAA – SW Fisheries Science Center
  - U.S. Bureau of Reclamation
  - State Federal Water Contractors Agency
  - Metropolitan Water District
  - Resources Legacy Fund

Upper Yolo Bypass Projects

Fremont Weir Fish Ladder



Upper Yolo Bypass Projects

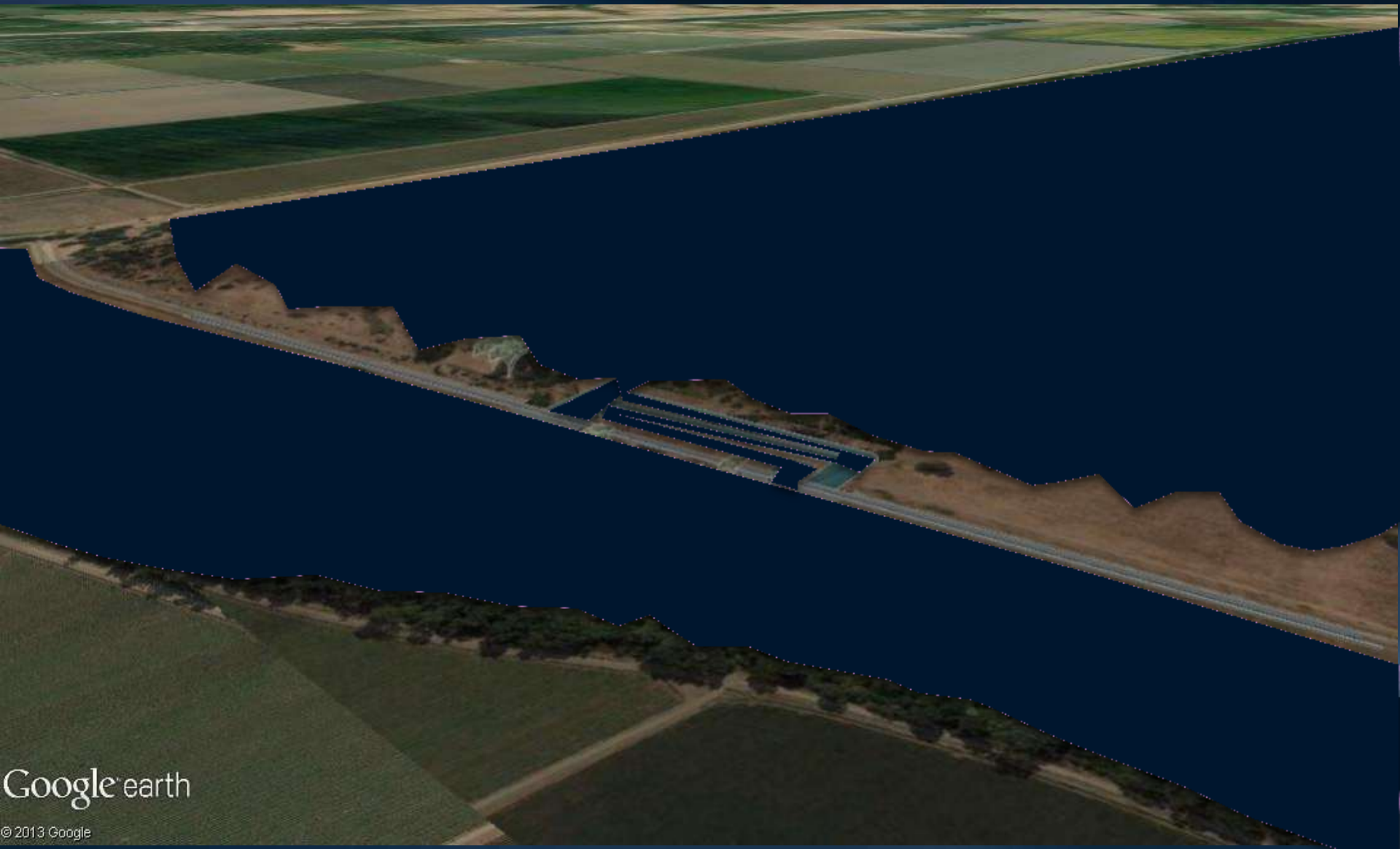
Fremont Weir Fish Ladder

Upper Yolo Bypass Projects

Fremont Weir Fish Ladder

Upper Yolo Bypass Projects

Fremont Weir Fish Ladder



Summary

- Habitat restoration for Biological Opinions will be credited under Bay Delta Conservation Plan
- Continue development of key partnerships & outreach (Local counties & communities, state, federal, etc.)
- Update Board on key developments

Emergency Response Planning/ Near-Term Actions

Overview

- Board Policy
- Existing levee conditions
- Updated risk analysis
- Progress on actions

Metropolitan Board Policy

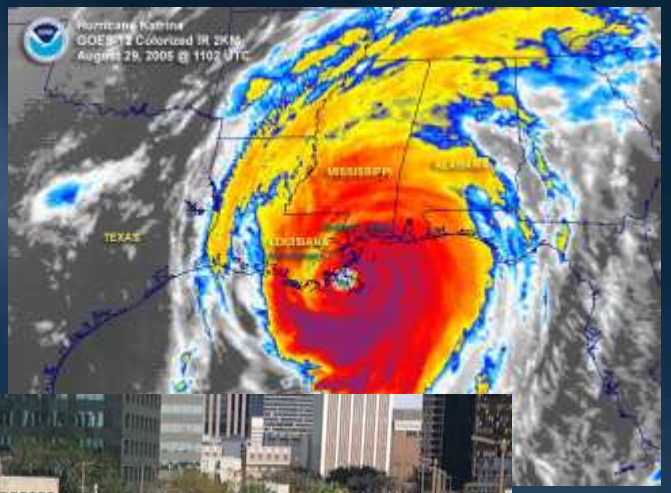
Delta Levee Preparedness and Response Plan (Apr '07)

- Pre-event strategy
  - Advance construction of levee & river flow barriers
  - Stockpiling redundant emergency preparedness materials
- Post-event strategy
  - Creation of freshwater pathway
  - Considered a variety of response priorities
  - Work with DWR and State Water Contractors to integrate protections into an Emergency Operations Plan for the Delta

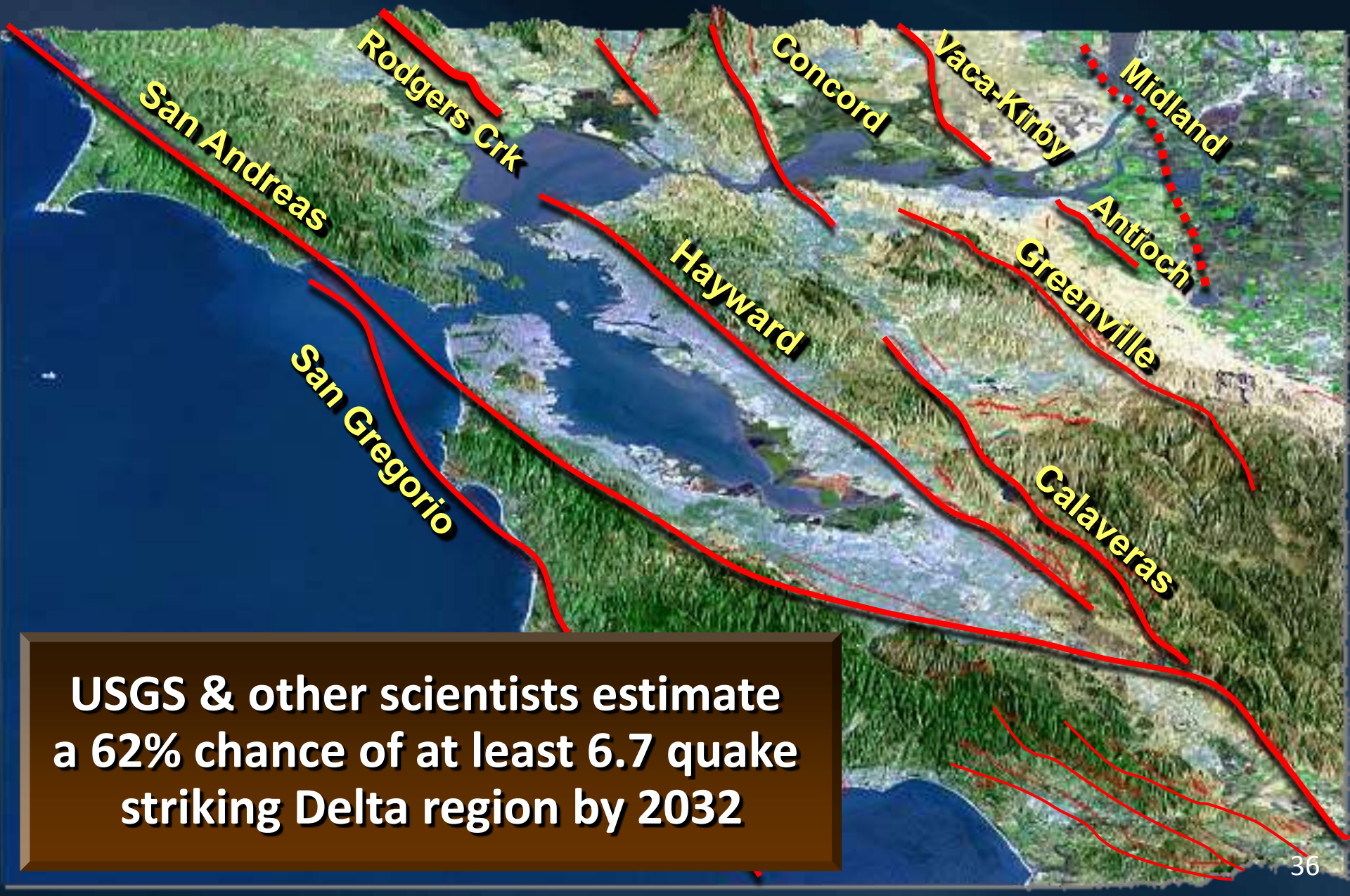
Delta Levee Risks — Comparison

Delta Levee Failure

Hurricane Katrina

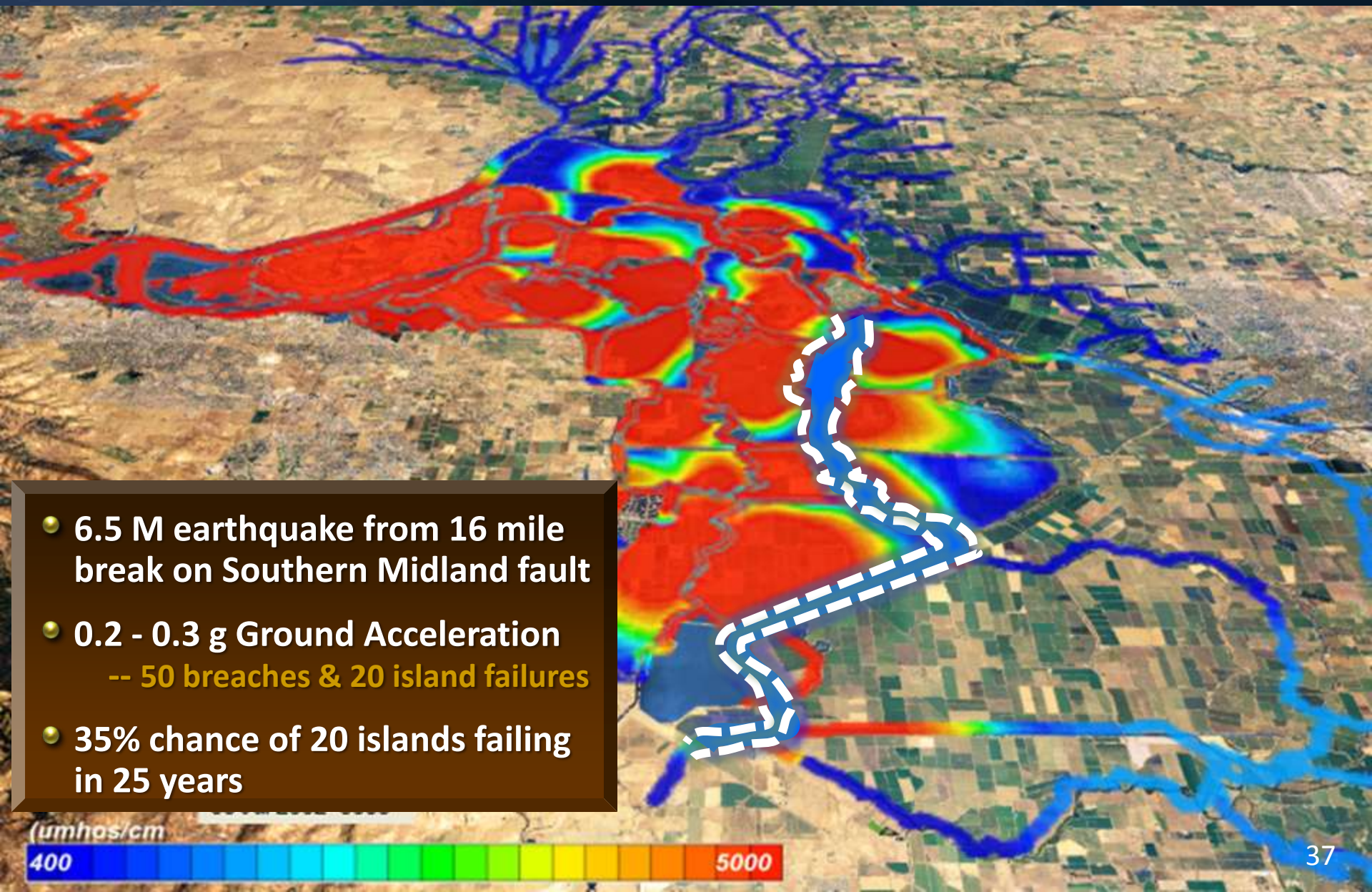


Delta Seismic Risk



USGS & other scientists estimate a 62% chance of at least 6.7 quake striking Delta region by 2032

Seismic Risk (along Middle River)



- 6.5 M earthquake from 16 mile break on Southern Midland fault
- 0.2 - 0.3 g Ground Acceleration
  -- 50 breaches & 20 island failures
- 35% chance of 20 islands failing in 25 years

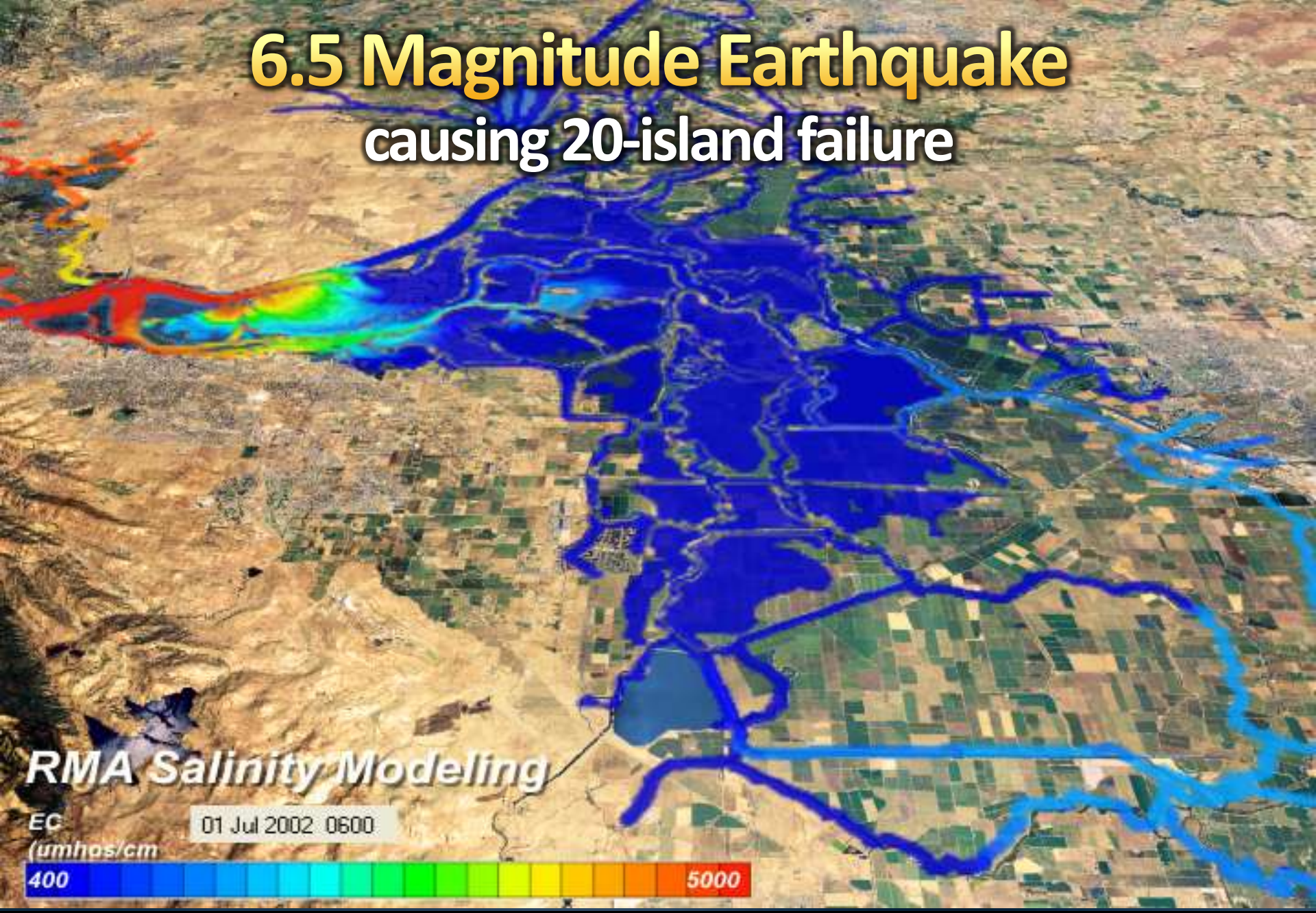
Seismic Risk Analyses

- Previous Analyses
  - Delta Risk Management Study (DWR/URS/Jack Benjamin 2008)
  - Quantifying Seismic Risks (URS, William Lettis & Assoc., AMEC Geomatrix 2009)
- Recent Analyses
  - Levee Stability Analyses (URS 2011)
  - Delta Seismic Design Report (DWR 2011)
  - Emergency Resource Allocation Model (Moffat & Nichols)
  - Emergency Response and Recovery Tool (DWR/RMA 2012)
  - Multi-Agency Flood & Earthquake Drills (DWR 2012)
  - Peat Deformation/Consolidation Mechanisms (UCLA 2012)
  - Seismic Hazard Analyses of the Emergency Pathway (URS 2013)

Liquefaction in Sandy Soils

6.5 Magnitude Earthquake

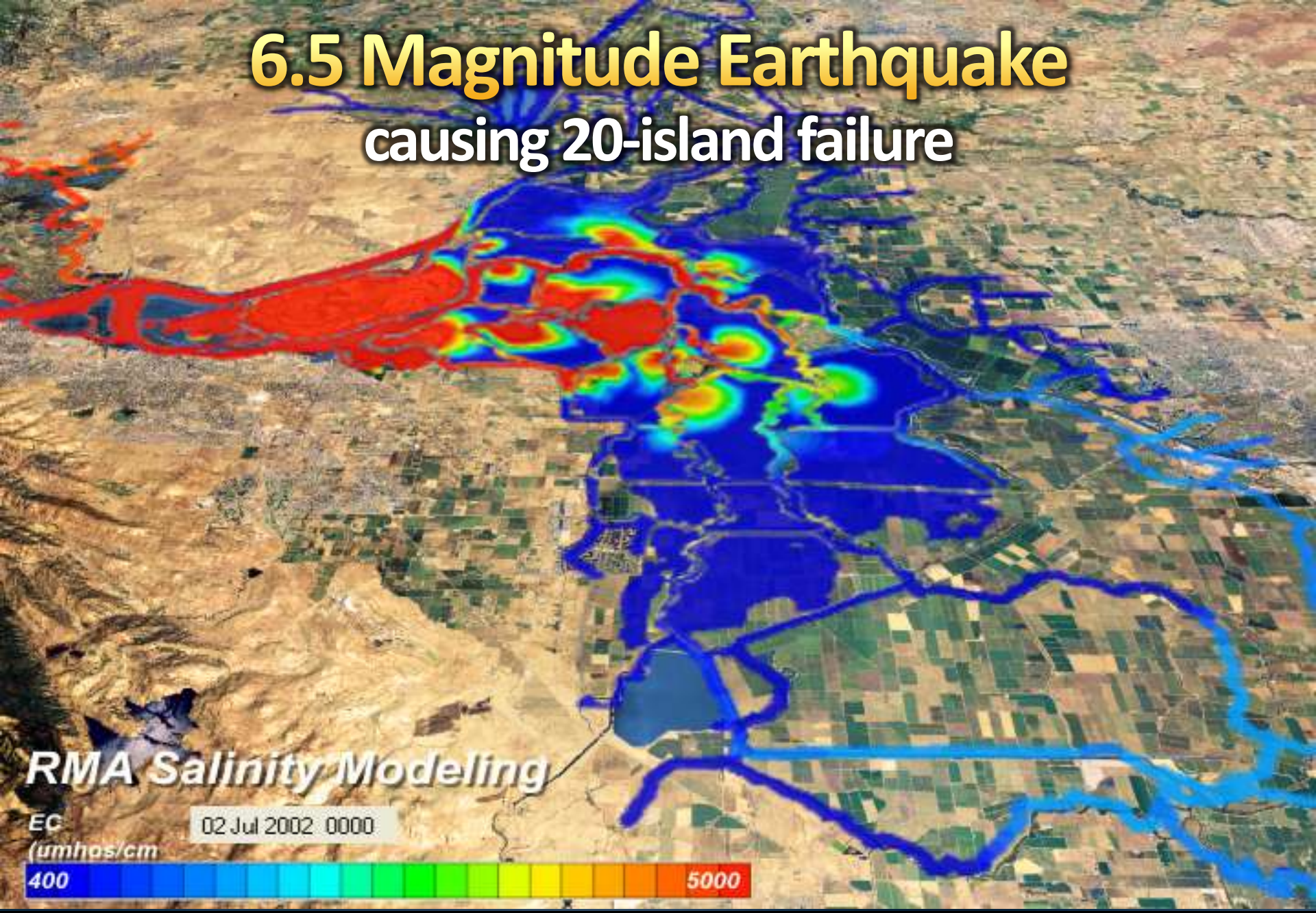
causing 20-island failure



0 – 6 hours: Islands flood with fresh water

6.5 Magnitude Earthquake

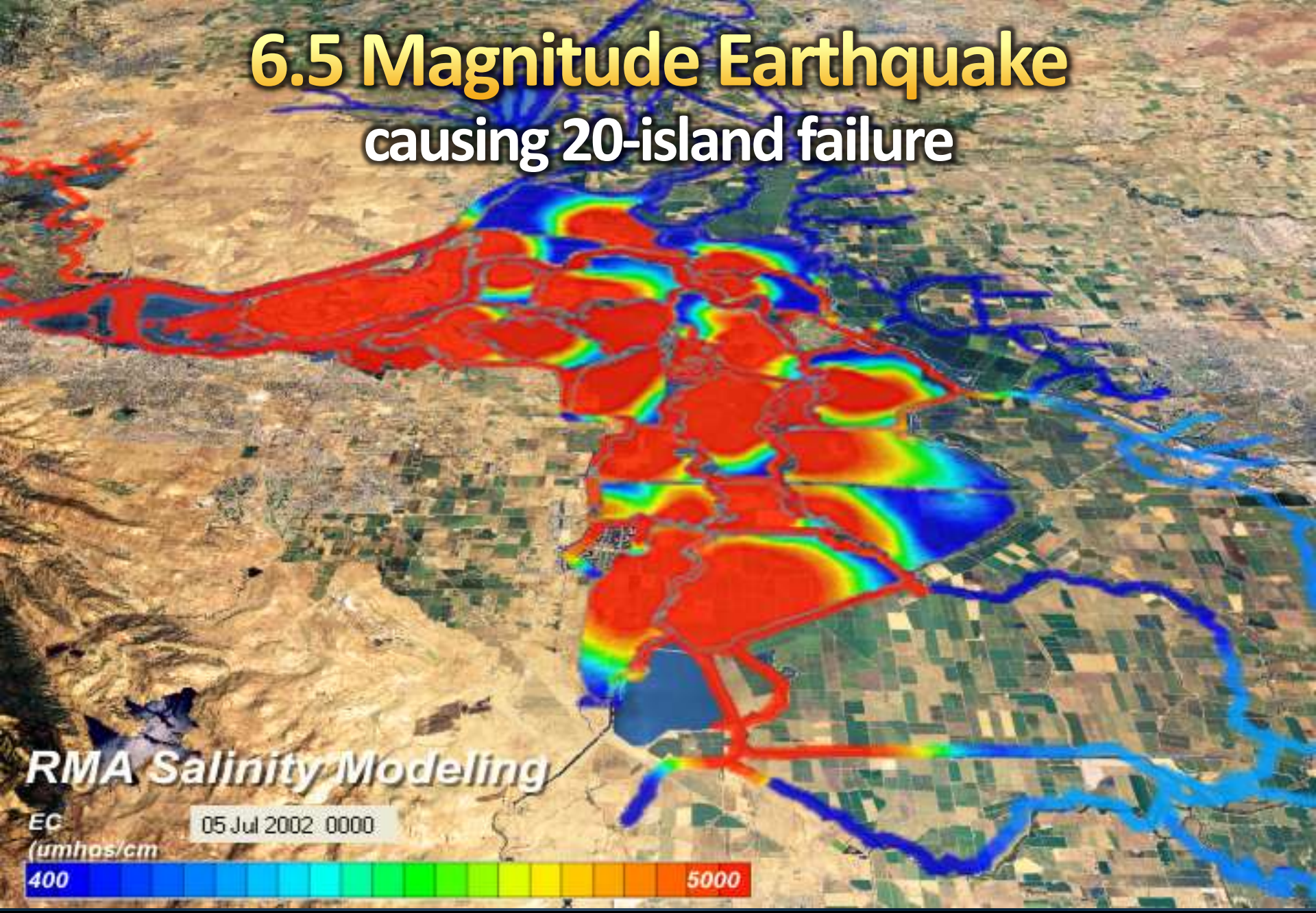
causing 20-island failure



12 – 24 hours: Salt water intruding into Delta

6.5 Magnitude Earthquake

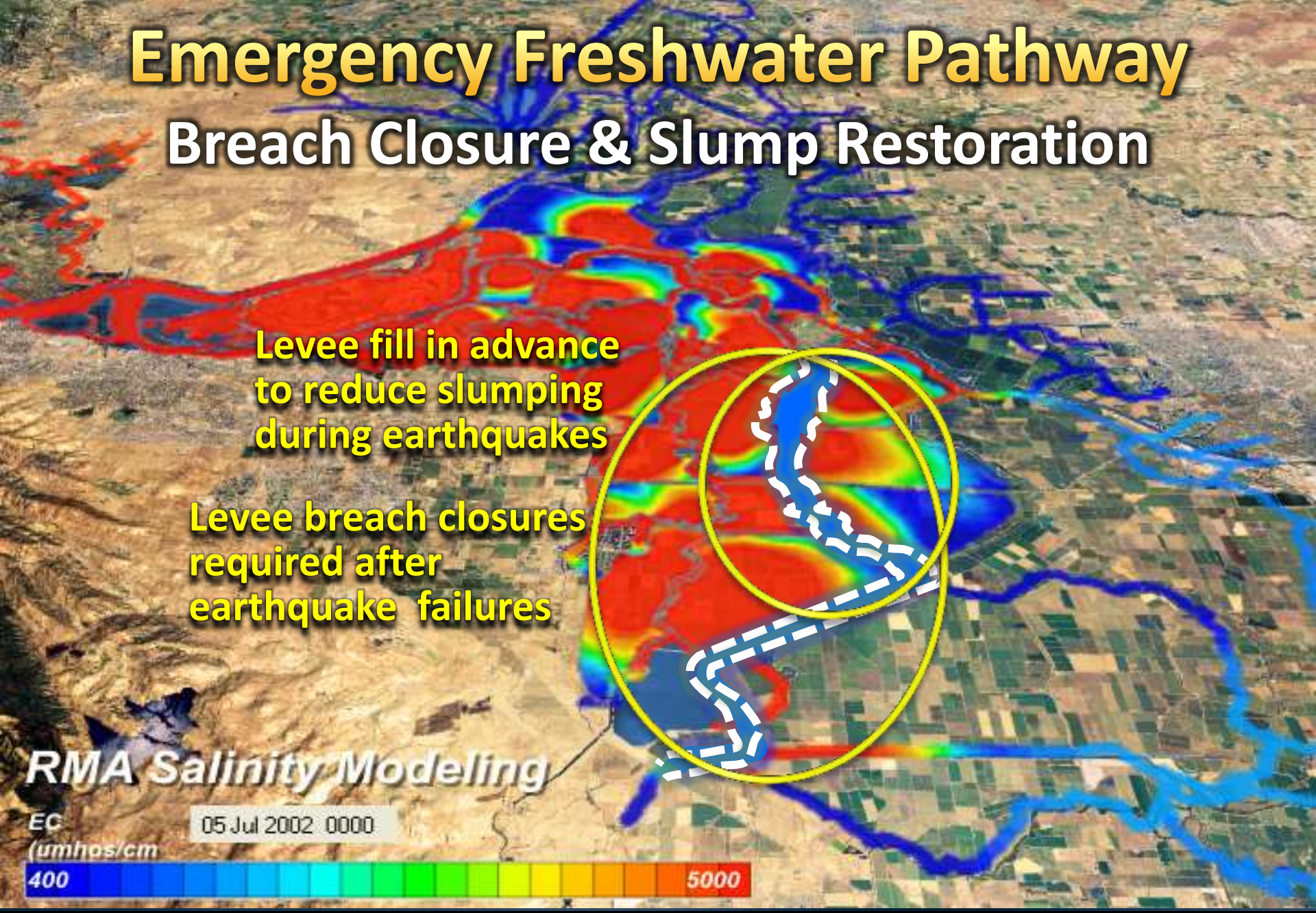
causing 20-island failure



1 – 7 days: Salt water throughout Delta

Emergency Freshwater Pathway

Breach Closure & Slump Restoration



6 Months to Develop Freshwater Pathway

Emergency Stockpile Sites

Barge Transport

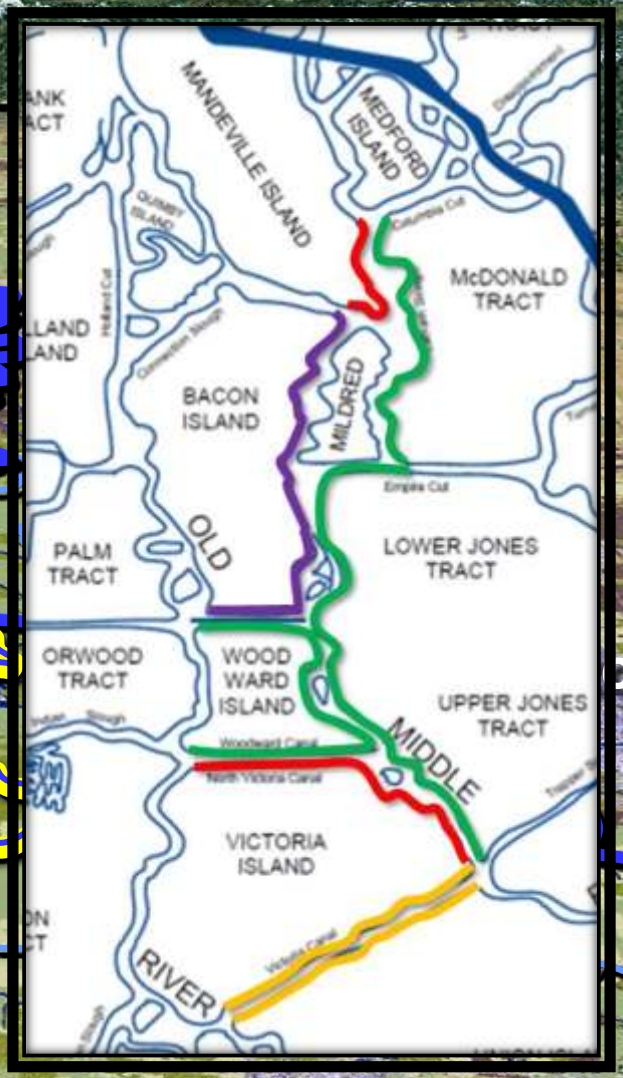
Emergency Pathway

Priority Levee Improvements

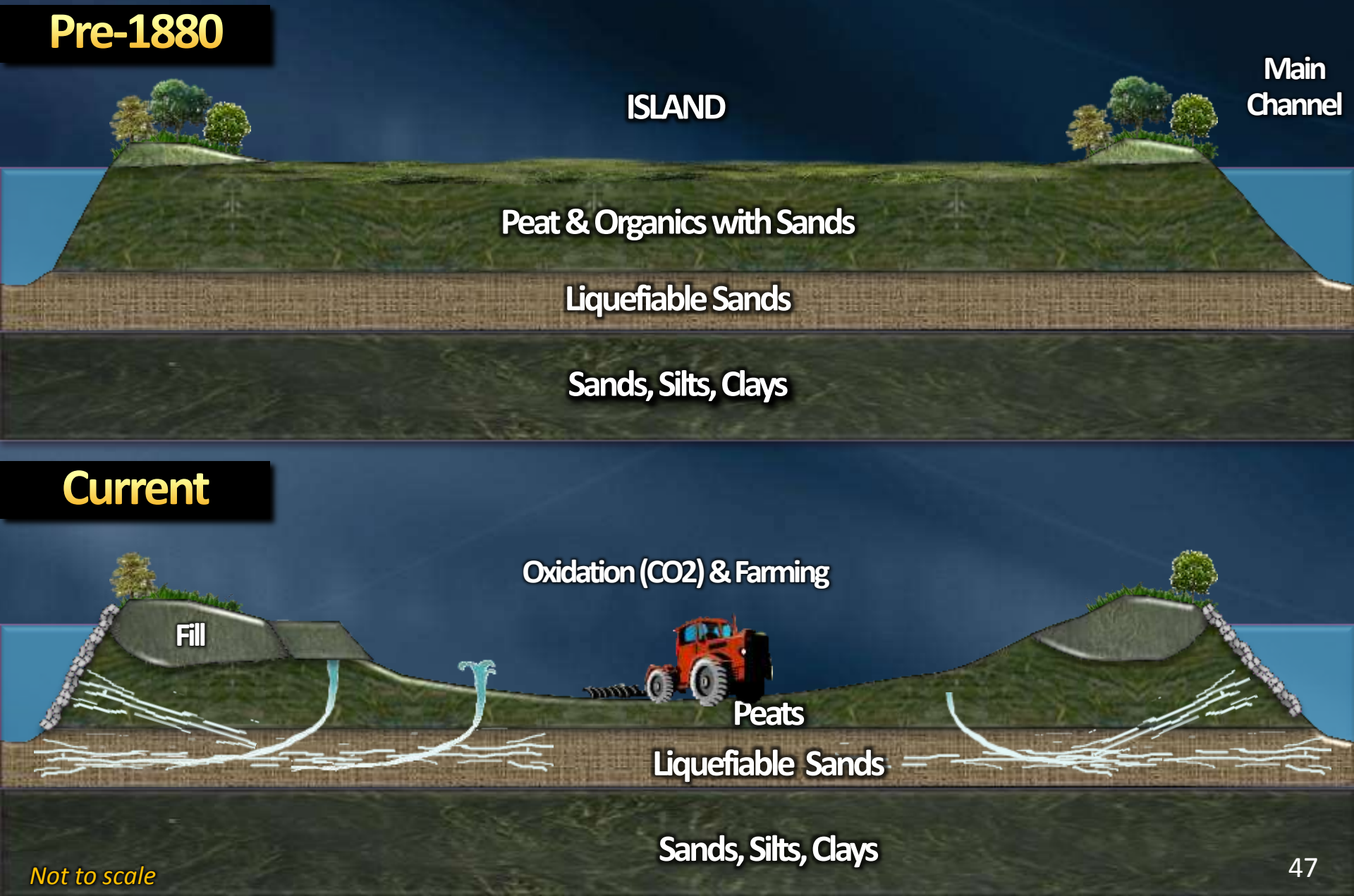
Emergency Pathway

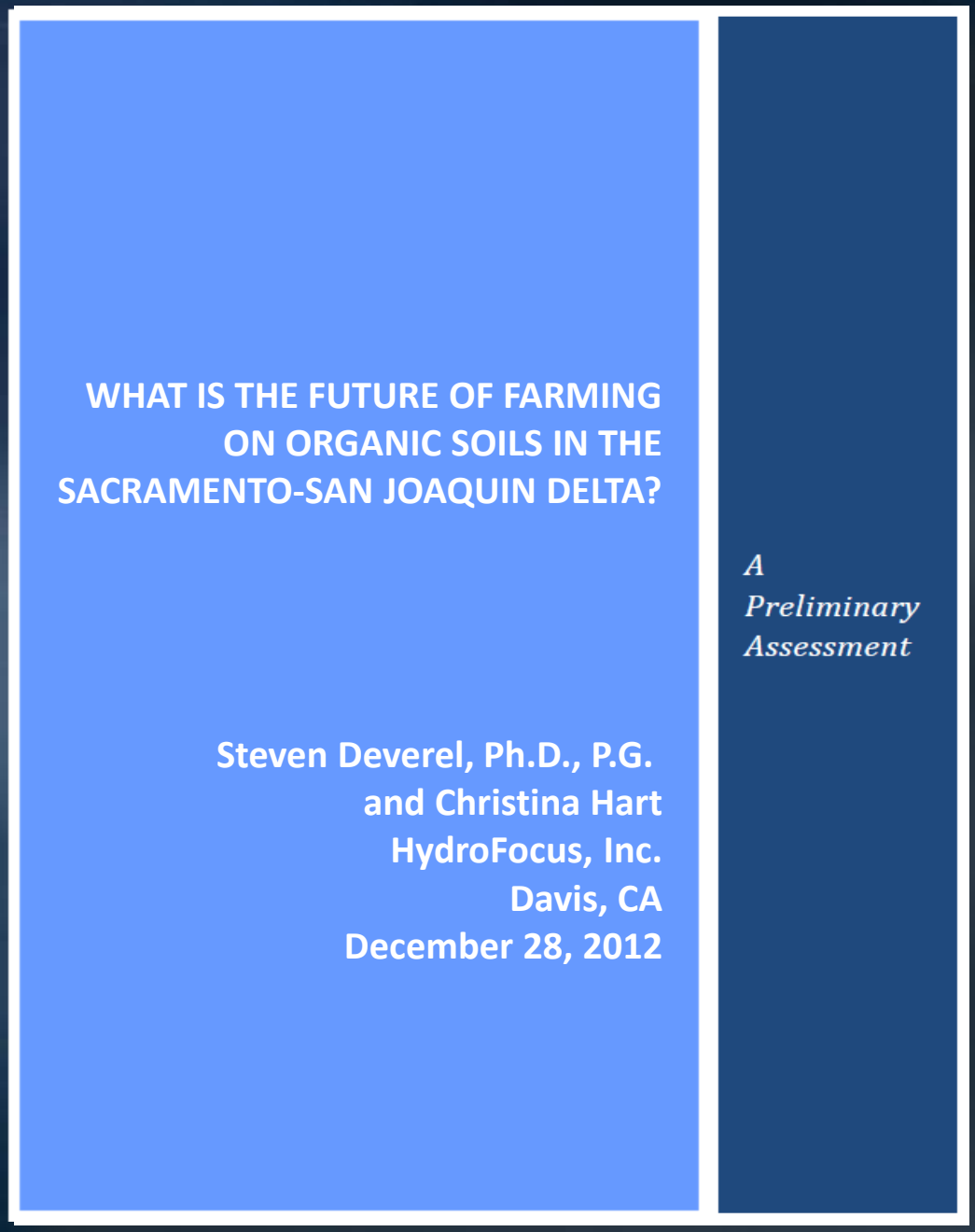
Priority Levee Improvements

- Needed
- Mostly Completed
- Underway
- Under consideration



Delta Island Seepage Risks





Island Seepage Analysis

Preliminary Assessment DRAFT Report

HydroFocus, Inc.

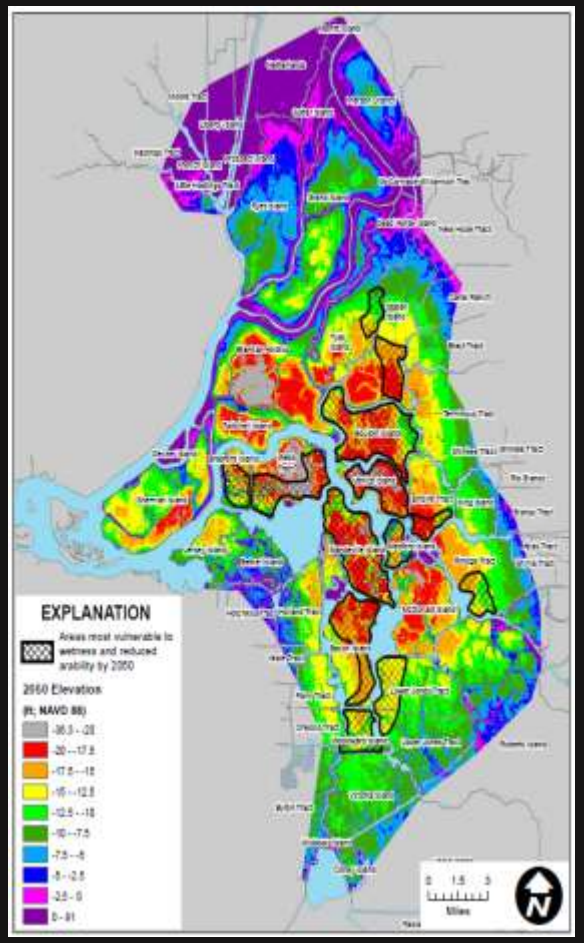
to be submitted for Independent Peer Review

Island Seepage Analysis

Areas Vulnerable to Increasing Wetness

1984 Survey

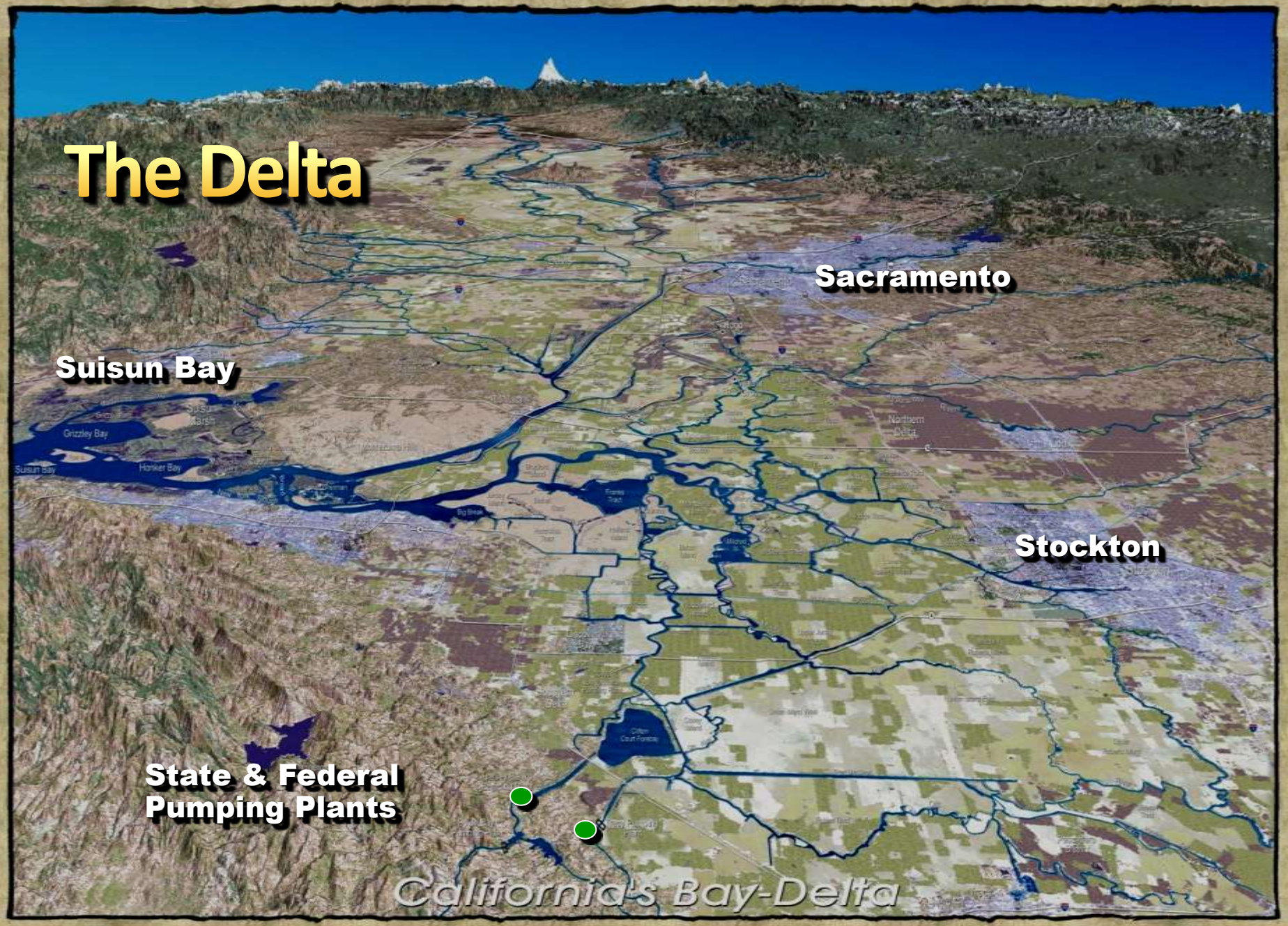
2011 Survey



2050 estimate

Summary of Progress
Metropolitan's Board Adopted Delta Action Plan

- Short-Term Action Plan
  - Operations of Banks Pumping Plant and Delta Levee Emergency Preparedness & Response Plan
- Mid-Term Action Plan
  - Collaborative Science & Adaptive Management Program
  - Habitat Restoration
  - Science
  - Other stressors
- Long-Term Action Plan
  - Bay Delta Conservation Plan


The Delta
Sacramento
Suisun Bay
Stockton
State & Federal
Pumping Plants
California's Bay-Delta