

# California Water Plan Update 2009

## North Coast Hydrologic Region

## Regional Report Overview & Outline

## 2009 Regional Workshops

# California **Water Plan** Update **2009**

INTEGRATED WATER MANAGEMENT



Bulletin 160-09 • Department of Water Resources

*Volume*  
REGIONAL REPORTS

# 3

## Public Review Draft

January 2009

# **Agenda Items 6 & 7**

**Regional Report  
Overview, key issues,  
water portfolios**



# Regional Report Outline - Challenges and Opportunities

## Setting

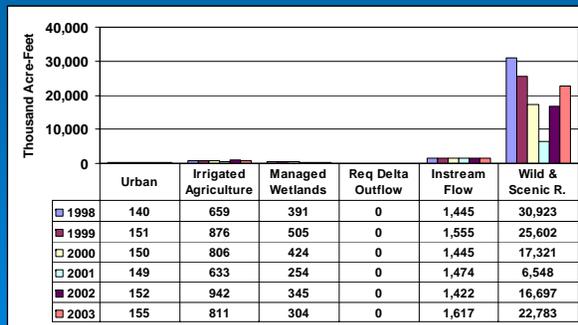


## Relationship with other Regions



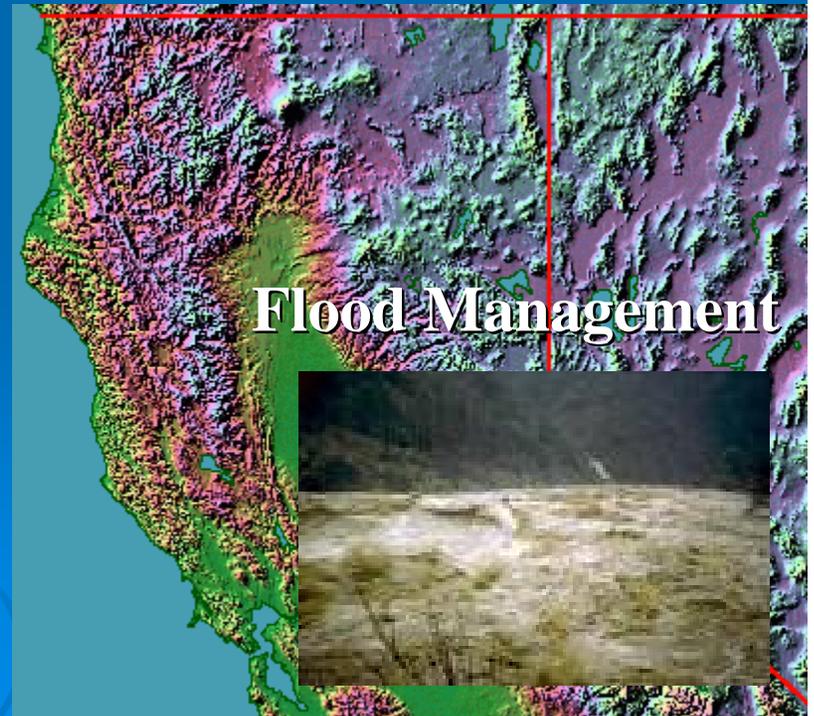
## Regional Planning & Management

## Regional Water Conditions



## Water Portfolios

Select References



# The North Coast Region

- Home to over 644,000 people
  - 2% of California's population
- About 42 Tribes
- 10 Counties (predominately rural)
- 98% forest and rangeland
- State's largest water volume region – (19,500 sq mi)
- Has about 29 Million Acre-feet of Run-off (41% of State's natural run-off)

# The North Coast Region (continued)

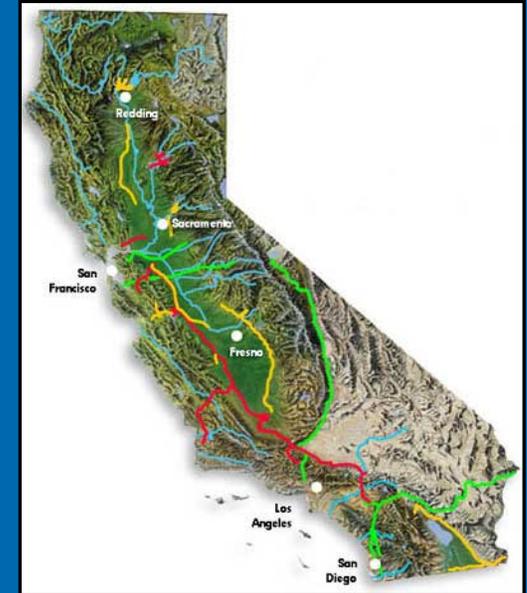
- 2 natural drainage basins – Klamath and North Coast
- Forest products, agriculture, and tourism is largest industries
- 10 wilderness areas and over 40 State Parks
- Important fishery areas
- An area of high recreational use

# Regional Report Outline - Challenges and Opportunities

## Setting

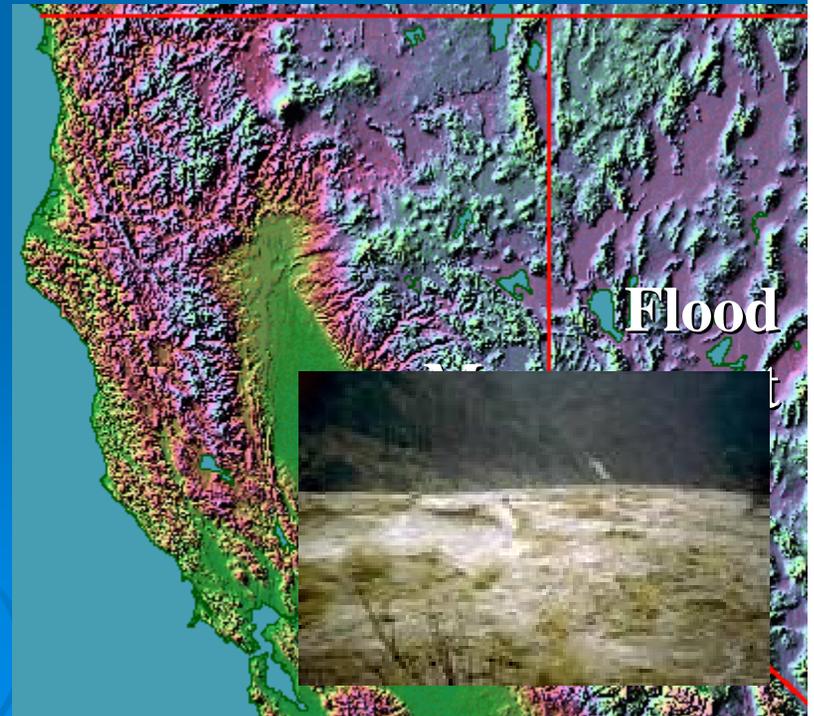
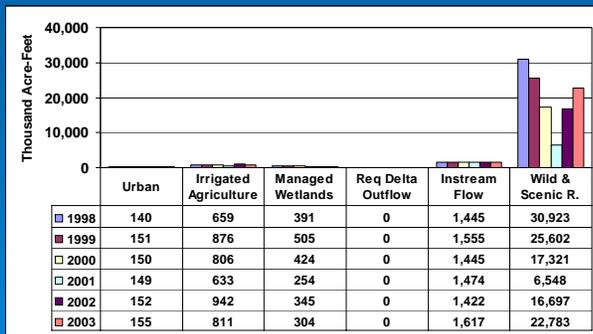


## Relationship with other Regions



## Regional Planning & Management

## Regional Water Conditions



## Water Portfolios

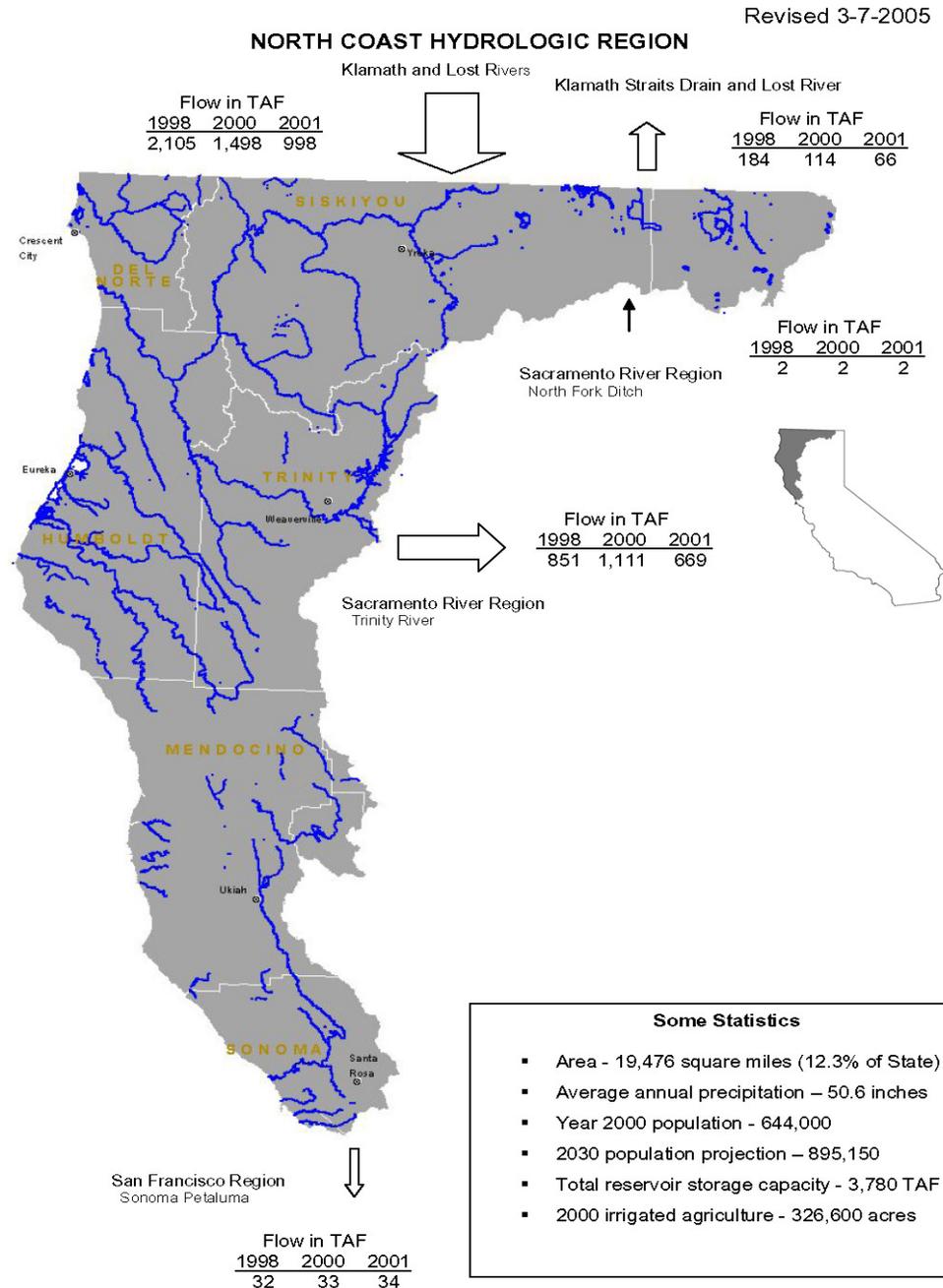
Select References

**Area: 19,500 sq. miles  
( 12.3 % of State)**

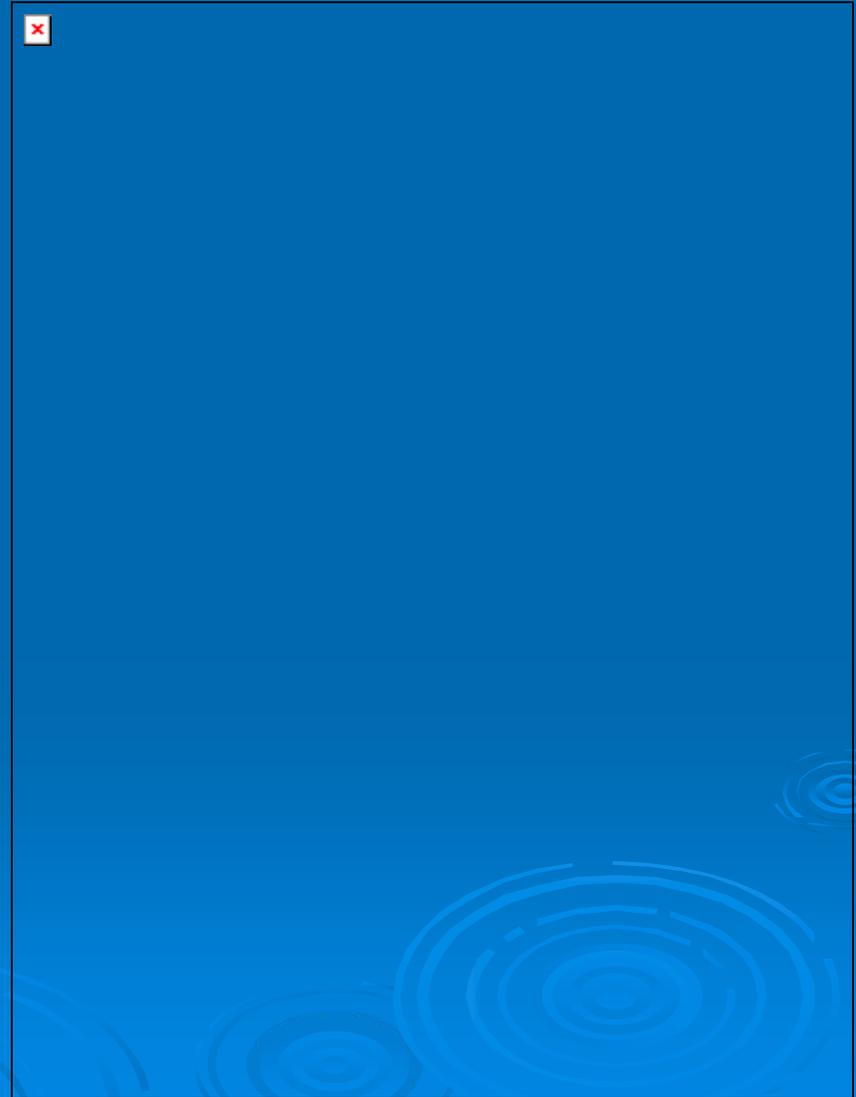
**Avg. Annual  
Precipitation: 50.6 inches  
(State Avg. 23 inches)**

**2000 Population: 644,000  
( 0.02% of State)**

**2000 Irrigated Crop Area:  
327,000 acres ( 0.03% of  
State)**



# North Coast Hydrologic Region Land and Water Use



Data Source: DWR ND 1996 to Present Land and Water Use Data

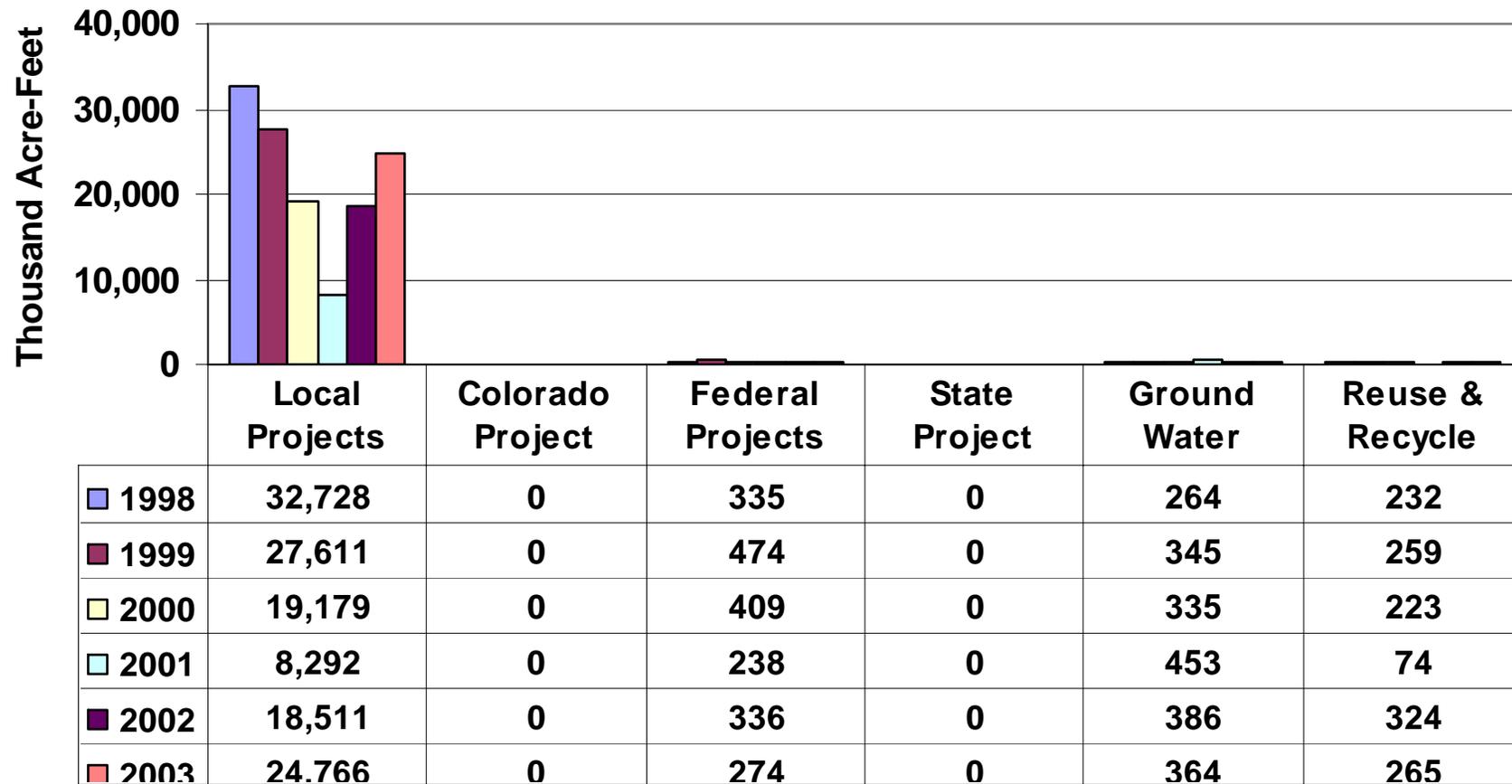
# North Coast

## Regional Water Conditions

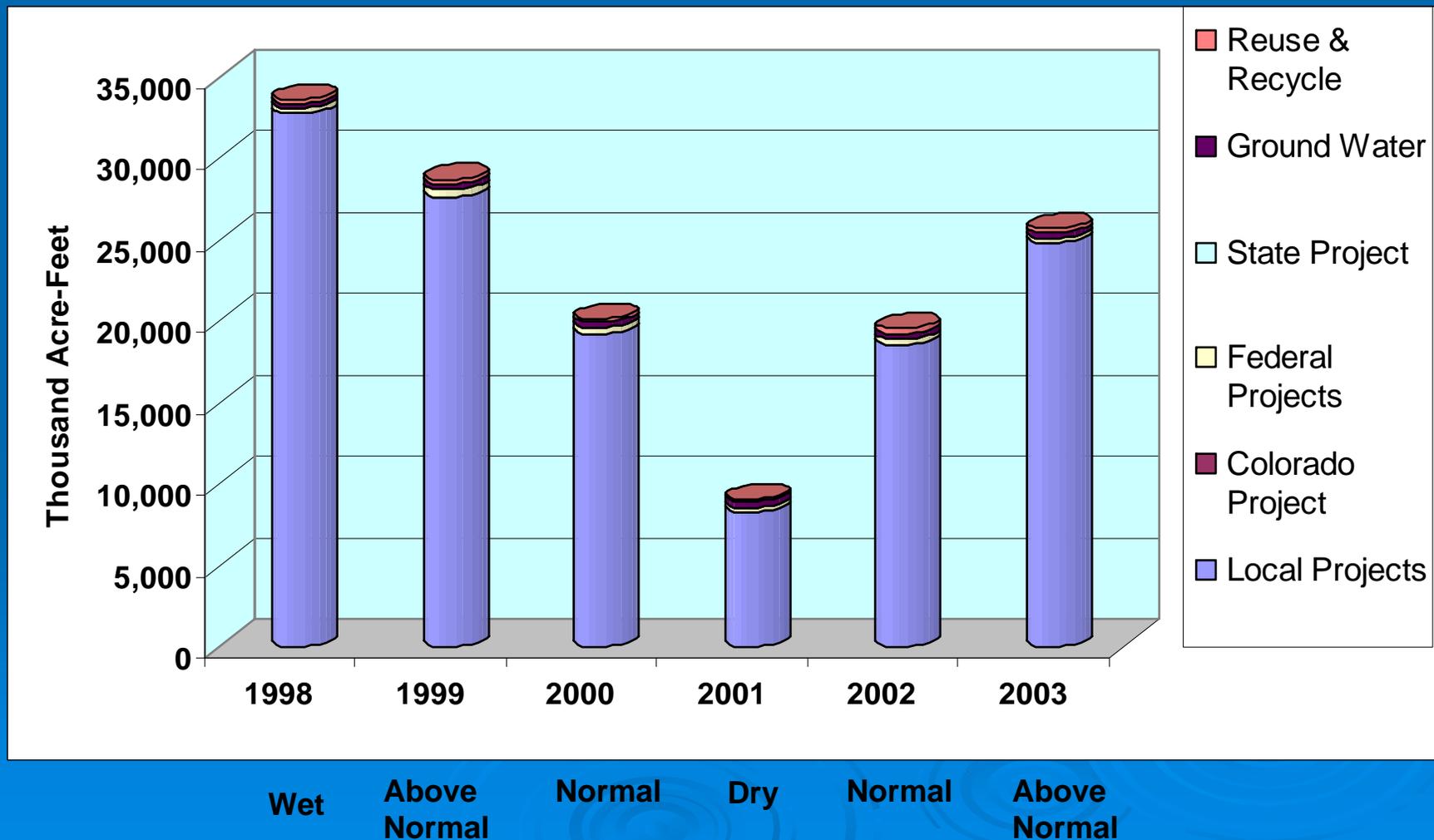
### Description of Data Sets

- 1 Detailed Analysis Unit
- 10 Counties
- Supplies
  - Klamath Project, Russian River Project, Trinity River Project, Ruth Reservoir, PacifiCorp, Groundwater; Reuse & Recycle; Locally Developed Surface Water; and other Imported Supplies
- Uses
  - Agriculture, Wild & Scenic, Managed Wetlands, and Urban

# Portfolio Data – Water Supply



# Portfolio Data – Water Supply



## North Coast Hydrologic Region

**Water Entering – Water Leaving = Change in Storage**

	1998 (154%)	2000 (98%)	2001 (60%)
Water Entering the Region	81 MAF	52 MAF	32 MAF
Water Leaving the Region	80 MAF	52 MAF	33 MAF
Storage Changes in the Region	1 MAF	0 MAF	-1 MAF

# Groundwater

- **North Coast Counties (Del Norte, Humboldt, Trinity)**
  - Groundwater levels on the north coast are generally stable, around 1 to 2 feet lower than last year
  - Shallow groundwater table
  - Water quality issues because of septic tanks and high (shallow) groundwater table
- **Siskiyou County**
  - Groundwater levels in Scott Valley are markedly lower, around 7 ft lower than last year on average
  - Groundwater levels in Shasta Valley are generally stable, around 1 to 2 feet lower than last year
- **Groundwater / Surface water concerns in both areas**
  - Pumping groundwater affects surface water in adjacent streams
  - Maintaining stream flows for fish

# Groundwater Level Monitoring Grid

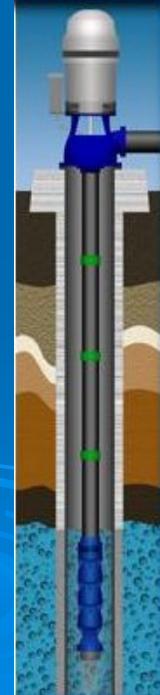
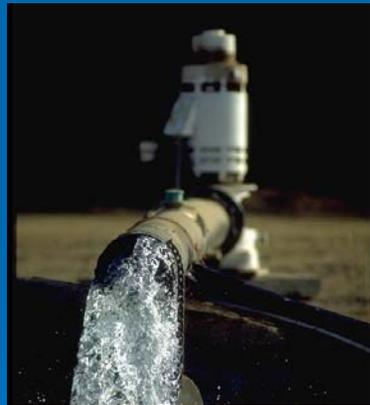
## North Coast Counties



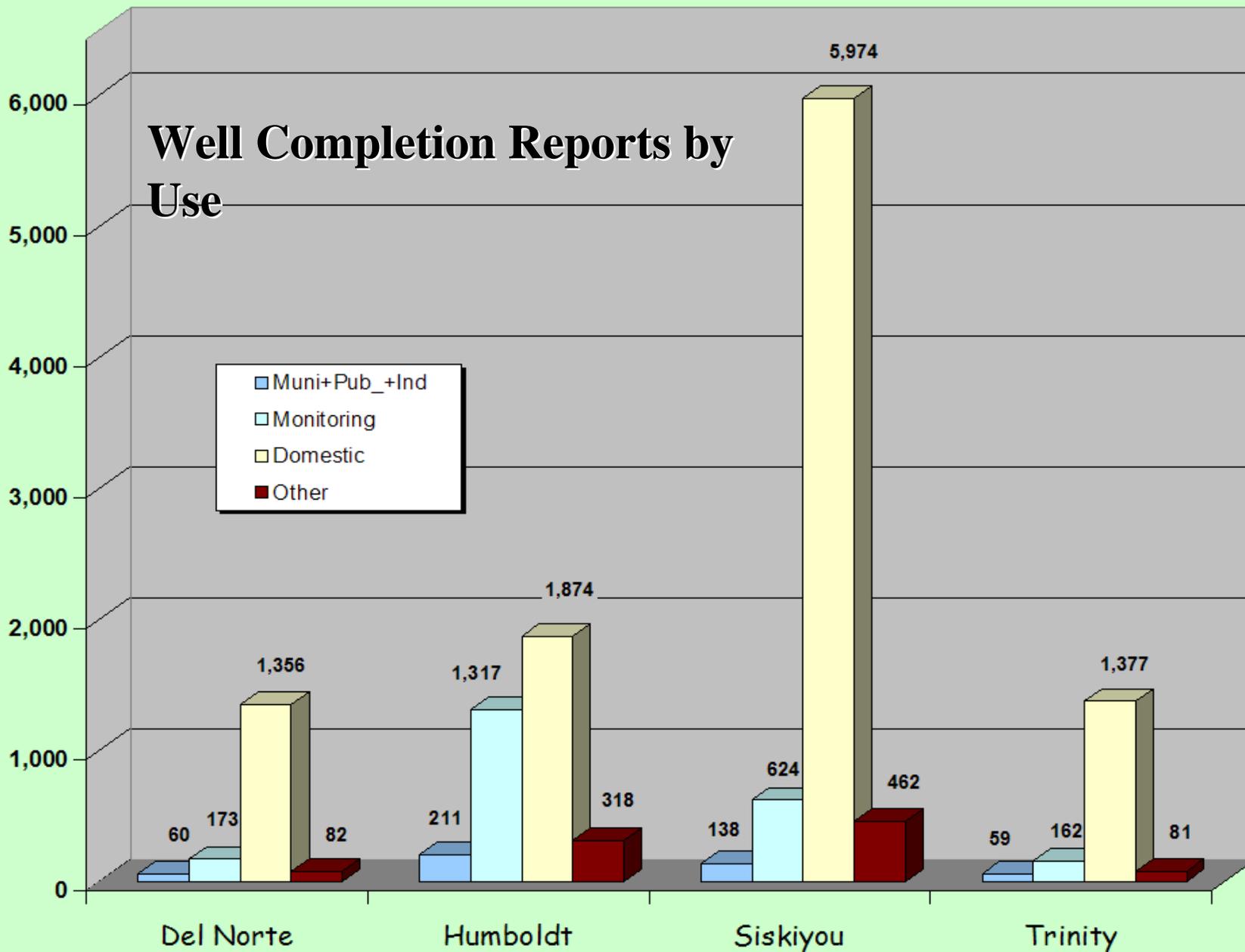


# Number of North Coast Well Completion Reports by Use

<u>Well Use</u>	Del Norte	Humboldt	Siskiyou	Trinity	Totals
Domestic	1,356	1,874	5,974	1,377	10,581
Irrigation	74	193	703	21	991
Municipal, Industrial & Public	60	211	138	59	468
Monitoring	173	1,317	624	162	2,276
Other	82	318	462	81	943
<b>Totals:</b>	<b>1,745</b>	<b>3,913</b>	<b>7,901</b>	<b>1,700</b>	<b>15,259</b>



# Well Completion Reports by Use



# Groundwater Data Needs Assessment Report, 2008

## Shasta Valley, Siskiyou County

[ftp://ftpdpla.water.ca.gov/pub/ND\\_Groundwater/Shasta%20Valley/](ftp://ftpdpla.water.ca.gov/pub/ND_Groundwater/Shasta%20Valley/)

### General Findings

- Applied water by flood irrigation methods may be a critical source of groundwater recharge for parts of Shasta Valley.
- Concern that increases in groundwater usage from the Pluto's Cave Basalt aquifer system may reduce groundwater discharge to Shasta River impacting the cold water fishery.
- Intensive changes in landuse for some areas of Shasta Valley could have impacts to both surface water and groundwater

# Groundwater Level Data & Information

The screenshot displays the Water Data Library (WDL) website interface. At the top, a navigation bar includes links for California Home, Governor Home, and Amber Alert, along with the date Wednesday, June 13, 2007. A large banner reads "Welcome to California" with a scenic image. Below this, a sidebar on the left provides navigation for DWR Home, DPLA Home, Water Data Library Home, Water Quality Data, Groundwater Data, Surface Water Data, Climatology Data, and Contacts. A central section titled "Water Data Library - Home" offers a search bar and radio buttons for "DWR" and "My CA". A list of data modules is provided, including Water Quality Data, Groundwater Level Data, Surface Water Data, and Climatology Data. A right sidebar contains a search bar and a "Groundwater Level Data, 04N01W21B001H" section. This section includes a line graph titled "Groundwater Levels, 04N01W21B001H" for Eureka Plain, well 6.5, with an elevation of 88. The graph plots "Elevation of water surface (NGVD)" and "Depth to water below land surface, feet" against "Calendar Year" from 1980 to 2010. The data shows a general downward trend in water surface elevation over the period, with a notable dip around 1995. A legend indicates that red asterisks represent "Questionable Measurement".

**Water Data Library - Home**

Welcome to the Department of Water Resources **Water Data Library (WDL)** home access to hydrologic data collected by the Division of Planning and Local Assistance and outside the Department.

Select from one of the following data modules:

- [Water Quality Data](#)
- [Groundwater Level Data](#)
- [Surface Water Data](#)
- [Climatology Data \(Prototype\)](#)
- Climatology Data (New Development Site - Coming Soon)

**Groundwater Level Data, 04N01W21B001H**

Your selection returned a total of **42** records. Wells in the Department of Water Resources monitoring network are identified by a [State Well Number](#), which is based on the Public Land Grid System. The table headings and records contain several [codes and abbreviations](#). Press the **New Search** or **Nearby Search** buttons or at the bottom of the page to begin a new data retrieval. Data for this well can also be downloaded in [MS Excel](#) or [text delimited format](#).

**Groundwater Levels, 04N01W21B001H**  
Eureka Plain  
6.5, Elevation = 88

Elevation of water surface (NGVD) vs. Depth to water below land surface, feet vs. Calendar Year

Source: Department of Water Resources

• Questionable Measurement

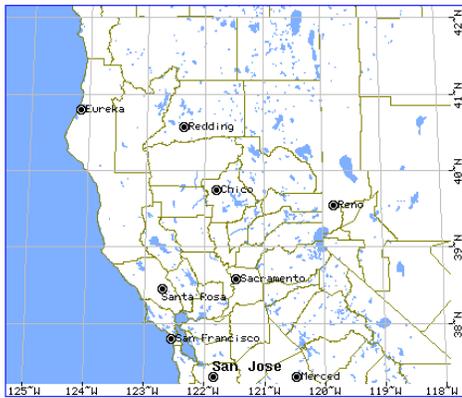
Water Data Library: (<http://wdl.water.ca.gov/>)

# Groundwater Data & Information

## DWR Water Data Library

**Northern California Map Interface**

**Instructions: (Step 2 of 4)**  
This map provides access to groundwater level monitoring data through a series of progressively larger-scale maps. Click on the map below to "zoom in" to a regional map that shows more geographic detail. Subsequent maps will enable you to select wells for data retrieval. Data may also be obtained using our [text interface](#).

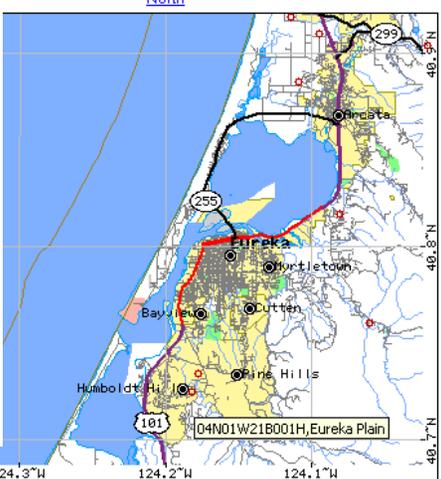


[ [State Map](#) | [Central California](#) | [Southern California](#) ]

to the next (and lowest) level map from which individual water well data rest on the map below to "zoom in" to a map showing well locations. Data [face](#)



[ [State Map](#) | [Northern California](#) | [Central California](#) | [Southern California](#) ]



[ [Return to Regional Map](#) ]  
[ [State Map](#) | [Northern California](#) | [Central California](#) | [Southern California](#) ]

Well Number:

Basin:

## Map Interface for Groundwater Levels

# Groundwater Data & Information Online

The screenshot shows the homepage for the Northern District of the Department of Water Resources. It features a navigation menu on the left with links for 'DPLA Home', 'Northern District Home', 'Northern District Links', 'Our Work', 'Available Data', 'About Us', 'Available Publications', 'Contact Us', 'Site Map', 'Home Page Links', 'Water Links', and 'District Partnerships'. The main content area includes a 'Welcome to Northern District' message and a 'Map of Northern District Counties' showing various counties like Colusa, Yuba, and Sutter. The footer provides contact information for the Northern District Department of Water Resources, including a phone number (530) 529-7300 and an address in Red Bluff, CA.

DWR, Northern District Homepage

The screenshot displays the Groundwater Information Center. It includes a search bar and navigation links for 'DWR Home', 'DPLA Home', 'Groundwater Home', and 'Bulletin 118 Home'. The main heading is 'Groundwater Information Center'. A quote states: "With increasing demand for water created by California's rapidly increasing population, efficient and effective management of all water resources is an issue that affects many people. Efficient management of groundwater resources is necessary so that California's water supply is optimized." Below this, there is a welcome message and a list of resources including 'California's Groundwater: Bulletin 118, Update 2003', 'Groundwater Basics', 'Technical Assistance Programs', 'Financial Assistance Programs', 'Laws & Legislation', 'DWR's Role in California Groundwater Management', and 'DWR Publications'.

DWR Groundwater Information Center

The screenshot shows the homepage for the North Coast Integrated Regional Water Management Plan (IRWMP). It features a navigation menu with 'PROJECTS', 'HOME', 'LIBRARY', 'MAPS', 'CALENDAR', and 'SEARCH'. There is a 'LOG IN' section with fields for 'LOG-IN' and 'PASSWORD', and a 'SIGN UP NOW!' section. The main content area includes 'Integrated Water Planning for the California North Coast', 'Goals for the North Coast Integrated Regional Water Management Plan (IRWMP)', and 'Funding preference will be given to projects that offer multiple benefits, are integrated with other regional efforts and address water supply, water quality, wastewater, stormwater/flood control,'. A 'USE THE MAP FEATURE' section is also visible.

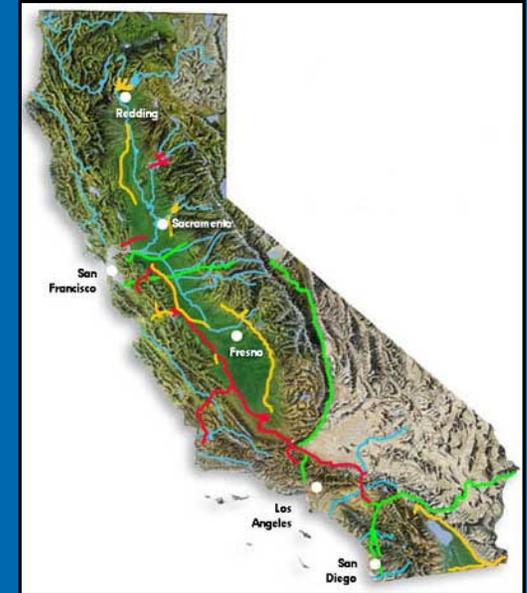
North Coast IRWMP Homepage

# Regional Report Outline - Challenges and Opportunities

## Setting

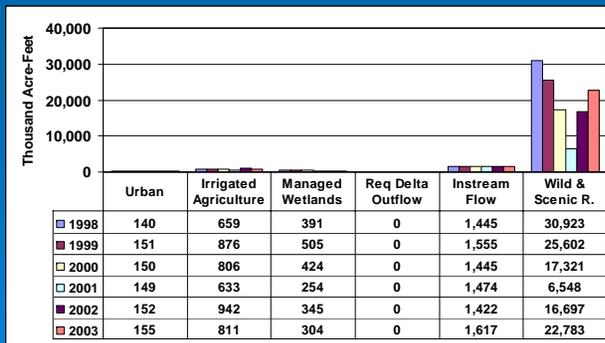


## Relationship with other Regions



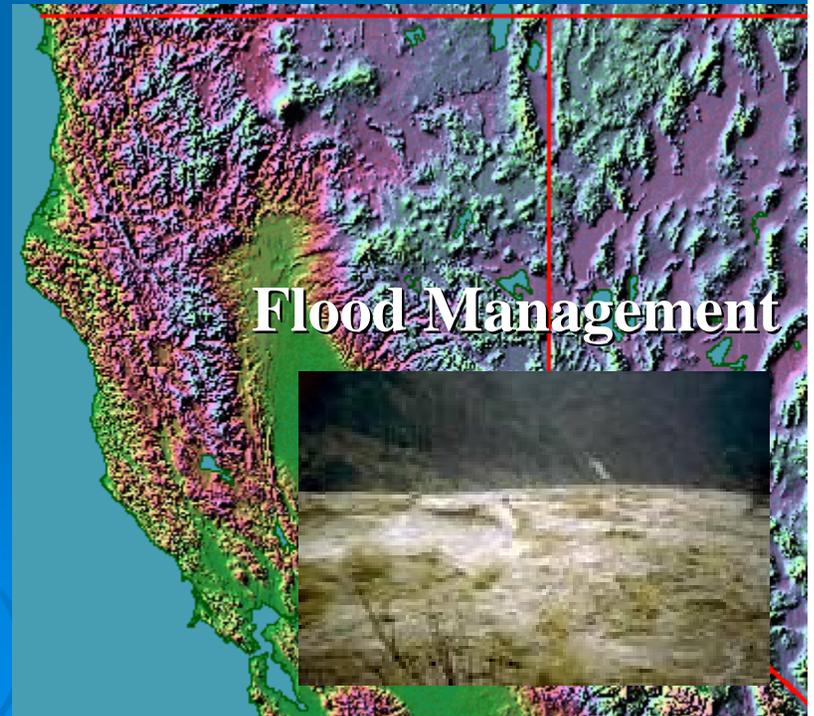
## Regional Planning & Management

## Regional Water Conditions



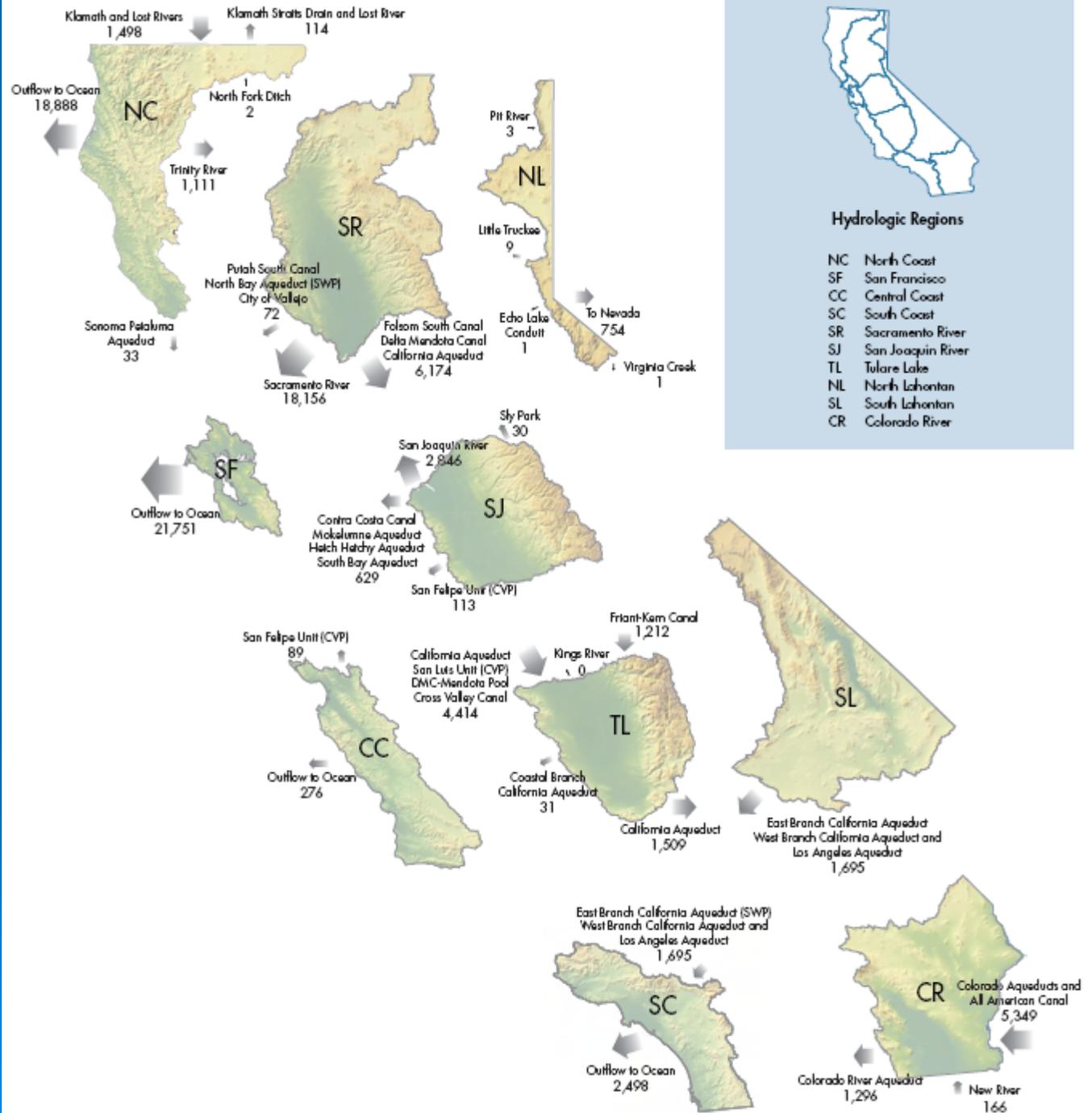
## Water Portfolios

Select References



## Flood Management

# Relation with Other Regions



# Regional Acceptance Process & Integrated Regional Water Management Process

RAP and IWRM provide a vehicle for funding of management strategies

- Prop 50, Prop 84, Prop 1E
- North Coast Region has 1 of 47 Statewide IRWM Groups
- Expedited Prop 84 Implementation Grant Round
  - RAP – Applications Submitted on April 29<sup>th</sup> ; undergoing review
  - RAP Approval – Fall 2009
  - Expedited Implementation Grants – winter 2009/winter 2010
  - Long Term Prop 84 IRWM Process – 2010 - 2012
    - Two implementation cycles \$350 million each
    - Two planning cycles \$15 million each
  - Proposition 1E
    - One cycle appropriated - \$150 million

# Challenges

- Invasive Species (**mitten crab, Asian clams**)
- **Quagga mussel** are not currently in the Region, but are in our south state reservoirs and California has programs in place to prevent their introduction
- **Mud Snails** are in Shasta Lake
- **Striped bass** and **large mouth bass** are introduced, non-native species, and threaten native species
- **Northern Pike** appear to be eradicated from Lake Davis
- **Water hyacinth, Egeria, Microcystis** (Algal blooms), **Arundo donax** (giant reed)
- Alignment-CWP, strategies, IRWMP, FloodSafe, Bay-Delta Conservation Plan, Climate Change, Drought, Stakeholders

# Regional Report Outline - Challenges and Opportunities

## Setting

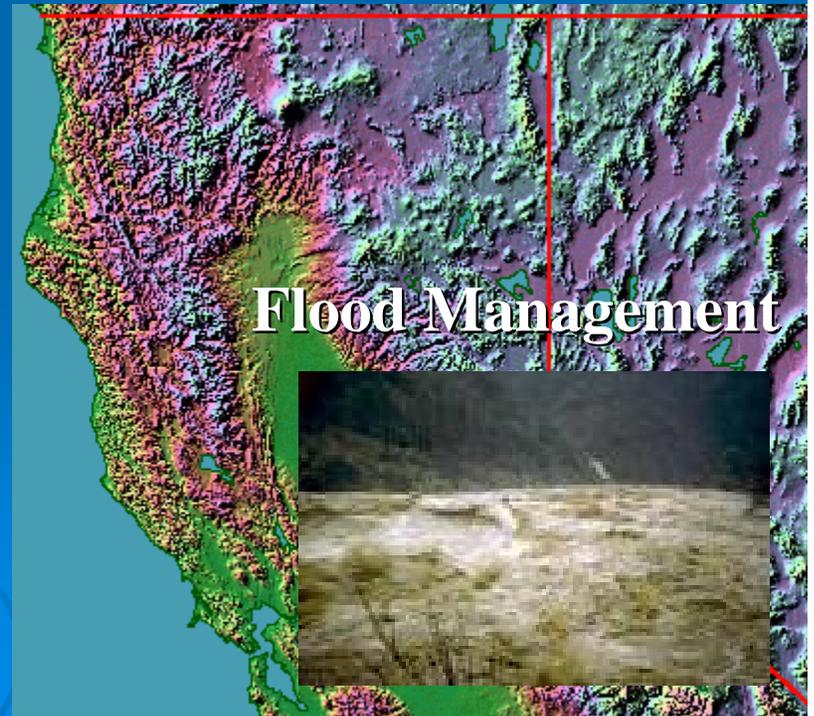
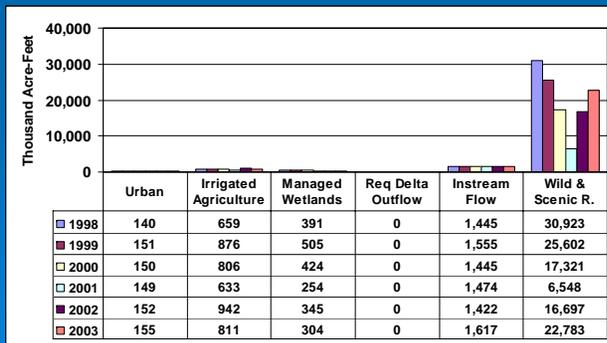


## Relationship with other Regions



## Regional Planning & Management

## Regional Water Conditions

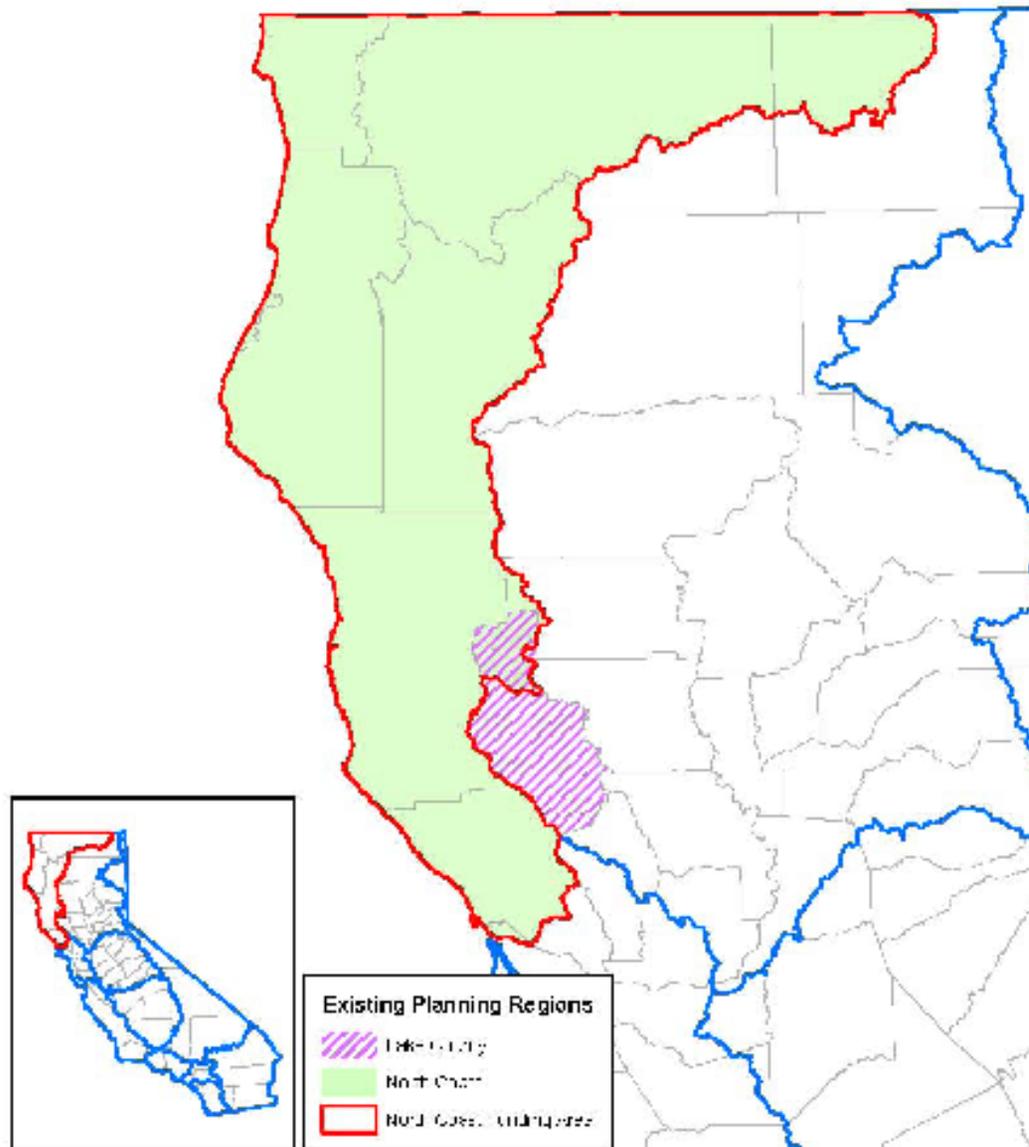


## Flood Management

## Water Portfolios

Select References

PROPOSITION 84  
Integrated Regional Water Management Program  
North Coast Funding Area



Need for  
Regional  
Planning?

# Water Supply Issues

- General Plans & land use planning – *Sufficient water for proposed development ??*
  - Drought resiliency on Klamath
  - Trinity River operations
  - Small groundwater basins
  - Financial limitations
- 

# Water Quality Issues

- Land Use and Develop increase on WQ impacts on water supply
- Septic tank failures
- Erosion and runoff
- Groundwater salinity intrusion
- EPA drinking water standards
- Protection of Water Supplies from Transportation Corridor

# Environmental Water Issues

- Endangered Species Act impacts on water supply (Coho and Suckers); Operation, maintaining existing, and development of new water supplies.
- Klamath & Trinity Rivers fishery populations and habitat

# Water Management Issues

- Water Users opting out of State Watermaster Service
- Disadvantaged areas' fiscal inability to manage system resources.
- Federal vs. State vs. County vs. District vs. NGO vs. no control.
- Like Rest of State; AG/ M&I / Environ confrontations reign in the region.

# Looking to the Future

- Regional water treatment
  - Groundwater development investigations
  - Klamath River Solution
  - Save Our Scott & Shasta
  - Trinity River Fish & Wildlife Management Program
  - Russian River Action Plan implementation
  - County General Plans
  - Watershed Groups
- 

# Regional Report Outline - Challenges and Opportunities

## Setting



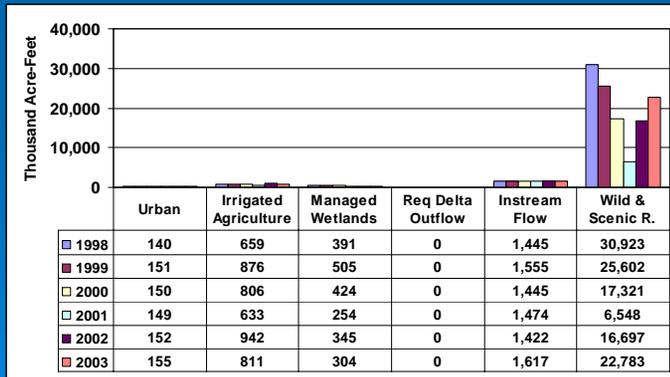
## Opportunities

### Relationship with other Regions



### Regional Planning & Management

## Regional Water Conditions



## Water Portfolios

Select References



# Flood Management is Incorporated in the CWP Update 2009



Historic  
Floods

Flood  
Hazards



CALIFORNIA STATE CAPITOL



Governance

Risk  
Management



# Flood Management

- Historic Floods—TYPES, STREAMS, NOTABLE EVENTS
- Flood Hazards—SPECIFIC PROBLEMS
- Flood Governance—PARTICIPATING AGENCIES
- Flood Risk Management (*Follows outline of RMS 28*)
  - *Structural Approaches*—FACILITIES, COORDINATION, MAINTENANCE
  - *Land Use Management*—FLOODPLAIN RESTORATION, REGULATION, FLOOD INSURANCE
  - *Disaster Preparedness, Response, and Recovery*—INFORMATION AND EDUCATION, EVENT MANAGEMENT

# Flood Protection Issues

- Floodplain construction w/ general public picking up the tab.
  - Need for Safe Harbor agreements
  - Living with hydrologic uncertainty vs. concrete and rebar control; or somewhere in between?
- 

# Flood-Related Challenges

- **New or improved facilities**
  - Reduce flooding of agricultural lands
  - Reduce local flooding in communities
- **Maintenance of existing facilities**
  - Resolve deficiencies in levees: Redwood Creek, others
- **Planning and Data Acquisition**
  - Maintain protection levels against effects of urbanization, climate change
  - Update topographic mapping and flood insurance mapping
  - Provide better stream gage coverage for high water events