

Water Talks: Water Conservation Series Part 1
Preparing the Mt. Shasta Community for Drought
March 10, 2015
Meeting Notes

Introduction given by Meadow Fitton of CalTrout, and the facilitator of Water Talks Program. Fitton identified a high percentage of newcomers to the Water Talks Program present in the audience. The Water Talks Program has been ongoing since 2008, presenting a variety of water related topics. This is the 26th program, having had 76 local and regional experts volunteer over the years.

Purpose: To provide a place for people to learn about water related topics.

Goal: For people to be more informed and increase participation in water policy by providing a place to interact with experts.

Format: 6:00-8:00 pm without breaks. Introduction, presentations, then questions.

This is the first in a three-part series in water conservation strategies. The main question of the evening is how can Mt. Shasta and the surrounding areas be prepared for an extended drought?

This special series is funded by a grant from the Department of Water Resources (DWR).

The Upper-Sacramento Integrated Regional Water Management Region and DWR Prop 84 drought grant were received by the City of Mt. Shasta to complete two projects: The water supply line replacement project and the water meter installation project.

The presentations are meant to show the larger context within the state and how this region fits into that bigger picture and explain the components of this city's water infrastructure.

Geoff Harkness- Mayor of the City of Mt. Shasta and professionally, a Senior Consulting Manager with Truven Health Analytics.

Drought impact on City of Mt. Shasta

We are in our fourth year of drought in California. He will discuss what the impacts are of the drought here and what are we doing about it.

Cold Springs is the primary water source for the City. After rainfall, water appears in Cold Springs four to five months later. In 2014, the springs reached an all-time low. Harkness stressed the difficulty of meeting demand during peak usage with the current infrastructure.

The City is pursuing two critical water infrastructure projects; water meters for both commercial and residential, as well as the replacement of the main water supply line. The City received \$4.3 million as an unmatched grant from DWR for these projects. The pace required for both of these projects is accelerated, expecting completion by November of 2015. The funds are ultimately a result of Proposition 84, passed by voters in November 2006. The Proposition 84 provided \$5.6 Billion for water infrastructure projects throughout the state, \$1 billion, specifically for integrated-regional water management regions (IRWM). The local IRWM group is comprised of a diverse group of stakeholders who come together to manage water issues. The Upper Sacramento Region is comprised of three municipalities (Dunsmuir, McCloud, Mt. Shasta), four Tribes (including the Winnemem Wintu Tribe, Pit River Tribe, Shasta Indian Nation and Modoc Nation), and nine local non-profit organizations (including the Mt. Shasta Bioregional Ecology Center and CalTrout).

Last year, the governor came out with a drought proclamation. DWR came out with a grant solicitation package, the City of Mt. Shasta introduced the two projects to IRWM. In Fall of 2014, the City was notified it received the \$4.3 million grant.

The City is pursuing the Supply Line Project because the current pipe is eighty years old, is difficult to access in the winter months, is prone to leaks, and is the only means to provide water to the City. They are pursuing the water meter project because Mt. Shasta's water usage is among the highest per person throughout the state. The current usage in Mt. Shasta is 2.9-3.5 times higher than Weed and Dunsmuir, respectively.

During the summer months, demand is higher than supply. We supplement our water supply from Cold Springs by pumping from two wells for 18 hours a day. An additional consideration for the City is the need to suppress fires.

The water line and water meter projects allow the City to have a dialog with residents about the water usage. There is generally a 20-30% reduction in water usage after meters are installed. The meters will also allow rates to be more equitable than flat rates.

Bill Croyle- Department of Water Resources (DWR) Drought Emergency Operations Manager/
Department Emergency Manager

Over the last six years, only one has been wet. Started planning one year ago in August, including reaching out to government offices and local agencies. The governor has declared a drought emergency. We are on our fourth year of drought, having 8 of the last 9 years being a critically dry period. Croyle discussed in detail the weather conditions of the last several years and the impacts it has had on snowpack and overdraft on groundwater supplies. We have continued to tap our groundwater supplies and reservoirs and conservation is becoming more and more important.

There is a high level of coordination, collaboration, and response between local, state, and federal agencies across the state. He stressed the importance of meetings like the Water Talks to spread awareness and come up with solutions.

At the local level, there are 25 counties, 13 cities, 9 tribes, and 13 special districts that have declared a state of emergency. The drought has spurred the development of local drought task forces to assess impacts, solutions, and how to gain access to emergency resources. 40% of the state is in extreme drought conditions and an estimated 37 million people in California have been affected by it. In 2015 California was faced with drought and flood concurrently.

Snowpack and water content: Our snowpack is at 14% of this region's April 1st snowpack, 15% average to date. This is critical for those that rely on snowpack to recharge groundwater.

California generally relies on three to five big storms for most of its water.

Reservoir conditions: State-wide, California has 197 reservoirs. The online source provided by Croyle displays percentage capacity and average to date, he discussed various areas' current conditions. Federally-run Folsom Reservoir is currently 100% of average this year. Last year, the local region became aware of their extremely low levels and implemented measures to remedy this. He reviewed the conditions of Shasta Lake and San Luis Reservoirs. Croyle indicated that due to current conditions, the only water being released by most reservoirs is for fish flow and environmental requirements.

Groundwater conditions: One of the biggest problems with groundwater is determining how fast water is being taken out and recharged and implementing advanced planning. Croyle indicated that part of the problem is that people aren't taking groundwater into account by monitoring and education, which should be done at the state and local level.

The Governor's implementation of mandatory conservation: locate leaks, assess usage, increased conservation reporting, creation of access to real-time data web tools as provided by DWR, increased IRWM funding. Additional IRWM funding will soon be made available to those who have assessed their needs and ways to address them. DWR in concert with Cal OES and the State Water Board Emergency Funding address critical water needs for those who will or have run out of water.

The California Water Action Plan was one of the watershed actions taken by the governor and a number of agencies last year as a five year strategy to integrate a number of activities. To manage and prepare for the future drought years is the focus of this plan as well as increased regional self-reliance. Groundwater management, flood protection, and sustainable integrated financing are also among the priorities.

The use of urban water meters are one way for California to get on top of water usage. AB2572 (KEHOE) of 2004 requires meters for all municipal and industrial service connections within their service area by 1/1/2025. Nearly 97% of those required to be metered currently are.

New urban landscapes are required to have dedicated meters for areas over 5,000 square feet.

The City of Sacramento still has redwood pipes and is committed to meet their goal of 2020.

Croyle advised citizens to let the city know if there's a leak and to fix their own household leaks.

The Governor has requested conservation of 20% and recognizes the effort the people are putting into it. DWR promotes proactive action at the local level, drought contingency plans, and awareness and response.

DWR is available for questions and comments.

www.SaveOurH2O.org was provided as a reference for more information.

"Get to Know Your Water Supply"

<https://www.youtube.com/watch?v=Mecj-p31F7M>

The water supply of the City of Mt. Shasta is reliant on natural precipitation. Cold Springs is the main water source for the City. Cold Springs consists of the springs, four storage tanks (combined capacity of 1.7 million gallons), two wells, supply line, distribution pipes, and a SCADA System. Cold Springs is located at the top of McCloud Avenue and is gravity fed. It is a young spring, as a result, it is highly influenced by weather patterns. On average the springs pumps 2,000 gallons per minute which usually meets the City's needs though it requires supplement in peak seasons. The Quail Hill storage site consists of three tanks with a combined capacity of 1.2 million gallons of storage. Quail Hill is also fed by Cold Springs.

The system currently consists of 35 miles of 1-12 inch pipelines. There are four pressure zones and two wells. Well one is the City's primary well and pumps 850-900 gallons per minute. Well one and two are typically used in the summertime to supplement the spring production. Last year, spring production was the lowest it's been in 20 years. Wells one and two had to run 12-18 hours per day to keep up with demand. Mt. Shasta's water usage in the peak summer months averages at 900 gallons per person per day. While Mt. Shasta has a generally reliable water source, the supply is not unlimited.

Rod Bryan: Public Works Director of the City of Mt. Shasta

A brief overview of the City's infrastructure was given.

The average water usage in Mt. Shasta 936 gallons per person per day in the summer months.

In May-September 2014, the spring produced 327 million gallons, the city used 386 million gallons.

Cold Springs is separate from Big Springs in City Park.

The City has had exclusive rights since 1884. The spring output varies between 1,450-3,000 gallons. The spring is young, therefore, what we see on the mountain quickly translates into what the springs are apt to do. Bryan displayed a graph previously shown by Geoff Harkness but also included 2015, revealing that we are starting at a much lower level than years past. The City needs to start water conservation immediately.

93 million gallons of water were pumped in 2014, he expects a rise this year.

Water Use Reduction: In line with the proclamation made by the Governor, the City requested a 20% voluntary reduction in water use through press releases and communications including a door hanger. This has resulted in great compliance so far with parks and schools.

The SCADA telemetry system was completed last year, allowing Public Works to remotely monitor tank levels, usage, and production. The system is more efficient as the wells only turn on when they're needed and prevents overflow.

Water Meters Project: You can't manage what you don't measure. We need the data to be able to know how much is being used and to manage the usage. There is typically a 20-30% reduction in water usage when charging is based on usage. Metering aligns revenues with consumption and aids in the identification of leaks or "unaccounted" water. Meters will establish data for effective planning.

Paul Reuter: PACE Engineering

Supply Line Project: The project will replace worn-out infrastructure and will allow for more efficient use of tank four which feeds Quail Hill tanks and take full advantage of the City's storage capacity. To plan for supply, they plan for a 24 hour average to assist in peak times which lessens impacts on the spring.

The project consists of 9,300 feet of water main, 900 feet between Quail Hill Drive and the Quail Hill tanks. Pressure Reducing Valve Station and Altitude Valve controlled by the hydraulics in the system. Overall project cost is \$1.73 million.

Water Meters Installation Project: The law going into effect in 2025 requires not only metering, but also to charge based on usage. Data shows the presence of a meter causes 20-30% reduction regardless of rates. Reuter discussed the limited number of agencies which currently have unmetered customers as shown in a table provided by the Pacific Institute.

Project elements: There will be approximately 1,696 meters total, there are currently 182 existing meters. The project will cost \$2.56 million. The meters selected for the project are the iPerl/FlexNet system due to the minimal RF impact. They have a twenty year warranty, with ten years prorated. The meters are magnetic, containing no moving parts, and are very accurate of low flows.

Project implementation: Installed at existing meter or shut-off locations. The installation could require up to four hours interruption in water service, however, the City has a 48 hour noticing requirement. Public bids are currently open until March with awards given at either the City Council's March 23rd meeting or a March 30th Special Meeting. The contracts have to be awarded by April first. Construction will start May 1st. The grant requires the work be done by November 2015. It is an aggressive time schedule with both projects being constructed concurrently.

Question and Answer Period:

- A question was asked regarding the rate charges for water meters. Mayor Harkness responded that he does not have an answer but the topic of rates and their implementation date is slated to be an agenda item in June.
- It was asked if the old water line would be abandoned after the project and was answered in the affirmative.
- The question was raised regarding what would be done with the current easements. Reuter of PACE Engineering answered that nothing would be done initially, but joining property owners could approach the City individually to ask to take back portions of it, but that would be left up to the City. There are no plans regarding easements in the project.

- Question directed to Croyle of DWR: The City Council has estimated that 200-300 thousand gallons of water would be saved by the use of meters, Crystal Geysers has not yet started their operations but plans to pump probably 300 thousand gallons per day. That means that every drop of water conserved with the meters will be going to Crystal Geysers, but it's worse as the water gets shipped out rather than going back into the basin. Crystal Geysers is currently unregulated. If DWR says the groundwater needs to be managed, and the City Council has said the matter is out of their jurisdiction, can DWR or the state do anything to regulate Crystal Geysers? Can the state lean on the County to regulate usage? Can the County be rewarded for any positive moves in that direction? Or punished for their present attitude?
 - Croyle's response: In 2014 a number of things came together including the California Water Action Plan which recognized that California needs to get a handle on groundwater management. California currently does not manage groundwater statewide. Local entities have adjudicated areas where there are significant groundwater challenges.
Part of the challenge is becoming aware of impacting activities which has resulted in historic groundwater legislation in California.
DWR currently has no regulatory authority over groundwater but communicates with local agencies to better understand their groundwater and to develop their own groundwater sustainability management groups to self-regulate. If local government and local entities working together don't reach an agreement to develop their own local regulatory authority under groundwater legislations, then the City Water Resources Control Board will get involved. It all comes down to being informed about what is or isn't going on with groundwater. He is unfamiliar with the project but we can't assume that just because someone is using a bunch of groundwater, it is going to affect their neighbors. He can't answer the question regarding Crystal Geysers but groundwater basins need to be looked at and have a good understanding of the hydrology.

Meadow Fitton: April 30th Water Talk Program will be covering the new Groundwater Sustainable Management Act, and will have two local regional scientists talking about the Northern California Cascade region's groundwater.

- A question was asked whether there is any method to measure how much level the groundwater goes up and the capacity for pumping water out of a particular area.
 - Croyle: We should be monitoring well levels and pumping rates, then from that, get into the geology of the support of that well. Areas need to consult professionals with technical expertise to better understand their groundwater conditions so they can have the conversation about appropriate yield or use.

Meadow Fitton:

Four upcoming Water Talk Programs all to be held at the Sisson Museum 1 North Old Stage Road from 6 to 8 pm:

April 30th New Groundwater Policy and Regional Science

May 21st Second part of the Water Conservation Workshop series: Water Conservation Inside and Outside of the home and business

May 28th Mount Shasta Mudflows: the science behind Mt. Shasta mud flows and their correlation to drought

October 21st Third part of the Water Conservation Workshop series: Drought Policy Conversation which will be interactive

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Presenter contact information is available for further questions.

A video of this meeting can be seen at:
<https://youtu.be/ni-R77kzjIA>