

# Regional Report

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## San Francisco Bay Hydrologic Region

# SAN FRANCISCO BAY HYDROLOGIC REGION

Revised November 8, 2005

North Coast Region  
Sonoma Petaluma Aqueduct

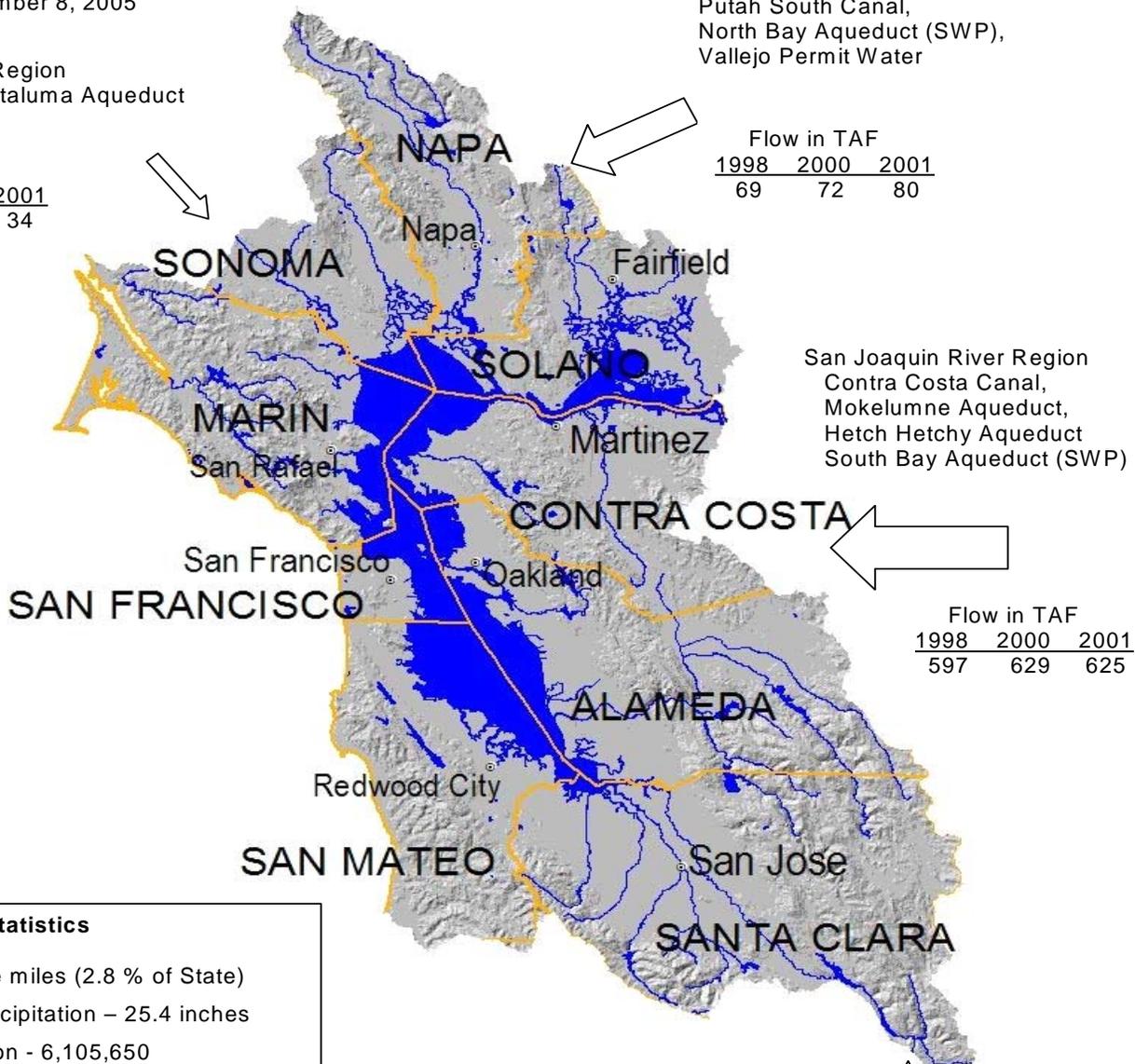
Sacramento River Region  
Putah South Canal,  
North Bay Aqueduct (SWP),  
Vallejo Permit Water

Flow in TAF

1998	2000	2001
32	33	34

Flow in TAF

1998	2000	2001
69	72	80



San Joaquin River Region  
Contra Costa Canal,  
Mokelumne Aqueduct,  
Hetch Hetchy Aqueduct  
South Bay Aqueduct (SWP)

Flow in TAF

1998	2000	2001
597	629	625

### Some Statistics

- Area - 4,506 square miles (2.8 % of State)
- Average annual precipitation – 25.4 inches
- Year 2000 population - 6,105,650
- 2030 projected population – 7,857,360
- Total reservoir storage capacity - 746 TAF
- 2000 irrigated crop area - 70,300 acres
- Inflow from Delta 22 -23 MAF/Yr

Central Coast Region  
San Felipe Unit CVP

Flow in TAF

1998	2000	2001
66	89	133

# Watersheds and Water Sources

- Bay & Suisun Marsh
- Local Reservoirs
- Imports
- Groundwater
- Recycled Water

# SF Bay and Suisun Marsh

- Over 75% of the Bay's wetlands have been lost or altered.
- Historically
  - 190,000 acres of tidal marsh reduced to 40,000 acres
  - 50,000 acres of Tidal Flats reduced to 29,000 acres
  - 516,000 covered at high tide reduced to 327,000 acres
  - 52,000 acres S.S.Marsh managed wetlands
- 500 species of fish and wildlife including 20 endangered species
- Creation of Bay Conservation and Development Commission – Regulatory Permits
- Comprehensive Conservation and Management Plan of 1993 presents a blueprint with 145 specific actions
- Baylands Ecosystem Habitat Goals Report provides a guide for restoration/improvement



# Imports to SF Bay Hydrologic Region

Region	2001 Flow in TAF	Projects
North Coast	34	Sonoma Petaluma Aqueduct
Sacramento River	80	Putah South Canal North Bay Aqueduct (SWP) Vallejo Permit Water
San Joaquin River	625	Contra Costa Canal Mokelumne Aqueduct Hetch Hetchy Aqueduct South Bay Aqueduct (SWP)
Central Coast	133	San Felipe Unit CVP

# Major San Francisco Bay Reservoirs

<i>Reservoir Name</i>	<i>River</i>	<i>Capacity (1,000 AF)</i>	<i>Owner</i>
Lake Hennessey	Conn Creek	31.0	City of Napa
Nicasio	Nicasio Creek	22.4	Marin MWD
Kent Lake	Lagunitas Creek	32.9	Marin MWD
Alpine	Lagunitas Creek	8.9	Marin MWD
Soulajule	Walker Creek	10.6	Marin MWD
San Pablo	San Pablo Creek	38.6	East Bay MUD
New Upper San Leandro	San Leandro Creek	41.4	East Bay MUD
Chabot	San Leandro Creek	10.4	East Bay MUD
Briones	Bear Creek	60.5	East Bay MUD
Del Valle	Arroyo del Valle	77.1	DWR
San Antonio Reservoir	San Antonio Creek	50.5	City of San Francisco
Coyote	Coyote Creek	22.9	Santa Clara Valley WD
Leroy Anderson	Coyote Creek	89.7	Santa Clara Valley WD
Lexington	Los Gatos Creek	19.8	Santa Clara Valley WD
Lake Elsman (Austrian)	Los Gatos Creek	6.2	San Jose Water Works
Calaveras	Calaveras Creek	96.9	City of San Francisco
San Andreas	San Andreas Creek	19.0	City of San Francisco
Crystal Springs	San Mateo Creek	58.4	City of San Francisco

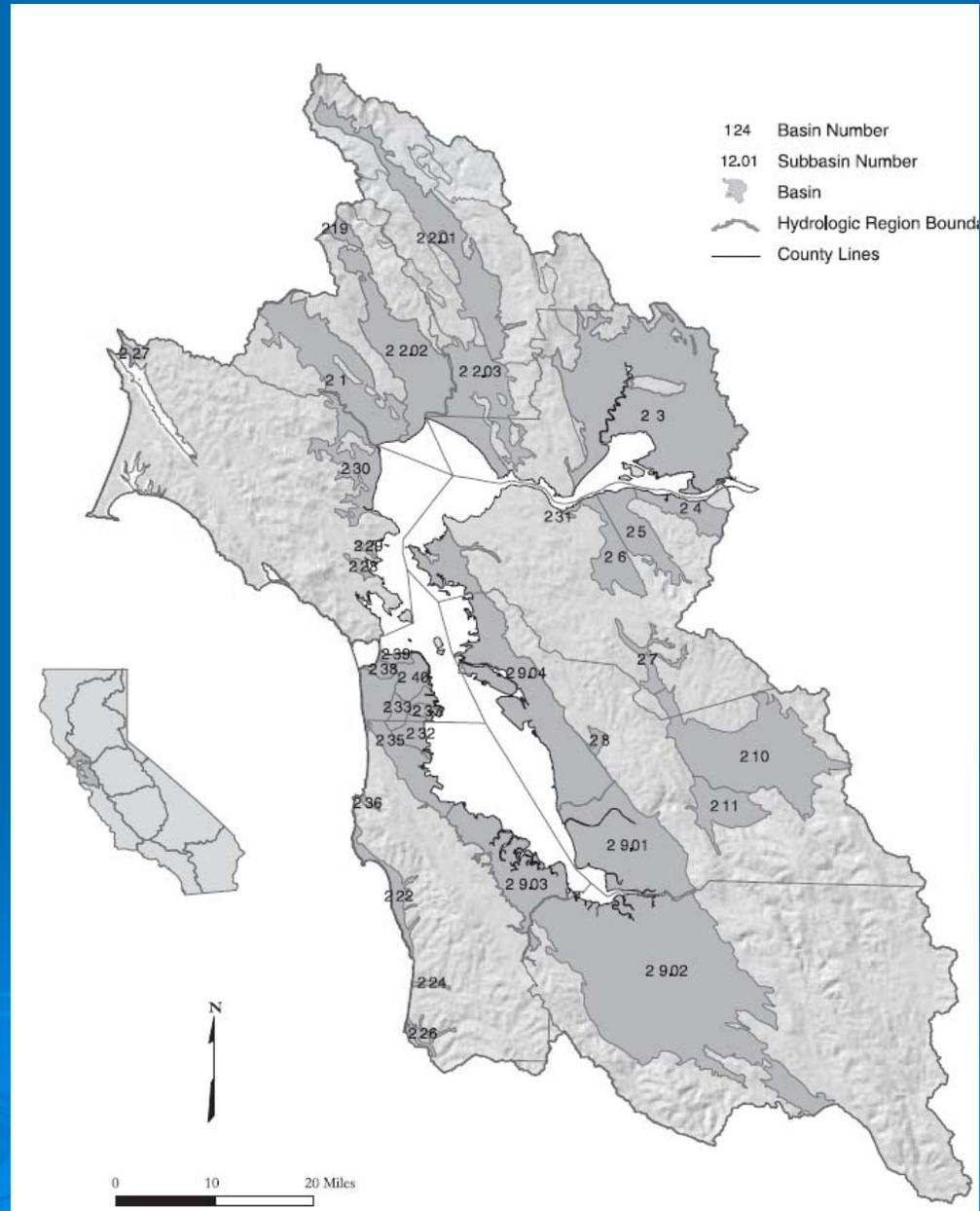
# 25 Groundwater Basins identified in Bulletin 118

Including

- Petaluma Valley
- Napa – Sonoma Valley
- Niles Cone
- Livermore Valley
- Santa Clara Valley
- Halfmoon Bay Terrace
- Westside

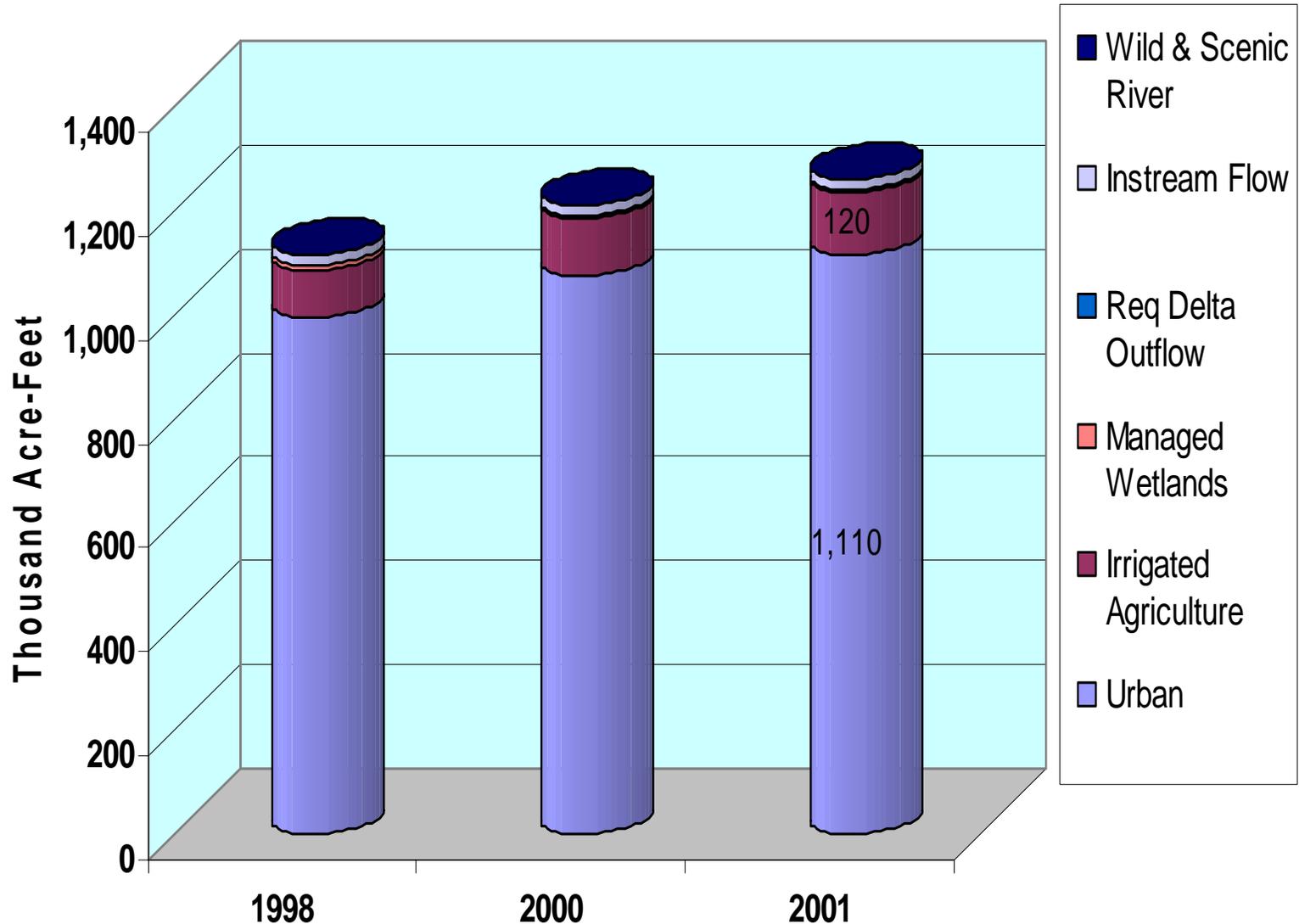
Issues:

- Prevention of Overdraft
- Prevention of Subsidence
- Prevention of Salinity intrusion
- Emergency supply



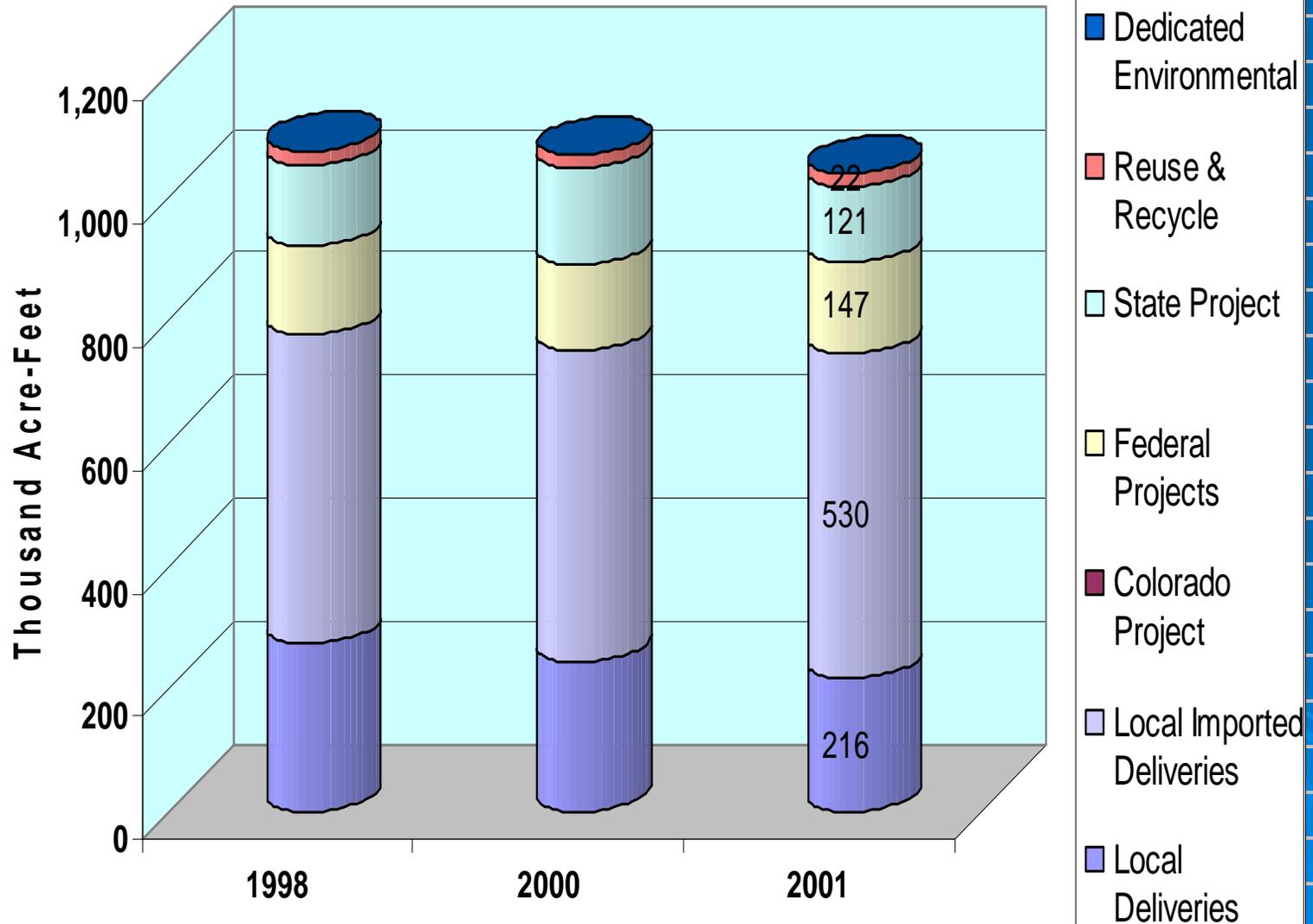
# SF Bay Region Applied Water Uses

for 1998, 2000 & 2001



# SF Bay Region Water Supplies

## for 1998, 2000 & 2001



# Regional Water Management Planning

- California Water Plan
- 50 Urban Water Management Plans
- Prop. 50 & 84 Integrated Regional Water Management Plans
- Groundwater Management Plans (AB 3030)
- City & County General Plans (SB 221/610)
- Court actions
- Other regional and sub regional plans on water rights, water quality, ESA, contracts/transfers, and flood control
  - Several regional, governmental, and water purveyors reacting to planning, funding, implementation and O&M responsibilities
  - Planning and implementation precision increases with time to address good plans

# Examples of Regional Supply Challenges/Actions

Water Supply	Agency	Current Situation
Drought	SCVWD  EBMUD	50 UWMP address drought actions; SCVWD projects shortfall of 66 TAF of 2020 in repeat of '77  Freeport Project benefits 1.3 million people in dry years to reduce shortages
Seismic/reliability	SFPUC \$4.3 billion EBMUD \$190 million Zone 7 SCVWD CCWD \$120 million	Water supply reliability; seismic upgrades; repair aging facilities; security upgrades; and integrated planning to optimize supplies including groundwater
New Diversions	EBMUD  SCVWD / SFPUD SCVWD	Formed Freeport Regional Water Authority with the Sacramento County Water Agency  40 MGD Intertie in the City of Milpitas  SLLPIP

# Examples of Regional Supply Challenges/Actions

Water Supply	Agency	Current Situation
Conservation	MOU for Best Management Practices; Bay Area Water Agencies Coalition SFPUC, SCVWD, CCWD, EBMUD, ACWD, ZONE 7; Urban Water Management Plans	105 TAF savings BMP's estimated by CUWA; \$ 15 Million – CALFED contribution; 16% savings total urban use since 1986 (17% growth 1.4% less water use) – BAWAC study
Recycled Water	Bay Area Water Recycling Program – S.F. , S Mateo, Santa Clara, Alameda, Contra Costa	\$ 43 Million – CALFED 50 mgd current 100 mgd future
Desalination	Marin Municipal Water District Alameda County Water Agency Northern CA Salinity Coalition	Pilot Project;; 2005 National Honor Award Feasibility study for desalination as Bay area emergency supply
Groundwater	In region supplies 5% of Bay area use Critical component of water management Outside region agreements for 425,000 af from groundwater banks	Planning objective prevent overdraft, subsidence, salt water intrusion and increase dry year performance; \$ 2.4 Million – 8 local projects
Surface Storage	Capital Improvement Program – CALFED	Calaveras, Pacheco, Los Vaqueros Reservoirs

# Climate Change

- Temperature increase
- Snowpack decrease
- River runoff timing and magnitude changes
- Effects on water rights
- Water supply change
- Water use increase
- Water temperature increase
  - increase dam releases for temperature control for species
- Tidal effects
  - threat to delta islands and supply facilities
  - relocation or modification of outfall facilities

# Flood Management

- National Flood Insurance Program
  - FEMA Floodplain Map Modernization
  - Local ordinance updates, technical assistance
- Flood Subventions
  - Project funding available from Propositions 1E and 84
  - Examples: Guadalupe and Napa Rivers
- floodSafe California
  - Develop and implement regional flood management to protect communities
- Proposition 1E
  - Flood control subventions
  - Stormwater flood management
  - Flood protection corridors and bypasses

# Drinking Water Quality

- Generally excellent but varies by source and treatment process
- Tuolumne and Mokelumne generally better than Delta supplies
- San Francisco implemented chloramine disinfection
- Los Vaqueros and advanced treatment are helping CCWD
- CCWD also working to relocate ag drains
- Solano blending NBA with higher quality supplies
- SCVWD scheduled to implement ozone treatment

# Watershed Environmental Water Quality

- Sediment concentrations legacy pollutants
- Storm water and construction site runoff
- PCB's, PBDE, mercury, copper, nickel, dioxins, pharmaceuticals,
- Bioaccumulation
- Repository
- Wastewater treatment and the reduction of organophosphate pesticides improved quality

# Bay Area Region Accomplishments

- 50 mgd of recycled water is produced
- BMP water savings is 105 TAF/yr.
- Since 1986, 17% increase in population and 1.4% decrease in total water use
- Billions allocated to seismic upgrades
- Chloromine and Ozone treatment upgrades
- Freeport Regional Water Project, 100 mgd drought supply, Interties
- MMWD completes desalination pilot project
- Baylands Ecosystem Habitat Goals, San Francisco Bay Joint Venture, Napa Sonoma Marsh Project, Cargill's Salt Ponds, Suisun Marsh, and Santa Clara Basin Watershed Management Initiative

# Looking to the Future

- ABAG projection – “Smart Growth” policies will need to deal with 2 million new people and 750,000 households by 2030
- Bay Area IRWMP / Planning for Climate change / Flood Management
- Ongoing regional plans for the implementation of water management actions including: conservation, recycling, desalination, conjunctive use, dry year transfers, banking and storage development
- Increasing coordination, BAWAC, North Bay Water Districts, BACWA planning framework Letter of Mutual Understanding
- Reliability, water quality, seismic vulnerability, security hazards, drought planning, watershed protection will be future challenges
- Delta export issues
- Invasive species
- Water Quality legacy problems PCBs and mercury
- Prevention of salt water intrusion, subsidence, and overdraft requires ongoing diligence
- Monitoring