

Upper San Joaquin River Watershed

Background

The San Joaquin River is located in Central California. It is the chief river in the southern part of California's Central Valley. It rises on the western slope of the Sierra Nevada in Madera and Fresno Counties. The river flows southwest out of the Sierra Nevada and crosses the San Joaquin Valley, one of the richest farming areas in the United States. It then turns northwest and joins the Sacramento River to form a delta. Water from the delta empties into San Francisco Bay. The San Joaquin River is about 350 miles long. Its waters are used for domestic, wildlife, recreation, environmental enhancement, rangelands, and in the Central Valley Project, which distributes water for irrigation and for the generation of hydroelectric power. Friant Dam, part of the project, stands on the river.

The San Joaquin river drainage area above Friant Dam consists of approximately 1,722 square miles of mountains and foothills. It is about 97 miles in length, and ranges in elevation from about 12,978 feet at Rodgers Peak at the headwaters to about 580 feet at the dam. During the spring and summer snowmelt water plummets at 300 miles per hour down sheer granite faces, boulders and primitive canyons. The Middle Fork of the San Joaquin River is located in the high elevation, west of the town of Mammoth, California. 952,927 acres are on the Sierra National Forest.

Soils in the area are predominantly decomposed granite and range in depth from shallow at high elevations to moderate at low elevation. Vegetation ranges from alpine, sub-alpine, meadow, relatively dense and over-stocked coniferous forests, and oak-woodland to open rangeland.

Cold, snowy winters and warm, dry summers characterize the San Joaquin River Basin climate. Precipitation characteristics of the San Joaquin River Basin are significantly affected by topography. Normal annual precipitation varies from 60 inches in the headwater areas to about 14 inches at Friant Dam. About ninety percent of runoff-producing precipitation occurs during the period from November to April.

Tributaries

Tributaries that feed the San Joaquin River include the North Fork, Middle Fork, South Fork, Bass Lake, Bear Creek, Chiquito Creek, Evolution Creek, Fine Gold Creek, Fish Creek, Florence Lake, Granite Creek, Huntington Lake, Jackass Creek, Kaiser Creek, Lake Thomas A Edison, Mammoth Pool Reservoir, Millerton Lake, Mono Creek, Piute Creek, Shaver Lake, Whisky Creek, and Willow Creek .

Community Information

The Upper San Joaquin River watershed on the Madera County side includes the unincorporated communities of Bass Lake, Wishon, O'Neals, and North Fork. The majority of the upper watershed is within the Sierra National Forest. The Sierra Nevada is predominantly overstocked, un-managed, forested land, maximizing natural mortality. The upper watershed is within Madera and Fresno Counties. The communities of Bass Lake, North Fork, and eastern Madera County are listed as a "Community at Risk" from wildland fire from federal lands in the *Federal Register*. The major thoroughfares within the watershed are Road 274, Beasore Road, and Minarets Road.

The Madera County area is occupied by two Native American tribal governments: Mono and Chukchansi. One of the highest concentrations of tribal members in the state, these two tribes are very pro-active in environmental enhancement.

Development within the watershed includes community water supplies and sewage treatment systems, as well as individual wells, and individual septic systems. North Fork and Bass Lake have wastewater treatment plants and community water systems. Cascadel has a community water system.

In 1998, the Coarsegold RCD received a \$502,258 Phase I – Proposition 204 grant from the State Water Resources Control Board to work on the Willow Creek watershed. Specifically, the committee proposed to reduce fuels on 705 acres of privately-owned lands by soliciting landowner participation in a program of vegetation restoration, erosion control, and construction and extension of existing shaded fuel breaks. In addition, the committee proposed to restore a 135-acre former lumber mill site. The CRCD has worked on several projects to reduce fuels on privately-owned lands by soliciting landowner participation in programs for vegetation restoration, erosion control, and construction and extension of fuel

breaks. Projects vary from controlled burns to hand clearing. All the bare lands have been re-seeded. In all, approximately 31,000 acres have been treated and 382 miles of fuel breaks have been built in the watersheds of the Fresno and San Joaquin Rivers.

Planning within the Watershed

In 2006, Madera County received a Proposition 50 Integrated Regional Water Management (IRWM) grant to enable the County to create and implement a water management plan. Because the Valley Floor relies on the alluvium for its groundwater supplies and the eastern County depends on fractured rock, the County was divided into two basic regions for planning purposes. The eastern County was then separated into the sub-regions of Oakhurst, Coarsegold, North Fork, and Raymond, to take into account political and economic differences. Homeowners volunteered their wells for study of water level/recharge and water quality tests to be conducted over a 9-month period. Stakeholder groups were formed to evaluate the resulting data and engineering options. The final report and water management plan will be delivered by the end of 2007.

Madera County has a general plan, which includes portions of the Upper San Joaquin River watershed. The *North Fork Area Specific Plan*, which includes portions of the watershed, has been updated and was adopted by the County in 2002.

Other plans include the USFS *Sierra National Forest Ecosystem Management Plan*, 2001, USFS *Sierra National Forest Land and Resource Management Plan*, 1991, as amended by the *Sierra Nevada Forest Plan (Sierra Framework)*, 2004, which is on the internet and is available as a three-volume CD. The *Sierra Framework* document has fuel-loading maps. For the upper San Joaquin Watershed there is the USFS *Ansel Adams & John Muir, and Dinkey Lake Wildernesses Management Plan* - 2001. The Sierra National Forest has the *Willow Creek Landscape Analysis*, June 1995 and the *Fresno River Landscape Analysis*, July 2005. The USFS document *Sawmill History of the Sierra National Forest from 1852-1940* is available. California Department of Forestry & Fire Protection has a *Pre-Fire Management Plan* that covers portions of the watershed.

The Chukchansi Tribal Nation has requested Larry Ballew, a professional forester, to initiate a plan and program for vegetation management on all Sovereign, and tribal members' property to enhance fire protection and increase local water production in all of eastern Madera County.

The Department of Water Resources produced *Bulletin 135, Madera Area Investigation* in 1966. The *Water Quality Control Plan for the Sacramento and San Joaquin River Basin*, (available at <http://www.swrcb.ca.gov/rwqcb5>) and adopted by the Regional Water Quality Control Board describes the beneficial uses and water quality objectives for the San Joaquin River. ***Please see appendix for additional information***

Additional information regarding the watershed can be found at the EPA Web Site http://cfpud1.epa.gov/surf/huc.cfm?huc_code_18040006; usgs.com; San Joaquin River Hydrologic Area 539.10, USGS Cataloging Unit 18040006-Upper San Joaquin.

Beneficial Uses

The following beneficial uses have been designated for the San Joaquin River, source to Friant Dam: flood control, municipal/domestic water supply, irrigation, water contact and non-contact water recreation, warm water habitat, cold water habitat, and wildlife habitat.

Permitted Facilities in the San Joaquin Watershed

Facilities for: San Joaquin USGS Cataloging Unit: 18040006

Facility ID	Facility Name	Facility Address	Watershed
CA2000628	22 Mile House	Madera, CA	SJR bl Millerton
CA2000535	Beasore Meadows	CA	SJR (Mammoth Pool)
CA2000695	Spring Cove Campground	Madera, CA	SJR (Willow Creek)
CA2000834	Twenty-Two Mile House Shell	Madera, CA	SJR bl Millerton

California Regional Water Quality Control Board Waste Discharger System

California Regional Water Quality Control Board Waste Discharger System

Facilities in Madera County

Agency Name	Facility Name	Watershed
DINUBA TIMBER INDUSTRIES, INC	DINUBA TIMBER - AUBERRY AGT	SJR
GARTUNG INDUSTRIES, INC	STRAWBERRY MINE	SJR
MADERA CO ENG & GEN SERVICES	#2-BASS LAKE WWTF	SJR
MADERA CO ENG & GEN SERVICES	#24 TEAFORD MEADOW LAKES	SJR
MADERA CO ENG & GEN SERVICES	#6-LAKE SHORE PARK WWTF	SJR
MADERA CO ENG & GEN SERVICES	#7 MARINA VIEW HEIGHTS	SJR
MADERA CO ENG & GEN SERVICES	#8A-NORTH FORK FACILITY	SJR
MADERA DISPOSAL SYSTEMS, INC	NORTH FORK SWDS	SJR
PARK SERVICE/DEPT OF INTERIOR	DEVILS POSTPILE FACILITIES	SJR
SEACH, MR. JOHN	LAKEVIEW VILLAS WTP	SJR
SEQUOIA FOREST INDUSTRIES	NORTH FORK MILL	SJR
TELEDYNE WAH CHANG ALBANY CORP	NORTH FORK MILL	SJR
THE PINES RESORT OF CALIFORNIA	BASS LAKE ESTATES CONST SITE	SJR
HOVANNISIAN, JOHN	NORTH FORK MILL HOUSING	SJR Willow Crk
CALAVERAS MATERIALS, INC	BLACKSTONE PLANT	SJR bl Millerton

Toxic Waste Facilities in the San Joaquin Watershed

<u>RCRAINFO Facilities for : Upper San Joaquin USGS Cataloging Unit: 18040006</u>		
Hazardous Waste Facilities in the San Joaquin Watershed		
Facility ID	Facility Name	Facility Address
<u>CAD051693281</u>	AMERICAN FOREST PRODS CO	48754 Hwy 49, Oakhurst, CA 93644
<u>CAD983649872</u>	BIG CREEK 1 HYDRO DIVISION OFF	54205 Mountain Poplar Dr, Big Creek, CA 93605
<u>CAD981990401</u>	BIG CREEK 2 2A	53615 Upper Chawanakee Rd, Auberry, CA 93602
<u>CAD981990401</u>	BIG CREEK 2 2A	Edison Ph8, Auberry, CA 93602

<u>CAD981684749</u>	BIG CREEK PLANT 4	58188 Rd 235, North Fork, CA 93643
<u>CAD981990401</u>	BIG CREEK PLANT 8	53615 Upper Chawanakee Rd, Auberry, CA 93602
<u>CAD981990401</u>	BIG CREEK PLANT 8	Edison Ph8, Auberry, CA 93602
<u>CAD981684921</u>	BIG CREEK REGIONAL WAREHOUSE	55481 Poplar, Big Creek, CA 93605
<u>CAD030998363</u>	DINUBA TIMBER INC NORTH FORK	57839 Rd 225, North Fork, CA 93643
<u>CAD981164361</u>	EASTWOOD POWER STATION	45795 Tollhouse Rd, Shaver Lake, CA 93605
<u>CAD983665092</u>	FAST FOTO	29424 Auberry Rd Ste 118, Prather, CA 93651
<u>CAD982498420</u>	FRONKS MOUNTAIN DRILLING CO INC	24941 Auberry Rd, Clovis, CA 93612
<u>CA0001189893</u>	MAMMOTH POOL	1 Mi Above Big Creek 8 On San North Fork, CA 93643
<u>CAD981620354</u>	PG&E AUBERRY HYDRO CENTER	33755 Old Mill Rd, Auberry, CA 93602
<u>CAD980886733</u>	PG&E CRANE VALLEY HYDRO PLANT	37mi Ne Of Fresno/Bass Lk Dam Madera, CA 93604
<u>CAT080011588</u>	PG&E KERCKHOFF 2 POWER HOUSE	Under Construction Near Auberry, CA 93602
<u>CAD980886972</u>	PG&E SAN JOAQUIN 1A HYDRO PLANT	4 Mi S/O North Fork Off Rd222 Corrine Lake Nr, CA 93643
<u>CAD980886857</u>	PG&E SAN JOAQUIN 2 HYDRO PLANT	2mi S/O North Fork On Rd222 Madera, CA 93643
<u>CAD981451529</u>	SEQUOIA FOREST INDUSTRIES, INC	32180 Auberry Rd, Auberry, CA 93602
<u>CAD982368797</u>	SIERRA AUTO	Rd 200 & 222, North Fork, CA 93643
<u>CAD983658642</u>	SIERRA UNIFIED SCHOOL DIST	33326 North Lodge Rd Tollhouse, CA 93667
<u>000006942472</u>	USDA F S AUBERRY STATION	35132 Wish I Ah Rd Auberry, CA 93602
<u>CAD982438327</u>	WIND PIG EXPRESS	44673 Auberry Rd, Auberry, CA 93602
<u>CAD982520272</u>	WISHON COVE	38088 Road 222 #14, Wishon, CA 93669

No TRIS Facility Data found in Envirofacts for USGS Cataloging Unit: 18040006

Known Activities in the Watershed

- 1) There is an incomplete draft by the USFS called *San Joaquin Ecosystem Analysis* and various erosion-control structures (meadow restoration) in the watershed. This draft is still incomplete as of December 2006.
- 2) San Joaquin River Trail has erosion and sedimentation problems on the Fresno side of the river. The CRCDC sent letters to BLM regarding these problems and has not received a reply to date. The Bureau of Land Management needs to deal with restoration of the trail. The Sierra Foothill Conservancy has offered to look into this.
- 3) Area campgrounds: There is a need to monitor streams above and below the campsites to determine if they are impacting the surrounding area and water quality. Vault toilets in campsites and their effects on water quality need to be studied. Campgrounds having adverse effects on stream quality may be removed. DF&G states that there should be a buffer zone of 100' required for toilets.
- 4) Disbursed campsites and the effects from users should be monitored before being eliminated.
- 5) There are eight grazing allotments on the Sierra National Forest within the San Joaquin River watershed. A specific number of cattle are allowed to graze during certain times of the year to maintain ecosystem health.
- 6) The re-licensing process for the Southern California Edison Big Creek Project began in 2001. The process includes both public and private parties that are interested in participating. The project will include studies and monitoring within the watershed.
- 7) Bass Lake/Crane Valley Project: Mitigation needed for 90 projects as identified in the Crane Valley Project Phase I Agreement. Studies are being conducted to identify and prioritize needed mitigations.
- 8) The Strawberry Tungsten Mine is on private property above Mammoth Pool at entrance of wilderness. Mining was stopped 15 years ago. There are still tailings at the entrance located above Clover Meadow. The mine is no longer active. The CSWC questioned if remaining materials are entering Granite Creek? Was water function and

flow changed? Is there a need to check for water quality in creek above and below mine? Do underground storage tanks (UST) exist? Have studies been done below mine to see if there is a pollution problem?

Pam Buford, RWQCB, spoke with two RWQCB staff members who worked on the mine closure. They said the type of mining done there was a relatively clean process as far as mines go. There is also a large leach field that served the cabin's septic system. There may have been some recent water sampling by the landowner, Don Smith. The RWQCB rescinded the Waste Discharge Requirements for this facility after sampling indicated there was not a threat to water quality. The Mammoth Pool Area includes recreation facilities, old borrow pits for materials that were used to construct the dam, meadow restoration projects, and erosion control issues. There are tailings at Rock Creek as well as tunnels, pipes, and adits. There is concern that water flowing through the area could increase and create erosion problems.

- 9) The watershed is in a Seismic 4 area. Are dams safe? There are at least two dams in the area. Are there more?
- 10) What are the water quality issues related to septic systems in the watershed?
- 11) Sulfur outcroppings and emissions around Devil's Postpile and Mammoth Mountains. These are naturally occurring outcroppings of sulfur, which are beneficial.
- 12) There are hundreds of cultural sites in the watershed. What needs to be done to preserve and/or protect them?
- 13) There are old mines throughout the watershed, most being used by squatters.
- 14) There are several treatment plants in the San Joaquin drainage including North Fork, Bass Lake, Lake Shore, Marina View, and Teaford Meadows. The rest of development relies on septic systems, including Hidden Lakes, Millerton, and Fine Gold Creek developments. What is the effect on water quality?
- 15) North Fork Rancheria is working in cooperation with Madera County to expand the number of sewer units in North Fork to accommodate planned tribal housing.

- 16) The North Fork Mill site has major erosion issues from log decks to stream banks. The old buildings were removed through a work development program and by private contracts. Water pollution caused by leaking underground storage tanks was assessed and the tanks removed in 2006.
- 17) A major problem is fuel loading throughout the watershed, both on USFS and private lands. Bass Lake and North Fork have been identified as a “High Fire Threat” area by CDF and identified as “Communities Within the Vicinity of Federal Land That are at High Risk from Wildfire” per the *Federal Register: January 4, 2001* and *May 1, 2001*. Wildland fire risk is coming directly from federal lands. This is based on using 1.5 mile to define vicinity. Thousands of acres of land within the boundaries of North Fork, Bass Lake, and Teaford Saddle, 85-95% of which are listed in the *Federal Register* have undergone fuel modification including:
- 200-300 acres of biomass mastication on Malum Ridge
 - Four main fuel breaks, encompassing 150-200 acres cut and maintained in the North Fork area
 - Two prescribed burns, covering 300 acres at Kinsman Flats
 - Timber sales and fuel break construction, totaling 600-800 acres from Peckinpah to South Fork bluffs
 - 100-150 acre mastication project at Teaford Saddle
- 18) Need to determine what type of mining was done above Friant?
- 19) Major problems from public and private roads are washouts and improperly sized culverts. Poor grading methods are causing large amounts of sediment to enter the streams, creeks, and river.
- 20) At the North Fork Recreation Center / Willow Creek Recreation Dam annual release needs to be gradual to prevent erosion and sedimentation problems down stream.
- 21) There is a “Water Improvement Needs” (WIN) Inventory of erosion control projects that need to be restored. This inventory is continually updated by the USFS.
- 22) A chemical/toxin study is needed to assess the effects on water quality from property in Ahwahnee where old medical waste was dumped and buried throughout the property.

- 23) The North Fork Fire, August 20, 2001, burned 4,000 acres of private and USFS lands. The cost to contain it was \$5 million. What will the effects be on the creeks when winter rains cause erosion and sediment transport from the recently burned lands?
- 24) Abandoned mines and old logging camps should be monitored to gauge their effect on water quality.
- 25) There are several communities that have numerous parking lots, roads, buildings and other impervious area that are discharging pollution into water course. How significant?
- 26) The eastern Madera County FireSafe Council is working with the USFS to conduct outreach and fuel removal from Bass Lake Road and Hwy 41 to the Yosemite Park boundary.
- 27) The Coarsegold Resource Conservation District and the Eastern Madera Fire Safe Council have adopted an area on Kinsman Flat belonging to Fish & Game. This project includes habitat restoration for deer, quail, wild turkey, and other native wildlife populations. The National Turkey Foundation is a partner in building a handicap accessible wildlife nature trail and hunting pathways.

Present Monitoring within the Watershed

In the 1980's, chemical and bacterial data were collected from each of the 19 fifth field watersheds on the Sierra National Forest. Best Management Practices (BMP) are monitored annually on the Sierra National Forest for compliance and effectiveness in controlling erosion and sedimentation from forest ground-disturbing activities. There appears to be little or no road maintenance on forest lands, and excessive sediment loading is taking place. This situation needs to be monitored and corrected.

Presently there is no monitoring in the upper San Joaquin Watershed. Most monitoring is taking place in the lower area below Friant Dam. Extensive monitoring and surveying are planned for the Alternative Licensing Process (ALP) for the Southern California Electric Big Creek Hydropower re-licensing process.

Snow surveys are conducted in the upper watershed from December 15 to April 1 each year.

In addition, nine remote telemetered snow sites continually monitor snow water content from the annual snow pack. Information is available from www.CDEC.com.

Potential Problems

Water Quality and Quantity degradation due to private and public:

- 1) Roads
- 2) Flooding
- 3) Wildfire
- 4) Rock and mudslides
- 5) Sewer spills
- 6) Failing septic systems
- 7) Land development & construction

Proposed Planning Projects

- 1) Develop a water quality / monitoring program to assess communities and subdivisions, campgrounds and dispersed campsites for the San Joaquin River watershed.
- 2) Research and assess mining and logging mill residue to determine the actual threat to water quality. If necessary, monitor water bodies to determine the effects of residue.
- 3) Once problem areas are identified, develop restoration plans which will include best management practices for implementation.
- 4) Determine the major drainage problems, including those from old mines, old logging camps/mills and septic system runoff that are entering the watershed.
- 5) The CRCD and EMCFSC are conducting an evaluation of stocking rates (tree crown closure) on tree growth, water yield, and crown interception of precipitation on water run off and groundwater recharge.
- 6) The CRCD, EMCFSC, USFS, CDF, and BLM are working on a fuel modification program and plan to protect watersheds and increase water production.

- 6) CDF& G, National Wild Turkey Foundation, CRCD and EMCFSC are developing a long term plan to implement a pilot program to improve key wildlife habitat, develop water facilities, and improve water yields through vegetation management.
- 7) CRCD is proposing a study and plan to capture the increase in water yields during the winter for late spring and early summer extended ground water recharge. (i.e. sumps for groundwater recharge in developed areas, etc)
- 8) CRCD et al are planning to establish “carbon credit and water credit programs” to encourage landowners and water user’s watershed protection programs, water conservation, water storage systems for regulated water run-off and recharge, and increase water production programs

Proposed Implementation Projects

- 1) The CRCD is preparing a demonstration of rangeland vegetated buffers for reducing non-point source pathogens, nutrients, and organic carbon into the tributaries of the Fresno and San Joaquin Rivers. This effort is supported by: State Water Resources Control Board – Consolidated Nonpoint Source Pollution Control and Watershed Protection Grant (Prop. 13), \$341,763. Installing VBS can quickly reduce NPS pollutant loading from rangeland runoff and increase water quality in foothill tributaries draining into the San Joaquin and Fresno Rivers, which are major tributaries of the southern section of the Delta. Co-principal investigators are Robert Atwill and Kenneth W. Tate. This project is being undertaken in cooperation with the University of California Davis, Natural Resource Conservation Service, University of California Cooperative Extension, USDA Forest Service-Pacific Southwest Research Station and California State University, Fresno.
- 2) Erosion problems have been identified along the Scenic Byway, USFS roads, other public and private roads - including improper grading, washouts, erosion, sedimentation, broken pipes, culverts that are too small. Need to contact USFS, and Madera County to assist in resolving these issues, and to develop a prioritization list and find funding sources to reduce and prevent sedimentation from entering the

streams by improving roadways, culverts, drainages, grading techniques, and storm runoff.

- 3) There are excessive fuel loads on public and private lands, which could result in catastrophic fire and negatively impact emergency evacuation needs. Funding sources need to be located to reduce fuel loading on public and private lands to reduce risk of wildfire need to be identified.
- 4) Implement clean water programs to reduce problem areas identified under the Planning Projects section i.e. replace failing septic systems, remove old mine tailings, improve and or install new storm drainage, replace undersized culverts, use alternative toilet systems for campgrounds/campsites, develop ways to reduce and prevent contaminants from entering the streams.
- 5) Remove Noxious weeds especially yellow starthistle in mountains and arundo in the lower elevations.
- 6) When monitoring/planning projects are completed, identify funding sources for restoration of problem areas identified.
- 7) Determine the location of all 'community based sewage plants' that use evaporation ponds or spray fields. Establish the amount of water used in each, loss of water by evaporation, and establish program by priority of cost/benefit for installation of tertiary treatment, including benefit of use of treated water (including summer groundwater recharge).
- 8) Institute conifer timber harvest to maximized sustained yield management growth on public lands to professional (not political) standards, using silvicultural prescriptions which optimize healthy forest and water production. In the 'snow belt' utilize strip cutting to increase snow pack for extended regulated water release. In other areas utilize group selection. All managed areas should include vegetation management of plants which have a negative impact on healthy forest objectives.

The Future

Population growth in the San Joaquin Valley is projected to grow by over twice the national rate between 2003 and 2020 and, in some counties, by over three times the national average. Madera County had the highest population growth rate in the San Joaquin Valley between 1990 and 2003 (51.5%). The pressures on water resources and quality resulting from rapid population increase make it imperative to continually monitor and assess water quality and supply. The completion of the IRWM planning process and subsequent implementation should put the communities of the Upper San Joaquin watershed in an advantageous position to prepare for the future. However it should be noted that the San Joaquin Valley had a decrease in per capita federal expenditures in 2002 and were lower relative to the 2003 per capita rates of the United States and California.