

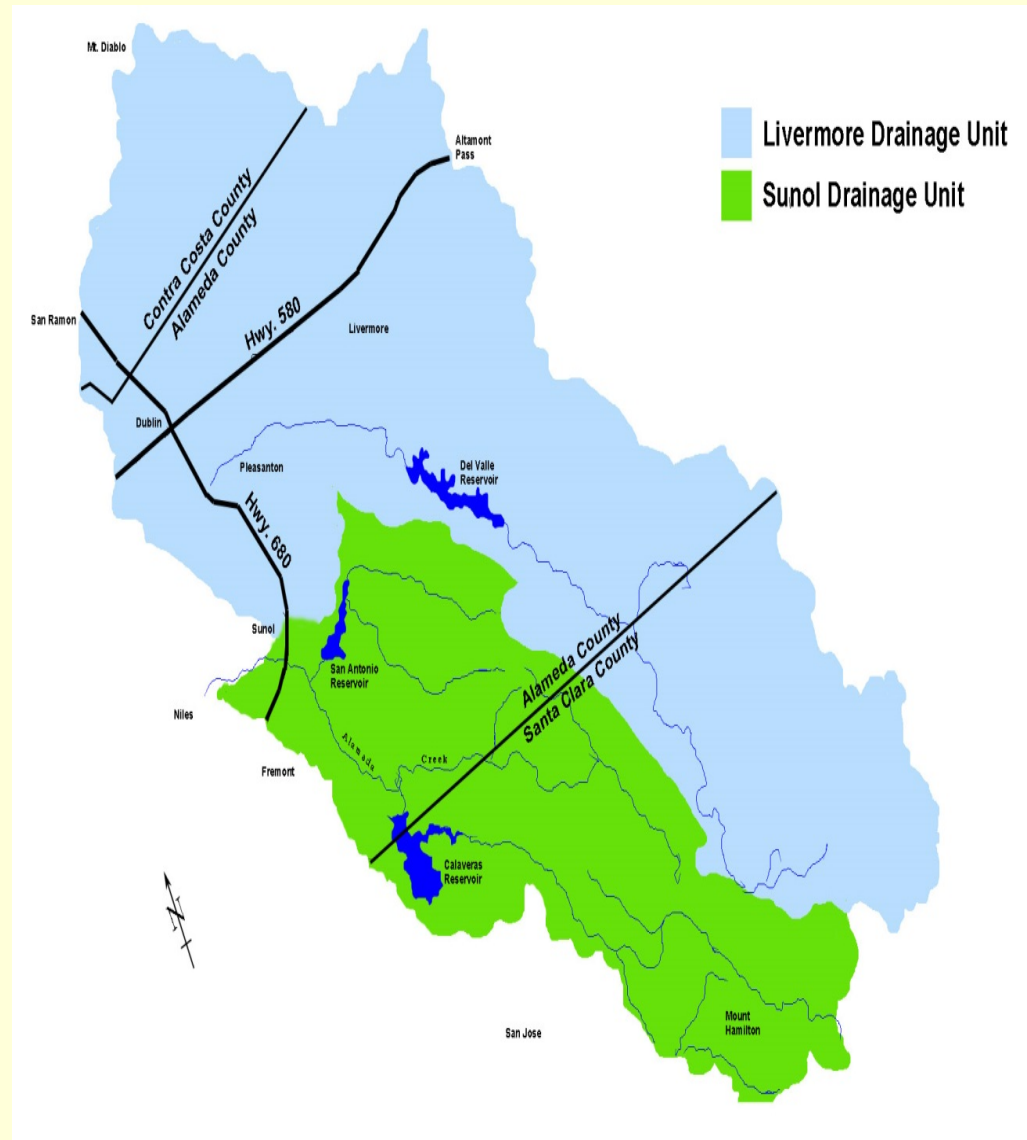
Grazing on a Municipal Drinking Water Watershed

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The Watershed



Alameda and Hetch Hetchy Water

- 38,000 +/- Acres
- About 1\3 of the entire Alameda Creek watershed
- Turner Dam \ San Antonio Reservoir – 50,500 AF
- Calaveras Dam and Reservoir – 96,850 AF
- With HH (85%) provides water for 2.6 million consumers



The New Grazing Plan

Work began in 1992 to amend the revenue based lease process that had provided unsatisfactory results

- Established goal based grazing capacities
- Priced leases on an Animal Unit Months basis with value based adjustments for cattle prices
- Provided for a rigorous tenant selection process
- Established goal based monitoring protocols

The Bomb Drops

Milwaukie, Wisconsin

April 1993

Public potable water supply sickens 403,000 Milwaukie residents. Extreme hazard to immunocompromised individuals, with 104 human deaths.

Cryptosporidium parvum identified as causative organism.

High river flows with increased turbidity, manure used to fertilize nearby crop fields, the close proximity of dairy farms, and wastewater from a slaughter house are the assumed source of Milwaukie *Cryptosporidium parvum*.

CATTLE CAUSE CRYPTOSPORIDIOSIS

The Meeting at the Clift Hotel

- Water Supply Division Manager, Natural Resource Manager, City Attorney, Public Utility Commission member, Real Estate Services Manager
- Thought to be an opportunity to explain the goals of the new grazing plan
- **MANAGED LIVESTOCK GRAZING AS A LAND MANAGEMENT TOOL WILL BE TERMINATED ASAP**
- **THE PURPOSE OF THE MEETING WAS TO DETERMINE THE MOST EXPEDIENT MEANS TO VACATE LIVESTOCK, VOID ALL LEASES AND PREPARE FOR EXPECTED LITIGATION**

The Call for Help

University of California, Davis

Dr. James Oltjen

Dr. Rob Atwill

Dr. Ken Tate

Alameda County Resource Conservation Service

Shelia Barry

University of California Cooperative Extension

Larry Forero

California Cattlemen's Association

John Braly

The Teams

The San Francisco Public Utilities Commission
Clean Water Action
ACT UP Golden Gate
Alice B. Toklas Lesbian and Gay Democratic Club
Alameda Creek Alliance

University of California, Davis
California Cattlemen's Association
Alameda County Resource Conservation District
University of California Cooperative Extension
Service
Ranchers

The goal is risk reduction

The Technical Strategy

Within 30 days, using the best available science, we were asked to develop waterborne pathogen risk reduction protocols to be included in the new SFPUC grazing program.

UC Davis

Ranchers

AC RCD

UCCE

SFPUC

USDA-NRCS

Alameda Creek Watershed Grazing Resources Management Plan was submitted to the SFPUC for review on May 13, 1997

Application of Hazard Analysis of Critical Control Points (HACCP) and applied Best Management Practices (BMPs)

The HACCP Approach

Hazard Analysis at Critical Control Points

7 Principles

Conduct a Hazard Analysis

Identify Control Points

Establish Critical limits

Establish Critical Control Point Monitoring

Establish Corrective Actions

Establish that HACCP is working as intended

Establish Record Keeping

HACCP Protocols

- Establish and monitor RDM levels to provide vegetative filtering
- Develop off stream stock water to enhance distribution and reduce riparian impacts
- Use attractants, salt and supplements, to reduce riparian impacts
- Maintain fenced non-grazed buffers around reservoirs
- Develop riparian pastures for late season grazing in critical locations
- Calving to be completed by October 31st
- Application of rancher Best Management Practices (BMPs)
- Develop and implement feral pig control program

HACCP Protocols = BMPs

- The practices and protocols developed for pathogen risk reduction were publicized and spread by “word of mouth” throughout the grazing community
- Ranchers came forward to the SFPUC, UCCE and rangeland scientists with many questions as to how to apply similar BMPs.
- Water quality enhancement through off stream attractants has become a common rancher BMP
- RDM evaluation and photo point monitoring have become common rancher BMPs

Off stream stock water development has become a common BMP as in partnership with NRCS EQIP program and the RCD VLP program



Partnerships make good projects happen

Tenant + Landowner + NRCS + RCD



Stock pond (critical habitat) repair and de-silting BMP in partnership with NRCS and the RCD



Feral Pig Management as a Partnership with the California Department of Fish and Wildlife

- Feral Pigs are notorious pathogen carrier/shedders with less age specificity
- Feral pigs consume and damage native plants
- As omnivores, feral pigs may prey on ground nesting birds, amphibians, reptiles and other species
- Feral pigs are prolific – reaching sexual maturity at 6 months and able to produce 2 to 3 litters per year
- Feral pigs may contaminate and damage natural springs, ponds and constructed water systems
- Feral pigs are not constrained by standard livestock fences

Feral Pig Multi-Species Pastures are not a BMP



Monitoring

- A formal RDM and Species Composition monitoring program was developed through a partnership between the SFPUC, Alameda County Resource Conservation District and the NRCS
- 92 permanent photo points \ transect sites have been identified and recorded
- All sites are evaluated for RDM in the fall and species composition was completed in the spring



The End

(Or - That's It From Soup to Nuts)

Questions / Comments

