

Agenda Item 6 & 7

Regional Report

Overview & key issues



Sacramento - San Joaquin Delta Region

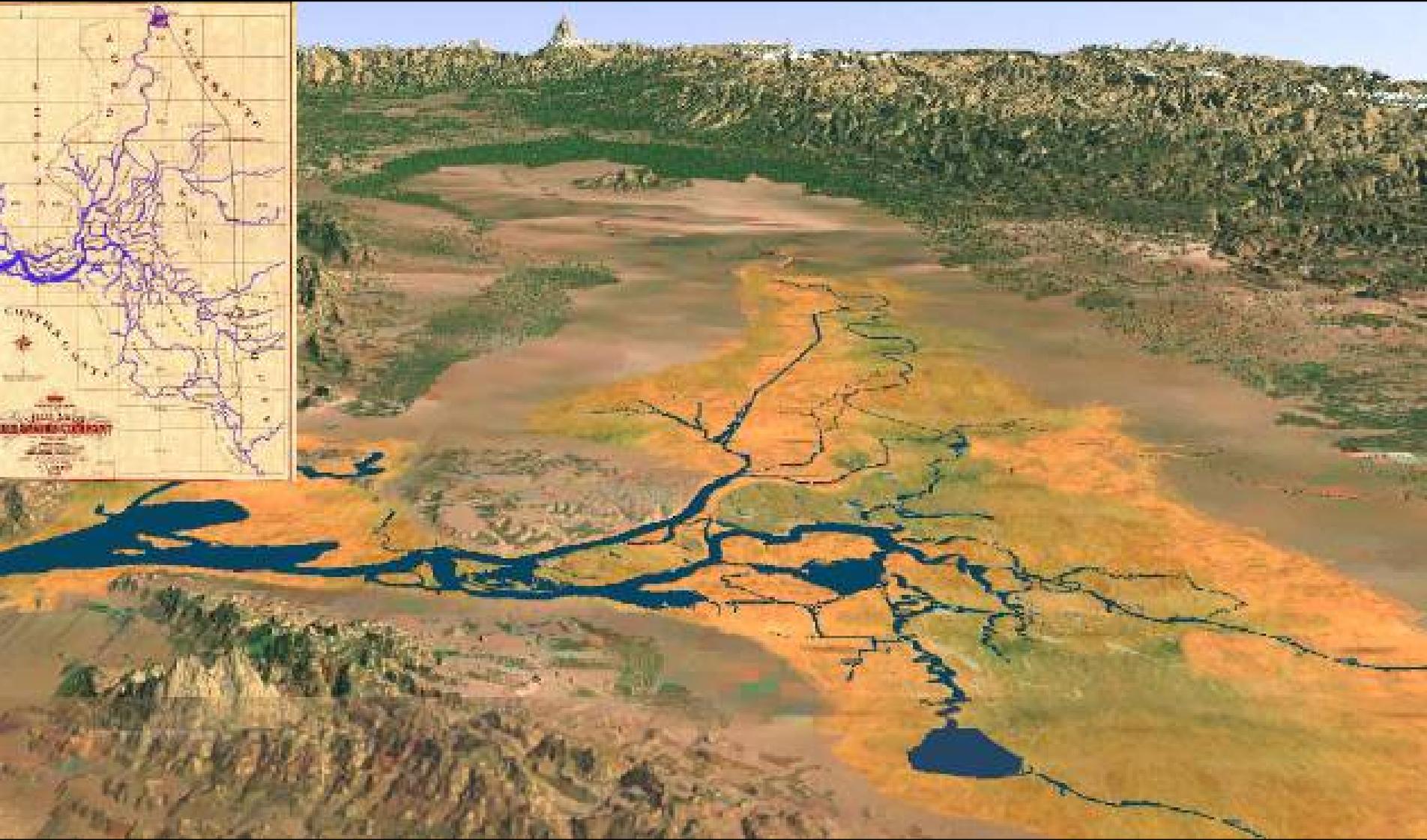
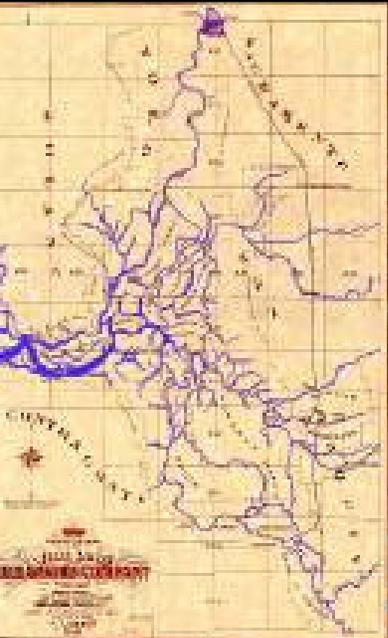


**Karl Winkler, Chief
North Central Region Office
Department of Water Resources**

Report Topics

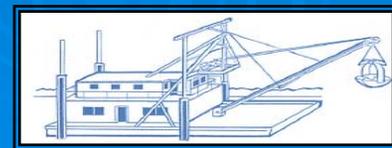
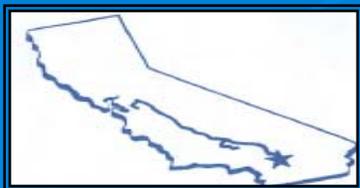
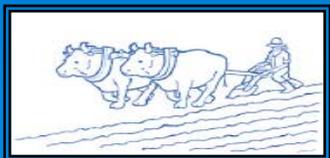
- Today's Activity (Presentation & Discussion)
 - Setting
 - Regional Water Conditions
 - Flood Management
 - Relationship with Other Regions
 - Challenges
 - Looking to the Future
 - California Water Plan Support
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Sacramento- San Joaquin Delta



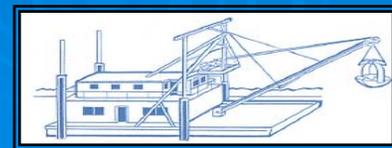
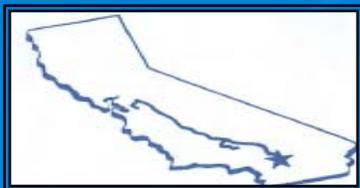
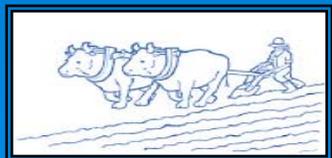
Background

- 1870: Levee Construction begins; Commercial farming
- 1880: Commercial fishing; striped bass and American shad introduced
- 1930's: Majority of Delta reclaimed - Flood Management System – Yolo bypass
- 1951: Delta Mendota Canal - Pop. = 10 million
- 1959: Delta defined in Water Code (Delta Protection Act) also 1992 DPC
- 1959: Burns Porter



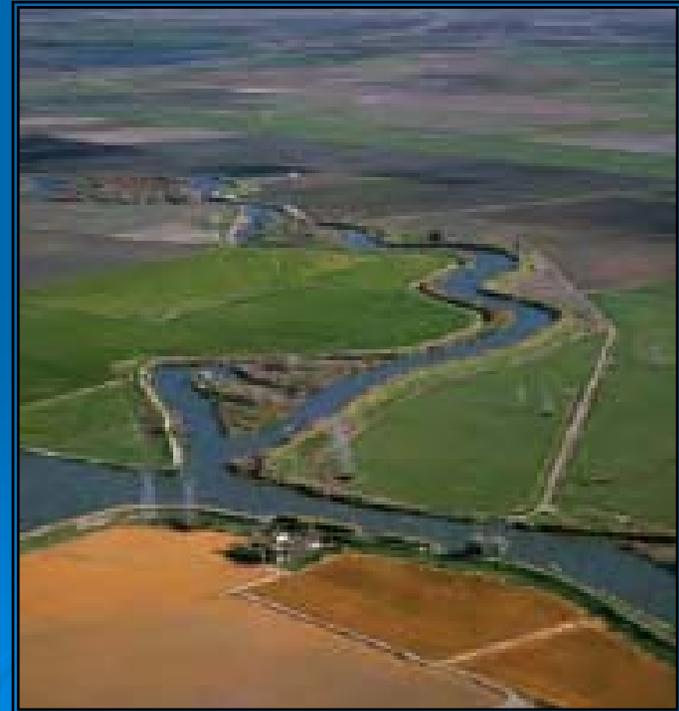
Background (con't)

- 1970's: SWP completed - NEPA, CEQA, CWA, NPDE, ESA, SWRCB, UWMPA, LEVEES subvention program; State Population - 20 million
- 1980's: Coordinated Operations Agreement, 4 Pumps, NBA, PL 84-99, Winter Run listed, Marsh Agreement, Invasive Species
- 1990-2000: Current Monterey Agreement, CVPIA, Biological Opinions, Smelt, CALFED, DPC, Delta Vision, Climate Change, Integrated Regional Water Management, FloodSafe
- 2009: Over 50 active programs
- 2050: Population projected 60 M (present 37 M)



Sacramento- San Joaquin Delta Facts

- Delta Region Population (2000 Census) – 515,000
- Counties – Portions of Alameda, Contra Costa, Sacramento, San Joaquin, Solano and Yolo Counties
- Major cities partly within the Delta – Sacramento, Stockton, West Sacramento and Oakley; Rapid growth in and near Elk Grove, Tracy, Brentwood and Rio Vista
- Covers 738,000 acres; 700 miles of waterways; 1,100 miles of levees
- 538,000 acres of agriculture; 64,000 acres of urban & commercial use; open water covers 60,000 acres; remainder of region is undeveloped natural plant vegetation
- Water from Delta serves 25 million people; irrigates more than 3 million acres of agricultural lands
- 1.3 MAF applied water - yr 2000



This aerial photograph shows islands within channels in the central and northern Delta.

Sacramento- San Joaquin Delta Facts

- Carries 47% of California's total annual runoff; conveys runoff towards the Pacific Ocean from 40% of State's land area
- Peak Ag diversion during summer months is 4,000 cfs with 1,800+ diversions totaling over 1 million acre-feet annually; \$1 billion of \$35 billion State Ag economy
- Main crops – corn, grain & hay, alfalfa, pasture, tomatoes, fruit, asparagus, safflower, pears and grapes
- Wildlife – 52 mammals, 22 reptile and amphibian species, 225 birds, 54 species of fish, including ~260 invasive species
- Recreation – user days annually 12 million, including visitors to 290 shoreline recreational areas, 300 marinas, and about 500,000 boaters



Farming on Sherman Island. Delta crops average a gross value of over \$2 billion per year.

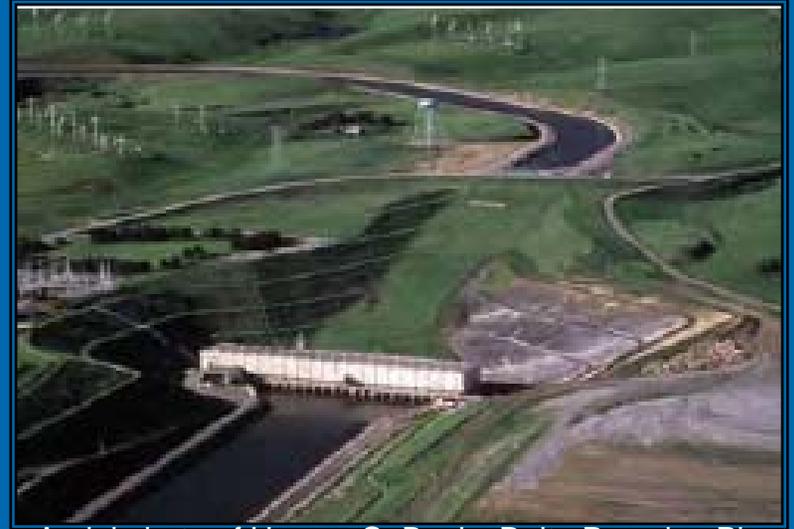
Infrastructure

➤ Water Facilities

- State Water Project: California Aqueduct, Harvey O. Banks Delta Pumping Plant, and the North and South Bay Aqueducts

- Federal Central Valley Project: Tracy Pumping Plant, Delta-Mendota Canal, Delta Cross Channel and Contra Costa Canal

- Locally-Funded Facilities: East Bay Municipal Utility District (Mokelumne) Aqueduct and the City of Vallejo pipeline



Aerial photo of Harvey O. Banks Delta Pumping Plant

- Railroads - Southern Pacific/Union Pacific, Atchison, Topeka & Santa Fe, Sacramento Northern
- Two major ship channel systems
- Pumps and irrigation systems to support \$1 billion Agriculture Industry
- Homes, marinas, and boat slips

Infrastructure

- Federal and State Highways –
 - Interstate Highways 5, 80, 205 and State Highway 99 traverse the periphery of the Delta
 - Road access to more central Delta areas is provided by State Highways 4, 12, and 160 and numerous County Roads
- Underground gas fields and storage areas throughout Delta
- PG&E pipelines
- Numerous power transmission lines up to 500 kV cross Delta islands and waterways



Rio Vista bridge on State Highway 12

Delta Hydrology, Hydrodynamics and Operational Criteria

➤ Upstream Watershed

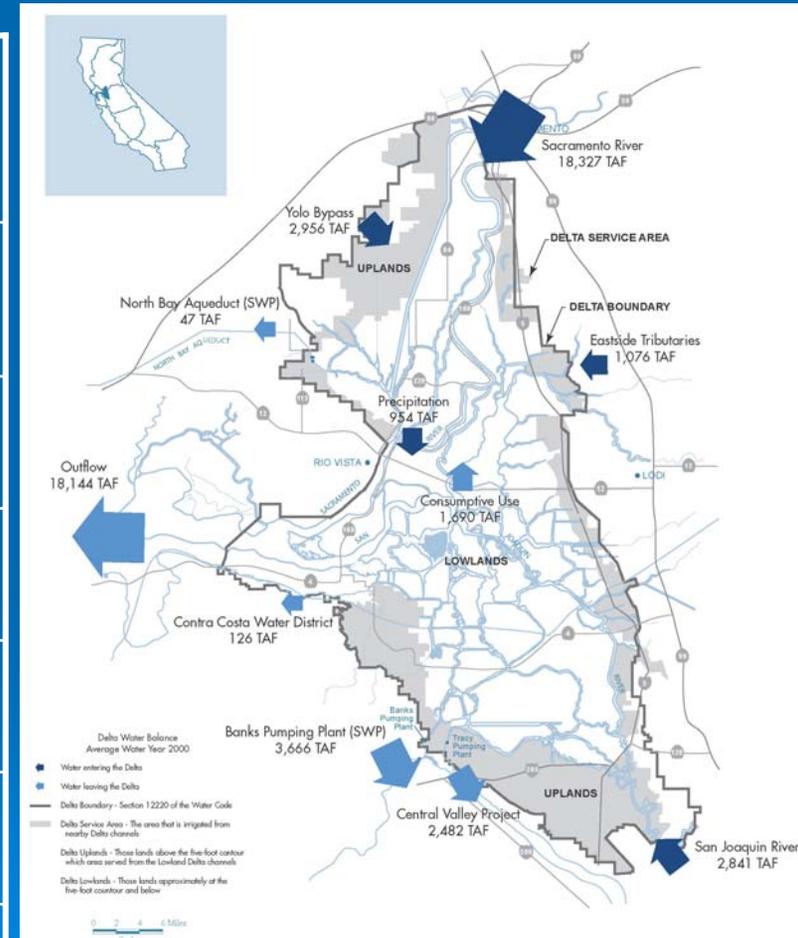
- 31 PA's, 108 DAU balances (valley)
 - 78 Groundwater basins (valley)
 - 37 reservoirs over 100,000 AF (valley), with total capacity 27,000 TAF
- ## ➤ Carries 47% of California's total annual runoff; conveys runoff towards the Pacific Ocean from 40% of State's land area
- ## ➤ Tidal influence

Delta Hydrology, Hydrodynamics and Operational Criteria

- Complex operating rules SWRCB, ESA, Flood Control, Navigation, Court Decisions, Contracts, CVP OCAP, SWP/CVP Coordinated Operations Agreement; CVPIA
- 200 MAF total and 70+ MAF runoff
- 70+ percent rule precipitation/demand 25 million people
- Climatic and geographic variability Sept-April, 60 MAF vs. 6 MAF yearly; 500,000 cfs daily

Inflows to Sacramento- San Joaquin Delta

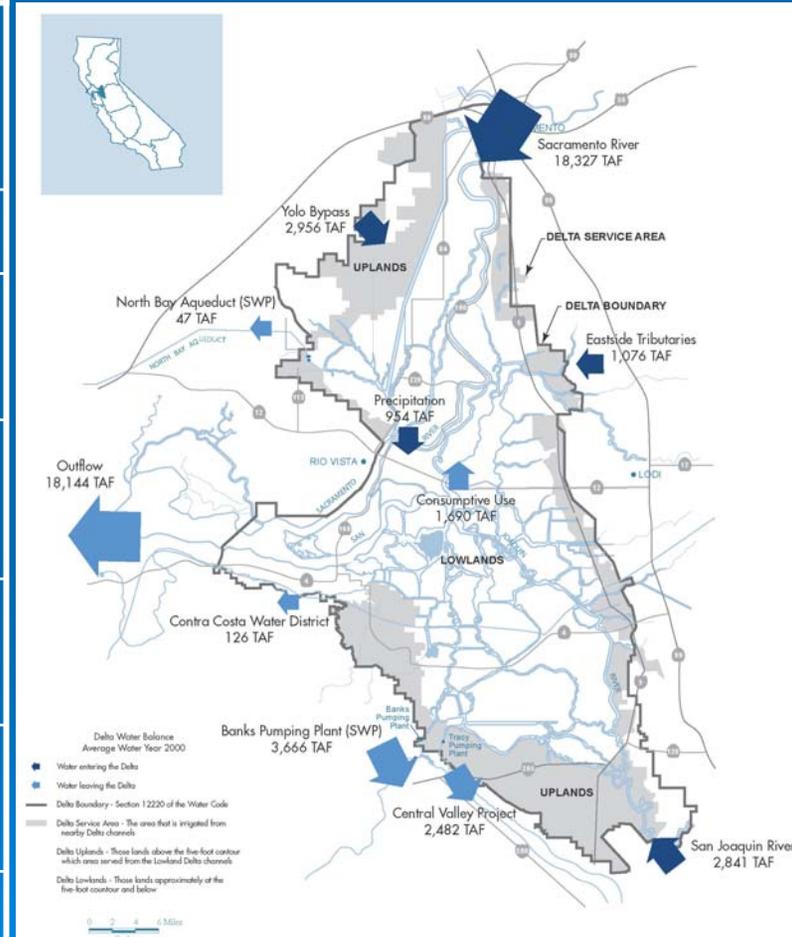
Source	Water Year 2000 Flow (TAF)
Sacramento River	18,327
Yolo Bypass	2,956
San Joaquin River	2,841
Eastside Tributaries	1,076
Precipitation	954
TOTAL	26,200



Imports in Dark Blue

Outflow and Exports from Sacramento- San Joaquin Delta

Region	Water Year 2000 Flow (TAF)
Outflow to Bay	(18,144)
North Bay Aqueduct (NBA)	(47)
Contra Costa Water District	(126)
Banks Pumping Plant (SWP)	(3,666)
Tracy Pumping Plant (CVP)	(2,482)
Consumptive Use	(1,690)
TOTAL	(26,200)



Outflow/Exports in Light Blue

Policy

- FloodSAFE Initiative
- Delta Risk Management Strategy
- Delta Vision
- CALFED Bay Delta Program
- Integrated Regional Water Management Planning
- California Water Plan Update 2009
 - 27 Resource Management Strategies
- State Water Resources Control Board – Strategic Work Plan



Policy

- Delta Protection Commission
 - City & County General Plans
 - Climate Change Initiatives
 - Wanger Decision
 - Biological Opinions
 - Governor's Drought Proclamation
 - 20x2020 Initiative
- 

Bay Delta Conservation Plan Goals

- Provide Conservation and Management of covered species
- Preserve, restore, and enhance aquatic, riparian, and associated terrestrial natural communities
- Allow for projects that restore and protect water supply, water quality, ecosystem, and ecosystem health
- Provide a means to implement activities in compliance with NCCPA or CESA, FESA, and other environmental laws, including CEQA and NEPA
- Provide a basis for permits necessary to lawfully take covered species
- Provide a comprehensive means to coordinate and standardize mitigation and compensation requirements
- Provide a less costly, more efficient project review process which results in greater conservation values
- Provide clear expectations and regulatory assurances

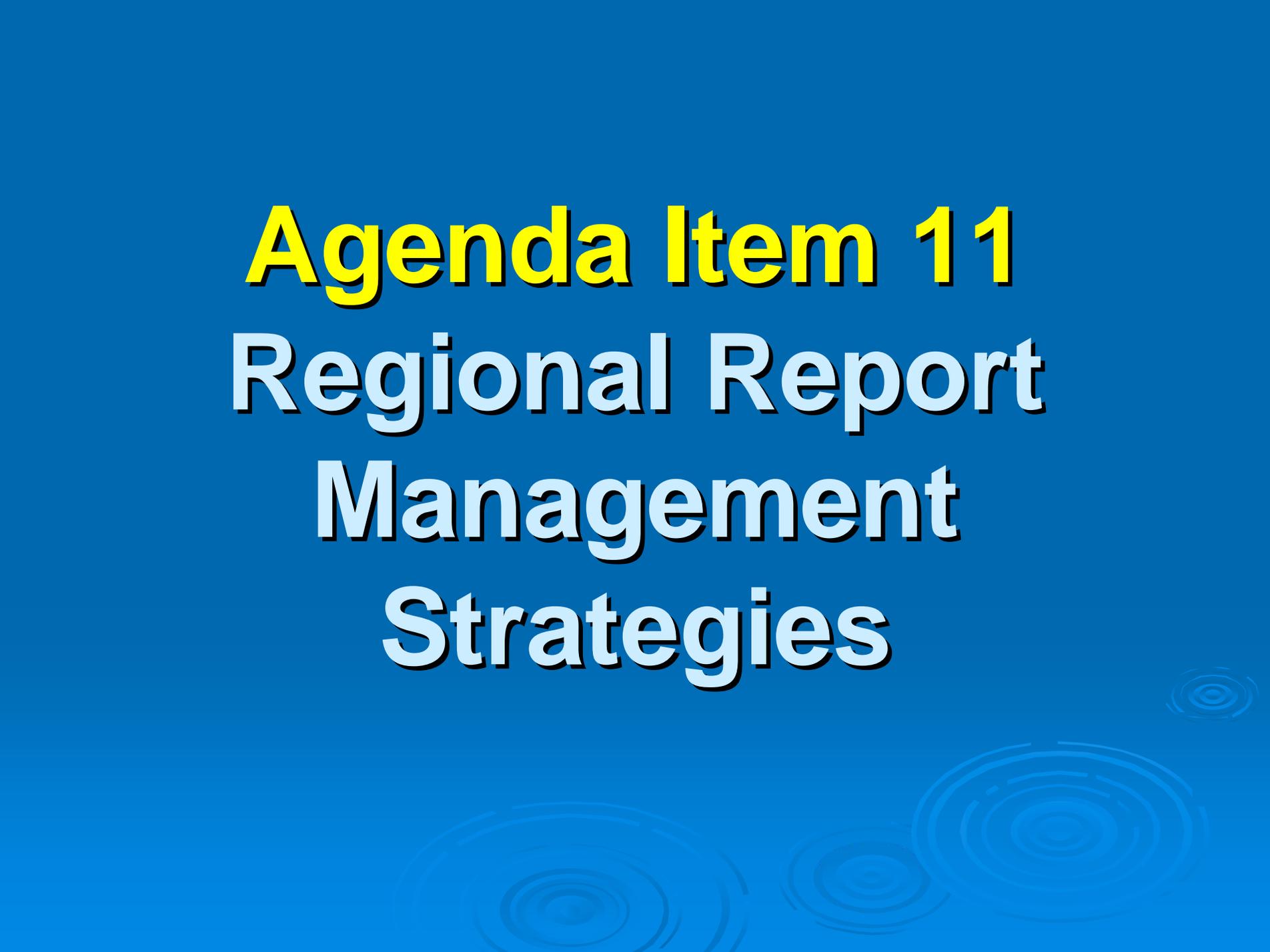
BDCP – Covered Species

- Central Valley Steelhead
- Central Valley Chinook Salmon (Spring-run and Fall/late Fall-run)
- Sacramento River Chinook Salmon (Winter-run)
- Delta Smelt
- Green Sturgeon
- White Sturgeon
- Splittail Smelt
- Longfin Smelt
- Other considered for inclusion in the BDCP:
 - Swainson's Hawk
 - Bank Swallow
 - Giant Garter Snake
 - Valley Elderberry Longhorn Beetle

Questions & Discussion B



Agenda Item 11
Regional Report
Management
Strategies

The background is a solid blue color. In the lower right quadrant, there are several faint, concentric circles that resemble ripples in water, creating a subtle decorative pattern.

State of the Region – Challenges

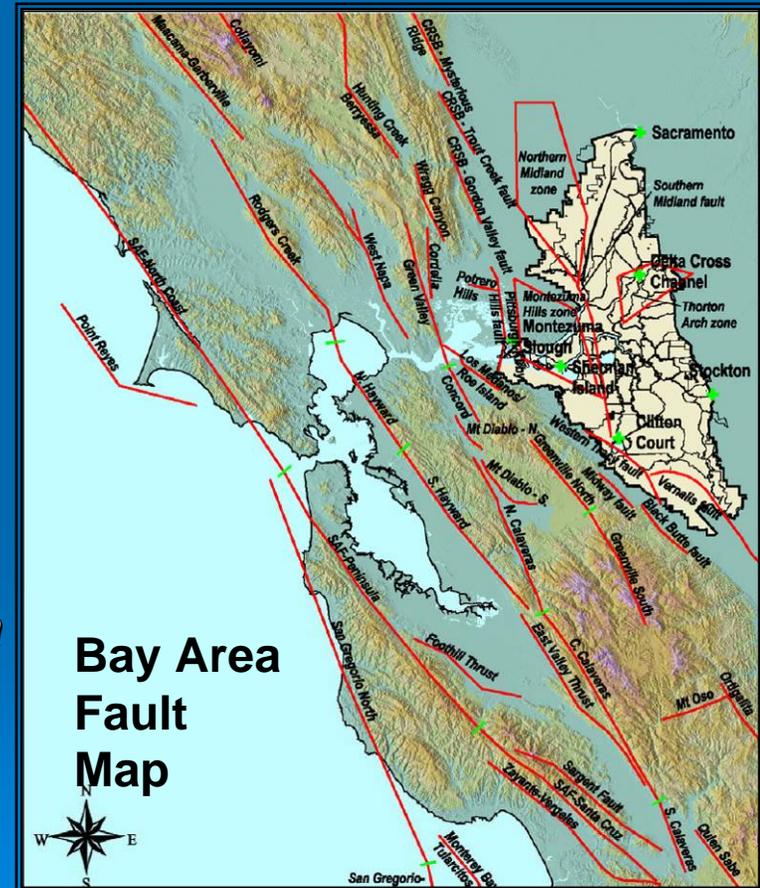
- Delta is “Broken”
- Wanger Decision
- Altered Estuary
- Delta Risk Management Strategy
 - (High Flows, Tides, Winds, Rodent Damage, Foundation Slope stability, Seepage, Seismic Events, Central Delta late summer algae blooms) Project, Environment, Infrastructure, Delta Economy Risk
- Flooding near annual event
- Listed Species – Salmon, Smelt, Splittail, Steelhead, Sturgeon
- Climate Change (White Paper and Operational Report)
- Pelagic Fish Decline – Delta Smelt, Longfin Smelt, Threadfin Shad, Striped Bass



Levee break in the 2004 flood of Jones Tract

State of the Region – Challenges

- DOF 2050 projections of 60 million (~40,000 increase by 2030 in secondary zone Bishop, Sargent Barnhart, Stewart, and Shima Tracts)
- Mercury 303(d) list, Salinity (Land derived, Ocean) Export systems salt, THM's, pesticides, nitrates, ammonia, PCB, Low dissolved oxygen, silver, cadmium, copper, pharmaceuticals
- Disaster Preparedness, Response and Recovery
- Invasive species over 250 nonnative species
- Earthquake projections/ water reliability (a 6.7 Magnitude Earthquake in the Delta could lead to a net economic cost of \$15 billion or more, 62% probability before 2032)



Flood Management is Incorporated in the CWP Update 2009



TYLER ISLAND 1986

Historic Floods

Flood Hazards

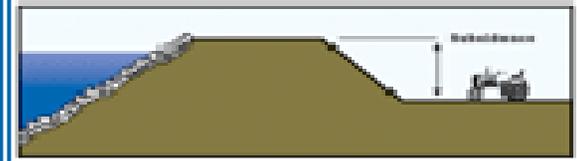
Governance

Risk Management

Pre-1850 Delta



Present Conditions



DELTA SUBSIDENCE

Geometry

Stability

Seepage

Erosion

Maintenance



RIO VISTA CERT TEAM

The City of Rio Vista
CERT
COMMUNITY EMERGENCY
RESPONSE TEAM
2006



TWICHELL ISLAND SETBACK LEVEL

Delta Projects and Studies

- Climate Change Investigations
- Delta Vision
- Bay Delta Conservation Plan
- SWRCB Strategic Work Plan
- IRWMP (7)
- Drought Declaration
- DPC General Plans
- FloodSafe, USCE, OES, Subventions, NFIP
- CALFED ERP, HCP, NCCP, EWA
- Central Valley Alternatives for long term sustainability
- Central Valley RWQCB Irrigated Lands Regulatory Program
- SDIP
- SWP/CVP intertie and integration plan
- Los Vaqueros expansion
- Franks Tract, Bethel Island
- Delta Cross Channel and Conveyance SWP/CVP 4 Pumps



South Delta: Head of Old River Barrier



The delta is a popular area for water-based recreation such as fishing, sailing, and water-skiing.

Delta Projects and Programs

- U.S. Bureau of Reclamation
 - BDCP – Steering Committee
 - Central Valley Project – Delta Operations
 - Delta-Mendota Canal Recirculation Study
 - San Joaquin River Restoration
- U.S. Army Corp. of Engineers
 - CALFED Levee Stability Program
 - Delta Islands Levee Feasibility Study
 - Delta Long Term Management Strategy – Dredging
 - Sacramento River Deep Water Ship Channel
 - Sacramento River Bank Protection Program
 - San Francisco Bay to Stockton Navigation Improvement

Resources Management Strategies

Resources Management Strategies	Actions						
	Delta Vision	BDCP	Strategic Plan ⁴	CALFED	Suisun Marsh	General Plans	IRWMP
Strategies to Reduce Water Demand							
Agricultural Water Use Efficiency	√		√	√		√	√
Urban Water Use Efficiency	√		√	√		√	√
Strategies to Improve Operational Efficiency							
Conveyance Regional/Local				√	√	√	√
System Re-operation	√	√	√	√	√		√
Strategies to Increase Water Supply							
Recycled Municipal Water	√		√	√		√	√
Surface Storage	√			√			√
Strategies to Improve Water Quality							
Drinking Water Treatment and Distribution	√		√	√	√	√	√
Matching Water Quality to Water Use			√	√		√	√
Pollution Prevention	√		√	√	√	√	√
Salt Management			√	√	√	√	√
Urban Runoff Management			√	√	√	√	√
Strategies to Practice Resource Stewardship							
Agricultural Lands Stewardship	√	√		√		√	√
Economic Incentives	√		√	√		√	√
Ecosystem Restoration	√	√	√	√	√	√	√
Land Use Planning and Management	√	√	√	√	√	√	√
Water Dependent Recreation	√			√	√	√	√

Water Plan

Alignment and Refinement

- Communications – Grounded in collaboration - State Agencies and Water Leadership – Policy drivers CWP, IRWMP, Delta, Drought, Climate, FloodSafe, Planning Vehicles, Integration
- Statewide Hydrologic and Hydraulic evaluations, Portfolios, Water PIE, CALSIM, DSM, WEAP, SWAN, FloodSafe
- Clarity of interregional matters, refinement for plan formulation connecting the benefits of State and local objectives
- Secondary refinement to increase execution success

Regulatory Elements

- Constitution
- Government Code
- Public Resources Code
- Water Code
- CEQA, NEPA
- EPA MCL
- SWRWQCB, SWRCB, WATER Law
- CWA 401 & 404
- Rivers and Harbors Act
- DFG – Instream
- Levee Standards, PL 84-99
- FEMA NFIP rules
- ESA CESA
- Wanger Decision
- HCP, Natural Community Conservation Plan, Biological Opinion
- OCAP
- Monterey Agreement Contracts

? QUESTIONS ?



The Bay-Delta is the West Coast's largest estuary,
with 57 major reclaimed islands

Questions & Discussion C

