California Natural Resources Agency
Overview & Program Summaries
WQMC meeting – August 11, 2010

For the August 11, 2010 Water Quality Monitoring Council (WQMC) meeting, the Department of Water Resources (DWR) staff utilized the 2008 "Preliminary Inventory of Monitoring Programs" WQMC report to identify programs under the California Natural Resources Agency (CNRA) that collect water quality and/or related ecosystem monitoring and assessment data. DWR staff contacted these program managers to solicit their interest to meet with the WQMC and provide a program overview.

In addition to the program presentations listed in the WQMC agenda, several program managers have submitted summaries describing their efforts and have been included (with their contact information below).

- Department of Boating and Waterways – Water Quality Data Overview
  - Contact: Terri Ely (916) 263-8138 or TEly@dbw.ca.gov

- Department of Conservation – Farmland Mapping & Monitoring Program
  - Contact: Molly Penberth (916) 324-0863 or molly.penberth@conservation.ca.gov

- Department of Conservation – Statewide Watershed Program
  - Contact: John Lowrie (916) 324-9013 or john.lowrie@conservation.ca.gov

- Department of Water Resources – California Groundwater Elevation Monitoring
  - Contact: Mary Scruggs (916) 654-1324 or mscruggs@water.ca.gov

- Department of Water Resources – San Joaquin River Restoration Program
  - Contact: Kevin Faulkenberry (559) 230-3320 or faulkenb@water.ca.gov

- Department of Water Resources – Delta Temperature/Turbidity Monitoring Sites
  - Contact: Bob Nozuka (916) 376-9663 or bobn@water.ca.gov

On the reverse side of this document is a compilation of the entities that report to the CNRA.

California Natural Resources Agency

Departments

- California Conservation Corps
- Department of Boating and Waterways
- Department of Conservation
- Department of Fish and Game
- Department of Forestry and Fire Protection
- Department of Parks and Recreation
- Department of Resources Recycling and Recovery
- Department of Water Resources

Boards and Commissions

- California Coastal Commission
- California Energy Commission
- California State Lands Commission
- San Francisco Bay Conservation and Development Commission
- Delta Protection Commission
- Colorado River Board of California
- Central Valley Flood Protection Board
- Board of Forestry
- Fish and Game Commission
- Mining and Geology Board
- Native American Heritage Commission
- Parks and Recreation Commission
- State Historical Resources Commission
- State Off-Highway Motor Vehicle Recreation Commission
- California Boating and Waterways Commission
- Wildlife Conservation Board

Conservancies

- Baldwin Hills Conservancy
- California Tahoe Conservancy
- Coachella Valley Mountains Conservancy
- Sacramento-San Joaquin Delta Conservancy
- San Diego River Conservancy
- San Gabriel & Lower Los Angeles Rivers & Mountains Conservancy
- San Joaquin River Conservancy
- Santa Monica Mountains Conservancy
- Sierra Nevada Conservancy
- State Coastal Conservancy

Councils

- Sacramento-San Joaquin Delta Council
- California Ocean Protection Council

State of California **Natural Resources Agency**
Department of Boating and Waterways

M e m o r a n d u m

Date :	July 26, 2010
To :	California Water Quality Monitoring Council
From :	Terri Ely, Department of Boating and Waterways
Subject :	Water Quality Data Overview

●History of Programs

DBW has two programs that collect water quality data, Water Hyacinth Control Program established in 1982 and the *Egeria densa* Control Program added in 1997 however treatment did not begin until 2001 due to litigation. The two programs use several types of herbicides in the delta area to try and control these two plants.

Egeria: Fluridone
Hyacinth: 2,4-D, Glyphosate and the adjuvant Agridex

Water quality monitoring is required for the NPDES permit and also required in the biological opinions from National Marine Fisheries Service (NMFS) and Fish and Wildlife Service (USFWS).

●Data Collection

The two scientists collect data with a Hydrolab MS5 Minisonde. Data includes: dissolved oxygen, conductivity, pH, temperature, salinity and turbidity. DBW monitors a minimum of 10% of treatment sites per the NPDES permit. Locations vary depending on the treatment site chosen. The application crews take dissolved oxygen and temperature readings before and after a treatment with Hach DO meters. Treatment is throughout the Delta between April 1 and October 15.

●Availability

The data is included in a required annual report for each program. Reports are sent to the USFWS, NMFS, and the Central Valley Regional Water Quality Control Board. These reports are available upon request.

Data is in ArcSDE format and does not have metadata at this time.

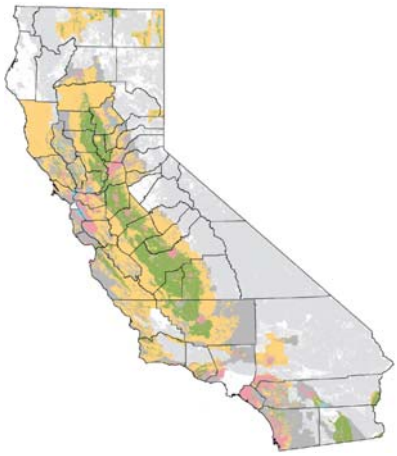
Department of Conservation Division of Land Resource Protection

FARMLAND MAPPING AND MONITORING PROGRAM

Farmland and Open Space in California

The rich land, water, and mild climate that allowed California to become the leading agricultural state in the country have also helped it become one of the most populous and fastest growing states. Decisions are made daily that will determine the quality of both human and natural environments. The Farmland Mapping and Monitoring Program (FMMP) provides information that supports informed land use decisions in California.

Program Goals and Scope



FMMP's goal is to provide consistent, timely and accurate data to decision makers for use in assessing present status, reviewing trends, and planning for the future of California's agricultural land resources.

Approximately 96% of the privately owned land in the state (48.2 million acres, above) was mapped as of 2006, with Mendocino County the most recent addition. Each map is updated every two years, providing an archive for tracking land use change over time.

Mapping System

Using a geographic information system (GIS), air photos, local comments, and other information, FMMP combines soil quality data and current land use information to produce *Important Farmland Maps.*

Products

FMMP data is available in a number of forms:

Important Farmland Maps, which show the location and extent of *Prime Farmland*, and other agricultural categories, relative to *Urban* areas.

The *California Farmland Conversion Report*, containing statistics and information on how land use has changed during the two-year update cycle. Comparisons to prior-year data are also included.

Field Reports, describing in detail the types of change seen in each county by analysts as the update was conducted.

Digital Products, including the GIS files for each year of mapping. Custom products can be generated to suit the user's requirements.

Uses: Assessment & Incentives

The maps and data are used in environmental studies to assess the impacts of proposed development on agricultural and open space land. FMMP data is also widely used in urbanization and environmental modeling.

FMMP data is used to determine eligibility for enrollment in *Farmland Security Zones**, in which landowners receive substantial property tax benefits for committing to keep their land in agricultural use for 20-year periods.

*www.consrv.ca.gov/dlrp/LCA/farm_security_zone

FARMLAND MAPPING AND MONITORING PROGRAM

Findings and Program Improvements

Between 1984 and 2006, FMMP documented the loss of more than 1.2 million acres of agricultural and open space land in California, an area larger than the size of Merced County. The majority of that land was converted to urban uses (right).

Farmland Mapping and Monitoring Program
1984-2006 Conversion Summary

	Total Change	Annual Average
	(acres)	
Irrigated Farmland	-656,134	-32,807
Dryland Farming and Grazing Land	-572,373	-28,619
Urban and Built-up Land	967,682	48,384
Other Land	243,777	12,189
Water (1)	17,622	881

(1) Water increase primarily due to construction of Diamond Valley Reservoir, Lake Sonoma, Los Vaqueros Reservoir, Olivenhain Reservoir, and reclamation of former gravel pits into permanent water bodies in Alameda County.

Prime Farmland, the highest quality agricultural soils, decreased by more than 461,000 acres during this timeframe. This is an area about the size as Contra Costa County.

Other Land, a miscellaneous category that includes disparate uses such as low-density rural residential, mining operations, confined animal agriculture facilities, and ecological restoration areas, grew at about 20% of the rate of urban land. FMMP has begun an effort to document what is happening with the *Other Land* class with the Rural Land Mapping Project. This project is limited to the San Joaquin Valley and Mendocino County until funding for statewide mapping can be made available.

Contact Information

California Department of Conservation
Division of Land Resource Protection
Farmland Mapping and Monitoring Program
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Sacramento, CA 95814

Phone: 916-324-0859
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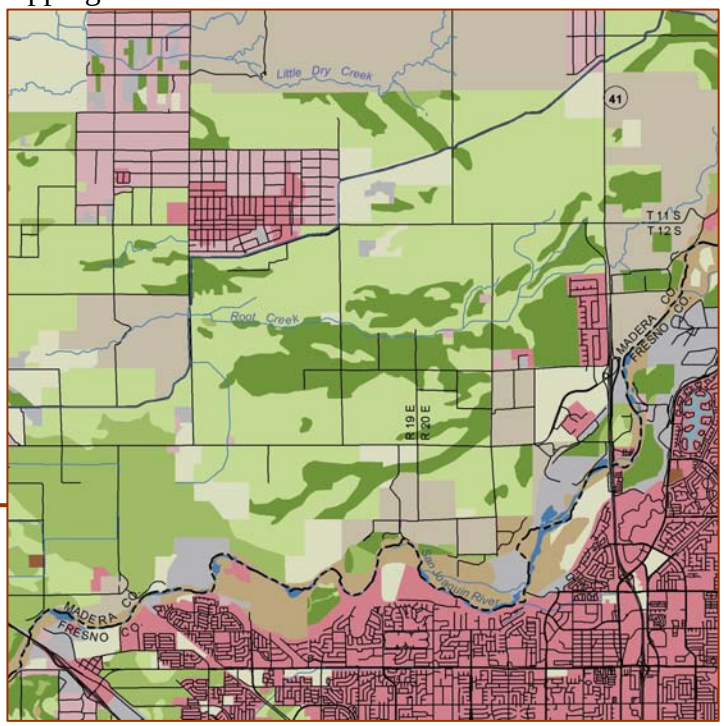
Email: fmmp@consrv.ca.gov

www.conservation.ca.gov/dlrp/fmmp



Newest statewide data:
California Farmland Conversion Report, 2004-2006
Being released monthly:
2008 County Important Farmland Maps and Statistics

Statewide Watershed Program
Department of Conservation

PROGRAM DEVELOPMENT OUTLINE

I. Program Purpose:

"To advance sustainable watershed-based management of California's natural resources using community-based strategies"

II. Program Guiding Principles:

To be successful and relevant at all levels, the Program is committed to the following Principles:

- ***Public involvement*** *- broad participation from varying interests involved with natural resource management. The involvement will be substantive and extensive, and include underserved communities and tribal interests.*
- ***Inclusiveness*** *- Integrate social equity and environmental justice throughout the program, and be inclusive of the underserved and disenfranchised communities.*
- ***Multi-objective approach*** *- that recognizes the inter-relationships among biological, physical, sociological and economic elements of watershed systems.*
- ***Transparency*** *- where decisions and actions are openly made and taken; where information, methods and data used are accessible to all; and all judgments, assumptions, and uncertainties in data and interpretations are made explicit.*
- ***Goal oriented*** *- actions and functions of the Program are intended to improve the management and the conditions in the State's watershed systems relative to desired conditions.*
- ***Scientific validity*** *- The Program will seek to increase the use of scientifically valid concepts and information. The decisions and policies developed by the Program will integrate scientific and local knowledge into Program activities.*
- ***Performance-based*** *- Management of the Program will track, publish and use information and data to adaptively manage the Program to best achieve Program goals and purpose.*
- ***Integrate relevant state, regional and local goals*** *– Provide support to better correlate local actions and goals and the State's actions and goals*

III. Program Components:

A. Coordination and Communication *–Provide Program support for greater communication and coordination among those involved at multiple levels in watershed management.*

Desired outcome (goal): *More efficient and effective use of State and local economic and human capital in improving the sustainability of watershed production of basic goods, services and values.*

Objectives:

- Promote and assist with coordination and integration among existing programs related to watershed management
- Support consistent networking opportunities for information and technology sharing among multiple levels

Programmatic actions:

- Establish a management level inter-agency committee, including state and federal agencies, to develop opportunities to
  - investigate, recommend and support improved permit coordination methods and processes by watershed
  - support coordination of watershed management activities by watershed (including government and non-government)
  - assist science, research, monitoring and policy coordination
  - promote and facilitate increased alignment of existing (especially state agencies) programs, processes, and funding
- Hold or sponsor regional and statewide forums

B. Technical Assistance and Training – *Provide, or arrange for the provision of technical assistance and training*

Desired outcome (goal): *Increased management capacity and effectiveness within community based watershed management partnerships.*

Objectives:

- Better inform resource management decisions at multiple levels
  - Develop and make available tools and training to assist with watershed planning and management
    - Organizational development and capacity building
    - "People" skills: leadership, conflict resolution, team building, partnership building, etc.
    - Technical skills: developing assessments and plans, funding methods, performance measures, regulatory compliance, etc.
- Improve the depth of understanding of conditions and trends of watershed systems within the state

Programmatic actions:

- Work to create an inter-agency team of technical experts available for local assistance in the Regions
- Produce and deliver training sessions on specific topics determined to be of need and relevance in the regions
- Build and support an network of available agency training programs relevant and deliverable regionally
- Develop criteria to determine recipients of training and technical assistance support, and the length of time commitment to each

C. Information and Data Management

Desired outcome (goal) - Increase the use and usefulness of available information

Objectives:

- A reliable clearinghouse for information useful to managers and land use decision makers related to watershed management.
- Increase in the use of watershed scale information in natural resource management
- Noted leadership for a comprehensive, multi-objective approach to watershed management.

Programmatic actions:

- Create a web-based site with links to, and direct delivery of examples, templates, guidelines and contacts for watershed management related actions and policies
- Establish a maintenance system to keep the site current and relevant, especially as to regional significance and usefulness

D. Science, Technology and Performance

Desired outcome (goal) - Increase the use of science and up-to-date technology in establishing policy and designing actions within the regions

Objectives:

- Describe a system or model to correlate and track information regarding the conditions within each major hydrologic unit
- On a regular basis, assess the condition of watershed services, goods and values of importance to the state by hydrologic region
- Assess the relationship of Program actions and policies and changes in actual natural resources condition

Programmatic actions:

- Nominate, select and establish a science panel to provide expert guidance in Program implementation
- Define a multi-agent reporting model that will track trend direction and rate in each of the hydrologic regions
- Produce triennial reports on watershed conditions and trends
- Design performance measures for the Program that utilize and relate to the results of watershed trends
- Establish a predictable mechanism to assess and adjust the Program based on performance results

E. Financial Assistance

Desired outcome (goal) - Garner and distribute funding support for locally based watershed management, with emphasis on underserved communities

Objectives:

- Seek reliable and sustainable funding for Statewide Watershed Program implementation.
- Establish an equitable system to distribute available financial support across the ten hydrologic regions to support community based watershed management.
- Establish and manage a grant program to distribute funds efficiently and effectively.

Programmatic actions:

  - organize a sub-group of the Advisory Committee to provide advice on the details of a granting process
  - develop proposal solicitation guidelines and process
  - develop an online proposal selection system with guidelines, criteria, review mechanisms and tracking elements

F. Governance

Desired outcome (goal) - Clearly delineate an administration system that will give the Program longevity, transparency and agility in supporting community-based watershed management in California.

Objectives: *(to be determined)*

- Details of the governance structure will come once the Program is more fully outlined, and we have a more clear idea of what is needed to implement it. They will include:
- Decisions – what they will likely be, and who will make them
- Accountability – to whom we will be accountable, for what, and how that will be measured and reported
- Finance Plan – in order to fully implement the Program, an administrative structure will have to be defined and a cost to realize it determined.

California Groundwater Elevation Monitoring

authorized by SBX7 6, enacted in November 2009

Background

In California, groundwater accounts for about 30 percent of the total water supply. During dry years, it is at least 40 percent of the supply. With a projected population of 46 million by the year 2020, California's reliance on groundwater will increase significantly.

In order to protect and sustain the state's precious groundwater supply, proper management of this limited resource is imperative. Monitoring groundwater elevations is a fundamental component of successful groundwater management.

However, groundwater elevation monitoring networks have not been adequately established for all of California's groundwater basins. This lack of data limits the ability to accurately monitor groundwater conditions in basin aquifers, and limits our ability to adequately plan for future water supply demands.

Groundwater elevation monitoring is crucial to managing our state's groundwater resources. For more information on California's groundwater, please visit DWR's Groundwater Information Center at:
www.water.ca.gov/groundwater

Overview of SBX7 6

In 2009, the Legislature passed SBX7 6, which establishes, for the first time in California, collaboration between local monitoring parties and DWR to collect groundwater elevations statewide and that this information be made available to the public.

SBX7 6 provides that:

- Local parties may assume responsibility for monitoring and reporting groundwater elevations.
- DWR work cooperatively with local Monitoring Entities to achieve monitoring programs that demonstrate seasonal and long-term trends in groundwater elevations.
- DWR accept and review prospective Monitoring Entity submittals, then determine the designated Monitoring Entity, notify the Monitoring Entity and make that information available to the public.
- DWR perform groundwater elevation monitoring in basins where no local party has agreed to perform the monitoring functions.
- If local parties (for example, counties) do not volunteer to perform the groundwater monitoring functions, and DWR assumes those functions, then those parties become ineligible for water grants or loans from the state.

For text of the chaptered legislation, please visit the official California Legislative Information website at:
www.leginfo.ca.gov/pub/09-10/bill/sen/sb_0001- 0050/sbx7_6_bill_20091106_chaptered.html

MAJOR DEADLINES

On or before January 1, 2011:
Parties seeking to assume groundwater elevation monitoring functions must notify DWR (WC section 10928)

On or before January 1, 2012:
Monitoring Entities shall begin reporting seasonal groundwater elevation measurements (WC section 10932)

Frequently Asked Questions

What is a groundwater Monitoring Entity?

A Monitoring Entity is a designated entity that conducts or coordinates the monitoring of groundwater elevations for a basin or subbasin.

Who is authorized to be a groundwater elevation Monitoring Entity?

- Watermasters or court appointed water management engineers
- Groundwater management agencies with statutory authority who are monitoring groundwater elevations prior to January 1, 2010
- Water replenishment districts
- Local agencies that manage all or part of the groundwater basin
- Local agencies implementing an Integrated Regional Water Management Plan
- Counties
- Voluntary groundwater associations formed pursuant to Water Code Section 10935

Can a Monitoring Entity be responsible for monitoring groundwater elevations in more than one basin or subbasin?

Yes. A Monitoring Entity may be responsible for more than one basin or subbasin.

Does the Monitoring Entity have to take all of the groundwater elevation measurements?

No. The Monitoring Entity may compile groundwater elevations measured by other parties monitoring the basin or subbasin.

Where is groundwater monitoring required?

Groundwater elevation monitoring is required in all 515 alluvial basins and subbasins identified in DWR Bulletin 118 (2003). Monitoring outside of these basins and subbasins is not required.

How often will groundwater elevation measurements need to be taken?

As often as necessary to demonstrate seasonal and long-term groundwater elevations within a basin or subbasin.

Is it mandatory that all well owners participate?

No. Individual participation is voluntary in coordination with an approved Monitoring Entity.

Which wells in a groundwater basin will be monitored?

A Monitoring Entity will propose a network of wells sufficient in number to show seasonal and long-term trends in the basin and subbasins.

Can anyone monitor my well without my permission?

No. Permission must be granted by the property owner.

Is this a short-term or long-term program?

This is a long-term program.

What are the data going to be used for?

The data will be compiled in a statewide database that is available to the public.

The data can be used by local and state entities to evaluate and monitor groundwater conditions in the basins.

On or before January 1, 2012, local groundwater Monitoring Entities will regularly and systematically monitor groundwater elevations in California's alluvial basins and subbasins in order to determine seasonal and long-term trends, and this information will be made readily and widely available to the public.

MORE INFORMATION

For more information about DWR's California Groundwater Elevation Monitoring program: www.water.ca.gov/groundwater/elevation_monitoring/index.cfm

The San Joaquin River Restoration Program

Department of Water Resources Overview

In 1988, a coalition of environmental groups led by the Natural Resources Defense Council (NRDC) filed a lawsuit challenging the renewal of long-term water contracts between the United States and the Central Valley Project Friant Division contractors. After more than 18 years of litigation, a Stipulation of Settlement was reached in September 2006 by the Settling Parties including NRDC, Friant Water Users Authority, and the U.S. Departments of the Interior and Commerce, and approved by the Court in October 2006. The San Joaquin River Restoration Settlement Act authorizes and directs the Secretary of the Interior to fully implement the Settlement. It was included in the Omnibus Public Land Management Act of 2009, signed by the President on March 30, 2009, and became Public Law III-II.

The San Joaquin River Restoration Program (SJRRP) is a comprehensive long-term effort to restore flows to the San Joaquin River from Friant Dam to the confluence of the Merced River restoring a self-sustaining Chinook salmon fishery in the river while reducing or avoiding adverse water supply impacts from restoration flows. The SJRRP comprises several Federal and State of California agencies responsible for implementing the Settlement. Implementing Agencies for the SJRRP are the US Bureau of Reclamation, U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Water Resources (DWR), California Department of Fish and Game, and California Environmental Protection Agency. The two primary goals of the SJRRP established by the Settlement are:

- *Restoration* – To restore and maintain fish populations in "good condition" in the main stem of the San Joaquin River below Friant Dam to the confluence of the Merced River, including naturally reproducing and self-sustaining populations of salmon and other fish.
- *Water Management* – To reduce or avoid adverse water supply impacts to all of the Friant Division long-term contractors that may result from the Interim Flows and Restoration Flows provided for in the Settlement.

DWR is assisting with the implementation of both goals of the Settlement. DWR will be provide expertise with various aspects of the planning, design, and construction of physical improvements identified in the Settlement, including flood system improvements, environmental compliance for the Program, along with habitat and fish passage improvements.

The major SJRRP milestones and timelines are as follows:

- **October 2009:** Initiated Interim Flows and Monitoring Program
- **2010:** Continue Water Management actions including water transfer provisions, developing Restoration Flow Guidelines, and developing guidelines for local assistance
- **December 2010:** Release Final Program Environmental Impact Statement/Report
- **Early 2011:** Issue Record of Decision and Notice of Determination
- **No Later than December 2012:** Reintroduce Chinook salmon
- **No Later than December 2013:** Complete all high priority channel and structural construction activities
- **2014:** Begin Full Restoration Flows

Additional information on the SJRRP can be found at: http://www.restoresjr.net/.

Delta Smelt Turbidity Monitoring Project

Department of Water Resources

Introduction

The Delta Smelt Turbidity Monitoring Project is a response to the August 2007 court ruling by Federal Judge Oliver Wanger (case number 1:05-CV-01207-OWW-GSA) that found the 2005 Long-Term State and Federal Water Projects' Pumping Operations Criteria Plan (OCAP) and Biological Opinion unlawful and inadequate in regards to the protection of the threatened species Delta Smelt. Judge Wanger's court order resulted in the establishment of several measures that would trigger restrictions to both State Water Project (SWP) and Central Valley Project (CVP) operations to reduce salvage and prevent the extinction of Delta Smelt.

As a result of scientific evidence provided in court by members of the Delta Smelt Working Group (DSWG), Judge Wanger included in his measures the requirement to monitor turbidity levels by December 25, 2007 at three compliance stations: Holland Cut near Bethel Island, Victoria Canal near Byron, and Prisoner's Point. These stations must maintain annual turbidity levels below 12 NTU during the mandated compliance period of December 25 – January 15.

Through several meetings following the August 2007 court ruling, staff from DWR, DFG, USGS, USBR, the State Water Contractors and DSWG, compiled a comprehensive priority list of recommended new turbidity monitoring stations. The primary objective of the monitoring stations is to better understand the changes in elevated turbidities in the late winter and early spring months during adult Delta Smelt spawning migration into the interior Delta. Another objective is to develop a network of water quality stations that will provide an early warning of upstream turbidity plumes, allowing adjustments to SWP and CVP operations to minimize negative impacts to Delta Smelt.

Data Collection

The Delta Smelt Project consists of 11 water quality monitoring stations located throughout the Central Delta (See attached Table and Map). All of these stations utilize YSI 6600 V2 sondes to continuously measure at a 1-meter depth: water temperature, specific conductance and turbidity data every 15 minutes. The stations are all connected to telemetry equipment and attached to steel pilings located within the river channel, adjacent to onsite USGS flow equipment. The continuous data for all 11 stations can be viewed on the California Data Exchange Center (CDEC).

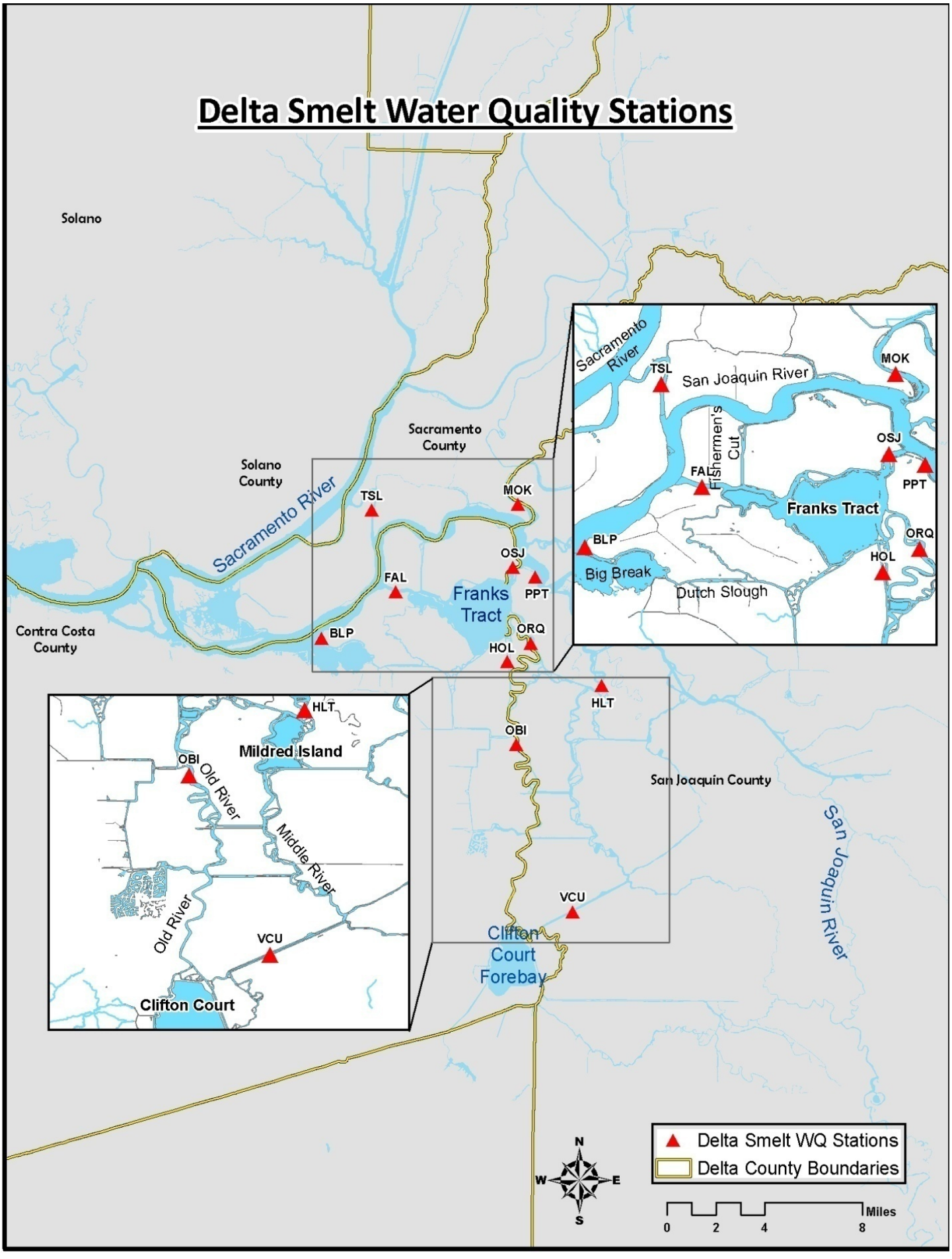
DWR staff also collects a chloride/bromide and total suspended solids (TSS) sample at a 1-meter depth during every three week site visit using a Van-Dorn Water Sampler. These samples are then brought to DWR's Bryte lab for analyses.

Data Availability

A written memo report is produced by DWR staff annually and distributed to the Department's Operations and Maintenance Office for review. The report includes an analysis of: continuous sonde data, field data, SWP and CVP salvage data, and both discrete chloride/bromide sample data and total suspended solids data from Bryte Laboratories. All sonde data is QA/QC processed by staff and then archived into the North Central Region Office "Hydstra" database. This database is electronically linked to DWR's Water Data Library (WDL), which provides the data online for public access. Field data and lab sample results are entered into DWR's Bryte laboratories "FLIMS" database and loaded into WDL for online public viewing and access. NCRO staff also reports to members of DWR, DFG, USGS, USBR, State Water Contractors and DSWG via e-mail the turbidity values at the three turbidity compliance stations during the court-ordered compliance period.

Table. *Delta Smelt continuous water quality station coordinates and date of establishment*

Station Name	CDEC ID	Latitude	Longitude	Date Established	Turbidity Sensor Installed
Victoria Canal near Byron (Compliance Station)	VCU	37.8710	-121.5300	3/30/2007	3/30/2007
Holland Cut near Bethel Island (Compliance Station)	HOL	38.0164	-121.5819	10/20/2005	9/18/2007
San Joaquin River at Prisoner's Point (Compliance Station)	PPT	38.0660	-121.5620	4/1/1997	3/2/2006
Old River near Bacon Island	OBI	37.9679	-121.5744	12/28/2007	12/28/2007
False River near Oakley	FAL	38.0558	-121.6669	10/20/2005	12/28/2007
Mokelumne River near Highway 12	MOK	38.1079	-121.5758	4/4/2008	4/4/2008
Three Mile Slough at San Joaquin River	TSL	38.1032	-121.6861	4/10/2008	4/10/2008
Sacramento River at Verona	VON	38.7407	-121.5970	2/13/2008	3/4/2008
Old River at Franks Tract	OSJ	38.0711	-121.5789	10/20/2005	12/1/2009
Middle River near Holt	HLT	38.0031	-121.5108	12/5/2005	12/1/2009
Old River at Quimby Island	ORQ	38.0272	-121.5645	10/20/2005	12/1/2009
Blind Point	BLP	38.0280	-121.7220	1/1/1984	2/17/2010


Delta Smelt Water Quality Stations
Solano
Solano County
Sacramento County
Contra Costa County
San Joaquin County
Sacramento River
San Joaquin River
Fisherman's Cut
Franks Tract
Big Break
Dutch Slough
Mildred Island
Old River
Middle River
Clifton Court
Clifton Court Forebay
TSL
MOK
OSJ
FAL
PPT
BLP
ORQ
HOL
OBI
HLT
VCU
N
S
E
W
Delta Smelt WQ Stations
Delta County Boundaries
Miles
0
2
4
8