



INTERDEPARTMENTAL MEMORANDUM

TO: Butte County Water Commission

FROM: Kristen Hard, Manager – Program Development
Water and Resource Conservation

SUBJECT: Report on Water Quality Data Sources

DATE: January 3, 2007

INTRODUCTION and BACKGROUND

At the October 3, 2006 meeting of the Water Commission, Commissioner Carlon inquired about where information on the various countywide water quality monitoring efforts was available, as well as specific information regarding constituents within the surface waters of Butte County. This report gives a breakdown of what data is available, and where it is located, for efforts to monitor surface water, groundwater and drinking water as reported at the Federal, State, and County levels.

INFORMATION

FEDERAL

SURFACE WATER

The Federal *Clean Water Act* (CWA), contains two strategies for managing water quality. One, it provides requirements to maintain a minimum level of pollutant management using the best available technology. The second, a water quality-based approach, relies on evaluating the condition of surface waters and setting limitations on the amount of pollution that the water can be exposed to without adversely affecting the beneficial uses of those waters. *Section 303(d)* of the CWA requires that the states make a list of waters that are not attaining standards after the technology-based limits are put into place. For waters on this list (and where the US EPA administrator deems they are appropriate) the states are to develop *total maximum daily loads* or TMDLs. A TMDL must account for all sources of the pollutants that caused the water to be listed. Federal regulations require that the TMDL, at a minimum, account for contributions from point sources (federally permitted discharges) and contributions from nonpoint sources. The United States Environmental Protection Agency (US EPA) is required to review and approve the list of impaired waters and each TMDL. If US EPA cannot approve the list or a TMDL they are required to establish them for the state. Note: a 42 mile stretch of the Lower Feather River in Butte County is listed on the 2006 303(d) list attached.

Section 305(b) of the CWA requires each state to report on the quality condition of its waters. The California State Water Resources Control Board (SWRCB) submits its water

quality condition assessment report biennially to the US EPA. The reports submitted by states serve as the basis for US EPA's *National Water Quality Inventory Report* to Congress. The Inventory Report is the primary report for the public about the condition of the nation's waters. Note: There are no 305 (b) listings in Butte County.

The US EPA has established regulations (40 CFR 122) requiring that National Pollutant Discharge Elimination System (NPDES) permits be revised to be consistent with any approved TMDL. Federal regulation went into effect in October 2001 requiring that implementation plans be developed along with the TMDLs.

GROUNDWATER

The US EPA *Office of Ground Water and Drinking Water (OGWDW)*, together with states, tribes, and its many partners, protects public health by ensuring safe drinking water and protecting groundwater. OGWDW, along with EPA's ten regional drinking water programs, oversees implementation of the Safe Drinking Water Act, which is the national law safeguarding tap water in America. A comprehensive summary of these programs is available at <http://www.epa.gov/safewater/>.

DRINKING WATER

The US EPA establishes drinking water quality standards using two categories; Primary Standards and Secondary Standards. Primary Standards are based on health considerations and Secondary Standards are based on taste, odor, color, corrosivity, foaming, and staining properties of water. Examples of secondary water quality thresholds measured by Butte County Water and Resource Conservation in August 2006 are summarized in Table 1 below:

Table 1. US EPA Secondary Standards for measured parameters

Parameter	Secondary Standard or Secondary WQ Threshold	Range of Observed 2006 Readings	Notes re: Butte County Study
pH	6.5 to 8.5	7.3 – 7.9	Within range of secondary water quality thresholds.
Total Dissolved Solids (TDS)	< 500 ppm – drinking water < 450 ppm – ag water	73 - 246	Within range of secondary water quality thresholds
Electrical Conductivity (EC)	< 900 uS – drinking water < 700 uS – ag water	152 - 507	Within range of secondary water quality thresholds

STATE

SURFACE WATER

The Surface Water Ambient Monitoring Program (SWAMP) was proposed in a Report to the Legislature to integrate existing water quality monitoring activities of the State Water Resources Control Board and the Regional Water Quality Control Boards, and to coordinate with other monitoring programs.

SWAMP is a statewide monitoring effort designed to assess the conditions of surface waters throughout the state of California. The program is administered by the SWRCB. Responsibility for implementation of monitoring activities resides with the nine Regional Water Quality Control Boards (Regional Board) that have jurisdiction over their specific geographical areas of the state. Monitoring is conducted in SWAMP through the Department of Fish and Game and U.S. Geological Survey master contracts and local Regional Boards monitoring contracts.

SWAMP-funded monitoring in the upper Sacramento watershed has been underway since 2000. To date, one area of focus has been the upper Feather River watershed. The monitoring report for this area is available at www.waterboards.ca.gov/swamp/reports.html. SWAMP also hopes to capture monitoring information collected under other State and Regional Board Programs such as the State's TMDL (Total Maximum Daily Load), Nonpoint Source, and Watershed Project Support programs. SWAMP does not conduct effluent or discharge monitoring, which is covered under National Pollutant Discharge Elimination System permits and Waste Discharge Requirements.

In California, the SWRCB has interpreted state law (Porter-Cologne Water Quality Control Act, California Water Code Section 13000 et. seq.) to require that implementation be addressed when TMDLs are incorporated into Basin Plans (water quality control plans). The Porter-Cologne Act requires each Regional Board to formulate and adopt water quality control plans for all areas within its region. The requirement to develop TMDLs has been in the Clean Water Act since 1972.

TMDLs in California are developed either by Regional Boards or by US EPA. TMDLs developed by Regional Boards are designed as Basin Plan amendments and include implementation provisions. TMDLs developed by US EPA typically contain the total load and load allocations required by Section 303(d), but do not contain comprehensive implementation provisions. This stems from the fact that USEPA authorities related to implementation of nonpoint source pollution control measures are generally limited to education and outreach as provided by CWA Section 319. TMDLs are currently required for all waters and pollutants on the 303(d) list. TMDLs must consider and include allocations to both point sources and nonpoint sources of listed pollutants. Although the abbreviation stands for "Total Maximum Daily Load," the limitations contained in a TMDL may be other than "daily load" limits. There also can be multiple TMDLs on a particular water body, or there can be one TMDL that addresses numerous pollutants. The basis for grouping is whether or not there can be a common analytical approach to the assessment or a common management response to the impairment. Further information on the SWRCB's water quality programs can be found at <http://www.waterboards.ca.gov/quality.html>, or in the *Compilation of Water Quality Goals* at www.swrcb.ca.gov.

GROUNDWATER

Assembly Bill No. 303 was approved by the Governor in September 2000 and codified to amend Section 10750 of, and to add Part 2.78 (commencing with Section 10795) to Division 6 of, the Water Code, relating to water.

AB 303, authored by Helen Thomson recognizes groundwater as a valuable natural resource in the state and declares that additional study of groundwater resources is

necessary to better understand how to manage groundwater effectively to ensure the safe production, quality, and proper storage of groundwater in the state. The legislation created the Local Groundwater Assistance Fund to be administered by the Department of Water Resources to assist local public agencies by awarding grants to those agencies to conduct groundwater studies, or to carry out groundwater monitoring and management activities, or both. Butte County has received funding under AB303 for the installation of two triple-completion monitoring wells within the county and is currently contracting for some of this funding for the Basin Management Objectives Information Center.

The US Geological Survey's (USGS) Groundwater Ambient Monitoring and Assessment Program (GAMA) program is a comprehensive assessment of statewide groundwater quality. The program is designed to help better understand and identify risks to groundwater resources. Groundwater will be sampled at many locations across California in order to characterize its constituents and identify trends in groundwater quality. The results of these tests will provide information for water agencies to address a variety of issues ranging in scale from local water supply to statewide resource management

The GAMA program was developed in response to the Groundwater Quality Monitoring Act of 2001 (Sections 10780-10782.3 of the Water Code): a public mandate to assess and monitor the quality of groundwater used as public supply for municipalities in California. The goal of the act was to improve statewide groundwater monitoring and facilitate the availability of information about groundwater quality to the public. The State Water Resources Control Board is implementing the GAMA Program in coordination with the US Geological Survey and Lawrence Livermore National Laboratory. We plan to have a representative of the GAMA program make a presentation to the Water Commission in either February or March of this year.

Participants include representatives from California Water Boards, Department of Water Resources, Department of Health Services (DHS), U.S. Geological Survey USGS, Lawrence Livermore National Laboratory (LLNL), and county and local water management authorities. A key aspect of the GAMA program is interagency collaboration and cooperation with local water agencies and well owners. Local participation in the GAMA program is entirely voluntary. Further information can be found at <http://pubs.usgs.gov/fs/2004/3088/>.

The California Department of Water Resources (DWR) provides comprehensive documentation of research in the areas of Surface Water, Groundwater and Water Quality. Those reports may be accessed at http://www.nd.water.ca.gov/dpladb/pubs/index.cfm?nav=6&dist_pubs=20

DRINKING WATER

A summary of all of the California Department of Health Services regulations for oversight of the State's drinking water can be found at http://www.dhs.ca.gov/ps/ddwem/publications/Regulations/regulations_index.htm You can also review a comparison of state and federal maximum contaminant levels (MCLs) and regulation dates for drinking water contaminants at this site.

Additionally, here is a list to provide you with an idea of program overseen by Region 5, Central Valley Regional Water Quality Control Board.

- Aboveground Storage Tanks
- Basin Planning
- Bay Protection and Toxic Hot Spot Cleanup Program
- Confined Animal Facilities (Feedlots and Others)
- Dairies (please refer to Confined Animal Facilities)
- Enforcement
- Grants
- Grassland Bypass Project
- Irrigated Lands (Conditional Waivers)
- Land Treatment Units (please refer to Waste Discharges to Land)
- Landfills (please refer to Waste Discharges to Land)
- Mining Waste Units (please refer to Waste Discharges to Land)
- National Pollutant Discharge Elimination System (NPDES) Discharges
- Nonpoint Source
- Rice Pesticide
- Site Assessment & Cleanup (Spills, Leaks, Investigations, & Cleanups (SLIC) and Federal Facilities (DoD, DoE))
- Storm Water
- Surface Impoundments (please refer to Waste Discharges to Land)
- Surface Water Ambient Monitoring Program (SWAMP)
- Timber Harvest
- Total Maximum Daily Loads (TMDLs) and Impaired Water Bodies 303(d) List
- Underground Storage Tanks
- Waste Classification
- Waste Discharges to Land
- Waste Discharges to Surface Water
- Water Quality Certification
- Water Quality Improvement Projects
- Water Quality Standards and Criteria
- Water Quality Studies
- Watershed Management Initiative

LOCAL

SURFACE WATER

Butte County's Storm Water Management Program is a requirement of Phase II of the National Pollutant Discharge Elimination System (NPDES) Program as ordered by the United States Environmental Protection Agency. The County's Program is required by federal law to be fully implemented by April 30, 2008. To view the current annual report, please visit the Butte County website at <http://www.buttecounty.net/publicworks/stormwater/stormwater.html>.

In order to meet the established Feather River TMDL for diazinon, a collaboration of local entities - the coalition - (Yuba County RCD, Sutter County RCD, Butte County RCD, Yuba County Agricultural Commissioner, Butte County Agricultural Commissioner, Sutter County Agricultural Commissioner, UC Cooperative Extension, UC Davis, CURES and the Butte/Yuba/Sutter Water Quality Coalition) has received a \$1.1 million grant

from the Regional Water Quality Control Board's Agricultural Water Quality Grant Program to evaluate the effectiveness of vegetated filter strips and orchard floor vegetation to filter midwinter dormant spray runoff in orchards sprayed with organophosphate pesticides. Please review additional efforts of the Butte County RCD at <http://buttecountyrwd.org/index.php>.

GROUNDWATER

All current groundwater monitoring efforts overseen by the Department of Water and Resource Conservation (W&RC) staff are summarized on the Department website. Staff is working at this time to comprehensively update data collected to establish the water quality trend monitoring program. Groundwater monitoring data is also available for our area through DWR's Water Data Library at <http://wdl.water.ca.gov/>. In the very near future, W&RC will publish a BMO Information Center that will allow public access to monitoring data specific to the sub inventory units of the Sacramento Groundwater Basin in Butte County through a web based GIS system.

DRINKING WATER

California Water Service Company (with offices in Chico, Oroville, and Willows) has a comprehensive website where water quality data for its service areas may be obtained. California Water Service Company's water quality data is available online at <http://www.calwater.com/WaterQuality.html>. The Butte County Department of Environmental Health oversees regulation for all small public water systems throughout the county. Consumer confidence reports summarizing quality monitoring efforts for the small water systems that are doing testing are on file with that Department, and all public studies are available at the public library in Chico. Further Department information is available at <http://www.buttecounty.net/Default.aspx?tabid=203>.

The protection and improvement of drinking water quality has evolved toward regional coordination and collaboration due mainly to physical links among water sources. There is a link on the W&RC website to the Northern Sacramento Valley (Four County) Drinking Water Quality Strategy Document which summarizes the collaborative efforts of Butte, Colusa, Glenn, and Tehama Counties, and Statewide and regional water quality management programs. http://www.buttecounty.net/waterandresource/4_county_dw.htm

SUMMARY

The DW&RC will collect groundwater quality information in 2007 for the sixth consecutive year. At this time we do not have sufficient information to make valid assumptions regarding any trends in water quality changes. However, this cumulative data is considered when applicable by the Technical Advisory Committee and W&RC staff when reviewing BMOs and working to expand the monitoring network.

For further information, please reference the appropriate websites outlined below. Should you have any additional questions, please contact me at 538-6265.

**Federal, State, and Local Agencies responsible for
Water Quality Monitoring**

FEDERAL

SURFACE WATER

United States Environmental Protection Agency (US EPA)

<http://www.epa.gov/ebtpages/watewaterqualitymonitoring.html>

GROUNDWATER

United States Environmental Protection Agency (US EPA)

<http://www.epa.gov/safewater/>

DRINKING WATER

United States Environmental Protection Agency (US EPA)

<http://www.epa.gov/OGWDW/standards.html>

STATE

SURFACE WATER

The State Water Resources Control Board oversees the Surface Water Ambient Monitoring Program (SWAMP) www.waterboards.ca.gov/swamp/reports.html.

The Regional Water Quality Control Board (RWQCB), (Region 5, Central Valley) oversees that Total Maximum Daily Loads (TMDLs) are incorporated into Basin Plans (water quality control plans). TMDLs in California are developed either by RWQCBs or by US EPA. The approved 2006 TMDL listings can be found at <http://www.waterboards.ca.gov/quality.html>, or in the *Compilation of Water Quality Goals* at www.swrcb.ca.gov.

California Data Exchange Center (CDEC)- real time, daily and monthly data on river and snow pack monitoring. <http://cdec.water.ca.gov/>

GROUNDWATER

The US Geological Survey's Groundwater Ambient Monitoring and Assessment Program (GAMA) program is a comprehensive assessment of statewide ground-water quality. <http://pubs.usgs.gov/fs/2004/3088/>.

The California Department of Water Resources (DWR) provides comprehensive documentation of research in the areas of Surface Water, Groundwater and Water Quality. Those reports may be accessed at http://www.nd.water.ca.gov/dpladb/pubs/index.cfm?nav=6&dist_pubs=20

DRINKING WATER

A summary of all of the California Department of Health Services (DHS) regulations for oversight of the State's drinking water can be found at http://www.dhs.ca.gov/ps/ddwem/publications/Regulations/regulations_index.htm

LOCAL

SURFACE WATER

Butte County's Storm Water Management Program is a requirement of Phase II of the National Pollutant Discharge Elimination System (NPDES) Program as ordered by the United States Environmental Protection Agency. To view the current annual report, please visit the Butte County website at <http://www.buttecounty.net/publicworks/stormwater/stormwater.html>.

In order to meet the established Feather River TMDL for diazinon, a collaboration of local entities - the coalition - (Yuba County RCD, Sutter County RCD, Butte County RCD, Yuba County Agricultural Commissioner, Butte County Agricultural Commissioner, Sutter County Agricultural Commissioner, UC Cooperative Extension, UC Davis, CURES and the Butte/Yuba/Sutter Water Quality Coalition) has received a grant from the Regional Water Quality Control Board's Agricultural Water Quality Grant Program to evaluate the effectiveness of vegetated filter strips and orchard floor vegetation to filter midwinter dormant spray runoff in orchards sprayed with organophosphate pesticides. Please reference additional efforts of the Butte County RCD at <http://buttecountyrcd.org/index.php>.

River Flow Data:

Chico station- http://cdec.water.ca.gov/cgi-progs/staMeta?station_id=CHI
Feather River near Gridley- http://cdec.water.ca.gov/cgi-progs/staMeta?station_id=GRL
Oroville Dam - http://cdec.water.ca.gov/cgi-progs/staMeta?station_id=ORO
Big Chico Creek near Chico- http://cdec.water.ca.gov/cgi-progs/staMeta?station_id=BIC
Butte Creek near Chico- http://cdec.water.ca.gov/cgi-progs/staMeta?station_id=BIC
Butte Creek near Durham- http://cdec.water.ca.gov/cgi-progs/staMeta?station_id=BCD
Butte Creek near Western Canal-
http://cdec.water.ca.gov/cgi-progs/staMeta?station_id=BWC
Cherokee canal near Richvale-
http://cdec.water.ca.gov/cgi-progs/staMeta?station_id=CHC
Chico University Farm station-
http://cdec.water.ca.gov/cgi-progs/staMeta?station_id=CES
Sacramento River at Hamilton City-
http://cdec.water.ca.gov/cgi-progs/staMeta?station_id=HMC
Sacramento River at Ord Ferry-
http://cdec.water.ca.gov/cgi-progs/staMeta?station_id=ORD

USGS River Flow Stations- http://cdec.water.ca.gov/misc/usgs_ids.html

Water Quality Reports-

Cal Water- Chico District-- <http://www.calwater.com/pdfs/wq/WQ2005/Chico-CH-410002.pdf>

Cal Water- Oroville District-- <http://www.calwater.com/pdfs/wq/WQ2005/Oroville-ORO-410005.pdf>

The Department of Water and Resource Conservation has hard copies of Thermalito Irrigation District, South Feather Water and Power, City of Biggs, and City of Gridley Annual Water Quality Reports.

GROUNDWATER

All current groundwater monitoring efforts overseen by the Department of Water and Resource Conservation (W&RC) staff are summarized on the Department website at <http://www.buttecounty.net/waterandresource/>. Staff are working at this time to comprehensively update data collected to establish the water quality trend monitoring program. Groundwater monitoring data is also available for our area through DWR's Water Data Library at <http://wdl.water.ca.gov/>. In the very near future, W&RC will publish a BMO Information Center that will allow public access to monitoring data specific to the sub inventory units of the Sacramento Groundwater Basin in Butte County.

DRINKING WATER

California Water Service Company (with offices in Chico, Oroville, and Willows) has a comprehensive website where water quality data for its service areas may be obtained. California Water Service Company's water quality data is available online at <http://www.calwater.com/WaterQuality.html>. The Butte County Department of Environmental Health oversees regulation for all small public water systems throughout the county. Consumer confidence reports summarizing quality monitoring efforts for the small water systems that are doing testing are on file with that Department, and all public studies are available at the public library in Chico. Further Department information is available at <http://www.buttecounty.net/Default.aspx?tabid=203>.

The protection and improvement of drinking water quality has evolved toward regional coordination and collaboration due mainly to physical links among water sources. There is a link on the W&RC website to the Northern Sacramento Valley (Four County) Drinking Water Quality Strategy Document which summarizes the collaborative efforts of Butte, Colusa, Glenn, and Tehama Counties, and Statewide and regional water quality management programs. http://www.buttecounty.net/waterandresource/4_county_dw.htm

PROPOSED 2006 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS

CENTRAL VALLEY REGIONAL BOARD

SWRCB APPROVAL DATE: OCTOBER 25, 2006

REGION TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
-------------	------	--------------------	--------------------	-------------------	-------------------------	--------------------------

REGIONAL WATER QUALITY CONTROL BOARDS

REGIONAL WATER QUALITY CONTROL BOARDS	WATER BODY TYPE
1 North Coast	B = Bays and Harbors
2 San Francisco Bay	C = Coastal Shorelines/Beaches
3 Central Coast	E = Estuaries
4 Los Angeles	L = Lakes/Reservoirs
5 Central Valley	R = Rivers and Streams
6 Lahontan	S = Saline Lakes
7 Colorado River Basin	T = Wetlands, Tidal
8 Santa Ana	W = Wetlands, Freshwater
9 San Diego	

CALWATER WATERSHED

"Calwater Watershed" is the State Water Resources Control Board hydrological subunit area or an even smaller area delineation.

GROUP A PESTICIDES OR CHEM A

aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor epoxide, hexachlorocyclohexane (including lindane), endosulfan, and toxaphene

PROPOSED 2006 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS

CENTRAL VALLEY REGIONAL BOARD

SWRCB APPROVAL DATE: OCTOBER 25, 2006

REGION TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
5 L	Don Pedro Lake	53632010	Mercury	Resource Extraction	11056 Acres	2020
5 R	Dunn Creek (Mt Diablo Mine to Marsh Creek)	54300021	Mercury <i>All resource extraction sources are abandoned mines.</i>	Resource Extraction	0.7 Miles	2013
			Metals <i>All resource extraction sources are abandoned mines.</i>	Resource Extraction	0.7 Miles	2020
5 L	Englebright Lake	51714013	Mercury <i>All resource extraction sources are abandoned mines.</i>	Resource Extraction	754 Acres	2012
5 R	Fall River (Pit)	52641031	Sedimentation/Siltation <i>The sedimentation is accumulated sand size sediment in the upper Fall River. The historic land management activities include logging, grazing, channelization, roads, and railroads.</i>	Historic Land Management Activities	8.6 Miles	2016
5 R	Feather River, Lower (Lake Oroville Dam to Confluence with Sacramento River)	51922000	Chlorpyrifos	Source Unknown	42 Miles	2019
			Group A Pesticides	Source Unknown	42 Miles	2011
			Mercury <i>All resource extraction sources are abandoned mines.</i>	Agriculture	42 Miles	2009
			Unknown Toxicity	Resource Extraction	42 Miles	2019
				Source Unknown		

PROPOSED 2006 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS

CENTRAL VALLEY REGIONAL BOARD

SWRCB APPROVAL DATE: OCTOBER 25, 2006

REGION TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
5 R	Feather River, North Fork (below Lake Almanor)	51812000	Mercury	Source Unknown	49 Miles	2019
			Temperature, water		49 Miles	2019
5 R	Five Mile Slough (Alexandria Place to Fourteen Mile Slough)	54400000	Chlorpyrifos	Hydromodification Flow Regulation/Modification	1.6 Miles	2006
			Diazinon	Urban Runoff/Storm Sewers	1.6 Miles	2006
			<i>The agricultural source of diazinon for this waterbody is from aerial deposition.</i>			
			Organic Enrichment/Low Dissolved Oxygen	Agriculture Urban Runoff/Storm Sewers	1.6 Miles	2008
			Pathogens	Urban Runoff/Storm Sewers	1.6 Miles	2008
5 R	French Ravine	51632011	Bacteria	Other Urban Runoff Recreational and Tourism Activities (non-boating)	1.7 Miles	2019
5 W	Grasslands Marshes	54120000	Electrical Conductivity	Land Disposal	7962 Acres	2008
				Agriculture		