

# THE JOURNEY OF **WATER** FROM THE SKY

TO YOUR TAP

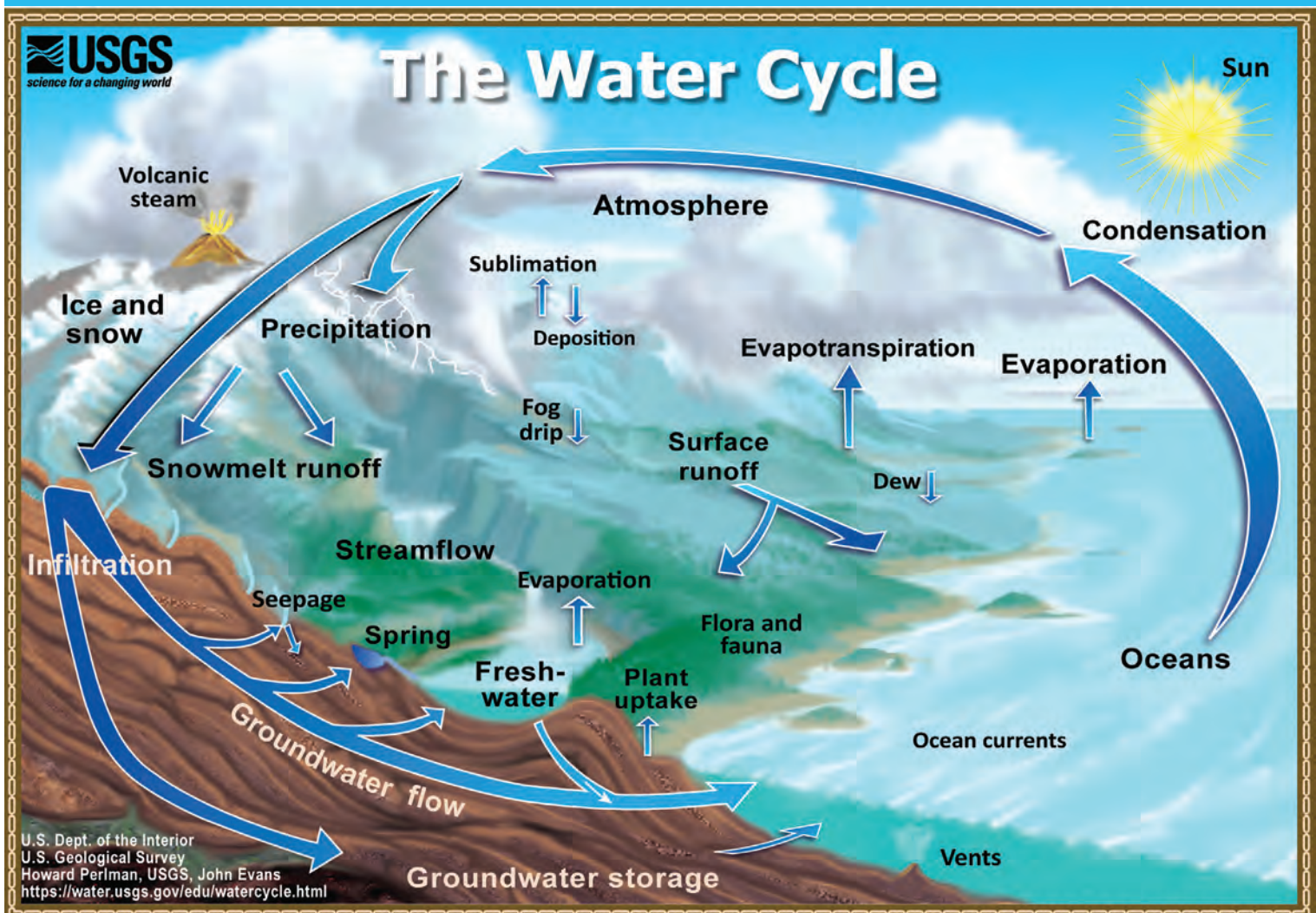
**TREATED WATER**

ALONG THE CENTRAL COAST OF CALIFORNIA  
**BROUGHT TO YOU BY MCSI WATER SYSTEMS MANAGEMENT**

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For information about water resources and conservation contact:  
 WATER AWARENESS COMMITTEE OF MONTEREY COUNTY  
 P.O. Box 3254, Salinas, CA 93912  
 831-646-4656 [www.waterawareness.org](http://www.waterawareness.org)

# INTRODUCTION

## TO ALL WATER LOVERS:

Water nourishes us – keeps us clean – provides recreation – creates wealth – sustains our very lives! Throughout history, the understanding and intelligent use of water has allowed communities and civilizations to achieve health and success. We only have to look back a few decades to the “Dust Bowl” years, which destroyed a great part of our society, to understand how poor planning and neglect can directly affect our very existence. Water-borne diseases have decimated large populations around the world. Understanding the intelligent treatment and conservation of water enables us all to thrive in healthy communities. The purpose of this publication is to show what it takes to provide potable water as well as providing water for agriculture, the environment, irrigation, industry, and recreation. The way in which we treat water and use it wisely enriches our lives.



This publication is dedicated to my wife and partner of 57 years, Jo-Ann Margaret Hatch. She was an active partner in our water management business and added grace and wisdom in our efforts to bring potable water to the smaller systems along the central coast. She is fondly remembered by all who knew her.

– Russ Hatch, MCSI



**Ross Hatch MCSI President and Operations Manager**



# SOURCES OF POTABLE WATER

## THE WATER CYCLE

Water is continuously recycled naturally through the atmosphere and returned to earth in the form of rain, snow, fog, etc. This cycle and percolation of water through the earth's crust provides natural cleansing of our water resources.

## GROUNDWATER

Groundwater is water that has percolated through various layers of sand, gravel, clay and rock beneath our cities, towns, homes, and natural spaces. There is no new water. All the water we use everyday has been recycled over and over through the hydrologic cycle. Groundwater may have percolated down for decades or even eons before it is pumped out for our use. As water percolates, the ground acts as a natural filter needing no treatment before use but it can absorb contaminants like arsenic, fluoride, iron, manganese, and in some cases, even radioactive minerals. These do require removal if in high enough levels.



**Groundwater Well Submersible Pump**

## SURFACE WATER

This is water that is stored in natural lakes, rivers, streams, springs, and ponds. In addition, man-made dams, reservoirs, and other systems capture snow melt and runoff from precipitation. Surface water must be treated to potable standards due to possible environmental contaminants, to meet drinking water standards.

## EXCESS RUNOFF

During periods of heavy flows, surface water from storm drains and surface water from rivers is captured just before it reaches the ocean. It is then treated and injected into a local aquifer. In this way the river environment is protected and water is stored for future beneficial use.

## RECYCLED WATER

Growing and shifting requirements for useable water has created the need to speed up the process of creating potable water. Water that once was considered waste can now be treated to potable standards through state-of-the-art filtration processing plants. This "recycled water" meets standards for irrigation of crops and can meet or exceed potable standards, depending on the level of treatment.

## DESALINATION

The ocean provides a vast supply of water, especially for coastal communities. Removing the salt and other contaminants is being accomplished for many communities that have few other options. It is an expensive process and the cost of desalination must be weighed against the benefits of having a reliable supply. Cost-benefit analysis is critical in all decisions of source and treatment.

## NOVEL SOURCES

There are other ways of extracting water from the atmosphere such as catchment as rain falls on hard surfaces. Fog catchers and dehydration units can extract small amounts of water for irrigation. Grey water use from some household plumbing can also be used for irrigation. These novel supplies may have local regulations tied to their use. Check with your local health department for further information. These sources are not potable

# WHO PROTECTS OUR POTABLE WATER?

A comprehensive network of rules and regulations (regs) are continuously revised and updated to protect our water sources and potable water piped to our homes.

These regulations are based on Federal Environmental Protection Agency (EPA) rules. Many California State Water agencies refine and add regs specific to California water needs. The main agencies that regulate our drinking water most closely are:

- California Department of Water Resources
- The State Water Resources Control Board
- County Environmental Health Departments – Water Section

There are more than 1,500 water systems along the Central Coast. Those who live in an incorporated area are most likely served by a large Public Utility, a City System, or a Public District. Many small communities are served by Mutual Water Companies or Water Associations. Many farms and businesses operate small groundwater systems for employees and customers. These systems are all subject to regulation. Every regulated system must have a licensed operator or several operators that are licensed by the State of California to oversee water TREATMENT and water DISTRIBUTION.

These licensed operators must be familiar with state and county regs and follow strict protocols that are monitored by various regulators. These operators depend on Certified Laboratories to test many types of water samples. It is not uncommon for water operators to be in touch with various consumers, labs, and regulators on a daily basis. Periodic on-site inspections by licensed operators and regulators ensure the integrity of our water facilities.

Repairs and upgrades are completed regularly to meet federal and state standards. The American Water Works Association sets standards that potable water systems use for compliance purposes.

## WATER QUALITY OVERSIGHT

1. Federal, State, and County Regulations
2. State Water Engineers and County Registered Environmental Health Specialists
3. Licensed D1, 2, 3, or 4 Distribution and T1, 2, 3, or 4 Treatment Operators. These are hands-on field operators and office professionals who operate water systems.
4. State-Certified Laboratories that process thousands of water tests each month
5. Consumer Confidence Reports and hundreds of other water quality reports required monthly and annually – reporting to government agencies and directly to water consumers.
6. American Water Works Association (AWWA) standards cover the products and processes related to all areas of water treatment and supply. AWWA standards are used as benchmarks worldwide.



**Water Testing at MBAS Lab**

# POTABLE WATER QUALITY

Water quality can be affected by hundreds of mineral, chemical, biological and environmental constituents, some naturally occurring and some man-made. Regulations require rigorous testing for the constituents and each one has a mandated MAXIMUM CONTAMINANT LEVEL (MCL). There are levels of potential hazard for each, these are Primary, Secondary, and Aesthetics. Primaries are hazardous to health, secondaries are potentially hazardous in elevated levels, and aesthetics are non-hazardous but affect the look, feel, and taste of water. All primaries and some secondaries over the MCL require notification to all consumers and mandated treatment to meet the rigorous standards,

Here are some important quality issues and procedures mandated for all water companies:

- A Coliform test is frequently required for all systems to test for the potential of bacterial contamination. Positive results require re-tests and often, notifications and extra disinfection.
- Most water is pumped from groundwater wells. All water from open reservoirs, lakes, streams, and ponds is considered Surface Water and must be treated to potable standards.
- Engineered treatment is required to remove contaminants such as Giardia and Cryptosporidium.
- Many systems require disinfection by the introduction of small amounts of Sodium Hypochlorite (drinking water Chlorine). An approved injection system is required. There are other disinfection methods that may be acceptable. All materials must be NSF-61 approved, if they touch potable water.
- Iron and Manganese are secondary standards – non-health related constituents. These are naturally-occurring and must be removed by treatment if too far over the MCL.
- Other heavy metals such as Cadmium, Nickel, Mercury, Chromium, and Zinc must be monitored and removed if over the MCL.
- Lead and Copper must be tested regularly. Notification to the user is required if either exceeds the MCL. Treatment may be required for persistent MCL violations.
- Lead is a primary contaminant and can be detected in drinking water. Currently all water pipes serving potable water must be determined to be absolutely free of lead, lead-connectors, or lead fixtures. If any lead is found, fixtures or water lines will need to be replaced.
- Cross-Connection Control is required to prevent contamination from water flowing back into the system from non-regulated sources such as commercial/industrial connections, private tanks, chemical injection, and swimming pools. Backflow devices must be installed and tested regularly.
- PFOA, PFOS, and PFAS tests are frequently required to determine the presence of chemicals used in fire-fighting, military uses, and industrial manufacturing. These chemicals can leach into groundwater through applications and spills. Testing for these constituents is very expensive and currently limited to vulnerable watersheds.
- Radioactive decay may affect some wells with elevated levels of Uranium, Gross Alpha, and Radium 226 & 228. Testing and remediation can be costly.

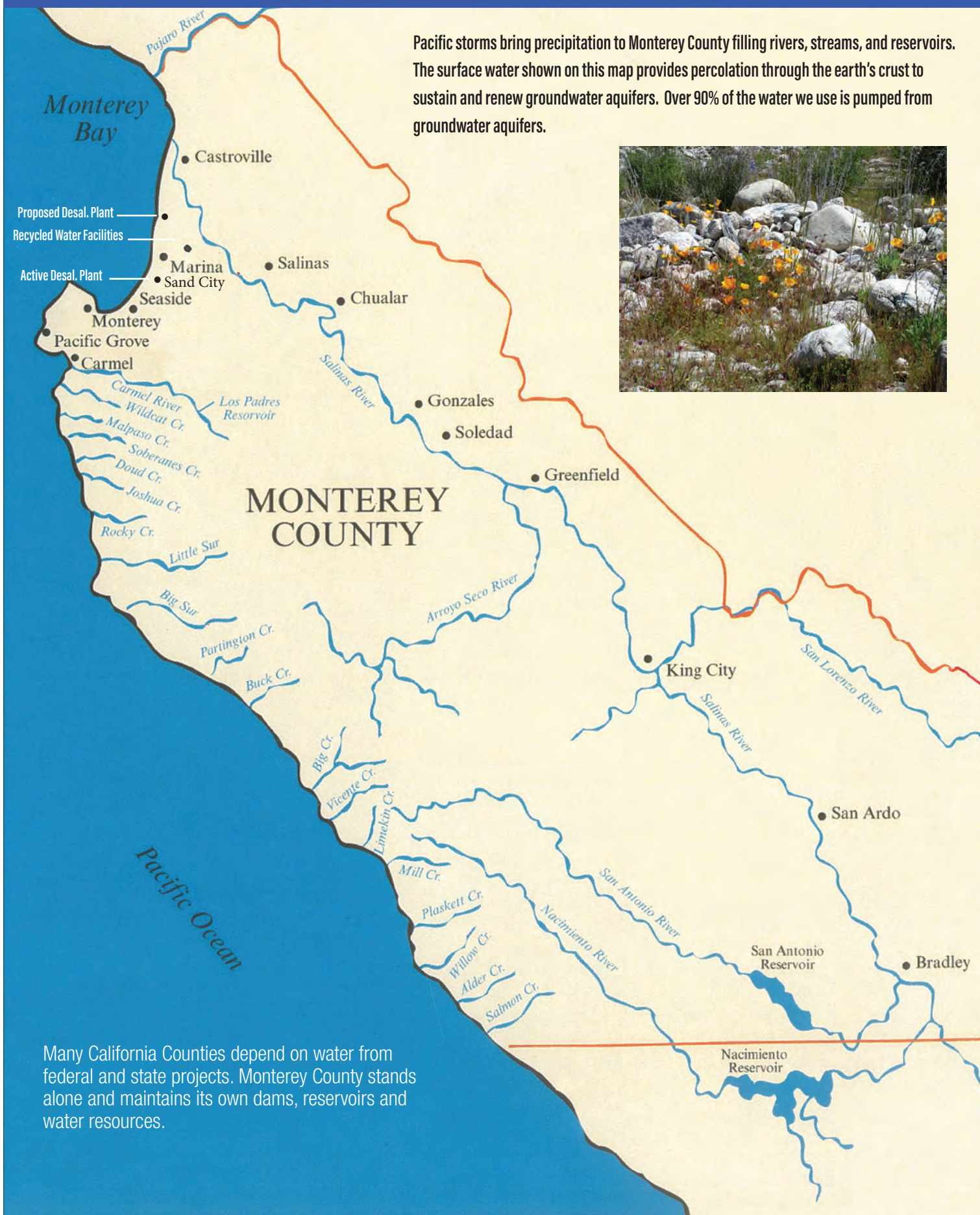
This is not a definitive list, but covers basic water quality monitoring.



**Filter Plant Operations**

# LOCAL WATER RESOURCES

Pacific storms bring precipitation to Monterey County filling rivers, streams, and reservoirs. The surface water shown on this map provides percolation through the earth's crust to sustain and renew groundwater aquifers. Over 90% of the water we use is pumped from groundwater aquifers.



Many California Counties depend on water from federal and state projects. Monterey County stands alone and maintains its own dams, reservoirs and water resources.

# FIELD OPERATIONS TEAM - LICENSED OPERATORS



**Ross Hatch**  
**Licenses -Distribution II**  
**Treatment II**  
**30 Years Experience**



**Leslie Jordon**  
**Licenses -Distribution II**  
**Treatment II**  
**40 Years Experience**



**David Stevenson**  
**Licenses -Distribution II**  
**Treatment II**  
**Certified Backflow Tester**  
**25 Years Experience**



**Enrique Garcia Lopez**  
**Licenses -Distribution II**  
**Diagnostic Specialist**



# MCSI CUSTOMER SERVICE TEAM



**Denise Stevens**  
**General Manager**  
**31 Years With MCSI**



**Maria Woods**  
**Billing Specialist**  
**24 Years With MCSI**



**Field Operations**



**Melinda Law**  
**Reports Specialist**

# BASIC ECONOMICS OF POTABLE WATER

There are things essential for all life:

Sun, air, soil, and water – All must be processed and modified for healthy living. This requires investment. Water must be moved from its source to its place of beneficial use, often in massive amounts. Water is first accessed from groundwater wells, lakes, streams, springs, and reservoirs. Complex systems of treatment and delivery may require expensive controls and monitoring. Water is then stored and transported to the end user mostly by pumping through underground pipes. Drinking water is highly regulated and tested to make it potable for human consumption. Water is finally piped to our homes only after rigorous testing and proof of meeting regulations. History has shown that untested/untreated water can spread disease rapidly through large populations. Pumping, testing, treatment, storage, and delivery are expensive but necessary to provide potable water protecting our health. Finally, record-keeping and numerous reports are required by Federal, State, and Local laws. See your annual “Consumer Confidence Report” issued by your water purveyor for more details.

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***These are unseen components of our water bills.***

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## Cost comparison of Potable Water

Of all the life-sustaining commodities we use, water is the most valuable.

Yet, it is arguably the least expensive at pennies per gallon.

AND, IT IS DELIVERED DIRECTLY TO OUR TAPS!



**Potable Water and Fire Storage**

## BOTTOM LINES

- Water from the Sky to the Tap is often a long and complex journey.
- Most systems rely on groundwater from wells. Others use surface water, after treatment.
- Climate, drought, floods, and competing use can have significant impact on supply and quality.
- Potable water often requires treatment. Complexity and cost depend on quality test results.
- Storage is required depending on maximum day demand and fire-flow requirements.
- Distribution through buried water mains requires pressure from gravity or pumping.
- Metering of all water production is required. Soon, metering of all water use will be required.
- Most groundwater is highly mineralized and may require softening at the home.
- All community water systems are subject to Federal and State regulations and reporting.
- Those over 14 connections are required to have licensed operators and use State-Certified Labs.
- Depending on prior results, testing and lab work can be required monthly or daily in some cases.
- Reports to regulators can also be required monthly, weekly, or daily depending on lab results.
- Operations, administration, treatment, lab costs, power bills, repair/replacement, and government fees are the major components of our water bills.
- Large City systems and Water Districts have thousands of customers to share these costs.
- Small systems must follow the same regulations and find water costs to be far greater per household.

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***MCSI Water Systems Management offers total management and operation of small and medium-sized water systems in Monterey, San Benito, Santa Cruz, and Santa Clara counties.***

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**One of our more challenging projects**

# RESOURCES FOR SMALL WATER SYSTEMS AND WELL OWNERS

U.S. Department of Agriculture Water Grants and Loans – Go to [usda loans](#)

California Clean Water Revolving Fund – California revolving funds

Rural Community Assistance Corporation - [rcac.org](#)

Calif. Department of Water Resources – [water.ca.gov/be well prepared](#)

California Rural Water Association- [calruralwater.org](#)

American Water Works Association - [awwa.org](#) & [ca-nv-awwa.org](#)

Monterey County Health Bureau-Drinking Water Division – [SWS@countyofmonterey.gov](#)

Monterey Bay Water Works Association – [mbwwa.com](#)

Monterey Bay Analytical Laboratory – [MBASINC.com](#)

Colebreit Engineers – [www.colebreit.com](#)

Water Awareness Committee of Monterey County –[waterawareness.org](#)

MCSI Water Systems Management – [mcsiwatermanager.com](#)

[www.mcsi-water.com](#)



# WATER SERVES MANY MASTERS

## AGRICULTURE

In rural areas over 90% of water extracted from aquifers and surface sources is used to grow crops. In general, this water is untreated and not considered potable but is essential for our food production including animals, vegetables and comfort commodities such as wine and marijuana.

## INDUSTRY

Industry uses water to manufacture and process goods and services. It is essential in many aspects of petroleum production and mining.

## RECREATION AND TOURISM

What would the tourist industry be without water? Golf courses, hotels and restaurants depend on it to provide comfort and recreation. Would your children be happy if their motel did not have a pool? Water parks using millions of gallons are common in sun-drenched areas. Every city of merit has fountains, water features, and other spectacular displays that sooth and inspire our senses.

Now let's talk about potable water. It only needs to be potable so that we can drink, cook and wash in it. In our culture we have chosen to mix potable water with outdoor irrigation and neighborhood fire suppression uses. It is estimated that only a small percentage of the water that comes from our taps needs to be regulated as potable. The rest is used to irrigate our lawns, flowers, wash our vehicles, and be stored for fire suppression.

## THE ENVIRONMENT

When we consider the need for water conservation, it is those ancillary uses that can make the most difference. Given the ever-changing moods of "Mother Nature" we must consider water our most precious commodity and use it wisely.



**Sustaining Mankind**

# NATURE IS OUR WATER BANK

The earth's natural environment holds our water resources in trust. Our job is to keep an adequate balance in our water bank. If we over-draught our water account we will receive a notice from "Mother Nature" that our account is over-drawn and sea-water could flood our aquifers. In other cases, our land could sink when too much water is withdrawn. It is called "subsidence" and it is not a pleasant experience.

Sea water intrusion occurs when groundwater is depleted leaving a void to be filled with highly salt laden water from the ocean. along coastal aquifers.

Over-draught also means that our potable water sources are in jeopardy. When wells and springs dry up it is the small systems and individual well users that are adversely affected. This means drilling deeper wells and, in some cases, paying for trucked water. Over-draughting our water bank will have a serious impact on our monetary bank.

Without water our landscape would look remarkably like Mars. All life depends on the presence of water. When there is an imbalance in water use, the life it supports suffers. A grove of redwood trees can shut down a coastal stream on a hot afternoon due to its demand for life-giving water. We have learned what happens to fish when a river is de-watered by natural or use by increased populations.

The balance of water in our natural bank needs constant attention. We need to balance our water account regularly to insure adequate supplies for ourselves and the environment.



**Natural Watershed**

# BARN FIND

We found this tacked up in an old barn in Salinas. It is a rainfall record going back 152 years. Note-average for that 82 year period is 13.79 inches per year. Today, average is 15.40 inches.

United Extension Service  
 City of California and USDA Cooperating  
 Salinas, Phone ASherbury 3-4928

Office of Farm and Home  
 418 Wilgurt Way, Salinas, Calif.  
 2:00 a.m. to 6:00 p.m., Phone ASherbury 3-4928

### EIGHTY-TWO YEARS MONTHLY AND SEASONAL RAINFALL, SALINAS, CALIF. (1872-1954)

Compiled by A. A. Tavernetti, Farm Advisor

Season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Season
1872-73	4.0	8.0	12.0	6.80	2.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.0
1873-74	1.29	0.10	0.20	4.25	1.03	16.0	20.0	0.00	24.0	28.0	0.00	0.00	13.79
1874-75	0.00	0.00	0.00	1.42	0.00	0.00	0.15	0.40	1.42	0.00	0.00	0.00	4.44
1875-76	0.00	0.14	0.00	5.17	1.98	0.00	0.16	0.30	0.10	0.20	0.00	0.00	23.82
1876-77	0.00	0.05	1.04	0.00	0.00	2.54	2.25	2.31	0.55	1.42	0.00	0.00	18.22
1877-78	0.00	0.00	0.12	1.00	2.33	1.56	2.23	2.31	1.80	1.69	0.32	0.15	10.94
1878-79	0.00	0.05	0.00	0.00	0.00	0.00	1.05	1.16	1.04	3.90	0.46	0.00	13.22
1879-80	0.00	0.00	0.00	1.00	5.08	2.23	3.32	2.32	1.26	0.60	0.00	0.35	14.07
1880-81	0.00	0.00	0.00	0.57	5.56	3.32	2.31	1.86	1.01	0.49	0.19	0.00	12.03
1881-82	0.00	0.10	0.28	0.00	1.24	1.78	2.31	0.95	2.26	1.28	1.98	0.00	10.70
1882-83	0.00	0.38	1.42	0.65	0.90	0.91	0.95	2.26	1.28	1.98	0.00	0.00	21.22
1883-84	0.00	0.19	1.19	0.25	1.35	1.76	1.40	5.00	3.05	0.72	0.12	0.00	19.70
1884-85	0.00	0.18	1.79	0.28	4.45	1.68	0.05	0.19	0.00	0.12	0.12	0.00	21.22
1885-86	0.05	0.00	0.02	0.08	6.06	1.86	5.10	1.47	2.16	3.83	0.20	0.00	19.80
1886-87	0.00	0.00	0.00	0.02	0.82	0.82	0.79	4.75	0.54	1.83	0.07	0.00	20.81
1887-88	0.00	0.00	0.71	0.06	0.98	2.16	4.15	0.53	3.28	0.00	0.89	0.00	9.88
1888-89	0.00	0.56	0.00	0.00	1.84	2.20	0.65	1.65	3.33	0.95	0.83	0.00	12.70
1889-90	0.00	0.00	0.00	4.20	2.11	8.72	6.15	3.08	1.78	0.50	0.25	0.00	11.66
1890-91	0.00	0.29	0.00	0.44	2.05	0.25	1.28	1.05	2.93	0.40	0.00	0.00	27.59
1891-92	0.00	0.12	0.30	0.00	5.40	0.48	1.48	2.78	0.88	1.29	0.00	0.00	12.19
1892-93	0.00	0.16	0.85	3.26	4.30	0.09	2.93	5.12	1.25	0.17	0.00	0.00	12.83
1893-94	0.00	0.30	0.02	0.63	1.63	3.07	3.30	0.58	0.45	1.53	0.29	0.00	18.03
1894-95	0.00	0.95	1.06	0.45	4.95	5.05	1.33	2.07	0.94	0.45	0.00	0.00	13.70
1895-96	0.00	0.00	0.00	0.37	1.00	0.00	5.80	0.00	1.50	2.40	0.47	0.00	17.25
1896-97	0.00	0.36	0.00	1.20	2.64	1.75	0.55	3.07	3.80	0.35	0.00	0.30	12.42
1897-98	0.00	0.55	1.45	0.43	0.82	0.73	1.58	0.91	0.22	1.08	0.30	0.00	14.02
1898-99	0.00	0.14	8.27	0.31	1.40	3.94	0.50	4.19	0.72	0.71	0.00	0.00	8.07
1899-00	0.00	0.00	0.00	1.14	2.77	1.02	0.67	0.62	1.03	1.49	0.31	0.00	12.18
1900-01	0.00	0.00	0.16	0.06	0.71	1.69	5.44	0.50	1.48	0.35	0.00	0.00	15.91
1901-02	0.00	0.38	0.50	1.07	0.20	1.01	3.50	2.58	0.87	0.29	0.00	0.00	10.60
1902-03	0.00	0.00	0.52	1.43	1.39	3.14	1.38	3.02	0.17	0.00	0.00	0.00	11.05
1903-04	0.00	0.00	0.00	0.00	0.96	0.39	0.02	2.66	2.94	1.73	0.00	0.00	9.60
1904-05	0.00	1.14	1.79	0.53	1.35	2.85	1.62	3.74	1.08	2.51	0.00	0.00	16.57
1905-06	0.00	0.02	0.18	0.00	2.60	0.01	2.50	3.43	2.21	0.55	1.46	0.28	14.14
1906-07	0.00	0.14	0.00	1.00	7.92	6.00	1.01	8.97	0.00	0.28	0.00	0.00	23.99
1907-08	0.00	0.13	1.64	0.00	3.56	2.79	1.78	1.54	0.18	0.25	0.00	0.00	11.41
1908-09	0.00	0.15	0.23	1.36	1.56	7.00	4.38	4.00	0.00	0.00	0.00	0.03	18.99
1909-10	0.00	0.26	0.17	0.65	4.00	8.88	0.69	1.55	0.19	0.00	0.00	0.00	12.10
1910-11	0.00	0.12	0.31	0.32	6.61	5.73	4.98	6.12	0.65	0.26	0.12	0.00	16.42
1911-12	0.00	0.00	0.21	0.19	2.51	2.31	6.18	2.85	2.89	0.70	0.10	0.00	11.94
1912-13	0.00	0.00	0.00	0.00	0.41	0.33	0.56	2.44	0.25	1.46	0.43	0.75	7.80
1913-14	0.17	0.10	0.00	0.00	0.00	1.92	0.14	3.38	0.96	0.94	0.09	0.13	16.82
1914-15	0.15	0.00	0.00	0.62	0.23	3.20	4.05	6.82	0.75	1.13	1.82	0.00	19.07
1915-16	0.00	0.10	0.00	0.00	0.00	3.27	0.16	2.76	1.71	0.16	0.06	0.00	17.21
1916-17	0.00	1.28	0.40	0.43	2.06	1.19	1.75	0.80	0.16	0.11	0.00	0.00	8.98
1917-18	0.00	0.00	0.74	0.42	0.72	2.60	3.31	0.49	0.02	0.00	0.00	0.00	8.30
1918-19	0.00	0.00	0.17	2.72	2.32	1.01	3.28	2.08	0.03	0.01	0.00	0.00	17.01
1919-20	0.00	0.43	0.15	0.29	3.80	0.00	0.95	4.20	1.01	0.00	0.00	0.00	11.22
1920-21	0.03	0.00	0.00	1.51	1.56	2.68	0.53	0.00	1.11	0.36	0.90	0.00	15.48
1921-22	0.03	0.28	0.13	0.70	7.77	0.09	1.25	1.11	0.36	0.90	0.00	0.00	18.79
1922-23	0.00	0.00	0.00	0.88	2.87	2.54	2.98	0.50	2.40	0.40	0.58	0.02	12.84
1923-24	0.00	0.00	0.00	0.00	0.93	1.50	0.98	0.32	3.30	0.05	0.08	0.00	7.73
1924-25	0.01	0.00	0.66	3.20	1.66	2.50	2.49	0.26	1.76	0.68	0.13	0.00	15.00
1925-26	0.00	0.12	0.23	1.05	1.08	1.93	2.48	1.93	1.35	2.22	0.07	0.00	9.30
1926-27	0.00	0.00	0.00	0.39	2.77	1.13	1.89	3.31	0.97	0.93	0.77	0.21	11.67
1927-28	0.00	0.02	1.07	0.91	2.22	0.44	1.30	2.26	0.69	1.14	0.00	0.00	9.15
1928-29	0.00	0.00	0.02	1.81	3.02	1.24	0.99	0.90	1.19	0.00	0.35	0.00	10.10
1929-30	0.01	0.00	0.02	0.80	0.00	1.43	4.22	2.85	2.40	0.66	0.52	0.00	12.11
1930-31	0.00	0.00	0.00	1.08	0.28	3.11	1.24	0.65	0.41	1.69	0.34	0.00	8.85
1931-32	0.00	0.00	0.00	0.03	1.87	7.55	3.74	2.63	0.55	0.41	1.69	0.34	17.47
1932-33	0.00	0.00	0.00	0.05	0.04	2.69	3.04	0.36	1.22	0.22	0.48	0.02	9.52
1933-34	0.00	0.00	0.00	0.20	0.00	2.76	0.67	2.75	0.00	0.14	0.78	0.70	17.29
1934-35	0.00	0.00	0.30	0.56	1.86	2.44	4.47	0.28	3.55	3.00	0.00	0.00	13.96
1935-36	0.00	0.88	0.00	0.43	0.43	0.00	2.29	5.83	1.40	0.94	0.40	0.40	19.21
1936-37	0.43	0.00	0.01	0.75	0.01	3.71	3.80	4.76	5.06	0.54	0.01	0.13	18.52
1937-38	0.00	0.00	0.00	0.30	1.07	4.20	2.39	4.78	3.99	1.78	0.01	8.00	10.83
1938-39	0.02	0.00	0.13	1.13	0.50	1.52	2.31	2.08	2.40	0.32	0.33	0.03	18.62
1939-40	0.00	0.02	0.27	0.58	0.23	0.66	7.46	6.05	2.66	0.37	0.21	0.00	13.49
1940-41	0.02	0.00	0.19	0.31	0.89	3.85	4.16	7.05	4.44	3.06	0.33	0.04	26.04
1941-42	0.00	0.00	1.20	0.26	6.66	2.25	1.87	0.12	2.63	1.02	0.00	0.00	18.01
1942-43	0.00	0.01	0.02	0.94	1.52	2.31	2.12	1.93	3.63	1.22	0.00	0.03	14.63
1943-44	0.00	0.00	0.00	0.36	0.24	2.30	2.51	5.89	0.19	1.31	0.52	0.15	13.66
1944-45	0.05	0.00	0.00	1.17	3.73	1.81	0.40	2.70	2.72	0.34	0.10	0.30	23.07
1945-46	0.00	0.28	0.00	0.60	1.76	4.06	1.05	2.84	2.40	0.00	0.45	0.00	13.49
1946-47	0.00	0.00	0.00	0.00	0.00	1.73	0.45	1.28	1.25	0.60	0.31	0.70	8.80
1947-48	0.00	0.00	0.00	0.00	0.70	1.20	0.10	1.62	3.82	3.14	0.46	0.02	11.00
1948-49	0.00	0.00	0.00	0.88	0.20	3.26	1.25	1.83	3.15	0.00	0.22	0.00	11.00
1949-50	0.00	0.03	0.01	0.00	0.74	1.11	6.57	1.26	2.21	1.34	0.25	0.05	13.34
1950-51	0.00	0.03	0.00	1.77	2.35	2.46	1.43	1.84	0.57	0.93	0.15	0.04	12.10
1951-52	0.00	0											

# MANAGEMENT & CONSTRUCTION SERVICES, INC.

MCSI WATER SYSTEMS MANAGEMENT [www.mcsi-water.com](http://www.mcsi-water.com)

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MCSI was formed in 1992 by the Hatch family to provide operations and management services for water systems along the Central Coast of California. We currently serve more than 70 small and medium sized systems. We work closely with water system engineers, laboratories, and other water professionals.

***Our Mission is to assist smaller water systems in providing potable water which meets or exceeds federal, state, and local regulatory standards, including all reporting requirements.***

- Russ Hatch, Founder/CEO – Licensed Treatment operator. Oversees all administrative work, regulatory liaison, consultation including new system development, refurbishment of older systems and permit applications.
- Ross Hatch, President -Oversees all field operations, water treatment systems, emergencies, repairs and installations. Ross holds Grade II Distribution and Grade II Treatment licenses.
- Experienced office employees handle billing, customer service, bookkeeping and accounting work. Office personnel, together, encompass over 60 years of MCSI experience handling customer service, regulatory compliance, reporting, and creating individualized Consumer Confidence Reports.
- Experienced field employees handle system operations, water sampling/chain-of-custody to state-certified labs, disinfection management, and various types of water treatment & filtration. Our field employees, together, encompass over 100 years of water system operational experience. They hold State Distribution and Treatment licenses appropriate for the assignments they receive.



MCSI Water Systems Management currently serves clients in Monterey, San Benito, Santa Cruz & Santa Clara Counties.

MCSI is on call 24/7 for our clients  
Bringing potable water from the sky to your tap!

